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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OX008S (A6K0418-14)			**Matrix: Water**		**Batch: 6110577**			
2,4,6-Trichlorophenol	ND	2.40	4.81	ug/L	10	"	EPA 8270D	
Bis(2-ethylhexyl)phthalate	ND	4.81	9.62	"	"	"	"	
Butyl benzyl phthalate	ND	4.81	9.62	"	"	"	"	
Diethylphthalate	ND	4.81	9.62	"	"	"	"	
Dimethylphthalate	ND	4.81	9.62	"	"	"	"	
Di-n-butylphthalate	ND	4.81	9.62	"	"	"	"	
Di-n-octyl phthalate	ND	4.81	9.62	"	"	"	"	
N-Nitrosodimethylamine	ND	2.40	4.81	"	"	"	"	
N-Nitroso-di-n-propylamine	ND	2.40	4.81	"	"	"	"	
N-Nitrosodiphenylamine	ND	2.40	4.81	"	"	"	"	
Bis(2-Chloroethoxy) methane	ND	2.40	4.81	"	"	"	"	
Bis(2-Chloroethyl) ether	ND	2.40	4.81	"	"	"	"	
Bis(2-Chloroisopropyl) ether	ND	2.40	4.81	"	"	"	"	
Hexachlorobenzene	ND	2.40	4.81	"	"	"	"	
Hexachlorobutadiene	ND	2.40	4.81	"	"	"	"	
Hexachlorocyclopentadiene	ND	2.40	4.81	"	"	"	"	
Hexachloroethane	ND	2.40	4.81	"	"	"	"	Q-30
2-Chloronaphthalene	ND	2.40	4.81	"	"	"	"	
1,2-Dichlorobenzene	ND	2.40	4.81	"	"	"	"	
1,3-Dichlorobenzene	ND	2.40	4.81	"	"	"	"	
1,4-Dichlorobenzene	ND	2.40	4.81	"	"	"	"	
1,2,4-Trichlorobenzene	ND	2.40	4.81	"	"	"	"	
4-Bromophenyl phenyl ether	ND	2.40	4.81	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	2.40	4.81	"	"	"	"	
Aniline	ND	2.40	4.81	"	"	"	"	
4-Chloroaniline	ND	4.81	9.62	"	"	"	"	
2-Nitroaniline	ND	4.81	9.62	"	"	"	"	
3-Nitroaniline	ND	4.81	9.62	"	"	"	"	
4-Nitroaniline	ND	4.81	9.62	"	"	"	"	
Nitrobenzene	ND	2.40	4.81	"	"	"	"	
2,4-Dinitrotoluene	ND	2.40	4.81	"	"	"	"	
2,6-Dinitrotoluene	ND	2.40	4.81	"	"	"	"	
1,2-Dinitrobenzene	ND	2.40	4.81	"	"	"	"	
1,3-Dinitrobenzene	ND	2.40	4.81	"	"	"	"	
1,4-Dinitrobenzene	ND	2.40	4.81	"	"	"	"	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OX008S (A6K0418-14)			**Matrix: Water**		**Batch: 6110577**			
Benzoic acid	ND	9.62	19.2	ug/L	10	"	EPA 8270D	
Benzyl alcohol	ND	2.40	4.81	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 39 %*	*Limits: 44-120 %*	"	"	"	*Q-31, S-06*
2-Fluorobiphenyl (Surr)			*52 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*16 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*84 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*21 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*129 %*	*Limits: 43-140 %*	"	"	"	*Q-41*
LW004S (A6K0418-15RE1)			**Matrix: Water**		**Batch: 6110577**			
Acenaphthene	ND	0.0388	0.0777	ug/L	4	11/16/16 21:17	EPA 8270D	
Acenaphthylene	ND	0.0388	0.0777	"	"	"	"	
Anthracene	ND	0.0388	0.0777	"	"	"	"	
Benz(a)anthracene	ND	0.0388	0.0777	"	"	"	"	
Benzo(a)pyrene	ND	0.0505	0.117	"	"	"	"	
Benzo(b)fluoranthene	ND	0.0583	0.117	"	"	"	"	
Benzo(k)fluoranthene	ND	0.0583	0.117	"	"	"	"	
Benzo(g,h,i)perylene	ND	0.0388	0.0777	"	"	"	"	
Chrysene	ND	0.0388	0.0777	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.0388	0.0777	"	"	"	"	
Fluoranthene	ND	0.0388	0.0777	"	"	"	"	
Fluorene	ND	0.0388	0.0777	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0388	0.0777	"	"	"	"	
1-Methylnaphthalene	ND	0.0777	0.155	"	"	"	"	
2-Methylnaphthalene	ND	0.0777	0.155	"	"	"	"	
Naphthalene	ND	0.0777	0.155	"	"	"	"	
Phenanthrene	ND	0.0388	0.0777	"	"	"	"	
Pyrene	ND	0.0388	0.0777	"	"	"	"	
Carbazole	ND	0.0583	0.117	"	"	"	"	
Dibenzofuran	ND	0.0388	0.0777	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.971	1.94	"	"	"	"	
2-Chlorophenol	ND	0.971	1.94	"	"	"	"	
2,4-Dichlorophenol	ND	0.971	1.94	"	"	"	"	
2,4-Dimethylphenol	ND	0.971	1.94	"	"	"	"	
2,4-Dinitrophenol	ND	0.971	1.94	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.94	3.88	"	"	"	"	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LW004S (A6K0418-15RE1)			**Matrix: Water**		**Batch: 6110577**			
2-Methylphenol	ND	0.971	1.94	ug/L	4	"	EPA 8270D	
3+4-Methylphenol(s)	ND	0.971	1.94	"	"	"	"	
2-Nitrophenol	ND	0.971	1.94	"	"	"	"	
4-Nitrophenol	ND	0.971	1.94	"	"	"	"	
Pentachlorophenol (PCP)	**0.972**	0.388	0.777	"	"	"	"	
Phenol	ND	0.971	1.94	"	"	"	"	
2,3,4,6-Tetrachlorophenol	ND	0.971	1.94	"	"	"	"	
2,3,5,6-Tetrachlorophenol	ND	0.971	1.94	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.971	1.94	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.971	1.94	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.94	3.88	"	"	"	"	
Butyl benzyl phthalate	ND	1.94	3.88	"	"	"	"	
Diethylphthalate	ND	1.94	3.88	"	"	"	"	
Dimethylphthalate	ND	1.94	3.88	"	"	"	"	
Di-n-butylphthalate	ND	1.94	3.88	"	"	"	"	
Di-n-octyl phthalate	ND	1.94	3.88	"	"	"	"	
N-Nitrosodimethylamine	ND	0.971	1.94	"	"	"	"	
N-Nitroso-di-n-propylamine	ND	0.971	1.94	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.971	1.94	"	"	"	"	
Bis(2-Chloroethoxy) methane	ND	0.971	1.94	"	"	"	"	
Bis(2-Chloroethyl) ether	ND	0.971	1.94	"	"	"	"	
Bis(2-Chloroisopropyl) ether	ND	0.971	1.94	"	"	"	"	
Hexachlorobenzene	ND	0.971	1.94	"	"	"	"	
Hexachlorobutadiene	ND	0.971	1.94	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.971	1.94	"	"	"	"	
Hexachloroethane	ND	0.971	1.94	"	"	"	"	Q-30
2-Chloronaphthalene	ND	0.971	1.94	"	"	"	"	
1,2-Dichlorobenzene	ND	0.971	1.94	"	"	"	"	
1,3-Dichlorobenzene	ND	0.971	1.94	"	"	"	"	
1,4-Dichlorobenzene	ND	0.971	1.94	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.971	1.94	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.971	1.94	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.971	1.94	"	"	"	"	
Aniline	ND	0.971	1.94	"	"	"	"	
4-Chloroaniline	ND	1.94	3.88	"	"	"	"	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LW004S (A6K0418-15RE1)			**Matrix: Water**		**Batch: 6110577**			
2-Nitroaniline	ND	1.94	3.88	ug/L	4	"	EPA 8270D	
3-Nitroaniline	ND	1.94	3.88	"	"	"	"	
4-Nitroaniline	ND	1.94	3.88	"	"	"	"	
Nitrobenzene	ND	0.971	1.94	"	"	"	"	
2,4-Dinitrotoluene	ND	0.971	1.94	"	"	"	"	
2,6-Dinitrotoluene	ND	0.971	1.94	"	"	"	"	
1,2-Dinitrobenzene	ND	0.971	1.94	"	"	"	"	
1,3-Dinitrobenzene	ND	0.971	1.94	"	"	"	"	
1,4-Dinitrobenzene	ND	0.971	1.94	"	"	"	"	
Benzoic acid	ND	3.88	7.77	"	"	"	"	
Benzyl alcohol	ND	0.971	1.94	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 32 %*	*Limits: 44-120 %*	"	"	"	*Q-31, S-06*
2-Fluorobiphenyl (Surr)			*42 %*	*Limits: 44-120 %*	"	"	"	*S-06*
Phenol-d6 (Surr)			*12 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*103 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*19 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*113 %*	*Limits: 43-140 %*	"	"	"	*Q-41*
LW018D (A6K0418-16)			**Matrix: Water**		**Batch: 6110577**			
Acenaphthene	**0.371**	0.0385	0.0769	ug/L	4	11/16/16 17:43	EPA 8270D	
Acenaphthylene	ND	0.135	0.135	"	"	"	"	R-02
Anthracene	**0.0392**	0.0385	0.0769	"	"	"	"	J
Benz(a)anthracene	ND	0.0385	0.0769	"	"	"	"	
Benzo(a)pyrene	ND	0.0500	0.115	"	"	"	"	
Benzo(b)fluoranthene	ND	0.0577	0.115	"	"	"	"	
Benzo(k)fluoranthene	ND	0.0577	0.115	"	"	"	"	
Benzo(g,h,i)perylene	ND	0.0385	0.0769	"	"	"	"	
Chrysene	ND	0.0385	0.0769	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.0385	0.0769	"	"	"	"	
Fluoranthene	ND	0.0385	0.0769	"	"	"	"	
Fluorene	**0.550**	0.0385	0.0769	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0385	0.0769	"	"	"	"	
1-Methylnaphthalene	ND	0.231	0.231	"	"	"	"	R-02
2-Methylnaphthalene	ND	0.0769	0.154	"	"	"	"	
Naphthalene	ND	0.462	0.462	"	"	"	"	R-02
Phenanthrene	**0.214**	0.0385	0.0769	"	"	"	"	

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19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LW018D (A6K0418-16)			**Matrix: Water**		**Batch: 6110577**			
Pyrene	ND	0.0385	0.0769	ug/L	4	"	EPA 8270D	
Carbazole	ND	0.0577	0.115	"	"	"	"	
Dibenzofuran	**0.348**	0.0385	0.0769	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.962	1.92	"	"	"	"	
2-Chlorophenol	ND	0.962	1.92	"	"	"	"	
2,4-Dichlorophenol	ND	0.962	1.92	"	"	"	"	
2,4-Dimethylphenol	ND	0.962	1.92	"	"	"	"	
2,4-Dinitrophenol	ND	0.962	1.92	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.92	3.85	"	"	"	"	
2-Methylphenol	ND	0.962	1.92	"	"	"	"	
3+4-Methylphenol(s)	ND	0.962	1.92	"	"	"	"	
2-Nitrophenol	ND	0.962	1.92	"	"	"	"	
4-Nitrophenol	ND	1.92	1.92	"	"	"	"	
Pentachlorophenol (PCP)	ND	0.385	0.769	"	"	"	"	
Phenol	ND	0.962	1.92	"	"	"	"	
2,3,4,6-Tetrachlorophenol	ND	0.962	1.92	"	"	"	"	
2,3,5,6-Tetrachlorophenol	ND	0.962	1.92	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.962	1.92	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.962	1.92	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.92	3.85	"	"	"	"	
Butyl benzyl phthalate	ND	1.92	3.85	"	"	"	"	
Diethylphthalate	ND	1.92	3.85	"	"	"	"	
Dimethylphthalate	ND	1.92	3.85	"	"	"	"	
Di-n-butylphthalate	ND	1.92	3.85	"	"	"	"	
Di-n-octyl phthalate	ND	1.92	3.85	"	"	"	"	
N-Nitrosodimethylamine	ND	0.962	1.92	"	"	"	"	
N-Nitroso-di-n-propylamine	ND	0.962	1.92	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.962	1.92	"	"	"	"	
Bis(2-Chloroethoxy) methane	ND	0.962	1.92	"	"	"	"	
Bis(2-Chloroethyl) ether	ND	0.962	1.92	"	"	"	"	
Bis(2-Chloroisopropyl) ether	ND	0.962	1.92	"	"	"	"	
Hexachlorobenzene	ND	0.962	1.92	"	"	"	"	
Hexachlorobutadiene	ND	0.962	1.92	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.962	1.92	"	"	"	"	
Hexachloroethane	ND	0.962	1.92	"	"	"	"	Q-30

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19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LW018D (A6K0418-16)			**Matrix: Water**		**Batch: 6110577**			
2-Chloronaphthalene	ND	0.962	1.92	ug/L	4	"	EPA 8270D	
1,2-Dichlorobenzene	ND	0.962	1.92	"	"	"	"	
1,3-Dichlorobenzene	ND	0.962	1.92	"	"	"	"	
1,4-Dichlorobenzene	ND	0.962	1.92	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.962	1.92	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.962	1.92	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.962	1.92	"	"	"	"	
Aniline	ND	0.962	1.92	"	"	"	"	
4-Chloroaniline	ND	1.92	3.85	"	"	"	"	
2-Nitroaniline	ND	1.92	3.85	"	"	"	"	
3-Nitroaniline	ND	1.92	3.85	"	"	"	"	
4-Nitroaniline	ND	1.92	3.85	"	"	"	"	
Nitrobenzene	ND	1.92	1.92	"	"	"	"	
2,4-Dinitrotoluene	ND	0.962	1.92	"	"	"	"	
2,6-Dinitrotoluene	ND	0.962	1.92	"	"	"	"	
1,2-Dinitrobenzene	ND	0.962	1.92	"	"	"	"	
1,3-Dinitrobenzene	ND	0.962	1.92	"	"	"	"	
1,4-Dinitrobenzene	ND	3.08	3.08	"	"	"	"	R-02
Benzoic acid	ND	8.46	8.46	"	"	"	"	R-02
Benzyl alcohol	ND	0.962	1.92	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 40 %*	*Limits: 44-120 %*	"	"	"	*Q-31, S-06*
2-Fluorobiphenyl (Surr)			*53 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*16 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*91 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*23 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*130 %*	*Limits: 43-140 %*	"	"	"	*Q-41*

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LW017D (A6K0418-17)			**Matrix: Water**		**Batch: 6110577**			
Acenaphthene	**0.554**	0.0392	0.0784	ug/L	4	11/16/16 18:18	EPA 8270D	
Acenaphthylene	ND	0.157	0.157	"	"	"	"	R-02
Anthracene	**0.0720**	0.0392	0.0784	"	"	"	"	J
Benz(a)anthracene	ND	0.0392	0.0784	"	"	"	"	
Benzo(a)pyrene	ND	0.0510	0.118	"	"	"	"	
Benzo(b)fluoranthene	ND	0.0588	0.118	"	"	"	"	
Benzo(k)fluoranthene	ND	0.0588	0.118	"	"	"	"	
Benzo(g,h,i)perylene	ND	0.0392	0.0784	"	"	"	"	
Chrysene	ND	0.0392	0.0784	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.0392	0.0784	"	"	"	"	
Fluoranthene	**0.0901**	0.0392	0.0784	"	"	"	"	
Fluorene	**0.777**	0.0392	0.0784	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0392	0.0784	"	"	"	"	
1-Methylnaphthalene	**0.725**	0.0784	0.157	"	"	"	"	
2-Methylnaphthalene	ND	0.0784	0.157	"	"	"	"	
Naphthalene	ND	0.549	0.549	"	"	"	"	R-02
Phenanthrene	**0.357**	0.0392	0.0784	"	"	"	"	
Pyrene	**0.0795**	0.0392	0.0784	"	"	"	"	
Carbazole	ND	0.0588	0.118	"	"	"	"	
Dibenzofuran	**0.422**	0.0392	0.0784	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.980	1.96	"	"	"	"	
2-Chlorophenol	ND	0.980	1.96	"	"	"	"	
2,4-Dichlorophenol	ND	0.980	1.96	"	"	"	"	
2,4-Dimethylphenol	ND	0.980	1.96	"	"	"	"	
2,4-Dinitrophenol	ND	0.980	1.96	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.96	3.92	"	"	"	"	
2-Methylphenol	ND	0.980	1.96	"	"	"	"	
3+4-Methylphenol(s)	ND	0.980	1.96	"	"	"	"	
2-Nitrophenol	ND	0.980	1.96	"	"	"	"	
4-Nitrophenol	ND	0.980	1.96	"	"	"	"	
Pentachlorophenol (PCP)	ND	0.392	0.784	"	"	"	"	
Phenol	ND	0.980	1.96	"	"	"	"	
2,3,4,6-Tetrachlorophenol	ND	0.980	1.96	"	"	"	"	
2,3,5,6-Tetrachlorophenol	ND	0.980	1.96	"	"	"	"	
2,4,5-Trichlorophenol	ND	0.980	1.96	"	"	"	"	
2,4,6-Trichlorophenol	ND	0.980	1.96	"	"	"	"	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LW017D (A6K0418-17)			**Matrix: Water**		**Batch: 6110577**			
Bis(2-ethylhexyl)phthalate	ND	1.96	3.92	ug/L	4	"	EPA 8270D	
Butyl benzyl phthalate	ND	1.96	3.92	"	"	"	"	
Diethylphthalate	ND	1.96	3.92	"	"	"	"	
Dimethylphthalate	ND	1.96	3.92	"	"	"	"	
Di-n-butylphthalate	ND	1.96	3.92	"	"	"	"	
Di-n-octyl phthalate	ND	1.96	3.92	"	"	"	"	
N-Nitrosodimethylamine	ND	0.980	1.96	"	"	"	"	
N-Nitroso-di-n-propylamine	ND	0.980	1.96	"	"	"	"	
N-Nitrosodiphenylamine	ND	0.980	1.96	"	"	"	"	
Bis(2-Chloroethoxy) methane	ND	0.980	1.96	"	"	"	"	
Bis(2-Chloroethyl) ether	ND	0.980	1.96	"	"	"	"	
Bis(2-Chloroisopropyl) ether	ND	0.980	1.96	"	"	"	"	
Hexachlorobenzene	ND	0.980	1.96	"	"	"	"	
Hexachlorobutadiene	ND	0.980	1.96	"	"	"	"	
Hexachlorocyclopentadiene	ND	0.980	1.96	"	"	"	"	
Hexachloroethane	ND	0.980	1.96	"	"	"	"	Q-30
2-Chloronaphthalene	ND	0.980	1.96	"	"	"	"	
1,2-Dichlorobenzene	ND	0.980	1.96	"	"	"	"	
1,3-Dichlorobenzene	ND	0.980	1.96	"	"	"	"	
1,4-Dichlorobenzene	ND	0.980	1.96	"	"	"	"	
1,2,4-Trichlorobenzene	ND	0.980	1.96	"	"	"	"	
4-Bromophenyl phenyl ether	ND	0.980	1.96	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	0.980	1.96	"	"	"	"	
Aniline	ND	0.980	1.96	"	"	"	"	
4-Chloroaniline	ND	1.96	3.92	"	"	"	"	
2-Nitroaniline	ND	1.96	3.92	"	"	"	"	
3-Nitroaniline	ND	1.96	3.92	"	"	"	"	
4-Nitroaniline	ND	1.96	3.92	"	"	"	"	
Nitrobenzene	ND	2.35	2.35	"	"	"	"	R-02
2,4-Dinitrotoluene	ND	0.980	1.96	"	"	"	"	
2,6-Dinitrotoluene	ND	0.980	1.96	"	"	"	"	
1,2-Dinitrobenzene	ND	0.980	1.96	"	"	"	"	
1,3-Dinitrobenzene	ND	0.980	1.96	"	"	"	"	
1,4-Dinitrobenzene	ND	4.31	4.31	"	"	"	"	R-02
Benzoic acid	ND	9.80	9.80	"	"	"	"	R-02

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LW017D (A6K0418-17)			**Matrix: Water**		**Batch: 6110577**			
Benzyl alcohol	ND	0.980	1.96	ug/L	4	"	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 47 %*	*Limits: 44-120 %*	"	"	"	*Q-31*
2-Fluorobiphenyl (Surr)			*59 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*18 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*86 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*26 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*131 %*	*Limits: 43-140 %*	"	"	"	*Q-41*

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LW020S (A6K0418-01)			**Matrix: Water**					
Batch: 6110838								
Arsenic	**33.2**	0.500	1.00	ug/L	1	11/29/16 16:23	EPA 6020A	
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	**0.789**	0.500	1.00	"	"	"	"	
Lead	ND	0.100	0.200	"	"	"	"	
Nickel	**1.10**	0.500	1.00	"	"	"	"	
Selenium	ND	0.500	1.00	"	"	11/30/16 18:35	"	
Zinc	ND	2.00	4.00	"	"	11/29/16 16:23	"	
LW020D (A6K0418-02)			**Matrix: Water**					
Batch: 6110838								
Arsenic	**37.1**	0.500	1.00	ug/L	1	11/29/16 16:41	EPA 6020A	
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	ND	0.500	1.00	"	"	"	"	
Lead	ND	0.100	0.200	"	"	"	"	
Nickel	**4.49**	0.500	1.00	"	"	"	"	
Zinc	ND	2.00	4.00	"	"	"	"	
LW020D (A6K0418-02RE1)			**Matrix: Water**					
Batch: 6110838								
Selenium	ND	0.500	1.00	ug/L	1	11/30/16 18:49	EPA 6020A	
LW025D (A6K0418-03)			**Matrix: Water**					
Batch: 6110838								
Arsenic	**14.0**	0.500	1.00	ug/L	1	11/29/16 16:44	EPA 6020A	
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	ND	0.500	1.00	"	"	"	"	
Lead	**0.389**	0.100	0.200	"	"	"	"	
Nickel	**3.08**	0.500	1.00	"	"	"	"	
Zinc	ND	2.00	4.00	"	"	"	"	
LW025D (A6K0418-03RE1)			**Matrix: Water**					
Batch: 6110838								
Selenium	ND	0.500	1.00	ug/L	1	11/30/16 18:53	EPA 6020A	
LW024D (A6K0418-04)			**Matrix: Water**					
Batch: 6110838								
Arsenic	**50.2**	0.500	1.00	ug/L	1	11/29/16 16:47	EPA 6020A	
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	ND	0.500	1.00	"	"	"	"	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LW024D (A6K0418-04)			**Matrix: Water**					
Lead	ND	0.100	0.200	ug/L	1	"	EPA 6020A	
Nickel	**3.04**	0.500	1.00	"	"	"	"	
Zinc	ND	2.00	4.00	"	"	"	"	
LW024D (A6K0418-04RE1)			**Matrix: Water**					
Batch: 6110838								
Selenium	ND	0.500	1.00	ug/L	1	11/30/16 18:57	EPA 6020A	
LW013S (A6K0418-05)			**Matrix: Water**					
Batch: 6110838								
Arsenic	**0.689**	0.500	1.00	ug/L	1	11/29/16 16:50	EPA 6020A	J
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	**0.633**	0.500	1.00	"	"	"	"	
Lead	ND	0.100	0.200	"	"	"	"	
Nickel	**2.47**	0.500	1.00	"	"	"	"	
Zinc	ND	2.00	4.00	"	"	"	"	
LW013S (A6K0418-05RE1)			**Matrix: Water**					
Batch: 6110838								
Selenium	ND	0.500	1.00	ug/L	1	11/30/16 19:01	EPA 6020A	
LW011S (A6K0418-06)			**Matrix: Water**					
Batch: 6110838								
Arsenic	**5.77**	0.500	1.00	ug/L	1	11/29/16 16:53	EPA 6020A	
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	ND	0.500	1.00	"	"	"	"	
Lead	ND	0.100	0.200	"	"	"	"	
Nickel	**1.71**	0.500	1.00	"	"	"	"	
Zinc	ND	2.00	4.00	"	"	"	"	
LW011S (A6K0418-06RE1)			**Matrix: Water**					
Batch: 6110838								
Selenium	ND	0.500	1.00	ug/L	1	11/30/16 19:05	EPA 6020A	
OX002S (A6K0418-07)			**Matrix: Water**					
Batch: 6110838								
Arsenic	**9.81**	0.500	1.00	ug/L	1	11/29/16 16:56	EPA 6020A	
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	ND	0.500	1.00	"	"	"	"	
Lead	ND	0.100	0.200	"	"	"	"	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OX002S (A6K0418-07)			**Matrix: Water**					
Nickel	**1.72**	0.500	1.00	ug/L	1	"	EPA 6020A	
Zinc	ND	2.00	4.00	"	"	"	"	
OX002S (A6K0418-07RE1)			**Matrix: Water**					
Batch: 6110838								
Selenium	ND	0.500	1.00	ug/L	1	11/30/16 19:08	EPA 6020A	
LW035D (A6K0418-09)			**Matrix: Water**					
Batch: 6110838								
Arsenic	**8.37**	0.500	1.00	ug/L	1	11/29/16 16:59	EPA 6020A	
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	**23.4**	0.500	1.00	"	"	"	"	
Lead	ND	0.100	0.200	"	"	"	"	
Nickel	**5.32**	0.500	1.00	"	"	"	"	
Zinc	ND	2.00	4.00	"	"	"	"	
LW035D (A6K0418-09RE1)			**Matrix: Water**					
Batch: 6110838								
Selenium	ND	0.500	1.00	ug/L	1	11/30/16 19:12	EPA 6020A	
LW022D (A6K0418-10)			**Matrix: Water**					
Batch: 6110838								
Arsenic	**1.01**	0.500	1.00	ug/L	1	11/29/16 17:02	EPA 6020A	
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	**0.722**	0.500	1.00	"	"	"	"	
Lead	ND	0.100	0.200	"	"	"	"	
Nickel	**0.800**	0.500	1.00	"	"	"	"	
Zinc	ND	2.00	4.00	"	"	"	"	
LW022D (A6K0418-10RE1)			**Matrix: Water**					
Batch: 6110838								
Selenium	ND	0.500	1.00	ug/L	1	11/30/16 19:16	EPA 6020A	
LW010D (A6K0418-11)			**Matrix: Water**					
Batch: 6110838								
Arsenic	**19.2**	0.500	1.00	ug/L	1	11/29/16 17:05	EPA 6020A	
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	**8.72**	0.500	1.00	"	"	"	"	
Lead	ND	0.100	0.200	"	"	"	"	
Nickel	**4.19**	0.500	1.00	"	"	"	"	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LW010D (A6K0418-11)			**Matrix: Water**					
Selenium	ND	0.500	1.00	ug/L	1	11/30/16 19:20	EPA 6020A	
Zinc	**6.86**	2.00	4.00	"	"	11/29/16 17:05	"	
RW2 (A6K0418-12)			**Matrix: Water**					
Batch: 6110838								
Arsenic	**23.4**	0.500	1.00	ug/L	1	11/29/16 17:26	EPA 6020A	
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	ND	0.500	1.00	"	"	"	"	
Lead	**0.144**	0.100	0.200	"	"	"	"	
Nickel	**12.2**	0.500	1.00	"	"	"	"	
Zinc	**50.4**	2.00	4.00	"	"	"	"	
RW2 (A6K0418-12RE1)			**Matrix: Water**					
Batch: 6110838								
Selenium	ND	0.500	1.00	ug/L	1	11/30/16 19:24	EPA 6020A	
W (A6K0418-13)			**Matrix: Water**					
Batch: 6110838								
Arsenic	**23.2**	0.500	1.00	ug/L	1	11/29/16 17:29	EPA 6020A	
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	ND	0.500	1.00	"	"	"	"	
Lead	**0.178**	0.100	0.200	"	"	"	"	
Nickel	**12.2**	0.500	1.00	"	"	"	"	
Zinc	**52.5**	2.00	4.00	"	"	"	"	
W (A6K0418-13RE1)			**Matrix: Water**					
Batch: 6110838								
Selenium	ND	0.500	1.00	ug/L	1	11/30/16 19:39	EPA 6020A	
OX008S (A6K0418-14)			**Matrix: Water**					
Batch: 6110838								
Arsenic	**17.5**	0.500	1.00	ug/L	1	11/29/16 17:32	EPA 6020A	
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	ND	0.500	1.00	"	"	"	"	
Lead	ND	0.100	0.200	"	"	"	"	
Nickel	**4.36**	0.500	1.00	"	"	"	"	
Zinc	ND	2.00	4.00	"	"	"	"	
OX008S (A6K0418-14RE1)			**Matrix: Water**					
Batch: 6110838								

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OX008S (A6K0418-14RE1)			**Matrix: Water**					
Selenium	ND	0.500	1.00	ug/L	1	11/30/16 19:43	EPA 6020A	
LW004S (A6K0418-15)			**Matrix: Water**					
Batch: 6110838								
Arsenic	**0.533**	0.500	1.00	ug/L	1	11/29/16 17:35	EPA 6020A	J
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	**1.01**	0.500	1.00	"	"	"	"	
Lead	ND	0.100	0.200	"	"	"	"	
Nickel	**10.2**	0.500	1.00	"	"	"	"	
Zinc	ND	2.00	4.00	"	"	"	"	
LW004S (A6K0418-15RE1)			**Matrix: Water**					
Batch: 6110838								
Selenium	ND	0.500	1.00	ug/L	1	11/30/16 19:46	EPA 6020A	
LW018D (A6K0418-16)			**Matrix: Water**					
Batch: 6110838								
Arsenic	**18.7**	0.500	1.00	ug/L	1	11/29/16 17:38	EPA 6020A	
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	**0.556**	0.500	1.00	"	"	"	"	
Lead	ND	0.100	0.200	"	"	"	"	
Nickel	**3.26**	0.500	1.00	"	"	"	"	
Zinc	**3.34**	2.00	4.00	"	"	"	"	
LW018D (A6K0418-16RE1)			**Matrix: Water**					
Batch: 6110838								
Selenium	ND	0.500	1.00	ug/L	1	11/30/16 19:50	EPA 6020A	
LW017D (A6K0418-17)			**Matrix: Water**					
Batch: 6110868								
Arsenic	**16.3**	0.500	1.00	ug/L	1	11/29/16 21:01	EPA 6020A	
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	**1.01**	0.500	1.00	"	"	"	"	
Lead	**0.101**	0.100	0.200	"	"	"	"	
Nickel	**2.49**	0.500	1.00	"	"	"	"	
Selenium	ND	0.500	1.00	"	"	"	"	
Zinc	**2.16**	2.00	4.00	"	"	"	"	
LW023D (A6K0418-18)			**Matrix: Water**					
Batch: 6110868								

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LW023D (A6K0418-18)			**Matrix: Water**					
Arsenic	**51.2**	0.500	1.00	ug/L	1	11/29/16 21:05	EPA 6020A	
Chromium	**0.662**	0.500	1.00	"	"	"	"	
Copper	**1.16**	0.500	1.00	"	"	"	"	
Lead	**0.242**	0.100	0.200	"	"	"	"	
Nickel	**2.53**	0.500	1.00	"	"	"	"	
Selenium	ND	0.500	1.00	"	"	"	"	
Zinc	**3.03**	2.00	4.00	"	"	"	"	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110558 - EPA 3510C (Fuels/Acid Ext.)									**Water**			
Blank (6110558-BLK1)					Prepared: 11/15/16 07:06		Analyzed: 11/15/16 18:04					
NWTPH-Dx												
Diesel	ND	36.4	72.7	ug/L	1	---	---	---	---	---	---	
Oil	ND	72.7	145	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 91 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS (6110558-BS1)					Prepared: 11/15/16 07:06		Analyzed: 11/15/16 18:26					
NWTPH-Dx												
Diesel	392	40.0	80.0	ug/L	1	500	---	78	52-120%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 91 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS Dup (6110558-BSD1)					Prepared: 11/15/16 07:06		Analyzed: 11/15/16 18:48					Q-19
NWTPH-Dx												
Diesel	481	40.0	80.0	ug/L	1	500	---	96	52-120%	20	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 97 %*	*Limits: 50-150 %*			*Dilution: 1x*					
Batch 6110586 - EPA 3510C (Fuels/Acid Ext.)									**Water**			
Blank (6110586-BLK1)					Prepared: 11/15/16 13:59		Analyzed: 11/15/16 17:57					
NWTPH-Dx												
Diesel	ND	36.4	72.7	ug/L	1	---	---	---	---	---	---	
Oil	ND	72.7	145	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 92 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS (6110586-BS1)					Prepared: 11/15/16 13:59		Analyzed: 11/15/16 18:17					
NWTPH-Dx												
Diesel	458	40.0	80.0	ug/L	1	500	---	92	52-120%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 85 %*	*Limits: 50-150 %*			*Dilution: 1x*					
Matrix Spike (6110586-MS1)					Prepared: 11/15/16 13:59		Analyzed: 11/15/16 18:58					
QC Source Sample: LW010D (A6K0418-11)												
NWTPH-Dx												
Diesel	417	38.1	76.2	ug/L	1	476	55.9	76	50-150%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 80 %*	*Limits: 50-150 %*			*Dilution: 1x*					
Matrix Spike Dup (6110586-MSD1)					Prepared: 11/15/16 13:59		Analyzed: 11/15/16 19:18					
QC Source Sample: LW010D (A6K0418-11)												
NWTPH-Dx												

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110586 - EPA 3510C (Fuels/Acid Ext.)									**Water**			
Matrix Spike Dup (6110586-MSD1)					Prepared: 11/15/16 13:59 Analyzed: 11/15/16 19:18							
QC Source Sample: LW010D (A6K0418-11)												
NWTPH-Dx												
Diesel	401	38.1	76.2	ug/L	1	476	55.9	72	50-150%	4	200%	
Surr: o-Terphenyl (Surr)			*Recovery: 79 %*	*Limits: 50-150 %*			*Dilution: 1x*					

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Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110522 - EPA 5030B									Water			
Blank (6110522-BLK1)					Prepared: 11/14/16 10:07 Analyzed: 11/14/16 12:26							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	50.0	100	ug/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 99 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*92 %*	*50-150 %*			*"*					
LCS (6110522-BS2)					Prepared: 11/14/16 10:07 Analyzed: 11/14/16 11:58							
NWTPH-Gx (MS)												
Gasoline Range Organics	492	50.0	100	ug/L	1	500	---	98	70-130%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 95 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*91 %*	*50-150 %*			*"*					
Duplicate (6110522-DUP2)					Prepared: 11/14/16 11:57 Analyzed: 11/14/16 19:21							
QC Source Sample: LW004S (A6K0418-15)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	50.0	100	ug/L	1	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 101 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*94 %*	*50-150 %*			*"*					

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19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110526 - EPA 5030B									Water			
Blank (6110526-BLK1)					Prepared: 11/14/16 10:00	Analyzed: 11/14/16 12:49						
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	50.0	100	ug/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 96 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*109 %*	*50-150 %*			*"*					
LCS (6110526-BS2)					Prepared: 11/14/16 10:00	Analyzed: 11/14/16 12:23						
NWTPH-Gx (MS)												
Gasoline Range Organics	451	50.0	100	ug/L	1	500	---	90	70-130%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 92 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*100 %*	*50-150 %*			*"*					
Duplicate (6110526-DUP2)					Prepared: 11/14/16 12:10	Analyzed: 11/14/16 21:21						
QC Source Sample: LW025D (A6K0418-03)												
NWTPH-Gx (MS)												
Gasoline Range Organics	**171**	50.0	100	ug/L	1	---	179	---	---	5	30%	F-13
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 101 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*108 %*	*50-150 %*			*"*					

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19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110567 - EPA 5030B									Water			
Blank (6110567-BLK1)					Prepared: 11/15/16 09:00	Analyzed: 11/15/16 11:49						
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	50.0	100	ug/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 97 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*108 %*	*50-150 %*			*"*					
LCS (6110567-BS2)					Prepared: 11/15/16 09:00	Analyzed: 11/15/16 11:24						
NWTPH-Gx (MS)												
Gasoline Range Organics	444	50.0	100	ug/L	1	500	---	89	70-130%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 92 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*98 %*	*50-150 %*			*"*					
Duplicate (6110567-DUP1)					Prepared: 11/15/16 11:14	Analyzed: 11/15/16 13:06						
QC Source Sample: LW018D (A6K0418-16)												
NWTPH-Gx (MS)												
Gasoline Range Organics	**2000**	50.0	100	ug/L	1	---	2050	---	---	2	30%	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 110 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*112 %*	*50-150 %*			*"*					

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19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110522 - EPA 5030B							**Water**					
Blank (6110522-BLK1)					Prepared: 11/14/16 10:07 Analyzed: 11/14/16 12:26							
EPA 8260B												
Acetone	ND	10.0	20.0	ug/L	1	---	---	---	---	---	---	
Benzene	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Bromobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Bromochloromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Bromodichloromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Bromoform	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Bromomethane	ND	5.00	5.00	"	"	---	---	---	---	---	---	
2-Butanone (MEK)	ND	5.00	10.0	"	"	---	---	---	---	---	---	
n-Butylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
sec-Butylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
tert-Butylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Carbon tetrachloride	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Chlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Chloroethane	ND	5.00	5.00	"	"	---	---	---	---	---	---	
Chloroform	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Chloromethane	ND	2.50	5.00	"	"	---	---	---	---	---	---	
2-Chlorotoluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
4-Chlorotoluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	---	---	---	---	---	---	
Dibromochloromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Dibromomethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,1-Dichloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,1-Dichloroethene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,2-Dichloropropane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,3-Dichloropropane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
2,2-Dichloropropane	ND	0.500	1.00	"	"	---	---	---	---	---	---	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110522 - EPA 5030B							**Water**					
Blank (6110522-BLK1)					Prepared: 11/14/16 10:07 Analyzed: 11/14/16 12:26							
EPA 8260B												
1,1-Dichloropropene	ND	0.500	1.00	ug/L	"	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Ethylbenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Hexachlorobutadiene	ND	2.50	5.00	"	"	---	---	---	---	---	---	
2-Hexanone	ND	5.00	10.0	"	"	---	---	---	---	---	---	
Isopropylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
4-Isopropyltoluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	"	"	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Methylene chloride	ND	1.50	3.00	"	"	---	---	---	---	---	---	
Naphthalene	ND	1.00	2.00	"	"	---	---	---	---	---	---	
n-Propylbenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Styrene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Toluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Trichlorofluoromethane	ND	1.00	2.00	"	"	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Vinyl chloride	ND	0.250	0.500	"	"	---	---	---	---	---	---	
m,p-Xylene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
o-Xylene	ND	0.500	0.500	"	"	---	---	---	---	---	---	

Surr: 1,4-Difluorobenzene (Surr) *Recovery: 99 %* *Limits: 80-120 %* *Dilution: 1x*
Toluene-d8 (Surr) *107 %* *80-120 %* *"*
4-Bromofluorobenzene (Surr) *115 %* *80-120 %* *"*

LCS (6110522-BS1) Prepared: 11/14/16 10:07 Analyzed: 11/14/16 11:30

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19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110522 - EPA 5030B							**Water**					
LCS (6110522-BS1)					Prepared: 11/14/16 10:07 Analyzed: 11/14/16 11:30							
EPA 8260B												
Acetone	29.8	10.0	20.0	ug/L	1	40.0	---	74	70-130%	---	---	
Benzene	19.2	0.100	0.200	"	"	20.0	---	96	"	---	---	
Bromobenzene	22.9	0.250	0.500	"	"	"	---	114	"	---	---	
Bromochloromethane	18.0	0.500	1.00	"	"	"	---	90	"	---	---	
Bromodichloromethane	20.4	0.500	1.00	"	"	"	---	102	"	---	---	
Bromoform	22.7	0.500	1.00	"	"	"	---	114	"	---	---	
Bromomethane	24.1	5.00	5.00	"	"	"	---	121	"	---	---	
2-Butanone (MEK)	30.7	5.00	10.0	"	"	40.0	---	77	"	---	---	
n-Butylbenzene	21.9	0.500	1.00	"	"	20.0	---	109	"	---	---	
sec-Butylbenzene	22.8	0.500	1.00	"	"	"	---	114	"	---	---	
tert-Butylbenzene	22.7	0.500	1.00	"	"	"	---	113	"	---	---	
Carbon tetrachloride	21.9	0.500	1.00	"	"	"	---	110	"	---	---	
Chlorobenzene	22.5	0.250	0.500	"	"	"	---	113	"	---	---	
Chloroethane	24.5	5.00	5.00	"	"	"	---	123	"	---	---	
Chloroform	20.5	0.500	1.00	"	"	"	---	102	"	---	---	
Chloromethane	19.5	2.50	5.00	"	"	"	---	98	"	---	---	
2-Chlorotoluene	22.7	0.500	1.00	"	"	"	---	113	"	---	---	
4-Chlorotoluene	22.0	0.500	1.00	"	"	"	---	110	"	---	---	
1,2-Dibromo-3-chloropropane	20.0	2.50	5.00	"	"	"	---	100	"	---	---	
Dibromochloromethane	23.2	0.500	1.00	"	"	"	---	116	"	---	---	
1,2-Dibromoethane (EDB)	22.8	0.250	0.500	"	"	"	---	114	"	---	---	
Dibromomethane	19.3	0.500	1.00	"	"	"	---	96	"	---	---	
1,2-Dichlorobenzene	23.2	0.250	0.500	"	"	"	---	116	"	---	---	
1,3-Dichlorobenzene	23.1	0.250	0.500	"	"	"	---	116	"	---	---	
1,4-Dichlorobenzene	22.4	0.250	0.500	"	"	"	---	112	"	---	---	
Dichlorodifluoromethane	27.0	0.500	1.00	"	"	"	---	135	"	---	---	Q-29
1,1-Dichloroethane	19.1	0.250	0.500	"	"	"	---	96	"	---	---	
1,2-Dichloroethane (EDC)	20.2	0.250	0.500	"	"	"	---	101	"	---	---	
1,1-Dichloroethene	19.3	0.250	0.500	"	"	"	---	96	"	---	---	
cis-1,2-Dichloroethene	18.6	0.250	0.500	"	"	"	---	93	"	---	---	
trans-1,2-Dichloroethene	18.3	0.250	0.500	"	"	"	---	92	"	---	---	
1,2-Dichloropropane	19.1	0.250	0.500	"	"	"	---	95	"	---	---	
1,3-Dichloropropane	20.4	0.500	1.00	"	"	"	---	102	"	---	---	
2,2-Dichloropropane	22.0	0.500	1.00	"	"	"	---	110	"	---	---	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110522 - EPA 5030B							**Water**					
LCS (6110522-BS1)					Prepared: 11/14/16 10:07 Analyzed: 11/14/16 11:30							
EPA 8260B												
1,1-Dichloropropene	20.7	0.500	1.00	ug/L	"	"	---	103	"	---	---	
cis-1,3-Dichloropropene	20.2	0.500	1.00	"	"	"	---	101	"	---	---	
trans-1,3-Dichloropropene	22.5	0.500	1.00	"	"	"	---	113	"	---	---	
Ethylbenzene	22.9	0.250	0.500	"	"	"	---	115	"	---	---	
Hexachlorobutadiene	22.4	2.50	5.00	"	"	"	---	112	"	---	---	
2-Hexanone	33.1	5.00	10.0	"	"	40.0	---	83	"	---	---	
Isopropylbenzene	23.9	0.500	1.00	"	"	20.0	---	119	"	---	---	
4-Isopropyltoluene	23.6	0.500	1.00	"	"	"	---	118	"	---	---	
4-Methyl-2-pentanone (MiBK)	34.5	5.00	10.0	"	"	40.0	---	86	"	---	---	
Methyl tert-butyl ether (MTBE)	19.3	0.500	1.00	"	"	20.0	---	96	"	---	---	
Methylene chloride	19.8	1.50	3.00	"	"	"	---	99	"	---	---	
Naphthalene	19.7	1.00	2.00	"	"	"	---	98	"	---	---	
n-Propylbenzene	22.2	0.250	0.500	"	"	"	---	111	"	---	---	
Styrene	21.6	0.500	1.00	"	"	"	---	108	"	---	---	
1,1,1,2-Tetrachloroethane	23.2	0.250	0.500	"	"	"	---	116	"	---	---	
1,1,2,2-Tetrachloroethane	19.2	0.250	0.500	"	"	"	---	96	"	---	---	
Tetrachloroethene (PCE)	23.8	0.250	0.500	"	"	"	---	119	"	---	---	
Toluene	21.6	0.500	1.00	"	"	"	---	108	"	---	---	
1,2,3-Trichlorobenzene	20.6	1.00	2.00	"	"	"	---	103	"	---	---	
1,2,4-Trichlorobenzene	20.6	1.00	2.00	"	"	"	---	103	"	---	---	
1,1,1-Trichloroethane	21.8	0.250	0.500	"	"	"	---	109	"	---	---	
1,1,2-Trichloroethane	22.1	0.250	0.500	"	"	"	---	110	"	---	---	
Trichloroethene (TCE)	20.7	0.250	0.500	"	"	"	---	104	"	---	---	
Trichlorofluoromethane	23.0	1.00	2.00	"	"	"	---	115	"	---	---	
1,2,3-Trichloropropane	19.9	0.500	1.00	"	"	"	---	100	"	---	---	
1,2,4-Trimethylbenzene	23.5	0.500	1.00	"	"	"	---	117	"	---	---	
1,3,5-Trimethylbenzene	24.1	0.500	1.00	"	"	"	---	121	"	---	---	
Vinyl chloride	24.1	0.250	0.500	"	"	"	---	120	"	---	---	
m,p-Xylene	49.0	0.500	1.00	"	"	40.0	---	122	"	---	---	
o-Xylene	22.8	0.500	0.500	"	"	20.0	---	114	"	---	---	

Surr: 1,4-Difluorobenzene (Surr)	*Recovery: 93 %*	*Limits: 80-120 %*	*Dilution: 1x*
Toluene-d8 (Surr)	*103 %*	*80-120 %*	*"*
4-Bromofluorobenzene (Surr)	*110 %*	*80-120 %*	*"*

Duplicate (6110522-DUP2) Prepared: 11/14/16 11:57 Analyzed: 11/14/16 19:21

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110522 - EPA 5030B							**Water**					
Duplicate (6110522-DUP2)					Prepared: 11/14/16 11:57 Analyzed: 11/14/16 19:21							
QC Source Sample: LW004S (A6K0418-15)												
EPA 8260B												
Acetone	ND	10.0	20.0	ug/L	1	---	ND	---	---	---	30%	
Benzene	ND	0.100	0.200	"	"	---	ND	---	---	---	30%	
Bromobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Bromochloromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Bromodichloromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Bromoform	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Bromomethane	ND	5.00	5.00	"	"	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	5.00	10.0	"	"	---	ND	---	---	---	30%	
n-Butylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Chlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Chloroethane	ND	5.00	5.00	"	"	---	ND	---	---	---	30%	
Chloroform	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Chloromethane	ND	2.50	5.00	"	"	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	---	ND	---	---	---	30%	
Dibromochloromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Dibromomethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110522 - EPA 5030B							**Water**					
Duplicate (6110522-DUP2)					Prepared: 11/14/16 11:57 Analyzed: 11/14/16 19:21							
QC Source Sample: LW004S (A6K0418-15)												
EPA 8260B												
2,2-Dichloropropane	ND	0.500	1.00	ug/L	"	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Ethylbenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	2.50	5.00	"	"	---	ND	---	---	---	30%	
2-Hexanone	ND	5.00	10.0	"	"	---	ND	---	---	---	30%	
Isopropylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	"	"	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Methylene chloride	ND	1.50	3.00	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
n-Propylbenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Styrene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Toluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Vinyl chloride	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
m,p-Xylene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
o-Xylene	ND	0.500	0.500	"	"	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 99 %*	*Limits: 80-120 %*			*Dilution: 1x*					
Toluene-d8 (Surr)			*106 %*	*80-120 %*			*"*					

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110522 - EPA 5030B												**Water**
Duplicate (6110522-DUP2)						Prepared: 11/14/16 11:57 Analyzed: 11/14/16 19:21						
QC Source Sample: LW004S (A6K0418-15)												
EPA 8260B												
Surr: 4-Bromofluorobenzene (Surr)						*Recovery: 109 %*	*Limits: 80-120 %*					*Dilution: 1x*

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110526 - EPA 5030B							**Water**					
Blank (6110526-BLK1)					Prepared: 11/14/16 10:00 Analyzed: 11/14/16 12:49							
EPA 8260B												
Acetone	ND	10.0	20.0	ug/L	1	---	---	---	---	---	---	
Benzene	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Bromobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Bromochloromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Bromodichloromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Bromoform	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Bromomethane	ND	5.00	5.00	"	"	---	---	---	---	---	---	
2-Butanone (MEK)	ND	5.00	10.0	"	"	---	---	---	---	---	---	
n-Butylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
sec-Butylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
tert-Butylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Carbon tetrachloride	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Chlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Chloroethane	ND	5.00	5.00	"	"	---	---	---	---	---	---	
Chloroform	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Chloromethane	ND	2.50	5.00	"	"	---	---	---	---	---	---	
2-Chlorotoluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
4-Chlorotoluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	---	---	---	---	---	---	
Dibromochloromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Dibromomethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,1-Dichloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,1-Dichloroethene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,2-Dichloropropane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,3-Dichloropropane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
2,2-Dichloropropane	ND	0.500	1.00	"	"	---	---	---	---	---	---	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110526 - EPA 5030B							**Water**					
Blank (6110526-BLK1)					Prepared: 11/14/16 10:00 Analyzed: 11/14/16 12:49							
EPA 8260B												
1,1-Dichloropropene	ND	0.500	1.00	ug/L	"	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Ethylbenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Hexachlorobutadiene	ND	2.50	5.00	"	"	---	---	---	---	---	---	
2-Hexanone	ND	5.00	10.0	"	"	---	---	---	---	---	---	
Isopropylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
4-Isopropyltoluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	"	"	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Methylene chloride	ND	1.50	3.00	"	"	---	---	---	---	---	---	
Naphthalene	ND	1.00	2.00	"	"	---	---	---	---	---	---	
n-Propylbenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Styrene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Toluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Trichlorofluoromethane	ND	1.00	2.00	"	"	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Vinyl chloride	ND	0.250	0.500	"	"	---	---	---	---	---	---	
m,p-Xylene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
o-Xylene	ND	0.250	0.500	"	"	---	---	---	---	---	---	

Surr: 1,4-Difluorobenzene (Surr) *Recovery: 109 %* *Limits: 80-120 %* *Dilution: 1x*
Toluene-d8 (Surr) *104 %* *80-120 %* *"*
4-Bromofluorobenzene (Surr) *100 %* *80-120 %* *"*

LCS (6110526-BS1) Prepared: 11/14/16 10:00 Analyzed: 11/14/16 11:58

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Darwin Thomas, Business Development Director

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110526 - EPA 5030B							**Water**					
LCS (6110526-BS1)					Prepared: 11/14/16 10:00 Analyzed: 11/14/16 11:58							
EPA 8260B												
Acetone	37.0	10.0	20.0	ug/L	1	40.0	---	92	70-130%	---	---	
Benzene	21.0	0.100	0.200	"	"	20.0	---	105	"	---	---	
Bromobenzene	19.1	0.250	0.500	"	"	"	---	96	"	---	---	
Bromochloromethane	22.5	0.500	1.00	"	"	"	---	112	"	---	---	
Bromodichloromethane	19.4	0.500	1.00	"	"	"	---	97	"	---	---	
Bromoform	19.9	0.500	1.00	"	"	"	---	99	"	---	---	
Bromomethane	24.0	5.00	5.00	"	"	"	---	120	"	---	---	
2-Butanone (MEK)	40.4	5.00	10.0	"	"	40.0	---	101	"	---	---	
n-Butylbenzene	18.0	0.500	1.00	"	"	20.0	---	90	"	---	---	
sec-Butylbenzene	20.2	0.500	1.00	"	"	"	---	101	"	---	---	
tert-Butylbenzene	17.2	0.500	1.00	"	"	"	---	86	"	---	---	
Carbon tetrachloride	18.1	0.500	1.00	"	"	"	---	91	"	---	---	
Chlorobenzene	21.3	0.250	0.500	"	"	"	---	107	"	---	---	
Chloroethane	26.5	5.00	5.00	"	"	"	---	133	"	---	---	Q-29
Chloroform	18.8	0.500	1.00	"	"	"	---	94	"	---	---	
Chloromethane	26.1	2.50	5.00	"	"	"	---	131	"	---	---	Q-29
2-Chlorotoluene	19.3	0.500	1.00	"	"	"	---	97	"	---	---	
4-Chlorotoluene	18.7	0.500	1.00	"	"	"	---	93	"	---	---	
1,2-Dibromo-3-chloropropane	18.0	2.50	5.00	"	"	"	---	90	"	---	---	
Dibromochloromethane	20.3	0.500	1.00	"	"	"	---	101	"	---	---	
1,2-Dibromoethane (EDB)	19.3	0.250	0.500	"	"	"	---	97	"	---	---	
Dibromomethane	18.6	0.500	1.00	"	"	"	---	93	"	---	---	
1,2-Dichlorobenzene	18.8	0.250	0.500	"	"	"	---	94	"	---	---	
1,3-Dichlorobenzene	19.5	0.250	0.500	"	"	"	---	97	"	---	---	
1,4-Dichlorobenzene	20.1	0.250	0.500	"	"	"	---	100	"	---	---	
Dichlorodifluoromethane	17.3	0.500	1.00	"	"	"	---	86	"	---	---	
1,1-Dichloroethane	20.5	0.250	0.500	"	"	"	---	103	"	---	---	
1,2-Dichloroethane (EDC)	18.2	0.250	0.500	"	"	"	---	91	"	---	---	
1,1-Dichloroethene	18.3	0.250	0.500	"	"	"	---	92	"	---	---	
cis-1,2-Dichloroethene	17.5	0.250	0.500	"	"	"	---	88	"	---	---	
trans-1,2-Dichloroethene	18.6	0.250	0.500	"	"	"	---	93	"	---	---	
1,2-Dichloropropane	20.7	0.250	0.500	"	"	"	---	103	"	---	---	
1,3-Dichloropropane	18.8	0.500	1.00	"	"	"	---	94	"	---	---	
2,2-Dichloropropane	20.7	0.500	1.00	"	"	"	---	103	"	---	---	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110526 - EPA 5030B								**Water**				
LCS (6110526-BS1)					Prepared: 11/14/16 10:00 Analyzed: 11/14/16 11:58							
EPA 8260B												
1,1-Dichloropropene	19.5	0.500	1.00	ug/L	"	"	---	98	"	---	---	
cis-1,3-Dichloropropene	17.8	0.500	1.00	"	"	"	---	89	"	---	---	
trans-1,3-Dichloropropene	21.2	0.500	1.00	"	"	"	---	106	"	---	---	
Ethylbenzene	19.4	0.250	0.500	"	"	"	---	97	"	---	---	
Hexachlorobutadiene	18.8	2.50	5.00	"	"	"	---	94	"	---	---	
2-Hexanone	44.1	5.00	10.0	"	"	40.0	---	110	"	---	---	
Isopropylbenzene	19.5	0.500	1.00	"	"	20.0	---	97	"	---	---	
4-Isopropyltoluene	18.7	0.500	1.00	"	"	"	---	94	"	---	---	
4-Methyl-2-pentanone (MiBK)	42.7	5.00	10.0	"	"	40.0	---	107	"	---	---	
Methyl tert-butyl ether (MTBE)	17.5	0.500	1.00	"	"	20.0	---	88	"	---	---	
Methylene chloride	21.3	1.50	3.00	"	"	"	---	106	"	---	---	
Naphthalene	16.5	1.00	2.00	"	"	"	---	83	"	---	---	
n-Propylbenzene	19.7	0.250	0.500	"	"	"	---	99	"	---	---	
Styrene	21.1	0.500	1.00	"	"	"	---	106	"	---	---	
1,1,1,2-Tetrachloroethane	19.8	0.250	0.500	"	"	"	---	99	"	---	---	
1,1,2,2-Tetrachloroethane	21.6	0.250	0.500	"	"	"	---	108	"	---	---	
Tetrachloroethene (PCE)	20.0	0.250	0.500	"	"	"	---	100	"	---	---	
Toluene	20.4	0.500	1.00	"	"	"	---	102	"	---	---	
1,2,3-Trichlorobenzene	17.4	1.00	2.00	"	"	"	---	87	"	---	---	
1,2,4-Trichlorobenzene	15.5	1.00	2.00	"	"	"	---	77	"	---	---	
1,1,1-Trichloroethane	17.9	0.250	0.500	"	"	"	---	90	"	---	---	
1,1,2-Trichloroethane	20.6	0.250	0.500	"	"	"	---	103	"	---	---	
Trichloroethene (TCE)	18.7	0.250	0.500	"	"	"	---	94	"	---	---	
Trichlorofluoromethane	16.1	1.00	2.00	"	"	"	---	80	"	---	---	
1,2,3-Trichloropropane	18.7	0.500	1.00	"	"	"	---	94	"	---	---	
1,2,4-Trimethylbenzene	18.2	0.500	1.00	"	"	"	---	91	"	---	---	
1,3,5-Trimethylbenzene	18.8	0.500	1.00	"	"	"	---	94	"	---	---	
Vinyl chloride	24.3	0.250	0.500	"	"	"	---	121	"	---	---	
m,p-Xylene	37.8	0.500	1.00	"	"	40.0	---	95	"	---	---	
o-Xylene	17.6	0.250	0.500	"	"	20.0	---	88	"	---	---	

Surr: 1,4-Difluorobenzene (Surr) *Recovery: 101 %* *Limits: 80-120 %* *Dilution: 1x*
Toluene-d8 (Surr) *98 %* *80-120 %* *"*
4-Bromofluorobenzene (Surr) *99 %* *80-120 %* *"*

Duplicate (6110526-DUP2) Prepared: 11/14/16 12:10 Analyzed: 11/14/16 21:21

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110526 - EPA 5030B							**Water**					
Duplicate (6110526-DUP2)					Prepared: 11/14/16 12:10 Analyzed: 11/14/16 21:21							
QC Source Sample: LW025D (A6K0418-03)												
EPA 8260B												
Acetone	ND	10.0	20.0	ug/L	1	---	ND	---	---	---	30%	
Benzene	ND	0.100	0.200	"	"	---	ND	---	---	---	30%	
Bromobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Bromochloromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Bromodichloromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Bromoform	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Bromomethane	ND	5.00	5.00	"	"	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	5.00	10.0	"	"	---	ND	---	---	---	30%	
n-Butylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Chlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Chloroethane	ND	5.00	5.00	"	"	---	ND	---	---	---	30%	
Chloroform	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Chloromethane	ND	2.50	5.00	"	"	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	---	ND	---	---	---	30%	
Dibromochloromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Dibromomethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110526 - EPA 5030B							**Water**					
Duplicate (6110526-DUP2)					Prepared: 11/14/16 12:10 Analyzed: 11/14/16 21:21							
QC Source Sample: LW025D (A6K0418-03)												
EPA 8260B												
2,2-Dichloropropane	ND	0.500	1.00	ug/L	"	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Ethylbenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	2.50	5.00	"	"	---	ND	---	---	---	30%	
2-Hexanone	ND	5.00	10.0	"	"	---	ND	---	---	---	30%	
Isopropylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	"	"	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Methylene chloride	ND	1.50	3.00	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
n-Propylbenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Styrene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Toluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Vinyl chloride	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
m,p-Xylene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
o-Xylene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 108 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Toluene-d8 (Surr)			*102 %*		*80-120 %*				*"*			

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110526 - EPA 5030B							**Water**					
Duplicate (6110526-DUP2)					Prepared: 11/14/16 12:10 Analyzed: 11/14/16 21:21							
QC Source Sample: LW025D (A6K0418-03)												
EPA 8260B												
Surr: 4-Bromofluorobenzene (Surr)				*Recovery: 98 %*	*Limits: 80-120 %*		*Dilution: 1x*					
Matrix Spike (6110526-MS1)					Prepared: 11/14/16 12:10 Analyzed: 11/14/16 19:13							
QC Source Sample: LW010D (A6K0418-11)												
EPA 8260B												
Acetone	39.9	10.0	20.0	ug/L	1	40.0	ND	100	70-130%	---	---	
Benzene	21.9	0.100	0.200	"	"	20.0	ND	109	"	---	---	
Bromobenzene	20.5	0.250	0.500	"	"	"	ND	102	"	---	---	
Bromochloromethane	23.4	0.500	1.00	"	"	"	ND	117	"	---	---	
Bromodichloromethane	19.9	0.500	1.00	"	"	"	ND	99	"	---	---	
Bromoform	20.8	0.500	1.00	"	"	"	ND	104	"	---	---	
Bromomethane	25.1	5.00	5.00	"	"	"	ND	125	"	---	---	
2-Butanone (MEK)	42.5	5.00	10.0	"	"	40.0	ND	106	"	---	---	
n-Butylbenzene	19.3	0.500	1.00	"	"	20.0	ND	96	"	---	---	
sec-Butylbenzene	21.4	0.500	1.00	"	"	"	ND	107	"	---	---	
tert-Butylbenzene	18.1	0.500	1.00	"	"	"	ND	90	"	---	---	
Carbon tetrachloride	20.0	0.500	1.00	"	"	"	ND	100	"	---	---	
Chlorobenzene	21.9	0.250	0.500	"	"	"	ND	110	"	---	---	
Chloroethane	28.2	5.00	5.00	"	"	"	ND	141	"	---	---	Q-29
Chloroform	19.6	0.500	1.00	"	"	"	ND	98	"	---	---	
Chloromethane	26.1	2.50	5.00	"	"	"	ND	131	"	---	---	Q-29
2-Chlorotoluene	20.1	0.500	1.00	"	"	"	ND	100	"	---	---	
4-Chlorotoluene	19.6	0.500	1.00	"	"	"	ND	98	"	---	---	
1,2-Dibromo-3-chloropropane	19.0	2.50	5.00	"	"	"	ND	95	"	---	---	
Dibromochloromethane	20.8	0.500	1.00	"	"	"	ND	104	"	---	---	
1,2-Dibromoethane (EDB)	20.2	0.250	0.500	"	"	"	ND	101	"	---	---	
Dibromomethane	19.4	0.500	1.00	"	"	"	ND	97	"	---	---	
1,2-Dichlorobenzene	19.2	0.250	0.500	"	"	"	ND	96	"	---	---	
1,3-Dichlorobenzene	20.3	0.250	0.500	"	"	"	ND	101	"	---	---	
1,4-Dichlorobenzene	20.7	0.250	0.500	"	"	"	ND	104	"	---	---	
Dichlorodifluoromethane	18.5	0.500	1.00	"	"	"	ND	92	"	---	---	
1,1-Dichloroethane	21.2	0.250	0.500	"	"	"	ND	106	"	---	---	
1,2-Dichloroethane (EDC)	18.7	0.250	0.500	"	"	"	ND	94	"	---	---	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110526 - EPA 5030B							**Water**					
Matrix Spike (6110526-MS1)					Prepared: 11/14/16 12:10 Analyzed: 11/14/16 19:13							
QC Source Sample: LW010D (A6K0418-11)												
EPA 8260B												
1,1-Dichloroethene	19.3	0.250	0.500	ug/L	"	"	ND	96	"	---	---	
cis-1,2-Dichloroethene	18.1	0.250	0.500	"	"	"	ND	90	"	---	---	
trans-1,2-Dichloroethene	19.4	0.250	0.500	"	"	"	ND	97	"	---	---	
1,2-Dichloropropane	20.6	0.250	0.500	"	"	"	ND	103	"	---	---	
1,3-Dichloropropane	19.3	0.500	1.00	"	"	"	ND	97	"	---	---	
2,2-Dichloropropane	21.1	0.500	1.00	"	"	"	ND	106	"	---	---	
1,1-Dichloropropene	20.6	0.500	1.00	"	"	"	ND	103	"	---	---	
cis-1,3-Dichloropropene	17.8	0.500	1.00	"	"	"	ND	89	"	---	---	
trans-1,3-Dichloropropene	21.9	0.500	1.00	"	"	"	ND	110	"	---	---	
Ethylbenzene	20.2	0.250	0.500	"	"	"	ND	101	"	---	---	
Hexachlorobutadiene	19.8	2.50	5.00	"	"	"	ND	99	"	---	---	
2-Hexanone	46.2	5.00	10.0	"	"	40.0	ND	116	"	---	---	
Isopropylbenzene	20.4	0.500	1.00	"	"	20.0	ND	102	"	---	---	
4-Isopropyltoluene	19.8	0.500	1.00	"	"	"	ND	99	"	---	---	
4-Methyl-2-pentanone (MiBK)	44.2	5.00	10.0	"	"	40.0	ND	111	"	---	---	
Methyl tert-butyl ether (MTBE)	17.4	0.500	1.00	"	"	20.0	ND	87	"	---	---	
Methylene chloride	21.8	1.50	3.00	"	"	"	ND	109	"	---	---	
Naphthalene	17.0	1.00	2.00	"	"	"	ND	85	"	---	---	
n-Propylbenzene	21.0	0.250	0.500	"	"	"	ND	105	"	---	---	
Styrene	21.6	0.500	1.00	"	"	"	ND	108	"	---	---	
1,1,1,2-Tetrachloroethane	20.9	0.250	0.500	"	"	"	ND	105	"	---	---	
1,1,2,2-Tetrachloroethane	22.4	0.250	0.500	"	"	"	ND	112	"	---	---	
Tetrachloroethene (PCE)	21.6	0.250	0.500	"	"	"	ND	108	"	---	---	
Toluene	21.2	0.500	1.00	"	"	"	ND	106	"	---	---	
1,2,3-Trichlorobenzene	18.2	1.00	2.00	"	"	"	ND	91	"	---	---	
1,2,4-Trichlorobenzene	16.1	1.00	2.00	"	"	"	ND	80	"	---	---	
1,1,1-Trichloroethane	19.3	0.250	0.500	"	"	"	ND	97	"	---	---	
1,1,2-Trichloroethane	21.7	0.250	0.500	"	"	"	ND	109	"	---	---	
Trichloroethene (TCE)	19.4	0.250	0.500	"	"	"	ND	97	"	---	---	
Trichlorofluoromethane	17.9	1.00	2.00	"	"	"	ND	90	"	---	---	
1,2,3-Trichloropropane	19.2	0.500	1.00	"	"	"	ND	96	"	---	---	
1,2,4-Trimethylbenzene	19.2	0.500	1.00	"	"	"	ND	96	"	---	---	
1,3,5-Trimethylbenzene	19.7	0.500	1.00	"	"	"	ND	99	"	---	---	

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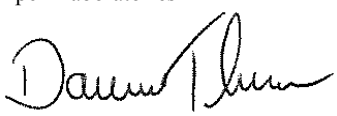

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110526 - EPA 5030B									**Water**			
Matrix Spike (6110526-MS1)					Prepared: 11/14/16 12:10 Analyzed: 11/14/16 19:13							
QC Source Sample: LW010D (A6K0418-11)												
EPA 8260B												
Vinyl chloride	24.6	0.250	0.500	ug/L	"	"	ND	123	"	---	---	
m,p-Xylene	39.7	0.500	1.00	"	"	40.0	ND	99	"	---	---	
o-Xylene	17.9	0.250	0.500	"	"	20.0	ND	89	"	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 101 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*99 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*97 %*		*80-120 %*			*"*				
Matrix Spike Dup (6110526-MSD1)					Prepared: 11/14/16 12:10 Analyzed: 11/14/16 19:39							
QC Source Sample: LW010D (A6K0418-11)												
EPA 8260B												
Acetone	39.2	10.0	20.0	ug/L	1	40.0	ND	98	70-130%	2	30%	
Benzene	21.7	0.100	0.200	"	"	20.0	ND	109	"	0.6	30%	
Bromobenzene	20.4	0.250	0.500	"	"	"	ND	102	"	0.2	30%	
Bromochloromethane	23.5	0.500	1.00	"	"	"	ND	117	"	0.6	30%	
Bromodichloromethane	19.7	0.500	1.00	"	"	"	ND	99	"	0.7	30%	
Bromoform	20.3	0.500	1.00	"	"	"	ND	101	"	3	30%	
Bromomethane	24.6	5.00	5.00	"	"	"	ND	123	"	2	30%	
2-Butanone (MEK)	42.7	5.00	10.0	"	"	40.0	ND	107	"	0.4	30%	
n-Butylbenzene	19.5	0.500	1.00	"	"	20.0	ND	98	"	1	30%	
sec-Butylbenzene	21.3	0.500	1.00	"	"	"	ND	107	"	0.4	30%	
tert-Butylbenzene	18.2	0.500	1.00	"	"	"	ND	91	"	0.5	30%	
Carbon tetrachloride	19.5	0.500	1.00	"	"	"	ND	98	"	2	30%	
Chlorobenzene	22.1	0.250	0.500	"	"	"	ND	110	"	0.5	30%	
Chloroethane	27.5	5.00	5.00	"	"	"	ND	137	"	3	30%	Q-29
Chloroform	19.5	0.500	1.00	"	"	"	ND	98	"	0.3	30%	
Chloromethane	27.6	2.50	5.00	"	"	"	ND	138	"	5	30%	Q-29
2-Chlorotoluene	20.0	0.500	1.00	"	"	"	ND	100	"	0.3	30%	
4-Chlorotoluene	19.6	0.500	1.00	"	"	"	ND	98	"	0.2	30%	
1,2-Dibromo-3-chloropropane	19.3	2.50	5.00	"	"	"	ND	96	"	1	30%	
Dibromochloromethane	20.7	0.500	1.00	"	"	"	ND	103	"	0.6	30%	
1,2-Dibromoethane (EDB)	20.0	0.250	0.500	"	"	"	ND	100	"	1	30%	
Dibromomethane	19.2	0.500	1.00	"	"	"	ND	96	"	0.9	30%	
1,2-Dichlorobenzene	19.5	0.250	0.500	"	"	"	ND	97	"	1	30%	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110526 - EPA 5030B							**Water**					
Matrix Spike Dup (6110526-MSD1)					Prepared: 11/14/16 12:10 Analyzed: 11/14/16 19:39							
QC Source Sample: LW010D (A6K0418-11)												
EPA 8260B												
1,3-Dichlorobenzene	20.2	0.250	0.500	ug/L	"	"	ND	101	"	0.6	30%	
1,4-Dichlorobenzene	20.8	0.250	0.500	"	"	"	ND	104	"	0.5	30%	
Dichlorodifluoromethane	18.8	0.500	1.00	"	"	"	ND	94	"	1	30%	
1,1-Dichloroethane	21.0	0.250	0.500	"	"	"	ND	105	"	0.7	30%	
1,2-Dichloroethane (EDC)	18.7	0.250	0.500	"	"	"	ND	93	"	0.05	30%	
1,1-Dichloroethene	19.5	0.250	0.500	"	"	"	ND	98	"	1	30%	
cis-1,2-Dichloroethene	18.0	0.250	0.500	"	"	"	ND	90	"	0.08	30%	
trans-1,2-Dichloroethene	19.8	0.250	0.500	"	"	"	ND	99	"	2	30%	
1,2-Dichloropropane	21.1	0.250	0.500	"	"	"	ND	105	"	2	30%	
1,3-Dichloropropane	19.2	0.500	1.00	"	"	"	ND	96	"	0.9	30%	
2,2-Dichloropropane	21.0	0.500	1.00	"	"	"	ND	105	"	0.4	30%	
1,1-Dichloropropene	20.7	0.500	1.00	"	"	"	ND	104	"	0.5	30%	
cis-1,3-Dichloropropene	17.9	0.500	1.00	"	"	"	ND	89	"	0.1	30%	
trans-1,3-Dichloropropene	21.9	0.500	1.00	"	"	"	ND	109	"	0.1	30%	
Ethylbenzene	20.1	0.250	0.500	"	"	"	ND	100	"	0.7	30%	
Hexachlorobutadiene	19.5	2.50	5.00	"	"	"	ND	97	"	2	30%	
2-Hexanone	47.1	5.00	10.0	"	"	40.0	ND	118	"	2	30%	
Isopropylbenzene	20.6	0.500	1.00	"	"	20.0	ND	103	"	1	30%	
4-Isopropyltoluene	19.9	0.500	1.00	"	"	"	ND	99	"	0.7	30%	
4-Methyl-2-pentanone (MiBK)	44.2	5.00	10.0	"	"	40.0	ND	111	"	0.06	30%	
Methyl tert-butyl ether (MTBE)	17.5	0.500	1.00	"	"	20.0	ND	88	"	0.5	30%	
Methylene chloride	21.5	1.50	3.00	"	"	"	ND	107	"	1	30%	
Naphthalene	17.4	1.00	2.00	"	"	"	ND	87	"	2	30%	
n-Propylbenzene	20.8	0.250	0.500	"	"	"	ND	104	"	1	30%	
Styrene	22.1	0.500	1.00	"	"	"	ND	111	"	2	30%	
1,1,1,2-Tetrachloroethane	20.5	0.250	0.500	"	"	"	ND	103	"	2	30%	
1,1,2,2-Tetrachloroethane	22.2	0.250	0.500	"	"	"	ND	111	"	1	30%	
Tetrachloroethene (PCE)	21.3	0.250	0.500	"	"	"	ND	106	"	2	30%	
Toluene	21.1	0.500	1.00	"	"	"	ND	105	"	0.8	30%	
1,2,3-Trichlorobenzene	18.3	1.00	2.00	"	"	"	ND	92	"	0.7	30%	
1,2,4-Trichlorobenzene	16.5	1.00	2.00	"	"	"	ND	83	"	2	30%	
1,1,1-Trichloroethane	19.2	0.250	0.500	"	"	"	ND	96	"	0.7	30%	
1,1,2-Trichloroethane	21.6	0.250	0.500	"	"	"	ND	108	"	0.6	30%	

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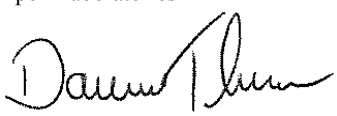

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110526 - EPA 5030B							**Water**					
Matrix Spike Dup (6110526-MSD1)					Prepared: 11/14/16 12:10 Analyzed: 11/14/16 19:39							
QC Source Sample: LW010D (A6K0418-11)												
EPA 8260B												
Trichloroethene (TCE)	19.6	0.250	0.500	ug/L	"	"	ND	98	"	1	30%	
Trichlorofluoromethane	17.2	1.00	2.00	"	"	"	ND	86	"	4	30%	
1,2,3-Trichloropropane	18.9	0.500	1.00	"	"	"	ND	94	"	2	30%	
1,2,4-Trimethylbenzene	19.3	0.500	1.00	"	"	"	ND	96	"	0.3	30%	
1,3,5-Trimethylbenzene	19.5	0.500	1.00	"	"	"	ND	98	"	0.9	30%	
Vinyl chloride	26.2	0.250	0.500	"	"	"	ND	131	"	6	30%	Q-01
m,p-Xylene	39.6	0.500	1.00	"	"	40.0	ND	99	"	0.2	30%	
o-Xylene	18.1	0.250	0.500	"	"	20.0	ND	91	"	1	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 100 %*		*Limits: 80-120 %*		*Dilution: 1x*					
Toluene-d8 (Surr)			*97 %*		*80-120 %*		*"*					
4-Bromofluorobenzene (Surr)			*97 %*		*80-120 %*		*"*					

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110567 - EPA 5030B							**Water**					
Blank (6110567-BLK1)					Prepared: 11/15/16 09:00 Analyzed: 11/15/16 11:49							
EPA 8260B												
Acetone	ND	10.0	20.0	ug/L	1	---	---	---	---	---	---	
Benzene	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Bromobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Bromochloromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Bromodichloromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Bromoform	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Bromomethane	ND	5.00	5.00	"	"	---	---	---	---	---	---	
2-Butanone (MEK)	ND	5.00	10.0	"	"	---	---	---	---	---	---	
n-Butylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
sec-Butylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
tert-Butylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Carbon tetrachloride	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Chlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Chloroethane	ND	5.00	5.00	"	"	---	---	---	---	---	---	
Chloroform	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Chloromethane	ND	2.50	5.00	"	"	---	---	---	---	---	---	
2-Chlorotoluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
4-Chlorotoluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	---	---	---	---	---	---	
Dibromochloromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Dibromomethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,1-Dichloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,1-Dichloroethene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,2-Dichloropropane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,3-Dichloropropane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
2,2-Dichloropropane	ND	0.500	1.00	"	"	---	---	---	---	---	---	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110567 - EPA 5030B							**Water**					
Blank (6110567-BLK1)					Prepared: 11/15/16 09:00 Analyzed: 11/15/16 11:49							
EPA 8260B												
1,1-Dichloropropene	ND	0.500	1.00	ug/L	"	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Ethylbenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Hexachlorobutadiene	ND	2.50	5.00	"	"	---	---	---	---	---	---	
2-Hexanone	ND	5.00	10.0	"	"	---	---	---	---	---	---	
Isopropylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
4-Isopropyltoluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	"	"	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Methylene chloride	ND	1.50	3.00	"	"	---	---	---	---	---	---	
Naphthalene	ND	1.00	2.00	"	"	---	---	---	---	---	---	
n-Propylbenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Styrene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Toluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Trichlorofluoromethane	ND	1.00	2.00	"	"	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Vinyl chloride	ND	0.250	0.500	"	"	---	---	---	---	---	---	
m,p-Xylene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
o-Xylene	ND	0.250	0.500	"	"	---	---	---	---	---	---	

Surr: 1,4-Difluorobenzene (Surr) *Recovery: 108 %* *Limits: 80-120 %* *Dilution: 1x*
Toluene-d8 (Surr) *103 %* *80-120 %* *"*
4-Bromofluorobenzene (Surr) *102 %* *80-120 %* *"*

LCS (6110567-BS1) Prepared: 11/15/16 09:00 Analyzed: 11/15/16 10:58

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Darwin Thomas, Business Development Director

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110567 - EPA 5030B							**Water**					
LCS (6110567-BS1)					Prepared: 11/15/16 09:00 Analyzed: 11/15/16 10:58							
EPA 8260B												
Acetone	36.7	10.0	20.0	ug/L	1	40.0	---	92	70-130%	---	---	
Benzene	20.8	0.100	0.200	"	"	20.0	---	104	"	---	---	
Bromobenzene	20.1	0.250	0.500	"	"	"	---	100	"	---	---	
Bromochloromethane	22.1	0.500	1.00	"	"	"	---	110	"	---	---	
Bromodichloromethane	18.6	0.500	1.00	"	"	"	---	93	"	---	---	
Bromoform	19.3	0.500	1.00	"	"	"	---	96	"	---	---	
Bromomethane	21.8	5.00	5.00	"	"	"	---	109	"	---	---	
2-Butanone (MEK)	41.4	5.00	10.0	"	"	40.0	---	103	"	---	---	
n-Butylbenzene	18.0	0.500	1.00	"	"	20.0	---	90	"	---	---	
sec-Butylbenzene	20.1	0.500	1.00	"	"	"	---	100	"	---	---	
tert-Butylbenzene	17.2	0.500	1.00	"	"	"	---	86	"	---	---	
Carbon tetrachloride	17.0	0.500	1.00	"	"	"	---	85	"	---	---	
Chlorobenzene	20.9	0.250	0.500	"	"	"	---	105	"	---	---	
Chloroethane	23.4	5.00	5.00	"	"	"	---	117	"	---	---	
Chloroform	17.9	0.500	1.00	"	"	"	---	90	"	---	---	
Chloromethane	25.1	2.50	5.00	"	"	"	---	126	"	---	---	
2-Chlorotoluene	19.7	0.500	1.00	"	"	"	---	98	"	---	---	
4-Chlorotoluene	19.0	0.500	1.00	"	"	"	---	95	"	---	---	
1,2-Dibromo-3-chloropropane	18.3	2.50	5.00	"	"	"	---	91	"	---	---	
Dibromochloromethane	20.1	0.500	1.00	"	"	"	---	100	"	---	---	
1,2-Dibromoethane (EDB)	20.3	0.250	0.500	"	"	"	---	101	"	---	---	
Dibromomethane	18.4	0.500	1.00	"	"	"	---	92	"	---	---	
1,2-Dichlorobenzene	18.9	0.250	0.500	"	"	"	---	95	"	---	---	
1,3-Dichlorobenzene	20.0	0.250	0.500	"	"	"	---	100	"	---	---	
1,4-Dichlorobenzene	20.2	0.250	0.500	"	"	"	---	101	"	---	---	
Dichlorodifluoromethane	16.2	0.500	1.00	"	"	"	---	81	"	---	---	
1,1-Dichloroethane	19.5	0.250	0.500	"	"	"	---	97	"	---	---	
1,2-Dichloroethane (EDC)	17.2	0.250	0.500	"	"	"	---	86	"	---	---	
1,1-Dichloroethene	17.4	0.250	0.500	"	"	"	---	87	"	---	---	
cis-1,2-Dichloroethene	17.0	0.250	0.500	"	"	"	---	85	"	---	---	
trans-1,2-Dichloroethene	17.9	0.250	0.500	"	"	"	---	89	"	---	---	
1,2-Dichloropropane	20.7	0.250	0.500	"	"	"	---	104	"	---	---	
1,3-Dichloropropane	19.0	0.500	1.00	"	"	"	---	95	"	---	---	
2,2-Dichloropropane	19.4	0.500	1.00	"	"	"	---	97	"	---	---	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110567 - EPA 5030B							**Water**					
LCS (6110567-BS1)					Prepared: 11/15/16 09:00 Analyzed: 11/15/16 10:58							
EPA 8260B												
1,1-Dichloropropene	18.8	0.500	1.00	ug/L	"	"	---	94	"	---	---	
cis-1,3-Dichloropropene	18.1	0.500	1.00	"	"	"	---	91	"	---	---	
trans-1,3-Dichloropropene	21.2	0.500	1.00	"	"	"	---	106	"	---	---	
Ethylbenzene	18.7	0.250	0.500	"	"	"	---	94	"	---	---	
Hexachlorobutadiene	18.3	2.50	5.00	"	"	"	---	91	"	---	---	
2-Hexanone	46.4	5.00	10.0	"	"	40.0	---	116	"	---	---	
Isopropylbenzene	19.4	0.500	1.00	"	"	20.0	---	97	"	---	---	
4-Isopropyltoluene	18.7	0.500	1.00	"	"	"	---	93	"	---	---	
4-Methyl-2-pentanone (MiBK)	43.5	5.00	10.0	"	"	40.0	---	109	"	---	---	
Methyl tert-butyl ether (MTBE)	17.6	0.500	1.00	"	"	20.0	---	88	"	---	---	
Methylene chloride	20.9	1.50	3.00	"	"	"	---	104	"	---	---	
Naphthalene	17.5	1.00	2.00	"	"	"	---	87	"	---	---	
n-Propylbenzene	19.5	0.250	0.500	"	"	"	---	98	"	---	---	
Styrene	21.5	0.500	1.00	"	"	"	---	108	"	---	---	
1,1,1,2-Tetrachloroethane	19.4	0.250	0.500	"	"	"	---	97	"	---	---	
1,1,2,2-Tetrachloroethane	21.6	0.250	0.500	"	"	"	---	108	"	---	---	
Tetrachloroethene (PCE)	19.8	0.250	0.500	"	"	"	---	99	"	---	---	
Toluene	19.9	0.500	1.00	"	"	"	---	100	"	---	---	
1,2,3-Trichlorobenzene	18.2	1.00	2.00	"	"	"	---	91	"	---	---	
1,2,4-Trichlorobenzene	16.4	1.00	2.00	"	"	"	---	82	"	---	---	
1,1,1-Trichloroethane	17.1	0.250	0.500	"	"	"	---	85	"	---	---	
1,1,2-Trichloroethane	21.3	0.250	0.500	"	"	"	---	107	"	---	---	
Trichloroethene (TCE)	18.7	0.250	0.500	"	"	"	---	94	"	---	---	
Trichlorofluoromethane	14.6	1.00	2.00	"	"	"	---	73	"	---	---	
1,2,3-Trichloropropane	19.2	0.500	1.00	"	"	"	---	96	"	---	---	
1,2,4-Trimethylbenzene	18.2	0.500	1.00	"	"	"	---	91	"	---	---	
1,3,5-Trimethylbenzene	18.7	0.500	1.00	"	"	"	---	93	"	---	---	
Vinyl chloride	23.6	0.250	0.500	"	"	"	---	118	"	---	---	
m,p-Xylene	37.0	0.500	1.00	"	"	40.0	---	93	"	---	---	
o-Xylene	17.7	0.250	0.500	"	"	20.0	---	88	"	---	---	

Surr: 1,4-Difluorobenzene (Surr) *Recovery: 100 %* *Limits: 80-120 %* *Dilution: 1x*
Toluene-d8 (Surr) *98 %* *80-120 %* *"*
4-Bromofluorobenzene (Surr) *100 %* *80-120 %* *"*

Duplicate (6110567-DUP1) Prepared: 11/15/16 11:14 Analyzed: 11/15/16 13:06

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110567 - EPA 5030B							**Water**					
Duplicate (6110567-DUP1)					Prepared: 11/15/16 11:14 Analyzed: 11/15/16 13:06							
QC Source Sample: LW018D (A6K0418-16)												
EPA 8260B												
Acetone	ND	10.0	20.0	ug/L	1	---	ND	---	---	---	30%	
Benzene	ND	0.100	0.200	"	"	---	ND	---	---	---	30%	
Bromobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Bromochloromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Bromodichloromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Bromoform	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Bromomethane	ND	5.00	5.00	"	"	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	5.00	10.0	"	"	---	ND	---	---	---	30%	
n-Butylbenzene	**1.50**	0.500	1.00	"	"	---	1.56	---	---	4	30%	
sec-Butylbenzene	**9.90**	0.500	1.00	"	"	---	10.1	---	---	2	30%	
tert-Butylbenzene	**3.41**	0.500	1.00	"	"	---	3.64	---	---	7	30%	
Carbon tetrachloride	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Chlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Chloroethane	ND	5.00	5.00	"	"	---	ND	---	---	---	30%	
Chloroform	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Chloromethane	ND	2.50	5.00	"	"	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	---	ND	---	---	---	30%	
Dibromochloromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Dibromomethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110567 - EPA 5030B							**Water**					
Duplicate (6110567-DUP1)					Prepared: 11/15/16 11:14 Analyzed: 11/15/16 13:06							
QC Source Sample: LW018D (A6K0418-16)												
EPA 8260B												
2,2-Dichloropropane	ND	0.500	1.00	ug/L	"	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Ethylbenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	2.50	5.00	"	"	---	ND	---	---	---	30%	
2-Hexanone	ND	5.00	10.0	"	"	---	ND	---	---	---	30%	
Isopropylbenzene	**8.65**	0.500	1.00	"	"	---	8.92	---	---	3	30%	
4-Isopropyltoluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	5.00	10.0	"	"	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Methylene chloride	ND	1.50	3.00	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
n-Propylbenzene	**0.670**	0.250	0.500	"	"	---	0.706	---	---	5	30%	
Styrene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Toluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Vinyl chloride	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
m,p-Xylene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
o-Xylene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 113 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Toluene-d8 (Surr)			*98 %*		*80-120 %*				*"*			

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110567 - EPA 5030B												**Water**
Duplicate (6110567-DUP1)						Prepared: 11/15/16 11:14 Analyzed: 11/15/16 13:06						
QC Source Sample: LW018D (A6K0418-16)												
EPA 8260B												
Surr: 4-Bromofluorobenzene (Surr)						*Recovery: 101 %*	*Limits: 80-120 %*					*Dilution: 1x*

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110577 - EPA 3510C (Acid/Base Neutral)									**Water**			
Blank (6110577-BLK1)					Prepared: 11/15/16 11:25 Analyzed: 11/15/16 16:04							
EPA 8270D												
Acenaphthene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.0118	0.0273	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Chrysene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Fluoranthene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Fluorene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
Naphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
Phenanthrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Carbazole	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
4-Chloro-3-methylphenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
2-Chlorophenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
2,4-Dichlorophenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
2,4-Dimethylphenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
2,4-Dinitrophenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	ND	0.455	0.909	"	"	---	---	---	---	---	---	
2-Methylphenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	0.227	0.455	"	"	---	---	---	---	---	---	
2-Nitrophenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
4-Nitrophenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	0.0909	0.182	"	"	---	---	---	---	---	---	
Phenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
2,3,4,6-Tetrachlorophenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
2,3,5,6-Tetrachlorophenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	

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Darwin Thomas, Business Development Director

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110577 - EPA 3510C (Acid/Base Neutral)									**Water**			
Blank (6110577-BLK1)					Prepared: 11/15/16 11:25 Analyzed: 11/15/16 16:04							
EPA 8270D												
2,4,5-Trichlorophenol	ND	0.227	0.455	ug/L	"	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	0.455	0.909	"	"	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	0.455	0.909	"	"	---	---	---	---	---	---	
Diethylphthalate	ND	0.455	0.909	"	"	---	---	---	---	---	---	
Dimethylphthalate	ND	0.455	0.909	"	"	---	---	---	---	---	---	
Di-n-butylphthalate	ND	0.455	0.909	"	"	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	0.455	0.909	"	"	---	---	---	---	---	---	
N-Nitrosodimethylamine	ND	0.227	0.455	"	"	---	---	---	---	---	---	
N-Nitroso-di-n-propylamine	ND	0.227	0.455	"	"	---	---	---	---	---	---	
N-Nitrosodiphenylamine	ND	0.227	0.455	"	"	---	---	---	---	---	---	
Bis(2-Chloroethoxy) methane	ND	0.227	0.455	"	"	---	---	---	---	---	---	
Bis(2-Chloroethyl) ether	ND	0.227	0.455	"	"	---	---	---	---	---	---	
Bis(2-Chloroisopropyl) ether	ND	0.227	0.455	"	"	---	---	---	---	---	---	
Hexachlorobenzene	ND	0.227	0.455	"	"	---	---	---	---	---	---	
Hexachlorobutadiene	ND	0.227	0.455	"	"	---	---	---	---	---	---	
Hexachlorocyclopentadiene	ND	0.227	0.455	"	"	---	---	---	---	---	---	
Hexachloroethane	ND	0.227	0.455	"	"	---	---	---	---	---	---	
2-Chloronaphthalene	ND	0.227	0.455	"	"	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	0.227	0.455	"	"	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	0.227	0.455	"	"	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	0.227	0.455	"	"	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	0.227	0.455	"	"	---	---	---	---	---	---	
4-Bromophenyl phenyl ether	ND	0.227	0.455	"	"	---	---	---	---	---	---	
4-Chlorophenyl phenyl ether	ND	0.227	0.455	"	"	---	---	---	---	---	---	
Aniline	ND	0.227	0.455	"	"	---	---	---	---	---	---	
4-Chloroaniline	ND	0.455	0.909	"	"	---	---	---	---	---	---	
2-Nitroaniline	ND	0.455	0.909	"	"	---	---	---	---	---	---	
3-Nitroaniline	ND	0.455	0.909	"	"	---	---	---	---	---	---	
4-Nitroaniline	ND	0.455	0.909	"	"	---	---	---	---	---	---	
Nitrobenzene	ND	0.227	0.455	"	"	---	---	---	---	---	---	
2,4-Dinitrotoluene	ND	0.227	0.455	"	"	---	---	---	---	---	---	
2,6-Dinitrotoluene	ND	0.227	0.455	"	"	---	---	---	---	---	---	
1,2-Dinitrobenzene	ND	0.227	0.455	"	"	---	---	---	---	---	---	

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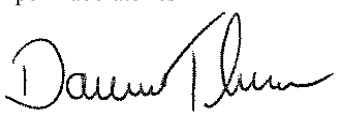

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110577 - EPA 3510C (Acid/Base Neutral)									**Water**			
Blank (6110577-BLK1)					Prepared: 11/15/16 11:25 Analyzed: 11/15/16 16:04							
EPA 8270D												
1,3-Dinitrobenzene	ND	0.227	0.455	ug/L	"	---	---	---	---	---	---	
1,4-Dinitrobenzene	ND	0.227	0.455	"	"	---	---	---	---	---	---	
Benzoic acid	ND	1.82	1.82	"	"	---	---	---	---	---	---	
Benzyl alcohol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
Azobenzene (1,2-DPH)	ND	0.227	0.455	"	"	---	---	---	---	---	---	
Bis(2-Ethylhexyl) adipate	ND	0.227	0.455	"	"	---	---	---	---	---	---	
Isophorone	ND	0.227	0.455	"	"	---	---	---	---	---	---	
Pyridine	ND	0.227	0.455	"	"	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 59 %*		*Limits: 44-120 %*			*Dilution: 1x*				
2-Fluorobiphenyl (Surr)			*70 %*		*44-120 %*			*"*				
Phenol-d6 (Surr)			*24 %*		*10-120 %*			*"*				
p-Terphenyl-d14 (Surr)			*104 %*		*50-133 %*			*"*				
2-Fluorophenol (Surr)			*33 %*		*19-120 %*			*"*				
2,4,6-Tribromophenol (Surr)			*93 %*		*43-140 %*			*"*				*Q-41*
LCS (6110577-BS1)					Prepared: 11/15/16 11:25 Analyzed: 11/15/16 16:40							
EPA 8270D												
Acenaphthene	3.07	0.0100	0.0200	ug/L	1	4.00	---	77	47-122%	---	---	
Acenaphthylene	3.28	0.0100	0.0200	"	"	"	---	82	41-130%	---	---	
Anthracene	3.74	0.0100	0.0200	"	"	"	---	93	57-123%	---	---	
Benz(a)anthracene	3.89	0.0100	0.0200	"	"	"	---	97	58-125%	---	---	
Benzo(a)pyrene	3.93	0.0130	0.0300	"	"	"	---	98	54-128%	---	---	
Benzo(b)fluoranthene	4.16	0.0150	0.0300	"	"	"	---	104	53-131%	---	---	
Benzo(k)fluoranthene	4.12	0.0150	0.0300	"	"	"	---	103	57-129%	---	---	
Benzo(g,h,i)perylene	4.15	0.0100	0.0200	"	"	"	---	104	50-134%	---	---	
Chrysene	3.91	0.0100	0.0200	"	"	"	---	98	59-123%	---	---	
Dibenz(a,h)anthracene	4.15	0.0100	0.0200	"	"	"	---	104	51-134%	---	---	
Fluoranthene	4.06	0.0100	0.0200	"	"	"	---	101	57-128%	---	---	
Fluorene	3.55	0.0100	0.0200	"	"	"	---	89	52-124%	---	---	
Indeno(1,2,3-cd)pyrene	3.94	0.0100	0.0200	"	"	"	---	99	52-133%	---	---	
1-Methylnaphthalene	2.56	0.0200	0.0400	"	"	"	---	64	41-120%	---	---	
2-Methylnaphthalene	2.56	0.0200	0.0400	"	"	"	---	64	40-121%	---	---	
Naphthalene	2.36	0.0200	0.0400	"	"	"	---	59	"	---	---	
Phenanthrene	3.48	0.0100	0.0200	"	"	"	---	87	59-120%	---	---	
Pyrene	4.12	0.0100	0.0200	"	"	"	---	103	57-126%	---	---	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110577 - EPA 3510C (Acid/Base Neutral)									**Water**			
LCS (6110577-BS1)					Prepared: 11/15/16 11:25 Analyzed: 11/15/16 16:40							
EPA 8270D												
Carbazole	4.16	0.0150	0.0300	ug/L	"	"	---	104	60-122%	---	---	
Dibenzofuran	3.43	0.0100	0.0200	"	"	"	---	86	53-120%	---	---	
4-Chloro-3-methylphenol	3.35	0.250	0.500	"	"	"	---	84	52-120%	---	---	
2-Chlorophenol	3.13	0.250	0.500	"	"	"	---	78	38-120%	---	---	
2,4-Dichlorophenol	3.61	0.250	0.500	"	"	"	---	90	47-121%	---	---	
2,4-Dimethylphenol	3.20	0.250	0.500	"	"	"	---	80	31-124%	---	---	
2,4-Dinitrophenol	4.46	0.250	0.500	"	"	"	---	112	23-143%	---	---	
4,6-Dinitro-2-methylphenol	4.71	0.500	1.00	"	"	"	---	118	44-137%	---	---	
2-Methylphenol	2.69	0.250	0.500	"	"	"	---	67	30-120%	---	---	
3+4-Methylphenol(s)	2.62	0.250	0.500	"	"	"	---	65	29-120%	---	---	
2-Nitrophenol	3.75	0.250	0.500	"	"	"	---	94	47-123%	---	---	
4-Nitrophenol	1.92	0.250	0.500	"	"	"	---	48	5-120%	---	---	
Pentachlorophenol (PCP)	4.10	0.100	0.200	"	"	"	---	102	35-138%	---	---	
Phenol	1.42	0.250	0.500	"	"	"	---	35	5-120%	---	---	
2,3,4,6-Tetrachlorophenol	4.24	0.250	0.500	"	"	"	---	106	50-128%	---	---	
2,3,5,6-Tetrachlorophenol	4.00	0.250	0.500	"	"	"	---	100	50-121%	---	---	
2,4,5-Trichlorophenol	4.06	0.250	0.500	"	"	"	---	102	53-123%	---	---	
2,4,6-Trichlorophenol	4.01	0.250	0.500	"	"	"	---	100	50-125%	---	---	
Bis(2-ethylhexyl)phthalate	3.82	0.500	1.00	"	"	"	---	95	55-135%	---	---	
Butyl benzyl phthalate	3.76	0.500	1.00	"	"	"	---	94	53-134%	---	---	
Diethylphthalate	3.60	0.500	1.00	"	"	"	---	90	55-125%	---	---	
Dimethylphthalate	3.80	0.500	1.00	"	"	"	---	95	45-127%	---	---	
Di-n-butylphthalate	3.99	0.500	1.00	"	"	"	---	100	59-127%	---	---	
Di-n-octyl phthalate	3.43	0.500	1.00	"	"	"	---	86	51-140%	---	---	
N-Nitrosodimethylamine	1.57	0.250	0.500	"	"	"	---	39	6-120%	---	---	Q-31
N-Nitroso-di-n-propylamine	2.96	0.250	0.500	"	"	"	---	74	49-120%	---	---	
N-Nitrosodiphenylamine	3.83	0.250	0.500	"	"	"	---	96	51-123%	---	---	
Bis(2-Chloroethoxy) methane	3.06	0.250	0.500	"	"	"	---	77	48-120%	---	---	
Bis(2-Chloroethyl) ether	2.85	0.250	0.500	"	"	"	---	71	43-120%	---	---	
Bis(2-Chloroisopropyl) ether	2.48	0.250	0.500	"	"	"	---	62	37-130%	---	---	Q-31
Hexachlorobenzene	3.69	0.250	0.500	"	"	"	---	92	52-125%	---	---	
Hexachlorobutadiene	1.82	0.250	0.500	"	"	"	---	46	22-124%	---	---	
Hexachlorocyclopentadiene	2.25	0.250	0.500	"	"	"	---	56	5-127%	---	---	
Hexachloroethane	1.57	0.250	0.500	"	"	"	---	39	21-120%	---	---	

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19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110577 - EPA 3510C (Acid/Base Neutral)							**Water**					
LCS (6110577-BS1)					Prepared: 11/15/16 11:25		Analyzed: 11/15/16 16:40					
EPA 8270D												
2-Chloronaphthalene	2.88	0.250	0.500	ug/L	"	"	---	72	40-120%	---	---	
1,2-Dichlorobenzene	1.87	0.250	0.500	"	"	"	---	47	32-120%	---	---	
1,3-Dichlorobenzene	1.77	0.250	0.500	"	"	"	---	44	28-120%	---	---	
1,4-Dichlorobenzene	1.80	0.250	0.500	"	"	"	---	45	29-120%	---	---	
1,2,4-Trichlorobenzene	2.18	0.250	0.500	"	"	"	---	54	"	---	---	
4-Bromophenyl phenyl ether	3.71	0.250	0.500	"	"	"	---	93	54-124%	---	---	
4-Chlorophenyl phenyl ether	3.72	0.250	0.500	"	"	"	---	93	53-121%	---	---	
Aniline	2.66	0.250	0.500	"	"	"	---	66	6-120%	---	---	Q-31
4-Chloroaniline	2.76	0.500	1.00	"	"	"	---	69	33-120%	---	---	Q-31
2-Nitroaniline	4.11	0.500	1.00	"	"	"	---	103	54-127%	---	---	
3-Nitroaniline	3.98	0.500	1.00	"	"	"	---	99	41-128%	---	---	
4-Nitroaniline	4.09	0.500	1.00	"	"	"	---	102	35-120%	---	---	
Nitrobenzene	2.73	0.250	0.500	"	"	"	---	68	45-121%	---	---	
2,4-Dinitrotoluene	3.94	0.250	0.500	"	"	"	---	98	57-128%	---	---	
2,6-Dinitrotoluene	3.93	0.250	0.500	"	"	"	---	98	57-124%	---	---	
1,2-Dinitrobenzene	4.11	0.250	0.500	"	"	"	---	103	59-120%	---	---	
1,3-Dinitrobenzene	4.15	0.250	0.500	"	"	"	---	104	49-128%	---	---	
1,4-Dinitrobenzene	4.09	0.250	0.500	"	"	"	---	102	40-120%	---	---	
Benzoic acid	2.86	1.00	2.00	"	"	8.00	---	36	5-120%	---	---	
Benzyl alcohol	3.31	0.250	0.500	"	"	4.00	---	83	31-120%	---	---	
Azobenzene (1,2-DPH)	3.08	0.250	0.500	"	"	"	---	77	61-120%	---	---	
Bis(2-Ethylhexyl) adipate	3.65	0.250	0.500	"	"	"	---	91	40-125%	---	---	
Isophorone	3.10	0.250	0.500	"	"	"	---	77	42-124%	---	---	
Pyridine	1.66	0.250	0.500	"	"	"	---	41	5-120%	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 71 %*		*Limits: 44-120 %*		*Dilution: 1x*					
2-Fluorobiphenyl (Surr)			*76 %*		*44-120 %*		*"*					
Phenol-d6 (Surr)			*31 %*		*10-120 %*		*"*					
p-Terphenyl-d14 (Surr)			*101 %*		*50-133 %*		*"*					
2-Fluorophenol (Surr)			*44 %*		*19-120 %*		*"*					
2,4,6-Tribromophenol (Surr)			*111 %*		*43-140 %*		*"*					*Q-41*
Matrix Spike (6110577-MS1)					Prepared: 11/15/16 11:25		Analyzed: 11/15/16 18:28					
QC Source Sample: LW010D (A6K0418-11)												
EPA 8270D												
Acenaphthene	1.96	0.00962	0.0192	ug/L	1	3.85	ND	51	47-122%	---	---	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110577 - EPA 3510C (Acid/Base Neutral)									**Water**			
Matrix Spike (6110577-MS1)					Prepared: 11/15/16 11:25 Analyzed: 11/15/16 18:28							
QC Source Sample: LW010D (A6K0418-11)												
EPA 8270D												
Acenaphthylene	2.05	0.00962	0.0192	ug/L	"	"	ND	53	41-130%	---	---	
Anthracene	2.72	0.00962	0.0192	"	"	"	0.0324	70	57-123%	---	---	
Benz(a)anthracene	3.45	0.00962	0.0192	"	"	"	ND	90	58-125%	---	---	
Benzo(a)pyrene	3.51	0.0125	0.0288	"	"	"	ND	91	54-128%	---	---	
Benzo(b)fluoranthene	3.69	0.0144	0.0288	"	"	"	ND	96	53-131%	---	---	
Benzo(k)fluoranthene	3.71	0.0144	0.0288	"	"	"	ND	97	57-129%	---	---	
Benzo(g,h,i)perylene	3.61	0.00962	0.0192	"	"	"	ND	94	50-134%	---	---	
Chrysene	3.54	0.00962	0.0192	"	"	"	ND	92	59-123%	---	---	
Dibenz(a,h)anthracene	3.59	0.00962	0.0192	"	"	"	ND	93	51-134%	---	---	
Fluoranthene	3.50	0.00962	0.0192	"	"	"	ND	91	57-128%	---	---	
Fluorene	2.25	0.00962	0.0192	"	"	"	ND	58	52-124%	---	---	
Indeno(1,2,3-cd)pyrene	3.50	0.00962	0.0192	"	"	"	ND	91	52-133%	---	---	
1-Methylnaphthalene	1.72	0.0192	0.0385	"	"	"	ND	45	41-120%	---	---	
2-Methylnaphthalene	1.74	0.0192	0.0385	"	"	"	ND	45	40-121%	---	---	
Naphthalene	1.58	0.0192	0.0385	"	"	"	ND	41	"	---	---	
Phenanthrene	2.51	0.00962	0.0192	"	"	"	ND	65	59-120%	---	---	
Pyrene	3.58	0.00962	0.0192	"	"	"	ND	93	57-126%	---	---	
Carbazole	3.91	0.0144	0.0288	"	"	"	ND	102	60-122%	---	---	
Dibenzofuran	2.17	0.00962	0.0192	"	"	"	ND	56	53-120%	---	---	
4-Chloro-3-methylphenol	2.25	0.240	0.481	"	"	"	ND	58	52-120%	---	---	
2-Chlorophenol	1.73	0.240	0.481	"	"	"	ND	45	38-120%	---	---	
2,4-Dichlorophenol	2.18	0.240	0.481	"	"	"	ND	57	47-121%	---	---	
2,4-Dimethylphenol	1.91	0.240	0.481	"	"	"	ND	50	31-124%	---	---	
2,4-Dinitrophenol	3.57	0.240	0.481	"	"	"	ND	93	23-143%	---	---	
4,6-Dinitro-2-methylphenol	3.73	0.481	0.962	"	"	"	ND	97	44-137%	---	---	
2-Methylphenol	1.46	0.240	0.481	"	"	"	ND	38	30-120%	---	---	
3+4-Methylphenol(s)	1.38	0.240	0.481	"	"	"	ND	36	29-120%	---	---	
2-Nitrophenol	2.05	0.240	0.481	"	"	"	ND	53	47-123%	---	---	
4-Nitrophenol	1.60	0.240	0.481	"	"	"	ND	42	5-120%	---	---	
Pentachlorophenol (PCP)	3.68	0.0962	0.192	"	"	"	ND	96	35-138%	---	---	
Phenol	0.707	0.240	0.481	"	"	"	ND	18	5-120%	---	---	
2,3,4,6-Tetrachlorophenol	3.09	0.240	0.481	"	"	"	ND	80	50-128%	---	---	
2,3,5,6-Tetrachlorophenol	2.92	0.240	0.481	"	"	"	ND	76	50-121%	---	---	

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Darwin Thomas, Business Development Director

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110577 - EPA 3510C (Acid/Base Neutral)							**Water**					
Matrix Spike (6110577-MS1)					Prepared: 11/15/16 11:25 Analyzed: 11/15/16 18:28							
QC Source Sample: LW010D (A6K0418-11)												
EPA 8270D												
2,4,5-Trichlorophenol	2.74	0.240	0.481	ug/L	"	"	ND	71	53-123%	---	---	
2,4,6-Trichlorophenol	2.57	0.240	0.481	"	"	"	ND	67	50-125%	---	---	
Bis(2-ethylhexyl)phthalate	3.50	0.481	0.962	"	"	"	ND	91	55-135%	---	---	
Butyl benzyl phthalate	3.47	0.481	0.962	"	"	"	ND	90	53-134%	---	---	
Diethylphthalate	2.39	0.481	0.962	"	"	"	ND	62	55-125%	---	---	
Dimethylphthalate	2.38	0.481	0.962	"	"	"	ND	62	45-127%	---	---	
Di-n-butylphthalate	3.34	0.481	0.962	"	"	"	ND	87	59-127%	---	---	
Di-n-octyl phthalate	3.11	0.481	0.962	"	"	"	ND	81	50-140%	---	---	
N-Nitrosodimethylamine	0.843	0.240	0.481	"	"	"	ND	22	6-120%	---	---	Q-31
N-Nitroso-di-n-propylamine	1.57	0.240	0.481	"	"	"	ND	41	49-120%	---	---	Q-01
N-Nitrosodiphenylamine	2.63	0.240	0.481	"	"	"	ND	68	51-123%	---	---	
Bis(2-Chloroethoxy) methane	1.62	0.240	0.481	"	"	"	ND	42	48-120%	---	---	Q-01
Bis(2-Chloroethyl) ether	1.53	0.240	0.481	"	"	"	ND	40	43-120%	---	---	Q-01
Bis(2-Chloroisopropyl) ether	1.38	0.240	0.481	"	"	"	ND	36	37-130%	---	---	Q-01, Q-31
Hexachlorobenzene	2.36	0.240	0.481	"	"	"	ND	61	52-125%	---	---	
Hexachlorobutadiene	1.41	0.240	0.481	"	"	"	ND	37	22-124%	---	---	
Hexachlorocyclopentadiene	1.64	0.240	0.481	"	"	"	ND	43	5-127%	---	---	
Hexachloroethane	1.23	0.240	0.481	"	"	"	ND	32	21-120%	---	---	
2-Chloronaphthalene	1.89	0.240	0.481	"	"	"	ND	49	40-120%	---	---	
1,2-Dichlorobenzene	1.42	0.240	0.481	"	"	"	ND	37	32-120%	---	---	
1,3-Dichlorobenzene	1.39	0.240	0.481	"	"	"	ND	36	28-120%	---	---	
1,4-Dichlorobenzene	1.39	0.240	0.481	"	"	"	ND	36	29-120%	---	---	
1,2,4-Trichlorobenzene	1.60	0.240	0.481	"	"	"	ND	42	"	---	---	
4-Bromophenyl phenyl ether	2.44	0.240	0.481	"	"	"	ND	63	54-124%	---	---	
4-Chlorophenyl phenyl ether	2.36	0.240	0.481	"	"	"	ND	61	53-121%	---	---	
Aniline	1.27	0.240	0.481	"	"	"	ND	33	6-120%	---	---	Q-31
4-Chloroaniline	0.860	0.481	0.481	"	"	"	ND	22	33-120%	---	---	Q-01, Q-31
2-Nitroaniline	2.65	0.481	0.962	"	"	"	ND	69	54-127%	---	---	
3-Nitroaniline	2.60	0.481	0.962	"	"	"	ND	68	41-128%	---	---	
4-Nitroaniline	3.21	0.481	0.962	"	"	"	ND	83	35-120%	---	---	
Nitrobenzene	1.52	0.240	0.481	"	"	"	ND	40	45-121%	---	---	Q-01
2,4-Dinitrotoluene	2.75	0.240	0.481	"	"	"	ND	72	57-128%	---	---	
2,6-Dinitrotoluene	2.48	0.240	0.481	"	"	"	ND	64	57-124%	---	---	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110577 - EPA 3510C (Acid/Base Neutral)							**Water**					
Matrix Spike (6110577-MS1)					Prepared: 11/15/16 11:25		Analyzed: 11/15/16 18:28					
QC Source Sample: LW010D (A6K0418-11)												
EPA 8270D												
1,2-Dinitrobenzene	2.63	0.240	0.481	ug/L	"	"	ND	68	59-120%	---	---	
1,3-Dinitrobenzene	2.69	0.240	0.481	"	"	"	ND	70	49-128%	---	---	
1,4-Dinitrobenzene	2.75	0.240	0.481	"	"	"	ND	71	40-120%	---	---	
Benzoic acid	1.61	0.962	0.962	"	"	7.69	ND	4	5-120%	---	---	Q-01
Benzyl alcohol	1.83	0.240	0.481	"	"	3.85	ND	48	31-120%	---	---	
Azobenzene (1,2-DPH)	1.99	0.240	0.481	"	"	"	ND	52	61-120%	---	---	Q-01
Bis(2-Ethylhexyl) adipate	3.38	0.240	0.481	"	"	"	ND	88	40-125%	---	---	
Isophorone	1.68	0.240	0.481	"	"	"	ND	44	42-124%	---	---	
Pyridine	0.924	0.240	0.481	"	"	"	ND	24	5-120%	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 40 %*		*Limits: 44-120 %*		*Dilution: 1x*					*S-06*
2-Fluorobiphenyl (Surr)			*47 %*		*44-120 %*		*"*					
Phenol-d6 (Surr)			*15 %*		*10-120 %*		*"*					
p-Terphenyl-d14 (Surr)			*89 %*		*50-133 %*		*"*					
2-Fluorophenol (Surr)			*23 %*		*19-120 %*		*"*					
2,4,6-Tribromophenol (Surr)			*84 %*		*43-140 %*		*"*					*Q-41*
Matrix Spike Dup (6110577-MSD1)					Prepared: 11/15/16 11:25		Analyzed: 11/15/16 19:03					
QC Source Sample: LW010D (A6K0418-11)												
EPA 8270D												
Acenaphthene	1.87	0.00962	0.0192	ug/L	1	3.85	ND	49	47-122%	5	30%	
Acenaphthylene	1.94	0.00962	0.0192	"	"	"	ND	50	41-130%	5	30%	
Anthracene	2.62	0.00962	0.0192	"	"	"	0.0324	67	57-123%	4	30%	
Benz(a)anthracene	3.57	0.00962	0.0192	"	"	"	ND	93	58-125%	3	30%	
Benzo(a)pyrene	3.62	0.0125	0.0288	"	"	"	ND	94	54-128%	3	30%	
Benzo(b)fluoranthene	3.87	0.0144	0.0288	"	"	"	ND	101	53-131%	5	30%	
Benzo(k)fluoranthene	3.81	0.0144	0.0288	"	"	"	ND	99	57-129%	3	30%	
Benzo(g,h,i)perylene	3.63	0.00962	0.0192	"	"	"	ND	94	50-134%	0.7	30%	
Chrysene	3.60	0.00962	0.0192	"	"	"	ND	94	59-123%	2	30%	
Dibenz(a,h)anthracene	3.75	0.00962	0.0192	"	"	"	ND	98	51-134%	4	30%	
Fluoranthene	3.51	0.00962	0.0192	"	"	"	ND	91	57-128%	0.3	30%	
Fluorene	2.23	0.00962	0.0192	"	"	"	ND	58	52-124%	1	30%	
Indeno(1,2,3-cd)pyrene	3.58	0.00962	0.0192	"	"	"	ND	93	52-133%	2	30%	
1-Methylnaphthalene	1.57	0.0192	0.0385	"	"	"	ND	41	41-120%	9	30%	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110577 - EPA 3510C (Acid/Base Neutral)							**Water**					
Matrix Spike Dup (6110577-MSD1)					Prepared: 11/15/16 11:25 Analyzed: 11/15/16 19:03							
QC Source Sample: LW010D (A6K0418-11)												
EPA 8270D												
2-Methylnaphthalene	1.57	0.0192	0.0385	ug/L	"	"	ND	41	40-121%	10	30%	
Naphthalene	1.43	0.0192	0.0385	"	"	"	ND	37	"	10	30%	Q-01
Phenanthrene	2.45	0.00962	0.0192	"	"	"	ND	64	59-120%	2	30%	
Pyrene	3.60	0.00962	0.0192	"	"	"	ND	94	57-126%	0.5	30%	
Carbazole	3.96	0.0144	0.0288	"	"	"	ND	103	60-122%	1	30%	
Dibenzofuran	2.10	0.00962	0.0192	"	"	"	ND	55	53-120%	3	30%	
4-Chloro-3-methylphenol	2.24	0.240	0.481	"	"	"	ND	58	52-120%	0.2	30%	
2-Chlorophenol	1.64	0.240	0.481	"	"	"	ND	43	38-120%	6	30%	
2,4-Dichlorophenol	2.06	0.240	0.481	"	"	"	ND	53	47-121%	6	30%	
2,4-Dimethylphenol	1.85	0.240	0.481	"	"	"	ND	48	31-124%	3	30%	
2,4-Dinitrophenol	3.40	0.240	0.481	"	"	"	ND	88	23-143%	5	30%	
4,6-Dinitro-2-methylphenol	3.54	0.481	0.962	"	"	"	ND	92	44-137%	5	30%	
2-Methylphenol	1.35	0.240	0.481	"	"	"	ND	35	30-120%	8	30%	
3+4-Methylphenol(s)	1.31	0.240	0.481	"	"	"	ND	34	29-120%	5	30%	
2-Nitrophenol	1.91	0.240	0.481	"	"	"	ND	50	47-123%	7	30%	
4-Nitrophenol	1.56	0.240	0.481	"	"	"	ND	41	5-120%	3	30%	
Pentachlorophenol (PCP)	3.64	0.0962	0.192	"	"	"	ND	95	35-138%	0.9	30%	
Phenol	0.661	0.240	0.481	"	"	"	ND	17	5-120%	7	30%	
2,3,4,6-Tetrachlorophenol	3.04	0.240	0.481	"	"	"	ND	79	50-128%	1	30%	
2,3,5,6-Tetrachlorophenol	2.88	0.240	0.481	"	"	"	ND	75	50-121%	2	30%	
2,4,5-Trichlorophenol	2.72	0.240	0.481	"	"	"	ND	71	53-123%	0.7	30%	
2,4,6-Trichlorophenol	2.54	0.240	0.481	"	"	"	ND	66	50-125%	1	30%	
Bis(2-ethylhexyl)phthalate	3.59	0.481	0.962	"	"	"	ND	93	55-135%	3	30%	
Butyl benzyl phthalate	3.55	0.481	0.962	"	"	"	ND	92	53-134%	2	30%	
Diethylphthalate	2.33	0.481	0.962	"	"	"	ND	60	55-125%	3	30%	
Dimethylphthalate	2.37	0.481	0.962	"	"	"	ND	62	45-127%	0.3	30%	
Di-n-butylphthalate	3.40	0.481	0.962	"	"	"	ND	88	59-127%	2	30%	
Di-n-octyl phthalate	3.26	0.481	0.962	"	"	"	ND	85	50-140%	5	30%	
N-Nitrosodimethylamine	0.773	0.240	0.481	"	"	"	ND	20	6-120%	9	30%	Q-31
N-Nitroso-di-n-propylamine	1.51	0.240	0.481	"	"	"	ND	39	49-120%	4	30%	Q-01
N-Nitrosodiphenylamine	2.62	0.240	0.481	"	"	"	ND	68	51-123%	0.5	30%	
Bis(2-Chloroethoxy) methane	1.53	0.240	0.481	"	"	"	ND	40	48-120%	6	30%	Q-01
Bis(2-Chloroethyl) ether	1.47	0.240	0.481	"	"	"	ND	38	43-120%	4	30%	Q-01

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110577 - EPA 3510C (Acid/Base Neutral)							**Water**					
Matrix Spike Dup (6110577-MSD1)					Prepared: 11/15/16 11:25 Analyzed: 11/15/16 19:03							
QC Source Sample: LW010D (A6K0418-11)												
EPA 8270D												
Bis(2-Chloroisopropyl) ether	1.29	0.240	0.481	ug/L	"	"	ND	33	37-130%	7	30%	Q-01, Q-31
Hexachlorobenzene	2.41	0.240	0.481	"	"	"	ND	63	52-125%	2	30%	
Hexachlorobutadiene	1.23	0.240	0.481	"	"	"	ND	32	22-124%	13	30%	
Hexachlorocyclopentadiene	1.26	0.240	0.481	"	"	"	ND	33	5-127%	26	30%	
Hexachloroethane	1.10	0.240	0.481	"	"	"	ND	29	21-120%	11	30%	
2-Chloronaphthalene	1.74	0.240	0.481	"	"	"	ND	45	40-120%	8	30%	
1,2-Dichlorobenzene	1.25	0.240	0.481	"	"	"	ND	32	32-120%	13	30%	
1,3-Dichlorobenzene	1.21	0.240	0.481	"	"	"	ND	31	28-120%	14	30%	
1,4-Dichlorobenzene	1.23	0.240	0.481	"	"	"	ND	32	29-120%	12	30%	
1,2,4-Trichlorobenzene	1.43	0.240	0.481	"	"	"	ND	37	"	11	30%	
4-Bromophenyl phenyl ether	2.47	0.240	0.481	"	"	"	ND	64	54-124%	1	30%	
4-Chlorophenyl phenyl ether	2.29	0.240	0.481	"	"	"	ND	59	53-121%	3	30%	
Aniline	1.19	0.240	0.481	"	"	"	ND	31	6-120%	6	30%	Q-31
4-Chloroaniline	0.997	0.481	0.962	"	"	"	ND	26	33-120%	15	30%	Q-01, Q-31
2-Nitroaniline	2.66	0.481	0.962	"	"	"	ND	69	54-127%	0.6	30%	
3-Nitroaniline	2.52	0.481	0.962	"	"	"	ND	65	41-128%	3	30%	
4-Nitroaniline	3.21	0.481	0.962	"	"	"	ND	84	35-120%	0.2	30%	
Nitrobenzene	1.42	0.240	0.481	"	"	"	ND	37	45-121%	7	30%	Q-01
2,4-Dinitrotoluene	2.72	0.240	0.481	"	"	"	ND	71	57-128%	1	30%	
2,6-Dinitrotoluene	2.44	0.240	0.481	"	"	"	ND	63	57-124%	2	30%	
1,2-Dinitrobenzene	2.65	0.240	0.481	"	"	"	ND	69	59-120%	0.8	30%	
1,3-Dinitrobenzene	2.65	0.240	0.481	"	"	"	ND	69	49-128%	1	30%	
1,4-Dinitrobenzene	2.71	0.240	0.481	"	"	"	ND	70	40-120%	1	30%	
Benzoic acid	1.60	0.962	0.962	"	"	7.69	ND	4	5-120%		30%	Q-01
Benzyl alcohol	1.74	0.240	0.481	"	"	3.85	ND	45	31-120%	5	30%	
Azobenzene (1,2-DPH)	1.99	0.240	0.481	"	"	"	ND	52	61-120%	0.1	30%	Q-01
Bis(2-Ethylhexyl) adipate	3.49	0.240	0.481	"	"	"	ND	91	40-125%	3	30%	
Isophorone	1.58	0.240	0.481	"	"	"	ND	41	42-124%	6	30%	Q-01
Pyridine	0.839	0.240	0.481	"	"	"	ND	22	5-120%	10	30%	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 37 %*		*Limits: 44-120 %*		*Dilution: 1x*					*S-06*
2-Fluorobiphenyl (Surr)			*44 %*		*44-120 %*		*"*					
Phenol-d6 (Surr)			*14 %*		*10-120 %*		*"*					
p-Terphenyl-d14 (Surr)			*90 %*		*50-133 %*		*"*					

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110577 - EPA 3510C (Acid/Base Neutral)												**Water**
Matrix Spike Dup (6110577-MSD1)						Prepared: 11/15/16 11:25 Analyzed: 11/15/16 19:03						
QC Source Sample: LW010D (A6K0418-11)												
EPA 8270D												
Surr: 2-Fluorophenol (Surr)	*Recovery: 21 %*		*Limits: 19-120 %*		*Dilution: 1x*							
2,4,6-Tribromophenol (Surr)	*83 %*		*43-140 %*		*"*							*Q-41*

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110838 - EPA 3015A									**Water**			
Blank (6110838-BLK1)					Prepared: 11/23/16 12:13		Analyzed: 11/29/16 15:34					
EPA 6020A												
Arsenic	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Copper	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Lead	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Nickel	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Zinc	ND	2.00	4.00	"	"	---	---	---	---	---	---	
Blank (6110838-BLK2)					Prepared: 11/23/16 12:13		Analyzed: 11/30/16 13:16					
EPA 6020A												
Selenium	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	Q-16
LCS (6110838-BS1)					Prepared: 11/23/16 12:13		Analyzed: 11/29/16 15:37					
EPA 6020A												
Arsenic	55.8	0.500	1.00	ug/L	1	55.6	---	100	80-120%	---	---	
Chromium	56.1	0.500	1.00	"	"	"	---	101	"	---	---	
Copper	55.6	0.500	1.00	"	"	"	---	100	"	---	---	
Lead	56.3	0.100	0.200	"	"	"	---	101	"	---	---	
Nickel	56.2	0.500	1.00	"	"	"	---	101	"	---	---	
Selenium	28.8	1.00	2.00	"	"	27.8	---	104	"	---	---	
Zinc	55.4	2.00	4.00	"	"	55.6	---	100	"	---	---	
Matrix Spike (6110838-MS1)					Prepared: 11/23/16 12:13		Analyzed: 11/29/16 17:17					
QC Source Sample: LW010D (A6K0418-11)												
EPA 6020A												
Arsenic	73.5	0.500	1.00	ug/L	1	55.6	19.2	98	75-125%	---	---	
Chromium	55.2	0.500	1.00	"	"	"	ND	99	"	---	---	
Copper	62.5	0.500	1.00	"	"	"	8.72	97	"	---	---	
Lead	55.7	0.100	0.200	"	"	"	ND	100	"	---	---	
Nickel	56.8	0.500	1.00	"	"	"	4.19	95	"	---	---	
Selenium	29.0	1.00	2.00	"	"	27.8	ND	104	"	---	---	
Zinc	59.4	2.00	4.00	"	"	55.6	6.86	95	"	---	---	
Matrix Spike (6110838-MS2)					Prepared: 11/23/16 12:13		Analyzed: 11/29/16 16:35					
QC Source Sample: LW020S (A6K0418-01)												
EPA 6020A												

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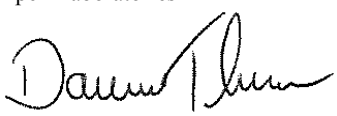

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110838 - EPA 3015A									**Water**			
Matrix Spike (6110838-MS2)					Prepared: 11/23/16 12:13		Analyzed: 11/29/16 16:35					
QC Source Sample: LW020S (A6K0418-01)												
EPA 6020A												
Arsenic	89.4	0.500	1.00	ug/L	1	55.6	33.2	101	75-125%	---	---	
Chromium	57.0	0.500	1.00	"	"	"	ND	103	"	---	---	
Copper	56.9	0.500	1.00	"	"	"	0.789	101	"	---	---	
Lead	57.0	0.100	0.200	"	"	"	ND	103	"	---	---	
Nickel	56.6	0.500	1.00	"	"	"	1.10	100	"	---	---	
Selenium	29.0	1.00	2.00	"	"	27.8	ND	105	"	---	---	
Zinc	56.3	2.00	4.00	"	"	55.6	ND	101	"	---	---	
Matrix Spike Dup (6110838-MSD1)					Prepared: 11/23/16 12:13		Analyzed: 11/29/16 17:20					
QC Source Sample: LW010D (A6K0418-11)												
EPA 6020A												
Arsenic	73.2	0.500	1.00	ug/L	1	55.6	19.2	97	75-125%	0.3	20%	
Chromium	55.0	0.500	1.00	"	"	"	ND	99	"	0.3	20%	
Copper	62.8	0.500	1.00	"	"	"	8.72	97	"	0.5	20%	
Lead	55.7	0.100	0.200	"	"	"	ND	100	"	0.06	20%	
Nickel	57.9	0.500	1.00	"	"	"	4.19	97	"	2	20%	
Selenium	28.8	1.00	2.00	"	"	27.8	ND	104	"	0.7	20%	
Zinc	59.1	2.00	4.00	"	"	55.6	6.86	94	"	0.5	20%	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6110868 - EPA 3015A									Water			
Blank (6110868-BLK1)					Prepared: 11/28/16 09:36 Analyzed: 11/29/16 20:54							
EPA 6020A												
Arsenic	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Copper	**0.595**	0.500	1.00	"	"	---	---	---	---	---	---	
Lead	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Nickel	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Selenium	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Zinc	ND	2.00	4.00	"	"	---	---	---	---	---	---	
LCS (6110868-BS1)					Prepared: 11/28/16 09:36 Analyzed: 11/29/16 20:57							
EPA 6020A												
Arsenic	56.0	0.500	1.00	ug/L	1	55.6	---	101	80-120%	---	---	
Chromium	56.7	0.500	1.00	"	"	"	---	102	"	---	---	
Copper	54.7	0.500	1.00	"	"	"	---	98	"	---	---	
Lead	53.8	0.100	0.200	"	"	"	---	97	"	---	---	
Nickel	58.9	0.500	1.00	"	"	"	---	106	"	---	---	
Selenium	30.0	0.500	1.00	"	"	27.8	---	108	"	---	---	
Zinc	54.7	2.00	4.00	"	"	55.6	---	99	"	---	---	
Post Spike (6110868-PS1)					Prepared: 11/28/16 09:36 Analyzed: 11/30/16 16:57							
Arsenic	51.0			ug/L	1	50.0	ND	97	80-120%		---	

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6110558							
A6K0418-01	Water	NWTPH-Dx	11/09/16 14:45	11/15/16 10:47	1050mL/2mL	1000mL/2mL	0.95
A6K0418-02	Water	NWTPH-Dx	11/09/16 15:10	11/15/16 10:47	1050mL/2mL	1000mL/2mL	0.95
A6K0418-03	Water	NWTPH-Dx	11/10/16 14:25	11/15/16 10:47	1050mL/2mL	1000mL/2mL	0.95
A6K0418-04	Water	NWTPH-Dx	11/10/16 15:15	11/15/16 10:47	1050mL/2mL	1000mL/2mL	0.95
A6K0418-05	Water	NWTPH-Dx	11/11/16 09:30	11/15/16 10:47	1050mL/2mL	1000mL/2mL	0.95
A6K0418-06	Water	NWTPH-Dx	11/11/16 10:25	11/15/16 10:47	1060mL/2mL	1000mL/2mL	0.94
A6K0418-07	Water	NWTPH-Dx	11/11/16 11:15	11/15/16 10:47	1050mL/2mL	1000mL/2mL	0.95
A6K0418-08	Water	NWTPH-Dx	11/11/16 13:30	11/15/16 10:47	1060mL/2mL	1000mL/2mL	0.94
A6K0418-09	Water	NWTPH-Dx	11/11/16 14:30	11/15/16 10:47	1010mL/2mL	1000mL/2mL	0.99
A6K0418-10	Water	NWTPH-Dx	11/11/16 15:45	11/15/16 10:47	930mL/2mL	1000mL/2mL	1.08
A6K0418-12	Water	NWTPH-Dx	11/12/16 10:30	11/15/16 10:48	1040mL/2mL	1000mL/2mL	0.96
A6K0418-14	Water	NWTPH-Dx	11/12/16 11:40	11/15/16 07:06	1040mL/2mL	1000mL/2mL	0.96
A6K0418-15	Water	NWTPH-Dx	11/12/16 13:30	11/15/16 07:06	1020mL/2mL	1000mL/2mL	0.98
A6K0418-16	Water	NWTPH-Dx	11/12/16 14:15	11/15/16 07:06	1060mL/2mL	1000mL/2mL	0.94
A6K0418-17	Water	NWTPH-Dx	11/12/16 15:15	11/15/16 07:06	1000mL/2mL	1000mL/2mL	1.00
A6K0418-18	Water	NWTPH-Dx	11/13/16 09:45	11/15/16 07:06	1040mL/2mL	1000mL/2mL	0.96
A6K0418-19RE3	Water	NWTPH-Dx	11/13/16 10:45	11/15/16 07:06	1040mL/2mL	1000mL/2mL	0.96
Batch: 6110586							
A6K0418-11	Water	NWTPH-Dx	11/12/16 09:30	11/15/16 13:59	1050mL/2mL	1000mL/2mL	0.95
A6K0418-13	Water	NWTPH-Dx	11/12/16 11:00	11/15/16 13:59	1050mL/2mL	1000mL/2mL	0.95

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6110522							
A6K0418-01	Water	NWTPH-Gx (MS)	11/09/16 14:45	11/14/16 11:57	5mL/5mL	5mL/5mL	1.00
A6K0418-02	Water	NWTPH-Gx (MS)	11/09/16 15:10	11/14/16 11:57	5mL/5mL	5mL/5mL	1.00
A6K0418-04	Water	NWTPH-Gx (MS)	11/10/16 15:15	11/14/16 11:57	5mL/5mL	5mL/5mL	1.00
A6K0418-12	Water	NWTPH-Gx (MS)	11/12/16 10:30	11/14/16 11:57	5mL/5mL	5mL/5mL	1.00
A6K0418-14	Water	NWTPH-Gx (MS)	11/12/16 11:40	11/14/16 11:57	5mL/5mL	5mL/5mL	1.00
A6K0418-15	Water	NWTPH-Gx (MS)	11/12/16 13:30	11/14/16 11:57	5mL/5mL	5mL/5mL	1.00
Batch: 6110526							
A6K0418-03	Water	NWTPH-Gx (MS)	11/10/16 14:25	11/14/16 12:10	5mL/5mL	5mL/5mL	1.00

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

SAMPLE PREPARATION INFORMATION

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6K0418-05	Water	NWTPH-Gx (MS)	11/11/16 09:30	11/14/16 12:10	5mL/5mL	5mL/5mL	1.00
A6K0418-07	Water	NWTPH-Gx (MS)	11/11/16 11:15	11/14/16 12:10	5mL/5mL	5mL/5mL	1.00
A6K0418-08	Water	NWTPH-Gx (MS)	11/11/16 13:30	11/14/16 12:10	5mL/5mL	5mL/5mL	1.00
A6K0418-09	Water	NWTPH-Gx (MS)	11/11/16 14:30	11/14/16 12:10	5mL/5mL	5mL/5mL	1.00
A6K0418-10	Water	NWTPH-Gx (MS)	11/11/16 15:45	11/14/16 12:10	5mL/5mL	5mL/5mL	1.00
A6K0418-11	Water	NWTPH-Gx (MS)	11/12/16 09:30	11/14/16 12:10	5mL/5mL	5mL/5mL	1.00
A6K0418-13	Water	NWTPH-Gx (MS)	11/12/16 11:00	11/14/16 12:10	5mL/5mL	5mL/5mL	1.00
A6K0418-18	Water	NWTPH-Gx (MS)	11/13/16 09:45	11/14/16 12:10	5mL/5mL	5mL/5mL	1.00
A6K0418-20	Water	NWTPH-Gx (MS)	11/13/16 00:00	11/14/16 12:10	5mL/5mL	5mL/5mL	1.00
A6K0418-21	Water	NWTPH-Gx (MS)	11/13/16 00:00	11/14/16 12:10	5mL/5mL	5mL/5mL	1.00
Batch: 6110567							
A6K0418-06	Water	NWTPH-Gx (MS)	11/11/16 10:25	11/15/16 11:14	5mL/5mL	5mL/5mL	1.00
A6K0418-16	Water	NWTPH-Gx (MS)	11/12/16 14:15	11/15/16 11:14	5mL/5mL	5mL/5mL	1.00
A6K0418-17	Water	NWTPH-Gx (MS)	11/12/16 15:15	11/15/16 11:14	5mL/5mL	5mL/5mL	1.00
A6K0418-19	Water	NWTPH-Gx (MS)	11/13/16 10:45	11/15/16 11:14	5mL/5mL	5mL/5mL	1.00

Volatile Organic Compounds by EPA 8260B

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6110522							
A6K0418-12	Water	EPA 8260B	11/12/16 10:30	11/14/16 11:57	5mL/5mL	5mL/5mL	1.00
A6K0418-14	Water	EPA 8260B	11/12/16 11:40	11/14/16 11:57	5mL/5mL	5mL/5mL	1.00
A6K0418-15	Water	EPA 8260B	11/12/16 13:30	11/14/16 11:57	5mL/5mL	5mL/5mL	1.00
Batch: 6110526							
A6K0418-05	Water	EPA 8260B	11/11/16 09:30	11/14/16 12:10	5mL/5mL	5mL/5mL	1.00
A6K0418-07	Water	EPA 8260B	11/11/16 11:15	11/14/16 12:10	5mL/5mL	5mL/5mL	1.00
A6K0418-11	Water	EPA 8260B	11/12/16 09:30	11/14/16 12:10	5mL/5mL	5mL/5mL	1.00
A6K0418-13	Water	EPA 8260B	11/12/16 11:00	11/14/16 12:10	5mL/5mL	5mL/5mL	1.00
A6K0418-20	Water	EPA 8260B	11/13/16 00:00	11/14/16 12:10	5mL/5mL	5mL/5mL	1.00
A6K0418-21	Water	EPA 8260B	11/13/16 00:00	11/14/16 12:10	5mL/5mL	5mL/5mL	1.00
Batch: 6110567							
A6K0418-06	Water	EPA 8260B	11/11/16 10:25	11/15/16 11:14	5mL/5mL	5mL/5mL	1.00
A6K0418-16	Water	EPA 8260B	11/12/16 14:15	11/15/16 11:14	5mL/5mL	5mL/5mL	1.00
A6K0418-17	Water	EPA 8260B	11/12/16 15:15	11/15/16 11:14	5mL/5mL	5mL/5mL	1.00

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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

SAMPLE PREPARATION INFORMATION

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3510C (Acid/Base Neutral)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6110577							
A6K0418-05	Water	EPA 8270D	11/11/16 09:30	11/15/16 11:25	1030mL/1mL	1000mL/1mL	0.97
A6K0418-06	Water	EPA 8270D	11/11/16 10:25	11/15/16 11:25	1040mL/1mL	1000mL/1mL	0.96
A6K0418-07RE1	Water	EPA 8270D	11/11/16 11:15	11/15/16 11:25	1040mL/1mL	1000mL/1mL	0.96
A6K0418-11	Water	EPA 8270D	11/12/16 09:30	11/15/16 11:25	1040mL/1mL	1000mL/1mL	0.96
A6K0418-12	Water	EPA 8270D	11/12/16 10:30	11/15/16 11:25	1020mL/1mL	1000mL/1mL	0.98
A6K0418-13RE1	Water	EPA 8270D	11/12/16 11:00	11/15/16 14:52	1040mL/1mL	1000mL/1mL	0.96
A6K0418-14	Water	EPA 8270D	11/12/16 11:40	11/15/16 14:52	1040mL/1mL	1000mL/1mL	0.96
A6K0418-15RE1	Water	EPA 8270D	11/12/16 13:30	11/15/16 14:52	1030mL/1mL	1000mL/1mL	0.97
A6K0418-16	Water	EPA 8270D	11/12/16 14:15	11/15/16 14:52	1040mL/1mL	1000mL/1mL	0.96
A6K0418-17	Water	EPA 8270D	11/12/16 15:15	11/15/16 14:52	1020mL/1mL	1000mL/1mL	0.98

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6110838							
A6K0418-01	Water	EPA 6020A	11/09/16 14:45	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-02	Water	EPA 6020A	11/09/16 15:10	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-02RE1	Water	EPA 6020A	11/09/16 15:10	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-03	Water	EPA 6020A	11/10/16 14:25	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-03RE1	Water	EPA 6020A	11/10/16 14:25	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-04	Water	EPA 6020A	11/10/16 15:15	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-04RE1	Water	EPA 6020A	11/10/16 15:15	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-05	Water	EPA 6020A	11/11/16 09:30	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-05RE1	Water	EPA 6020A	11/11/16 09:30	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-06	Water	EPA 6020A	11/11/16 10:25	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-06RE1	Water	EPA 6020A	11/11/16 10:25	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-07	Water	EPA 6020A	11/11/16 11:15	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-07RE1	Water	EPA 6020A	11/11/16 11:15	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-09	Water	EPA 6020A	11/11/16 14:30	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-09RE1	Water	EPA 6020A	11/11/16 14:30	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-10	Water	EPA 6020A	11/11/16 15:45	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-10RE1	Water	EPA 6020A	11/11/16 15:45	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-11	Water	EPA 6020A	11/12/16 09:30	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00

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503-718-2323 Phone
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Stantec Lynnwood	Project: **TOC Groundwater Quarterly**	
19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6K0418-12	Water	EPA 6020A	11/12/16 10:30	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-12RE1	Water	EPA 6020A	11/12/16 10:30	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-13	Water	EPA 6020A	11/12/16 11:00	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-13RE1	Water	EPA 6020A	11/12/16 11:00	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-14	Water	EPA 6020A	11/12/16 11:40	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-14RE1	Water	EPA 6020A	11/12/16 11:40	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-15	Water	EPA 6020A	11/12/16 13:30	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-15RE1	Water	EPA 6020A	11/12/16 13:30	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-16	Water	EPA 6020A	11/12/16 14:15	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
A6K0418-16RE1	Water	EPA 6020A	11/12/16 14:15	11/23/16 12:13	45mL/50mL	45mL/50mL	1.00
Batch: 6110868							
A6K0418-17	Water	EPA 6020A	11/12/16 15:15	11/28/16 09:36	45mL/50mL	45mL/50mL	1.00
A6K0418-18	Water	EPA 6020A	11/13/16 09:45	11/28/16 09:36	45mL/50mL	45mL/50mL	1.00

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19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

Notes and Definitions

Qualifiers:

F-11	The hydrocarbon pattern indicates possible weathered diesel, or a contribution from a related component.
F-12	The result for this hydrocarbon range is primarily due to the presence of individual analyte peaks in the quantitation range. No fuel pattern detected.
F-13	The chromatographic pattern does not resemble the fuel standard used for quantitation
F-20	Result for Diesel is Estimated due to overlap from the Gasoline Range.
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
M-02	Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
M-04	Due to matrix interference, this analyte cannot be accurately quantified. The reported result may contain a high bias.
Q-01	Spike recovery and/or RPD is outside acceptance limits.
Q-16	Reanalysis of an original Batch QC sample.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
Q-29	Recovery for Lab Control Spike (LCS) is above the upper control limit. Data may be biased high.
Q-30	Recovery for Lab Control Spike (LCS) is below the lower control limit. Data may be biased low.
Q-31	Estimated Results. Recovery of Continuing Calibration Verification sample below lower control limit for this analyte. Results are likely biased low.
Q-41	Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.
Q-42	Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
R-02	The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
S-01	Surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference.
S-05	Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.
S-06	Surrogate recovery is outside of established control limits.

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit

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Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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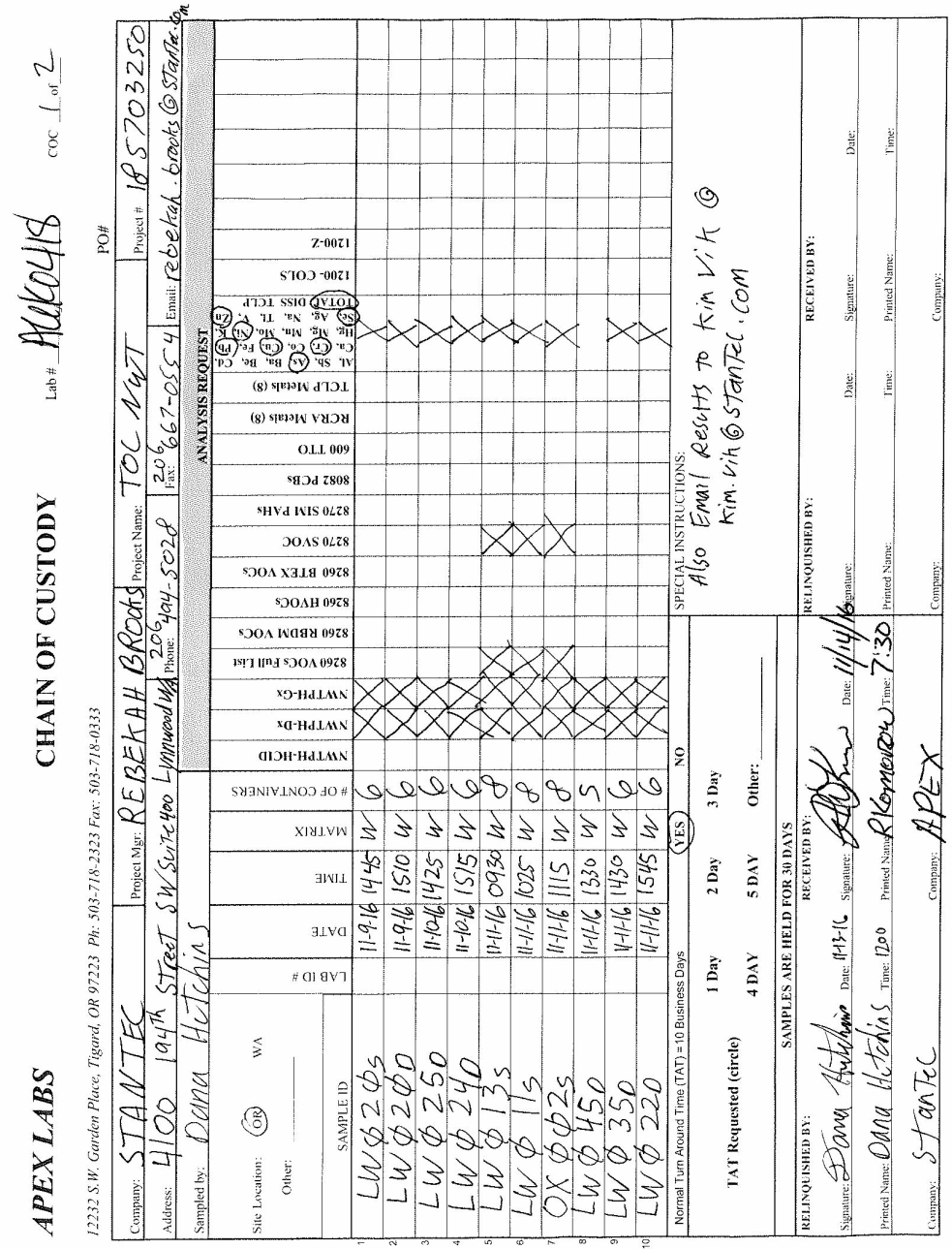

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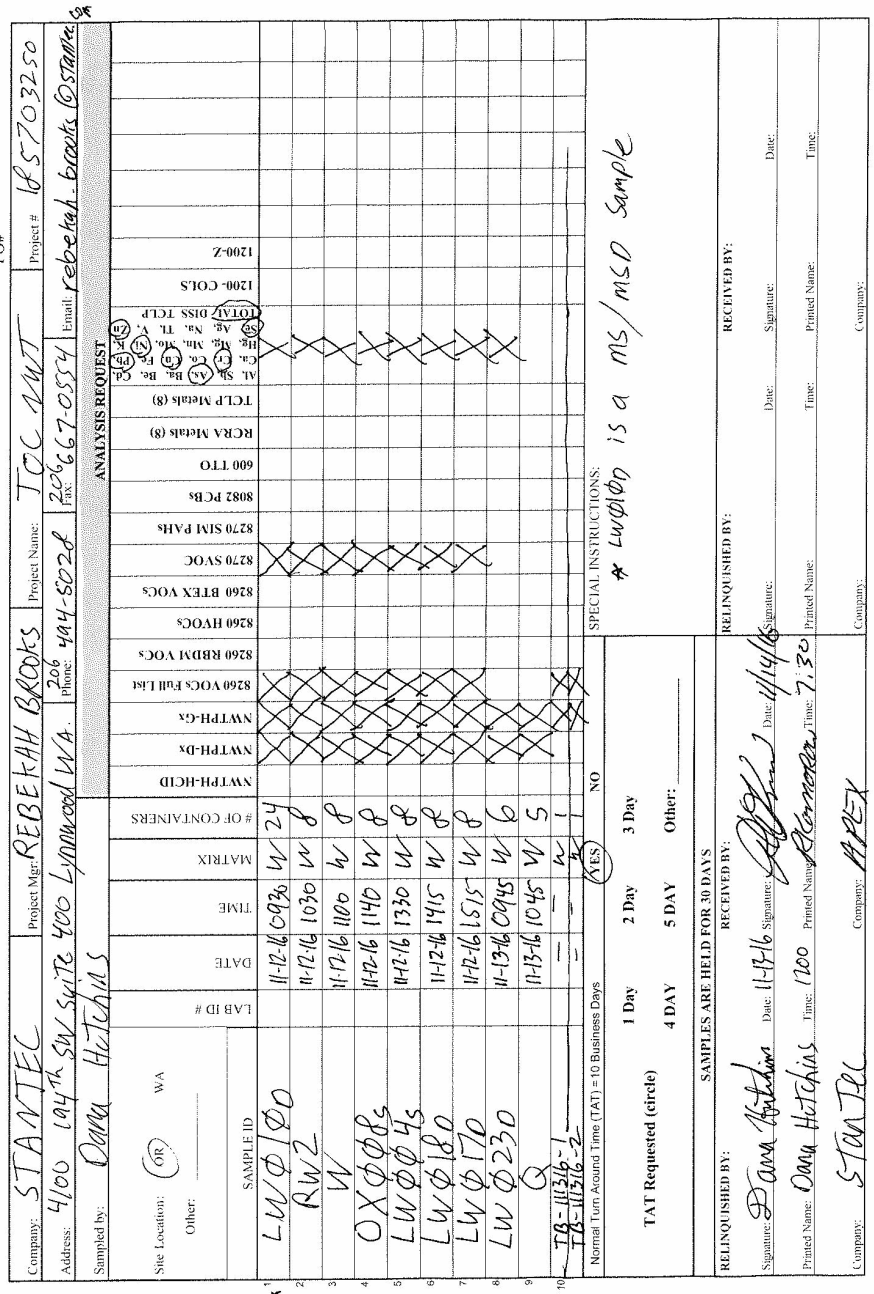

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19101 36th Avenue West Suite 203	Project Number: 185703250	**Reported:**
Lynwood, WA 98036-5759	Project Manager: Rebekah Brooks	01/02/17 16:44

APEX LABS COOLER RECEIPT FORM

Client: Stantec Element WO#: A6 K0418

Project/Project #: TOC NWT | 185703250

Delivery info:

Date/Time Received: 11/14/16 @ 0730 By: RIC

Delivered by: Apex X Client ___ ESS ___ FedEx ___ UPS ___ Swift ___ Senvoy ___ SDS ___ Other ___

Cooler Inspection Inspected by: KAR : 11/14/16 @ 1011

Chain of Custody Included? Yes X No ___ Custody Seals? Yes ___ No ___

Signed/Dated by Client? Yes X No ___

Signed/Dated by Apex? Yes ___ No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7	
Temperature (deg. C)	3.8	2.6	2.0	3.4	2.8	2.1	2.1	2.9
Received on Ice? (Y/N)	Y							
Temp. Blanks? (Y/N)	N							
Ice Type: (Gel/Real/Other)	Real							
Condition:	good							

Cooler out of temp? (Y/N) Possible reason why: ___

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: KAR : 11/14/16 @ 1130

All Samples Intact? Yes X No ___ Comments: ___

Bottle Labels/COCs agree? Yes X No ___ Comments: ___

Containers/Volumes Received Appropriate for Analysis? Yes X No ___ Comments: ___

Do VOA Vials have Visible Headspace? Yes ___ No X NA X

Comments ___

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No ___ NA ___

Comments: ___

Additional Information: ___

Labeled by: KAR Witness: AK Cooler Inspected by: KAR See Project Contact Form: Y

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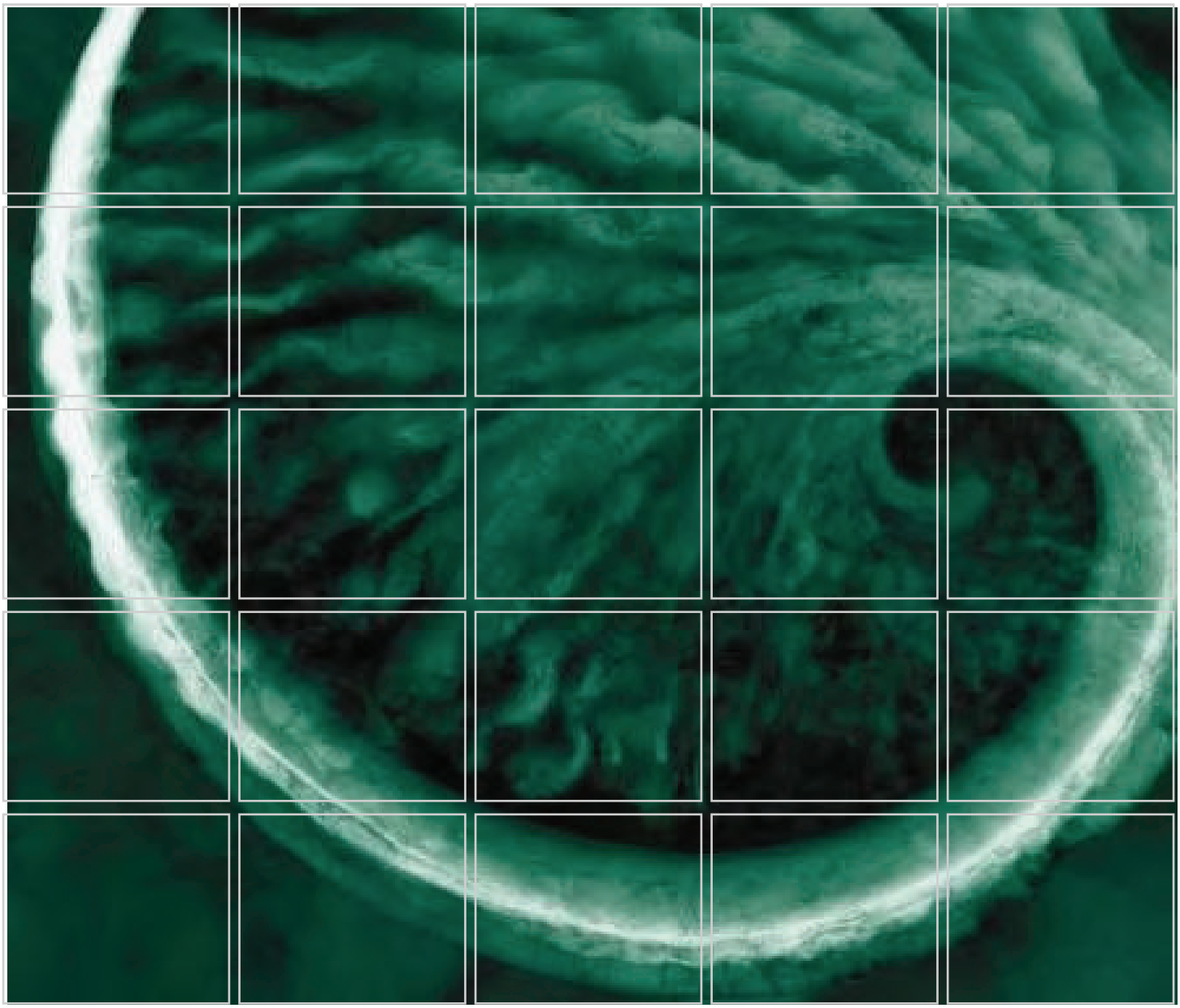
Darwin Thomas, Business Development Director

Upland and Transition Zone Water Investigation Report and Source Control Evaluation
Environmental Resources Management, 2017



Upland and Transition Zone Water Investigation Report and Source Control Evaluation

Prepared for:
MMGL LLC

Premier Edible Oils Site
Portland, Oregon

March 2017

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MMGL LLC

Upland and Transition Zone Water Investigation Report and Source Control Evaluation

Premier Edible Oils Site
Portland, Oregon

March 2017

Project No. 0296824

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LIST OF ACRONYMS AND ABREVIATIONS

ASTs	aboveground storage tanks
bgs	below ground surface
CL	Portland Harbor Cleanup Level
COC	Chemicals (or constituents) of Concern
COPC	Chemical of Potential Concern
COI	Contaminants (or chemicals/constituents) of Interest
ERA	Ecological Risk Assessment
ERM	ERM-West, Inc.
EQ	exceedance quotient
FS	Feasibility Study
GWBW	groundwater barrier wall
GW SCM	groundwater source control measure
HHRA	Human Health Risk Assessment
JSCS	Joint Source Control Strategy
LNAPL	light non-aqueous phase liquids
ODEQ	Oregon Department of Environmental Quality
PCBs	polychlorinated biphenyls
PAHs	polycyclic aromatic hydrocarbons
PRGs	Portland Harbor Preliminary Remediation Goals
PEO	Premier Edible Oils
RAO	Remedial Action Objectives
RI	Remedial Investigation
RBCs	Risk-Based Concentrations
TPH	total petroleum hydrocarbons
TZW	transition zone water
USEPA	US Environmental Protection Agency
VOCs	volatile organic compounds

1.0 INTRODUCTION

ERM-West, Inc. (ERM) has prepared this Upland and Transition Zone Water Investigation Report and Source Control Evaluation on behalf of MMGL LLC (MMGL), for the former Premier Edible Oils (PEO) site (herein referred to as "the site") located at 10400 North Burgard Way, Portland, Oregon (Figure 1). This report has been prepared pursuant to the Voluntary Agreement for Upland Remedial Investigation (RI)/Feasibility Study (FS) and Source Control Measures issued by the Oregon Department of Environmental Quality (ODEQ) and signed 6 March 2001 (ODEQ ECDVC-NWR-01-06) (Voluntary Agreement).

This report has been prepared to evaluate soil and groundwater conditions at the site as updated by data collected during recent investigations. These additional investigations include the Phase II Remedial Investigation (Phase II RI) activities and transition zone water (TZW) sampling conducted in 2014/2015.

1.1 OBJECTIVES

The objectives of this report are to:

- Summarize recent data gaps investigations to complete the RI/FS and Source Control Evaluation (SCE);
- Evaluate potential risk to human and ecological receptors from soil and groundwater at the site;
- Evaluate the potential need for source control measures at the site;
- Perform a weight-of-evidence analysis, taking into consideration several lines of evidence, to determine whether a source control measure(s) are warranted; and
- Provide recommendations for potential source control measure(s) if warranted.

1.2 REPORT ORGANIZATION

This report is organized as follows:

- Section 2 provides a description of the site, including the site history and historical sources, and summarizes the results of previous risk evaluations and identification of constituents of potential concern.

- Section 3 details the risk-based evaluation of site conditions.
- Section 4 provides the source control evaluation, including weight-of-evidence evaluation.
- Section 5 discusses conclusions and recommendations.
- Section 6 provides references.

2.0 SITE BACKGROUND

The site is an industrial property located on the Portland Harbor waterfront along the east bank of the Willamette River. The upland portion of the site has been used for a number of industrial operations since approximately 1940, including bulk petroleum storage, ship building, production of dry cell battery materials, and refining of edible oils. PEO operations were discontinued in approximately 1996, and the remaining buildings are vacant. A number of environmental investigations have been performed at the site since 2001 under the ODEQ Voluntary Cleanup Program, including a recent FS, Phase II RI, and human health and ecological risk screening.

The facility is bounded by the Willamette River on the south and west, exporting and metal recycling facilities to the east, and the Time Oil Co. Northwest Terminal (ECSI Site ID: 170) to the north.

2.1 SITE HISTORY

Detailed historical land use and potential contaminant of interest (COI) sources were presented in the *Phase II Remedial Investigation Work Plan* prepared by Treadwell & Rollo, A Langan Company and dated November 2014 (Treadwell & Rollo 2014b) and are summarized in this section.

The upland portion of the site has been used for a number of industrial operations since approximately 1940. From 1941 to 1943, Northwest Oil Company used the site for storage and handling of petroleum products. A petroleum tank farm on site consisted of seven aboveground storage tanks (ASTs) with a total storage capacity of approximately three million gallons, several small buildings, and a dock on the Willamette River. According to former employees, ASTs were generally located on asphalt or gravel foundation, although some tanks may have been on native soil. Historical research suggests there may have been a pipeline from the AST farm to the dock that could have served as a loading/unloading station. During site operations, the tanks were relocated from the site to the Northwest Terminal tank farm to the north where they were used to store gasoline, diesel, ethanol, butane, and other petroleum-related products. At the time of their relocation, the tank contents were only described as "oil." Investigations detected diesel, gasoline, and associated constituents in the vicinity of the footprint of the former tank farm.

The Oregon Shipbuilding Corporation used the site for logistical support for World War II ship building from 1943 to 1947. Operations at the site and surrounding properties during this time included building ships for federal merchant marines during World War II. Operations also consisted largely of boiler erection and the storage and transport of materials stored at the site. Materials were likely transported to and from the site via ship and rail. On-site structures consisted of a boiler building, fire brick storage building, paint storage building, cable storage building, coke storage bin, platform and railroad spurs, loading dock, and electrical transformers. Materials produced, used, and/or stored on site included coke, fire bricks, cables, paint, cleaning fluid, concrete, oil, putty, and cork.

From 1950 to 1956 the American Metallic Chemical Company operated the site for the production of electrolytic manganese dioxide and dry cell batteries. The daily production capacity in 1952 was approximately 10,000 pounds of manganese dioxide. On-site structures consisted of a boiler, fire brick and paint storage, and cable storage buildings. Three ASTs, likely in use for the storage of raw materials and process chemicals, were also located on site.

PEO operated the site from 1972 to 1997 for the refining of edible oils, such as palm and cottonseed oils, and packaging and shipping the oils for use in the processed food industry. Unrefined edible oils were stored at the northern AST farm and processed in the northern portion of the site. After processing, refined edible oils were stored at the southern tank farm and transported off site by rail. The operation used approximately 136 tanker-style rail cars dedicated to the shipment off site of refined edible oils, 133 of which were devoted to transport of finished oil and three of which were devoted to fatty acid service. Approximately 20 million tons of unrefined vegetable oils and 5 million tons of refined edible oils were stored on site at any given time.

2.1.1 Previous Investigations

Site investigation data, including soil and groundwater samples, have been collected periodically beginning in 1998. A number of environmental investigations and reports have been performed since 2013 and are summarized below.

- ***Southern PEO Investigation Technical Memorandum*** **(Treadwell & Rollo January 2013):** This report presented results of two investigations in 2012 and provided further characterization of river bank soil and groundwater conditions. The investigation additionally provided light non-aqueous phase liquids (LNAPL) recoverability and

fingerprinting data.

- ***Revised Feasibility Study, Southern Portion of Premier Edible Oils*; (Treadwell & Rollo February 2014) and *Addendum to the Revised Feasibility Study* (Treadwell & Rollo July 2014)**: These reports provided an evaluation of alternatives for source control and removal actions for reducing the impacts to groundwater and surface water. A hydraulic barrier (i.e., groundwater barrier wall) combined with an oxygenation/biobarrier was the recommended groundwater source control measure.
- ***Phase II Remedial Investigation Work Plan, Premier Edible Oils* (Treadwell & Rollo November 2014):** This report included a Human Health and Ecological Risk Exposure Assessment and a Risk Screening as part of the Human Health Risk Assessment (HHRA) and Ecological Risk Assessment (ERA) process. The results of the HHRA and ERA are discussed below.
- ***Transition Zone Water Sampling, Premier Edible Oils* (Treadwell & Rollo September 2014):** This report presented "low river stage" sampling data.
- ***Groundwater Barrier Wall Conceptual Design and Setback Memorandum* (ERM May 2015)**. This report presented the results of a geotechnical investigation and the conceptual design of a groundwater barrier wall (GWBW) component of the groundwater source control measure (GW SCM) at the site.
- ***Basis of Design Report - Groundwater Source Control Measure* (ERM July 2015)**. This report presented the preliminary basis of design of the GWBW.
- ***Revised Basis of Design Report - Groundwater Source Control Measure* (ERM September 2015)**. This report presented an update basis of design of the GWBW, and included a conceptual design of the oxygenation/biobarrier component and a performance monitoring plan.

2.2 RISK ASSESSMENT SUMMARY

2.2.1 Human Health and Ecological Risk Assessment

The applicable exposure scenarios and pathways at the site were previously evaluated in the HHRA and ERA presented in the Phase II RI Work Plan (Treadwell & Rollo 2014b). The conceptual site model used for the HHRA and ERA is included in Appendix A.

The site is currently vacant and is zoned for heavy industrial use and is surrounded by properties also zoned for heavy industrial use. The site and surrounding properties are designated as an "Industrial Sanctuary." Residential site use is not a current or likely future site use and no residential population is located within close proximity of the site. The current and future human health risk scenarios include potential exposure due to soil ingestion, dermal contact, and inhalation, and indoor and outdoor vapor intrusion. Screening values for these scenarios include the ODEQ Risk-Based Concentrations (RBCs) for general occupational receptors. If none exist, the US Environmental Protection Agency (USEPA) Risk Screening Levels for industrial soils were applied.

The current and future ecological risk scenarios include potential exposure due to ingestion, contact, and plant uptake to receptors from soils. Screening values for these scenarios include the ODEQ Level II Ecological Screening Level Values (SLVs). If none exist, the USEPA Ecological Soil Screening Levels (EcoSSLs) were applied.

For the purpose of risk assessment, the site was divided into two areas based on potential receptors; the Ecological Zone (Eco-Zone), and the Upland area. The Eco-Zone is defined as the area extending from the shoreline (Ordinary High Water at an elevation of 20.5 feet NAVD88) to the City of Portland Greenway setback, which is defined as 25 feet upland from the Top of Bank. Areas that are upland of this area are referred to as the Upland area. For the purpose of the ERA, only the site soil data collected within the Eco-Zone from surface to three feet below ground (bgs) was screened. The portions of the site greater than 25 feet from the river bank are not considered to pose an ecological risk due to the lack of potential ecological receptors based on the current and reasonably-likely future industrial site use, and presence of physical surface barriers covering much of the site. For the purpose of the HHRA, shallow soil data in the Upland area was evaluated for potential risk to human receptors.

2.2.2 *Additional Investigations*

Screening of COIs in soil and groundwater was performed in the Phase II RI Work Plan to identify Chemicals of Potential Concern (COPCs) for further evaluation. As a result, additional soil, soil gas, and groundwater investigation was performed in 2014 and 2015. These investigations consisted of sampling near-surface soils, limited soil gas sampling, and groundwater across the site, including TZW sampling. The TZW sampling consisted of a "low river stage" sampling event conducted in September 2014 and a "high river stage" TZW event in May 2015. The results of the soil, soil gas, groundwater, and "low river stage" sampling have been

presented previously (Treadwell & Rollo 2014). The scope of work and results of the "high river stage" sampling event are presented in Appendix B.

The COPCs addressed in the additional investigations include: total petroleum hydrocarbons (TPH); LNAPL; select volatile organic compounds (VOCs); polycyclic aromatic hydrocarbons (PAHs); and metals. Tables 1 through 3 present a summary of soil, groundwater, and soil gas data screening for site-specific COIs against RBCs.

Polychlorinated biphenyls (PCBs) were screened out as COIs because historical results did not exceed screening criteria and the low likelihood of releases from past operations (Treadwell & Rollo 2014b). However, five confirmation soil samples were collected from the footprint of former on-site soil stockpiles and analyzed for PCBs as part of the Phase II RI.

Confirmation samples for pesticides were also collected, based on ODEQ concerns regarding the potential use of pesticides in historical site operations (Treadwell & Rollo 2014b).

Because geochemical conditions of groundwater at the site likely affect mobilization of metals from soil to groundwater, natural attenuation and geochemical parameters in groundwater were also collected as part of the Phase II RI and TZW investigations.

3.0 RISK ASSESSMENT UPDATE

The additional near-surface soil samples, groundwater samples, and limited soil gas sampling collected as part of Phase II RI activities conducted in 2014 have been added to the existing data set. Tables 1 through 3 present the summary of soil, groundwater, and soil gas data respectively screened against site-specific screening levels in accordance with ODEQ cleanup guidance.

3.1 SOIL RESULTS

3.1.1 Human Health Risk Screening

For the purpose of the HHRA, soil data in the Upland area collected from the surface to 10 feet bgs were screened for soil ingestion, dermal contact, and inhalation risk, and data collected from the surface to 20 feet bgs were screened for vapor intrusion risk. Table 1 presents the summary of soil screening. Concentrations in soil exceeding occupational human health screening levels in the Upland portion of the site are shown on Figure 1.

In general, more than 95 percent of samples screened did not have concentrations above human health screening levels. A single historical detection of ethylbenzene in soil (MW-5-GRAB-20, collected at 20 feet bgs in 1998 in the Upland area) exceeded human health screening levels for vapor intrusion and indoor vapor intrusion in the industrial portion of the site. However, no exceedances of the ethylbenzene screening level in soil were observed during the Phase II RI investigations.

A single detection of benzo(a)pyrene in shallow soil collected at 0.5 foot (RA-02-0.5120415) exceeded human health screening levels for soil ingestion, dermal contact, and inhalation in the Upland area; however, the elevated concentration was of limited extent and no exceedance was observed in the deeper sample collected at approximately 2.5 feet bgs.

Additional pesticides soil characterization data were collected as part of the Phase II RI in the Upland area, and are presented in Table 1. Based on limited detections above reporting limits, concentrations are considered de minimis and were not evaluated further.

3.1.2 Ecological Risk Screening

As noted above, for the purpose of the site ERA, soil data screening was limited to soil data collected within the Eco-Zone, from the surface to 3 feet bgs (Table 1). Concentrations in soil exceeding ecological screening levels are shown on Figure 1.

In general, more than 50% of samples screened did not have concentrations above ecological screening levels. Concentrations of dibenzofuran were detected at concentrations up to 0.12 mg/kg in the Eco-Zone, exceeding the screening level of 0.002 mg/kg for terrestrial mammal receptors. This was the only COPC that exceeded terrestrial ecological receptor screening levels.

3.2 GROUNDWATER RESULTS

One constituent, hexachlorobenzene, was retained from the HHRA for further evaluation for screening of groundwater for vapor intrusion to buildings and volatilization to outdoor air; however, there are no historical detections of hexachlorobenzene above reporting limits in groundwater samples analyzed (Table 2).

Natural attenuation and geochemical parameters in groundwater were collected as part of the Phase II RI and TZW investigations, and are shown on Table 6. There are no applicable screening criteria for these parameters.

3.3 SOIL GAS RESULTS

Limited soil gas sampling was conducted by Treadwell & Rollo as part of Phase II RI activities in 2014 to evaluate potential indoor vapor intrusion risk to occupational receptors. The RBC value for soil gas includes a default attenuation factor of 1,000 for indoor air quality criteria for commercial buildings to account for the attenuation as soil gas migrates into indoor air. Analytical results of the soil gas sampling are presented in Table 3.

One soil gas sample (RA-SG-17-5) was collected at 5 feet bgs to further investigate the ethylbenzene exceedance detected in soil at MW-05, north of the former PEO processing building. One soil gas sample (RA-SG-21-5) was collected at 5 feet bgs near the former waste water treatment plant for analysis of trichloroethene. Both reported soil gas concentrations were below the ODEQ occupational RBC for soil gas (ODEQ 2015).

Four additional soil gas samples were collected from two locations (RA-31 and RA-32) at 5 and 10 feet bgs for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX) and TPH-G in the area of the former Northwest Oil Company southern tank farm. Soil gas concentrations of TPH-G ranged up to 33,000 mg/m^3, and exceeded the RBC for soil gas for occupational receptors of 1,700 mg/m^3. These samples were collected from below a concrete pad area that overlies an area of known LNAPL. There is no building present in this area of the site, and thus there is no current risk to occupational receptors.

4.0 SOURCE CONTROL EVALUATION

The Joint Source Control Strategy (JSCS) was developed by the ODEQ and the USEPA to identify, evaluate, and control sources of contamination that may impact the Willamette River in a manner that is consistent with the objective and schedule for the Portland Harbor Superfund Site RI/FS (ODEQ and USEPA 2005). The goal of the JSCS is to achieve timely upland source control to prevent the risk of significant recontamination after the Portland Harbor cleanup is complete. The JSCS guidance includes the groundwater, stormwater, and erodible soil pathways to the river.

The evaluation of contaminants potentially requiring source control performed in 2014 (Treadwell & Rollo 2014b) was based on a comparison to JSCS Screening Level Values (ODEQ and USEPA 2005). However, Portland Harbor Cleanup Levels (CLs) have since been established in the *Record of Decision for the Portland Harbor Superfund* (USEPA, January 2017) (ROD) that established criteria applicable to specific Remedial Action Objectives (RAOs) for Portland Harbor. The Portland Harbor RAOs potentially applicable at the PEO site include:

- RAO 1 – Sediment: Reduce cancer and non-cancer risks to people from incidental ingestion of and dermal contact with COCs in sediment and beaches to exposure levels that are acceptable for fishing, occupational, recreational, and ceremonial uses.
- RAO 2 - Biota: Reduce cancer and non-cancer risks to acceptable exposure levels (direct and indirect) for human consumption of COCs in fish and shellfish.
- RAO 3 – Surface Water: Reduce cancer and non-cancer risks to people from direct contact (ingestion, inhalation, and dermal contact) with COCs in surface water to exposure levels that are acceptable for fishing, occupational, recreational, and potential drinking water supply.
- RAO 4 – Groundwater: Reduce migration of COCs in groundwater to sediment and surface water such that levels are acceptable in sediment and surface water for human exposure.
- RAO 5 – Sediment: Reduce risk to benthic organisms from ingestion of and direct contact with COCs in sediment to acceptable exposure levels.
- RAO 6 – Biota (Predators): Reduce risks to ecological receptors that consume COCs in prey to acceptable exposure levels.
- RAO 7 – Surface Water: Reduce risks to ecological receptors from

ingestion of and direct contact with COCs in surface water to acceptable exposure levels.

- RAO 8 – Groundwater: Reduce migration of COCs in groundwater to sediment and surface water such that levels are acceptable in sediment and surface water for ecological exposure.
- RAO 9 – River Banks: Reduce migration of COCs in river banks to sediment and surface water such that levels are acceptable in sediment and surface water for human health and ecological exposures.

Table 4 presents a summary of the Portland Harbor CLs potentially applicable at the site and the selected screening levels. Tables 5 and 6 present Eco-Zone soil and groundwater data screened to the Portland Harbor CLs.

4.1 SOURCE CONTROL SCREENING RESULTS

Table 5 presents Eco-Zone soil data screened to the Portland Harbor CLs. Table 6 presents groundwater and TZW data screened to the Portland Harbor CLs. Analytical results were screened against the most conservative CLs.

In order to quantitatively assess the degree to which each analytical result exceeds the applicable screening value, an exceedance quotient (EQ) was calculated for each analyte detection and screening value, as follows:

$$\text{Exceedance Quotient (EQ)} = \frac{\text{Analytical Result}}{\text{Applicable Screening Value}}$$

The results of the screening are discussed below and presented in summary form in Figures 2 through 8.

4.1.1 Ecological Zone Soil

4.1.1.1 Polycyclic Aromatic Hydrocarbons

In general, the majority of samples screened, greater than 90%, were below Portland Harbor CL values for total PAHs. PAH concentrations in Eco-Zone soils were detected above the most conservative Portland Harbor CL value for B(a)PE; however, the B(a)PE CL for PAH in soil is

based on a regional sediment background level of 0.012 mg/kg of B(a)P in beach soil.[1]1

Exceedances of the Portland Harbor CL for B(a)PE are color-coded as EQs on Figure 2, and generally indicate that PAH concentrations in soil decrease from the Top of Bank towards the shoreline. The maximum EQ for B(a)PE in riverbank soils was 509 (sample RA-09A-3120514), collected a depth from 2.5 to 3 feet bgs. The surface sample associated with this location (RA-09A-0.5120514) collected from 0 to 0.5 ft bgs had an EQ of 25.3, indicating that surface soil concentrations lower than deeper soil. . The maximum EQ for soil samples collected from the beach is 8.5.

A summary of B(a)PE for site soils, beach sediment, and in water sediment is shown in Figure 3 (USEPA June 2016). The results indicated that in water sediment concentrations are similar to the beach soil samples, that is, EQs predominantly less than 10.

4.1.1.2 Total Petroleum Hydrocarbons – Diesel Range

Exceedances of Portland Harbor CLs for diesel range hydrocarbons were observed at two locations (BZ-1 and BZ-2) at depths greater than 2.5 feet below ground surface. EQs ranged from 10.4 to 47. These two locations are co-located with B(a)PE exceedances.

4.1.1.3 Metals

Exceedances of Portland Harbor CLs for metals in soil are color coded as EQs on Figure 4, and generally indicate that concentrations in soil decrease from the Top of Bank towards the river. Metal exceedances are generally limited to arsenic and EQs were less than 10.

The CL for arsenic is based on a background sediment concentration of 3 mg/kg, as presented in the Portland Harbor FS (USEPA 2017). There were no exceedances of the background sediment level in beach sediment samples. However, the background soil concentration of arsenic in the

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[1] EPA recently revised toxicity values for B(a)P. *USEPA January 2017 Toxicological Review of B(a)P*. Although these changes have not been taken into account in this source control evaluation, it may be important to do so later in the context of performance monitoring.

Portland Basin is 8.8 mg/kg as presented in *Development of Oregon Background Metals Concentrations in Soil (*ODEQ 2013). There were no exceedances of this background soil concentration for arsenic in any sample.

Lead and zinc CLs were exceeded in a single riverbank soil sample (BZ-7 2.5 – 3 ft bgs); however EQs were less than 10.

4.1.2 Groundwater and Transition Zone Water

Concentrations of PAHs, VOCs, and metals in groundwater and/or TZW at the site that exceeded the most conservative Portland Harbor CLs are summarized on Table 6. The most recent data and the maximum concentrations of each location, where available, are shown on Table 6 for comparison purposes.

4.1.2.1 Polycyclic Aromatic Hydrocarbons

Exceedances of Portland Harbor CLs for carcinogenic PAHs, expressed as benzo(a)pyrene equivalent toxicity (B[a]PE) in groundwater and TZW samples are shown as EQs on Figure 5 and indicate that elevated concentrations are generally limited to the southwest portion of the site. Exceedances observed in groundwater near the northeastern property boundary may be indicative of potential off-site sources. The most recent TZW samples, collected in 2015 during the "high river stage" and considered the most representative of conditions downgradient of the site, did not contain PAHs above reporting limits, thus indicating that PAH impacts to groundwater do not currently extend into the TZW.

4.1.2.2 Volatile Organic Compounds

Exceedances of Portland Harbor CLs for benzene in groundwater are shown as EQs on Figure 6. Exceedances of VOC CLs were generally limited to benzene, ethylbenzene, toluene, xylenes, trichloroethene, cis-1,2-dichloroethane, and vinyl chloride. The majority of observed exceedances are for benzene. EQs ranged from 0 to 770 for the maximum historical upland detection of benzene. Exceedances of additional VOCs are co-located with the benzene exceedances. The exceedances of VOCs in groundwater were generally limited to the southwestern portion of the site. Groundwater concentrations of VOCs have generally decreased over time, with the most recent concentrations approximately an order of magnitude lower than the historical maximums at most locations. The highest EQ in the 2015 TZW samples was 2.0. In general, concentrations decrease with distance from the Top of Bank towards the TZW.

4.1.2.3 *Metals*

The Portland Harbor CLs for arsenic and manganese are based on a receptor scenario of human consumption of the fish and drinking water and are considered the most conservative initial screening levels only. It should be noted that drinking water is not considered a complete exposure pathway at the site by the ODEQ (personal communication ODEQ, 2 June 2015). Additionally, the Portland Harbor CL for arsenic is lower than the expected regional background level, which is estimated to be in the range of 3 to 5 µg/L (personal communication with ODEQ and USEPA, 9 September 2015). Potential cleanup of arsenic in groundwater will not be required below background (personal communication with ODEQ and USEPA, 9 September 2015). A site specific background concentration has not been developed for this SCSE. It is unlikely that site specific background concentration can developed due to the interference of off-site upgradient contaminant sources. A regional background concentration is not currently available. For the purpose of completing groundwater and transition zone water source control screening evaluation, an expected background arsenic groundwater concentration of 2 µg/L was used. This value was used as a screening value as it is a conservative estimate of background concentration (anticipated 3 to 5 µg/L). Additionally this value is below the Oregon Ambient Water Quality Criteria of 2.1 µg/L that is applied at non-Portland Harbor sites. Further, this value corresponds to the approximate concentration of arsenic in stormwater of typical industrial sites in Portland Harbor (ODEQ 2010), below which the site is considered a low priority for source control. This indicates that regional background levels of arsenic in surface water and groundwater will likely be approximately 2 µg/L.

Arsenic concentrations in groundwater and TZW exceeding the expected background level are shown on Figure 7. The EQs for arsenic are generally less than 10, with the highest EQs observed at upgradient locations in the area of the former tank farm. The maximum EQ for dissolved arsenic was 12.9.

Manganese concentrations in groundwater and TZW exceeding the human health risk based Portland Harbor CL are shown on Figure 8. The highest EQ for dissolved manganese is 9.2. The highest EQs were observed at upgradient locations in the area of the former tank farm

Limited low level exceedances of copper, lead, vanadium, and zinc concentrations were observed.

4.2 WEIGHT-OF-EVIDENCE EVALUATION

A JSCS weight-of-evidence analysis takes into consideration several lines of evidence including chemical concentration data, magnitude of exceedance of a screening level, and other relevant information that must be considered in determining whether an area is considered a source of potential recontamination to sediment and requires source control. Based on JSCS guidance, weight-of-evidence elements that can be considered include, but are not limited to, the following site-specific factors:

- Contaminant concentrations (magnitude of exceedance above CLs);
- Regional background concentrations;
- Extent of contamination (e.g., area of exposed and/or erodible soil);
- Proximity of source area to the river;
- In-water sediment data in proximity to source area;
- Site surface conditions (e.g., exposed soil, paved, slope);
- River bank stability (e.g., potential for erosion under extreme rainfall events, potential for erosion under flood conditions, bank erosion rates);
- Soil properties (e.g., soil type, compaction, erodibility, permeability);
- Storm water management;
- Proximity of source area to storm water catch basins;
- Evaluation of potential contaminant transport (e.g., modeling, quantitative erosion calculations); and
- Estimate of potential contaminant loading to the river.

In some cases, many of these lines of evidence will not be relevant or necessary to consider in the source control analysis. However, any of these lines of evidence or others not listed above may be relevant. The following sections provide a discussion of the results of the screening and an initial weight of evidence analysis.

In accordance with the JSCS, all constituents which exceeded the CLs were carried forward into the weight-of-evidence evaluation.

4.2.1 Soils

4.2.1.1 Polycyclic Aromatic Hydrocarbons

Based on the results of the riverbank soil sampling performed in 2014/2015, some limited areas of impact were observed within the Eco-Zone. EQs in these areas range up to a maximum of 509. However, the extent of high PAH (as B[a]PE) exceedances in Eco-Zone soil appears to be limited to areas in the vicinity of RA-04, RA-08, RA-09, and RA-10, and generally with deeper samples. The locations correspond to the locations of former outfalls at the facility. Other significant exceedances of B(a)PE CLs occur in areas upland of the Top of Bank (RA-05, RA-06, and RA-07). These focused areas of impact are considered to be the main drivers for potential risk for sediment recontamination and risk to receptors, and are thus priority areas for source control at the site. The ODEQ considers the riverbank soils to be a medium priority for source control (ODEQ 2014b).

B(a)PE EQs outside of the focused areas of impact range from 0 to approximately 25. Due to the relatively low magnitude of exceedances, these areas are considered a low priority for source control.

A comparison of concentrations of B(a)PE concentrations in surface soil samples to nearby in-water sediment samples (Portland Harbor RI/FS Feasibility Study, USEPA 2016) is provided in Figure 3.

Concentrations of B(a)PE in surface soil are generally lower than deeper samples and decrease with distance from upland portion of the site towards the shoreline, indicating that the soils at the Top of Bank are not a significant ongoing source of impacts to riverbank soils or sediment. Concentrations of samples collected from the beach, in areas directly down slope from RA-04, RA-08, RA-09, and RA-10 are generally an order of magnitude lower than concentrations observed in the adjacent riverbank soils. The beach samples also have similar order of magnitude of B(a)PE concentrations as adjacent in-water sediment samples, indicating the northern portion of the riverbank site is not an ongoing source of impact to river sediment.

The highest concentrations of the B(a)PE observed in upland surface soils are found in the samples from RA-5, RA-6, and RA-7. Beach samples adjacent to this area are approximately an order of magnitude lower than the adjacent riverbank samples. In water sediment B(a)PE concentrations in samples adjacent to and slightly downstream of these areas are the same order of magnitude as the beach samples, indicating that this

portion of the riverbank is unlikely an ongoing source of contaminants to river sediment.

4.2.1.2 Metals

Exceedances of Portland Harbor CLs for metals in soil are generally limited to arsenic and are within the same order of magnitude of the screening level of 3 mg/kg (based on the background sediment concentration of arsenic), as shown in Figure 4. The maximum EQ is 2.6. Further, all the arsenic concentrations in soils observed at the site are within the naturally occurring background level of 8.8 mg/kg in the Portland Basin (ODEQ 2013). Arsenic in soil is considered to be a low priority for source control.

There was one exceedance of the lead and one exceedance of mercury in riverbank soil/sediment CLs. The EQs for the detections were 4.2 and 1.3 respectively. Due to the low number and magnitude of the exceedances, lead and mercury in soil are considered low priorities for source control.

4.2.2 Riverbank Erodibility Investigation

The primary pathway for riverbank soils to act as a source of contaminants to the Willamette River, following implementation of a sediment remedial action, is through the erodible soil pathway. In order to evaluate the potential for riverbank soils to erode to the Willamette River, a riverbank erodibility investigation was implemented in May 2016. The riverbank erodibility investigation was performed using the methods described in the US Fish & Wildlife's *Bank Assessment for Non-point source Consequences of Sediment* (BANCS). USEPA and ODEQ agreed upon utilizing the BANCS methodology for evaluation of the river bank stability in Portland Harbor (email communication ODEQ 19 May 2016).

4.2.2.1 BANCS Model

The BANCS model uses a quantitative assessment of the Bank Erosion Hazard Index (BEHI). To evaluate the potential for erosion. The BEHI incorporates empirical values of bank variables that contribute to erosion. These variables include:

- Top of bank
- Bank full height
- Rooting depth and density
- Estimated ground cover

- Bank angle
- Percent bank protection

The empirical values are converted to index values, which are summed for a total BEHI score. The BEHI score is then adjusted for bank material composition and stratification, then categorized by erosion potential. An example BEHI rating form and Bank Erosion Hazard Rating Guide are provided in Appendix C.

4.2.2.2 Riverbank Evaluation

The site riverbank was divided into six areas for the purpose of evaluating erodibility. The vertical extent of the riverbank areas evaluated was defined by the top of bank and down to the Ordinary High Water Mark (OHWM). The areas and profiles are provided in Appendix C, Figures 1 to 3.

A surveyed profile was developed for each area, and then evaluated using the BANCS method. A field evaluation and estimation of BEHI variables was performed on 17 May 2016. The survey profiles are provided in Appendix C, Figures 4 and 5. A summary of each of the estimation of BEHI indices is provided in Appendix C. Due to the extremely large width and overall depth of the Willamette River, the bank full height was assumed to be the height from top of bank to the OHWM. This conservative assumption means that the erosion hazard is evaluated under extreme high flow conditions during the unlikely event that the entire riverbank is submerged. The results of the erosion hazard potential for each profile are provided in Table 7.

4.2.2.3 Riverbank Erodibility Evaluation Results

The results of the erosion hazard potential evaluation for Profiles 1, 2, and 3 are shown in Figure 9. Profiles 1, 2, and 3 had total BEHI scores of 15.2, 14.2, and 16.1 respectively and classified as low erosion hazard areas. The primary variables driving this evaluation results are the low bank slope angle and dense vegetation with significant root coverage.

Profiles 4, 5, and 6 are located within a moderate erosion hazard area. zone as shown in Figure 9. Profiles 4, 5 had total BEHI scores if 28.2, 28.8, and 25.9. The primary variables driving these evaluation results are the steeper bank angle, lower root density, and sandy bank composition.

Existing riprap is in place directly to the north of Profile 4. The presence of this existing bank armoring material, results in a low erosion hazard rating, despite the steeper bank angle.

4.2.3 Riverbank Source Control Evaluation

The primary contaminant associated with risk for potential recontamination of an in water sediment remedy, and for potential exposure through direct contact with beach sediment is B(a)PE. The method of transport of impacted riverbank soil to the beach and in water sediment is through erosion.

The results of the erodibility investigation indicated that the Eco-Zone can be divided into two areas based on erodibility hazard. The northern portion of the Eco-Zone has low erodibility hazard. This area also correlates to the lower B(a)PE concentrations in shallow river bank soil, and beach sediment (Figure 9). Due to the lower B(a)PE concentrations, demonstrated low potential for erosion, this area of the site is considered a low priority for source control.

The southern portion of the Eco-Zone has a moderate erosion hazard. This area of the site also correlates to the higher B(a)PE concentrations in shallow riverbank soil (Figure 5), and beach sediment. Although this area is an unlikely source of ongoing impact to river sediment, due to the higher B(a)PE concentrations and moderate potential for erosion, this area of the site is considered a medium priority for source control as a conservative protective measure.

4.2.4 Groundwater and TZW

4.2.4.1 Polycyclic Aromatic Hydrocarbons

Exceedances of Portland Harbor CLs for PAHs in groundwater are generally limited to the southwest portion of the site (Figure 6). The most recent TZW samples were non-detect and indicate that the extent of PAH impact in groundwater is limited to upland areas of the site and does not extend to the TZW, or to surface water (Table 6). PAHs in groundwater are considered to be a low priority for source control.

4.2.4.2 Volatile Organic Compounds

Exceedances of VOCs in groundwater are related to benzene, toluene, ethylbenzene, and xylene impacts. All the toluene, ethylbenzene and xylene impacts are collocated with benzene exceedances (Figure 7).

Benzene exceedances of CLs are generally higher than the toluene, ethylbenzene and xylene. The VOC (i.e., benzene) impacts are generally limited to the southwest portion of the site and decrease in the downgradient direction. The sources of benzene (i.e., former storage tanks) have been removed, and concentrations have decreased over time as the benzene is naturally attenuated. This process is continuing. The maximum upland groundwater EQ of 770 (MW-09) has decreased to 20 in 2012. The maximum EQ in the most recent beach zone sample was 169 (BZ-07 in 2012).

Concentrations of benzene in groundwater decrease from the upland toward the river. The extent of benzene appears to be primarily in the upland portions of the site, with limited impacts observed in the transition zone. Benzene in groundwater, with current EQs ranging from 0 to 169, is considered to be a medium priority for source control.

4.2.4.3 Metals

Results of the screening evaluation indicate that the majority of exceedances of metals in groundwater are for arsenic (Figure 8) and manganese (Figure 9). Exceedances are generally between 1 to 10 times the screening levels and are located within the southwestern portion of the site. The source of dissolved metals is considered to be mobilization of naturally occurring arsenic and manganese under reducing conditions generated as a result of biological degradation of petroleum hydrocarbons.

Based on the TZW sampling results, the dissolved arsenic and manganese impacts do not extend to the transition zone under current conditions. Significant attenuation appears to be occurring in the hyporheic zone, likely due to precipitation of the metals that occurs in the more oxidizing conditions of this zone. Impacts to sediment and surface water from dissolved arsenic and manganese appear to be limited and generally controlled by the significant amount of natural attenuation observed. Based on these observations, arsenic and manganese are considered a low priority for source control under conditions. However, due to the ongoing upland source (degradation of petroleum hydrocarbons) and proximity to the Willamette River, a GW SCM is proposed as a conservative approach to addressing potential future risk to the Willamette River.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The results of recent investigation have been incorporated into the HHRA and ERA for the site. The conclusions of the updated HHRA and ERA indicate that:

- Upland soil does not present an unacceptable risk to on-site occupational receptors;
- Upland groundwater does not pose an unacceptable risk to on-site occupational receptors;
- Based on soil gas sampling results, a potential risk to future occupational receptors from indoor vapor intrusion of TPH-G may exist if site redevelopment were to occur in the southwest area of the site that is currently covered by the concrete pad; however, there is no current exposure pathway; and
- Eco-Zone soils present a potential risk to terrestrial mammals due to concentrations of dibenzofuran in surface soils.

The results of the source control screening evaluation and weight-of-evidence evaluation indicate that:

- PAHs in soils within the southern portion of the Eco-Zone soils may require source control, specifically measures to prevent erosion within the area delineated by Profiles 4, 5 and 6 of the BANCS model;
- Benzene in groundwater may require source control; and
- Arsenic and manganese in groundwater are a low priority for source control under current conditions, but may require source control as a conservative approach to address potential ongoing upland sources.

The locations of the dibenzofuran and PAHs in Eco-Zone soils are collocated. It is anticipated that source control measures to address PAHs in Eco-Zone soils will also address the potential risk to terrestrial mammals from dibenzofurans. Addressing the PAHs in soil through focused source control actions can reduce the overall risk to acceptable levels.

Discussions regarding potential alternatives for source control actions to address potential risk from Eco-Zone soils have been initiated with the ODEQ. It is anticipated that the source control action to address PAHs in Eco-Zone soils will consist of targeted slope stabilization (e.g., cut back

slope and vegetation) to decrease the erosion potential of the southern portion of the Eco-Zone.

Based on historical investigations, a GW SCM consisting of a slurry wall in conjunction with an oxygenation/biobarrier system has been determined as a feasible alternative for controlling the potential migration of LNAPL into TZW and mitigating dissolved phase impacts to the Willamette River (Treadwell & Rollo 2014a; ODEQ 2014a). The GW SCM includes a GWBW to physically separate the affected upland portions of the site from the Willamette River, and an upgradient oxygenation/biobarrier system to oxygenate the aquifer and promote degradation and stabilization of LNAPL and dissolved phase contaminants, including benzene as discussed above. The GW SCM is currently being implemented and the GWBW was installed in fall 2015, as approved by the ODEQ and comments provided by the USEPA. Design and installation of the oxygenation/biobarrier phase is planned for 2017.

The installed GWBW is expected to flatten the hydraulic gradient on the riverward side of the barrier wall, thereby significantly reducing mass flux from the "stranded wedge" and improving overall TZW water quality. Additionally, the installed GWBW is expected to increase the travel time of groundwater flow which will allow for greater treatment time on the upgradient side of the GWBW following implementation of the future proposed oxygenation/biobarrier phase of the GW SCM. The flow of oxygenated water under and around the GWBW is expected to increase the current ongoing natural attenuation.

Arsenic, manganese, and benzene impacts to groundwater and the potential risk to receptors and sediment recontamination are expected to be effectively managed following the completion of the proposed GW SCM.

6.0 REFERENCES

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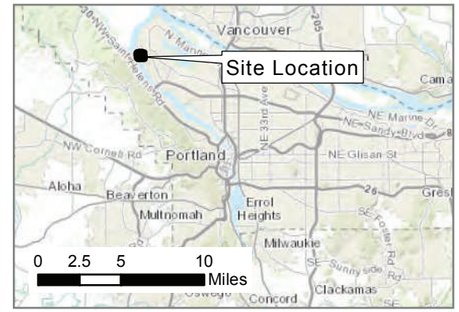
Figures

M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Ground_water_monitoring_PEO\Fig 1 - Soil Summary - ODEQ Risk Based Concentrations.mxd Created By: Alex Kirk Date: 2/28/2017 Project: 0296824



Legend

Soil Borings

- Exceedance of Soil Ingestion Health RBC Level
- Exceedance of Vapor Intrusion RBC Level
- Exceedance of Ecological RBC Level
- No Exceedances
- Not Analyzed
- Groundwater Barrier Wall
- Top of Bank
- Greenway Setback
- Ordinary High Water (20.5 ft NAVD88)
- Property Boundary

Notes:
All results presented in milligrams per kilogram (mg/kg)
RBC = Oregon DEQ Risk-based cleanup levels
0-0.5 ft bgs = Sample depth in feet below ground surface
B(a)P = Benzo(a)pyrene
E = Ethylbenzene
Dbz = Dibenzofuran
J = The analyte was positively identified; associated numerical value is the approximate concentration of the analyte in the sample.
D = Data reported from a dilution

Ethylbenzene Human Health RBC in mg/kg =
140 (Soil Ingestion, Dermal Contact, and Inhalation)
12 (Vapor Intrusion and Volatilization)
Benzo(a)pyrene Human Health RBC in mg/kg =
0.270 (Soil Ingestion, Dermal Contact, and Inhalation)
Benzo(a)pyrene Ecological RBC in mg/kg =
125 (Soil Ingestion, Contact and Uptake)
Dibenzofuran Ecological RBC in mg/kg =
0.002 (Soil Ingestion, Contact and Uptake)

Figure 1
Soil Summary - ODEQ
Risk Based Concentrations
Southern PEO Site
Portland, Oregon

Environmental Resources Management
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Project: 0296824
Date: 3/1/2017
Created By: Alex Kirk
M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Ground_water_monitoring_PEOIFig 3 - cPAHs Soil and Sed.mxd

LWG0103R003SDS015C10
0 - 0.5 ft bgs
B(a)PE: 0.17

LW2-G062
0 - 0.65 ft bgs
B(a)PE: 0.12

LWG0103R003SDS015C20
0 - 0.5 ft bgs
B(a)PE: 0.19

LWG0103R003SDS015C30
0 - 0.5 ft bgs
B(a)PE: 0.11

RA-01
0 - 0.5 ft bgs
B(a)PE: 0.0478

WR-WSI98SD007
0 - 0.33 ft bgs
B(a)PE: 0.074

LW3-G613
0 - 1.0 ft bgs
B(a)PE: 0.065

LW2-G065
0 - 1.0 ft bgs
B(a)PE: 0.19

RA-02
0 - 0.5 ft bgs
B(a)PE: 0.798

RA-09
1 - 1.5 ft bgs
B(a)PE:0.573

RA-09A
0 - 0.5 ft bgs
B(a)PE: 0.304

RA-09B
0 - 0.5 ft bgs
B(a)PE: 0.132

RA-09C
0 - 0.5 ft bgs
B(a)PE: 1.54

RA-09D
0 - 0.5 ft bgs
B(a)PE: 1.23

WR-WSI98SD008
0 - 0.33 ft bgs
B(a)PE: 0.79

RA-10
0 - 0.5 ft bgs
B(a)PE: 0.297

RA-03
0 - 0.5 ft bgs
B(a)PE: 0.0562

LW2-G067
0 - 0.75 ft bgs
B(a)PE: 0.11

MW-05
20 - 20 ft bgs
B(a)PE: 0.0001

MW-04
B(a)PE: ND

RA-11
0 - 0.5 ft bgs
B(a)PE: 0.0804

LW2-G068
0 - 0.92 ft bgs
B(a)PE: 0.17

RA-04
0 - 0.5 ft bgs
B(a)PE: 0.409

RA-18

RA-19

RA-20

RA-22

RA-21

RA-25

RA-23

RA-24

RA-12
0 - 0.5 ft bgs
B(a)PE: 0.0423

RA-08
1.5 - 2 ft bgs
B(a)PE: 0.644

RA-08B
0 - 0.5 ft bgs
B(a)PE: 1.28

RA-08C
0 - 0.5 ft bgs
B(a)PE: 1.49

RA-08D
0 - 0.5 ft bgs
B(a)PE: 2.71

LW3-GSP03E
0 - 0.62 ft bgs
B(a)PE: 0.2

MW-03
20 - 20 ft bgs
B(a)PE: 0.115

RA-05
0 - 0.5 ft bgs
B(a)PE: 1.35

LW3-G614
0 - 1.0 ft bgs
B(a)PE: 0.076

LW2-G071
0 - 0.89 ft bgs
B(a)PE: 0.09

RA-13
0 - 0.5 ft bgs
B(a)PE: 0.14

WR-WSI98SD009
0 - 0.33 ft bgs
B(a)PE: 0.18

RA-16
0 - 0.5 ft bgs
B(a)PE: 0.177

RA-06
0 - 0.5 ft bgs
B(a)PE: 0.169

RA-30

RA-26

BZ-03
1.5 - 2 ft bgs
B(a)PE: 0.0254

RA-14
0 - 0.5 ft bgs
B(a)PE: 0.299

MW-02

LW2-G073
0 - 0.91 ft bgs
B(a)PE: 0.011

RA-15
0 - 0.5 ft bgs
B(a)PE: 0.29

RA-07
0 - 0.5 ft bgs
B(a)PE: 1.55

RA-29

RA-27

RA-28

BZ-04
1.5 - 2 ft bgs
B(a)PE: 0.102

BZ-01
2.5 - 3 ft bgs
B(a)PE: 0.0684

WR-WSI98SD010
0 - 0.33 ft bgs
B(a)PE: 0.057

BZ-02
6.5 - 7 ft bgs
B(a)PE: 0.0535

LW2-G075-2
0 - 0.91 ft bgs
B(a)PE: 0.035

LW2-G075
0 - 0.91 ft bgs
B(a)PE: 0.023

LW2-G074
0 - 0.85 ft bgs
B(a)PE: 0.0077

BZ-07
2.5 - 3 ft bgs
B(a)PE: 0.0755

BZ-05
0.5 - 1 ft bgs
B(a)PE: 0.0343

BZ-06
0.5 - 1 ft bgs
B(a)PE: 0.0181

BZ-08
1.5 - 2 ft bgs
B(a)PE: 0.0229

LW2-G078
0 - 0.72 ft bgs
B(a)PE: 0.0088

LWG0103R034SDS015C00
0 - 0.5 ft bgs
B(a)PE: 0.014

WLCITH98SD11
0 - 0.5 ft bgs
B(a)PE: 0.7

LW2-G081
0 - 0.95 ft bgs
B(a)PE: 0.082

LW3-G784
0 - 1.0 ft bgs
B(a)PE: 0.075

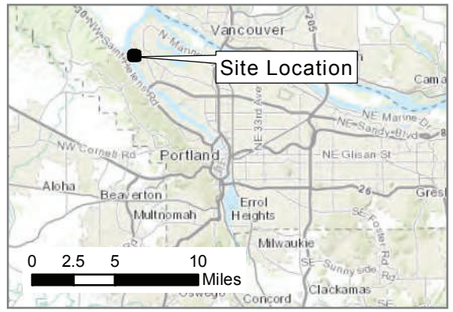
WR-WSI98SD012
0 - 0.33 ft bgs
B(a)PE: 0.18

LW2-G082
0 - 0.89 ft bgs
B(a)PE: 0.032

LW2-GBT005
0 - 0.33 ft bgs
B(a)PE: 0.041

LW2-G083
0 - 0.79 ft bgs
B(a)PE: 0.087

0 70 140 280 Feet



Legend

Soil Borings
- Detected concentration is greater than 100 times the CL
- Detected concentration is between 10 and 100 times the CL
- Detected concentration is between 1 and 10 times the CL
- No Exceedances of the CL
- Upland Soil Sample (No CL)
- Not Analyzed for PAHs

Sediment Sample
- Detected concentration is greater than 100 times the CL
- Detected concentration is between 10 and 100 times the CL
- Detected concentration is between 1 and 10 times the CL
- No Exceedances of the CL
- Groundwater Barrier Wall
- Top of Bank
- Greenway Setback
- Ordinary High Water (20.5 ft NAVD88)
- Property Boundary

Notes:
All results presented in milligrams per kilogram (mg/kg)
0-0.5 ft bgs = Sample depth in feet below ground surface
CLs = Portland Harbor Cleanup Levels
B(a)PE = Benzo(a)pyrene equivalent (calculated)
PAHs = Polycyclic aromatic hydrocarbons
ND = Not detected results calculated as zero

B(a)PE Portland Harbor CL = 0.012 mg/kg

Figure 2
B(a)PE in Shallow Soil and Sediment
Southern PEO Site
Portland, Oregon

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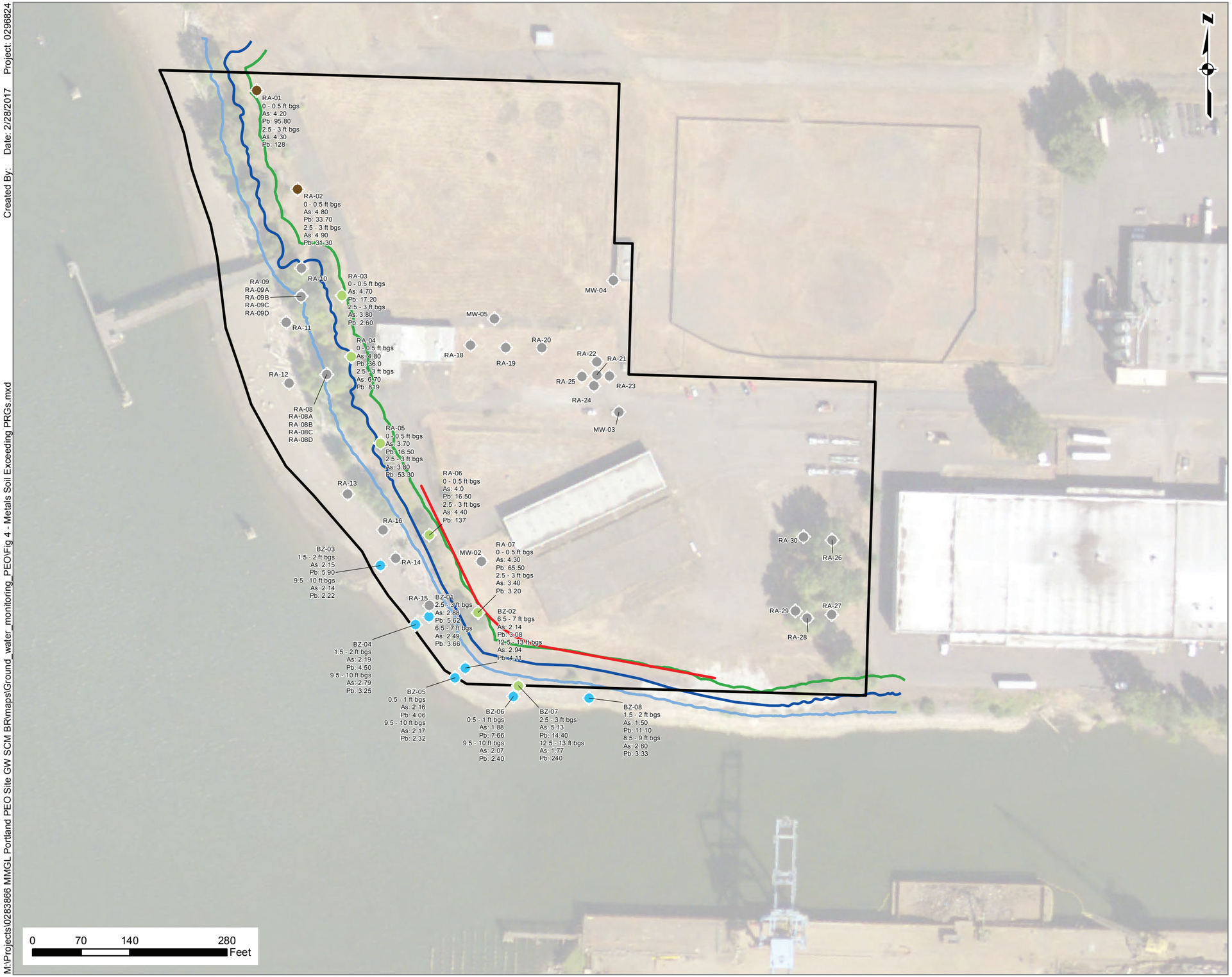
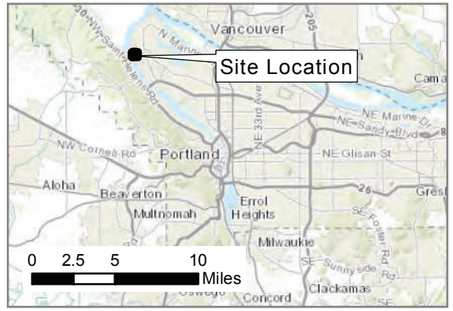
Created By: Date: 2/28/2017 Project: 0296824

M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Ground_water_monitoring_PEOFig 4 - Metals Soil Exceeding PRGs.mxd





Legend

Soil Borings

- Detected concentration is greater than 100 times the CLs
- Detected concentration is between 10 and 100 times the CLs
- Detected concentration is between 1 and 10 times the CLs
- No Exceedances to the CLs
- Upland Soil Sample (No CLs)
- Not Analyzed for Metals
- Groundwater Barrier Wall
- Top of Bank
- Greenway Setback
- Ordinary High Water (20.5 ft NAVD88)
- Property Boundary

Notes:
All results presented in milligrams per kilogram (mg/kg)
0-0.5 ft bgs = Sample depth in feet below ground surface
CL = Cleanup Level
As = Arsenic
Pb = Lead

As Portland Harbor CL = 3.0 mg/kg
Pb Portland Harbor CL = 196 mg/kg

Figure 3
Metals in Soil
Southern PEO Site
Portland, Oregon

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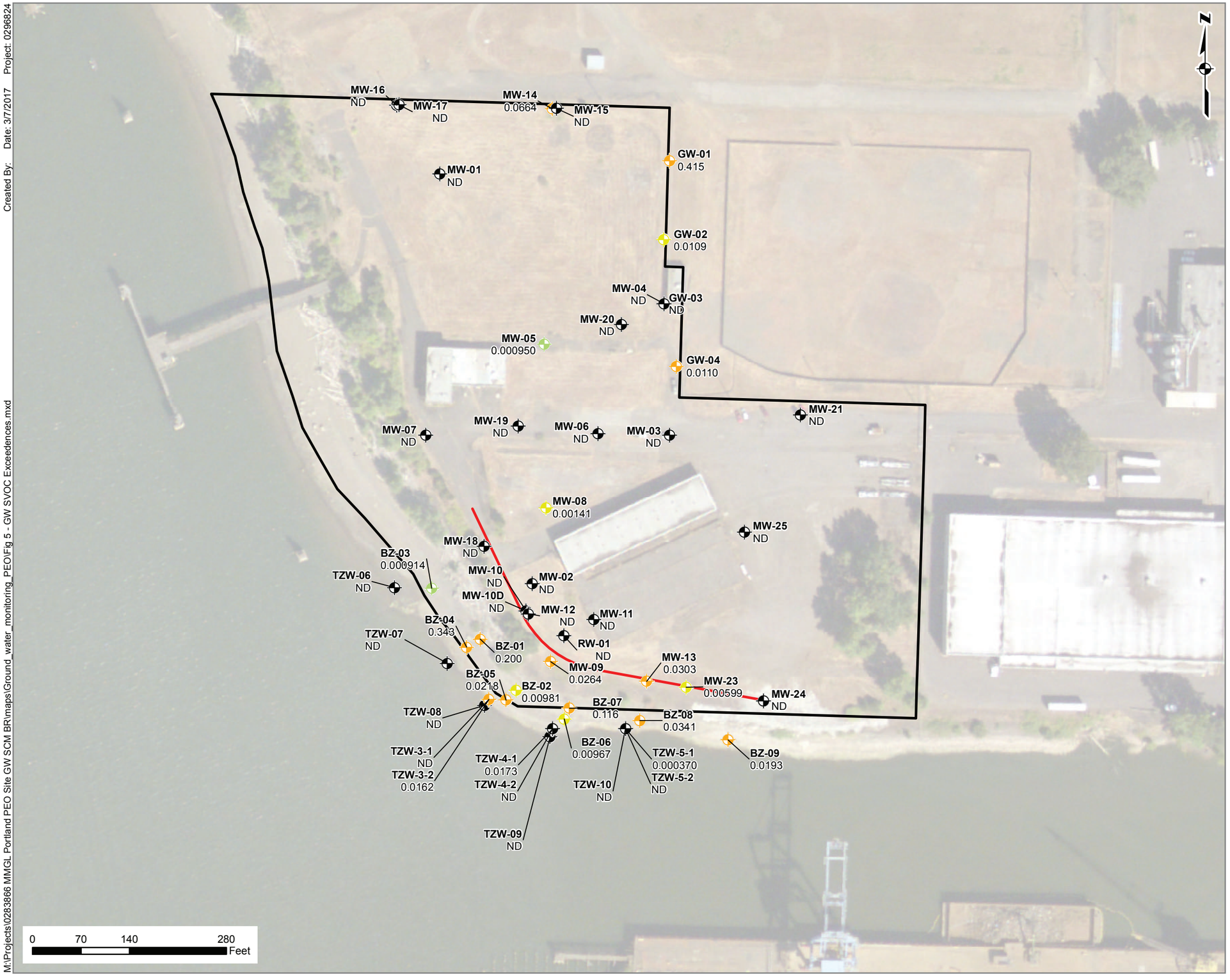
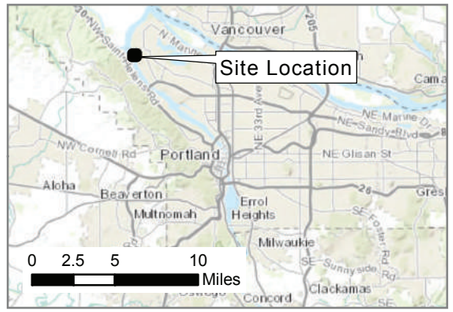
Created By: Date: 3/7/2017 Project: 0296824

M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Ground_water_monitoring_PEOIFig 5 - GW SVOC Exceedences.mxd





Legend

Monitoring Wells

Most Recent Sample Result

- Detected concentration is greater than 100 times the CLs
- Detected concentration is between 10 and 100 times the CLs
- Detected concentration is between 1 and 10 times the CLs
- Detected concentration is below the CLs
- No concentration detected
- Compounds not analyzed at location
- Groundwater Barrier Wall
- Property Boundary

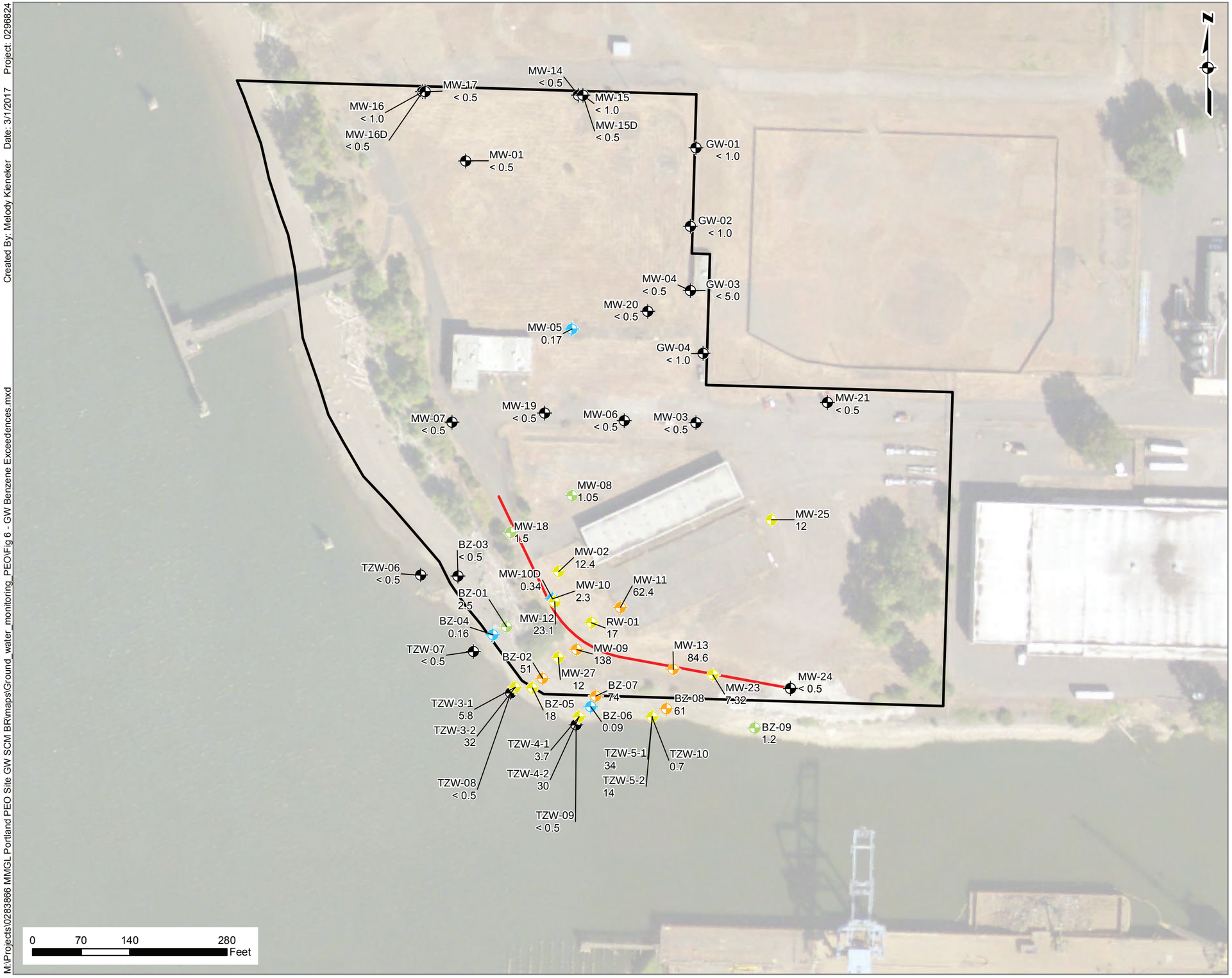
Notes:
All results presented in micrograms per liter (µg/L)
CLs = Portland Harbor Cleanup Levels
B(a)PE = Benzo(a)pyrene equivalent (calculated)
ND = Not detected results calculated as zero

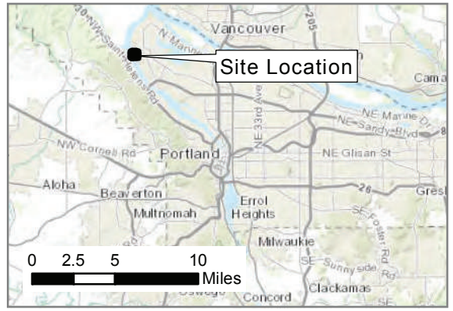
B(a)PE Portland Harbor CL = 0.00012 µg/L

Figure 4
BaPE in Groundwater and TZW
Southern PEO Site
Portland, Oregon

Created By: Melody Kleneker Date: 3/1/2017 Project: 0296824

M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Ground_water_monitoring_PEO\Fig 6 - GW Benzene Exceedences.mxd





Legend

Monitoring Wells

Most Recent Sample Result (Date)

- Detected concentration is greater than 100 times the CL
- Detected concentration is between 10 and 100 times the CL
- Detected concentration is between 1 and 10 times the CL
- Detected concentration is below the CL
- No concentration detected
- Compounds not analyzed at location
- Groundwater Barrier Wall
- Property Boundary

Notes:
All results presented in micrograms per liter (µg/L).

CL = Portland Harbor Cleanup Level
< = Analyte not detected above method detection limit

Benzene Portland Harbor Cleanup Level = 0.44 µg/L

Figure 5
Benzene in Groundwater and TZW
Southern PEO Site
Portland, Oregon

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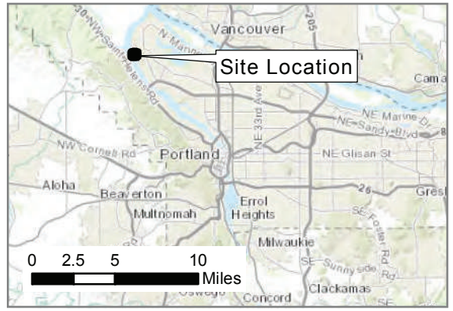
M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Ground_water_monitoring_PEO\Fig 7 - Arsenic Results Exceeding Background Concentrations.mxd Created By: Nelson Crone Date: 3/1/2017 Project: 0296824



Legend

Monitoring Wells with Arsenic Results

Most Recent Sample Result (Date)

- Detected concentration is greater than 100 times the BGC
- Detected concentration is between 10 and 100 times the BGC
- Detected concentration is between 1 and 10 times the BGC
- Detected concentration is below the BGC
- No concentration detected
- Compounds not analyzed at location
- Groundwater Barrier Wall
- Property Boundary

Notes:
All results presented in micrograms per liter (µg/L)
BGC = Background concentration
As-T = Total Arsenic
As-D = Dissolved Arsenic
< = Analyte not detected above method detection limit

Arsenic background concentration = 2 µg/L

Figure 6
Arsenic in Groundwater and TZW
Southern PEO Site
Portland, Oregon

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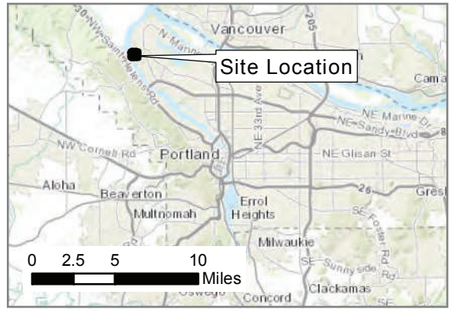

Legend

Monitoring Wells with Manganese Results

Most Recent Sample Result (Date)

- Detected concentration is greater than 100 times the CL
- Detected concentration is between 10 and 100 times the CL
- Detected concentration is between 1 and 10 times the CL
- Detected concentration is below the CL
- No concentration detected
- Compounds not analyzed at location
- Groundwater Barrier Wall
- Property Boundary

Notes:
All results presented in micrograms per liter (µg/L).
Dissolved Manganese result presented when available.
CL = Portland Harbor Cleanup Level
T = Total Manganese
D = Dissolved Manganese

Manganese Portland Harbor Cleanup Level = 430 µg/L

Figure 7
Manganese in Groundwater and TZW
Southern PEO Site
Portland, Oregon

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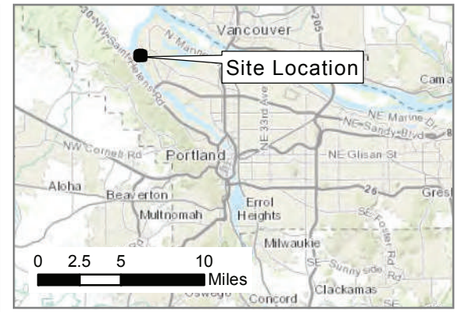
M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Ground_water_monitoring_PEO\Fig 8 - Manganese Results Exceeding RAO 8 Screening Level.mxd Created By: Melody Kleneker Date: 3/1/2017 Project: 0296824



Legend

- Detected concentration is greater than 100 times the CL
- Detected concentration is between 10 and 100 times the CL
- Detected concentration is between 1 and 10 times the CL
- Upland Soil Sample (No PH CL)
- Not Analyzed for PAHs
- Survey Profile
- Barrier Wall Alignment
- Greenway Setback
- Top of Bank
- Ordinary High Water (20.5 ft NAVD 88)

Bank Erosion Hazard Index

Extreme	46 - 50
Very High	40 - 45
High	30 - 39.5
Moderate	20 - 29.5
Low	10 - 19.5
Very Low	5 - 9.5

- Property Boundary
- Parcels

Notes:
Bank Erosion Hazard Index determined using the Bank Asssessment for Non-point Source Consequences of Sediment (BANCS) methodology.
Profiles were surveyed on May 17, 2016 by True North Land Surveying, Inc.
Aerial Imagery: City of Portland, flown 7/7/2012
CL = Portland Harbor Cleanup Level
B(a)PE Portland Harbor CL = 0.012 mg/kg

Figure 8
Erodibility and B(a)PE Results In Surface Soil and Sediment Southern PEO Site Portland, Oregon

Environmental Resources Management
1001 SW 5th St, Suite 1010
Portland, Oregon 97204

ERM

Project: 0296824
Date: 3/1/2017
Created By: Melody Kleneker
M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Ground_water_monitoring_PEO\Fig 8 - BaPE in Soil Surface.mxd

Tables

Table 1
Upland Soil Results Screened to ODEQ RBC's
Upland and TZW Investigation and Source Control Evaluation
Premier Edible Oils
Portland, Oregon

Location Group		Screening Levels			Upland Soils											
Location ID		Human Health		Ecological	MW-02	MW-03	MW-04	MW-05	RA-01	RA-01	RA-02	RA-02	RA-18	RA-18	RA-19	RA-19
Sample ID		Soil Ingestion, Dermal Contact, and Inhalation	Vapor Intrusion and Volatilization	Soil Ingestion, Contact and Uptake	MW02-GRAB	MW03-GRAB-20	MW-04-GRAB-24	MW-5-GRAB-20	RA-01-0.5120414	RA-01-3120414	RA-02-0.5120414	RA-02-3120414	RA-18-1.5120414	RA-18-3120414	RA-19-1.5120414	RA-19-3120414
Sample Date					5/26/1998	5/26/1998	5/27/1998	5/27/1998	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014
Sample Depth (ft bgs)	units	0 - 10	0 - 20	0-3	0 - 0	20 - 20	24 - 24	20 - 20	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	1 - 1.5	2.5 - 3	1 - 1.5	2.5 - 3
VOCs																
1,2-Dibromo-3-chloropropane	mg/kg	0.064*	--	--	<4 U	<0.4 U	<4 U	<4 U								
Ethylbenzene	mg/kg	150	17	--	<2 U	<0.2 U	<2 U	**31.5**								
Trichloroethene	mg/kg	51	2.3	40	<2 U	<0.2 U	<2 U	<2 U								
SVOCs																
Benzo(a)pyrene	mg/kg	0.29	--	125	<0.67 U	**0.0928**	<0.67 U	<0.067 U	**0.031**	**0.039**	**0.57**	**0.075**				
Dibenzofuran	mg/kg	--	--	0.002					<0.0028	<0.0028	**0.0017** J	**0.00068** J				
Metals																
Manganese	mg/kg	--	--	--					**322**	**312**	**422**	**404**	**317**	**264**	**400**	**253**
Nickel	mg/kg	--	--	--					**16**	**17.1**	**17.5**	**19.4**	**18**	**16.8**	**17.7**	**18**
Zinc	mg/kg	--	--	--					**87.3**	**84.5**	**78.6**	**73.5**				
Pesticides																
2,4'-DDD	mg/kg	--	--	--									< 0.0028	<0.0028	<0.0027	<0.0028
2,4'-DDE	mg/kg	--	--	--									< 0.0028	<0.0028	<0.0027	<0.0028
2,4'-DDT	mg/kg	--	--	--									< 0.0028	<0.0028	<0.0027	<0.0028
4,4'-DDD	mg/kg	12	--	0.01									< 0.0028	<0.0028	<0.0027	<0.0028
4,4'-DDE	mg/kg	8.2	--	0.01									< 0.0028	<0.0028	<0.0027	<0.0028
4,4'-DDT	mg/kg	8.5	--	0.021									< 0.0028	<0.0028	<0.0027	<0.0028
Aldrin	mg/kg	0.13	--	25									< 0.0028	<0.0028	<0.0027	<0.0028
alpha-BHC/HCH	mg/kg	0.36	--	--									< 0.0028	<0.0028	<0.0027	<0.0028
beta-BHC/HCH	mg/kg	1.3*	--	--									< 0.0028	<0.0028	<0.0027	<0.0028
Chlorinated camphene/Toxaphene	mg/kg	2.1	--	1000									< 0.14	<0.14	<0.14	<0.14
cis-Nonachlor	mg/kg	--	--	--									< 0.0028	<0.0028	<0.0027	<0.0028
delta-BHC/HCH	mg/kg	--	--	--									< 0.0028	<0.0028	<0.0027	<0.0028
Dieldrin	mg/kg	0.14	--	0.005									< 0.0028	<0.0028	<0.0027	<0.0028
Endosulfan I (Alpha)	mg/kg	4900	--	--									< 0.0028	<0.0028	<0.0027	<0.0028
Endosulfan II (Beta)	mg/kg	4900	--	--									< 0.0028	<0.0028	<0.0027	<0.0028
Endosulfan sulfate	mg/kg	--	--	20									< 0.0028	<0.0028	<0.0027	<0.0028
Endrin	mg/kg	250	--	0.04									< 0.0028	<0.0028	<0.0027	<0.0028
Endrin aldehyde	mg/kg	--	--	--									< 0.0028	<0.0028	<0.0027	<0.0028
Endrin ketone	mg/kg	--	--	--									< 0.0028	<0.0028	<0.0027	<0.0028
gamma-BHC/HCH (Lindane)	mg/kg	2.1	--	8									< 0.0028	<0.0028	<0.0027	<0.0028
Heptachlor	mg/kg	0.45	--	15									< 0.0028	<0.0028	<0.0027	<0.0028
Heptachlor epoxide	mg/kg	0.24	--	--									< 0.0028	<0.0028	<0.0027	<0.0028
Methoxychlor	mg/kg	4100*	--	500									< 0.0028	<0.0028	<0.0027	<0.0028
Mirex	mg/kg	0.17*	--	--									< 0.0028	<0.0028	<0.0027	<0.0028
Oxychlordane	mg/kg	--	--	--									< 0.0028	<0.0028	<0.0027	<0.0028
trans-Nonachlor	mg/kg	--	--	--									< 0.0028	<0.0028	<0.0027	<0.0028

Notes:
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Qualifiers:
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N = Spiked sample recovery not within control limits
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D = Data reported from a dilution.
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U = Results qualified as non-detected

Abbreviations:
BHC/HCH = hexachlorocyclohexane
DDD = Dichlorodiphenyldichloroethane
DDE = Dichlorodiphenyldichloroethylene
DDT = Dichlorodiphenyltrichloroethane
ODEQ = Oregon Department of Environmental Quality

Table 1
Upland Soil Results Screened to ODEQ RBC's
Upland and TZW Investigation and Source Control Evaluation
Premier Edible Oils
Portland, Oregon

Location Group	Upland Soils											
Location ID	RA-20	RA-20	RA-21	RA-21	RA-22	RA-22	RA-23	RA-23	RA-24	RA-24	RA-25	RA-25
Sample ID	RA-20-1.5120414	RA-20-3120414	RA-21-1.5120314	RA-21-3120314	RA-22-1.5120414	RA-22-3120414	RA-23-1.5120414	RA-23-3120414	RA-24-1.5120414	RA-24-3120414	RA-25-1.5120414	RA-25-3120414
Sample Date	12/4/2014	12/4/2014	12/3/2014	12/3/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014
Sample Depth (ft bgs)	1 - 1.5	2.5 - 3	1 - 1.5	2.5 - 3	1 - 1.5	2.5 - 3	1 - 1.5	2.5 - 3	1 - 1.5	2.5 - 3	1 - 1.5	2.5 - 3
VOCs												
1,2-Dibromo-3-chloropropane												
Ethylbenzene												
Trichloroethene			<0.0801	<0.0774	<0.0708	<0.0621	<0.0624	<0.0589	<0.0653	<0.0635	<0.0625	<0.0615
SVOCs												
Benzo(a)pyrene												
Dibenzofuran												
Metals												
Manganese	**213**	**188**										
Nickel	**17.6**	**18.3**										
Zinc												
Pesticides												
2,4'-DDD	<0.0027	<0.0034	**0.0028** J	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
2,4'-DDE	<0.0027	<0.0034	**0.0028** JP	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
2,4'-DDT	<0.0027	<0.0034	<0.0033 i	<0.0032	<0.0031	<0.0028	**0.0013** J	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
4,4'-DDD	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
4,4'-DDE	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
4,4'-DDT	<0.0027	<0.0034	<0.0046 i	<0.0032	<0.0031	<0.0028	<0.0029 i	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
Aldrin	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
alpha-BHC/HCH	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
beta-BHC/HCH	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
Chlorinated camphene/Toxaphene	<0.14	<0.17	<0.17 i	<0.16	<0.16 i	<0.14	<0.15	<0.14	<0.15	<0.15	<0.15	<0.15
cis-Nonachlor	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
delta-BHC/HCH	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
Dieldrin	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	**0.00079** JP	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
Endosulfan I (Alpha)	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
Endosulfan II (Beta)	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
Endosulfan sulfate	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
Endrin	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
Endrin aldehyde	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
Endrin ketone	<0.0027	<0.0034	<0.0033 i	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
gamma-BHC/HCH (Lindane)	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
Heptachlor	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
Heptachlor epoxide	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
Methoxychlor	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
Mirex	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
Oxychlordane	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029
trans-Nonachlor	<0.0027	<0.0034	<0.0033	<0.0032	<0.0031	<0.0028	<0.0029	<0.0028	<0.003	<0.0029	<0.0029	<0.0029

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Table 1
Upland Soil Results Screened to ODEQ RBC's
Upland and TZW Investigation and Source Control Evaluation
Premier Edible Oils
Portland, Oregon

Location Group	Ecological Zone															
Location ID	BZ-01	BZ-01	BZ-02	BZ-02	BZ-03	BZ-03	BZ-04	BZ-04	BZ-05	BZ-05	BZ-06	BZ-06	BZ-07	BZ-07	BZ-08	BZ-08
Sample ID	BZ-1-3081512	BZ-1-7081512	BZ-2-13081612	BZ-2-7081612	BZ-3-10081512	BZ-3-2081512	BZ-4-10081512	BZ-4-2081512	BZ-5-10081512	BZ-5-1081512	BZ-6-10081612	BZ-6-1081612	BZ-7-13081612	BZ-7-3081612	BZ-8-2081712	BZ-8-9081712
Sample Date	8/15/2012	8/15/2012	8/16/2012	8/16/2012	8/15/2012	8/15/2012	8/15/2012	8/15/2012	8/15/2012	8/15/2012	8/16/2012	8/16/2012	8/16/2012	8/16/2012	8/17/2012	8/17/2012
Sample Depth (ft bgs)	2.5 - 3	6.5 - 7	12.5 - 13	6.5 - 7	9.5 - 10	1.5 - 2	9.5 - 10	1.5 - 2	9.5 - 10	0.5 - 1	9.5 - 10	0.5 - 1	12.5 - 13	2.5 - 3	1.5 - 2	8.5 - 9
VOCs																
1,2-Dibromo-3-chloropropane																
Ethylbenzene	<0.22 U	**0.00054** J	<0.0073 U	**0.0031** J	<0.0065 U	<0.007 U	<0.0069 U	**0.00062** J	<0.0068 U	<0.0066 U	<0.0064 U	**0.00022** J	<0.0066 U	**0.0028** J	< 7.3 U	**0.00064** J
Trichloroethene																
SVOCs																
Benzo(a)pyrene	**0.049**	**0.014**	<0.0036 U	**0.04**	<0.0033 U	**0.019**	<0.0034 U	**0.077**	<0.0034 U	**0.025**	<0.0033 U	**0.012**	<0.0034 U	**0.055**	**0.014**	<0.0034 U
Dibenzofuran	<0.12 Ui	<0.016 Ui	<0.0036 U	<0.032 Ui	<0.0033 U	**0.0015** J	<0.0034 U	**0.0025** J	<0.0034 U	**0.00074** J	<0.0033 U	**0.0034**	<0.0034 U	**0.004**	**0.00091** J	<0.0034 U
Metals																
Manganese	**239**	**319**	**451**	**237**	**367**	**313**	**449**	**325**	**289**	**223**	**329**	**324**	**317**	**369**	**994** *	**420** *
Nickel	**22.6**	**20.7**	**22.8**	**18.2**	**18.4**	**21.6**	**20.4**	**19.4**	**20**	**17.6**	**18.3**	**15.7**	**17.6**	**24.9**	**11.4** *	**19.1** *
Zinc	**50.7**	**47.9**	**53.2**	**41.7**	**41.6**	**58.4**	**50.2**	**45.8**	**43.8**	**45**	**42.6**	**46.3**	**40.5**	**88.4**	**83.3** N	**45.7** N
Pesticides																
2,4'-DDD																
2,4'-DDE																
2,4'-DDT																
4,4'-DDD																
4,4'-DDE																
4,4'-DDT																
Aldrin																
alpha-BHC/HCH																
beta-BHC/HCH																
Chlorinated camphene/Toxaphene																
cis-Nonachlor																
delta-BHC/HCH																
Dieldrin																
Endosulfan I (Alpha)																
Endosulfan II (Beta)																
Endosulfan sulfate																
Endrin																
Endrin aldehyde																
Endrin ketone																
gamma-BHC/HCH (Lindane)																
Heptachlor																
Heptachlor epoxide																
Methoxychlor																
Mirex																
Oxychlordane																
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Table 1
Upland Soil Results Screened to ODEQ RBC's
Upland and TZW Investigation and Source Control Evaluation
Premier Edible Oils
Portland, Oregon

Location Group	Ecological Zone															
Location ID	RA-03	RA-03	RA-04	RA-04	RA-05	RA-05	RA-06	RA-06	RA-07	RA-07	RA-08	RA-08	RA-08	RA-08	RA-08A	RA-08A
Sample ID	RA-03-0.5120414	RA-03-3120414	RA-04-0.5120414	RA-04-3120414	RA-05-0.5120414	RA-05-3120414	RA-06-0.5120414	RA-06-3120514	RA-07-0.5120414	RA-07-3120414	RA-08-2120514	RA-08-3120514	RA-08-4120514	RA-08-5120514	RA-08A-0.5120514	RA-08A-3120514
Sample Date	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/5/2014	12/4/2014	12/4/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014
Sample Depth (ft bgs)	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	1.5 - 2	2.5 - 3	3.5 - 4	4.5 - 5	0 - 0.5	2.5 - 3
VOCs																
1,2-Dibromo-3-chloropropane																
Ethylbenzene																
Trichloroethene																
SVOCs																
Benzo(a)pyrene	**0.038**	<0.0029	**0.28**	**1.4** D	**0.98**	**4.4** D	**0.12**	**1.2** D	**1.1** D	<0.0028 i	**0.38**	**1.1** D	**0.026**	**0.017**	**1** D	**0.3**
Dibenzofuran	<0.0028	<0.0029	**0.0043**	**0.6** D	**0.0014** J	**0.012** JD	<0.0035	**0.0061**	**0.0063**	<0.0028	**0.012**	**0.0045**	**0.0022** J	0.00092 J	**0.0079**	**0.0028** J
Metals				**0**												
Manganese	**520**	**318**	**836**	**1400**	**372**	**290**	**332**	**613**	**856**	**288**	**0**					
Nickel	**17.6**	**16.9**	**27.1**	**21.6**	**20**	**18.1**	**17.8**	**17.5**	**21**	**17.8**	**184**	**82.8**	**111**	**119**	**41.8**	**24.9**
Zinc	**65.8**	**46.2**	**149**	**672**	**69.8**	**132**	**59**	**181**	**120**	**47.3**						
Pesticides																
2,4'-DDD																
2,4'-DDE																
2,4'-DDT																
4,4'-DDD																
4,4'-DDE																
4,4'-DDT																
Aldrin																
alpha-BHC/HCH																
beta-BHC/HCH																
Chlorinated camphene/Toxaphene																
cis-Nonachlor																
delta-BHC/HCH																
Dieldrin																
Endosulfan I (Alpha)																
Endosulfan II (Beta)																
Endosulfan sulfate																
Endrin																
Endrin aldehyde																
Endrin ketone																
gamma-BHC/HCH (Lindane)																
Heptachlor																
Heptachlor epoxide																
Methoxychlor																
Mirex																
Oxychlordane																
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Upland and TZW Investigation and Source Control Evaluation
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Portland, Oregon

Location Group	Ecological Zone														
Location ID	RA-08B	RA-08B	RA-08C	RA-08C	RA-08D	RA-08D	RA-09	RA-09	RA-09A	RA-09A	RA-09B	RA-09B	RA-09C	RA-09C	RA-09D
Sample ID	RA-08B-0.5120514	RA-08B-3120514	RA-08C-0.5120514	RA-08C-3120514	RA-08D-0.5120514	RA-08D-3120514	RA-09-1.5120514	RA-09-3120514	RA-09A-0.5120514	RA-09A-3120514	RA-09B-0.5120514	RA-09B-3120514	RA-09C-0.5120514	RA-09C-3120514	RA-09D-0.5120514
Sample Date	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014
Sample Depth (ft bgs)	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	1 - 1.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5
VOCs															
1,2-Dibromo-3-chloropropane															
Ethylbenzene															
Trichloroethene															
SVOCs															
Benzo(a)pyrene	**0.9**	**0.53**	**1.1**	**0.0048**	**1.9** D	**0.1**	**0.42**	**0.52** D	**0.22**	**4.4** D	**93**	**0.34** D	**1.1**	**0.49** D	**0.9**
Dibenzofuran	**0.014**	**0.027**	**0.0044**	<0.0029	**0.12**	**0.0025** J	**0.0045**	**0.0049**	**0.0018** J	**0.018** D	**0.81** JX	**0.0022** JX	**0.0063**	**0.0035**	**0.0036**
Metals															
Manganese							**499** N*	**447** N*	**305** N*	**602** N*	**432** N*	**494** N*	**941** N*	**508** N*	**452** N*
Nickel	**22.8**	**325**	**44.2**	**23.7**	**332**	**29.3**									
Zinc															
Pesticides															
2,4'-DDD															
2,4'-DDE															
2,4'-DDT															
4,4'-DDD															
4,4'-DDE															
4,4'-DDT															
Aldrin															
alpha-BHC/HCH															
beta-BHC/HCH															
Chlorinated camphene/Toxaphene															
cis-Nonachlor															
delta-BHC/HCH															
Dieldrin															
Endosulfan I (Alpha)															
Endosulfan II (Beta)															
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Heptachlor epoxide															
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Oxychlordane															
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* = EPA Regional Screening Level (RSL) Industrial Soil Screening Level (Target Cancer Risk [TR] of 1E-06 and Hazard Quotients [TQH] of 1.0). EPA 2015
Bold text indicates that the analyte was detected above the method detection limit.
Compound concentration exceeds site-specific human health screening level for Soil Ingestion, Dermal Contact, and Inhalation. Applies to soils shallower than 10 ft bgs in the Upland Area.
Compound concentration exceeds site-specific human health screening level for Vapor Intrusion and Volitilization. Applies to soils shallower than 20 ft bgs in the Upland Area.
Compound concentration exceeds site-specific ecological screening level for Soil Ingestion, Contact and Uptake. Applies to soils shallower than 3 ft bgs in the Bank Area.

Qualifiers:
J = The analyte was positively identified; associated numerical value is the approximate concentration of the analyte in the sample.
P = Pesticide/aroclor target analyte had a percent difference greater than 25 percent between the two GC columns. The lower of the two results is reported.
X = Matrix spike is outside of control limits.
N = Spiked sample recovery not within control limits
* = Quality control parameter outside control limits.
D = Data reported from a dilution.
i = Matrix interference noted by laboratory.
U = Results qualified as non-detected

Abbreviations:
BHC/HCH = hexachlorocyclohexane
DDD = Dichlorodiphenyldichloroethane
DDE = Dichlorodiphenyldichloroethylene
DDT = Dichlorodiphenyltrichloroethane
ODEQ = Oregon Department of Environmental Quality

Table 1
Upland Soil Results Screened to ODEQ RBC's
Upland and TZW Investigation and Source Control Evaluation
Premier Edible Oils
Portland, Oregon

Location Group	Ecological Zone														
Location ID	RA-09D	RA-10	RA-10	RA-11	RA-11	RA-12	RA-12	RA-13	RA-13	RA-14	RA-14	RA-15	RA-15	RA-16	RA-16
Sample ID	RA-09D-3120514	RA-10-0.5120314	RA-10-3120314	RA-11-0.5120414	RA-11-3120414	RA-12-0.5120414	RA-12-3120414	RA-13-0.5120414	RA-13-3120414	RA-14-0.5120414	RA-14-3120414	RA-15-0.5120414	RA-15-3120414	RA-16-0.5120414	RA-16-3120414
Sample Date	12/5/2014	12/3/2014	12/3/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014
Sample Depth (ft bgs)	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3
VOCs															
1,2-Dibromo-3-chloropropane															
Ethylbenzene															
Trichloroethene															
SVOCs															
Benzo(a)pyrene	**0.35** D	**0.21**	**2.5** D	**0.06**	**0.095**	**0.029**	**1.9** D	**100**	**0.01**	**0.18** D	**0.16**	**0.17**	<0.0035	**0.12**	**0.032**
Dibenzofuran	**0.017**	**0.0026** J	**0.015** D	<0.0033	**0.001** J	<0.0029	**0.05**	<0.0032	<0.0032	<0.0027	**0.00092** J	**0.0035**	<0.0035	**0.00066** J	<0.0031
Metals															
Manganese	**523** N*														
Nickel															
Zinc															
Pesticides															
2,4'-DDD															
2,4'-DDE															
2,4'-DDT															
4,4'-DDD															
4,4'-DDE															
4,4'-DDT															
Aldrin															
alpha-BHC/HCH															
beta-BHC/HCH															
Chlorinated camphene/Toxaphene															
cis-Nonachlor															
delta-BHC/HCH															
Dieldrin															
Endosulfan I (Alpha)															
Endosulfan II (Beta)															
Endosulfan sulfate															
Endrin															
Endrin aldehyde															
Endrin ketone															
gamma-BHC/HCH (Lindane)															
Heptachlor															
Heptachlor epoxide															
Methoxychlor															
Mirex															
Oxychlordane															
trans-Nonachlor															

Notes:
Cells are left blank where compound was not analyzed.
< = Analyte not detected above reporting limit.
-- = No screening level available
* = EPA Regional Screening Level (RSL) Industrial Soil Screening Level (Target Cancer Risk [TR] of 1E-06 and Hazard Quotients [TQH] of 1.0). EPA 2015
Bold text indicates that the analyte was detected above the method detection limit.
Compound concentration exceeds site-specific human health screening level for Soil Ingestion, Dermal Contact, and Inhalation. Applies to soils shallower than 10 ft bgs in the Upland Area.
Compound concentration exceeds site-specific human health screening level for Vapor Intrusion and Volitilization. Applies to soils shallower than 20 ft bgs in the Upland Area.
Compound concentration exceeds site-specific ecological screening level for Soil Ingestion, Contact and Uptake. Applies to soils shallower than 3 ft bgs in the Bank Area.

Qualifiers:
J = The analyte was positively identified; associated numerical value is the approximate concentration of the analyte in the sample.
P = Pesticide/aroclor target analyte had a percent difference greater than 25 percent between the two GC columns. The lower of the two results is reported.
X = Matrix spike is outside of control limits.
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D = Data reported from a dilution.
i = Matrix interference noted by laboratory.
U = Results qualified as non-detected

Abbreviations:
BHC/HCH = hexachlorocyclohexane
DDD = Dichlorodiphenyldichloroethane
DDE = Dichlorodiphenyldichloroethylene
DDT = Dichlorodiphenyltrichloroethane
ODEQ = Oregon Department of Environmental Quality

Table 2
Groundwater Results Screened to ODEQ RBC's
Upland and TZW Investigation and Source Control Evaluation
Premier Edible Oils
Portland, Oregon

Location Group		Screening Level	Upland Wells										
Location ID		Human Health	MW-03	MW-05	MW-06	MW-07	MW-08	MW-10	MW-12	MW-14	MW-15	MW-16	MW-17
Sample ID		Vapor Intrusion and Volatilization	MW-3-012903_012903	MW-5-012903_012903	MW-6-012903_012903	MW-7-012903_012903	MW-8-012903_012903	MW-10-012903_012903	MW-12-012903_012903	MW-14-012803_012803	MW-15-012803_012803	MW-16-012803_012803	MW-17-012903_012903
Sample Date			1/29/2003	1/29/2003	1/29/2003	1/29/2003	1/29/2003	1/29/2003	1/29/2003	1/28/2003	1/28/2003	1/28/2003	1/29/2003
Hexachlorobenzene	µg/L	310	< 9.6 U	< 9.6 U	< 9.6 U	< 9.6 U	< 9.6 U	< 9.6 U	< 9.6 U	< 9.6 U	< 9.6 U	< 9.6 U	< 9.6 U

Notes:
all units reported in micrograms per liter
< = Analyte not detected above method detection limit.

Qualifiers:
U = Results qualified as non-detected

Table 3
Upland Soil Gas Results Screened to ODEQ RBC's
Upland and TZW Investigation and Source Control Evaluation
Premier Edible Oils
Portland, Oregon

		Sample ID	RA-SG-17-5	RA-SG-21-5	RA-SG-31-5	RA-SG-31-10	RA-SG-32-5	RA-SG-32-10
		Sample Date	12/4/2014	12/4/2014	12/3/2014	12/3/2014	12/3/2014	12/4/2014
		Depth (ft bgs)	5	5	10	5	10	5
Total Petroleum Hydrocarbons	**Soil Gas Occupational Screening Level Value**							
Gasoline	1,700	mg/m^3			**17,000**	**23,000**	**33,000**	**23,000**
BTEX Compounds								
Benzene	1,600	$\mu g/m^3$			< 790	< 1,100	< 830	< 1,500
Toluene	2.20E+07	$\mu g/m^3$			1,500	2,100	1,800	2,900
Ethylbenzene	4,900	$\mu g/m^3$	1.9		< 790	< 1,100	1,300	1,500
M,P-Xylenes	440,000	$\mu g/m^3$			2,400	3,200	2,900	3,200
O-Xylene (1,2-Dimethylbenzene)	440,000	$\mu g/m^3$			< 790	< 1,100	< 830	< 1,500
Chlorinated VOCs								
Trichloroethene (TCE)	2,900	$\mu g/m^3$		66				

Notes:

Cells are left blank where compound was not analyzed.

< = Analyte not detected above reporting limits.

Soil Gas Screening Levels from Oregon Department of Environmental Quality Environmental Cleanup and Tanks Program, Risk-Based Concentrations for Individual Chemicals, Revision November 2015.

Treadwell & Rollo, A Langan Company, 2014, *Phase II RI Work Plan, Premier Edible Oils, 10400 North Burgard Way, Portland, Oregon.* November.

Abbreviations:

ft bgs = feet below ground surface

$\mu g/m^3$ = Micrograms per cubic meter

mg/m^3 = Milligrams per cubic meter

BTEX = Benzene, toluene, ethylbenzene and xylenes

VOCs = Volatile organic compounds

Table 4
Summary of Portland Harbor Cleanup Levels
Upland and TZW Investigation and Source Control Evaluation
Premier Edible Oils
Portland, Oregon

	Surface Water (1)			Groundwater (2)			River Bank Soil/Sediment (3)			Fish Tissue (4)		
Contaminant	**Unit**	**Conc.**	**Basis**	**Unit**	**Conc.**	**Basis**	**Unit**	**Conc.**	**Basis**	**Unit**	**Conc.**	**Basis**
Aldrin	µg/L	0.00000077	A				µg/kg	2	R	µg/kg	0.06	R
Arsenic	µg/L	0.018	A	µg/L	0.018	A	mg/kg	3	B	mg/kg	0.001	R
Benzene				µg/L	0.44	A						
BEHP	µg/L	0.2	A				µg/kg	135	R	µg/kg	72	R
Cadmium				µg/L	0.091	A/R(5)	mg/kg	0.51	R			
Chlordanes	µg/L	0.000081	A				µg/kg	1.4	R	µg/kg	3	R
Chlorobenzene				µg/L	64	R						
Chromium	µg/L	100	A	µg/L	11	A						
Copper	µg/L	2.74	A	µg/L	2.74	A/R	mg/kg	359	R			
Cyanide				µg/L	4	A						
DDx	µg/L	0.01	R	µg/L	0.001	A	µg/kg	6.1	R	µg/kg	3	R
DDD	µg/L	0.000031	A	µg/L	0.000031	A	µg/kg	114	R			
DDE	µg/L	0.000018	A	µg/L	0.000018	A	µg/kg	226	R			
DDT	µg/L	0.000022	A	µg/L	0.000022	A	µg/kg	246	R			
1,1-Dichloroethene				µg/L	7	A						
cis-1,2-Dichloroethene				µg/L	9.9	A						
Dieldrin							µg/kg	0.07	R	µg/kg	0.06	R
2,4-Dichlorophenoxyacetic acid				µg/L	70	A						
Ethylbenzene	µg/L	7.3	R	µg/L	7.3	R						
Hexachlorobenzene	µg/L	0.000029	A				µg/kg			µg/kg	0.6	R
Lindane							µg/kg	5	R			
Lead				µg/L	0.54	A/R	mg/kg	196	R			
Manganese				µg/L	430	R						
MCPP	µg/L	16	R									
Mercury							mg/kg	0.085	R	mg/kg	0.031	A
Pentachlorophenol	µg/L	0.03	A	µg/L	0.03	A				µg/kg	2.5	R
Perchlorate				µg/L	15	A						
PBDEs										µg/kg	26	R
PCBs	µg/L	0.0000064	A	µg/L	0.014	A/R	µg/kg	9	B	µg/kg	0.25 (6)	R
PAHs							µg/kg	23000				
cPAHs (BaP eq)	µg/L	0.00012	A	µg/L	0.00012	A	µg/kg	12 (7)	B	µg/kg	7.1	R
Acenaphthene				µg/L	23	R						
Acenaphthylene												
Anthracene				µg/L	0.73	R						
Benzo(a)anthracene	µg/L	0.0012	A	µg/L	0.0012	A						
Benzo(a)pyrene	µg/L	0.00012	A	µg/L	0.00012	A						
Benzo(b)fluoranthene	µg/L	0.0012	A	µg/L	0.0012	A						
Benzo(g,h,i)perylene												
Benzo(k)fluoranthene	µg/L	0.0013	A	µg/L	0.0013	A						
Chrysene	µg/L	0.0013	A	µg/L	0.0013	A						
Dibenz(a,h)anthracene	µg/L	0.00012	A	µg/L	0.00012	A						
Fluoranthene												
Fluorene												
Indeno(1,2,3-c,d)pyrene	µg/L	0.0012	A	µg/L	0.0012	A						
2-Methylnaphthalene												
Naphthalene	µg/L	12	R									
Phenanthrene												
Pyrene												
Dioxins/Furans (2,3,7,8-TCDD eq)	µg/L	0.0000000005	A									
1,2,3,4,7,8-HxCDF							µg/kg	0.0004	B	µg/kg	0.00008	R
1,2,3,7,8-PeCDD							µg/kg	0.0002	B	µg/kg	0.000008	R
2,3,4,7,8-PeCDF							µg/kg	0.0003	B	µg/kg	0.00003	R
2,3,7,8-TCDF							µg/kg	0.00040658	R	µg/kg	0.00008	R
2,3,7,8-TCDD							µg/kg	0.0002	B	µg/kg	0.000008	R
Tetrachloroethene				µg/L	0.24	A						
Toluene				µg/L	9.8	R						
TPH-Diesel							mg/kg	91	R			
TPH-Diesel (C10-C12 Aliphatic)				µg/L	2.6	R						
Tributyltin	µg/L	0.063	A				µg/kg	3080	R			
Trichloroethene				µg/L	0.6	A						
2,4,5-Trichlorophenol				µg/L	50	A						
Vanadium				µg/L	20	R						
Vinyl Chloride				µg/L	0.022	A						
Xylenes				µg/L	13	R						
Zinc	µg/L	36.5	R	µg/L	36.5	R	mg/kg	459	R			

Notes:
(1) Surface Water Cleanup Levels - RAOs 3 and 7 (2) Groundwater Cleanup Levels - RAOs 4 and 8 (3) Sediment Cleanup Levels - RAOs 1 and 5
(4) Fish Tissue Targets - RAOs 2 and 6
(5) A/R indicates that the ARARs-based number and the risk-based number are the same.
(6) The tissue target is a risk-based number and does not represent background levels. Additional data will be collected to determine background fish tissue concentrations for PCBs during design and construction of the Selected Remedy.
(7) The cleanup level for cPAHs of 12 µg/kg is based on direct contact with sediment and is applicable to nearshore sediment. The cleanup level applicable to sediments in the navigation channel is 3,950 µg/kg and is based on human consumption of clams.
Abbreviations:
A- ARAR-based number
ARAR - applicable or relevant and appropriate requirement
B - Background-based number
BEHP - bis(2-ethylhexyl)phthalate
BaP eq - benzo(a)pyrene equivalent
C - carbon
Abbreviations (continued):
Conc - concentration
cPAH - carcinogenic polycyclic aromatic hydrocarbon
DDD - dichlorodiphenyldichloroethane DDE - dichlorodiphenyldichloroethene DDT - dichlorodiphenyltrichloroethane DDx - DDD + DDE + DDT
HxCDF - 1,2,3,7,8,9-hexachlorodibenzofuran
MCPP - 2-(4-chloro-2-methylphenoxy)propanoic acid mg/kg - milligram per kilogram
PAH - polycyclic aromatic hydrocarbon
PBDE - polybrominated diphenyl ether
PCB - polychlorinated biphenyl
PeCDD - pentachlorodibenzo-p-dioxin
PeCDF - pentachlorodibenzofuran
R - risk-based number
RAO - remedial action objective
TCDD - 2,3,7,8-tetrachlorodibenzo-p-dioxin
TCDF - tetrachlorodibenzofurans
TPH - total petroleum hydrocarbons
µg/kg - microgram per kilogram
µg/L - microgram per liter

Table 5
Eco-Zone Soil Results Screened to Portland Harbor Cleanup Levels
Upland and TZW Investigation and Source Control Evaluation
Premier Edible Oils
Portland, Oregon

Location Group		Ecological RSLs						Eco-Zone Soil												
Sample ID		Plants	Inverts	Birds	Mammals	Portland Basin Background Soil	Ecozone Soil Portland Harbor Cleanup Level	BZ-1-3081512	BZ-1-7081512	BZ-2-13081612	BZ-2-7081612	BZ-3-10081512	BZ-3-2081512	BZ-4-10081512	BZ-4-2081512	BZ-5-10081512	BZ-5-1081512	BZ-6-10081612	BZ-6-1081612	BZ-7-13081612	BZ-7-3081612	BZ-8-2081712
Location ID								BZ-01	BZ-01	BZ-02	BZ-02	BZ-03	BZ-03	BZ-04	BZ-04	BZ-05	BZ-05	BZ-06	BZ-06	BZ-07	BZ-07	BZ-08
Sample Depth								2.5 - 3	6.5 - 7	12.5 - 13	6.5 - 7	9.5 - 10	1.5 - 2	9.5 - 10	1.5 - 2	9.5 - 10	0.5 - 1	9.5 - 10	0.5 - 1	12.5 - 13	2.5 - 3	1.5 - 2
Sample Date	units							8/15/2012	8/15/2012	8/16/2012	8/16/2012	8/15/2012	8/15/2012	8/15/2012	8/15/2012	8/15/2012	8/15/2012	8/16/2012	8/16/2012	8/16/2012	8/16/2012	8/17/2012
VOCs																						
Benzene	mg/kg	--	--	--	3300		--	< 0.22 U	< 0.0067 U	**0.000** J	**0.001** J	**0.000** J	< 0.007 U	< 0.0069 U	**0.001** J	**0.000** J	**0.000** J	< 0.0064 U	**0.001** J	**0.000** J	**0.049**	< 0.0073 Ui
Ethylbenzene	mg/kg	--	--	--	--		--	< 0.22 U	**0.001** J	< 0.0073 U	**0.003** J	< 0.0065 U	< 0.007 U	< 0.0069 U	**0.001** J	< 0.0068 U	< 0.0066 U	< 0.0064 U	**0.000** J	< 0.0066 U	**0.003** J	< 0.0073 U
o-Xylene	mg/kg	1	--	--	--		--	< 0.22 U	**0.000** J	**0.001** J	**0.003** J	< 0.0065 U	< 0.007 U	**0.000** J	**0.001** J	< 0.0068 U	< 0.0066 U	**0.000** J	**0.001** J	**0.000** J	**0.012**	< 0.0073 U
Toluene	mg/kg	200	--	--	11400		--	**0.026** J	**0.000** J	**0.001** J	**0.002** J	< 0.0065 U	< 0.007 U	**0.000** J	**0.001** J	**0.000** J	**0.000** J	**0.000** J	**0.001** J	**0.000** J	**0.024**	< 0.0073 Ui
Xylenes	mg/kg	100	--	--	120		--	**0.120** J	**0.001** J	**0.001** J	**0.010**	< 0.0065 U	< 0.007 U	**0.001** J	**0.003** J	< 0.0068 U	**0.000** J	**0.001** J	**0.002** J	**0.001** J	**0.032**	< 0.0073 Ui
TPH																						
TPH-Gasoline	mg/kg	--	--	--	--		--	**980** Y	**72** Y	**4.7** J	**56** Y	**2.7** J	< 7.9 UJ	**3.5** J	**7.4** J	< 7.8 U	**9.4** Y	**2.3** J	**3.6** J	**2.6** J	**31.0** Y	**170.0** Y
TPH, SGT																						
Residual Range Organics	mg/kg	--	--	--	--		--	**99.0** J	**31.0** J	**6.2** J	**43.0** J	< 140 U	**36.0** J	**7.0** J	**20.0** J	< 140 U	**28.0** J	< 130 U	**67.0** J	< 140 U	**87.0** J	**32.0** J
TPH-Diesel	mg/kg	--	--	--	--		91	**4300** Y	**270** Y	**4.2** J	**950** Y	< 33 U	**12.0** J	< 35 U	**6.4** J	< 34 U	**24.0** J	**7.0** J	**13.0** J	< 34 U	**47.0** H	**24.0** J
PAHs																						
2-Methylnaphthalene	mg/kg	--	--	--	--		--	**0.050**	**0.005**	< 0.0036 U	**0.029**	**0.002** J	**0.002** J	**0.000** J	**0.004**	< 0.0034 U	**0.002** J	< 0.0033 U	**0.016**	< 0.0034 U	**0.006**	**0.001** J
Acenaphthene	mg/kg	20	--	--	--		--	**0.170**	**0.017**	< 0.0036 U	**0.028**	**0.004**	**0.001** J	**0.002** J	**0.004**	< 0.0034 U	**0.001** J	< 0.0033 U	**0.005**	< 0.0034 U	**0.019**	**0.001** J
Acenaphthylene	mg/kg	--	--	--	--		--	< 0.055 Ui	< 0.007 Ui	< 0.0036 U	< 0.013 Ui	< 0.0033 U	**0.006**	< 0.0034 U	**0.010**	< 0.0034 U	**0.004**	< 0.0033 U	**0.003** X	< 0.0034 U	**0.008**	**0.001** J
Anthracene	mg/kg	--	--	--	--		--	**0.063**	**0.014**	< 0.0036 U	**0.025**	< 0.0033 U	**0.005**	< 0.0034 U	**0.018**	< 0.0034 U	**0.004**	< 0.0033 U	**0.006**	< 0.0034 U	**0.014**	**0.003** J
Benzo(a)anthracene	mg/kg	--	--	--	--		--	**0.053**	**0.022**	< 0.0036 U	**0.033**	< 0.0033 U	**0.014**	< 0.0034 U	**0.066**	< 0.0034 U	**0.016**	< 0.0033 U	**0.010**	< 0.0034 U	**0.040**	**0.011**
Benzo(a)pyrene	mg/kg	--	--	--	125		--	**0.049**	**0.014**	< 0.0036 U	**0.040**	< 0.0033 U	**0.019**	< 0.0034 U	**0.077**	< 0.0034 U	**0.025**	< 0.0033 U	**0.012**	< 0.0034 U	**0.055**	**0.014**
Benzo(b)fluoranthene	mg/kg	--	--	--	--		--	**0.048**	**0.013**	< 0.0036 U	**0.034**	< 0.0033 U	**0.017**	< 0.0034 U	**0.062**	< 0.0034 U	**0.024**	< 0.0033 U	**0.012**	< 0.0034 U	**0.049**	**0.019**
Benzo(g,h,i)perylene	mg/kg	--	--	--	--		--	**0.043**	**0.007**	< 0.0036 U	**0.030**	< 0.0033 U	**0.020**	< 0.0034 U	**0.047**	< 0.0034 U	**0.030**	< 0.0033 U	**0.013**	< 0.0034 U	**0.059**	**0.021**
Benzo(k)fluoranthene	mg/kg	--	--	--	--		--	**0.019**	**0.005**	< 0.0036 U	**0.015**	< 0.0033 U	**0.008**	< 0.0034 U	**0.027**	< 0.0034 U	**0.010**	< 0.0033 U	**0.005**	< 0.0034 U	**0.019**	**0.008**
Chrysene	mg/kg	--	--	--	--		--	**0.065**	**0.022**	< 0.0036 U	**0.039**	< 0.0033 U	**0.017**	< 0.0034 U	**0.074**	< 0.0034 U	**0.023**	< 0.0033 U	**0.014**	< 0.0034 U	**0.053**	**0.016**
Dibenzo(a,h)anthracene	mg/kg	--	--	--	--		--	**0.005** J	**0.002** J	< 0.0036 U	**0.004** J	< 0.0033 U	**0.002** J	< 0.0034 U	**0.007**	< 0.0034 U	**0.003** J	< 0.0033 U	**0.003** J	< 0.0034 U	**0.007**	**0.004**
Dibenzofuran	mg/kg	--	--	--	0.002		--	< 0.12 Ui	< 0.016 Ui	< 0.0036 U	< 0.032 Ui	< 0.0033 U	**0.002** J	< 0.0034 U	**0.003** J	< 0.0034 U	**0.001** J	< 0.0033 U	**0.003**	< 0.0034 U	**0.004**	**0.001** J
Fluoranthene	mg/kg	--	--	--	--		--	**0.130**	**0.042**	< 0.0036 U	**0.061**	< 0.0033 U	**0.029**	< 0.0034 U	**0.110**	< 0.0034 U	**0.044**	< 0.0033 U	**0.027**	< 0.0034 U	**0.110**	**0.018**
Fluorene	mg/kg	--	30	--	--		--	**0.390**	**0.050**	< 0.0036 U	**0.085**	**0.002** J	**0.002** J	< 0.0034 U	**0.008**	< 0.0034 U	**0.003** J	< 0.0033 U	**0.014**	**0.001** J	**0.017**	**0.002** J
Indeno(1,2,3-cd)pyrene	mg/kg	--	--	--	--		--	**0.037**	**0.006**	< 0.0036 U	**0.024**	< 0.0033 U	**0.015**	< 0.0034 U	**0.044**	< 0.0034 U	**0.023**	< 0.0033 U	**0.011**	< 0.0034 U	**0.043**	**0.018**
Naphthalene	mg/kg	10	--	--	3900		--	**0.099**	< 0.0033 UJ	**0.001** J	**0.019**	**0.003** J	**0.011**	**0.001** J	**0.010**	**0.001** J	**0.003** J	**0.001** J	**0.012**	< 0.0034 U	**0.020**	**0.002** J
Phenanthrene	mg/kg	--	--	--	--		--	**0.720**	**0.110**	< 0.0036 U	**0.150**	< 0.0033 U	**0.017**	**0.002** J	**0.047**	< 0.0034 U	**0.023**	< 0.0033 U	**0.022**	< 0.0034 U	**0.034**	**0.010**
Pyrene	mg/kg	--	--	--	--		--	**0.220**	**0.051**	< 0.0036 U	**0.085**	< 0.0033 U	**0.057**	**0.001** J	**0.160**	< 0.0034 U	**0.060**	< 0.0033 U	**0.035**	< 0.0034 U	**0.150**	**0.020**
Total PAHs (ND=0)	mg/kg	--	--	--	--		23	**2.160**	**0.379**	**0.001**	**0.701**	**0.011**	**0.243**	**0.006**	**0.778**	**0.001**	**0.299**	**0.001**	**0.223**	**0.001**	**0.707**	**0.170**
Benzo(a)Pyrene Equivalent (Calculated ND=0)	mg/kg	--	--	--	125		0.012	**0.068**	**0.020**	**0.000**	**0.054**	**0.000**	**0.025**	**0.000**	**0.102**	**0.000**	**0.034**	**0.000**	**0.018**	**0.000**	**0.076**	**0.023**
Metals																						
Aluminum	mg/kg	50	600	450	107	--	--															
Antimony	mg/kg	5	--	--	15	0.56	--	**0.06** N	**0.06** N	**0.14** N	**0.06** N	**0.08** N	**0.09** N	**0.05** J,N	**0.06** N	**0.08** N	**0.06** N	**0.06** J,N	**0.08** N	**0.06** N	**0.14** N	**0.13** N
Arsenic	mg/kg	10	60	10	29	8.8	3	**2.88**	**2.49**	**2.94**	**2.14**	**2.14**	**2.15**	**2.79**	**2.19**	**2.17**	**2.16**	**2.07**	**1.88**	**1.77**	**5.13**	**1.50**
Barium	mg/kg	500	3000	85	638	790	--	**127.0** N	**96.9** N	**166.0**	**103.0**	**89.0** N	**145.0** N	**130.0** N	**94.6** N	**88.4** N	**88.2** N	**105.0**	**81.2**	**101.0**	**163.0**	**132.0**
Beryllium	mg/kg	10	--	--	83	2	--	**0.381**	**0.300**	**0.495**	**0.286**	**0.269**	**0.444**	**0.376**	**0.300**	**0.274**	**0.291**	**0.334**	**0.231**	**0.296**	**0.669**	**0.550**
Cadmium	mg/kg	4	20	6	125	0.63	0.51	**0.061**	**0.051**	**0.095**	**0.051**	**0.055**	**0.099**	**0.074**	**0.053**	**0.051**	**0.061**	**0.058**	**0.060**	**0.053**	**0.248**	**0.193** *
Chromium	mg/kg	1	0.4	4	3.4	76	--	**16.0**	**14.1**	**20.9**	**12.1**	**12.8**	**20.3**	**17.5**	**14.7**	**13.2**	**12.9**	**13.0**	**11.1**	**12.2**	**26.3**	**7.7**
Cobalt	mg/kg	20	1000	--	150		--	**14.5**	**16.2**	**14.2**	**15.2**	**13.2**	**14.3**	**15.2**	**14.0**	**14.9**	**13.2**	**14.0**	**11.4**	**13.0**	**20.9**	**19.2** *
Copper	mg/kg	100	50	190	390	34	359	**16.7**	**14.7**	**24.5**	**13.5**	**13.3**	**22.1**	**19.7**	**14.6**	**14.2**	**13.8**	**14.3**	**12.8**	**13.3**	**38.9**	**14.5**
Iron	mg/kg	--	10	200	--		--															
Lead	mg/kg	50	500	16	4000	79	196	**5.62**	**3.66**	**4.11**	**3.08**	**2.22**	**5.90**	**3.25**	**4.50**	**2.32**	**4.06**	**2.40**	**7.66**	**2.40**	**14.40**	**11.10**
Manganese	mg/kg	500	100	4125	11000	1800	--	**239**	**319**	**451**	**237**	**367**	**313**	**449**	**325**	**289**	**223**	**329**	**324**	**317**	**369**	**994** *
Mercury	mg/kg	0.0002	--	0.025	--	0.23	0.085	**0.045** N,*	**0.012** J,N*	**0.030** N	**0.021** N	**0.016** J,N*	**0.048** N,*	**0.011** J,N*	**0.031** N,*	**0.012** J,N*	**0.013** J,N*	**0.012** J,N	**0.017** J,N	**0.006** J,N	**0.109** N	**0.016** J
Molybdenum	mg/kg	2	200	15	14		--	**0.16**	**0.15**	**0.17**	**0.15**	**0.16**	**0.15**	**0.18**	**0.15**	**0.13**	**0.13**	**0.14**	**0.20**	**0.17**	**0.32**	**0.43**
Nickel	mg/kg	30	200	320	625	47	--	**22.6**	**20.7**	**22.8**	**18.2**	**18.4**	**21.6**	**20.4**	**19.4**	**20.0**	**17.6**	**18.3**	**15.7**	**17.6**	**24.9**	**11.4** *
Selenium	mg/kg	1	70	2	25	0.71	--	< 1 UJ	< 1 U	< 0.8 UJ	< 1 U	< 1.1 U	< 1 UJ	< 1.1 U	**0.30** J	< 1.1 U	< 1 UJ	< 1.2 U	**0.20** J	< 1.1 U	**0.40** J	< 1 UJ
Silver	mg/kg	2	50	--	--	0.82	--	**0.018** J	**0.015** J	**0.054**	**0.018** J	**0.018** J	**0.050**	**0.024**	**0.023**	**0.012** J	**0.020**	**0.016** J	**0.057**	**0.019** J	**0.169**	**0.036**
Thallium	mg/kg	1	--	--	1	5.2	--	**0.046**	**0.048**	**0.067**	**0.051**	**0.046**	**0.063**	**0.054**	**0.042**	**0.042**	**0.054**	**0.049**	**0.041**	**0.042**	**0.117**	**0.111**
Vanadium	mg/kg	2	--	47	25	180	--	**76.7** N	**68.8** N	**81.5**	**49.6**	**53.0** N	**83.9** N	**76.1** N	**62.0** N	**59.1** N	**66.2** N	**54.4**	**56.8**	**49.2**	**101.0**	**90.8** N
Zinc	mg/kg	50	2000	60	20000	180	459	**50.7**	**47.9**	**53.2**	**41.7**	**41.6**	**58.4**	**50.2**	**45.8**	**43.8**	**45.0**	**42.6**	**46.3**	**40.5**	**88.4**	**83.3** N

Notes:

-- = No screening level available

DDx = Sum of the six DDx compounds: 2,4'-dichloro-diphenyl-dichloroethane (DDD); 4,4'-DDD; 2,4'-dichloro-diphenyl-dichloroethene (DDE); 4,4'-DDE; 2,4'-dichloro-diphenyl-trichloroethane (DDT); and 4,4'-DDT. If all compounds ND, than < highest DL. If one or more compounds detected, U = 1/2 DL.

DDE = Sum of the two DDE compounds: 2,4'-dichloro-diphenyl-dichloroethene (DDE) and 4,4'-DDE. If all compounds ND, than < highest DL. If one or more compounds detected, U = 1/2 DL.

Bold text indicates that the analyte was detected above the method detection limit.

Detected concentration is between 1 and 10 times the Portland Harbor Cleanup Levels

Detected concentration is between 10 and 100 times the Portland Harbor Cleanup Levels

Detected concentration is greater than 100 times the Portland Harbor Cleanup Levels

Upland Soil - Includes soil data collected landward of the Greenway Setback (25 feet from Top of Bank)

Ecological Zone Soil- Includes data collected from the riverbank to the Top of Bank and within the Greenway Setback (25 feet from Top of Bank)

Qualifiers:

J = Estimated concentration

X = Matrix spike is outside of control limits.

D = Data reported from a dilution.

N = Spiked sample recovery not within control limits

* = Quality control parameter outside control limits.

i = Matrix interference noted by laboratory.

Abbreviations:

DL = Detection limit

ND = Not detected

PAH = Polycyclic aromatic hydrocarbon

PRG SL = Prelimiary Remediation Goal Screening Level

TPH = Total petroleum hydrocarbon

TPH, SGT = Total petroleum hydrocarbon

VOC = Volatile organic compound

Table 5
Eco-Zone Soil Results Screened to Portland Harbor Cleanup Levels
Upland and TZW Investigation and Source Control Evaluation
Premier Edible Oils
Portland, Oregon

Location Group	Eco-Zone Soil																
Sample ID	BZ-8-9081712	RA-03-0.5120414	RA-03-3120414	RA-04-0.5120414	RA-04-3120414	RA-05-0.5120414	RA-05-3120414	RA-07-0.5120414	RA-07-3120414	RA-06-0.5120414	RA-06-3120514	RA-08-2120514	RA-08-3120514	RA-08-4120514	RA-08-5120514	RA-08A-0.5120514	RA-08A-3120514
Location ID	BZ-08	RA-03	RA-03	RA-04	RA-04	RA-05	RA-05	RA-07	RA-07	RA-06	RA-06	RA-08	RA-08	RA-08	RA-08	RA-08A	RA-08A
Sample Depth	8.5 - 9	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	1.5 - 2	2.5 - 3	3.5 - 4	4.5 - 5	0 - 0.5	2.5 - 3
Sample Date	8/17/2012	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014
VOCs																	
Benzene	0.001 J																
Ethylbenzene	0.001 J																
o-Xylene	0.002 J																
Toluene	0.001 J																
Xylenes	0.005 J																
TPH																	
TPH-Gasoline	4.1 J																
TPH, SGT																	
Residual Range Organics	< 140 U																
TPH-Diesel	2.7 J																
PAHs																	
2-Methylnaphthalene	0.001 J	0.001 J	< 0.0029	0.003 J	0.260 D	0.002 J	0.039 D	0.006	< 0.0028	0.001 J	0.009	0.008	0.004	0.001 J	0.001 J	0.007	0.002 J
Acenaphthene	0.002 J	0.001 J	< 0.0029	0.013	0.084 D	0.007	0.031 D	0.035	< 0.0028	0.001 J	0.019	0.005	0.010	< 0.0028	< 0.0034	0.022	0.006
Acenaphthylene	< 0.0034 U	0.006	< 0.0029	0.009	0.140 D	0.130	0.490 D	0.240	< 0.0028	0.014	0.180	0.110	0.130	0.003	0.003 J	0.120	0.040
Anthracene	< 0.0034 U	0.004	< 0.0029	0.020	1.000 D	0.090	0.450 D	0.130 D	< 0.0028	0.013	0.110 D	0.086	0.100	0.003	0.003 J	0.140	0.036
Benzo(a)anthracene	< 0.0034 U	0.022	< 0.0029	0.180	2.300 D	0.650	3.000 D	0.770 D	< 0.0028	0.084	0.750 D	0.230	0.900	0.022	0.014	0.930	0.180
Benzo(a)pyrene	< 0.0034 U	0.038	< 0.0029	0.280	1.400 D	0.980	4.400 D	1.100 D	< 0.0028 i	0.120	1.200 D	0.380	1.100 D	0.026	0.017	1.000 D	0.300
Benzo(b)fluoranthene	< 0.0034 U	0.050	< 0.0029	0.360	2.000 D	1.000	4.200 D	1.200 D	< 0.0028	0.140	1.300 D	0.670	1.100 D	0.036	0.032	1.100 D	0.310
Benzo(g,h,i)perylene	< 0.0034 U	0.053	< 0.0029	0.240	1.500 D	1.000	4.200 D	1.200 D	< 0.0028	0.130	1.400 D	0.750	1.100 D	0.027	0.027	0.990 D	0.310
Benzo(k)fluoranthene	< 0.0034 U	0.015	< 0.0029	0.110	0.640 D	0.340	1.500 D	0.390 D	< 0.0028	0.047	0.430 D	0.200	0.430	0.013	0.012	0.430	0.100
Chrysene	< 0.0034 U	0.038	< 0.0029	0.270	3.200 D	0.950	4.000 D	1.200 D	< 0.0028	0.120	1.100 D	0.430	1.100 D	0.033	0.030	1.200 D	0.280
Dibenzo(a,h)anthracene	< 0.0034 U	0.006	< 0.0029	0.050	0.180 D	0.110	0.460 D	0.140 D	< 0.0028	0.014	0.130 D	0.100	0.170	0.003	0.003 J	0.190	0.038
Dibenzofuran	< 0.0034 U	< 0.0028	< 0.0029	0.004	0.600 D	0.001 J	0.012 JD	0.006	< 0.0028	< 0.0035	0.006	0.012	0.005	0.002 J	0.001 J	0.008	0.003 J
Fluoranthene	< 0.0034 U	0.052	< 0.0029	0.320	15.000 D	1.500	11.000 D	2.200 D	< 0.0028	0.190	2.100 D	0.420	1.700 D	0.039	0.046	2.200 D	0.430
Fluorene	0.001 J	0.001 J	< 0.0029	0.006	0.078 D	0.008	0.045 D	0.039	< 0.0028	0.002 J	0.031	0.009	0.016	0.001 J	0.001 J	0.042	0.007
Indeno(1,2,3-cd)pyrene	< 0.0034 U	0.046	< 0.0029	0.240	1.300 D	0.930	3.800 D	1.100 D	< 0.0028	0.120	1.200 D	0.720	1.000 D	0.025	0.023	1.100	0.270
Naphthalene	0.002 J	0.003 J	< 0.0029	0.005	0.630 D	0.006 J	0.180 D	0.012	0.001 J	0.005	0.048	0.031	0.017	0.002 J	0.001 J	0.015	0.006
Phenanthrene	< 0.0034 U	0.018	< 0.0029	0.120	8.300 D	0.240	1.500 D	1.200 D	< 0.0028	0.068	0.900 D	0.160	0.600	0.012	0.027	1.300 D	0.220
Pyrene	< 0.0034 U	0.074	< 0.0029	0.330	11.000 D	2.000	15.000 D	2.600 D	0.001 JX	0.230	2.600 D	0.540	2.200 D	0.055	0.048	2.600 D	0.550
Total PAHs (ND=0)	0.005	0.428	0.000	2.560	49.600	9.940	54.300	13.600	0.002	1.300	13.500	4.860	11.700	0.303	0.288	13.400	3.090
Benzo(a)Pyrene Equivalent (Calculated ND=0)	0.000	0.056	0.000	0.409	2.150	1.350	5.980	1.550	0.000	0.169	1.660	0.644	1.580	0.038	0.027	1.510	0.415
Metals																	
Aluminum		9780	8860	8160	9340	11500	9840	9920	10800	10300	8860						
Antimony	0.21 N																
Arsenic	2.60	4.70	3.80	4.80	6.70	3.70	3.80	4.30	3.40 J	4.00	4.40						
Barium	127.0																
Beryllium	0.434																
Cadmium	0.082																
Chromium	16.6																
Cobalt	13.3 *	13.1	12.5	10.8	11.6	13.7	13.0	11.9	13.6	12.5	11.9						
Copper	19.2																
Iron		25900	24400	27000	26700	27500	25000	25300	25300	25300	25500						
Lead	3.33	17.20 *	2.60 *	36.00 *	819.00 *	16.50 *	53.30 *	65.50 N	3.20 N	16.50 *	137.00 N						
Manganese	420 *	520	318	836	1400	372	290	856	288	332	613						
Mercury	0.017 J																
Molybdenum	0.23																
Nickel	19.1 *	17.6	16.9	27.1	21.6	20.0	18.1	21.0	17.8	17.8	17.5	184.0	82.8	111.0	119.0	41.8	24.9
Selenium	< 1 UJ																
Silver	0.041																
Thallium	0.058																
Vanadium	60.2 N																
Zinc	45.7 N	65.8	46.2	149.0	672.0	69.8	132.0	120.0	47.3	59.0	181.0						

Notes:
-- = No screening level available
DDx = Sum of the six DDx compounds: 2,4'-dichloro-diphenyl-dichloroethane (DDD); 4,4'-DDD; 2,4'-dichloro-diphenyl-dichloroethene (DDE); 4,4'-DDE; 2,4'-dichloro-diphenyl-trichloroethane (DDT); and 4,4'-DDT. If all compounds ND, than < highest DL. If one or more compounds detected, U = 1/2 DL.
DDE = Sum of the two DDE compounds: 2,4'-dichloro-diphenyl-dichloroethene (DDE) and 4,4'-DDE. If all compounds ND, than < highest DL. If one or more compounds detected, U = 1/2 DL.
Bold text indicates that the analyte was detected above the method detection limit.
Detected concentration is between 1 and 10 times the Portland Harbor Cleanup Levels
Detected concentration is between 10 and 100 times the Portland Harbor Cleanup Levels
Detected concentration is greater than 100 times the Portland Harbor Cleanup Levels

Upland Soil - Includes soil data collected landward of the Greenway Setback (25 feet from Top of Bank)
Ecological Zone Soil- Includes data collected from the riverbank to the Top of Bank and within the Greenway Setback (25 feet from Top of Bank)

Qualifiers:
J = Estimated concentration
X = Matrix spike is outside of control limits.
D = Data reported from a dilution.
N = Spiked sample recovery not within control limits
* = Quality control parameter outside control limits.
i = Matrix interference noted by laboratory.

Abbreviations:
DL = Detection limit
ND = Not detected
PAH = Polycyclic aromatic hydrocarbon
PRG SL = Prelimiary Remediation Goal Screening Level
TPH = Total petroleum hydrocarbon
TPH, SGT = Total petroleum hydrocarbon
VOC = Volatile organic compound

Table 5
Eco-Zone Soil Results Screened to Portland Harbor Cleanup Levels
Upland and TZW Investigation and Source Control Evaluation
Premier Edible Oils
Portland, Oregon

Location Group	Eco-Zone Soil														
Sample ID	RA-08B-0.5120514	RA-08B-3120514	RA-08C-0.5120514	RA-08C-3120514	RA-08D-0.5120514	RA-08D-3120514	RA-09-1.5120514	RA-09-3120514	RA-09A-0.5120514	RA-09A-3120514	RA-09B-0.5120514	RA-09B-3120514	RA-09C-0.5120514	RA-09C-3120514	RA-09D-0.5120514
Location ID	RA-08B	RA-08B	RA-08C	RA-08C	RA-08D	RA-08D	RA-09	RA-09	RA-09A	RA-09A	RA-09B	RA-09B	RA-09C	RA-09C	RA-09D
Sample Depth	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	1 - 1.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5
Sample Date	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014	12/5/2014
VOCs															
Benzene															
Ethylbenzene															
o-Xylene															
Toluene															
Xylenes															
TPH															
TPH-Gasoline															
TPH, SGT															
Residual Range Organics															
TPH-Diesel															
PAHs															
2-Methylnaphthalene	**0.005**	**0.007**	**0.006**	< 0.0029	**0.032**	**0.001** J	**0.005**	**0.009**	**0.002** J	**0.120** D	**0.001** J	**0.008**	**0.005**	**0.007**	**0.006**
Acenaphthene	**0.013**	**0.005**	**0.007**	< 0.0029	**0.034**	< 0.0028	**0.003**	**0.009**	**0.003** J	**0.013** JD	**0.001** J	**0.005**	**0.014**	**0.007**	**0.009**
Acenaphthylene	**0.140**	**0.044**	**0.097**	< 0.0029	**0.340**	**0.014**	**0.034**	**0.082**	**0.015**	**0.470** D	**0.005**	**0.069**	**0.079**	**0.067**	**0.073**
Anthracene	**0.130**	**0.056**	**0.083**	**0.001** J	**0.310**	**0.011**	**0.041**	**0.086**	**0.022**	**0.270** D	**0.007**	**0.060**	**0.110**	**0.056**	**0.081**
Benzo(a)anthracene	**0.790**	**0.390**	**0.680**	**0.003** J	**1.100** D	**0.063**	**0.250**	**0.300** D	**0.150**	**2.700** DX	**0.054**	**0.210** D	**0.650**	**0.300**	**0.610**
Benzo(a)pyrene	**0.900**	**0.530**	**1.100**	**0.005**	**1.900** D	**0.100**	**0.420**	**0.520** D	**0.220**	**4.400** D	**0.093**	**0.340** D	**1.100**	**0.490** D	**0.900**
Benzo(b)fluoranthene	**1.000**	**0.690**	**1.000**	**0.006**	**2.000** D	**0.130**	**0.460**	**0.530** D	**0.230**	**4.000** D	**0.110**	**0.350** D	**0.900**	**0.470** D	**0.860**
Benzo(g,h,i)perylene	**0.830**	**0.580**	**1.100**	**0.007**	**2.300** D	**0.180**	**0.430**	**0.720** D	**0.230**	**4.400** D	**0.100**	**0.570** D	**1.000**	**0.580** D	**0.900**
Benzo(k)fluoranthene	**0.360**	**0.200**	**0.310**	**0.002** J	**0.650** D	**0.048**	**0.130**	**0.130** D	**0.071**	**0.950** D	**0.029**	**0.089** D	**0.280**	**0.130** D	**0.260**
Chrysene	**1.000**	**0.730**	**0.940**	**0.004**	**1.700** D	**0.095**	**0.400**	**0.450** D	**0.220**	**3.500** D	**0.084**	**0.330** D	**0.850**	**0.360**	**0.830**
Dibenzo(a,h)anthracene	**0.120**	**0.075**	**0.120**	< 0.0029	**0.280** D	**0.015**	**0.044**	**0.079** D	**0.025**	**0.650** D	**0.013**	**0.086** D	**0.190**	**0.062** D	**0.100**
Dibenzofuran	**0.014**	**0.027**	**0.004**	< 0.0029	**0.120**	**0.003** J	**0.005**	**0.005**	**0.002** J	**0.018** D	**0.001** JX	**0.002** JX	**0.006**	**0.004**	**0.004**
Fluoranthene	**1.700** D	**0.620**	**1.300** D	**0.003** J	**1.700** D	**0.074**	**0.530**	**0.600** D	**0.280**	**4.300** D	**0.079**	**0.380**	**1.200** D	**0.620**	**1.200** D
Fluorene	**0.020**	**0.009**	**0.011**	< 0.0029	**0.037**	**0.001** J	**0.007**	**0.011**	**0.003**	**0.043** D	**0.001** J	**0.006**	**0.025**	**0.009**	**0.017**
Indeno(1,2,3-cd)pyrene	**0.810**	**0.540**	**0.980**	**0.006**	**2.100** D	**0.150**	**0.360**	**0.570** D	**0.200**	**3.800** D	**0.088**	**0.430** D	**0.940**	**0.480** D	**0.780**
Naphthalene	**0.014**	**0.011**	**0.019**	< 0.0029	**0.039**	**0.002** J	**0.011**	**0.031**	**0.004**	**0.420** D	**0.002** J	**0.018**	**0.010**	**0.017**	**0.015**
Phenanthrene	**0.700**	**0.310**	**0.400**	**0.002** J	**0.970**	**0.019**	**0.230**	**0.280**	**0.120**	**0.660** D	**0.028**	**0.150**	**0.740**	**0.240**	**0.710**
Pyrene	**1.800** D	**1.200**	**2.300** D	**0.006**	**3.200** D	**0.140**	**0.970**	**1.100** D	**0.570**	**8.300** D	**0.140**	**0.690** D	**2.500** D	**0.820**	**2.200** D
Total PAHs (ND=0)	**10.300**	**6.020**	**10.500**	**0.043**	**18.800**	**1.050**	**4.330**	**5.510**	**2.370**	**39.000**	**0.836**	**3.790**	**10.600**	**4.720**	**9.550**
Benzo(a)Pyrene Equivalent (Calculated ND=0)	**1.280**	**0.770**	**1.490**	**0.006**	**2.710**	**0.150**	**0.573**	**0.741**	**0.304**	**6.110**	**0.132**	**0.526**	**1.540**	**0.679**	**1.230**
Metals															
Aluminum															
Antimony															
Arsenic															
Barium															
Beryllium															
Cadmium															
Chromium															
Cobalt															
Copper															
Iron															
Lead															
Manganese							**499** N*	**447** N*	**305** N*	**602** N*	**432** N*	**494** N*	**941** N*	**508** N*	**452** N*
Mercury															
Molybdenum															
Nickel	**22.8**	**325.0**	**44.2**	**23.7**	**332.0**	**29.3**									
Selenium															
Silver															
Thallium															
Vanadium															
Zinc															

Notes:
-- = No screening level available
DDx = Sum of the six DDx compounds: 2,4'-dichloro-diphenyl-dichloroethane (DDD); 4,4'-DDD; 2,4'-dichloro-diphenyl-dichloroethene (DDE); 4,4'-DDE; 2,4'-dichloro-diphenyl-trichloroethane (DDT); and 4,4'-DDT. If all compounds ND, than < highest DL. If one or more compounds detected, U = 1/2 DL.
DDE = Sum of the two DDE compounds: 2,4'-dichloro-diphenyl-dichloroethene (DDE) and 4,4'-DDE. If all compounds ND, than < highest DL. If one or more compounds detected, U = 1/2 DL.
Bold text indicates that the analyte was detected above the method detection limit.
Detected concentration is between 1 and 10 times the Portland Harbor Cleanup Levels
Detected concentration is between 10 and 100 times the Portland Harbor Cleanup Levels
Detected concentration is greater than 100 times the Portland Harbor Cleanup Levels

Upland Soil - Includes soil data collected landward of the Greenway Setback (25 feet from Top of Bank)
Ecological Zone Soil- Includes data collected from the riverbank to the Top of Bank and within the Greenway Setback (25 feet from Top of Bank)

Qualifiers:
J = Estimated concentration
X = Matrix spike is outside of control limits.
D = Data reported from a dilution.
N = Spiked sample recovery not within control limits
* = Quality control parameter outside control limits.
i = Matrix interference noted by laboratory.

Abbreviations:
DL = Detection limit
ND = Not detected
PAH = Polycyclic aromatic hydrocarbon
PRG SL = Prelimiary Remediation Goal Screening Level
TPH = Total petroleum hydrocarbon
TPH, SGT = Total petroleum hydrocarbon
VOC = Volatile organic compound

Table 5
Eco-Zone Soil Results Screened to Portland Harbor Cleanup Levels
Upland and TZW Investigation and Source Control Evaluation
Premier Edible Oils
Portland, Oregon

Location Group	Eco-Zone Soil															
Sample ID	RA-09D-3120514	RA-10-0.5120314	RA-10-3120314	RA-11-0.5120414	RA-11-3120414	RA-12-0.5120414	RA-12-3120414	RA-13-0.5120414	RA-13-3120414	RA-14-0.5120414	RA-14-3120414	RA-15-0.5120414	RA-15-3120414	RA-16-0.5120414	RA-16-3120414
Location ID	RA-09D	RA-10	RA-10	RA-11	RA-11	RA-12	RA-12	RA-13	RA-13	RA-14	RA-14	RA-15	RA-15	RA-16	RA-16
Sample Depth	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3	0 - 0.5	2.5 - 3
Sample Date	12/5/2014	12/3/2014	12/3/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014	12/4/2014
VOCs															
Benzene															
Ethylbenzene															
o-Xylene															
Toluene															
Xylenes															
TPH															
TPH-Gasoline															
TPH, SGT															
Residual Range Organics															
TPH-Diesel															
PAHs															
2-Methylnaphthalene	**0.018**	**0.003** J	**0.018** D	< 0.0033	**0.001** J	**0.001** J	**0.100**	**0.001** J	**0.000** J	**0.003**	**0.002** J	**0.005**	< 0.0035	**0.002** J	**0.000** J
Acenaphthene	**0.014**	**0.004**	**0.047** D	< 0.0033	< 0.0028	< 0.0029	**0.120**	**0.001** J	< 0.0032	**0.003**	**0.003** J	**0.001** J	< 0.0035	**0.002** J	< 0.0031
Acenaphthylene	**0.088**	**0.013**	**0.410** D	**0.004**	**0.007**	**0.003**	**0.160**	**0.010**	**0.001** J	**0.036**	**0.019**	**0.010**	< 0.0035	**0.015**	**0.004**
Anthracene	**0.120**	**0.017**	**0.410** D	**0.005**	**0.008**	**0.002** J	**0.400**	**0.009**	**0.003** J	**0.024** JD	**0.020**	**0.013**	< 0.0035	**0.015**	**0.005**
Benzo(a)anthracene	**0.290** D	**0.120**	**1.700** D	**0.035**	**0.060**	**0.020**	**1.500** D	**0.069**	**0.010**	**0.087** D	**0.100**	**0.150**	< 0.0035	**0.070**	**0.032**
Benzo(a)pyrene	**0.350** D	**0.210**	**2.500** D	**0.060**	**0.095**	**0.029**	**1.900** D	**0.100**	**0.010**	**0.180** D	**0.160**	**0.170**	< 0.0035	**0.120**	**0.032**
Benzo(b)fluoranthene	**0.390** D	**0.240**	**2.400** D	**0.066**	**0.093**	**0.036**	**2.000** D	**0.110**	**0.013**	**0.220** D	**0.170**	**0.300**	< 0.0035	**0.140**	**0.033**
Benzo(g,h,i)perylene	**0.540** D	**0.230**	**3.100** D	**0.052**	**0.110**	**0.034**	**1.700** D	**0.110**	**0.010**	**0.340** D	**0.180**	**0.270**	< 0.0035	**0.150**	**0.023**
Benzo(k)fluoranthene	**0.110** D	**0.072**	**0.690** D	**0.024**	**0.037**	**0.012**	**0.500**	**0.035**	**0.004**	**0.051** D	**0.053**	**0.100**	< 0.0035	**0.033**	**0.011**
Chrysene	**0.340** D	**0.190**	**2.100** D	**0.058**	**0.084**	**0.034**	**2.100** D	**0.110**	**0.013**	**0.100** D	**0.190**	**0.250**	< 0.0035	**0.095**	**0.039**
Dibenzo(a,h)anthracene	**0.100** D	**0.031**	**0.320** D	**0.005**	**0.011**	**0.005**	**0.190**	**0.012**	**0.002** J	**0.067** D	**0.027**	**0.052**	< 0.0035	**0.024**	**0.005**
Dibenzofuran	**0.017**	**0.003** J	**0.015** D	< 0.0033	**0.001** J	< 0.0029	**0.050**	< 0.0032	< 0.0032	< 0.0027	**0.001** J	**0.004**	< 0.0035	**0.001** J	< 0.0031
Fluoranthene	**0.510**	**0.170**	**4.200** D	**0.075**	**0.120**	**0.043**	**4.600** D	**0.170**	**0.019**	**0.190** D	**0.290**	**0.210**	< 0.0035	**0.200**	**0.053**
Fluorene	**0.034**	**0.003** J	**0.077** D	< 0.0033	**0.002** J	< 0.0029	**0.330**	**0.001** J	< 0.0032	**0.003**	**0.003**	**0.002** J	< 0.0035	< 0.0033	< 0.0031
Indeno(1,2,3-cd)pyrene	**0.430** D	**0.190**	**2.700** D	**0.047**	**0.091**	**0.027**	**1.600** D	**0.096**	**0.009**	**0.210** D	**0.140**	**0.220**	< 0.0035	**0.120**	**0.022**
Naphthalene	**0.034**	**0.005**	**0.027** D	**0.001** J	**0.003** J	**0.001** J	**0.120**	**0.002** J	**0.001** J	**0.005**	**0.005**	**0.009**	< 0.0035	**0.003** J	**0.001** J
Phenanthrene	**0.330**	**0.064**	**2.600** D	**0.015**	**0.044**	**0.016**	**4.900** D	**0.063**	**0.011**	**0.094** D	**0.140**	**0.079**	< 0.0035	**0.061**	**0.024**
Pyrene	**0.710** D	**0.320**	**7.000** D	**0.120**	**0.210**	**0.055**	**5.500** D	**0.230**	**0.024**	**0.270** D	**0.370**	**0.210**	< 0.0035	**0.240**	**0.073**
Total PAHs (ND=0)	**4.430**	**1.880**	**30.300**	**0.567**	**0.976**	**0.318**	**27.800**	**1.130**	**0.130**	**1.880**	**1.870**	**2.050**	**0.000**	**1.290**	**0.357**
Benzo(a)Pyrene Equivalent (Calculated ND=0)	**0.562**	**0.297**	**3.510**	**0.080**	**0.131**	**0.042**	**2.610**	**0.140**	**0.015**	**0.299**	**0.229**	**0.290**	**0.000**	**0.177**	**0.045**
Metals															
Aluminum															
Antimony															
Arsenic															
Barium															
Beryllium															
Cadmium															
Chromium															
Cobalt															
Copper															
Iron															
Lead															
Manganese	**523** N*														
Mercury															
Molybdenum															
Nickel															
Selenium															
Silver															
Thallium															
Vanadium															
Zinc															

Notes:
-- = No screening level available
DDx = Sum of the six DDx compounds: 2,4'-dichloro-diphenyl-dichloroethane (DDD); 4,4'-DDD; 2,4'-dichloro-diphenyl-dichloroethene (DDE); 4,4'-DDE; 2,4'-dichloro-diphenyl-trichloroethane (DDT); and 4,4'-DDT. If all compounds ND, than < highest DL. If one or more compounds detected, U = 1/2 DL.
DDE = Sum of the two DDE compounds: 2,4'-dichloro-diphenyl-dichloroethene (DDE) and 4,4'-DDE. If all compounds ND, than < highest DL. If one or more compounds detected, U = 1/2 DL.
Bold text indicates that the analyte was detected above the method detection limit.
Detected concentration is between 1 and 10 times the Portland Harbor Cleanup Levels
Detected concentration is between 10 and 100 times the Portland Harbor Cleanup Levels
Detected concentration is greater than 100 times the Portland Harbor Cleanup Levels

Upland Soil - Includes soil data collected landward of the Greenway Setback (25 feet from Top of Bank)
Ecological Zone Soil- Includes data collected from the riverbank to the Top of Bank and within the Greenway Setback (25 feet from Top of Bank)

Qualifiers:
J = Estimated concentration
X = Matrix spike is outside of control limits.
D = Data reported from a dilution.
N = Spiked sample recovery not within control limits
* = Quality control parameter outside control limits.
i = Matrix interference noted by laboratory.

Abbreviations:
DL = Detection limit
ND = Not detected
PAH = Polycyclic aromatic hydrocarbon
PRG SL = Prelimiary Remediation Goal Screening Level
TPH = Total petroleum hydrocarbon
TPH, SGT = Total petroleum hydrocarbon
VOC = Volatile organic compound

Table 6
Groundwater and TZW Results Screened to Portlnd Harbor Cleanup Levels
Upland and TZW Investigation and Source Control Evaluation
Premier Edible Oils
Portland, Oregon

Location Group			Upland																	
Location ID		Upland Groundwater and Surface Water Cleanup Level	GW-01	GW-02	GW-03	GW-04	GW-05	MW-01	MW-01	MW-02	MW-02	MW-03	MW-03	MW-03	MW-04	MW-05	MW-05	MW-05	MW-05
Sample ID			GW-01_052198	GW-02_052198	GW-03_052198	GW-04_052198	GW-05_052198	MW-01123014		80107-MW02-22_01080		MW-03123014			MW-04122914		MW-05122914		
Sample Date	units		5/21/1998	5/21/1998	5/21/1998	5/21/1998	5/21/1998								12/29/2014		12/29/2014		
								Most Recent	Max	Most Recent	Max	Most Recent	Max		Most Recent	Max	Most Recent	Max	
VOCs																			
1,1,1,2-Tetrachloroethane	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
1,1,1-Trichloroethane	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
1,1,2,2-Tetrachloroethane	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
1,1,2-Trichloroethane	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
1,1-Dichloroethane	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
1,1-Dichloroethene	µg/L	7	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
1,1-Dichloropropene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
1,2,3-Trichlorobenzene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 2 U	ND	< 2 U	ND	< 2 U	ND		< 2 U	ND	< 2 U	ND	
1,2,3-Trichloropropane	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
1,2,4-Trichlorobenzene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 2 U	ND	< 2 U	ND	< 2 U	ND		< 2 U	ND	< 2 U	ND	
1,2,4-Trimethylbenzene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 2 U	ND	< 2 U	**0.8**	< 2 U	ND		< 2 U	ND	**2** J	**3530**	
1,2-Dibromo-3-chloropropane	µg/L	--	< 2 U	< 2 U	< 10 U	< 2 U		< 2 U	ND	< 10 U	ND	< 2 U	ND		< 2 U	ND	< 2 U	ND	
1,2-Dichlorobenzene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
1,2-Dichloroethane	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
1,2-Dichloroethene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U													
1,2-Dichloropropane	µg/L	--						< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
1,3,5-Trimethylbenzene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 2 U	ND	< 2 U	ND	< 2 U	ND		< 2 U	ND	**2** J	**1200**	
1,3-Dichlorobenzene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
1,3-Dichloropropane	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
1,4-Dichlorobenzene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
2,2-Dichloropropane	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
2-Butanone	µg/L	--	< 1 U	< 1 U	< 125 U	< 1 U		< 20 U	ND	< 20 U	ND	< 20 U	ND		**2.5** J	**2.5**	**2.4** J	**2.4**	
2-Hexanone	µg/L	--	< 5 U	< 5 U	< 25 U	< 5 U		< 20 U	ND	< 20 U	ND	< 20 U	ND		< 20 U	ND	< 20 U	**7.03**	
4-Chlorotoluene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 2 U	ND	< 2 U	ND	< 2 U	ND		< 2 U	ND	< 2 U	ND	
4-Isopropyltoluene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 2 U	ND	**0.42** J	**9**	< 2 U	ND		< 2 U	ND	**0.09** J	**16.6**	
4-Methyl-2-pentanone	µg/L	--	< 5 U	< 5 U	< 25 U	< 5 U		< 20 U	ND	< 10 U	ND	< 20 U	ND		< 20 U	ND	< 20 U	ND	
Acetone	µg/L	--	< 25 U	< 25 U	< 5 U	< 25 U		< 20 U	ND	< 50 U	ND	< 20 U	ND		< 20 U	ND	**9** J	**9**	
Benzene	µg/L	**0.44**	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	**12.4**	**79.1**	< 0.5 U	**1.3**		< 0.5 U	ND	**0.17** J	**0.17**	
Bromobenzene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 2 U	ND	< 2 U	ND	< 2 U	ND		< 2 U	ND	< 2 U	ND	
Bromodichloromethane	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
Bromoform	µg/L	--	< 10 U	< 10 U	< 5 U	< 10 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
Carbon disulfide	µg/L	--						< 0.5 U	ND	< 20 U	ND	**0.07** J	**0.07**		**0.14** J	**0.14**	< 0.5 U	**0.2**	
Carbon tetrachloride	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
Chlorobenzene	µg/L	**64**	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
Chlorobromomethane	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
Chloroethane	µg/L	--	< 5 U	< 5 U	< 25 U	< 5 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
Chloroform	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
cis-1,2-Dichloroethene	µg/L	**9.9**	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	**0.24** J	**7.17**	< 0.5 U	**2.46**		< 0.5 U	ND	< 0.5 U	ND	
cis-1,3-Dichloropropene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
Dibromochloromethane	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
Dibromomethane	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
Ethylbenzene	µg/L	**7.3**	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	**1.16** J	**24.4**	< 0.5 U	**1.5**		< 0.5 U	ND	**5.8**	**2840**	
Ethylene dibromide	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 2 U	ND	< 2 U	ND	< 2 U	ND		< 2 U	ND	< 2 U	ND	
Ethyl-tert-butyl ether	µg/L	--																	
Freon 11	µg/L	--	< 5 U	< 5 U	< 25 U	< 5 U		< 0.5 U	**20.6**	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
Freon 12	µg/L	--	< 5 U	< 5 U	< 25 U	< 5 U		< 0.5 U	ND	< 10 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
Hexachlorobutadiene	µg/L	--	< 2 U	< 2 U	< 10 U	< 2 U		< 2 U	ND	< 8 U	ND	< 2 U	ND		< 2 U	ND	< 2 U	ND	
Isopropyl ether	µg/L	--																	
Isopropylbenzene (Cumene)	µg/L	--	< 1 U	< 1 U	**5.6**	< 1 U		< 2 U	ND	**27.8**	**35**	< 2 U	**3.1**		**1.2** J	**7.17**	**9.5**	**220**	
m,p-Xylenes	µg/L	--	< 2 U	< 2 U	< 10 U	< 2 U			ND	**6.22**	**6.22**		ND			ND		**19.3**	
Methyl bromide	µg/L	--	< 25 U	< 25 U	< 50 U	< 25 U		< 0.5 U	ND	< 10 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
Methyl chloride	µg/L	--	< 5 U	< 5 U	< 25 U	< 5 U		< 0.5 U	ND	< 10 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
Methyl tert-butyl ether	µg/L	--							ND	< 2 U	ND		ND			ND		ND	
Methylene chloride	µg/L	--	< 5 U	< 5 U	< 25 U	< 5 U		< 2 U	ND	**0.34** J	**0.34**	< 2 U	**1.3**		< 2 U	ND	< 2 U	**58**	
Naphthalene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 2 U	ND	< 4 U	ND	< 2 U	ND		**1.1** J	**1.1**	**1.4** J	**1220**	
n-Butylbenzene	µg/L	--	< 1 U	< 1 U	**5.4**	< 1 U		< 2 U	ND	**5.56** J	**7.95**	< 2 U	**18.1**		**5.9**	**10.4**	**0.36** J	**80**	
n-Propylbenzene	µg/L	--	< 1 U	< 1 U	**11**	< 1 U		< 2 U	ND	**37.8**	**52**	< 2 U	**26.3**		**4.7**	**31.6**	**18**	**600**	
o-Chlorotoluene (2-chlorotoluene)	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 2 U	ND	< 2 U	ND	< 2 U	ND		< 2 U	ND	< 2 U	ND	
o-Xylene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	**1.96** J	**7.09**	< 0.5 U	**1.7**		**0.62**	**0.62**	**0.08** J	**60.2**	
sec-Butylbenzene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 2 U	ND	**6.16**	**6.16**	< 2 U	**10.9**		**3.3**	**6.54**	**0.41** J	**24**	
Styrene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
tert-Amyl Methyl Ether	µg/L	--																	
tert-Butyl alcohol	µg/L	--																	
tert-Butylbenzene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 2 U	ND	**0.54** J	**0.54**	< 2 U	ND		**0.35** J	**0.59**	**0.09** J	**0.09**	
Tetrachloroethene	µg/L	**0.24**	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
Toluene	µg/L	**9.8**	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	**6.74**	**15.6**	**0.12** J	**4.5**		**0.11** J	**0.19**	**0.43** J	**3.6**	
trans-1,2-Dichloroethene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
trans-1,3-Dichloropropene	µg/L	--	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
Trichloroethene	µg/L	**0.6**	< 1 U	< 1 U	< 5 U	< 1 U		< 0.5 U	ND	< 2 U	ND	< 0.5 U	**6.35**		< 0.5 U	ND	< 0.5 U	ND	
Vinyl chloride	µg/L	**0.022**	< 2 U	< 2 U	< 10 U	< 2 U		< 0.5 U	ND	< 2 U	**4.8**	< 0.5 U	ND		< 0.5 U	ND	< 0.5 U	ND	
Xylenes	µg/L	**13**						< 0.5 U	ND		**25.4**	< 0.5 U	**3.1**		< 0.5 U	ND	**0.58**	**5110**	
TPH																			
Residual Range Organics	µg/L	--	< 500 U	< 500 U	< 500 U	< 2500 U		**43** J	**45.7**	**321** J	**321**	**100** J	**100**		**860** L	**860**	**470** J	**470**	
Diesel	µg/L	--	< 250 U	< 250 U	**6600**	**4360**			**34.2**	**112000**	**112000**		**286**		4300 Y	**5900**	91 J	**6020**	
Gasoline	µg/L	--	< 80000 U	< 80000 U	**1790**	**3680** J	**322**	< 250 U	ND	**1860**	**5380**	< 250 U	**1420**		**1200** Y	**1200**	**220** J	**37500**	
PAHS																			
2-Methylnaphthalene	µg/L	--								**0.58**	0.58	< 9.6	0.032				**0.39**	**190**	
Acenaphthene	µg/L	**23**	< 0.1 U	< 0.1 U	< 25 U	< 10 U		< 0.0952		**7.53**	**1.9**	< 0.0962	0.065		**1.37**		< 0.019 U	**0.87**	
Acenaphthylene	µg/L	--	< 0.1 U	< 0.1 U	< 25 U	< 10 U		< 0.0952		< 3.37	ND	< 0.0962	ND		< 0.288		< 0.019 U	**0.18**	
Anthracene	µg/L	**0.73**	**0.188**	< 0.1 U	< 25 U	< 0.5 U		< 0.0952		**2.45**	**0.094**	< 0.0962	**0.07**		< 0.144		< 0.019 U	**0.12**	
Benzo(a)anthracene	µg/L	**0.0013**	**0.427**	**0.108**	< 25 U	**0.109**		< 0.0952		< 0.962	ND	< 0.0962	ND		< 0.0962		< 0.019 U	**0.058**	
Benzo(a)pyrene	µg/L	**0.00012**	**0.336**	< 0.1 U	< 25 U	< 0.1 U		< 0.0952		< 0.962	ND	< 0.0962	ND		< 0.0962		< 0.019 U	**0.04**	
Benzo(b)fluoranthene	µg/L	**0.0013**	**0.178**	< 0.1 U	< 25 U	< 0.1 U		< 0.0952		< 0.962	ND	< 0.0962	ND		< 0.0962		< 0.019 U	**0.042**	
Benzo(g,h,i)perylene	µg/L	--	**0.154**	< 0.1 U	< 25 U	< 0.1 U		< 0.0952		< 0.962	ND	< 0.0962	ND		< 0.0962		**0.012** J	**0.03**	
Benzo(k)fluoranthene	µg/L	**0.0013**	**0.236**	< 0.1 U	< 25 U	< 0.1 U		< 0.0952		< 0.962	ND	< 0.0962	ND		< 0.0962		< 0.019 U	ND	
Chrysene	µg/L	**0.0013**	**0.51**	**0.119**	< 25 U	**0.146**		< 0.0952		< 0.962	ND	< 0.0962	**0.022**		< 0.0962		< 0.019 U	**0.061**	
Dibenzo(a,h)anthracene	µg/L	**0.00012**	< 0.2 U	< 0.2 U	< 50 U	< 0.2 U		< 0.19		< 1.92	ND	< 0.192	ND		< 0.192		< 0.019 U	ND	
Dibenzofuran	µg/L	--								**0.80**	0.8	< 9.6	0.061				< 0.019 U	**0.83**	
Fluoranthene	µg/L	**6.2**	**0.71**	**0.132**	< 25 U	**0.305**		< 0.0952		**0.82**	0.021	< 0.0962	0.076		< 0.0962		< 0.019 U	**0.2**	
Fluorene	µg/L	--	< 0.1 U	< 0.1 U	**47.8**	< 10 U		< 0.0952		**16.40**	**3.4**	< 0.0962	**0.19**		**2.36**		< 0.019 U	**1.1**	
Indeno(1,2,3-cd)pyrene	µg/L	**0.0012**	**0.158**	< 0.1 U	< 25 U	< 0.1 U		< 0.0952		< 0.962	ND	< 0.0962	ND		< 0.0962		**0.0095** J	**0.025**	
Naphthalene	µg/L	**12**	**0.117**	< 0.1 U	< 25 U	< 10 U		< 0.0952		< 9.13	**2.5**	< 0.0962	**0.19**		< 0.433		**0.85**	**710**	
Phenanthrene	µg/L	--	**0.594**	**0.133**	**87.2**	**0.876**		< 0.0952		**20.70**	**2.1**	< 0.0962	**0.031**		**0.86**		< 0.019 U	**0.43**	
Pyrene	µg/L	**10**	**0.923**	**0.155**	< 25 U	**0.594**		< 0.0952		**0.97**	0.027	< 0.0962	**0.11**		< 0.0962		< 0.019 U	**0.25**	
Benzo(a)Pyrene Equivalent (Calculated)	µg/L	**0.00012**	**0.415**	**0.0109**	ND	**0.011**		ND		**0.00**	ND	ND	0.000022		ND		**0.00095**	**0.0714**	
Metals																			
Antimony - Total	µg/L	--																	
Antimony - Dissolved	µg/L	--																	
Arsenic - Total	µg/L	**2**						**0.31** J	**0.31**	**27.2** J	**29**	**0.48** J	**16.8**		**13.7**	**13.7**	**14.9**	**27.4**	
Arsenic - Dissolved	µg/L	**2**						**0.28** J	**0.28**			**0.29** J	**0.29**		**1.18**	**1.18**	**2.73**	**2.73**	
Barium - Total	µg/L	--																	
Barium - Dissolved	µg/L	--																	
Beryllium - Total	µg/L	--																	
Beryllium - Dissolved	µg/L	--																	
Cadmium - Total	µg/L	**0.091**																	
Cadmium - Dissolved	µg/L	**0.091**																	
Chromium - Total	µg/L	**100**							ND	< 10 U	**1.1**		**2.7**			ND		**6.9**	
Chromium - Dissolved	µg/L	**100**																	
Cobalt - Total	µg/L	--																	
Cobalt - Dissolved	µg/L	--																	
Copper - Total	µg/L	**2.74**							ND	< 10 U	**0.6**		**7.8**			ND		**16.1**	
Copper - Dissolved	µg/L	**2.74**																	
Iron - Total	µg/L	--							**50**	**56400**	**84700**		**45200**			**45100**		**79700**	
Iron - Dissolved	µg/L	--																	
Iron II, Ferrous	µg/L	--																	
Lead - Total	µg/L	**0.54**							ND	< 50 U	**0.48**		**7.86**			**9.4**		**68.3**	
Lead - Dissolved	µg/L	**0.54**																	
Manganese - Total	µg/L	**430**						**2.98**	**33**	**2810**	**5090**	**11.4**	**689**		**1260**	**1310**	**2060**	**13000**	
Manganese - Dissolved	µg/L	**430**						**0.17**	**0.17**			**1.13**	**1.13**		**995**	**995**	**1940**	**1940**	
Mercury - Total	µg/L	--																	
Mercury - Dissolved	µg/L	--																	
Methyl Mercury - Total	µg/L	--																	
Molybdenum - Total	µg/L	--																	
Molybdenum - Dissolved	µg/L	--																	
Nickel - Total	µg/L	--			**39.3**		**103**		ND	< 50 U	**2.4**		**12.5**			**3.07**		**27.7**	
Nickel - Dissolved	µg/L	--																	
Selenium - Total	µg/L	--																	
Selenium - Dissolved	µg/L	--																	
Silver - Total	µg/L	--							ND	< 20 U	ND		**0.02**			ND		**0.05**	
Silver - Dissolved	µg/L	--																	
Thallium - Total	µg/L	--																	
Thallium - Dissolved	µg/L	--																	
Vanadium - Total	µg/L	**20**																	
Vanadium - Dissolved	µg/L	**20**																	
Zinc - Total	µg/L	**36.5**							ND	< 20 U	**0.8**		**24.9**			ND		**30.8**	
Zinc - Dissolved	µg/L	**36.5**																	
Water Quality Parameters																			
Hardness as CaCO3 by Method 2340B	µg/L	--						**41100**	**41100**		**282000**	**65800**	**105000**		**91100**	**91100**	**73200**	**252000**	
Hardness as CaCO3 by Method 310.1	µg/L	--							**44800**		**424000**		**110000**					**315000**	
Alkalinity, Total as CaCO3	µg/L	--						**50000**	**50000**			**69000**	**69000**		**124000**	**124000**	**148000**	**148000**	
Ammonia as N by Method 350.1	µg/L	--							ND		**306**		**47**					**21**	
Total organic carbon	µg/L	--							**308**				**1220**					**8250**	
Carbon dioxide	µg/L	--							**16700**		**272000**		**40400**					**169000**	
Ammonia as N by Method 4500NH3	µg/L	--																	
Nitrogen by Method ASTM D1426	µg/L	--																	
Chloride	µg/L	--						**950**	**950**			**1240**	**1240**		**1270**	**1270**	**890**	**890**	
Nitrate as N	µg/L	--						**400**	**400**		**15**	**580**	**580**		**50** J	**50**	**730**	**730**	
Sulfate	µg/L	--						**4250**	**6120**		**178**	**14300**	**14300**		**14800**	**14800**	**3660**	**6250**	
NO3NO2N by Method E353.2	µg/L	--																	
Phosphorus (yellow) by Method E365.1	µg/L	--							**40**		ND		**8.23**					**203**	
Phosphorus (yellow) by Method E365.3	µg/L	--							**39.5**		**4.56**		**28.2**					**7.02**	
Ethylene dibromide	µg/L	--																	
Methane	µg/L	--							**16.8**		**3180**		**2140**					**19300**	
Dissolved Organic Carbon	µg/L	--																	

Notes:
All units reported in micrograms per kilogram.
-- = No screening level available
< = Analyte not detected above method detection limit.
Bold text indicates that the analyte was detected above the method detection limit.
Detected concentration is between 1 and 10 times the Portland Harbor Cleanup Levels
Detected concentration is between 10 and 100 times the Portland Harbor Cleanup Levels
Detected concentration is greater than 100 times the Portland Harbor Cleanup Levels

Upland Soil - Includes soil data collected landward of the Greenway Setback (25 feet from Top of Bank)
Ecological Zone Soil- Includes data collected from the riverbank to the Top of Bank and within the Greenway Setback (25 feet from Top of Bank)

Qualifiers:
J = Estimated concentration
P = Pesticide/aroclor target analyte had a percent difference greater than 25% between the two GC columns. The lower of the two results is reported.
X = Matrix spike is outside of control limits.
U = Result qualified as non-detect.
UJ = Estimated non-detect.
i = Matrix interference noted by laboratory.
Y = Not defined
D = Data reported from a dilution.

Abbreviations:
ND = Not detected
PAH = Polycyclic aromatic hydrocarbon
TPH = Total petroleum hydrocarbon
SVOC = Semivolatile organic compound
VOC = Volatile organic compound

Table 6
Groundwater and TZW Results Screened to Portland Harbor Cleanup Levels
Upland and TZW Investigation and Source Control Evaluation
Premier Edible Oils
Portland, Oregon

Location Group	Upland																							
Location ID	MW-06	MW-06	MW-07	MW-07	MW-08	MW-08	MW-10	MW-10	MW-10D	MW-10D	MW-11	MW-11	MW-12	MW-12	MW-13	MW-13	MW-13	MW-14
Sample ID	MW-06123014		MW-07122914		MW-08-91714		0224-MW10-47_0224		MW-10D-91714		0107-MW11-22_0108		20120418-MW-12		MW-13-91714			MW-14123014
Sample Date	12/30/2014		12/29/2014		9/17/2014		2/24/2009		9/17/2014		1/8/2009		4/18/2012		9/17/2014			12/30/2014
	Most Recent	Max	Most Recent	Max	Most Recent	Max	Most Recent	Max	Most Recent	Max	Most Recent	Max	Most Recent	Max	Most Recent	Max	Max	Most Recent
VOCs																		
1,1,1,2-Tetrachloroethane	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
1,1,1-Trichloroethane	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
1,1,2,2-Tetrachloroethane	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
1,1,2-Trichloroethane	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
1,1-Dichloroethane	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
1,1-Dichloroethene	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
1,1-Dichloropropene	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
1,2,3-Trichlorobenzene	< 2 U	ND	< 2 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 2 U	ND			ND	< 2 U
1,2,3-Trichloropropane	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
1,2,4-Trichlorobenzene	< 2 U	ND	< 2 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 2 U	ND			ND	< 2 U
1,2,4-Trimethylbenzene	**0.12** J	**1700**	**0.1** J	**0.1**		**220**	< 10 U	**1.78**		**0.36**	**0.45** J	**3.45**	**0.29** J	**1.02**			**2.66**	< 2 U
1,2-Dibromo-3-chloropropane	< 2 U	ND	< 2 U	ND		ND	< 50 U	ND		ND	< 25 U	ND	< 2 U	ND			ND	< 2 U
1,2-Dichlorobenzene	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
1,2-Dichloroethane	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	**1.8**	< 0.5 U	**0.23**			ND	< 0.5 U
1,2-Dichloroethene																		
1,2-Dichloropropane	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
1,3,5-Trimethylbenzene	< 2 U	**690**	< 2 U	ND		**100**	< 10 U	**1.2**		**0.54**	**1.8** J	**4.81**	**0.2** J	**0.2**			**16**	< 2 U
1,3-Dichlorobenzene	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
1,3-Dichloropropane	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
1,4-Dichlorobenzene	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
2,2-Dichloropropane	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
2-Butanone	< 20 U	ND	< 20 U	ND		ND	< 100 U	ND		ND	< 50 U	ND	< 20 U	ND			ND	< 20 U
2-Hexanone	< 20 U	ND	< 20 U	ND		ND	< 100 U	ND		ND	< 50 U	ND	< 20 U	ND			ND	< 20 U
4-Chlorotoluene	< 2 U	ND	< 2 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 2 U	ND			ND	< 2 U
4-Isopropyltoluene	< 2 U	**11**	< 2 U	ND		ND	< 20 U	ND		**0.16**	**0.8** J	**1.89**	**0.77** J	**1.04**			**12.4**	< 2 U
4-Methyl-2-pentanone	< 20 U	ND	< 20 U	ND		ND	< 50 U	ND		ND	< 25 U	ND	< 20 U	ND			ND	< 20 U
Acetone	< 20 U	ND	< 20 U	ND		ND	< 250 U	ND		ND	< 125 U	**39**	< 20 U	ND			ND	< 20 U
Benzene	< 0.5 U	ND	< 0.5 U	**16**	**0.56**	**5.9**	**2.3** J	**6.1**	**0.34** J	**0.34**	**62.4**	**90.1**	**15**	**88.3**	**37**	**260**	< 0.5 U	
Bromobenzene	< 2 U	ND	< 2 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 2 U	ND			ND	< 2 U
Bromodichloromethane	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
Bromoform	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
Carbon disulfide	< 0.5 U	ND	< 0.5 U	ND		ND	< 100 U	ND		ND	< 50 U	ND	< 0.5 U	ND			ND	**0.3** J
Carbon tetrachloride	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
Chlorobenzene	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
Chlorobromomethane	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
Chloroethane	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	**1.5**		ND	< 5 U	ND	< 0.5 U	ND			**5.7**	< 0.5 U
Chloroform	< 0.5 U	**0.54**	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
cis-1,2-Dichloroethene	< 0.5 U	**62.2**	< 0.5 U	ND		**150**	< 10 U	**164**		ND	< 5 U	**6.9**	**0.16** J	**2.9**			ND	< 0.5 U
cis-1,3-Dichloropropene	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
Dibromochloromethane	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
Dibromomethane	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
Ethylbenzene	< 0.5 U	**150**	< 0.5 U	**1.08**	**0.3** J	**360**	**0.8** J	**74**	**0.07** J	**0.36**	**4.6** J	**9.7**	**1.4**	**84**	**1.8**	**265**	< 0.5 U	
Ethylene dibromide	< 2 U	ND	< 2 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 2 U	ND			ND	< 2 U
Ethyl-tert-butyl ether										ND			< 2 U	ND				
Freon 11	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
Freon 12	< 0.5 U	ND	< 0.5 U	ND		ND	< 50 U	ND		ND	< 25 U	ND	< 0.5 U	ND			ND	< 0.5 U
Hexachlorobutadiene	< 2 U	ND	< 2 U	ND		ND	< 40 U	ND		ND	< 20 U	ND	< 2 U	ND			ND	< 2 U
Isopropyl ether						ND				ND			< 2 U	ND				
Isopropylbenzene (Cumene)	**0.37** J	**190**	< 2 U	**32**		**120**	**72.7**	**101**		**52**	**36**	**36**	**12**	**40**			**49**	< 2 U
m,p-Xylenes		**13.7**		**0.24**		**1.95**	**4.5** J	**4.5**		**2.2**	**26.1**	**26.1**	**7.7**	**10.4**			**58.6**	
Methyl bromide	< 0.5 U	ND	< 0.5 U	ND		ND	< 50 U	ND		ND	< 25 U	ND	< 0.5 U	ND			ND	< 0.5 U
Methyl chloride	< 0.5 U	ND	< 0.5 U	ND		ND	< 50 U	ND		ND	< 25 U	ND	< 0.5 U	ND			ND	< 0.5 U
Methyl tert-butyl ether		ND		ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	
Methylene chloride	< 2 U	**1.7**	< 2 U	**1.3**		**13**	< 50 U	**7.6**		ND	< 25 U	ND	< 3.2 Ui	**3.7**			ND	< 2 U
Naphthalene	< 2 U	**180**	**0.15** J	**0.15**		**63**	< 20 U	**1.36**		ND	< 10 U	**0.47**	< 2 U	ND			**1.6**	< 2 U
n-Butylbenzene	**0.24** J	**130**	< 2 U	**3.9**		**41**	**17.1** J	**17.1**		**16**	**6.5** J	**9.4**	**3.7**	**7.76**			**9.8**	< 2 U
n-Propylbenzene	**0.16** J	**620**	**0.08** J	**79**		**330**	**173**	**310**		**130**	**51.6**	**60**	**23**	**70**			**53.6**	< 2 U
o-Chlorotoluene (2-chlorotoluene)	< 2 U	ND	< 2 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 2 U	ND			ND	< 2 U
o-Xylene	< 0.5 U	**15**	< 0.5 U	ND	< 0.5 U	**5**	< 10 U	**0.4**	**0.16** J	**0.31**	**13**	**15**	**2.7**	**8.76**	**1.6**	**23.3**	< 0.5 U	
sec-Butylbenzene	**0.21** J	**42**	< 2 U	**5.3**		**27**	**13.9**	**14**		**16**	**5.25**	**5.7**	**3.2**	**5.7**			**6.9**	< 2 U
Styrene	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
tert-Amyl Methyl Ether						ND				ND			< 2 U	ND				
tert-Butyl alcohol						ND				ND			< 20 U	ND				
tert-Butylbenzene	< 2 U	**1.6**	< 2 U	**0.08**		**1.3**	**0.9** J	**1.3**		**0.94**	< 5 U	ND	**0.31** J	**0.46**			**1.06**	< 2 U
Tetrachloroethene	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
Toluene	< 0.5 U	**1.2**	< 0.5 U	**2.9**	**0.13** J	**1.42**	< 10 UJ	**3.9**	**0.15** J	**0.62**	**28**	**29**	**9.1**	**18.3**	**18**	**126**	< 0.5 U	
trans-1,2-Dichloroethene	< 0.5 U	ND	< 0.5 U	ND		**0.82**	< 10 U	**1.08**		ND	< 5 U	ND	< 0.5 U	**0.46**			ND	< 0.5 U
trans-1,3-Dichloropropene	< 0.5 U	ND	< 0.5 U	ND		ND	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
Trichloroethene	**1**	**2.8**	< 0.5 U	ND		**5.12**	< 10 U	ND		ND	< 5 U	ND	< 0.5 U	ND			ND	< 0.5 U
Vinyl chloride	< 0.5 U	ND	< 0.5 U	ND		**16**	< 10 U	**45**		ND	< 5 U	ND	**0.08** J	**3**			ND	< 0.5 U
Xylenes	< 0.5 U	**490**	< 0.5 U	**3.4**	**0.19** J	**550**		**9.1**	**0.52**	**0.52**		**35.9**		**26.8**	**10**	**171**	< 0.5 U	
TPH																		
Residual Range Organics	**310** J	**310**	**77** J	**136**	**450** J	**720**	**82.9** J	**91.8**	**210** J	**130**	**259** J	**259**	**1100** L	**1100**	**530** L	**121**	**610** O	
Diesel	480 Y	**6190**		**502**	270 Y	**6800**	**1830**	**1850**	**270** Y	**1500**	**7060**	**7060**	**12000** Y	**12000**	**2300** Y	**5600**	**350** Y	
Gasoline	**37** J	**10200**	**14** J	**65.7**	**390** Y	**4620**	1990	3760	**1200** Y	**2500**	**3020**	4110	2600 H	4560	**6200** Y	**9370**	**90** J	
PAHS																		
2-Methylnaphthalene	**100**	280	**0.026**	**0.026**	**0.07**	**17**	< 9.6	**0.038**	**0.035**	**0.035**	**0.31**	**0.31**	**0.28** DX	**0.39**	**0.68**	**0.88**	**0.038**	
Acenaphthene	**2.15**	**1.2**	**0.0052** JX	**0.13**	**0.44**	**0.64**	**0.231**	**0.27**	**0.28**	**0.28**	**0.777**	**1.6**	**1.3** D	**1.7**	**1.7**	**1.7**	**0.0093** J	
Acenaphthylene	< 0.583	**0.36**	< 0.019 U	ND	< 0.046 i	**0.17**	< 0.0952 U	ND	< 0.067 i	ND	< 0.196 U	ND	< 0.23 Ui	ND	< 0.56 i	ND	**0.021**	
Anthracene	< 0.194	**0.13**	< 0.019 U	ND	**0.073**	**0.15**	< 0.0952 U	ND	**0.017** J	**0.017**	< 0.098 U	**0.16**	< 0.02 U	**0.11**	**0.089**	**0.089**	**0.043**	
Benzo(a)anthracene	< 0.194	**0.035**	< 0.019 U	ND	**0.014** J	**0.021**	< 0.0952 U	ND	< 0.019 U	ND	< 0.098 U	**0.069**	< 0.02 Ui	ND	**0.032**	**0.032**	**0.049**	
Benzo(a)pyrene	< 0.194	ND	< 0.019 U	ND	< 0.019 U	ND	< 0.0952 U	ND	< 0.019 U	ND	< 0.098 U	**0.066**	< 0.02 U	ND	**0.02**	**0.02**	**0.049**	
Benzo(b)fluoranthene	< 0.194	ND	< 0.019 U	ND	< 0.019 U	ND	< 0.0952 U	ND	< 0.019 U	ND	< 0.098 U	**0.098**	< 0.02 U	ND	**0.021**	**0.021**	**0.04**	
Benzo(g,h,i)perylene	< 0.194	ND	< 0.019 U	ND	< 0.019 U	ND	< 0.0952 U	ND	< 0.019 U	ND	< 0.098 U	**0.06**	< 0.02 U	ND	**0.011** J	**0.011**	**0.028**	
Benzo(k)fluoranthene	< 0.194	ND	< 0.019 U	ND	< 0.019 U	ND	< 0.0952 U	ND	< 0.019 U	ND	< 0.098 U	**0.035**	< 0.02 U	ND	**0.0091** J	**0.0091**	**0.016** J	
Chrysene	< 0.194	**0.039**	< 0.019 U	ND	**0.014** J	**0.02**	< 0.0952 U	ND	< 0.019 U	ND	< 0.098 U	**0.12**	< 0.02 Ui	ND	**0.054**	**0.054**	**0.053**	
Dibenzo(a,h)anthracene	< 0.388	ND	< 0.019 U	ND	< 0.019 U	ND	< 0.19 U	ND	< 0.019 U	ND	< 0.196 U	ND	< 0.02 U	ND	**0.0038** J	**0.0038**	**0.0054** J	
Dibenzofuran	**2.40**	**1.3**	< 0.019 U	ND	**0.091**	**0.21**	< 9.6	**0.055**	**0.02** X	**0.02**	**0.79**	**0.79**	< 0.52 Ui	**0.63**	**0.97**	**0.97**	< 0.019 U	
Fluoranthene	< 0.194	**0.09**	< 0.019 U	ND	**0.072**	**0.48**	< 0.0952 U	ND	< 0.019 U	ND	< 0.098 U	**0.18**	< 0.02 U	**0.13**	**0.084**	**0.084**	**0.066**	
Fluorene	**3.89**	**2.6**	**0.01** J	**0.054**	**0.47**	**0.65**	**0.161**	**0.29**	**0.14**	**0.14**	**1.3**	**3.2**	**2** D	**2.9**	**3.2**	**3.2**	**0.051**	
Indeno(1,2,3-cd)pyrene	< 0.194	ND	< 0.019 U	ND	< 0.019 U	ND	< 0.0952 U	ND	< 0.019 U	ND	< 0.098 U	**0.056**	< 0.02 U	ND	**0.011** J	**0.011**	**0.029**	
Naphthalene	**12.80**	**150**	**0.043**	**0.14**	**0.38**	**53**	< 0.381 U	**0.34**	**0.47**	**0.47**	< 1.13 U	ND	< 0.96 Ui	**0.68**	**1**	**1**	**0.52**	
Phenanthrene	**1.34**	**2.6**	**0.016** J	**0.054**	**0.011** J	**0.34**	< 0.0952 U	**0.023**	**0.05**	**0.05**	**1.35**	**2.9**	**1**	**1.7**	**2.9**	**2.9**	**0.13**	
Pyrene	< 0.194	**0.14**	< 0.019 U	**0.028**	**0.12**	**0.57**	< 0.0952 U	ND	< 0.019 U	ND	< 0.098 U	**0.28**	**0.045** X	**0.17**	**0.12**	**0.12**	**0.089**	
Benzo(a)Pyrene Equivalent (Calculated)	ND	**0.00354**	ND	ND	**0.00141**	**0.00212**	ND	ND	ND	ND	ND	**0.0888**	ND	ND	**0.0303**	**0.0303**	**0.0664**	
Metals																		
Antimony - Total						**0.016**				ND			**0.017** J	**0.017**				
Antimony - Dissolved						**0.014**				ND			**0.014** J	**0.014**				
Arsenic - Total	**38.9**	**38.9**	**1.17**	**5.69**		**26.6**	**19.5** J	**23.8**		**19**	**32.6** J	**58.4**	**19.8**	**35.6**		**39.9**	**36.5**	
Arsenic - Dissolved	**3.55**	**3.55**	**0.21** J	**0.21**	**1.1**	**1.1**			**2.8**	**17.5**			**15.8**	**15.8**	**1.4**	**1.4**	**1.07**	
Barium - Total						**52.8**				**47.4**			**55.1**	**55.1**				
Barium - Dissolved						**13.4**				**19.9**			**15.6**	**15.6**				
Beryllium - Total						**0.01**				**0.011**			**0.013** J	**0.013**				
Beryllium - Dissolved						ND				ND			< 0.02 U	ND				
Cadmium - Total						ND				**0.004**			< 0.02 U	ND				
Cadmium - Dissolved						ND				ND			< 0.02 U	ND				
Chromium - Total		**0.9**		**0.4**		**0.6**	< 10 U	**1.2**		**0.24**	< 10 U	**146**	**0.17** J	**1.4**		**1.3**		
Chromium - Dissolved						**0.05**				**0.06**			**0.05** J	**0.05**				
Cobalt - Total						**0.058**				**1.24**			**1.73**	**1.73**				
Cobalt - Dissolved						**0.052**				**1.14**			**1.64**	**1.64**				
Copper - Total		**1.1**		**0.8**		**0.4**	< 10 U	ND		**0.38**	< 10 U	**223**	**0.52**	**0.52**		**0.7**		
Copper - Dissolved						**0.17**				**0.09**			**0.2**	**0.2**				
Iron - Total		**83900**		**8960**	**38900**	**63600**	**27600**	**28400**	**19000**	**19000**	**76700**	**446000**		**90500**	**91300**	**91300**		
Iron - Dissolved					**13100**	**13100**			**1050**	**1050**					**36800**	**36800**		
Iron II, Ferrous						**69000**				**21000**			**67000**	**67000**				
Lead - Total		**16.3**		**0.69**		**0.84**	< 50 U	**0.19**		**0.086**	< 50 U	**159**	**0.71**	**0.82**		**0.55**		
Lead - Dissolved						**0.059**				**0.007**			**0.502**	**0.502**				
Manganese - Total	**463**	**2540**	**48**	**628**		**5900**	**2590**	**2910**		**2290**	**2950**	**9440**	**2980**	**5900**		**4890**	**226**	
Manganese - Dissolved	**417**	**417**	**28.7**	**28.7**	**1300**	**2240**			**1690**	**2230**			**3050**	**3050**	**2930**	**2930**	**123**	
Mercury - Total						ND				ND			< 0.2 U	ND				
Mercury - Dissolved						ND				ND			< 0.2 U	ND				
Methyl Mercury - Total																		
Molybdenum - Total						**0.136**				**0.367**			**0.117**	**0.117**				
Molybdenum - Dissolved						**0.091**				**0.38**			**0.084**	**0.084**				
Nickel - Total		**11.7**		**7.3**		**2.3**	< 50 U	**2.7**		**1.22**	**1.77** J	**1220**	**1.07**	**3.3**		**3.9**		
Nickel - Dissolved						**0.29**				**1.12**			**0.96**	**0.96**				
Selenium - Total						ND				ND			< 1 U	ND				
Selenium - Dissolved						ND				ND			< 1 U	ND				
Silver - Total		ND		ND		**0.197**	< 20 U	ND		ND	< 20 U	**0.26**	**0.066**	**0.066**		ND		
Silver - Dissolved						**0.06**				ND			**0.156**	**0.156**				
Thallium - Total						**0.008**				ND			< 0.02 U	ND				
Thallium - Dissolved						ND				ND			< 0.02 U	ND				
Vanadium - Total						**0.4**				**0.76**			**0.68**	**0.68**				
Vanadium - Dissolved						ND				ND			**0.04** J	**0.04**				
Zinc - Total		**5.07**		**3.5**		**0.7**	**2.61** J	**2.61**		**1.4**	< 20 U	**581**	**0.4** J	**1.4**		ND		
Zinc - Dissolved						**1.4**				**4.11**			< 0.5 UJ	ND				
Water Quality Parameters																		
Hardness as CaCO3 by Method 2340B	27200	85600	120000	120000	72900	154000		161000	108000	108000		262000		283000	155000	289000	50400	
Hardness as CaCO3 by Method 310.1		156000		112000		202000		216000				250000		333000		323000		
Alkalinity, Total as CaCO3	65000	65000	139000	139000	122000	122000			150000	188000			222000	222000	214000	214000	51000	
Ammonia as N by Method 350.1		**109**		**16**		**179**		**2080**				**418**		**367**		**1060**		
Total organic carbon		**5360**		**802**		**2620**		**3420**						**11700**		**10300**		
Carbon dioxide		**127000**		**59800**		**98400**		**70300**				**132000**		**193000**		**161000**		
Ammonia as N by Method 4500NH3					**269**	**269**			**1550**	**1550**					**430**	**430**		
Nitrogen by Method ASTM D1426					**500**	**500**			**2230**	**2230**					**940**	**940**		
Chloride	**1350**	**1350**	**930**	**930**	**1650**	**1650**			**1400**	**1400**			**1580**	**1580**	**960**	**960**	**1110**	
Nitrate as N	**200**	**200**	**210**	**210**	< 100 U	**40**		ND	**10** J	**10**		ND	< 100 U	**16**	< 100 U	**14**	**40** J	
Sulfate	**10900**	**10900**	**7760**	**12800**	**3250**	**65700**		**557**	**90** J	**120**		**4810**	**300** J	**300**	**100** J	**395**	**4370**	
NO3NO2N by Method E353.2					< 50 U	ND			< 50 U	ND					< 50 U	ND		
Phosphorus (yellow) by Method E365.1		**111**		**12.8**		**58**		**102**				**88**		**174**		**198**		
Phosphorus (yellow) by Method E365.3		**348**		**48.8**	**1040**	**1040**		**60.1**	**895**	**895**		**8.23**		**693**	**1110**	**1110**		
Ethylene dibromide						ND				ND			< 0.0096 U	ND				
Methane		**10300**		**72.8**		**8270**		**16300**		**2400**		**3660**	**820**	**11000**		**24600**		
Dissolved Organic Carbon					**5000**	**5000**			**3100**	**3100**					**7700**	**7700**		

Notes:
All units reported in micrograms per kilogram.
-- = No screening level available
< = Analyte not detected above method detection limit.
Bold text indicates that the analyte was detected above the method detectio
Detected concentration is between 1 and 10 times the Portland Harbor Clean
Detected concentration is between 10 and 100 times the Portland Harbor Cl
Detected concentration is greater than 100 times the Portland Harbor Cleans

Upland Soil - Includes soil data collected landward of the Greenway Setbac
Ecological Zone Soil- Includes data collected from the riverbank to the Top

Qualifiers:
J = Estimated concentration
P = Pesticide/aroclor target analyte had a percent difference greater than 2
X = Matrix spike is outside of control limits.
U = Result qualified as non-detect.
UJ = Estimated non-detect.
i = Matrix interference noted by laboratory.
Y = Not defined
D = Data reported from a dilution.

Abbreviations:
ND = Not detected
PAH = Polycyclic aromatic hydrocarbon
TPH = Total petroleum hydrocarbon
SVOC = Semivolatile organic compound
VOC = Volatile organic compound

Table 6
Groundwater and TZW Results Screened to Portland Harbor Cleanup Levels
Upland and TZW Investigation and Source Control Evaluation
Premier Edible Oils
Portland, Oregon

Location Group	Upland									Upland								
Location ID	MW-14	MW-15	MW-15	MW-15D	MW-16	MW-16	MW-16D	MW-17	MW-17	MW-18	MW-18	MW-19	MW-19	MW-20	MW-20	MW-21	MW-21	MW-23
Sample ID		0226-MW-15-32_0226		MW-15D123014	0226-MW-16-32_0226		MW-16D123014	MW-17123014		MW-18-91714		MW-19123014		MW-20122914		MW-21123014		20120418-MW-23
Sample Date		2/26/2009		12/30/2014	2/26/2009		12/30/2014	12/30/2014		9/17/2014		12/30/2014		12/29/2014		12/30/2014		4/18/2012
	Max	Most Recent	Max	Most Recent	Most Recent	Max	Most Recent	Most Recent	Max	Most Recent	Max	Most Recent	Max	Most Recent	Max	Most Recent	Max	Most Recent
VOCs																		
1,1,1,2-Tetrachloroethane	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
1,1,1-Trichloroethane	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
1,1,2,2-Tetrachloroethane	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
1,1,2-Trichloroethane	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
1,1-Dichloroethane	ND	< 1 U	ND	**0.19** J	< 1 U	ND	**0.15** J	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
1,1-Dichloroethene	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
1,1-Dichloropropene	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
1,2,3-Trichlorobenzene	ND	< 1 U	ND	< 2 U	< 1 U	ND	< 2 U	< 2 U	ND		ND	< 2 U	ND	< 2 U	ND	< 2 U	ND	< 2 U
1,2,3-Trichloropropane	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
1,2,4-Trichlorobenzene	ND	< 1 U	ND	< 2 U	< 1 U	ND	< 2 U	< 2 U	ND		ND	< 2 U	ND	< 2 U	ND	< 2 U	ND	< 2 U
1,2,4-Trimethylbenzene	**0.16**	< 1 U	ND	< 2 U	< 1 U	ND	< 2 U	< 2 U	ND		**0.14**	< 2 U	ND	< 2 U	**0.36**	< 2 U	ND	**0.38** J
1,2-Dibromo-3-chloropropane	ND	< 5 U	ND	< 2 U	< 5 U	ND	< 2 U	< 2 U	ND		ND	< 2 U	ND	< 2 U	ND	< 2 U	ND	< 2 U
1,2-Dichlorobenzene	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
1,2-Dichloroethane	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 Ui
1,2-Dichloroethene																		
1,2-Dichloropropane	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
1,3,5-Trimethylbenzene	ND	< 1 U	ND	< 2 U	< 1 U	ND	< 2 U	< 2 U	ND		**2.67**	< 2 U	ND	< 2 U	**1.29**	< 2 U	ND	**1.1** J
1,3-Dichlorobenzene	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
1,3-Dichloropropane	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
1,4-Dichlorobenzene	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
2,2-Dichloropropane	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
2-Butanone	ND	< 10 U	ND	< 20 U	< 10 U	ND	< 20 U	< 20 U	ND		ND	< 20 U	ND	< 20 U	ND	< 20 U	ND	< 20 U
2-Hexanone	ND	< 10 U	ND	< 20 U	< 10 U	ND	< 20 U	< 20 U	ND		ND	< 20 U	ND	< 20 U	ND	< 20 U	ND	< 20 U
4-Chlorotoluene	ND	< 1 U	ND	< 2 U	< 1 U	ND	< 2 U	< 2 U	ND		ND	< 2 U	ND	< 2 U	ND	< 2 U	ND	< 2 U
4-Isopropyltoluene	ND	< 2 U	ND	< 2 U	< 2 U	ND	< 2 U	< 2 U	ND		**2.35**	< 2 U	ND	< 2 U	ND	< 2 U	ND	**0.6** J
4-Methyl-2-pentanone	ND	< 5 U	ND	< 20 U	< 5 U	ND	< 20 U	< 20 U	ND		ND	< 20 U	ND	< 20 U	ND	< 20 U	ND	< 20 U
Acetone	ND	< 25 U	ND	< 20 U	< 25 U	ND	< 20 U	< 20 U	ND		ND	< 20 U	**9.39**	< 20 U	ND	< 20 U	ND	< 20 U
Benzene	**0.18**	< 1 U	**1.5**	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND	**1.5**	**1.55**	< 0.5 U	**2.44**	< 0.5 U	**0.83**	< 0.5 U	ND	**1.3**
Bromobenzene	ND	< 1 U	ND	< 2 U	< 1 U	ND	< 2 U	< 2 U	ND		ND	< 2 U	ND	< 2 U	ND	< 2 U	ND	< 2 U
Bromodichloromethane	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
Bromoform	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
Carbon disulfide	**0.3**	< 10 U	ND	**0.07** J	< 10 U	ND	< 0.5 U	< 0.5 U	ND		ND	**0.07** J	**0.07**	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
Carbon tetrachloride	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
Chlorobenzene	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
Chlorobromomethane	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
Chloroethane	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
Chloroform	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
cis-1,2-Dichloroethene	ND	< 1 U	ND	< 0.5 U	**0.27** J	**0.27**	**0.08** J	< 0.5 U	ND		**3.5**	< 0.5 U	**0.26**	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
cis-1,3-Dichloropropene	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
Dibromochloromethane	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
Dibromomethane	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
Ethylbenzene	**0.15**	< 1 U	**0.46**	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND	**0.46** J	**1.1**	< 0.5 U	ND	< 0.5 U	**9.66**	< 0.5 U	ND	**0.55**
Ethylene dibromide	ND	< 1 U	ND	< 2 U	< 1 U	ND	< 2 U	< 2 U	ND		ND	< 2 U	ND	< 2 U	ND	< 2 U	ND	< 2 U
Ethyl-tert-butyl ether											ND							< 2 U
Freon 11	**2**	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
Freon 12	ND	< 5 U	ND	< 0.5 U	< 5 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
Hexachlorobutadiene	ND	< 4 U	ND	< 2 U	< 4 U	ND	< 2 U	< 2 U	ND		ND	< 2 U	ND	< 2 U	ND	< 2 U	ND	< 2 U
Isopropyl ether											ND							< 2 U
Isopropylbenzene (Cumene)	ND	< 2 U	ND	< 2 U	< 2 U	**0.19**	< 2 U	< 2 U	ND		**13**	< 2 U	**0.35**	< 2 U	**53.9**	< 2 U	ND	**11**
m,p-Xylenes		< 2 U	ND		< 2 U						**1.85**		ND		**5.32**		ND	**3.8**
Methyl bromide	ND	< 5 U	ND	< 0.5 U	< 5 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	**0.84**	< 0.5 U	**1.04**	< 0.5 U	**0.64**	< 0.5 U
Methyl chloride	ND	< 5 U	ND	< 0.5 U	< 5 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
Methyl tert-butyl ether	ND	< 1 U	ND		< 1 U	ND			ND		ND		ND		ND		ND	< 0.5 U
Methylene chloride	ND	< 5 U	ND	< 2 U	< 5 U	ND	< 2 U	< 2 U	ND		**2.35**	< 2 U	ND	< 2 U	**0.23**	< 2 U	ND	< 2 Ui
Naphthalene	ND	< 2 U	ND	< 2 U	< 2 U	ND	< 2 U	< 2 U	ND		ND	< 2 U	ND	< 2 U	**1.29**	< 2 U	ND	< 2 U
n-Butylbenzene	ND	< 5 U	ND	< 2 U	< 5 U	ND	< 2 U	< 2 U	ND		**3.5**	< 2 U	**0.23**	< 2 U	**25.9**	< 2 U	ND	**4.6**
n-Propylbenzene	ND	< 1 U	ND	< 2 U	< 1 U	**0.19**	< 2 U	< 2 U	ND		**17**	< 2 U	**0.57**	< 2 U	**160**	< 2 U	ND	**26**
o-Chlorotoluene (2-chlorotoluene)	ND	< 1 U	ND	< 2 U	< 1 U	ND	< 2 U	< 2 U	ND		ND	< 2 U	ND	< 2 U	ND	< 2 U	ND	< 2 U
o-Xylene	**0.25**	< 1 U	**0.4**	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND	**0.4** J	**0.4**	< 0.5 U	ND	< 0.5 U	**0.22**	< 0.5 U	ND	**0.62**
sec-Butylbenzene	ND	< 1 U	ND	< 2 U	< 1 U	ND	< 2 U	< 2 U	ND		**2.88**	< 2 U	**0.13**	< 2 U	**15.2**	< 2 U	ND	**4.4**
Styrene	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
tert-Amyl Methyl Ether											ND							< 2 U
tert-Butyl alcohol											ND							< 20 U
tert-Butylbenzene	ND	< 1 U	ND	< 2 U	< 1 U	ND	**0.28** J	< 2 U	ND		**0.25**	< 2 U	**0.24**	< 2 U	**0.55**	< 2 U	ND	**0.29** J
Tetrachloroethene	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
Toluene	**0.85**	< 1 U	**1.5**	< 0.5 U	< 1 U	**0.22**	< 0.5 U	< 0.5 U	**1**	**1.5**	**2.2**	**0.06** J	**0.47**	< 0.5 U	**1.28**	**0.19** J	**0.19**	**3.1**
trans-1,2-Dichloroethene	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
trans-1,3-Dichloropropene	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
Trichloroethene	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		**1.5**	< 0.5 U	**0.71**	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
Vinyl chloride	ND	< 1 U	ND	< 0.5 U	< 1 U	ND	< 0.5 U	< 0.5 U	ND		**0.26**	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U
Xylenes	**0.46**		**1.3**	< 0.5 U		ND	< 0.5 U	< 0.5 U	**0.86**	**1.3**	**1.3**	< 0.5 U	ND	< 0.5 U	ND	< 0.5 U	ND	
TPH																		
Residual Range Organics	**610**	< 476 U	ND	**58** J	< 476 U	ND	**53** J	**38** J	**38**	820 L	**820**	**150** J	**150**	**64** J	**64**	**48** J	**48**	**330** J
Diesel	**350**	**20.4** J	ND		**27.3** J	**27.3**			ND	**660** Y	**3560**	**44** J	**2650**		**1340**		**37.4**	**5600** Y
Gasoline	**90**	< 238 U	ND	**27** J	< 238 U	ND	**37** J	< 250 U	ND	**1300** Y	**1450**	< 250 U	**43.7**	< 250 U	**2530**	< 250 U	ND	**2100** H
PAHS											ND							
2-Methylnaphthalene	**0.038**	< 9.6	**0.43**			ND		< 9.6	ND	**0.43**	**0.43**			**0.0066** J	**0.0066**			**0.093** X
Acenaphthene	**0.0093**	< 0.0952 U	**1.4**		< 0.0952 U	ND		< 0.0952	ND	**1.4**	**1.4**	< 0.0962	**0.147**	< 0.019 U	ND	< 0.0971		**1.4**
Acenaphthylene	**0.021**	< 0.0952 U	< 0.3		< 0.0952 U	ND		< 0.0952	ND	< 0.3 i	ND	< 0.0962	< 0.019 U	< 0.019 U	ND	< 0.0971		< 0.32 Ui
Anthracene	**0.043**	< 0.0952 U	**0.055**		< 0.0952 U	ND		< 0.0952	ND	**0.055**	**0.055**	< 0.0962	< 0.019 U	**0.013** J	**0.013**	< 0.0971		**0.045** X
Benzo(a)anthracene	**0.049**	< 0.0952 U	< 0.019		< 0.0952 U	ND		< 0.0952	ND	< 0.019 U	ND	< 0.0962	< 0.019 U	< 0.019 U	ND	< 0.0971		**0.011** JX
Benzo(a)pyrene	**0.049**	< 0.0952 U	< 0.019		< 0.0952 U	ND		< 0.0952	ND	< 0.019 U	ND	< 0.0962	< 0.019 U	< 0.019 U	ND	< 0.0971		**0.0045** J
Benzo(b)fluoranthene	**0.04**	< 0.0952 U	< 0.019		< 0.0952 U	ND		< 0.0952	ND	< 0.019 U	ND	< 0.0962	< 0.019 U	< 0.019 U	ND	< 0.0971		**0.0038** J
Benzo(g,h,i)perylene	**0.028**	< 0.0952 U	< 0.019		< 0.0952 U	ND		< 0.0952	ND	< 0.019 U	ND	< 0.0962	< 0.019 U	< 0.019 U	ND	< 0.0971		< 0.02 U
Benzo(k)fluoranthene	**0.016**	< 0.0952 U	< 0.019		< 0.0952 U	ND		< 0.0952	ND	< 0.019 U	ND	< 0.0962	< 0.019 U	< 0.019 U	ND	< 0.0971		< 0.02 U
Chrysene	**0.053**	< 0.0952 U	< 0.019		< 0.0952 U	ND		< 0.0952	ND	< 0.019 U	ND	< 0.0962	< 0.019 U	< 0.019 U	ND	< 0.0971		**0.0087** JX
Dibenzo(a,h)anthracene	**0.0054**	< 0.19 U	< 0.019		< 0.19 U	ND		< 0.19	ND	< 0.019 U	ND	< 0.192	< 0.019 U	< 0.019 U	ND	< 0.194		< 0.02 U
Dibenzofuran	ND	< 9.6	**0.72**			ND		< 9.6	ND	**0.72**	**0.72**		< 0.019 U	< 0.019 U	ND			< 0.62 Ui
Fluoranthene	**0.066**	< 0.0952 U	**0.027**		< 0.0952 U	ND		< 0.0952	ND	**0.027**	**0.027**	< 0.0962	**0.0831**	< 0.019 U	ND	< 0.0971		**0.045**
Fluorene	**0.051**	< 0.0952 U	**2**		< 0.0952 U	ND		< 0.0952	ND	**2**	**2**	< 0.0962	**0.121**	< 0.019 U	ND	< 0.0971		**2.2**
Indeno(1,2,3-cd)pyrene	**0.029**	< 0.0952 U	< 0.019		< 0.0952 U	ND		< 0.0952	ND	< 0.019 U	ND	< 0.0962	< 0.019 U	< 0.019 U	ND	< 0.0971		< 0.02 U
Naphthalene	**0.52**	< 0.0952 U	**0.75**		< 0.0952 U	**0.021**		< 0.0952	ND	**0.75**	**0.75**	< 0.0962	< 0.019 U	**0.016** J	**0.016**	< 0.0971		< 0.87 Ui
Phenanthrene	**0.13**	< 0.0952 U	**0.96**		< 0.0952 U	ND		< 0.0952	**0.052**	**0.96**	**0.96**	< 0.0962	< 0.019 U	< 0.019 U	ND	< 0.0971		**1**
Pyrene	**0.089**	< 0.0952 U	**0.034**		< 0.0952 U	**0.033**		< 0.0952	**0.037**	**0.034**	**0.034**	< 0.0962	**0.119**	< 0.019 U	ND	< 0.0971		**0.081**
Benzo(a)Pyrene Equivalent (Calculated)	**0.0664**	ND	ND		ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND		**0.00599**
Metals																		
Antimony - Total											ND							**0.025** J
Antimony - Dissolved											ND							**0.017** J
Arsenic - Total	**36.5**	< 50 U	**2.2**	**10.6**	**9.77** J	**13.6**	**11.5**	**0.66**	**11.8**		**7.18**	**2.21**	**12.1**	**0.23** J	**10.5**	**0.23** J	**44.9**	**26.2**
Arsenic - Dissolved	**1.07**			**7**			**7.43**	**0.39** J	**0.39**	**0.8**	**0.8**	**0.57**	**0.57**	**0.23** J	**0.23**	**0.14** J	**0.14**	**21.4**
Barium - Total											**27.4**							**50.6**
Barium - Dissolved											**24.6**							**17.8**
Beryllium - Total											ND							**0.009** J
Beryllium - Dissolved											ND							< 0.02 U
Cadmium - Total											**0.009**							**0.006** J
Cadmium - Dissolved											**0.004**							< 0.02 U
Chromium - Total	**3.3**	< 10 U	**0.4**		< 10 U	**0.9**			**0.8**		**1.38**							**0.09** J
Chromium - Dissolved											**0.07**							< 0.2 UJ
Cobalt - Total											**1.47**							**4.23**
Cobalt - Dissolved											**1.47**							**4.77**
Copper - Total	**5.5**	< 10 U	**1**		< 10 U	**0.4**			**0.6**		**0.51**		**3.89**				**1.93**	**0.59**
Copper - Dissolved											**0.25**							**0.12**
Iron - Total	**15700**	**780**	**1510**		**11300**	**15200**			**9460**	**61600**	**61600**		**10800**		**19800**		**1120**	
Iron - Dissolved										**23600**	**23600**							
Iron II, Ferrous											**10000**							**54000**
Lead - Total	**3.42**	< 50 U	**0.5**		< 50 U	**0.15**			**0.6**		**0.459**				**10.1**			**0.298**
Lead - Dissolved											**0.022**							**0.239**
Manganese - Total	**462**	**1930**	**2700**	**5150**	**1150**	**2060**	**1840**	**17.6**	**1900**		**1610**	**972**	**3290**	**1.46**	**1180**	**12.3**	**3780**	**3440**
Manganese - Dissolved	**123**			**3450**			**1650**	**0.6**	**0.6**	**1290**	**1290**	**289**	**289**	**0.7**	**0.7**	**7.52**	**7.52**	**3300**
Mercury - Total											ND							< 0.2 U
Mercury - Dissolved											ND							< 0.2 U
Methyl Mercury - Total																		
Molybdenum - Total											**0.082**							**0.16**
Molybdenum - Dissolved											**0.062**							**0.117**
Nickel - Total	**5.3**	< 50 U	**3.4**		< 50 U	**2.3**			**2.4**		**2.41**		**2.91**		**11.3**		**2**	**2.51**
Nickel - Dissolved											**1.71**							**2.83**
Selenium - Total											ND							< 1 U
Selenium - Dissolved											ND							< 1 U
Silver - Total	**0.03**	< 20 U	ND		< 20 U	ND			ND		**0.006**							**0.144**
Silver - Dissolved											ND							**0.042**
Thallium - Total											ND							< 0.02 U
Thallium - Dissolved											ND							< 0.02 U
Vanadium - Total											**0.35**							**0.38**
Vanadium - Dissolved											**0.07**							**0.04** J
Zinc - Total	**25**	< 20 U	**5**		**2.21** J	**2.21**			**4.2**		**3.27**		**2.2**		**2.27**		**2.2**	**0.9**
Zinc - Dissolved											**1.36**							**0.3** J
Water Quality Parameters																		
Hardness as CaCO3 by Method 2340B	**50400**			**111000**			**85800**	**41800**	**41800**	**108000**	**108000**	**92400**		**86100**	ND	**36300**	ND	
Hardness as CaCO3 by Method 310.1																		
Alkalinity, Total as CaCO3	**51000**			**132000**			**106000**	**48000**	**48000**	**149000**	**149000**	**110000**		**88000**	ND	**46000**	ND	**230000**
Ammonia as N by Method 350.1																		
Total organic carbon				**111000**														
Carbon dioxide																		
Ammonia as N by Method 4500NH3										**738**	**738**							
Nitrogen by Method ASTM D1426										**950**	**950**							
Chloride	**1110**			**1100**			**1300**	**730**	**730**	**910**	**2300**	**1030**	**1030**	**950**	**950**	**2470**	**2470**	**1690**
Nitrate as N	**40**			< 100 U			< 100 U	**1400**	**1400**	< 100 U	**260**	**430**	**430**	**1600**	**1600**	**490**	**490**	< 100 U
Sulfate	**4370**			**280**			**1130**	**2090**	**2090**	**70** J	**11000**	**8370**	**8370**	**9820**	**9820**	**6350**	**6350**	**4660**
NO3NO2N by Method E353.2										< 50 U	ND							
Phosphorus (yellow) by Method E365.1																		
Phosphorus (yellow) by Method E365.3										**1220**	**1220**							
Ethylene dibromide											ND							< 0.0096 U
Methane											**80**							**350**
Dissolved Organic Carbon										**6800**	**6800**							

Notes:
All units reported in micrograms per kilogram.
-- = No screening level available
< = Analyte not detected above method detection limit.
Bold text indicates that the analyte was detected above the method detectio
Detected concentration is between 1 and 10 times the Portland Harbor Clean
Detected concentration is between 10 and 100 times the Portland Harbor Cl
Detected concentration is greater than 100 times the Portland Harbor Cleanu

Upland Soil - Includes soil data collected landward of the Greenway Setbac
Ecological Zone Soil- Includes data collected from the riverbank to the Top

Qualifiers:
J = Estimated concentration
P = Pesticide/aroclor target analyte had a percent difference greater than 2
X = Matrix spike is outside of control limits.
U = Result qualified as non-detect.
UJ = Estimated non-detect.
i = Matrix interference noted by laboratory.
Y = Not defined
D = Data reported from a dilution.

Abbreviations:
ND = Not detected
PAH = Polycyclic aromatic hydrocarbon
TPH = Total petroleum hydrocarbon
SVOC = Semivolatile organic compound
VOC = Volatile organic compound

Table 6
Groundwater and TZW Results Screened to Portland Harbor Cleanup Levels
Upland and TZW Investigation and Source Control Evaluation
Premier Edible Oils
Portland, Oregon

Location Group	Upland					Ecological Zone									Ecological Zone			
Location ID	MW-23	MW-24	MW-24	MW-25	RW-01	BZ-01	BZ-02	BZ-03	BZ-04	BZ-05	BZ-06	BZ-07	BZ-08	BZ-09	TZW-3-1	TZW-3-2	TZW-4-1	TZW-4-2
Sample ID		20120418-MW-24			20120424-RW-1	BZ-1081512	BZ-2081612	BZ-3081512	BZ-4081512	BZ-5081512	BZ-6081612	BZ-7081612	BZ-8081712	BZ-9081712	TZW-3-1-91914	TZW-3-2-91914	TZW-4-1-91914	TZW-4-2-91914
Sample Date		4/18/2012			4/24/2012	8/15/2012	8/16/2012	8/15/2012	8/15/2012	8/15/2012	8/16/2012	8/16/2012	8/17/2012	8/17/2012	9/19/2014	9/19/2014	9/19/2014	9/19/2014
	Max	Most Recent	Max	Max														
VOCs																		
1,1,1,2-Tetrachloroethane	ND	< 0.5 U	ND	ND	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 2.5 U	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U				
1,1,1-Trichloroethane	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
1,1,2,2-Tetrachloroethane	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U				
1,1,2-Trichloroethane	ND	< 0.5 U	ND	ND	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
1,1-Dichloroethane	ND	< 0.5 U	**0.18**	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
1,1-Dichloroethene	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
1,1-Dichloropropene	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
1,2,3-Trichlorobenzene	ND	< 2 U	ND	ND	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 10 U	< 2 U	< 2 U				
1,2,3-Trichloropropane	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U				
1,2,4-Trichlorobenzene	ND	< 2 U	ND	ND	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 10 U	< 2 U	< 2 U				
1,2,4-Trimethylbenzene	**1.8**	< 2 U	ND	ND	**0.97** J	**1.1** J	**0.55** J	< 2 U	< 2 U	**0.68** J	< 2 U	**0.8** JD	**0.93** J	**1** J				
1,2-Dibromo-3-chloropropane	ND	< 2 U	ND	ND	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 10 U	< 2 U	< 2 U				
1,2-Dichlorobenzene	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U				
1,2-Dichloroethane	ND	< 0.5 U	ND	ND	< 0.5 U	**0.95**	**0.5**	< 0.5 U	< 0.5 Ui	**0.62**	< 0.5 U	**0.62**	< 0.93 Ui	< 0.5 Ui				
1,2-Dichloroethene																		
1,2-Dichloropropane	ND	< 0.5 U	ND	ND	< 0.5 Ui	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
1,3,5-Trimethylbenzene	**6.85**	< 2 U	ND	ND	**1.3** J	**2.7**	**2.4**	< 2 U	< 2 U	**1.6** J	< 2 U	**2.6** JD	**4**	**0.19** J				
1,3-Dichlorobenzene	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U				
1,3-Dichloropropane	ND	< 0.5 U	ND	ND	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
1,4-Dichlorobenzene	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U				
2,2-Dichloropropane	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
2-Butanone	ND	< 20 U	ND	ND	< 20 U	< 20 Ui	**5.8** J	< 20 U	< 20 U	< 20 Ui	< 20 U	**5** J	< 20 U	< 20 U				
2-Hexanone	**73.4**	< 20 U	ND	ND	< 20 U	< 100 U	< 20 U	< 20 U	< 20 U	< 100 U	< 20 U	< 20 U	< 20 U	< 20 U				
4-Chlorotoluene	ND	< 2 U	ND	ND	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 10 U	< 2 U	< 2 U				
4-Isopropyltoluene	**8.8**	< 2 U	ND	ND	**0.54** J	**4.8**	**3.1**	< 2 U	< 2 U	**0.56** J	< 2 U	**0.65** JD	**4.7**	**0.09** J				
4-Methyl-2-pentanone	ND	< 20 U	ND	ND	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U				
Acetone	ND	< 20 U	ND	ND	**4.2** J	**15** J	**19** J	< 20 U	< 20 U	**8.1** J	< 20 U	**49**	**5.1** J	< 20 U				
Benzene	**8.85**	< 0.5 U	ND	**12**	**17**	**2.5**	**51**	< 0.5 U	**0.16** J	**18**	**0.09** J	**74** D	**61** D	**1.2**	**5.8**	**32**	**3.7**	**30**
Bromobenzene	ND	< 2 U	ND	ND	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 10 U	< 2 U	< 2 U				
Bromodichloromethane	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
Bromoform	ND	< 0.5 U	ND	ND	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 2.5 U	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U				
Carbon disulfide	ND	< 0.5 U	ND	ND	< 0.5 U	**0.08** J	**0.29** J	< 0.5 U	**0.09** J	**0.13** J	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
Carbon tetrachloride	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
Chlorobenzene	ND	< 0.5 U	ND	ND	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
Chlorobromomethane	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
Chloroethane	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
Chloroform	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
cis-1,2-Dichloroethene	ND	< 0.5 U	ND	ND	**0.12** J	**0.12** J	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**0.08** J	< 0.5 U				
cis-1,3-Dichloropropene	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
Dibromochloromethane	ND	< 0.5 U	ND	ND	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
Dibromomethane	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
Ethylbenzene	**7.2**	< 0.5 U	ND	**0.95**	**1.1**	**2.7** D	**12**	< 0.5 U	< 0.5 UJ	**2.1** JD	< 0.5 U	**3.7** D	**7.6**	**0.2** J	**0.47** J	**2.6**	**0.42** J	**2.4**
Ethylene dibromide	ND	< 2 U	ND	ND	< 2 U	< 10 U	< 2 U	< 2 U	< 2 U	< 10 U	< 2 U	< 2 U	< 2 U	< 2 U				
Ethyl-tert-butyl ether	ND	< 2 U	ND	ND	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U				
Freon 11	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**0.19** J	< 0.5 U				
Freon 12	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
Hexachlorobutadiene	ND	< 2 U	ND	ND	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 10 U	< 2 U	< 2 U				
Isopropyl ether	ND	< 2 U	ND	ND	**0.12** J	< 2 U	< 2 U	< 2 U	< 2 U	**0.11** J	< 2 U	**0.13** J	**0.09** J	**0.05** J				
Isopropylbenzene (Cumene)	**53.6**	**0.29** J	**0.29**	**21**	**25**	**23** D	**11**	< 2 U	**1.2** J	**30** D	**0.07** J	**27** D	**14**	**8.1**				
m,p-Xylenes	**57.5**	< 0.5 U	**0.25**	**10**	**8.3**													
Methyl bromide	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
Methyl chloride	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	**0.1** J	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
Methyl tert-butyl ether	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
Methylene chloride	**2**	< 2 U	ND	ND	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U				
Naphthalene	ND	< 2 U	ND	ND	< 2 U	**1.5** J	**0.34** J	< 2 U	< 2 U	**0.87** J	< 2 U	**1.4** JD	**0.64** J	**0.19** J				
n-Butylbenzene	**8.5**	**0.08** J	**0.08**	**2.4**	**5.9**	**10**	**2.6**	< 2 U	**0.25** J	**5.4**	< 2 U	**4.4** JD	**4.6**	**0.46** J				
n-Propylbenzene	**65.3**	**0.74** J	**0.74**	**46**	**84** D	**46**	**20**	< 2 U	**1.3** J	**49** D	**0.08** J	**41** D	**34**	< 2 UJ				
o-Chlorotoluene (2-chlorotoluene)	ND	< 2 U	ND	ND	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 10 U	< 2 U	< 2 U				
o-Xylene	**2.85**	< 0.5 U	**0.19**	**2**	**2.5**	**0.9** JD	**7.5**	< 0.5 U	< 0.5 U	**4** D	< 0.5 U	**13** D	**1.5**	**0.68**	**1.9**	**6.6**	**0.67**	**7.1**
sec-Butylbenzene	**7.1**	**0.11** J	**0.11**	**3.1**	**6.8**	**7.8**	**2.1**	< 2 U	**0.46** J	**5.2**	< 2 U	**4.1** JD	**4.1**	**1.7** J				
Styrene	ND	< 0.5 U	ND	ND	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 2.5 U	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U				
tert-Amyl Methyl Ether	ND	< 2 U	ND	ND	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U				
tert-Butyl alcohol	ND	< 20 U	ND	ND	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U				
tert-Butylbenzene	**0.7**	< 2 U	ND	ND	**0.41** J	**0.56** J	**0.15** J	< 2 U	**0.06** J	**0.37** J	< 2 U	< 10 U	**0.36** J	**0.18** J				
Tetrachloroethene	ND	< 0.5 U	ND	ND	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
Toluene	**15.6**	< 0.5 U	**0.16**	**8.2**	**12**	**5.1**	**31**	< 0.5 U	**0.19** J	**15**	**0.13** J	**33**	**62** D	**4.4**	**6.2**	**21**	**2.4**	**19**
trans-1,2-Dichloroethene	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
trans-1,3-Dichloropropene	ND	< 0.5 U	ND	ND	< 0.5 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 2.5 U	< 0.5 U	**0.28** J	< 0.5 Ui	< 0.5 U				
Trichloroethene	ND	< 0.5 U	ND	ND	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U				
Vinyl chloride	ND	< 0.5 U	ND	ND	**0.1** J	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**0.09** J	< 0.5 U	< 0.5 U				
Xylenes				ND		**16** D	**26**	< 0.5 U	**0.32** J	**17** D	< 0.5 U	**26** D	**28**	**5.9**	**5**	**21**	**1.5**	**19**
TPH																		
Residual Range Organics	**330**	**62** J	**62**	130	**240** J	**300** J	**2100** O	**100** J	**400** J	**220** J	**95** J	**360** J	**150** J	**100** J	**250** J	**640** L	**310** J	**700** L
Diesel	**5600**	**22** J	**76**	**48**	**3600** Y	**4600** Y	**10000** Y	**340** Y	**820** Y	**2700** Y	**100** J	**5000** Y	**3200** Y	**470** Y	2300 Y	**5000** Y	1400 Y	5100 Y
Gasoline	**4720**	**28** J	**28**	**1300**	**2500** Y	**3600** Y	**2100** Y	**29** J	**50** J	**1900** Y	< 250 U	**2200** Y	**2800** Y	**610** Y	**750** Y	**2100** Y	**460** Y	**2300** Y
PAHS																		
2-Methylnaphthalene	**0.093**	**0.0049** J	**0.0049** J	**0.12**		**0.57** D	**0.22**	**0.012** J	**0.026**	**0.21**	**0.0024** J	**0.31**	**0.26**	< 0.031 Ui	**0.11**	**0.26**	**0.12**	**0.22**
Acenaphthene	**1.4**	**0.019** J	**0.019** J	**0.52**		**1.8** D	**0.49**	< 0.019 U	**0.033**	**0.72**	**0.006** J	**1**	**0.59**	**0.16**	**0.4**	**1.1**	**0.53**	**0.9**
Acenaphthylene	ND	< 0.02 U	< 0.02 U	ND		< 0.61 Ui	< 0.085 Ui	< 0.019 U	**0.06**	< 0.14 Ui	< 0.019 U	< 0.24 Ui	< 0.12 Ui	< 0.02 Ui	< 0.057 i	< 0.27 i	< 0.084 i	< 0.16 i
Anthracene	**0.0844**	< 0.02 U	< 0.02 U	**0.027**		**0.25** D	**0.059**	**0.0063** J	**0.075**	**0.028** X	< 0.019 U	**0.08**	**0.054**	**0.016** J	< 0.02 U	**0.051**	**0.058**	< 0.02 U
Benzo(a)anthracene	**0.011**	< 0.02 U	< 0.02 U	ND		**0.17** D	**0.01** JX	**0.0058** J	**0.16**	**0.011** J	**0.0062** J	**0.059**	**0.028**	**0.016** J	< 0.02 U	**0.016** J	**0.016** J	< 0.02 U
Benzo(a)pyrene	**0.0045**	< 0.02 U	< 0.02 U	ND		**0.14** D	**0.0075** J	< 0.019 U	**0.24**	**0.014** J	**0.0077** J	**0.084**	**0.023**	**0.015** J	< 0.02 U	**0.012** J	**0.013** J	< 0.02 U
Benzo(b)fluoranthene	**0.0038**	< 0.02 U	< 0.02 U	ND		**0.15** D	**0.0072** J	**0.0033** J	**0.26**	**0.021**	**0.0081** J	**0.076**	**0.028**	**0.017** J	< 0.02 U	**0.017** J	**0.019** J	< 0.02 U
Benzo(g,h,i)perylene	ND	< 0.02 U	< 0.02 U	ND		**0.1** D	**0.0084** J	< 0.019 U	**0.27**	**0.017** J	**0.0059** J	**0.057**	**0.016** J	**0.0091** J	< 0.02 U	**0.0085** J	**0.0087** J	< 0.02 U
Benzo(k)fluoranthene	ND	< 0.02 U	< 0.02 U	ND		**0.051** JD	**0.004** J	< 0.019 U	**0.084**	**0.0071** J	**0.0026** J	**0.029**	**0.01** J	**0.0057** J	< 0.02 U	**0.0094** J	**0.0056** J	< 0.02 U
Chrysene	**0.0087**	< 0.02 U	< 0.02 U	ND		**0.19** D	**0.012** JX	**0.004** J	**0.27**	**0.016** J	**0.0054** J	**0.067**	**0.051**	**0.018** J	< 0.02 U	**0.015** J	**0.016** J	< 0.02 U
Dibenzo(a,h)anthracene	ND	< 0.02 U	< 0.02 U	ND		**0.018** JD	< 0.019 U	< 0.019 U	**0.036**	**0.003** J	< 0.019 U	**0.012** J	**0.0037** J	< 0.02 U	< 0.02 U	< 0.019 U	< 0.02 U	< 0.02 U
Dibenzofuran	ND	**0.0071** J	**0.0071** J	**0.11**		< 0.96 Ui	< 0.21 Ui	< 0.019 U	**0.0088** J	< 0.085 Ui	< 0.019 U	< 0.16 Ui	< 0.27 Ui	**0.0054** J	**0.032**	**0.17** X	**0.085**	**0.11**
Fluoranthene	**0.118**	< 0.02 U	< 0.02 U	ND		**0.43** D	**0.053**	**0.01** J	**0.41**	**0.032**	**0.017** J	**0.14**	**0.11**	**0.035**	< 0.02 U	**0.022**	**0.036**	< 0.02 U
Fluorene	**2.2**	**0.021**	**0.021**	**0.51**		**3.1** D	**0.77**	< 0.019 Ui	**0.029**	**0.75**	**0.0089** J	**1.3**	**0.96**	**0.018** J	**0.31**	**1.4**	**0.59**	**0.65**
Indeno(1,2,3-cd)pyrene	ND	< 0.02 U	< 0.02 U	ND		**0.094** JD	**0.0054** J	< 0.019 U	**0.24**	**0.015** J	**0.0051** J	**0.058**	**0.016** J	**0.0093** J	< 0.02 U	**0.0079** J	**0.0077** J	< 0.02 U
Naphthalene	ND	**0.098**	**0.098**	**0.92**		**1.7** D	**0.6**	**0.061**	**0.041**	**0.67**	**0.0082** J	**0.89**	**0.7**	**0.25**	**0.34**	**0.8**	**0.35**	**0.82**
Phenanthrene	**1.13**	< 0.02 U	< 0.02 U	**0.13**		**2.9** D	**0.56**	**0.014** J	**0.2**	**0.19**	**0.0065** J	**0.51**	**0.64**	**0.038**	**0.14**	**0.72**	**0.14**	**0.12**
Pyrene	**0.185**	< 0.02 U	< 0.02 U	ND		**0.49** D	**0.045**	**0.0099** J	**0.47**	**0.034**	< 0.019 Ui	**0.14**	**0.098**	**0.05** X	< 0.02 U	**0.031**	**0.059**	< 0.02 U
Benzo(a)Pyrene Equivalent (Calculated)	0.00599	ND	ND	ND		0.2	0.00981	0.000914	0.343	0.0218	0.00967	0.116	0.0341	0.0193	ND	0.0162	0.0173	ND
Metals																		
Antimony - Total	**0.025**	**0.025** J	**0.025**	ND	**0.09**	**0.03** J	< 0.05 UJ	< 0.05 U	**0.25**	**0.05**	**0.13**	**0.04** J	**0.09**	**0.09**				
Antimony - Dissolved	**0.017**	**0.017** J	**0.017**	**0.04**	< 0.05 UJ	**0.02** J	**0.08**	**0.025** J	**0.134**	**0.024** J	**0.08**	**0.17**	**0.06**	**0.04** J				
Arsenic - Total	**46**	< 0.5 UJ	**3.42**	**22.8**	**26**	**9.37**	**21.1**	**0.32** J	**5.52**	**17.3**	**2.55**	**27.5**	**26.9**	**26.1**				
Arsenic - Dissolved	**21.4**	< 0.5 UJ	ND	**0.23**	**25.8**	**0.54**	**3.33**	**0.26** J	**1.17**	**0.78**	**0.61**	**6.57**	**13.9**	**11.7**	**2.7**	**1.4**	**3.3**	**1.9**
Barium - Total	**50.6**	**11.7**	**11.7**	**30.5**	**83.2**	**42.6**	**99.7**	**18**	**48**	**78.1**	**210**	**89.9**	**119**	**151**				
Barium - Dissolved	**17.8**	**11.2**	**11.2**	**30**	**82.2**	**6.85**	**42.2**	**16.2**	**19.1**	**21.3**	**15.6**	**38.2**	**41.6**	**29.2**				
Beryllium - Total	**0.009**	**0.007** J	**0.007**	ND	< 0.02 U	**0.011** J	**0.13**	**0.018** J	**0.048**	**0.138**	**0.639**	**0.1**	**0.176**	**0.319**				
Beryllium - Dissolved	ND	< 0.02 U	ND	**0.004**	**0.004** J	< 0.02 U	**0.024**	**0.011** J	< 0.02 U	< 0.02 U	**0.012** J	**0.011** J	**0.007** J	< 0.02 U				
Cadmium - Total	**0.272**	**0.006** J	**0.006**	**0.007**	**0.004** J	**0.008** J	**0.054**	**0.02**	**0.039**	**0.043**	**0.214**	**0.04**	**0.165**	**0.179**				
Cadmium - Dissolved	ND	< 0.02 U	ND	**0.017**	**0.005** J	< 0.02 U	**0.084**	**0.016** J	< 0.02 UJ	< 0.02 UJ	**0.042**	**0.27**	**0.049**	**0.046**				
Chromium - Total	**5.9**	**0.25**	**0.339**	**0.07**	**0.15** J	**0.48**	**2.22**	**0.87**	**1.72**	**3.79**	**7.59**	**2.79**	**5.95**	**16.2**				
Chromium - Dissolved	ND	**0.07** J	**0.07**	**0.11**	**0.08** J	**0.08** J	**0.13** J	**0.02**	**0.06** J	**0.06** J	< 0.2 UJ	**0.12** J	**0.1** J	**0.11** J				
Cobalt - Total	**4.23**	**0.024**	**0.024**	**0.945**	**2.7**	**2.11**	**15.3**	**1.75**	**4.25**	**6.04**	**8.52**	**13.3**	**10.2**	**7.94**				
Cobalt - Dissolved	**4.77**	**0.019** J	**0.019**	**0.881**	**2.68**	**1.6**	**12**	**1.2**	**2.32**	**2.6**	**0.403**	**10.7**	**6**	**0.924**				
Copper - Total	**0.59**	**0.18**	**0.18**	**0.2**	**0.14**	**0.77**	**5.04**	**0.5**	**2.38**	**5.18**	**13.6**	**4.04**	**11**	**24**				
Copper - Dissolved	**0.12**	**0.18**	**0.18**	**0.39**	**0.19**	**0.16**	**0.38**	**0.39**	**0.71**	**0.44**	**3.8**	**2.76**	**0.45**	**0.11**				
Iron - Total	**67200**		**32800**	**24700**											**12900**	**70600**	**11200**	**38500**
Iron - Dissolved				**23800**											**386**	**135**	**75.3**	**497**
Iron II, Ferrous	**54000**	< 200 U	ND	ND	**37100**	**35000**	**27800**	< 200 U	**8400**	**25600**	< 200 U	**23200**						
Lead - Total	**0.298**	**0.01** J	**0.01**	**0.007**	**0.043**	**0.929**	**3.29**	**0.43**	**2.7**	**3.86**	**15.9**	**2.05**	**9.51**	**8.72**				
Lead - Dissolved	**0.239**	< 0.02 U	ND	**0.051**	**0.051**	**0.334**	**0.514**	**0.009** J	**0.004** J	**0.008** J	**0.406**	**0.804**	**0.433**	**0.062**				
Manganese - Total	**4240**	**0.393**	**928**	**2590**	**3620**	**1350**	**3400**	**64.5**	**1120**	**2660**	**686**	**3480**	**4370**	**4440**				
Manganese - Dissolved	**3300**	**0.204**	**0.204**	**46.8**	**3540**	**1200**	**3030**	**74.6**	**797**	**2260**	**47.1**	**3170**	**4040**	**3940**	**2410**	**3580**	**1150**	**3630**
Mercury - Total	ND	< 0.2 U	ND	ND	< 0.2 U	< 0.2 U	< 0.2 UJ	< 0.2 U	< 0.2 UJ	< 0.2 U	**0.05** J	< 0.2 U	**0.04** J	**0.05** J				
Mercury - Dissolved	ND	< 0.2 U	ND	ND	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 UJ	< 0.2 U	< 0.2 U				
Methyl Mercury - Total																		
Molybdenum - Total	**0.16**	**0.119**	**0.119**	**0.089**	**0.58**	**0.656**	**0.406**	**0.187**	**1.17**	**0.475**	**0.451**	**0.844**	**0.989**	**1.65**				
Molybdenum - Dissolved	**0.117**	**0.075**	**0.075**	**0.068**	**0.574**	**0.49**	**0.484**	**0.18**	**1.13**	**0.81**	**1.02**	**1.15**	**1.47**	**2.1**				
Nickel - Total	**5.5**	**1.31**	**2.38**	**3.54**	**2.16**	**2.14**	**7.02**	**5.05**	**7.3**	**6.79**	**7.78**	**7.9**	**8.15**	**16.3**				
Nickel - Dissolved	**2.83**	**1.22**	**1.22**	**3.93**	**2.29**	**1.39**	**5.18**	**4.21**	**4.96**	**2.63**	**0.99**	**5.93**	**4.41**	**3.76**				
Selenium - Total	ND	< 1 U	ND	**0.8**	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	**0.4** J	**0.4** J	< 1 U	**0.4** J				
Selenium - Dissolved	ND	< 1 U	ND	**0.9**	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	**0.5** J	< 1 U	< 1 U				
Silver - Total	**0.144**	**0.06**	**0.06**	**0.008**	**0.008** J	< 0.02 UJ	**0.018** J	< 0.02 U	**0.009** J	**0.013** J	**0.176**	**0.014** J	**0.024**	**0.035**				
Silver - Dissolved	**0.042**	**0.007** J	**0.007**	**0.007**	< 0.02 U	< 0.02 U	**0.017** J	< 0.02 U	< 0.02 U	< 0.02 U	**0.014** J	**0.022**	**0.008** J	**0.005** J				
Thallium - Total	ND	**0.008** J	**0.008**	**0.008**	**0.01** J	< 0.02 U	**0.039**	**0.003** J	< 0.02 UJ	**0.015** J	**0.095**	**0.021**	**0.03**	**0.046**				
Thallium - Dissolved	ND	< 0.02 U	ND	**0.009**	**0.008** J	< 0.02 U	**0.152**	< 0.02 U	< 0.02 U	< 0.02 U	**0.061**	**0.457**	**0.067**	**0.05**				
Vanadium - Total	**0.38**	**0.84**	**0.84**	**0.97**	**0.53**	**1.48**	**13.7**	**1.61**	**5.16**	**12**	**25.7**	**10.6**	**18.1**	**28.6**				
Vanadium - Dissolved	**0.04**	**0.81**	**0.81**	**0.9**	**0.48**	**0.012** J	**0.27**	**1.26**	**0.162** J	**0.066** J	**1.7**	**0.18** J	**0.12** J	**0.06** J				
Zinc - Total	**16**	**0.6**	**4.49**	**0.77**	**2.15**	**9.42**	**12.3**	**3.07**	**11.4**	**16**	**51.8**	**13.2**	**42.8**	**82**				
Zinc - Dissolved	**0.3**	**0.3** J	**0.3**	**1.41**	**2.55**	**2.5**	**16.1**	**3.23**	**4.7**	**1.58**	**14.4**	**12.3**	**14.1**	**8.89**				
Water Quality Parameters																		
Hardness as CaCO3 by Method 2340B				**177000**											**139000**	**270000**	**76100**	**231000**
Hardness as CaCO3 by Method 310.1																		
Alkalinity, Total as CaCO3	**230000**	**61700**	**61700**	**231000**	**260000**	**152000**	**285000**	**82100**	**139000**	**223000**	**73000** J	**283000**	**315000**	**227000**	**169000**	**299000**	**88000**	**289000**
Ammonia as N by Method 350.1																		
Total organic carbon																		
Carbon dioxide																		
Ammonia as N by Method 4500NH3				**33**											**1030**	**1360**	**447**	**1480**
Nitrogen by Method ASTM D1426				ND											**1330**	**1860**	**1110**	**1970**
Chloride	**1690**	**940**	**940**	**14200**	**1320**	**1810**	**1660**	**1610**	**2060**	**2000**	**7270**	**2660**	**1250**	**3830**	**4300**	**1500**	**5100**	**1700**
Nitrate as N	ND	**250**	**250**	**1750**	< 100 U	< 100 U	< 100 U	**110**	< 100 UJ	< 100 U	**190**	**50** J	< 100 U	< 100 U	< 250 i	< 250 i	< 250 i	< 250 i
Sulfate	**4660**	**3390**	**3390**	**5500**	**260** J	**400**	**1410**	**1570**	**2520**	**860**	**4760**	**1060**	**520**	**310**	**650**	< 500 i	**1100**	< 500 i
NO3NO2N by Method E353.2				**32**											**25** J	< 50 U	< 50 U	< 50 U
Phosphorus (yellow) by Method E365.1																		
Phosphorus (yellow) by Method E365.3				**60**											**285**	**2620**	**682**	**1660**
Ethylene dibromide	ND	< 0.0096 U	ND	ND	< 0.0096 U	< 0.0096 U	< 0.0096 U	< 0.0096 U	< 0.0097 U	< 0.0095 Ui	< 0.0097 U	< 0.0096 U	< 0.0096 U	**0.0047** JP				
Methane	**350**	**0.82** J	**0.82**	**0.33**	**3900** B	**720**	**3400**	**18**	**590**	**4600**	**63**	**4800**	**3000**	**3700**				
Dissolved Organic Carbon				**710**											**4900**	**9400**	**3600**	**8600**

Notes:
All units reported in micrograms per kilogram.
-- = No screening level available
< = Analyte not detected above method detection limit.
Bold text indicates that the analyte was detected above the method detectio
Detected concentration is between 1 and 10 times the Portland Harbor Clea
Detected concentration is between 10 and 100 times the Portland Harbor Cl
Detected concentration is greater than 100 times the Portland Harbor Clean

Upland Soil - Includes soil data collected landward of the Greenway Setbac
Ecological Zone Soil- Includes data collected from the riverbank to the Top

Qualifiers:
J = Estimated concentration
P = Pesticide/aroclor target analyte had a percent difference greater than 2
X = Matrix spike is outside of control limits.
U = Result qualified as non-detect.
UJ = Estimated non-detect.
i = Matrix interference noted by laboratory.
Y = Not defined
D = Data reported from a dilution.

Abbreviations:
ND = Not detected
PAH = Polycyclic aromatic hydrocarbon
TPH = Total petroleum hydrocarbon
SVOC = Semivolatile organic compound
VOC = Volatile organic compound

Table 6
Groundwater and TZW Results Screened to Portland Harbor Cleanup Levels
Upland and TZW Investigation and Source Control Evaluation
Premier Edible Oils
Portland, Oregon

Location Group																								
Location ID	TZW-5-1		TZW-5-2		TZW-06		TZW-07		TZW-08		TZW-09		TZW-10		MW-09		MW-09		MW-26		MW-27	
Sample ID	TZW-5-1-91914		TZW-5-2-91914		TZW-06-052815		TZW-07-052815		TZW-08-052815		TZW-09-052815		TZW-10-052915		20120418-MW-09				MW-26-062215		MW-25-062215	
Sample Date	9/19/2014		9/19/2014		5/28/2015		5/28/2015		5/28/2015		5/28/2015		5/29/2015		4/18/2012		Max		6/22/2015		6/22/2015	
															Most Recent									
VOCs																								
1,1,1,2-Tetrachloroethane					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
1,1,1-Trichloroethane					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
1,1,2,2-Tetrachloroethane					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
1,1,2-Trichloroethane					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
1,1-Dichloroethane					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
1,1-Dichloroethene					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
1,1-Dichloropropene					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
1,2,3-Trichlorobenzene					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2	U	ND		< 2.0	U	< 2.0	U		
1,2,3-Trichloropropane					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
1,2,4-Trichlorobenzene					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2	U	ND		< 2.0	U	< 2.0	U		
1,2,4-Trimethylbenzene					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	**0.2**	J	**1.18**		< 2.0	U	< 2.0	U		
1,2-Dibromo-3-chloropropane					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2	U	ND		< 2.0	U	< 2.0	U		
1,2-Dichlorobenzene					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
1,2-Dichloroethane					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	Ui	**0.44**		< 0.50	U	< 0.50	U		
1,2-Dichloroethene																								
1,2-Dichloropropane					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
1,3,5-Trimethylbenzene					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	**0.5**	J	**7**		< 2.0	U	< 2.0	U		
1,3-Dichlorobenzene					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
1,3-Dichloropropane					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
1,4-Dichlorobenzene					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
2,2-Dichloropropane					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
2-Butanone					< 20	U	< 20	U	< 20	U	< 20	U	< 20	U	**3.6**	J	**3.6**		< 20	U	< 20	U		
2-Hexanone					< 20	U	< 20	U	< 20	U	< 20	U	< 20	U	< 20	U	**62.4**		< 20	U	< 20	U		
4-Chlorotoluene					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2	U	ND		< 2.0	U	< 2.0	U		
4-Isopropyltoluene					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	**0.26**	J	**5.3**		< 2.0	U	< 2.0	U		
4-Methyl-2-pentanone					< 20	U	< 20	U	< 20	U	< 20	U	< 20	U	< 20	U	ND		< 20	U	< 20	U		
Acetone					< 20	U	< 20	U	< 20	U	< 20	U	< 20	U	**14**	J	**14**		< 20	U	< 20	U		
Benzene	**34**		**14**		< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	**0.89**		**8.8**		**340**		**35**		**12**			
Bromobenzene					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2	U	ND		< 2.0	U	< 2.0	U		
Bromodichloromethane					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Bromoform					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Carbon disulfide					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Carbon tetrachloride					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Chlorobenzene					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Chlorobromomethane					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Chloroethane					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Chloroform					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
cis-1,2-Dichloroethene					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	**2.1**		< 0.50	U	< 0.50	U		
cis-1,3-Dichloropropene					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Dibromochloromethane					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Dibromomethane					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Ethylbenzene	**3.8**		**2**		< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	**0.49**	J	**85**		**1.7**		**0.95**			
Ethylene dibromide					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2	U	ND		< 2.0	U	< 2.0	U		
Ethyl-tert-butyl ether															< 2	U	ND							
Freon 11					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Freon 12					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Hexachlorobutadiene					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2	U	ND		< 2.0	U	< 2.0	U		
Isopropyl ether															< 2	U	ND							
Isopropylbenzene (Cumene)					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	**3.9**		**32.3**		**15**		**21**			
m,p-Xylenes					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	**2.7**		**42.4**		**14**		**10**			
Methyl bromide					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Methyl chloride					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Methyl tert-butyl ether															< 0.5	U	ND							
Methylene chloride					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.6	Ui	**5.8**		< 2.5	Ui	< 14	Ui		
Naphthalene					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2	U	**0.56**		< 2.0	U	< 2.0	U		
n-Butylbenzene					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	**0.83**	J	**6.6**		< 2.0	U	**2.4**			
n-Propylbenzene					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	**5.9**		**39.8**		**22**		**46**			
o-Chlorotoluene (2-chlorotoluene)					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2	U	ND		< 2.0	U	< 2.0	U		
o-Xylene	**5.6**		**4.5**		< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	**2.3**		**24**		**5.9**		**2**			
sec-Butylbenzene					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	**0.85**	J	**4.6**		< 2.0	U	**3.1**			
Styrene					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
tert-Amyl Methyl Ether															< 2	U	ND							
tert-Butyl alcohol															< 20	U	ND							
tert-Butylbenzene					< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	< 2.0	U	**0.12**	J	**0.12**		< 2.0	U	< 2.0	U		
Tetrachloroethene					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Toluene	**24**		**14**		< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	**3.5**		**64**		**15**		**8.2**			
trans-1,2-Dichloroethene					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
trans-1,3-Dichloropropene					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Trichloroethene					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Vinyl chloride					< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.50	U	< 0.5	U	ND		< 0.50	U	< 0.50	U		
Xylenes	**31**		**19**														**100**							
TPH																								
Residual Range Organics	**630**	L	**380**	J	< 560	U	< 570	U	< 610	U	< 600	U	< 560	U	**2400**	L	**2400**		< 1100	U	< 1100	U		
Diesel	3300	Y	2400	Y	< 280	U	< 290	U	< 310	U	< 300	U	< 280	U	**21000**	Y	**21000**		< 530	U	< 530	U		
Gasoline	**2100**		**1500**	Y	< 250	U	< 250	U	< 250	U	< 250	U	< 250	U	**1100**	H	**6550**		**1300**	Y	**1300**	Y		
PAHS																								
2-Methylnaphthalene	**0.2**		**0.089**		< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			**0.33**		**0.14**		**0.12**			
Acenaphthene	**0.85**		**0.24**		< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			**1.5**		**0.31**		**0.52**			
Acenaphthylene	< 0.16	i	< 0.041	i	< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			**0.085**		< 0.056	Ui	< 0.096	Ui		
Anthracene	**0.063**		< 0.02	U	< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			**0.11**		< 0.020	U	**0.027**			
Benzo(a)anthracene	< 0.02	U	< 0.02	U	< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			ND		< 0.020	U	< 0.020	U		
Benzo(a)pyrene	< 0.02	U	< 0.02	U	< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			ND		< 0.020	U	< 0.020	U		
Benzo(b)fluoranthene	< 0.02	U	< 0.02	U	< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			ND		< 0.020	U	< 0.020	U		
Benzo(g,h,i)perylene	**0.0042**	J	< 0.02	U	< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			ND		< 0.020	U	< 0.020	U		
Benzo(k)fluoranthene	< 0.02	U	< 0.02	U	< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			ND		< 0.020	U	< 0.020	U		
Chrysene	< 0.02	U	< 0.02	U	< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			ND		< 0.020	U	< 0.020	U		
Dibenzo(a,h)anthracene	< 0.02	U	< 0.02	U	< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			ND		< 0.020	U	< 0.020	U		
Dibenzofuran	**0.2**		**0.042**		< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			**0.51**		**0.063**		**0.11**			
Fluoranthene	**0.089**		< 0.02	U	< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			**0.14**		< 0.020	U	< 0.020	U		
Fluorene	**0.89**		**0.18**		< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			**2.4**		**0.27**		**0.51**			
Indeno(1,2,3-cd)pyrene	**0.0037**	J	< 0.02	U	< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			ND		< 0.020	U	< 0.020	U		
Naphthalene	**0.67**		**0.39**		< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			**1**		**0.68**	X	**0.92**	X		
Phenanthrene	**0.45**		< 0.02	U	< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			**0.62**		**0.064**		**0.13**			
Pyrene	**0.087**		< 0.02	U	< 0.020	U	< 0.020	U	< 0.021	U	< 0.021	U	< 0.021	U			**0.2**		< 0.020	U	< 0.020	U		
Benzo(a)Pyrene Equivalent (Calculated)	**0.00037**		ND		ND		ND		ND		ND		ND				**0.0264**		ND		ND			
Metals																								
Antimony - Total															**0.025**	J	**0.025**							
Antimony - Dissolved															**0.021**	J	**0.021**							
Arsenic - Total					< 10	U	< 10	U	< 10	U	< 10	U	< 10	U	**26.2**		**38.4**		**18.6**		**22.8**			
Arsenic - Dissolved	2		**3**												**17.7**		**17.7**							
Barium - Total															**46.9**		**46.9**							
Barium - Dissolved															**14.1**		**14.1**							
Beryllium - Total															**0.021**		**0.021**							
Beryllium - Dissolved															< 0.02	U	ND							
Cadmium - Total															**0.013**	J	**0.013**							
Cadmium - Dissolved															< 0.02	U	ND							
Chromium - Total															**0.25**		**3.6**							
Chromium - Dissolved															**0.1**	J	**0.1**							
Cobalt - Total															**6.03**		**6.03**							
Cobalt - Dissolved															**5.51**		**5.51**							
Copper - Total															**2.77**		**2.77**							
Copper - Dissolved															**0.17**		**0.17**							
Iron - Total	**44900**		**33700**		**793**		**176**		**1040**		**725**		**537**				**74000**		**27500**		**24700**			
Iron - Dissolved	**6.7**	J	**335**		**272**		**48**		**1410**		**46**		**233**						**27500**		**23800**			
Iron II, Ferrous															**44000**		**44000**							
Lead - Total															**1.5**		**2.35**							
Lead - Dissolved															**0.714**		**0.714**							
Manganese - Total					**79.8**		**23.3**		**93.4**		**58.9**		**57.9**		**2430**		**4190**		**2530**		**2590**			
Manganese - Dissolved	**3520**		**3950**												**2210**		**2210**							
Mercury - Total															< 0.2	U	ND							
Mercury - Dissolved															< 0.2	U	ND							
Methyl Mercury - Total															**0.00008**	J	**0.00008**							
Molybdenum - Total															**0.195**		**0.195**							
Molybdenum - Dissolved															**0.116**		**0.116**							
Nickel - Total															**2.34**		**4.4**							
Nickel - Dissolved															**2.18**		**2.18**							
Selenium - Total															< 1	U	ND							
Selenium - Dissolved															< 1	U	ND							
Silver - Total															**0.139**		**0.139**							
Silver - Dissolved															**0.124**		**0.124**							
Thallium - Total															< 0.02	U	ND							
Thallium - Dissolved															< 0.02	U	ND							
Vanadium - Total															**1.32**		**1.32**							
Vanadium - Dissolved															**0.18**	J	**0.18**							
Zinc - Total															**1.7**		**1.7**							
Zinc - Dissolved															**0.3**	J	**0.3**							
Water Quality Parameters																								
Hardness as CaCO3 by Method 2340B	**165000**		**183000**		**32200**		**30500**		**33700**		**32000**		**33100**				**254000**		**188000**		**177000**			
Hardness as CaCO3 by Method 310.1																	**374000**							
Alkalinity, Total as CaCO3	**188000**		**248000**		**38000**		**35000**		**37000**		**37000**		**37000**		**185000**		**185000**		**259000**		**231000**			
Ammonia as N by Method 350.1																	**702**							
Total organic carbon																	**13100**							
Carbon dioxide																	**190000**							
Ammonia as N by Method 4500NH3	**951**		**2980**																					
Nitrogen by Method ASTM D1426	**1970**		**3520**																					
Chloride	**2600**		**1600**												**1590**		**1590**							
Nitrate as N	< 250	i	< 250	i	**290**		**320**		**310**		**240**		**290**		< 100	U	ND		< 500	Ui	< 500	Ui		
Sulfate	**1330**		< 500	i	**4270**		**4100**		**4130**		**4260**		**4400**		**420**		**420**		< 1000	Ui	< 1000	Ui		
NO3NO2N by Method E353.2	< 50	U	< 50	U																				
Phosphorus (yellow) by Method E365.1																	**186**							
Phosphorus (yellow) by Method E365.3	**1960**		**1440**														**97.6**							
Ethylene dibromide															< 0.0097	U	ND							
Methane															**940**		**18600**							
Dissolved Organic Carbon	**5800**		**5100**																					

Notes:
All units reported in micrograms per kilogram.
-- = No screening level available
< = Analyte not detected above method detection limit.
Bold text indicates that the analyte was detected above the method detectio
Detected concentration is between 1 and 10 times the Portland Harbor Clean
Detected concentration is between 10 and 100 times the Portland Harbor Cle
Detected concentration is greater than 100 times the Portland Harbor Cleanu

Upland Soil - Includes soil data collected landward of the Greenway Setbac
Ecological Zone Soil- Includes data collected from the riverbank to the Top

Qualifiers:
J = Estimated concentration
P = Pesticide/aroclor target analyte had a percent difference greater than 2
X = Matrix spike is outside of control limits.
U = Result qualified as non-detect.
UJ = Estimated non-detect.
i = Matrix interference noted by laboratory.
Y = Not defined
D = Data reported from a dilution.

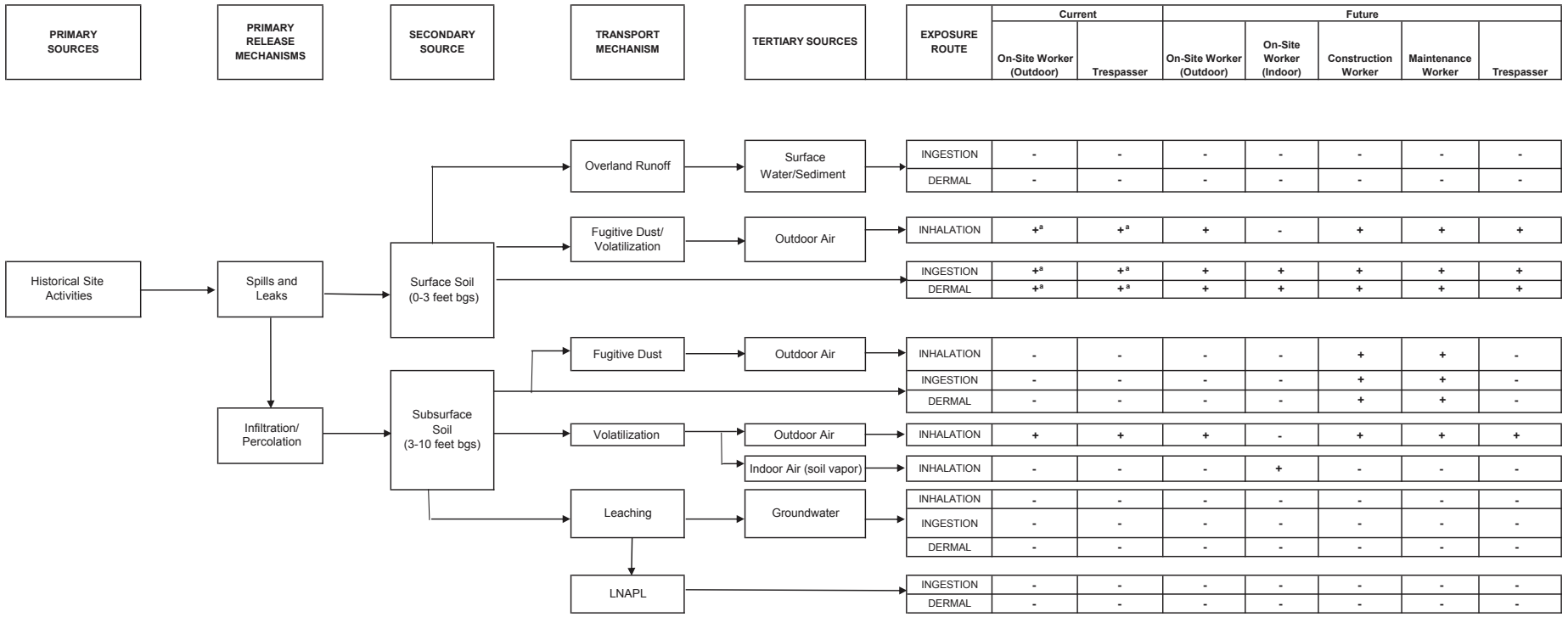
Abbreviations:
ND = Not detected
PAH = Polycyclic aromatic hydrocarbon
TPH = Total petroleum hydrocarbon
SVOC = Semivolatile organic compound
VOC = Volatile organic compound

Table 7
Riverbank Erodiblity Hazard Evaluation
Upland and TZW Investigation and Source Control Evaluation
Southern PEO Site
Portland, Oregon

Location	Lithologic Description	Beach Slope (%)	TOB Elevation (ft NAVD88)	Distance to OHWM (ft)	Bank Full Height (ft)	Top Slope (%)	Top Slope (degrees)	Current BEHI	Bank Erosion Hazard Rank
Profile 1	SM: Silty Sand; dark brown to grey, silty sand with clay, high organic content	13%	29	49.3	8.5	17%	9.8	15.2	Low
Profile 2	SP: Poorly graded sand; dark brown, fine sand and silt and clay.	11%	27.5	22	7	32%	17.7	14.2	Low
Profile 3	SM: Silty Sand; dark brown to grey, silty sand with clay, high organic content	9%	28	18.5	7.5	41%	22.1	16.1	Low
Profile 4	SP: Poorly graded sand; dark to light brown, fine sand and silt, high organic content.	17%	28.5	12.8	8	63%	32.0	28.2	Moderate to High
Profile 5	GM: Silty Gravel and Sand; brown, fine to coarse gravel and well rounded cobbles (up to 6 inches in diameter).	31%	29	19.2	8.5	44%	23.9	28.8	Moderate to High
Profile 6	SM: Silty Sand; dark brown to grey, silty sand with clay, high organic content	51%	28.5	11.2	8	71%	35.5	25.9	Moderate

Note: Ground cover percentage may exceed 100% due to overlap estimated.
BEHI = Bank Erodibility Hazard Index
TOB = Top of Bank
Elevation is feet above mean sea level NAVD88
in = inches
ft = feet

Appendix A
Ecological Risk Assessment and Human Health Risk Assessment Conceptual Site Model (Treadwell & Rollo 2014)



Notes:

+ Complete exposure pathway to be evaluated in risk assessment.

- Incomplete exposure pathway; will not be evaluated in risk assessment

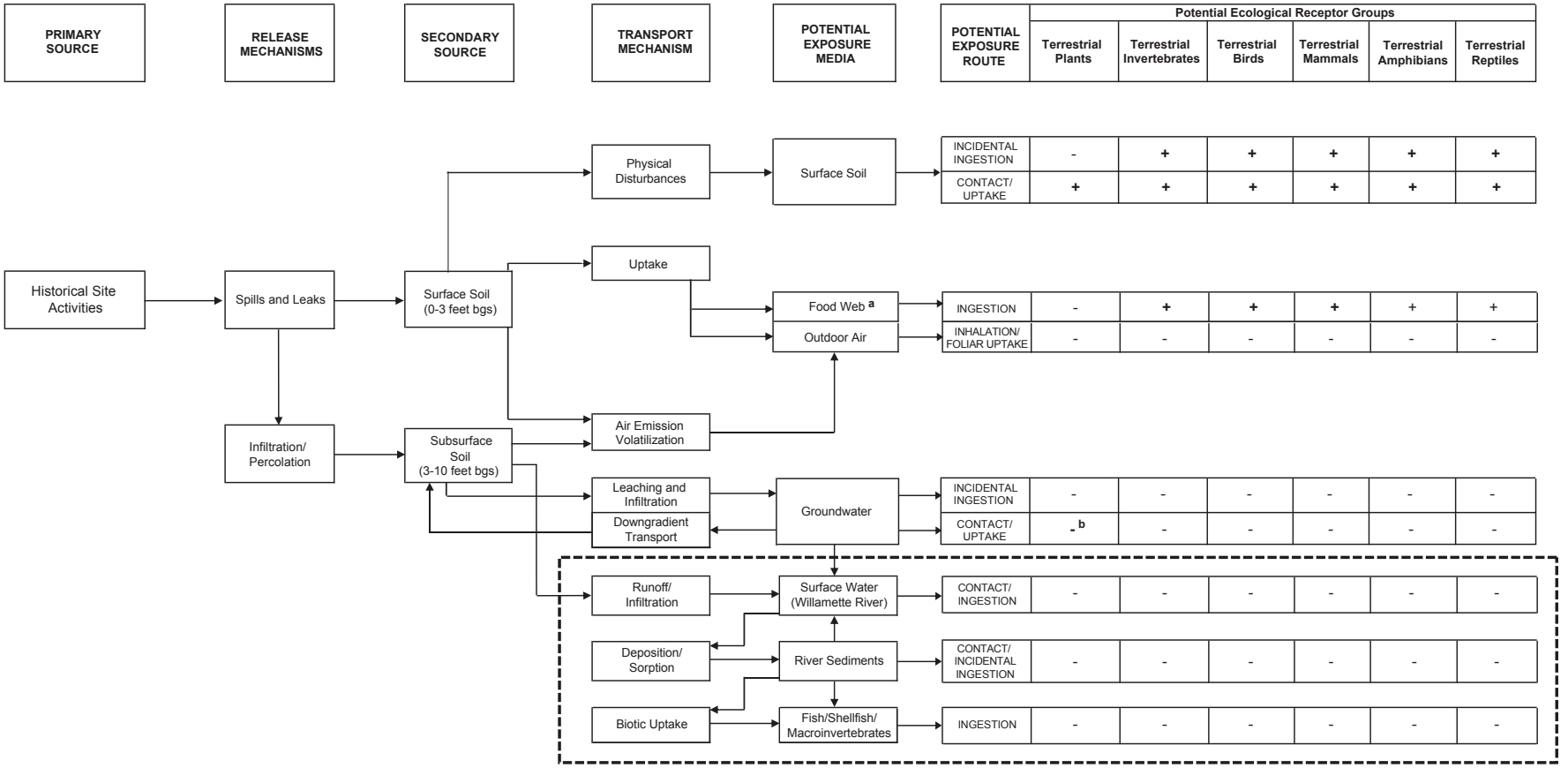
[a] Pathway complete only in portions of the site with exposed erodible soils containing chemicals of potential concern.

PHASE II RI WORK PLAN
PREMIER EDIBLE OILS
Portland, Oregon

HUMAN HEALTH RISK ASSESMENT
CONCEPTUAL SITE MODEL

November 2014 | Project No. 750608605 | Figure 4A

Treadwell&Rollo
A LANGAN COMPANY



Notes:

+ Potentially complete exposure pathway.
- Pathway is either incomplete, insignificant or unlikely for the specified exposure pathway and receptor group.
a Refers to ingestion of food source plants, invertebrates, birds, etc.
b Terestrial plants are not expected to contact groundwater in the root zone (~ 1 meter depth).

Exposure pathways to surface water, sediments, and in-water aquatic species are being addressed through the Portland Harbor Source Control program for the former NW Oil Terminal and will not be addressed in the ecological risk assessment.

PHASE II RI WORK PLAN
PREMIER EDIBLE OILS
Portland, Oregon

ECOLOGICAL RISK ASSESSMENT CONCEPTUAL SITE MODEL

November 2014 | Project No. 750608605 | Figure 4B

Treadwell&Rollo
A LANGAN COMPANY

Appendix B
High River Stage Transition Zone Water Sampling Report

Environmental Resources Management

1001 SW 5th Avenue
Suite 1010
Portland, OR 97204
(503) 488-5282
(503) 488-5142 (fax)
www.erm.com

25 January 2016

Erin McDonnell, P.E.
Cleanup Project Manager
Northwest Region Cleanup Program
Department of Environmental Quality
700 NE Multnomah Street, Suite 600
Portland, OR 97232

Subject: Premier Edible Oils Site
High River Stage Transition Zone Water Sampling Report

Dear Ms. McDonnell:

On behalf of MMGL, Corp., ERM-West, Inc. (ERM) has prepared this High River Stage Transition Zone Water Sampling Report for the former Premier Edible Oils (PEO) site (herein referred to as "the site") located at 10400 N. Burgard Way, Portland, Oregon. This report has been prepared pursuant to the Voluntary Agreement for Upland Remedial Investigation (FI)/Feasibility Study (FS) and Source Control Measures issued by the Oregon Department of Environmental Quality (ODEQ) and signed 6 March 2001 (ODEQ ECDVC-NWR-01-06) (Voluntary Agreement).

This report describes the sampling procedures and methods used for "high river stage" transition zone water (TZW) sampling conducted in May 2015 by ERM. Previous TZW sampling was conducted by Treadwell & Rollo in September 2014 for the "low river stage." The purpose of the TZW sampling program was to evaluate potential shallow impacts to TZW under current conditions and to assist in remedial design of the groundwater source control measures (GW SCMs).

SCOPE OF WORK

"High river stage" sampling activities were conducted in general accordance with the *TZW Sampling – Southern PEO Barrier Wall Design* work plan (Treadwell & Rollo 2014) and per a revised scope of work proposed by ERM to focus on the Top of Bank groundwater and the

shallower TZW zone. The revised scope of work was communicated in emails and phone conversations with the ODEQ on 26 May 2015. The revised scope of work included:

- Five TZW samples collected from approximately 1 to 2 feet below mudline (as opposed to previously sampled depths of 5 to 10 feet below mudline); and
- Two permanent groundwater monitoring wells installed at the Top of Bank, in lieu of temporary wells, to enable future reproducible sampling of groundwater at the Top of Bank.

TRANSITION ZONE WATER SAMPLING PROCEDURES

ERM and Gravity Consulting (Gravity) conducted TZW sampling from five locations (TZW-06 through TZW-10) on 28 and 29 May 2015. The cores were driven to a target depth of 1 to 2 feet below mudline using a direct push system from a Gravity-owned research vessel. Samples were collected from a custom stainless steel piezometer using a low-flow peristaltic pump with dedicated tubing from the 1 to 2 foot depth range.

Water quality measurements for conductivity, turbidity, and temperature in the surface water and pore water were collected using a flow through cell. The TZW samples were submitted to ALS Environmental in Kelso, Washington for analysis for the following analytes:

- Alkalinity, nitrate, sulfate, hardness;
- Volatile organic compounds;
- Polycyclic aromatic hydrocarbons;
- Gasoline Range Organics by Method NWTPH-Gx and Diesel Range Organics by Method NWTPH-Dx; and
- Total arsenic, total manganese, dissolved Fe.

Laboratory analytical reports are presented in Attachment A.

Field quality assurance samples included field duplicates and rinsate blanks. The rinsate blank was collected using distilled water rinsed over the decontaminated peristaltic pump tubing, monitoring equipment, and laboratory provided bottles.

Monitoring Well Construction

As part of the TZW sampling scope, two groundwater monitoring wells were installed for future performance monitoring. Following soil boring activities, two groundwater monitoring wells (MW-26 and MW-27) were installed by Cascade Drilling, Inc. on 4 and 5 June 2015. Monitoring wells MW-26 and MW-27 were installed to 40 feet and 39 feet bgs, respectively, with nominal 5 foot long screens. Boring logs are included in Attachment B.

Monitoring Well Development and Sampling Activities

ERM developed the newly installed groundwater monitoring wells on 17 June 2015.

On 22 June 2015 ERM conducted well sampling at MW-26 and MW-27 using a low flow peristaltic pump with dedicated tubing. Groundwater samples were bottled and delivered to ALS Environmental in Kelso, Washington for analysis.

Laboratory Analysis

Groundwater samples were collected from each monitoring well for the following analytes:

- Alkalinity, nitrate, sulfate, hardness;
- Volatile organic compounds;
- Polycyclic aromatic hydrocarbons;
- Gasoline Range Organics by Method NWTPH-Gx and Diesel Range Organics by Method NWTPH-Dx; and
- Total arsenic, total manganese, dissolved Fe.

Samples were analyzed by ALS Environmental in Kelso, Washington. Laboratory analytical reports are presented in Attachment A.

RESULTS

Results of the TZW sampling program indicated that light non-aqueous phase liquids (LNAPL) only extends a short distance beyond the Top of

Bank and does not reach the TZW. Additionally, the data indicates that there are limited dissolved phase impacts to the TZW under current conditions. Concentrations of TPH and benzene, toluene, ethylbenzene, and xylenes (BTEX compounds) were generally lower in the "high river stage" TZW samples than the "low river stage" TZW samples. Manganese concentrations were also lower in the "high river stage" TZW event. Arsenic concentrations were below the detection limit of 10 micrograms per liter (µg/L).

Complete analytical results from the TZW sampling activities are presented and further evaluated in the pending source control evaluation report.

Sincerely,

Brendan Robinson
Project Manager

Erik Ipsen
Partner

Attachments: Attachment A – Analytical Reports
Attachment B – Boring Logs

Attachment A
Analytical Reports

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

June 15, 2015

Analytical Report for Service Request No: K1505765

Kathryn Ewing
ERM - Northwest, Incorporated
1001 SW 5th Ave. #1010
Portland, OR 97204

RE: PEO TZW Samples

Dear Kathryn,

Enclosed are the results of the sample(s) submitted to our laboratory May 29, 2015
For your reference, these analyses have been assigned our service request number **K1505765.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3363. You may also contact me via email at Lisa.Domenighini@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Lisa A Domenighini

Lisa Domenighini
Project Manager

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L14-51
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L14-50
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	03016
Maine DHS	Not available	WA01276
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

ALS ENVIRONMENTAL

Client:	ERM Northwest, Incorporated	**Service Request No.:**	K1505765
Project:	PEO TZW Samples	**Date Received:**	05/29/15
Sample Matrix:	Water		

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Eight water samples were received for analysis at ALS Environmental on 05/29/15. The samples were received in good condition and consistent with the accompanying chain of custody form, except where noted on the cooler receipt and preservation form included in this report. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Total and Dissolved Metals

Test Notes:
The dissolved Iron concentration in sample TZW-08-052815 was greater than the total Iron concentrations. Direct analysis from the sample bottles (i.e. without digestion) confirmed the relative concentrations. The sample was field filtered, therefore no further corrective action was appropriate.

No other anomalies associated with the analysis of these samples were observed.

Diesel Range Organics by Method NWTPH-Dx

Sample Notes and Discussion:
Insufficient sample volume was received to perform a Matrix Spike/Matrix Spike Duplicate (MS/MSD). A Laboratory Control Sample/Duplicate Laboratory Control Sample (LCS/DLCS) was analyzed and reported in lieu of the MS/MSD for these samples.

No other anomalies associated with the analysis of these samples were observed.

Gasoline Range Organics by Method NWTPH-Gx

No anomalies associated with the analysis of these samples were observed.

Approved by Lisa A Domenighini

Volatile Organic Compounds by EPA Method 8260

No anomalies associated with the analysis of these samples were observed.

Polynuclear Aromatic Hydrocarbons by EPA Method 8270

Calibration Verification Exceptions:
The following analytes were flagged as outside the control criterion for Continuing Calibration Verification (CCV) MS14\0604F002.D: Dibenz(a,h)anthracene and Benzo(g,h,i)perylene. In accordance with the EPA Method, 80% or more of the CCV analytes must have passed within 20% of the true value. The remaining analytes are allowed a 40% difference as per the ALS SOP. The CCV met these criteria. No further corrective action was required.

Elevated Detection Limits:
The detection limits for all analytes in samples TZW-08-052815, TZW-09-052815, TZW-10-052815, and TZW-10-D-052815 were elevated due to less than optimal sample volume available for analysis.

Sample Notes and Discussion:
A Matrix Spike/Matrix Spike Duplicate (MS/MSD) was not extracted with this sample batch. A Laboratory Control Sample/Duplicate Laboratory Control Sample (LCS/DLCS) was analyzed and reported in lieu of the MS/MSD for these samples.

No other anomalies associated with the analysis of these samples were observed.

Approved by Lisa A Domenighini

Chain of Custody

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ALS Environmental

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www.alsglobal.com

CHAIN OF CUSTODY
60317

001

SR# K1505765

COC Set____of____

COC#_____

Project Name	TEO TZW Samples
Project Number	
Project Manager	Kathryn Ewing
Company	ERM
Address	1001 SW 5th Ave Portland OR 97204
Phone #	971-330-5014
email	Kathryn.Ewing@erm.com
Sampler Signature	
Sampler Printed Name	Melody Kieneker

CLIENT SAMPLE ID	LABID	SAMPLING Date	Time	Matrix	NUMBER OF CONTAINERS	0H: ~~9040C / pH~~	0H: ASTM D1498-99 / Redox Pot.	0H: SM 4500-O G / Oxygen	48H: 300.0 / NO3	7D: 8270D / PAH SIM	14D: 8260C / VOC FP	14D: NWTPH-Dx / NW TPH SGT	14D: NWTPH-Gx / NW_GAS	14D: SM 2320 B / Alkalinity Tit	28D: ~~120.1 / Cond Spec.~~	28D: 300.0 / SO4	180D: 6010C / Metals D	180D: 6010C / Metals T	1: Hardness 2340B	2	3	4	5	Remarks
1. TZW-06-052815		5/28	11:15	water	14				✓	✓	✓	✓	✓	✓	X	✓	✓	✓	✓					
2. TZW-07-052815		5/28	1:30	water	14				✓	✓	✓	✓	✓	✓	X	✓	✓	✓	✓					
3. TZW-08-052815		5/28	2:45p	water	14				✓	✓	✓	✓	✓	✓		✓	✓	✓	✓					
4. TZW-09-052815		5/28	3:50	water	14				✓	✓	✓	✓	✓	✓		✓	✓	✓	✓					
5. TZW-10-052915		5/29	11:00	water	14				✓	✓	✓	✓	✓	✓		✓	✓	✓	✓					
6. TZW-10-D-052915		5/29	11:20	water	14				✓	✓	✓	✓	✓	✓		✓	✓	✓	✓					
7. Rinseate		5/28	3:30	water	9				✓	✓	✓	✓	✓	✓		✓	✓	✓	✓					
8. Trip blanks		5/28-5/29		water	6	12			✓	✓	✓	✓	✓	✓		✓	✓	✓	✓					provided
9.																								
10.																								

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 02916824

Bill To: ERM

1001 SW 5th Ave Portland OR 97204

Turnaround Requirements

___ 24 hr. ___ 48 hr.

___ 5 Day

___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al (As) Sb Ba Be B Ca Cd Co Cr Cu (Fe) Pb Mg (Mn) Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu (Fe) Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other_____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: Melody Kieneker	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
Firm: ERM	Firm: 5.29.15 12:30	Firm	Firm: 5/29/15 1400	Firm	Firm
Date/Time: 5/29 12:30p	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

PC Lisa

Cooler Receipt and Preservation Form

Client / Project: E.R.M. Service Request *K15* 05765

Received: 5.29.15 Opened: 52915 By: DW Unloaded: 5.2915 By: DW

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* (*Courier*) *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 Front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number (NA)	Filed
0.8	0.7	2.0	1.9	-0.1	347	60317		
0.5	0.6	1.6	1.7	+0.1	359			
0.4	0.4	1.6	1.6	0	338			
0.9	1.0	—	—	+0.1	328			

4. Packing material: (*Inserts*) (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA (Y) N
12. Was C12/Res negative? NA (Y) N

Sample ID on Bottle	Sample ID on COC	Identified by:
		SHORT HOLD TIME

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions:

Rinsate - Bottles not recd for all tests indicated. Log per bottles

Page _____ *of* _____

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/15 - 05/29/15
Sample Matrix:	Water	**Date Received:**	05/29/15
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Nitrate as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
TZW-06-052815	K1505765-001	**0.29**	0.10	2	05/29/15 19:15	5/29/15	
TZW-07-052815	K1505765-002	**0.32**	0.10	2	05/29/15 21:06	5/29/15	
TZW-08-052815	K1505765-003	**0.31**	0.10	2	05/29/15 21:22	5/29/15	
TZW-09-052815	K1505765-004	**0.24**	0.10	2	05/29/15 21:38	5/29/15	
TZW-10-052915	K1505765-005	**0.29**	0.10	2	05/29/15 21:54	5/29/15	
TZW-10-D-052915	K1505765-006	**0.28**	0.10	2	05/29/15 22:10	5/29/15	
Method Blank	K1505765-MB	ND U	0.050	1	05/29/15 23:46	5/29/15	

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QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project	PEO TZW Samples	**Date Collected:**	05/28/15
Sample Matrix:	Water	**Date Received:**	05/29/15
		Date Analyzed:	05/29/15

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	TZW-06-052815	**Units:**	mg/L
Lab Code:	K1505765-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1505765-001DUP Result	Average	RPD	RPD Limit
Nitrate as Nitrogen	300.0	0.10	0.29	0.28	0.284	3	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/15
Sample Matrix:	Water	**Date Received:**	05/29/15
		Date Analyzed:	05/29/15
		Date Extracted:	05/29/15

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	TZW-06-052815	**Units:**	mg/L
Lab Code:	K1505765-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	Method		

		Matrix Spike K1505765-001MS			Duplicate Matrix Spike K1505765-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	0.29	9.62	10.0	93	9.82	10.0	95	90-110	2	20

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QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Analyzed:**	05/30/15
Sample Matrix:	Water	**Date Extracted:**	05/29/15

Lab Control Sample Summary
Nitrate as Nitrogen

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	447035

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1505765-LCS	2.38	2.50	95	90-110

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/15 - 05/29/15
Sample Matrix:	Water	**Date Received:**	05/29/15
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Sulfate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
TZW-06-052815	K1505765-001	**4.27**	0.20	2	05/29/15 19:15	5/29/15	
TZW-07-052815	K1505765-002	**4.10**	0.20	2	05/29/15 21:06	5/29/15	
TZW-08-052815	K1505765-003	**4.13**	0.20	2	05/29/15 21:22	5/29/15	
TZW-09-052815	K1505765-004	**4.26**	0.20	2	05/29/15 21:38	5/29/15	
TZW-10-052915	K1505765-005	**4.40**	0.20	2	05/29/15 21:54	5/29/15	
TZW-10-D-052915	K1505765-006	**4.34**	0.20	2	05/29/15 22:10	5/29/15	
Method Blank	K1505765-MB	ND U	0.10	1	05/29/15 10:01	5/29/15	

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QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project	PEO TZW Samples	**Date Collected:**	05/28/15
Sample Matrix:	Water	**Date Received:**	05/29/15
		Date Analyzed:	05/29/15

Replicate Sample Summary

General Chemistry Parameters

Sample Name:	TZW-06-052815	**Units:**	mg/L
Lab Code:	K1505765-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1505765-001DUP Result	Average	RPD	RPD Limit
Sulfate	300.0	0.20	4.27	4.22	4.24	1	20

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QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/15
Sample Matrix:	Water	**Date Received:**	05/29/15
		Date Analyzed:	05/29/15
		Date Extracted:	05/29/15

Duplicate Matrix Spike Summary
Sulfate

Sample Name:	TZW-06-052815	**Units:**	mg/L
Lab Code:	K1505765-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	Method		

		Matrix Spike			Duplicate Matrix Spike					
		K1505765-001MS			K1505765-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfate	4.27	13.4	10.0	92	13.5	10.0	92	90-110	<1	20

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Analyzed:**	05/29/15
Sample Matrix:	Water	**Date Extracted:**	05/29/15

Lab Control Sample Summary
Sulfate

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	447035

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1505765-LCS	4.80	5.00	96	90-110

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/15 - 05/29/15
Sample Matrix:	Water	**Date Received:**	05/29/15
Analysis Method:	SM 2320 B	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Alkalinity as CaCO3, Total

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
TZW-06-052815	K1505765-001	**38**	15	1	06/04/15 15:13	
TZW-07-052815	K1505765-002	**35**	15	1	06/04/15 15:13	
TZW-08-052815	K1505765-003	**37**	15	1	06/04/15 15:13	
TZW-09-052815	K1505765-004	**37**	15	1	06/04/15 15:13	
TZW-10-052915	K1505765-005	**37**	15	1	06/04/15 15:13	
TZW-10-D-052915	K1505765-006	**40**	15	1	06/04/15 15:13	
Method Blank	K1505765-MB	ND U	15	1	06/04/15 15:13	

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QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project	PEO TZW Samples	**Date Collected:**	05/28/15
Sample Matrix:	Water	**Date Received:**	05/29/15
		Date Analyzed:	06/04/15

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	TZW-06-052815	**Units:**	mg/L
Lab Code:	K1505765-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1505765-001DUP Result	Average	RPD	RPD Limit
Alkalinity as CaCO3, Total	SM 2320 B	15	38	38	37.7	<1	20

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Results flagged with a pound (#) indicate the control criteria is not applicable.

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Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Analyzed:**	06/04/15
Sample Matrix:	Water	**Date Extracted:**	NA

Lab Control Sample Summary
Alkalinity as CaCO3, Total

Analysis Method:	SM 2320 B	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	447801

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1505765-LCS	91.3	88	103	90-110

Metals

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Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/15
Sample Matrix:	Water	**Date Received:**	05/29/15

Hardness as CaCO3

Prep Method:	CLAA	Units:	mg/L (ppm)
Analysis Method:	6010C/SM 2340B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
TZW-06-052815	K1505765-001	0.07	1	06/01/15	06/05/15	32.2	
TZW-07-052815	K1505765-002	0.07	1	06/01/15	06/05/15	30.5	
TZW-08-052815	K1505765-003	0.07	1	06/01/15	06/05/15	33.7	
TZW-09-052815	K1505765-004	0.07	1	06/01/15	06/05/15	32.0	
TZW-10-052915	K1505765-005	0.07	1	06/01/15	06/05/15	33.1	
TZW-10-D-052915	K1505765-006	0.07	1	06/01/15	06/05/15	35.4	
Method Blank	K1505765-MB	0.07	1	06/01/15	06/05/15	ND	

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QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/15
Sample Matrix:	Water	**Date Received:**	05/29/15
		Date Extracted:	06/01/15
		Date Analyzed:	06/05/15

Duplicate Summary
Metals

Sample Name:	TZW-06-052815	Units:	mg/L (ppm)
Lab Code:	K1505765-001D	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Hardness as CaCO3	CLAA	6010C/SM 2340B	0.07	32.2	32.6	32.4	1	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/15 11:15
Sample Matrix:	Water	**Date Received:**	05/29/15 14:00
Sample Name:	TZW-06-052815	**Basis:**	NA
Lab Code:	K1505765-001		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Iron	6010C	**272**	ug/L	20	1	06/05/15 04:12	06/01/15	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/15 11:15
Sample Matrix:	Water	**Date Received:**	05/29/15 14:00
Sample Name:	TZW-06-052815	**Basis:**	NA
Lab Code:	K1505765-001		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6010C	ND U	ug/L	10	1	06/05/15 03:43	06/01/15	
Iron	6010C	**793**	ug/L	20	1	06/05/15 03:43	06/01/15	
Manganese	6010C	**79.8**	ug/L	1.0	1	06/05/15 03:43	06/01/15	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/15 13:30
Sample Matrix:	Water	**Date Received:**	05/29/15 14:00
Sample Name:	TZW-07-052815	**Basis:**	NA
Lab Code:	K1505765-002		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Iron	6010C	**48**	ug/L	20	1	06/05/15 04:14	06/01/15	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/15 13:30
Sample Matrix:	Water	**Date Received:**	05/29/15 14:00
Sample Name:	TZW-07-052815	**Basis:**	NA
Lab Code:	K1505765-002		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6010C	ND U	ug/L	10	1	06/05/15 04:00	06/01/15	
Iron	6010C	**176**	ug/L	20	1	06/05/15 04:00	06/01/15	
Manganese	6010C	**23.3**	ug/L	1.0	1	06/05/15 04:00	06/01/15	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/15 14:45
Sample Matrix:	Water	**Date Received:**	05/29/15 14:00
Sample Name:	TZW-08-052815	**Basis:**	NA
Lab Code:	K1505765-003		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Iron	6010C	**1410**	ug/L	20	1	06/05/15 04:24	06/01/15	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/15 14:45
Sample Matrix:	Water	**Date Received:**	05/29/15 14:00
Sample Name:	TZW-08-052815	**Basis:**	NA
Lab Code:	K1505765-003		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6010C	ND U	ug/L	10	1	06/05/15 04:02	06/01/15	
Iron	6010C	**1040**	ug/L	20	1	06/05/15 04:02	06/01/15	
Manganese	6010C	**93.4**	ug/L	1.0	1	06/05/15 04:02	06/01/15	

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/15 15:50
Sample Matrix:	Water	**Date Received:**	05/29/15 14:00
Sample Name:	TZW-09-052815	**Basis:**	NA
Lab Code:	K1505765-004		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Iron	6010C	**46**	ug/L	20	1	06/05/15 04:26	06/01/15	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/15 15:50
Sample Matrix:	Water	**Date Received:**	05/29/15 14:00
Sample Name:	TZW-09-052815	**Basis:**	NA
Lab Code:	K1505765-004		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6010C	ND U	ug/L	10	1	06/05/15 04:04	06/01/15	
Iron	6010C	**725**	ug/L	20	1	06/05/15 04:04	06/01/15	
Manganese	6010C	**58.9**	ug/L	1.0	1	06/05/15 04:04	06/01/15	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/29/15 11:00
Sample Matrix:	Water	**Date Received:**	05/29/15 14:00
Sample Name:	TZW-10-052915	**Basis:**	NA
Lab Code:	K1505765-005		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Iron	6010C	**233**	ug/L	20	1	06/05/15 04:29	06/01/15	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/29/15 11:00
Sample Matrix:	Water	**Date Received:**	05/29/15 14:00
Sample Name:	TZW-10-052915	**Basis:**	NA
Lab Code:	K1505765-005		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6010C	ND U	ug/L	10	1	06/05/15 04:07	06/01/15	
Iron	6010C	**537**	ug/L	20	1	06/05/15 04:07	06/01/15	
Manganese	6010C	**57.9**	ug/L	1.0	1	06/05/15 04:07	06/01/15	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/29/15 11:20
Sample Matrix:	Water	**Date Received:**	05/29/15 14:00
Sample Name:	TZW-10-D-052915	**Basis:**	NA
Lab Code:	K1505765-006		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Iron	6010C	**265**	ug/L	20	1	06/05/15 04:31	06/01/15	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/29/15 11:20
Sample Matrix:	Water	**Date Received:**	05/29/15 14:00
Sample Name:	TZW-10-D-052915	**Basis:**	NA
Lab Code:	K1505765-006		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6010C	ND U	ug/L	10	1	06/05/15 04:09	06/01/15	
Iron	6010C	**979**	ug/L	20	1	06/05/15 04:09	06/01/15	
Manganese	6010C	**101**	ug/L	1.0	1	06/05/15 04:09	06/01/15	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	KQ1505749-02		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6010C	ND U	ug/L	10	1	06/05/15 03:38	06/01/15	
Iron	6010C	ND U	ug/L	20	1	06/05/15 03:38	06/01/15	
Manganese	6010C	ND U	ug/L	1.0	1	06/05/15 03:38	06/01/15	

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QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project	PEO TZW Samples	**Date Collected:**	05/28/15
Sample Matrix:	Water	**Date Received:**	05/29/15
		Date Analyzed:	06/05/15

Replicate Sample Summary
Total Metals

Sample Name:	TZW-06-052815	**Units:**	ug/L
Lab Code:	K1505765-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1505749-03 Result	Average	RPD	RPD Limit
Arsenic	6010C	10	ND U	ND U	ND	-	20
Iron	6010C	20	793	803	798	1	20
Manganese	6010C	1.0	79.8	81.0	80.4	1	20

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QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/15
Sample Matrix:	Water	**Date Received:**	05/29/15
		Date Analyzed:	06/5/15

Matrix Spike Summary
Total Metals

Sample Name:	TZW-06-052815	**Units:**	ug/L
Lab Code:	K1505765-001	**Basis:**	NA
Analysis Method:	6010C		

Matrix Spike
KQ1505749-04

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Arsenic	ND U	1000	1000	100	75-125
Iron	793	1820	1000	103	75-125
Manganese	79.8	576	500	99	75-125

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Analyzed:**	06/05/15
Sample Matrix:	Water	**Date Extracted:**	06/01/15

Lab Control Sample Summary
Total Metals

Analysis Method:	6010C	**Units:**	ug/L
Prep Method:	EPA CLP-METALS ILM04.0	**Basis:**	NA
		Analysis Lot:	447904

Lab Control Sample
KQ1505749-01

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Arsenic	2520	2500	101	80-120
Iron	2590	2500	104	80-120
Manganese	1250	1250	100	80-120

Diesel and Residual Range Organics-Silica Gel Treated

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Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/2015
Sample Matrix:	Water	**Date Received:**	05/29/2015

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:	TZW-06-052815	**Units:**	ug/L
Lab Code:	K1505765-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	280	1	06/04/15	06/09/15	KWG1505009	
Residual Range Organics (RRO)	ND	U	560	1	06/04/15	06/09/15	KWG1505009	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	104	50-150	06/09/15	Acceptable
n-Triacontane	107	50-150	06/09/15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO ZW2 Samples	**Date Collected:**	05Ig8Ig015
Sample Matrix:	2 ater	**Date Received:**	05Ig9Ig015

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:	ZW2 -07-05g815	**Units:**	u/ LT
Lab Code:	K1505765-00g	**Basis:**	NA
Extraction Method:	MEZHOD	**Level:**	Tow
Analysis Method:	N2 ZPH-Dx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Ran/ e Or/ anics (DRO)	ND	U	g90	1	06I04I15	06I09I15	K2 G1505009	
Residual Ran/ e Or/ anics (RRO)	ND	U	570	1	06I04I15	06I09I15	K2 G1505009	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Zerphenyl	96	50-150	06I09I15	Acceptable
n-Zriacontane	97	50-150	06I09I15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/2015
Sample Matrix:	Water	**Date Received:**	05/29/2015

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:	TZW-08-052815	**Units:**	ug/L
Lab Code:	K1505765-003	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	310	1	06/04/15	06/09/15	KWG1505009	
Residual Range Organics (RRO)	ND	U	610	1	06/04/15	06/09/15	KWG1505009	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	99	50-150	06/09/15	Acceptable
n-Triacontane	103	50-150	06/09/15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/29/2015
Sample Matrix:	Water	**Date Received:**	05/28/2015

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:	TZW-08-052915	**Units:**	ug/L
Lab Code:	K1505765-003	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	400	1	06/03/15	06/08/15	KWG1505008	
Residual Range Organics (RRO)	ND	U	600	1	06/03/15	06/08/15	KWG1505008	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	87	50-150	06/08/15	Acceptable
n-Triacontane	88	50-150	06/08/15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	9EP TZW QaS ples	**Date Collected:**	05/28/2015
Sample Matrix:	Water	**Date Received:**	05/28/2015

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:	TZW-10-052815	**Units:**	ug/L
Lab Code:	K1505765-005	**Basis:**	NA
Extraction Method:	METmP H	**Level:**	Low
Analysis Method:	NWT9m-HD		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Hiesel Range P rganics (HRP)	NH	U	2x0	1	06/04/15	06/08/15	KWG1505008	
Residual Range P rganics (RRP)	NH	U	560	1	06/04/15	06/08/15	KWG1505008	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	x8	50-150	06/08/15	Acceptable
n-Triacontane	84	50-150	06/08/15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/89/8015
Sample Matrix:	Water	**Date Received:**	05/89/8015

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:	TZW-10-2 -058915	**Units:**	ug/L
Lab Code:	K1505765-006	**Basis:**	NA
Extraction Method:	METHO2	**Level:**	Low
Analysis Method:	NWTPH-2 D		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
2 iesel Range Organics U2 RO(	N2	G	890	1	06/0x/15	06/09/15	KW4 1505009	
Residual Range Organics URRO(	N2	G	570	1	06/0x/15	06/09/15	KW4 1505009	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	108	50-150	06/09/15	Accepta) le
n-Triacontane	108	50-150	06/09/15	Accepta) le

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	WE8 29P OaSples	**Date Collected:**	05gLTgL015
Sample Matrix:	P ater	**Date Received:**	05gLZgL015

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:	Rinseate	**Units:**	u3g/
Lab Code:	K1505765-007	**Basis:**	NA
Extraction Method:	ME2m8 H	**Level:**	/ ow
Analysis Method:	NP 2Wm-HD		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Hiesel Ran3e 8 r3anics UHR8 (	NH	G	L70	1	06g0xgl5	06g0Zgl5	KP 4 150500Z	
Residual Ran3e 8 r3anics URR8 (	NH	G	5)0	1	06g0xgl5	06g0Zgl5	KP 4 150500Z	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-2erphenyl	Z5	50-150	06g0Zgl5	Acceptable
n-2riacontane	Z1	50-150	06g0Zgl5	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1505009-3	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	250	1	06/04/15	06/09/15	KWG1505009	
Residual Range Organics (RRO)	ND	U	500	1	06/04/15	06/09/15	KWG1505009	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	73	50-150	06/09/15	Acceptable
n-Triacontane	76	50-150	06/09/15	Acceptable

Comments:

Client: ERM Northwest, Incorporated **Service Request:** K1505765
Project: PEO TZW Samples
Sample Matrix: Water

Surrogate Recovery Summary
Diesel and Residual Range Organics - Silica Gel Treated

Extraction Method: METHOD **Units:** Percent
Analysis Method: NWTPH-Dx **Level:** Low

Sample Name	Lab Code	Sur1	Sur2
TZW-06-052815	K1505765-001	104	107
TZW-07-052815	K1505765-002	96	97
TZW-08-052815	K1505765-003	99	103
TZW-09-052815	K1505765-004	97	99
TZW-10-052915	K1505765-005	89	94
TZW-10-D-052915	K1505765-006	102	102
Rinseate	K1505765-007	95	91
Method Blank	KWG1505009-3	73	76
Lab Control Sample	KWG1505009-1	99	98
Duplicate Lab Control Sample	KWG1505009-2	94	93

Surrogate Recovery Control Limits (%)

Sur1	=	o-Terphenyl	50-150
Sur2	=	n-Triacontane	50-150

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Extracted:**	06/04/2015
Sample Matrix:	Water	**Date Analyzed:**	06/09/2015

Lab Control Spike/Duplicate Lab Control Spike Summary
Diesel and Residual Range Organics - Silica Gel Treated

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	NWTPH-Dx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1505009

	Lab Control Sample KWG1505009-1 Lab Control Spike			Duplicate Lab Control Sample KWG1505009-2 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Diesel Range Organics (DRO)	2740	3200	86	2740	3200	86	46-140	0	30
Residual Range Organics (RRO)	1670	1600	104	1650	1600	103	45-159	2	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Gasoline Range Organics

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/2015
Sample Matrix:	Water	**Date Received:**	05/29/2015

Gasoline Range Organics

Sample Name:	TZW-06-052815	**Units:**	ug/L
Lab Code:	K1505765-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	06/02/15	06/02/15	KWG1504940	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	94	50-150	06/02/15	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO ZW2 Samples	**Date Collected:**	05Ig8Ig015
Sample Matrix:	2 ater	**Date Received:**	05Ig9Ig015

Gasoline Range Organics

Sample Name:	ZW2 -07-05g815	**Units:**	u/ IT
Lab Code:	K1505765-00g	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Tow
Analysis Method:	N2 ZPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Ran/ e Or/ anics-N2 ZPH	ND	U	g50	1	06I0gI15	06I0gI15	K2 G1504940	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	94	50-150	06I0gI15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	OES ZW2 ma3 ples	**Date Collected:**	05I98I9015
Sample Matrix:	2 ater	**Date Received:**	05I9PI9015

Gasoline Range Organics

Sample Name:	ZW2 -08-059815	**Units:**	u/ IT
Lab Code:	K1505765-00g	**Basis:**	NA
Extraction Method:	EOA 50g0B	**Level:**	Tow
Analysis Method:	N2 ZOH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Ran/ e S r/ anics-N2 ZOH	ND	U	950	1	06I09I15	06I09I15	K2 G1504P40	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	P5	50-150	06I09I15	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	OES ZW2 ma3 ples	**Date Collected:**	05I9PI9015
Sample Matrix:	2 ater	**Date Received:**	05I98I9015

Gasoline Range Organics

Sample Name:	ZW2 -08-059P15	**Units:**	u/ IT
Lab Code:	K1505765-00g	**Basis:**	NA
Extraction Method:	EOA 50B0H	**Level:**	Tow
Analysis Method:	N2 ZOG-x 4		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
x asoline Ran/ e S r/ anics-N2 ZOG	ND	U	950	1	06I09I15	06I09I15	K2 x 150g8g0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,g-Difluorobenzene	88	50-150	06I09I15	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	9EP TZW OaS ples	**Date Collected:**	05/28/2015
Sample Matrix:	Water	**Date Received:**	05/28/2015

Gasoline Range Organics

Sample Name:	TZW-10-052815	**Units:**	ug/L
Lab Code:	K1505765-005	**Basis:**	NA
Extraction Method:	E9A 50m03	**Level:**	Low
Analysis Method:	NWT9B-HG		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Hasoline Range P rganics-NWT9B	NU	4	250	1	06/02/15	06/02/15	KWH150x8x0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,x-UibluoroDenfene	86	50-150	06/02/15	AcceptaDle

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/89/8015
Sample Matrix:	Water	**Date Received:**	05/89/8015

Gasoline Range Organics

Sample Name:	TZW-10-2 -058915	**Units:**	ug/L
Lab Code:	K1505765-006	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	N2	U	850	1	06/08/15	06/08/15	KWG1504940	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-2 ibluoroDenfene	94	50-150	06/08/15	AcceptaDle

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	2E8 9PO Samples	**Date Collected:**	05/TZ/T015
Sample Matrix:	O ater	**Date Received:**	05/TWT015

Gasoline Range Organics

Sample Name:	Rinseate	**Units:**	ug/L
Lab Code:	K1505765-007	**Basis:**	NA
Extraction Method:	E2A 5030B	**Level:**	Low
Analysis Method:	NO 92H-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range 8 rganics-NO 92H	ND	U	T50	1	06/0T/15	06/0T/15	KO G1504W40	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	W6	50-150	06/0T/15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/29/2015
Sample Matrix:	Water	**Date Received:**	05/29/2015

Gasoline Range Organics

Sample Name:	Trip Blanks	**Units:**	ug/L
Lab Code:	K1505765-008	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	06/02/15	06/02/15	KWG1504940	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	97	50-150	06/02/15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	OEZ WS- ma3 ples	**Date Collected:**	NA
Sample Matrix:	- ater	**Date Received:**	NA

Gasoline Range Organics

Sample Name:	Method 9 lanP	**Units:**	uBk2
Lab Code:	K- 8 150g/ g0LT	**Basis:**	NA
Extraction Method:	EOA 50T09	**Level:**	2ow
Analysis Method:	N- WOHI8 G		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
8 asoline RanBe ZrBanicsIN- WOH	NU 4		x50	1	06k0xkl5	06k0xkl5	K- 8 150g/ g0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,gILUibluoroDenfene	/ 7	50L150	06k0xkl5	AcceptaDle

Comments:

QA/QC Report

Client: ERM Northwest, Incorporated **Service Request:** K1505765
Project: PEO TZW Samples
Sample Matrix: Water

Surrogate Recovery Summary
Gasoline Range Organics

Extraction Method: EPA 5030B **Units:** Percent
Analysis Method: NWTPH-Gx **Level:** Low

Sample Name	Lab Code	Sur1
TZW-06-052815	K1505765-001	94
TZW-07-052815	K1505765-002	94
TZW-08-052815	K1505765-003	95
TZW-09-052815	K1505765-004	99
TZW-10-052915	K1505765-005	96
TZW-10-D-052915	K1505765-006	94
Rinseate	K1505765-007	96
Trip Blanks	K1505765-008	97
TZW-07-052815DUP	KWG1504940-1	95
Method Blank	KWG1504940-3	97
Lab Control Sample	KWG1504940-2	95

Surrogate Recovery Control Limits (%)

Sur1 = 1,4-Difluorobenzene 50-150

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Extracted:**	06/02/2015
Sample Matrix:	Water	**Date Analyzed:**	06/02/2015

Duplicate Sample Summary
Gasoline Range Organics

Sample Name:	TZW-07-052815	**Units:**	ug/L
Lab Code:	K1505765-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx	**Extraction Lot:**	KWG1504940

			TZW-07-052815DUP KWG1504940-1 Duplicate Sample			
Analyte Name	**MRL**	**Sample Result**	**Result**	**Average**	**Relative Percent Difference**	**RPD Limit**
Gasoline Range Organics-NWTPH	250	ND	ND	ND	-	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Extracted:**	06/02/2015
Sample Matrix:	Water	**Date Analyzed:**	06/02/2015

Lab Control Spike Summary
Gasoline Range Organics

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	NWTPH-Gx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1504940

	Lab Control Sample KWG1504940-2 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Gasoline Range Organics-NWTPH	472	500	94	80-119

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Volatile Organic Compounds

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/2015
Sample Matrix:	Water	**Date Received:**	05/29/2015

Volatile Organic Compounds

Sample Name:	TZW-06-052815	**Units:**	ug/L
Lab Code:	K1505765-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Chloromethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Vinyl Chloride	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Bromomethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Chloroethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Trichlorofluoromethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1-Dichloroethene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Acetone	ND	U	20	1	06/05/15	06/05/15	KWG1505070	
Carbon Disulfide	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Methylene Chloride	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
trans-1,2-Dichloroethene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1-Dichloroethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
2,2-Dichloropropane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
cis-1,2-Dichloroethene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
2-Butanone (MEK)	ND	U	20	1	06/05/15	06/05/15	KWG1505070	
Bromochloromethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Chloroform	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Carbon Tetrachloride	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1-Dichloropropene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Benzene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,2-Dichloroethane (EDC)	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Trichloroethene (TCE)	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,2-Dichloropropane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Dibromomethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Bromodichloromethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
cis-1,3-Dichloropropene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
4-Methyl-2-pentanone (MIBK)	ND	U	20	1	06/05/15	06/05/15	KWG1505070	
Toluene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
trans-1,3-Dichloropropene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1,2-Trichloroethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Tetrachloroethene (PCE)	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
2-Hexanone	ND	U	20	1	06/05/15	06/05/15	KWG1505070	

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/2015
Sample Matrix:	Water	**Date Received:**	05/29/2015

Volatile Organic Compounds

Sample Name:	TZW-06-052815	**Units:**	ug/L
Lab Code:	K1505765-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,3-Dichloropropane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Dibromochloromethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,2-Dibromoethane (EDB)	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
Chlorobenzene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Ethylbenzene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
m,p-Xylenes	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
o-Xylene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Styrene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Bromoform	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Isopropylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Bromobenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
n-Propylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,2,3-Trichloropropane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
2-Chlorotoluene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,3,5-Trimethylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
4-Chlorotoluene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
tert-Butylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,2,4-Trimethylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
sec-Butylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
4-Isopropyltoluene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,3-Dichlorobenzene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,4-Dichlorobenzene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
n-Butylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,2-Dichlorobenzene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,2,4-Trichlorobenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
Hexachlorobutadiene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
Naphthalene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,2,3-Trichlorobenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/2015
Sample Matrix:	Water	**Date Received:**	05/29/2015

Volatile Organic Compounds

Sample Name:	TZW-06-052815	**Units:**	ug/L
Lab Code:	K1505765-001	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	111	73-122	06/05/15	Acceptable
Toluene-d8	94	65-144	06/05/15	Acceptable
4-Bromofluorobenzene	81	68-117	06/05/15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO ZW2 Samples	**Date Collected:**	05Ig8Ig015
Sample Matrix:	2 ater	**Date Received:**	05Ig9Ig015

Volatile Organic Compounds

Sample Name:	ZW2 -07-05g815	**Units:**	u/ IT
Lab Code:	K1505765-00g	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Tow
Analysis Method:	8g60C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Chloromethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Vinyl Chloride	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Bromomethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Chloroethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Zrichlorofluoromethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,1-Dichloroethene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Acetone	ND	U	g0	1	06I05I15	06I05I15	K2 G1505070	
Carbon Disulfide	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Methylene Chloride	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	
trans-1,g-Dichloroethene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,1-Dichloroethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
g,g-Dichloropropane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
cis-1,g-Dichloroethene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
g-Butanone (MEK)	ND	U	g0	1	06I05I15	06I05I15	K2 G1505070	
Bromochloromethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Chloroform	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,1,1-Zrichloroethane (ZCA)	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Carbon Zetrachloride	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,1-Dichloropropene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Benzene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,g-Dichloroethane (EDC)	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Zrichloroethene (ZCE)	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,g-Dichloropropane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Dibromomethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Bromodichloromethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
cis-1,3-Dichloropropene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
4-Methyl-g-pentanone (MIBK)	ND	U	g0	1	06I05I15	06I05I15	K2 G1505070	
Zoluene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
trans-1,3-Dichloropropene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,1,g-Zrichloroethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Zetrachloroethene (PCE)	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
g-Hexanone	ND	U	g0	1	06I05I15	06I05I15	K2 G1505070	

Comments:

Analytical Results

Client: ERM Northwest, Incorporated
Project: PEO ZW2 Samples
Sample Matrix: 2 ater

Service Request: K1505765
Date Collected: 05Ig8Ig015
Date Received: 05Ig9Ig015

Volatile Organic Compounds

Sample Name: ZW2 -07-05g815
Lab Code: K1505765-00g

Extraction Method: EPA 5030B
Analysis Method: 8g60C

Units: u/ IT
Basis: NA

Level: Tow

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,3-Dichloropropane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Dibromochloromethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,g-Dibromoethane (EDB)	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	
Chlorobenzene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Ethylbenzene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,1,1,g-Zetrachloroethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
m,p-Xylenes	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
o-Xylene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Styrene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Bromoform	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Isopropylbenzene	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	
1,1,g,g-Zetrachloroethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Bromobenzene	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	
n-Propylbenzene	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	
1,g,3-Zrichloropropane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
g-Chlorotoluene	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	
1,3,5-Zrimethylbenzene	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	
4-Chlorotoluene	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	
tert-Butylbenzene	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	
1,g,4-Zrimethylbenzene	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	
sec-Butylbenzene	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	
4-Isopropyltoluene	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	
1,3-Dichlorobenzene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,4-Dichlorobenzene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
n-Butylbenzene	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	
1,g-Dichlorobenzene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,g-Dibromo-3-chloropropane	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	
1,g,4-Zrichlorobenzene	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	
Hexachlorobutadiene	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	
Naphthalene	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	
1,g,3-Zrichlorobenzene	ND	U	g.0	1	06I05I15	06I05I15	K2 G1505070	

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO ZW2 Samples	**Date Collected:**	05Ig8Ig015
Sample Matrix:	2 ater	**Date Received:**	05Ig9Ig015

Volatile Organic Compounds

Sample Name:	ZW2 -07-05g815	**Units:**	u/ LT
Lab Code:	K1505765-00g	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	11g	73-1gg	06I05I15	Acceptable
Zoluene-d8	95	65-144	06I05I15	Acceptable
4-Bromofluorobenzene	84	68-117	06I05I15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	OES ZW2 m3 ples	**Date Collected:**	05I98I9015
Sample Matrix:	2 ater	**Date Received:**	05I9PI9015

Volatile Organic Compounds

Sample Name:	ZW2 -08-059815	**Units:**	u/ IT
Lab Code:	K1505765-00g	**Basis:**	NA
Extraction Method:	EOA 50g0B	**Level:**	Tow
Analysis Method:	8960C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoro3 ethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Chloro3 ethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Vinyl Chloride	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Bro3 o3 ethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Chloroethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Zrichlorofluoro3 ethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,1-Dichloroethene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Acetone	ND	U	90	1	06I05I15	06I05I15	K2 G1505070	
Carbon Disulfide	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Methylene Chloride	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	
trans-1,9-Dichloroethene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,1-Dichloroethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
9,9-Dichloropropane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
cis-1,9-Dichloroethene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
9-Butanone (MEK)	ND	U	90	1	06I05I15	06I05I15	K2 G1505070	
Bro3 ochloro3 ethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Chlorofor3	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,1,1-Zrichloroethane (ZCA)	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Carbon Zetrachloride	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,1-Dichloropropene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Benzene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,9-Dichloroethane (EDC)	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Zrichloroethene (ZCE)	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,9-Dichloropropane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Dibro3 o3 ethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Bro3 odichloro3 ethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
cis-1,g-Dichloropropene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
4-Methyl-9-pentanone (MIBK)	ND	U	90	1	06I05I15	06I05I15	K2 G1505070	
Zoluene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
trans-1,g-Dichloropropene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,1,9-Zrichloroethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Zetrachloroethene (OCE)	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
9-Hexanone	ND	U	90	1	06I05I15	06I05I15	K2 G1505070	

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	OES ZW2 m3 ples	**Date Collected:**	05I98I9015
Sample Matrix:	2 ater	**Date Received:**	05I9PI9015

Volatile Organic Compounds

Sample Name:	ZW2 -08-059815	**Units:**	u/ IT
Lab Code:	K1505765-00g	**Basis:**	NA
Extraction Method:	EOA 50g0B	**Level:**	Tow
Analysis Method:	8960C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,g-Dichloropropane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Dibro3 ochloro3 ethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,9-Dibro3 oethane (EDB)	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	
Chlorobenzene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Ethylbenzene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,1,1,9-Zetrachloroethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
3 ,p-Xylenes	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
o-Xylene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
mtyrene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Bro3 ofor3	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Isopropylbenzene	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	
1,1,9,9-Zetrachloroethane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
Bro3 obenzene	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	
n-Oropylbenzene	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	
1,9,g-Zrichloropropane	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
9-Chlorotoluene	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	
1,g,5-Zri3 ethylbenzene	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	
4-Chlorotoluene	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	
tert-Butylbenzene	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	
1,9,4-Zri3 ethylbenzene	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	
sec-Butylbenzene	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	
4-Isopropyltoluene	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	
1,g-Dichlorobenzene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,4-Dichlorobenzene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
n-Butylbenzene	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	
1,9-Dichlorobenzene	ND	U	0.50	1	06I05I15	06I05I15	K2 G1505070	
1,9-Dibro3 o-g-chloropropane	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	
1,9,4-Zrichlorobenzene	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	
Hexachlorobutadiene	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	
Naphthalene	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	
1,9,g-Zrichlorobenzene	ND	U	9.0	1	06I05I15	06I05I15	K2 G1505070	

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	OES ZW2 m3 ples	**Date Collected:**	05I98I9015
Sample Matrix:	2 ater	**Date Received:**	05I9PI9015

Volatile Organic Compounds

Sample Name:	ZW2 -08-059815	**Units:**	u/ LT
Lab Code:	K1505765-00g	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibro3 ofluoro3 ethane	107	7g-199	06I05I15	Acceptable
Zoluene-d8	Pg	65-144	06I05I15	Acceptable
4-Bro3 ofluorobenzene	81	68-117	06I05I15	Acceptable

Comments:

Analytical Results

Client: ERM Northwest, Incorporated
Project: OES ZW2 m3 ples
Sample Matrix: 2 ater

Service Request: K1505765
Date Collected: 05I9PI9015
Date Received: 05I98I9015

Volatile Organic Compounds

Sample Name: ZW2 -08-059P15
Lab Code: K1505765-00g

Units: u/ IT
Basis: NA

Extraction Method: EOA 50B0C
Analysis Method: P960.

Level: Tow

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
f ichlorodiVuoro3 ethane	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
. hloro3 ethane	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
b inyl . hloride	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
Cro3 o3 ethane	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
. hloroethane	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
ZrichloroVuoro3 ethane	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
1,1-f ichloroethene	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
Acetone	Nf	D	90	1	06I05I15	06I05I15	K2 U1505070	
. ar(on f isulVde	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
Methylene . hloride	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	
trans-1,9-f ichloroethene	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
1,1-f ichloroethane	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
9,9-f ichloropropane	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
cis-1,9-f ichloroethene	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
9-Cutanone)MEKz	Nf	D	90	1	06I05I15	06I05I15	K2 U1505070	
Cro3 ochloro3 ethane	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
. hloroVor3	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
1,1,1-Zrichloroethane)Z. Az	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
. ar(on Zetrachloride	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
1,1-f ichloropropene	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
Cen4ene	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
1,9-f ichloroethane)Ef . z	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
Zrichloroethene)Z. Ez	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
1,9-f ichloropropane	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
f i(ro3 o3 ethane	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
Cro3 odichloro3 ethane	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
cis-1,B-f ichloropropene	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
g-Methyl-9-pentanone)MICKz	Nf	D	90	1	06I05I15	06I05I15	K2 U1505070	
Zoluene	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
trans-1,B-f ichloropropene	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
1,1,9-Zrichloroethane	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
Zetrachloroethene)O. Ez	Nf	D	0G0	1	06I05I15	06I05I15	K2 U1505070	
9-Hexanone	Nf	D	90	1	06I05I15	06I05I15	K2 U1505070	

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	OES ZW2 m3 ples	**Date Collected:**	05I9PI9015
Sample Matrix:	2 ater	**Date Received:**	05I98I9015

Volatile Organic Compounds

Sample Name:	ZW2 -08-059P15	**Units:**	u/ IT
Lab Code:	K1505765-00g	**Basis:**	NA
Extraction Method:	EOA 50B0C	**Level:**	Tow
Analysis Method:	P960.		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,B-f ichloropropane	Nf	D	0G50	1	06I05I15	06I05I15	K2 U1505070	
f i(ro3 ochloro3 ethane	Nf	D	0G50	1	06I05I15	06I05I15	K2 U1505070	
1,9-f i(ro3 oethane)Ef Cz	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	
. hloro(en4ene	Nf	D	0G50	1	06I05I15	06I05I15	K2 U1505070	
Ethyl(en4ene	Nf	D	0G50	1	06I05I15	06I05I15	K2 U1505070	
1,1,1,9-Zetrachloroethane	Nf	D	0G50	1	06I05I15	06I05I15	K2 U1505070	
3 ,p-Xylenes	Nf	D	0G50	1	06I05I15	06I05I15	K2 U1505070	
o-Xylene	Nf	D	0G50	1	06I05I15	06I05I15	K2 U1505070	
mtyrene	Nf	D	0G50	1	06I05I15	06I05I15	K2 U1505070	
Cro3 oVor3	Nf	D	0G50	1	06I05I15	06I05I15	K2 U1505070	
Isopropyl(en4ene	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	
1,1,9,9-Zetrachloroethane	Nf	D	0G50	1	06I05I15	06I05I15	K2 U1505070	
Cro3 o(en4ene	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	
n-Oropyl(en4ene	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	
1,9,B-Zrichloropropane	Nf	D	0G50	1	06I05I15	06I05I15	K2 U1505070	
9-. hlorotoluene	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	
1,B,5-Zri3 ethyl(en4ene	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	
g-. hlorotoluene	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	
tert-Cutyl(en4ene	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	
1,9,g-Zri3 ethyl(en4ene	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	
sec-Cutyl(en4ene	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	
g-Isopropyltoluene	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	
1,B-f ichloro(en4ene	Nf	D	0G50	1	06I05I15	06I05I15	K2 U1505070	
1,g-f ichloro(en4ene	Nf	D	0G50	1	06I05I15	06I05I15	K2 U1505070	
n-Cutyl(en4ene	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	
1,9-f ichloro(en4ene	Nf	D	0G50	1	06I05I15	06I05I15	K2 U1505070	
1,9-f i(ro3 o-B-chloropropane	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	
1,9,g-Zrichloro(en4ene	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	
Hexachloro(utadiene	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	
Naphthalene	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	
1,9,B-Zrichloro(en4ene	Nf	D	9G0	1	06I05I15	06I05I15	K2 U1505070	

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	OES ZW2 m3 ples	**Date Collected:**	05I9PI9015
Sample Matrix:	2 ater	**Date Received:**	05I98I9015

Volatile Organic Compounds

Sample Name:	ZW2 -08-059P15	**Units:**	u/ LT
Lab Code:	K1505765-00g	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
f i(ro3 oVuoro3 ethane	110	7B-199	06I05I15	Accepta(le
Zoluene-dP	8g	65-1gg	06I05I15	Accepta(le
g-Cro3 oVuoro(en4ene	P9	6P-117	06I05I15	Accepta(le

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	9EP TZW OaS ples	**Date Collected:**	05/28/2015
Sample Matrix:	Water	**Date Received:**	05/28/2015

Volatile Organic Compounds

Sample Name:	TZW-10-052815	**Units:**	ug/L
Lab Code:	K1505765-005	**Basis:**	NA
Extraction Method:	E9A 50m03	**Level:**	Low
Analysis Method:	B260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
DichlorodifluoroS ethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
ChloroS ethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Vinyl Chloride	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
3 roS oS ethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Chloroethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
TrichlorofluoroS ethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1-Dichloroethene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Acetone	ND	U	20	1	06/05/15	06/05/15	KWG1505070	
Carbon Disulfide	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Methylene Chloride	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
trans-1,2-Dichloroethene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1-Dichloroethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
2,2-Dichloropropane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
cis-1,2-Dichloroethene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
2-3 utanone (MEK)	ND	U	20	1	06/05/15	06/05/15	KWG1505070	
3 roS ochloroS ethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
ChloroforS	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Carbon Tetrachloride	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1-Dichloropropene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
3 enzene	**0.89**		0.50	1	06/05/15	06/05/15	KWG1505070	
1,2-Dichloroethane (EDC)	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Trichloroethene (TCE)	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,2-Dichloropropane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
DibroS oS ethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
3 roS odichloroS ethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
cis-1,m-Dichloropropene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
4-Methyl-2-pentanone (MI3 K)	ND	U	20	1	06/05/15	06/05/15	KWG1505070	
Toluene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
trans-1,m-Dichloropropene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1,2-Trichloroethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Tetrachloroethene (9CE)	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
2-Hexanone	ND	U	20	1	06/05/15	06/05/15	KWG1505070	

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	9EP TZW OaS ples	**Date Collected:**	05/28/2015
Sample Matrix:	Water	**Date Received:**	05/28/2015

Volatile Organic Compounds

Sample Name:	TZW-10-052815	**Units:**	ug/L
Lab Code:	K1505765-005	**Basis:**	NA
Extraction Method:	E9A 50m03	**Level:**	Low
Analysis Method:	B260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,m-Dichloropropane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
DibroS ochloroS ethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,2-DibroS oethane (ED3)	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
Chlorobenzene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Ethylbenzene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
S ,p-Xylenes	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
o-Xylene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Otyrene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
3 roS oforS	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Isopropylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
3 roS obenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
n-9ropylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,2,m-Trichloropropane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
2-Chlorotoluene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,m5-TriS ethylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
4-Chlorotoluene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
tert-3 utylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,2,4-TriS ethylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
sec-3 utylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
4-Isopropyltoluene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,m-Dichlorobenzene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,4-Dichlorobenzene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
n-3 utylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,2-Dichlorobenzene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,2-DibroS o-m-chloropropane	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,2,4-Trichlorobenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
Hexachlorobutadiene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
Naphthalene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,2,m-Trichlorobenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	9EP TZW OaS ples	**Date Collected:**	05/28/2015
Sample Matrix:	Water	**Date Received:**	05/28/2015

Volatile Organic Compounds

Sample Name:	TZW-10-052815	**Units:**	ug/L
Lab Code:	K1505765-005	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
DibroS ofluoroS ethane	107	7m-122	06/05/15	Acceptable
Toluene-dB	84	65-144	06/05/15	Acceptable
4-3 roS ofluorobenzene	B4	6B-117	06/05/15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/89/8015
Sample Matrix:	Water	**Date Received:**	05/89/8015

Volatile Organic Compounds

Sample Name:	TZW-10-2 -058915	**Units:**	ug/L
Lab Code:	K1505765-006	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	C860.		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
2 ichlorodifluoromethane	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
. hloromethane	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
Vinyl . hloride	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
Bromomethane	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
. hloroethane	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
Trichlorofluoromethane	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
1,1-2 ichloroethene	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
Acetone	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
. arbon 2 isulfide	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
Methylene . hloride	N2	D	80G	1	06/05/15	06/05/15	KWU1505070	
trans-1,8-2 ichloroethene	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
1,1-2 ichloroethane	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
8,8-2 ichloropropane	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
cis-1,8-2 ichloroethene	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
8-Butanone (MEK)	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
Bromochloromethane	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
. hloroform	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
1,1,1-Trichloroethane (T. A)	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
. arbon Tetrachloride	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
1,1-2 ichloropropene	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
Benzene	**0.70**		0G50	1	06/05/15	06/05/15	KWU1505070	
1,8-2 ichloroethane (E2 .)	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
Trichloroethene (T. E)	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
1,8-2 ichloropropane	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
2 ibromomethane	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
Bromodichloromethane	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
cis-1,3-2 ichloropropene	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
4-Methyl-8-pentanone (MIBK)	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
Toluene	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
trans-1,3-2 ichloropropene	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
1,1,8-Trichloroethane	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
Tetrachloroethene (P. E)	N2	D	0G50	1	06/05/15	06/05/15	KWU1505070	
8-Hexanone	N2	D	80	1	06/05/15	06/05/15	KWU1505070	

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/89/8015
Sample Matrix:	Water	**Date Received:**	05/89/8015

Volatile Organic Compounds

Sample Name:	TZW-10-2 -058915	**Units:**	ug/L
Lab Code:	K1505765-006	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	C860.		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,3-2 ichloropropane	N2	D	0C50	1	06/05/15	06/05/15	KWU1505070	
2 ibromochloromethane	N2	D	0C50	1	06/05/15	06/05/15	KWU1505070	
1,8-2 ibromoethane (E2 B)	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
. hlorobenzene	N2	D	0C50	1	06/05/15	06/05/15	KWU1505070	
Ethylbenzene	N2	D	0C50	1	06/05/15	06/05/15	KWU1505070	
1,1,1,8-Tetrachloroethane	N2	D	0C50	1	06/05/15	06/05/15	KWU1505070	
m,p-Xylenes	N2	D	0C50	1	06/05/15	06/05/15	KWU1505070	
o-Xylene	N2	D	0C50	1	06/05/15	06/05/15	KWU1505070	
Styrene	N2	D	0C50	1	06/05/15	06/05/15	KWU1505070	
Bromoform	N2	D	0C50	1	06/05/15	06/05/15	KWU1505070	
Isopropylbenzene	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
1,1,8,8-Tetrachloroethane	N2	D	0C50	1	06/05/15	06/05/15	KWU1505070	
Bromobenzene	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
n-Propylbenzene	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
1,8,3-Trichloropropane	N2	D	0C50	1	06/05/15	06/05/15	KWU1505070	
8-. hlorotoluene	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
1,3,5-Trimethylbenzene	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
4-. hlorotoluene	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
tert-Butylbenzene	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
1,8,4-Trimethylbenzene	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
sec-Butylbenzene	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
4-Isopropyltoluene	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
1,3-2 ichlorobenzene	N2	D	0C50	1	06/05/15	06/05/15	KWU1505070	
1,4-2 ichlorobenzene	N2	D	0C50	1	06/05/15	06/05/15	KWU1505070	
n-Butylbenzene	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
1,8-2 ichlorobenzene	N2	D	0C50	1	06/05/15	06/05/15	KWU1505070	
1,8-2 ibromo-3-chloropropane	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
1,8,4-Trichlorobenzene	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
Hexachlorobutadiene	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
Naphthalene	N2	D	80	1	06/05/15	06/05/15	KWU1505070	
1,8,3-Trichlorobenzene	N2	D	80	1	06/05/15	06/05/15	KWU1505070	

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/89/8015
Sample Matrix:	Water	**Date Received:**	05/89/8015

Volatile Organic Compounds

Sample Name:	TZW-10-2 -058915	**Units:**	ug/L
Lab Code:	K1505765-006	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
2 ibromofluoromethane	10C	73-188	06/05/15	Acceptable
Toluene-dC	98	65-144	06/05/15	Acceptable
4-Bromofluorobenzene	Cl	6C-117	06/05/15	Acceptable

Comments:

Analytical Results

Client: ERM Northwest, Incorporated
Project: 2E8 9PO Samples
Sample Matrix: O ater

Service Request: K1505765
Date Collected: 05/TZ/T015
Date Received: 05/TWT015

Volatile Organic Compounds

Sample Name: Rinseate
Lab Code: K1505765-007

Units: ug/L
Basis: NA

Extraction Method: E2A 5030B
Analysis Method: ZT60C

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
Chloromethane	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
Vinyl Chloride	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
Bromomethane	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
Chloroethane	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
9richlorofluoromethane	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
1,1-Dichloroethene	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
Acetone	ND	U	T0	1	06/05/15	06/05/15	KO G1505070	
Carbon Disulfide	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
Methylene Chloride	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	
trans-1,T-Dichloroethene	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
1,1-Dichloroethane	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
T,T-Dichloropropane	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
cis-1,T-Dichloroethene	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
T-Butanone (MEK)	ND	U	T0	1	06/05/15	06/05/15	KO G1505070	
Bromochloromethane	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
Chloroform	**3.0**		0.50	1	06/05/15	06/05/15	KO G1505070	
1,1,1-9richloroethane (9CA)	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
Carbon 9etrachloride	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
1,1-Dichloropropene	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
Benzene	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
1,T-Dichloroethane (EDC)	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
9richloroethene (9CE)	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
1,T-Dichloropropane	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
Dibromomethane	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
Bromodichloromethane	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
cis-1,3-Dichloropropene	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
4-Methyl-T-pentanone (MIBK)	ND	U	T0	1	06/05/15	06/05/15	KO G1505070	
9oluene	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
trans-1,3-Dichloropropene	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
1,1,T-9richloroethane	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
9etrachloroethene (2CE)	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
T-Hexanone	ND	U	T0	1	06/05/15	06/05/15	KO G1505070	

Comments:

Analytical Results

Client: ERM Northwest, Incorporated
Project: 2E8 9PO Samples
Sample Matrix: O ater

Service Request: K1505765
Date Collected: 05/TZ/T015
Date Received: 05/TWT015

Volatile Organic Compounds

Sample Name: Rinseate
Lab Code: K1505765-007

Units: ug/L
Basis: NA

Extraction Method: E2A 5030B
Analysis Method: ZT60C

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,3-Dichloropropane	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
Dibromochloromethane	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
1,T-Dibromoethane (EDB)	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	
Chlorobenzene	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
Ethylbenzene	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
1,1,1,T-9etrachloroethane	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
m,p-Xylenes	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
o-Xylene	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
Styrene	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
Bromoform	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
Isopropylbenzene	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	
1,1,T,T-9etrachloroethane	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
Bromobenzene	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	
n-2ropylbenzene	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	
1,T,3-9richloropropane	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
T-Chlorotoluene	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	
1,3,5-9rimethylbenzene	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	
4-Chlorotoluene	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	
tert-Butylbenzene	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	
1,T,4-9rimethylbenzene	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	
sec-Butylbenzene	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	
4-Isopropyltoluene	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	
1,3-Dichlorobenzene	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
1,4-Dichlorobenzene	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
n-Butylbenzene	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	
1,T-Dichlorobenzene	ND	U	0.50	1	06/05/15	06/05/15	KO G1505070	
1,T-Dibromo-3-chloropropane	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	
1,T,4-9richlorobenzene	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	
Hexachlorobutadiene	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	
Naphthalene	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	
1,T,3-9richlorobenzene	ND	U	T.0	1	06/05/15	06/05/15	KO G1505070	

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	2E8 9PO Samples	**Date Collected:**	05/TZ/T015
Sample Matrix:	O ater	**Date Received:**	05/TWT015

Volatile Organic Compounds

Sample Name:	Rinseate	**Units:**	ug/L
Lab Code:	K1505765-007	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	111	73-1TT	06/05/15	Acceptable
9oluene-dZ	WB	65-144	06/05/15	Acceptable
4-Bromofluorobenzene	ZT	6Z-117	06/05/15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/29/2015
Sample Matrix:	Water	**Date Received:**	05/29/2015

Volatile Organic Compounds

Sample Name:	Trip Blanks	**Units:**	ug/L
Lab Code:	K1505765-008	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Chloromethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Vinyl Chloride	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Bromomethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Chloroethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Trichlorofluoromethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1-Dichloroethene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Acetone	ND	U	20	1	06/05/15	06/05/15	KWG1505070	
Carbon Disulfide	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Methylene Chloride	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
trans-1,2-Dichloroethene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1-Dichloroethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
2,2-Dichloropropane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
cis-1,2-Dichloroethene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
2-Butanone (MEK)	ND	U	20	1	06/05/15	06/05/15	KWG1505070	
Bromochloromethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Chloroform	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Carbon Tetrachloride	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1-Dichloropropene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Benzene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,2-Dichloroethane (EDC)	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Trichloroethene (TCE)	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,2-Dichloropropane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Dibromomethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Bromodichloromethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
cis-1,3-Dichloropropene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
4-Methyl-2-pentanone (MIBK)	ND	U	20	1	06/05/15	06/05/15	KWG1505070	
Toluene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
trans-1,3-Dichloropropene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1,2-Trichloroethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Tetrachloroethene (PCE)	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
2-Hexanone	ND	U	20	1	06/05/15	06/05/15	KWG1505070	

Comments:

Analytical Results

Client: ERM Northwest, Incorporated
Project: PEO TZW Samples
Sample Matrix: Water

Service Request: K1505765
Date Collected: 05/29/2015
Date Received: 05/29/2015

Volatile Organic Compounds

Sample Name: Trip Blanks
Lab Code: K1505765-008

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,3-Dichloropropane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Dibromochloromethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,2-Dibromoethane (EDB)	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
Chlorobenzene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Ethylbenzene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
m,p-Xylenes	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
o-Xylene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Styrene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Bromoform	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Isopropylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
Bromobenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
n-Propylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,2,3-Trichloropropane	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
2-Chlorotoluene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,3,5-Trimethylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
4-Chlorotoluene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
tert-Butylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,2,4-Trimethylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
sec-Butylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
4-Isopropyltoluene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,3-Dichlorobenzene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,4-Dichlorobenzene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
n-Butylbenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,2-Dichlorobenzene	ND	U	0.50	1	06/05/15	06/05/15	KWG1505070	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,2,4-Trichlorobenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
Hexachlorobutadiene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
Naphthalene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	
1,2,3-Trichlorobenzene	ND	U	2.0	1	06/05/15	06/05/15	KWG1505070	

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/29/2015
Sample Matrix:	Water	**Date Received:**	05/29/2015

Volatile Organic Compounds

Sample Name:	Trip Blanks	**Units:**	ug/L
Lab Code:	K1505765-008	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	109	73-122	06/05/15	Acceptable
Toluene-d8	95	65-144	06/05/15	Acceptable
4-Bromofluorobenzene	82	68-117	06/05/15	Acceptable

Comments:

Analytical Results

Client: ERM Northwest, Incorporated
Project: 9EP OZ- WaS ples
Sample Matrix: - ater

Service Request: K1505765
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method k lan2
Lab Code: K- 8 1505070g/

Units: uLTB
Basis: NA

Extraction Method: E9A 50m0k
Analysis Method: 3C60.

Level: Bow

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
DichlorodifluoroS ethane	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
. hloroS ethane	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
Vinyl . hloride	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
k roS oS ethane	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
. hloroethane	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
OrichlorofluoroS ethane	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
1,1gDichloroethene	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
Acetone	ND	U	C0	1	06T05T15	06T05T15	K- 8 1505070	
. arbon Disulfide	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
Methylene . hloride	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	
transgl,CgDichloroethene	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
1,1gDichloroethane	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
C,CgDichloropropane	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
cisgl,CgDichloroethene	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
Cgk utanone (MEK)	ND	U	C0	1	06T05T15	06T05T15	K- 8 1505070	
k roS ochloroS ethane	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
. hloroforS	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
1,1,1gOrichloroethane (O. A)	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
. arbon Oetrachloride	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
1,1gDichloropropene	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
k enzene	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
1,CgDichloroethane (ED.)	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
Orichloroethene (O. E)	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
1,CgDichloropropane	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
DibroS oS ethane	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
k roS odichloroS ethane	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
cisgl,mgDichloropropene	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
/ gMethylgCgpentanone (MIk K)	ND	U	C0	1	06T05T15	06T05T15	K- 8 1505070	
Ooluene	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
transgl,mgDichloropropene	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
1,1,CgOrichloroethane	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
Oetrachloroethene (9. E)	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
Cg4 eHanone	ND	U	C0	1	06T05T15	06T05T15	K- 8 1505070	

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	9EP OZ- WaS ples	**Date Collected:**	NA
Sample Matrix:	- ater	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method k lan2	**Units:**	uLTB
Lab Code:	K- 8 1505070g/	**Basis:**	NA
Extraction Method:	E9A 50m0k	**Level:**	Bow
Analysis Method:	3C60.		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,mgDichloropropane	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
DibroS ochloroS ethane	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
1,CgDibroS oethane (EDk)	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	
. hlorobenzene	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
Ethylbenzene	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
1,1,1,CgOetrachloroethane	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
S ,pg\ ylenes	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
og\ ylene	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
Wyrene	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
k roS oforS	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
Isopropylbenzene	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	
1,1,C,CgOetrachloroethane	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
k roS obenzene	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	
ng9ropylbenzene	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	
1,C,mgOrichloropropane	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
Cg hlorotoluene	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	
1,m,5gOriS ethylbenzene	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	
/ g hlorotoluene	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	
tertgk utylbenzene	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	
1,C,/ gOriS ethylbenzene	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	
secgk utylbenzene	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	
/ gIsopropyltoluene	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	
1,mgDichlorobenzene	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
1,/ gDichlorobenzene	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
ngk utylbenzene	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	
1,CgDichlorobenzene	ND	U	0G50	1	06T05T15	06T05T15	K- 8 1505070	
1,CgDibroS ogmgchloropropane	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	
1,C,/ gOrichlorobenzene	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	
4 eHachlorobutadiene	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	
Naphthalene	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	
1,C,mgOrichlorobenzene	ND	U	CG0	1	06T05T15	06T05T15	K- 8 1505070	

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	9EP OZ- WaS ples	**Date Collected:**	NA
Sample Matrix:	- ater	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method k lan2	**Units:**	uLTB
Lab Code:	K- 8 1505070g/	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
DibroS ofluoroS ethane	110	7mglCC	06T05T15	Acceptable
Ooluenegd3	X5	65gl/ /	06T05T15	Acceptable
/ gkc roS ofluorobenzene	3/	63gl17	06T05T15	Acceptable

Comments:

Client: ERM Northwest, Incorporated **Service Request:** K1505765
Project: PEO TZW Samples
Sample Matrix: Water

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B **Units:** Percent
Analysis Method: 8260C **Level:** Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
TZW-06-052815	K1505765-001	111	94	81
TZW-07-052815	K1505765-002	112	95	84
TZW-08-052815	K1505765-003	107	93	81
TZW-09-052815	K1505765-004	110	94	82
TZW-10-052915	K1505765-005	107	94	84
TZW-10-D-052915	K1505765-006	108	92	81
Rinseate	K1505765-007	111	93	82
Trip Blanks	K1505765-008	109	95	82
Method Blank	KWG1505070-4	110	95	84
TZW-09-052815MS	KWG1505070-1	103	98	93
TZW-09-052815DMS	KWG1505070-2	103	97	93
Lab Control Sample	KWG1505070-3	104	98	93

Surrogate Recovery Control Limits (%)

Sur1	=	Dibromofluoromethane	73-122
Sur2	=	Toluene-d8	65-144
Sur3	=	4-Bromofluorobenzene	68-117

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Extracted:**	06/05/2015
Sample Matrix:	Water	**Date Analyzed:**	06/05/2015

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	TZW-09-052815	**Units:**	ug/L
Lab Code:	K1505765-004	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1505070

		TZW-09-052815MS KWG1505070-1 Matrix Spike			TZW-09-052815DMS KWG1505070-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Vinyl Chloride	ND	9.26	10.0	93	8.56	10.0	86	49-136	8	30
1,1-Dichloroethene	ND	9.91	10.0	99	9.11	10.0	91	59-171	8	30
Chloroform	ND	10.5	10.0	105	10.1	10.0	101	64-133	4	30
Carbon Tetrachloride	ND	8.76	10.0	88	8.29	10.0	83	53-161	6	30
Benzene	ND	9.37	10.0	94	9.03	10.0	90	63-144	4	30
Trichloroethene (TCE)	ND	9.40	10.0	94	8.82	10.0	88	53-139	6	30
Bromodichloromethane	ND	9.87	10.0	99	9.48	10.0	95	61-134	4	30
Toluene	ND	9.09	10.0	91	8.57	10.0	86	71-136	6	30
1,1,2-Trichloroethane	ND	11.1	10.0	111	11.0	10.0	110	74-124	1	30
2-Hexanone	ND	45.7	50.0	91	46.4	50.0	93	53-132	1	30
Chlorobenzene	ND	9.54	10.0	95	9.08	10.0	91	69-126	5	30
Ethylbenzene	ND	8.90	10.0	89	8.46	10.0	85	66-136	5	30
1,2,3-Trichloropropane	ND	10.8	10.0	108	10.7	10.0	107	71-127	1	30
2-Chlorotoluene	ND	10.4	10.0	104	9.67	10.0	97	55-139	7	30
1,2-Dichlorobenzene	ND	10.0	10.0	100	9.66	10.0	97	72-119	4	30
Naphthalene	ND	7.87	10.0	79	7.79	10.0	78	52-147	1	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Extracted:**	06/05/2015
Sample Matrix:	Water	**Date Analyzed:**	06/05/2015

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260C	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1505070

Lab Control Sample
KWG1505070-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Dichlorodifluoromethane	7.95	10.0	80	32-124
Chloromethane	8.69	10.0	87	34-130
Vinyl Chloride	8.53	10.0	85	55-123
Bromomethane	10.2	10.0	102	35-113
Chloroethane	10.4	10.0	104	58-134
Trichlorofluoromethane	6.76	10.0	68	52-141
1,1-Dichloroethene	9.17	10.0	92	66-129
Acetone	63.6	50.0	127	68-135
Carbon Disulfide	19.1	20.0	95	46-144
Methylene Chloride	9.51	10.0	95	71-122
trans-1,2-Dichloroethene	9.35	10.0	94	67-125
1,1-Dichloroethane	10.4	10.0	104	68-132
2,2-Dichloropropane	7.65	10.0	77	37-145
cis-1,2-Dichloroethene	9.48	10.0	95	71-118
2-Butanone (MEK)	48.5	50.0	97	71-149
Bromochloromethane	10.3	10.0	103	75-131
Chloroform	10.2	10.0	102	70-129
1,1,1-Trichloroethane (TCA)	7.99	10.0	80	59-136
Carbon Tetrachloride	7.97	10.0	80	55-140
1,1-Dichloropropene	9.10	10.0	91	59-134
Benzene	9.13	10.0	91	69-124
1,2-Dichloroethane (EDC)	10.7	10.0	107	56-142
Trichloroethene (TCE)	8.97	10.0	90	67-128
1,2-Dichloropropane	9.91	10.0	99	67-126
Dibromomethane	10.1	10.0	101	69-128
Bromodichloromethane	9.76	10.0	98	63-129
cis-1,3-Dichloropropene	8.24	10.0	82	62-132
4-Methyl-2-pentanone (MIBK)	47.6	50.0	95	64-134
Toluene	8.67	10.0	87	69-124
trans-1,3-Dichloropropene	8.38	10.0	84	59-125
1,1,2-Trichloroethane	11.2	10.0	112	74-118
Tetrachloroethene (PCE)	8.48	10.0	85	62-126
2-Hexanone	46.4	50.0	93	59-131
1,3-Dichloropropane	10.4	10.0	104	75-116
Dibromochloromethane	10.1	10.0	101	67-126

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Extracted:**	06/05/2015
Sample Matrix:	Water	**Date Analyzed:**	06/05/2015

Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260C	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1505070

Lab Control Sample
KWG1505070-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
1,2-Dibromoethane (EDB)	9.58	10.0	96	74-118
Chlorobenzene	9.43	10.0	94	72-116
Ethylbenzene	8.35	10.0	84	67-121
1,1,1,2-Tetrachloroethane	9.22	10.0	92	66-124
m,p-Xylenes	17.7	20.0	89	69-121
o-Xylene	8.79	10.0	88	71-119
Styrene	9.05	10.0	91	74-121
Bromoform	9.31	10.0	93	52-144
Isopropylbenzene	8.21	10.0	82	67-129
1,1,2,2-Tetrachloroethane	12.2	10.0	122	70-127
Bromobenzene	9.84	10.0	98	72-116
n-Propylbenzene	9.30	10.0	93	61-124
1,2,3-Trichloropropane	11.3	10.0	113	69-123
2-Chlorotoluene	10.1	10.0	101	55-131
1,3,5-Trimethylbenzene	9.43	10.0	94	62-126
4-Chlorotoluene	10.1	10.0	101	66-121
tert-Butylbenzene	8.57	10.0	86	61-127
1,2,4-Trimethylbenzene	9.69	10.0	97	63-122
sec-Butylbenzene	9.13	10.0	91	59-128
4-Isopropyltoluene	9.21	10.0	92	61-128
1,3-Dichlorobenzene	9.95	10.0	100	70-116
1,4-Dichlorobenzene	10.0	10.0	100	73-115
n-Butylbenzene	8.82	10.0	88	55-130
1,2-Dichlorobenzene	10.3	10.0	103	72-115
1,2-Dibromo-3-chloropropane	9.61	10.0	96	55-132
1,2,4-Trichlorobenzene	8.57	10.0	86	58-126
Hexachlorobutadiene	9.08	10.0	91	57-119
Naphthalene	7.93	10.0	79	64-126
1,2,3-Trichlorobenzene	8.69	10.0	87	68-120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Polynuclear Aromatic Hydrocarbons

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/28/2015
Sample Matrix:	Water	**Date Received:**	05/29/2015

Polynuclear Aromatic Hydrocarbons

Sample Name:	TZW-06-052815	**Units:**	ug/L
Lab Code:	K1505765-001	**Basis:**	NA
Extraction Method:	EPA 3520C	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	
2-Methylnaphthalene	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	
Acenaphthylene	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	
Acenaphthene	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	
Dibenzofuran	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	
Fluorene	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	
Phenanthrene	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	
Anthracene	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	
Fluoranthene	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	
Pyrene	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	
Benz(a)anthracene	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	
Chrysene	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	
Benzo(b)fluoranthene	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	
Benzo(k)fluoranthene	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	
Benzo(a)pyrene	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	
Indeno(1,2,3-cd)pyrene	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	
Dibenz(a,h)anthracene	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	*
Benzo(g,h,i)perylene	ND	U	0.020	1	06/01/15	06/04/15	KWG1504891	*

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	71	46-114	06/04/15	Acceptable
Fluoranthene-d10	74	51-121	06/04/15	Acceptable
Terphenyl-d14	75	58-140	06/05/15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO ZW2 Samples	**Date Collected:**	05Ig8Ig015
Sample Matrix:	2 ater	**Date Received:**	05Ig9Ig015

Polynuclear Aromatic Hydrocarbons

Sample Name:	ZW2 -07-05g815	**Units:**	u/ LT
Lab Code:	K1505765-00g	**Basis:**	NA
Extraction Method:	EPA 35g0C	**Level:**	Tow
Analysis Method:	8g70D SIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	
g-Methylnaphthalene	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	
Acenaphthylene	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	
Acenaphthene	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	
Dibenzofuran	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	
Fluorene	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	
Phenanthrene	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	
Anthracene	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	
Fluoranthene	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	
Pyrene	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	
Benz(a)anthracene	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	
Chrysene	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	
Benzo(b)fluoranthene	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	
Benzo(k)fluoranthene	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	
Benzo(a)pyrene	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	
Indeno(1,g,3-cd)pyrene	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	
Dibenz(a,h)anthracene	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	*
Benzo(/ ,h,i)perylene	ND	U	0.0g0	1	06I01I15	06I04I15	K2 G1504891	*

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	73	46-114	06I04I15	Acceptable
Fluoranthene-d10	7g	51-1g1	06I04I15	Acceptable
Zerphenyl-d14	59	58-140	06I04I15	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	OES ZW2 m3 ples	**Date Collected:**	05I98I9015
Sample Matrix:	2 ater	**Date Received:**	05I9PI9015

Polynuclear Aromatic Hydrocarbons

Sample Name:	ZW2 -08-059815	**Units:**	u/ IT
Lab Code:	K1505765-00g	**Basis:**	NA
Extraction Method:	EOA g590C	**Level:**	Tow
Analysis Method:	8970D mIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	
9-Methylnaphthalene	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	
Acenaphthylene	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	
Acenaphthene	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	
Dibenzofuran	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	
Fluorene	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	
Ohenanthrene	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	
Anthracene	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	
Fluoranthene	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	
Oyrene	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	
Benz(a)anthracene	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	
Chrysene	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	
Benzo(b)fluoranthene	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	
Benzo(k)fluoranthene	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	
Benzo(a)pyrene	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	
Indeno(1,9,g-cd)pyrene	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	
Dibenz(a,h)anthracene	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	*
Benzo(/ ,h,i)perylene	ND	U	0.091	1	06I01I15	06I04I15	K2 G15048P1	*

* mee Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	74	46-114	06I04I15	Acceptable
Fluoranthene-d10	79	51-191	06I04I15	Acceptable
Zerphenyl-d14	58	58-140	06I04I15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	OES ZW2 m3 ples	**Date Collected:**	05I9PI9015
Sample Matrix:	2 ater	**Date Received:**	05I98I9015

Polynuclear Aromatic Hydrocarbons

Sample Name:	ZW2 -08-059P15	**Units:**	u/ LT
Lab Code:	K1505765-00g	**Basis:**	NA
Extraction Method:	EOA C590D	**Level:**	Tow
Analysis Method:	P970. m1M		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	
9-Methylnaphthalene	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	
Acenaphthylene	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	
Acenaphthene	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	
. ibenzofuran	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	
Fluorene	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	
Ohenanthrene	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	
Anthracene	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	
Fluoranthene	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	
Oyrene	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	
Benz(a)anthracene	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	
Dhrysene	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	
Benzo(b)fluoranthene	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	
Benzo(k)fluoranthene	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	
Benzo(a)pyrene	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	
Indeno(1,9,C-cd)pyrene	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	
. ibenz(a,h)anthracene	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	*
Benzo(/ ,h,i)perylene	N.	U	0G091	1	06I01I15	06I0gI15	K2 4 150gP81	*

* mee Dase Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	7P	g6-11g	06I0gI15	Acceptable
Fluoranthene-d10	7g	51-191	06I0gI15	Acceptable
Zerphenyl-d1g	58	5P-1g0	06I0gI15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	9EP TZW OaS ples	**Date Collected:**	05/28/2015
Sample Matrix:	Water	**Date Received:**	05/28/2015

Polynuclear Aromatic Hydrocarbons

Sample Name:	TZW-10-052815	**Units:**	ug/L
Lab Code:	K1505765-005	**Basis:**	NA
Extraction Method:	E9A m5203	**Level:**	Low
Analysis Method:	C270D OIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	
2-Methylnaphthalene	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	
Acenaphthylene	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	
Acenaphthene	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	
Dibenzofuran	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	
Fluorene	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	
9henanthrene	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	
Anthracene	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	
Fluoranthene	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	
9yrene	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	
Benz(a)anthracene	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	
3hrysene	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	
Benzo(b)fluoranthene	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	
Benzo(k)fluoranthene	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	
Benzo(a)pyrene	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	
Indeno(1,2,m-cd)pyrene	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	
Dibenz(a,h)anthracene	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	*
Benzo(g,h,i)perylene	ND	U	0.021	1	06/01/15	06/04/15	KWG1504C81	*

* Oee 3ase Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	77	46-114	06/04/15	Acceptable
Fluoranthene-d10	77	51-121	06/04/15	Acceptable
Terphenyl-d14	60	5C-140	06/04/15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Collected:**	05/29/2015
Sample Matrix:	Water	**Date Received:**	05/29/2015

Polynuclear Aromatic Hydrocarbons

Sample Name:	TZW-10-D-052915	**Units:**	ug/L
Lab Code:	K1505765-006	**Basis:**	NA
Extraction Method:	EPA 3520C	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	
2-Methylnaphthalene	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	
Acenaphthylene	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	
Acenaphthene	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	
Dibenzofuran	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	
Fluorene	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	
Phenanthrene	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	
Anthracene	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	
Fluoranthene	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	
Pyrene	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	
Benz(a)anthracene	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	
Chrysene	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	
Benzo(b)fluoranthene	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	
Benzo(k)fluoranthene	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	
Benzo(a)pyrene	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	
Indeno(1,2,3-cd)pyrene	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	
Dibenz(a,h)anthracene	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	
Benzo(g,h,i)perylene	ND	U	0.021	1	06/01/15	06/11/15	KWG1504891	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	77	46-114	06/11/15	Acceptable
Fluoranthene-d10	72	51-121	06/11/15	Acceptable
Terphenyl-d14	63	58-140	06/11/15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	2E8 9PO Samples	**Date Collected:**	05/TZ/T015
Sample Matrix:	O ater	**Date Received:**	05/TWT015

Polynuclear Aromatic Hydrocarbons

Sample Name:	Rinseate	**Units:**	ug/L
Lab Code:	K1505765-007	**Basis:**	NA
Extraction Method:	E2A 35T0C	**Level:**	Low
Analysis Method:	ZT70D SIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	
T-Methylnaphthalene	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	
Acenaphthylene	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	
Acenaphthene	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	
Dibenzofuran	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	
Fluorene	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	
2henanthrene	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	
Anthracene	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	
Fluoranthene	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	
2yrene	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	
Benz(a)anthracene	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	
Chrysene	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	
Benzo(b)fluoranthene	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	
Benzo(k)fluoranthene	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	
Benzo(a)pyrene	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	
Indeno(1,T,3-cd)pyrene	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	
Dibenz(a,h)anthracene	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	*
Benzo(g,h,i)perylene	ND	U	0.0T0	1	06/01/15	06/04/15	KO G1504ZW	*

* See Case Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	73	46-114	06/04/15	Acceptable
Fluoranthene-d10	Z0	51-1T1	06/04/15	Acceptable
9erphenyl-d14	61	5Z-140	06/04/15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	SEm 3C- Da. ples	**Date Collected:**	NA
Sample Matrix:	- ater	**Date Received:**	NA

Polynuclear Aromatic Hydrocarbons

Sample Name:	Method PlanO	**Units:**	u289
Lab Code:	K- g150/LT1ZW	**Basis:**	NA
Extraction Method:	ESA W5C04	**Level:**	9ow
Analysis Method:	LG70U DIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	
GZMethylnaphthalene	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	
Acenaphthylene	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	
Acenaphthene	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	
Uif enFoBuran	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	
(luorene	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	
Shenanthrene	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	
Anthracene	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	
(luoranthene	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	
Syrene	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	
PenF)akanthracene	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	
4hrysene	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	
PenFo)fkBuoranthene	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	
PenFo)OkBuoranthene	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	
PenFo)akpyrene	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	
Indeno)1,G,WZcdkpyrene	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	
Uif enF)a,hkanthracene	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	*
PenFo)2,h,ikperylene	NU	z	0b0C0	1	0680181815	0680/815	K- g150/LT1	*

* Dee 4ase Narrative

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
(luoreneZd10	76	/6Z11/	0680/815	Acceptaf le
(luoranthenеZd10	7T	51ZIGl	0680/815	Acceptaf le
3erphenylZd1/	60	5LZI/0	0680/815	Acceptaf le

Comments:

Client: ERM Northwest, Incorporated **Service Request:** K1505765
Project: PEO TZW Samples
Sample Matrix: Water

Surrogate Recovery Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3520C **Units:** Percent
Analysis Method: 8270D SIM **Level:** Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
TZW-06-052815	K1505765-001	71	74	75
TZW-07-052815	K1505765-002	73	72	59
TZW-08-052815	K1505765-003	74	72	58
TZW-09-052815	K1505765-004	78	74	59
TZW-10-052915	K1505765-005	77	77	60
TZW-10-D-052915	K1505765-006	77	72	63
Rinseate	K1505765-007	73	80	61
Method Blank	KWG1504891-3	76	79	60
Lab Control Sample	KWG1504891-1	78	85	63
Duplicate Lab Control Sample	KWG1504891-2	81	88	68

Surrogate Recovery Control Limits (%)

Sur1	=	Fluorene-d10	46-114
Sur2	=	Fluoranthene-d10	51-121
Sur3	=	Terphenyl-d14	58-140

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1505765
Project:	PEO TZW Samples	**Date Extracted:**	06/01/2015
Sample Matrix:	Water	**Date Analyzed:**	06/04/2015

Lab Control Spike/Duplicate Lab Control Spike Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method:	EPA 3520C	**Units:**	ug/L
Analysis Method:	8270D SIM	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1504891

	Lab Control Sample KWG1504891-1 Lab Control Spike			Duplicate Lab Control Sample KWG1504891-2 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Naphthalene	1.92	2.50	77	2.14	2.50	86	39-110	11	30
2-Methylnaphthalene	2.03	2.50	81	2.26	2.50	90	39-115	11	30
Acenaphthylene	2.12	2.50	85	2.29	2.50	92	44-115	8	30
Acenaphthene	2.06	2.50	82	2.23	2.50	89	44-113	8	30
Dibenzofuran	2.11	2.50	85	2.27	2.50	91	46-116	7	30
Fluorene	2.08	2.50	83	2.22	2.50	89	48-118	7	30
Phenanthrene	2.12	2.50	85	2.27	2.50	91	47-120	7	30
Anthracene	2.07	2.50	83	2.18	2.50	87	44-117	5	30
Fluoranthene	2.21	2.50	88	2.37	2.50	95	48-128	7	30
Pyrene	2.14	2.50	86	2.36	2.50	95	42-133	10	30
Benz(a)anthracene	2.09	2.50	83	2.30	2.50	92	48-125	10	30
Chrysene	2.22	2.50	89	2.43	2.50	97	50-128	9	30
Benzo(b)fluoranthene	2.23	2.50	89	2.44	2.50	98	49-131	9	30
Benzo(k)fluoranthene	2.17	2.50	87	2.39	2.50	96	54-131	10	30
Benzo(a)pyrene	2.16	2.50	87	2.37	2.50	95	43-134	9	30
Indeno(1,2,3-cd)pyrene	1.87	2.50	75	2.04	2.50	82	45-133	9	30
Dibenz(a,h)anthracene	1.67	2.50	67	1.80	2.50	72	49-133	7	30
Benzo(g,h,i)perylene	1.53	2.50	61	1.66	2.50	66	51-124	8	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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July 22, 2015

Analytical Report for Service Request No: K1506739
Revised Service Request No: K1506739.01

Brendan Robinson
ERM - Northwest, Incorporated
1001 SW 5th Ave. #1010
Portland, OR 97204

RE: PEO / 0296824

Dear Brendan,

Enclosed is the revised report for the sample(s) submitted to our laboratory June 22, 2015
For your reference, these analyses have been assigned our service request number **K1506739.**

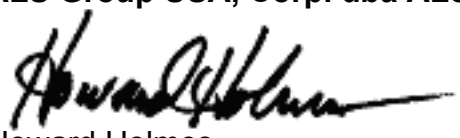
The sample ID for K1506739-001 has been revised.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3364. You may also contact me via email at howard.holmes@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental



Howard Holmes
Project Manager

REVISED
8:28 am, Jul 22, 2015

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Volatile Organic Compounds
Polynuclear Aromatic Hydrocarbons

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L14-51
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L14-50
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	03016
Maine DHS	Not available	WA01276
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
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Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

REVISED
8:13 am, Jul 22, 2015

ALS ENVIRONMENTAL

Client:	ERM Northwest, Incorporated	**Service Request No.:**	K1506739
Project:	PEO/ 0296824	**Date Received:**	06/22/15
Sample Matrix:	Water		

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Two water samples were received for analysis at ALS Environmental on 06/22/15. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

General Chemistry Parameters

Nitrate as Nitrogen and Sulfate by EPA Method 300.0:
The detection limit was elevated in samples MW-27 and MW-26. The matrix interference prevented adequate resolution of the target compound at the normal limit. The samples MRL were elevated due to sample matrix (samples smelled like gasoline). The results were flagged to indicate the matrix interference.

No other anomalies associated with the analysis of these samples were observed.

Total and Dissolved Metals

Matrix Spike Recovery Exceptions:
The control criteria for matrix spike recovery of Iron and Manganese for the total and dissolved sample MW-27 were not applicable. The analyzed concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

No other anomalies associated with the analysis of these samples were observed.

Gasoline Range Organics by Method NWTPH-Gx

No anomalies associated with the analysis of these samples were observed.

Approved by_____

Diesel Range Organics by Method NWTPH-Dx

Elevated Detection Limits:
The detection limit was elevated for Diesel Range Organics (DRO) and Residual Range Organics (RRO) in all field samples. The chromatogram indicated the presence of non-target background components. The original analysis of the sample extracts resulted in failure of the closing Continuing Calibration Verification (CCV) to meet control criteria. The extracts were reanalyzed at a dilution to prevent further detriment to the analytical system and to achieve accurate quantitation of the target analytes. Clean-up of the extracts was performed within the scope of the method, but did not eliminate enough of the background components to prevent dilution. The results from the reanalysis were reported. No further corrective action was feasible.

No other anomalies associated with the analysis of these samples were observed.

Volatile Organic Compounds by EPA Method 8260

Calibration Verification Exceptions:
The following analytes were flagged as outside the control criterion for Continuing Calibration Verification (CCV) J:\MS46\0625F009.D: 4-Bromofluorobenzene. In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The ALS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.

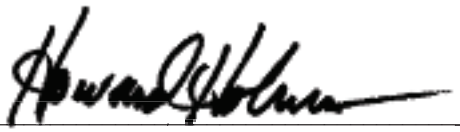
The ALS control criterion for the following analyte was not met in Continuing Calibration Verification (CCV) J:\MS46\0625F009.D: Bromomethane. In accordance with ALS standard operating procedures, an MRL check standard containing the analyte of concern was analyzed each day of analysis. The MRL check standard verifies instrument sensitivity was adequate to detect the analyte at the MRL on the day of analysis. Because the sensitivity was shown to be adequate to detect the compound in question, and the field samples analyzed in this sequence did not contain the analyte in question, the data quality has not been significantly affected. No further corrective action was feasible.

The ALS minimum relative response factor criterion for Bromomethane was not met in Continuing Calibration Verification (CCV) J:\MS46\0625F009.D. In accordance with ALS standard operating procedures, a Method Reporting Limit (MRL) check standard containing the analyte of concern was analyzed each day of analysis. The MRL check standard verified instrument sensitivity was adequate to detect the analyte) at the MRL on the day of analysis. Because the sensitivity was shown to be adequate to detect the compound in question the data quality was not significantly affected. No further corrective action was appropriate.

Lab Control Sample Exceptions:
The control criteria were exceeded for 4-Bromofluorobenzene in LCS KWG1505756-3 and KWG1505756-4. The associated matrix spike recoveries of target compounds were in control, indicating the analysis was in control. The surrogate outlier was flagged accordingly. No further corrective action was appropriate.

Matrix Spike Recovery Exceptions:
The matrix spike recovery of Toluene and Chlorobenzene for sample MW-27 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. No further corrective action was appropriate.

Elevated Detection Limits:
The detection limit was elevated for Methylene Chloride in samples MW-27 and MW-26. The chromatogram indicated the presence of non-target components. The results are flagged to indicate the matrix interference.
No other anomalies associated with the analysis of these samples were observed.

Approved by 

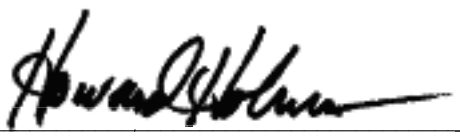
Polynuclear Aromatic Hydrocarbons by EPA Method 8270

Matrix Spike Recovery Exceptions:
The control criteria for the matrix spike recovery of Acenaphthylene for sample MW-27 were not applicable. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compound at the normal limit. The result was flagged in the parent sample to indicate the matrix interference.

Elevated Detection Limits:
The detection limit was elevated for Acenaphthylene in samples MW-27 and MW-26. The chromatogram indicated the presence of non-target background components. The matrix interference prevented adequate resolution of the target compound at the normal limit. The result was flagged to indicate the matrix interference.

Sample Notes and Discussion:
The results reported for Naphthalene in samples MW-27 and MW-26 may contain a slight bias. The chromatogram indicated the presence of non-target background components. The matrix interference may have resulted in a slight high bias in the affected samples. The results were flagged with "X" to indicate the issue.

No other anomalies associated with the analysis of these samples were observed.

Approved by 

Chain of Custody

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ALS Environmental

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SR# K1506739

COC Set 1 of 1

COC#

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: PEO
Project Number: 0296824
Project Manager: Brendan Robinson
Company: ERM
Address: 1001 SW 5th Ave Portland, OR 97210
Phone #: 971-266-2566
email: kathryn.ewing@erm.com
Sampler Signature: [signature]
Sampler Printed Name: Scott Jerranova, MELODY KLENEKER

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	0H: ~~9040C / pH~~	0H: ~~ASTM D1498-89 / Redox Pot~~	0H: ~~SM 4500-O G / Oxygen~~	48H: 300.0 / NO3	7D: 8270D / PAH SIM	14D: 8260C / VOC FP	14D: NWTPH-Dx / NW TPH SGT	14D: NWTPH-Gx / NW_GAS	14D: SM 2320 B / Alkalinity Titr	28D: ~~120.1 / Cond Spec~~	28D: 300.0 / SO4	180D: 6010C / Metals D	180D: 6010C / Metals T	1 Hardness 2340B	2	3 MS/MSD	4	5	Remarks
1. MW-25		6/22/15	0856	H_2O	23				X	X	X	X	X	X		X	X	X	X		X			
2. MW-26		↓	1101	"	13				X	X	X	X	X	X		X	X	X	X					
3.																								
4.																								
5.																								
6.																								
7.																								
8.																								
9.																								
10.																								

ST MK

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. CLP Like Summary (no raw data)
___ IV. Data Validation Report
___ V. EDD

Invoice Information

P.O.# 0296824
Bill To: ERM

Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al (As) Sb Ba Be B Ca Cd Co Cr Cu (Fe) Pb Mg (Mn) Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu (Fe) Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments: Diss metals were Field Filtered.

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: [signature]	Signature: [signature]	Signature	Signature	Signature	Signature
Printed Name: MELODY KLENEKER	Printed Name: ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: ERM	Firm: 6/22/15 1338	Firm	Firm	Firm	Firm
Date/Time: 6/22/15 @ 1:36pm	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

PC #2

Cooler Receipt and Preservation Form

Client / Project: ERM Service Request *K15* 06739

Received: 6/22/15 Opened: 6/22/15 By: [signature] Unloaded: 6/22/15 By: [signature]

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? _____
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Raw Cooler Temp	Corrected. Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID (NA)	Tracking Number (NA)	Filed
7.5	7.2	8.5	8.2	-0.3	327			

4. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
6. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: SHORT HOLD TIME

Page _____ *of* _____

General Chemistry

ALS Environmental—Kelso Laboratory
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Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

REVISED
8:13 am, Jul 22, 2015

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/15
Sample Matrix:	Water	**Date Received:**	06/22/15
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Nitrate as Nitrogen

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
MW-27	K1506739-001	**ND Ui**	0.50	10	06/23/15 10:21	6/23/15	
MW-26	K1506739-002	**ND Ui**	0.50	10	06/23/15 10:37	6/23/15	
Method Blank	K1506739-MB	ND U	0.050	1	06/23/15 09:20	6/23/15	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project	PEO/0296824	**Date Collected:**	06/22/15
Sample Matrix:	Water	**Date Received:**	06/22/15
		Date Analyzed:	06/23/15

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	MW-27	**Units:**	mg/L
Lab Code:	K1506739-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1506739-001DUP Result	Average	RPD	RPD Limit
Nitrate as Nitrogen	300.0	0.50	ND Ui	ND U	NC	NC	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/15
Sample Matrix:	Water	**Date Received:**	06/22/15
		Date Analyzed:	06/23/15
		Date Extracted:	06/23/15

Duplicate Matrix Spike Summary
Nitrate as Nitrogen

Sample Name:	MW-27	**Units:**	mg/L
Lab Code:	K1506739-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	Method		

		Matrix Spike			Duplicate Matrix Spike					
		K1506739-001MS			K1506739-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Nitrate as Nitrogen	ND Ui	19.0	20.0	95	19.1	20.0	95	90-110	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Analyzed:**	06/23/15
Sample Matrix:	Water	**Date Extracted:**	06/23/15

Lab Control Sample Summary
Nitrate as Nitrogen

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	450391

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1506739-LCS	2.38	2.50	95	90-110

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/15
Sample Matrix:	Water	**Date Received:**	06/22/15
Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA

Sulfate

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
MW-27	K1506739-001	**ND Ui**	1.0	10	06/23/15 10:21	6/23/15	
MW-26	K1506739-002	**ND Ui**	1.0	10	06/23/15 10:37	6/23/15	
Method Blank	K1506739-MB	ND U	0.10	1	06/23/15 09:20	6/23/15	

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project	PEO/0296824	**Date Collected:**	06/22/15
Sample Matrix:	Water	**Date Received:**	06/22/15
		Date Analyzed:	06/23/15

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	MW-27	**Units:**	mg/L
Lab Code:	K1506739-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1506739-001DUP Result	Average	RPD	RPD Limit
Sulfate	300.0	1.0	ND Ui	ND U	NC	NC	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/15
Sample Matrix:	Water	**Date Received:**	06/22/15
		Date Analyzed:	06/23/15
		Date Extracted:	06/23/15

Duplicate Matrix Spike Summary
Sulfate

Sample Name:	MW-27	**Units:**	mg/L
Lab Code:	K1506739-001	**Basis:**	NA
Analysis Method:	300.0		
Prep Method:	Method		

		Matrix Spike			Duplicate Matrix Spike					
		K1506739-001MS			K1506739-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfate	ND Ui	18.8	20.0	94	18.8	20.0	94	90-110	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Analyzed:**	06/23/15
Sample Matrix:	Water	**Date Extracted:**	06/23/15

Lab Control Sample Summary
Sulfate

Analysis Method:	300.0	**Units:**	mg/L
Prep Method:	Method	**Basis:**	NA
		Analysis Lot:	450391

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1506739-LCS	4.78	5.00	96	90-110

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/15
Sample Matrix:	Water	**Date Received:**	06/22/15
Analysis Method:	SM 2320 B	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Alkalinity as CaCO3, Total

Sample Name	Lab Code	Result	MRL	Dil.	Date Analyzed	Q
MW-27	K1506739-001	**231**	15	1	06/24/15 17:35	
MW-26	K1506739-002	**259**	15	1	06/24/15 17:35	
Method Blank	K1506739-MB	ND U	15	1	06/24/15 17:35	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project	PEO/0296824	**Date Collected:**	06/22/15
Sample Matrix:	Water	**Date Received:**	06/22/15
		Date Analyzed:	06/24/15

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	MW-27	**Units:**	mg/L
Lab Code:	K1506739-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1506739-001DUP Result	Average	RPD	RPD Limit
Alkalinity as CaCO3, Total	SM 2320 B	15	231	233	232	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Analyzed:**	06/24/15
Sample Matrix:	Water	**Date Extracted:**	NA

Lab Control Sample Summary
Alkalinity as CaCO3, Total

Analysis Method:	SM 2320 B	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	450518

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1506739-LCS	90.8	88	103	90-110

Metals

ALS Environmental—Kelso Laboratory
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REVISED
8:15 am, Jul 22, 2015

ALS Group USA, Corp.
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Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/15
Sample Matrix:	Water	**Date Received:**	06/22/15

Hardness as CaCO3

Prep Method:	CLAA	Units:	mg/L (ppm)
Analysis Method:	6010C/SM 2340B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
MW-27	K1506739-001	0.07	1	06/25/15	06/29/15	177	
MW-26	K1506739-002	0.07	1	06/25/15	06/29/15	188	
Method Blank	K1506739-MB	0.07	1	06/25/15	06/29/15	ND	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/15
Sample Matrix:	Water	**Date Received:**	06/22/15
		Date Extracted:	06/25/15
		Date Analyzed:	06/29/15

Duplicate Summary
Metals

Sample Name:	MW-27	Units:	mg/L (ppm)
Lab Code:	K1506739-001D	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Hardness as CaCO3	CLAA	6010C/SM 2340B	0.07	177	178	178	<1	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/15 08:56
Sample Matrix:	Water	**Date Received:**	06/22/15 13:38
Sample Name:	MW-27	**Basis:**	NA
Lab Code:	K1506739-001		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Iron	6010C	**23800**	ug/L	20	1	06/29/15 04:44	06/25/15	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/15 08:56
Sample Matrix:	Water	**Date Received:**	06/22/15 13:38
Sample Name:	MW-27	**Basis:**	NA
Lab Code:	K1506739-001		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	**22.8**	ug/L	0.50	0.10	1	07/01/15 09:07	06/30/15	
Iron	6010C	**24700**	ug/L	20	3	1	06/29/15 04:30	06/25/15	
Manganese	6010C	**2590**	ug/L	1.0	0.3	1	06/29/15 04:30	06/25/15	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/15 11:01
Sample Matrix:	Water	**Date Received:**	06/22/15 13:38
Sample Name:	MW-26	**Basis:**	NA
Lab Code:	K1506739-002		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Iron	6010C	**27500**	ug/L	20	1	06/29/15 05:01	06/25/15	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/15 11:01
Sample Matrix:	Water	**Date Received:**	06/22/15 13:38
Sample Name:	MW-26	**Basis:**	NA
Lab Code:	K1506739-002		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	**18.6**	ug/L	0.50	0.10	1	07/01/15 09:18	06/30/15	
Iron	6010C	**27500**	ug/L	20	3	1	06/29/15 04:42	06/25/15	
Manganese	6010C	**2530**	ug/L	1.0	0.3	1	06/29/15 04:42	06/25/15	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	KQ1506864-02		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Iron	6010C	ND U	ug/L	20	1	06/29/15 04:26	06/25/15	
Manganese	6010C	ND U	ug/L	1.0	1	06/29/15 04:26	06/25/15	

Analytical Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	KQ1507084-02		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	ND U	ug/L	0.50	0.10	1	07/01/15 09:03	06/30/15	

ALS Group USA, Corp.

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QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project	PEO/0296824	**Date Collected:**	06/22/15
Sample Matrix:	Water	**Date Received:**	06/22/15
		Date Analyzed:	06/29/15

Replicate Sample Summary

Dissolved Metals

Sample Name:	MW-27	**Units:**	ug/L
Lab Code:	K1506739-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1506864-05 Result	Average	RPD	RPD Limit
Iron	6010C	20	23800	24400	24100	2	20
Manganese	6010C	1.0	2500	2570	2540	3	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project	PEO/0296824	**Date Collected:**	06/22/15
Sample Matrix:	Water	**Date Received:**	06/22/15
		Date Analyzed:	06/29/15

Replicate Sample Summary
Total Metals

Sample Name:	MW-27	**Units:**	ug/L
Lab Code:	K1506739-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1506864-03 Result	Average	RPD	RPD Limit
Iron	6010C	20	24700	24700	24700	<1	20
Manganese	6010C	1.0	2590	2580	2590	<1	20

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QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project	PEO/0296824	**Date Collected:**	06/22/15
Sample Matrix:	Water	**Date Received:**	06/22/15
		Date Analyzed:	07/01/15

Replicate Sample Summary
Total Metals

Sample Name:	MW-27	**Units:**	ug/L
Lab Code:	K1506739-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ1507084-03 Result	Average	RPD	RPD Limit
Arsenic	6020A	0.50	0.10	22.8	22.5	22.7	1	20

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Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/15
Sample Matrix:	Water	**Date Received:**	06/22/15
		Date Analyzed:	06/29/15

Matrix Spike Summary
Dissolved Metals

Sample Name:	MW-27	**Units:**	ug/L
Lab Code:	K1506739-001	**Basis:**	NA
Analysis Method:	6010C		

Matrix Spike
KQ1506864-06

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Iron	23800	24900	1000	106 #	75-125
Manganese	2500	3010	500	101 #	75-125

Results flagged with an asterisk (*) indicate values outside control criteria.

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/15
Sample Matrix:	Water	**Date Received:**	06/22/15
		Date Analyzed:	06/29/15

Matrix Spike Summary
Total Metals

Sample Name:	MW-27	**Units:**	ug/L
Lab Code:	K1506739-001	**Basis:**	NA
Analysis Method:	6010C		

Matrix Spike
KQ1506864-04

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Iron	24700	25500	1000	88 #	75-125
Manganese	2590	3060	500	93 #	75-125

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/15
Sample Matrix:	Water	**Date Received:**	06/22/15
		Date Analyzed:	07/1/15
		Date Extracted:	06/30/15

Matrix Spike Summary
Total Metals

Sample Name:	MW-27	**Units:**	ug/L
Lab Code:	K1506739-001	**Basis:**	NA
Analysis Method:	6020A		
Prep Method:	EPA CLP-METALS ILM04.0		

Matrix Spike
KQ1507084-04

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Arsenic	22.8	73.7	50.0	102	75-125

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Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Analyzed:**	06/29/15
Sample Matrix:	Water	**Date Extracted:**	06/25/15

Lab Control Sample Summary
Total Metals

Analysis Method:	6010C	**Units:**	ug/L
Prep Method:	EPA CLP-METALS ILM04.0	**Basis:**	NA
		Analysis Lot:	451130

Lab Control Sample
KQ1506864-01

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Iron	2500	2500	100	80-120
Manganese	1240	1250	99	80-120

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Analyzed:**	07/01/15
Sample Matrix:	Water	**Date Extracted:**	06/30/15

Lab Control Sample Summary
Total Metals

Analysis Method:	6020A	**Units:**	ug/L
Prep Method:	EPA CLP-METALS ILM04.0	**Basis:**	NA
		Analysis Lot:	451391

Lab Control Sample
KQ1507084-01

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Arsenic	49.6	50.0	99	80-120

Gasoline Range Organics

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8:16 am, Jul 22, 2015

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/2015
Sample Matrix:	Water	**Date Received:**	06/22/2015

Gasoline Range Organics

Sample Name:	MW-27	**Units:**	ug/L
Lab Code:	K1506739-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	**1300**	Y	50	1	06/24/15	06/24/15	KWG1505680	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	97	50-150	06/24/15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEOI0g968g4	**Date Collected:**	06IggIg015
Sample Matrix:	2 ater	**Date Received:**	06IggIg015

Gasoline Range Organics

Sample Name:	M2 -g6	**Units:**	u/ IW
Lab Code:	K1506739-00g	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Wow
Analysis Method:	N2 TPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Ran/ e Or/ anics-N2 TPH	**1300**	Y	50	1	06Ig4I15	06Ig4I15	K2 G1505680	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	93	50-150	06Ig4I15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Gasoline Range Organics

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1505680-4	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	50	1	06/24/15	06/24/15	KWG1505680	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	92	50-150	06/24/15	Acceptable

Comments:

Client: ERM Northwest, Incorporated **Service Request:** K1506739
Project: PEO/0296824
Sample Matrix: Water

Surrogate Recovery Summary
Gasoline Range Organics

Extraction Method: EPA 5030B **Units:** Percent
Analysis Method: NWTPH-Gx **Level:** Low

Sample Name	Lab Code	Sur1
MW-27	K1506739-001	97
MW-26	K1506739-002	93
MW-27DUP	KWG1505680-2	94
Method Blank Lab	KWG1505680-4	92
Control Sample	KWG1505680-3	86

Surrogate Recovery Control Limits (%)

Sur1 = 1,4-Difluorobenzene 50-150

Results flagged with an asterisk (*) indicate values outside control criteria.

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QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Extracted:**	06/24/2015
Sample Matrix:	Water	**Date Analyzed:**	06/24/2015

Duplicate Sample Summary
Gasoline Range Organics

Sample Name:	MW-27	**Units:**	ug/L
Lab Code:	K1506739-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx	**Extraction Lot:**	KWG1505680

Analyte Name	MRL	Sample Result	MW-27DUP KWG1505680-2 Duplicate Sample Result	Average	Relative Percent Difference	RPD Limit
Gasoline Range Organics-NWTPH	50	1300	1200	1200	1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Extracted:**	06/24/2015
Sample Matrix:	Water	**Date Analyzed:**	06/24/2015

Lab Control Spike Summary
Gasoline Range Organics

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	NWTPH-Gx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1505680

	Lab Control Sample KWG1505680-3 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Gasoline Range Organics-NWTPH	478	500	96	80-119

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Diesel and Residual Range Organics-Silica Gel Treated

ALS Environmental—Kelso Laboratory
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www.alsglobal.com

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8:16 am, Jul 22, 2015

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/2015
Sample Matrix:	Water	**Date Received:**	06/22/2015

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:	MW-27	**Units:**	ug/L
Lab Code:	K1506739-001	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	530	2	07/06/15	07/08/15	KWG1506082	
Residual Range Organics (RRO)	ND	U	1100	2	07/06/15	07/08/15	KWG1506082	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	134	50-150	07/08/15	Acceptable
n-Triacontane	125	50-150	07/08/15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEOI0g968g4	**Date Collected:**	06IggIg015
Sample Matrix:	2 ater	**Date Received:**	06IggIg015

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:	M2 -g6	**Units:**	u/ IW
Lab Code:	K1506739-00g	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Wow
Analysis Method:	N2 TPH-Dx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Ran/ e Or/ anics (DRO)	ND	U	530	g	07I06I15	07I09I15	K2 G150608g	
Residual Ran/ e Or/ anics (RRO)	ND	U	1100	g	07I06I15	07I09I15	K2 G150608g	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	1g1	50-150	07I09I15	Acceptable
n-Triacontane	111	50-150	07I09I15	Acceptable

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1506082-3	**Basis:**	NA
Extraction Method:	METHOD	**Level:**	Low
Analysis Method:	NWTPH-Dx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	250	1	07/06/15	07/08/15	KWG1506082	
Residual Range Organics (RRO)	ND	U	500	1	07/06/15	07/08/15	KWG1506082	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	133	50-150	07/08/15	Acceptable
n-Triacontane	122	50-150	07/08/15	Acceptable

Comments:

Client: ERM Northwest, Incorporated **Service Request:** K1506739
Project: PEO/0296824
Sample Matrix: Water

Surrogate Recovery Summary
Diesel and Residual Range Organics - Silica Gel Treated

Extraction Method: METHOD **Units:** Percent
Analysis Method: NWTPH-Dx **Level:** Low

Sample Name	Lab Code	Sur1	Sur2
MW-27	K1506739-001	134 D	125 D
MW-26	K1506739-002	121 D	111 D
MW-27DUP	KWG1506082-1	112 D	100 D
Method Blank Lab	KWG1506082-3	133	122
Control Sample	KWG1506082-2	127	115

Surrogate Recovery Control Limits (%)

Sur1	o-Terphenyl	50-150
Sur2	n-Triacontane	50-150

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Extracted:**	07/06/2015
Sample Matrix:	Water	**Date Analyzed:**	07/08/2015

Duplicate Sample Summary
Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:	MW-27	**Units:**	ug/L
Lab Code:	K1506739-001	**Basis:**	NA
Extraction Method:	MEBTOH	**Level:**	Low
Analysis Method:	NWBPT-Hx	**Extraction Lot:**	KWG1506082

Analyte Name	MRL	Sample Result	MW-27HDP KWG1506082-1 Duplicate Sample Result	Average	Relative Percent Difference	RPD Limit
Hdesel Range Organds iHROF	520	NH	NH	NH	-	30
Resddual Range Organds iRROF	1100	NH	NH	NH	-	30

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Percent reco) erds and relatU)e percent dlverences iRPHFare deter: ded by the sovtware usdg) alues ld the calculatdon whdh ha) e not been rounded.

QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Extracted:**	07/06/2015
Sample Matrix:	Water	**Date Analyzed:**	07/08/2015

Lab Control Spike Summary
Diesel and Residual Range Organics - Silica Gel Treated

Extraction Method:	METHOD	**Units:**	ug/L
Analysis Method:	NWTPH-Dx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1506082

	Lab Control Sample KWG1506082-2 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
Diesel Range Organics (DRO)	3990	3200	125	46-140
Residual Range Organics (RRO)	2020	1600	126	45-159

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Volatile Organic Compounds

ALS Environmental—Kelso Laboratory
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www.alsglobal.com

REVISED
8:17 am, Jul 22, 2015

Analytical Results

Client: ERM Northwest, Incorporated
Project: PEO/0296824
Sample Matrix: Water

Service Request: K1506739
Date Collected: 06/22/2015
Date Received: 06/22/2015

Volatile Organic Compounds

Sample Name: MW-27
Lab Code: K1506739-001

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Chloromethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Vinyl Chloride	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Bromomethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	*
Chloroethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Trichlorofluoromethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,1-Dichloroethene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Acetone	ND	U	20	1	06/25/15	06/25/15	KWG1505756	
Carbon Disulfide	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Methylene Chloride	ND	Ui	14	1	06/25/15	06/25/15	KWG1505756	
trans-1,2-Dichloroethene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,1-Dichloroethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
2,2-Dichloropropane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
cis-1,2-Dichloroethene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
2-Butanone (MEK)	ND	U	20	1	06/25/15	06/25/15	KWG1505756	
Bromochloromethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Chloroform	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Carbon Tetrachloride	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,1-Dichloropropene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Benzene	**12**		0.50	1	06/25/15	06/25/15	KWG1505756	
1,2-Dichloroethane (EDC)	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Trichloroethene (TCE)	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,2-Dichloropropane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Dibromomethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Bromodichloromethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
cis-1,3-Dichloropropene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
4-Methyl-2-pentanone (MIBK)	ND	U	20	1	06/25/15	06/25/15	KWG1505756	
Toluene	**8.2**		0.50	1	06/25/15	06/25/15	KWG1505756	
trans-1,3-Dichloropropene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,1,2-Trichloroethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Tetrachloroethene (PCE)	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
2-Hexanone	ND	U	20	1	06/25/15	06/25/15	KWG1505756	

Comments:

Analytical Results

Client: ERM Northwest, Incorporated
Project: PEO/0296824
Sample Matrix: Water

Service Request: K1506739
Date Collected: 06/22/2015
Date Received: 06/22/2015

Volatile Organic Compounds

Sample Name: MW-27
Lab Code: K1506739-001

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,3-Dichloropropane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Dibromochloromethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,2-Dibromoethane (EDB)	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
Chlorobenzene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Ethylbenzene	**0.95**		0.50	1	06/25/15	06/25/15	KWG1505756	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
m,p-Xylenes	**10**		0.50	1	06/25/15	06/25/15	KWG1505756	
o-Xylene	**2.0**		0.50	1	06/25/15	06/25/15	KWG1505756	
Styrene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Bromoform	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Isopropylbenzene	**21**		2.0	1	06/25/15	06/25/15	KWG1505756	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Bromobenzene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
n-Propylbenzene	**46**		2.0	1	06/25/15	06/25/15	KWG1505756	
1,2,3-Trichloropropane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
2-Chlorotoluene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
1,3,5-Trimethylbenzene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
4-Chlorotoluene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
tert-Butylbenzene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
1,2,4-Trimethylbenzene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
sec-Butylbenzene	**3.1**		2.0	1	06/25/15	06/25/15	KWG1505756	
4-Isopropyltoluene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
1,3-Dichlorobenzene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,4-Dichlorobenzene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
n-Butylbenzene	**2.4**		2.0	1	06/25/15	06/25/15	KWG1505756	
1,2-Dichlorobenzene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
1,2,4-Trichlorobenzene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
Hexachlorobutadiene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
Naphthalene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
1,2,3-Trichlorobenzene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	

* See Case Narrative

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/2015
Sample Matrix:	Water	**Date Received:**	06/22/2015

Volatile Organic Compounds

Sample Name:	MW-27	**Units:**	ug/L
Lab Code:	K1506739-001	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	106	73-122	06/25/15	Acceptable
Toluene-d8	113	65-144	06/25/15	Acceptable
4-Bromofluorobenzene	90	68-117	06/25/15	Acceptable

Comments:

Analytical Results

Client: ERM Northwest, Incorporated
Project: PEOI0g968g4
Sample Matrix: 2 ater

Service Request: K1506739
Date Collected: 06IggIg015
Date Received: 06IggIg015

Volatile Organic Compounds

Sample Name: M2 -g6
Lab Code: K1506739-00g

Units: u/ IW
Basis: NA

Extraction Method: EPA 5030B
Analysis Method: 8g60C

Level: Wow

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Chloromethane	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Vinyl Chloride	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Bromomethane	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	*
Chloroethane	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Trichlorofluoromethane	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,1-Dichloroethene	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Acetone	ND	U	g0	1	06Ig5I15	06Ig5I15	K2 G1505756	
Carbon Disulfide	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Methylene Chloride	ND	Ui	g.5	1	06Ig5I15	06Ig5I15	K2 G1505756	
trans-1,g-Dichloroethene	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,1-Dichloroethane	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
g,g-Dichloropropane	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
cis-1,g-Dichloroethene	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
g-Butanone (MEK)	ND	U	g0	1	06Ig5I15	06Ig5I15	K2 G1505756	
Bromochloromethane	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Chloroform	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Carbon Tetrachloride	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,1-Dichloropropene	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Benzene	**35**		0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,g-Dichloroethane (EDC)	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Trichloroethene (TCE)	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,g-Dichloropropane	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Dibromomethane	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Bromodichloromethane	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
cis-1,3-Dichloropropene	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
4-Methyl-g-pentanone (MIBK)	ND	U	g0	1	06Ig5I15	06Ig5I15	K2 G1505756	
Toluene	**15**		0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
trans-1,3-Dichloropropene	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,1,g-Trichloroethane	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Tetrachloroethene (PCE)	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
g-Hexanone	ND	U	g0	1	06Ig5I15	06Ig5I15	K2 G1505756	

Comments:

Analytical Results

Client: ERM Northwest, Incorporated
Project: PEOI0g968g4
Sample Matrix: 2 ater

Service Request: K1506739
Date Collected: 06IggIg015
Date Received: 06IggIg015

Volatile Organic Compounds

Sample Name: M2 -g6
Lab Code: K1506739-00g

Units: u/ IW
Basis: NA

Extraction Method: EPA 5030B
Analysis Method: 8g60C

Level: Wow

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,3-Dichloropropane	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Dibromochloromethane	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,g-Dibromoethane (EDB)	ND	U	g.0	1	06Ig5I15	06Ig5I15	K2 G1505756	
Chlorobenzene	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Ethylbenzene	**1.7**		0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,1,1,g-Tetrachloroethane	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
m,p-Xylenes	**14**		0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
o-Xylene	**5.9**		0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Styrene	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Bromoform	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Isopropylbenzene	**15**		g.0	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,1,g,g-Tetrachloroethane	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
Bromobenzene	ND	U	g.0	1	06Ig5I15	06Ig5I15	K2 G1505756	
n-Propylbenzene	**22**		g.0	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,g,3-Trichloropropane	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
g-Chlorotoluene	ND	U	g.0	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,3,5-Trimethylbenzene	ND	U	g.0	1	06Ig5I15	06Ig5I15	K2 G1505756	
4-Chlorotoluene	ND	U	g.0	1	06Ig5I15	06Ig5I15	K2 G1505756	
tert-Butylbenzene	ND	U	g.0	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,g,4-Trimethylbenzene	ND	U	g.0	1	06Ig5I15	06Ig5I15	K2 G1505756	
sec-Butylbenzene	ND	U	g.0	1	06Ig5I15	06Ig5I15	K2 G1505756	
4-Isopropyltoluene	ND	U	g.0	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,3-Dichlorobenzene	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,4-Dichlorobenzene	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
n-Butylbenzene	ND	U	g.0	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,g-Dichlorobenzene	ND	U	0.50	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,g-Dibromo-3-chloropropane	ND	U	g.0	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,g,4-Trichlorobenzene	ND	U	g.0	1	06Ig5I15	06Ig5I15	K2 G1505756	
Hexachlorobutadiene	ND	U	g.0	1	06Ig5I15	06Ig5I15	K2 G1505756	
Naphthalene	ND	U	g.0	1	06Ig5I15	06Ig5I15	K2 G1505756	
1,g,3-Trichlorobenzene	ND	U	g.0	1	06Ig5I15	06Ig5I15	K2 G1505756	

* See Case Narrative

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEOI0g968g4	**Date Collected:**	06IggIg015
Sample Matrix:	2 ater	**Date Received:**	06IggIg015

Volatile Organic Compounds

Sample Name:	M2 -g6	**Units:**	u/ IW
Lab Code:	K1506739-00g	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	108	73-1gg	06Ig5I15	Acceptable
Toluene-d8	116	65-144	06Ig5I15	Acceptable
4-Bromofluorobenzene	94	68-117	06Ig5I15	Acceptable

Comments:

Analytical Results

Client: ERM Northwest, Incorporated
Project: PEO/0296824
Sample Matrix: Water

Service Request: K1506739
Date Collected: NA
Date Received: NA

Volatile Organic Compounds

Sample Name: Method Blank
Lab Code: KWG1505756-5

Extraction Method: EPA 5030B
Analysis Method: 8260C

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Chloromethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Vinyl Chloride	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Bromomethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	*
Chloroethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Trichlorofluoromethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,1-Dichloroethene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Acetone	ND	U	20	1	06/25/15	06/25/15	KWG1505756	
Carbon Disulfide	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Methylene Chloride	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
trans-1,2-Dichloroethene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,1-Dichloroethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
2,2-Dichloropropane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
cis-1,2-Dichloroethene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
2-Butanone (MEK)	ND	U	20	1	06/25/15	06/25/15	KWG1505756	
Bromochloromethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Chloroform	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,1,1-Trichloroethane (TCA)	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Carbon Tetrachloride	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,1-Dichloropropene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Benzene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,2-Dichloroethane (EDC)	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Trichloroethene (TCE)	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,2-Dichloropropane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Dibromomethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Bromodichloromethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
cis-1,3-Dichloropropene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
4-Methyl-2-pentanone (MIBK)	ND	U	20	1	06/25/15	06/25/15	KWG1505756	
Toluene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
trans-1,3-Dichloropropene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,1,2-Trichloroethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Tetrachloroethene (PCE)	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
2-Hexanone	ND	U	20	1	06/25/15	06/25/15	KWG1505756	

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1505756-5	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
1,3-Dichloropropane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Dibromochloromethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,2-Dibromoethane (EDB)	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
Chlorobenzene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Ethylbenzene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,1,1,2-Tetrachloroethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
m,p-Xylenes	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
o-Xylene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Styrene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Bromoform	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Isopropylbenzene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
1,1,2,2-Tetrachloroethane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
Bromobenzene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
n-Propylbenzene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
1,2,3-Trichloropropane	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
2-Chlorotoluene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
1,3,5-Trimethylbenzene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
4-Chlorotoluene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
tert-Butylbenzene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
1,2,4-Trimethylbenzene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
sec-Butylbenzene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
4-Isopropyltoluene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
1,3-Dichlorobenzene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,4-Dichlorobenzene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
n-Butylbenzene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
1,2-Dichlorobenzene	ND	U	0.50	1	06/25/15	06/25/15	KWG1505756	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
1,2,4-Trichlorobenzene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
Hexachlorobutadiene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
Naphthalene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	
1,2,3-Trichlorobenzene	ND	U	2.0	1	06/25/15	06/25/15	KWG1505756	

* See Case Narrative

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organic Compounds

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1505756-5	**Basis:**	NA

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	109	73-122	06/25/15	Acceptable
Toluene-d8	108	65-144	06/25/15	Acceptable
4-Bromofluorobenzene	117	68-117	06/25/15	Acceptable

Comments:

QA/QC Report

Client: ERM Northwest, Incorporated **Service Request:** K1506739
Project: PEO/0296824
Sample Matrix: Water

Surrogate Recovery Summary
Volatile Organic Compounds

Extraction Method: EPA 5030B **Units:** Percent
Analysis Method: 8260C **Level:** Low

Sample Name	Lab Code	Sur1	Sur2	Sur3	
MW-27	K1506739-001	106	113	90	
MW-26	K1506739-002	108	116	94	
Method Blank	KWG1505756-5	109	108	117	
MW-27MS	KWG1505756-1	112	115	85	
MW-27DMS	KWG1505756-2	111	114	85	
Lab Control Sample	KWG1505756-3	114	111	125	*
Duplicate Lab Control Sample	KWG1505756-4	116	114	126	*

Surrogate Recovery Control Limits (%)

Sur1	=	Dibromofluoromethane	73-122
Sur2	=	Toluene-d8	65-144
Sur3	=	4-Bromofluorobenzene	68-117

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Extracted:**	06/25/2015
Sample Matrix:	Water	**Date Analyzed:**	06/25/2015

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

Sample Name:	MW-27	**Units:**	ug/L
Lab Code:	K1506739-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260C	**Extraction Lot:**	KWG1505756

		MW-27MS KWG1505756-1 Matrix Spike				MW-27DMS KWG1505756-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**		**Result**	**Spike Amount**	**%Rec**		**%Rec Limits**	**RPD**	**RPD Limit**
Vinyl Chloride	ND	10.2	10.0	102		9.63	10.0	96		49-136	6	30
1,1-Dichloroethene	ND	9.76	10.0	98		8.99	10.0	90		59-171	8	30
Chloroform	ND	9.53	10.0	95		9.19	10.0	92		64-133	4	30
Carbon Tetrachloride	ND	9.99	10.0	100		9.48	10.0	95		53-161	5	30
Benzene	12	21.6	10.0	99		20.6	10.0	89		63-144	5	30
Trichloroethene (TCE)	ND	9.96	10.0	100		9.50	10.0	95		53-139	5	30
Bromodichloromethane	ND	10.1	10.0	101		9.57	10.0	96		61-134	6	30
Toluene	8.2	17.8	10.0	96		17.0	10.0	88		71-136	5	30
1,1,2-Trichloroethane	ND	6.20	10.0	62	*	6.29	10.0	63	*	74-124	1	30
2-Hexanone	ND	39.5	50.0	79		39.7	50.0	79		53-132	1	30
Chlorobenzene	ND	6.77	10.0	68	*	6.53	10.0	65	*	69-126	4	30
Ethylbenzene	0.95	7.92	10.0	70		7.88	10.0	69		66-136	1	30
1,2,3-Trichloropropane	ND	9.73	10.0	97		9.91	10.0	99		71-127	2	30
2-Chlorotoluene	ND	11.6	10.0	116		11.1	10.0	111		55-139	4	30
1,2-Dichlorobenzene	ND	10.3	10.0	103		10.1	10.0	101		72-119	2	30
Naphthalene	ND	12.8	10.0	128		12.8	10.0	128		52-147	0	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Extracted:**	06/25/2015
Sample Matrix:	Water	**Date Analyzed:**	06/25/2015

Lab Control Spike/Duplicate Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260C	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1505756

	Lab Control Sample KWG1505756-3 Lab Control Spike			Duplicate Lab Control Sample KWG1505756-4 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane	8.57	10.0	86	8.36	10.0	84	32-124	2	30
Chloromethane	9.68	10.0	97	9.08	10.0	91	34-130	6	30
Vinyl Chloride	9.21	10.0	92	8.92	10.0	89	55-123	3	30
Bromomethane	8.63	10.0	86	7.97	10.0	80	35-113	8	30
Chloroethane	10.0	10.0	100	9.71	10.0	97	58-134	3	30
Trichlorofluoromethane	7.86	10.0	79	7.62	10.0	76	52-141	3	30
1,1-Dichloroethene	8.81	10.0	88	8.40	10.0	84	66-129	5	30
Acetone	38.8	50.0	78	49.1	50.0	98	68-135	23	30
Carbon Disulfide	20.8	20.0	104	19.0	20.0	95	46-144	9	30
Methylene Chloride	8.72	10.0	87	8.61	10.0	86	71-122	1	30
trans-1,2-Dichloroethene	8.96	10.0	90	8.28	10.0	83	67-125	8	30
1,1-Dichloroethane	9.44	10.0	94	9.27	10.0	93	68-132	2	30
2,2-Dichloropropane	9.79	10.0	98	9.42	10.0	94	37-145	4	30
cis-1,2-Dichloroethene	8.97	10.0	90	8.40	10.0	84	71-118	7	30
2-Butanone (MEK)	38.3	50.0	77	45.3	50.0	91	71-149	17	30
Bromochloromethane	9.22	10.0	92	9.06	10.0	91	75-131	2	30
Chloroform	9.37	10.0	94	9.11	10.0	91	70-129	3	30
1,1,1-Trichloroethane (TCA)	8.99	10.0	90	8.68	10.0	87	59-136	4	30
Carbon Tetrachloride	9.35	10.0	94	9.10	10.0	91	55-140	3	30
1,1-Dichloropropene	9.59	10.0	96	9.22	10.0	92	59-134	4	30
Benzene	9.26	10.0	93	8.68	10.0	87	69-124	6	30
1,2-Dichloroethane (EDC)	8.99	10.0	90	9.16	10.0	92	56-142	2	30
Trichloroethene (TCE)	9.30	10.0	93	8.88	10.0	89	67-128	5	30
1,2-Dichloropropane	8.93	10.0	89	8.83	10.0	88	67-126	1	30
Dibromomethane	9.14	10.0	91	9.27	10.0	93	69-128	1	30
Bromodichloromethane	9.38	10.0	94	9.27	10.0	93	63-129	1	30
cis-1,3-Dichloropropene	9.59	10.0	96	9.47	10.0	95	62-132	1	30
4-Methyl-2-pentanone (MIBK)	35.7	50.0	71	42.0	50.0	84	64-134	16	30
Toluene	9.24	10.0	92	8.88	10.0	89	69-124	4	30
trans-1,3-Dichloropropene	9.38	10.0	94	9.39	10.0	94	59-125	0	30
1,1,2-Trichloroethane	8.79	10.0	88	8.89	10.0	89	74-118	1	30
Tetrachloroethene (PCE)	9.85	10.0	99	9.23	10.0	92	62-126	6	30
2-Hexanone	40.9	50.0	82	50.0	50.0	100	59-131	20	30
1,3-Dichloropropane	9.02	10.0	90	9.15	10.0	92	75-116	1	30
Dibromochloromethane	8.71	10.0	87	8.82	10.0	88	67-126	1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Extracted:**	06/25/2015
Sample Matrix:	Water	**Date Analyzed:**	06/25/2015

Lab Control Spike/Duplicate Lab Control Spike Summary
Volatile Organic Compounds

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260C	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1505756

	Lab Control Sample KWG1505756-3 Lab Control Spike			Duplicate Lab Control Sample KWG1505756-4 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
1,2-Dibromoethane (EDB)	8.89	10.0	89	9.07	10.0	91	74-118	2	30
Chlorobenzene	9.50	10.0	95	9.08	10.0	91	72-116	5	30
Ethylbenzene	9.84	10.0	98	9.41	10.0	94	67-121	4	30
1,1,1,2-Tetrachloroethane	9.54	10.0	95	9.12	10.0	91	66-124	5	30
m,p-Xylenes	20.2	20.0	101	19.5	20.0	97	69-121	4	30
o-Xylene	10.2	10.0	102	9.81	10.0	98	71-119	4	30
Styrene	10.2	10.0	102	10.0	10.0	100	74-121	2	30
Bromoform	8.95	10.0	90	9.23	10.0	92	52-144	3	30
Isopropylbenzene	10.3	10.0	103	9.90	10.0	99	67-129	4	30
1,1,2,2-Tetrachloroethane	8.78	10.0	88	9.28	10.0	93	70-127	6	30
Bromobenzene	9.23	10.0	92	9.08	10.0	91	72-116	2	30
n-Propylbenzene	10.6	10.0	106	10.1	10.0	101	61-124	5	30
1,2,3-Trichloropropane	8.57	10.0	86	9.14	10.0	91	69-123	6	30
2-Chlorotoluene	9.77	10.0	98	9.33	10.0	93	55-131	5	30
1,3,5-Trimethylbenzene	10.3	10.0	103	9.84	10.0	98	62-126	5	30
4-Chlorotoluene	9.99	10.0	100	9.49	10.0	95	66-121	5	30
tert-Butylbenzene	10.3	10.0	103	9.89	10.0	99	61-127	4	30
1,2,4-Trimethylbenzene	10.6	10.0	106	9.95	10.0	100	63-122	6	30
sec-Butylbenzene	10.6	10.0	106	10.0	10.0	100	59-128	5	30
4-Isopropyltoluene	11.0	10.0	110	10.5	10.0	105	61-128	4	30
1,3-Dichlorobenzene	9.83	10.0	98	9.24	10.0	92	70-116	6	30
1,4-Dichlorobenzene	9.52	10.0	95	9.25	10.0	93	73-115	3	30
n-Butylbenzene	10.4	10.0	104	9.97	10.0	100	55-130	4	30
1,2-Dichlorobenzene	9.86	10.0	99	9.57	10.0	96	72-115	3	30
1,2-Dibromo-3-chloropropane	8.19	10.0	82	9.41	10.0	94	55-132	14	30
1,2,4-Trichlorobenzene	9.66	10.0	97	9.57	10.0	96	58-126	1	30
Hexachlorobutadiene	10.2	10.0	102	9.46	10.0	95	57-119	8	30
Naphthalene	9.01	10.0	90	9.88	10.0	99	64-126	9	30
1,2,3-Trichlorobenzene	9.39	10.0	94	9.72	10.0	97	68-120	3	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Polynuclear Aromatic Hydrocarbons

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REVISED
8:18 am, Jul 22, 2015

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	06/22/2015
Sample Matrix:	Water	**Date Received:**	06/22/2015

Polynuclear Aromatic Hydrocarbons

Sample Name:	MW-27	**Units:**	ug/L
Lab Code:	K1506739-001	**Basis:**	NA
Extraction Method:	EPA 3520C	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	**0.92**	X	0.020	1	06/25/15	07/01/15	KWG1505722	
2-Methylnaphthalene	**0.12**		0.020	1	06/25/15	07/01/15	KWG1505722	
Acenaphthylene	ND	Ui	0.096	1	06/25/15	07/01/15	KWG1505722	
Acenaphthene	**0.52**		0.020	1	06/25/15	07/01/15	KWG1505722	
Dibenzofuran	**0.11**		0.020	1	06/25/15	07/01/15	KWG1505722	
Fluorene	**0.51**		0.020	1	06/25/15	07/01/15	KWG1505722	
Phenanthrene	**0.13**		0.020	1	06/25/15	07/01/15	KWG1505722	
Anthracene	**0.027**		0.020	1	06/25/15	07/01/15	KWG1505722	
Fluoranthene	ND	U	0.020	1	06/25/15	07/01/15	KWG1505722	
Pyrene	ND	U	0.020	1	06/25/15	07/01/15	KWG1505722	
Benz(a)anthracene	ND	U	0.020	1	06/25/15	07/01/15	KWG1505722	
Chrysene	ND	U	0.020	1	06/25/15	07/01/15	KWG1505722	
Benzo(b)fluoranthene†	ND	U	0.020	1	06/25/15	07/01/15	KWG1505722	
Benzo(k)fluoranthene	ND	U	0.020	1	06/25/15	07/01/15	KWG1505722	
Benzo(a)pyrene	ND	U	0.020	1	06/25/15	07/01/15	KWG1505722	
Indeno(1,2,3-cd)pyrene	ND	U	0.020	1	06/25/15	07/01/15	KWG1505722	
Dibenz(a,h)anthracene	ND	U	0.020	1	06/25/15	07/01/15	KWG1505722	
Benzo(g,h,i)perylene	ND	U	0.020	1	06/25/15	07/01/15	KWG1505722	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	94	46-114	07/01/15	Acceptable
Fluoranthene-d10	92	51-121	07/01/15	Acceptable
Terphenyl-d14	67	58-140	07/01/15	Acceptable

† **Analyte Comments**

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEOI0g968g4	**Date Collected:**	06IggIg015
Sample Matrix:	2 ater	**Date Received:**	06IggIg015

Polynuclear Aromatic Hydrocarbons

Sample Name:	M2 -g6	**Units:**	u/ IW
Lab Code:	K1506739-00g	**Basis:**	NA
Extraction Method:	EPA 35g0C	**Level:**	Wow
Analysis Method:	8g70D SIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	**0.68**	X	0.0g0	1	06Ig5I15	07I01I15	K2 G15057gg	
g-Methylnaphthalene	**0.14**		0.0g0	1	06Ig5I15	07I01I15	K2 G15057gg	
Acenaphthylene	ND	Ui	0.056	1	06Ig5I15	07I01I15	K2 G15057gg	
Acenaphthene	**0.31**		0.0g0	1	06Ig5I15	07I01I15	K2 G15057gg	
Dibenzofuran	**0.063**		0.0g0	1	06Ig5I15	07I01I15	K2 G15057gg	
Fluorene	**0.27**		0.0g0	1	06Ig5I15	07I01I15	K2 G15057gg	
Phenanthrene	**0.064**		0.0g0	1	06Ig5I15	07I01I15	K2 G15057gg	
Anthracene	ND	U	0.0g0	1	06Ig5I15	07I01I15	K2 G15057gg	
Fluoranthene	ND	U	0.0g0	1	06Ig5I15	07I01I15	K2 G15057gg	
Pyrene	ND	U	0.0g0	1	06Ig5I15	07I01I15	K2 G15057gg	
Benz(a)anthracene	ND	U	0.0g0	1	06Ig5I15	07I01I15	K2 G15057gg	
Chrysene	ND	U	0.0g0	1	06Ig5I15	07I01I15	K2 G15057gg	
Benzo(b)fluoranthene†	ND	U	0.0g0	1	06Ig5I15	07I01I15	K2 G15057gg	
Benzo(k)fluoranthene	ND	U	0.0g0	1	06Ig5I15	07I01I15	K2 G15057gg	
Benzo(a)pyrene	ND	U	0.0g0	1	06Ig5I15	07I01I15	K2 G15057gg	
Indeno(1,g,3-cd)pyrene	ND	U	0.0g0	1	06Ig5I15	07I01I15	K2 G15057gg	
Dibenz(a,h)anthracene	ND	U	0.0g0	1	06Ig5I15	07I01I15	K2 G15057gg	
Benzo(/ ,h,i)perylene	ND	U	0.0g0	1	06Ig5I15	07I01I15	K2 G15057gg	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	103	46-114	07I01I15	Acceptable
Fluoranthene-d10	96	51-1g1	07I01I15	Acceptable
Terphenyl-d14	69	58-140	07I01I15	Acceptable

† **Analyte Comments**

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Analytical Results

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Polynuclear Aromatic Hydrocarbons

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1505722-7	**Basis:**	NA
Extraction Method:	EPA 3520C	**Level:**	Low
Analysis Method:	8270D SIM		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Naphthalene	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	
2-Methylnaphthalene	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	
Acenaphthylene	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	
Acenaphthene	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	
Dibenzofuran	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	
Fluorene	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	
Phenanthrene	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	
Anthracene	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	
Fluoranthene	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	
Pyrene	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	
Benz(a)anthracene	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	
Chrysene	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	
Benzo(b)fluoranthene†	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	
Benzo(k)fluoranthene	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	
Benzo(a)pyrene	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	
Indeno(1,2,3-cd)pyrene	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	
Dibenz(a,h)anthracene	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	
Benzo(g,h,i)perylene	ND	U	0.019	1	06/25/15	07/01/15	KWG1505722	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Fluorene-d10	91	46-114	07/01/15	Acceptable
Fluoranthene-d10	95	51-121	07/01/15	Acceptable
Terphenyl-d14	73	58-140	07/01/15	Acceptable

† Analyte Comments

Benzo(b)fluoranthene	This analyte cannot be separated from Benzo(j)fluoranthene.

Comments:

Client: ERM Northwest, Incorporated **Service Request:** K1506739
Project: PEO/0296824
Sample Matrix: Water

Surrogate Recovery Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method: EPA 3520C **Units:** Percent
Analysis Method: 8270D SIM **Level:** Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
MW-27	K1506739-001	94	92	67
MW-26	K1506739-002	103	96	69
Method Blank	KWG1505722-7	91	95	73
MW-27MS	KWG1505722-1	97	97	72
MW-27DMS	KWG1505722-2	88	91	67
Lab Control Sample	KWG1505722-5	95	103	77
Duplicate Lab Control Sample	KWG1505722-6	93	100	76

Surrogate Recovery Control Limits (%)

Sur1	= Fluorene-d10	46-114
Sur2	= Fluoranthene-d10	51-121
Sur3	= Terphenyl-d14	58-140

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Extracted:**	06/25/2015
Sample Matrix:	Water	**Date Analyzed:**	07/01/2015

Matrix Spike/Duplicate Matrix Spike Summary
Polynuclear Aromatic Hydrocarbons

Sample Name:	MW-27	**Units:**	ug/L
Lab Code:	K1506739-001	**Basis:**	NA
Extraction Method:	EPA 3520C	**Level:**	Low
Analysis Method:	8270D SIM	**Extraction Lot:**	KWG1505722

		MW-27MS KWG1505722-1 Matrix Spike				MW-27DMS KWG1505722-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**		**Result**	**Spike Amount**	**%Rec**		**%Rec Limits**	**RPD**	**RPD Limit**
Naphthalene	0.92	2.89	2.36	83		2.74	2.36	77		37-118	5	30
2-Methylnaphthalene	0.12	1.85	2.36	73		1.68	2.36	66		37-117	9	30
Acenaphthylene	ND	1.91	2.36	81	#	1.74	2.36	74	#	43-114	9	30
Acenaphthene	0.52	2.38	2.36	79		2.25	2.36	73		45-114	6	30
Dibenzofuran	0.11	1.96	2.36	78		1.79	2.36	72		44-122	9	30
Fluorene	0.51	2.43	2.36	81		2.30	2.36	76		45-123	5	30
Phenanthrene	0.13	1.98	2.36	78		1.85	2.36	73		42-127	7	30
Anthracene	0.027	1.89	2.36	79		1.73	2.36	72		32-125	9	30
Fluoranthene	ND	1.94	2.36	82		1.78	2.36	76		48-134	8	30
Pyrene	ND	1.91	2.36	81		1.76	2.36	74		44-130	8	30
Benz(a)anthracene	ND	2.05	2.36	87		1.88	2.36	80		41-128	9	30
Chrysene	ND	2.07	2.36	88		1.89	2.36	80		48-128	9	30
Benzo(b)fluoranthene	ND	1.93	2.36	82		1.77	2.36	75		40-139	8	30
Benzo(k)fluoranthene	ND	1.93	2.36	82		1.75	2.36	74		48-134	10	30
Benzo(a)pyrene	ND	1.95	2.36	83		1.77	2.36	75		35-132	9	30
Indeno(1,2,3-cd)pyrene	ND	2.00	2.36	85		1.83	2.36	77		40-135	9	30
Dibenz(a,h)anthracene	ND	1.94	2.36	82		1.79	2.36	76		43-135	8	30
Benzo(g,h,i)perylene	ND	1.98	2.36	84		1.82	2.36	77		44-128	9	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	ERM Northwest, Incorporated	**Service Request:**	K1506739
Project:	PEO/0296824	**Date Extracted:**	06/25/2015
Sample Matrix:	Water	**Date Analyzed:**	07/01/2015

Lab Control Spike/Duplicate Lab Control Spike Summary
Polynuclear Aromatic Hydrocarbons

Extraction Method:	EPA 3520C	**Units:**	ug/L
Analysis Method:	8270D SIM	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1505722

	Lab Control Sample KWG1505722-5 Lab Control Spike			Duplicate Lab Control Sample KWG1505722-6 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Naphthalene	1.93	2.50	77	1.93	2.50	77	39-110	0	30
2-Methylnaphthalene	1.86	2.50	74	1.89	2.50	75	39-115	1	30
Acenaphthylene	2.05	2.50	82	2.02	2.50	81	44-115	1	30
Acenaphthene	2.00	2.50	80	1.97	2.50	79	44-113	2	30
Dibenzofuran	2.02	2.50	81	1.98	2.50	79	46-116	2	30
Fluorene	2.04	2.50	82	2.00	2.50	80	48-118	2	30
Phenanthrene	2.08	2.50	83	2.03	2.50	81	47-120	2	30
Anthracene	2.01	2.50	80	2.00	2.50	80	44-117	1	30
Fluoranthene	2.15	2.50	86	2.09	2.50	84	48-128	3	30
Pyrene	2.08	2.50	83	2.05	2.50	82	42-133	1	30
Benz(a)anthracene	2.15	2.50	86	2.11	2.50	84	48-125	2	30
Chrysene	2.15	2.50	86	2.09	2.50	84	50-128	2	30
Benzo(b)fluoranthene	2.16	2.50	86	2.09	2.50	84	49-131	3	30
Benzo(k)fluoranthene	2.10	2.50	84	2.05	2.50	82	54-131	2	30
Benzo(a)pyrene	2.06	2.50	83	1.98	2.50	79	43-134	4	30
Indeno(1,2,3-cd)pyrene	2.09	2.50	83	2.08	2.50	83	45-133	0	30
Dibenz(a,h)anthracene	2.00	2.50	80	1.99	2.50	80	49-133	0	30
Benzo(g,h,i)perylene	2.02	2.50	81	2.00	2.50	80	51-124	1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Attachment B
Boring Logs

ERM-West, Inc.
1001 S.W. 5th Avenue, Suite 1010
Portland, Oregon 97204
Telephone: 503-488-5282

MW-26

CLIENT MMGL
PROJECT NAME PEO Portland Groundwater Well Installation
PROJECT NUMBER 0283866
PROJECT LOCATION 10400 N. Burgard Way, Portland Oregon
DATE STARTED 6/4/15 **COMPLETED** 6/5/15
GROUND ELEVATION _____ **HOLE SIZE** 3'-3/4"
CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
EQUIPMENT Direct Push
AT TIME OF DRILLING 27.20 ft
LOGGED BY J. Dauphinais **CHECKED BY** K. Ewing
AT END OF DRILLING ---
NOTES Vacuum and air knife cleared to 5 feet below ground surface.
AFTER DRILLING 22.50 ft

DEPTH (ft)	SAMPLE IDENTIFICATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
0						Casing Top Elev: 0 (ft)
		GW		TOPSOIL SANDY GRAVEL: brown, cobbles 5" in diameter, dry.		Flush-mount well box with locking cap
				2.0		
		SP		POORLY GRADED GRAVELLY SAND: brown, loose, with cobbles, no HCO, dry.		Portland cement grout
5				5.0		Bentonite chip seal
		SP		POORLY GRADED GRAVELLY SAND: dark brown (10YR 3/3), loose, fine to medium grain, no HCO, moist.	4.7	
10				10.0		
		SP		POORLY GRADED GRAVELLY SAND: dark brown (10YR 3/3), loose, fine to medium grain, moderate HCO, moist.		
				Oxidized and weathered stringer 12 inches thick.		
				Black (10YR 2/1).	0.7	
15				15.0		
		SP		POORLY GRADED SAND: dark yellow brown (!)YR 4/3), loose, fine to medium grain, moderate HCO, moist.		2-inch Schedule 40 PVC
				Black.		
20				20.0	5208	
		SP		POORLY GRADED SAND: black (10YR 2/1) to brown (10YR 4/3), fine to medium grain, loose, strong to moderate HCO, moist.		
				23.9		
		ML		24.1 SILT: black, wood and organics approximately 1 inch thick at bottom.	14629	
25		SP		25.0 POORLY GRADED SAND:		
		SP		POORLY GRADED SAND: black and brown, loose, fine to medium grain, moderate HCO, wet.		
				28.0		
		SM		28.1 SILTY SAND:	13700	
		SM		28.6 SILTY SAND:		
		SP		POORLY GRADED SAND: black and brown, loose, fine to medium grain,		
30				30.0		

GENERAL BH / TP / WELL - GINT STD US.GDT - 7/20/15 15:51 - F:\ERM\GINT\MMGL\MMGL PEO PORTLAND GW WELL INSTALLATION.GPJ

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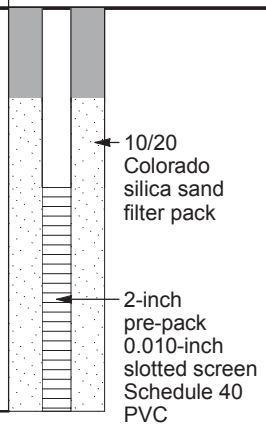
ERM-West, Inc.
1001 S.W. 5th Avenue, Suite 1010
Portland, Oregon 97204
Telephone: 503-488-5282

MW-26

CLIENT MMGL
PROJECT NAME PEO Portland Groundwater Well Installation
PROJECT NUMBER 0283866
PROJECT LOCATION 10400 N. Burgard Way, Portland Oregon
DATE STARTED 6/4/15 **COMPLETED** 6/5/15
GROUND ELEVATION _____ **HOLE SIZE** 3'-3/4"
CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
EQUIPMENT Direct Push
AT TIME OF DRILLING 27.20 ft
LOGGED BY J. Dauphinais **CHECKED BY** K. Ewing
AT END OF DRILLING ---
NOTES Vacuum and air knife cleared to 5 feet below ground surface.
AFTER DRILLING 22.50 ft

DEPTH (ft)	SAMPLE IDENTIFICATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
30				moderate HCO, wet.		
		SP		POORLY GRADED SAND: black (10YR 2/1), loose, fine to medium grain, strong HCO, saturated.		
				33.2		
		SM		33.4 SILTY SAND:	26.3	
		ML		34.2 CLAYEY SILT:		
35		SP		35.0 POORLY GRADED SAND: strong HCO, saturated.		
		SP		POORLY GRADED SAND: black, (10YR 2/1), fine to medium grain, loose, moderate HCO, saturated.		
				36.6		
		SM		INTERBEDDED SAND (SP) and SILTY SAND (SM):		
				38.6		
		CL		38.9 CLAY: black (10YR 2/1), soft, low plasticity, moderate HCO, wet.		
		SP		39.0 POORLY GRADED SAND:	11.5	
				Bottom of borehole at 39.0 feet.		



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ERM-West, Inc.
1001 S.W. 5th Avenue, Suite 1010
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Telephone: 503-488-5282

MW-27

CLIENT MMGL
PROJECT NAME PEO Portland Groundwater Well Installation
PROJECT NUMBER 0283866
PROJECT LOCATION 10400 N. Burgard Way, Portland Oregon
DATE STARTED 6/4/15 **COMPLETED** 6/4/15
GROUND ELEVATION _____ **HOLE SIZE** 3'-3/4"
CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
EQUIPMENT Direct Push
AT TIME OF DRILLING 26.40 ft
LOGGED BY J. Dauphinais **CHECKED BY** K. Ewing
AT END OF DRILLING ---
NOTES Vacuum and air knife cleared to 5 feet below ground surface.
AFTER DRILLING 22.85 ft

DEPTH (ft)	SAMPLE IDENTIFICATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
0						Casing Top Elev: 0 (ft)
		GW		TOPSOIL SANDY GRAVEL: brown, cobbles 5" in diameter, dry.		Flush-mount well box with locking cap
				2.0		
		SP		POORLY GRADED GRAVELLY SAND: brown, loose, with cobbles, no HCO, dry.		Portland cement grout
5				5.0		Bentonite chip seal
		SP		POORLY GRADED GRAVELLY SAND: brown (10YR 4/3), very loose, fine to medium grain, 40% gravel fine to coarse grain, no HCO.	2.5	
10				11.0		
		SP		POORLY GRADED SAND: dark brown (10YR 3/3), loose, fine to medium grain, no HCO, moist.	0.7	
15				16.8		
				17.4 Gravel		2-inch Schedule 40 PVC
				POORLY GRADED SAND: dark brown (10YR 3/3), loose, fine to medium grain, no HCO, moist.	0.6	
20				20.0		
		SP		POORLY GRADED SAND: loose, fine to medium grain, 10% gravel, moist.		
				Wood and organics.		
				24.0		
		SM		24.2 SANDY SILT:	223	
25		ML		25.0 SILT: soft, low plasticity, moderate HCO.		
		SP		POORLY GRADED SAND: yellowish brown (10YR 5/4), loose, fine to medium grain, 10% gravel, slight HCO.		
				26.4		
		SP		POORLY GRADED SAND: black, fine to medium grain, moderate HCO, saturated.		
				27.5		
		SM		27.7 SILTY SAND:		
		SP		28.1 POORLY GRADED SAND:	25.8	
		SM		29.3 SILTY SAND:		
30		SP		30.0 POORLY GRADED SAND:		

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GENERAL BH / TP / WELL - GINT STD US.GDT - 7/20/15 15:51 - F:\ERM\GINT\MMGL\MMGL PEO PORTLAND GW WELL INSTALLATION.GPJ

ERM-West, Inc.
1001 S.W. 5th Avenue, Suite 1010
Portland, Oregon 97204
Telephone: 503-488-5282

MW-27

CLIENT MMGL
PROJECT NAME PEO Portland Groundwater Well Installation
PROJECT NUMBER 0283866
PROJECT LOCATION 10400 N. Burgard Way, Portland Oregon
DATE STARTED 6/4/15 **COMPLETED** 6/4/15
GROUND ELEVATION _____ **HOLE SIZE** 3'-3/4"
CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
EQUIPMENT Direct Push
AT TIME OF DRILLING 26.40 ft
LOGGED BY J. Dauphinais **CHECKED BY** K. Ewing
AT END OF DRILLING ---
NOTES Vacuum and air knife cleared to 5 feet below ground surface.
AFTER DRILLING 22.85 ft

DEPTH (ft)	SAMPLE IDENTIFICATION	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
30				NO RECOVERY		
				31.0		
		SP		POORLY GRADED SAND: yellowish brown, loose, fine to medium grain, no HCO, wet.		
		ML		31.3 / 31.7		
		SP		SILT: very dark brown (10YR 2/2), medium stiff, low plasticity, moderate HCO.		
				33.1		
		SP		POORLY GRADED SAND: yellowish brown, fine to medium grain, 10% gravel, no HCO.	1932	10/20 Colorado silica sand filter pack
35				POORLY GRADED SAND: black, loose, moderate HCO, wet.		
				35.0		
		SP		POORLY GRADED SAND: brown (10YR5/3), loose, fine to medium grain, 5% gravel, no HCO, wet.		
				36.1		
		SM		Interbedded sand (SP) and silty sand (SM): black, loose, moderate HCO, wet.		
		ML		37.1 / 37.6		
		SP		POORLY GRADED SAND: loose, black, fine to medium grain, moderate HCO, wet.		2-inch pre-pack 0.010-inch slotted screen Schedule 40 PVC
				SILT: medium stiff.		
40				40.0	44.4	

Bottom of borehole at 40.0 feet.

GENERAL BH / TP / WELL - GINT STD US.GDT - 7/20/15 15:51 - F:\ERM\GINT\MMGL\MMGL PEO PORTLAND GW WELL INSTALLATION.GPJ

Appendix C
Riverbank Erodibility Evaluation

Bank Erosion Hazard Index

Portland, Oregon

Southern PEO Site

Bank Erosion Hazard Rating Guide

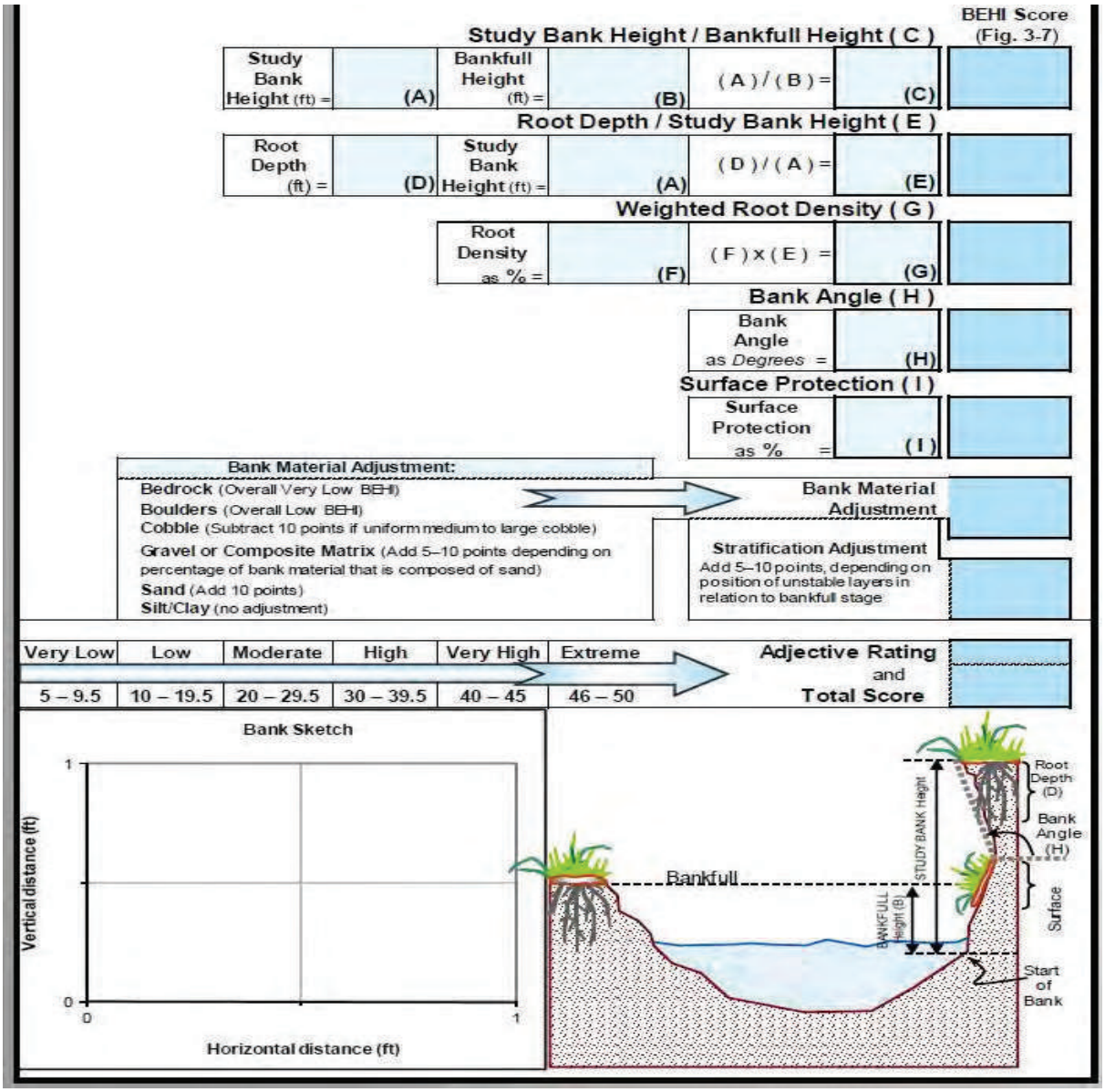
Stream | Reach | Date | Crew

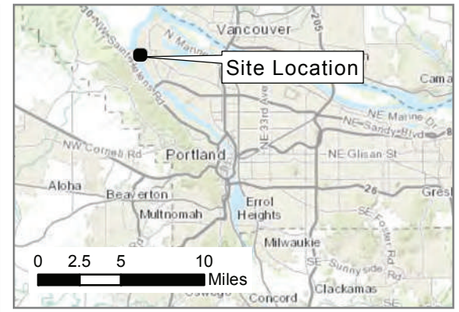
Bank Erosion Potential			Bank Height/ Bankfull Ht	Root Depth/ Bank Height	Root Density %	Bank Angle (Degrees)	Surface Protection%
Bank Height (ft): / Bankfull Height (ft):							
VERY LOW		Value	1.0-1.1	1.0-0.9	100-80	0-20	100-80
		Index	1.0-1.9	1.0-1.9	1.0-1.9	1.0-1.9	1.0-1.9
		Choice	V: I:	V: I:	V: I:	V: I:	V: I:
LOW		Value	1.11-1.19	0.89-0.5	79-55	21-60	79-55
		Index	2.0-3.9	2.0-3.9	2.0-3.9	2.0-3.9	2.0-3.9
		Choice	V: I:	V: I:	V: I:	V: I:	V: I:
MODERATE		Value	1.2-1.5	0.49-0.3	54-30	61-80	54-30
		Index	4.0-5.9	4.0-5.9	4.0-5.9	4.0-5.9	4.0-5.9
		Choice	V: I:	V: I:	V: I:	V: I:	V: I:
HIGH		Value	1.6-2.0	0.29-0.15	29-15	81-90	29-15
		Index	6.0-7.9	6.0-7.9	6.0-7.9	6.0-7.9	6.0-7.9
		Choice	V: I:	V: I:	V: I:	V: I:	V: I:
VERY HIGH		Value	2.1-2.8	0.14-0.05	14-5.0	91-119	14-10
		Index	8.0-9.0	8.0-9.0	8.0-9.0	8.0-9.0	8.0-9.0
		Choice	V: I:	V: I:	V: I:	V: I:	V: I:
EXTREME		Value	>2.8	<0.05	<5	>119	<10
		Index	10	10	10	10	10
		Choice	V: I:	V: I:	V: I:	V: I:	V: I:
V = value, I = index					**SUB-TOTAL** (Sum one index from each column)		

BEHI Form

Southern PEO Site

Portland, Oregon





Legend

- Survey Profile
- Barrier Wall Alignment
- Top of Bank
- Ordinary High Water (20.5 ft NAVD 88)
- Property Boundary
- Parcels

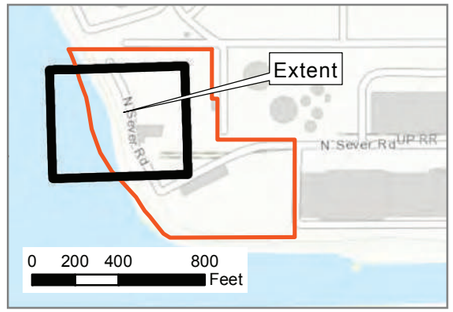
Notes:
Profiles were surveyed on May 17, 2016 by True North Land Surveying, Inc.
Aerial Imagery: City of Portland, flown 7/7/2012

Figure **1**
Profile Locations
Erodibility Study
Southern PEO Site
Portland, Oregon

Environmental Resources Management
1001 SW 5th St, Suite 1010
Portland, Oregon 97204

ERM

M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Erodibility Study\Fig 2- Photo Locations.mxd Created By: Melody Kieneker Date: 7/12/2016 Project: 0296824



Legend

- Photo Location
- Survey Profile
- Barrier Wall Alignment
- Top of Bank
- Ordinary High Water (20.5 ft NAVD 88)
- Property Boundary
- Parcels

Notes:
Direction of photo location arrow coordinates to direction photo was taken.
Profiles were surveyed on May 17, 2016 by True North Land Surveying, Inc.
Photos taken on May 17, 2016.
Aerial Imagery: City of Portland, flown 7/7/2012

Figure **2**
Photo Locations
Profiles 1, 2 & 3
Erodibility Study
Southern PEO Site
Portland, Oregon

Environmental Resources Management
1001 SW 5th St, Suite 1010
Portland, Oregon 97204

ERM

Created By: Melody Kieneker Date: 7/12/2016 Project: 0296824

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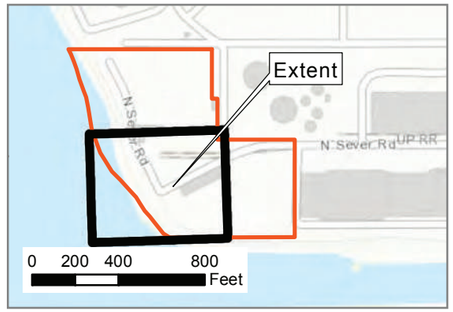


Legend

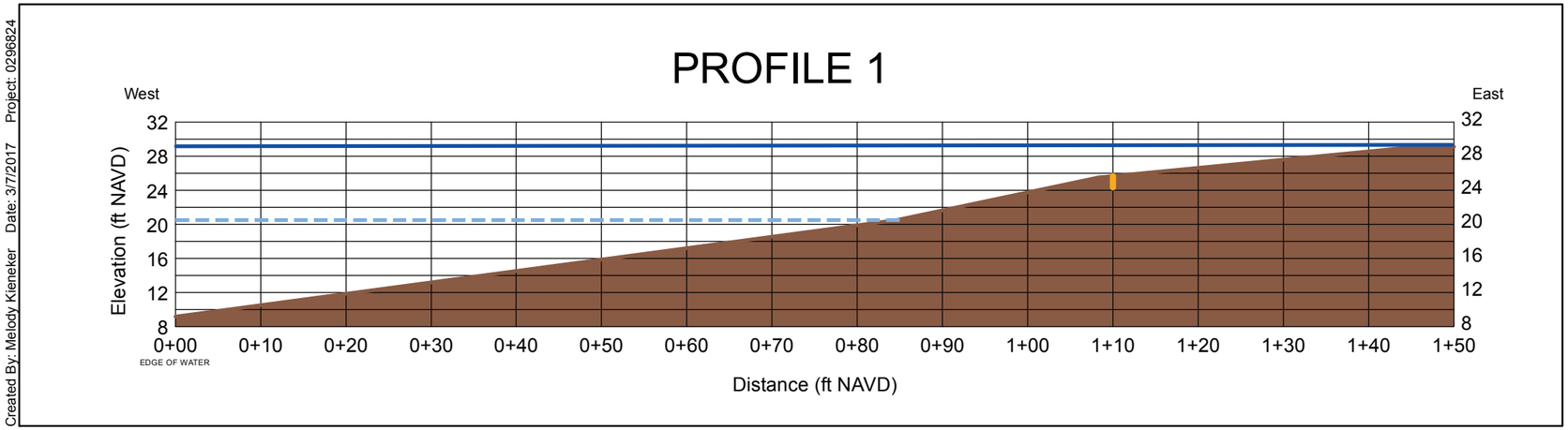
- Photo Location
- Survey Profile
- Barrier Wall Alignment
- Top of Bank
- Ordinary High Water (20.5 ft NAVD 88)
- Property Boundary
- Parcels

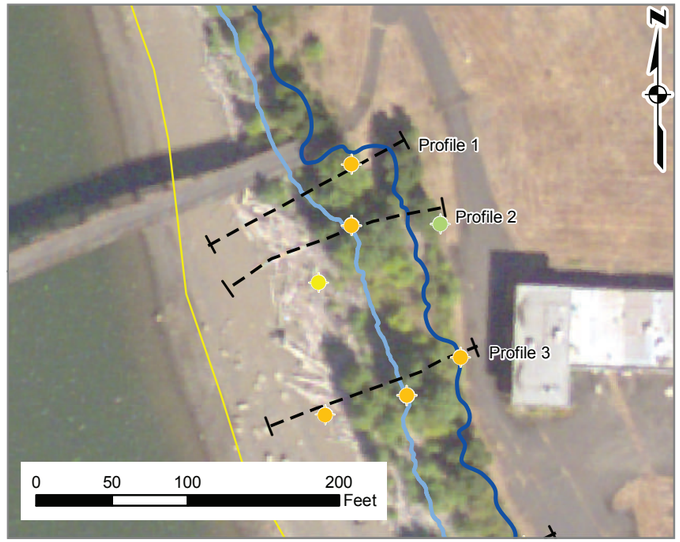
Notes:
Direction of photo location arrow coordinates to direction photo was taken.
Profiles were surveyed on May 17, 2016 by True North Land Surveying, Inc.
Photos taken on May 17, 2016.
Aerial Imagery: City of Portland, flown 7/7/2012

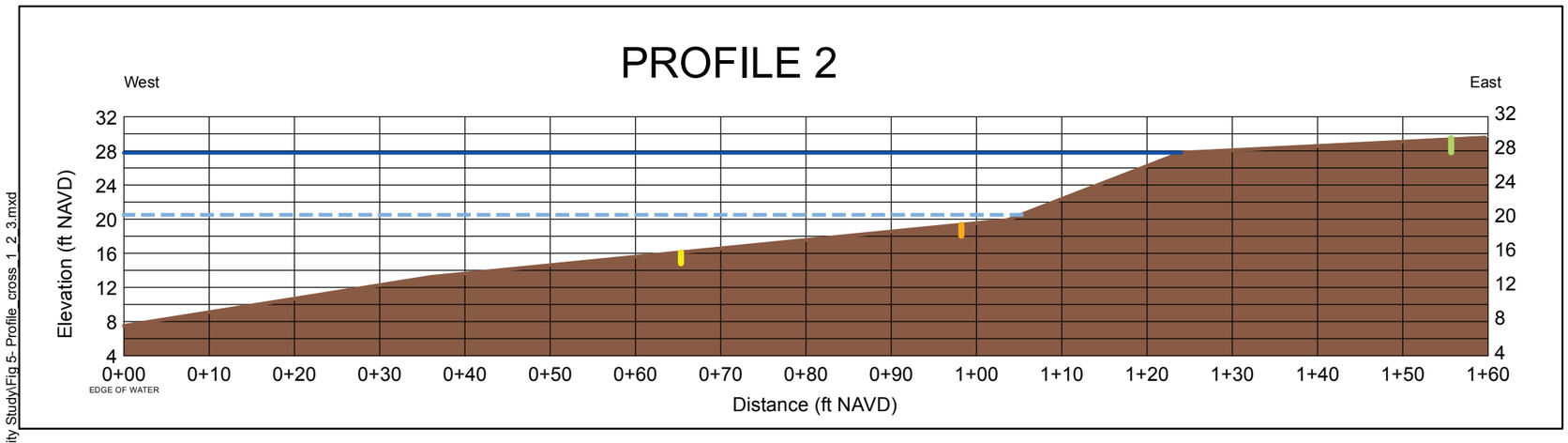
Figure **3**
Photo Locations
Profiles 4, 5 & 6
Erodibility Study
Southern PEO Site
Portland, Oregon

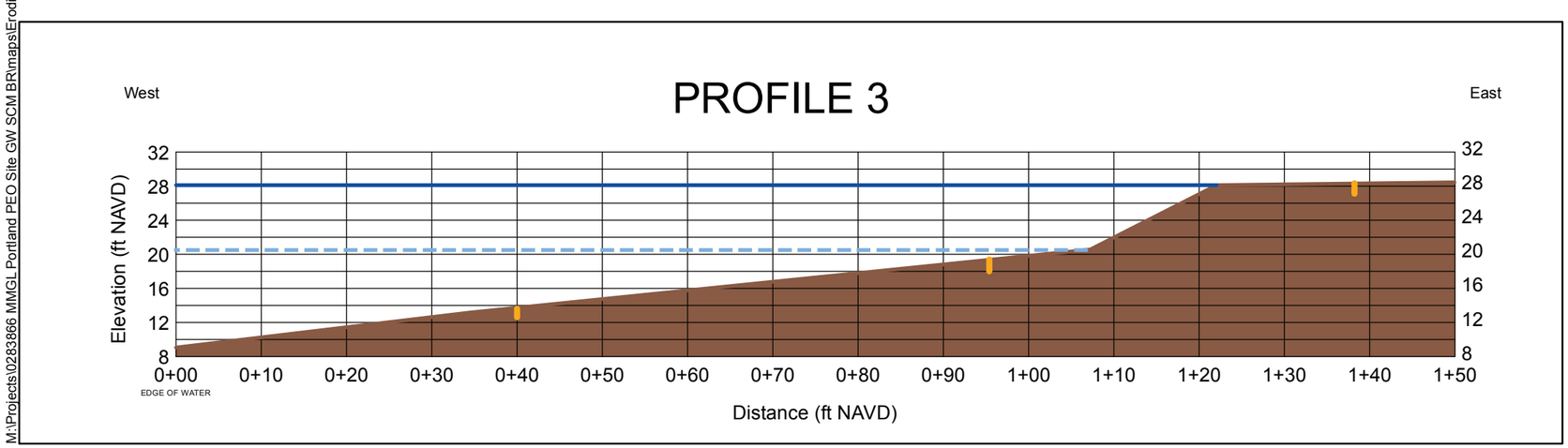
Environmental Resources Management
1001 SW 5th St, Suite 1010
Portland, Oregon 97204
ERM

M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Erodibility Study\Fig 4- Profiles_4_5_6.mxd
Created By: Melody Kieneker Date: 7/12/2016 Project: 0296824









Legend

- Detected concentration is greater than 100 times the PRG
- Detected concentration is between 10 and 100 times the PRG
- Detected concentration is between 1 and 10 times the PRG
- Survey Profile
- Top of Bank
- Ordinary High Water (20.5 ft NAVD 88)
- Parcels

Notes:
Profiles were surveyed on May 17, 2016 by True North Land Surveying, Inc.
Aerial Imagery: City of Portland, flown 7/7/2012
PRGs = Portland Harbor Preliminary Remediation Goals

B(a)PE Portland Harbor PRG = 0.012 mg/kg

Figure 5
Profile Cross Sections
Profiles 1, 2, & 3
Erodibility Study
Southern PEO Site
Portland, Oregon

Environmental Resources Management
1001 SW 5th St, Suite 1010
Portland, Oregon 97204

ERM

Created By: Melody Kieneker Date: 3/7/2017 Project: 0296824

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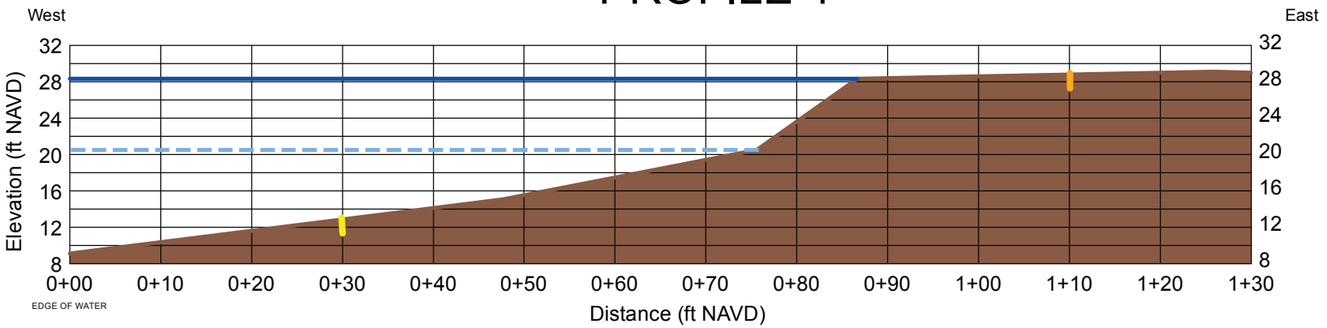

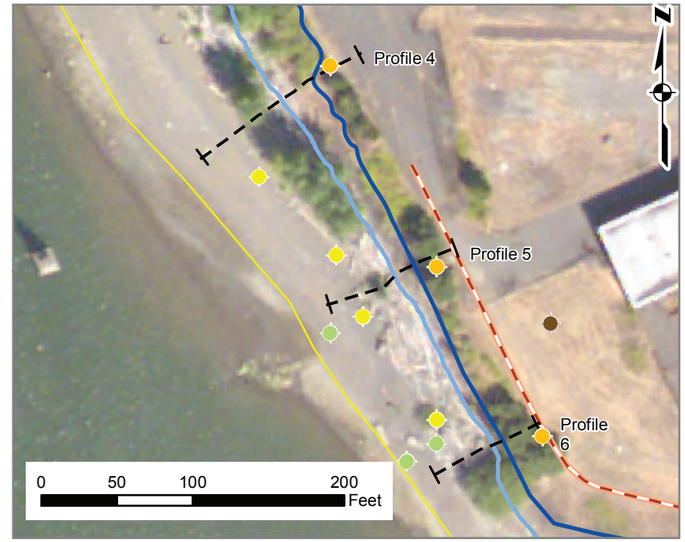

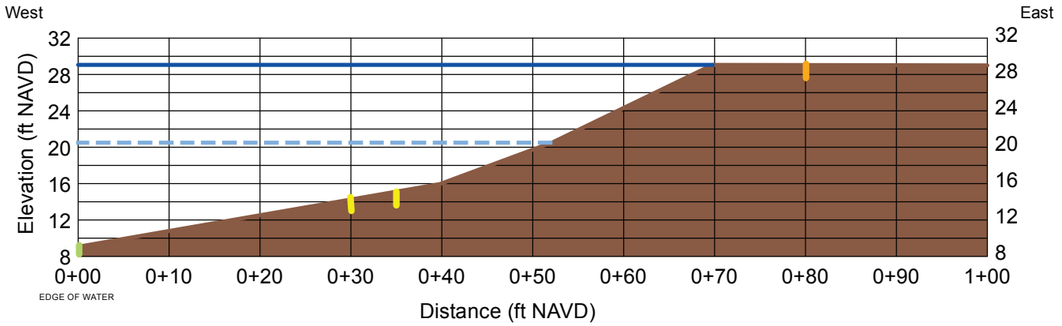

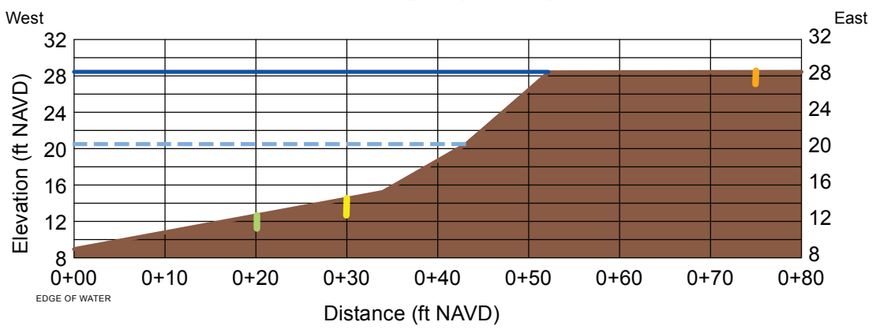

Legend

- Detected concentration is greater than 100 times the PRG
- Detected concentration is between 10 and 100 times the PRG
- Detected concentration is between 1 and 10 times the PRG
- Upland Soil Sample (No PRG)
- Survey Profile
- Barrier Wall Alignment
- Top of Bank
- Ordinary High Water (20.5 ft NAVD 88)
- Parcels

Notes:
Profiles were surveyed on May 17, 2016 by True North Land Surveying, Inc.
Aerial Imagery: City of Portland, flown 7/7/2012
PRGs = Portland Harbor Preliminary Remediation Goals

B(a)PE Portland Harbor PRG = 0.012 mg/kg

Figure **5**
Profile Cross Sections
Profiles 4, 5, & 6
Erodibility Study
Southern PEO Site
Portland, Oregon

Environmental Resources Management
1001 SW 5th St, Suite 1010
Portland, Oregon 97204

ERM

Created By: Melody Kieneker Date: 7/12/2016 Project: 0296824

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Profile 1

Bank Erosion Hazard Index Calculation

Southern PEO Site

Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**8.5**	Bankfull Height in ft (B)	**8.5**	(A)/(B) =	**1**	(C)	**1**
Root Depth in ft (D)	**6**	Bank Height in ft (A)	**8.5**	(D)/(A) =	**0.71**	(E)	**2.9**
		Root Density as % (F)	**50**	(F) x (E) =	**35.3**	(G)	**5.5**
				Bank Angle as Degrees =	**9.8**	(H)	**1.5**
				Surface Protection as % =	**50**	(I)	**4.3**
						Bank Material Adjustment (see form below)	**0**
						Stratification Adjustment (add 5 to 10 points for unstable layers)	**0**
						Total Score and Adjective Rating	**15.2**

Profile 2

Bank Erosion Hazard Index Calculation

Southern PEO Site

Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**7**	Bankfull Height in ft (B)	**7**	(A)/(B) =	**1**	(C)	**1**
Root Depth in ft (D)	**6**	Bank Height in ft (A)	**7**	(D)/(A) =	**0.86**	(E)	**2.2**
		Root Density as % (F)	**50**	(F) x (E) =	**42.9**	(G)	**4.9**
				Bank Angle as Degrees =	**17.7**	(H)	**1.9**
				Surface Protection as % =	**50**	(I)	**4.3**
				Bank Material Adjustment (see form below)			**0**
				Stratification Adjustment (add 5 to 10 points for unstable layers)			**0**
				Total Score and Adjective Rating			**14.2**

Profile 3

Bank Erosion Hazard Index Calculation

Southern PEO Site

Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**7.5**	Bankfull Height in ft (B)	**7.5**	(A)/(B) =	**1**	(C)	**1**
Root Depth in ft (D)	**5**	Bank Height in ft (A)	**7.5**	(D)/(A) =	**0.67**	(E)	**3.1**
		Root Density as % (F)	**50**	(F) x (E) =	**33.33**	(G)	**5.6**
				Bank Angle as Degrees =	**22.1**	(H)	**2.1**
				Surface Protection as % =	**50**	(I)	**4.3**
				Bank Material Adjustment (see form below)			**0**
				Stratification Adjustment (add 5 to 10 points for unstable layers)			**0**
				Total Score and Adjective Rating			**16.1**

Profile 4

Bank Erosion Hazard Index Calculation

Southern PEO Site

Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**8**	Bankfull Height in ft (B)	**8**	(A)/(B) =	**1**	(C)	**1**
Root Depth in ft (D)	**3.5**	Bank Height in ft (A)	**8**	(D)/(A) =	**0.44**	(E)	**4.5**
		Root Density as % (F)	**20**	(F) x (E) =	**8.75**	(G)	**8.6**
				Bank Angle as Degrees =	**32.0**	(H)	**2.5**
				Surface Protection as % =	**25**	(I)	**6.5**
				Bank Material Adjustment (see form below)			**5**
		Stratification Adjustment (add 5 to 10 points for unstable layers)					**0**
				Total Score and Adjective Rating			**28.2**

Profile 5

Bank Erosion Hazard Index Calculation

Southern PEO Site

Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**8.5**	Bankfull Height in ft (B)	**8.5**	(A)/(B) =	**1**	(C)	**1**
Root Depth in ft (D)	**3**	Bank Height in ft (A)	**8.5**	(D)/(A) =	**0.35**	(E)	**5.4**
		Root Density as % (F)	**20**	(F) x (E) =	**7.06**	(G)	**8.8**
				Bank Angle as Degrees =	**23.9**	(H)	**2.1**
				Surface Protection as % =	**25**	(I)	**6.5**
				Bank Material Adjustment (see form below)			**5**
				Stratification Adjustment (add 5 to 10 points for unstable layers)			**0**
				Total Score and Adjective Rating			**28.8**

Profile 6

Bank Erosion Hazard Index Calculation

Southern PEO Site

Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**8**	Bankfull Height in ft (B)	**8**	(A)/(B) =	**1**	(C)	**1**
Root Depth in ft (D)	**3.5**	Bank Height in ft (A)	**8**	(D)/(A) =	**0.44**	(E)	**4.5**
		Root Density as % (F)	**40**	(F) x (E) =	**17.50**	(G)	**7.6**
				Bank Angle as Degrees =	**35.5**	(H)	**2.7**
				Surface Protection as % =	**40**	(I)	**5.1**
				Bank Material Adjustment (see form below)			**5**
				Stratification Adjustment (add 5 to 10 points for unstable layers)			**0**
				Total Score and Adjective Rating			**25.9**

Table 1
Riverbank Erodiblity Hazard Evaluation
Upland and TZW Investigation and Source Control Evaluation
Southern PEO Site
Portland, Oregon

Location	Lithologic Description	Beach Slope (%)	TOB Elevation (ft NAVD88)	Distance to OHWM (ft)	Bank Full Height (ft)	Top Slope (%)	Top Slope (degrees)	Current BEHI	Bank Erosion Hazard Rank
Profile 1	SM: Silty Sand; dark brown to grey, silty sand with clay, high organic content	13%	29	49.3	8.5	17%	9.8	15.2	Low
Profile 2	SP: Poorly graded sand; dark brown, fine sand and silt and clay.	11%	27.5	22	7	32%	17.7	14.2	Low
Profile 3	SM: Silty Sand; dark brown to grey, silty sand with clay, high organic content	9%	28	18.5	7.5	41%	22.1	16.1	Low
Profile 4	SP: Poorly graded sand; dark to light brown, fine sand and silt, high organic content.	17%	28.5	12.8	8	63%	32.0	28.2	Moderate to High
Profile 5	GM: Silty Gravel and Sand; brown, fine to coarse gravel and well rounded cobbles (up to 6 inches in diameter). Riprap.	31%	29	19.2	8.5	44%	23.9	28.8	Moderate to High
Profile 6	SM: Silty Sand; dark brown to grey, silty sand with clay, high organic content	51%	28.5	11.2	8	71%	35.5	25.9	Moderate

Note: Ground cover percentage may exceed 100% due to overlap estimated.
BEHI = Bank Erodibility Hazard Index
TOB = Top of Bank
Elevation is feet above mean sea level NAVD88
in = inches
ft = feet

Revised Riverbank Erodibility Evaluation
Environmental Resources Management, 2017

Environmental Resources Management

1001 SW 5th Avenue
Suite 1010
Portland, Oregon 97204
(503) 488-5282
(503) 488-5142 (fax)

9 October 2017

Via Electronic Mail

Ms. Erin McDonnell
Oregon Department of Environmental Quality
Northwest Region
700 NE Multnomah St., Suite 600
Portland, Oregon 97232-4100

Subject: Revised Riverbank Erodibility Evaluation
Premier Edible Oils Site
Portland, Oregon
ESCI #2013

Dear Ms. McDonnell:

This letter report is an update to the riverbank erodibility evaluation included in the *Upland and Transition Zone Water (TZW) Investigation Report and Source Control Evaluation (SCE)*, dated March 2017 (TZW and SCE), for the PEO site located at 10400 N. Burgard Way in Portland, Oregon (the "site") (Figure 1). This report was prepared by ERM-West, Inc. (ERM) on behalf of Burgard, a Series of MMGL Corp. (MMGL).

The TZE and SCE was submitted to the Oregon Department of Environmental Quality (ODEQ) on March 8, 2017. One of the conclusions of the TZW and SCE was that the primary pathway for riverbank soils to act as a source of contaminants to the Willamette River, is through the erodible soil pathway. In order to evaluate the potential for riverbank soils to erode to the Willamette River, a riverbank erodibility investigation was implemented between May 2016 and August 2017. The report presents the results of the riverbank erodibility investigation.

METHODOLOGY

The riverbank erodibility investigation was performed using the methods described in the US Fish & Wildlife's *Bank Assessment for Non-point source Consequences of Sediment* (BANCS). USEPA and ODEQ agreed

upon utilizing the BANCS methodology for evaluation of the riverbank stability in Portland Harbor (email communication ODEQ 19 May 2016).

The riverbank characteristics were measured along a total of 11 transects (Profiles 1 through 11). Each profile extended from the upper break in slope (top of bank) and down to approximately the riverward property boundary. A surveyed profile was developed for each transect. Specific features were then identified on each profile, including: the uppermost break in slope (top of bank), the toe of the slope, the upper most extent of surface protection (e.g., rip rap, concrete, or debris), and the lower most extent of surface protection. The following bank characteristics were then determined from these features and field observations, in accordance with the BANCS guidance:

- Study Bank Height
- Bankfull height
- Rooting Depth
- Root Density
- Bank Angle
- Percent Bank Protection
- Bank Composition
- Bank Material Stratification

Measurements and observed characteristics of the riverbank are converted to index values, which are then used to calculate the Bank Erosion Hazard Index (BEHI) using the BANCS model. The erosion potential of the riverbank is then determined based on the range that the BEHI falls in.

RIVERBANK CHARACTERISTICS

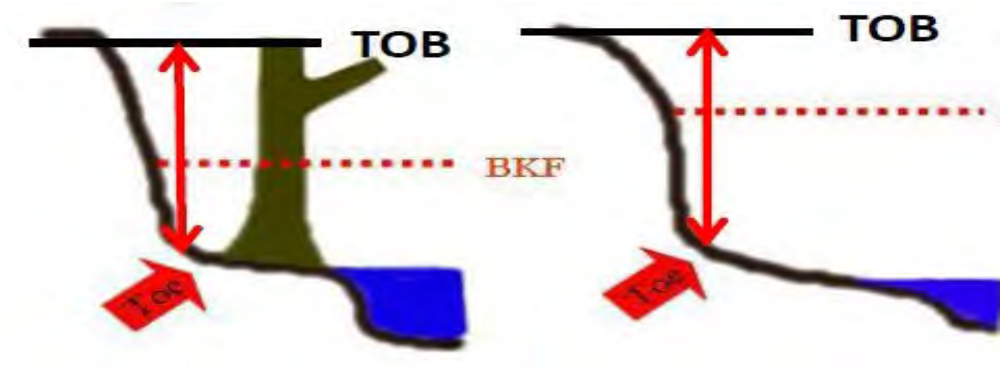
The initial step in the determination of riverbank characteristics is to establish the type of riverbank section and the major features of the riverbank. The detailed layout of each surveyed profile and photographs of the profile areas are presented in Attachment A. Field measurements and characteristics for each profile are presented in Attachment B.

The PEO riverbank is generally characterized by an upper portion of the bank that is vegetated with grasses and trees, that slopes down to a flatter area that is vegetated and has significant amounts of surface protection consisting of a combination of riprap, cobbles, concrete blocks and large debris (logs). This flatter area then transitions to the sandy beach area. The approximate extent of surface protection (riprap, concrete, cobbles, and debris) was mapped and is shown on Figure 2.

Bank Height

Six main types of riverbank profile are used in BANCS (see Attachment B). The two types of riverbank profile that most closely represents the riverbank at the PEO are shown in Figure 3 below.

Figure 3: Riverbank profile types used for PEO BANCS evaluation



In these profile types, the bank height is measured from the toe of slope to the top of the bank (defined as the first major break in slope). Based on available LIDAR data and the surveyed riverbank profiles, the toe of slope occurs at an approximate elevation of 20-22 ft NAVD 88 consistently across the site. The top of bank was determined from the first major break in slope on the surveyed profile and top of bank (Figures 4 through 7). The bank angle was calculated by measuring the bank height and the horizontal distance from the toe of slope to the top of bank from the surveyed profiles.

Bankfull Height

In the BANCS model, one of the key index values is the ratio of the riverbank height (Bank height) to the water depth (Bankfull height). The maximum erodibility occurs when only a portion of the bank is

submerged. The bank full height is defined as the depth of water from the toe of the slope up the bank (i.e. the extent of the bank exposed to water). To determine a bankfull height for the purpose of evaluating riverbank erodibility at the site, the flood stages for the Willamette River were considered. The closest river gauge station to the site is the Morrison Street Bridge River gauge, located approximately 8.8 miles upstream from the site. Three flood categories are defined at the Morrison Street Bridge river gauge[1]. These three flood stages consist of:

- Minor Flood Stage (23 ft NAVD88);
- Moderate Flood stage (29 ft NAVD88), the assumed bankfull height, referred to as "BKF" in Figure 3 and BANCS guidance); and
- Major Flood Stage (33 ft NAVD88).

The extent of the Minor Flood Stage and Moderate Flood are shown in Figure 2. The Major Flood stage extent is not shown, as this elevation is above the top of bank and extends across, and beyond, the majority of the site. The Major Flood stage is approximately equal to the 100-year flood stage (32 ft NAVD).

As shown in Figures 4 through 7, the Minor Flood Stage elevation (23 ft NAVD 88) is generally at or above the toe of the slope. Figure 2 shows the extent of surface protection and armoring that is present at the toe of the slope. The area of riverbank that is exposed to water during Flood Stage is within this area of significant armoring and surface protection. The potential for erosion during Minor Flood Stage is considered to be extremely low, given the amount of surface protection in this area.

The Moderate Flood Stage (29 ft NAVD88) results in a significant portion of the riverbank with the steepest slopes and least amount of surface protection being exposed to water. For the purpose of conducting the BANCS evaluation, the Moderate Flood Stage was selected as the most conservative bankfull height. It should be noted that the Minor Flood Stage has been exceeded a total of only 21 times since 1876, with Moderate Flood Stage being exceeded a total of 11 times. The OHWM (20.5 ft NAVD88) has only been exceeded a total of 24 times. This means

[1](http://water.weather.gov/ahps2/hydrograph.php?wfo=PQR&gage=PRTO3)

that for the overwhelming majority of the time (99.95 percent of historical record), the river level is below the toe of slope of the riverbank, and no bank erosion is possible.

Rooting Depth and Density

For each profile, the total combined depth of roots was estimated by digging approximately one to two inches into the riverbank soil and evaluating the length of visible roots. The overall density (area coverage) of root for each profile was visually assessed. The combined root depth and root density were then used to calculate the weight root density, as shown in Table 1.

Surface Protection

The surface protection characterizes how much of the riverbank is exposed to erosion. It is measured as the surface area protected from erosion. Surface protection can consist of vegetation, roots, debris, riprap, cobbles, concrete, etc. For banks that are vegetated by shrubs or trees, the surface protection is determined from percent of the bank influenced by the root fan.

Bank Material Adjustment

The bank material adjustment characterizes and the composition and consolidation of the riverbank. The more erodible the soil type, the higher susceptibility to erosion. The bank adjustment is an addition or subtraction to the calculated BEHI, depending on the type of bank material. The general bank composition is considered. For banks that are comprised of bedrock or boulders, the adjustment is made the overall classification (i.e. very low or low erosion potential respectively). For riverbanks that are comprised of materials with a lower potential for erosion (cobbles or silt/clay) points are subtracted. For materials that are more susceptible to erosion (gravel, sand, loam) points are added to the BEHI score, depending on the percentage of the bank that is comprised of that material. The bank material adjustments applied to each profile are shown in Attachment C. These adjustments were based on the materials descriptions and photos provided in Attachments A and B.

Stratification Adjustment

The stratification adjustment characterizes the unstable soil horizons prone to erosion in relation to the Bankfull stage (depth of water). The processes that are considered in this evaluation are fluvial entrainment, rotational failure, soil piping, and freeze/thaw processes. For the purpose of the PEO riverbank, due to the consistency of soil bank materials (i.e. no significant variation or soil horizons), no stratification adjustments were made.

BANK EROSION HAZARD INDEX

This section presents a discussion of the BEHI for portion of riverbank, from north to south. A BEHI was calculated for each of the profile and are presented in the attached Table 1 and Figure 2. The detailed evaluation results are presented in Attachment C.

Profiles 7 and 8

The portion of the riverbank is located to the north of the existing dock. The BEHI for Profile 7 was calculated to be 24.8, which is a moderate erosion potential. The primary driver of this conclusion is the limited root density and the sandy gravelly bank material. This sandy gravelly material is only exposed above 24.5 ft NAVD88. The riverbank below this elevation is armored with large concrete blocks, cobbles, and logs (see Attachment A, Figure A-1).

Profile 8 has a very low erosion potential, with a BEHI of 3.4. This is primarily due to the dense vegetation at the upper portions of the slope, and the extremely large pieces of concrete armoring in the lower portions of the riverbank, and extending down on to the beach.

These areas of riverbank are considered not to pose a risk to ecological receptors or for sediment recontamination due to the low concentrations of site contaminants in nearby upland soil samples, and the extremely low to moderate erosion potential.

Profiles 1, 2, and 3

This portion of the riverbank is characterized by low slope angles and significant amounts of vegetation, with extensive root depth and coverage (Attachment A, Figure A-2). The BEHI for Profiles, 1, 2, and 3 are 13.9, 16.3, and 16.1 respectively. These values fall in the range of low erosion potential. Although this area of the riverbank does not have the concrete armoring and consists of silty sand material, the extensive thick root coverage provides surface protection from erosion. This vegetation, combined with a low bank angle results in a low erosion potential.

Profiles 9, 4, and 10

This portion of the riverbank is characterized by moderately steep banks angles (30 – 35 degrees), with vegetation and root coverage of less than 50 percent. The BEHI for Profiles 9, 4, and 10 are 20.7, 28.0, and 11.6 respectively. This indicates that Profiles 9 and 4 have a moderate erosion potential, and Profile 10 has a low erosion potential. The primary driver of erosion potential at Profile 9 and 4 is the limited root depth and density, and the gravelly sand bank material. Profile 10 has similar characteristics, however the main driver for the low erosion potential at Profile 10, is the presence of 6-inch crushed rock cobble (Attachment A, Figure A-3) covering the riverbank for the full bank height.

Profiles 5, 11, and 6

This portion of the riverbank is characterized by steep bank angles (43 to 59 degrees), with limited vegetation coverage and root depths. The BEHI for 5, 11, and 6 are 25.6, 26.7, and 32.0 respectively. This indicates a moderate to high potential for erosion for this portion of the riverbank. The primary drivers of erosion potential in this area are the steep bank angle and lack of vegetation, combined with the gravelly sand bank material.

The lower portion of the bank, below elevation 22 ft NAVD88 (approximately 2 feet above the toe of slope), is covered with asphalt, cobbles, concrete blocks, and vegetation that extends down the beach (Attachment A, Figure A-4). This armoring provides a significant protection against erosion at the toe of slope and down the beach, as evidenced by the observed sloughing of soil above the armoring at the toe slope in Profiles 11 and 6 (Figure A-4).

ERODIBILITY EVALUATION

The following section presents a weight of evidence evaluation for potential for the Eco-zone soils to pose a risk of sediment recontamination following implementation of an in-water remedy.

The Portland Harbor Superfund Site Record of Decision (USEPA January 2017) (ROD) presented Monitored Natural Attenuation (MNA) as the selected in water sediment remedy for the area adjacent to the PEO site. For the purpose of the sediment remedy implementation, the in water area is defined as extending up to the ordinary high water mark (OHWM). This toe of the riverbank slope generally occurs at or above the OHWM elevation. The beach area adjacent to the riverbank is below the OHWM elevation and is considered to be part of the in-water area that will be remediated through MNA.

In order to allow for the successful implementation of MNA, the potential transport contaminants from upland soil to the beach and river channel must be controlled. The transport of the soils by erosion requires a potential for erosion, and the exposure to erosive forces (i.e., exposure to flowing water).

The results of the BEHI calculation are summarized in Figure 3. Polycyclic Aromatic Hydrocarbon (PAH) results for soils with the potential to erode to the river (i.e., Eco-Zone soils) are also shown. Areas with very low to low potential for erosion are not considered to pose a risk of sediment re-contamination and do not require source control measures.

A total of three areas were identified with moderate to high erosion potential that potentially require source control: Profile 7 Area, Profile 9 and 4 Areas, and Profile 5, 6, and 11 areas. The potential for erodible soils from each of the these areas to re-contaminate in water sediment, and the requirement for riverbank source control is discussed below. For those areas that require source control measures, the riverbank source control measures (i.e., methods and goals stabilization) that are under consideration are discussed.

Profile 7 Area

As discussed above the main driver for the moderate erosion potential of the Profile 7 Area is the limited root density and the sandy gravelly bank material that is present above elevation 24.5 ft NAVD88. The riverbank below this elevation is armored with large concrete blocks, cobbles, and logs. This lower portion of the riverbank is extremely well protected.

The portion of the riverbank above 24.5 ft NAVD88 has been inundated only 20 times (0.04 percent) in the 146 years of record. Given the very limited inundation, the protection provided by armor in adjacent areas of the beach, the area of the riverbank with moderate erosion potential will have very limited exposure to erosive forces. Based on this limited exposure to erosive forces, the low contaminant concentrations, the potential for riverbank soils from this portion of the site to re-contaminate the in-water sediment remedy is low, and is thus a riverbank source control measure is not required.

Profiles 9 and 4 Areas

The area in the vicinity of Profiles 9 and 4 has a moderate erosion potential. This area also has soil concentrations that exceed the Preliminary Remediation Goals (PRGs) for beach sediment by a factor of more than 100.

As discussed above, the main driver for moderate erosion potential for this area is the limited root depth and density, and the gravelly sand that the bank material. The surface protection (rip rap, cobbles, and debris) on the riverbank extends to an elevation of approximately 23 ft NAVD88, which is only approximately 0.5 to 1.0 feet above the toe of slope. Given the moderate erosion potential, limited surface protection, and potential exposure to erosive forces, this is an area that requires source control to prevent sediment recontamination.

The design goal of a riverbank source control measure in this area will be to provide additional stabilization through addressing the bank material, root depth and density, and surface protection. A likely stabilization measure would include regrading of existing soils, installation of geogrid mesh and backfill, and grass plantings (e.g., hydro-seeding). The post-remedy layout of the riverbank is shown in Figure 9.

For purpose of evaluating the effects of a riverbank source control measure in this area, the BEHI was recalculated for Profiles 9 and 4 assuming a maximum slope of 2:1 (26.6 degrees), increased root depth (90 percent of bank height) increased root density (75 percent), increased surface protection (100 percent), and a zero bank material adjustment due to imported fill bank material. The post-remedy BEHI calculations are presented in Attachment D.

The results of the conceptual riverbank source control measures on the BEHI are presented in Table 2. The post-source control measure BEHI for Profiles 9 and 4 are 14.8 and 12.2 respectively, which correlate to a low erosion potential. These BEHI values are consistent the BEHI values for areas that do not require source control measures, such as Profiles 1, 2, and 3.

Profiles 5, 11, and 6 Areas

The area in in the vicinity of Profiles 5, 11, and 6 have moderate to high erosion potential. This area also has soil concentrations that exceed the Preliminary Remediation Goals (PRGs) for beach sediment by a factor of more than 100.

As noted above, the primary drivers of erosion potential in this area are the steep bank angle and lack of vegetation, combined with the gravelly sand bank material. Surface protection extends form the beach area up to an elevation of approximately 23.5 ft NAVD88. The areas of steep bank, limited vegetation, and observed sloughing occur above 23.5 ft NAVD elevation. Given the moderate to high erosion potential, limited surface protection, and potential exposure to erosive forces, this is an area that requires source control to prevent sediment recontamination.

As noted above, the primary drivers of erosion potential in this area are the steep bank angle and lack of vegetation, combined with the gravelly sand bank material. The lower portion of the bank, below elevation 23 ft NAVD88 (approximately 2 feet above the toe of slope), is covered with asphalt, cobbles, concrete blocks, and vegetation that provides a significant protection against erosion at the toe of slope and down the beach. The design goal of a riverbank source control measure in this area of the site will be to decrease the bank angle, and provide additional stabilization through addressing the bank material, root depth and density, and surface protection.

A likely stabilization measure would include cutting back the existing bank, regrading, installation of geogrid mesh and backfill, and grass plantings (e.g., hydro-seeding). This stabilization measure would extend down to the top of the existing armoring (elevation 23 ft NAVD88). The post-remedy layout of the riverbank is shown in Figure 9.

For purpose of evaluating the effects of a riverbank source control measure in this area, the BEHI was recalculated for Profiles 5, 11, and 6 assuming a maximum slope of 2:1, increased root depth (maximum of 90 percent of bank height), increased root density (75 percent), increased surface protection (100 percent), and a zero bank material adjustment due to imported fill bank material. The post-remedy BEHI calculations are presented in Attachment D.

The results of the conceptual riverbank source control measures on the BEHI are presented in Table 2. The post-source control measure BEHI for Profiles 5, 11, and 6 are 10.3, 12.6, and 12.0 respectively, which correlate to a low erosion potential. These BEHI values are consistent the BEHI values for areas that do not require source control measures, such as Profiles 1, 2, and 3.

CONCLUSION

Per the ROD, the selected remedy to address impacts to sediment in the areas directly off-shore from the PEO site, including the beach area, consists of Monitored Natural Attenuation (MNA). The potential risk of sediment recontamination from upland sources must be controlled in advance of the implementation of the remedy. Riverbank soils have been identified as a potential source of sediment recontamination from the PEO site.

The riverbank was evaluated using the BANCS model to determine the potential for erosion. Riverbank characteristics were determined at a total of 11 profiles. The majority of the riverbank was found to have a very low or low potential for erosion. Source control measures are not required in these areas.

Two specific areas, the Profiles 9 and 4 area and the Profiles 5, 11, and 6 area, were found to have moderate or high potential for erosion. The primary drivers for the elevated erosion potential are the steep bank

angles, limited root depth and density, and the bank material. These areas will require source control measures.

Riverbank source control measures will focus on reducing the bank angle, stabilizing the bank material, and increasing the depth and coverage of vegetation. A conceptual riverbank source control measure consisting of cutting and re-grading the riverbank to a maximum slope of 2:1, installing a geogrid, backfilling with a silt sand mixture, and vegetating with grass plantings has been proposed. The effects of the conceptual riverbank source measure were evaluated by recalculating the BEHI for the stabilized portions the riverbank using the likely post-remedy characteristics. The erosion potential for the affected portions of riverbank was found to be low, indicating the proposed riverbank stabilization will be effective at controlling potential source of sediment re-contamination.

If you have any questions, please contact the Brendan Robinson at (503) 488-5282 or Tom Graf at (415) 290-5034.

Sincerely,

Brendan Robinson, P.E.
Program Director

Kim Marcus, R.H.G.
Partner

BAR/0382181

cc: Tom Graf, GrafCon
Matt McClincy, ODEQ
Rick Coffin, MMGL

Attachments
Attachment A – Profile Photo Locations
Attachment B – BANCS Worksheets
Attachment C – Current Conditions BEHI Calculations
Attachment D – Post Conceptual Source Control Measure BEHI Calculations

Figures

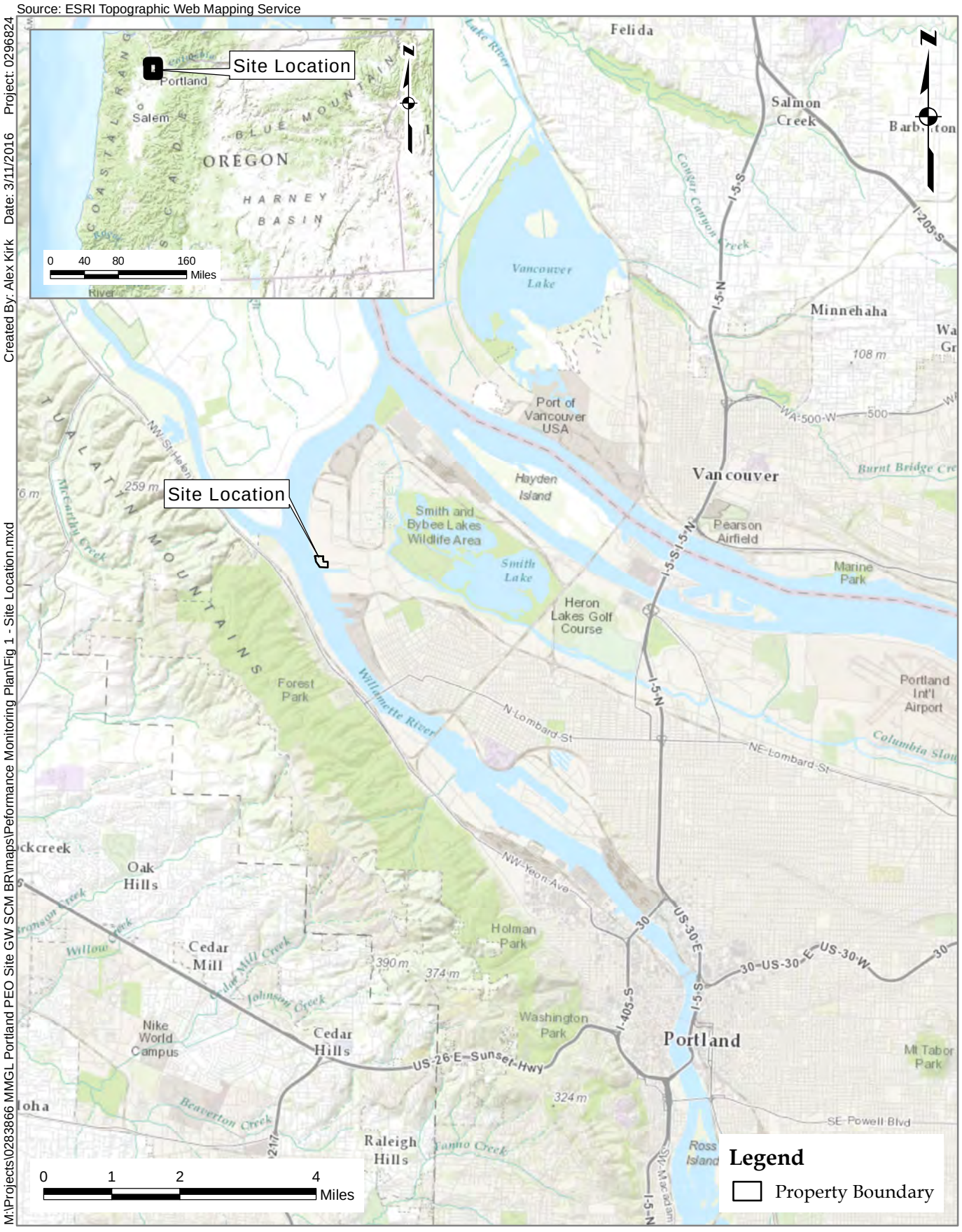


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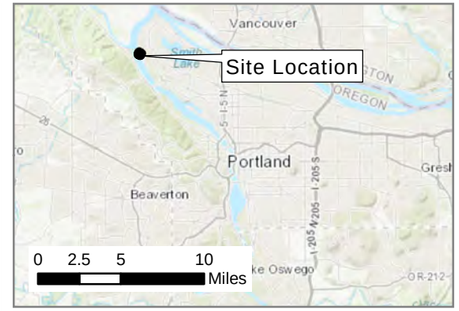
Figure 1
Site Location
Performance Monitoring Plan
Southern PEO Site
Portland, Oregon

Project: 0296824
Date: 10/9/2017
Created By: Melody Kieneker



Legend

- Detected concentration is greater than 100 times the PRG
- Detected concentration is between 10 and 100 times the PRG
- Detected concentration is between 1 and 10 times the PRG
- Upland Soil Sample (No PRG)
- Not Analyzed for PAHs
- Riverbank Survey Profile
- Barrier Wall Alignment
- Ordinary High Water (20.5 ft NAVD 88)
- Minor Flood Stage (23 ft NAVD 88)
- Moderate Flood Stage (29 ft NAVD88)
- Break in Slope
- Greenway Setback
- Elevation Contour (1 ft)
- Surface Protection (Rip rap, cobbles, debris)
- Property Boundary
- Parcels

Notes:
Profiles were surveyed on May 17, 2016 and 7-11 on July 27, 2017 by True North Land Surveying, Inc.
Aerial Imagery: City of Portland, flown 7/7/2012
PRGs = Portland Harbor Preliminary Remediation Goals
B(a)PE Portland Harbor PRG = 0.012 mg/kg
TPAHs Portland Harbor PRG = 23 mg/kg

Figure 2
Site Layout
Riverbank Erodibility Evaluation
Southern PEO Site
Portland, Oregon

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Project: 0296824
Date: 10/9/2017
Created By: Melody Kieneker
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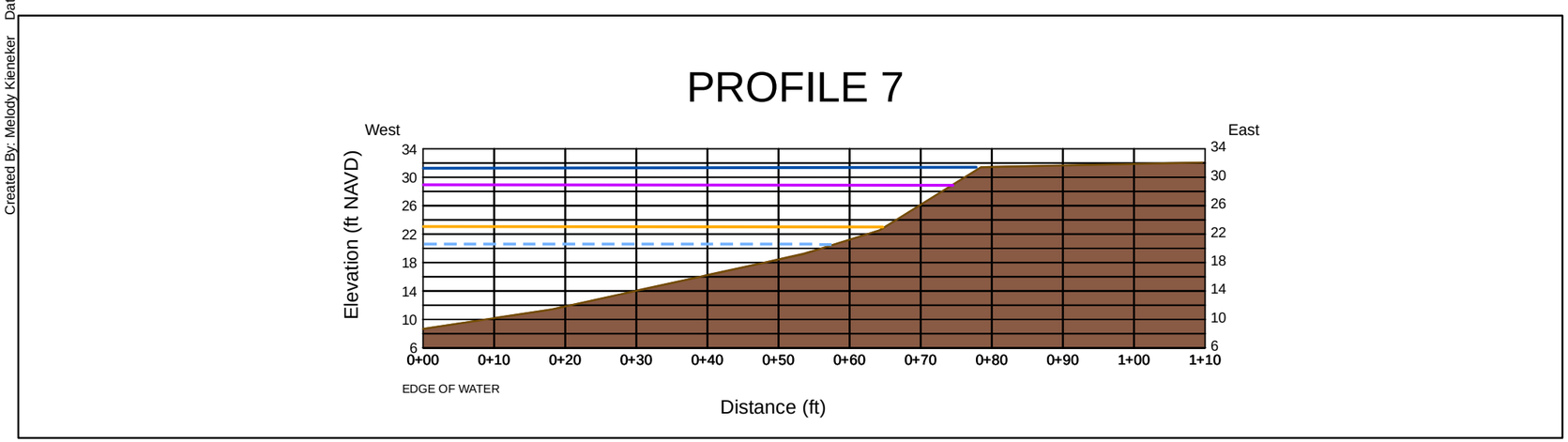

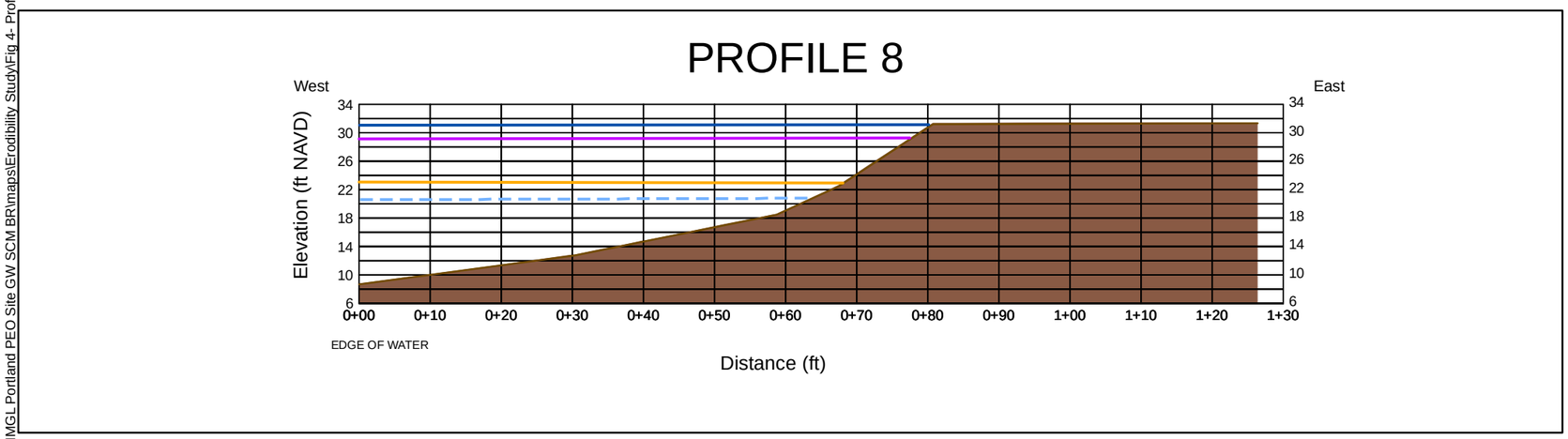

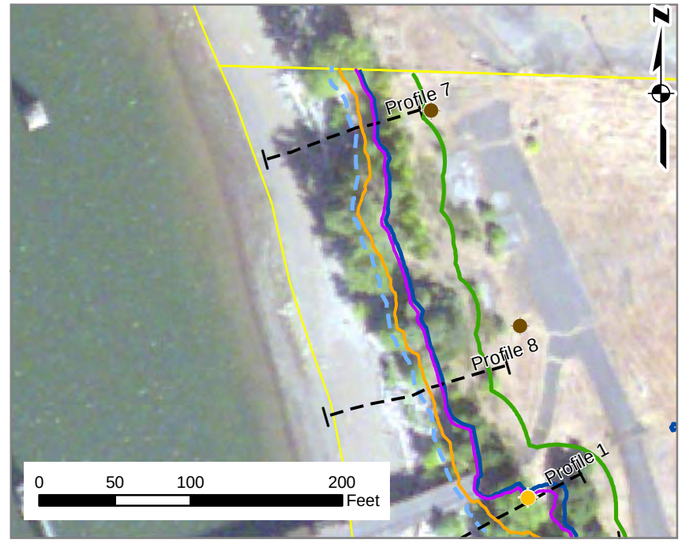

Legend

- Detected concentration is greater than 100 times the PRG
- Upland Soil Sample (No SLV)
- Ordinary High Water (20.5 ft NAVD 88)
- Minor Flood Stage (23 ft NAVD 88)
- Moderate Flood Stage (29 ft NAVD88)
- Break in Slope
- Greenway Setback
- Parcels

Notes:
Profiles 1-6 were surveyed on May 17, 2016 and Profiles 7-11 on July 27, 2017by True North Land Surveying, Inc.
Aerial Imagery: City of Portland, flown 7/7/2012
PRGs = Portland Harbor Preliminary Remediation Goals
Vertical Datum is in NAVD 88

B(a)PE Portland Harbor PRG = 0.012 mg/kg
TPAHs Portland Harbor PRG = 23 mg/kg

Figure 4
Profile Cross Sections
Profiles 7 & 8
Riverbank Erodibility Evaluation
Southern PEO Site
Portland, Oregon

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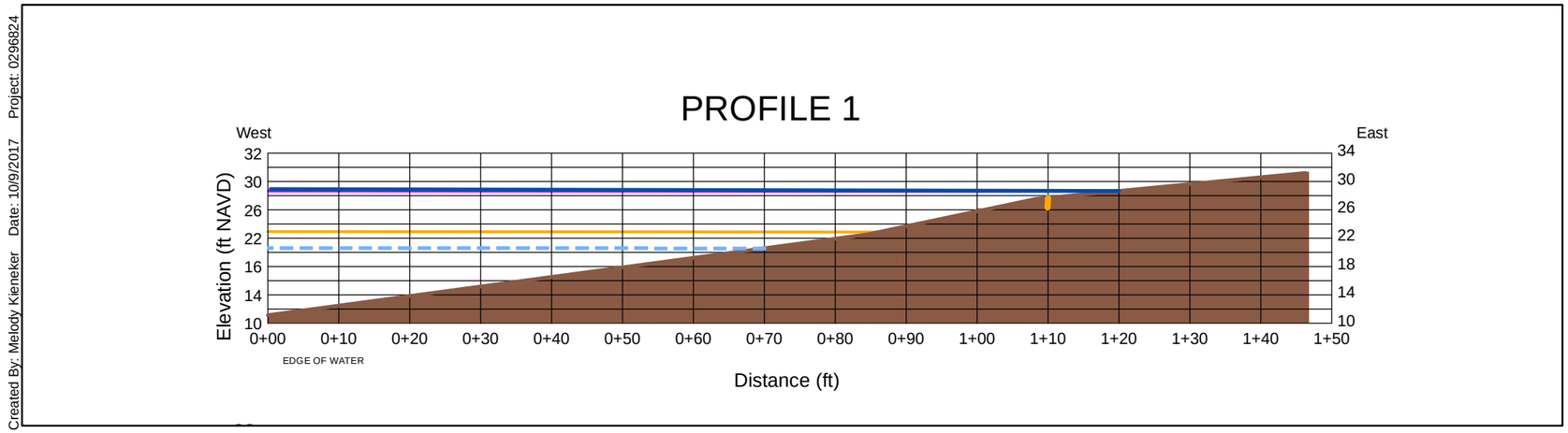

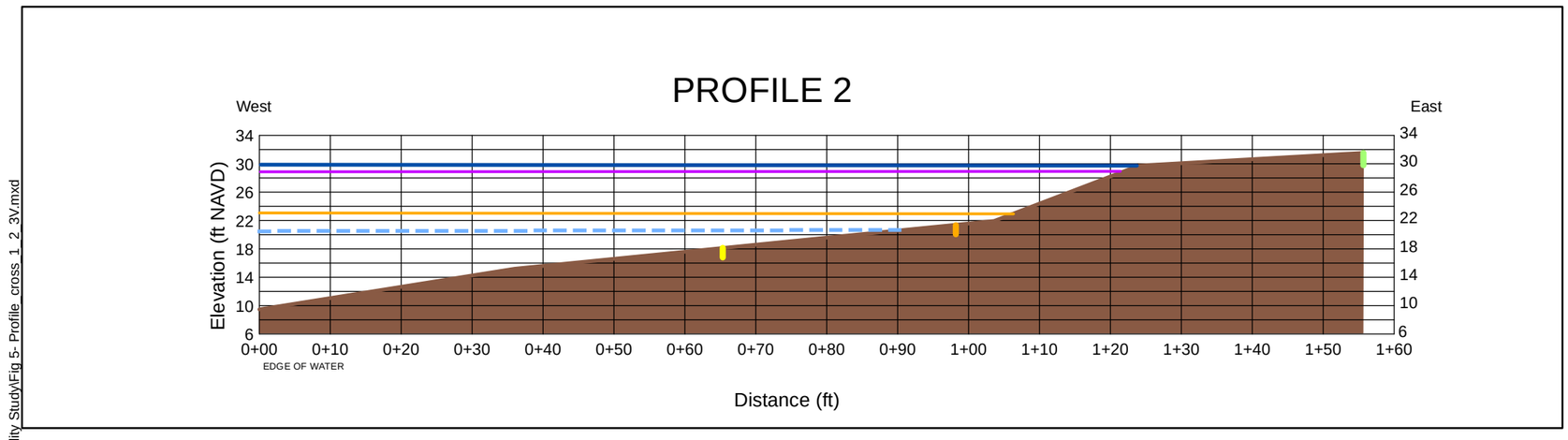

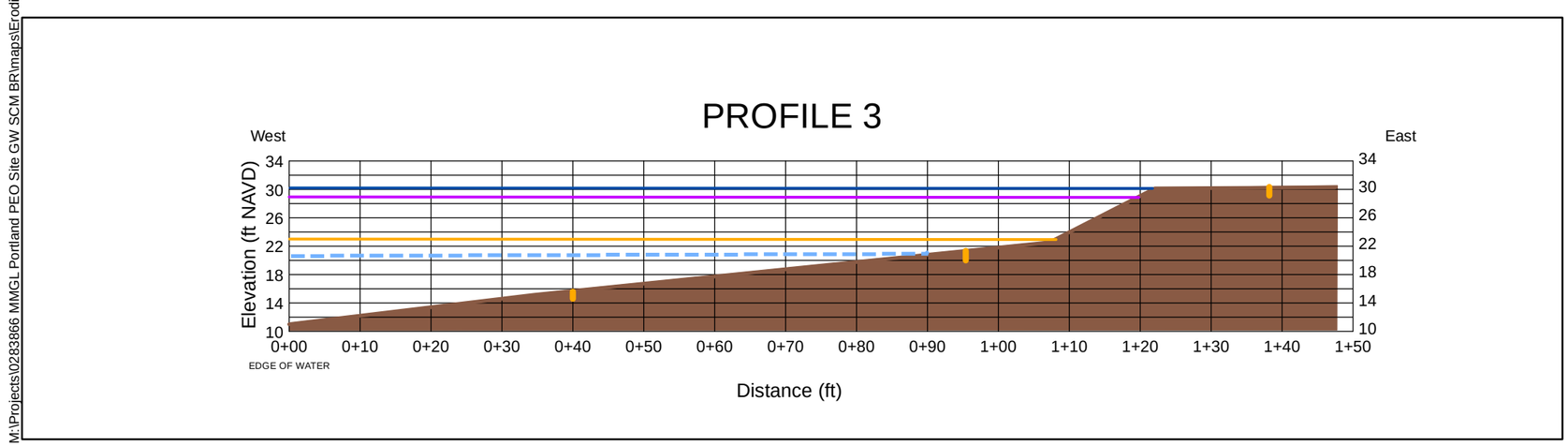

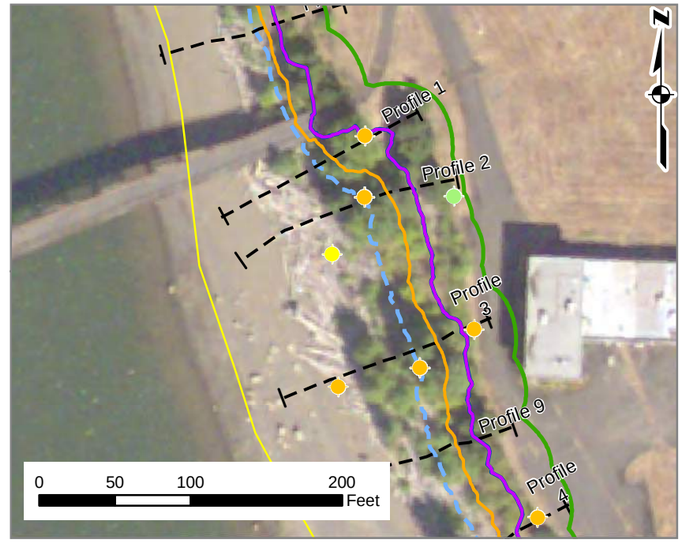

Legend

- Detected concentration is greater than 100 times the PRG
- Detected concentration is between 10 and 100 times the PRG
- Detected concentration is between 1 and 10 times the PRG
- Ordinary High Water (20.5 ft NAVD 88)
- Minor Flood Stage (23 ft NAVD 88)
- Moderate Flood Stage (29 ft NAVD88)
- Break in Slope
- Greenway Setback
- Parcels

Notes:
Profiles 1-6 were surveyed on May 17, 2016 and Profiles 7-11 on July 27, 2017by True North Land Surveying, Inc.
Aerial Imagery: City of Portland, flown 7/7/2012
PRGs = Portland Harbor Preliminary Remediation Goals
Vertical Datum is in NAVD 88

B(a)PE Portland Harbor PRG = 0.012 mg/kg
TPAHs Portland Harbor PRG = 23 mg/kg

Figure 5
Profile Cross Sections
Profiles 1, 2, & 3
Riverbank Erodibility Evaluation
Southern PEO Site
Portland, Oregon

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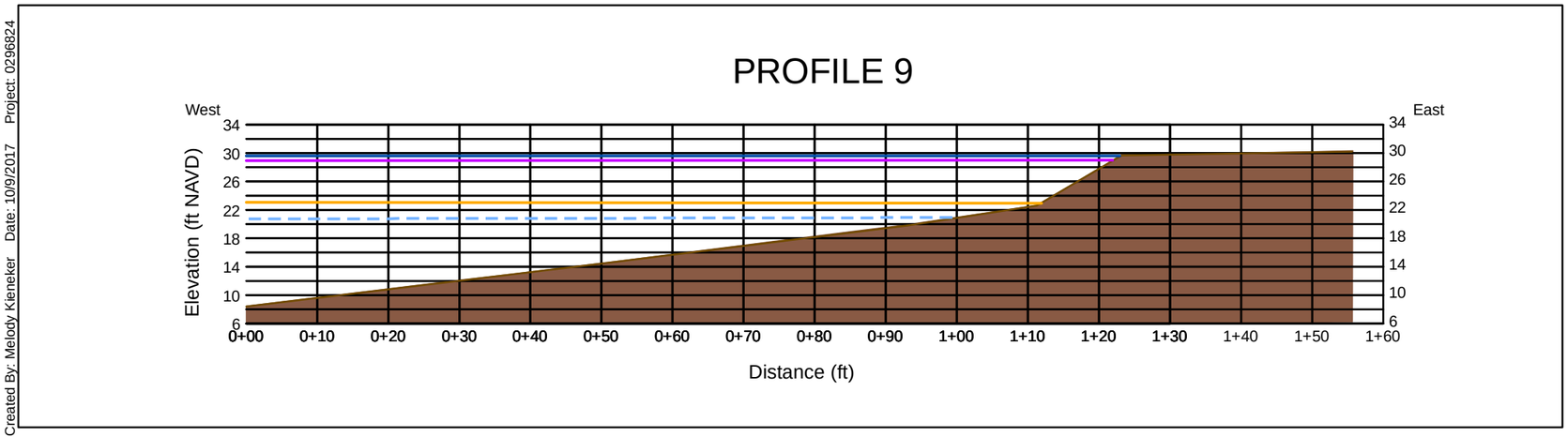

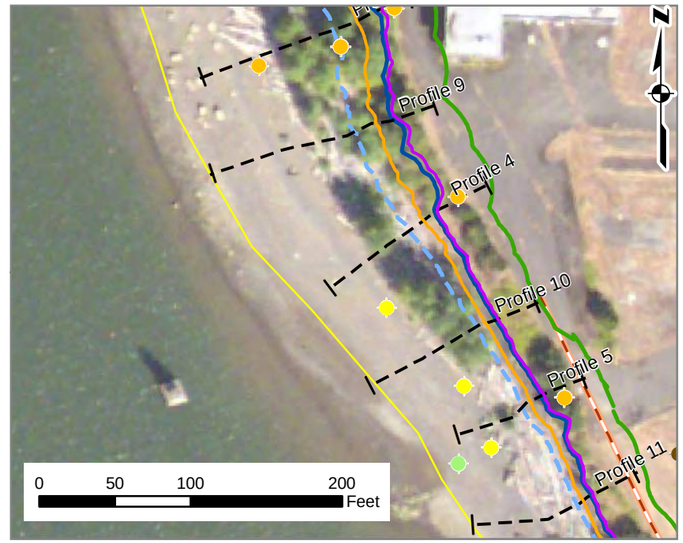

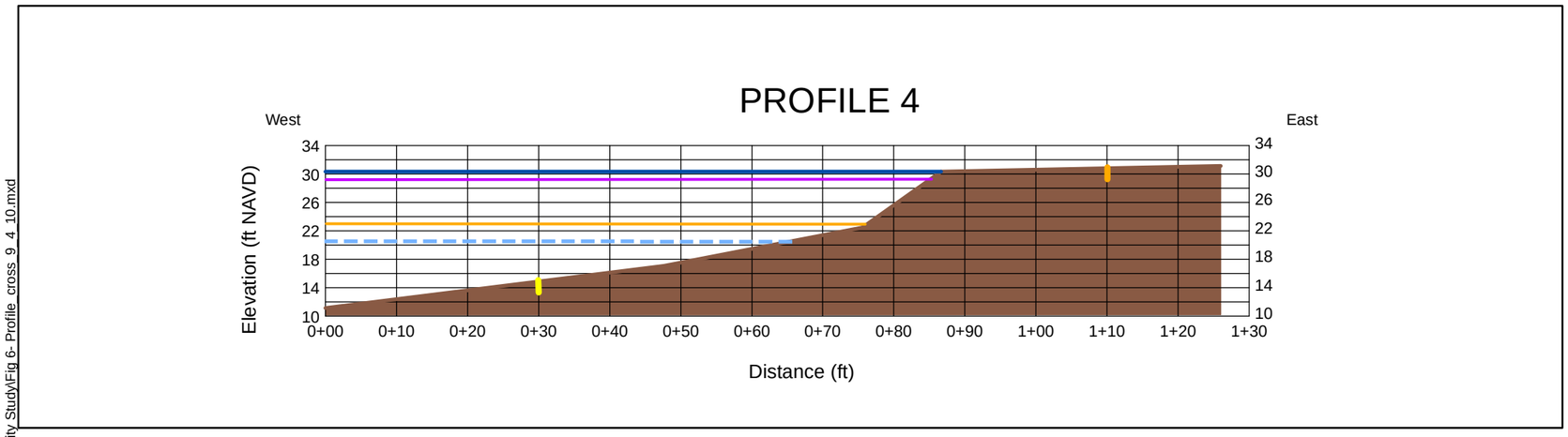

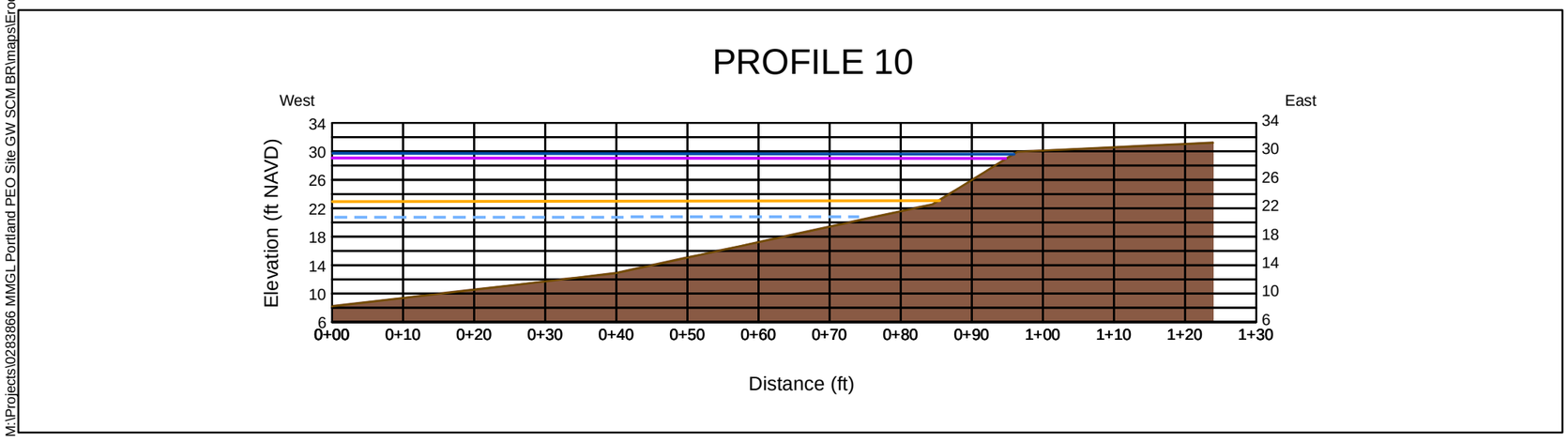

Legend

- Detected concentration is greater than 100 times the PRG
- Detected concentration is between 10 and 100 times the PRG
- Detected concentration is between 1 and 10 times the PRG
- Upland Soil Sample (No SLV)
- Barrier Wall Alignment
- Ordinary High Water (20.5 ft NAVD 88)
- Minor Flood Stage (23 ft NAVD 88)
- Moderate Flood Stage (29 ft NAVD88)
- Break in Slope
- Greenway Setback
- Parcels

Notes:
Profiles 1-6 were surveyed on May 17, 2016 and Profiles 7-11 on July 27, 2017by True North Land Surveying, Inc.
Aerial Imagery: City of Portland, flown 7/7/2012
PRGs = Portland Harbor Preliminary Remediation Goals
Vertical Datum is in NAVD 88

B(a)PE Portland Harbor PRG = 0.012 mg/kg
TPAHs Portland Harbor PRG = 23 mg/kg

Figure 6
Profile Cross Sections
Profiles 9, 4, & 10
Riverbank Erodibility Evaluation
Southern PEO Site
Portland, Oregon

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Portland, Oregon 97204

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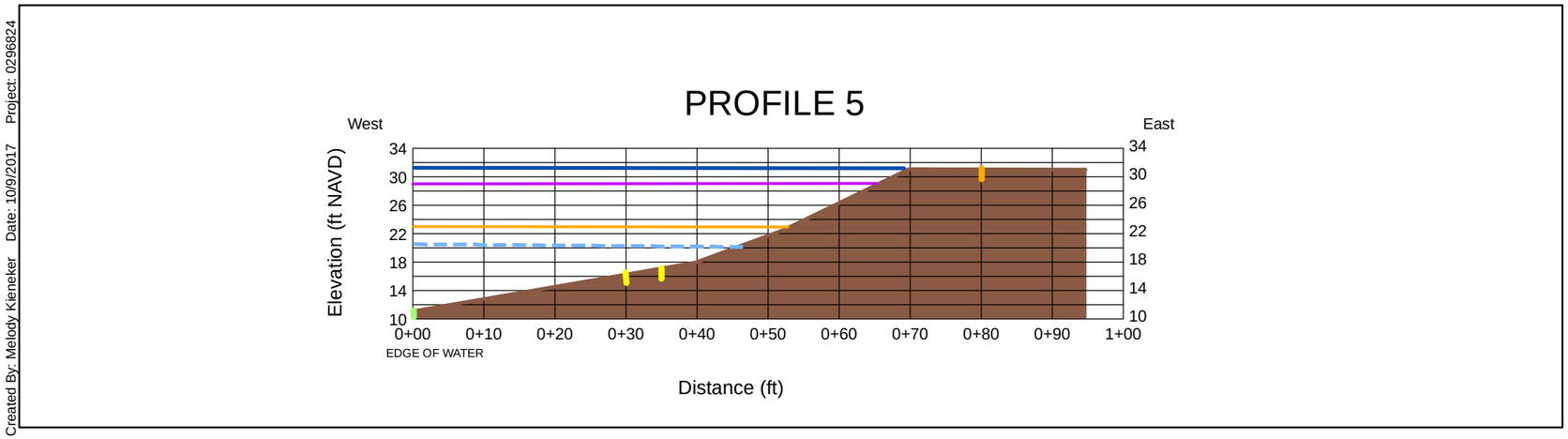

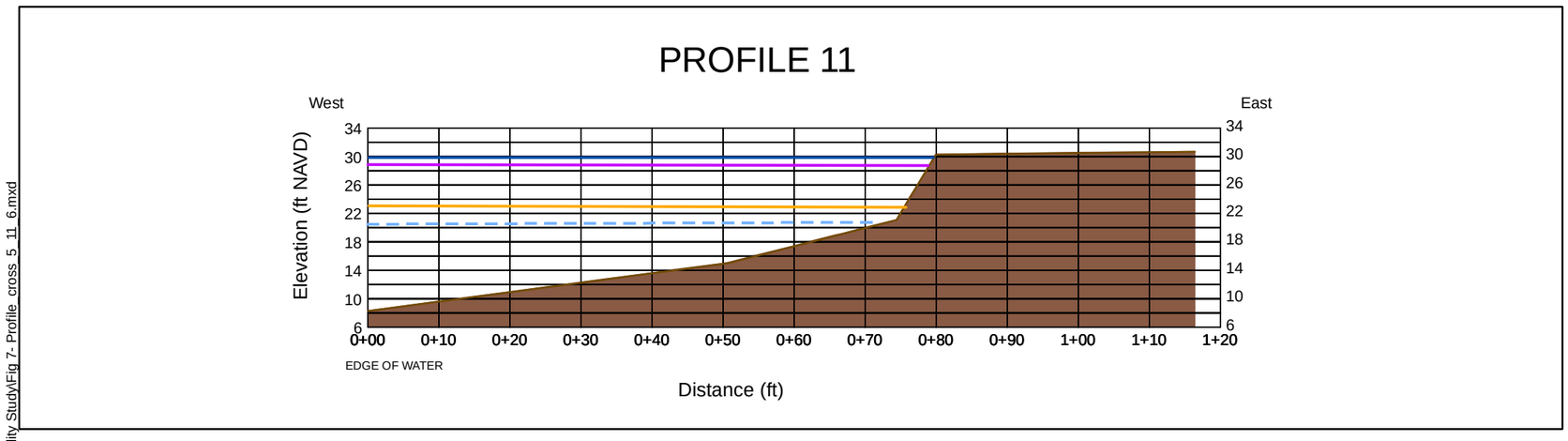

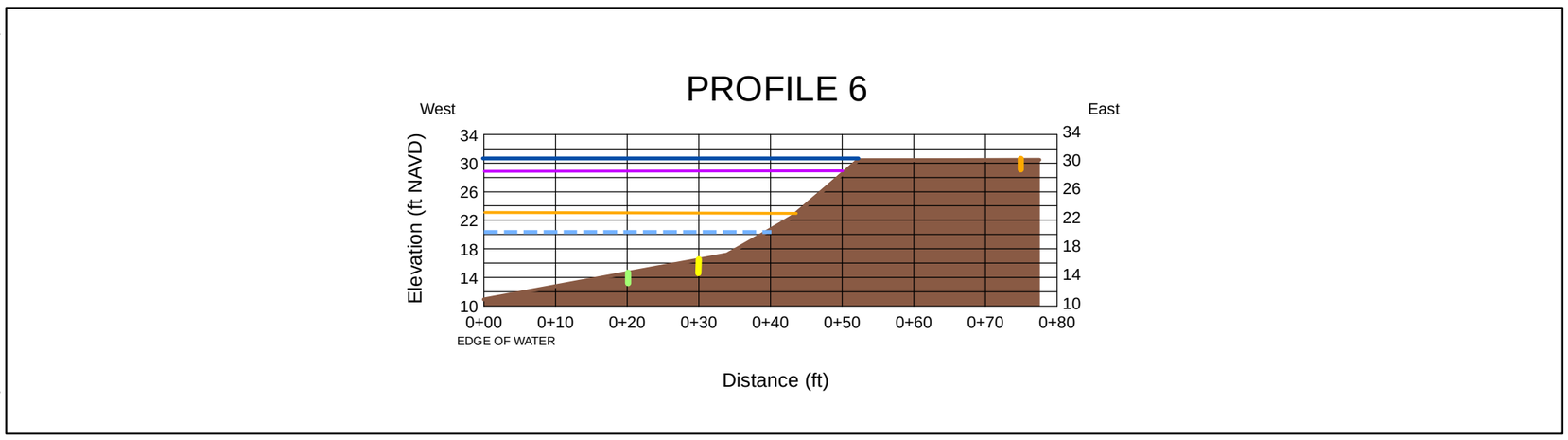

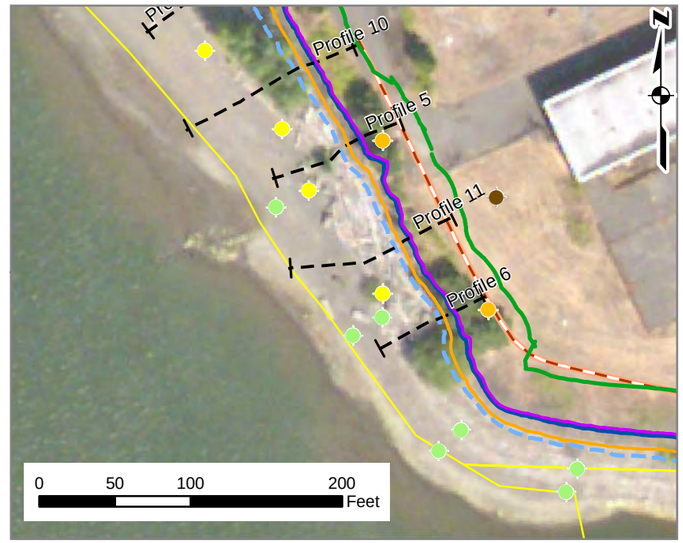

Legend

- Detected concentration is greater than 100 times the PRG
- Detected concentration is between 10 and 100 times the PRG
- Detected concentration is between 1 and 10 times the PRG
- Upland Soil Sample (No SLV)
- Barrier Wall Alignment
- Ordinary High Water (20.5 ft NAVD 88)
- Minor Flood Stage (23 ft NAVD 88)
- Moderate Flood Stage (29 ft NAVD88)
- Break in Slope
- Greenway Setback
- Parcels

Notes:
Profiles 1-6 were surveyed on May 17, 2016 and Profiles 7-11 on July 27, 2017by True North Land Surveying, Inc.
Aerial Imagery: City of Portland, flown 7/7/2012
PRGs = Portland Harbor Preliminary Remediation Goals
Vertical Datum is in NAVD 88

B(a)PE Portland Harbor PRG = 0.012 mg/kg
TPAHs Portland Harbor PRG = 23 mg/kg

Figure 7
Profile Cross Sections
Profiles 5, 11, & 6
Riverbank Erodibility Evaluation
Southern PEO Site
Portland, Oregon

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Portland, Oregon 97204

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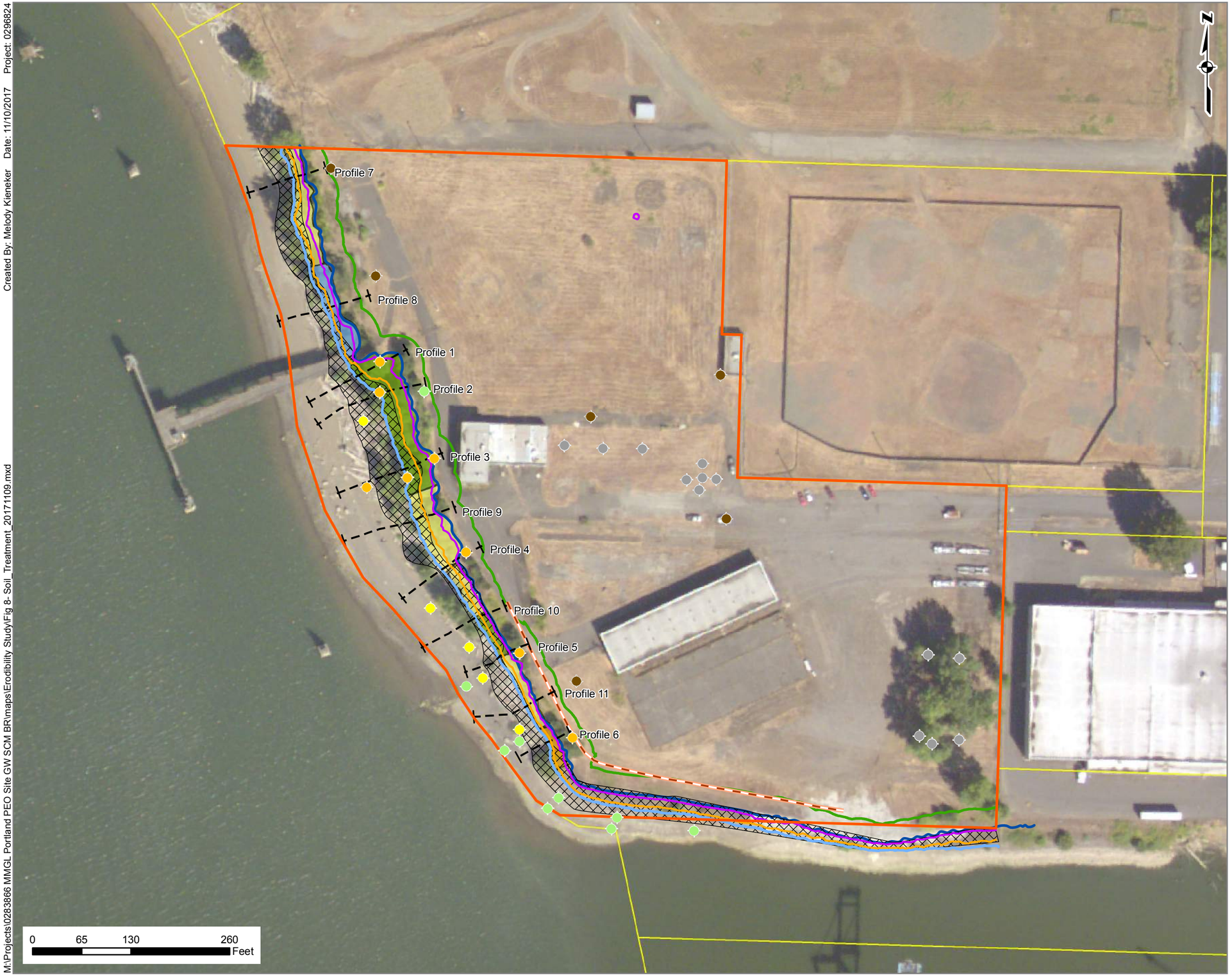

Legend

- Detected concentration is greater than 100 times the PRG
- Detected concentration is between 10 and 100 times the PRG
- Detected concentration is between 1 and 10 times the PRG
- Upland Soil Sample (No PRG)
- Not Analyzed for PAHs
- Survey Profile
- Barrier Wall Alignment
- Ordinary High Water (20.5 ft NAVD 88)
- Minor Flood Stage (23 ft NAVD 88)
- Moderate Flood Stage (29 ft NAVD88)
- Top of Bank
- Greenway Setback

Bank Erosion Hazard Index

Extreme	*46 - 50*
Very High	*40 - 45*
High	*30 - 39.5*
Moderate	*20 - 29.5*
Low	*10 - 19.5*
Very Low	*5 - 9.5*

- Existing Armoring
- Property Boundary
- Parcels

Notes:
Bank Erosion Hazard Index determined using the Bank Asssessment for Non-point Source Consequences of Sediment (BANCS) methodology.
Profiles 1-6 were surveyed on May 17, 2016 and 7-11 on July 27, 2017 by True North Land Surveying, Inc.
Aerial Imagery: City of Portland, flown 7/7/2012
PRGs = Portland Harbor Preliminary Remediation Goals
B(a)PE Portland Harbor PRG = 0.012 mg/kg
TPAHs Portland Harbor PRG = 23 mg/kg

Figure 8

Erodibility Evaluation Results
Riverbank Erodilbility Evaluation
Southern PEO Site
Portland, Oregon

Environmental Resources Management
1001 SW 5th St, Suite 1010
Portland, Oregon 97204
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Created By: Melody Kieneker Date: 10/9/2017 Project: 0296824

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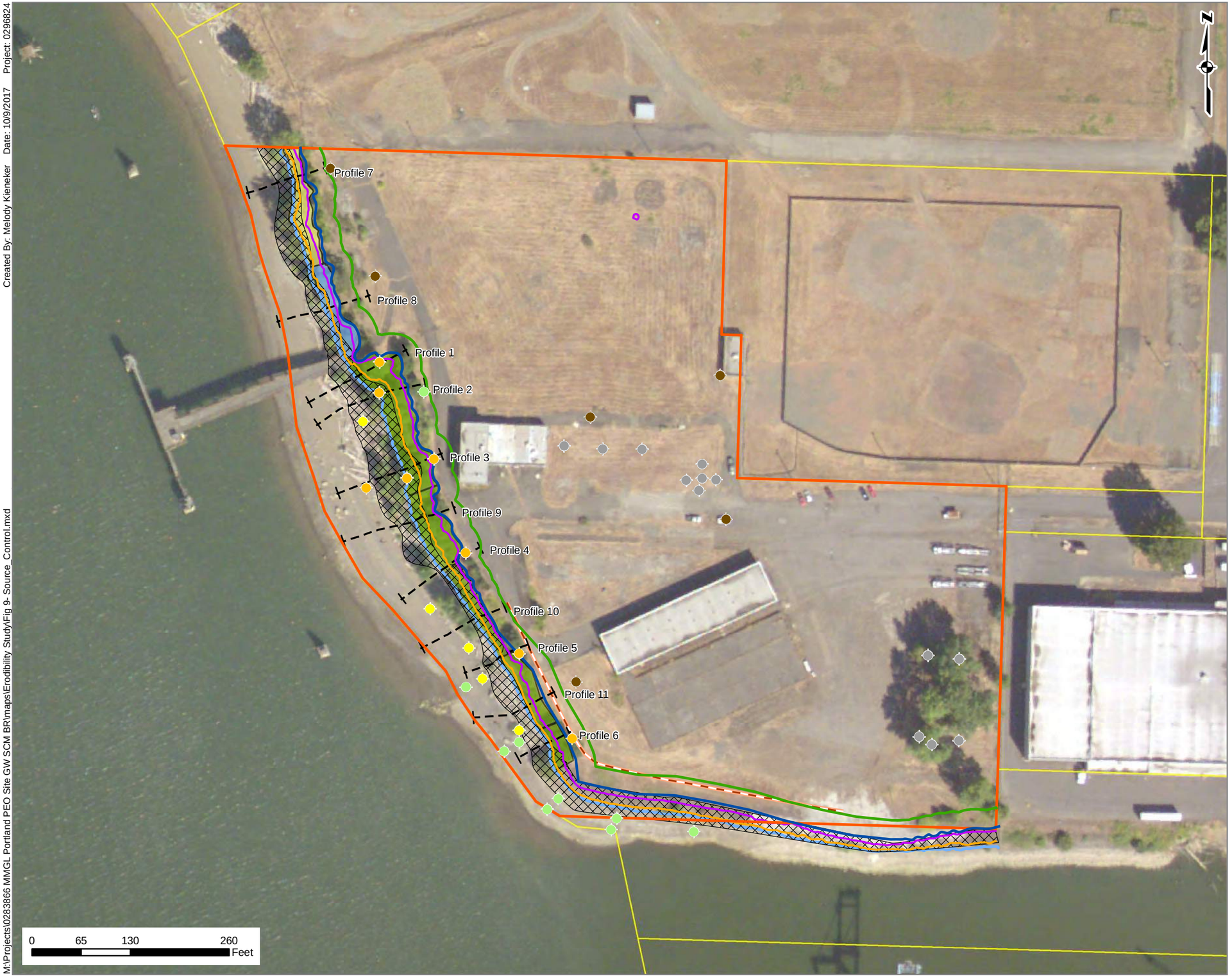
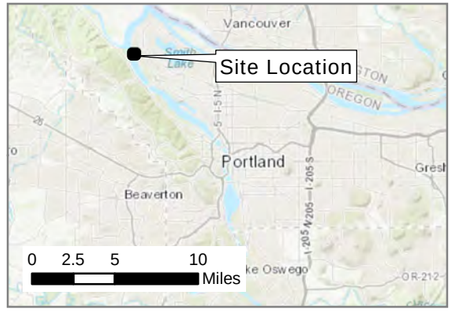




Legend

- Detected concentration is greater than 100 times the PRG
- Detected concentration is between 10 and 100 times the PRG
- Detected concentration is between 1 and 10 times the PRG
- Upland Soil Sample (No PRG)
- Not Analyzed for PAHs
- Survey Profile
- Barrier Wall Alignment
- Ordinary High Water (20.5 ft NAVD 88)
- Minor Flood Stage (23 ft NAVD 88)
- Moderate Flood Stage (29 ft NAVD88)
- Break in Slope
- Greenway Setback

Bank Erosion Hazard Index

Extreme	*46 - 50*
Very High	*40 - 45*
High	*30 - 39.5*
Moderate	*20 - 29.5*
Low	*10 - 19.5*
Very Low	*5 - 9.5*

- Property Boundary
- Parcels

Notes:
Bank Erosion Hazard Index determined using the Bank Asssessment for Non-point Source Consequences of Sediment (BANCS) methodology.
Profiles 1-6 were surveyed on May 17, 2016 and 7-11 on July 27, 2017 by True North Land Surveying, Inc.
Aerial Imagery: City of Portland, flown 7/7/2012
PRGs = Portland Harbor Preliminary Remediation Goals
B(a)PE Portland Harbor PRG = 0.012 mg/kg
TPAHs Portland Harbor PRG = 23 mg/kg

Figure 9

Conceptual Riverbank Source Control Measure
Riverbank Erodibility Evaluation
Southern PEO Site
Portland, Oregon

Environmental Resources Management
1001 SW 5th St, Suite 1010
Portland, Oregon 97204

ERM

Tables

Table 1
Current Riverbank Erodibility Potential
Riverbank Erodbility Investigation
Southern PEO Site
Portland, Oregon

Location	Bank Feature	Feature Elev (ft NAVD88)	Lateral Distance of Riverbank (ft)	Bank Height (ft)	Bankfull Height[1] (ft)	Section Slope (%)	Section Slope (degrees)	Current BEHI	Bank Erosion Hazard Rank
Profile 1	Top of Bank	31.2	95	12.7	10.5	13%	7.6	13.9	Low
	Toe of Slope	18.5							
	Top of Surface Protection	22.5							
	Bottom of Surface Protection	14.0							
Profile 2	Top of Bank	29.8	20	7.9	7.1	38%	21.1	16.3	Low
	Toe of Slope	21.9							
	Top of Surface Protection	22.5							
	Bottom of Surface Protection	15.5							
Profile 3	Top of Bank	30.1	15	7.6	6.4	51%	26.9	16.1	Low
	Toe of Slope	22.5							
	Top of Surface Protection	25.0							
	Bottom of Surface Protection	16.5							
Profile 4	Top of Bank	30.3	11	7.9	6.5	71%	35.4	28.0	Moderate
	Toe of Slope	22.5							
	Top of Surface Protection	23.0							
	Bottom of Surface Protection	19.5							
Profile 5	Top of Bank	31.1	30	13.1	11.0	44%	23.6	27.7	Moderate
	Toe of Slope	18.0							
	Top of Surface Protection	23.5							
	Bottom of Surface Protection	10.0							
Profile 6	Top of Bank	30.4	18	8.4	7.0	47%	25.0	32.0	High
	Toe of Slope	22.0							
	Top of Surface Protection	23.5							
	Bottom of Surface Protection	14.0							
Profile 7	Top of Bank	31.4	14	8.9	6.5	62%	32.0	24.8	Moderate
	Toe of Slope	22.5							
	Top of Surface Protection	24.5							
	Bottom of Surface Protection	15.0							
Profile 8	Top of Bank	31.2	21	8.7	6.5	42%	22.6	3.4	Very Low
	Toe of Slope	22.5							
	Top of Surface Protection	26.0							
	Bottom of Surface Protection	15.5							
Profile 9	Top of Bank	29.7	12	7.1	6.4	59%	30.6	20.7	Moderate
	Toe of Slope	22.6							
	Top of Surface Protection	23.5							
	Bottom of Surface Protection	17.5							
Profile 10	Top of Bank	29.9	12	7.4	6.4	62%	31.7	11.6	Low
	Toe of Slope	22.6							
	Top of Surface Protection	30.0							
	Bottom of Surface Protection	19.0							
Profile 11	Top of Bank	30.2	6	9.2	7.9	166%	58.9	26.7	Moderate
	Toe of Slope	21.1							
	Top of Surface Protection	23.5							
	Bottom of Surface Protection	15.0							

Notes:
1 - Bankfull Height is Willamette River Moderate Flood Stage (27.5 ft NAVD88)
BEHI = Bank Erodibility Hazard Index
TOB = Top of Bank
Elevation is feet above mean sea level NAVD88
in = inches
ft = feet

Table 2
Post-Source Control Measure Riverbank Erodibility Potential
Riverbank Erodbility Investigation
Southern PEO Site
Portland, Oregon

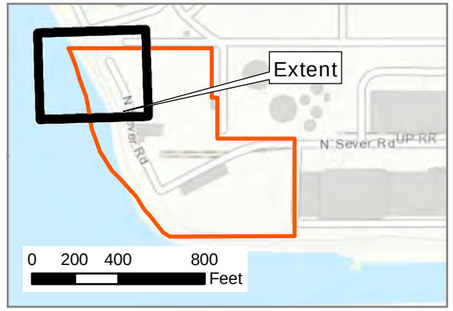
Location	Bank Feature	Feature Elev (ft NAVD88)	Lateral Distance of Section (ft)	Bank Height (ft)	Bankfull Height[2] (ft)	Section Slope (%)	Section Slope (degrees)	Conceptual SCM	Post-SCM BEHI	Bank Erosion Hazard Rank
Profile 1	Top of Bank	31.2	95	12.7	10.5	13%	7.6	--	13.9	Low
	Toe of Slope	18.5								
	Top of Surface Protection	22.5								
	Bottom of Surface Protection	14.0								
Profile 2	Top of Bank	29.8	20	7.9	7.1	38%	21.1	--	16.3	Low
	Toe of Slope	21.9								
	Top of Surface Protection	22.5								
	Bottom of Surface Protection	15.5								
Profile 3	Top of Bank	30.1	15	7.6	6.4	51%	26.9	--	16.1	Low
	Toe of Slope	22.5								
	Top of Surface Protection	25.0								
	Bottom of Surface Protection	16.5								
Profile 4	Top of Bank	30.3	11	7.9	6.5	71%	35.5	Regrade, Geogrid, fill, hydroseed	12.2	Low
	Toe of Slope	22.5								
	Top of Surface Protection	23.0								
	Bottom of Surface Protection	19.5								
Profile 5	Top of Bank	31.1	30	13.1	11.0	44%	23.6	Regrade, geogrid, fill, hydroseed	12.6	Low
	Toe of Slope	18.0								
	Top of Surface Protection	23.5								
	Bottom of Surface Protection	10.0								
Profile 6	Top of Bank	30.4	18	8.4	7.0	47%	25.0	Cut, regrade, geogrid, fill, hydroseed	12.0	Low
	Toe of Slope	22.0								
	Top of Surface Protection	23.5								
	Bottom of Surface Protection	14.0								
Profile 7	Top of Bank	31.4	14	8.9	6.5	62%	32.0	--	24.8	Moderate
	Toe of Slope	22.5								
	Top of Surface Protection	24.5								
	Bottom of Surface Protection	15.0								
Profile 8	Top of Bank	31.2	21	8.7	6.5	42%	22.6	--	3.4	Very Low
	Toe of Slope	22.5								
	Top of Surface Protection	26.0								
	Bottom of Surface Protection	15.5								
Profile 9	Top of Bank	29.7	12	7.1	6.4	59%	30.5	Regrade, hydroseed	14.8	Low
	Toe of Slope	22.6								
	Top of Surface Protection	23.5								
	Bottom of Surface Protection	17.5								
Profile 10	Top of Bank	29.9	12	7.4	6.4	62%	31.7	--	11.6	Low
	Toe of Slope	22.6								
	Top of Surface Protection	30.0								
	Bottom of Surface Protection	19.0								
Profile 11	Top of Bank	30.2	6	9.2	7.9	153%	56.8	Cut, regrade, geogrid, fill, hydroseed	12.7	Low
	Toe of Slope	21.1								
	Top of Surface Protection	23.5								
	Bottom of Surface Protection	15.0								

Notes:
Notes:
1 - Bankfull Height is Willamette River Moderate Flood Stage (27.5 ft NAVD88)
BEHI = Bank Erodibility Hazard Index
SCM = Source Control Measure
TOB = Top of Bank
Elevation is feet above mean sea level NAVD88
in = inches
ft = feet
ft = feet
Regrade, geogrid, fill, hydroseed = Consists of regrading to a maximum slope of 2:1, placing engineered layer (e.g., Geogrid), filling with silty sand, and grass planting (hydroseed)
Assumed parameters are root depth is equal to approximately 90% of bank height, root density is 75%, surface protection is 100% (geogrid)
Bank material adjustment is 0, due to placement of silty sand in geogrid

Attachment A
Profile Photo Locations

Created By: Melody Kieneker Date: 10/9/2017 Project: 0296824

M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Erodibility Study\Fig - Profiles_7_8.mxd



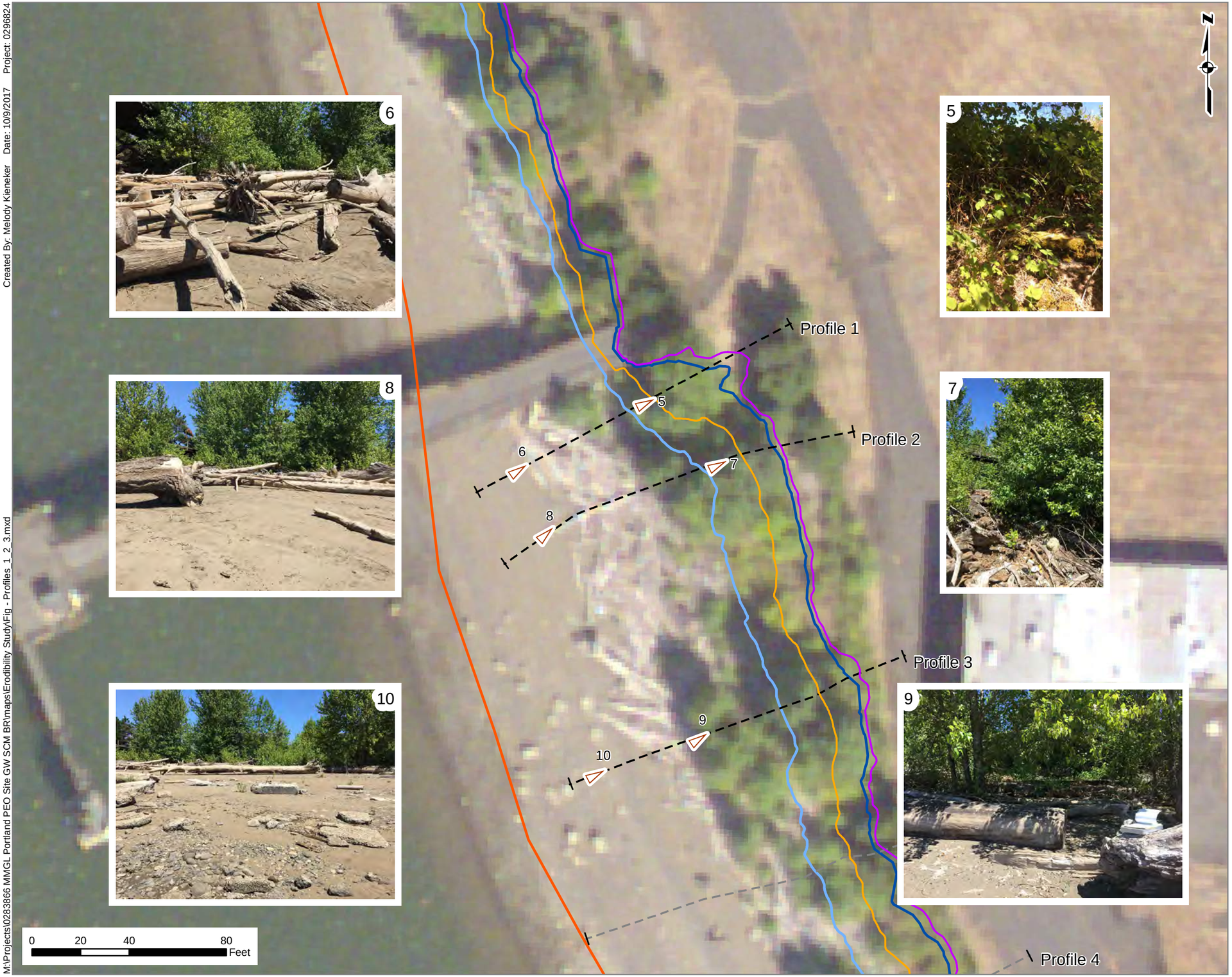
Legend

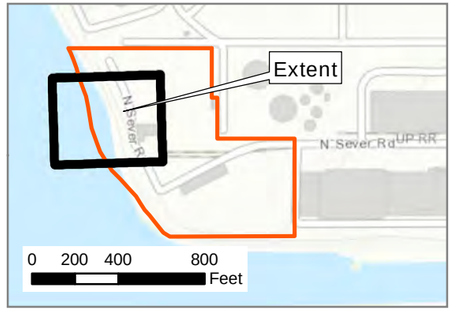
- Survey Profile
- Barrier Wall Alignment
- Ordinary High Water (20.5 ft NAVD 88)
- Minor Flood Stage (23 ft NAVD 88)
- Moderate Flood Stage (29 ft NAVD88)
- Break in Slope
- Property Boundary
- Parcels

Notes:
Direction of photo location arrow coordinates to direction photo was taken.
Profiles 1-6 were surveyed on May 17, 2016 and Profiles 7-11 were surveyed on July 27, 2017 by True North Land Surveying, Inc.
Photos taken on July 27, 2017.
Aerial Imagery: City of Portland, flown 7/7/2012

Figure A-1
Photo Locations, Profiles 7 & 8
Riverbank Erodibility Evaluation
Southern PEO Site
Portland, Oregon

Environmental Resources Management
www.erm.com
ERM





Legend

- Survey Profile
- Barrier Wall Alignment
- Ordinary High Water (20.5 ft NAVD 88)
- Minor Flood Stage (23 ft NAVD 88)
- Moderate Flood Stage (29 ft NAVD88)
- Break in Slope
- Property Boundary
- Parcels

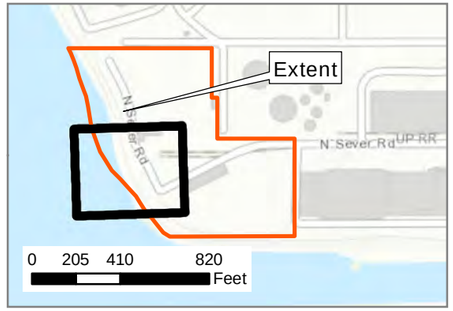
Notes:
Direction of photo location arrow coordinates to direction photo was taken.
Profiles 1-6 were surveyed on May 17, 2016 and Profiles 7-11 were surveyed on July 27, 2017 by True North Land Surveying, Inc.
Photos taken on July 27, 2017.
Aerial Imagery: City of Portland, flown 7/7/2012

Figure A-2
Photo Locations, Profiles 1, 2, & 3
Riverbank Erodibility Evaluation
Southern PEO Site
Portland, Oregon

Environmental Resources Management
www.erm.com

Created By: Melody Kieneker Date: 10/9/2017 Project: 0296824

M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Erodibility Study\Fig - Profiles_1_2_3.mxd



Legend

- Survey Profile
- Barrier Wall Alignment
- Ordinary High Water (20.5 ft NAVD 88)
- Minor Flood Stage (23 ft NAVD 88)
- Moderate Flood Stage (29 ft NAVD88)
- Break in Slope
- Property Boundary
- Parcels

Notes:
Direction of photo location arrow coordinates to direction photo was taken.
Profiles 1-6 were surveyed on May 17, 2016 and Profiles 7-11 were surveyed on July 27, 2017 by True North Land Surveying, Inc.
Photos taken on July 27, 2017.
Aerial Imagery: City of Portland, flown 7/7/2012

Figure A-3
Photo Locations, Profiles 9, 4, & 10
Riverbank Erodibility Evaluation
Southern PEO Site
Portland, Oregon

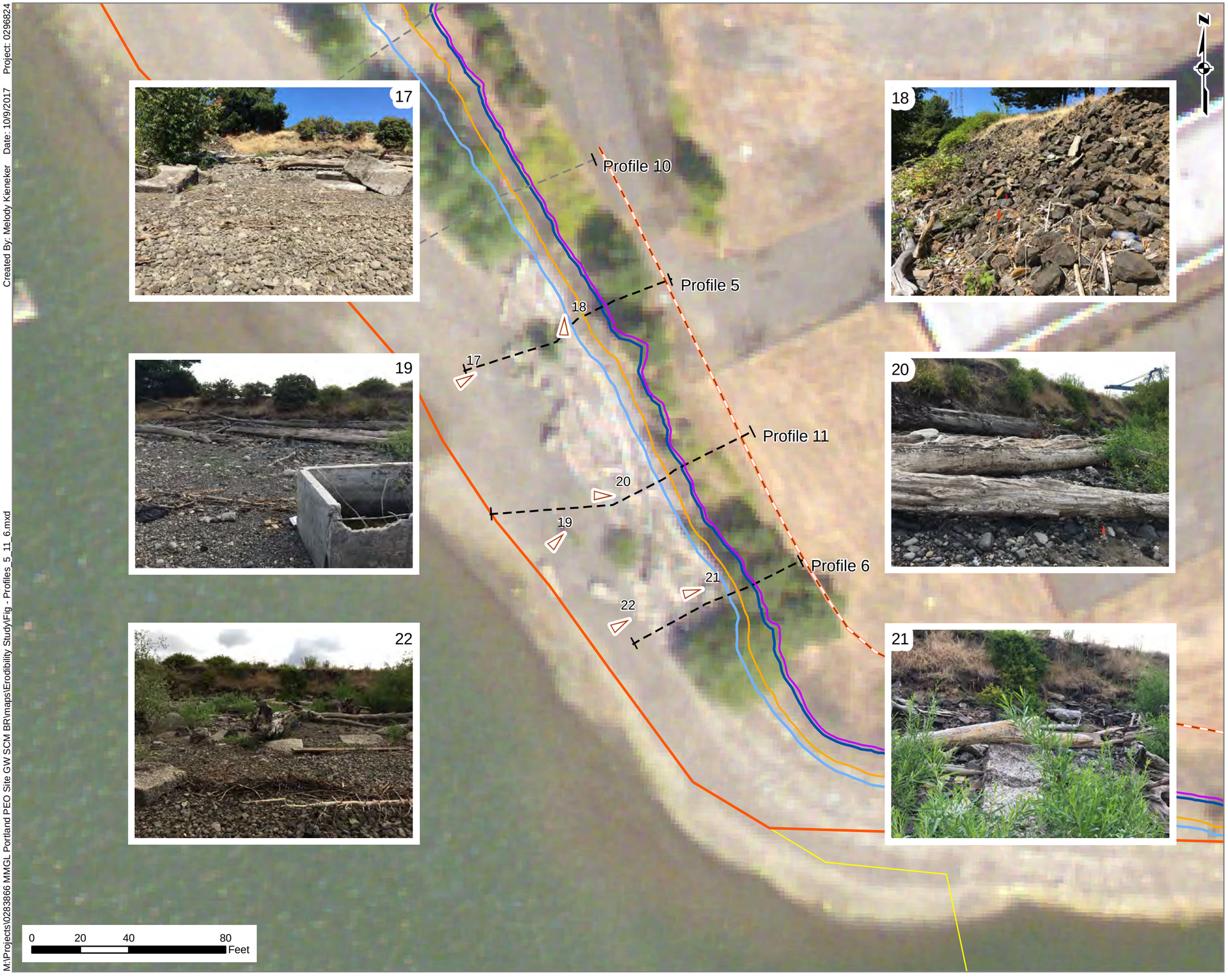
Environmental Resources Management
www.erm.com
ERM

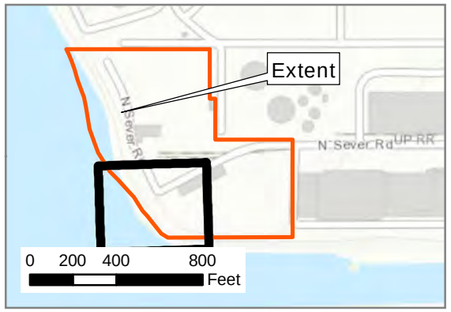
Created By: Melody Kieneker Date: 10/9/2017 Project: 0296824

M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Erodibility Study\Fig - Profiles_9_4_10.mxd

Created By: Melody Kieneker Date: 10/9/2017 Project: 0296824

M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Erodibility Study\Fig - Profiles_5_11_6.mxd





Legend

- Survey Profile
- Barrier Wall Alignment
- Ordinary High Water (20.5 ft NAVD 88)
- Minor Flood Stage (23 ft NAVD 88)
- Moderate Flood Stage (29 ft NAVD88)
- Break in Slope
- Property Boundary
- Parcels

Notes:
Direction of photo location arrow coordinates to direction photo was taken.
Profiles 1-6 were surveyed on May 17, 2016 and Profiles 7-11 were surveyed on July 27, 2017 by True North Land Surveying, Inc.
Photos taken on July 27, 2017.
Aerial Imagery: City of Portland, flown 7/7/2012

Figure A-4
Photo Locations, Profiles 5, 11, & 6
Riverbank Erodibility Evaluation
Southern PEO Site
Portland, Oregon

Environmental Resources Management
www.erm.com

Attachment B
BANCS Worksheets

BANCS Transect Work Sheet

Location 10400 N Burgard Ave., Portland - Profile 1

Project # : 403180 **Date:** 7/19/2017

Project Name: PEO Riverbank Erodibility Hazard Evaluation **Start Time:** 1254

End Time: 1333

Field Team: Jacob Barnes and Joe Casey, both ERM

Weather Conditions: Sunny, no clouds, 71°F

Bankfull Height / Study Bank Height

Study Bank Height*: Refer to survey data **ft.**

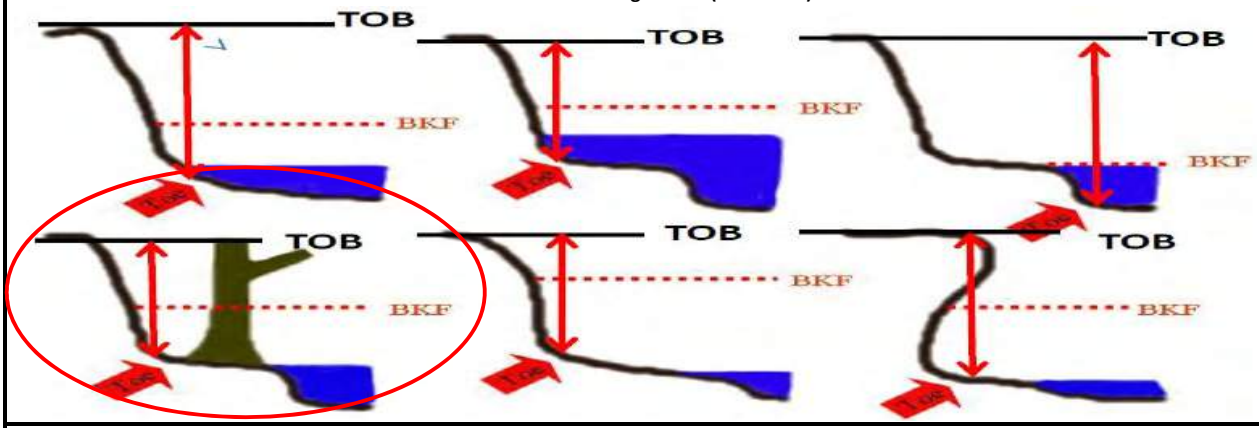
*measured from bank toe to bank top

TOB = Top of bank

Bankfull Height*: Refer to survey data **ft.**

*measured from bank toe to bankfull stage (the level at which water begins to flow over the floodplain)

Bank Configuration (Circle One)



Bank Angle

Bank Angle*: Refer to survey data **°(degrees)**

*measure the angle of the steepest slope or slope most prone to failure at bankfull flow. If possible, place a survey rod on the slope face and use a inclinometer to measure the angle.

Bank Material (Circle Type)

Bed Rock **Boulders** **Sand/Silt/Clay/Loam** **Cobble** **Gravel**

Silt/Clay **Sand**

Stratification Description

Interval	Description
TOB to 10 ft below TOB	Dark gray-brown, loose to medium dense, 20% organics, fine sand, trace silts, SP, dry, significant roots, heavy vegetation.
10 ft below TOB to approximately 20 ft below TOB	Heavy vegetation and wood debris.
Below 20 ft from TOB	Fine to medium sand, SP.

Measured Root Depth (RD)

Root Depth 1: 10 **ft.** **Root Depth 3*:** _____ **ft.**

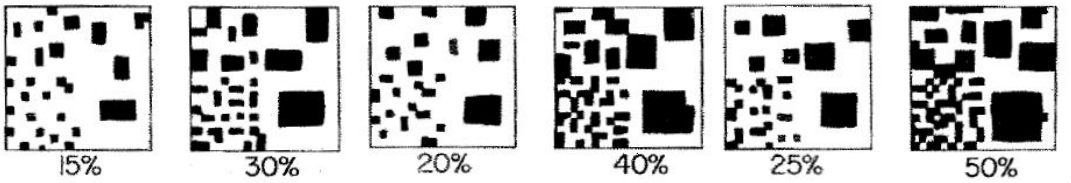
Root Depth 2*: _____ **ft.** **Root Depth 4*:** _____ **ft.**

Total Root Depth[#] = 10 **ft.** *if multiple root sets are present [#] RD1+RD2+RD3+RD4

Where upper bank is accessible, clear soil to expose roots and access root depth. If upper bank is not accessible, look for areas with exposed roots.

Root Density

Root Density: 100 **%**



Surface Protection

Surface Protection*: 100 **%**

*percentage of surface protected from erosion by vegetation, root wads, debris, etc.; can use same method as root density (see above)

BANCS Transect Work Sheet

Location 10400 N Burgard Ave., Portland - Profile 2

Project # : 403180 **Date:** 7/19/2017

Project Name: PEO Riverbank Erodibility Hazard Evaluation **Start Time:** 1019

End Time: 1050

Field Team: Jacob Barnes and Joe Casey, both ERM

Weather Conditions: Sunny, no clouds, 71°F

Bankfull Height / Study Bank Height

Study Bank Height*: Refer to survey data **ft.**

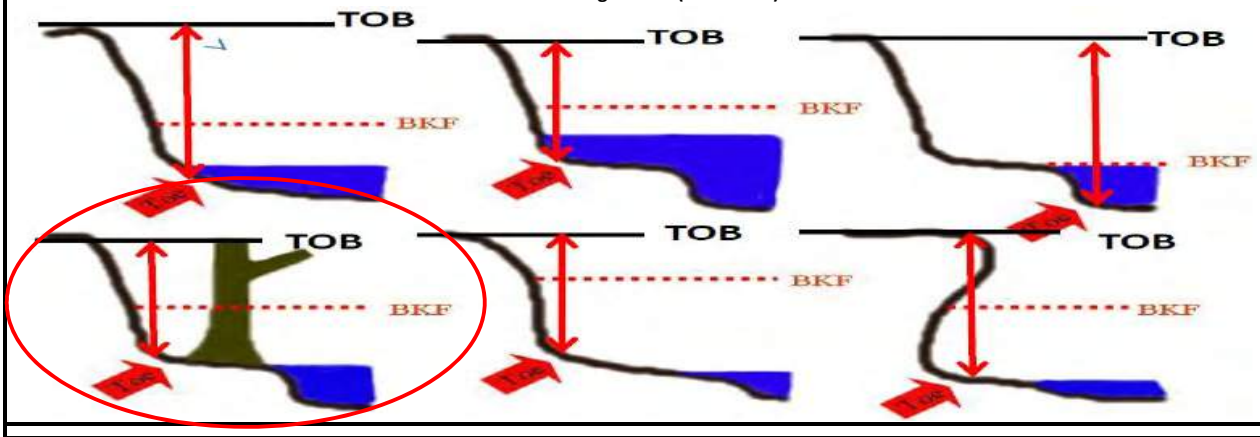
*measured from bank toe to bank top

TOB = Top of bank

Bankfull Height*: Refer to survey data **ft.**

*measured from bank toe to bankfull stage (the level at which water begins to flow over the floodplain)

Bank Configuration (Circle One)



Bank Angle

Bank Angle*: Refer to survey data **°(degrees)**

*measure the angle of the steepest slope or slope most prone to failure at bankfull flow. If possible, place a survey rod on the slope face and use a inclinometer to measure the angle.

Bank Material (Circle Type)

Bed Rock **Boulders** **Sand/Silt/Clay/Loam** **Cobble** **Gravel**

Silt/Clay **Sand**

Stratification Description

Interval	Description
TOB to 6 ft below TOB	Medium dense, dark olive-brown, fine to medium sand, SP, w/few silt, and some fine gravel. Occasional cobble and boulders. Vegetation, few roots.
6 ft below TOB to 11 ft below TOB	Medium dense, dark olive-brown, gravelly sand, SP. Fine to medium gravel, fine to course gravel, few silt, some roots, 1 to 2 inches duff cover.
11 ft below TOB to 14 ft below TOB (Beach)	Fine to medium sand, SP.

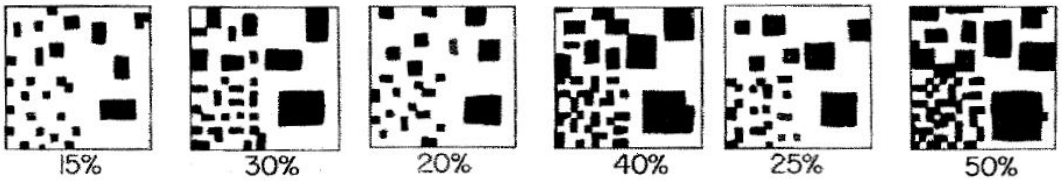
Measured Root Depth (RD)

Root Depth 1:	6 **ft.**	**Root Depth 3*:**	**ft.**
Root Depth 2*:	5 **ft.**	**Root Depth 4*:**	**ft.**
Total Root Depth# =	11 **ft.**	*if multiple root sets are present	# RD1+RD2+RD3+RD4

Where upper bank is accessible, clear soil to expose roots and access root depth. If upper bank is not accessible, look for areas with exposed roots.

Root Density

Root Density: 50 **%**



Surface Protection

Surface Protection*: 90 **%**

*percentage of surface protected from erosion by vegetation, root wads, debris, etc.; can use same method as root density (see above)

BANCS Transect Work Sheet

Location 10400 N Burgard Ave., Portland - Profile 3

Project # : 403180 **Date:** 7/19/2017

Project Name: PEO Riverbank Erodibility Hazard Evaluation **Start Time:** 1050

End Time: 1130

Field Team: Jacob Barnes and Joe Casey, both ERM

Weather Conditions: Sunny, no clouds, 71°F

Bankfull Height / Study Bank Height

Study Bank Height*: Refer to survey data **ft.**

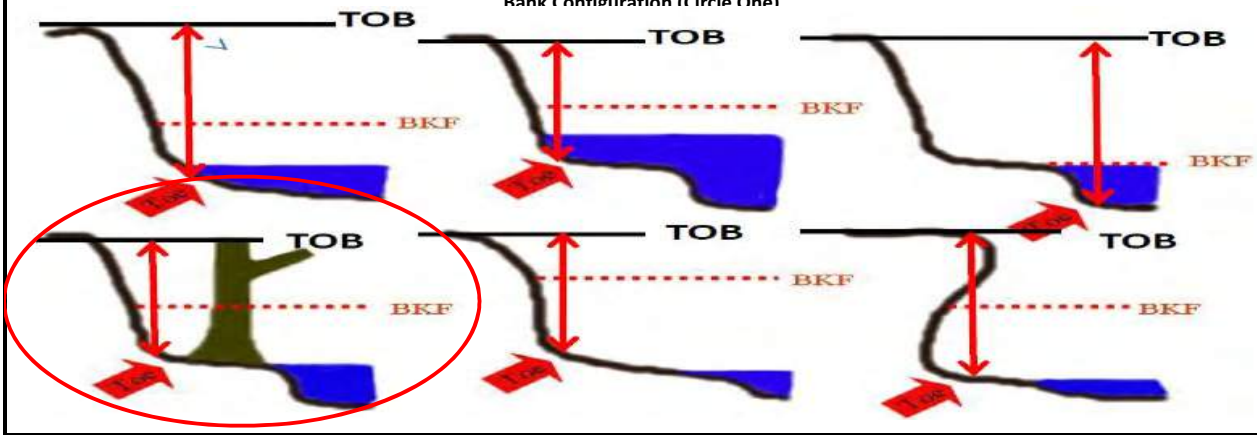
*measured from bank toe to bank top

TOB = Top of bank

Bankfull Height*: Refer to survey data **ft.**

*measured from bank toe to bankfull stage (the level at which water begins to flow over the floodplain)

Bank Configuration (Circle One)



Bank Angle

Bank Angle*: Refer to survey data **°(degrees)**

*measure the angle of the steepest slope or slope most prone to failure at bankfull flow. If possible, place a survey rod on the slope face and use a inclinometer to measure the angle.

Bank Material (Circle Type)

Bed Rock **Boulders** **Sand/Silt/Clay/Loam** **Cobble** **Gravel**

Silt/Clay **Sand**

Stratification Description

Interval	Description
TOB to 8 ft below TOB	Dry, medium dense, olive-brown, gravelly sand (approx. 40% gavel) fine sand, SP, trace silt, and fine gravel. Some cobbles on surface. Some roots. Heavy surface vegetation (100% coverage).
8 ft below TOB to 11 ft below TOB	Dry, loose to medium dense, dark red-brown, 20% organics, fine sand with trace silt, SP. Significant rooting. 20% surface coverage with wood debris (4 feet high). 50% surface coverage with cobbles.
11 ft below TOB to Beach.	Loose, moist, red-brown, sandy gravel, GP, fine sand. 50% surface coverage with gravel, concrete debris, and wood debris.

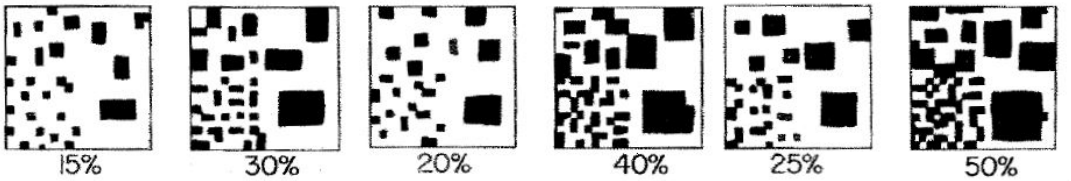
Measured Root Depth (RD)

Root Depth 1:	7.5 **ft.**	**Root Depth 3*:**	**ft.**
Root Depth 2*:	3 **ft.**	**Root Depth 4*:**	**ft.**
Total Root Depth# =	10.5 **ft.**	*if multiple root sets are present	# RD1+RD2+RD3+RD4

Where upper bank is accessible, clear soil to expose roots and access root depth. If upper bank is not accessible, look for areas with exposed roots.

Root Density

Root Density: 75 **%**



Surface Protection

Surface Protection*: 100 **%**

*percentage of surface protected from erosion by vegetation, root wads, debris, etc.; can use same method as root density (see above)

BANCS Transect Work Sheet

Location 10400 N Burgard Ave., Portland - Profile 4

Project # : 403180

Date: 7/19/2017

Project Name: PEO Riverbank Erodibility Hazard Evaluation

Start Time: 1357

End Time: 1446

Field Team: Jacob Barnes and Joe Casey, both ERM

Weather Conditions: Sunny, no clouds, 71°F

Bankfull Height / Study Bank Height

Study Bank Height*: Refer to survey data **ft.**

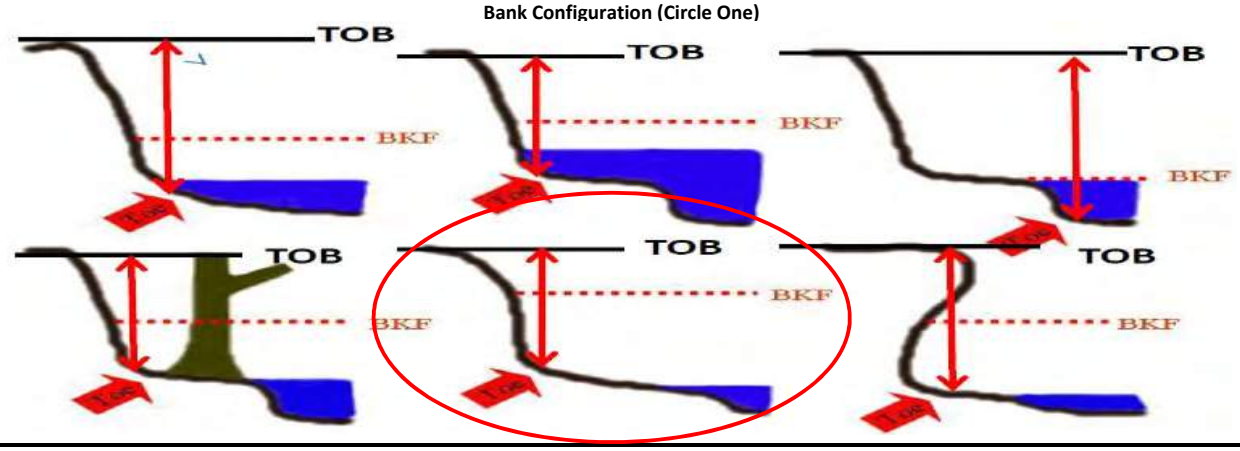
*measured from bank toe to bank top

TOB = Top of bank

Bankfull Height*: Refer to survey data **ft.**

*measured from bank toe to bankfull stage (the level at which water begins to flow over the floodplain)

Bank Configuration (Circle One)



Bank Angle

Bank Angle*: Refer to survey data **°(degrees)**

*measure the angle of the steepest slope or slope most prone to failure at bankfull flow. If possible, place a survey rod on the slope face and use a inclinometer to measure the angle.

Bank Material (Circle Type)

Bed Rock **Boulders** **Sand/Silt/Clay/Loam** **Cobble** **Gravel**

Silt/Clay **Sand**

Stratification Description

Interval	Description
TOB to 7 ft below TOB	Dry, medium dense, dark yellow-brown, gravelly (10%) sand (fine) w/trace silt. 100% suface coverage with cobble to the south. 50% surface coverage w/ 1 inch of duff.
7 ft below TOB to 13 ft below TOB	Dry, loose, olive-brown, fine to medium sand with gravel (70% sand, 30% gravel), SP. Some roots. Significant surface coverage with wood debris.
13 ft below TOB to Beach.	Medium to fine sand, SP.

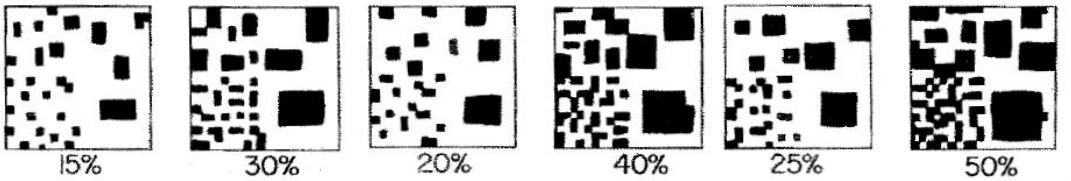
Measured Root Depth (RD)

Root Depth 1:	5 **ft.**	**Root Depth 3*:**	**ft.**
Root Depth 2*:	5 **ft.**	**Root Depth 4*:**	**ft.**
Total Root Depth# =	10 **ft.**	*if multiple root sets are present	# RD1+RD2+RD3+RD4

Where upper bank is accessible, clear soil to expose roots and access root depth. If upper bank is not accessible, look for areas with exposed roots.

Root Density

Root Density: 50 **%**



Surface Protection

Surface Protection*: 100 **%**

*percentage of surface protected from erosion by vegetation, root wads, debris, etc.; can use same method as root density (see above)

BANCS Transect Work Sheet

Location 10400 N Burgard Ave., Portland - Profile 5

Project # : 403180

Date: 7/19/2017

Project Name: PEO Riverbank Erodibility Hazard Evaluation

Start Time: 1515

End Time: 1546

Field Team: Jacob Barnes and Joe Casey, both ERM

Weather Conditions: Sunny, no clouds, 79°F

Bankfull Height / Study Bank Height

Study Bank Height*: Refer to survey data **ft.**

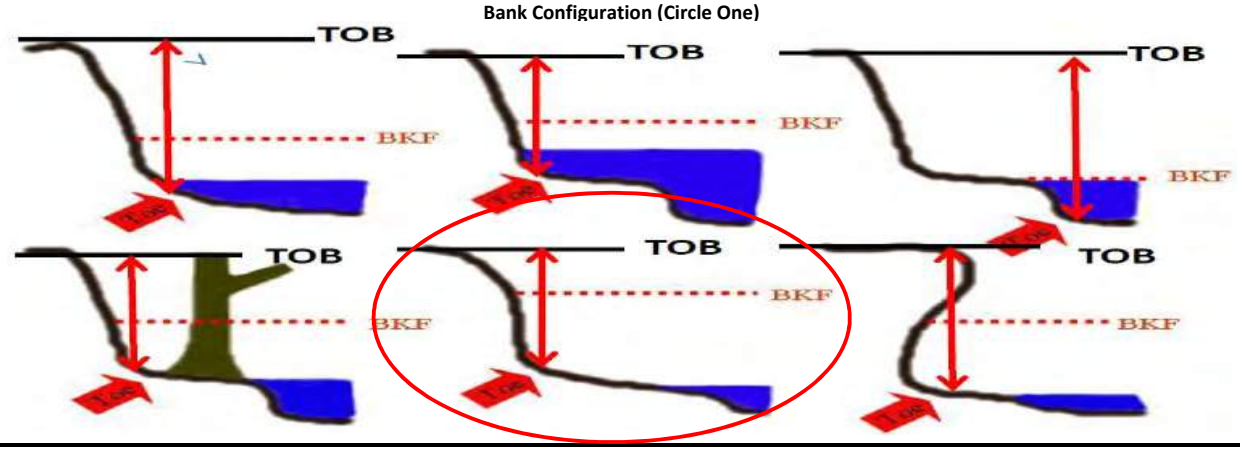
*measured from bank toe to bank top

TOB = Top of bank

Bankfull Height*: Refer to survey data **ft.**

*measured from bank toe to bankfull stage (the level at which water begins to flow over the floodplain)

Bank Configuration (Circle One)



Bank Angle

Bank Angle*: Refer to survey data **°(degrees)**

*measure the angle of the steepest slope or slope most prone to failure at bankfull flow. If possible, place a survey rod on the slope face and use a inclinometer to measure the angle.

Bank Material (Circle Type)

Bed Rock **Boulders** **Sand/Silt/Clay/Loam** **Cobble** **Gravel**

Silt/Clay **Sand**

Stratification Description

Interval	Description
TOB to 10 ft below TOB	Dry, medium dense, dark yellow-brown, fine sand w/trace fine gravel, SP. Few roots. One foot of cobble cover to the to the north, asphalt cover to the south.
10 ft below TOB to Beach	Four inches of cobble at surface. Formation consists of sandy cobbles. Dry, fine to medium sand.

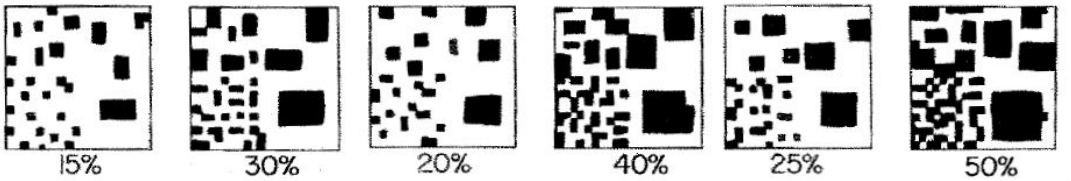
Measured Root Depth (RD)

Root Depth 1:	3 **ft.**	**Root Depth 3*:**	**ft.**
Root Depth 2*:	3 **ft.**	**Root Depth 4*:**	**ft.**
Total Root Depth# =	6 **ft.**	*if multiple root sets are present	# RD1+RD2+RD3+RD4

Where upper bank is accessible, clear soil to expose roots and access root depth. If upper bank is not accessible, look for areas with exposed roots.

Root Density

Root Density: 30 **%**



Surface Protection

Surface Protection*: 50 **%**

*percentage of surface protected from erosion by vegetation, root wads, debris, etc.; can use same method as root density (see above)

BANCS Transect Work Sheet

Location 10400 N Burgard Ave., Portland - Profile 6

Project # : 403180 **Date:** 7/20/2017

Project Name: PEO Riverbank Erodibility Hazard Evaluation **Start Time:** 0928

End Time: 1000

Field Team: Jacob Barnes and Joe Casey, both ERM

Weather Conditions: Sunny, no clouds, 75°F

Bankfull Height / Study Bank Height

Study Bank Height*: Refer to survey data **ft.**

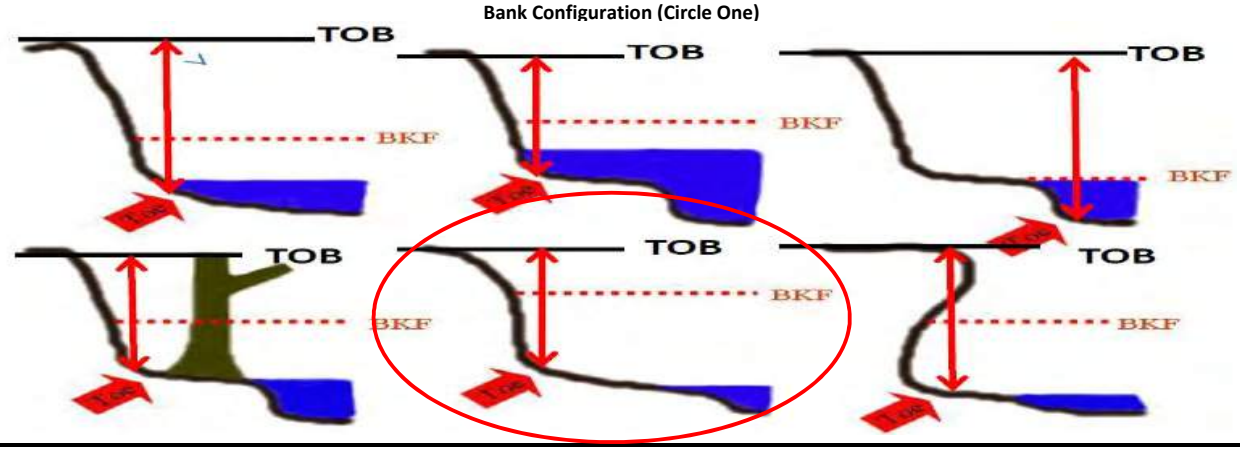
*measured from bank toe to bank top

TOB = Top of bank

Bankfull Height*: Refer to survey data **ft.**

*measured from bank toe to bankfull stage (the level at which water begins to flow over the floodplain)

Bank Configuration (Circle One)



Bank Angle

Bank Angle*: Refer to survey data **°(degrees)**

*measure the angle of the steepest slope or slope most prone to failure at bankfull flow. If possible, place a survey rod on the slope face and use a inclinometer to measure the angle.

Bank Material (Circle Type)

Bed Rock **Boulders** **Sand/Silt/Clay/Loam** **Cobble** **Gravel**

Silt/Clay **Sand**

Stratification Description

Interval	Description
TOB to an approximate elevation of 19.0 ft	Dry, dense, dark yellow-brown, fine sand w/trace silt, SP. Roots at surface. Asphalt cover and 100% surface coverage with vegetation.
Approximate 19.0 ft elevation to Beach	Medium dense, dark brown, moist, sandy gravel w/10% organics, fine sand, fine to coarse gravel, GP. Surface coverage with 4-ft high wood debris.
	Upper half of beach 100% surface coverage w/wood and concrete debris and some vegetation. Lower half of beach 100% surface coverage w/gravel and concrete debris.

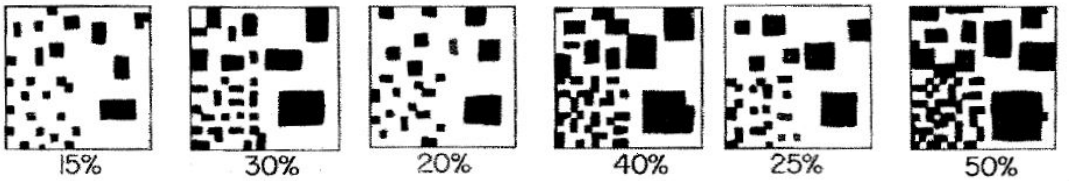
Measured Root Depth (RD)

Root Depth 1:	3 **ft.**	**Root Depth 3*:**	**ft.**
Root Depth 2*:	1 **ft.**	**Root Depth 4*:**	**ft.**
Total Root Depth# =	4 **ft.**	*if multiple root sets are present	# RD1+RD2+RD3+RD4

Where upper bank is accessible, clear soil to expose roots and access root depth. If upper bank is not accessible, look for areas with exposed roots.

Root Density

Root Density: 40 **%**



Surface Protection

Surface Protection*: 40 **%**

*percentage of surface protected from erosion by vegetation, root wads, debris, etc.; can use same method as root density (see above)

BANCS Transect Work Sheet

Location 10400 N Burgard Ave., Portland - Profile 7

Project # : 403180 **Date:** 7/19/2017

Project Name: PEO Riverbank Erodibility Hazard Evaluation **Start Time:** 1130

End Time: 1208

Field Team: Jacob Barnes and Joe Casey, both ERM

Weather Conditions: Sunny, no clouds, 70°F

Bankfull Height / Study Bank Height

Study Bank Height*: Refer to survey data **ft.**

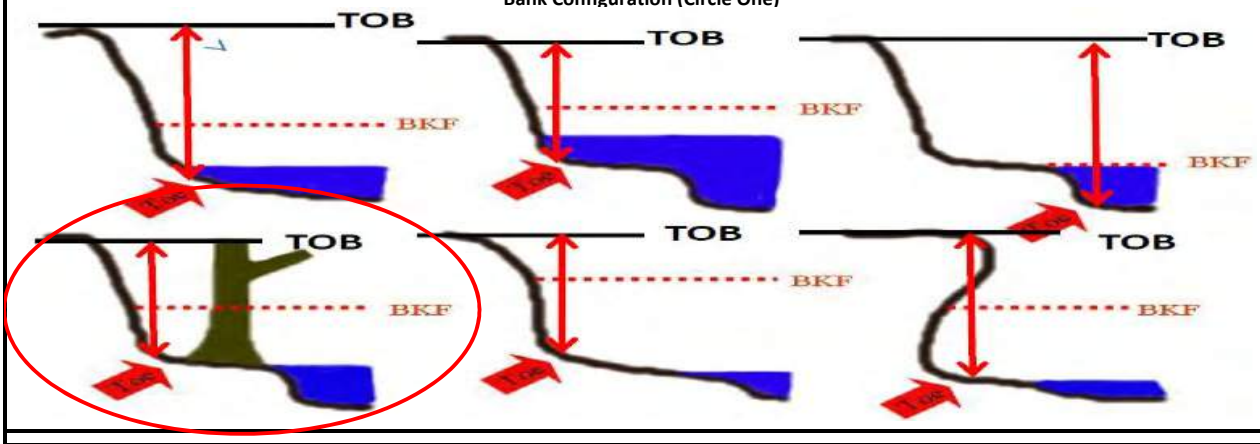
*measured from bank toe to bank top

TOB = Top of bank

Bankfull Height*: Refer to survey data **ft.**

*measured from bank toe to bankfull stage (the level at which water begins to flow over the floodplain)

Bank Configuration (Circle One)



Bank Angle

Bank Angle*: Refer to survey data **°(degrees)**

*measure the angle of the steepest slope or slope most prone to failure at bankfull flow. If possible, place a survey rod on the slope face and use a inclinometer to measure the angle.

Bank Material (Circle Type)

Bed Rock **Boulders** **Sand/Silt/Clay/Loam** **Cobble** **Gravel**

Silt/Clay **Sand**

Stratification Description

Interval	Description
TOB to 7 ft below TOB	Dry, dense, dark yellow-brown, fine sand w/trace gravel and trace silt, SP. Occasional boulders. Some roots and cover with vegetation. One inch of duff coverage.
7ft below TOB to 11 ft below TOB	Asphalt with some coverage with vegetation.
11 ft below TOB to Beach	Fine to medium sand, SP. Surface coverage with wood and concrete debris (8 ft high).

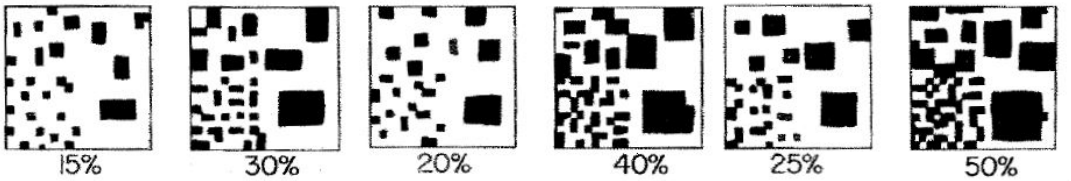
Measured Root Depth (RD)

Root Depth 1:	6 **ft.**	**Root Depth 3*:**	**ft.**
Root Depth 2*:	2 **ft.**	**Root Depth 4*:**	**ft.**
Total Root Depth# =	8 **ft.**	*if multiple root sets are present	# RD1+RD2+RD3+RD4

Where upper bank is accessible, clear soil to expose roots and access root depth. If upper bank is not accessible, look for areas with exposed roots.

Root Density

Root Density: 75 **%**



Surface Protection

Surface Protection*: 75 **%**

*percentage of surface protected from erosion by vegetation, root wads, debris, etc.; can use same method as root density (see above)

BANCS Transect Work Sheet

Location 10400 N Burgard Ave., Portland - Profile 8

Project # : 403180 **Date:** 7/19/2017

Project Name: PEO Riverbank Erodibility Hazard Evaluation **Start Time:** 1208

End Time: 1254

Field Team: Jacob Barnes and Joe Casey, both ERM

Weather Conditions: Sunny, no clouds, 71°F

Bankfull Height / Study Bank Height

Study Bank Height*: Refer to survey data **ft.**

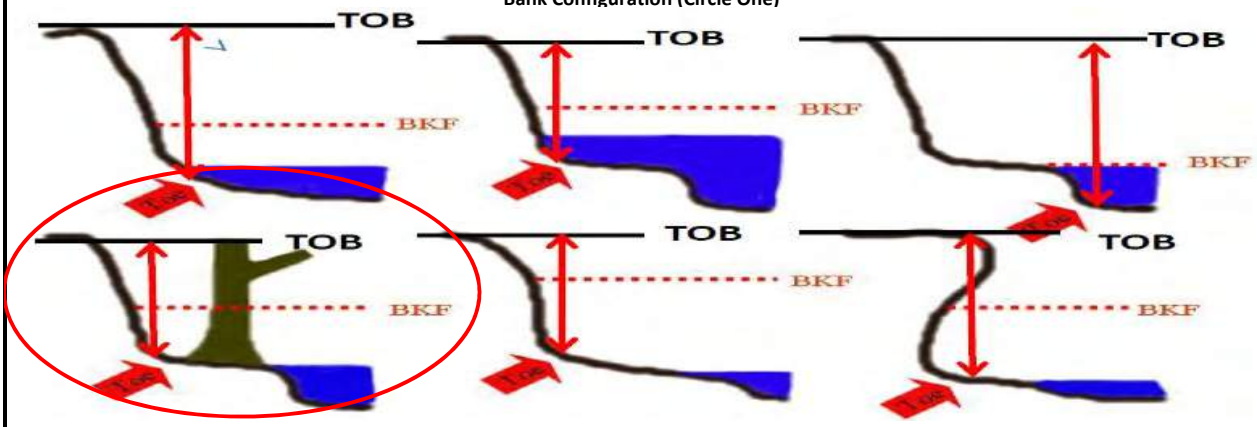
*measured from bank toe to bank top

TOB = Top of bank

Bankfull Height*: Refer to survey data **ft.**

*measured from bank toe to bankfull stage (the level at which water begins to flow over the floodplain)

Bank Configuration (Circle One)



Bank Angle

Bank Angle*: Refer to survey data **°(degrees)**

*measure the angle of the steepest slope or slope most prone to failure at bankfull flow. If possible, place a survey rod on the slope face and use a inclinometer to measure the angle.

Bank Material (Circle Type)

Bed Rock **Boulders** **Sand/Silt/Clay/Loam** **Cobble** **Gravel**

Silt/Clay **Sand**

Stratification Description

Interval	Description
TOB to 7 ft below TOB	Medium dense, dark yellow-brown, fine sand w/trace gravel and trace silt, SP. Occassional cobbles. Heavy vegetation and roots.
7ft below TOB to approximately 20 ft below TOB (Beach)	Surface coverage with wood and extremely large concrete debris/boulders.
Approximately 20 ft below TOB to bottom of Beach.	Fine to medium sand, SP.

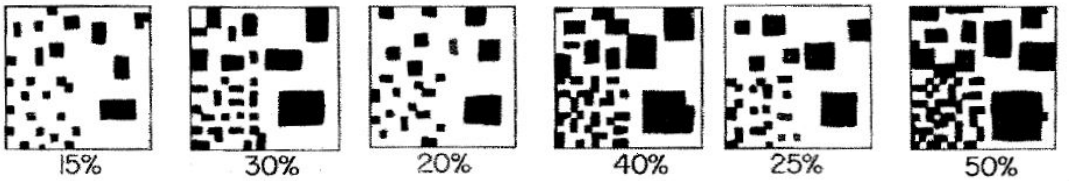
Measured Root Depth (RD)

Root Depth 1:	8.5 **ft.**	**Root Depth 3*:**	**ft.**
Root Depth 2*:	4 **ft.**	**Root Depth 4*:**	**ft.**
Total Root Depth# =	12.5 **ft.**	*if multiple root sets are present	# RD1+RD2+RD3+RD4

Where upper bank is accessible, clear soil to expose roots and access root depth. If upper bank is not accessible, look for areas with exposed roots.

Root Density

Root Density: 50 **%**



Surface Protection

Surface Protection*: 100 **%**

*percentage of surface protected from erosion by vegetation, root wads, debris, etc.; can use same method as root density (see above)

BANCS Transect Work Sheet

Location 10400 N Burgard Ave., Portland - Profile 9

Project # : 403180 **Date:** 7/19/2017

Project Name: PEO Riverbank Erodibility Hazard Evaluation **Start Time:** 1333

End Time: 1357

Field Team: Jacob Barnes and Joe Casey, both ERM

Weather Conditions: Sunny, no clouds, 71°F

Bankfull Height / Study Bank Height

Study Bank Height*: Refer to survey data **ft.**

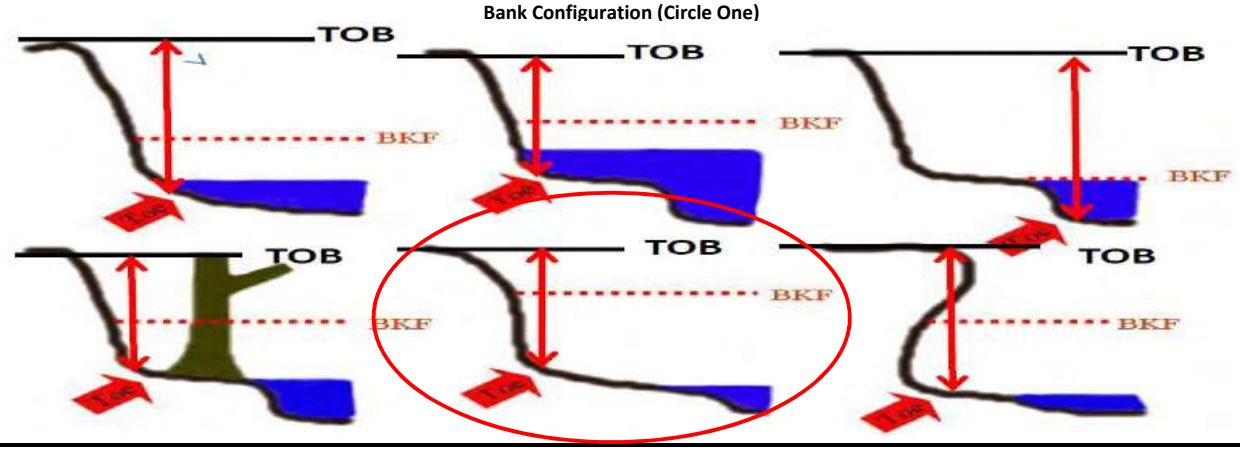
*measured from bank toe to bank top

TOB = Top of bank

Bankfull Height*: Refer to survey data **ft.**

*measured from bank toe to bankfull stage (the level at which water begins to flow over the floodplain)

Bank Configuration (Circle One)



Bank Angle

Bank Angle*: Refer to survey data **°(degrees)**

*measure the angle of the steepest slope or slope most prone to failure at bankfull flow. If possible, place a survey rod on the slope face and use a inclinometer to measure the angle.

Bank Material (Circle Type)

Bed Rock **Boulders** **Sand/Silt/Clay/Loam** **Cobble** **Gravel**

Silt/Clay **Sand**

Stratification Description

Interval	Description
TOB to 6 ft below TOB	Dry, medium dense, red-brown, fine sand w/trace gravel and trace silt, SP. Some roots. One inch of duff coverage.
6ft below TOB to Beach	3 to 4 inch thick organic cover layer. Moist, medium dense, dark gray-brown, fine gravel, fine sand, GP/SP, 20% organics, significant rooting. 100% surface coverage with vegetation and wood debris.
Top of Beach to bottom of Beach.	Fine sand with gravel, SP.

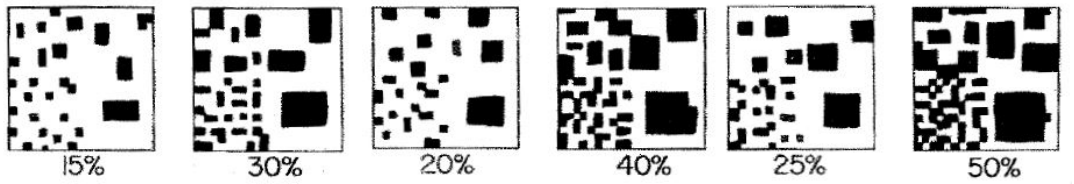
Measured Root Depth (RD)

Root Depth 1:	3.5 **ft.**	**Root Depth 3*:**	**ft.**
Root Depth 2*:	4.5 **ft.**	**Root Depth 4*:**	**ft.**
Total Root Depth# =	8 **ft.**	*if multiple root sets are present	# RD1+RD2+RD3+RD4

Where upper bank is accessible, clear soil to expose roots and access root depth. If upper bank is not accessible, look for areas with exposed roots.

Root Density

Root Density: 40 **%**



Surface Protection

Surface Protection*: 40 **%**

*percentage of surface protected from erosion by vegetation, root wads, debris, etc.; can use same method as root density (see above)

BANCS Transect Work Sheet

Location 10400 N Burgard Ave., Portland - Profile 10

Project # : 403180 **Date:** 7/19/2017

Project Name: PEO Riverbank Erodibility Hazard Evaluation **Start Time:** 1446

End Time: 1515

Field Team: Jacob Barnes and Joe Casey, both ERM

Weather Conditions: Sunny, no clouds, 75°F

Bankfull Height / Study Bank Height

Study Bank Height*: Refer to survey data **ft.**

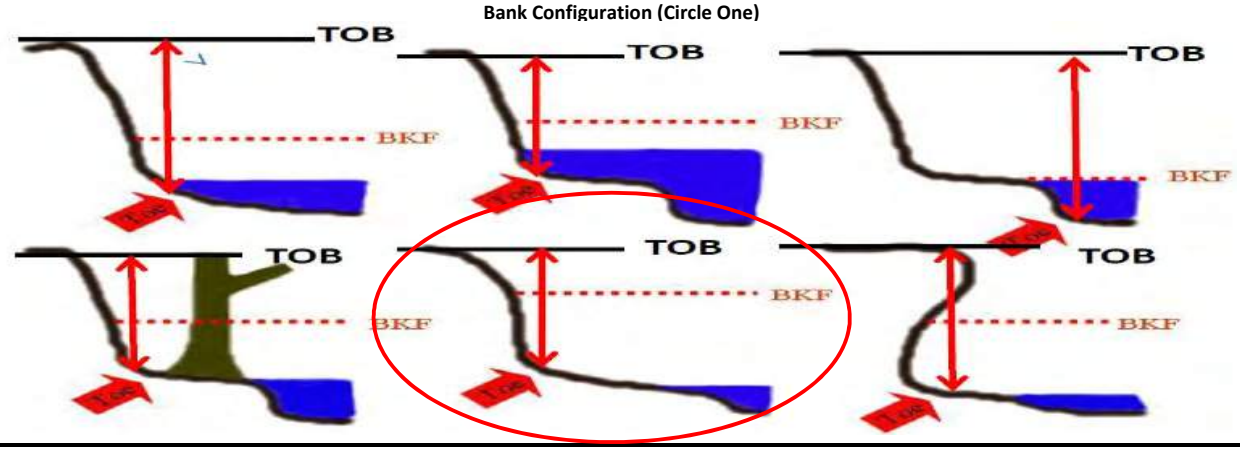
*measured from bank toe to bank top

TOB = Top of bank

Bankfull Height*: Refer to survey data **ft.**

*measured from bank toe to bankfull stage (the level at which water begins to flow over the floodplain)

Bank Configuration (Circle One)



Bank Angle

Bank Angle*: Refer to survey data **°(degrees)**

*measure the angle of the steepest slope or slope most prone to failure at bankfull flow. If possible, place a survey rod on the slope face and use a inclinometer to measure the angle.

Bank Material (Circle Type)

Bed Rock **Boulders** **Sand/Silt/Clay/Loam** **Cobble** **Gravel**

Silt/Clay **Sand**

Stratification Description

Interval	Description
TOB to 20.5 ft elevation	2 to 4 inch cobble layer at surface. Dense, dark yellow-brown, medium and fine gravel, fine sand (20%), trace silt, GP. Some roots.
20.5 ft eL elevation to Beach	Oneto 4 inch cobble layer at surface. Moist, medium dense, red-brown, fine sand, SP. Significant rooting.
Top of Beach to toe of Beach.	Medium to fine sand, SP.

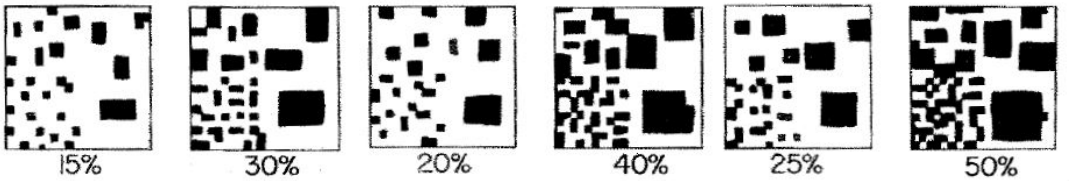
Measured Root Depth (RD)

Root Depth 1:	2 **ft.**	**Root Depth 3*:**	**ft.**
Root Depth 2*:	5 **ft.**	**Root Depth 4*:**	**ft.**
Total Root Depth# =	7 **ft.**	*if multiple root sets are present	# RD1+RD2+RD3+RD4

Where upper bank is accessible, clear soil to expose roots and access root depth. If upper bank is not accessible, look for areas with exposed roots.

Root Density

Root Density: 20 **%**



Surface Protection

Surface Protection*: 100 **%**

*percentage of surface protected from erosion by vegetation, root wads, debris, etc.; can use same method as root density (see above)

BANCS Transect Work Sheet

Location 10400 N Burgard Ave., Portland - Profile 11

Project # : 403180

Date: 7/19/2017 - 7/20/19

Project Name: PEO Riverbank Erodibility Hazard Evaluation

Start Time: 1546

End Time: 0928

Field Team: Jacob Barnes and Joe Casey, both ERM

Weather Conditions: Sunny, no clouds, 75°F

Bankfull Height / Study Bank Height

Study Bank Height*: Refer to survey data **ft.**

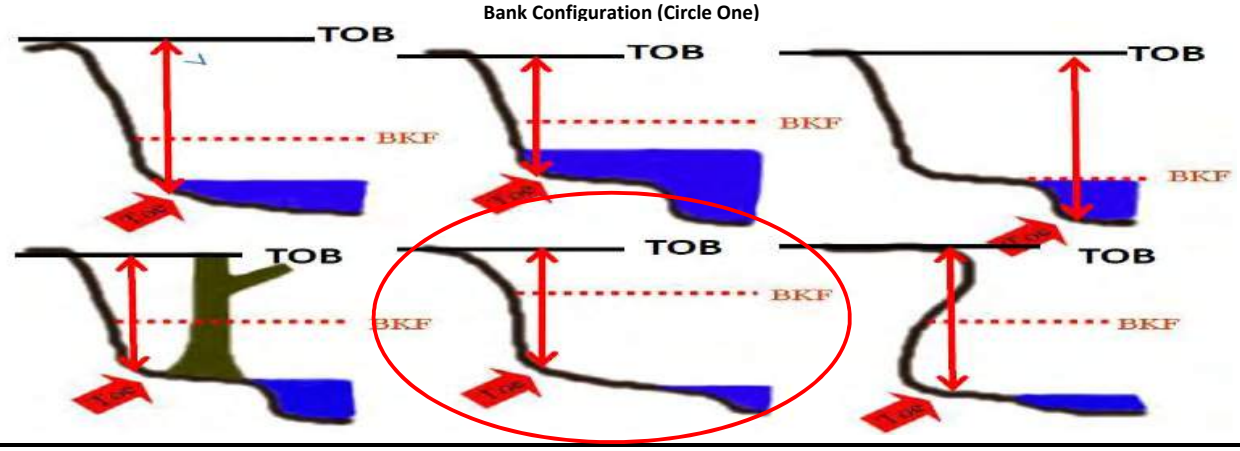
*measured from bank toe to bank top

TOB = Top of bank

Bankfull Height*: Refer to survey data **ft.**

*measured from bank toe to bankfull stage (the level at which water begins to flow over the floodplain)

Bank Configuration (Circle One)



Bank Angle

Bank Angle*: Refer to survey data **°(degrees)**

*measure the angle of the steepest slope or slope most prone to failure at bankfull flow. If possible, place a survey rod on the slope face and use a inclinometer to measure the angle.

Bank Material (Circle Type)

Bed Rock **Boulders** **Sand/Silt/Clay/Loam** **Cobble** **Gravel**

Silt/Clay **Sand**

Stratification Description

Interval	Description
TOB to 20.5 ft elevation	Four feet of asphalt overlaying sandy cobble and dry, red-brown, fine sand with trace silt. Some roots.
20.5 ft elevation to Beach	Dry, loose to medium dense, sandy gravel, some cobble, GP, fine sand, trace silt, fine to coarse gravel.

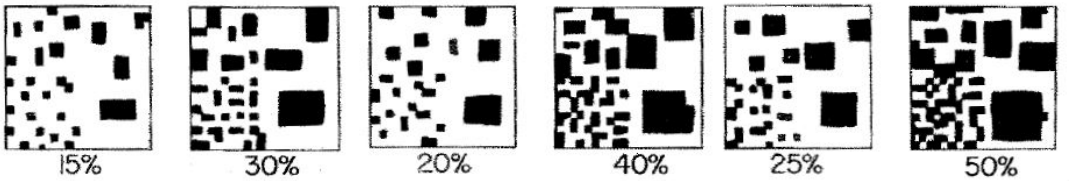
Measured Root Depth (RD)

Root Depth 1:	5.5 **ft.**	**Root Depth 3*:**	**ft.**
Root Depth 2*:	0.5 **ft.**	**Root Depth 4*:**	**ft.**
Total Root Depth# =	6 **ft.**	*if multiple root sets are present	# RD1+RD2+RD3+RD4

Where upper bank is accessible, clear soil to expose roots and access root depth. If upper bank is not accessible, look for areas with exposed roots.

Root Density

Root Density: 100 **%**



Surface Protection

Surface Protection*: 100 **%**

*percentage of surface protected from erosion by vegetation, root wads, debris, etc.; can use same method as root density (see above)

Attachment C
Current Conditions BEHI
Calculations

Profile 1

Current Conditions

Bank Erosion Hazard Index Calculation

Southern PEO Site

Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**12.68**	Bankfull Height in ft (B)	**10.475**	(A)/(B) =	**1.21**	(C)	**4.1**
Root Depth in ft (D)	**12.68**	Bank Height in ft (A)	**12.7**	(D)/(A) =	**1.00**	(E)	**1.0**
		Root Density as % (F)	**100**	(F) x (E) =	**100.0**	(G)	**1.0**
				Bank Angle as Degrees =	**7.6**	(H)	**1.3**
				Surface Protection as % =	**90**	(I)	**1.5**
				Bank Material Adjustment (see form below)			**5.0**
		Stratification Adjustment (add 5 to 10 points for unstable layers)					**0.0**
				Total Score and Adjective Rating			**13.9**

Profile 2

Current Conditions

Bank Erosion Hazard Index Calculation

Southern PEO Site

Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**7.9**	Bankfull Height in ft (B)	**7.1**	(A)/(B) =	**1.11**	(C)	**2.0**
Root Depth in ft (D)	**7.9**	Bank Height in ft (A)	**7.9**	(D)/(A) =	**1.00**	(E)	**1.5**
		Root Density as % (F)	**50**	(F) x (E) =	**50.0**	(G)	**4.3**
				Bank Angle as Degrees =	**21.1**	(H)	**2.0**
				Surface Protection as % =	**90**	(I)	**1.5**
				Bank Material Adjustment (see form below)			**5.0**
				Stratification Adjustment (add 5 to 10 points for unstable layers)			**0.0**
				Total Score and Adjective Rating			**16.3**

Profile 3

Current Conditions

Bank Erosion Hazard Index Calculation

Southern PEO Site

Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**7.6**	Bankfull Height in ft (B)	**6.4**	(A)/(B) =	**1.17**	(C)	**3.5**
Root Depth in ft (D)	**7.5**	Bank Height in ft (A)	**7.6**	(D)/(A) =	**1.0**	(E)	**1.1**
		Root Density as % (F)	**75**	(F) x (E) =	**74**	(G)	**2.4**
				Bank Angle as Degrees =	**26.9**	(H)	**2.2**
				Surface Protection as % =	**100**	(I)	**1.9**
						Bank Material Adjustment (see form below)	**5.0**
						Stratification Adjustment (add 5 to 10 points for unstable layers)	**0.0**
						Total Score and Adjective Rating	**16.1**

Profile 4

Current Conditions

Bank Erosion Hazard Index Calculation

Southern PEO Site

Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**7.9**	Bankfull Height in ft (B)	**6.5**	(A)/(B) =	**1.21**	(C)	**4.0**
Root Depth in ft (D)	**5**	Bank Height in ft (A)	**7.9**	(D)/(A) =	**0.64**	(E)	**3.2**
		Root Density as % (F)	**50**	(F) x (E) =	**31.8**	(G)	**5.8**
				Bank Angle as Degrees =	**35.4**	(H)	**2.7**
				Surface Protection as % =	**75**	(I)	**2.3**
				Bank Material Adjustment (see form below)			**10**
		Stratification Adjustment (add 5 to 10 points for unstable layers)					**0**
				Total Score and Adjective Rating			**28.0**

Profile 5

Current Conditions

Bank Erosion Hazard Index Calculation

Southern PEO Site

Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**13.08**	Bankfull Height in ft (B)	**10.975**	(A)/(B) =	**1.19**	(C)	**3.9**
Root Depth in ft (D)	**6**	Bank Height in ft (A)	**13.1**	(D)/(A) =	**0.46**	(E)	**4.3**
		Root Density as % (F)	**30**	(F) x (E) =	**13.76**	(G)	**8.0**
				Bank Angle as Degrees =	**23.6**	(H)	**2.1**
				Surface Protection as % =	**50**	(I)	**4.3**
							5
							0
							27.7

Bank Material Adjustment (see form below)

Stratification Adjustment (add 5 to 10 points for unstable layers)

Total Score and Adjective Rating

Profile 6

Current Conditions

Bank Erosion Hazard Index Calculation

Southern PEO Site

Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**8.4**	Bankfull Height in ft (B)	**6.975**	(A)/(B) =	**1.20**	(C)	**4.0**
Root Depth in ft (D)	**4**	Bank Height in ft (A)	**8.4**	(D)/(A) =	**0.48**	(E)	**4.1**
		Root Density as % (F)	**40**	(F) x (E) =	**19.1**	(G)	**7.3**
				Bank Angle as Degrees =	**25.0**	(H)	**2.2**
				Surface Protection as % =	**50**	(I)	**4.3**
				Bank Material Adjustment (see form below)			**10**
				Stratification Adjustment (add 5 to 10 points for unstable layers)			**0**
				Total Score and Adjective Rating			**32.0**

Profile 7

Current Conditions

Bank Erosion Hazard Index Calculation

Southern PEO Site

Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**8.9**	Bankfull Height in ft (B)	**6.5**	(A)/(B) =	**1.37**	(C)	**5.1**
Root Depth in ft (D)	**8**	Bank Height in ft (A)	**8.9**	(D)/(A) =	**0.90**	(E)	**1.9**
		Root Density as % (F)	**75**	(F) x (E) =	**67.5**	(G)	**2.9**
				Bank Angle as Degrees =	**32.0**	(H)	**2.5**
				Surface Protection as % =	**75**	(I)	**2.3**
						Bank Material Adjustment (see form below)	**10**
						Stratification Adjustment (add 5 to 10 points for unstable layers)	**0**
						Total Score and Adjective Rating	**24.8**

Profile 8

Current Conditions

Bank Erosion Hazard Index Calculation

Southern PEO Site

Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**8.7**	Bankfull Height in ft (B)	**6.5**	(A)/(B) =	**1.35**	(C)	**5.0**
Root Depth in ft (D)	**8.7**	Bank Height in ft (A)	**8.7**	(D)/(A) =	**0.99**	(E)	**1.0**
		Root Density as % (F)	**50**	(F) x (E) =	**50**	(G)	**4.3**
				Bank Angle as Degrees =	**22.6**	(H)	**2.1**
				Surface Protection as % =	**100**	(I)	**1.0**
				Bank Material Adjustment (see form below)			**-10**
				Stratification Adjustment (add 5 to 10 points for unstable layers)			**0**
				Total Score and Adjective Rating			**3.4**

Profile 9

Current Conditions

Bank Erosion Hazard Index Calculation

Southern PEO Site

Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**7.1**	Bankfull Height in ft (B)	**6.4**	(A)/(B) =	**1.11**	(C)	**2.0**
Root Depth in ft (D)	**7.1**	Bank Height in ft (A)	**7.1**	(D)/(A) =	**1.00**	(E)	**1.0**
		Root Density as % (F)	**40**	(F) x (E) =	**40.17**	(G)	**5.1**
				Bank Angle as Degrees =	**30.6**	(H)	**2.5**
				Surface Protection as % =	**40**	(I)	**5.1**
						Bank Material Adjustment (see form below)	**5**
						Stratification Adjustment (add 5 to 10 points for unstable layers)	**0**
						Total Score and Adjective Rating	**20.7**

Profile 10

Current Conditions

Bank Erosion Hazard Index Calculation

Southern PEO Site

Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**7.4**	Bankfull Height in ft (B)	**6.4**	(A)/(B) =	**1.15**	(C)	**2.9**
Root Depth in ft (D)	**2**	Bank Height in ft (A)	**7.4**	(D)/(A) =	**0.27**	(E)	**6.3**
		Root Density as % (F)	**20**	(F) x (E) =	**5.43**	(G)	**9.0**
				Bank Angle as Degrees =	**31.7**	(H)	**2.5**
				Surface Protection as % =	**100**	(I)	**1.0**
				Bank Material Adjustment (see form below)			**-10**
		Stratification Adjustment (add 5 to 10 points for unstable layers)					**0**
				Total Score and Adjective Rating			**11.6**

Profile 11

Current Conditions

Bank Erosion Hazard Index Calculation

Southern PEO Site

Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**9.18**	Bankfull Height in ft (B)	**7.9222**	(A)/(B) =	**1.16**	(C)	**3.2**
Root Depth in ft (D)	**6**	Bank Height in ft (A)	**9.18**	(D)/(A) =	**0.65**	(E)	**3.2**
		Root Density as % (F)	**75**	(F) x (E) =	**49.02**	(G)	**4.4**
				Bank Angle as Degrees =	**58.9**	(H)	**3.8**
				Surface Protection as % =	**75**	(I)	**2.1**
							10
							0
							26.7

Bank Material Adjustment (see form below)

Stratification Adjustment (add 5 to 10 points for unstable layers)

Total Score and Adjective Rating

Attachment D
Post Conceptual Source
Control Measure BEHI
Calculations

Profile 1

Post Conceptual Source Control Measure Conditions
Bank Erosion Hazard Index Calculation
Southern PEO Site
Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**12.68**	Bankfull Height in ft (B)	**10.475**	(A)/(B) =	**1.21**	(C)	**4.1**
Root Depth in ft (D)	**12.68**	Bank Height in ft (A)	**12.7**	(D)/(A) =	**1.00**	(E)	**1.0**
		Root Density as % (F)	**100**	(F) x (E) =	**100.0**	(G)	**1.0**
				Bank Angle as Degrees =	**7.6**	(H)	**1.3**
				Surface Protection as % =	**90**	(I)	**1.5**
				Bank Material Adjustment (see form below)			**5.0**
		Stratification Adjustment (add 5 to 10 points for unstable layers)					**0.0**
				Total Score and Adjective Rating			**13.9**

Profile 2

Post Conceptual Source Control Measure Conditions
Bank Erosion Hazard Index Calculation
Southern PEO Site
Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**7.861**	Bankfull Height in ft (B)	**7.086**	(A)/(B) =	**1.11**	(C)	**2.0**
Root Depth in ft (D)	**7.86**	Bank Height in ft (A)	**7.861**	(D)/(A) =	**1.00**	(E)	**1.5**
		Root Density as % (F)	**50**	(F) x (E) =	**50.0**	(G)	**4.3**
				Bank Angle as Degrees =	**21.1**	(H)	**2.0**
				Surface Protection as % =	**90**	(I)	**1.5**
				Bank Material Adjustment (see form below)			**5.0**
				Stratification Adjustment (add 5 to 10 points for unstable layers)			**0.0**
				Total Score and Adjective Rating			**16.3**

Profile 3

Post Conceptual Source Control Measure Conditions
Bank Erosion Hazard Index Calculation
Southern PEO Site
Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**7.6**	Bankfull Height in ft (B)	**6.4**	(A)/(B) =	**1.17**	(C)	**3.5**
Root Depth in ft (D)	**7.5**	Bank Height in ft (A)	**7.6**	(D)/(A) =	**1.0**	(E)	**1.1**
		Root Density as % (F)	**75**	(F) x (E) =	**74**	(G)	**2.4**
				Bank Angle as Degrees =	**26.9**	(H)	**2.2**
				Surface Protection as % =	**100**	(I)	**1.9**
				Bank Material Adjustment (see form below)			**5.0**
				Stratification Adjustment (add 5 to 10 points for unstable layers)			**0.0**
				Total Score and Adjective Rating			**16.1**

Profile 4

Post Conceptual Source Control Measure Conditions
Bank Erosion Hazard Index Calculation
Southern PEO Site
Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**7.9**	Bankfull Height in ft (B)	**6.5**	(A)/(B) =	**1.21**	(C)	**4.0**
Root Depth in ft (D)	**7**	Bank Height in ft (A)	**7.9**	(D)/(A) =	**0.89**	(E)	**2.0**
		Root Density as % (F)	**75**	(F) x (E) =	**66.8**	(G)	**2.5**
				Bank Angle as Degrees =	**35.5**	(H)	**2.7**
				Surface Protection as % =	**100**	(I)	**1.0**
				Bank Material Adjustment (see form below)			**0**
				Stratification Adjustment (add 5 to 10 points for unstable layers)			**0**
				Total Score and Adjective Rating			**12.2**

Profile 5

Post Conceptual Source Control Measure Conditions
Bank Erosion Hazard Index Calculation
Southern PEO Site
Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**13.08**	Bankfull Height in ft (B)	**10.975**	(A)/(B) =	**1.19**	(C)	**3.9**
Root Depth in ft (D)	**11**	Bank Height in ft (A)	**13.1**	(D)/(A) =	**0.84**	(E)	**2.2**
		Root Density as % (F)	**75**	(F) x (E) =	**63.09**	(G)	**3.3**
				Bank Angle as Degrees =	**23.6**	(H)	**2.1**
				Surface Protection as % =	**100**	(I)	**1.0**
						Bank Material Adjustment (see form below)	**0**
						Stratification Adjustment (add 5 to 10 points for unstable layers)	**0**
						Total Score and Adjective Rating	**12.6**

Profile 6

Post Conceptual Source Control Measure Conditions
Bank Erosion Hazard Index Calculation
Southern PEO Site
Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**8.381**	Bankfull Height in ft (B)	**6.975**	(A)/(B) =	**1.20**	(C)	**4.0**
Root Depth in ft (D)	**7.5**	Bank Height in ft (A)	**8.4**	(D)/(A) =	**0.89**	(E)	**1.9**
		Root Density as % (F)	**75**	(F) x (E) =	**67.1**	(G)	**2.9**
				Bank Angle as Degrees =	**25.0**	(H)	**2.2**
				Surface Protection as % =	**100**	(I)	**1.0**
						Bank Material Adjustment (see form below)	**0**
						Stratification Adjustment (add 5 to 10 points for unstable layers)	**0**
						Total Score and Adjective Rating	**12.0**

Profile 7

Post Conceptual Source Control Measure Conditions
Bank Erosion Hazard Index Calculation
Southern PEO Site
Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**8.9**	Bankfull Height in ft (B)	**6.5**	(A)/(B) =	**1.37**	(C)	**5.1**
Root Depth in ft (D)	**8**	Bank Height in ft (A)	**8.9**	(D)/(A) =	**0.90**	(E)	**1.9**
		Root Density as % (F)	**75**	(F) x (E) =	**67.5**	(G)	**2.9**
				Bank Angle as Degrees =	**32.0**	(H)	**2.5**
				Surface Protection as % =	**75**	(I)	**2.3**
						Bank Material Adjustment (see form below)	**10**
						Stratification Adjustment (add 5 to 10 points for unstable layers)	**0**
						Total Score and Adjective Rating	**24.8**

Profile 8

Post Conceptual Source Control Measure Conditions
Bank Erosion Hazard Index Calculation
Southern PEO Site
Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**8.7**	Bankfull Height in ft (B)	**6.5**	(A)/(B) =	**1.35**	(C)	**5.0**
Root Depth in ft (D)	**8.7**	Bank Height in ft (A)	**8.7**	(D)/(A) =	**0.99**	(E)	**1.0**
		Root Density as % (F)	**50**	(F) x (E) =	**50**	(G)	**4.3**
				Bank Angle as Degrees =	**22.6**	(H)	**2.1**
				Surface Protection as % =	**100**	(I)	**1.0**
				Bank Material Adjustment (see form below)			**-10**
				Stratification Adjustment (add 5 to 10 points for unstable layers)			**0**
				Total Score and Adjective Rating			**3.4**

Profile 9

Post Conceptual Source Control Measure Conditions
Bank Erosion Hazard Index Calculation
Southern PEO Site
Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**7.1**	Bankfull Height in ft (B)	**6.4**	(A)/(B) =	**1.11**	(C)	**2.0**
Root Depth in ft (D)	**6.5**	Bank Height in ft (A)	**7.1**	(D)/(A) =	**0.92**	(E)	**0.3**
		Root Density as % (F)	**75**	(F) x (E) =	**68.95**	(G)	**2.8**
				Bank Angle as Degrees =	**30.5**	(H)	**2.5**
				Surface Protection as % =	**75**	(I)	**2.3**
						Bank Material Adjustment (see form below)	**5**
						Stratification Adjustment (add 5 to 10 points for unstable layers)	**0**
						Total Score and Adjective Rating	**14.8**

Profile 10

Post Conceptual Source Control Measure Conditions
Bank Erosion Hazard Index Calculation
Southern PEO Site
Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**7.4**	Bankfull Height in ft (B)	**6.4**	(A)/(B) =	**1.15**	(C)	**2.9**
Root Depth in ft (D)	**2**	Bank Height in ft (A)	**7.4**	(D)/(A) =	**0.27**	(E)	**6.3**
		Root Density as % (F)	**20**	(F) x (E) =	**5.43**	(G)	**9.0**
				Bank Angle as Degrees =	**31.7**	(H)	**2.5**
				Surface Protection as % =	**100**	(I)	**1.0**
				Bank Material Adjustment (see form below)			**-10**
		Stratification Adjustment (add 5 to 10 points for unstable layers)					**0**
				Total Score and Adjective Rating			**11.6**

Profile 11

Post Conceptual Source Control Measure Conditions
Bank Erosion Hazard Index Calculation
Southern PEO Site
Portland, Oregon

							BEHI Score (see rating guide)
Bank Height in ft (A)	**9.2**	Bankfull Height in ft (B)	**7.9**	(A)/(B) =	**1.16**	(C)	**3.2**
Root Depth in ft (D)	**8.3**	Bank Height in ft (A)	**9.2**	(D)/(A) =	**0.90**	(E)	**1.9**
		Root Density as % (F)	**75**	(F) x (E) =	**67.81**	(G)	**2.9**
				Bank Angle as Degrees =	**56.8**	(H)	**3.7**
				Surface Protection as % =	**100**	(I)	**1.0**
						Bank Material Adjustment (see form below)	**0**
						Stratification Adjustment (add 5 to 10 points for unstable layers)	**0**
						Total Score and Adjective Rating	**12.7**

Basin 2 Storm Water Sampling and Analysis Data
October 25, 2017 Sampling Event, Burgard Industrial Park
Source Control Project, Portland, Oregon
Rieke Consulting Services, LLC, 2017

RCS RIEKE CONSULTING SERVICES, LLC

Basin 2 Storm Water Sampling and Analysis Data October 25, 2017 Sampling Event Burgard Industrial Park Source Control Project Portland, Oregon

TO: Ray Hoy/Oregon DEQ

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FROM: Ross Rieke/RCS

DATE: December 27, 2017

This memorandum presents the results of the October 25, 2017 storm water sampling and analysis performed at Basin 2 at the Burgard Industrial Park (BIP) in Portland, Oregon (Figure 1, Figure 2). The storm water sampling and analysis was performed in general accordance with the September 16, 2015, *Phase 2 Basin 2 Storm Water Monitoring Plan* (SSAP). DEQ approved the monitoring plan in a June 29, 2017 email.

Basin 2 Description

Basin 2 consists of an approximately 54-acre area on the western and southwestern portion of the BIP. Figure 3 shows the approximate boundaries of Basin 2 and the storm water management infrastructure. The Basin 2 area is owned and operated by Schnitzer Steel Industries (SSI) and the primary activities in Basin 2 are the receipt, staging, processing, and loading of scrap metal.

Storm water runoff from Basin 2 is currently collected through a series of catch basins and conveyed to a sump where the water is pumped through 150-micron screen filters to a one million-gallon storage tank (storm water tank). The storage tank allows some additional settling of the storm water, attenuates storm events, and is configured to allow collected storm water to be pumped, as needed, to a second one million-gallon storage tank (process water tank) which provides makeup water for the shredder cooling system. Excess storm water is periodically pumped from the storm water tank to a storm water treatment system which consists of:

- Electrocoagulation (EC) treatment system which coagulates fine particles, oxidizes metals, precipitates contaminants, and de-emulsifies emulsified oils;
- Clarification and filtration system where coagulated solids, fines, and heavy metal ions are removed; and
- Granular activated carbon (GAC) polishing filtration system.

The treated storm water is conveyed through a buried pipe to an existing 30-inch diameter steel outfall on the bank of the Willamette River (Outfall 2). This discharge is permitted and monitored under the facility's NPDES general storm water permit.

SSI has been making significant improvements to the original storm water system since they began operating on the Site and the current system is a result of recent improvements including:

- In 2009, five drainage basins were consolidated into Basin 2 and three in-line separators and screen micro-filters and a one million-gallon storm water storage tank were constructed.
- In 2012, four additional drainage basins were consolidated into Basin 2 and the associated filter and settling tank treatment system.
- In 2016, former Basin 1 along the southern portion of the SSI property was consolidated into Basin 2 and the EC/filtration/GAC treatment system was constructed.
- In September 2017, former Basin 19 was consolidated into Basin 2 resulting in essentially all captured storm water on the SSI site being treated in the EC/filtration/GAC treatment system prior to discharge. Abandonment of the former Basin 19 infrastructure is pending.

As noted on Figure 2, there are three areas on the SSI site within Basin 2 where storm water is captured and conveyed to the process water tank for use as shredder cooling makeup water. Storm water from these three areas does not flow to the Basin 2 storm water system

Basin 2 Storm Water Sampling and Analysis

Storm Water Sample Collection

Basin 2 storm water sample was collected on October 25, 2017 at sampling spigot located immediately downstream of the GAC filter array (Figure 3).

Table 1 presents the rainfall conditions preceding and during the storm water sampling event. Given the nature of the storm water management infrastructure (see discussion above), storm water runoff accumulated in the storm water storage tank, and eventually treated in the EC/filtration/GAC treatment system, can include runoff from multiple rainfall events. The treated storm water sampled on October 25, 2017 consisted primarily of runoff generated during the rainfall event on October 17-22, 2017.

Storm Water Sample Analysis

The Basin 18 storm water samples were analyzed for the following:

- Aluminum, antimony, arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, silver, and zinc;
- Butyltins;
- PCB homologs and congeners;
- Pesticides;
- Dioxins/furans;
- Phthalates;
- Polycyclic aromatic hydrocarbons (PAHs);
- Total Petroleum Hydrocarbons (gasoline, diesel, and heavy oil); and
- Total suspended solids (TSS).

Table 2 presents the results of the Basin 2 storm water sample analyses. Copies of the analytical laboratory reports are provided in Appendix A. Review of the laboratory QA/QC results did not indicate any issues requiring corrective action. Table 2 also presents the result of previous storm water sampling and analysis in Basin 2.

None of the analytes exceeded their respective Portland Harbor surface water Cleanup Levels[1] except PCBs, dioxins, and arsenic. However, the PCB concentration was *only five percent* of the typical Portland Harbor storm water PCB concentration[2]. The arsenic concentration was *less than 1/3* of the typical Portland Harbor storm water arsenic concentration. The total dioxin concentration was *less than one percent* of the average total dioxin concentrations in the Basin 2 storm water samples collected prior to the installation of the EC/filtration/GAC treatment system.

Attachments:

Table 1 - Storm Water Sampling Event Rainfall Data, 10/25/2017 Sampling Event
Table 2 – Storm Water Sample Analytical Laboratory Results
Figure 1 – Site Location Map
Figure 2 – Burgard Industrial Park Site Plan
Figure 3 – Basin 2 Drainage Area and Storm Water Management Features
Appendix A – Analytical Laboratory Reports.

[1] Table 17 in January 2017 Portland Harbor Record of Decision

[2] October 2010 DEQ Guidance for Evaluating Stormwater Pathway at Upland Sites, Appendix E, Tool for Evaluating Stormwater Data, December 2015 update

Tables

Table 1
Storm Water Sampling Event Rainfall Data
10/25/2017 Sampling Event
Burgard Industrial Park Basin 2 (SSI Treatment Plant Discharge)

Date	Daily Total	Hourly Rain Fall (0.01 inches)																							
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
10/14/2017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/15/2017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/16/2017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/17/2017	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0
10/18/2017	5	0	1	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
10/19/2017	100	2	5	5	7	7	7	7	6	6	3	2	1	5	9	6	9	3	8	0	2	0	0	0	0
10/20/2017	15	0	0	0	0	0	0	0	1	0	3	0	0	0	0	11	0	0	0	0	0	0	0	0	0
10/21/2017	236	4	4	15	8	1	3	0	1	4	5	8	11	11	11	6	7	11	14	11	8	13	15	32	33
10/22/2017	69	42	13	6	7	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/23/2017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/24/2017	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
10/25/2017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Data from Shipyard Rain Gage - 8900 N. Sever Road
Sampling Day

Table 2
Basin 2 Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park

Chemical	Portland Harbor SLV JSCS[1]	Portland Harbor SLV CL[2]	DEQ Appendix E "Typical PH Values"[3]	10/25/2017	1/17/2011	11/24/2010	11/13/2010	6/28/2010
PAHs (ug/l)								
Acenaphthene	2.0E-01			3.8E-02 U	9.4E-02 U	9.5E-02 J	1.9E-02 U	9.4E-03 U
Acenaphthylene	2.0E-01			3.8E-02 U	9.4E-02 U	9.5E-02 J	3.7E-02 U	9.4E-03 U
Anthracene				3.8E-02 U	1.2E-01 J	1.9E-01 J	1.6E-01	2.1E-02
Benzo(a)anthracene	1.8E-02	1.2E-03		3.8E-02 U	7.4E-01	8.9E-01	4.4E-01	2.0E-02
Benzo(a)pyrene	1.8E-02	1.2E-04		5.7E-02 U	4.8E-01	6.2E-01	3.6E-01	2.7E-02
Benzo(b)fluoranthene	1.8E-02	1.2E-03		5.7E-02 U	1.1E+00	1.5E+00	8.8E-01	5.9E-02
Benzo(k)fluoranthene	1.8E-02	1.3E-03		5.7E-02 U	1.1E+00	1.5E+00	8.8E-01	1.6E-02 U
Benzo(b+k)fluoranthene		1.2E-03						
Benzo(g,h,i)perylene	2.0E-01			3.8E-02 U	4.8E-01	6.3E-01	2.9E-01	3.4E-02
Chrysene	1.8E-02	1.3E-03		3.8E-02 U	1.2E+00	1.5E+00	7.5E-01	4.3E-02
Dibenzo(a,h)anthracene	1.8E-02	1.2E-04		3.8E-02 U	1.1E-01 J	1.6E-01 J	8.1E-02	9.4E-03 U
Fluoranthene	2.0E-01			3.8E-02 U	1.7E+00	1.9E+00	1.1E+00	3.6E-02
Fluorene	2.0E-01			3.8E-02 U	9.4E-02 U	9.5E-03	3.7E-02 U	9.4E-03
Indeno(1,2,3-cd)pyrene	1.8E-02	1.2E-03		3.8E-02 U	3.7E-01	5.5E-01	2.5E-01	2.4E-02
Naphthalene	2.0E-01	1.2E+01		7.6E-02 U	1.9E-01 U	1.9E-01 J	3.7E-02 U	1.9E-02 U
Phenanthrene	2.0E-01			3.8E-02 U	3.2E-01	2.3E-01	1.1E-01 U	1.9E-02 U
Pyrene	2.0E-01			3.8E-02 U	2.2E+00	3.1E+00	2.0E+00	5.0E-02
Total Detected CPAHs (BaP TEF)		1.2E-04		0.0E+00	9.2E-01	1.2E+00	6.9E-01	3.8E-02
Total Detected PAHs			1.5E+00	0.0E+00	9.0E+00	1.2E+01	6.4E+00	3.2E-01
PCBs (ug/l)								
Aroclor 1016	9.6E-01				9.5E-03 U	9.5E-03 J	9.4E-03 U	9.4E-03 U
Aroclor 1221	3.4E-02				9.5E-03 U	9.5E-03 J	9.4E-03 U	9.4E-03 U
Aroclor 1232	3.4E-02				9.5E-03 U	9.5E-03 J	9.4E-03 U	9.4E-03 U
Aroclor 1242	3.4E-02				4.9E-01	6.0E-01	3.8E-01	9.4E-03 U
Aroclor 1248	3.4E-02				9.5E-03 U	9.5E-03 J	9.4E-03 U	1.2E-01 J
Aroclor 1254	3.4E-02				2.5E-01	4.3E-01	2.1E-01	7.5E-02 J
Aroclor 1260	3.4E-02				1.9E-01	2.6E-01	9.4E-03 U	5.2E-02 J
Total Detected PCB aroclors	6.4E-05	6.4E-06	3.0E-01		9.4E-01	1.3E+00	5.9E-01	2.5E-01
PCB Congeners (ug/l)								
2,3-DiCB-(5)				1.2E-05 U	4.2E-04	8.4E-05 J	8.4E-05 U	6.5E-06 U
2,3'-DiCB-(6)				2.6E-05 J	7.1E-03	8.0E-03	8.3E-04	7.2E-05 J
2,4-DiCB-(7)				9.5E-06 U	1.1E-03	1.4E-03	2.4E-04 U	1.4E-05 J
2,4'-DiCB-(8)				6.7E-05 J	3.1E-02	3.5E-02	3.7E-03	3.2E-04
2,5-DiCB-(9)				9.6E-06 U	2.1E-03	2.6E-03	3.4E-04	1.9E-05 U
2,6-DiCB-(10)				2.6E-05 U	1.2E-03	7.1E-04	7.7E-04	3.1E-04
22'33'44'55'6-NonaCB-(206)				8.3E-05 J	3.2E-03	4.2E-03	1.7E-03	4.1E-04
22'33'44'55'-OctaCB-(194)				7.2E-05 U	3.9E-03	7.1E-03	2.4E-03	9.2E-04
22'33'44'566'-NonaCB-(207)				1.1E-05 U	4.4E-04	8.0E-04	3.5E-04	5.1E-05 J
22'33'44'56-OctaCB-(195)				3.1E-05 J	1.6E-03	2.7E-03	9.8E-04	3.3E-04
22'33'44'56'-OctaCB-(196)				4.1E-05 U	2.8E-03	3.9E-03	1.5E-03	4.8E-04
22'33'44'5-HeptaCB-(170)				1.2E-04	9.0E-03	1.4E-02	5.0E-03	1.7E-03
22'33'44'66'OctaCB-(197)				9.5E-06 U	1.6E-04 U	2.2E-04	8.5E-05 U	3.4E-05 J
22'33'455'66'-NonaCB-(208)				2.5E-05 J	1.0E-03	1.6E-03	6.8E-04	1.1E-04
22'33'455'-HeptaCB-(172)				2.3E-05 J	1.4E-03	2.1E-03	7.9E-04	2.7E-04
22'33'4566'-OctaCB-(200)				1.2E-05 J	7.5E-04	1.1E-03	4.2E-04	1.1E-04
22'33'45'66'-OctaCB-(201)				1.3E-05 U	7.6E-04	1.1E-03	4.3E-04	1.2E-04
22'33'456'-HeptaCB-(174)				1.3E-04	9.7E-03	1.4E-02	5.2E-03	2.0E-03
22'33'45'6-HeptaCB-(175)				6.8E-06 U	5.7E-04	5.1E-04	2.0E-04	7.0E-05 J
22'33'45'6'-HeptaCB-(177)				7.3E-05 J	5.1E-03	7.4E-03	2.6E-03	9.6E-04
22'33'45'-HexaCB-(130)				4.3E-05 U	2.5E-03	3.1E-03	1.3E-03	3.5E-04
22'33'466'-HeptaCB-(176)				1.3E-05 U	1.5E-03	1.7E-03	7.0E-04	2.2E-04
22'33'46-HexaCB-(131)				1.3E-05 J	6.1E-04	7.5E-04	3.3E-04	8.6E-05 J
22'33'46'-HexaCB-(132)				2.3E-04	1.6E-02	1.9E-02	7.9E-03	2.4E-03
22'33'4-PentaCB-(82)				5.1E-05 J	5.1E-03	6.6E-03	2.8E-03	8.0E-04
22'33'55'66'-OctaCB-(202)				2.5E-05 J	1.1E-03	1.5E-03	6.1E-04	1.9E-04
22'33'55'6-HeptaCB-(178)				2.7E-05 J	2.0E-03	2.5E-03	9.3E-04	3.2E-04
22'33'55'-HexaCB-(133)				9.7E-06 U	4.3E-04	5.4E-04	2.3E-04	6.8E-05 J
22'33'566'-HeptaCB-(179)				4.9E-05 J	4.9E-03	5.4E-03	2.3E-03	7.1E-04
22'33'66'-HexaCB-(136)				5.7E-05 J	7.3E-03	6.7E-03	2.7E-03	8.4E-04
22'33'6-PentaCB-(84)				1.1E-04	1.2E-02	1.4E-02	6.0E-03	2.0E-03
22'344'55'6-OctaCB-(203)				7.5E-05 J	3.6E-03	5.4E-03	2.1E-03	6.6E-04
22'344'566'-OctaCB-(204)				8.5E-06 U	1.3E-05 U	6.1E-06 J	3.5E-06 U	2.3E-06 U
22'344'56-HeptaCB-(181)				1.2E-05 U	2.1E-05 U	1.0E-04	6.7E-06 U	1.3E-05 J
22'344'56'-HeptaCB-(182)				7.0E-06 U	1.4E-05 U	5.4E-06 U	2.7E-06 U	3.8E-06 J

Table 2
Basin 2 Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park

Chemical	Portland Harbor SLV JSCS[1]	Portland Harbor SLV CL[2]	DEQ Appendix E "Typical PH Values"[3]	10/25/2017	1/17/2011	11/24/2010	11/13/2010	6/28/2010
22'344'5'6-HeptaCB-(183)				9.1E-05 J	6.0E-03	8.8E-03	3.5E-03	1.1E-03
22'344'5-HexaCB-(137)				4.5E-05 J	2.5E-03	2.9E-03	9.3E-04	2.8E-04
22'344'66'-HeptaCB-(184)				4.9E-06 U	1.0E-05 U	4.0E-06 U	1.9E-06 U	1.4E-06 U
22'3455'6-HeptaCB-(185)				1.2E-05 U	2.2E-05 U	1.9E-05 U	6.9E-06 U	4.3E-06 U
22'34'55'6-HeptaCB-(187)				1.7E-04	1.4E-02	1.5E-02	6.1E-03	2.1E-03
22'3455'-HexaCB-(141)				1.3E-04	8.6E-03	1.0E-02	4.5E-03	1.5E-03
22'34'55'-HexaCB-(146)				8.4E-05 J	4.8E-03	6.0E-03	2.5E-03	7.7E-04
22'34566'-HeptaCB-(186)				5.4E-06 U	1.0E-05 U	4.3E-06 U	2.2E-06 U	1.5E-06 U
22'34'566'-HeptaCB-(188)				5.6E-06 U	1.0E-05 U	5.3E-06 U	2.2E-06 U	2.0E-06 U
22'3456-HexaCB-(142)				1.0E-05 U	3.3E-05 U	6.3E-05 J	2.4E-05 U	4.5E-06 U
22'345'6-HexaCB-(144)				2.8E-05 J	2.2E-03	2.5E-03	1.1E-03	3.4E-04
22'34'56'-HexaCB-(148)				1.0E-05 U	2.7E-05 J	2.6E-05 U	7.6E-06 U	2.6E-06 J
22'3466'-HexaCB-(145)				7.8E-06 U	1.6E-05 U	2.3E-05 J	6.3E-06 U	1.6E-06 U
22'34'66'-HexaCB-(150)				7.4E-06 U	3.9E-05 J	4.0E-05 J	1.5E-05 J	3.0E-06 U
22'346'-PentaCB-(89)				8.6E-06 U	5.9E-04	7.4E-04	3.0E-04	9.4E-05 J
22'34'-TetraCB-(42)				2.0E-04	1.8E-02	1.9E-02	8.6E-03	3.1E-03
22'355'-PentaCB-(92)				7.9E-05 J	6.6E-03	8.2E-03	3.4E-03	1.1E-03
22'3566'-HexaCB-(152)				7.3E-06 U	3.6E-05 U	4.3E-05 J	2.0E-05 U	4.3E-06 J
22'356'-PentaCB-(94)				9.0E-06 U	2.8E-04	2.9E-04	1.5E-04	4.3E-05 J
22'35'6-PentaCB-(95)				3.5E-04	3.3E-02	3.8E-02	1.7E-02	5.6E-03
22'35-TetraCB-(43)				5.1E-05 J	2.7E-03	2.9E-03	1.3E-03	4.5E-04
22'366'-PentaCB-(96)				6.2E-06 U	6.1E-04	6.0E-04	2.3E-04 U	7.5E-05 J
22'36'-TetraCB-(46)				7.5E-05 J	1.5E-02	5.3E-03	2.7E-03	1.1E-03
22'3-TriCB-(16)				2.4E-04	3.0E-02	3.4E-02	2.0E-02	1.4E-03
22'44'56'-HexaCB-(154)				9.3E-06 U	2.6E-04	2.8E-04	1.2E-04	2.6E-05 U
22'44'66'-HexaCB-(155)				6.6E-06 U	1.0E-05 U	1.1E-06 U	1.2E-05 U	1.9E-06 U
22'45'6-PentaCB-(103)				7.0E-06 U	2.2E-04	2.7E-04	1.1E-04	3.4E-05 J
22'45-TetraCB-(48)				2.0E-04	3.4E-02	1.6E-02	7.9E-03	1.4E-03
22'466'-PentaCB-(104)				2.8E-06 U	8.0E-06 U	4.2E-06 U	2.5E-06 U	2.1E-06 U
22'4-TriCB-(17)				2.1E-04	3.1E-02	3.3E-02	1.8E-02	8.2E-04
22'55'-TetraCB-(52)				7.0E-04	1.7E-04 U	6.5E-02	3.1E-02	1.1E-02
22'66'-TetraCB-(54)				5.4E-06 U	2.0E-05 U	1.6E-04	8.5E-05 J	4.0E-05 J
22'6-TriCB-(19)				1.6E-04	8.7E-03	8.7E-03	5.6E-03	3.0E-03
22'-DiCB-(4)				2.5E-04	2.5E-02	2.2E-02	1.6E-02	1.2E-03
233'44'55'6-OctaCB-(205)				1.4E-05 U	1.9E-04	3.5E-04	1.5E-04	3.8E-05 J
233'44'55'-HeptaCB-(189)				1.9E-05 U	2.6E-04	5.1E-04	1.4E-04 U	5.6E-05 J
233'44'56-HeptaCB-(190)				2.2E-05 J	1.6E-03	2.6E-03	8.8E-04	3.4E-04
233'44'5'6-HeptaCB-(191)				8.7E-06 U	2.7E-04 U	5.7E-04	1.8E-04 U	6.5E-05 J
233'44'6-HexaCB-(158)				8.2E-05 J	4.5E-03	5.7E-03	2.3E-03	7.0E-04
233'44'-PentaCB-(105)				1.5E-04	1.1E-02	1.9E-02	8.4E-03	1.7E-03
233'455'6-HeptaCB-(192)				9.6E-06 U	1.8E-04	1.6E-05 U	5.7E-06 U	3.4E-06 U
233'455'-HexaCB-(159)				7.5E-06 U	4.1E-04	4.9E-04	2.1E-04	7.7E-05 J
233'4'55'-HexaCB-(162)				7.7E-06 U	1.0E-04	1.4E-04	5.0E-05 J	1.1E-05 U
233'456-HexaCB-(160)				7.5E-06 U	2.5E-05 U	4.9E-05 U	1.8E-05 U	3.4E-06 U
233'45'6-HexaCB-(161)				7.2E-06 U	2.3E-05 U	4.5E-05 U	1.7E-05 U	3.2E-06 U
233'4'5'6-HexaCB-(164)				4.7E-05 J	2.8E-03	3.2E-03	1.5E-03	4.5E-04
233'45-PentaCB-(106)				2.8E-06 U	1.8E-05 U	2.1E-05 U	8.8E-06 U	3.5E-06 U
233'4'5-PentaCB-(107)				2.5E-05 J	1.8E-03	2.9E-03	1.1E-03	2.9E-04
233'4'5'-PentaCB-(122)				3.0E-06 J	3.4E-04	8.1E-04	2.6E-04 U	6.5E-05 J
233'4'-Tetra CB(56)				6.1E-05 J	1.1E-02	1.4E-02	6.1E-03	1.5E-03
233'4-TetraCB-(55)				4.3E-06 U	5.4E-02	2.9E-05 J	3.5E-04 U	5.2E-06 U
233'55'6-HexaCB-(165)				7.8E-06 U	2.6E-05 U	5.0E-05 U	1.9E-05 U	3.5E-06 U
233'55'-PentaCB-(111)				6.1E-06 U	7.8E-06 U	3.0E-05 U	3.7E-06 U	2.4E-06 U
233'56-PentaCB-(112)				5.9E-06 U	7.6E-06 U	1.3E-05 J	3.8E-06 U	2.4E-06 U
233'5-TetraCB-(57)				3.7E-06 U	1.9E-04	2.1E-04	1.1E-04	4.7E-06 U
233'5'-TetraCB-(58)				1.2E-05 U	1.9E-05 U	2.9E-05 J	8.0E-06 U	2.6E-04
23'44'55'-HexaCB-(167)				2.9E-05 J	1.2E-03	2.2E-03	8.6E-04	2.2E-04
2344'5-PentaCB-(114)				7.9E-06 U	5.6E-04	1.2E-03	4.4E-04	5.1E-05 J
23'44'5-PentaCB-(118)				3.8E-04	2.4E-02	4.2E-02	1.9E-02	4.2E-03
23'44'5'-PentaCB-(123)				3.5E-06 J	2.9E-04	6.0E-04	2.8E-04	7.3E-05 J
2344'-TetraCB -(60)				3.4E-05 J	7.3E-03	9.7E-03	4.3E-03	1.9E-04
23'44'-TetraCB-(66)				1.5E-04	2.5E-02	3.3E-02	1.4E-02	2.9E-03
23'455'-PentaCB-(120)				5.7E-06 U	2.3E-05 J	3.3E-05 U	3.6E-06 U	3.9E-06 U
23'45'6-PentaCB-(121)				6.1E-06 U	7.8E-06 U	1.2E-05 U	3.9E-06 U	2.5E-06 U
234'5-TetraCB-(63)				1.7E-05 J	1.2E-03	1.5E-03	7.1E-04	2.7E-05 U
23'45-TetraCB-(67)				1.6E-05 J	1.3E-03	1.6E-03	7.7E-04	4.9E-05 U
23'45'-TetraCB-(68)				3.6E-06 U	8.5E-05 J	8.0E-05 U	4.2E-05 J	1.4E-05 J
234'6-TetraCB-(64)				2.8E-04	2.5E-02	2.7E-02	1.3E-02	3.9E-03
234'-TriCB-(22)				1.1E-04	2.8E-02	3.4E-02	1.7E-02	4.0E-04
23'4-TriCB-(25)				2.9E-05 J	5.2E-03	6.1E-04	4.5E-04	2.2E-04

Table 2
Basin 2 Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park

Chemical	Portland Harbor SLV JSCS[1]	Portland Harbor SLV CL[2]	DEQ Appendix E "Typical PH Values"[3]	10/25/2017	1/17/2011	11/24/2010	11/13/2010	6/28/2010
23'55'-TetraCB-(72)				3.6E-06 U	1.7E-04	2.2E-04	1.1E-04	3.1E-05 J
23'5'6-TetraCB-(73)				3.2E-06 U	6.3E-06 U	2.8E-06 U	3.6E-06 U	2.3E-06 U
235-TriCB-(23)				2.9E-06 U	1.0E-04	1.2E-04	4.8E-05 U	2.2E-06 U
23'5'-TriCB-(34)				2.7E-06 U	2.2E-04	2.8E-04	1.5E-04	2.0E-06 U
236-TriCB-(24)				1.7E-05 U	1.9E-02	6.6E-03	1.2E-02	1.0E-04
23'6-TriCB-(27)				3.5E-05 J	1.3E-02	5.3E-03	7.9E-03	1.1E-03
24'5-TriCB-(31)				2.9E-04	7.1E-02	7.4E-02	4.3E-02	1.1E-03
24'6-TriCB-(32)				1.2E-04	6.0E-02	2.1E-02	1.2E-02	3.1E-03
2-MonoCB-(1)				2.0E-05 J	6.5E-04	3.7E-04	2.7E-04	1.6E-05 J
3,3'-DiCB-(11)				2.7E-05 U	2.8E-04	5.1E-04	1.0E-04 U	5.9E-05 J
3,5-DiCB-(14)				9.6E-06 U	8.3E-06 U	7.7E-05 J	7.5E-05 U	1.9E-06 U
33'44'55'-HexaCB-(169)				9.1E-06 U	1.9E-05 U	2.5E-05 J	1.2E-05 U	4.4E-06 U
33'44'5-PentaCB-(126)				2.9E-06 U	4.3E-05 U	8.1E-05 U	4.1E-05 J	1.0E-05 U
33'44'-TetraCB-(77)				1.0E-05 J	2.2E-03	3.2E-03	1.4E-03	3.1E-04
33'455'-PentaCB-(127)				2.6E-06 U	8.2E-05 J	1.1E-04	2.1E-05 U	9.4E-06 J
33'45-TetraCB-(78)				3.8E-06 U	1.9E-05 U	2.9E-05 U	7.9E-06 U	4.7E-06 U
33'45'-TetraCB(79)				3.2E-06 U	3.1E-04	3.8E-04	1.2E-04	5.8E-05 J
33'4-TriCB-(35)				4.2E-06 J	8.7E-04	1.0E-03	4.9E-04	4.9E-05 J
33'55'-TetraCB-(80)				3.4E-06 U	1.7E-05 U	2.4E-05 U	7.1E-06 U	4.2E-06 U
33'5-TriCB-(36)				8.1E-06 J	1.5E-05 U	2.0E-05 J	1.1E-05 U	1.7E-06 U
344'5-TetraCB-(81)				4.4E-06 U	7.0E-05 J	1.1E-04 U	6.8E-05 J	4.9E-06 U
344'-TriCB-(37)				4.8E-05 J	1.5E-02	2.3E-02	1.2E-02	8.6E-04
345-TriCB-(38)				2.7E-06 U	4.4E-05 J	2.6E-05 J	2.9E-05 U	9.3E-06 J
34'5-TriCB-(39)				2.6E-06 U	3.5E-04	3.3E-04 U	1.2E-05 U	3.5E-05 J
3-MonoCB-(2)				2.3E-06 U	2.5E-05 J	1.6E-05 J	1.3E-05 U	6.4E-06 J
4,4'-DiCB-(15)				4.0E-05 J	1.8E-02	2.5E-02	1.5E-02	2.9E-03
4-MonoCB-(3)				2.5E-06 J	1.2E-04	1.4E-04	5.7E-05 J	1.5E-05 J
DecaCB-(209)				3.2E-05 J	5.2E-03	8.8E-03	5.4E-03	6.6E-05 J
DiCB-(12)+(13)				1.0E-05 U	2.0E-03	2.3E-03	1.1E-03	6.4E-05 J
HeptaCB-(171)+(173)				4.2E-05 J	2.8E-03	4.1E-03	1.5E-03	5.0E-04
HeptaCB-(180)+(193)				3.2E-04	2.0E-02	2.9E-02	1.1E-02	3.8E-03
HexaCB-(128)+(166)				1.1E-04 J	6.9E-03	8.5E-03	3.5E-03	1.0E-03
HexaCB-(129)+(138)+(163)				7.6E-04	4.4E-02	5.4E-02	2.2E-02	7.1E-03
HexaCB-(134)+(143)				3.3E-05 U	2.3E-03	2.8E-03	9.4E-04	2.8E-04
HexaCB-(135)+(151)				1.6E-04 J	1.9E-02	1.6E-02	7.0E-03	2.2E-03
HexaCB-(139)+(140)				1.7E-05 J	6.5E-04	8.0E-04	3.5E-04	8.9E-05 J
HexaCB-(147)+(149)				4.4E-04	3.4E-02	4.0E-02	1.6E-02	5.1E-03
HexaCB-(153)+(168)				5.4E-04	3.3E-02	4.0E-02	1.7E-02	5.4E-03
HexaCB-(156)+(157)				8.8E-05 J	4.0E-03	7.4E-03	2.8E-03	6.5E-04
OctaCB-(198)+(199)				1.2E-04 J	6.0E-03	8.7E-03	3.4E-03	1.1E-03
PentaCB-(108)+(124)				1.7E-05 J	1.1E-03	1.7E-03	6.8E-04	2.0E-04
PentaCB-(110)+(115)				4.6E-04	4.3E-02	5.0E-02	2.3E-02	7.5E-03
PentaCB-(83)+(99)				2.4E-04	2.0E-02	2.4E-02	1.1E-02	3.0E-03
PentaCB-(85)+(116)+(117)				4.8E-05 J	5.6E-03	7.3E-03	3.2E-03	9.7E-04
PentaCB-(86)(87)(97)(109)(119)(125)				2.9E-04 J	2.7E-02	3.3E-02	1.4E-02	4.5E-03
PentaCB-(88)+(91)				6.9E-05 J	5.9E-03	7.0E-03	3.0E-03	9.5E-04
PentaCB-(90)+(101)+(113)				4.2E-04	3.8E-02	4.8E-02	2.0E-02	6.3E-03
PentaCB-(93)+(98)+(100)+(102)				3.8E-05 J	2.0E-03	2.3E-03	9.8E-04	3.1E-04 J
TetraCB-(40)+(41)+(71)				3.7E-04	3.6E-02	3.9E-02	1.9E-02	5.4E-03
TetraCB-(44)+(47)+(65)				6.3E-04	1.5E-02	5.7E-02	2.9E-02	1.0E-02
TetraCB-(45)+(51)				1.9E-04 J	5.1E-03	1.6E-02	7.6E-03	3.2E-03
TetraCB-(49)+TetraCB-(69)				4.1E-04	9.9E-03	3.7E-02	1.7E-02	5.7E-03
TetraCB-(50)+(53)				1.4E-04 J	5.5E-02	1.1E-02	5.2E-03	2.2E-03
TetraCB-(59)+(62)+(75)				6.4E-05 J	5.8E-03	6.5E-03	3.0E-03	9.9E-04
TetraCB-(61)+(70)+(74)+(76)				3.8E-04	4.7E-02	6.4E-02	2.8E-02	3.6E-03
TriCB-(18)+(30)				5.5E-04	6.2E-02	6.7E-02	3.5E-02	4.4E-03
TriCB-(20) + (28)				2.8E-04	4.9E-03	8.7E-02	2.9E-03	2.6E-03
TriCB-(21)+(33)				2.2E-04	4.1E-02	4.9E-02	2.3E-02	4.0E-04
TriCB-(26)+(29)				6.7E-05 J	7.9E-04	1.5E-02	3.3E-03	3.9E-04
PCB Homologs (ng/l)								
Monochlorobiphenyl				2.26E-05	8.0E-04	5.1E-04	3.2E-04	3.8E-05
Dichlorobiphenyl				3.83E-04	8.8E-02	9.7E-02	3.7E-02	4.9E-03
Trichlorobiphenyl				2.37E-03	3.9E-01	4.6E-01	2.4E-01	2.0E-02
Tetrachlorobiphenyl				3.99E-03	3.7E-01	4.3E-01	2.0E-01	5.8E-02
Pentachlorobiphenyl				2.70E-03	2.4E-01	3.1E-01	1.3E-01	4.0E-02
Hexachlorobiphenyl				2.86E-03	2.0E-01	2.3E-01	9.6E-02	3.0E-02
Heptachlorobiphenyl				1.07E-03	7.8E-02	1.1E-01	4.0E-02	1.4E-02

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Basin 2 Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park

Chemical	Portland Harbor SLV JSCS[1]	Portland Harbor SLV CL[2]	DEQ Appendix E "Typical PH Values"[3]	10/25/2017	1/17/2011	11/24/2010	11/13/2010	6/28/2010
Octachlorobiphenyl				2.63E-04	2.1E-02	3.2E-02	1.2E-02	3.9E-03
Nonachlorobiphenyl				1.08E-04	4.6E-03	6.6E-03	2.7E-03	5.6E-04
Decachlorobiphenyl				3.20E-05	5.2E-03	8.8E-03	5.4E-03	6.6E-05
Total Detected PCBs (Method 1668)	6.4E-05	6.4E-06	3.0E-01	1.38E-02	1.4E+00	1.7E+00	7.7E-01	1.7E-01
Phthalates (ug/l)								
Bis(2-ethylhexyl) phthalate	2.2	0.2	5	0.76 U	4.8	5.0	2.4	0.24
Butylbenzyl phthalate	3			0.76 U	2.4 U	2.4 U	0.47 U	0.25 J
Dibutyl phthalate	3			0.76 U	2.4 U	2.4 U	0.47 U	0.24
Diethyl phthalate	3			0.76 U	2.4 U	2.4 U	0.47 U	0.24
Dimethyl phthalate	3			0.76 U	2.4 U	2.4 U	0.47 U	0.24
Di-n-octyl phthalate	3			0.76 U	2.4 U	2.4 U	0.47 U	0.24
Pesticides (ug/l)								
2,4'-DDD	3.1E-04	3.1E-05		9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
2,4'-DDE	2.2E-04	1.8E-05		9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
2,4'-DDT	2.0E-01	2.2E-05		9.5E-03 U	1.1E-01 U	1.1E-01 U	9.4E-02 U	2.8E-02 U
4,4'-DDD	3.1E-04	3.1E-05		9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
4,4'-DDE	2.2E-04	1.8E-05		9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
4,4'-DDT	2.2E-04	2.2E-05		1.9E-02 U	3.8E-02 U	2.3E-01 U	5.7E-02 U	3.8E-02 U
Total DDx		1.0E-02						
Aldrin	5.0E-05	7.7E-07		9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
alpha-Endosulfan	5.1E-02			4.9E-02 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
alpha-Hexachlorocyclohexane	4.9E-03			9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
beta-Endosulfan	5.1E-02			9.5E-03 U	3.8E-02 U	1.4E+00 U	6.0E-02	2.8E-02 U
beta-Hexachlorocyclohexane	1.7E-02			1.9E-02 U	9.0E-01	1.1E-01 U	7.1E-02	2.8E-02 U
cis-Chlordane	8.1E-04	8.1E-05		9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
cis-Nonachlor	1.9E-01			9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
delta-Hexachlorocyclohexane	5.2E-02			9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Dieldrin	5.4E-05			9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Endosulfan sulfate	8.9E+01			9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Endrin	3.6E-02			9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Endrin aldehyde				9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Endrin ketone				9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
gamma-Hexachlorocyclohexane	3.7E-02			9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Heptachlor	7.9E-05			9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Heptachlor epoxide	3.9E-05			9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Hexachlorobenzene	2.9E-04	2.9E-05		2.9E-02 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Hexachlorobutadiene	8.6E-01			9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Hexachloroethane	3.3E+00				3.8E-01 U	1.1E-01 U		
Methoxychlor	3.0E-02			2.9E-02 U	3.8E-02 U	3.0E-01 U	1.5E-01 U	7.6E-02 U
Mirex	NC			9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Oxychlordane	1.9E-01	8.1E-05		9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Toxaphene	2.0E-04			3.6E-01 U	3.8E-01 U	3.8E+00 U	1.9E+00 U	9.4E-01 U
trans-Chlordane	8.1E-04	8.1E-05		9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
trans-Nonachlor	1.9E-01			9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Dioxins (ug/l)								
1,2,3,4,6,7,8-HeptaCDD				5.1E-06 J	2.3E-04	3.4E-04	1.2E-04	3.9E-05 J
1,2,3,4,6,7,8-HeptaCDF				9.1E-07 U	4.8E-05 U	6.5E-05 U	2.6E-05 U	7.5E-06 U
1,2,3,4,7,8,9-HeptaCDF				9.0E-07 U	5.8E-06 J	5.1E-06 J	2.6E-06 U	1.3E-06 U
1,2,3,4,7,8-HexaCDD				9.1E-07 U	2.4E-06 U	2.6E-06 J	1.0E-06 U	6.9E-07 U
1,2,3,4,7,8-HexaCDF				9.3E-07 U	1.2E-05 U	6.7E-06 J	4.2E-06 J	1.7E-06 J
1,2,3,6,7,8-HexaCDD				9.6E-07 U	1.4E-05 J	1.7E-05 J	6.5E-06 J	3.0E-06 J
1,2,3,6,7,8-HexaCDF				9.6E-07 U	1.1E-05 U	1.8E-05 J	3.2E-06 J	7.4E-07 J
1,2,3,7,8,9-HexaCDD				8.9E-07 U	7.6E-06 J	6.8E-06 J	3.7E-06 J	1.3E-06 J
1,2,3,7,8,9-HexaCDF				9.6E-07 U	1.8E-06 J	1.0E-06 J	6.2E-07 U	6.9E-07 U
1,2,3,7,8-PentaCDD				9.4E-07 U	1.6E-06 U	2.6E-06 J	7.1E-07 U	5.8E-07 U
1,2,3,7,8-PentaCDF				9.2E-07 U	2.5E-06 J	3.4E-06 J	9.4E-07 J	7.7E-07 U
2,3,4,6,7,8-HexaCDF				9.0E-07 U	3.6E-06 J	3.1E-06 J	1.4E-06 J	9.0E-07 J
2,3,4,7,8-PentaCDF				9.0E-07 U	4.1E-06 J	3.5E-06 J	2.9E-06 J	1.1E-06 J

Table 2
Basin 2 Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park

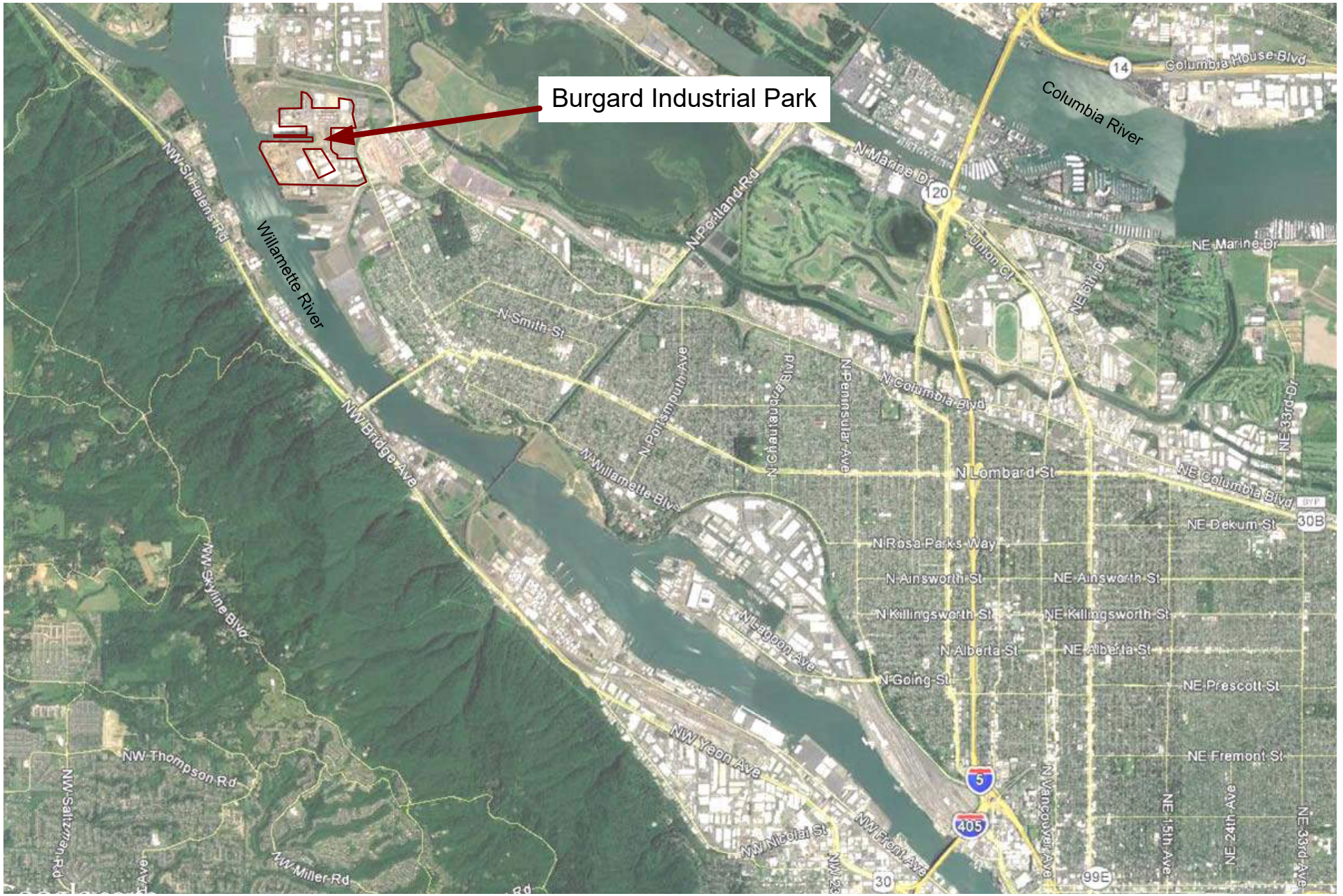
Chemical	Portland Harbor SLV JSCS[1]	Portland Harbor SLV CL[2]	DEQ Appendix E "Typical PH Values"[3]	10/25/2017	1/17/2011	11/24/2010	11/13/2010	6/28/2010
2,3,7,8-TetraCDD	5.1E-09	5.1E-10		9.0E-07 U	4.2E-06 J	2.9E-05	8.6E-07 U	5.8E-07 U
2,3,7,8-TetraCDF				9.6E-07 U	5.4E-06 J	2.3E-06 J	3.2E-06 J	1.9E-06 J
OCDD				3.8E-05 J	2.1E-03	3.4E-03	1.2E-03	3.4E-04
OCDF				1.1E-06 J	1.1E-04	2.2E-04	7.2E-05 J	1.9E-05 J
HeptaCDD homologs				1.6E-05 J	5.4E-04	8.7E-04	3.0E-04	1.0E-04
HeptaCDF homologs				9.0E-07 U	9.7E-05	1.2E-04	5.0E-05 J	1.2E-05 J
HexaCDD homologs				9.3E-07 U	6.9E-05 J	7.9E-05 J	3.1E-05 J	1.7E-05 J
HexaCDF homologs				9.4E-07 U	8.6E-05 J	9.0E-05 J	3.7E-05 J	1.2E-05 J
PentaCDD homologs				9.4E-07 U	9.1E-06 U	2.5E-05 J	7.1E-07 U	5.8E-07 U
PentaCDF homologs				9.1E-07 U	6.5E-05 J	1.5E-04	2.2E-05 J	4.2E-06 J
TetraCDD homologs				9.0E-07 U	7.9E-06 J	2.9E-05	1.1E-06 J	5.8E-07 U
TetraCDF homologs				9.6E-07 U	3.4E-05	1.5E-04	1.9E-05	3.5E-06 J
Total Dioxin TEQ (ND=DL/2)	5.1E-09	5E-10		1.5E-06	1.4E-05	4.3E-05	5.7E-06	2.5E-06
Total Dioxin TEQ (ND=0)	5.1E-09	5E-10		6.3E-08	1.2E-05	4.3E-05	4.7E-06	1.8E-06
Butyltins (ug/l)								
Butyltin				2.3E-03 U	2.0E-01 U	2.0E-01 U	2.0E-01 U	2.0E-01 U
Dibutyltin				1.7E-03 U	2.9E-01 U	2.9E-01 U	2.9E-01 U	2.9E-01 U
Tributyltin	7.2E-02	6.3E-02		1.3E-03 U	1.9E-01 U	1.9E-01 U	1.9E-01 U	1.9E-01 U
Tetrabutyltin				1.9E-03 U				
Metals (ug/l)								
Aluminum				331	3030 J	4660	1810	464
Antimony	6			3.4	9.7	10	8.6	4.0
Arsenic	0.045	0.018	2	0.63 J	3.6	3.5	2.4	1.4 J
Cadmium	0.094		0.7	0.12 J	2.7	2.9	1.3	0.34 J
Chromium	100	100	10	0.87 U	19 J	24	9.3	4.6
Copper	2.7	2.74	60	7.4	94	126	49	22
Lead	0.54		50	2.3	151	213	83	20
Manganese	50			11	566	662	437	141
Mercury	0.77		0.2	0.040 U	0.46	0.75	0.23	0.056 J
Nickel	16		8	2.5	16 J	18	9.8	3.7
Silver	0.12		0.1	0.10 U	0.21 J	0.24 J	0.10 U	0.10 U
Zinc	36	36.5	700	19	763	899	351	97
Pertroleum Hydrocarbons (mg/l)								
Gasoline				0.05 J	0.050 U	0.050 J	0.050 U	0.10
Diesel				0.094 U	0.90	1.1	0.91	0.31
Oil				0.42	3.1	2.7	1.7	0.48
TSS (mg/l)			70	5 U	83	57 J	13	13

U - Not detectet at noted detection limit
J- Estimated value
Blank cells indicate not analyzed

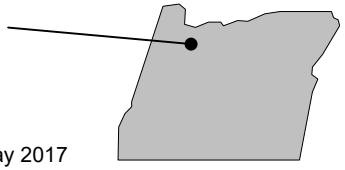
1 - Table 3-1 PH JSCS Guidance, 7/16/2007 revision
2 - Table 17 January 2017 PH ROD. Surface Water Cleanup Level.
3 - October 2010, DEQ Guidance for Evaluating Stormwater Pathway at Upland Sites, Appendix E, Tool For Evaluating Stormwater Data (12/2015 update)

Detected concentration > 10 x SLV (CL or JSCS if no CL)
Detected concentration > 100 x SLV (CL or JSCS if no CL)
Detected concentration > 1000 x SLV (CL or JSCS if no CL)

Figures



Portland, Oregon



Base photograph May 2017

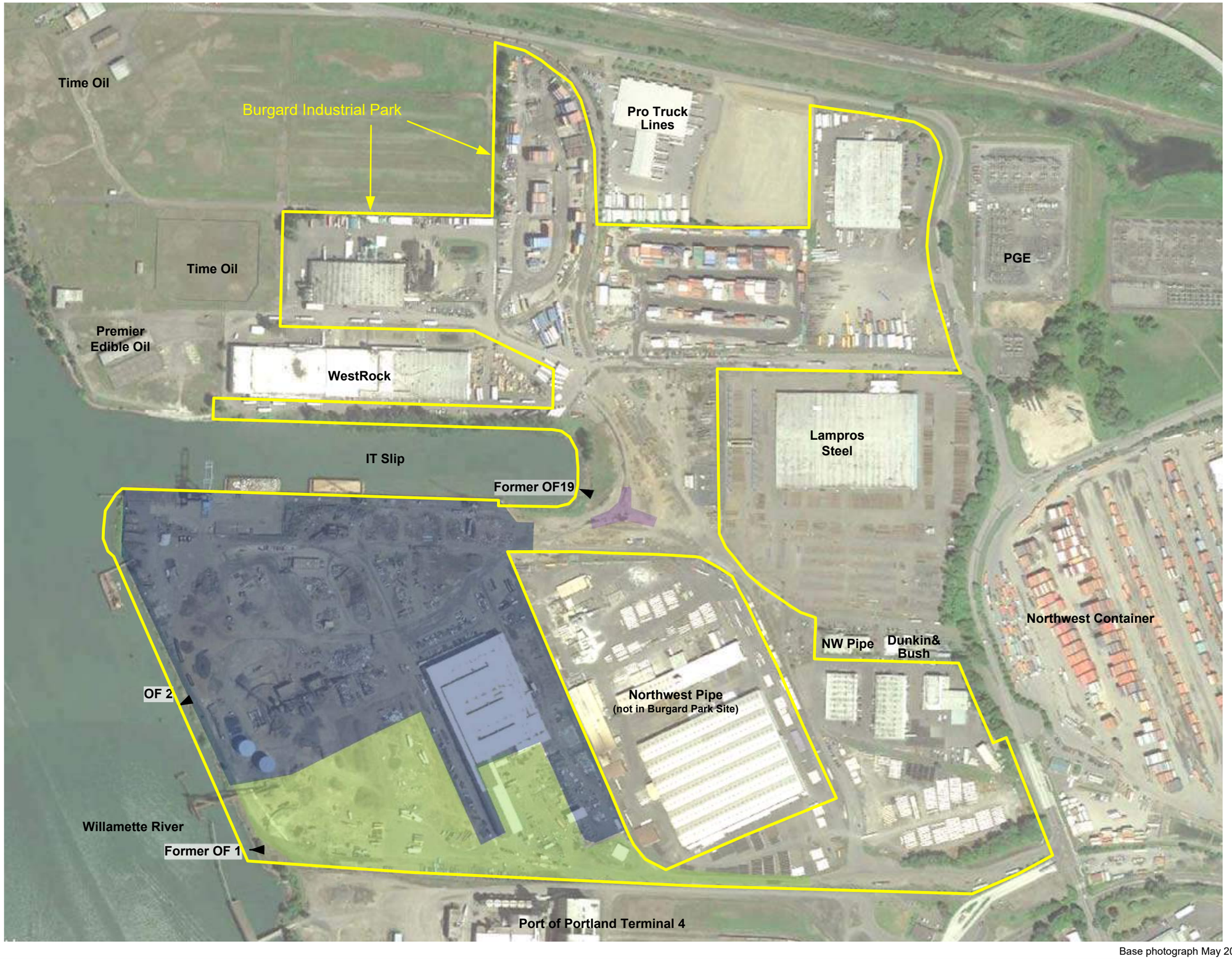
N

Approximate Scale

5000 feet

Figure 1
Site Location Map
Burgard Industrial Park
Portland, OR

RIEKE CONSULTING SERVICES, LLC



Basin 2 (former Basin 1)

Basin 2

Basin 2 (former Basin 19)

BIP Boundary

N

Approximate Scale

400 Feet

Base photograph May 2017

Figure 2
Site Plan
Burgard Industrial Park
Portland, Oregon

RIEKE CONSULTING SERVICES, LLC

Base photograph May 2017

Figure 3
Basin 2 Drainage Area and Storm Water Management Features
Burgard Industrial Park

RIEKE CONSULTING SERVICES, LLC

Appendix A – Analytical Laboratory Reports

Apex Labs

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503-718-2323 Phone
503-718-0333 Fax

Monday, November 27, 2017

Ross Rieke
Rieke Consulting Services, LLC
10457 SW Lady Marion Drive
Tigard, OR 97224

RE: Schnitzer Steel-Burgard / HAI-8001

Enclosed are the results of analyses for work order A7J0830, which was received by the laboratory on 10/25/2017 at 1:27:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Labs

12232 S.W. Garden Place
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503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
OF-2	A7J0830-01	Water	10/25/17 11:30	10/25/17 13:27

Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Labs

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OF-2 (A7J0830-01)			**Matrix: Water**		**Batch: 7101250**			
Diesel	ND	0.0935	0.187	mg/L	1	10/27/17 22:45	NWTPH-Dx	
Oil	**0.424**	0.187	0.374	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 90 %*	*Limits: 50-150 %*	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OF-2 (A7J0830-01)			**Matrix: Water**		**Batch: 7101166**			
Gasoline Range Organics	**0.0510**	0.0500	0.100	mg/L	1	10/25/17 23:05	NWTPH-Gx (MS)	J
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 100 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*107 %*	*Limits: 50-150 %*	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OF-2 (A7J0830-01RE1)			**Matrix: Water**		**Batch: 7101318**			**C-05**
Aldrin	ND	0.00952	0.0190	ug/L	1	11/01/17 17:51	EPA 8081B	
alpha-BHC	ND	0.00952	0.0190	"	"	"	"	
beta-BHC	ND	0.0190	0.0190	"	"	"	"	
delta-BHC	ND	0.00952	0.0190	"	"	"	"	
gamma-BHC (Lindane)	ND	0.00952	0.0190	"	"	"	"	
cis-Chlordane	ND	0.00952	0.0190	"	"	"	"	
trans-Chlordane	ND	0.00952	0.0190	"	"	"	"	
4,4'-DDD	ND	0.00952	0.0190	"	"	"	"	
4,4'-DDE	ND	0.00952	0.0190	"	"	"	"	
4,4'-DDT	ND	0.0190	0.0190	"	"	"	"	
Dieldrin	ND	0.00952	0.0190	"	"	"	"	
Endosulfan I	ND	0.0486	0.0486	"	"	"	"	R-02
Endosulfan II	ND	0.00952	0.0190	"	"	"	"	
Endosulfan sulfate	ND	0.00952	0.0190	"	"	"	"	
Endrin	ND	0.00952	0.0190	"	"	"	"	
Endrin Aldehyde	ND	0.00952	0.0190	"	"	"	"	
Endrin ketone	ND	0.00952	0.0190	"	"	"	"	
Heptachlor	ND	0.00952	0.0190	"	"	"	"	
Heptachlor epoxide	ND	0.00952	0.0190	"	"	"	"	
Methoxychlor	ND	0.0286	0.0571	"	"	"	"	
Chlordane (Technical)	ND	0.358	0.714	"	"	"	"	
Toxaphene (Total)	ND	0.358	0.714	"	"	"	"	
cis-Nonachlor	ND	0.00952	0.0190	"	"	"	"	
trans-Nonachlor	ND	0.00952	0.0190	"	"	"	"	
2,4'-DDD	ND	0.00952	0.0190	"	"	"	"	
2,4'-DDE	ND	0.00952	0.0190	"	"	"	"	
2,4'-DDT	ND	0.00952	0.0190	"	"	"	"	
Hexachlorobenzene	ND	0.0286	0.0571	"	"	"	"	
Hexachlorobutadiene	ND	0.00952	0.0190	"	"	"	"	
Mirex	ND	0.00952	0.0190	"	"	"	"	
Oxychlordane	ND	0.00952	0.0190	"	"	"	"	
Surrogate: 2,4,5,6-TCMX (Surr)			*Recovery: 72 %*	*Limits: 44-124 %*	"	"	"	
Decachlorobiphenyl (Surr)			*65 %*	*Limits: 47-129 %*	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OF-2 (A7J0830-01RE1)			**Matrix: Water**		**Batch: 7101182**			
Acenaphthene	ND	0.0377	0.0755	ug/L	4	10/26/17 20:20	EPA 8270D	
Acenaphthylene	ND	0.0377	0.0755	"	"	"	"	
Anthracene	ND	0.0377	0.0755	"	"	"	"	
Benz(a)anthracene	ND	0.0377	0.0755	"	"	"	"	
Benzo(a)pyrene	ND	0.0566	0.113	"	"	"	"	
Benzo(b)fluoranthene	ND	0.0566	0.113	"	"	"	"	
Benzo(k)fluoranthene	ND	0.0566	0.113	"	"	"	"	
Benzo(g,h,i)perylene	ND	0.0377	0.0755	"	"	"	"	
Chrysene	ND	0.0377	0.0755	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.0377	0.0755	"	"	"	"	
Fluoranthene	ND	0.0377	0.0755	"	"	"	"	
Fluorene	ND	0.0377	0.0755	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0377	0.0755	"	"	"	"	
1-Methylnaphthalene	ND	0.0755	0.151	"	"	"	"	
2-Methylnaphthalene	ND	0.0755	0.151	"	"	"	"	
Naphthalene	ND	0.0755	0.151	"	"	"	"	
Phenanthrene	ND	0.0377	0.0755	"	"	"	"	
Pyrene	ND	0.0377	0.0755	"	"	"	"	
Carbazole	ND	0.0566	0.113	"	"	"	"	
Dibenzofuran	ND	0.0377	0.0755	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.755	1.51	"	"	"	"	
Butyl benzyl phthalate	ND	0.755	1.51	"	"	"	"	
Diethylphthalate	ND	0.755	1.51	"	"	"	"	
Dimethylphthalate	ND	0.755	1.51	"	"	"	"	
Di-n-butylphthalate	ND	0.755	1.51	"	"	"	"	
Di-n-octyl phthalate	ND	0.755	1.51	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 99 %*	*Limits: 44-120 %*	"	"	"	
2-Fluorobiphenyl (Surr)			*84 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*31 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*72 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*47 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*133 %*	*Limits: 43-140 %*	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OF-2 (A7J0830-01)			**Matrix: Water**					
Batch: 7110402								
Antimony	**3.38**	0.500	1.00	ug/L	1	11/06/17 20:03	EPA 6020A	
Arsenic	**0.633**	0.500	1.00	"	"	"	"	J
Cadmium	**0.122**	0.0400	0.200	"	"	"	"	J
Chromium	**0.867**	0.500	1.00	"	"	"	"	J
Copper	**7.40**	0.500	1.00	"	"	"	"	
Lead	**2.29**	0.100	0.200	"	"	"	"	
Manganese	**10.7**	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Nickel	**2.54**	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	**19.3**	2.00	4.00	"	"	"	"	
OF-2 (A7J0830-01RE1)			**Matrix: Water**					
Batch: 7110402								
Aluminum	**331**	25.0	50.0	ug/L	1	11/07/17 19:21	EPA 6020A	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OF-2 (A7J0830-01)			**Matrix: Water**					
Batch: 7101207								
Total Organic Carbon	**6.16**	1.00	1.00	mg/L	1	10/27/17 01:45	SM 5310 C	
Batch: 7101328								
Total Suspended Solids	ND	5.00	5.00	"	"	10/31/17 13:56	SM 2540 D	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7101250 - EPA 3510C (Fuels/Acid Ext.)									**Water**			
Blank (7101250-BLK1)					Prepared: 10/27/17 13:21		Analyzed: 10/27/17 21:37					
NWTPH-Dx												
Diesel	ND	0.0909	0.182	mg/L	1	---	---	---	---	---	---	
Oil	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 90 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS (7101250-BS1)					Prepared: 10/27/17 13:21		Analyzed: 10/27/17 22:00					
NWTPH-Dx												
Diesel	0.985	0.100	0.200	mg/L	1	1.25	---	79	58-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 87 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS Dup (7101250-BSD1)					Prepared: 10/27/17 13:21		Analyzed: 10/27/17 22:22					Q-19
NWTPH-Dx												
Diesel	1.03	0.100	0.200	mg/L	1	1.25	---	83	58-115%	5	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 98 %*	*Limits: 50-150 %*			*Dilution: 1x*					

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7101166 - EPA 5030B									**Water**			
Blank (7101166-BLK1)					Prepared: 10/25/17 14:38 Analyzed: 10/25/17 16:47							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 97 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*105 %*		*50-150 %*				*"*			
LCS (7101166-BS2)					Prepared: 10/25/17 14:38 Analyzed: 10/25/17 16:20							
NWTPH-Gx (MS)												
Gasoline Range Organics	0.418	0.0500	0.100	mg/L	1	0.500	---	84	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 101 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*105 %*		*50-150 %*				*"*			

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7101318 - EPA 3510C (Neutral pH)/3640A (GPC)							**Water**					
Blank (7101318-BLK1)					Prepared: 10/25/17 15:01	Analyzed: 10/31/17 15:27						C-05
EPA 8081B												
Aldrin	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
alpha-BHC	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
beta-BHC	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
delta-BHC	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
gamma-BHC (Lindane)	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
cis-Chlordane	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
trans-Chlordane	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
4,4'-DDD	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
4,4'-DDE	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
4,4'-DDT	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Dieldrin	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Endosulfan I	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Endosulfan II	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Endosulfan sulfate	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Endrin	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Endrin Aldehyde	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Endrin ketone	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Heptachlor	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Heptachlor epoxide	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Methoxychlor	ND	0.0273	0.0545	"	"	---	---	---	---	---	---	
Chlordane (Technical)	ND	0.342	0.682	"	"	---	---	---	---	---	---	
Toxaphene (Total)	ND	0.342	0.682	"	"	---	---	---	---	---	---	
cis-Nonachlor	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
trans-Nonachlor	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
2,4'-DDD	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
2,4'-DDE	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
2,4'-DDT	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Hexachlorobenzene	ND	0.0273	0.0545	"	"	---	---	---	---	---	---	
Hexachlorobutadiene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Mirex	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Oxychlordane	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 55 %*		*Limits: 44-124 %*		*Dilution: 1x*					
Decachlorobiphenyl (Surr)			*77 %*		*47-129 %*		*"*					
LCS (7101318-BS1)					Prepared: 10/25/17 15:01	Analyzed: 10/31/17 15:44						C-05

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Philip Nerenberg, Lab Director

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7101318 - EPA 3510C (Neutral pH)/3640A (GPC)							**Water**					
LCS (7101318-BS1)					Prepared: 10/25/17 15:01		Analyzed: 10/31/17 15:44					C-05
EPA 8081B												
Aldrin	0.291	0.0100	0.0200	ug/L	1	0.500	---	58	45-134%	---	---	
alpha-BHC	0.400	0.0100	0.0200	"	"	"	---	80	54-138%	---	---	
beta-BHC	0.445	0.0100	0.0200	"	"	"	---	89	56-136%	---	---	
delta-BHC	0.437	0.0100	0.0200	"	"	"	---	87	52-142%	---	---	
gamma-BHC (Lindane)	0.418	0.0100	0.0200	"	"	"	---	84	59-134%	---	---	
cis-Chlordane	0.443	0.0100	0.0200	"	"	"	---	89	60-129%	---	---	
trans-Chlordane	0.434	0.0100	0.0200	"	"	"	---	87	56-136%	---	---	
4,4'-DDD	0.521	0.0100	0.0200	"	"	"	---	104	56-143%	---	---	
4,4'-DDE	0.474	0.0100	0.0200	"	"	"	---	95	57-135%	---	---	
4,4'-DDT	0.613	0.0100	0.0200	"	"	"	---	123	51-143%	---	---	
Dieldrin	0.482	0.0100	0.0200	"	"	"	---	96	60-136%	---	---	
Endosulfan I	0.478	0.0100	0.0200	"	"	"	---	96	62-126%	---	---	
Endosulfan II	0.504	0.0100	0.0200	"	"	"	---	101	52-135%	---	---	
Endosulfan sulfate	0.502	0.0100	0.0200	"	"	"	---	100	62-133%	---	---	
Endrin	0.542	0.0100	0.0200	"	"	"	---	108	60-138%	---	---	
Endrin Aldehyde	0.425	0.0100	0.0200	"	"	"	---	85	51-132%	---	---	
Endrin ketone	0.504	0.0100	0.0200	"	"	"	---	101	58-134%	---	---	
Heptachlor	0.354	0.0100	0.0200	"	"	"	---	71	54-130%	---	---	
Heptachlor epoxide	0.466	0.0100	0.0200	"	"	"	---	93	61-133%	---	---	
Methoxychlor	0.704	0.0300	0.0600	"	"	"	---	141	54-144%	---	---	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 47 %*		*Limits: 44-124 %*		*Dilution: 1x*					
Decachlorobiphenyl (Surr)			*75 %*		*47-129 %*		*"*					
LCS (7101318-BS2)					Prepared: 10/25/17 15:01		Analyzed: 10/31/17 16:19					C-05
EPA 8081B												
cis-Nonachlor	0.446	0.0100	0.0200	ug/L	1	0.500	---	89	25-120%	---	---	
trans-Nonachlor	0.430	0.0100	0.0200	"	"	"	---	86	"	---	---	
2,4'-DDD	0.432	0.0100	0.0200	"	"	"	---	86	30-135%	---	---	
2,4'-DDE	0.420	0.0100	0.0200	"	"	"	---	84	50-140%	---	---	
2,4'-DDT	0.620	0.0100	0.0200	"	"	"	---	124	45-140%	---	---	
Hexachlorobenzene	0.344	0.0300	0.0600	"	"	"	---	69	28-136%	---	---	
Hexachlorobutadiene	0.316	0.0100	0.0200	"	"	"	---	63	25-120%	---	---	Q-41
Mirex	0.431	0.0100	0.0200	"	"	"	---	86	51-127%	---	---	
Oxychlordane	0.428	0.0100	0.0200	"	"	"	---	86	25-120%	---	---	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 56 %*		*Limits: 44-124 %*		*Dilution: 1x*					

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7101318 - EPA 3510C (Neutral pH)/3640A (GPC)									**Water**			
LCS (7101318-BS2)					Prepared: 10/25/17 15:01		Analyzed: 10/31/17 16:19					C-05
EPA 8081B												
Surr: Decachlorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 47-129 %*			*Dilution: 1x*					
LCS Dup (7101318-BSD1)					Prepared: 10/25/17 15:01		Analyzed: 10/31/17 16:02					C-05
EPA 8081B												
Aldrin	0.334	0.0100	0.0200	ug/L	1	0.500	---	67	45-134%	14	30%	
alpha-BHC	0.419	0.0100	0.0200	"	"	"	---	84	54-138%	5	30%	
beta-BHC	0.443	0.0100	0.0200	"	"	"	---	89	56-136%	0.5	30%	
delta-BHC	0.450	0.0100	0.0200	"	"	"	---	90	52-142%	3	30%	
gamma-BHC (Lindane)	0.428	0.0100	0.0200	"	"	"	---	86	59-134%	2	30%	
cis-Chlordane	0.472	0.0100	0.0200	"	"	"	---	94	60-129%	6	30%	
trans-Chlordane	0.458	0.0100	0.0200	"	"	"	---	92	56-136%	6	30%	
4,4'-DDD	0.521	0.0100	0.0200	"	"	"	---	104	56-143%	0.02	30%	
4,4'-DDE	0.482	0.0100	0.0200	"	"	"	---	96	57-135%	2	30%	
4,4'-DDT	0.639	0.0100	0.0200	"	"	"	---	128	51-143%	4	30%	
Dieldrin	0.485	0.0100	0.0200	"	"	"	---	97	60-136%	0.7	30%	
Endosulfan I	0.478	0.0100	0.0200	"	"	"	---	96	62-126%	0.1	30%	
Endosulfan II	0.508	0.0100	0.0200	"	"	"	---	102	52-135%	0.9	30%	
Endosulfan sulfate	0.512	0.0100	0.0200	"	"	"	---	102	62-133%	2	30%	
Endrin	0.546	0.0100	0.0200	"	"	"	---	109	60-138%	0.7	30%	
Endrin Aldehyde	0.412	0.0100	0.0200	"	"	"	---	82	51-132%	3	30%	
Endrin ketone	0.507	0.0100	0.0200	"	"	"	---	101	58-134%	0.5	30%	
Heptachlor	0.396	0.0100	0.0200	"	"	"	---	79	54-130%	11	30%	
Heptachlor epoxide	0.474	0.0100	0.0200	"	"	"	---	95	61-133%	2	30%	
Methoxychlor	0.716	0.0300	0.0600	"	"	"	---	143	54-144%	2	30%	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 52 %*	*Limits: 44-124 %*			*Dilution: 1x*					
Decachlorobiphenyl (Surr)			*72 %*	*47-129 %*			*"*					
LCS Dup (7101318-BSD2)					Prepared: 10/25/17 15:01		Analyzed: 10/31/17 16:37					C-05
EPA 8081B												
cis-Nonachlor	0.448	0.0100	0.0200	ug/L	1	0.500	---	90	25-120%	0.3	30%	
trans-Nonachlor	0.394	0.0100	0.0200	"	"	"	---	79	"	9	30%	
2,4'-DDD	0.415	0.0100	0.0200	"	"	"	---	83	30-135%	4	30%	
2,4'-DDE	0.390	0.0100	0.0200	"	"	"	---	78	50-140%	8	30%	
2,4'-DDT	0.609	0.0100	0.0200	"	"	"	---	122	45-140%	2	30%	
Hexachlorobenzene	0.289	0.0300	0.0600	"	"	"	---	58	28-136%	17	30%	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7101318 - EPA 3510C (Neutral pH)/3640A (GPC)									**Water**			
LCS Dup (7101318-BSD2)					Prepared: 10/25/17 15:01		Analyzed: 10/31/17 16:37					C-05
EPA 8081B												
Hexachlorobutadiene	0.175	0.0100	0.0200	ug/L	"	"	---	35	25-120%	57	30%	Q-24, Q-41
Mirex	0.427	0.0100	0.0200	"	"	"	---	85	51-127%	0.8	30%	
Oxychlordane	0.370	0.0100	0.0200	"	"	"	---	74	25-120%	15	30%	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 43 %*		*Limits: 44-124 %*		*Dilution: 1x*					*S-06*
Decachlorobiphenyl (Surr)			*72 %*		*47-129 %*		*"*					

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7101182 - EPA 3510C (Acid Extraction)							**Water**					
Blank (7101182-BLK1)					Prepared: 10/26/17 07:12 Analyzed: 10/26/17 14:25							
EPA 8270D												
Acenaphthene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Chrysene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Fluoranthene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Fluorene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
Naphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
Phenanthrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Carbazole	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
4-Chloro-3-methylphenol	ND	0.0909	0.182	"	"	---	---	---	---	---	---	
2-Chlorophenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
2,4-Dichlorophenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
2,4-Dimethylphenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
2,4-Dinitrophenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
2-Methylphenol	ND	0.0227	0.0455	"	"	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	0.0227	0.0455	"	"	---	---	---	---	---	---	
2-Nitrophenol	ND	0.0909	0.182	"	"	---	---	---	---	---	---	
4-Nitrophenol	ND	0.0909	0.182	"	"	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	0.0909	0.182	"	"	---	---	---	---	---	---	
Phenol	ND	0.182	0.364	"	"	---	---	---	---	---	---	
2,3,4,6-Tetrachlorophenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
2,3,5,6-Tetrachlorophenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7101182 - EPA 3510C (Acid Extraction)									Water			
Blank (7101182-BLK1)					Prepared: 10/26/17 07:12 Analyzed: 10/26/17 14:25							
EPA 8270D												
2,4,5-Trichlorophenol	ND	0.0455	0.0909	ug/L	"	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Diethylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Dimethylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Di-n-butylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 87 %*	*Limits: 44-120 %*			*Dilution: 1x*					
2-Fluorobiphenyl (Surr)			*72 %*	*44-120 %*			*"*					
Phenol-d6 (Surr)			*28 %*	*10-120 %*			*"*					
p-Terphenyl-d14 (Surr)			*75 %*	*50-133 %*			*"*					
2-Fluorophenol (Surr)			*43 %*	*19-120 %*			*"*					
2,4,6-Tribromophenol (Surr)			*100 %*	*43-140 %*			*"*					
LCS (7101182-BS1)					Prepared: 10/26/17 07:12 Analyzed: 10/26/17 15:01							
EPA 8270D												
Acenaphthene	3.05	0.0200	0.0400	ug/L	2	4.00	---	76	47-122%	---	---	
Acenaphthylene	3.04	0.0200	0.0400	"	"	"	---	76	41-130%	---	---	
Anthracene	3.66	0.0200	0.0400	"	"	"	---	92	57-123%	---	---	
Benz(a)anthracene	4.00	0.0200	0.0400	"	"	"	---	100	58-125%	---	---	
Benzo(a)pyrene	4.08	0.0300	0.0600	"	"	"	---	102	54-128%	---	---	
Benzo(b)fluoranthene	4.31	0.0300	0.0600	"	"	"	---	108	53-131%	---	---	
Benzo(k)fluoranthene	4.16	0.0300	0.0600	"	"	"	---	104	57-129%	---	---	
Benzo(g,h,i)perylene	4.16	0.0200	0.0400	"	"	"	---	104	50-134%	---	---	
Chrysene	4.09	0.0200	0.0400	"	"	"	---	102	59-123%	---	---	
Dibenz(a,h)anthracene	3.93	0.0200	0.0400	"	"	"	---	98	51-134%	---	---	
Fluoranthene	3.82	0.0200	0.0400	"	"	"	---	96	57-128%	---	---	
Fluorene	3.09	0.0200	0.0400	"	"	"	---	77	52-124%	---	---	
Indeno(1,2,3-cd)pyrene	3.89	0.0200	0.0400	"	"	"	---	97	52-133%	---	---	
1-Methylnaphthalene	2.54	0.0400	0.0800	"	"	"	---	64	41-120%	---	---	
2-Methylnaphthalene	2.44	0.0400	0.0800	"	"	"	---	61	40-121%	---	---	
Naphthalene	2.44	0.0400	0.0800	"	"	"	---	61	"	---	---	
Phenanthrene	3.39	0.0200	0.0400	"	"	"	---	85	59-120%	---	---	
Pyrene	3.95	0.0200	0.0400	"	"	"	---	99	57-126%	---	---	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7101182 - EPA 3510C (Acid Extraction)							**Water**					
LCS (7101182-BS1)					Prepared: 10/26/17 07:12 Analyzed: 10/26/17 15:01							
EPA 8270D												
Carbazole	3.95	0.0300	0.0600	ug/L	"	"	---	99	60-122%	---	---	
Dibenzofuran	3.11	0.0200	0.0400	"	"	"	---	78	53-120%	---	---	
4-Chloro-3-methylphenol	3.82	0.200	0.400	"	"	"	---	96	52-120%	---	---	
2-Chlorophenol	3.36	0.100	0.200	"	"	"	---	84	38-120%	---	---	
2,4-Dichlorophenol	3.74	0.100	0.200	"	"	"	---	94	47-121%	---	---	
2,4-Dimethylphenol	3.39	0.100	0.200	"	"	"	---	85	31-124%	---	---	
2,4-Dinitrophenol	4.26	0.500	1.00	"	"	"	---	107	23-143%	---	---	
4,6-Dinitro-2-methylphenol	3.81	0.500	1.00	"	"	"	---	95	44-137%	---	---	
2-Methylphenol	3.02	0.0500	0.100	"	"	"	---	75	30-120%	---	---	
3+4-Methylphenol(s)	2.76	0.0500	0.100	"	"	"	---	69	29-120%	---	---	
2-Nitrophenol	3.69	0.200	0.400	"	"	"	---	92	47-123%	---	---	
4-Nitrophenol	1.48	0.200	0.400	"	"	"	---	37	5-120%	---	---	
Pentachlorophenol (PCP)	4.88	0.200	0.400	"	"	"	---	122	35-138%	---	---	
Phenol	1.36	0.400	0.800	"	"	"	---	34	5-120%	---	---	
2,3,4,6-Tetrachlorophenol	4.08	0.100	0.200	"	"	"	---	102	50-128%	---	---	
2,3,5,6-Tetrachlorophenol	4.28	0.100	0.200	"	"	"	---	107	50-121%	---	---	
2,4,5-Trichlorophenol	4.07	0.100	0.200	"	"	"	---	102	53-123%	---	---	
2,4,6-Trichlorophenol	4.18	0.100	0.200	"	"	"	---	104	50-125%	---	---	
Bis(2-ethylhexyl)phthalate	4.40	0.400	0.800	"	"	"	---	110	55-135%	---	---	
Butyl benzyl phthalate	4.40	0.400	0.800	"	"	"	---	110	53-134%	---	---	
Diethylphthalate	3.55	0.400	0.800	"	"	"	---	89	55-125%	---	---	
Dimethylphthalate	3.74	0.400	0.800	"	"	"	---	94	45-127%	---	---	
Di-n-butylphthalate	3.99	0.400	0.800	"	"	"	---	100	59-127%	---	---	
Di-n-octyl phthalate	4.15	0.400	0.800	"	"	"	---	104	51-140%	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 86 %*		*Limits: 44-120 %*			*Dilution: 2x*				
2-Fluorobiphenyl (Surr)			*72 %*		*44-120 %*			*"*				
Phenol-d6 (Surr)			*31 %*		*10-120 %*			*"*				
p-Terphenyl-d14 (Surr)			*94 %*		*50-133 %*			*"*				
2-Fluorophenol (Surr)			*46 %*		*19-120 %*			*"*				
2,4,6-Tribromophenol (Surr)			*98 %*		*43-140 %*			*"*				
LCS Dup (7101182-BSD1)					Prepared: 10/26/17 07:12 Analyzed: 10/26/17 15:36							Q-19
EPA 8270D												
Acenaphthene	3.23	0.0200	0.0400	ug/L	2	4.00	---	81	47-122%	6	30%	
Acenaphthylene	3.14	0.0200	0.0400	"	"	"	---	78	41-130%	3	30%	

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10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7101182 - EPA 3510C (Acid Extraction)							**Water**					
LCS Dup (7101182-BSD1)					Prepared: 10/26/17 07:12		Analyzed: 10/26/17 15:36					Q-19
EPA 8270D												
Anthracene	3.61	0.0200	0.0400	ug/L	"	"	---	90	57-123%	1	30%	
Benz(a)anthracene	3.97	0.0200	0.0400	"	"	"	---	99	58-125%	0.5	30%	
Benzo(a)pyrene	4.05	0.0300	0.0600	"	"	"	---	101	54-128%	0.6	30%	
Benzo(b)fluoranthene	4.32	0.0300	0.0600	"	"	"	---	108	53-131%	0.3	30%	
Benzo(k)fluoranthene	4.11	0.0300	0.0600	"	"	"	---	103	57-129%	1	30%	
Benzo(g,h,i)perylene	4.15	0.0200	0.0400	"	"	"	---	104	50-134%	0.4	30%	
Chrysene	4.11	0.0200	0.0400	"	"	"	---	103	59-123%	0.4	30%	
Dibenz(a,h)anthracene	3.89	0.0200	0.0400	"	"	"	---	97	51-134%	1	30%	
Fluoranthene	3.79	0.0200	0.0400	"	"	"	---	95	57-128%	0.9	30%	
Fluorene	3.14	0.0200	0.0400	"	"	"	---	78	52-124%	2	30%	
Indeno(1,2,3-cd)pyrene	3.88	0.0200	0.0400	"	"	"	---	97	52-133%	0.4	30%	
1-Methylnaphthalene	2.81	0.0400	0.0800	"	"	"	---	70	41-120%	10	30%	
2-Methylnaphthalene	2.74	0.0400	0.0800	"	"	"	---	68	40-121%	12	30%	
Naphthalene	2.65	0.0400	0.0800	"	"	"	---	66	"	8	30%	
Phenanthrene	3.34	0.0200	0.0400	"	"	"	---	84	59-120%	1	30%	
Pyrene	3.86	0.0200	0.0400	"	"	"	---	96	57-126%	2	30%	
Carbazole	3.86	0.0300	0.0600	"	"	"	---	97	60-122%	2	30%	
Dibenzofuran	3.21	0.0200	0.0400	"	"	"	---	80	53-120%	3	30%	
4-Chloro-3-methylphenol	3.78	0.200	0.400	"	"	"	---	95	52-120%	1	30%	
2-Chlorophenol	3.30	0.100	0.200	"	"	"	---	82	38-120%	2	30%	
2,4-Dichlorophenol	3.69	0.100	0.200	"	"	"	---	92	47-121%	1	30%	
2,4-Dimethylphenol	3.36	0.100	0.200	"	"	"	---	84	31-124%	1	30%	
2,4-Dinitrophenol	4.27	0.500	1.00	"	"	"	---	107	23-143%	0.3	30%	
4,6-Dinitro-2-methylphenol	3.85	0.500	1.00	"	"	"	---	96	44-137%	1	30%	
2-Methylphenol	2.87	0.0500	0.100	"	"	"	---	72	30-120%	5	30%	
3+4-Methylphenol(s)	2.66	0.0500	0.100	"	"	"	---	67	29-120%	4	30%	
2-Nitrophenol	3.58	0.200	0.400	"	"	"	---	89	47-123%	3	30%	
4-Nitrophenol	1.45	0.200	0.400	"	"	"	---	36	5-120%	2	30%	
Pentachlorophenol (PCP)	4.90	0.200	0.400	"	"	"	---	123	35-138%	0.5	30%	
Phenol	1.35	0.400	0.800	"	"	"	---	34	5-120%	0.6	30%	
2,3,4,6-Tetrachlorophenol	4.04	0.100	0.200	"	"	"	---	101	50-128%	1	30%	
2,3,5,6-Tetrachlorophenol	4.23	0.100	0.200	"	"	"	---	106	50-121%	1	30%	
2,4,5-Trichlorophenol	4.04	0.100	0.200	"	"	"	---	101	53-123%	0.7	30%	
2,4,6-Trichlorophenol	4.07	0.100	0.200	"	"	"	---	102	50-125%	3	30%	

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10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7101182 - EPA 3510C (Acid Extraction)							**Water**					
LCS Dup (7101182-BSD1)					Prepared: 10/26/17 07:12		Analyzed: 10/26/17 15:36					Q-19
EPA 8270D												
Bis(2-ethylhexyl)phthalate	4.41	0.400	0.800	ug/L	"	"	---	110	55-135%	0.4	30%	
Butyl benzyl phthalate	4.41	0.400	0.800	"	"	"	---	110	53-134%	0.1	30%	
Diethylphthalate	3.49	0.400	0.800	"	"	"	---	87	55-125%	2	30%	
Dimethylphthalate	3.69	0.400	0.800	"	"	"	---	92	45-127%	1	30%	
Di-n-butylphthalate	3.93	0.400	0.800	"	"	"	---	98	59-127%	1	30%	
Di-n-octyl phthalate	4.27	0.400	0.800	"	"	"	---	107	51-140%	3	30%	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 81 %*		*Limits: 44-120 %*		*Dilution: 2x*					
2-Fluorobiphenyl (Surr)			*71 %*		*44-120 %*		*"*					
Phenol-d6 (Surr)			*29 %*		*10-120 %*		*"*					
p-Terphenyl-d14 (Surr)			*94 %*		*50-133 %*		*"*					
2-Fluorophenol (Surr)			*45 %*		*19-120 %*		*"*					
2,4,6-Tribromophenol (Surr)			*96 %*		*43-140 %*		*"*					

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10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
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QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7110402 - EPA 3015A							**Water**					
Blank (7110402-BLK1)					Prepared: 11/03/17 11:17 Analyzed: 11/07/17 17:52							
EPA 6020A												
Aluminum	ND	25.0	50.0	ug/L	1	---	---	---	---	---	---	
Antimony	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Arsenic	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Cadmium	ND	0.0400	0.200	"	"	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Copper	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Lead	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Manganese	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Mercury	ND	0.0400	0.0800	"	"	---	---	---	---	---	---	
Nickel	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Silver	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Zinc	ND	2.00	4.00	"	"	---	---	---	---	---	---	
LCS (7110402-BS1)					Prepared: 11/03/17 11:17 Analyzed: 11/07/17 17:55							
EPA 6020A												
Aluminum	5400	25.0	50.0	ug/L	1	5560	---	97	80-120%	---	---	
Antimony	27.4	0.500	1.00	"	"	27.8	---	99	"	---	---	
Arsenic	54.3	0.500	1.00	"	"	55.6	---	98	"	---	---	
Cadmium	54.7	0.0400	0.200	"	"	"	---	98	"	---	---	
Chromium	55.1	0.500	1.00	"	"	"	---	99	"	---	---	
Copper	56.3	0.500	1.00	"	"	"	---	101	"	---	---	
Lead	53.8	0.100	0.200	"	"	"	---	97	"	---	---	
Manganese	55.8	0.500	1.00	"	"	"	---	100	"	---	---	
Mercury	1.04	0.0400	0.0800	"	"	1.11	---	93	"	---	---	
Nickel	55.4	0.500	1.00	"	"	55.6	---	100	"	---	---	
Silver	27.5	0.100	0.200	"	"	27.8	---	99	"	---	---	
Zinc	54.4	2.00	4.00	"	"	55.6	---	98	"	---	---	

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10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7101207 - Method Prep: Aq									Water			
Blank (7101207-BLK1)					Prepared: 10/26/17 12:40		Analyzed: 10/26/17 17:16					
SM 5310 C												
Total Organic Carbon	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	
LCS (7101207-BS1)					Prepared: 10/26/17 12:40		Analyzed: 10/26/17 17:42					
SM 5310 C												
Total Organic Carbon	10.8	1.00	1.00	mg/L	1	10.0	---	108	85-115%	---	---	
LCS (7101207-BS2)					Prepared: 10/26/17 12:40		Analyzed: 10/26/17 18:09					
SM 5310 C												
Total Organic Carbon	ND	1.00	1.00	mg/L	1	0.00	---		85-115%	---	---	TOC_I

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10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7101328 - Total Suspended Solids									Water			
Blank (7101328-BLK1)					Prepared: 10/31/17 10:50		Analyzed: 10/31/17 13:56					
SM 2540 D												
Total Suspended Solids	ND	2.00	2.00	mg/L	1	---	---	---	---	---	---	
Reference (7101328-SRM1)					Prepared: 10/31/17 10:50		Analyzed: 10/31/17 13:56					
SM 2540 D												
Total Suspended Solids	95.0			mg/L	1	100		95	77.1-110%	---	---	

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Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7101250							
A7J0830-01	Water	NWTPH-Dx	10/25/17 11:30	10/27/17 13:21	1070mL/5mL	1000mL/5mL	0.94

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7101166							
A7J0830-01	Water	NWTPH-Gx (MS)	10/25/17 11:30	10/25/17 16:04	5mL/5mL	5mL/5mL	1.00

Organochlorine Pesticides by EPA 8081B

Prep: EPA 3510C (Neutral pH)/3640A (GPC)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7101318							
A7J0830-01RE1	Water	EPA 8081B	10/25/17 11:30	10/25/17 17:10	1050mL/10mL	1000mL/5mL	1.90

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3510C (Acid Extraction)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7101182							
A7J0830-01RE1	Water	EPA 8270D	10/25/17 11:30	10/26/17 07:12	1060mL/1mL	1000mL/1mL	0.94

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7110402							
A7J0830-01	Water	EPA 6020A	10/25/17 11:30	11/03/17 11:17	45mL/50mL	45mL/50mL	1.00
A7J0830-01RE1	Water	EPA 6020A	10/25/17 11:30	11/03/17 11:17	45mL/50mL	45mL/50mL	1.00

Conventional Chemistry Parameters

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7101207							
A7J0830-01	Water	SM 5310 C	10/25/17 11:30	10/26/17 12:40	40mL/40mL	40mL/40mL	1.00

Apex Laboratories

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Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

SAMPLE PREPARATION INFORMATION

Conventional Chemistry Parameters

Prep: Total Suspended Solids

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7101328							
A7J0830-01	Water	SM 2540 D	10/25/17 11:30	10/31/17 10:50	1N/A/1N/A	1N/A/1N/A	NA

Apex Labs

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

Notes and Definitions

Qualifiers:

C-05	Extract has undergone a GPC (Gel-Permeation Chromatography) cleanup per EPA 3640A. Reporting levels may be raised due to dilution necessary for cleanup. Sample Final Volume includes the GPC dilution factor, see the Prep page for details.
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
Q-24	RPD for spike and spike duplicate is above established control limit. Recoveries for both spike and spike duplicate are within control limits.
Q-41	Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.
R-02	The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
S-06	Surrogate recovery is outside of established control limits.
TOC_I	Inorganic Carbon Spike Check. Results are valid if Non Detect (No Inorganic Carbon detected.)

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Labs

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

*** Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

Philip Nerenberg, Lab Director

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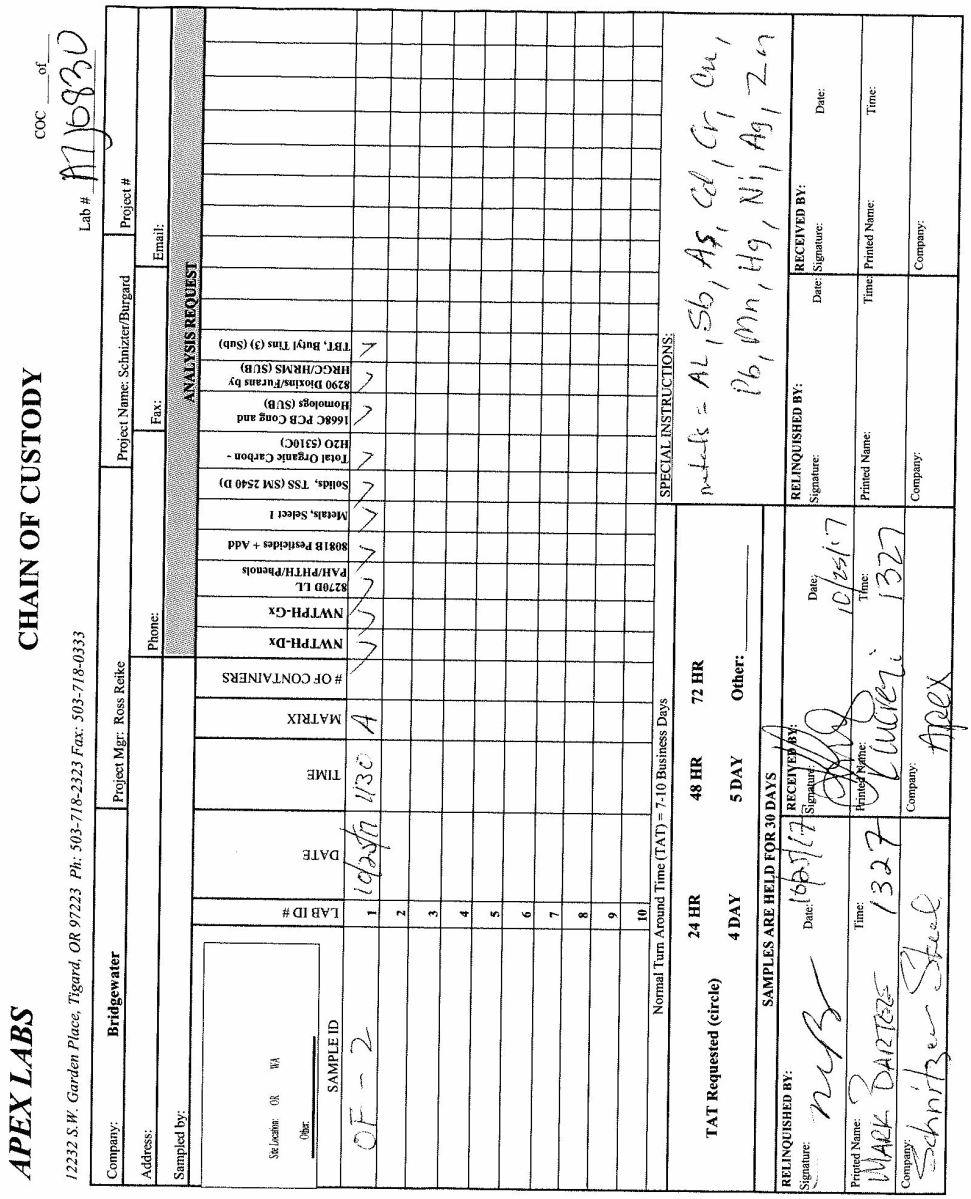
Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

COC ___ of ___

Lab # A7J6830

Company: **Bridgewater** | Project Mgr: Ross Reike | Project Name: Schnizter/Burgard | Project #

Address: | Phone: | Fax: | Email:

Sampled by:

Site Location: OR WA
Other:

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-Dx	NWTPH-Gx	8270D LL PAH/PHTH/Phenols	8081B Pesticides + Add	Metals, Select 1	Solids, TSS (SM 2540 D)	Total Organic Carbon - H2O (5310C)	1668C PCB Cong and Homologs (SUB)	8290 Dioxins/Furans by HRGC/HRMS (SUB)	TBT, Butyl Tins (3) (Sub)
OF-2	1	10/25/17	1130	A		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	2														
	3														
	4														
	5														
	6														
	7														
	8														
	9														
	10														

Normal Turn Around Time (TAT) = 7-10 Business Days

TAT Requested (circle) 24 HR 48 HR 72 HR 4 DAY 5 DAY Other: _____

SPECIAL INSTRUCTIONS:
metals = Al, Sb, As, Cd, Cr, Cu, Pb, Mn, Hg, Ni, Ag, Zn

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date: 10/25/17	Signature: [signature] Date: 10/25/17	Signature: Date:	Signature: Date:
Printed Name: Mark Bartels Time: 1327	Printed Name: Lucrezi Time: 1327	Printed Name: Time:	Printed Name: Time:
Company: Schnitzer Steel	Company: Apex	Company:	Company:

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	11/27/17 13:06

APEX LABS COOLER RECEIPT FORM

Client: Rieke Corporation ~~Bridgewater~~ **Element WO#:** A7 10830

Project/Project #: Schnitzer - Burgard

Delivery info:

Date/Time Received: 10/25/17 @ 1327 By: KAR

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: KAR : 10/25/17 @ 1327

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	5.8	3.1					
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)	2.1	3.9					
Ice Type: (Gel/Real/Other)	G						
Condition:	good →						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: KAR : 10/25/17 @ ~~1405~~ 1405

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes___ No X Comments: Trip Blank not on COC

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No___ NA___

Comments:

Additional Information: TB# 1633

Labeled by: KAR Witness: AW Cooler Inspected by: KAR See Project Contact Form: Y

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Your Project #: A7J0830
Your C.O.C. #: na

Attention:Lisa Domenighini

Apex Laboratories
12232 SW Garden Place
Tigard, OR
USA 97223

Report Date: 2017/12/04
Report #: R4892198
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B7O0267
Received: 2017/10/27, 14:30

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Dioxins/Furans in Water (1613B) (1)	1	2017/10/31	2017/11/03	BRL SOP-00410	EPA 1613B m
PCB Congeners in Water (1668A)	1	2017/10/30	2017/11/05	BRL SOP-00408	EPA 1668A m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Confirmatory runs for 2,3,7,8-TCDF are performed only if the primary result is greater than the RDL.

U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.
E = Analyte concentration exceeds the maximum concentration level.
K = Estimated maximum possible concentration due to ion abundance ratio failure.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Stephanie Pollen, Project Manager
Email: SPollen@maxxam.ca
Phone# (905) 817-5700
==========
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B7O0267
Report Date: 2017/12/04

Apex Laboratories
Client Project #: A7J0830
Sampler Initials: XX

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FKV985							
Sampling Date		2017/10/25 11:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	0.895 U	0.895	9.43	4.00	1.00	0.895	N/A	5245914
1,2,3,7,8-Penta CDD *	pg/L	0.939 U	0.939	47.2	4.00	1.00	0.939	N/A	5245914
1,2,3,4,7,8-Hexa CDD *	pg/L	0.913 U	0.913	47.2	4.00	0.100	0.0913	N/A	5245914
1,2,3,6,7,8-Hexa CDD *	pg/L	0.964 U	0.964	47.2	4.00	0.100	0.0964	N/A	5245914
1,2,3,7,8,9-Hexa CDD *	pg/L	0.887 U	0.887	47.2	4.00	0.100	0.0887	N/A	5245914
1,2,3,4,6,7,8-Hepta CDD *	pg/L	5.09 J	1.01	47.2	4.00	0.0100	0.0509	N/A	5245914
Octa CDD *	pg/L	37.6 J	0.953	94.3	8.00	0.000300	0.0113	N/A	5245914
Total Tetra CDD *	pg/L	0.895 U	0.895	9.43	4.00	N/A	N/A	0	5245914
Total Penta CDD *	pg/L	0.939 U	0.939	47.2	4.00	N/A	N/A	0	5245914
Total Hexa CDD *	pg/L	0.928 U	0.928	47.2	4.00	N/A	N/A	0	5245914
Total Hepta CDD *	pg/L	15.7 J	1.01	47.2	4.00	N/A	N/A	2	5245914
2,3,7,8-Tetra CDF **	pg/L	0.964 U	0.964	9.43	4.00	0.100	0.0964	N/A	5245914
1,2,3,7,8-Penta CDF **	pg/L	0.920 U	0.920	47.2	4.00	0.0300	0.0276	N/A	5245914
2,3,4,7,8-Penta CDF **	pg/L	0.897 U	0.897	47.2	4.00	0.300	0.269	N/A	5245914
1,2,3,4,7,8-Hexa CDF **	pg/L	0.932 U	0.932	47.2	4.00	0.100	0.0932	N/A	5245914
1,2,3,6,7,8-Hexa CDF **	pg/L	0.964 U	0.964	47.2	4.00	0.100	0.0964	N/A	5245914
2,3,4,6,7,8-Hexa CDF **	pg/L	0.899 U	0.899	47.2	4.00	0.100	0.0899	N/A	5245914
1,2,3,7,8,9-Hexa CDF **	pg/L	0.957 U	0.957	47.2	4.00	0.100	0.0957	N/A	5245914
1,2,3,4,6,7,8-Hepta CDF **	pg/L	0.906 U	0.906	47.2	4.00	0.0100	0.00906	N/A	5245914
1,2,3,4,7,8,9-Hepta CDF **	pg/L	0.900 U	0.900	47.2	4.00	0.0100	0.00900	N/A	5245914
Octa CDF **	pg/L	1.11 J	0.762	94.3	8.00	0.000300	0.000333	N/A	5245914
Total Tetra CDF **	pg/L	0.964 U	0.964	9.43	4.00	N/A	N/A	0	5245914
Total Penta CDF **	pg/L	0.909 U	0.909	47.2	4.00	N/A	N/A	0	5245914
Total Hexa CDF **	pg/L	0.937 U	0.937	47.2	4.00	N/A	N/A	0	5245914
Total Hepta CDF **	pg/L	0.903 U	0.903	47.2	4.00	N/A	N/A	0	5245914
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	2.96	N/A	N/A
Surrogate Recovery (%)									
37CL4 2378 Tetra CDD *	%	123	N/A	N/A	N/A	N/A	N/A	N/A	5245914

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

Maxxam Job #: B7O0267
Report Date: 2017/12/04

Apex Laboratories
Client Project #: A7J0830
Sampler Initials: XX

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FKV985							
Sampling Date		2017/10/25 11:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-1234678 HeptaCDD *	%	100	N/A	N/A	N/A	N/A	N/A	N/A	5245914
C13-1234678 HeptaCDF **	%	99	N/A	N/A	N/A	N/A	N/A	N/A	5245914
C13-123478 HexaCDD *	%	97	N/A	N/A	N/A	N/A	N/A	N/A	5245914
C13-123478 HexaCDF **	%	87	N/A	N/A	N/A	N/A	N/A	N/A	5245914
C13-1234789 HeptaCDF **	%	95	N/A	N/A	N/A	N/A	N/A	N/A	5245914
C13-123678 HexaCDD *	%	112	N/A	N/A	N/A	N/A	N/A	N/A	5245914
C13-123678 HexaCDF **	%	90	N/A	N/A	N/A	N/A	N/A	N/A	5245914
C13-12378 PentaCDD *	%	116	N/A	N/A	N/A	N/A	N/A	N/A	5245914
C13-12378 PentaCDF **	%	105	N/A	N/A	N/A	N/A	N/A	N/A	5245914
C13-123789 HexaCDF **	%	106	N/A	N/A	N/A	N/A	N/A	N/A	5245914
C13-234678 HexaCDF **	%	104	N/A	N/A	N/A	N/A	N/A	N/A	5245914
C13-23478 PentaCDF **	%	90	N/A	N/A	N/A	N/A	N/A	N/A	5245914
C13-2378 TetraCDD *	%	92	N/A	N/A	N/A	N/A	N/A	N/A	5245914
C13-2378 TetraCDF **	%	81	N/A	N/A	N/A	N/A	N/A	N/A	5245914
C13-OCDD *	%	99	N/A	N/A	N/A	N/A	N/A	N/A	5245914

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

Maxxam Job #: B7O0267
Report Date: 2017/12/04

Apex Laboratories
Client Project #: A7J0830
Sampler Initials: XX

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FKV985							
Sampling Date		2017/10/25 11:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2-MonoCB-(1)	ng/L	0.0201 J	0.0023	0.095	N/A	N/A	N/A	N/A	5249407
3-MonoCB-(2)	ng/L	0.0023 U	0.0023	0.095	N/A	N/A	N/A	N/A	5249407
4-MonoCB-(3)	ng/L	0.0025 J	0.0023	0.095	N/A	N/A	N/A	N/A	5249407
22'-DiCB-(4)	ng/L	0.250	0.027	0.095	N/A	N/A	N/A	N/A	5249407
2,3-DiCB-(5)	ng/L	0.012 U	0.012	0.095	N/A	N/A	N/A	N/A	5249407
2,3'-DiCB-(6)	ng/L	0.0262 J	0.0092	0.095	N/A	N/A	N/A	N/A	5249407
2,4-DiCB-(7)	ng/L	0.0095 U	0.0095	0.095	N/A	N/A	N/A	N/A	5249407
2,4'-DiCB-(8)	ng/L	0.0672 J	0.0082	0.095	N/A	N/A	N/A	N/A	5249407
2,5-DiCB-(9)	ng/L	0.0096 U	0.0096	0.095	N/A	N/A	N/A	N/A	5249407
2,6-DiCB-(10)	ng/L	0.026 U	0.026	0.095	N/A	N/A	N/A	N/A	5249407
3,3'-DiCB-(11)	ng/L	0.027 U (1)	0.027	0.095	N/A	N/A	N/A	N/A	5249407
DiCB-(12)+(13)	ng/L	0.010 U	0.010	0.19	N/A	N/A	N/A	N/A	5249407
3,5-DiCB-(14)	ng/L	0.0096 U	0.0096	0.095	N/A	N/A	N/A	N/A	5249407
4,4'-DiCB-(15)	ng/L	0.040 J	0.014	0.095	N/A	N/A	N/A	N/A	5249407
22'3-TriCB-(16)	ng/L	0.239	0.024	0.095	N/A	N/A	N/A	N/A	5249407
22'4-TriCB-(17)	ng/L	0.214	0.022	0.095	N/A	N/A	N/A	N/A	5249407
TriCB-(18)+(30)	ng/L	0.550	0.017	0.19	N/A	N/A	N/A	N/A	5249407
22'6-TriCB-(19)	ng/L	0.156	0.016	0.095	N/A	N/A	N/A	N/A	5249407
TriCB-(20) + (28)	ng/L	0.281	0.0027	0.19	N/A	N/A	N/A	N/A	5249407
TriCB-(21)+(33)	ng/L	0.221	0.0028	0.19	N/A	N/A	N/A	N/A	5249407
234'-TriCB-(22)	ng/L	0.114	0.0029	0.095	N/A	N/A	N/A	N/A	5249407
235-TriCB-(23)	ng/L	0.0029 U	0.0029	0.095	N/A	N/A	N/A	N/A	5249407
236-TriCB-(24)	ng/L	0.017 U	0.017	0.095	N/A	N/A	N/A	N/A	5249407
23'4-TriCB-(25)	ng/L	0.0287 J	0.0027	0.095	N/A	N/A	N/A	N/A	5249407
TriCB-(26)+(29)	ng/L	0.0671 J	0.0026	0.19	N/A	N/A	N/A	N/A	5249407
23'6-TriCB-(27)	ng/L	0.035 J	0.014	0.095	N/A	N/A	N/A	N/A	5249407
24'5-TriCB-(31)	ng/L	0.286	0.0025	0.095	N/A	N/A	N/A	N/A	5249407
24'6-TriCB-(32)	ng/L	0.122	0.014	0.095	N/A	N/A	N/A	N/A	5249407
23'5'-TriCB-(34)	ng/L	0.0027 U	0.0027	0.095	N/A	N/A	N/A	N/A	5249407

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Maxxam Job #: B7O0267
Report Date: 2017/12/04

Apex Laboratories
Client Project #: A7J0830
Sampler Initials: XX

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FKV985							
Sampling Date		2017/10/25 11:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'4-TriCB-(35)	ng/L	0.0042 J	0.0027	0.095	N/A	N/A	N/A	N/A	5249407
33'5-TriCB-(36)	ng/L	0.0081 J	0.0023	0.095	N/A	N/A	N/A	N/A	5249407
344'-TriCB-(37)	ng/L	0.0478 J	0.0041	0.095	N/A	N/A	N/A	N/A	5249407
345-TriCB-(38)	ng/L	0.0027 U	0.0027	0.095	N/A	N/A	N/A	N/A	5249407
34'5-TriCB-(39)	ng/L	0.0026 U	0.0026	0.095	N/A	N/A	N/A	N/A	5249407
TetraCB-(40)+(41)+(71)	ng/L	0.373	0.0046	0.29	N/A	N/A	N/A	N/A	5249407
22'34'-TetraCB-(42)	ng/L	0.202	0.0057	0.095	N/A	N/A	N/A	N/A	5249407
22'35-TetraCB-(43)	ng/L	0.0513 J	0.0065	0.095	N/A	N/A	N/A	N/A	5249407
TetraCB-(44)+(47)+(65)	ng/L	0.633	0.0043	0.29	N/A	N/A	N/A	N/A	5249407
TetraCB-(45)+(51)	ng/L	0.188 J	0.0046	0.19	N/A	N/A	N/A	N/A	5249407
22'36'-TetraCB-(46)	ng/L	0.0745 J	0.0054	0.095	N/A	N/A	N/A	N/A	5249407
22'45-TetraCB-(48)	ng/L	0.201	0.0047	0.095	N/A	N/A	N/A	N/A	5249407
TetraCB-(49)+TetraCB-(69)	ng/L	0.408	0.0040	0.19	N/A	N/A	N/A	N/A	5249407
TetraCB-(50)+(53)	ng/L	0.135 J	0.0044	0.19	N/A	N/A	N/A	N/A	5249407
22'55'-TetraCB-(52)	ng/L	0.701	0.0042	0.095	N/A	N/A	N/A	N/A	5249407
22'66'-TetraCB-(54)	ng/L	0.0054 U (1)	0.0054	0.095	N/A	N/A	N/A	N/A	5249407
233'4-TetraCB-(55)	ng/L	0.0043 U	0.0043	0.095	N/A	N/A	N/A	N/A	5249407
233'4'-Tetra CB(56)	ng/L	0.0610 J	0.0038	0.095	N/A	N/A	N/A	N/A	5249407
233'5-TetraCB-(57)	ng/L	0.0037 U	0.0037	0.095	N/A	N/A	N/A	N/A	5249407
233'5'-TetraCB-(58)	ng/L	0.012 U (1)	0.012	0.095	N/A	N/A	N/A	N/A	5249407
TetraCB-(59)+(62)+(75)	ng/L	0.0642 J	0.0034	0.29	N/A	N/A	N/A	N/A	5249407
2344'-TetraCB -(60)	ng/L	0.0344 J	0.0040	0.095	N/A	N/A	N/A	N/A	5249407
TetraCB-(61)+(70)+(74)+(76)	ng/L	0.383	0.0039	0.38	N/A	N/A	N/A	N/A	5249407
234'5-TetraCB-(63)	ng/L	0.0165 J	0.0036	0.095	N/A	N/A	N/A	N/A	5249407
234'6-TetraCB-(64)	ng/L	0.281	0.0038	0.095	N/A	N/A	N/A	N/A	5249407
23'44'-TetraCB-(66)	ng/L	0.150	0.0035	0.095	N/A	N/A	N/A	N/A	5249407
23'45-TetraCB-(67)	ng/L	0.0156 J	0.0034	0.095	N/A	N/A	N/A	N/A	5249407
23'45'-TetraCB-(68)	ng/L	0.0036 U	0.0036	0.095	N/A	N/A	N/A	N/A	5249407
23'55'-TetraCB-(72)	ng/L	0.0036 U	0.0036	0.095	N/A	N/A	N/A	N/A	5249407

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

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COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
23'5'6-TetraCB-(73)	ng/L	0.0032 U	0.0032	0.095	N/A	N/A	N/A	N/A	5249407
33'44'-TetraCB-(77)	ng/L	0.0101 J	0.0043	0.095	N/A	0.000100	0.00000101	N/A	5249407
33'45-TetraCB-(78)	ng/L	0.0038 U	0.0038	0.095	N/A	N/A	N/A	N/A	5249407
33'45'-TetraCB(79)	ng/L	0.0032 U	0.0032	0.095	N/A	N/A	N/A	N/A	5249407
33'55'-TetraCB-(80)	ng/L	0.0034 U	0.0034	0.095	N/A	N/A	N/A	N/A	5249407
344'5-TetraCB-(81)	ng/L	0.0044 U	0.0044	0.095	N/A	0.000300	0.00000132	N/A	5249407
22'33'4-PentaCB-(82)	ng/L	0.0505 J	0.0095	0.095	N/A	N/A	N/A	N/A	5249407
PentaCB-(83)+(99)	ng/L	0.235	0.0088	0.19	N/A	N/A	N/A	N/A	5249407
22'33'6-PentaCB-(84)	ng/L	0.108	0.0093	0.095	N/A	N/A	N/A	N/A	5249407
PentaCB-(85)+(116)+(117)	ng/L	0.0481 J	0.0068	0.29	N/A	N/A	N/A	N/A	5249407
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	0.289 J	0.0071	0.57	N/A	N/A	N/A	N/A	5249407
PentaCB-(88)+(91)	ng/L	0.0692 J	0.0081	0.19	N/A	N/A	N/A	N/A	5249407
22'346'-PentaCB-(89)	ng/L	0.0086 U	0.0086	0.095	N/A	N/A	N/A	N/A	5249407
PentaCB-(90)+(101)+(113)	ng/L	0.419	0.0071	0.29	N/A	N/A	N/A	N/A	5249407
22'355'-PentaCB-(92)	ng/L	0.0794 J	0.0084	0.095	N/A	N/A	N/A	N/A	5249407
PentaCB-(93)+(98)+(100)+(102)	ng/L	0.0383 J	0.0080	0.38	N/A	N/A	N/A	N/A	5249407
22'356'-PentaCB-(94)	ng/L	0.0090 U	0.0090	0.095	N/A	N/A	N/A	N/A	5249407
22'35'6-PentaCB-(95)	ng/L	0.345	0.0077	0.095	N/A	N/A	N/A	N/A	5249407
22'366'-PentaCB-(96)	ng/L	0.0062 U (1)	0.0062	0.095	N/A	N/A	N/A	N/A	5249407
22'45'6-PentaCB-(103)	ng/L	0.0070 U	0.0070	0.095	N/A	N/A	N/A	N/A	5249407
22'466'-PentaCB-(104)	ng/L	0.0028 U	0.0028	0.095	N/A	N/A	N/A	N/A	5249407
233'44'-PentaCB-(105)	ng/L	0.145	0.0031	0.095	N/A	0.0000300	0.00000435	N/A	5249407
233'45-PentaCB-(106)	ng/L	0.0028 U	0.0028	0.095	N/A	N/A	N/A	N/A	5249407
233'4'5-PentaCB-(107)	ng/L	0.0245 J	0.0025	0.095	N/A	N/A	N/A	N/A	5249407
PentaCB-(108)+(124)	ng/L	0.0169 J	0.0027	0.19	N/A	N/A	N/A	N/A	5249407
PentaCB-(110)+(115)	ng/L	0.455	0.0063	0.19	N/A	N/A	N/A	N/A	5249407
233'55'-PentaCB-(111)	ng/L	0.0061 U	0.0061	0.095	N/A	N/A	N/A	N/A	5249407
233'56-PentaCB-(112)	ng/L	0.0059 U	0.0059	0.095	N/A	N/A	N/A	N/A	5249407
2344'5-PentaCB-(114)	ng/L	0.0079 U (1)	0.0079	0.095	N/A	0.0000300	0.000000237	N/A	5249407

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Maxxam Job #: B7O0267
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Apex Laboratories
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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FKV985							
Sampling Date		2017/10/25 11:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
23'44'5-PentaCB-(118)	ng/L	0.375	0.0031	0.095	N/A	0.0000300	0.0000113	N/A	5249407
23'455'-PentaCB-(120)	ng/L	0.0057 U	0.0057	0.095	N/A	N/A	N/A	N/A	5249407
23'45'6-PentaCB-(121)	ng/L	0.0061 U	0.0061	0.095	N/A	N/A	N/A	N/A	5249407
233'4'5'-PentaCB-(122)	ng/L	0.0030 J	0.0029	0.095	N/A	N/A	N/A	N/A	5249407
23'44'5'-PentaCB-(123)	ng/L	0.0035 J	0.0034	0.095	N/A	0.0000300	0.000000105	N/A	5249407
33'44'5-PentaCB-(126)	ng/L	0.0029 U	0.0029	0.095	N/A	0.100	0.000290	N/A	5249407
33'455'-PentaCB-(127)	ng/L	0.0026 U	0.0026	0.095	N/A	N/A	N/A	N/A	5249407
HexaCB-(128)+(166)	ng/L	0.110 J	0.0083	0.19	N/A	N/A	N/A	N/A	5249407
HexaCB-(129)+(138)+(163)	ng/L	0.759	0.0090	0.29	N/A	N/A	N/A	N/A	5249407
22'33'45'-HexaCB-(130)	ng/L	0.043 U (1)	0.043	0.095	N/A	N/A	N/A	N/A	5249407
22'33'46-HexaCB-(131)	ng/L	0.013 J	0.012	0.095	N/A	N/A	N/A	N/A	5249407
22'33'46'-HexaCB-(132)	ng/L	0.232	0.011	0.095	N/A	N/A	N/A	N/A	5249407
22'33'55'-HexaCB-(133)	ng/L	0.0097 U	0.0097	0.095	N/A	N/A	N/A	N/A	5249407
HexaCB-(134)+(143)	ng/L	0.033 U (1)	0.033	0.19	N/A	N/A	N/A	N/A	5249407
HexaCB-(135)+(151)	ng/L	0.160 J	0.011	0.19	N/A	N/A	N/A	N/A	5249407
22'33'66'-HexaCB-(136)	ng/L	0.0573 J	0.0074	0.095	N/A	N/A	N/A	N/A	5249407
22'344'5-HexaCB-(137)	ng/L	0.045 J	0.010	0.095	N/A	N/A	N/A	N/A	5249407
HexaCB-(139)+(140)	ng/L	0.0168 J	0.0089	0.19	N/A	N/A	N/A	N/A	5249407
22'3455'-HexaCB-(141)	ng/L	0.130	0.010	0.095	N/A	N/A	N/A	N/A	5249407
22'3456-HexaCB-(142)	ng/L	0.010 U	0.010	0.095	N/A	N/A	N/A	N/A	5249407
22'345'6-HexaCB-(144)	ng/L	0.028 J	0.010	0.095	N/A	N/A	N/A	N/A	5249407
22'3466'-HexaCB-(145)	ng/L	0.0078 U	0.0078	0.095	N/A	N/A	N/A	N/A	5249407
22'34'55'-HexaCB-(146)	ng/L	0.0839 J	0.0084	0.095	N/A	N/A	N/A	N/A	5249407
HexaCB-(147)+(149)	ng/L	0.440	0.0087	0.19	N/A	N/A	N/A	N/A	5249407
22'34'56'-HexaCB-(148)	ng/L	0.010 U	0.010	0.095	N/A	N/A	N/A	N/A	5249407
22'34'66'-HexaCB-(150)	ng/L	0.0074 U	0.0074	0.095	N/A	N/A	N/A	N/A	5249407
22'3566'-HexaCB-(152)	ng/L	0.0073 U	0.0073	0.095	N/A	N/A	N/A	N/A	5249407
HexaCB-(153)+(168)	ng/L	0.536	0.0074	0.19	N/A	N/A	N/A	N/A	5249407
22'44'56'-HexaCB-(154)	ng/L	0.0093 U	0.0093	0.095	N/A	N/A	N/A	N/A	5249407

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Maxxam ID		FKV985							
Sampling Date		2017/10/25 11:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'44'66'-HexaCB-(155)	ng/L	0.0066 U	0.0066	0.095	N/A	N/A	N/A	N/A	5249407
HexaCB-(156)+(157)	ng/L	0.0884 J	0.0087	0.19	N/A	0.0000300	0.00000265	N/A	5249407
233'44'6-HexaCB-(158)	ng/L	0.0822 J	0.0067	0.095	N/A	N/A	N/A	N/A	5249407
233'455'-HexaCB-(159)	ng/L	0.0075 U	0.0075	0.095	N/A	N/A	N/A	N/A	5249407
233'456-HexaCB-(160)	ng/L	0.0075 U	0.0075	0.095	N/A	N/A	N/A	N/A	5249407
233'45'6-HexaCB-(161)	ng/L	0.0072 U	0.0072	0.095	N/A	N/A	N/A	N/A	5249407
233'4'55'-HexaCB-(162)	ng/L	0.0077 U	0.0077	0.095	N/A	N/A	N/A	N/A	5249407
233'4'5'6-HexaCB-(164)	ng/L	0.0468 J	0.0071	0.095	N/A	N/A	N/A	N/A	5249407
233'55'6-HexaCB-(165)	ng/L	0.0078 U	0.0078	0.095	N/A	N/A	N/A	N/A	5249407
23'44'55'-HexaCB-(167)	ng/L	0.0292 J	0.0084	0.095	N/A	0.0000300	0.000000876	N/A	5249407
33'44'55'-HexaCB-(169)	ng/L	0.0091 U	0.0091	0.095	N/A	0.0300	0.000273	N/A	5249407
22'33'44'5-HeptaCB-(170)	ng/L	0.118	0.0084	0.095	N/A	N/A	N/A	N/A	5249407
HeptaCB-(171)+(173)	ng/L	0.042 J	0.012	0.19	N/A	N/A	N/A	N/A	5249407
22'33'455'-HeptaCB-(172)	ng/L	0.023 J	0.012	0.095	N/A	N/A	N/A	N/A	5249407
22'33'456'-HeptaCB-(174)	ng/L	0.134	0.011	0.095	N/A	N/A	N/A	N/A	5249407
22'33'45'6-HeptaCB-(175)	ng/L	0.0068 U	0.0068	0.095	N/A	N/A	N/A	N/A	5249407
22'33'466'-HeptaCB-(176)	ng/L	0.013 U (1)	0.013	0.095	N/A	N/A	N/A	N/A	5249407
22'33'45'6'-HeptaCB-(177)	ng/L	0.073 J	0.012	0.095	N/A	N/A	N/A	N/A	5249407
22'33'55'6-HeptaCB-(178)	ng/L	0.0273 J	0.0072	0.095	N/A	N/A	N/A	N/A	5249407
22'33'566'-HeptaCB-(179)	ng/L	0.0494 J	0.0048	0.095	N/A	N/A	N/A	N/A	5249407
HeptaCB-(180)+(193)	ng/L	0.320	0.0080	0.19	N/A	N/A	N/A	N/A	5249407
22'344'56-HeptaCB-(181)	ng/L	0.012 U	0.012	0.095	N/A	N/A	N/A	N/A	5249407
22'344'56'-HeptaCB-(182)	ng/L	0.0070 U	0.0070	0.095	N/A	N/A	N/A	N/A	5249407
22'344'5'6-HeptaCB-(183)	ng/L	0.091 J	0.010	0.095	N/A	N/A	N/A	N/A	5249407
22'344'66'-HeptaCB-(184)	ng/L	0.0049 U	0.0049	0.095	N/A	N/A	N/A	N/A	5249407
22'3455'6-HeptaCB-(185)	ng/L	0.012 U	0.012	0.095	N/A	N/A	N/A	N/A	5249407
22'34566'-HeptaCB-(186)	ng/L	0.0054 U	0.0054	0.095	N/A	N/A	N/A	N/A	5249407
22'34'55'6-HeptaCB-(187)	ng/L	0.174	0.0067	0.095	N/A	N/A	N/A	N/A	5249407
22'34'566'-HeptaCB-(188)	ng/L	0.0056 U	0.0056	0.095	N/A	N/A	N/A	N/A	5249407

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COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'44'55'-HeptaCB-(189)	ng/L	0.019 U	0.019	0.095	N/A	0.0000300	0.000000570	N/A	5249407
233'44'56-HeptaCB-(190)	ng/L	0.0219 J	0.0085	0.095	N/A	N/A	N/A	N/A	5249407
233'44'5'6-HeptaCB-(191)	ng/L	0.0087 U	0.0087	0.095	N/A	N/A	N/A	N/A	5249407
233'455'6-HeptaCB-(192)	ng/L	0.0096 U	0.0096	0.095	N/A	N/A	N/A	N/A	5249407
22'33'44'55'-OctaCB-(194)	ng/L	0.072 U (1)	0.072	0.095	N/A	N/A	N/A	N/A	5249407
22'33'44'56-OctaCB-(195)	ng/L	0.031 J	0.016	0.095	N/A	N/A	N/A	N/A	5249407
22'33'44'56'-OctaCB-(196)	ng/L	0.041 U (1)	0.041	0.095	N/A	N/A	N/A	N/A	5249407
22'33'44'66'OctaCB-(197)	ng/L	0.0095 U	0.0095	0.095	N/A	N/A	N/A	N/A	5249407
OctaCB-(198)+(199)	ng/L	0.120 J	0.012	0.19	N/A	N/A	N/A	N/A	5249407
22'33'4566'-OctaCB-(200)	ng/L	0.0116 J	0.0078	0.095	N/A	N/A	N/A	N/A	5249407
22'33'45'66'-OctaCB-(201)	ng/L	0.013 U (1)	0.013	0.095	N/A	N/A	N/A	N/A	5249407
22'33'55'66'-OctaCB-(202)	ng/L	0.0252 J	0.0088	0.095	N/A	N/A	N/A	N/A	5249407
22'344'55'6-OctaCB-(203)	ng/L	0.075 J	0.012	0.095	N/A	N/A	N/A	N/A	5249407
22'344'566'-OctaCB-(204)	ng/L	0.0085 U	0.0085	0.095	N/A	N/A	N/A	N/A	5249407
233'44'55'6-OctaCB-(205)	ng/L	0.014 U	0.014	0.095	N/A	N/A	N/A	N/A	5249407
22'33'44'55'6-NonaCB-(206)	ng/L	0.083 J	0.014	0.095	N/A	N/A	N/A	N/A	5249407
22'33'44'566'-NonaCB-(207)	ng/L	0.011 U	0.011	0.095	N/A	N/A	N/A	N/A	5249407
22'33'455'66'-NonaCB-(208)	ng/L	0.025 J	0.013	0.095	N/A	N/A	N/A	N/A	5249407
DecaCB-(209)	ng/L	0.032 J	0.020	0.095	N/A	N/A	N/A	N/A	5249407
Monochlorobiphenyl	ng/L	0.0226	0.0023	N/A	N/A	N/A	N/A	N/A	5249407
Dichlorobiphenyl	ng/L	0.383	0.027	N/A	N/A	N/A	N/A	N/A	5249407
Trichlorobiphenyl	ng/L	2.37	0.024	N/A	N/A	N/A	N/A	N/A	5249407
Tetrachlorobiphenyl	ng/L	3.99	0.0065	N/A	N/A	N/A	N/A	N/A	5249407
Pentachlorobiphenyl	ng/L	2.70	0.0095	N/A	N/A	N/A	N/A	N/A	5249407
Hexachlorobiphenyl	ng/L	2.86	0.012	N/A	N/A	N/A	N/A	N/A	5249407
Heptachlorobiphenyl	ng/L	1.07	0.019	N/A	N/A	N/A	N/A	N/A	5249407
Octachlorobiphenyl	ng/L	0.263	0.016	N/A	N/A	N/A	N/A	N/A	5249407
Nonachlorobiphenyl	ng/L	0.108	0.014	N/A	N/A	N/A	N/A	N/A	5249407
Decachlorobiphenyl	ng/L	0.032	0.020	N/A	N/A	N/A	N/A	N/A	5249407

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compound

QC Batch = Quality Control Batch
N/A = Not Applicable
(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B7O0267
Report Date: 2017/12/04

Apex Laboratories
Client Project #: A7J0830
Sampler Initials: XX

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FKV985							
Sampling Date		2017/10/25 11:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Total PCB	ng/L	13.8	N/A	N/A	N/A	N/A	N/A	N/A	5249407
TOTAL TOXIC EQUIVALENCY	ng/L	N/A	N/A	N/A	N/A	N/A	0.000585	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	91	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-22'33'44'55'6-NonaCB-(206)	%	88	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-22'33'44'5-HeptaCB-(170)	%	112	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-22'33'455'66'-NonaCB-(208)	%	94	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-22'33'55'66'-OctaCB-(202)	%	119	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-22'33'55'6-HeptaCB-(178)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-22'344'55'-HeptaCB-(180)	%	113	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-22'34'566'-HeptaCB-(188)	%	103	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-22'44'66'-HexaCB-(155)	%	98	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-22'466'-PentaCB-(104)	%	103	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-22'66'-TetraCB-(54)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-22'6-TriCB-(19)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-22'-DiCB-(4)	%	60	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-233'44'55'6-OctaCB-(205)	%	100	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-233'44'55'-HeptaCB-(189)	%	100	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-233'44'-PentaCB-(105)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-233'55'-PentaCB-(111)	%	94	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-23'44'55'-HexaCB-(167)	%	88	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-2344'5-PentaCB-(114)	%	96	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-23'44'5-PentaCB-(118)	%	94	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-2'344'5-PentaCB-(123)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-2-MonoCB-(1)	%	51	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-33'44'55'-HexaCB-(169)	%	62	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-33'44'5-PentaCB-(126)	%	88	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-33'44'-TetraCB-(77)	%	88	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-344'5-TetraCB-(81)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-344'-TriCB-(37)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	5249407

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compound

QC Batch = Quality Control Batch

N/A = Not Applicable

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Maxxam Job #: B7O0267
Report Date: 2017/12/04

Apex Laboratories
Client Project #: A7J0830
Sampler Initials: XX

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FKV985							
Sampling Date		2017/10/25 11:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-44'-DiCB-(15)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-4-MonoCB-(3)	%	57	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-DecaCB-(209)	%	90	N/A	N/A	N/A	N/A	N/A	N/A	5249407
C13-HexaCB-(156)+(157)	%	90	N/A	N/A	N/A	N/A	N/A	N/A	5249407

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compound
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B7O0267
Report Date: 2017/12/04

Apex Laboratories
Client Project #: A7J0830
Sampler Initials: XX

TEST SUMMARY

Maxxam ID: FKV985
Sample ID: OF-2
Matrix: Water

Collected: 2017/10/25
Shipped:
Received: 2017/10/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Water (1613B)	HRMS/MS	5245914	2017/10/31	2017/11/03	Cathy Xu
PCB Congeners in Water (1668A)	HRMS/MS	5249407	2017/10/30	2017/11/05	Cathy Xu

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.1°C

Revised Report (2017/12/04): Client requested PCB homologs to be reported.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
5245914	CXU	Spiked Blank	37CL4 2378 Tetra CDD	2017/11/02		109	%	35 - 197
			C13-1234678 HeptaCDD	2017/11/02		110	%	23 - 140
			C13-1234678 HeptaCDF	2017/11/02		110	%	28 - 143
			C13-123478 HexaCDD	2017/11/02		94	%	32 - 141
			C13-123478 HexaCDF	2017/11/02		95	%	26 - 152
			C13-1234789 HeptaCDF	2017/11/02		108	%	28 - 143
			C13-123678 HexaCDD	2017/11/02		112	%	28 - 130
			C13-123678 HexaCDF	2017/11/02		103	%	26 - 123
			C13-12378 PentaCDD	2017/11/02		95	%	25 - 181
			C13-12378 PentaCDF	2017/11/02		96	%	24 - 185
			C13-123789 HexaCDF	2017/11/02		119	%	28 - 136
			C13-234678 HexaCDF	2017/11/02		113	%	29 - 147
			C13-23478 PentaCDF	2017/11/02		81	%	21 - 178
			C13-2378 TetraCDD	2017/11/02		84	%	24 - 164
			C13-2378 TetraCDF	2017/11/02		72	%	24 - 169
			C13-OCDD	2017/11/02		100	%	17 - 157
			2,3,7,8-Tetra CDD	2017/11/02		110	%	67 - 158
			1,2,3,7,8-Penta CDD	2017/11/02		108	%	25 - 181
			1,2,3,4,7,8-Hexa CDD	2017/11/02		115	%	70 - 164
			1,2,3,6,7,8-Hexa CDD	2017/11/02		105	%	76 - 134
			1,2,3,7,8,9-Hexa CDD	2017/11/02		121	%	64 - 162
			1,2,3,4,6,7,8-Hepta CDD	2017/11/02		102	%	70 - 140
			Octa CDD	2017/11/02		114	%	78 - 144
			2,3,7,8-Tetra CDF	2017/11/02		111	%	75 - 158
			1,2,3,7,8-Penta CDF	2017/11/02		112	%	80 - 134
			2,3,4,7,8-Penta CDF	2017/11/02		115	%	68 - 160
			1,2,3,4,7,8-Hexa CDF	2017/11/02		102	%	72 - 134
			1,2,3,6,7,8-Hexa CDF	2017/11/02		94	%	84 - 130
			2,3,4,6,7,8-Hexa CDF	2017/11/02		101	%	70 - 156
			1,2,3,7,8,9-Hexa CDF	2017/11/02		103	%	78 - 130
			1,2,3,4,6,7,8-Hepta CDF	2017/11/02		101	%	82 - 122
			1,2,3,4,7,8,9-Hepta CDF	2017/11/02		105	%	78 - 138
			Octa CDF	2017/11/02		102	%	63 - 170
5245914	CXU	Spiked Blank DUP	37CL4 2378 Tetra CDD	2017/11/02		109	%	35 - 197
			C13-1234678 HeptaCDD	2017/11/02		110	%	23 - 140
			C13-1234678 HeptaCDF	2017/11/02		117	%	28 - 143
			C13-123478 HexaCDD	2017/11/02		96	%	32 - 141
			C13-123478 HexaCDF	2017/11/02		98	%	26 - 152
			C13-1234789 HeptaCDF	2017/11/02		111	%	28 - 143
			C13-123678 HexaCDD	2017/11/02		116	%	28 - 130
			C13-123678 HexaCDF	2017/11/02		101	%	26 - 123
			C13-12378 PentaCDD	2017/11/02		98	%	25 - 181
			C13-12378 PentaCDF	2017/11/02		102	%	24 - 185
			C13-123789 HexaCDF	2017/11/02		122	%	28 - 136
			C13-234678 HexaCDF	2017/11/02		117	%	29 - 147
			C13-23478 PentaCDF	2017/11/02		88	%	21 - 178
			C13-2378 TetraCDD	2017/11/02		85	%	24 - 164
			C13-2378 TetraCDF	2017/11/02		76	%	24 - 169
			C13-OCDD	2017/11/02		102	%	17 - 157
			2,3,7,8-Tetra CDD	2017/11/02		112	%	67 - 158
			1,2,3,7,8-Penta CDD	2017/11/02		110	%	25 - 181
			1,2,3,4,7,8-Hexa CDD	2017/11/02		114	%	70 - 164
			1,2,3,6,7,8-Hexa CDD	2017/11/02		105	%	76 - 134
			1,2,3,7,8,9-Hexa CDD	2017/11/02		124	%	64 - 162

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			1,2,3,4,6,7,8-Hepta CDD	2017/11/02		105	%	70 - 140
			Octa CDD	2017/11/02		114	%	78 - 144
			2,3,7,8-Tetra CDF	2017/11/02		114	%	75 - 158
			1,2,3,7,8-Penta CDF	2017/11/02		111	%	80 - 134
			2,3,4,7,8-Penta CDF	2017/11/02		112	%	68 - 160
			1,2,3,4,7,8-Hexa CDF	2017/11/02		105	%	72 - 134
			1,2,3,6,7,8-Hexa CDF	2017/11/02		98	%	84 - 130
			2,3,4,6,7,8-Hexa CDF	2017/11/02		99	%	70 - 156
			1,2,3,7,8,9-Hexa CDF	2017/11/02		111	%	78 - 130
			1,2,3,4,6,7,8-Hepta CDF	2017/11/02		102	%	82 - 122
			1,2,3,4,7,8,9-Hepta CDF	2017/11/02		110	%	78 - 138
			Octa CDF	2017/11/02		102	%	63 - 170
5245914	CXU	RPD	2,3,7,8-Tetra CDD	2017/11/02	1.8		%	25
			1,2,3,7,8-Penta CDD	2017/11/02	1.8		%	25
			1,2,3,4,7,8-Hexa CDD	2017/11/02	0.87		%	25
			1,2,3,6,7,8-Hexa CDD	2017/11/02	0		%	25
			1,2,3,7,8,9-Hexa CDD	2017/11/02	2.4		%	25
			1,2,3,4,6,7,8-Hepta CDD	2017/11/02	2.9		%	25
			Octa CDD	2017/11/02	0		%	25
			2,3,7,8-Tetra CDF	2017/11/02	2.7		%	25
			1,2,3,7,8-Penta CDF	2017/11/02	0.90		%	25
			2,3,4,7,8-Penta CDF	2017/11/02	2.6		%	25
			1,2,3,4,7,8-Hexa CDF	2017/11/02	2.9		%	25
			1,2,3,6,7,8-Hexa CDF	2017/11/02	4.2		%	25
			2,3,4,6,7,8-Hexa CDF	2017/11/02	2.0		%	25
			1,2,3,7,8,9-Hexa CDF	2017/11/02	7.5		%	25
			1,2,3,4,6,7,8-Hepta CDF	2017/11/02	0.99		%	25
			1,2,3,4,7,8,9-Hepta CDF	2017/11/02	4.7		%	25
			Octa CDF	2017/11/02	0		%	25
5245914	CXU	Method Blank	37CL4 2378 Tetra CDD	2017/11/03		103	%	35 - 197
			C13-1234678 HeptaCDD	2017/11/03		100	%	23 - 140
			C13-1234678 HeptaCDF	2017/11/03		97	%	28 - 143
			C13-123478 HexaCDD	2017/11/03		86	%	32 - 141
			C13-123478 HexaCDF	2017/11/03		82	%	26 - 152
			C13-1234789 HeptaCDF	2017/11/03		99	%	28 - 143
			C13-123678 HexaCDD	2017/11/03		102	%	28 - 130
			C13-123678 HexaCDF	2017/11/03		90	%	26 - 123
			C13-12378 PentaCDD	2017/11/03		96	%	25 - 181
			C13-12378 PentaCDF	2017/11/03		89	%	24 - 185
			C13-123789 HexaCDF	2017/11/03		108	%	28 - 136
			C13-234678 HexaCDF	2017/11/03		99	%	29 - 147
			C13-23478 PentaCDF	2017/11/03		78	%	21 - 178
			C13-2378 TetraCDD	2017/11/03		78	%	24 - 164
			C13-2378 TetraCDF	2017/11/03		69	%	24 - 169
			C13-OCDD	2017/11/03		100	%	17 - 157
			2,3,7,8-Tetra CDD	2017/11/03	1.08 U, EDL=1.08		pg/L	
			1,2,3,7,8-Penta CDD	2017/11/03	1.00 U, EDL=1.00		pg/L	
			1,2,3,4,7,8-Hexa CDD	2017/11/03	0.822 U, EDL=0.822		pg/L	
			1,2,3,6,7,8-Hexa CDD	2017/11/03	0.868 U, EDL=0.868		pg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			1,2,3,7,8,9-Hexa CDD	2017/11/03	0.799 U, EDL=0.799		pg/L	
			1,2,3,4,6,7,8-Hepta CDD	2017/11/03	1.10 U, EDL=1.10		pg/L	
			Octa CDD	2017/11/03	1.55 J, EDL=1.10		pg/L	
			Total Tetra CDD	2017/11/03	1.08 U, EDL=1.08		pg/L	
			Total Penta CDD	2017/11/03	1.00 U, EDL=1.00		pg/L	
			Total Hexa CDD	2017/11/03	0.835 U, EDL=0.835		pg/L	
			Total Hepta CDD	2017/11/03	1.10 U, EDL=1.10		pg/L	
			2,3,7,8-Tetra CDF	2017/11/03	0.968 U, EDL=0.968		pg/L	
			1,2,3,7,8-Penta CDF	2017/11/03	1.06 U, EDL=1.06		pg/L	
			2,3,4,7,8-Penta CDF	2017/11/03	1.04 U, EDL=1.04		pg/L	
			1,2,3,4,7,8-Hexa CDF	2017/11/03	1.08 U, EDL=1.08		pg/L	
			1,2,3,6,7,8-Hexa CDF	2017/11/03	1.12 U, EDL=1.12		pg/L	
			2,3,4,6,7,8-Hexa CDF	2017/11/03	1.04 U, EDL=1.04		pg/L	
			1,2,3,7,8,9-Hexa CDF	2017/11/03	1.11 U, EDL=1.11		pg/L	
			1,2,3,4,6,7,8-Hepta CDF	2017/11/03	0.802 U, EDL=0.802		pg/L	
			1,2,3,4,7,8,9-Hepta CDF	2017/11/03	0.797 U, EDL=0.797		pg/L	
			Octa CDF	2017/11/03	1.22 U, EDL=1.22		pg/L	
			Total Tetra CDF	2017/11/03	0.968 U, EDL=0.968		pg/L	
			Total Penta CDF	2017/11/03	1.05 U, EDL=1.05		pg/L	
			Total Hexa CDF	2017/11/03	1.08 U, EDL=1.08		pg/L	
			Total Hepta CDF	2017/11/03	0.800 U, EDL=0.800		pg/L	
5249407	CXU	Spiked Blank	C13-2,44'-TriCB-(28)	2017/11/05		75	%	40 - 125
			C13-22'33'44'55'6-NonaCB-(206)	2017/11/05		93	%	30 - 140
			C13-22'33'44'5-HeptaCB-(170)	2017/11/05		100	%	30 - 140
			C13-22'33'455'66'-NonaCB-(208)	2017/11/05		95	%	30 - 140
			C13-22'33'55'66'-OctaCB-(202)	2017/11/05		106	%	30 - 140
			C13-22'33'55'6-HeptaCB-(178)	2017/11/05		102	%	40 - 125
			C13-22'344'55'-HeptaCB-(180)	2017/11/05		103	%	30 - 140
			C13-22'34'566'-HeptaCB-(188)	2017/11/05		102	%	30 - 140
			C13-22'44'66'-HexaCB-(155)	2017/11/05		84	%	30 - 140
			C13-22'466'-PentaCB-(104)	2017/11/05		77	%	30 - 140
			C13-22'66'-TetraCB-(54)	2017/11/05		67	%	30 - 140
			C13-22'6-TriCB-(19)	2017/11/05		66	%	30 - 140

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			C13-22'-DiCB-(4)	2017/11/05		54	%	30 - 140
			C13-233'44'55'6-OctaCB-(205)	2017/11/05		98	%	30 - 140
			C13-233'44'55'-HeptaCB-(189)	2017/11/05		96	%	30 - 140
			C13-233'44'-PentaCB-(105)	2017/11/05		93	%	30 - 140
			C13-233'55'-PentaCB-(111)	2017/11/05		91	%	40 - 125
			C13-23'44'55'-HexaCB-(167)	2017/11/05		88	%	30 - 140
			C13-2344'5-PentaCB-(114)	2017/11/05		90	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2017/11/05		91	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2017/11/05		92	%	30 - 140
			C13-2-MonoCB-(1)	2017/11/05		52	%	15 - 140
			C13-33'44'55'-HexaCB-(169)	2017/11/05		61	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2017/11/05		90	%	30 - 140
			C13-33'44'-TetraCB-(77)	2017/11/05		90	%	30 - 140
			C13-344'5-TetraCB-(81)	2017/11/05		89	%	30 - 140
			C13-344'-TriCB-(37)	2017/11/05		79	%	30 - 140
			C13-44'-DiCB-(15)	2017/11/05		67	%	30 - 140
			C13-4-MonoCB-(3)	2017/11/05		52	%	15 - 140
			C13-DecaCB-(209)	2017/11/05		92	%	30 - 140
			C13-HexaCB-(156)+(157)	2017/11/05		94	%	30 - 140
			2-MonoCB-(1)	2017/11/05		87	%	50 - 150
			4-MonoCB-(3)	2017/11/05		86	%	50 - 150
			22'-DiCB-(4)	2017/11/05		100	%	50 - 150
			4,4'-DiCB-(15)	2017/11/05		91	%	50 - 150
			22'6-TriCB-(19)	2017/11/05		91	%	50 - 150
			235-TriCB-(23)	2017/11/05		83	%	50 - 150
			23'5'-TriCB-(34)	2017/11/05		70	%	50 - 150
			344'-TriCB-(37)	2017/11/05		94	%	50 - 150
			22'66'-TetraCB-(54)	2017/11/05		98	%	50 - 150
			33'44'-TetraCB-(77)	2017/11/05		89	%	50 - 150
			344'5-TetraCB-(81)	2017/11/05		90	%	50 - 150
			PentaCB-(90)+(101)+(113)	2017/11/05		86	%	N/A
			22'466'-PentaCB-(104)	2017/11/05		103	%	50 - 150
			233'44'-PentaCB-(105)	2017/11/05		92	%	50 - 150
			2344'5-PentaCB-(114)	2017/11/05		92	%	50 - 150
			23'44'5-PentaCB-(118)	2017/11/05		93	%	50 - 150
			23'44'5'-PentaCB-(123)	2017/11/05		93	%	50 - 150
			33'44'5-PentaCB-(126)	2017/11/05		92	%	50 - 150
			HexaCB-(128)+(166)	2017/11/05		81	%	N/A
			22'44'66'-HexaCB-(155)	2017/11/05		104	%	50 - 150
			HexaCB-(156)+(157)	2017/11/05		93	%	50 - 150
			23'44'55'-HexaCB-(167)	2017/11/05		98	%	50 - 150
			33'44'55'-HexaCB-(169)	2017/11/05		99	%	50 - 150
			22'33'44'5-HeptaCB-(170)	2017/11/05		101	%	50 - 150
			HeptaCB-(180)+(193)	2017/11/05		79	%	50 - 150
			22'344'56'-HeptaCB-(182)	2017/11/05		94	%	50 - 150
			22'34'55'6-HeptaCB-(187)	2017/11/05		95	%	50 - 150
			22'34'566'-HeptaCB-(188)	2017/11/05		97	%	50 - 150
			233'44'55'-HeptaCB-(189)	2017/11/05		93	%	50 - 150
			22'33'55'66'-OctaCB-(202)	2017/11/05		96	%	50 - 150
			233'44'55'6-OctaCB-(205)	2017/11/05		99	%	50 - 150
			22'33'44'55'6-NonaCB-(206)	2017/11/05		94	%	50 - 150
			22'33'455'66'-NonaCB-(208)	2017/11/05		98	%	50 - 150
			DecaCB-(209)	2017/11/05		97	%	50 - 150
5249407	CXU	Spiked Blank DUP	C13-2,44'-TriCB-(28)	2017/11/05		65	%	40 - 125

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			C13-22'33'44'55'6-NonaCB-(206)	2017/11/05		80	%	30 - 140
			C13-22'33'44'5-HeptaCB-(170)	2017/11/05		135	%	30 - 140
			C13-22'33'455'66'-NonaCB-(208)	2017/11/05		109	%	30 - 140
			C13-22'33'55'66'-OctaCB-(202)	2017/11/05		162 (1)	%	30 - 140
			C13-22'33'55'6-HeptaCB-(178)	2017/11/05		101	%	40 - 125
			C13-22'344'55'-HeptaCB-(180)	2017/11/05		141 (2)	%	30 - 140
			C13-22'34'566'-HeptaCB-(188)	2017/11/05		106	%	30 - 140
			C13-22'44'66'-HexaCB-(155)	2017/11/05		89	%	30 - 140
			C13-22'466'-PentaCB-(104)	2017/11/05		66	%	30 - 140
			C13-22'66'-TetraCB-(54)	2017/11/05		50	%	30 - 140
			C13-22'6-TriCB-(19)	2017/11/05		50	%	30 - 140
			C13-22'-DiCB-(4)	2017/11/05		41	%	30 - 140
			C13-233'44'55'6-OctaCB-(205)	2017/11/05		99	%	30 - 140
			C13-233'44'55'-HeptaCB-(189)	2017/11/05		109	%	30 - 140
			C13-233'44'-PentaCB-(105)	2017/11/05		94	%	30 - 140
			C13-233'55'-PentaCB-(111)	2017/11/05		91	%	40 - 125
			C13-23'44'55'-HexaCB-(167)	2017/11/05		88	%	30 - 140
			C13-2344'5-PentaCB-(114)	2017/11/05		91	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2017/11/05		92	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2017/11/05		92	%	30 - 140
			C13-2-MonoCB-(1)	2017/11/05		40	%	15 - 140
			C13-33'44'55'-HexaCB-(169)	2017/11/05		60	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2017/11/05		88	%	30 - 140
			C13-33'44'-TetraCB-(77)	2017/11/05		93	%	30 - 140
			C13-344'5-TetraCB-(81)	2017/11/05		90	%	30 - 140
			C13-344'-TriCB-(37)	2017/11/05		73	%	30 - 140
			C13-44'-DiCB-(15)	2017/11/05		52	%	30 - 140
			C13-4-MonoCB-(3)	2017/11/05		41	%	15 - 140
			C13-DecaCB-(209)	2017/11/05		71	%	30 - 140
			C13-HexaCB-(156)+(157)	2017/11/05		86	%	30 - 140
			2-MonoCB-(1)	2017/11/05		86	%	50 - 150
			4-MonoCB-(3)	2017/11/05		85	%	50 - 150
			22'-DiCB-(4)	2017/11/05		107	%	50 - 150
			4,4'-DiCB-(15)	2017/11/05		93	%	50 - 150
			22'6-TriCB-(19)	2017/11/05		89	%	50 - 150
			235-TriCB-(23)	2017/11/05		78	%	50 - 150
			23'5'-TriCB-(34)	2017/11/05		69	%	50 - 150
			344'-TriCB-(37)	2017/11/05		94	%	50 - 150
			22'66'-TetraCB-(54)	2017/11/05		100	%	50 - 150
			33'44'-TetraCB-(77)	2017/11/05		90	%	50 - 150
			344'5-TetraCB-(81)	2017/11/05		89	%	50 - 150
			PentaCB-(90)+(101)+(113)	2017/11/05		86	%	N/A
			22'466'-PentaCB-(104)	2017/11/05		108	%	50 - 150
			233'44'-PentaCB-(105)	2017/11/05		94	%	50 - 150
			2344'5-PentaCB-(114)	2017/11/05		94	%	50 - 150
			23'44'5-PentaCB-(118)	2017/11/05		95	%	50 - 150
			23'44'5'-PentaCB-(123)	2017/11/05		94	%	50 - 150
			33'44'5-PentaCB-(126)	2017/11/05		94	%	50 - 150
			HexaCB-(128)+(166)	2017/11/05		86	%	N/A
			22'44'66'-HexaCB-(155)	2017/11/05		101	%	50 - 150
			HexaCB-(156)+(157)	2017/11/05		97	%	50 - 150
			23'44'55'-HexaCB-(167)	2017/11/05		101	%	50 - 150
			33'44'55'-HexaCB-(169)	2017/11/05		99	%	50 - 150
			22'33'44'5-HeptaCB-(170)	2017/11/05		103	%	50 - 150

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			HeptaCB-(180)+(193)	2017/11/05		84	%	50 - 150
			22'344'56'-HeptaCB-(182)	2017/11/05		110	%	50 - 150
			22'34'55'6-HeptaCB-(187)	2017/11/05		109	%	50 - 150
			22'34'566'-HeptaCB-(188)	2017/11/05		99	%	50 - 150
			233'44'55'-HeptaCB-(189)	2017/11/05		99	%	50 - 150
			22'33'55'66'-OctaCB-(202)	2017/11/05		94	%	50 - 150
			233'44'55'6-OctaCB-(205)	2017/11/05		100	%	50 - 150
			22'33'44'55'6-NonaCB-(206)	2017/11/05		105	%	50 - 150
			22'33'455'66'-NonaCB-(208)	2017/11/05		98	%	50 - 150
			DecaCB-(209)	2017/11/05		102	%	50 - 150
5249407	CXU	RPD	2-MonoCB-(1)	2017/11/05	1.2		%	30
			4-MonoCB-(3)	2017/11/05	1.2		%	30
			22'-DiCB-(4)	2017/11/05	6.8		%	30
			4,4'-DiCB-(15)	2017/11/05	2.2		%	30
			22'6-TriCB-(19)	2017/11/05	2.2		%	30
			235-TriCB-(23)	2017/11/05	6.2		%	30
			23'5'-TriCB-(34)	2017/11/05	1.4		%	30
			344'-TriCB-(37)	2017/11/05	0		%	30
			22'66'-TetraCB-(54)	2017/11/05	2.0		%	30
			33'44'-TetraCB-(77)	2017/11/05	1.1		%	30
			344'5-TetraCB-(81)	2017/11/05	1.1		%	30
			PentaCB-(90)+(101)+(113)	2017/11/05	0		%	30
			22'466'-PentaCB-(104)	2017/11/05	4.7		%	30
			233'44'-PentaCB-(105)	2017/11/05	2.2		%	30
			2344'5-PentaCB-(114)	2017/11/05	2.2		%	30
			23'44'5-PentaCB-(118)	2017/11/05	2.1		%	30
			23'44'5'-PentaCB-(123)	2017/11/05	1.1		%	30
			33'44'5-PentaCB-(126)	2017/11/05	2.2		%	30
			HexaCB-(128)+(166)	2017/11/05	6.0		%	30
			22'44'66'-HexaCB-(155)	2017/11/05	2.9		%	30
			HexaCB-(156)+(157)	2017/11/05	4.2		%	30
			23'44'55'-HexaCB-(167)	2017/11/05	3.0		%	30
			33'44'55'-HexaCB-(169)	2017/11/05	0		%	30
			22'33'44'5-HeptaCB-(170)	2017/11/05	2.0		%	30
			HeptaCB-(180)+(193)	2017/11/05	6.1		%	30
			22'344'56'-HeptaCB-(182)	2017/11/05	16		%	30
			22'34'55'6-HeptaCB-(187)	2017/11/05	14		%	30
			22'34'566'-HeptaCB-(188)	2017/11/05	2.0		%	30
			233'44'55'-HeptaCB-(189)	2017/11/05	6.3		%	30
			22'33'55'66'-OctaCB-(202)	2017/11/05	2.1		%	30
			233'44'55'6-OctaCB-(205)	2017/11/05	1.0		%	30
			22'33'44'55'6-NonaCB-(206)	2017/11/05	11		%	30
			22'33'455'66'-NonaCB-(208)	2017/11/05	0		%	30
			DecaCB-(209)	2017/11/05	5.0		%	30
5249407	CXU	Method Blank	C13-2,44'-TriCB-(28)	2017/11/04		68	%	40 - 125
			C13-22'33'44'55'6-NonaCB-(206)	2017/11/04		82	%	30 - 140
			C13-22'33'44'5-HeptaCB-(170)	2017/11/04		147 (2)		30 - 140
			C13-22'33'455'66'-NonaCB-(208)	2017/11/04		123	%	30 - 140
			C13-22'33'55'66'-OctaCB-(202)	2017/11/04		203 (3)		30 - 140
			C13-22'33'55'6-HeptaCB-(178)	2017/11/04		106	%	40 - 125
			C13-22'344'55'-HeptaCB-(180)	2017/11/04		169 (3)		30 - 140
			C13-22'34'566'-HeptaCB-(188)	2017/11/04		119	%	30 - 140
			C13-22'44'66'-HexaCB-(155)	2017/11/04		111	%	30 - 140
			C13-22'466'-PentaCB-(104)	2017/11/04		78	%	30 - 140

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			C13-22'66'-TetraCB-(54)	2017/11/04		55	%	30 - 140
			C13-22'6-TriCB-(19)	2017/11/04		52	%	30 - 140
			C13-22'-DiCB-(4)	2017/11/04		38	%	30 - 140
			C13-233'44'55'6-OctaCB-(205)	2017/11/04		100	%	30 - 140
			C13-233'44'55'-HeptaCB-(189)	2017/11/04		121	%	30 - 140
			C13-233'44'-PentaCB-(105)	2017/11/04		93	%	30 - 140
			C13-233'55'-PentaCB-(111)	2017/11/04		93	%	40 - 125
			C13-23'44'55'-HexaCB-(167)	2017/11/04		87	%	30 - 140
			C13-2344'5-PentaCB-(114)	2017/11/04		96	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2017/11/04		98	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2017/11/04		97	%	30 - 140
			C13-2-MonoCB-(1)	2017/11/04		36	%	15 - 140
			C13-33'44'55'-HexaCB-(169)	2017/11/04		45	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2017/11/04		81	%	30 - 140
			C13-33'44'-TetraCB-(77)	2017/11/04		91	%	30 - 140
			C13-344'5-TetraCB-(81)	2017/11/04		91	%	30 - 140
			C13-344'-TriCB-(37)	2017/11/04		80	%	30 - 140
			C13-44'-DiCB-(15)	2017/11/04		54	%	30 - 140
			C13-4-MonoCB-(3)	2017/11/04		37	%	15 - 140
			C13-DecaCB-(209)	2017/11/04		77	%	30 - 140
			C13-HexaCB-(156)+(157)	2017/11/04		83	%	30 - 140
			2-MonoCB-(1)	2017/11/04	0.0021 U, EDL=0.0021		ng/L	
			3-MonoCB-(2)	2017/11/04	0.0020 U, EDL=0.0020		ng/L	
			4-MonoCB-(3)	2017/11/04	0.0021 U, EDL=0.0021		ng/L	
			22'-DiCB-(4)	2017/11/04	0.033 U, EDL=0.033		ng/L	
			2,3-DiCB-(5)	2017/11/04	0.0095 U, EDL=0.0095		ng/L	
			2,3'-DiCB-(6)	2017/11/04	0.0074 U, EDL=0.0074		ng/L	
			2,4-DiCB-(7)	2017/11/04	0.0077 U, EDL=0.0077		ng/L	
			2,4'-DiCB-(8)	2017/11/04	0.0088 U, EDL=0.0088 (4)		ng/L	
			2,5-DiCB-(9)	2017/11/04	0.0077 U, EDL=0.0077		ng/L	
			2,6-DiCB-(10)	2017/11/04	0.032 U, EDL=0.032		ng/L	
			3,3'-DiCB-(11)	2017/11/04	0.0476 J, EDL=0.0078		ng/L	
			DiCB-(12)+(13)	2017/11/04	0.0081 U, EDL=0.0081		ng/L	
			3,5-DiCB-(14)	2017/11/04	0.0077 U, EDL=0.0077		ng/L	
			4,4'-DiCB-(15)	2017/11/04	0.011 U, EDL=0.011		ng/L	
			22'3-TriCB-(16)	2017/11/04	0.0083 U, EDL=0.0083		ng/L	
			22'4-TriCB-(17)	2017/11/04	0.0074 U, EDL=0.0074		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			TriCB-(18)+(30)	2017/11/04	0.0059 U, EDL=0.0059		ng/L	
			22'6-TriCB-(19)	2017/11/04	0.0054 U, EDL=0.0054		ng/L	
			TriCB-(20) + (28)	2017/11/04	0.0063 J, EDL=0.0027		ng/L	
			TriCB-(21)+(33)	2017/11/04	0.0030 U, EDL=0.0030 (4)		ng/L	
			234'-TriCB-(22)	2017/11/04	0.0028 U, EDL=0.0028		ng/L	
			235-TriCB-(23)	2017/11/04	0.0029 U, EDL=0.0029		ng/L	
			236-TriCB-(24)	2017/11/04	0.0058 U, EDL=0.0058		ng/L	
			23'4-TriCB-(25)	2017/11/04	0.0027 U, EDL=0.0027		ng/L	
			TriCB-(26)+(29)	2017/11/04	0.0026 U, EDL=0.0026		ng/L	
			23'6-TriCB-(27)	2017/11/04	0.0048 U, EDL=0.0048		ng/L	
			24'5-TriCB-(31)	2017/11/04	0.0044 J, EDL=0.0025		ng/L	
			24'6-TriCB-(32)	2017/11/04	0.0047 U, EDL=0.0047		ng/L	
			23'5'-TriCB-(34)	2017/11/04	0.0027 U, EDL=0.0027		ng/L	
			33'4-TriCB-(35)	2017/11/04	0.0027 U, EDL=0.0027		ng/L	
			33'5-TriCB-(36)	2017/11/04	0.0023 U, EDL=0.0023		ng/L	
			344'-TriCB-(37)	2017/11/04	0.0041 U, EDL=0.0041		ng/L	
			345-TriCB-(38)	2017/11/04	0.0027 U, EDL=0.0027		ng/L	
			34'5-TriCB-(39)	2017/11/04	0.0026 U, EDL=0.0026		ng/L	
			TetraCB-(40)+(41)+(71)	2017/11/04	0.0076 U, EDL=0.0076		ng/L	
			22'34'-TetraCB-(42)	2017/11/04	0.0094 U, EDL=0.0094		ng/L	
			22'35-TetraCB-(43)	2017/11/04	0.011 U, EDL=0.011		ng/L	
			TetraCB-(44)+(47)+(65)	2017/11/04	0.0106 J, EDL=0.0071		ng/L	
			TetraCB-(45)+(51)	2017/11/04	0.0076 U, EDL=0.0076		ng/L	
			22'36'-TetraCB-(46)	2017/11/04	0.0090 U, EDL=0.0090		ng/L	
			22'45-TetraCB-(48)	2017/11/04	0.0078 U, EDL=0.0078		ng/L	
			TetraCB-(49)+TetraCB-(69)	2017/11/04	0.0067 U, EDL=0.0067		ng/L	
			TetraCB-(50)+(53)	2017/11/04	0.0073 U, EDL=0.0073		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'55'-TetraCB-(52)	2017/11/04	0.0070 U, EDL=0.0070		ng/L	
			22'66'-TetraCB-(54)	2017/11/04	0.0066 U, EDL=0.0066		ng/L	
			233'4-TetraCB-(55)	2017/11/04	0.0031 U, EDL=0.0031		ng/L	
			233'4'-Tetra CB(56)	2017/11/04	0.0027 U, EDL=0.0027		ng/L	
			233'5-TetraCB-(57)	2017/11/04	0.0026 U, EDL=0.0026		ng/L	
			233'5'-TetraCB-(58)	2017/11/04	0.0029 U, EDL=0.0029		ng/L	
			TetraCB-(59)+(62)+(75)	2017/11/04	0.0056 U, EDL=0.0056		ng/L	
			2344'-TetraCB -(60)	2017/11/04	0.0028 U, EDL=0.0028		ng/L	
			TetraCB-(61)+(70)+(74)+(76)	2017/11/04	0.0050 J, EDL=0.0028		ng/L	
			234'5-TetraCB-(63)	2017/11/04	0.0026 U, EDL=0.0026		ng/L	
			234'6-TetraCB-(64)	2017/11/04	0.0063 U, EDL=0.0063		ng/L	
			23'44'-TetraCB-(66)	2017/11/04	0.0025 U, EDL=0.0025		ng/L	
			23'45-TetraCB-(67)	2017/11/04	0.0024 U, EDL=0.0024		ng/L	
			23'45'-TetraCB-(68)	2017/11/04	0.0026 U, EDL=0.0026		ng/L	
			23'55'-TetraCB-(72)	2017/11/04	0.0026 U, EDL=0.0026		ng/L	
			23'5'6-TetraCB-(73)	2017/11/04	0.0054 U, EDL=0.0054		ng/L	
			33'44'-TetraCB-(77)	2017/11/04	0.0031 U, EDL=0.0031		ng/L	
			33'45-TetraCB-(78)	2017/11/04	0.0027 U, EDL=0.0027		ng/L	
			33'45'-TetraCB(79)	2017/11/04	0.0023 U, EDL=0.0023		ng/L	
			33'55'-TetraCB-(80)	2017/11/04	0.0024 U, EDL=0.0024		ng/L	
			344'5-TetraCB-(81)	2017/11/04	0.0031 U, EDL=0.0031		ng/L	
			22'33'4-PentaCB-(82)	2017/11/04	0.0047 U, EDL=0.0047		ng/L	
			PentaCB-(83)+(99)	2017/11/04	0.0044 U, EDL=0.0044		ng/L	
			22'33'6-PentaCB-(84)	2017/11/04	0.0047 U, EDL=0.0047		ng/L	
			PentaCB-(85)+(116)+(117)	2017/11/04	0.0034 U, EDL=0.0034		ng/L	
			PentaCB-(86)(87)(97)(109)(119)(125)	2017/11/04	0.0035 U, EDL=0.0035		ng/L	
			PentaCB-(88)+(91)	2017/11/04	0.0040 U, EDL=0.0040		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'346'-PentaCB-(89)	2017/11/04	0.0043 U, EDL=0.0043		ng/L	
			PentaCB-(90)+(101)+(113)	2017/11/04	0.0036 U, EDL=0.0036		ng/L	
			22'355'-PentaCB-(92)	2017/11/04	0.0042 U, EDL=0.0042		ng/L	
			PentaCB-(93)+(98)+(100)+(102)	2017/11/04	0.0040 U, EDL=0.0040		ng/L	
			22'356'-PentaCB-(94)	2017/11/04	0.0045 U, EDL=0.0045		ng/L	
			22'35'6-PentaCB-(95)	2017/11/04	0.0039 U, EDL=0.0039		ng/L	
			22'366'-PentaCB-(96)	2017/11/04	0.0014 U, EDL=0.0014		ng/L	
			22'45'6-PentaCB-(103)	2017/11/04	0.0035 U, EDL=0.0035		ng/L	
			22'466'-PentaCB-(104)	2017/11/04	0.0011 U, EDL=0.0011		ng/L	
			233'44'-PentaCB-(105)	2017/11/04	0.0020 U, EDL=0.0020		ng/L	
			233'45-PentaCB-(106)	2017/11/04	0.0017 U, EDL=0.0017		ng/L	
			233'4'5-PentaCB-(107)	2017/11/04	0.0016 U, EDL=0.0016		ng/L	
			PentaCB-(108)+(124)	2017/11/04	0.0017 U, EDL=0.0017		ng/L	
			PentaCB-(110)+(115)	2017/11/04	0.0037 U, EDL=0.0037 (4)		ng/L	
			233'55'-PentaCB-(111)	2017/11/04	0.0030 U, EDL=0.0030		ng/L	
			233'56-PentaCB-(112)	2017/11/04	0.0029 U, EDL=0.0029		ng/L	
			2344'5-PentaCB-(114)	2017/11/04	0.0019 U, EDL=0.0019		ng/L	
			23'44'5-PentaCB-(118)	2017/11/04	0.0019 U, EDL=0.0019		ng/L	
			23'455'-PentaCB-(120)	2017/11/04	0.0029 U, EDL=0.0029		ng/L	
			23'45'6-PentaCB-(121)	2017/11/04	0.0030 U, EDL=0.0030		ng/L	
			233'4'5'-PentaCB-(122)	2017/11/04	0.0018 U, EDL=0.0018		ng/L	
			23'44'5'-PentaCB-(123)	2017/11/04	0.0021 U, EDL=0.0021		ng/L	
			33'44'5-PentaCB-(126)	2017/11/04	0.0018 U, EDL=0.0018		ng/L	
			33'455'-PentaCB-(127)	2017/11/04	0.0016 U, EDL=0.0016		ng/L	
			HexaCB-(128)+(166)	2017/11/04	0.0065 U, EDL=0.0065		ng/L	
			HexaCB-(129)+(138)+(163)	2017/11/04	0.0071 U, EDL=0.0071		ng/L	
			22'33'45'-HexaCB-(130)	2017/11/04	0.0085 U, EDL=0.0085		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'33'46-HexaCB-(131)	2017/11/04	0.0092 U, EDL=0.0092		ng/L	
			22'33'46'-HexaCB-(132)	2017/11/04	0.0084 U, EDL=0.0084		ng/L	
			22'33'55'-HexaCB-(133)	2017/11/04	0.0076 U, EDL=0.0076		ng/L	
			HexaCB-(134)+(143)	2017/11/04	0.0083 U, EDL=0.0083		ng/L	
			HexaCB-(135)+(151)	2017/11/04	0.0049 U, EDL=0.0049		ng/L	
			22'33'66'-HexaCB-(136)	2017/11/04	0.0035 U, EDL=0.0035		ng/L	
			22'344'5-HexaCB-(137)	2017/11/04	0.0082 U, EDL=0.0082		ng/L	
			HexaCB-(139)+(140)	2017/11/04	0.0070 U, EDL=0.0070		ng/L	
			22'3455'-HexaCB-(141)	2017/11/04	0.0079 U, EDL=0.0079		ng/L	
			22'3456-HexaCB-(142)	2017/11/04	0.0080 U, EDL=0.0080		ng/L	
			22'345'6-HexaCB-(144)	2017/11/04	0.0049 U, EDL=0.0049		ng/L	
			22'3466'-HexaCB-(145)	2017/11/04	0.0037 U, EDL=0.0037		ng/L	
			22'34'55'-HexaCB-(146)	2017/11/04	0.0066 U, EDL=0.0066		ng/L	
			HexaCB-(147)+(149)	2017/11/04	0.0069 U, EDL=0.0069		ng/L	
			22'34'56'-HexaCB-(148)	2017/11/04	0.0048 U, EDL=0.0048		ng/L	
			22'34'66'-HexaCB-(150)	2017/11/04	0.0034 U, EDL=0.0034		ng/L	
			22'3566'-HexaCB-(152)	2017/11/04	0.0034 U, EDL=0.0034		ng/L	
			HexaCB-(153)+(168)	2017/11/04	0.0058 U, EDL=0.0058		ng/L	
			22'44'56'-HexaCB-(154)	2017/11/04	0.0044 U, EDL=0.0044		ng/L	
			22'44'66'-HexaCB-(155)	2017/11/04	0.0031 U, EDL=0.0031		ng/L	
			HexaCB-(156)+(157)	2017/11/04	0.0033 U, EDL=0.0033		ng/L	
			233'44'6-HexaCB-(158)	2017/11/04	0.0053 U, EDL=0.0053		ng/L	
			233'455'-HexaCB-(159)	2017/11/04	0.0028 U, EDL=0.0028		ng/L	
			233'456-HexaCB-(160)	2017/11/04	0.0059 U, EDL=0.0059		ng/L	
			233'45'6-HexaCB-(161)	2017/11/04	0.0057 U, EDL=0.0057		ng/L	
			233'4'55'-HexaCB-(162)	2017/11/04	0.0029 U, EDL=0.0029		ng/L	
			233'4'5'6-HexaCB-(164)	2017/11/04	0.0055 U, EDL=0.0055		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			233'55'6-HexaCB-(165)	2017/11/04	0.0061 U, EDL=0.0061		ng/L	
			23'44'55'-HexaCB-(167)	2017/11/04	0.0031 U, EDL=0.0031		ng/L	
			33'44'55'-HexaCB-(169)	2017/11/04	0.0034 U, EDL=0.0034		ng/L	
			22'33'44'5-HeptaCB-(170)	2017/11/04	0.0084 U, EDL=0.0084		ng/L	
			HeptaCB-(171)+(173)	2017/11/04	0.012 U, EDL=0.012		ng/L	
			22'33'455'-HeptaCB-(172)	2017/11/04	0.012 U, EDL=0.012		ng/L	
			22'33'456'-HeptaCB-(174)	2017/11/04	0.011 U, EDL=0.011		ng/L	
			22'33'45'6-HeptaCB-(175)	2017/11/04	0.0034 U, EDL=0.0034		ng/L	
			22'33'466'-HeptaCB-(176)	2017/11/04	0.0025 U, EDL=0.0025		ng/L	
			22'33'45'6'-HeptaCB-(177)	2017/11/04	0.012 U, EDL=0.012		ng/L	
			22'33'55'6-HeptaCB-(178)	2017/11/04	0.0036 U, EDL=0.0036		ng/L	
			22'33'566'-HeptaCB-(179)	2017/11/04	0.0024 U, EDL=0.0024		ng/L	
			HeptaCB-(180)+(193)	2017/11/04	0.0080 U, EDL=0.0080		ng/L	
			22'344'56-HeptaCB-(181)	2017/11/04	0.011 U, EDL=0.011		ng/L	
			22'344'56'-HeptaCB-(182)	2017/11/04	0.0035 U, EDL=0.0035		ng/L	
			22'344'5'6-HeptaCB-(183)	2017/11/04	0.010 U, EDL=0.010		ng/L	
			22'344'66'-HeptaCB-(184)	2017/11/04	0.0024 U, EDL=0.0024		ng/L	
			22'3455'6-HeptaCB-(185)	2017/11/04	0.012 U, EDL=0.012		ng/L	
			22'34566'-HeptaCB-(186)	2017/11/04	0.0027 U, EDL=0.0027		ng/L	
			22'34'55'6-HeptaCB-(187)	2017/11/04	0.0034 U, EDL=0.0034		ng/L	
			22'34'566'-HeptaCB-(188)	2017/11/04	0.0028 U, EDL=0.0028		ng/L	
			233'44'55'-HeptaCB-(189)	2017/11/04	0.0078 U, EDL=0.0078		ng/L	
			233'44'56-HeptaCB-(190)	2017/11/04	0.0085 U, EDL=0.0085		ng/L	
			233'44'5'6-HeptaCB-(191)	2017/11/04	0.0087 U, EDL=0.0087		ng/L	
			233'455'6-HeptaCB-(192)	2017/11/04	0.0095 U, EDL=0.0095		ng/L	
			22'33'44'55'-OctaCB-(194)	2017/11/04	0.0062 U, EDL=0.0062		ng/L	
			22'33'44'56-OctaCB-(195)	2017/11/04	0.0066 U, EDL=0.0066		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'33'44'56'-OctaCB-(196)	2017/11/04	0.0086 U, EDL=0.0086		ng/L	
			22'33'44'66'OctaCB-(197)	2017/11/04	0.0067 U, EDL=0.0067		ng/L	
			OctaCB-(198)+(199)	2017/11/04	0.0088 U, EDL=0.0088		ng/L	
			22'33'4566'-OctaCB-(200)	2017/11/04	0.0055 U, EDL=0.0055		ng/L	
			22'33'45'66'-OctaCB-(201)	2017/11/04	0.0059 U, EDL=0.0059		ng/L	
			22'33'55'66'-OctaCB-(202)	2017/11/04	0.0062 U, EDL=0.0062		ng/L	
			22'344'55'6-OctaCB-(203)	2017/11/04	0.0084 U, EDL=0.0084		ng/L	
			22'344'566'-OctaCB-(204)	2017/11/04	0.0060 U, EDL=0.0060		ng/L	
			233'44'55'6-OctaCB-(205)	2017/11/04	0.0058 U, EDL=0.0058		ng/L	
			22'33'44'55'6-NonaCB-(206)	2017/11/04	0.023 U, EDL=0.023		ng/L	
			22'33'44'566'-NonaCB-(207)	2017/11/04	0.019 U, EDL=0.019		ng/L	
			22'33'455'66'-NonaCB-(208)	2017/11/04	0.022 U, EDL=0.022		ng/L	
			DecaCB-(209)	2017/11/04	0.021 U, EDL=0.021		ng/L	
			Monochlorobiphenyl	2017/11/04	0.0021 U, EDL=0.0021		ng/L	
			Dichlorobiphenyl	2017/11/04	0.048, EDL=0.033		ng/L	
			Trichlorobiphenyl	2017/11/04	0.0107, EDL=0.0083		ng/L	
			Tetrachlorobiphenyl	2017/11/04	0.016, EDL=0.011		ng/L	
			Pentachlorobiphenyl	2017/11/04	0.0047 U, EDL=0.0047		ng/L	
			Hexachlorobiphenyl	2017/11/04	0.0092 U, EDL=0.0092		ng/L	
			Heptachlorobiphenyl	2017/11/04	0.012 U, EDL=0.012		ng/L	
			Octachlorobiphenyl	2017/11/04	0.0088 U, EDL=0.0088		ng/L	
			Nonachlorobiphenyl	2017/11/04	0.023 U, EDL=0.023		ng/L	
			Decachlorobiphenyl	2017/11/04	0.021 U, EDL=0.021		ng/L	

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Maxxam Job #: B7O0267
Report Date: 2017/12/04

Apex Laboratories
Client Project #: A7J0830
Sampler Initials: XX

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Total PCB	2017/11/04	0.0739		ng/L	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

(1) I.S. PCB202L reocvery is higher than method acceptable criteria (25-150%). Native PCB 202 recovery is within method acceptable criteria.Result repoted as is.

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(3) I.S. recovery is higher than method acceptable criteria (25-150%). All related native congener concentrations are less than EDLs.

(4) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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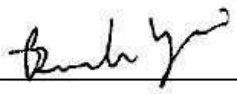
Maxxam Job #: B7O0267
Report Date: 2017/12/04

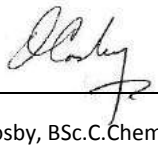
Apex Laboratories
Client Project #: A7J0830
Sampler Initials: XX

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Branko Vrzic, A.SC.T., Senior Analyst, HRMS Services



Owen Cosby, BSc.C.Chem, Supervisor, HRMS Services

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WORK ORDER NUMBER: 17-10-2053

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Analytical Report For

Client: APEX Laboratories, LLC

Client Project Name: A7J0830

Attention: Philip Nerenberg
12232 SW Garden Place
Portland, OR 97223-8246

Approved for release on 11/08/2017 by:
Lori Thompson
Project Manager

ResultLink

Email your PM

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Work Order Narrative

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 10/27/17. They were assigned to Work Order 17-10-2053.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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Sample Summary

Client:	APEX Laboratories, LLC 12232 SW Garden Place Portland, OR 97223-8246	Work Order:	17-10-2053
		Project Name:	A7J0830
		PO Number:	
		Date/Time Received:	10/27/17 07:30
		Number of Containers:	2
Attn:	Philip Nerenberg		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
OF-2	17-10-2053-1	10/25/17 11:30	2	Aqueous

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Analytical Report

APEX Laboratories, LLC
12232 SW Garden Place
Portland, OR 97223-8246

Project: A7J0830

Date Received: 10/27/17
Work Order: 17-10-2053
Preparation: EPA 3510C
Method: Organotins by Krone et al.
Units: ng/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OF-2	**17-10-2053-1-B**	**10/25/17 11:30**	**Aqueous**	**GC/MS Y**	**11/01/17**	**11/07/17 15:24**	**171101L02**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	2.9	1.7	1.00	
Monobutyltin	ND	2.9	2.3	1.00	
Tetrabutyltin	ND	2.9	1.9	1.00	
Tributyltin	ND	2.9	1.3	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	81	19-121	

Method Blank	099-07-035-467	N/A	Aqueous	GC/MS Y	11/01/17	11/07/17 14:36	171101L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	3.0	1.8	1.00	
Monobutyltin	ND	3.0	2.4	1.00	
Tetrabutyltin	ND	3.0	1.9	1.00	
Tributyltin	ND	3.0	1.4	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	66	19-121	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - LCS/LCSD

APEX Laboratories, LLC
12232 SW Garden Place
Portland, OR 97223-8246

Project: A7J0830

Date Received: 10/27/17
Work Order: 17-10-2053
Preparation: EPA 3510C
Method: Organotins by Krone et al.

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-035-467	**LCS**	**Aqueous**	**GC/MS Y**	**11/01/17**	**11/07/17 14:52**	**171101L02**
099-07-035-467	**LCSD**	**Aqueous**	**GC/MS Y**	**11/01/17**	**11/07/17 15:08**	**171101L02**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	200.0	163.1	82	151.2	76	35-131	8	0-20	
Tributyltin	200.0	113.0	56	109.6	55	50-120	3	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 17-10-2053 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
Organotins by Krone et al.	EPA 3510C	907	GC/MS Y	1

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Glossary of Terms and Qualifiers

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Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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 OK PN

SUBCONTRACT ORDER

Apex Laboratories

A7J0830

17-10-2053

SENDING LABORATORY:

Apex Laboratories
12232 S.W. Garden Place
Tigard, OR 97223
Phone: (503) 718-2323
Fax: (503) 718-0333
Project Manager: Philip Nerenberg

RECEIVING LABORATORY:

Eurofins_CalScience
7440 Lincoln Way
Garden Grove, CA 92841-1427
Phone :(714) 895-5494
Fax: (714) 894-7501

Sample Name: OF-2 (1) **Water** **Sampled:** **10/25/17** ~~**00:00**~~ 1130 (A7J0830-01)

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub)	11/07/17 17:00	11/08/17 00:00	
Containers Supplied:			
(V)1 L Amber Glass - Non Preserved			
(W)1 L Amber Glass - Non Preserved			

Standard TAT

Released By	Date	Received By	Date
[signature]	10/26/17	Fed Ex (Shipper)	
Fed Ex (Shipper)	10/27/17	Wabah ECI	10/27/17 0930

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(2053)

ORIGIN ID:BNOA (503) 718-2323
SAMPLE CONTROL
APEX LABS
12232 SW GARDEN PLACE

TIGARD, OR 97223
UNITED STATES US

SHIP DATE: 26OCT17
ACTWGT: 20.00 LB
CAD: 4716258/INET3920

BILL SENDER

TO DANIELLE GONSMAN
CALSCIENCE
7440 LINCOLN WAY

GARDEN GROVE CA 92841
(714) 895-5494 REF:
INV:
PO: DEPT:

549J4/84FC/104C

FedEx Express

FRI - 27 OCT 8:00A
FIRST OVERNIGHT

TRK# 0201 7705 9870 9656

W1 APVA

92841
CA-US SNA

FedEx Ship Manager - Print Your Label(s)

10/26/2017

After printing this label:

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WORK ORDER NUMBER: 17-10-2053

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Apex Lab

DATE: 10/27/2017

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: -0.4°C); Temperature (w/o CF): 2.7 °C (w/ CF): 2.3 °C; ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter Checked by: AZ

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: AZ

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: ZN

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☐	☐	☑
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☑	☐	☐
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	☐	☐	☑
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOAh ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB ☐ 125PB**znna** (pH__9)

☐ 250AGB ☐ 250CGB ☐ 250CGB**s** (pH__2) ☐ 250PB ☐ 250PB**n** (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s** (pH__2) ☐ 500PB

☑ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** (pH__2) ☐ 1AGB**s** (O&G) ☐ 1PB ☐ 1PB**na** (pH__12) ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (___) ☐ EnCores® (___) ☐ TerraCores® (___) ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, Labeled/Checked by: ZN

s = H_2SO_4, **u** = ultra-pure, **x** = Na_2SO_3+$NaHSO_4.H_2O$, **znna** = Zn $(CH_3CO_2)_2$ + NaOH Reviewed by: LCS

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Basin 2 Storm Water Sampling and Analysis Data
January 12, 2018 Sampling Event, Burgard Industrial Park
Source Control Project, Portland, Oregon
Rieke Consulting Services, LLC, 2018

RCS RIEKE CONSULTING SERVICES, LLC

Basin 2 Storm Water Sampling and Analysis Data January 12, 2018 Sampling Event Burgard Industrial Park Source Control Project Portland, Oregon

TO: Jim Orr/Oregon DEQ

CC: Ray Hoy/Oregon DEQ
Eva DeMaria/EPA
Sean Sheldrake/EPA
Mat Cusma/Schnitzer
Mark Bartee/Schnitzer

FROM: Ross Rieke/RCS

DATE: February 22, 2018

This memorandum presents the results of the January 12, 2018 storm water sampling and analysis performed at Basin 2 at the Burgard Industrial Park (BIP) in Portland, Oregon (Figure 1, Figure 2). The storm water sampling and analysis was performed in general accordance with the September 16, 2015, *Phase 2 Basin 2 Storm Water Monitoring Plan* (SSAP). DEQ approved the monitoring plan in a June 29, 2017 email.

Basin 2 Description

Basin 2 consists of an approximately 54-acre area on the western and southwestern portion of the BIP. Figure 3 shows the approximate boundaries of Basin 2 and the storm water management infrastructure. The Basin 2 area is owned and operated by Schnitzer Steel Industries (SSI) and the primary activities in Basin 2 are the receipt, staging, processing, and loading of scrap metal.

Storm water runoff from Basin 2 is currently collected through a series of catch basins and conveyed to a sump where the water is pumped through 150-micron screen filters to a one million-gallon storage tank (storm water tank). The storage tank allows some additional settling of the storm water, attenuates storm events, and is configured to allow collected storm water to be pumped, as needed, to a second one million-gallon storage tank (process water tank) which provides makeup water for the shredder cooling system. Excess storm water is periodically pumped from the storm water tank to a storm water treatment system which consists of:

- Electrocoagulation (EC) treatment system which coagulates fine particles, oxidizes metals, precipitates contaminants, and de-emulsifies emulsified oils;
- Clarification and filtration system where coagulated solids, fines, and heavy metal ions are removed; and
- Granular activated carbon (GAC) polishing filtration system.

The treated storm water is conveyed through a buried pipe to an existing 30-inch diameter steel outfall on the bank of the Willamette River (Outfall 2). This discharge is permitted and monitored under the facility's NPDES general storm water permit.

SSI has been making significant improvements to the original storm water system since they began operating on the Site and the current system is a result of recent improvements including:

- In 2009, five drainage basins were consolidated into Basin 2 and three in-line separators and screen micro-filters and the one million-gallon storm water storage tank were constructed.
- In 2012, four additional drainage basins were consolidated into Basin 2 and the associated filter and settling tank treatment system.
- In 2016, former Basin 1 along the southern portion of the SSI property was consolidated into Basin 2 and the EC/filtration/GAC treatment system was constructed.
- In September 2017, former Basin 19 was consolidated into Basin 2 resulting in essentially all captured storm water on the SSI site being treated in the EC/filtration/GAC treatment system prior to discharge. Abandonment of the former Basin 19 infrastructure is pending.

As noted on Figure 2, there are three areas on the SSI site within Basin 2 where storm water is captured and conveyed to the process water tank for use as shredder cooling makeup water. Storm water from these three areas does not flow to the Basin 2 storm water system.

Basin 2 Storm Water Sampling and Analysis

Storm Water Sample Collection

Basin 2 storm water sample was collected on January 12, 2018 at sampling spigot located immediately downstream of the GAC filter array (Figure 3).

Table 1 presents the rainfall conditions preceding and during the storm water sampling event. Given the nature of the storm water management infrastructure (see discussion above), storm water runoff accumulated in the storm water storage tank, and eventually treated in the EC/filtration/GAC treatment system, can include runoff from multiple rainfall events. The treated storm water sampled on January 12, 2018 consisted primarily of runoff generated during rainfall events between January 4, 2018 and January 12, 2018.

Storm Water Sample Analysis

The Basin 2 storm water samples were analyzed for the following:

- Aluminum, antimony, arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, silver, and zinc;
- Butyltins;
- PCB aroclors, homologs, and congeners;
- Pesticides;
- Dioxins/furans;
- Phthalates;
- Polycyclic aromatic hydrocarbons (PAHs);
- Total Petroleum Hydrocarbons (gasoline, diesel, and heavy oil); and
- Total suspended solids (TSS).

Table 2 presents the results of the Basin 2 storm water sample analyses. Copies of the analytical laboratory reports are provided in Appendix A. Review of the laboratory QA/QC results did not indicate any issues requiring corrective action. Table 2 also presents the result of previous storm water sampling and analysis in Basin 2.

None of the analytes exceeded their respective Portland Harbor surface water Cleanup Levels[1] except PCBs, dioxins, and arsenic. However, the PCB concentration was *less than three percent* of the typical Portland Harbor storm water PCB concentration[2]. The arsenic concentration was *less than 30 percent* of the typical Portland Harbor storm water arsenic concentration. The total dioxin concentration was *less than 0.3 percent* of the average total dioxin concentrations in the Basin 2 storm water samples collected prior to the installation of the EC/filtration/GAC treatment system.

Attachments:

Table 1 - Storm Water Sampling Event Rainfall Data, 1/12/2018 Sampling Event
Table 2 – Storm Water Sample Analytical Laboratory Results
Figure 1 – Site Location Map
Figure 2 – Burgard Industrial Park Site Plan
Figure 3 – Basin 2 Drainage Area and Storm Water Management Features
Appendix A – Analytical Laboratory Reports.

[1] Table 17 in January 2017 Portland Harbor Record of Decision

[2] October 2010 DEQ Guidance for Evaluating Stormwater Pathway at Upland Sites, Appendix E, Tool for Evaluating Stormwater Data, December 2015 update

Tables

Table 1
Storm Water Sampling Event Rainfall Data
1/12/2018 Sampling Event
Burgard Industrial Park Basin 2 (SSI Treatment Plant Discharge)

Date	Daily Total	Hourly Rain Fall (0.01 inches)																							
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
12/30/2017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/31/2017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/1/2018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/2/2018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/3/2018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/4/2018	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5	2	0	0	0	0	0
1/5/2018	41	0	2	1	2	1	3	0	0	18	2	1	0	6	0	0	0	0	0	0	0	0	1	2	2
1/6/2018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/7/2018	21	0	0	0	0	0	0	0	0	0	0	1	4	1	0	1	2	6	2	2	0	1	1	0	0
1/8/2018	13	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	8
1/9/2018	52	8	8	11	6	3	6	1	0	5	0	0	1	0	0	3	0	0	0	0	0	0	0	0	0
1/10/2018	8	0	0	0	1	0	2	1	1	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
1/11/2018	85	0	0	1	5	8	2	7	2	8	3	1	16	2	0	6	18	2	2	0	0	0	0	0	2
1/12/2018	8	7	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Data from Shipyard Rain Gage - 8900 N. Sever Road

Sampling Day

Table 2
Basin 2 Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park

Chemical	Portland Harbor SLV JSCS[1]	Portland Harbor SLV CL[2]	DEQ Appendix E "Typical PH Values"[3]	1/12/2018	10/25/2017	1/17/2011	11/24/2010	11/13/2010	6/28/2010
PAHs (ug/l)									
Acenaphthene	2.0E-01			3.7E-02 U	3.8E-02 U	9.4E-02 U	9.5E-02 J	1.9E-02 U	9.4E-03 U
Acenaphthylene	2.0E-01			3.7E-02 U	3.8E-02 U	9.4E-02 U	9.5E-02 J	3.7E-02 U	9.4E-03 U
Anthracene				3.7E-02 U	3.8E-02 U	1.2E-01 J	1.9E-01 J	1.6E-01	2.1E-02
Benzo(a)anthracene	1.8E-02	1.2E-03		3.7E-02 U	3.8E-02 U	7.4E-01	8.9E-01	4.4E-01	2.0E-02
Benzo(a)pyrene	1.8E-02	1.2E-04		5.6E-02 U	5.7E-02 U	4.8E-01	6.2E-01	3.6E-01	2.7E-02
Benzo(b)fluoranthene	1.8E-02	1.2E-03		5.6E-02 U	5.7E-02 U	1.1E+00	1.5E+00	8.8E-01	5.9E-02
Benzo(k)fluoranthene	1.8E-02	1.3E-03		5.6E-02 U	5.7E-02 U	1.1E+00	1.5E+00	8.8E-01	1.6E-02 U
Benzo(b+k)fluoranthene		1.2E-03							
Benzo(g,h,i)perylene	2.0E-01			3.7E-02 U	3.8E-02 U	4.8E-01	6.3E-01	2.9E-01	3.4E-02
Chrysene	1.8E-02	1.3E-03		3.7E-02 U	3.8E-02 U	1.2E+00	1.5E+00	7.5E-01	4.3E-02
Dibenzo(a,h)anthracene	1.8E-02	1.2E-04		3.7E-02 U	3.8E-02 U	1.1E-01 J	1.6E-01 J	8.1E-02	9.4E-03 U
Fluoranthene	2.0E-01			3.7E-02 U	3.8E-02 U	1.7E+00	1.9E+00	1.1E+00	3.6E-02
Fluorene	2.0E-01			3.7E-02 U	3.8E-02 U	9.4E-02 U	9.5E-03	3.7E-02 U	9.4E-03
Indeno(1,2,3-cd)pyrene	1.8E-02	1.2E-03		3.7E-02 U	3.8E-02 U	3.7E-01	5.5E-01	2.5E-01	2.4E-02
Naphthalene	2.0E-01	1.2E+01		7.5E-02 U	7.6E-02 U	1.9E-01 U	1.9E-01 J	3.7E-02 U	1.9E-02 U
Phenanthrene	2.0E-01			3.7E-02 U	3.8E-02 U	3.2E-01	2.3E-01	1.1E-01 U	1.9E-02 U
Pyrene	2.0E-01			3.7E-02 U	3.8E-02 U	2.2E+00	3.1E+00	2.0E+00	5.0E-02
Total Detected CPAHs (BaP TEF)		1.2E-04		0	0	9.2E-01	1.2E+00	6.9E-01	3.8E-02
Total Detected PAHs			1.5E+00	0	0	9.0E+00	1.2E+01	6.4E+00	3.2E-01
PCBs (ug/l)									
Aroclor 1016	9.6E-01			9.43E-03 U		9.5E-03 U	9.5E-03 J	9.4E-03 U	9.4E-03 U
Aroclor 1221	3.4E-02			9.43E-03 U		9.5E-03 U	9.5E-03 J	9.4E-03 U	9.4E-03 U
Aroclor 1232	3.4E-02			1.89E-02 U		9.5E-03 U	9.5E-03 J	9.4E-03 U	9.4E-03 U
Aroclor 1242	3.4E-02			9.43E-03 U		4.9E-01	6.0E-01	3.8E-01	9.4E-03 U
Aroclor 1248	3.4E-02			9.43E-03 U		9.5E-03 U	9.5E-03 J	9.4E-03 U	1.2E-01 J
Aroclor 1254	3.4E-02			9.43E-03 U		2.5E-01	4.3E-01	2.1E-01	7.5E-02 J
Aroclor 1260	3.4E-02			9.43E-03 U		1.9E-01	2.6E-01	9.4E-03 U	5.2E-02 J
Total Detected PCB aroclors	6.4E-05	6.4E-06	3.0E-01	0		9.4E-01	1.3E+00	5.9E-01	2.5E-01
PCB Congeners (ug/l)									
2,3-DiCB-(5)				1.9E-05 U	1.2E-05 U	4.2E-04	8.4E-05 J	8.4E-05 U	6.5E-06 U
2,3'-DiCB-(6)				6.2E-05 U	2.6E-05 J	7.1E-03	8.0E-03	8.3E-04	7.2E-05 J
2,4-DiCB-(7)				1.9E-05 U	9.5E-06 U	1.1E-03	1.4E-03	2.4E-04 U	1.4E-05 J
2,4'-DiCB-(8)				2.4E-04	6.7E-05 J	3.1E-02	3.5E-02	3.7E-03	3.2E-04
2,5-DiCB-(9)				1.8E-05 U	9.6E-06 U	2.1E-03	2.6E-03	3.4E-04	1.9E-05 U
2,6-DiCB-(10)				5.7E-05 U	2.6E-05 U	1.2E-03	7.1E-04	7.7E-04	3.1E-04
22'33'44'55'6-NonaCB-(206)				4.2E-05 U	8.3E-05 J	3.2E-03	4.2E-03	1.7E-03	4.1E-04
22'33'44'55'-OctaCB-(194)				5.0E-05 U	7.2E-05 U	3.9E-03	7.1E-03	2.4E-03	9.2E-04
22'33'44'566'-NonaCB-(207)				3.5E-05 U	1.1E-05 U	4.4E-04	8.0E-04	3.5E-04	5.1E-05 J
22'33'44'56-OctaCB-(195)				5.1E-05 U	3.1E-05 J	1.6E-03	2.7E-03	9.8E-04	3.3E-04
22'33'44'56'-OctaCB-(196)				5.1E-05 U	4.1E-05 U	2.8E-03	3.9E-03	1.5E-03	4.8E-04
22'33'44'5-HeptaCB-(170)				3.1E-05 U	1.2E-04	9.0E-03	1.4E-02	5.0E-03	1.7E-03
22'33'44'66'OctaCB-(197)				3.3E-05 U	9.5E-06 U	1.6E-04 U	2.2E-04	8.5E-05 U	3.4E-05 J
22'33'455'66'-NonaCB-(208)				4.2E-05 U	2.5E-05 J	1.0E-03	1.6E-03	6.8E-04	1.1E-04
22'33'455'-HeptaCB-(172)				5.0E-05 U	2.3E-05 J	1.4E-03	2.1E-03	7.9E-04	2.7E-04
22'33'4566'-OctaCB-(200)				3.4E-05 U	1.2E-05 J	7.5E-04	1.1E-03	4.2E-04	1.1E-04
22'33'45'66'-OctaCB-(201)				3.3E-05 U	1.3E-05 U	7.6E-04	1.1E-03	4.3E-04	1.2E-04
22'33'456'-HeptaCB-(174)				4.7E-05 U	1.3E-04	9.7E-03	1.4E-02	5.2E-03	2.0E-03
22'33'45'6-HeptaCB-(175)				1.9E-05 U	6.8E-06 U	5.7E-04	5.1E-04	2.0E-04	7.0E-05 J
22'33'45'6'-HeptaCB-(177)				4.8E-05 U	7.3E-05 J	5.1E-03	7.4E-03	2.6E-03	9.6E-04
22'33'45'-HexaCB-(130)				5.2E-05 U	4.3E-05 U	2.5E-03	3.1E-03	1.3E-03	3.5E-04
22'33'466'-HeptaCB-(176)				1.3E-05 U	1.3E-05 U	1.5E-03	1.7E-03	7.0E-04	2.2E-04
22'33'46-HexaCB-(131)				5.3E-05 U	1.3E-05 J	6.1E-04	7.5E-04	3.3E-04	8.6E-05 J
22'33'46'-HexaCB-(132)				8.5E-05 J	2.3E-04	1.6E-02	1.9E-02	7.9E-03	2.4E-03
22'33'4-PentaCB-(82)				2.7E-05 J	5.1E-05 J	5.1E-03	6.6E-03	2.8E-03	8.0E-04
22'33'55'66'-OctaCB-(202)				3.7E-05 U	2.5E-05 J	1.1E-03	1.5E-03	6.1E-04	1.9E-04
22'33'55'6-HeptaCB-(178)				2.0E-05 U	2.7E-05 J	2.0E-03	2.5E-03	9.3E-04	3.2E-04
22'33'55'-HexaCB-(133)				4.5E-05 U	9.7E-06 U	4.3E-04	5.4E-04	2.3E-04	6.8E-05 J
22'33'566'-HeptaCB-(179)				1.7E-05 J	4.9E-05 J	4.9E-03	5.4E-03	2.3E-03	7.1E-04
22'33'66'-HexaCB-(136)				3.1E-05 J	5.7E-05 J	7.3E-03	6.7E-03	2.7E-03	8.4E-04
22'33'6-PentaCB-(84)				6.7E-05 J	1.1E-04	1.2E-02	1.4E-02	6.0E-03	2.0E-03
22'344'55'6-OctaCB-(203)				4.9E-05 U	7.5E-05 J	3.6E-03	5.4E-03	2.1E-03	6.6E-04
22'344'566'-OctaCB-(204)				3.3E-05 U	8.5E-06 U	1.3E-05 U	6.1E-06 J	3.5E-06 U	2.3E-06 U
22'344'56-HeptaCB-(181)				4.7E-05 U	1.2E-05 U	2.1E-05 U	1.0E-04	6.7E-06 U	1.3E-05 J
22'344'56'-HeptaCB-(182)				1.9E-05 U	7.0E-06 U	1.4E-05 U	5.4E-06 U	2.7E-06 U	3.8E-06 J
22'344'5'6-HeptaCB-(183)				4.2E-05 U	9.1E-05 J	6.0E-03	8.8E-03	3.5E-03	1.1E-03
22'344'5-HexaCB-(137)				4.9E-05 U	4.5E-05 J	2.5E-03	2.9E-03	9.3E-04	2.8E-04
22'344'66'-HeptaCB-(184)				1.2E-05 U	4.9E-06 U	1.0E-05 U	4.0E-06 U	1.9E-06 U	1.4E-06 U
22'3455'6-HeptaCB-(185)				4.2E-05 U	1.2E-05 U	2.2E-05 U	1.9E-05 U	6.9E-06 U	4.3E-06 U
22'34'55'6-HeptaCB-(187)				4.9E-05 J	1.7E-04	1.4E-02	1.5E-02	6.1E-03	2.1E-03
22'3455'-HexaCB-(141)				4.5E-05 U	1.3E-04	8.6E-03	1.0E-02	4.5E-03	1.5E-03
22'34'55'-HexaCB-(146)				4.2E-05 U	8.4E-05 J	4.8E-03	6.0E-03	2.5E-03	7.7E-04
22'34566'-HeptaCB-(186)				1.4E-05 U	5.4E-06 U	1.0E-05 U	4.3E-06 U	2.2E-06 U	1.5E-06 U

Table 2
Basin 2 Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park

Chemical	Portland Harbor SLV JSCS[1]	Portland Harbor SLV CL[2]	DEQ Appendix E "Typical PH Values"[3]	1/12/2018	10/25/2017	1/17/2011	11/24/2010	11/13/2010	6/28/2010
22'34'566'-HeptaCB-(188)				1.6E-05 U	5.6E-06 U	1.0E-05 U	5.3E-06 U	2.2E-06 U	2.0E-06 U
22'3456-HexaCB-(142)				4.7E-05 U	1.0E-05 U	3.3E-05 U	6.3E-05 J	2.4E-05 U	4.5E-06 U
22'345'6-HexaCB-(144)				2.2E-05 U	2.8E-05 J	2.2E-03	2.5E-03	1.1E-03	3.4E-04
22'34'56'-HexaCB-(148)				2.1E-05 U	1.0E-05 U	2.7E-05 J	2.6E-05 U	7.6E-06 U	2.6E-06 J
22'3466'-HexaCB-(145)				1.6E-05 U	7.8E-06 U	1.6E-05 U	2.3E-05 J	6.3E-06 U	1.6E-06 U
22'34'66'-HexaCB-(150)				1.6E-05 U	7.4E-06 U	3.9E-05 J	4.0E-05 J	1.5E-05 J	3.0E-06 U
22'346'-PentaCB-(89)				2.3E-05 U	8.6E-06 U	5.9E-04	7.4E-04	3.0E-04	9.4E-05 J
22'34'-TetraCB-(42)				1.0E-04	2.0E-04	1.8E-02	1.9E-02	8.6E-03	3.1E-03
22'355'-PentaCB-(92)				4.0E-05 J	7.9E-05 J	6.6E-03	8.2E-03	3.4E-03	1.1E-03
22'3566'-HexaCB-(152)				1.4E-05 U	7.3E-06 U	3.6E-05 U	4.3E-05 J	2.0E-05 U	4.3E-06 J
22'356'-PentaCB-(94)				2.3E-05 U	9.0E-06 U	2.8E-04	2.9E-04	1.5E-04	4.3E-05 J
22'35'6-PentaCB-(95)				2.0E-04	3.5E-04	3.3E-02	3.8E-02	1.7E-02	5.6E-03
22'35-TetraCB-(43)				5.3E-05 U	5.1E-05 J	2.7E-03	2.9E-03	1.3E-03	4.5E-04
22'366'-PentaCB-(96)				1.0E-05 U	6.2E-06 U	6.1E-04	6.0E-04	2.3E-04 U	7.5E-05 J
22'36'-TetraCB-(46)				4.8E-05 U	7.5E-05 J	1.5E-02	5.3E-03	2.7E-03	1.1E-03
22'3-TriCB-(16)				3.1E-04	2.4E-04	3.0E-02	3.4E-02	2.0E-02	1.4E-03
22'44'56'-HexaCB-(154)				1.9E-05 U	9.3E-06 U	2.6E-04	2.8E-04	1.2E-04	2.6E-05 U
22'44'66'-HexaCB-(155)				1.5E-05 U	6.6E-06 U	1.0E-05 U	1.1E-06 U	1.2E-05 U	1.9E-06 U
22'45'6-PentaCB-(103)				1.8E-05 U	7.0E-06 U	2.2E-04	2.7E-04	1.1E-04	3.4E-05 J
22'45-TetraCB-(48)				8.5E-05 J	2.0E-04	3.4E-02	1.6E-02	7.9E-03	1.4E-03
22'466'-PentaCB-(104)				9.3E-06 U	2.8E-06 U	8.0E-06 U	4.2E-06 U	2.5E-06 U	2.1E-06 U
22'4-TriCB-(17)				2.2E-04	2.1E-04	3.1E-02	3.3E-02	1.8E-02	8.2E-04
22'55'-TetraCB-(52)				4.2E-04	7.0E-04	1.7E-04 U	6.5E-02	3.1E-02	1.1E-02
22'66'-TetraCB-(54)				7.5E-06 U	5.4E-06 U	2.0E-05 U	1.6E-04	8.5E-05 J	4.0E-05 J
22'6-TriCB-(19)				2.4E-04	1.6E-04	8.7E-03	8.7E-03	5.6E-03	3.0E-03
22'-DiCB-(4)				9.9E-04	2.5E-04	2.5E-02	2.2E-02	1.6E-02	1.2E-03
233'44'55'6-OctaCB-(205)				3.7E-05 U	1.4E-05 U	1.9E-04	3.5E-04	1.5E-04	3.8E-05 J
233'44'55'-HeptaCB-(189)				8.7E-06 U	1.9E-05 U	2.6E-04	5.1E-04	1.4E-04 U	5.6E-05 J
233'44'56-HeptaCB-(190)				3.9E-05 U	2.2E-05 J	1.6E-03	2.6E-03	8.8E-04	3.4E-04
233'44'5'6-HeptaCB-(191)				3.6E-05 U	8.7E-06 U	2.7E-04 U	5.7E-04	1.8E-04 U	6.5E-05 J
233'44'6-HexaCB-(158)				3.3E-05 U	8.2E-05 J	4.5E-03	5.7E-03	2.3E-03	7.0E-04
233'44'-PentaCB-(105)				6.5E-05 U	1.5E-04	1.1E-02	1.9E-02	8.4E-03	1.7E-03
233'455'6-HeptaCB-(192)				4.0E-05 U	9.6E-06 U	1.8E-04	1.6E-05 U	5.7E-06 U	3.4E-06 U
233'455'-HexaCB-(159)				7.3E-06 U	7.5E-06 U	4.1E-04	4.9E-04	2.1E-04	7.7E-05 J
233'4'55'-HexaCB-(162)				7.3E-06 U	7.7E-06 U	1.0E-04	1.4E-04	5.0E-05 J	1.1E-05 U
233'456-HexaCB-(160)				3.6E-05 U	7.5E-06 U	2.5E-05 U	4.9E-05 U	1.8E-05 U	3.4E-06 U
233'45'6-HexaCB-(161)				3.1E-05 U	7.2E-06 U	2.3E-05 U	4.5E-05 U	1.7E-05 U	3.2E-06 U
233'4'5'6-HexaCB-(164)				3.4E-05 U	4.7E-05 J	2.8E-03	3.2E-03	1.5E-03	4.5E-04
233'45-PentaCB-(106)				1.3E-05 U	2.8E-06 U	1.8E-05 U	2.1E-05 U	8.8E-06 U	3.5E-06 U
233'4'5-PentaCB-(107)				1.2E-05 U	2.5E-05 J	1.8E-03	2.9E-03	1.1E-03	2.9E-04
233'4'5'-PentaCB-(122)				1.4E-05 U	3.0E-06 J	3.4E-04	8.1E-04	2.6E-04 U	6.5E-05 J
233'4'-Tetra CB(56)				3.7E-05 J	6.1E-05 J	1.1E-02	1.4E-02	6.1E-03	1.5E-03
233'4-TetraCB-(55)				1.8E-05 U	4.3E-06 U	5.4E-02	2.9E-05 J	3.5E-04 U	5.2E-06 U
233'55'6-HexaCB-(165)				3.5E-05 U	7.8E-06 U	2.6E-05 U	5.0E-05 U	1.9E-05 U	3.5E-06 U
233'55'-PentaCB-(111)				1.7E-05 U	6.1E-06 U	7.8E-06 U	3.0E-05 U	3.7E-06 U	2.4E-06 U
233'56-PentaCB-(112)				1.7E-05 U	5.9E-06 U	7.6E-06 U	1.3E-05 J	3.8E-06 U	2.4E-06 U
233'5-TetraCB-(57)				1.6E-05 U	3.7E-06 U	1.9E-04	2.1E-04	1.1E-04	4.7E-06 U
233'5'-TetraCB-(58)				1.5E-05 U	1.2E-05 U	1.9E-05 U	2.9E-05 J	8.0E-06 U	2.6E-04
23'44'55'-HexaCB-(167)				1.4E-05 J	2.9E-05 J	1.2E-03	2.2E-03	8.6E-04	2.2E-04
2344'5-PentaCB-(114)				1.5E-05 U	7.9E-06 U	5.6E-04	1.2E-03	4.4E-04	5.1E-05 J
23'44'5-PentaCB-(118)				1.8E-04	3.8E-04	2.4E-02	4.2E-02	1.9E-02	4.2E-03
23'44'5'-PentaCB-(123)				1.7E-05 U	3.5E-06 J	2.9E-04	6.0E-04	2.8E-04	7.3E-05 J
2344'-TetraCB -(60)				1.7E-05 U	3.4E-05 J	7.3E-03	9.7E-03	4.3E-03	1.9E-04
23'44'-TetraCB-(66)				7.0E-05 J	1.5E-04	2.5E-02	3.3E-02	1.4E-02	2.9E-03
23'455'-PentaCB-(120)				1.6E-05 U	5.7E-06 U	2.3E-05 J	3.3E-05 U	3.6E-06 U	3.9E-06 U
23'45'6-PentaCB-(121)				1.6E-05 U	6.1E-06 U	7.8E-06 U	1.2E-05 U	3.9E-06 U	2.5E-06 U
234'5-TetraCB-(63)				1.5E-05 U	1.7E-05 J	1.2E-03	1.5E-03	7.1E-04	2.7E-05 U
23'45-TetraCB-(67)				1.5E-05 U	1.6E-05 J	1.3E-03	1.6E-03	7.7E-04	4.9E-05 U
23'45'-TetraCB-(68)				1.5E-05 U	3.6E-06 U	8.5E-05 J	8.0E-05 U	4.2E-05 J	1.4E-05 J
234'6-TetraCB-(64)				1.3E-04	2.8E-04	2.5E-02	2.7E-02	1.3E-02	3.9E-03
234'-TriCB-(22)				8.5E-05 J	1.1E-04	2.8E-02	3.4E-02	1.7E-02	4.0E-04
23'4-TriCB-(25)				2.0E-05 J	2.9E-05 J	5.2E-03	6.1E-04	4.5E-04	2.2E-04
23'55'-TetraCB-(72)				1.6E-05 U	3.6E-06 U	1.7E-04	2.2E-04	1.1E-04	3.1E-05 J
23'5'6-TetraCB-(73)				2.9E-05 U	3.2E-06 U	6.3E-06 U	2.8E-06 U	3.6E-06 U	2.3E-06 U
235-TriCB-(23)				8.9E-06 U	2.9E-06 U	1.0E-04	1.2E-04	4.8E-05 U	2.2E-06 U
23'5'-TriCB-(34)				9.0E-06 U	2.7E-06 U	2.2E-04	2.8E-04	1.5E-04	2.0E-06 U
236-TriCB-(24)				2.1E-05 U	1.7E-05 U	1.9E-02	6.6E-03	1.2E-02	1.0E-04
23'6-TriCB-(27)				4.2E-05 J	3.5E-05 J	1.3E-02	5.3E-03	7.9E-03	1.1E-03
24'5-TriCB-(31)				2.3E-04	2.9E-04	7.1E-02	7.4E-02	4.3E-02	1.1E-03
24'6-TriCB-(32)				1.2E-04	1.2E-04	6.0E-02	2.1E-02	1.2E-02	3.1E-03
2-MonoCB-(1)				1.2E-05 U	2.0E-05 J	6.5E-04	3.7E-04	2.7E-04	1.6E-05 J
3,3'-DiCB-(11)				1.7E-05 U	2.7E-05 U	2.8E-04	5.1E-04	1.0E-04 U	5.9E-05 J
3,5-DiCB-(14)				1.7E-05 U	9.6E-06 U	8.3E-06 U	7.7E-05 J	7.5E-05 U	1.9E-06 U
33'44'55'-HexaCB-(169)				8.8E-06 U	9.1E-06 U	1.9E-05 U	2.5E-05 J	1.2E-05 U	4.4E-06 U
33'44'5-PentaCB-(126)				1.5E-05 U	2.9E-06 U	4.3E-05 U	8.1E-05 U	4.1E-05 J	1.0E-05 U
33'44'-TetraCB-(77)				2.0E-05 U	1.0E-05 J	2.2E-03	3.2E-03	1.4E-03	3.1E-04
33'455'-PentaCB-(127)				1.3E-05 U	2.6E-06 U	8.2E-05 J	1.1E-04	2.1E-05 U	9.4E-06 J
33'45-TetraCB-(78)				1.7E-05 U	3.8E-06 U	1.9E-05 U	2.9E-05 U	7.9E-06 U	4.7E-06 U

Table 2
Basin 2 Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park

Chemical	Portland Harbor SLV JSCS[1]	Portland Harbor SLV CL[2]	DEQ Appendix E "Typical PH Values"[3]	1/12/2018	10/25/2017	1/17/2011	11/24/2010	11/13/2010	6/28/2010
33'45'-TetraCB(79)				1.4E-05 U	3.2E-06 U	3.1E-04	3.8E-04	1.2E-04	5.8E-05 J
33'4-TriCB-(35)				8.9E-06 U	4.2E-06 J	8.7E-04	1.0E-03	4.9E-04	4.9E-05 J
33'55'-TetraCB-(80)				1.4E-05 U	3.4E-06 U	1.7E-05 U	2.4E-05 U	7.1E-06 U	4.2E-06 U
33'5-TriCB-(36)				7.5E-06 U	8.1E-06 J	1.5E-05 U	2.0E-05 J	1.1E-05 U	1.7E-06 U
344'5-TetraCB-(81)				2.0E-05 U	4.4E-06 U	7.0E-05 J	1.1E-04 U	6.8E-05 J	4.9E-06 U
344'-TriCB-(37)				4.0E-05 J	4.8E-05 J	1.5E-02	2.3E-02	1.2E-02	8.6E-04
345-TriCB-(38)				9.0E-06 U	2.7E-06 U	4.4E-05 J	2.6E-05 J	2.9E-05 U	9.3E-06 J
34'5-TriCB-(39)				8.8E-06 U	2.6E-06 U	3.5E-04	3.3E-04 U	1.2E-05 U	3.5E-05 J
3-MonoCB-(2)				1.2E-05 U	2.3E-06 U	2.5E-05 J	1.6E-05 J	1.3E-05 U	6.4E-06 J
4,4'-DiCB-(15)				5.0E-05 U	4.0E-05 J	1.8E-02	2.5E-02	1.5E-02	2.9E-03
4-MonoCB-(3)				1.2E-05 U	2.5E-06 J	1.2E-04	1.4E-04	5.7E-05 J	1.5E-05 J
DecaCB-(209)				2.7E-05 U	3.2E-05 J	5.2E-03	8.8E-03	5.4E-03	6.6E-05 J
DiCB-(12)+(13)				1.8E-05 U	1.0E-05 U	2.0E-03	2.3E-03	1.1E-03	6.4E-05 J
HeptaCB-(171)+(173)				4.8E-05 U	4.2E-05 J	2.8E-03	4.1E-03	1.5E-03	5.0E-04
HeptaCB-(180)+(193)				9.2E-05 U	3.2E-04	2.0E-02	2.9E-02	1.1E-02	3.8E-03
HexaCB-(128)+(166)				4.5E-05 J	1.1E-04 J	6.9E-03	8.5E-03	3.5E-03	1.0E-03
HexaCB-(129)+(138)+(163)				2.5E-04 J	7.6E-04	4.4E-02	5.4E-02	2.2E-02	7.1E-03
HexaCB-(134)+(143)				4.9E-05 U	3.3E-05 U	2.3E-03	2.8E-03	9.4E-04	2.8E-04
HexaCB-(135)+(151)				5.8E-05 J	1.6E-04 J	1.9E-02	1.6E-02	7.0E-03	2.2E-03
HexaCB-(139)+(140)				4.1E-05 U	1.7E-05 J	6.5E-04	8.0E-04	3.5E-04	8.9E-05 J
HexaCB-(147)+(149)				1.6E-04 J	4.4E-04	3.4E-02	4.0E-02	1.6E-02	5.1E-03
HexaCB-(153)+(168)				1.7E-04 J	5.4E-04	3.3E-02	4.0E-02	1.7E-02	5.4E-03
HexaCB-(156)+(157)				3.0E-05 J	8.8E-05 J	4.0E-03	7.4E-03	2.8E-03	6.5E-04
OctaCB-(198)+(199)				5.2E-05 U	1.2E-04 J	6.0E-03	8.7E-03	3.4E-03	1.1E-03
PentaCB-(108)+(124)				1.3E-05 U	1.7E-05 J	1.1E-03	1.7E-03	6.8E-04	2.0E-04
PentaCB-(110)+(115)				2.4E-04	4.6E-04	4.3E-02	5.0E-02	2.3E-02	7.5E-03
PentaCB-(83)+(99)				6.7E-05 J	2.4E-04	2.0E-02	2.4E-02	1.1E-02	3.0E-03
PentaCB-(85)+(116)+(117)				2.9E-05 J	4.8E-05 J	5.6E-03	7.3E-03	3.2E-03	9.7E-04
PentaCB-(86)(87)(97)(109)(119)(125)				1.5E-04 J	2.9E-04 J	2.7E-02	3.3E-02	1.4E-02	4.5E-03
PentaCB-(88)+(91)				3.2E-05 J	6.9E-05 J	5.9E-03	7.0E-03	3.0E-03	9.5E-04
PentaCB-(90)+(101)+(113)				2.0E-04 J	4.2E-04	3.8E-02	4.8E-02	2.0E-02	6.3E-03
PentaCB-(93)+(98)+(100)+(102)				2.1E-05 U	3.8E-05 J	2.0E-03	2.3E-03	9.8E-04	3.1E-04 J
TetraCB-(40)+(41)+(71)				2.1E-04 J	3.7E-04	3.6E-02	3.9E-02	1.9E-02	5.4E-03
TetraCB-(44)+(47)+(65)				3.3E-04	6.3E-04	1.5E-02	5.7E-02	2.9E-02	1.0E-02
TetraCB-(45)+(51)				1.1E-04 J	1.9E-04 J	5.1E-03	1.6E-02	7.6E-03	3.2E-03
TetraCB-(49)+TetraCB-(69)				1.7E-04 J	4.1E-04	9.9E-03	3.7E-02	1.7E-02	5.7E-03
TetraCB-(50)+(53)				8.0E-05 U	1.4E-04 J	5.5E-02	1.1E-02	5.2E-03	2.2E-03
TetraCB-(59)+(62)+(75)				3.1E-05 U	6.4E-05 J	5.8E-03	6.5E-03	3.0E-03	9.9E-04
TetraCB-(61)+(70)+(74)+(76)				2.0E-04 J	3.8E-04	4.7E-02	6.4E-02	2.8E-02	3.6E-03
TriCB-(18)+(30)				6.3E-04	5.5E-04	6.2E-02	6.7E-02	3.5E-02	4.4E-03
TriCB-(20) + (28)				2.3E-04	2.8E-04	4.9E-03	8.7E-02	2.9E-03	2.6E-03
TriCB-(21)+(33)				1.6E-04 J	2.2E-04	4.1E-02	4.9E-02	2.3E-02	4.0E-04
TriCB-(26)+(29)				5.7E-05 J	6.7E-05 J	7.9E-04	1.5E-02	3.3E-03	3.9E-04
PCB Homologs (ng/l)									
Monochlorobiphenyl				1.20E-05 U	2.26E-05	8.0E-04	5.1E-04	3.2E-04	3.8E-05
Dichlorobiphenyl				1.23E-03	3.83E-04	8.8E-02	9.7E-02	3.7E-02	4.9E-03
Trichlorobiphenyl				2.40E-03	2.37E-03	3.9E-01	4.6E-01	2.4E-01	2.0E-02
Tetrachlorobiphenyl				1.86E-03	3.99E-03	3.7E-01	4.3E-01	2.0E-01	5.8E-02
Pentachlorobiphenyl				1.24E-03	2.70E-03	2.4E-01	3.1E-01	1.3E-01	4.0E-02
Hexachlorobiphenyl				8.35E-04	2.86E-03	2.0E-01	2.3E-01	9.6E-02	3.0E-02
Heptachlorobiphenyl				6.60E-05	1.07E-03	7.8E-02	1.1E-01	4.0E-02	1.4E-02
Octachlorobiphenyl				5.20E-05 U	2.63E-04	2.1E-02	3.2E-02	1.2E-02	3.9E-03
Nonachlorobiphenyl				4.20E-05 U	1.08E-04	4.6E-03	6.6E-03	2.7E-03	5.6E-04
Decachlorobiphenyl				2.70E-05 U	3.20E-05	5.2E-03	8.8E-03	5.4E-03	6.6E-05
Total Detected PCBs (Method 1668)	6.4E-05	6.4E-06	3.0E-01	7.63E-03	1.38E-02	1.4E+00	1.7E+00	7.7E-01	1.7E-01
Phthalates (ug/l)									
Bis(2-ethylhexyl) phthalate	2.2	0.2	5	0.75 U	0.76 U	4.8	5.0	2.4	0.24
Butylbenzyl phthalate	3			0.75 U	0.76 U	2.4 U	2.4 U	0.47 U	0.25 J
Dibutyl phthalate	3			0.75 U	0.76 U	2.4 U	2.4 U	0.47 U	0.24
Diethyl phthalate	3			0.75 U	0.76 U	2.4 U	2.4 U	0.47 U	0.24
Dimethyl phthalate	3			0.75 U	0.76 U	2.4 U	2.4 U	0.47 U	0.24
Di-n-octyl phthalate	3			0.75 U	0.76 U	2.4 U	2.4 U	0.47 U	0.24
Pesticides (ug/l)									
2,4'-DDD	3.1E-04	3.1E-05		1.9E-02 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
2,4'-DDE	2.2E-04	1.8E-05		9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
2,4'-DDT	2.0E-01	2.2E-05		9.4E-03 U	9.5E-03 U	1.1E-01 U	1.1E-01 U	9.4E-02 U	2.8E-02 U
4,4'-DDD	3.1E-04	3.1E-05		9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
4,4'-DDE	2.2E-04	1.8E-05		9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
4,4'-DDT	2.2E-04	2.2E-05		1.9E-02 U	1.9E-02 U	3.8E-02 U	2.3E-01 U	5.7E-02 U	3.8E-02 U
Total DDx		1.0E-02		0	0	0	0	0	0
Aldrin	5.0E-05	7.7E-07		9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U

Table 2
Basin 2 Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park

Chemical	Portland Harbor SLV JSCS[1]	Portland Harbor SLV CL[2]	DEQ Appendix E "Typical PH Values"[3]	1/12/2018	10/25/2017	1/17/2011	11/24/2010	11/13/2010	6/28/2010
alpha-Endosulfan	5.1E-02			3.5E-02 U	4.9E-02 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
alpha-Hexachlorocyclohexane	4.9E-03			9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
beta-Endosulfan	5.1E-02			9.4E-03 U	9.5E-03 U	3.8E-02 U	1.4E+00 U	6.0E-02	2.8E-02 U
beta-Hexachlorocyclohexane	1.7E-02			9.4E-03 U	1.9E-02 U	9.0E-01	1.1E-01 U	7.1E-02	2.8E-02 U
cis-Chlordane	8.1E-04	8.1E-05		9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
cis-Nonachlor	1.9E-01			9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
delta-Hexachlorocyclohexane	5.2E-02			1.9E-02 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Dieldrin	5.4E-05			9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Endosulfan sulfate	8.9E+01			9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Endrin	3.6E-02			9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Endrin aldehyde				1.9E-02 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Endrin ketone				9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
gamma-Hexachlorocyclohexane	3.7E-02			9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Heptachlor	7.9E-05			9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Heptachlor epoxide	3.9E-05			9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Hexachlorobenzene	2.9E-04	2.9E-05		2.8E-02 U	2.9E-02 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Hexachlorobutadiene	8.6E-01			9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Hexachloroethane	3.3E+00					3.8E-01 U	1.1E-01 U		
Methoxychlor	3.0E-02			2.8E-02 U	2.9E-02 U	3.8E-02 U	3.0E-01 U	1.5E-01 U	7.6E-02 U
Mirex	NC			9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Oxychlordane	1.9E-01	8.1E-05		9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Toxaphene	2.0E-04			3.5E-01 U	3.6E-01 U	3.8E-01 U	3.8E+00 U	1.9E+00 U	9.4E-01 U
trans-Chlordane	8.1E-04	8.1E-05		9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
trans-Nonachlor	1.9E-01			9.4E-03 U	9.5E-03 U	3.8E-02 U	1.1E-01 U	5.7E-02 U	2.8E-02 U
Dioxins (ug/l)									
1,2,3,4,6,7,8-HeptaCDD				3.4E-06 J	5.1E-06 J	2.3E-04	3.4E-04	1.2E-04	3.9E-05 J
1,2,3,4,6,7,8-HeptaCDF				1.2E-06 U	9.1E-07 U	4.8E-05 U	6.5E-05 U	2.6E-05 U	7.5E-06 U
1,2,3,4,7,8,9-HeptaCDF				1.5E-06 U	9.0E-07 U	5.8E-06 J	5.1E-06 J	2.6E-06 U	1.3E-06 U
1,2,3,4,7,8-HexaCDD				1.3E-06 U	9.1E-07 U	2.4E-06 U	2.6E-06 J	1.0E-06 U	6.9E-07 U
1,2,3,4,7,8-HexaCDF				1.1E-06 U	9.3E-07 U	1.2E-05 U	6.7E-06 J	4.2E-06 J	1.7E-06 J
1,2,3,6,7,8-HexaCDD				1.3E-06 U	9.6E-07 U	1.4E-05 J	1.7E-05 J	6.5E-06 J	3.0E-06 J
1,2,3,6,7,8-HexaCDF				1.1E-06 U	9.6E-07 U	1.1E-05 U	1.8E-05 J	3.2E-06 J	7.4E-07 J
1,2,3,7,8,9-HexaCDD				1.3E-06 U	8.9E-07 U	7.6E-06 J	6.8E-06 J	3.7E-06 J	1.3E-06 J
1,2,3,7,8,9-HexaCDF				1.3E-06 U	9.6E-07 U	1.8E-06 J	1.0E-06 J	6.2E-07 U	6.9E-07 U
1,2,3,7,8-PentaCDD				1.7E-06 U	9.4E-07 U	1.6E-06 U	2.6E-06 J	7.1E-07 U	5.8E-07 U
1,2,3,7,8-PentaCDF				1.7E-06 U	9.2E-07 U	2.5E-06 J	3.4E-06 J	9.4E-07 J	7.7E-07 U
2,3,4,6,7,8-HexaCDF				1.1E-06 U	9.0E-07 U	3.6E-06 J	3.1E-06 J	1.4E-06 J	9.0E-07 J
2,3,4,7,8-PentaCDF				1.7E-06 U	9.0E-07 U	4.1E-06 J	3.5E-06 J	2.9E-06 J	1.1E-06 J
2,3,7,8-TetraCDD	5.1E-09	5.1E-10		2.2E-06 U	9.0E-07 U	4.2E-06 J	2.9E-05	8.6E-07 U	5.8E-07 U
2,3,7,8-TetraCDF				1.6E-06 U	9.6E-07 U	5.4E-06 J	2.3E-06 J	3.2E-06 J	1.9E-06 J
OCDD				2.7E-05 J	3.8E-05 J	2.1E-03	3.4E-03	1.2E-03	3.4E-04
OCDF				1.5E-06 U	1.1E-06 J	1.1E-04	2.2E-04	7.2E-05 J	1.9E-05 J
HeptaCDD homologs				1.3E-05 J	1.6E-05 J	5.4E-04	8.7E-04	3.0E-04	1.0E-04
HeptaCDF homologs				1.4E-06 U	9.0E-07 U	9.7E-05	1.2E-04	5.0E-05 J	1.2E-05 J
HexaCDD homologs				1.3E-06 U	9.3E-07 U	6.9E-05 J	7.9E-05 J	3.1E-05 J	1.7E-05 J
HexaCDF homologs				1.1E-06 U	9.4E-07 U	8.6E-05 J	9.0E-05 J	3.7E-05 J	1.2E-05 J
PentaCDD homologs				1.7E-06 U	9.4E-07 U	9.1E-06 U	2.5E-05 J	7.1E-07 U	5.8E-07 U
PentaCDF homologs				1.7E-06 U	9.1E-07 U	6.5E-05 J	1.5E-04	2.2E-05 J	4.2E-06 J
TetraCDD homologs				2.2E-06 U	9.0E-07 U	7.9E-06 J	2.9E-05	1.1E-06 J	5.8E-07 U
TetraCDF homologs				1.6E-06 U	9.6E-07 U	3.4E-05	1.5E-04	1.9E-05	3.5E-06 J
Total Dioxin TEQ (ND=DL/2)	5.1E-09	5E-10		2.8E-06	1.5E-06	1.4E-05	4.3E-05	5.7E-06	2.5E-06
Total Dioxin TEQ (ND=0)	5.1E-09	5E-10		4.2E-08	6.3E-08	1.2E-05	4.3E-05	4.7E-06	1.8E-06
Butyltins (ug/l)									
Butyltin				2.3E-03 U	2.3E-03 U	2.0E-01 U	2.0E-01 U	2.0E-01 U	2.0E-01 U
Dibutyltin				7.1E-03	1.7E-03 U	2.9E-01 U	2.9E-01 U	2.9E-01 U	2.9E-01 U
Tributyltin	7.2E-02	6.3E-02		1.3E-03 U	1.3E-03 U	1.9E-01 U	1.9E-01 U	1.9E-01 U	1.9E-01 U
Tetrabutyltin				1.9E-03 U	1.9E-03 U				
Metals (ug/l)									
Aluminum				355	331	3030 J	4660	1810	464
Antimony	6			2.6	3.4	9.7	10	8.6	4.0
Arsenic	0.045	0.018	2	0.58 J	0.63 J	3.6	3.5	2.4	1.4 J
Cadmium	0.094		0.7	0.040 U	0.12 J	2.7	2.9	1.3	0.34 J
Chromium	100	100	10	1.2	0.87 U	19 J	24	9.3	4.6
Copper	2.7	2.74	60	4.9	7.4	94	126	49	22

Table 2
Basin 2 Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park

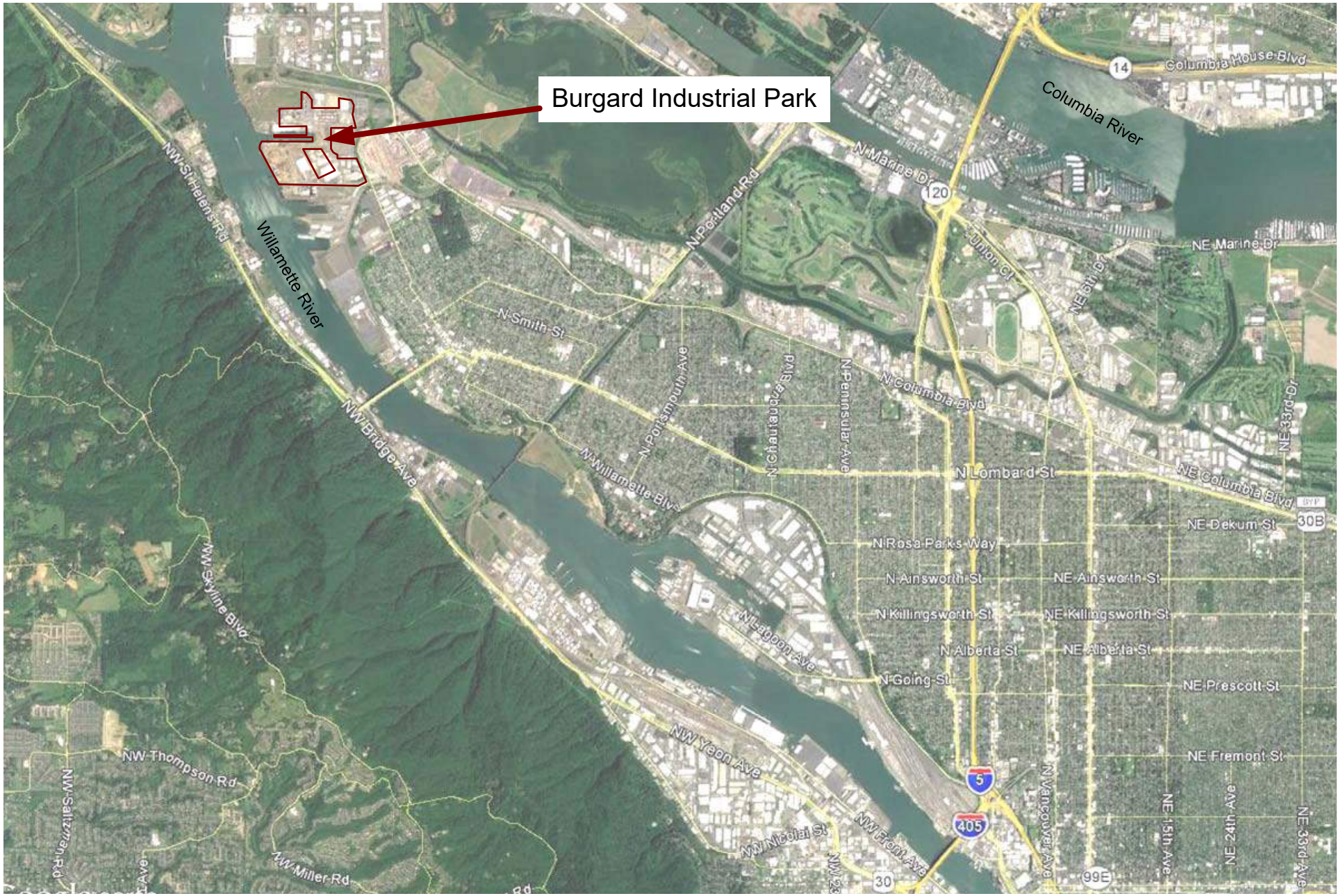
Chemical	Portland Harbor SLV JSCS[1]	Portland Harbor SLV CL[2]	DEQ Appendix E "Typical PH Values"[3]	1/12/2018	10/25/2017	1/17/2011	11/24/2010	11/13/2010	6/28/2010
Lead	0.54		50	1.3	2.3	151	213	83	20
Manganese	50			8.2	11	566	662	437	141
Mercury	0.77		0.2	0.040 U	0.040 U	0.46	0.75	0.23	0.056 J
Nickel	16		8	2.0	2.5	16 J	18	9.8	3.7
Silver	0.12		0.1	0.10 U	0.10 U	0.21 J	0.24 J	0.10 U	0.10 U
Zinc	36	36.5	700	7.8	19	763	899	351	97
Pertroleum Hydrocarbons (mg/l)									
Gasoline				0.050 U	0.051 J	0.050 U	0.050 J	0.050 U	0.10
Diesel				0.20	0.094 U	0.90	1.1	0.91	0.31
Oil				0.19 U	0.42	3.1	2.7	1.7	0.48
TSS (mg/l)			70	5 U	5 U	83	57 J	13	13

U - Not detectet at noted detection limit
J- Estimated value
Blank cells indicate not analyzed

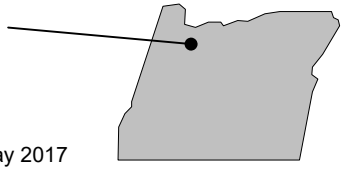
1 - Table 3-1 PH JSCS Guidance, 7/16/2007 revision
2 - Table 17 January 2017 PH ROD. Surface Water Cleanup Level.
3 - October 2010, DEQ Guidance for Evaluating Stormwater Pathway at Upland Sites, Appendix E, Tool For Evaluating Stormwater Data (12/2015 update)

Detected concentration > 10 x SLV (CL or JSCS if no CL)
Detected concentration > 100 x SLV (CL or JSCS if no CL)
Detected concentration > 1000 x SLV (CL or JSCS if no CL)

Figures



Portland, Oregon



Base photograph May 2017

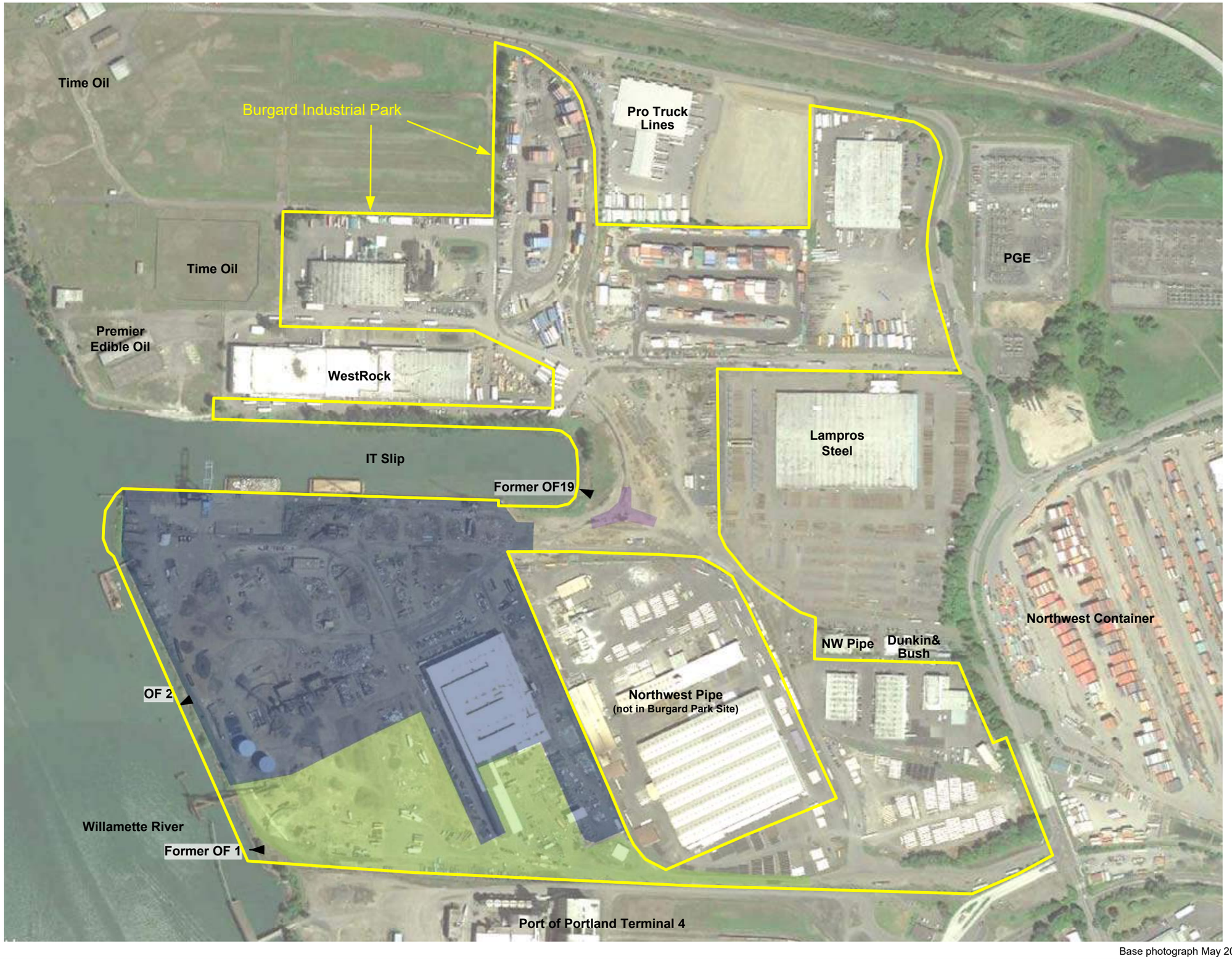
N

Approximate Scale

5000 feet

Figure 1
Site Location Map
Burgard Industrial Park
Portland, OR

RIEKE CONSULTING SERVICES, LLC



Basin 2 (former Basin 1)

Basin 2

Basin 2 (former Basin 19)

BIP Boundary

N

Approximate Scale

400 Feet

Base photograph May 2017

Figure 2
Site Plan
Burgard Industrial Park
Portland, Oregon

RIEKE CONSULTING SERVICES, LLC

Base photograph May 2017

Figure 3
Basin 2 Drainage Area and Storm Water Management Features
Burgard Industrial Park

RIEKE CONSULTING SERVICES, LLC

Appendix A – Analytical Laboratory Reports

Apex Labs

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Tuesday, January 30, 2018

Ross Rieke
Rieke Consulting Services, LLC
10457 SW Lady Marion Drive
Tigard, OR 97224

RE: Schnitzer Steel-Burgard / HAI-8001

Enclosed are the results of analyses for work order A8A0345, which was received by the laboratory on 1/12/2018 at 1:52:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
OF-2	A8A0345-01	Water	01/12/18 12:30	01/12/18 13:52

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OF-2 (A8A0345-01)			**Matrix: Water**		**Batch: 8010745**			
Diesel	**0.204**	0.0935	0.187	mg/L	1	01/17/18 23:05	NWTPH-Dx	F-17
Oil	ND	0.187	0.374	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 95 %*	*Limits: 50-150 %*	"	"	"	

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Philip Nerenberg, Lab Director

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OF-2 (A8A0345-01)			**Matrix: Water**		**Batch: 8010675**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	01/15/18 16:21	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 108 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*107 %*	*Limits: 50-150 %*	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OF-2 (A8A0345-01)			**Matrix: Water**		**Batch: 8010888**			**C-07**
Aroclor 1016	ND	0.00943	0.0189	ug/L	1	01/23/18 09:53	EPA 8082A	
Aroclor 1221	ND	0.00943	0.0189	"	"	"	"	
Aroclor 1232	ND	0.0189	0.0189	"	"	"	"	
Aroclor 1242	ND	0.00943	0.0189	"	"	"	"	
Aroclor 1248	ND	0.00943	0.0189	"	"	"	"	
Aroclor 1254	ND	0.00943	0.0189	"	"	"	"	
Aroclor 1260	ND	0.00943	0.0189	"	"	"	"	
Surrogate: Decachlorobiphenyl (Surr)			*Recovery: 57 %*	*Limits: 39-120 %*	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OF-2 (A8A0345-01RE1)			**Matrix: Water**		**Batch: 8010961**			**C-05**
Aldrin	ND	0.00935	0.0187	ug/L	1	01/25/18 13:09	EPA 8081B	
alpha-BHC	ND	0.00935	0.0187	"	"	"	"	
beta-BHC	ND	0.00935	0.0187	"	"	"	"	
delta-BHC	ND	0.0187	0.0187	"	"	"	"	
gamma-BHC (Lindane)	ND	0.00935	0.0187	"	"	"	"	
cis-Chlordane	ND	0.00935	0.0187	"	"	"	"	
trans-Chlordane	ND	0.00935	0.0187	"	"	"	"	
4,4'-DDD	ND	0.00935	0.0187	"	"	"	"	
4,4'-DDE	ND	0.00935	0.0187	"	"	"	"	
4,4'-DDT	ND	0.0187	0.0187	"	"	"	"	
Dieldrin	ND	0.00935	0.0187	"	"	"	"	
Endosulfan I	ND	0.0346	0.0346	"	"	"	"	R-02
Endosulfan II	ND	0.00935	0.0187	"	"	"	"	
Endosulfan sulfate	ND	0.00935	0.0187	"	"	"	"	
Endrin Aldehyde	ND	0.0187	0.0187	"	"	"	"	
Endrin ketone	ND	0.00935	0.0187	"	"	"	"	
Heptachlor	ND	0.00935	0.0187	"	"	"	"	
Heptachlor epoxide	ND	0.00935	0.0187	"	"	"	"	
Methoxychlor	ND	0.0280	0.0561	"	"	"	"	
Chlordane (Technical)	ND	0.351	0.701	"	"	"	"	
Toxaphene (Total)	ND	0.351	0.701	"	"	"	"	
cis-Nonachlor	ND	0.00935	0.0187	"	"	"	"	
trans-Nonachlor	ND	0.00935	0.0187	"	"	"	"	
2,4'-DDD	ND	0.0187	0.0187	"	"	"	"	
2,4'-DDE	ND	0.00935	0.0187	"	"	"	"	
2,4'-DDT	ND	0.00935	0.0187	"	"	"	"	
Hexachlorobenzene	ND	0.0280	0.0561	"	"	"	"	
Hexachlorobutadiene	ND	0.00935	0.0187	"	"	"	"	
Mirex	ND	0.00935	0.0187	"	"	"	"	
Oxychlordane	ND	0.00935	0.0187	"	"	"	"	
Surrogate: 2,4,5,6-TCMX (Surr)			*Recovery: 60 %*	*Limits: 44-124 %*	"	"	"	
Decachlorobiphenyl (Surr)			*72 %*	*Limits: 47-129 %*	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OF-2 (A8A0345-01RE2)			**Matrix: Water**		**Batch: 8010961**			**C-05**
Endrin	ND	0.00935	0.0187	ug/L	1	01/25/18 16:23	EPA 8081B	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OF-2 (A8A0345-01)			**Matrix: Water**		**Batch: 8010708**			**R-04**
Acenaphthene	ND	0.0374	0.0748	ug/L	4	01/16/18 14:49	EPA 8270D	
Acenaphthylene	ND	0.0374	0.0748	"	"	"	"	
Anthracene	ND	0.0374	0.0748	"	"	"	"	
Benz(a)anthracene	ND	0.0374	0.0748	"	"	"	"	
Benzo(a)pyrene	ND	0.0561	0.112	"	"	"	"	
Benzo(b)fluoranthene	ND	0.0561	0.112	"	"	"	"	
Benzo(k)fluoranthene	ND	0.0561	0.112	"	"	"	"	
Benzo(g,h,i)perylene	ND	0.0374	0.0748	"	"	"	"	
Chrysene	ND	0.0374	0.0748	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.0374	0.0748	"	"	"	"	
Fluoranthene	ND	0.0374	0.0748	"	"	"	"	
Fluorene	ND	0.0374	0.0748	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0374	0.0748	"	"	"	"	
1-Methylnaphthalene	ND	0.0748	0.150	"	"	"	"	
2-Methylnaphthalene	ND	0.0748	0.150	"	"	"	"	
Naphthalene	ND	0.0748	0.150	"	"	"	"	
Phenanthrene	ND	0.0374	0.0748	"	"	"	"	
Pyrene	ND	0.0374	0.0748	"	"	"	"	
Carbazole	ND	0.0561	0.112	"	"	"	"	
Dibenzofuran	ND	0.0374	0.0748	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.748	1.50	"	"	"	"	
Butyl benzyl phthalate	ND	0.748	1.50	"	"	"	"	
Diethylphthalate	ND	0.748	1.50	"	"	"	"	
Dimethylphthalate	ND	0.748	1.50	"	"	"	"	
Di-n-butylphthalate	ND	0.748	1.50	"	"	"	"	
Di-n-octyl phthalate	ND	0.748	1.50	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 80 %*	*Limits: 44-120 %*	"	"	"	
2-Fluorobiphenyl (Surr)			*78 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*26 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*69 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*44 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*114 %*	*Limits: 43-140 %*	"	"	"	

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Philip Nerenberg, Lab Director

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OF-2 (A8A0345-01)			**Matrix: Water**					
Batch: 8010833								
Aluminum	**355**	25.0	50.0	ug/L	1	01/23/18 16:52	EPA 6020A	
Antimony	**2.59**	0.500	1.00	"	"	"	"	
Arsenic	**0.578**	0.500	1.00	"	"	"	"	J
Cadmium	ND	0.0400	0.200	"	"	"	"	
Chromium	**1.20**	0.500	1.00	"	"	"	"	
Copper	**4.91**	0.500	1.00	"	"	"	"	
Lead	**1.30**	0.100	0.200	"	"	"	"	
Manganese	**8.23**	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Nickel	**2.01**	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	**7.83**	2.00	4.00	"	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
OF-2 (A8A0345-01)			**Matrix: Water**					
Batch: 8010770								
Total Suspended Solids	ND	5.00	5.00	mg/L	1	01/18/18 09:40	SM 2540 D	
Batch: 8010826								
Total Organic Carbon	**6.29**	1.00	1.00	"	"	01/19/18 01:04	SM 5310 C	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010745 - EPA 3510C (Fuels/Acid Ext.)									**Water**			
Blank (8010745-BLK1)					Prepared: 01/17/18 07:26		Analyzed: 01/17/18 21:57					
NWTPH-Dx												
Diesel	ND	0.0909	0.182	mg/L	1	---	---	---	---	---	---	
Oil	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 95 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS (8010745-BS1)					Prepared: 01/17/18 07:26		Analyzed: 01/17/18 22:20					
NWTPH-Dx												
Diesel	1.01	0.100	0.200	mg/L	1	1.25	---	81	58-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 100 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS Dup (8010745-BSD1)					Prepared: 01/17/18 07:26		Analyzed: 01/17/18 22:43					Q-19
NWTPH-Dx												
Diesel	1.14	0.100	0.200	mg/L	1	1.25	---	91	58-115%	11	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 100 %*	*Limits: 50-150 %*		*Dilution: 1x*						

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010675 - EPA 5030B									**Water**			
Blank (8010675-BLK1)					Prepared: 01/15/18 09:34 Analyzed: 01/15/18 10:55							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 105 %*		*Limits: 50-150 %*							
1,4-Difluorobenzene (Sur)			*107 %*		*50-150 %*							
LCS (8010675-BS2)					Prepared: 01/15/18 09:34 Analyzed: 01/15/18 10:28							
NWTPH-Gx (MS)												
Gasoline Range Organics	0.496	0.0500	0.100	mg/L	1	0.500	---	99	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 100 %*		*Limits: 50-150 %*							
1,4-Difluorobenzene (Sur)			*97 %*		*50-150 %*							

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010888 - EPA 3510C (Neutral pH)								**Water**				
Blank (8010888-BLK1)					Prepared: 01/22/18 09:10		Analyzed: 01/23/18 09:00					C-07
EPA 8082A												
Aroclor 1016	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Aroclor 1221	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1232	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1242	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1248	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1254	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1260	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 64 %*	*Limits: 39-120 %*		*Dilution: 1x*						
LCS (8010888-BS1)					Prepared: 01/22/18 09:10		Analyzed: 01/23/18 09:17					C-07
EPA 8082A												
Aroclor 1016	0.689	0.0100	0.0200	ug/L	1	1.25	---	55	46-129%	---	---	
Aroclor 1260	0.831	0.0100	0.0200	"	"	"	---	67	45-134%	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 66 %*	*Limits: 39-120 %*		*Dilution: 1x*						
LCS Dup (8010888-BSD1)					Prepared: 01/22/18 09:10		Analyzed: 01/23/18 09:35					C-07, Q-19
EPA 8082A												
Aroclor 1016	0.817	0.0100	0.0200	ug/L	1	1.25	---	65	46-129%	17	30%	
Aroclor 1260	0.903	0.0100	0.0200	"	"	"	---	72	45-134%	8	30%	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 68 %*	*Limits: 39-120 %*		*Dilution: 1x*						

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010793 - EPA 3510C (Neutral pH)							**Water**					
Blank (8010793-BLK1)					Prepared: 01/18/18 07:26 Analyzed: 01/23/18 13:10							
EPA 8081B												
Aldrin	ND	0.00455	0.00909	ug/L	1	---	---	---	---	---	---	
alpha-BHC	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
beta-BHC	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
delta-BHC	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
gamma-BHC (Lindane)	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
cis-Chlordane	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
trans-Chlordane	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
4,4'-DDD	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
4,4'-DDE	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
4,4'-DDT	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
Dieldrin	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
Endosulfan I	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
Endosulfan II	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
Endosulfan sulfate	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
Endrin	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
Endrin Aldehyde	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
Endrin ketone	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
Heptachlor	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
Heptachlor epoxide	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
Methoxychlor	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Chlordane (Technical)	ND	0.171	0.341	"	"	---	---	---	---	---	---	
Toxaphene (Total)	ND	0.171	0.341	"	"	---	---	---	---	---	---	
cis-Nonachlor	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
trans-Nonachlor	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
2,4'-DDD	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
2,4'-DDE	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
2,4'-DDT	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
Hexachlorobenzene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Hexachlorobutadiene	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
Mirex	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
Oxychlordane	ND	0.00455	0.00909	"	"	---	---	---	---	---	---	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 78 %*		*Limits: 44-124 %*			*Dilution: 1x*				
Decachlorobiphenyl (Surr)			*76 %*		*47-129 %*			*"*				
LCS (8010793-BS1)					Prepared: 01/18/18 07:26 Analyzed: 01/23/18 13:27							

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Philip Nerenberg

Philip Nerenberg, Lab Director

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010793 - EPA 3510C (Neutral pH)								**Water**				
LCS (8010793-BS1)					Prepared: 01/18/18 07:26 Analyzed: 01/23/18 13:27							
EPA 8081B												
Aldrin	0.414	0.00500	0.0100	ug/L	1	0.500	---	83	45-134%	---	---	
alpha-BHC	0.494	0.00500	0.0100	"	"	"	---	99	54-138%	---	---	
beta-BHC	0.525	0.00500	0.0100	"	"	"	---	105	56-136%	---	---	
delta-BHC	0.470	0.00500	0.0100	"	"	"	---	94	52-142%	---	---	
gamma-BHC (Lindane)	0.496	0.00500	0.0100	"	"	"	---	99	59-134%	---	---	
cis-Chlordane	0.501	0.00500	0.0100	"	"	"	---	100	60-129%	---	---	
trans-Chlordane	0.495	0.00500	0.0100	"	"	"	---	99	56-136%	---	---	
4,4'-DDD	0.474	0.00500	0.0100	"	"	"	---	95	56-143%	---	---	
4,4'-DDE	0.485	0.00500	0.0100	"	"	"	---	97	57-135%	---	---	
4,4'-DDT	0.491	0.00500	0.0100	"	"	"	---	98	51-143%	---	---	
Dieldrin	0.488	0.00500	0.0100	"	"	"	---	98	60-136%	---	---	
Endosulfan I	0.525	0.00500	0.0100	"	"	"	---	105	62-126%	---	---	
Endosulfan II	0.508	0.00500	0.0100	"	"	"	---	102	52-135%	---	---	
Endosulfan sulfate	0.465	0.00500	0.0100	"	"	"	---	93	62-133%	---	---	
Endrin	0.510	0.00500	0.0100	"	"	"	---	102	60-138%	---	---	
Endrin Aldehyde	0.441	0.00500	0.0100	"	"	"	---	88	51-132%	---	---	
Endrin ketone	0.503	0.00500	0.0100	"	"	"	---	101	58-134%	---	---	
Heptachlor	0.450	0.00500	0.0100	"	"	"	---	90	54-130%	---	---	
Heptachlor epoxide	0.515	0.00500	0.0100	"	"	"	---	103	61-133%	---	---	
Methoxychlor	0.524	0.0150	0.0300	"	"	"	---	105	54-144%	---	---	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 77 %*		*Limits: 44-124 %*			*Dilution: 1x*				
Decachlorobiphenyl (Surr)			*68 %*		*47-129 %*			*"*				
LCS (8010793-BS2)					Prepared: 01/18/18 07:26 Analyzed: 01/23/18 14:02							
EPA 8081B												
cis-Nonachlor	0.458	0.00500	0.0100	ug/L	1	0.500	---	92	25-120%	---	---	
trans-Nonachlor	0.460	0.00500	0.0100	"	"	"	---	92	"	---	---	
2,4'-DDD	0.428	0.00500	0.0100	"	"	"	---	86	30-135%	---	---	
2,4'-DDE	0.439	0.00500	0.0100	"	"	"	---	88	50-140%	---	---	
2,4'-DDT	0.499	0.00500	0.0100	"	"	"	---	100	45-140%	---	---	
Hexachlorobenzene	0.396	0.0150	0.0300	"	"	"	---	79	28-136%	---	---	
Hexachlorobutadiene	0.227	0.00500	0.0100	"	"	"	---	45	25-120%	---	---	
Mirex	0.442	0.00500	0.0100	"	"	"	---	88	51-127%	---	---	
Oxychlordane	0.441	0.00500	0.0100	"	"	"	---	88	25-120%	---	---	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 74 %*		*Limits: 44-124 %*			*Dilution: 1x*				

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010793 - EPA 3510C (Neutral pH)									**Water**			
LCS (8010793-BS2)					Prepared: 01/18/18 07:26 Analyzed: 01/23/18 14:02							
EPA 8081B												
Surr: Decachlorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 47-129 %*			*Dilution: 1x*					
LCS Dup (8010793-BSD1)					Prepared: 01/18/18 07:26 Analyzed: 01/23/18 13:44							Q-19
EPA 8081B												
Aldrin	0.364	0.00500	0.0100	ug/L	1	0.500	---	73	45-134%	13	30%	
alpha-BHC	0.488	0.00500	0.0100	"	"	"	---	98	54-138%	1	30%	
beta-BHC	0.520	0.00500	0.0100	"	"	"	---	104	56-136%	0.9	30%	
delta-BHC	0.451	0.00500	0.0100	"	"	"	---	90	52-142%	4	30%	
gamma-BHC (Lindane)	0.494	0.00500	0.0100	"	"	"	---	99	59-134%	0.4	30%	
cis-Chlordane	0.520	0.00500	0.0100	"	"	"	---	104	60-129%	4	30%	
trans-Chlordane	0.507	0.00500	0.0100	"	"	"	---	101	56-136%	3	30%	
4,4'-DDD	0.479	0.00500	0.0100	"	"	"	---	96	56-143%	1	30%	
4,4'-DDE	0.495	0.00500	0.0100	"	"	"	---	99	57-135%	2	30%	
4,4'-DDT	0.492	0.00500	0.0100	"	"	"	---	98	51-143%	0.2	30%	
Dieldrin	0.502	0.00500	0.0100	"	"	"	---	100	60-136%	3	30%	
Endosulfan I	0.521	0.00500	0.0100	"	"	"	---	104	62-126%	0.7	30%	
Endosulfan II	0.510	0.00500	0.0100	"	"	"	---	102	52-135%	0.4	30%	
Endosulfan sulfate	0.470	0.00500	0.0100	"	"	"	---	94	62-133%	1	30%	
Endrin	0.534	0.00500	0.0100	"	"	"	---	107	60-138%	5	30%	
Endrin Aldehyde	0.445	0.00500	0.0100	"	"	"	---	89	51-132%	0.9	30%	
Endrin ketone	0.485	0.00500	0.0100	"	"	"	---	97	58-134%	4	30%	
Heptachlor	0.429	0.00500	0.0100	"	"	"	---	86	54-130%	5	30%	
Heptachlor epoxide	0.535	0.00500	0.0100	"	"	"	---	107	61-133%	4	30%	
Methoxychlor	0.507	0.0150	0.0300	"	"	"	---	101	54-144%	3	30%	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 68 %*	*Limits: 44-124 %*			*Dilution: 1x*					
Decachlorobiphenyl (Surr)			*76 %*	*47-129 %*			*"*					
LCS Dup (8010793-BSD2)					Prepared: 01/18/18 07:26 Analyzed: 01/23/18 14:19							Q-19
EPA 8081B												
cis-Nonachlor	0.477	0.00500	0.0100	ug/L	1	0.500	---	95	25-120%	4	30%	
trans-Nonachlor	0.485	0.00500	0.0100	"	"	"	---	97	"	5	30%	
2,4'-DDD	0.450	0.00500	0.0100	"	"	"	---	90	30-135%	5	30%	
2,4'-DDE	0.456	0.00500	0.0100	"	"	"	---	91	50-140%	4	30%	
2,4'-DDT	0.525	0.00500	0.0100	"	"	"	---	105	45-140%	5	30%	
Hexachlorobenzene	0.436	0.0150	0.0300	"	"	"	---	87	28-136%	10	30%	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010793 - EPA 3510C (Neutral pH)									**Water**			
LCS Dup (8010793-BSD2)					Prepared: 01/18/18 07:26 Analyzed: 01/23/18 14:19							Q-19
EPA 8081B												
Hexachlorobutadiene	0.243	0.00500	0.0100	ug/L	"	"	---	49	25-120%	7	30%	
Mirex	0.471	0.00500	0.0100	"	"	"	---	94	51-127%	6	30%	
Oxychlordane	0.466	0.00500	0.0100	"	"	"	---	93	25-120%	6	30%	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 75 %*		*Limits: 44-124 %*		*Dilution: 1x*					
Decachlorobiphenyl (Surr)			*77 %*		*47-129 %*		*"*					

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010961 - EPA 3510C (Neutral pH)/3640A (GPC)							**Water**					
Blank (8010961-BLK1)					Prepared: 01/18/18 07:26 Analyzed: 01/24/18 12:11							C-05
EPA 8081B												
Aldrin	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
alpha-BHC	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
beta-BHC	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
delta-BHC	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
gamma-BHC (Lindane)	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
cis-Chlordane	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
trans-Chlordane	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
4,4'-DDD	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
4,4'-DDE	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
4,4'-DDT	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Dieldrin	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Endosulfan I	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Endosulfan II	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Endosulfan sulfate	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Endrin	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Endrin Aldehyde	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Endrin ketone	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Heptachlor	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Heptachlor epoxide	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Methoxychlor	ND	0.0273	0.0545	"	"	---	---	---	---	---	---	
Chlordane (Technical)	ND	0.342	0.682	"	"	---	---	---	---	---	---	
Toxaphene (Total)	ND	0.342	0.682	"	"	---	---	---	---	---	---	
cis-Nonachlor	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
trans-Nonachlor	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
2,4'-DDD	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
2,4'-DDE	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
2,4'-DDT	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Hexachlorobenzene	ND	0.0273	0.0545	"	"	---	---	---	---	---	---	
Hexachlorobutadiene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Mirex	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Oxychlordane	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 70 %*		*Limits: 44-124 %*				*Dilution: 1x*			
Decachlorobiphenyl (Surr)			*75 %*		*47-129 %*				*"*			
LCS (8010961-BS1)					Prepared: 01/18/18 07:26 Analyzed: 01/24/18 12:29							C-05

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010961 - EPA 3510C (Neutral pH)/3640A (GPC)							**Water**					
LCS (8010961-BS1)					Prepared: 01/18/18 07:26		Analyzed: 01/24/18 12:29					C-05
EPA 8081B												
Aldrin	0.385	0.0100	0.0200	ug/L	1	0.500	---	77	45-134%	---	---	Q-41
alpha-BHC	0.449	0.0100	0.0200	"	"	"	---	90	54-138%	---	---	Q-41
beta-BHC	0.474	0.0100	0.0200	"	"	"	---	95	56-136%	---	---	
delta-BHC	0.445	0.0100	0.0200	"	"	"	---	89	52-142%	---	---	Q-41
gamma-BHC (Lindane)	0.455	0.0100	0.0200	"	"	"	---	91	59-134%	---	---	
cis-Chlordane	0.465	0.0100	0.0200	"	"	"	---	93	60-129%	---	---	
trans-Chlordane	0.449	0.0100	0.0200	"	"	"	---	90	56-136%	---	---	
4,4'-DDD	0.483	0.0100	0.0200	"	"	"	---	97	56-143%	---	---	
4,4'-DDE	0.480	0.0100	0.0200	"	"	"	---	96	57-135%	---	---	
4,4'-DDT	0.502	0.0100	0.0200	"	"	"	---	100	51-143%	---	---	
Dieldrin	0.489	0.0100	0.0200	"	"	"	---	98	60-136%	---	---	
Endosulfan I	0.489	0.0100	0.0200	"	"	"	---	98	62-126%	---	---	
Endosulfan II	0.499	0.0100	0.0200	"	"	"	---	100	52-135%	---	---	
Endosulfan sulfate	0.501	0.0100	0.0200	"	"	"	---	100	62-133%	---	---	
Endrin	0.533	0.0100	0.0200	"	"	"	---	107	60-138%	---	---	
Endrin Aldehyde	0.454	0.0100	0.0200	"	"	"	---	91	51-132%	---	---	
Endrin ketone	0.507	0.0100	0.0200	"	"	"	---	101	58-134%	---	---	
Heptachlor	0.410	0.0100	0.0200	"	"	"	---	82	54-130%	---	---	
Heptachlor epoxide	0.473	0.0100	0.0200	"	"	"	---	95	61-133%	---	---	
Methoxychlor	0.537	0.0300	0.0600	"	"	"	---	107	54-144%	---	---	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 69 %*		*Limits: 44-124 %*		*Dilution: 1x*					
Decachlorobiphenyl (Surr)			*65 %*		*47-129 %*		*"*					
LCS (8010961-BS2)					Prepared: 01/18/18 07:26		Analyzed: 01/25/18 12:35					C-05
EPA 8081B												
cis-Nonachlor	0.501	0.0100	0.0200	ug/L	1	0.500	---	100	25-120%	---	---	Q-41
trans-Nonachlor	0.456	0.0100	0.0200	"	"	"	---	91	"	---	---	Q-41
2,4'-DDD	0.500	0.0100	0.0200	"	"	"	---	100	30-135%	---	---	
2,4'-DDE	0.448	0.0100	0.0200	"	"	"	---	90	50-140%	---	---	
2,4'-DDT	0.592	0.0100	0.0200	"	"	"	---	118	45-140%	---	---	
Hexachlorobenzene	0.350	0.0300	0.0600	"	"	"	---	70	28-136%	---	---	
Hexachlorobutadiene	0.262	0.0100	0.0200	"	"	"	---	52	25-120%	---	---	
Mirex	0.489	0.0100	0.0200	"	"	"	---	98	51-127%	---	---	
Oxychlordane	0.433	0.0100	0.0200	"	"	"	---	87	25-120%	---	---	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 62 %*		*Limits: 44-124 %*		*Dilution: 1x*					

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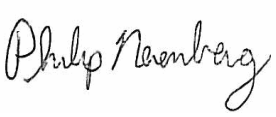

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010961 - EPA 3510C (Neutral pH)/3640A (GPC)							**Water**					
LCS (8010961-BS2)					Prepared: 01/18/18 07:26		Analyzed: 01/25/18 12:35					C-05
EPA 8081B												
Surr: Decachlorobiphenyl (Surr)			*Recovery: 74 %*	*Limits: 47-129 %*			*Dilution: 1x*					
LCS Dup (8010961-BSD1)					Prepared: 01/18/18 07:26		Analyzed: 01/24/18 12:46					C-05, Q-19
EPA 8081B												
Aldrin	0.350	0.0100	0.0200	ug/L	1	0.500	---	70	45-134%	10	30%	Q-41
alpha-BHC	0.445	0.0100	0.0200	"	"	"	---	89	54-138%	1	30%	Q-41
beta-BHC	0.457	0.0100	0.0200	"	"	"	---	91	56-136%	4	30%	
delta-BHC	0.449	0.0100	0.0200	"	"	"	---	90	52-142%	0.8	30%	Q-41
gamma-BHC (Lindane)	0.450	0.0100	0.0200	"	"	"	---	90	59-134%	1	30%	
cis-Chlordane	0.465	0.0100	0.0200	"	"	"	---	93	60-129%	0.05	30%	
trans-Chlordane	0.442	0.0100	0.0200	"	"	"	---	88	56-136%	1	30%	
4,4'-DDD	0.500	0.0100	0.0200	"	"	"	---	100	56-143%	3	30%	
4,4'-DDE	0.475	0.0100	0.0200	"	"	"	---	95	57-135%	1	30%	
4,4'-DDT	0.535	0.0100	0.0200	"	"	"	---	107	51-143%	6	30%	
Dieldrin	0.505	0.0100	0.0200	"	"	"	---	101	60-136%	3	30%	
Endosulfan I	0.484	0.0100	0.0200	"	"	"	---	97	62-126%	0.9	30%	
Endosulfan II	0.513	0.0100	0.0200	"	"	"	---	103	52-135%	3	30%	
Endosulfan sulfate	0.507	0.0100	0.0200	"	"	"	---	101	62-133%	1	30%	
Endrin	0.540	0.0100	0.0200	"	"	"	---	108	60-138%	1	30%	
Endrin Aldehyde	0.444	0.0100	0.0200	"	"	"	---	89	51-132%	2	30%	
Endrin ketone	0.530	0.0100	0.0200	"	"	"	---	106	58-134%	4	30%	
Heptachlor	0.391	0.0100	0.0200	"	"	"	---	78	54-130%	5	30%	
Heptachlor epoxide	0.473	0.0100	0.0200	"	"	"	---	95	61-133%	0.04	30%	
Methoxychlor	0.555	0.0300	0.0600	"	"	"	---	111	54-144%	3	30%	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 61 %*	*Limits: 44-124 %*			*Dilution: 1x*					
Decachlorobiphenyl (Surr)			*79 %*	*47-129 %*			*"*					
LCS Dup (8010961-BSD2)					Prepared: 01/18/18 07:26		Analyzed: 01/25/18 12:52					C-05, Q-19
EPA 8081B												
cis-Nonachlor	0.517	0.0100	0.0200	ug/L	1	0.500	---	103	25-120%	3	30%	Q-41
trans-Nonachlor	0.462	0.0100	0.0200	"	"	"	---	92	"	1	30%	Q-41
2,4'-DDD	0.528	0.0100	0.0200	"	"	"	---	106	30-135%	5	30%	
2,4'-DDE	0.445	0.0100	0.0200	"	"	"	---	89	50-140%	0.7	30%	
2,4'-DDT	0.609	0.0100	0.0200	"	"	"	---	122	45-140%	3	30%	
Hexachlorobenzene	0.356	0.0300	0.0600	"	"	"	---	71	28-136%	2	30%	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010961 - EPA 3510C (Neutral pH)/3640A (GPC)									**Water**			
LCS Dup (8010961-BSD2)					Prepared: 01/18/18 07:26		Analyzed: 01/25/18 12:52					C-05, Q-19
EPA 8081B												
Hexachlorobutadiene	0.263	0.0100	0.0200	ug/L	"	"	---	53	25-120%	0.5	30%	
Mirex	0.492	0.0100	0.0200	"	"	"	---	98	51-127%	0.6	30%	
Oxychlordane	0.438	0.0100	0.0200	"	"	"	---	88	25-120%	1	30%	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 59 %*		*Limits: 44-124 %*		*Dilution: 1x*					
Decachlorobiphenyl (Surr)			*79 %*		*47-129 %*		*"*					

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010708 - EPA 3510C (Acid Extraction)									**Water**			
Blank (8010708-BLK2)					Prepared: 01/16/18 09:15 Analyzed: 01/16/18 13:00							
EPA 8270D												
Acenaphthene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Chrysene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Fluoranthene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Fluorene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
Naphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
Phenanthrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Carbazole	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Diethylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Dimethylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Di-n-butylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 73 %*		*Limits: 44-120 %*				*Dilution: 1x*			
2-Fluorobiphenyl (Surr)			*71 %*		*44-120 %*				*"*			
Phenol-d6 (Surr)			*24 %*		*10-120 %*				*"*			
p-Terphenyl-d14 (Surr)			*81 %*		*50-133 %*				*"*			
2-Fluorophenol (Surr)			*39 %*		*19-120 %*				*"*			
2,4,6-Tribromophenol (Surr)			*70 %*		*43-140 %*				*"*			
LCS (8010708-BS2)					Prepared: 01/16/18 09:15 Analyzed: 01/16/18 13:36							
EPA 8270D												

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010708 - EPA 3510C (Acid Extraction)								**Water**				
LCS (8010708-BS2)						Prepared: 01/16/18 09:15		Analyzed: 01/16/18 13:36				
EPA 8270D												
Acenaphthene	3.53	0.0400	0.0800	ug/L	4	4.00	---	88	47-122%	---	---	
Acenaphthylene	3.50	0.0400	0.0800	"	"	"	---	88	41-130%	---	---	
Anthracene	3.72	0.0400	0.0800	"	"	"	---	93	57-123%	---	---	
Benz(a)anthracene	3.71	0.0400	0.0800	"	"	"	---	93	58-125%	---	---	
Benzo(a)pyrene	3.98	0.0600	0.120	"	"	"	---	99	54-128%	---	---	
Benzo(b)fluoranthene	3.89	0.0600	0.120	"	"	"	---	97	53-131%	---	---	
Benzo(k)fluoranthene	3.82	0.0600	0.120	"	"	"	---	96	57-129%	---	---	
Benzo(g,h,i)perylene	3.43	0.0400	0.0800	"	"	"	---	86	50-134%	---	---	
Chrysene	3.77	0.0400	0.0800	"	"	"	---	94	59-123%	---	---	
Dibenz(a,h)anthracene	3.54	0.0400	0.0800	"	"	"	---	89	51-134%	---	---	
Fluoranthene	3.87	0.0400	0.0800	"	"	"	---	97	57-128%	---	---	
Fluorene	3.61	0.0400	0.0800	"	"	"	---	90	52-124%	---	---	
Indeno(1,2,3-cd)pyrene	3.29	0.0400	0.0800	"	"	"	---	82	52-133%	---	---	
1-Methylnaphthalene	3.27	0.0800	0.160	"	"	"	---	82	41-120%	---	---	
2-Methylnaphthalene	3.11	0.0800	0.160	"	"	"	---	78	40-121%	---	---	
Naphthalene	3.02	0.0800	0.160	"	"	"	---	76	"	---	---	
Phenanthrene	3.60	0.0400	0.0800	"	"	"	---	90	59-120%	---	---	
Pyrene	3.83	0.0400	0.0800	"	"	"	---	96	57-126%	---	---	
Carbazole	4.17	0.0600	0.120	"	"	"	---	104	60-122%	---	---	
Dibenzofuran	3.51	0.0400	0.0800	"	"	"	---	88	53-120%	---	---	
Bis(2-ethylhexyl)phthalate	3.54	0.800	1.60	"	"	"	---	89	55-135%	---	---	
Butyl benzyl phthalate	3.85	0.800	1.60	"	"	"	---	96	53-134%	---	---	
Diethylphthalate	3.77	0.800	1.60	"	"	"	---	94	55-125%	---	---	
Dimethylphthalate	3.86	0.800	1.60	"	"	"	---	97	45-127%	---	---	
Di-n-butylphthalate	3.92	0.800	1.60	"	"	"	---	98	59-127%	---	---	
Di-n-octyl phthalate	3.80	0.800	1.60	"	"	"	---	95	51-140%	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 76 %*			*Limits: 44-120 %*		*Dilution: 4x*				
2-Fluorobiphenyl (Surr)			*78 %*			*44-120 %*		*"*				
Phenol-d6 (Surr)			*26 %*			*10-120 %*		*"*				
p-Terphenyl-d14 (Surr)			*87 %*			*50-133 %*		*"*				
2-Fluorophenol (Surr)			*41 %*			*19-120 %*		*"*				
2,4,6-Tribromophenol (Surr)			*93 %*			*43-140 %*		*"*				
LCS Dup (8010708-BSD2)						Prepared: 01/16/18 09:15		Analyzed: 01/16/18 14:12				Q-19
EPA 8270D												

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010708 - EPA 3510C (Acid Extraction)							**Water**					
LCS Dup (8010708-BSD2)					Prepared: 01/16/18 09:15 Analyzed: 01/16/18 14:12							Q-19
EPA 8270D												
Acenaphthene	3.65	0.0400	0.0800	ug/L	4	4.00	---	91	47-122%	3	30%	
Acenaphthylene	3.64	0.0400	0.0800	"	"	"	---	91	41-130%	4	30%	
Anthracene	4.00	0.0400	0.0800	"	"	"	---	100	57-123%	7	30%	
Benz(a)anthracene	4.00	0.0400	0.0800	"	"	"	---	100	58-125%	8	30%	
Benzo(a)pyrene	4.32	0.0600	0.120	"	"	"	---	108	54-128%	8	30%	
Benzo(b)fluoranthene	4.18	0.0600	0.120	"	"	"	---	105	53-131%	7	30%	
Benzo(k)fluoranthene	4.11	0.0600	0.120	"	"	"	---	103	57-129%	7	30%	
Benzo(g,h,i)perylene	3.61	0.0400	0.0800	"	"	"	---	90	50-134%	5	30%	
Chrysene	4.01	0.0400	0.0800	"	"	"	---	100	59-123%	6	30%	
Dibenz(a,h)anthracene	3.81	0.0400	0.0800	"	"	"	---	95	51-134%	7	30%	
Fluoranthene	4.15	0.0400	0.0800	"	"	"	---	104	57-128%	7	30%	
Fluorene	3.76	0.0400	0.0800	"	"	"	---	94	52-124%	4	30%	
Indeno(1,2,3-cd)pyrene	3.51	0.0400	0.0800	"	"	"	---	88	52-133%	7	30%	
1-Methylnaphthalene	3.33	0.0800	0.160	"	"	"	---	83	41-120%	2	30%	
2-Methylnaphthalene	3.16	0.0800	0.160	"	"	"	---	79	40-121%	2	30%	
Naphthalene	3.07	0.0800	0.160	"	"	"	---	77	"	2	30%	
Phenanthrene	3.84	0.0400	0.0800	"	"	"	---	96	59-120%	6	30%	
Pyrene	4.13	0.0400	0.0800	"	"	"	---	103	57-126%	8	30%	
Carbazole	4.48	0.0600	0.120	"	"	"	---	112	60-122%	7	30%	
Dibenzofuran	3.66	0.0400	0.0800	"	"	"	---	92	53-120%	4	30%	
Bis(2-ethylhexyl)phthalate	3.87	0.800	1.60	"	"	"	---	97	55-135%	9	30%	
Butyl benzyl phthalate	4.21	0.800	1.60	"	"	"	---	105	53-134%	9	30%	
Diethylphthalate	4.06	0.800	1.60	"	"	"	---	102	55-125%	7	30%	
Dimethylphthalate	4.10	0.800	1.60	"	"	"	---	103	45-127%	6	30%	
Di-n-butylphthalate	4.24	0.800	1.60	"	"	"	---	106	59-127%	8	30%	
Di-n-octyl phthalate	4.14	0.800	1.60	"	"	"	---	104	51-140%	9	30%	

Surr: Nitrobenzene-d5 (Surr)	*Recovery: 80 %*	*Limits: 44-120 %*	*Dilution: 4x*	
2-Fluorobiphenyl (Surr)	*81 %*	*44-120 %*	*"*	
Phenol-d6 (Surr)	*28 %*	*10-120 %*	*"*	
p-Terphenyl-d14 (Surr)	*91 %*	*50-133 %*	*"*	
2-Fluorophenol (Surr)	*45 %*	*19-120 %*	*"*	
2,4,6-Tribromophenol (Surr)	*100 %*	*43-140 %*	*"*	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010833 - EPA 3015A									Water			
Blank (8010833-BLK1)					Prepared: 01/18/18 15:54 Analyzed: 01/23/18 15:46							
EPA 6020A												
Aluminum	ND	25.0	50.0	ug/L	1	---	---	---	---	---	---	
Antimony	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Arsenic	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Cadmium	ND	0.0400	0.200	"	"	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Copper	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Lead	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Manganese	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Mercury	ND	0.0400	0.0800	"	"	---	---	---	---	---	---	
Nickel	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Silver	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Zinc	ND	2.00	4.00	"	"	---	---	---	---	---	---	
LCS (8010833-BS1)					Prepared: 01/18/18 15:54 Analyzed: 01/23/18 15:52							
EPA 6020A												
Aluminum	6170	25.0	50.0	ug/L	1	5560	---	111	80-120%	---	---	
Antimony	27.4	0.500	1.00	"	"	27.8	---	99	"	---	---	
Arsenic	53.6	0.500	1.00	"	"	55.6	---	96	"	---	---	
Cadmium	54.4	0.0400	0.200	"	"	"	---	98	"	---	---	
Chromium	55.8	0.500	1.00	"	"	"	---	101	"	---	---	
Copper	55.7	0.500	1.00	"	"	"	---	100	"	---	---	
Lead	55.5	0.100	0.200	"	"	"	---	100	"	---	---	
Manganese	56.3	0.500	1.00	"	"	"	---	101	"	---	---	
Mercury	1.13	0.0400	0.0800	"	"	1.11	---	102	"	---	---	
Nickel	54.5	0.500	1.00	"	"	55.6	---	98	"	---	---	
Silver	27.9	0.100	0.200	"	"	27.8	---	101	"	---	---	
Zinc	55.4	2.00	4.00	"	"	55.6	---	100	"	---	---	

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Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010770 - Total Suspended Solids									Water			
Blank (8010770-BLK1)					Prepared: 01/17/18 14:48		Analyzed: 01/18/18 09:40					
SM 2540 D												
Total Suspended Solids	ND	2.00	2.00	mg/L	1	---	---	---	---	---	---	
Reference (8010770-SRM1)					Prepared: 01/17/18 14:48		Analyzed: 01/18/18 09:40					
SM 2540 D												
Total Suspended Solids	92.0			mg/L	1	100		92	77.1-110%	---	---	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010826 - Method Prep: Aq									Water			
Blank (8010826-BLK1)					Prepared: 01/18/18 13:38		Analyzed: 01/18/18 16:46					
SM 5310 C												
Total Organic Carbon	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	
LCS (8010826-BS1)					Prepared: 01/18/18 13:38		Analyzed: 01/18/18 17:12					
SM 5310 C												
Total Organic Carbon	9.99	1.00	1.00	mg/L	1	10.0	---	100	85-115%	---	---	
LCS (8010826-BS2)					Prepared: 01/18/18 13:38		Analyzed: 01/18/18 17:40					
SM 5310 C												
Total Organic Carbon	ND	1.00	1.00	mg/L	1	0.00	---		85-115%	---	---	TOC_I

Apex Laboratories

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010745							
A8A0345-01	Water	NWTPH-Dx	01/12/18 12:30	01/17/18 07:26	1070mL/5mL	1000mL/5mL	0.94

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010675							
A8A0345-01	Water	NWTPH-Gx (MS)	01/12/18 12:30	01/15/18 10:24	5mL/5mL	5mL/5mL	1.00

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3510C (Neutral pH)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010888							
A8A0345-01	Water	EPA 8082A	01/12/18 12:30	01/22/18 09:10	1060mL/1mL	1000mL/1mL	0.94

Organochlorine Pesticides by EPA 8081B

Prep: EPA 3510C (Neutral pH)/3640A (GPC)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010961							
A8A0345-01RE1	Water	EPA 8081B	01/12/18 12:30	01/18/18 07:26	1070mL/10mL	1000mL/5mL	1.87
A8A0345-01RE2	Water	EPA 8081B	01/12/18 12:30	01/18/18 07:26	1070mL/10mL	1000mL/5mL	1.87

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3510C (Acid Extraction)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010708							
A8A0345-01	Water	EPA 8270D	01/12/18 12:30	01/16/18 09:17	1070mL/1mL	1000mL/1mL	0.94

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010833							
A8A0345-01	Water	EPA 6020A	01/12/18 12:30	01/18/18 15:54	45mL/50mL	45mL/50mL	1.00

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Labs

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

SAMPLE PREPARATION INFORMATION

Conventional Chemistry Parameters

Prep: Method Prep: Ag

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010826							
A8A0345-01	Water	SM 5310 C	01/12/18 12:30	01/18/18 13:38	40mL/40mL	40mL/40mL	1.00

Prep: Total Suspended Solids

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010770							
A8A0345-01	Water	SM 2540 D	01/12/18 12:30	01/17/18 14:48	1N/A/1N/A	1N/A/1N/A	NA

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

Notes and Definitions

Qualifiers:

C-05	Extract has undergone a GPC (Gel-Permeation Chromatography) cleanup per EPA 3640A. Reporting levels may be raised due to dilution necessary for cleanup. Sample Final Volume includes the GPC dilution factor, see the Prep page for details.
C-07	Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
F-17	No fuel pattern detected. The Diesel result represents carbon range C12 to C24, and the Oil result represents >C24 to C40.
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
Q-41	Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.
R-02	The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
R-04	Reporting levels elevated due to dilution necessary for analysis.
TOC_I	Inorganic Carbon Spike Check. Results are valid if Non Detect (No Inorganic Carbon detected.)

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.

Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

--- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

*** Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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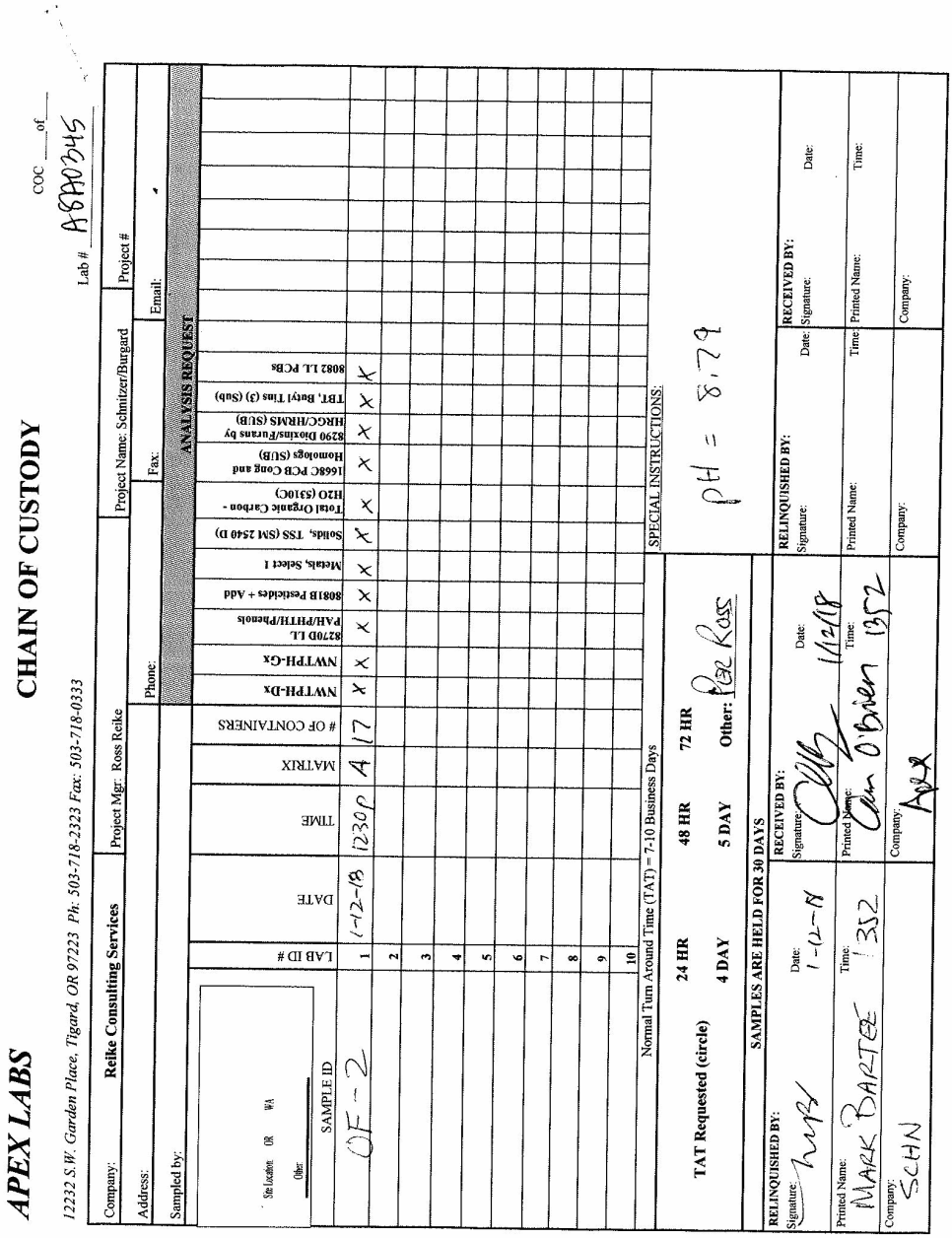
Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41



APEX LABS

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

COC ___ of ___

Lab # ABA0245

Company: **Reike Consulting Services** | Project Mgr: Ross Reike | Project Name: Schnitzer/Burgard | Project #

Address: | Phone: | Fax: | Email:

Sampled by:

Site Location OR WA
Other

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-Dx	NWTPH-Gx	8270D LL PAH/PHTH/Phenols	8081B Pesticides + Add	Metals, Select 1	Solids, TSS (SM 2540 D)	Total Organic Carbon - H2O (5310C)	1668C PCB Congs and Homologs (SUB)	8290 Dioxins/Furans by HRGC/HRMS (SUB)	TBT, Butyl Tins (3) (Sub)	8082 LL PCBs
OF-2	1	1-12-18	1230p	A	17	X	X	X	X	X	X	X	X	X	X	X
	2															
	3															
	4															
	5															
	6															
	7															
	8															
	9															
	10															

Normal Turn Around Time (TAT) = 7-10 Business Days

SPECIAL INSTRUCTIONS:

pH = 8.79

TAT Requested (circle)

24 HR **48 HR** **72 HR**
4 DAY **5 DAY** **Other:** Pat Ross

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY:	Date:	RECEIVED BY:	Date:	RELINQUISHED BY:	Date:	RECEIVED BY:	Date:
Signature:	1-12-18	Signature:	1/12/18	Signature:		Signature:	
Printed Name: MARK BARTEE	Time: 1352	Printed Name: Cam O'Brien	Time: 1352	Printed Name:	Time:	Printed Name:	Time:
Company: SCHN		Company: APEX		Company:		Company:	

Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Labs

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: HAI-8001	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	01/30/18 19:41

APEX LABS COOLER RECEIPT FORM

Client: Rieke Consulting Element WO#: A8 A0345

Project/Project #: Schnitzer/Burgard

Delivery info:

Date/Time Received: 1/12/18 @ 1352 By: AK

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: AK : 1/12/18 @ 1355

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	2.9						
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)	0.7						
Ice Type: (Gel/Real/Other)							
Condition:							

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: AK : 1/12/18 @ 1704

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No X NA___

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No___ NA___

Comments:

Additional Information:

Labeled by: AK Witness: VM Cooler Inspected by: AK See Project Contact Form: Y

Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

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WORK ORDER NUMBER: 18-01-1057

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: APEX Laboratories, LLC

Client Project Name: A8A0345

Attention: Philip Nerenberg
12232 SW Garden Place
Portland, OR 97223-8246

Approved for release on 01/30/2018 by:
Lori Thompson
Project Manager

ResultLink

Email your PM

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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Work Order Number: 18-01-1057

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4 Quality Control Sample Data. 6
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4.2 LCS/LCSD. 7

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7 Chain-of-Custody/Sample Receipt Form. 10

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Work Order Narrative

Work Order: 18-01-1057 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 01/16/18. They were assigned to Work Order 18-01-1057.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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Sample Summary

Client:	APEX Laboratories, LLC 12232 SW Garden Place Portland, OR 97223-8246	Work Order:	18-01-1057
		Project Name:	A8A0345
		PO Number:	
		Date/Time Received:	01/16/18 10:40
		Number of Containers:	2
Attn:	Philip Nerenberg		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
OF-2	18-01-1057-1	01/12/18 12:30	2	Aqueous

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Analytical Report

APEX Laboratories, LLC
12232 SW Garden Place
Portland, OR 97223-8246

Project: A8A0345

Date Received: 01/16/18
Work Order: 18-01-1057
Preparation: EPA 3510C
Method: Organotins by Krone et al.
Units: ng/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
OF-2	**18-01-1057-1-B**	**01/12/18 12:30**	**Aqueous**	**GC/MS Y**	**01/19/18**	**01/25/18 17:02**	**180119L02**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	7.1	2.9	1.7	1.00	
Monobutyltin	ND	2.9	2.3	1.00	
Tetrabutyltin	ND	2.9	1.9	1.00	
Tributyltin	ND	2.9	1.3	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	75	19-121	

Method Blank	099-07-035-482	N/A	Aqueous	GC/MS Y	01/19/18	01/26/18 11:35	180119L02

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	3.0	1.8	1.00	
Monobutyltin	ND	3.0	2.4	1.00	
Tetrabutyltin	ND	3.0	1.9	1.00	
Tributyltin	ND	3.0	1.4	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	102	19-121	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Spike/Spike Duplicate

APEX Laboratories, LLC
12232 SW Garden Place
Portland, OR 97223-8246

Project: A8A0345

Date Received: 01/16/18
Work Order: 18-01-1057
Preparation: EPA 3510C
Method: Organotins by Krone et al.

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
18-01-1284-1	**Sample**	**Aqueous**	**GC/MS Y**	**01/19/18**	**01/25/18 17:19**	**180119S02**
18-01-1284-1	**Matrix Spike**	**Aqueous**	**GC/MS Y**	**01/19/18**	**01/25/18 15:52**	**180119S02**
18-01-1284-1	**Matrix Spike Duplicate**	**Aqueous**	**GC/MS Y**	**01/19/18**	**01/25/18 16:09**	**180119S02**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	ND	200.0	131.1	66	131.5	66	23-131	0	0-26	
Tributyltin	ND	200.0	109.3	55	100.3	50	37-127	9	0-26	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

APEX Laboratories, LLC		Date Received:	01/16/18
12232 SW Garden Place		Work Order:	18-01-1057
Portland, OR 97223-8246		Preparation:	EPA 3510C
		Method:	Organotins by Krone et al.
Project: A8A0345			Page 1 of 1

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-07-035-482	**LCS**	**Aqueous**	**GC/MS Y**	**01/19/18**	**01/25/18 15:34**	**180119L02**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Tetrabutyltin	200.0	117.8	59	35-131	
Tributyltin	200.0	107.5	54	50-120	

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RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 18-01-1057 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
Organotins by Krone et al.	EPA 3510C	907	GC/MS Y	1

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Glossary of Terms and Qualifiers

Work Order: 18-01-1057 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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SUBCONTRACT ORDER

Apex Laboratories

A8A0345 **18-01-1057**

SENDING LABORATORY:

Apex Laboratories
12232 S.W. Garden Place
Tigard, OR 97223
Phone: (503) 718-2323
Fax: (503) 718-0333
Project Manager: Philip Nerenberg

RECEIVING LABORATORY:

Eurofins_CalScience
7440 Lincoln Way
Garden Grove, CA 92841-1427
Phone :(714) 895-5494
Fax: (714) 894-7501

Sample Name: OF-2 **Water** **Sampled: 01/12/18 12:30** (A8A0345-01)

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub) *Containers Supplied:* (P)1 L Amber Glass - Non Preserved (Q)1 L Amber Glass - Non Preserved	01/25/18 17:00	01/26/18 12:30	Krone

Standard TAT

Released By 1/15/18 Date — Fed Ex (Shipper) — Received By — Date

Fed Ex (Shipper) — Released By — Date — Received By 1/16/18 1040 Date

1057

ORIGIN ID:BNOA (503) 718-2323
SAMPLE CONTROL
APEX LABS
12232 SW GARDEN PLACE

TIGARD, OR 97223
UNITED STATES US

SHIP DATE: 15JAN18
ACTWGT: 30.00 LB
CAD: 4716258/INET3920

BILL SENDER

TO DANIELLE GONSMAN
CALSCIENCE
7440 LINCOLN WAY

GARDEN GROVE CA 92841
(714) 895-5494 REF:
INV:
PO: DEPT:

549J18D40/104C

FedEx Express

TUE - 16 JAN 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7712 2146 9834

WZ APVA

92841
CA-US SNA

FedEx Ship Manager - Print Your Label(s)

1/15/2018

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eurofins | Calscience

WORK ORDER NUMBER: 18-01-1057

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Apex

DATE: 01/16/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 2.2 °C (w/ CF): 2.4 °C; ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter Checked by: IS

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: IS

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: SM

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☐	☐	☑
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☑	☐	☐
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	☐	☐	☑
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOAh ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB ☐ 125PB**znna** (pH__9)

☐ 250AGB ☐ 250CGB ☐ 250CGB**s** (pH__2) ☐ 250PB ☐ 250PB**n** (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s** (pH__2) ☐ 500PB

☑ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** (pH__2) ☐ 1AGB**s** (O&G) ☐ 1PB ☐ 1PB**na** (pH__12) ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (___) ☐ EnCores® (___) ☐ TerraCores® (___) ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, **s** = H_2SO_4, **u** = ultra-pure, **x** = Na_2SO_3+$NaHSO_4.H_2O$, **znna** = Zn $(CH_3CO_2)_2$ + NaOH

Labeled/Checked by: SM

Reviewed by: SM

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Maxxam
A Bureau Veritas Group Company

Your Project #: A8A0345
Your C.O.C. #: A8A0345

Attention: Philip Nerenberg

Apex Laboratories
12232 SW Garden Place
Tigard, OR
USA 97223

Report Date: 2018/02/01
Report #: R4962322
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B811793
Received: 2018/01/17, 14:21

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Dioxins/Furans in Water (8290A) (1)	1	2018/01/22	2018/01/30	BRL SOP-00406	EPA 8290A m
PCB Congeners in Water (1668A)	1	2018/01/22	2018/01/25	BRL SOP-00408	EPA 1668A m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Confirmatory runs for 2,3,7,8-TCDF are performed only if the primary result is greater than the RDL.

U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.
E = Analyte concentration exceeds the maximum concentration level.
K = Estimated maximum possible concentration due to ion abundance ratio failure.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Stephanie Pollen, Project Manager
Email: SPollen@maxxam.ca
Phone# (905) 817-5700
==========
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FXT573							
Sampling Date		2018/01/12 12:30							
COC Number		A8A0345				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	2.2 U	2.2	22	N/A	1.00	2.20	N/A	5370113
1,2,3,7,8-Penta CDD *	pg/L	1.7 U	1.7	54	N/A	1.00	1.70	N/A	5370113
1,2,3,4,7,8-Hexa CDD *	pg/L	1.3 U	1.3	54	N/A	0.100	0.130	N/A	5370113
1,2,3,6,7,8-Hexa CDD *	pg/L	1.3 U	1.3	54	N/A	0.100	0.130	N/A	5370113
1,2,3,7,8,9-Hexa CDD *	pg/L	1.3 U	1.3	54	N/A	0.100	0.130	N/A	5370113
1,2,3,4,6,7,8-Hepta CDD *	pg/L	3.4 J	1.8	54	N/A	0.0100	0.0340	N/A	5370113
Octa CDD *	pg/L	26.7 J	1.9	110	N/A	0.000300	0.00801	N/A	5370113
Total Tetra CDD *	pg/L	2.2 U	2.2	22	N/A	N/A	N/A	0	5370113
Total Penta CDD *	pg/L	1.7 U	1.7	54	N/A	N/A	N/A	0	5370113
Total Hexa CDD *	pg/L	1.3 U	1.3	54	N/A	N/A	N/A	0	5370113
Total Hepta CDD *	pg/L	12.7 J	1.8	54	N/A	N/A	N/A	2	5370113
2,3,7,8-Tetra CDF **	pg/L	1.6 U	1.6	22	N/A	0.100	0.160	N/A	5370113
1,2,3,7,8-Penta CDF **	pg/L	1.7 U	1.7	54	N/A	0.0300	0.0510	N/A	5370113
2,3,4,7,8-Penta CDF **	pg/L	1.7 U	1.7	54	N/A	0.300	0.510	N/A	5370113
1,2,3,4,7,8-Hexa CDF **	pg/L	1.1 U	1.1	54	N/A	0.100	0.110	N/A	5370113
1,2,3,6,7,8-Hexa CDF **	pg/L	1.1 U	1.1	54	N/A	0.100	0.110	N/A	5370113
2,3,4,6,7,8-Hexa CDF **	pg/L	1.1 U	1.1	54	N/A	0.100	0.110	N/A	5370113
1,2,3,7,8,9-Hexa CDF **	pg/L	1.3 U	1.3	54	N/A	0.100	0.130	N/A	5370113
1,2,3,4,6,7,8-Hepta CDF **	pg/L	1.2 U	1.2	54	N/A	0.0100	0.0120	N/A	5370113
1,2,3,4,7,8,9-Hepta CDF **	pg/L	1.5 U	1.5	54	N/A	0.0100	0.0150	N/A	5370113
Octa CDF **	pg/L	1.5 U	1.5	110	N/A	0.000300	0.000450	N/A	5370113
Total Tetra CDF **	pg/L	1.6 U	1.6	22	N/A	N/A	N/A	0	5370113
Total Penta CDF **	pg/L	1.7 U	1.7	54	N/A	N/A	N/A	0	5370113
Total Hexa CDF **	pg/L	1.1 U	1.1	54	N/A	N/A	N/A	0	5370113
Total Hepta CDF **	pg/L	1.4 U	1.4	54	N/A	N/A	N/A	0	5370113
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	5.54	N/A	N/A
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	114	N/A	N/A	N/A	N/A	N/A	N/A	5370113

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin -like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B811793
Report Date: 2018/02/01

Apex Laboratories
Client Project #: A8A0345

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FXT573							
Sampling Date		2018/01/12 12:30							
COC Number		A8A0345				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-1234678 HeptaCDF **	%	123	N/A	N/A	N/A	N/A	N/A	N/A	5370113
C13-123478 HexaCDF **	%	125	N/A	N/A	N/A	N/A	N/A	N/A	5370113
C13-123678 HexaCDD *	%	123	N/A	N/A	N/A	N/A	N/A	N/A	5370113
C13-12378 PentaCDD *	%	114	N/A	N/A	N/A	N/A	N/A	N/A	5370113
C13-12378 PentaCDF **	%	120	N/A	N/A	N/A	N/A	N/A	N/A	5370113
C13-2378 TetraCDD *	%	102	N/A	N/A	N/A	N/A	N/A	N/A	5370113
C13-2378 TetraCDF **	%	105	N/A	N/A	N/A	N/A	N/A	N/A	5370113
C13-OCDD *	%	108	N/A	N/A	N/A	N/A	N/A	N/A	5370113

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin -like Compounds

QC Batch = Quality Control Batch

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N/A = Not Applicable

* CDD = Chloro Dibenzo-p-Dioxin

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Maxxam Job #: B811793
Report Date: 2018/02/01

Apex Laboratories
Client Project #: A8A0345

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FXT573							
Sampling Date		2018/01/12 12:30							
COC Number		A8A0345				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2-MonoCB-(1)	ng/L	0.012 U	0.012	0.094	N/A	N/A	N/A	N/A	5369920
3-MonoCB-(2)	ng/L	0.012 U	0.012	0.094	N/A	N/A	N/A	N/A	5369920
4-MonoCB-(3)	ng/L	0.012 U	0.012	0.094	N/A	N/A	N/A	N/A	5369920
22'-DiCB-(4)	ng/L	0.987	0.065	0.094	N/A	N/A	N/A	N/A	5369920
2,3-DiCB-(5)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5369920
2,3'-DiCB-(6)	ng/L	0.062 U (1)	0.062	0.094	N/A	N/A	N/A	N/A	5369920
2,4-DiCB-(7)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5369920
2,4'-DiCB-(8)	ng/L	0.240	0.018	0.094	N/A	N/A	N/A	N/A	5369920
2,5-DiCB-(9)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5369920
2,6-DiCB-(10)	ng/L	0.057 U	0.057	0.094	N/A	N/A	N/A	N/A	5369920
3,3'-DiCB-(11)	ng/L	0.017 U	0.017	0.094	N/A	N/A	N/A	N/A	5369920
DiCB-(12)+(13)	ng/L	0.018 U	0.018	0.19	N/A	N/A	N/A	N/A	5369920
3,5-DiCB-(14)	ng/L	0.017 U	0.017	0.094	N/A	N/A	N/A	N/A	5369920
4,4'-DiCB-(15)	ng/L	0.050 U (1)	0.050	0.094	N/A	N/A	N/A	N/A	5369920
22'3-TriCB-(16)	ng/L	0.314	0.031	0.094	N/A	N/A	N/A	N/A	5369920
22'4-TriCB-(17)	ng/L	0.223	0.027	0.094	N/A	N/A	N/A	N/A	5369920
TriCB-(18)+(30)	ng/L	0.629	0.021	0.19	N/A	N/A	N/A	N/A	5369920
22'6-TriCB-(19)	ng/L	0.244	0.021	0.094	N/A	N/A	N/A	N/A	5369920
TriCB-(20) + (28)	ng/L	0.233	0.0089	0.19	N/A	N/A	N/A	N/A	5369920
TriCB-(21)+(33)	ng/L	0.163 J	0.0089	0.19	N/A	N/A	N/A	N/A	5369920
234'-TriCB-(22)	ng/L	0.0853 J	0.0096	0.094	N/A	N/A	N/A	N/A	5369920
235-TriCB-(23)	ng/L	0.0089 U	0.0089	0.094	N/A	N/A	N/A	N/A	5369920
236-TriCB-(24)	ng/L	0.021 U	0.021	0.094	N/A	N/A	N/A	N/A	5369920
23'4-TriCB-(25)	ng/L	0.0200 J	0.0084	0.094	N/A	N/A	N/A	N/A	5369920
TriCB-(26)+(29)	ng/L	0.0567 J	0.0087	0.19	N/A	N/A	N/A	N/A	5369920
23'6-TriCB-(27)	ng/L	0.042 J	0.017	0.094	N/A	N/A	N/A	N/A	5369920
24'5-TriCB-(31)	ng/L	0.232	0.0085	0.094	N/A	N/A	N/A	N/A	5369920
24'6-TriCB-(32)	ng/L	0.120	0.017	0.094	N/A	N/A	N/A	N/A	5369920
23'5'-TriCB-(34)	ng/L	0.0090 U	0.0090	0.094	N/A	N/A	N/A	N/A	5369920
33'4-TriCB-(35)	ng/L	0.0089 U	0.0089	0.094	N/A	N/A	N/A	N/A	5369920

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compound

QC Batch = Quality Control Batch

N/A = Not Applicable

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B811793
Report Date: 2018/02/01

Apex Laboratories
Client Project #: A8A0345

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FXT573							
Sampling Date		2018/01/12 12:30							
COC Number		A8A0345				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'5-TriCB-(36)	ng/L	0.0075 U	0.0075	0.094	N/A	N/A	N/A	N/A	5369920
344'-TriCB-(37)	ng/L	0.040 J	0.014	0.094	N/A	N/A	N/A	N/A	5369920
345-TriCB-(38)	ng/L	0.0090 U	0.0090	0.094	N/A	N/A	N/A	N/A	5369920
34'5-TriCB-(39)	ng/L	0.0088 U	0.0088	0.094	N/A	N/A	N/A	N/A	5369920
TetraCB-(40)+(41)+(71)	ng/L	0.209 J	0.043	0.28	N/A	N/A	N/A	N/A	5369920
22'34'-TetraCB-(42)	ng/L	0.100	0.051	0.094	N/A	N/A	N/A	N/A	5369920
22'35-TetraCB-(43)	ng/L	0.053 U	0.053	0.094	N/A	N/A	N/A	N/A	5369920
TetraCB-(44)+(47)+(65)	ng/L	0.332	0.039	0.28	N/A	N/A	N/A	N/A	5369920
TetraCB-(45)+(51)	ng/L	0.113 J	0.041	0.19	N/A	N/A	N/A	N/A	5369920
22'36'-TetraCB-(46)	ng/L	0.048 U	0.048	0.094	N/A	N/A	N/A	N/A	5369920
22'45-TetraCB-(48)	ng/L	0.085 J	0.044	0.094	N/A	N/A	N/A	N/A	5369920
TetraCB-(49)+TetraCB-(69)	ng/L	0.169 J	0.036	0.19	N/A	N/A	N/A	N/A	5369920
TetraCB-(50)+(53)	ng/L	0.080 U (1)	0.080	0.19	N/A	N/A	N/A	N/A	5369920
22'55'-TetraCB-(52)	ng/L	0.418	0.043	0.094	N/A	N/A	N/A	N/A	5369920
22'66'-TetraCB-(54)	ng/L	0.0075 U	0.0075	0.094	N/A	N/A	N/A	N/A	5369920
233'4-TetraCB-(55)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5369920
233'4'-Tetra CB(56)	ng/L	0.037 J	0.016	0.094	N/A	N/A	N/A	N/A	5369920
233'5-TetraCB-(57)	ng/L	0.016 U	0.016	0.094	N/A	N/A	N/A	N/A	5369920
233'5'-TetraCB-(58)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5369920
TetraCB-(59)+(62)+(75)	ng/L	0.031 U	0.031	0.28	N/A	N/A	N/A	N/A	5369920
2344'-TetraCB -(60)	ng/L	0.017 U	0.017	0.094	N/A	N/A	N/A	N/A	5369920
TetraCB-(61)+(70)+(74)+(76)	ng/L	0.195 J	0.016	0.38	N/A	N/A	N/A	N/A	5369920
234'5-TetraCB-(63)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5369920
234'6-TetraCB-(64)	ng/L	0.133	0.035	0.094	N/A	N/A	N/A	N/A	5369920
23'44'-TetraCB-(66)	ng/L	0.070 J	0.015	0.094	N/A	N/A	N/A	N/A	5369920
23'45-TetraCB-(67)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5369920
23'45'-TetraCB-(68)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5369920
23'55'-TetraCB-(72)	ng/L	0.016 U	0.016	0.094	N/A	N/A	N/A	N/A	5369920
23'5'6-TetraCB-(73)	ng/L	0.029 U	0.029	0.094	N/A	N/A	N/A	N/A	5369920
33'44'-TetraCB-(77)	ng/L	0.020 U	0.020	0.094	N/A	0.000100	0.00000200	N/A	5369920

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FXT573							
Sampling Date		2018/01/12 12:30							
COC Number		A8A0345				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'45-TetraCB-(78)	ng/L	0.017 U	0.017	0.094	N/A	N/A	N/A	N/A	5369920
33'45'-TetraCB(79)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5369920
33'55'-TetraCB-(80)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5369920
344'5-TetraCB-(81)	ng/L	0.020 U	0.020	0.094	N/A	0.000300	0.00000600	N/A	5369920
22'33'4-PentaCB-(82)	ng/L	0.027 J	0.026	0.094	N/A	N/A	N/A	N/A	5369920
PentaCB-(83)+(99)	ng/L	0.067 J	0.022	0.19	N/A	N/A	N/A	N/A	5369920
22'33'6-PentaCB-(84)	ng/L	0.067 J	0.025	0.094	N/A	N/A	N/A	N/A	5369920
PentaCB-(85)+(116)+(117)	ng/L	0.029 J	0.019	0.28	N/A	N/A	N/A	N/A	5369920
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	0.148 J	0.019	0.57	N/A	N/A	N/A	N/A	5369920
PentaCB-(88)+(91)	ng/L	0.032 J	0.021	0.19	N/A	N/A	N/A	N/A	5369920
22'346'-PentaCB-(89)	ng/L	0.023 U	0.023	0.094	N/A	N/A	N/A	N/A	5369920
PentaCB-(90)+(101)+(113)	ng/L	0.204 J	0.019	0.28	N/A	N/A	N/A	N/A	5369920
22'355'-PentaCB-(92)	ng/L	0.040 J	0.022	0.094	N/A	N/A	N/A	N/A	5369920
PentaCB-(93)+(98)+(100)+(102)	ng/L	0.021 U	0.021	0.38	N/A	N/A	N/A	N/A	5369920
22'356'-PentaCB-(94)	ng/L	0.023 U	0.023	0.094	N/A	N/A	N/A	N/A	5369920
22'35'6-PentaCB-(95)	ng/L	0.203	0.020	0.094	N/A	N/A	N/A	N/A	5369920
22'366'-PentaCB-(96)	ng/L	0.010 U	0.010	0.094	N/A	N/A	N/A	N/A	5369920
22'45'6-PentaCB-(103)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5369920
22'466'-PentaCB-(104)	ng/L	0.0093 U	0.0093	0.094	N/A	N/A	N/A	N/A	5369920
233'44'-PentaCB-(105)	ng/L	0.065 U (1)	0.065	0.094	N/A	0.0000300	0.00000195	N/A	5369920
233'45-PentaCB-(106)	ng/L	0.013 U	0.013	0.094	N/A	N/A	N/A	N/A	5369920
233'4'5-PentaCB-(107)	ng/L	0.012 U	0.012	0.094	N/A	N/A	N/A	N/A	5369920
PentaCB-(108)+(124)	ng/L	0.013 U	0.013	0.19	N/A	N/A	N/A	N/A	5369920
PentaCB-(110)+(115)	ng/L	0.244	0.017	0.19	N/A	N/A	N/A	N/A	5369920
233'55'-PentaCB-(111)	ng/L	0.017 U	0.017	0.094	N/A	N/A	N/A	N/A	5369920
233'56-PentaCB-(112)	ng/L	0.017 U	0.017	0.094	N/A	N/A	N/A	N/A	5369920
2344'5-PentaCB-(114)	ng/L	0.015 U	0.015	0.094	N/A	0.0000300	0.000000450	N/A	5369920
23'44'5-PentaCB-(118)	ng/L	0.179	0.015	0.094	N/A	0.0000300	0.00000537	N/A	5369920
23'455'-PentaCB-(120)	ng/L	0.016 U	0.016	0.094	N/A	N/A	N/A	N/A	5369920
23'45'6-PentaCB-(121)	ng/L	0.016 U	0.016	0.094	N/A	N/A	N/A	N/A	5369920

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FXT573							
Sampling Date		2018/01/12 12:30							
COC Number		A8A0345				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'5'-PentaCB-(122)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5369920
23'44'5'-PentaCB-(123)	ng/L	0.017 U	0.017	0.094	N/A	0.0000300	0.000000510	N/A	5369920
33'44'5-PentaCB-(126)	ng/L	0.015 U	0.015	0.094	N/A	0.100	0.00150	N/A	5369920
33'455'-PentaCB-(127)	ng/L	0.013 U	0.013	0.094	N/A	N/A	N/A	N/A	5369920
HexaCB-(128)+(166)	ng/L	0.045 J	0.041	0.19	N/A	N/A	N/A	N/A	5369920
HexaCB-(129)+(138)+(163)	ng/L	0.245 J	0.044	0.28	N/A	N/A	N/A	N/A	5369920
22'33'45'-HexaCB-(130)	ng/L	0.052 U	0.052	0.094	N/A	N/A	N/A	N/A	5369920
22'33'46-HexaCB-(131)	ng/L	0.053 U	0.053	0.094	N/A	N/A	N/A	N/A	5369920
22'33'46'-HexaCB-(132)	ng/L	0.085 J	0.049	0.094	N/A	N/A	N/A	N/A	5369920
22'33'55'-HexaCB-(133)	ng/L	0.045 U	0.045	0.094	N/A	N/A	N/A	N/A	5369920
HexaCB-(134)+(143)	ng/L	0.049 U	0.049	0.19	N/A	N/A	N/A	N/A	5369920
HexaCB-(135)+(151)	ng/L	0.058 J	0.022	0.19	N/A	N/A	N/A	N/A	5369920
22'33'66'-HexaCB-(136)	ng/L	0.031 J	0.015	0.094	N/A	N/A	N/A	N/A	5369920
22'344'5-HexaCB-(137)	ng/L	0.049 U	0.049	0.094	N/A	N/A	N/A	N/A	5369920
HexaCB-(139)+(140)	ng/L	0.041 U	0.041	0.19	N/A	N/A	N/A	N/A	5369920
22'3455'-HexaCB-(141)	ng/L	0.045 U	0.045	0.094	N/A	N/A	N/A	N/A	5369920
22'3456-HexaCB-(142)	ng/L	0.047 U	0.047	0.094	N/A	N/A	N/A	N/A	5369920
22'345'6-HexaCB-(144)	ng/L	0.022 U	0.022	0.094	N/A	N/A	N/A	N/A	5369920
22'3466'-HexaCB-(145)	ng/L	0.016 U	0.016	0.094	N/A	N/A	N/A	N/A	5369920
22'34'55'-HexaCB-(146)	ng/L	0.042 U	0.042	0.094	N/A	N/A	N/A	N/A	5369920
HexaCB-(147)+(149)	ng/L	0.158 J	0.042	0.19	N/A	N/A	N/A	N/A	5369920
22'34'56'-HexaCB-(148)	ng/L	0.021 U	0.021	0.094	N/A	N/A	N/A	N/A	5369920
22'34'66'-HexaCB-(150)	ng/L	0.016 U	0.016	0.094	N/A	N/A	N/A	N/A	5369920
22'3566'-HexaCB-(152)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5369920
HexaCB-(153)+(168)	ng/L	0.168 J	0.036	0.19	N/A	N/A	N/A	N/A	5369920
22'44'56'-HexaCB-(154)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5369920
22'44'66'-HexaCB-(155)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5369920
HexaCB-(156)+(157)	ng/L	0.0304 J	0.0086	0.19	N/A	0.0000300	0.000000912	N/A	5369920
233'44'6-HexaCB-(158)	ng/L	0.033 U	0.033	0.094	N/A	N/A	N/A	N/A	5369920
233'455'-HexaCB-(159)	ng/L	0.0073 U	0.0073	0.094	N/A	N/A	N/A	N/A	5369920
233'456-HexaCB-(160)	ng/L	0.036 U	0.036	0.094	N/A	N/A	N/A	N/A	5369920

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FXT573							
Sampling Date		2018/01/12 12:30							
COC Number		A8A0345				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'45'6-HexaCB-(161)	ng/L	0.031 U	0.031	0.094	N/A	N/A	N/A	N/A	5369920
233'4'55'-HexaCB-(162)	ng/L	0.0073 U	0.0073	0.094	N/A	N/A	N/A	N/A	5369920
233'4'5'6-HexaCB-(164)	ng/L	0.034 U	0.034	0.094	N/A	N/A	N/A	N/A	5369920
233'55'6-HexaCB-(165)	ng/L	0.035 U	0.035	0.094	N/A	N/A	N/A	N/A	5369920
23'44'55'-HexaCB-(167)	ng/L	0.0140 J	0.0083	0.094	N/A	0.0000300	0.000000420	N/A	5369920
33'44'55'-HexaCB-(169)	ng/L	0.0088 U	0.0088	0.094	N/A	0.0300	0.000264	N/A	5369920
22'33'44'5-HeptaCB-(170)	ng/L	0.031 U	0.031	0.094	N/A	N/A	N/A	N/A	5369920
HeptaCB-(171)+(173)	ng/L	0.048 U	0.048	0.19	N/A	N/A	N/A	N/A	5369920
22'33'455'-HeptaCB-(172)	ng/L	0.050 U	0.050	0.094	N/A	N/A	N/A	N/A	5369920
22'33'456'-HeptaCB-(174)	ng/L	0.047 U	0.047	0.094	N/A	N/A	N/A	N/A	5369920
22'33'45'6-HeptaCB-(175)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5369920
22'33'466'-HeptaCB-(176)	ng/L	0.013 U	0.013	0.094	N/A	N/A	N/A	N/A	5369920
22'33'45'6'-HeptaCB-(177)	ng/L	0.048 U	0.048	0.094	N/A	N/A	N/A	N/A	5369920
22'33'55'6-HeptaCB-(178)	ng/L	0.020 U	0.020	0.094	N/A	N/A	N/A	N/A	5369920
22'33'566'-HeptaCB-(179)	ng/L	0.017 J	0.012	0.094	N/A	N/A	N/A	N/A	5369920
HeptaCB-(180)+(193)	ng/L	0.092 U (1)	0.092	0.19	N/A	N/A	N/A	N/A	5369920
22'344'56-HeptaCB-(181)	ng/L	0.047 U	0.047	0.094	N/A	N/A	N/A	N/A	5369920
22'344'56'-HeptaCB-(182)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5369920
22'344'5'6-HeptaCB-(183)	ng/L	0.042 U	0.042	0.094	N/A	N/A	N/A	N/A	5369920
22'344'66'-HeptaCB-(184)	ng/L	0.012 U	0.012	0.094	N/A	N/A	N/A	N/A	5369920
22'3455'6-HeptaCB-(185)	ng/L	0.042 U	0.042	0.094	N/A	N/A	N/A	N/A	5369920
22'34566'-HeptaCB-(186)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5369920
22'34'55'6-HeptaCB-(187)	ng/L	0.049 J	0.018	0.094	N/A	N/A	N/A	N/A	5369920
22'34'566'-HeptaCB-(188)	ng/L	0.016 U	0.016	0.094	N/A	N/A	N/A	N/A	5369920
233'44'55'-HeptaCB-(189)	ng/L	0.0087 U	0.0087	0.094	N/A	0.0000300	0.000000261	N/A	5369920
233'44'56-HeptaCB-(190)	ng/L	0.039 U	0.039	0.094	N/A	N/A	N/A	N/A	5369920
233'44'5'6-HeptaCB-(191)	ng/L	0.036 U	0.036	0.094	N/A	N/A	N/A	N/A	5369920
233'455'6-HeptaCB-(192)	ng/L	0.040 U	0.040	0.094	N/A	N/A	N/A	N/A	5369920
22'33'44'55'-OctaCB-(194)	ng/L	0.050 U	0.050	0.094	N/A	N/A	N/A	N/A	5369920
22'33'44'56-OctaCB-(195)	ng/L	0.051 U	0.051	0.094	N/A	N/A	N/A	N/A	5369920

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FXT573							
Sampling Date		2018/01/12 12:30							
COC Number		A8A0345				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'56'-OctaCB-(196)	ng/L	0.051 U	0.051	0.094	N/A	N/A	N/A	N/A	5369920
22'33'44'66'OctaCB-(197)	ng/L	0.033 U	0.033	0.094	N/A	N/A	N/A	N/A	5369920
OctaCB-(198)+(199)	ng/L	0.052 U	0.052	0.19	N/A	N/A	N/A	N/A	5369920
22'33'4566'-OctaCB-(200)	ng/L	0.034 U	0.034	0.094	N/A	N/A	N/A	N/A	5369920
22'33'45'66'-OctaCB-(201)	ng/L	0.033 U	0.033	0.094	N/A	N/A	N/A	N/A	5369920
22'33'55'66'-OctaCB-(202)	ng/L	0.037 U	0.037	0.094	N/A	N/A	N/A	N/A	5369920
22'344'55'6-OctaCB-(203)	ng/L	0.049 U	0.049	0.094	N/A	N/A	N/A	N/A	5369920
22'344'566'-OctaCB-(204)	ng/L	0.033 U	0.033	0.094	N/A	N/A	N/A	N/A	5369920
233'44'55'6-OctaCB-(205)	ng/L	0.037 U	0.037	0.094	N/A	N/A	N/A	N/A	5369920
22'33'44'55'6-NonaCB-(206)	ng/L	0.042 U	0.042	0.094	N/A	N/A	N/A	N/A	5369920
22'33'44'566'-NonaCB-(207)	ng/L	0.035 U	0.035	0.094	N/A	N/A	N/A	N/A	5369920
22'33'455'66'-NonaCB-(208)	ng/L	0.042 U	0.042	0.094	N/A	N/A	N/A	N/A	5369920
DecaCB-(209)	ng/L	0.027 U	0.027	0.094	N/A	N/A	N/A	N/A	5369920
Monochlorobiphenyl	ng/L	0.012 U	0.012	N/A	N/A	N/A	N/A	0	5369920
Dichlorobiphenyl	ng/L	1.23	0.065	N/A	N/A	N/A	N/A	2	5369920
Trichlorobiphenyl	ng/L	2.40	0.031	N/A	N/A	N/A	N/A	13	5369920
Tetrachlorobiphenyl	ng/L	1.86	0.053	N/A	N/A	N/A	N/A	11	5369920
Pentachlorobiphenyl	ng/L	1.24	0.026	N/A	N/A	N/A	N/A	11	5369920
Hexachlorobiphenyl	ng/L	0.835	0.053	N/A	N/A	N/A	N/A	9	5369920
Heptachlorobiphenyl	ng/L	0.066	0.050	N/A	N/A	N/A	N/A	2	5369920
Octachlorobiphenyl	ng/L	0.052 U	0.052	N/A	N/A	N/A	N/A	0	5369920
Nonachlorobiphenyl	ng/L	0.042 U	0.042	N/A	N/A	N/A	N/A	0	5369920
Decachlorobiphenyl	ng/L	0.027 U	0.027	N/A	N/A	N/A	N/A	0	5369920
Total PCB	ng/L	7.63	N/A	N/A	N/A	N/A	N/A	N/A	5369920
TOTAL TOXIC EQUIVALENCY	ng/L	N/A	N/A	N/A	N/A	N/A	0.00178	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-22'33'44'55'6-NonaCB-(206)	%	114	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-22'33'44'5-HeptaCB-(170)	%	105	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-22'33'455'66'-NonaCB-(208)	%	119	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-22'33'55'66'-OctaCB-(202)	%	125	N/A	N/A	N/A	N/A	N/A	N/A	5369920

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compound

QC Batch = Quality Control Batch
N/A = Not Applicable

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FXT573							
Sampling Date		2018/01/12 12:30							
COC Number		A8A0345				TOXIC EQUIVALENCY		# of	
	UNITS	OF-2	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-22'33'55'6-HeptaCB-(178)	%	112	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-22'344'55'-HeptaCB-(180)	%	113	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-22'34'566'-HeptaCB-(188)	%	116	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-22'44'66'-HexaCB-(155)	%	112	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-22'466'-PentaCB-(104)	%	111	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-22'66'-TetraCB-(54)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-22'6-TriCB-(19)	%	84	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-22'-DiCB-(4)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-233'44'55'6-OctaCB-(205)	%	115	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-233'44'55'-HeptaCB-(189)	%	122	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-233'44'-PentaCB-(105)	%	104	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-233'55'-PentaCB-(111)	%	119	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-23'44'55'-HexaCB-(167)	%	101	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-2344'5-PentaCB-(114)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-23'44'5-PentaCB-(118)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-2'344'5-PentaCB-(123)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-2-MonoCB-(1)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-33'44'55'-HexaCB-(169)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-33'44'5-PentaCB-(126)	%	100	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-33'44'-TetraCB-(77)	%	94	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-344'5-TetraCB-(81)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-344'-TriCB-(37)	%	91	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-44'-DiCB-(15)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-4-MonoCB-(3)	%	63	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-DecaCB-(209)	%	123	N/A	N/A	N/A	N/A	N/A	N/A	5369920
C13-HexaCB-(156)+(157)	%	101	N/A	N/A	N/A	N/A	N/A	N/A	5369920

EDL = Estimated Detection Limit
RDL = Reportable Detection Limit
TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.
WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compound

QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B811793
Report Date: 2018/02/01

Apex Laboratories
Client Project #: A8A0345

TEST SUMMARY

Maxxam ID: FXT573
Sample ID: OF-2
Matrix: Water

Collected: 2018/01/12
Shipped:
Received: 2018/01/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	5370113	2018/01/22	2018/01/30	Angel Guerrero
PCB Congeners in Water (1668A)	HRMS/MS	5369920	2018/01/22	2018/01/25	Branko Vrzic

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.7°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
5369920	BY	Spiked Blank	C13-2,44'-TriCB-(28)	2018/01/25		86	%	40 - 125
			C13-22'33'44'55'6-NonaCB-(206)	2018/01/25		119	%	30 - 140
			C13-22'33'44'5-HeptaCB-(170)	2018/01/25		108	%	30 - 140
			C13-22'33'455'66'-NonaCB-(208)	2018/01/25		121	%	30 - 140
			C13-22'33'55'66'-OctaCB-(202)	2018/01/25		119	%	30 - 140
			C13-22'33'55'6-HeptaCB-(178)	2018/01/25		118	%	40 - 125
			C13-22'344'55'-HeptaCB-(180)	2018/01/25		110	%	30 - 140
			C13-22'34'566'-HeptaCB-(188)	2018/01/25		112	%	30 - 140
			C13-22'44'66'-HexaCB-(155)	2018/01/25		99	%	30 - 140
			C13-22'466'-PentaCB-(104)	2018/01/25		94	%	30 - 140
			C13-22'66'-TetraCB-(54)	2018/01/25		75	%	30 - 140
			C13-22'6-TriCB-(19)	2018/01/25		70	%	30 - 140
			C13-22'-DiCB-(4)	2018/01/25		66	%	30 - 140
			C13-233'44'55'6-OctaCB-(205)	2018/01/25		114	%	30 - 140
			C13-233'44'55'-HeptaCB-(189)	2018/01/25		118	%	30 - 140
			C13-233'44'-PentaCB-(105)	2018/01/25		100	%	30 - 140
			C13-233'55'-PentaCB-(111)	2018/01/25		116	%	40 - 125
			C13-23'44'55'-HexaCB-(167)	2018/01/25		97	%	30 - 140
			C13-2344'5-PentaCB-(114)	2018/01/25		99	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2018/01/25		99	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2018/01/25		100	%	30 - 140
			C13-2-MonoCB-(1)	2018/01/25		69	%	15 - 140
			C13-33'44'55'-HexaCB-(169)	2018/01/25		78	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2018/01/25		93	%	30 - 140
			C13-33'44'-TetraCB-(77)	2018/01/25		88	%	30 - 140
			C13-344'5-TetraCB-(81)	2018/01/25		84	%	30 - 140
			C13-344'-TriCB-(37)	2018/01/25		80	%	30 - 140
			C13-44'-DiCB-(15)	2018/01/25		67	%	30 - 140
			C13-4-MonoCB-(3)	2018/01/25		59	%	15 - 140
			C13-DecaCB-(209)	2018/01/25		122	%	30 - 140
			C13-HexaCB-(156)+(157)	2018/01/25		101	%	30 - 140
			2-MonoCB-(1)	2018/01/25		95	%	58 - 115
			4-MonoCB-(3)	2018/01/25		95	%	64 - 123
			22'-DiCB-(4)	2018/01/25		100	%	62 - 128
			4,4'-DiCB-(15)	2018/01/25		105	%	74 - 133
			22'6-TriCB-(19)	2018/01/25		102	%	79 - 118
			344'-TriCB-(37)	2018/01/25		98	%	60 - 134
			22'66'-TetraCB-(54)	2018/01/25		103	%	67 - 123
			33'44'-TetraCB-(77)	2018/01/25		100	%	75 - 113
			344'5-TetraCB-(81)	2018/01/25		106	%	77 - 125
			PentaCB-(90)+(101)+(113)	2018/01/25		83	%	N/A
			22'466'-PentaCB-(104)	2018/01/25		102	%	79 - 120
			233'44'-PentaCB-(105)	2018/01/25		101	%	77 - 133
			2344'5-PentaCB-(114)	2018/01/25		101	%	81 - 133
			23'44'5-PentaCB-(118)	2018/01/25		105	%	82 - 128
			23'44'5'-PentaCB-(123)	2018/01/25		102	%	76 - 138
			33'44'5-PentaCB-(126)	2018/01/25		105	%	78 - 119
			HexaCB-(128)+(166)	2018/01/25		79	%	N/A
			22'44'66'-HexaCB-(155)	2018/01/25		109	%	69 - 126
			HexaCB-(156)+(157)	2018/01/25		101	%	78 - 137
			23'44'55'-HexaCB-(167)	2018/01/25		105	%	78 - 143
			33'44'55'-HexaCB-(169)	2018/01/25		101	%	71 - 123
			22'33'44'5-HeptaCB-(170)	2018/01/25		94	%	78 - 138
			22'34'566'-HeptaCB-(188)	2018/01/25		97	%	76 - 115
			233'44'55'-HeptaCB-(189)	2018/01/25		99	%	81 - 124

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'33'55'66'-OctaCB-(202)	2018/01/25		100	%	77 - 114
			233'44'55'6-OctaCB-(205)	2018/01/25		94	%	69 - 122
			22'33'44'55'6-NonaCB-(206)	2018/01/25		95	%	74 - 113
			22'33'455'66'-NonaCB-(208)	2018/01/25		97	%	79 - 118
			DecaCB-(209)	2018/01/25		96	%	80 - 128
5369920	BY	Spiked Blank DUP	C13-2,44'-TriCB-(28)	2018/01/25		94	%	40 - 125
			C13-22'33'44'55'6-NonaCB-(206)	2018/01/25		113	%	30 - 140
			C13-22'33'44'5-HeptaCB-(170)	2018/01/25		107	%	30 - 140
			C13-22'33'455'66'-NonaCB-(208)	2018/01/25		120	%	30 - 140
			C13-22'33'55'66'-OctaCB-(202)	2018/01/25		123	%	30 - 140
			C13-22'33'55'6-HeptaCB-(178)	2018/01/25		114	%	40 - 125
			C13-22'344'55'-HeptaCB-(180)	2018/01/25		111	%	30 - 140
			C13-22'34'566'-HeptaCB-(188)	2018/01/25		121	%	30 - 140
			C13-22'44'66'-HexaCB-(155)	2018/01/25		113	%	30 - 140
			C13-22'466'-PentaCB-(104)	2018/01/25		116	%	30 - 140
			C13-22'66'-TetraCB-(54)	2018/01/25		99	%	30 - 140
			C13-22'6-TriCB-(19)	2018/01/25		89	%	30 - 140
			C13-22'-DiCB-(4)	2018/01/25		89	%	30 - 140
			C13-233'44'55'6-OctaCB-(205)	2018/01/25		117	%	30 - 140
			C13-233'44'55'-HeptaCB-(189)	2018/01/25		121	%	30 - 140
			C13-233'44'-PentaCB-(105)	2018/01/25		103	%	30 - 140
			C13-233'55'-PentaCB-(111)	2018/01/25		121	%	40 - 125
			C13-23'44'55'-HexaCB-(167)	2018/01/25		98	%	30 - 140
			C13-2344'5-PentaCB-(114)	2018/01/25		102	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2018/01/25		105	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2018/01/25		103	%	30 - 140
			C13-2-MonoCB-(1)	2018/01/25		89	%	15 - 140
			C13-33'44'55'-HexaCB-(169)	2018/01/25		88	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2018/01/25		98	%	30 - 140
			C13-33'44'-TetraCB-(77)	2018/01/25		94	%	30 - 140
			C13-344'5-TetraCB-(81)	2018/01/25		89	%	30 - 140
			C13-344'-TriCB-(37)	2018/01/25		91	%	30 - 140
			C13-44'-DiCB-(15)	2018/01/25		81	%	30 - 140
			C13-4-MonoCB-(3)	2018/01/25		74	%	15 - 140
			C13-DecaCB-(209)	2018/01/25		128	%	30 - 140
			C13-HexaCB-(156)+(157)	2018/01/25		100	%	30 - 140
			2-MonoCB-(1)	2018/01/25		94	%	58 - 115
			4-MonoCB-(3)	2018/01/25		92	%	64 - 123
			22'-DiCB-(4)	2018/01/25		95	%	62 - 128
			4,4'-DiCB-(15)	2018/01/25		102	%	74 - 133
			22'6-TriCB-(19)	2018/01/25		100	%	79 - 118
			344'-TriCB-(37)	2018/01/25		96	%	60 - 134
			22'66'-TetraCB-(54)	2018/01/25		105	%	67 - 123
			33'44'-TetraCB-(77)	2018/01/25		98	%	75 - 113
			344'5-TetraCB-(81)	2018/01/25		104	%	77 - 125
			PentaCB-(90)+(101)+(113)	2018/01/25		86	%	N/A
			22'466'-PentaCB-(104)	2018/01/25		101	%	79 - 120
			233'44'-PentaCB-(105)	2018/01/25		100	%	77 - 133
			2344'5-PentaCB-(114)	2018/01/25		104	%	81 - 133
			23'44'5-PentaCB-(118)	2018/01/25		102	%	82 - 128
			23'44'5'-PentaCB-(123)	2018/01/25		100	%	76 - 138
			33'44'5-PentaCB-(126)	2018/01/25		100	%	78 - 119
			HexaCB-(128)+(166)	2018/01/25		76	%	N/A
			22'44'66'-HexaCB-(155)	2018/01/25		102	%	69 - 126
			HexaCB-(156)+(157)	2018/01/25		101	%	78 - 137

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			23'44'55'-HexaCB-(167)	2018/01/25		102	%	78 - 143
			33'44'55'-HexaCB-(169)	2018/01/25		102	%	71 - 123
			22'33'44'5-HeptaCB-(170)	2018/01/25		94	%	78 - 138
			22'34'566'-HeptaCB-(188)	2018/01/25		91	%	76 - 115
			233'44'55'-HeptaCB-(189)	2018/01/25		96	%	81 - 124
			22'33'55'66'-OctaCB-(202)	2018/01/25		95	%	77 - 114
			233'44'55'6-OctaCB-(205)	2018/01/25		89	%	69 - 122
			22'33'44'55'6-NonaCB-(206)	2018/01/25		96	%	74 - 113
			22'33'455'66'-NonaCB-(208)	2018/01/25		98	%	79 - 118
			DecaCB-(209)	2018/01/25		94	%	80 - 128
5369920	BY	RPD	2-MonoCB-(1)	2018/01/25	1.1		%	30
			4-MonoCB-(3)	2018/01/25	3.2		%	30
			22'-DiCB-(4)	2018/01/25	5.1		%	30
			4,4'-DiCB-(15)	2018/01/25	2.9		%	30
			22'6-TriCB-(19)	2018/01/25	2.0		%	30
			344'-TriCB-(37)	2018/01/25	2.1		%	30
			22'66'-TetraCB-(54)	2018/01/25	1.9		%	30
			33'44'-TetraCB-(77)	2018/01/25	2.0		%	30
			344'5-TetraCB-(81)	2018/01/25	1.9		%	30
			PentaCB-(90)+(101)+(113)	2018/01/25	3.6		%	30
			22'466'-PentaCB-(104)	2018/01/25	0.99		%	30
			233'44'-PentaCB-(105)	2018/01/25	1.0		%	30
			2344'5-PentaCB-(114)	2018/01/25	2.9		%	30
			23'44'5-PentaCB-(118)	2018/01/25	2.9		%	30
			23'44'5'-PentaCB-(123)	2018/01/25	2.0		%	30
			33'44'5-PentaCB-(126)	2018/01/25	4.9		%	30
			HexaCB-(128)+(166)	2018/01/25	3.9		%	30
			22'44'66'-HexaCB-(155)	2018/01/25	6.6		%	30
			HexaCB-(156)+(157)	2018/01/25	0		%	30
			23'44'55'-HexaCB-(167)	2018/01/25	2.9		%	30
			33'44'55'-HexaCB-(169)	2018/01/25	0.99		%	30
			22'33'44'5-HeptaCB-(170)	2018/01/25	0		%	30
			22'34'566'-HeptaCB-(188)	2018/01/25	6.4		%	30
			233'44'55'-HeptaCB-(189)	2018/01/25	3.1		%	30
			22'33'55'66'-OctaCB-(202)	2018/01/25	5.1		%	30
			233'44'55'6-OctaCB-(205)	2018/01/25	5.5		%	30
			22'33'44'55'6-NonaCB-(206)	2018/01/25	1.0		%	30
			22'33'455'66'-NonaCB-(208)	2018/01/25	1.0		%	30
			DecaCB-(209)	2018/01/25	2.1		%	30
5369920	BY	Method Blank	C13-2,44'-TriCB-(28)	2018/01/25		112	%	40 - 125
			C13-22'33'44'55'6-NonaCB-(206)	2018/01/25		138	%	30 - 140
			C13-22'33'44'5-HeptaCB-(170)	2018/01/25		125	%	30 - 140
			C13-22'33'455'66'-NonaCB-(208)	2018/01/25		140	%	30 - 140
			C13-22'33'55'66'-OctaCB-(202)	2018/01/25		145 (1)		30 - 140
			C13-22'33'55'6-HeptaCB-(178)	2018/01/25		136 (1)		40 - 125
			C13-22'344'55'-HeptaCB-(180)	2018/01/25		127	%	30 - 140
			C13-22'34'566'-HeptaCB-(188)	2018/01/25		136	%	30 - 140
			C13-22'44'66'-HexaCB-(155)	2018/01/25		118	%	30 - 140
			C13-22'466'-PentaCB-(104)	2018/01/25		110	%	30 - 140
			C13-22'66'-TetraCB-(54)	2018/01/25		93	%	30 - 140
			C13-22'6-TriCB-(19)	2018/01/25		84	%	30 - 140
			C13-22'-DiCB-(4)	2018/01/25		91	%	30 - 140
			C13-233'44'55'6-OctaCB-(205)	2018/01/25		136	%	30 - 140
			C13-233'44'55'-HeptaCB-(189)	2018/01/25		137	%	30 - 140
			C13-233'44'-PentaCB-(105)	2018/01/25		121	%	30 - 140

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			C13-233'55'-PentaCB-(111)	2018/01/25		137 (1)		40 - 125
			C13-23'44'55'-HexaCB-(167)	2018/01/25		117	%	30 - 140
			C13-2344'5-PentaCB-(114)	2018/01/25		119	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2018/01/25		117	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2018/01/25		118	%	30 - 140
			C13-2-MonoCB-(1)	2018/01/25		86	%	15 - 140
			C13-33'44'55'-HexaCB-(169)	2018/01/25		93	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2018/01/25		112	%	30 - 140
			C13-33'44'-TetraCB-(77)	2018/01/25		103	%	30 - 140
			C13-344'5-TetraCB-(81)	2018/01/25		102	%	30 - 140
			C13-344'-TriCB-(37)	2018/01/25		98	%	30 - 140
			C13-44'-DiCB-(15)	2018/01/25		79	%	30 - 140
			C13-4-MonoCB-(3)	2018/01/25		71	%	15 - 140
			C13-DecaCB-(209)	2018/01/25		148 (1)		30 - 140
			C13-HexaCB-(156)+(157)	2018/01/25		117	%	30 - 140
			2-MonoCB-(1)	2018/01/25	0.012 U, EDL=0.012		ng/L	
			3-MonoCB-(2)	2018/01/25	0.012 U, EDL=0.012		ng/L	
			4-MonoCB-(3)	2018/01/25	0.012 U, EDL=0.012		ng/L	
			22'-DiCB-(4)	2018/01/25	0.019 U, EDL=0.019		ng/L	
			2,3-DiCB-(5)	2018/01/25	0.10 U, EDL=0.10		ng/L	
			2,3'-DiCB-(6)	2018/01/25	0.098 U, EDL=0.098		ng/L	
			2,4-DiCB-(7)	2018/01/25	0.10 U, EDL=0.10		ng/L	
			2,4'-DiCB-(8)	2018/01/25	0.098 U, EDL=0.098		ng/L	
			2,5-DiCB-(9)	2018/01/25	0.098 U, EDL=0.098		ng/L	
			2,6-DiCB-(10)	2018/01/25	0.016 U, EDL=0.016		ng/L	
			3,3'-DiCB-(11)	2018/01/25	0.096 U, EDL=0.096		ng/L	
			DiCB-(12)+(13)	2018/01/25	0.10 U, EDL=0.10		ng/L	
			3,5-DiCB-(14)	2018/01/25	0.092 U, EDL=0.092		ng/L	
			4,4'-DiCB-(15)	2018/01/25	0.15 U, EDL=0.15		ng/L	
			22'3-TriCB-(16)	2018/01/25	0.050 U, EDL=0.050		ng/L	
			22'4-TriCB-(17)	2018/01/25	0.043 U, EDL=0.043		ng/L	
			TriCB-(18)+(30)	2018/01/25	0.034 U, EDL=0.034		ng/L	
			22'6-TriCB-(19)	2018/01/25	0.034 U, EDL=0.034		ng/L	
			TriCB-(20) + (28)	2018/01/25	0.011 U, EDL=0.011		ng/L	
			TriCB-(21)+(33)	2018/01/25	0.011 U, EDL=0.011		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			234'-TriCB-(22)	2018/01/25	0.011 U, EDL=0.011		ng/L	
			235-TriCB-(23)	2018/01/25	0.010 U, EDL=0.010		ng/L	
			236-TriCB-(24)	2018/01/25	0.033 U, EDL=0.033		ng/L	
			23'4-TriCB-(25)	2018/01/25	0.0099 U, EDL=0.0099		ng/L	
			TriCB-(26)+(29)	2018/01/25	0.010 U, EDL=0.010		ng/L	
			23'6-TriCB-(27)	2018/01/25	0.028 U, EDL=0.028		ng/L	
			24'5-TriCB-(31)	2018/01/25	0.010 U, EDL=0.010		ng/L	
			24'6-TriCB-(32)	2018/01/25	0.027 U, EDL=0.027		ng/L	
			23'5'-TriCB-(34)	2018/01/25	0.011 U, EDL=0.011		ng/L	
			33'4-TriCB-(35)	2018/01/25	0.011 U, EDL=0.011		ng/L	
			33'5-TriCB-(36)	2018/01/25	0.0088 U, EDL=0.0088		ng/L	
			344'-TriCB-(37)	2018/01/25	0.016 U, EDL=0.016		ng/L	
			345-TriCB-(38)	2018/01/25	0.011 U, EDL=0.011		ng/L	
			34'5-TriCB-(39)	2018/01/25	0.010 U, EDL=0.010		ng/L	
			TetraCB-(40)+(41)+(71)	2018/01/25	0.016 U, EDL=0.016		ng/L	
			22'34'-TetraCB-(42)	2018/01/25	0.020 U, EDL=0.020		ng/L	
			22'35-TetraCB-(43)	2018/01/25	0.020 U, EDL=0.020		ng/L	
			TetraCB-(44)+(47)+(65)	2018/01/25	0.046 J, EDL=0.015		ng/L	
			TetraCB-(45)+(51)	2018/01/25	0.016 U, EDL=0.016		ng/L	
			22'36'-TetraCB-(46)	2018/01/25	0.018 U, EDL=0.018		ng/L	
			22'45-TetraCB-(48)	2018/01/25	0.017 U, EDL=0.017		ng/L	
			TetraCB-(49)+TetraCB-(69)	2018/01/25	0.014 U, EDL=0.014		ng/L	
			TetraCB-(50)+(53)	2018/01/25	0.015 U, EDL=0.015		ng/L	
			22'55'-TetraCB-(52)	2018/01/25	0.017 U, EDL=0.017		ng/L	
			22'66'-TetraCB-(54)	2018/01/25	0.0044 U, EDL=0.0044		ng/L	
			233'4-TetraCB-(55)	2018/01/25	0.014 U, EDL=0.014		ng/L	
			233'4'-Tetra CB(56)	2018/01/25	0.013 U, EDL=0.013		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			233'5-TetraCB-(57)	2018/01/25	0.012 U, EDL=0.012		ng/L	
			233'5'-TetraCB-(58)	2018/01/25	0.012 U, EDL=0.012		ng/L	
			TetraCB-(59)+(62)+(75)	2018/01/25	0.012 U, EDL=0.012		ng/L	
			2344'-TetraCB -(60)	2018/01/25	0.014 U, EDL=0.014		ng/L	
			TetraCB-(61)+(70)+(74)+(76)	2018/01/25	0.013 U, EDL=0.013		ng/L	
			234'5-TetraCB-(63)	2018/01/25	0.012 U, EDL=0.012		ng/L	
			234'6-TetraCB-(64)	2018/01/25	0.013 U, EDL=0.013		ng/L	
			23'44'-TetraCB-(66)	2018/01/25	0.012 U, EDL=0.012		ng/L	
			23'45-TetraCB-(67)	2018/01/25	0.012 U, EDL=0.012		ng/L	
			23'45'-TetraCB-(68)	2018/01/25	0.012 U, EDL=0.012		ng/L	
			23'55'-TetraCB-(72)	2018/01/25	0.012 U, EDL=0.012		ng/L	
			23'5'6-TetraCB-(73)	2018/01/25	0.011 U, EDL=0.011		ng/L	
			33'44'-TetraCB-(77)	2018/01/25	0.016 U, EDL=0.016		ng/L	
			33'45-TetraCB-(78)	2018/01/25	0.013 U, EDL=0.013		ng/L	
			33'45'-TetraCB(79)	2018/01/25	0.011 U, EDL=0.011		ng/L	
			33'55'-TetraCB-(80)	2018/01/25	0.011 U, EDL=0.011		ng/L	
			344'5-TetraCB-(81)	2018/01/25	0.015 U, EDL=0.015		ng/L	
			22'33'4-PentaCB-(82)	2018/01/25	0.019 U, EDL=0.019		ng/L	
			PentaCB-(83)+(99)	2018/01/25	0.017 U, EDL=0.017		ng/L	
			22'33'6-PentaCB-(84)	2018/01/25	0.019 U, EDL=0.019		ng/L	
			PentaCB-(85)+(116)+(117)	2018/01/25	0.014 U, EDL=0.014		ng/L	
			PentaCB-(86)(87)(97)(109)(119)(125)	2018/01/25	0.014 U, EDL=0.014		ng/L	
			PentaCB-(88)+(91)	2018/01/25	0.016 U, EDL=0.016		ng/L	
			22'346'-PentaCB-(89)	2018/01/25	0.017 U, EDL=0.017		ng/L	
			PentaCB-(90)+(101)+(113)	2018/01/25	0.015 U, EDL=0.015		ng/L	
			22'355'-PentaCB-(92)	2018/01/25	0.017 U, EDL=0.017		ng/L	
			PentaCB-(93)+(98)+(100)+(102)	2018/01/25	0.016 U, EDL=0.016		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'356'-PentaCB-(94)	2018/01/25	0.018 U, EDL=0.018		ng/L	
			22'35'6-PentaCB-(95)	2018/01/25	0.015 U, EDL=0.015		ng/L	
			22'366'-PentaCB-(96)	2018/01/25	0.0042 U, EDL=0.0042		ng/L	
			22'45'6-PentaCB-(103)	2018/01/25	0.014 U, EDL=0.014		ng/L	
			22'466'-PentaCB-(104)	2018/01/25	0.0039 U, EDL=0.0039		ng/L	
			233'44'-PentaCB-(105)	2018/01/25	0.0083 U, EDL=0.0083		ng/L	
			233'45-PentaCB-(106)	2018/01/25	0.0071 U, EDL=0.0071		ng/L	
			233'4'5-PentaCB-(107)	2018/01/25	0.0064 U, EDL=0.0064		ng/L	
			PentaCB-(108)+(124)	2018/01/25	0.0071 U, EDL=0.0071		ng/L	
			PentaCB-(110)+(115)	2018/01/25	0.013 U, EDL=0.013		ng/L	
			233'55'-PentaCB-(111)	2018/01/25	0.013 U, EDL=0.013		ng/L	
			233'56-PentaCB-(112)	2018/01/25	0.013 U, EDL=0.013		ng/L	
			2344'5-PentaCB-(114)	2018/01/25	0.0082 U, EDL=0.0082		ng/L	
			23'44'5-PentaCB-(118)	2018/01/25	0.0082 U, EDL=0.0082		ng/L	
			23'455'-PentaCB-(120)	2018/01/25	0.012 U, EDL=0.012		ng/L	
			23'45'6-PentaCB-(121)	2018/01/25	0.012 U, EDL=0.012		ng/L	
			233'4'5'-PentaCB-(122)	2018/01/25	0.0076 U, EDL=0.0076		ng/L	
			23'44'5'-PentaCB-(123)	2018/01/25	0.0092 U, EDL=0.0092		ng/L	
			33'44'5-PentaCB-(126)	2018/01/25	0.0079 U, EDL=0.0079		ng/L	
			33'455'-PentaCB-(127)	2018/01/25	0.0070 U, EDL=0.0070		ng/L	
			HexaCB-(128)+(166)	2018/01/25	0.020 U, EDL=0.020		ng/L	
			HexaCB-(129)+(138)+(163)	2018/01/25	0.021 U, EDL=0.021		ng/L	
			22'33'45'-HexaCB-(130)	2018/01/25	0.025 U, EDL=0.025		ng/L	
			22'33'46-HexaCB-(131)	2018/01/25	0.026 U, EDL=0.026		ng/L	
			22'33'46'-HexaCB-(132)	2018/01/25	0.024 U, EDL=0.024		ng/L	
			22'33'55'-HexaCB-(133)	2018/01/25	0.022 U, EDL=0.022		ng/L	
			HexaCB-(134)+(143)	2018/01/25	0.024 U, EDL=0.024		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			HexaCB-(135)+(151)	2018/01/25	0.0096 U, EDL=0.0096		ng/L	
			22'33'66'-HexaCB-(136)	2018/01/25	0.0065 U, EDL=0.0065		ng/L	
			22'344'5-HexaCB-(137)	2018/01/25	0.024 U, EDL=0.024		ng/L	
			HexaCB-(139)+(140)	2018/01/25	0.020 U, EDL=0.020		ng/L	
			22'3455'-HexaCB-(141)	2018/01/25	0.022 U, EDL=0.022		ng/L	
			22'3456-HexaCB-(142)	2018/01/25	0.023 U, EDL=0.023		ng/L	
			22'345'6-HexaCB-(144)	2018/01/25	0.0093 U, EDL=0.0093		ng/L	
			22'3466'-HexaCB-(145)	2018/01/25	0.0067 U, EDL=0.0067		ng/L	
			22'34'55'-HexaCB-(146)	2018/01/25	0.021 U, EDL=0.021		ng/L	
			HexaCB-(147)+(149)	2018/01/25	0.021 U, EDL=0.021		ng/L	
			22'34'56'-HexaCB-(148)	2018/01/25	0.0088 U, EDL=0.0088		ng/L	
			22'34'66'-HexaCB-(150)	2018/01/25	0.0067 U, EDL=0.0067		ng/L	
			22'3566'-HexaCB-(152)	2018/01/25	0.0059 U, EDL=0.0059		ng/L	
			HexaCB-(153)+(168)	2018/01/25	0.017 U, EDL=0.017		ng/L	
			22'44'56'-HexaCB-(154)	2018/01/25	0.0082 U, EDL=0.0082		ng/L	
			22'44'66'-HexaCB-(155)	2018/01/25	0.0066 U, EDL=0.0066		ng/L	
			HexaCB-(156)+(157)	2018/01/25	0.0043 U, EDL=0.0043		ng/L	
			233'44'6-HexaCB-(158)	2018/01/25	0.016 U, EDL=0.016		ng/L	
			233'455'-HexaCB-(159)	2018/01/25	0.0037 U, EDL=0.0037		ng/L	
			233'456-HexaCB-(160)	2018/01/25	0.017 U, EDL=0.017		ng/L	
			233'45'6-HexaCB-(161)	2018/01/25	0.015 U, EDL=0.015		ng/L	
			233'4'55'-HexaCB-(162)	2018/01/25	0.0037 U, EDL=0.0037		ng/L	
			233'4'5'6-HexaCB-(164)	2018/01/25	0.017 U, EDL=0.017		ng/L	
			233'55'6-HexaCB-(165)	2018/01/25	0.017 U, EDL=0.017		ng/L	
			23'44'55'-HexaCB-(167)	2018/01/25	0.0042 U, EDL=0.0042		ng/L	
			33'44'55'-HexaCB-(169)	2018/01/25	0.0044 U, EDL=0.0044		ng/L	
			22'33'44'5-HeptaCB-(170)	2018/01/25	0.010 U, EDL=0.010		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			HeptaCB-(171)+(173)	2018/01/25	0.016 U, EDL=0.016		ng/L	
			22'33'455'-HeptaCB-(172)	2018/01/25	0.016 U, EDL=0.016		ng/L	
			22'33'456'-HeptaCB-(174)	2018/01/25	0.015 U, EDL=0.015		ng/L	
			22'33'45'6-HeptaCB-(175)	2018/01/25	0.0062 U, EDL=0.0062		ng/L	
			22'33'466'-HeptaCB-(176)	2018/01/25	0.0043 U, EDL=0.0043		ng/L	
			22'33'45'6'-HeptaCB-(177)	2018/01/25	0.016 U, EDL=0.016		ng/L	
			22'33'55'6-HeptaCB-(178)	2018/01/25	0.0065 U, EDL=0.0065		ng/L	
			22'33'566'-HeptaCB-(179)	2018/01/25	0.0040 U, EDL=0.0040		ng/L	
			HeptaCB-(180)+(193)	2018/01/25	0.011 U, EDL=0.011		ng/L	
			22'344'56-HeptaCB-(181)	2018/01/25	0.015 U, EDL=0.015		ng/L	
			22'344'56'-HeptaCB-(182)	2018/01/25	0.0063 U, EDL=0.0063		ng/L	
			22'344'5'6-HeptaCB-(183)	2018/01/25	0.014 U, EDL=0.014		ng/L	
			22'344'66'-HeptaCB-(184)	2018/01/25	0.0041 U, EDL=0.0041		ng/L	
			22'3455'6-HeptaCB-(185)	2018/01/25	0.014 U, EDL=0.014		ng/L	
			22'34566'-HeptaCB-(186)	2018/01/25	0.0046 U, EDL=0.0046		ng/L	
			22'34'55'6-HeptaCB-(187)	2018/01/25	0.0060 U, EDL=0.0060		ng/L	
			22'34'566'-HeptaCB-(188)	2018/01/25	0.0052 U, EDL=0.0052		ng/L	
			233'44'55'-HeptaCB-(189)	2018/01/25	0.012 U, EDL=0.012		ng/L	
			233'44'56-HeptaCB-(190)	2018/01/25	0.013 U, EDL=0.013		ng/L	
			233'44'5'6-HeptaCB-(191)	2018/01/25	0.012 U, EDL=0.012		ng/L	
			233'455'6-HeptaCB-(192)	2018/01/25	0.013 U, EDL=0.013		ng/L	
			22'33'44'55'-OctaCB-(194)	2018/01/25	0.011 U, EDL=0.011		ng/L	
			22'33'44'56-OctaCB-(195)	2018/01/25	0.011 U, EDL=0.011		ng/L	
			22'33'44'56'-OctaCB-(196)	2018/01/25	0.0082 U, EDL=0.0082		ng/L	
			22'33'44'66'OctaCB-(197)	2018/01/25	0.0053 U, EDL=0.0053		ng/L	
			OctaCB-(198)+(199)	2018/01/25	0.0084 U, EDL=0.0084		ng/L	
			22'33'4566'-OctaCB-(200)	2018/01/25	0.0054 U, EDL=0.0054		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'33'45'66'-OctaCB-(201)	2018/01/25	0.0053 U, EDL=0.0053		ng/L	
			22'33'55'66'-OctaCB-(202)	2018/01/25	0.0060 U, EDL=0.0060		ng/L	
			22'344'55'6-OctaCB-(203)	2018/01/25	0.0079 U, EDL=0.0079		ng/L	
			22'344'566'-OctaCB-(204)	2018/01/25	0.0053 U, EDL=0.0053		ng/L	
			233'44'55'6-OctaCB-(205)	2018/01/25	0.0079 U, EDL=0.0079		ng/L	
			22'33'44'55'6-NonaCB-(206)	2018/01/25	0.012 U, EDL=0.012		ng/L	
			22'33'44'566'-NonaCB-(207)	2018/01/25	0.0099 U, EDL=0.0099		ng/L	
			22'33'455'66'-NonaCB-(208)	2018/01/25	0.012 U, EDL=0.012		ng/L	
			DecaCB-(209)	2018/01/25	0.016 U, EDL=0.016		ng/L	
			Monochlorobiphenyl	2018/01/25	0.012 U, EDL=0.012		ng/L	
			Dichlorobiphenyl	2018/01/25	0.15 U, EDL=0.15		ng/L	
			Trichlorobiphenyl	2018/01/25	0.050 U, EDL=0.050		ng/L	
			Tetrachlorobiphenyl	2018/01/25	0.046, EDL=0.020		ng/L	
			Pentachlorobiphenyl	2018/01/25	0.019 U, EDL=0.019		ng/L	
			Hexachlorobiphenyl	2018/01/25	0.026 U, EDL=0.026		ng/L	
			Heptachlorobiphenyl	2018/01/25	0.016 U, EDL=0.016		ng/L	
			Octachlorobiphenyl	2018/01/25	0.011 U, EDL=0.011		ng/L	
			Nonachlorobiphenyl	2018/01/25	0.012 U, EDL=0.012		ng/L	
			Decachlorobiphenyl	2018/01/25	0.016 U, EDL=0.016		ng/L	
			Total PCB	2018/01/25	0.0455		ng/L	
5370113	AGU	Spiked Blank	C13-1234678 HeptaCDD	2018/01/30		106	%	40 - 135
			C13-1234678 HeptaCDF	2018/01/30		122	%	40 - 135
			C13-123478 HexaCDF	2018/01/30		123	%	40 - 135
			C13-123678 HexaCDD	2018/01/30		119	%	40 - 135
			C13-12378 PentaCDD	2018/01/30		114	%	40 - 135
			C13-12378 PentaCDF	2018/01/30		120	%	40 - 135
			C13-2378 TetraCDD	2018/01/30		95	%	40 - 135
			C13-2378 TetraCDF	2018/01/30		105	%	40 - 135
			C13-OCDD	2018/01/30		115	%	40 - 135
			2,3,7,8-Tetra CDD	2018/01/30		95	%	80 - 140
			1,2,3,7,8-Penta CDD	2018/01/30		96	%	80 - 140
			1,2,3,4,7,8-Hexa CDD	2018/01/30		98	%	80 - 140
			1,2,3,6,7,8-Hexa CDD	2018/01/30		94	%	80 - 140
			1,2,3,7,8,9-Hexa CDD	2018/01/30		83	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDD	2018/01/30		97	%	80 - 140
			Octa CDD	2018/01/30		87	%	80 - 140

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			2,3,7,8-Tetra CDF	2018/01/30		92	%	80 - 140
			1,2,3,7,8-Penta CDF	2018/01/30		93	%	80 - 140
			2,3,4,7,8-Penta CDF	2018/01/30		87	%	80 - 140
			1,2,3,4,7,8-Hexa CDF	2018/01/30		95	%	80 - 140
			1,2,3,6,7,8-Hexa CDF	2018/01/30		96	%	80 - 140
			2,3,4,6,7,8-Hexa CDF	2018/01/30		93	%	80 - 140
			1,2,3,7,8,9-Hexa CDF	2018/01/30		84	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDF	2018/01/30		93	%	80 - 140
			1,2,3,4,7,8,9-Hepta CDF	2018/01/30		97	%	80 - 140
			Octa CDF	2018/01/30		89	%	80 - 140
5370113	AGU	Spiked Blank DUP	C13-1234678 HeptaCDD	2018/01/30		101	%	40 - 135
			C13-1234678 HeptaCDF	2018/01/30		109	%	40 - 135
			C13-123478 HexaCDF	2018/01/30		103	%	40 - 135
			C13-123678 HexaCDD	2018/01/30		105	%	40 - 135
			C13-12378 PentaCDD	2018/01/30		113	%	40 - 135
			C13-12378 PentaCDF	2018/01/30		113	%	40 - 135
			C13-2378 TetraCDD	2018/01/30		90	%	40 - 135
			C13-2378 TetraCDF	2018/01/30		94	%	40 - 135
			C13-OCDD	2018/01/30		94	%	40 - 135
			2,3,7,8-Tetra CDD	2018/01/30		91	%	80 - 140
			1,2,3,7,8-Penta CDD	2018/01/30		92	%	80 - 140
			1,2,3,4,7,8-Hexa CDD	2018/01/30		94	%	80 - 140
			1,2,3,6,7,8-Hexa CDD	2018/01/30		95	%	80 - 140
			1,2,3,7,8,9-Hexa CDD	2018/01/30		86	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDD	2018/01/30		89	%	80 - 140
			Octa CDD	2018/01/30		90	%	80 - 140
			2,3,7,8-Tetra CDF	2018/01/30		93	%	80 - 140
			1,2,3,7,8-Penta CDF	2018/01/30		89	%	80 - 140
			2,3,4,7,8-Penta CDF	2018/01/30		90	%	80 - 140
			1,2,3,4,7,8-Hexa CDF	2018/01/30		95	%	80 - 140
			1,2,3,6,7,8-Hexa CDF	2018/01/30		93	%	80 - 140
			2,3,4,6,7,8-Hexa CDF	2018/01/30		93	%	80 - 140
			1,2,3,7,8,9-Hexa CDF	2018/01/30		93	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDF	2018/01/30		91	%	80 - 140
			1,2,3,4,7,8,9-Hepta CDF	2018/01/30		94	%	80 - 140
			Octa CDF	2018/01/30		87	%	80 - 140
5370113	AGU	RPD	2,3,7,8-Tetra CDD	2018/01/30	4.3		%	25
			1,2,3,7,8-Penta CDD	2018/01/30	4.3		%	25
			1,2,3,4,7,8-Hexa CDD	2018/01/30	4.2		%	25
			1,2,3,6,7,8-Hexa CDD	2018/01/30	1.1		%	25
			1,2,3,7,8,9-Hexa CDD	2018/01/30	3.6		%	25
			1,2,3,4,6,7,8-Hepta CDD	2018/01/30	8.6		%	25
			Octa CDD	2018/01/30	0		%	25
			2,3,7,8-Tetra CDF	2018/01/30	1.1		%	25
			1,2,3,7,8-Penta CDF	2018/01/30	4.4		%	25
			2,3,4,7,8-Penta CDF	2018/01/30	3.4		%	25
			1,2,3,4,7,8-Hexa CDF	2018/01/30	0		%	25
			1,2,3,6,7,8-Hexa CDF	2018/01/30	3.2		%	25
			2,3,4,6,7,8-Hexa CDF	2018/01/30	0		%	25
			1,2,3,7,8,9-Hexa CDF	2018/01/30	10		%	25
			1,2,3,4,6,7,8-Hepta CDF	2018/01/30	2.2		%	25
			1,2,3,4,7,8,9-Hepta CDF	2018/01/30	3.1		%	25
			Octa CDF	2018/01/30	0		%	25
5370113	AGU	Method Blank	C13-1234678 HeptaCDD	2018/01/30		105	%	40 - 135
			C13-1234678 HeptaCDF	2018/01/30		116	%	40 - 135

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			C13-123478 HexaCDF	2018/01/30		108	%	40 - 135
			C13-123678 HexaCDD	2018/01/30		109	%	40 - 135
			C13-12378 PentaCDD	2018/01/30		100	%	40 - 135
			C13-12378 PentaCDF	2018/01/30		108	%	40 - 135
			C13-2378 TetraCDD	2018/01/30		95	%	40 - 135
			C13-2378 TetraCDF	2018/01/30		98	%	40 - 135
			C13-OCDD	2018/01/30		101	%	40 - 135
			2,3,7,8-Tetra CDD	2018/01/30	1.5 U, EDL=1.5		pg/L	
			1,2,3,7,8-Penta CDD	2018/01/30	1.6 U, EDL=1.6		pg/L	
			1,2,3,4,7,8-Hexa CDD	2018/01/30	1.4 U, EDL=1.4		pg/L	
			1,2,3,6,7,8-Hexa CDD	2018/01/30	1.4 U, EDL=1.4		pg/L	
			1,2,3,7,8,9-Hexa CDD	2018/01/30	1.4 U, EDL=1.4		pg/L	
			1,2,3,4,6,7,8-Hepta CDD	2018/01/30	1.4 J, EDL=1.2		pg/L	
			Octa CDD	2018/01/30	1.6 U, EDL=1.6 (2)		pg/L	
			Total Tetra CDD	2018/01/30	1.5 U, EDL=1.5		pg/L	
			Total Penta CDD	2018/01/30	1.6 U, EDL=1.6		pg/L	
			Total Hexa CDD	2018/01/30	1.4 U, EDL=1.4		pg/L	
			Total Hepta CDD	2018/01/30	1.4 J, EDL=1.2		pg/L	
			2,3,7,8-Tetra CDF	2018/01/30	1.2 U, EDL=1.2		pg/L	
			1,2,3,7,8-Penta CDF	2018/01/30	1.2 U, EDL=1.2		pg/L	
			2,3,4,7,8-Penta CDF	2018/01/30	1.2 U, EDL=1.2		pg/L	
			1,2,3,4,7,8-Hexa CDF	2018/01/30	1.3 U, EDL=1.3		pg/L	
			1,2,3,6,7,8-Hexa CDF	2018/01/30	1.3 U, EDL=1.3		pg/L	
			2,3,4,6,7,8-Hexa CDF	2018/01/30	1.4 U, EDL=1.4		pg/L	
			1,2,3,7,8,9-Hexa CDF	2018/01/30	1.5 U, EDL=1.5		pg/L	
			1,2,3,4,6,7,8-Hepta CDF	2018/01/30	1.1 U, EDL=1.1		pg/L	
			1,2,3,4,7,8,9-Hepta CDF	2018/01/30	1.4 U, EDL=1.4		pg/L	
			Octa CDF	2018/01/30	1.4 U, EDL=1.4 (2)		pg/L	
			Total Tetra CDF	2018/01/30	1.2 U, EDL=1.2		pg/L	
			Total Penta CDF	2018/01/30	1.2 U, EDL=1.2		pg/L	
			Total Hexa CDF	2018/01/30	1.4 U, EDL=1.4		pg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Total Hepta CDF	2018/01/30	1.3 U, EDL=1.3		pg/L	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(2) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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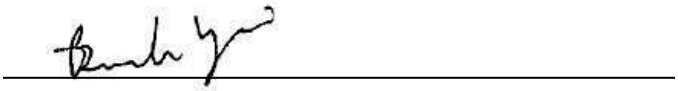
Maxxam Job #: B811793
Report Date: 2018/02/01

Apex Laboratories
Client Project #: A8A0345

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Branko Vrzic, A.SC.T., Senior Analyst, HRMS Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Basin 20 and Basin 20A Storm Water Sampling and Analysis Data
January 17, 2018 Sampling Event, Burgard Industrial Park
Source Control Project, Portland, Oregon
Rieke Consulting Services, LLC, 2018

RCS RIEKE CONSULTING SERVICES, LLC

Basin 20 and Basin 20A
Storm Water Sampling and Analysis Data
January 17, 2018 Sampling Event
Burgard Industrial Park Source Control Project
Portland, Oregon

TO: Ray Hoy/Oregon DEQ

CC: Jim Orr/Oregon DEQ
Eva DeMaria/EPA
Sean Sheldrake/EPA
Mat Cusma/Schnitzer

FROM: Ross Rieke/RCS

DATE: March 16, 2018

This memorandum presents the results of the January 17, 2018 storm water sampling and analysis performed at Basin 20/Basin 20A at the Burgard Industrial Park (BIP) in Portland, Oregon (Figure 1, Figure 2). The sampling and analysis was performed in general accordance with the following documents:

- October 7, 2016, Bridgewater Group, Inc. memorandum, *Basin 20 and Basin 20A, Supplemental Sampling and Analysis Plan*.
- September 8, 2017, DEQ letter, *DEQ Comments for Basin 20 and 20A Supplemental Sampling and Analysis Plan*.
- November 2, 2017, DEQ email from Jim Orr, *Response to Your October 18th Request to Change PCB Analytical Method for Basins 2, 20, 20A, and 21*.

The storm water data presented in this memorandum reflects the scope of sampling and analysis described in these documents.

Basin 20 and Basin 20A Description

Outfall 20 appears to drain an approximately 1.7-acre area north of the head of the IT slip (Basin 20, Figure 3). Outfall 20 consists of a corrugated steel pipe that does not extend beyond the ground surface in the slope of the head of the IT slip. As such, the discharge resembles a small stream, and requires special sampling considerations (i.e., construction of a shallow "quieting basin" where the stream daylights) to avoid entraining solids. Activities in Basin 20 include Schnitzer Steel vendor and employee vehicle traffic and vehicle traffic related to other BIP entities (Portland Container Repair, Wilbur Ellis, RB Rubber Recycling), as well as non-BIP (WestRock) employee, vendor, and customer car and truck traffic and material storage. Historical storm water system drawings showed Outfall 20 draining an area immediately south of Burgard Way, east of the head of the IT slip. However, site observations during periods of extended heavy rainfall in 2011 noted that this area does not drain and storm water is retained on the area and eventually infiltrates and/or evaporates.

Runoff from the western portion of Burgard Way is conveyed to a previously unmapped outfall, now designated Outfall 20A (Figure 3). In particular, Basin 20A appears to consist of an

approximate 500-foot length of Burgard Way northeast of the head of the IT slip. Storm water runoff from this approximate 0.7-acre paved area flows to catch basins present along the northern and southern edges of the roadway and is conveyed to Outfall 20A located just south of Outfall 20 in the IT slip. Outfall 20A consists of a 10-inch diameter steel pipe day-lighting on the slope at the head of the slip. Activities along Burgard Way consist of Schnitzer Steel and other BIP and non-BIP entity employee, vendor, and customer car and truck traffic. Based on the camera survey performed in August 2015, a portion of the storm water flow from the Burgard Way catch basins may flow to a sanitary sewer pipe beneath the paved roadway east of the IT slip.

The activities occurring in Basin 20 and Basin 20A, and the associated potential for releases of hazardous substances, are similar in the two basins. Based on these similar, sampling and analysis in either of these relatively small basins, or at either of the two outfalls, is believed to be representative of the other basin and outfall. Consistent with their relative basin areas and the apparent diversion of some storm water flow to the sanitary sewer, significantly less flow has been observed at Outfall 20A, relative to Outfall 20 during rainfall events. For these reasons Basin 20 and Basin 20A are assessed by collecting storm water samples from Basin 20. Catch basin solids samples have also been collected from Basin 20A (i.e., Burgard Way) catch basins

Basin 20 and Basin 20A Storm Water Sampling and Analysis

Storm Water Sample Collection

A Basin 20 storm water sample was collected on January 17, 2018 at the Basin 20 outfall (i.e., Outfall 20) at the IT Slip (Figure 3). Table 1 presents the rainfall conditions preceding, and during, the storm water sampling event. Based on the rainfall event data shown in Table 1, all sampling event target criteria were met. That is:

- Rainfall occurring during the 24-hours preceding the sampled storm event (0.07 inch) was less than the target of 0.1 inch;
- The storm event was predicted to exceed (and did actually exceed) 0.2-inch of rainfall; and
- The event was expected to last (and did actually last) for more than three hours.

The sample was collected within the first three hours of discharge and based on discharge conditions and timing observed during the sampling event, the sample also represents first-flush conditions (i.e., sample collected during first 30-minutes of discharge).

Consistent with previous sampling events, the Basin 20 storm water sample was collected by lowering a stainless steel container into the discharging water in the quieting basin constructed several days prior to the sampling event. The container was filled by placing the container opening facing away from the flowing water. The sample was then poured into the laboratory-supplied sample container specific for each analysis. Overall, the storm water sample was collected in a manner that minimized potential suspended bank soil particulates in the sample.

Storm Water Sample Analysis

The Basin 20 storm water sample was analyzed for the following:

- Aluminum, antimony, arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, silver, and zinc;
- PCB homologs and congeners;
- Dioxins/furans;

- Polycyclic aromatic hydrocarbons (PAHs);
- Total organic carbon (TOC);
- Total Petroleum Hydrocarbons (gasoline, diesel, and heavy oil); and
- Total suspended solids (TSS).

Table 2 presents the results of the Basin 20 storm water sample analyses. Copies of the analytical laboratory reports are provided in Appendix A. Review of the laboratory QA/QC results did not indicate any issues requiring corrective action. Table 2 also presents the result of previous storm water sampling and analysis in Basin 20 (i.e., at Outfall 20). Table 3 presents the results of previous Basin 20A storm water solids sample analysis results to date.

The metal concentrations in the January 2018 samples collected at Outfall 20 were generally similar to the metal concentrations noted in the 2013 and 2014 Outfall 20 samples. The PCB, PAH, and dioxin concentrations were greater in the January 2018 samples.

Attachments:

Table 1 - Storm Water Sampling Event Rainfall Data, 1/17/2018 Sampling Event
Table 2 – Storm Water Sample Analytical Laboratory Results
Table 3 - Catch Basin Solids Sample Analytical Laboratory Results
Figure 1 – Site Location Map
Figure 2 – Site Plan, Burgard Industrial Park
Figure 3 – Site Plan and Sample Locations, Basin 20/Basin 20A
Appendix A – Analytical Laboratory Reports.

Tables

Table 1
Storm Water Sampling Event Rainfall Data
1/17/2018 Sampling Event
Burgard Industrial Park Basin 20/Basin 20A

Date	Daily Total	Hourly Rain Fall (0.01 inches)																							
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1/4/18	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5	2	0	0	0	0	0
1/5/18	41	0	2	1	2	1	3	0	0	18	2	1	0	6	0	0	0	0	0	0	0	0	1	2	2
1/6/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/7/18	21	0	0	0	0	0	0	0	0	0	0	1	4	1	0	1	2	6	2	2	0	1	1	0	0
1/8/18	13	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	8
1/9/18	52	8	8	11	6	3	6	1	0	5	0	0	1	0	0	3	0	0	0	0	0	0	0	0	0
1/10/18	8	0	0	0	1	0	2	1	1	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
1/11/18	85	0	0	1	5	8	2	7	2	8	3	1	16	2	0	6	18	2	2	0	0	0	0	0	2
1/12/18	8	7	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/13/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/14/18	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
1/15/18	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	1	0	0	3
1/16/18	7	0	1	0	0	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/17/18	48	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	10	12	11	11	2	0	0	0

Hours are Pacific Standard Time
Data from Shipyard Rain Gage - 8900 N. Sever Road
Sampling Hours

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 20

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	B20-SP1 1/17/2018	Basin 20 SP1 3/28/2014	B20-SP1 1/7/2014	B20-SP1 11/18/2013
PAHs (ug/l)							
1-Methylnaphthalene				2.06E-01 U			
2-Methylnaphthalene	2.00E-01			2.06E-01 U			
Acenaphthene	2.00E-01			1.03E-01 U	3.77E-02 U	1.01E-01 U	9.52E-02 U
Acenaphthylene	2.00E-01			1.03E-01 U	3.77E-02 U	1.01E-01 U	9.52E-02 U
Anthracene				1.03E-01 U	3.77E-02 U	1.01E-01 U	9.52E-02 U
Benzo(a)anthracene	1.80E-02	1.20E-03		2.15E-01	5.09E-02 J	1.01E-01 U	9.52E-02 U
Benzo(a)pyrene	1.80E-02	1.20E-04		3.83E-01	5.66E-02 U	1.52E-01 U	1.55E-01 J
Benzo(b)fluoranthene	1.80E-02	1.20E-03		5.22E-01			
Benzo(k)fluoranthene	1.80E-02	1.30E-03		2.41E-01 J			
Benzo(b+k)fluoranthene	1.80E-02	1.20E-03			1.06E-01 J	1.52E-01 U	1.36E-01 J
Benzo(g,h,i)perylene	2.00E-01			3.10E-01	9.34E-02	1.01E-01 U	9.64E-02 J
Carbazole				1.55E-01 U			
Chrysene	1.80E-02	1.30E-03		4.24E-01	1.22E-01	1.24E-01 J	1.25E-01 J
Dibenzo(a,h)anthracene	1.80E-02	1.20E-04		1.03E-01 U	3.77E-02 U	1.01E-01 U	9.52E-02 U
Dibenzofuran				1.03E-01 U			
Fluoranthene	2.00E-01			5.42E-01	1.21E-01	1.49E-01 J	1.37E-01 J
Fluorene	2.00E-01			1.03E-01 U	3.77E-02 U	1.01E-01 U	9.52E-02 U
Indeno(1,2,3-cd)pyrene	1.80E-02	1.20E-03		2.37E-01	5.92E-02 J	1.01E-01 U	9.52E-02 U
Naphthalene	2.00E-01	1.20E+01		2.06E-01 U	7.55E-02 U	2.02E-01 U	1.90E-01 U
Phenanthrene	2.00E-01			2.60E-01	6.66E-02 J	1.15E-01 J	9.52E-02 U
Pyrene	2.00E-01			7.21E-01	1.55E-01	1.92E-01 J	1.71E-01 J
Total Detected CPAHs (BaP TEF)		1.20E-04		4.86E-01	2.27E-02	1.24E-04	1.70E-01
Total Detected PAHs			1.50E+00	3.86E+00	7.74E-01	5.80E-01	8.20E-01
PCBs (ug/l)							
Aroclor 1016	9.60E-01			9.43E-03 U	9.43E-03 U	1.90E-02 U	9.80E-03 U
Aroclor 1221	3.40E-02			9.43E-03 U	9.43E-03 U	1.90E-02 U	9.80E-03 U
Aroclor 1232	3.40E-02			9.43E-03 U	9.43E-03 U	1.90E-02 U	9.80E-03 U
Aroclor 1242	3.40E-02			1.02E-01	1.78E-02 J	5.52E-02	2.12E-02
Aroclor 1248	3.40E-02			9.43E-03 U	9.43E-03 U	1.90E-02 U	9.80E-03 U
Aroclor 1254	3.40E-02			8.81E-02	2.76E-02	7.54E-02	3.79E-02
Aroclor 1260	3.40E-02			5.52E-02	2.18E-02	4.25E-02	2.33E-02
Total Detected PCB aroclors	6.40E-05	6.40E-06	3.00E-01	2.45E-01	6.72E-02	1.73E-01	8.24E-02
PCB Congeners (ug/l)							
2-MonoCB-(1)					1.60E-05 U	1.11E-04	3.30E-05 U
3-MonoCB-(2)					5.10E-06 U	1.60E-05 J	1.60E-05 U
4-MonoCB-(3)					1.10E-05 U	5.66E-05 J	2.40E-05 J
22'-DiCB-(4)					1.71E-04	9.96E-04	3.30E-04
2,3-DiCB-(5)					9.90E-06 U	3.10E-05 U	1.70E-05 U
2,3'-DiCB-(6)					5.13E-05 J	3.27E-04	1.11E-04
2,4-DiCB-(7)					1.00E-05 U	5.00E-05 U	1.50E-05 U
2,4'-DiCB-(8)					2.81E-04	1.32E-03	5.41E-04
2,5-DiCB-(9)					1.46E-05 J	8.60E-05 U	2.80E-05 J
2,6-DiCB-(10)					9.30E-06 U	1.90E-05 U	1.50E-05 U
3,3'-DiCB-(11)					7.64E-04	7.22E-04	5.03E-04
DiCB-(12)+(13)					5.60E-05 J	1.61E-04 J	6.30E-05 U
3,5-DiCB-(14)					9.70E-06 U	2.10E-05 U	1.50E-05 U
4,4'-DiCB-(15)					3.18E-04	1.68E-03	6.58E-04
22'3-TriCB-(16)					2.64E-04	2.00E-03	5.76E-04
22'4-TriCB-(17)					2.31E-04	1.50E-03	5.21E-04
TriCB-(18)+(30)					5.05E-04	2.99E-03	1.05E-03
22'6-TriCB-(19)					7.24E-05 J	3.91E-04	1.37E-04
TriCB-(20) + (28)					1.18E-03	6.06E-03	2.50E-03
TriCB-(21)+(33)					6.83E-04	3.66E-03	1.42E-03
234'-TriCB-(22)					4.90E-04	2.42E-03	9.69E-04
235-TriCB-(23)					2.80E-06 U	3.30E-06 U	2.00E-05 U
236-TriCB-(24)					2.40E-06 U	5.00E-06 U	2.90E-05 J
23'4-TriCB-(25)					7.56E-05 J	4.37E-04	1.80E-04
TriCB-(26)+(29)					1.67E-04 J	9.61E-04	3.60E-04
23'6-TriCB-(27)					4.56E-05 J	2.63E-04	9.60E-05 J
24'5-TriCB-(31)					8.85E-04	4.80E-03	1.92E-03
24'6-TriCB-(32)					1.79E-04	1.10E-03	3.83E-04
23'5'-TriCB-(34)					2.80E-06 U	3.20E-06 U	2.00E-05 U
33'4-TriCB-(35)					1.90E-05 U	1.18E-04	4.70E-05 J
33'5-TriCB-(36)					2.50E-06 U	3.00E-06 U	1.60E-05 U
344'-TriCB-(37)					5.12E-04	2.15E-03	9.36E-04
345-TriCB-(38)					2.70E-06 U	3.30E-06 U	1.90E-05 U
34'5-TriCB-(39)					5.10E-06 J	2.23E-05 J	1.70E-05 U
TetraCB-(40)+(41)+(71)					6.81E-04	3.06E-03	1.31E-03
22'34'-TetraCB-(42)					3.57E-04	1.72E-03	6.67E-04
22'35-TetraCB-(43)					4.10E-05 J	2.25E-04	9.50E-05 J
TetraCB-(44)+(47)+(65)					1.07E-03	5.29E-03	2.24E-03
TetraCB-(45)+(51)					1.76E-04 J	8.51E-04	3.30E-04

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 20

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	B20-SP1 1/17/2018	Basin 20 SP1 3/28/2014	B20-SP1 1/7/2014	B20-SP1 11/18/2013
22'36'-TetraCB-(46)					6.34E-05 J	3.13E-04	1.34E-04
22'45-TetraCB-(48)					2.32E-04	9.23E-04	3.94E-04
TetraCB-(49)+TetraCB-(69)					5.46E-04	2.75E-03	1.12E-03
TetraCB-(50)+(53)					1.19E-04 J	5.82E-04	2.30E-04
22'55'-TetraCB-(52)					1.05E-03	5.55E-03	2.17E-03
22'66'-TetraCB-(54)					5.20E-06 U	1.00E-05 U	1.60E-05 U
233'4-TetraCB-(55)					3.20E-06 U	5.40E-06 U	1.80E-05 U
233'4'-Tetra CB(56)					4.03E-04	1.83E-03	8.31E-04
233'5-TetraCB-(57)					4.88E-05 J	5.30E-06 U	1.80E-05 U
233'5'-TetraCB-(58)					2.90E-06 U	5.20E-06 U	1.80E-05 U
TetraCB-(59)+(62)+(75)					9.71E-05 J	4.49E-04	1.98E-04 J
2344'-TetraCB -(60)					2.20E-04	8.05E-04	3.52E-04
TetraCB-(61)+(70)+(74)+(76)					1.50E-03	6.52E-03	3.01E-03
234'5-TetraCB-(63)					2.46E-05 J	1.06E-04	4.80E-05 J
234'6-TetraCB-(64)					5.16E-04	2.41E-03	1.06E-03
23'44'-TetraCB-(66)					7.23E-04	3.39E-03	1.51E-03
23'45-TetraCB-(67)					2.64E-05 J	1.28E-04	5.30E-05 J
23'45'-TetraCB-(68)					3.50E-06 J	1.18E-05 J	1.60E-05 U
23'55'-TetraCB-(72)					4.60E-06 J	2.04E-05 J	1.70E-05 U
23'5'6-TetraCB-(73)					1.60E-06 U	9.30E-07 U	1.60E-05 U
33'44'-TetraCB-(77)					1.11E-04	4.62E-04	2.44E-04
33'45-TetraCB-(78)					2.90E-06 U	5.60E-06 U	1.80E-05 U
33'45'-TetraCB(79)					1.45E-05 J	5.84E-05 J	3.00E-05 J
33'55'-TetraCB-(80)					2.50E-06 U	5.00E-06 U	1.60E-05 U
344'5-TetraCB-(81)					3.50E-06 U	1.29E-05 J	2.20E-05 U
22'33'4-PentaCB-(82)					2.33E-04	9.92E-04	5.07E-04
PentaCB-(83)+(99)					7.95E-04	3.25E-03	1.66E-03
22'33'6-PentaCB-(84)					4.42E-04	1.88E-03	8.97E-04
PentaCB-(85)+(116)+(117)					2.18E-04 J	1.01E-03	5.20E-04
PentaCB-(86)(87)(97)(109)(119)(125)					1.20E-03	5.08E-03	2.62E-03
PentaCB-(88)+(91)					1.95E-04	7.81E-04	3.90E-04
22'346'-PentaCB-(89)					1.79E-05 J	6.82E-05 J	3.60E-05 J
PentaCB-(90)+(101)+(113)					1.51E-03	6.49E-03	3.33E-03
22'355'-PentaCB-(92)					2.53E-04	1.08E-03	5.54E-04
PentaCB-(93)+(98)+(100)+(102)					5.63E-05 J	2.26E-04 J	1.15E-04 J
22'356'-PentaCB-(94)					6.00E-06 J	2.67E-05 J	2.10E-05 U
22'35'6-PentaCB-(95)					1.13E-03	4.66E-03	2.33E-03
22'366'-PentaCB-(96)					7.90E-06 U	3.92E-05 J	1.90E-05 U
22'45'6-PentaCB-(103)					4.80E-06 J	2.50E-05 J	1.80E-05 U
22'466'-PentaCB-(104)					1.60E-06 U	2.60E-06 U	1.60E-05 U
233'44'-PentaCB-(105)					7.94E-04	3.32E-03	1.76E-03
233'45-PentaCB-(106)					5.80E-06 U	1.10E-06 U	2.00E-05 U
233'4'5-PentaCB-(107)					1.02E-04	4.53E-04	2.08E-04
PentaCB-(108)+(124)					6.40E-05 J	2.70E-04	1.44E-04 J
PentaCB-(110)+(115)					2.76E-03	1.03E-02	5.75E-03
233'55'-PentaCB-(111)					1.00E-06 U	1.40E-06 U	1.40E-05 U
233'56-PentaCB-(112)					1.00E-06 U	1.60E-06 U	1.50E-05 U
2344'5-PentaCB-(114)					3.35E-05 J	1.41E-04	7.40E-05 J
23'44'5-PentaCB-(118)					1.73E-03	7.53E-03	3.98E-03
23'455'-PentaCB-(120)					9.50E-07 U	9.60E-06 J	1.40E-05 U
23'45'6-PentaCB-(121)					1.00E-06 U	1.40E-06 U	1.40E-05 U
233'4'5'-PentaCB-(122)					2.10E-05 U	9.22E-05 J	5.40E-05 J
23'44'5'-PentaCB-(123)					1.80E-05 U	8.97E-05 J	7.10E-05 J
33'44'5-PentaCB-(126)					6.20E-06 U	3.53E-05 J	2.50E-05 J
33'455'-PentaCB-(127)					5.60E-06 U	7.60E-06 U	2.00E-05 U
HexaCB-(128)+(166)					4.74E-04	1.78E-03	9.70E-04
HexaCB-(129)+(138)+(163)					3.20E-03	1.15E-02	6.63E-03
22'33'45'-HexaCB-(130)					1.78E-04	6.27E-04	3.25E-04
22'33'46-HexaCB-(131)					4.37E-05 J	1.41E-04	8.10E-05 J
22'33'46'-HexaCB-(132)					9.97E-04	3.37E-03	1.82E-03
22'33'55'-HexaCB-(133)					3.09E-05 J	9.56E-05	5.40E-05 J
HexaCB-(134)+(143)					1.28E-04 J	4.18E-04	2.60E-04
HexaCB-(135)+(151)					6.76E-04	2.14E-03	1.14E-03
22'33'66'-HexaCB-(136)					2.41E-04	8.22E-04	4.33E-04
22'344'5-HexaCB-(137)					1.35E-04	5.44E-04	3.07E-04
HexaCB-(139)+(140)					4.09E-05 J	1.44E-04 J	8.30E-05 J
22'3455'-HexaCB-(141)					4.84E-04	1.82E-03	9.65E-04
22'3456-HexaCB-(142)					4.40E-06 U	9.60E-06 U	2.10E-05 U
22'345'6-HexaCB-(144)					9.88E-05	3.38E-04	1.91E-04
22'3466'-HexaCB-(145)					3.90E-06 U	2.20E-06 U	2.00E-05 U
22'34'55'-HexaCB-(146)					3.05E-04	1.11E-03	5.98E-04
HexaCB-(147)+(149)					1.85E-03	5.96E-03	3.26E-03
22'34'56'-HexaCB-(148)					4.90E-06 U	4.90E-06 J	2.50E-05 U
22'34'66'-HexaCB-(150)					3.80E-06 U	7.50E-06 J	1.80E-05 U
22'3566'-HexaCB-(152)					3.30E-06 U	5.20E-06 U	1.90E-05 U

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 20

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	B20-SP1 1/17/2018	Basin 20 SP1 3/28/2014	B20-SP1 1/7/2014	B20-SP1 11/18/2013
HexaCB-(153)+(168)					2.07E-03	6.71E-03	3.77E-03
22'44'56'-HexaCB-(154)					1.61E-05 J	4.90E-05 J	2.90E-05 J
22'44'66'-HexaCB-(155)					4.20E-06 U	1.20E-06 U	2.00E-05 U
HexaCB-(156)+(157)					3.27E-04	1.29E-03	6.80E-04
233'44'6-HexaCB-(158)					2.90E-04	1.07E-03	6.04E-04
233'455'-HexaCB-(159)					2.15E-05 J	6.63E-05 J	3.50E-05 J
233'456-HexaCB-(160)					3.60E-06 U	7.50E-06 U	1.50E-05 U
233'45'6-HexaCB-(161)					3.00E-06 U	6.50E-06 U	1.40E-05 U
233'4'55'-HexaCB-(162)					7.80E-06 U	2.85E-05 J	2.40E-05 J
233'4'5'6-HexaCB-(164)					1.97E-04	6.69E-04	3.46E-04
233'55'6-HexaCB-(165)					3.40E-06 U	7.10E-06 U	1.50E-05 U
23'44'55'-HexaCB-(167)					1.14E-04	4.12E-04	2.33E-04
33'44'55'-HexaCB-(169)					5.00E-06 U	6.00E-06 U	2.30E-05 U
22'33'44'5-HeptaCB-(170)					5.74E-04	1.73E-03	9.79E-04
HeptaCB-(171)+(173)					1.68E-04 J	5.50E-04	2.80E-04
22'33'455'-HeptaCB-(172)					1.07E-04	3.06E-04	1.81E-04
22'33'456'-HeptaCB-(174)					5.73E-04	4.40E-06 U	9.34E-04
22'33'45'6-HeptaCB-(175)					2.33E-05 J	7.69E-05 J	3.50E-05 J
22'33'466'-HeptaCB-(176)					6.23E-05 J	1.98E-04	1.02E-04
22'33'45'6'-HeptaCB-(177)					3.19E-04	1.03E-03	5.22E-04
22'33'55'6-HeptaCB-(178)					1.03E-04	3.27E-04	1.80E-04
22'33'566'-HeptaCB-(179)					2.02E-04	6.64E-04	3.18E-04
HeptaCB-(180)+(193)					1.33E-03	4.74E-03	2.48E-03
22'344'56-HeptaCB-(181)					6.40E-06 U	4.50E-06 U	2.00E-05 U
22'344'56'-HeptaCB-(182)					4.90E-06 U	2.10E-06 U	1.90E-05 U
22'344'5'6-HeptaCB-(183)					3.24E-04	1.11E-03	4.95E-04
22'344'66'-HeptaCB-(184)					3.60E-06 U	1.40E-06 U	1.30E-05 U
22'3455'6-HeptaCB-(185)					7.50E-06 U	2.19E-03	8.30E-05 J
22'34566'-HeptaCB-(186)					3.90E-06 U	1.60E-06 U	1.40E-05 U
22'34'55'6-HeptaCB-(187)					7.28E-04	2.27E-03	1.13E-03
22'34'566'-HeptaCB-(188)					4.80E-06 U	2.40E-06 U	1.60E-05 U
233'44'55'-HeptaCB-(189)					2.30E-05 U	7.30E-05 U	4.20E-05 U
233'44'56-HeptaCB-(190)					1.06E-04	3.40E-04	2.09E-04
233'44'5'6-HeptaCB-(191)					2.12E-05 J	7.36E-05 J	3.90E-05 J
233'455'6-HeptaCB-(192)					5.30E-06 U	3.80E-06 U	1.70E-05 U
22'33'44'55'-OctaCB-(194)					3.46E-04	1.18E-03	6.30E-04
22'33'44'56-OctaCB-(195)					1.11E-04	3.60E-04	1.84E-04
22'33'44'56'-OctaCB-(196)					1.85E-04	6.42E-04	3.27E-04
22'33'44'66'OctaCB-(197)					1.24E-05 J	2.76E-05 J	1.80E-05 U
OctaCB-(198)+(199)					4.79E-04	1.71E-03	8.00E-04
22'33'4566'-OctaCB-(200)					4.77E-05 J	1.98E-04	7.20E-05 J
22'33'45'66'-OctaCB-(201)					5.61E-05 J	1.90E-04	7.40E-05 U
22'33'55'66'-OctaCB-(202)					8.68E-05 J	3.52E-04	1.80E-04
22'344'55'6-OctaCB-(203)					3.05E-04	1.10E-03	5.00E-04
22'344'566'-OctaCB-(204)					7.10E-06 U	4.00E-06 U	1.70E-05 U
233'44'55'6-OctaCB-(205)					1.90E-05 U	4.90E-05 U	2.60E-05 U
22'33'44'55'6-NonaCB-(206)					2.79E-04	1.25E-03	5.92E-04
22'33'44'566'-NonaCB-(207)					3.50E-05 J	1.43E-04	6.30E-05 J
22'33'455'66'-NonaCB-(208)					6.68E-05 J	2.88E-04	1.41E-04
DecaCB-(209)					7.70E-05 J	3.06E-04	1.42E-04
PCB Homologs (ug/l)							
Monochlorobiphenyl					5.10E-06 U	1.84E-04	2.40E-05
Dichlorobiphenyl					1.66E-03	5.21E-03	2.17E-03
Trichlorobiphenyl					5.29E-03	2.89E-02	1.11E-02
Tetrachlorobiphenyl					8.03E-03	3.75E-02	1.60E-02
Pentachlorobiphenyl					1.16E-02	4.79E-02	2.50E-02
Hexachlorobiphenyl					1.19E-02	4.11E-02	2.28E-02
Heptachlorobiphenyl					4.64E-03	1.56E-02	7.97E-03
Octachlorobiphenyl					1.63E-03	5.77E-03	2.69E-03
Nonachlorobiphenyl					3.81E-04	1.68E-03	7.96E-04
Decachlorobiphenyl					7.70E-05	3.06E-04	1.42E-04
Total Detected PCBs (Method 1668)	6.40E-05	6.40E-06	3.00E-01		4.52E-02	1.84E-01	8.88E-02
Phthalates (ug/l)							
Bis(2-ethylhexyl) phthalate	2.2	0.2	5		2.0	11 U	11 U
Butylbenzyl phthalate	3				0.943 U	15 U	14 U
Dibutyl phthalate	3				0.943 U	15 U	14 U
Diethyl phthalate	3				0.943 U	15 U	14 U
Dimethyl phthalate	3				0.943 U	15 U	14 U
Di-n-octyl phthalate	3				0.943 U	15 U	14 U
Pesticides (ug/l)							
2,4'-DDD	3.10E-04	3.10E-05			9.52E-03 U	9.52E-03 U	9.52E-03 U
2,4'-DDE	2.20E-04	1.80E-05			9.52E-03 U	9.52E-03 U	9.52E-03 U

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 20

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	B20-SP1 1/17/2018	Basin 20 SP1 3/28/2014	B20-SP1 1/7/2014	B20-SP1 11/18/2013
2,4'-DDT	2.00E-01	2.20E-05			1.90E-02 U	9.52E-03 U	1.90E-02 U
4,4'-DDD	3.10E-04	3.10E-05			9.52E-03 U	9.52E-03 U	9.52E-03 U
4,4'-DDE	2.20E-04	1.80E-05			9.52E-03 U	9.52E-03 U	9.52E-03 U
4,4'-DDT	2.20E-04	2.20E-05			1.90E-02 U	1.90E-02 U	9.52E-03 U
Total DDx		1.00E-02					
Aldrin	5.00E-05	7.70E-07			9.52E-03 U	9.52E-03 U	9.52E-03 U
alpha-BHC	4.90E-03				9.52E-03 U	9.52E-03 U	9.52E-03 U
beta-BHC	1.70E-02				9.52E-03 U	9.52E-03 U	9.52E-03 U
cis-Chlordane	8.10E-04	8.10E-05			9.52E-03 U	9.52E-03 U	9.52E-03 U
cis-Nonachlor	1.90E-01				9.52E-03 U	9.52E-03 U	9.52E-03 U
Chlordane Technical		8.10E-05			3.58E-01 U	3.58E-01 U	3.58E-01 U
delta-BHC	5.20E-02				9.52E-03 U	9.52E-03 U	9.52E-03 U
Dieldrin	5.40E-05				9.52E-03 U	9.52E-03 U	9.52E-03 U
Endosulfan I	5.10E-02				4.76E-02 U	4.76E-02 U	2.86E-02 U
Endosulfan II	5.10E-02				9.52E-03 U	9.52E-03 U	9.52E-03 U
Endosulfan sulfate	8.90E+01				9.52E-03 U	9.52E-03 U	9.52E-03 U
Endrin	3.60E-02				9.52E-03 U	9.52E-03 U	9.52E-03 U
Endrin aldehyde					9.52E-03 U	9.52E-03 U	9.52E-03 U
Endrin ketone					9.52E-03 U	9.52E-03 U	9.52E-03 U
gamma-BHC	3.70E-02				9.52E-03 U	9.52E-03 U	9.52E-03 U
Heptachlor	7.90E-05				9.52E-03 U	9.52E-03 U	1.90E-02 U
Heptachlor epoxide	3.90E-05				9.52E-03 U	9.52E-03 U	9.52E-03 U
Hexachlorobenzene	2.90E-04	2.90E-05			2.86E-02 U	2.86E-02 U	2.86E-02 U
Hexachlorobutadiene	8.60E-01				9.52E-03 U	9.52E-03 U	9.52E-03 U
Hexachloroethane	3.30E+00						
Methoxychlor	3.00E-02				2.86E-02 U	2.86E-02 U	2.86E-02 U
Mirex	NC				9.52E-03 U	9.52E-03 U	9.52E-03 U
Oxychlordane	1.90E-01	8.10E-05			9.52E-03 U	9.52E-03 U	9.52E-03 U
Toxaphene	2.00E-04				3.58E-01 U	3.58E-01 U	3.58E-01 U
trans-Chlordane	8.10E-04	8.10E-05			9.52E-03 U	9.52E-03 U	9.52E-03 U
trans-Nonachlor	1.90E-01				9.52E-03 U	9.52E-03 U	9.52E-03 U
Dioxins (ug/l)							
1,2,3,4,6,7,8-HeptaCDD				9.46E-04	2.77E-04	3.75E-04	1.37E-04
1,2,3,4,6,7,8-HeptaCDF				4.90E-04 U	4.30E-05 U	6.40E-05 U	2.80E-05 U
1,2,3,4,7,8,9-HeptaCDF				3.64E-05 J	2.60E-06 J	4.90E-06 U	1.50E-06 U
1,2,3,4,7,8-HexaCDD				9.80E-06 J	2.90E-06 J	4.45E-06 J	2.90E-06 U
1,2,3,4,7,8-HexaCDF				1.14E-04	4.80E-06 J	8.16E-06 J	2.60E-06 U
1,2,3,6,7,8-HexaCDD				3.78E-05 J	1.24E-05 J	1.53E-05 J	6.40E-06 J
1,2,3,6,7,8-HexaCDF				2.51E-05 J	2.60E-06 J	3.67E-06 J	1.61E-06 J
1,2,3,7,8,9-HexaCDD				2.09E-05 J	9.70E-06 J	1.19E-05 J	5.00E-06 J
1,2,3,7,8,9-HexaCDF				1.10E-06 U	1.30E-06 U	1.20E-06 U	1.10E-06 U
1,2,3,7,8-PentaCDD				5.00E-06 J	1.30E-06 U	2.90E-06 J	1.20E-06 U
1,2,3,7,8-PentaCDF				3.30E-06 J	1.10E-06 U	2.00E-06 J	1.40E-06 U
2,3,4,6,7,8-HexaCDF				1.14E-05 J	2.10E-06 J	3.10E-06 J	1.81E-06 J
2,3,4,7,8-PentaCDF				1.15E-05 J	1.10E-06 U	3.20E-06 J	1.40E-06 U
2,3,7,8-TetraCDD	5.1E-09			1.40E-06 U	1.70E-06 U	9.00E-07 U	1.20E-06 U
2,3,7,8-TetraCDF				5.20E-06 J	3.10E-06 J	5.20E-06 J	2.00E-06 J
OCDD				1.03E-02	2.09E-03	3.29E-03	1.10E-03
OCDF				5.38E-04	8.60E-05 J	1.43E-04	4.40E-05
HeptaCDD homologs				2.08E-03	6.00E-04	8.83E-04	3.28E-04
HeptaCDF homologs				8.59E-04	7.07E-05	1.26E-04	4.30E-05
HexaCDD homologs				2.06E-04	7.55E-05	1.18E-04	5.50E-05
HexaCDF homologs				7.34E-04	7.21E-05	1.06E-04	4.20E-05
PentaCDD homologs				8.60E-06 J	1.30E-06 U	7.37E-06 J	1.20E-06 U
PentaCDF homologs				1.36E-04	1.87E-05 J	4.03E-05 J	1.20E-05
TetraCDD homologs				1.40E-06 U	8.60E-06 U	1.01E-06 J	1.20E-06 U
TetraCDF homologs				5.70E+01	1.22E-05 J	3.09E-05	4.70E-06
Total Dioxin TEQ (ND=DL/2)	5.1E-09	5.0E-10		4.72E-05	9.17E-06	1.47E-05	5.30E-06
Total Dioxin TEQ (ND=0)	5.1E-09	5.0E-10		4.40E-05	7.21E-06	1.39E-05	3.40E-06
Butyltins (ug/l)							
Butyltin ion					0.20 U	0.20 U	0.20 U
Dibutyltin ion					0.29 U	0.29 U	0.29 U
Tributyltin ion	0.072	0.063			0.19 U	0.19 U	0.19 U
Total Metals (ug/l)							
Aluminum				3680	1840	6040	1880
Antimony	6			1.7	1.5 J	1.8	1.2
Arsenic	0.045	0.018	3	1.3	0.84 J	1.6	1.0
Cadmium	0.094		0.7	0.98	0.33	1.0	0.42
Chromium	100	100	10	31	17	65	18
Copper	2.7	2.74	60	44	18	59	25
Lead	0.54		50	77	23	78	24
Manganese	50			1210	184	744	222

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 20

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	B20-SP1 1/17/2018	Basin 20 SP1 3/28/2014	B20-SP1 1/7/2014	B20-SP1 11/18/2013
Mercury	0.77		0.2	0.046 J	0.043 J	0.079 J	0.040 U
Nickel	16		8	8.4	3.0	9.2	3.7
Silver	0.12		0.1	0.10 U	0.10 U	0.11 J	0.10 U
Zinc	36	36.5	700	712	109	381	159
Dissolved Metals (ug/l)							
Aluminum					91	51	79
Antimony	6				0.50 U	0.51 J	0.72 J
Arsenic	0.045	0.018	2		0.50 U	0.50 U	0.50 U
Cadmium	0.094		0.7		0.044 J	0.04 J	0.12 J
Chromium	100	100	10		1.7	0.72 J	1.2
Copper	2.7	2.74	60		3.9	5.5	9.8
Lead	0.54		50		0.93	0.33	0.68
Manganese	50				10	15	56
Mercury	0.77		0.2		0.040 U	0.040 U	0.040 U
Nickel	16		8		0.66 J	0.82 J	1.6
Silver	0.12		0.1		0.10 U	0.10 U	0.10 U
Zinc	36	36.5	700		24	11	52
Pertroleum Hydrocarbons (mg/l)							
Gasoline				0.050 U	0.050 U	0.050 U	0.050 U
Diesel				0.10 U	0.10 U	0.47 U	0.10 U
Oil				0.40 J	1.5	3.7	1.5
TSS (mg/l)			70	159	53	215	49
TOC (mg/l)				8.4	6.1	6.4	15

U - Not detectet at noted detection limit
J- Estimated value
Blank cells indicate not analyzed

1 - Table 3-1 PH JSCS Guidance, 7/16/2007 revision
2 - Table 17 January 2017 PH ROD. Surface Water Cleanup Level.
3 - October 2010, DEQ Guidance for Evaluating Stormwater Pathway at Upland Sites, Appendix E, Tool For Evaluating Stormwater Data (12/2015 update)

Detected concentration > 10 x SLV (CL or JSCS if no CL)
Detected concentration > 100 x SLV (CL or JSCS if no CL)
Detected concentration > 1000 x SLV (CL or JSCS if no CL)

Table 3
Catch Basin Solids Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 20A

Chemical	Portland Harbor SLV JSCS[1]	Portland Harbor SLV CL[2]	DEQ Appendix E "Typical PH Values"[3]	SW CB 10/29/2013	NW CB 10/29/2013
PAHs (ug/kg)					
2-Methylnaphthalene	200			1440 U	934 U
Acenaphthene	300			719 U	467 U
Acenaphthylene	200			719 U	467 U
Anthracene	845			719 U	919 J
Benzo(a)anthracene	1050			1260 J	32600
Benzo(a)pyrene	1450			1690 J	3450
Benzo(b+k)fluoranthene	13000			3760 J	3990
Benzo(g,h,i)perylene	300			1460	931 J
Chrysene	1290			1290 J	63700
Dibenzo(a,h)anthracene	1300			719 U	467 U
Fluoranthene	2230			1810	23800
Fluorene	536			719 U	467 U
Indeno(1,2,3-cd)pyrene	100			894 J	467 U
Naphthalene	561			1440 U	934 U
Phenanthrene	1170			1100 J	2630
Pyrene	1520			2150	279000
Total Detected PAHs (BaP TEQ)		12		2294	7746
Total Detected PAHs		23000	15000	15414	411020
PCBs (ug/kg)					
Aroclor 1016	530			8.7 U	5.9 U
Aroclor 1221				8.7 U	5.9 U
Aroclor 1232				8.7 U	5.9 U
Aroclor 1242				181	83
Aroclor 1248	1500			8.7 U	5.9 U
Aroclor 1254	300			353	174
Aroclor 1260	200			131	52
Total Detected PCB Aroclors	0.39	9	150	665	309
Phthalates (ug/kg)					
Bis(2-ethylhexyl) phthalate	330	135	30000	10800 J	17800
Butylbenzyl phthalate				7190 U	5460 J
Diethyl phthalate	600			7190 U	4670 U
Dimethyl phthalate				7190 U	4670 U
Dibutyl phthalate				7190 U	4670 U
Di-n-octyl phthalate	60			14400 U	9340 U
Pesticides (ug/kg)					
2,4'-DDD	0.33	114		17 U	4.5 U
2,4'-DDE	0.33	226		8.7 U	4.5 U
2,4'-DDT	0.33	246		8.7 U	4.5 U
4,4'-DDD	0.33	114		38 U	4.5 U
4,4'-DDE	0.33	226		26 U	4.5 U
4,4'-DDT	0.33	246		35 U	11 U
Total DDx		6.1		0	0
Aldrin	40	2		8.7 U	4.5 U
alpha-Hexachlorocyclohexane				8.7 U	4.5 U

Table 3
Catch Basin Solids Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 20A

Chemical	Portland Harbor SLV JSCS[1]	SLV CL[2]	DEQ Appendix E "Typical PH Values"[3]	SW CB 10/29/2013	NW CB 10/29/2013
beta-Hexachlorocyclohexane				8.7 U	4.5 U
Chlordane Technical		1.4		259 U	135 U
cis-Chlordane	0.37	1.4		8.7 U	4.5 U
cis-Nonachlor				26 U	4.5 U
delta-Hexachlorocyclohexane	4.99			8.7 U	4.5 U
Dieldrin	0.0081	0.07		17 U	4.5 U
alpha-Endosulfan				8.7 U	4.5 U
beta-Endosulfan				8.7 U	4.5 U
Endosulfan sulfate				8.7 U	4.5 U
Endrin	207			8.7 U	4.5 U
Endrin aldehyde				8.7 U	4.5 U
Endrin ketone				8.7 U	4.5 U
gamma-Hexachlorocyclohexane				8.7 U	4.5 U
Heptachlor	10			8.7 U	4.5 U
Heptachlor epoxide	16			8.7 U	4.5 U
Hexachlorobenzene	19	0.3		22 U	11 U
Hexachlorobutadiene	600			8.7 U	4.5 U
Methoxychlor				26 U	14 U
Mirex				17 U	4.5 U
Oxychlordane				8.7 U	4.5 U
Toxaphene				259 U	135 U
trans-Chlordane	0.37	1.4		8.7 U	4.5 U
trans-Nonachlor				8.7 U	4.5 U
Dioxins (ug/kg)					
1,2,3,4,6,7,8-HeptaCDD	6.90E-01			5.98E-01	2.42E-01
1,2,3,4,6,7,8-HeptaCDF	6.90E-01			9.69E-02	4.31E-02
1,2,3,4,7,8,9-HeptaCDF	6.90E-01			7.83E-03 J	2.97E-03 J
1,2,3,4,7,8-HexaCDD				7.64E-03 J	3.41E-03 J
1,2,3,4,7,8-HexaCDF	2.70E-03	4.00E-04		1.16E-02	4.07E-03 J
1,2,3,6,7,8-HexaCDD				3.21E-02	1.17E-02
1,2,3,6,7,8-HexaCDF	2.70E-03			5.62E-03 J	2.21E-03 J
1,2,3,7,8,9-HexaCDD				2.06E-02	9.70E-03
1,2,3,7,8,9-HexaCDF	2.70E-03			3.30E-04 J	1.80E-04 J
1,2,3,7,8-PentaCDD	2.60E-03	2.00E-04		4.28E-03 J	1.86E-03 J
1,2,3,7,8-PentaCDF	2.60E-03			2.80E-03 J	8.70E-04 U
2,3,4,6,7,8-HexaCDF	2.70E-03			4.21E-03 J	1.99E-03 J
2,3,4,7,8-PentaCDF	3.00E-05	3.00E-04		4.18E-03 J	2.04E-03 J
2,3,7,8-TetraCDD	9.10E-06	2.00E-04		9.30E-04 U	3.00E-04 U
2,3,7,8-TetraCDF	7.70E-04	4.07E-04		5.50E-03	2.60E-03
OCDD	2.30E+01			5.49E+00	2.26E+00
OCDF	2.30E+01			3.31E-01	1.84E-01
Total Hepta CDD				1.44E+00	5.56E-01
Total Hepta CDF				2.79E-01	1.27E-01
Total Hexa CDD				2.36E-01	9.70E-02
Total Hexa CDF				1.51E-01	6.34E-02
Total Penta CDD				1.29E-02	5.70E-03
Total Penta CDF				5.35E-02	3.16E-02

Table 3
Catch Basin Solids Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 20A

Chemical	Portland Harbor SLV JSCS[1]	Portland Harbor SLV CL[2]	DEQ Appendix E "Typical PH Values"[3]	SW CB 10/29/2013	NW CB 10/29/2013
Total Tetra CDD				1.17E-03 J	4.80E-04 J
Total Tetra CDF				1.37E-02	9.40E-03
Total Dioxin TEQ (ND=DL/2)	9.10E-05			2.36E-02	9.83E-03
Total Dioxin TEQ (ND=0)	9.10E-05			2.32E-02	9.67E-03
Butyltins (ug/kg)					
Butyltin ion				110	120
Dibutyltin ion				170	180
Tributyltin ion	2.3	3080		17	3.6 U
Metals (mg/kg)					
Aluminum				9150	4880
Antimony	64			4.3	1.4
Arsenic	7	3	10	4.4	1.4
Cadmium	1	0.51	2	2.5	0.77
Chromium	111		130	434	271
Copper	149	359	500	144	46
Lead	17	196	300	179	56
Manganese	1100			4670	2970
Mercury	0.07	0.085	0.35	0.25	0.056 U
Nickel	48.6		60	45	14
Silver	5		0.7	0.31 J	0.14 U
Zinc	459	459	1400	918	360
Total Petroluem Hydrcarbons (mg/kg)					
Gasoline				6.1 U	3.6 U
Diesel				1190 U	439 U
Oil				9290	3890

U - Not detected at noted detection limit

J - Estimated value

1 - Table 3-1 PH JSCS Guidance, 7/16/2007 revision

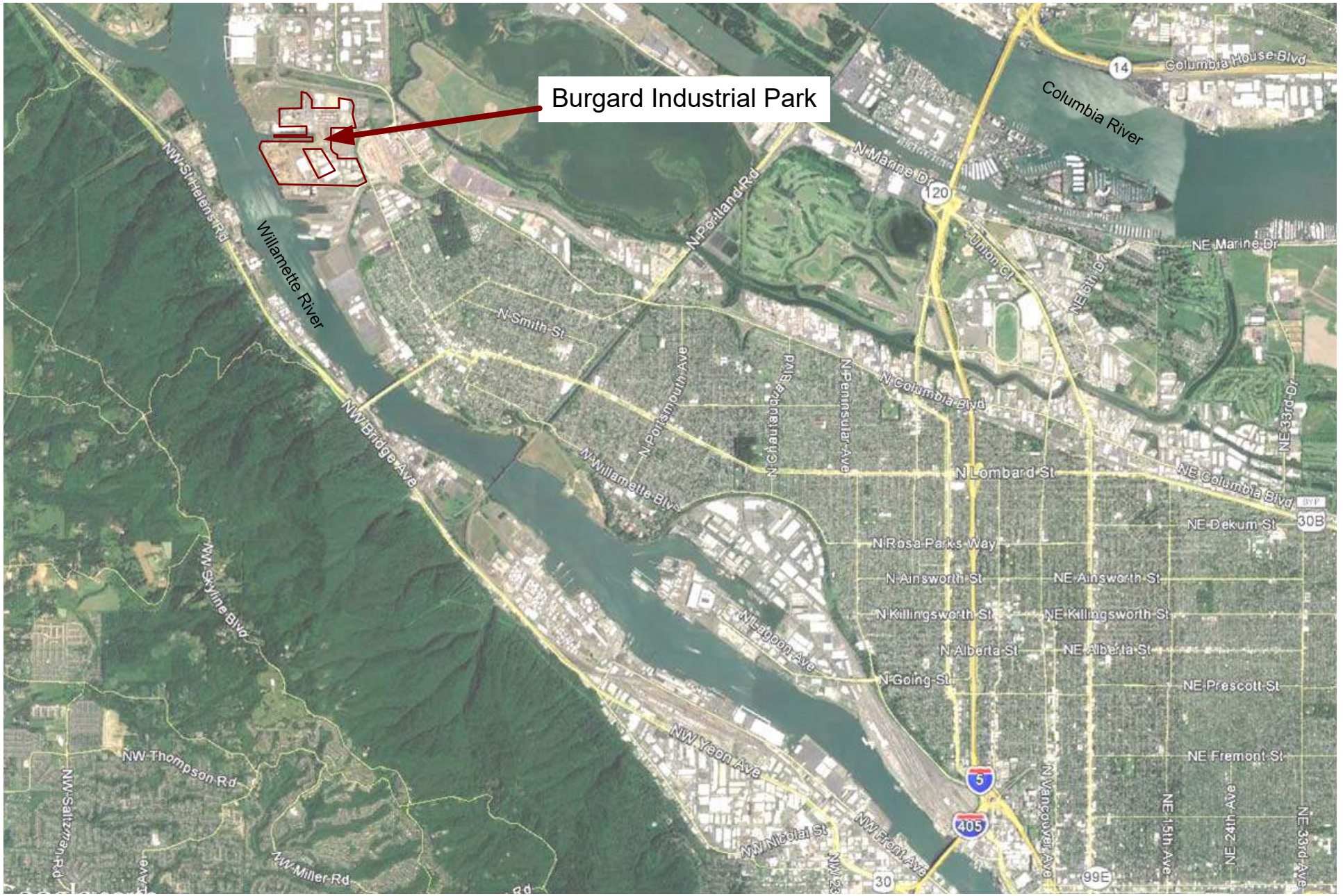
2 - Table 17 January 2017 PH ROD. Riverbank/Soil Cleanup Level

3 - October 2010, DEQ Guidance for Evaluating Stormwater Pathway at Upland Sites, Appendix E,
Tool For Evaluating Stormwater Data (12/2015 update)

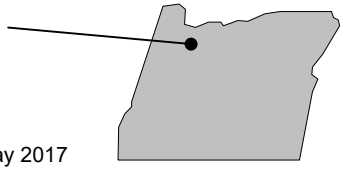
Detected concentration > 10 x SLV (CL or JSCS if no CL)

Detected concentration > 100 x SLV (CL or JSCS if no CL)

Figures



Portland, Oregon



Base photograph May 2017

N

Approximate Scale

5000 feet

Figure 1
Site Location Map
Burgard Industrial Park
Portland, OR

RIEKE CONSULTING SERVICES, LLC

Base photograph May 2017

Figure 2
Site Plan
Burgard Industrial Park
Portland, Oregon

RIEKE CONSULTING SERVICES, LLC

Base photograph May 2017

Approximate Scale

100 feet

N

Storm Water Sample Location

Previous Catch Basin
Solids Sample Location

Pavement

Figure 3
Site Plan and Sample Locations
Basin 20/Basin 20A
Burgard Industrial Park
Portland, OR

RIEKE CONSULTING SERVICES, LLC

Appendix A – Analytical Laboratory Reports

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Friday, March 16, 2018

Ross Rieke
Rieke Consulting Services, LLC
10457 SW Lady Marion Drive
Tigard, OR 97224

RE: Schnitzer Steel-Burgard / 8001-20

Enclosed are the results of analyses for work order A8A0548, which was received by the laboratory on 1/18/2018 at 1:07:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B20-SP1-01172018	A8A0548-01	Water	01/17/18 16:30	01/18/18 13:07

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B20-SP1-01172018 (A8A0548-01)			**Matrix: Water**		**Batch: 8010861**			
Diesel	ND	0.101	0.202	mg/L	1	01/20/18 02:03	NWTPH-Dx	
Oil	**0.402**	0.202	0.404	"	"	"	"	J
Surrogate: o-Terphenyl (Surr)			*Recovery: 97 %*	*Limits: 50-150 %*	"	"	"	

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Philip Nerenberg, Lab Director

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B20-SP1-01172018 (A8A0548-01)			**Matrix: Water**		**Batch: 8010835**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	01/18/18 20:44	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 103 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*104 %*	*Limits: 50-150 %*	"	"	"	

Apex Laboratories

Philip Nerenberg, Lab Director

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AMENDED REPORT

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B20-SP1-01172018 (A8A0548-01)			**Matrix: Water**		**Batch: 8011117**			**C-07**
Aroclor 1016	ND	0.00943	0.0189	ug/L	1	01/30/18 09:13	EPA 8082A	
Aroclor 1221	ND	0.00943	0.0189	"	"	"	"	
Aroclor 1232	ND	0.00943	0.0189	"	"	"	"	
Aroclor 1242	**0.102**	0.00943	0.0189	"	"	"	"	P-10
Aroclor 1248	ND	0.00943	0.0189	"	"	"	"	
Aroclor 1254	**0.0881**	0.00943	0.0189	"	"	"	"	P-10
Aroclor 1260	**0.0552**	0.00943	0.0189	"	"	"	"	P-10
Surrogate: Decachlorobiphenyl (Surr)			*Recovery: 44 %*	*Limits: 39-120 %*	"	"	"	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B20-SP1-01172018 (A8A0548-01RE2)			**Matrix: Water**		**Batch: 8010849**			
Acenaphthene	ND	0.103	0.206	ug/L	5	01/22/18 14:53	EPA 8270D	
Acenaphthylene	ND	0.103	0.206	"	"	"	"	
Anthracene	ND	0.103	0.206	"	"	"	"	
Benz(a)anthracene	**0.215**	0.103	0.206	"	"	"	"	M-05
Benzo(a)pyrene	**0.383**	0.155	0.309	"	"	"	"	
Benzo(b)fluoranthene	**0.522**	0.155	0.309	"	"	"	"	M-05
Benzo(k)fluoranthene	**0.241**	0.155	0.309	"	"	"	"	J
Benzo(g,h,i)perylene	**0.310**	0.103	0.206	"	"	"	"	
Chrysene	**0.424**	0.103	0.206	"	"	"	"	M-05
Dibenz(a,h)anthracene	ND	0.103	0.206	"	"	"	"	
Fluoranthene	**0.542**	0.103	0.206	"	"	"	"	
Fluorene	ND	0.103	0.206	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**0.237**	0.103	0.206	"	"	"	"	
1-Methylnaphthalene	ND	0.206	0.412	"	"	"	"	
2-Methylnaphthalene	ND	0.206	0.412	"	"	"	"	
Naphthalene	ND	0.206	0.412	"	"	"	"	
Phenanthrene	**0.260**	0.103	0.206	"	"	"	"	
Pyrene	**0.721**	0.103	0.206	"	"	"	"	
Carbazole	ND	0.155	0.309	"	"	"	"	
Dibenzofuran	ND	0.103	0.206	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 61 %*	*Limits: 44-120 %*	"	"	"	
2-Fluorobiphenyl (Surr)			*77 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*24 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*73 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*35 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*108 %*	*Limits: 43-140 %*	"	"	"	

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Philip Nerenberg

Philip Nerenberg, Lab Director

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B20-SP1-01172018 (A8A0548-01)			**Matrix: Water**					
Batch: 8011074								
Aluminum	**3680**	25.0	50.0	ug/L	1	01/26/18 17:08	EPA 6020A	
Antimony	**1.68**	0.500	1.00	"	"	"	"	
Arsenic	**1.29**	0.500	1.00	"	"	"	"	
Cadmium	**0.983**	0.0400	0.200	"	"	"	"	
Chromium	**30.8**	0.500	1.00	"	"	"	"	
Copper	**43.7**	0.500	1.00	"	"	"	"	
Lead	**77.2**	0.100	0.200	"	"	"	"	
Mercury	**0.0458**	0.0400	0.0800	"	"	"	"	J
Nickel	**8.40**	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
B20-SP1-01172018 (A8A0548-01RE1)			**Matrix: Water**					
Batch: 8011074								
Manganese	**1210**	2.50	5.00	ug/L	5	01/26/18 17:49	EPA 6020A	
Zinc	**712**	10.0	20.0	"	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B20-SP1-01172018 (A8A0548-01)			**Matrix: Water**					
Batch: 8010889								
Total Organic Carbon	**8.38**	1.00	1.00	mg/L	1	01/22/18 13:47	SM 5310 C	
Batch: 8010976								
Total Suspended Solids	**159**	5.00	5.00	"	"	01/24/18 14:50	SM 2540 D	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010861 - EPA 3510C (Fuels/Acid Ext.)									**Water**			
Blank (8010861-BLK1)					Prepared: 01/19/18 11:23 Analyzed: 01/19/18 21:52							
NWTPH-Dx												
Diesel	ND	0.0909	0.182	mg/L	1	---	---	---	---	---	---	
Oil	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 95 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS (8010861-BS1)					Prepared: 01/19/18 11:23 Analyzed: 01/19/18 22:15							
NWTPH-Dx												
Diesel	0.910	0.100	0.200	mg/L	1	1.25	---	73	58-115	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 94 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS Dup (8010861-BSD1)					Prepared: 01/19/18 11:23 Analyzed: 01/19/18 22:38							Q-19
NWTPH-Dx												
Diesel	1.06	0.100	0.200	mg/L	1	1.25	---	85	58-115	15	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 101 %*	*Limits: 50-150 %*		*Dilution: 1x*						

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010835 - EPA 5030B									**Water**			
Blank (8010835-BLK1)					Prepared: 01/18/18 16:59 Analyzed: 01/18/18 18:24							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 99 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*102 %*	*50-150 %*			*"*					
LCS (8010835-BS2)					Prepared: 01/18/18 16:59 Analyzed: 01/18/18 17:55							
NWTPH-Gx (MS)												
Gasoline Range Organics	0.445	0.0500	0.100	mg/L	1	0.500	---	89	80-120	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 96 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*97 %*	*50-150 %*			*"*					
Duplicate (8010835-DUP1)					Prepared: 01/18/18 18:16 Analyzed: 01/18/18 23:33							
QC Source Sample: B21-CB9-01172018 (A8A0548-06)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 101 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*104 %*	*50-150 %*			*"*					

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8011117 - EPA 3510C (Neutral pH)							**Water**					
Blank (8011117-BLK1)					Prepared: 01/29/18 09:20		Analyzed: 01/30/18 08:20					C-07
EPA 8082A												
Aroclor 1016	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Aroclor 1221	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1232	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1242	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1248	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1254	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1260	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 67 %*	*Limits: 39-120 %*		*Dilution: 1x*						
LCS (8011117-BS1)					Prepared: 01/29/18 09:20		Analyzed: 01/30/18 08:38					C-07
EPA 8082A												
Aroclor 1016	0.842	0.0100	0.0200	ug/L	1	1.25	---	67	46-129	---	---	
Aroclor 1260	0.984	0.0100	0.0200	"	"	"	---	79	45-134	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 72 %*	*Limits: 39-120 %*		*Dilution: 1x*						
LCS Dup (8011117-BSD1)					Prepared: 01/29/18 09:20		Analyzed: 01/30/18 08:56					C-07, Q-19
EPA 8082A												
Aroclor 1016	0.824	0.0100	0.0200	ug/L	1	1.25	---	66	46-129	2	30%	
Aroclor 1260	0.947	0.0100	0.0200	"	"	"	---	76	45-134	4	30%	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 65 %*	*Limits: 39-120 %*		*Dilution: 1x*						

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010849 - EPA 3510C (Acid Extraction)							**Water**					
Blank (8010849-BLK2)					Prepared: 01/19/18 09:37 Analyzed: 01/19/18 13:58							
EPA 8270D												
Acenaphthene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Chrysene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Fluoranthene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Fluorene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
Naphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
Phenanthrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Carbazole	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Diethylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Dimethylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Di-n-butylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	

Surr: Nitrobenzene-d5 (Surr)	*Recovery: 74 %*	*Limits: 44-120 %*	*Dilution: 1x*	
2-Fluorobiphenyl (Surr)	*80 %*	*44-120 %*	*"*	
Phenol-d6 (Surr)	*27 %*	*10-120 %*	*"*	
p-Terphenyl-d14 (Surr)	*94 %*	*50-133 %*	*"*	
2-Fluorophenol (Surr)	*43 %*	*19-120 %*	*"*	
2,4,6-Tribromophenol (Surr)	*75 %*	*43-140 %*	*"*	

LCS (8010849-BS2) Prepared: 01/19/18 09:37 Analyzed: 01/19/18 14:35

EPA 8270D

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Philip Nerenberg, Lab Director

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AMENDED REPORT

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010849 - EPA 3510C (Acid Extraction)								**Water**				
LCS (8010849-BS2)					Prepared: 01/19/18 09:37 Analyzed: 01/19/18 14:35							
EPA 8270D												
Acenaphthene	3.57	0.0400	0.0800	ug/L	4	4.00	---	89	47-122	---	---	
Acenaphthylene	3.59	0.0400	0.0800	"	"	"	---	90	41-130	---	---	
Anthracene	3.73	0.0400	0.0800	"	"	"	---	93	57-123	---	---	
Benz(a)anthracene	3.79	0.0400	0.0800	"	"	"	---	95	58-125	---	---	
Benzo(a)pyrene	4.09	0.0600	0.120	"	"	"	---	102	54-128	---	---	
Benzo(b)fluoranthene	3.97	0.0600	0.120	"	"	"	---	99	53-131	---	---	
Benzo(k)fluoranthene	3.91	0.0600	0.120	"	"	"	---	98	57-129	---	---	
Benzo(g,h,i)perylene	3.95	0.0400	0.0800	"	"	"	---	99	50-134	---	---	
Chrysene	3.86	0.0400	0.0800	"	"	"	---	96	59-123	---	---	
Dibenz(a,h)anthracene	3.97	0.0400	0.0800	"	"	"	---	99	51-134	---	---	
Fluoranthene	3.96	0.0400	0.0800	"	"	"	---	99	57-128	---	---	
Fluorene	3.65	0.0400	0.0800	"	"	"	---	91	52-124	---	---	
Indeno(1,2,3-cd)pyrene	3.82	0.0400	0.0800	"	"	"	---	96	52-133	---	---	
1-Methylnaphthalene	3.57	0.0800	0.160	"	"	"	---	89	41-120	---	---	
2-Methylnaphthalene	3.51	0.0800	0.160	"	"	"	---	88	40-121	---	---	
Naphthalene	3.37	0.0800	0.160	"	"	"	---	84	"	---	---	
Phenanthrene	3.64	0.0400	0.0800	"	"	"	---	91	59-120	---	---	
Pyrene	3.88	0.0400	0.0800	"	"	"	---	97	57-126	---	---	
Carbazole	4.30	0.0600	0.120	"	"	"	---	107	60-122	---	---	
Dibenzofuran	3.66	0.0400	0.0800	"	"	"	---	91	53-120	---	---	
Bis(2-ethylhexyl)phthalate	3.74	0.800	1.60	"	"	"	---	93	55-135	---	---	
Butyl benzyl phthalate	4.05	0.800	1.60	"	"	"	---	101	53-134	---	---	
Diethylphthalate	3.84	0.800	1.60	"	"	"	---	96	55-125	---	---	
Dimethylphthalate	3.91	0.800	1.60	"	"	"	---	98	45-127	---	---	
Di-n-butylphthalate	3.90	0.800	1.60	"	"	"	---	97	59-127	---	---	
Di-n-octyl phthalate	3.84	0.800	1.60	"	"	"	---	96	51-140	---	---	

Surr: Nitrobenzene-d5 (Surr)	*Recovery: 80 %*	*Limits: 44-120 %*	*Dilution: 4x*
2-Fluorobiphenyl (Surr)	*82 %*	*44-120 %*	*"*
Phenol-d6 (Surr)	*29 %*	*10-120 %*	*"*
p-Terphenyl-d14 (Surr)	*97 %*	*50-133 %*	*"*
2-Fluorophenol (Surr)	*45 %*	*19-120 %*	*"*
2,4,6-Tribromophenol (Surr)	*98 %*	*43-140 %*	*"*

LCS Dup (8010849-BSD2)	Prepared: 01/19/18 09:37	Analyzed: 01/19/18 15:11	Q-19
EPA 8270D			

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010849 - EPA 3510C (Acid Extraction)							**Water**					
LCS Dup (8010849-BSD2)					Prepared: 01/19/18 09:37		Analyzed: 01/19/18 15:11					Q-19
EPA 8270D												
Acenaphthene	3.52	0.0400	0.0800	ug/L	4	4.00	---	88	47-122	2	30%	
Acenaphthylene	3.52	0.0400	0.0800	"	"	"	---	88	41-130	2	30%	
Anthracene	3.73	0.0400	0.0800	"	"	"	---	93	57-123	0.03	30%	
Benz(a)anthracene	3.77	0.0400	0.0800	"	"	"	---	94	58-125	0.6	30%	
Benzo(a)pyrene	4.10	0.0600	0.120	"	"	"	---	103	54-128	0.3	30%	
Benzo(b)fluoranthene	3.98	0.0600	0.120	"	"	"	---	99	53-131	0.3	30%	
Benzo(k)fluoranthene	3.89	0.0600	0.120	"	"	"	---	97	57-129	0.7	30%	
Benzo(g,h,i)perylene	3.84	0.0400	0.0800	"	"	"	---	96	50-134	3	30%	
Chrysene	3.87	0.0400	0.0800	"	"	"	---	97	59-123	0.4	30%	
Dibenz(a,h)anthracene	3.94	0.0400	0.0800	"	"	"	---	98	51-134	0.9	30%	
Fluoranthene	3.98	0.0400	0.0800	"	"	"	---	100	57-128	0.7	30%	
Fluorene	3.58	0.0400	0.0800	"	"	"	---	90	52-124	2	30%	
Indeno(1,2,3-cd)pyrene	3.78	0.0400	0.0800	"	"	"	---	94	52-133	1	30%	
1-Methylnaphthalene	3.55	0.0800	0.160	"	"	"	---	89	41-120	0.4	30%	
2-Methylnaphthalene	3.41	0.0800	0.160	"	"	"	---	85	40-121	3	30%	
Naphthalene	3.35	0.0800	0.160	"	"	"	---	84	"	0.7	30%	
Phenanthrene	3.62	0.0400	0.0800	"	"	"	---	90	59-120	0.7	30%	
Pyrene	3.91	0.0400	0.0800	"	"	"	---	98	57-126	0.8	30%	
Carbazole	4.27	0.0600	0.120	"	"	"	---	107	60-122	0.6	30%	
Dibenzofuran	3.58	0.0400	0.0800	"	"	"	---	89	53-120	2	30%	
Bis(2-ethylhexyl)phthalate	3.77	0.800	1.60	"	"	"	---	94	55-135	0.8	30%	
Butyl benzyl phthalate	4.04	0.800	1.60	"	"	"	---	101	53-134	0.3	30%	
Diethylphthalate	3.86	0.800	1.60	"	"	"	---	97	55-125	0.5	30%	
Dimethylphthalate	3.86	0.800	1.60	"	"	"	---	97	45-127	1	30%	
Di-n-butylphthalate	3.97	0.800	1.60	"	"	"	---	99	59-127	2	30%	
Di-n-octyl phthalate	3.90	0.800	1.60	"	"	"	---	97	51-140	2	30%	

Surr: Nitrobenzene-d5 (Surr)	*Recovery: 80 %*	*Limits: 44-120 %*	*Dilution: 4x*	
2-Fluorobiphenyl (Surr)	*81 %*	*44-120 %*	*"*	
Phenol-d6 (Surr)	*29 %*	*10-120 %*	*"*	
p-Terphenyl-d14 (Surr)	*96 %*	*50-133 %*	*"*	
2-Fluorophenol (Surr)	*45 %*	*19-120 %*	*"*	
2,4,6-Tribromophenol (Surr)	*95 %*	*43-140 %*	*"*	

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8011074 - EPA 3015A							**Water**					
Blank (8011074-BLK1)					Prepared: 01/26/18 09:42 Analyzed: 01/26/18 15:57							
EPA 6020A												
Aluminum	ND	25.0	50.0	ug/L	1	---	---	---	---	---	---	
Antimony	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Arsenic	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Cadmium	ND	0.0400	0.200	"	"	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Copper	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Lead	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Manganese	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Mercury	ND	0.0400	0.0800	"	"	---	---	---	---	---	---	
Nickel	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Silver	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Zinc	ND	2.00	4.00	"	"	---	---	---	---	---	---	
LCS (8011074-BS1)					Prepared: 01/26/18 09:42 Analyzed: 01/26/18 16:01							
EPA 6020A												
Aluminum	6610	25.0	50.0	ug/L	1	5560	---	119	80-120	---	---	
Antimony	26.0	0.500	1.00	"	"	27.8	---	94	"	---	---	
Arsenic	55.0	0.500	1.00	"	"	55.6	---	99	"	---	---	
Cadmium	56.8	0.0400	0.200	"	"	"	---	102	"	---	---	
Chromium	55.8	0.500	1.00	"	"	"	---	101	"	---	---	
Copper	55.5	0.500	1.00	"	"	"	---	100	"	---	---	
Lead	56.1	0.100	0.200	"	"	"	---	101	"	---	---	
Manganese	56.7	0.500	1.00	"	"	"	---	102	"	---	---	
Mercury	1.11	0.0400	0.0800	"	"	1.11	---	100	"	---	---	
Nickel	55.9	0.500	1.00	"	"	55.6	---	101	"	---	---	
Silver	28.0	0.100	0.200	"	"	27.8	---	101	"	---	---	
Zinc	56.3	2.00	4.00	"	"	55.6	---	101	"	---	---	
Duplicate (8011074-DUP1)					Prepared: 01/26/18 09:42 Analyzed: 01/26/18 16:22							
QC Source Sample: Other (A8A0539-02)												
EPA 6020A												
Aluminum	**535**	25.0	50.0	ug/L	1	---	647	---	---	19	20%	
Antimony	ND	0.500	1.00	"	"	---	ND	---	---	---	20%	
Arsenic	**1.18**	0.500	1.00	"	"	---	1.27	---	---	7	20%	
Cadmium	**0.0856**	0.0400	0.200	"	"	---	0.0820	---	---	4	20%	J

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Philip Nerenberg, Lab Director

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AMENDED REPORT

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8011074 - EPA 3015A							**Water**					
Duplicate (8011074-DUP1)					Prepared: 01/26/18 09:42 Analyzed: 01/26/18 16:22							
QC Source Sample: Other (A8A0539-02)												
EPA 6020A												
Chromium	**1.03**	0.500	1.00	ug/L	"	---	1.09	---	---	5	20%	
Copper	**5.01**	0.500	1.00	"	"	---	5.11	---	---	2	20%	
Lead	**0.977**	0.100	0.200	"	"	---	0.987	---	---	1	20%	
Manganese	**40.3**	0.500	1.00	"	"	---	41.1	---	---	2	20%	
Mercury	ND	0.0400	0.0800	"	"	---	ND	---	---	---	20%	
Nickel	**4.02**	0.500	1.00	"	"	---	3.33	---	---	19	20%	
Silver	ND	0.100	0.200	"	"	---	ND	---	---	---	20%	
Zinc	**12.8**	2.00	4.00	"	"	---	10.3	---	---	21	20%	Q-05
Matrix Spike (8011074-MS1)					Prepared: 01/26/18 09:42 Analyzed: 01/26/18 16:26							
QC Source Sample: Other (A8A0539-02)												
EPA 6020A												
Aluminum	7120	25.0	50.0	ug/L	1	5560	647	117	75-125	---	---	
Antimony	26.6	0.500	1.00	"	"	27.8	ND	96	"	---	---	
Arsenic	56.8	0.500	1.00	"	"	55.6	1.27	100	"	---	---	
Cadmium	57.9	0.0400	0.200	"	"	"	0.0820	104	"	---	---	
Chromium	56.9	0.500	1.00	"	"	"	1.09	100	"	---	---	
Copper	58.4	0.500	1.00	"	"	"	5.11	96	"	---	---	
Lead	58.5	0.100	0.200	"	"	"	0.987	103	"	---	---	
Manganese	94.0	0.500	1.00	"	"	"	41.1	95	"	---	---	
Mercury	1.14	0.0400	0.0800	"	"	1.11	ND	103	"	---	---	
Nickel	56.0	0.500	1.00	"	"	55.6	3.33	95	"	---	---	
Silver	27.6	0.100	0.200	"	"	27.8	ND	99	"	---	---	
Zinc	65.3	2.00	4.00	"	"	55.6	10.3	99	"	---	---	
Matrix Spike (8011074-MS2)					Prepared: 01/26/18 09:42 Analyzed: 01/26/18 17:45							
QC Source Sample: B21-RD1-01172018 (A8A0548-07)												
EPA 6020A												
Aluminum	6610	25.0	50.0	ug/L	1	5560	89.3	117	75-125	---	---	
Antimony	26.6	0.500	1.00	"	"	27.8	ND	96	"	---	---	
Arsenic	55.0	0.500	1.00	"	"	55.6	ND	99	"	---	---	
Cadmium	57.5	0.0400	0.200	"	"	"	0.0555	103	"	---	---	
Chromium	56.0	0.500	1.00	"	"	"	0.977	99	"	---	---	

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8011074 - EPA 3015A											**Water**	
Matrix Spike (8011074-MS2)					Prepared: 01/26/18 09:42		Analyzed: 01/26/18 17:45					
QC Source Sample: B21-RD1-01172018 (A8A0548-07)												
EPA 6020A												
Copper	59.8	0.500	1.00	ug/L	"	"	5.11	98	"	---	---	
Lead	58.3	0.100	0.200	"	"	"	1.04	103	"	---	---	
Manganese	65.2	0.500	1.00	"	"	"	9.03	101	"	---	---	
Mercury	1.13	0.0400	0.0800	"	"	1.11	ND	101	"	---	---	
Nickel	55.5	0.500	1.00	"	"	55.6	0.541	99	"	---	---	
Silver	28.2	0.100	0.200	"	"	27.8	ND	102	"	---	---	
Zinc	85.5	2.00	4.00	"	"	55.6	29.5	101	"	---	---	

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010889 - Method Prep: Aq									**Water**			
Blank (8010889-BLK1)					Prepared: 01/22/18 09:23		Analyzed: 01/22/18 12:24					
SM 5310 C												
Total Organic Carbon	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	
LCS (8010889-BS1)					Prepared: 01/22/18 09:23		Analyzed: 01/22/18 12:51					
SM 5310 C												
Total Organic Carbon	10.1	1.00	1.00	mg/L	1	10.0	---	101	85-115	---	---	
LCS (8010889-BS2)					Prepared: 01/22/18 09:23		Analyzed: 01/22/18 13:18					
SM 5310 C												
Total Organic Carbon	ND	1.00	1.00	mg/L	1	0.00	---		85-115	---	---	TOC_I
Duplicate (8010889-DUP1)					Prepared: 01/22/18 09:23		Analyzed: 01/22/18 14:16					
QC Source Sample: B20-SP1-01172018 (A8A0548-01)												
SM 5310 C												
Total Organic Carbon	**8.52**	1.00	1.00	mg/L	1	---	8.38	---	---	2	20%	
Matrix Spike (8010889-MS1)					Prepared: 01/22/18 09:23		Analyzed: 01/22/18 14:45					
QC Source Sample: B20-SP1-01172018 (A8A0548-01)												
SM 5310 C												
Total Organic Carbon	19.9	1.01	1.01	mg/L	1	10.0	8.38	116	75-125	---	---	

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010976 - Total Suspended Solids									Water			
Blank (8010976-BLK1)					Prepared: 01/24/18 11:24		Analyzed: 01/24/18 14:50					
SM 2540 D												
Total Suspended Solids	ND	5.00	5.00	mg/L	1	---	---	---	---	---	---	
Duplicate (8010976-DUP1)					Prepared: 01/24/18 11:24		Analyzed: 01/24/18 14:50					
QC Source Sample: Other (A8A0536-01)												
SM 2540 D												
Total Suspended Solids	**5.00**	5.00	5.00	mg/L	1	---	ND	---	---	---	10%	
Duplicate (8010976-DUP2)					Prepared: 01/24/18 11:24		Analyzed: 01/24/18 14:50					
QC Source Sample: B21-CB2-01172018 (A8A0548-05)												
SM 2540 D												
Total Suspended Solids	**63.0**	5.00	5.00	mg/L	1	---	49.0	---	---	25	10%	Q-04
Reference (8010976-SRM1)					Prepared: 01/24/18 11:24		Analyzed: 01/24/18 14:50					
SM 2540 D												
Total Suspended Solids	99.0			mg/L	1	100	---	99	77-110	---	---	

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010861							
A8A0548-01	Water	NWTPH-Dx	01/17/18 16:30	01/19/18 11:23	990mL/5mL	1000mL/5mL	1.01

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010835							
A8A0548-01	Water	NWTPH-Gx (MS)	01/17/18 16:30	01/18/18 18:16	5mL/5mL	5mL/5mL	1.00

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3510C (Neutral pH)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8011117							
A8A0548-01	Water	EPA 8082A	01/17/18 16:30	01/29/18 09:20	1060mL/1mL	1000mL/1mL	0.94

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3510C (Acid Extraction)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010849							
A8A0548-01RE1	Water	EPA 8270D	01/17/18 16:30	01/19/18 14:13	970mL/2mL	1000mL/1mL	2.06

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8011074							
A8A0548-01	Water	EPA 6020A	01/17/18 16:30	01/26/18 09:42	45mL/50mL	45mL/50mL	1.00
A8A0548-01RE1	Water	EPA 6020A	01/17/18 16:30	01/26/18 09:42	45mL/50mL	45mL/50mL	1.00

Conventional Chemistry Parameters

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

SAMPLE PREPARATION INFORMATION

Conventional Chemistry Parameters

Prep: Method Prep: Ag

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010889							
A8A0548-01	Water	SM 5310 C	01/17/18 16:30	01/22/18 09:23	40mL/40mL	40mL/40mL	1.00

Prep: Total Suspended Solids

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010976							
A8A0548-01	Water	SM 2540 D	01/17/18 16:30	01/24/18 11:24	1N/A/1N/A	1N/A/1N/A	NA

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Notes and Definitions

Qualifiers:

C-07	Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
M-05	Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.
P-10	Result estimated due to the presence of multiple PCB Aroclors and/or matrix interference.
Q-04	Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
Q-05	Analyses are not controlled on RPD values from sample and duplicate concentrations that are below 5 times the reporting level.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
TOC_I	Inorganic Carbon Spike Check. Results are valid if Non Detect (No Inorganic Carbon detected.)

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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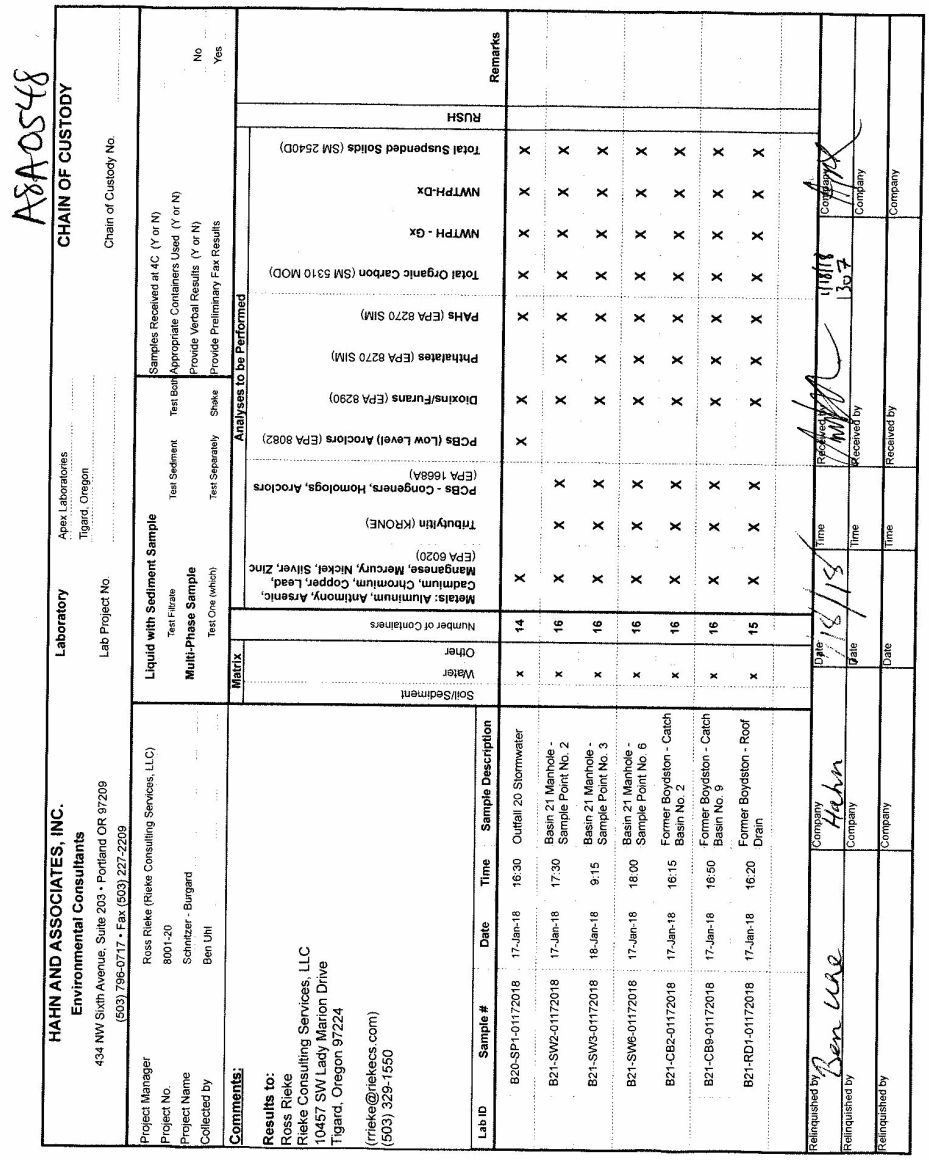

A8A0548

HAHN AND ASSOCIATES, INC.
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Laboratory Apex Laboratories, Tigard, Oregon
Lab Project No.

CHAIN OF CUSTODY
Chain of Custody No.

Project Manager: Ross Rieke (Rieke Consulting Services, LLC)
Project No.: 8001-20
Project Name: Schnitzer - Burgard
Collected by: Ben Uhl

Liquid with Sediment Sample — Test Filtrate / Test Sediment / Test Both
Multi-Phase Sample — Test One (which) / Test Separately / Shake

Samples Received at 4C (Y or N)
Appropriate Containers Used (Y or N)
Provide Verbal Results (Y or N)
Provide Preliminary Fax Results

Comments:

Results to:
Ross Rieke
Rieke Consulting Services, LLC
10457 SW Lady Marion Drive
Tigard, Oregon 97224

(rrieke@riekecs.com)
(503) 329-1550

Lab ID	Sample #	Date	Time	Sample Description	Matrix: Soil/Sediment	Water	Other	Number of Containers	Metals: Aluminum, Antimony, Arsenic, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Silver, Zinc (EPA 6020)	Tributyltin (KRONE)	PCBs - Congeners, Homologs, Arcolors (EPA 1668A)	PCBs (Low Level) Arcolors (EPA 8082)	Dioxins/Furans (EPA 8290)	Phthalates (EPA 8270 SIM)	PAHs (EPA 8270 SIM)	Total Organic Carbon (SM 5310 MOD)	NWTPH - Gx	NWTPH-Dx	Total Suspended Solids (SM 2540D)	RUSH	Remarks
	B20-SP1-01172018	17-Jan-18	16:30	Outfall 20 Stormwater		x		14	x			x	x		x	x	x	x	x		
	B21-SW2-01172018	17-Jan-18	17:30	Basin 21 Manhole - Sample Point No. 2		x		16	x	x	x		x	x	x	x	x	x	x		
	B21-SW3-01172018	18-Jan-18	9:15	Basin 21 Manhole - Sample Point No. 3		x		16	x	x	x		x	x	x	x	x	x	x		
	B21-SW6-01172018	17-Jan-18	18:00	Basin 21 Manhole - Sample Point No. 6		x		16	x	x	x		x	x	x	x	x	x	x		
	B21-CB2-01172018	17-Jan-18	16:15	Former Boydston - Catch Basin No. 2		x		16	x	x	x		x	x	x	x	x	x	x		
	B21-CB9-01172018	17-Jan-18	16:50	Former Boydston - Catch Basin No. 9		x		16	x	x	x		x	x	x	x	x	x	x		
	B21-RD1-01172018	17-Jan-18	16:20	Former Boydston - Roof Drain		x		15	x	x	x		x	x	x	x	x	x	x		

Relinquished by: Ben Uhl — Company: Hahn — Date: 1/18/18 — Time: 13:27 — Received by: MW — Company: Apex — Date: 1/18/18 — Time: 1327

Relinquished by — Company — Date — Time — Received by — Company — Date — Time

Relinquished by — Company — Date — Time — Received by — Company — Date — Time

Apex Laboratories

Philip Nerenberg

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08

APEX LABS COOLER RECEIPT FORM

Client: Hahn Element WO#: A8A0548

Project/Project #: Schnitzer-Burgard 8001-20

Delivery info:

Date/Time Received: 1/18/18 @ 1307 By: CFH

Delivered by: Apex X Client ___ ESS ___ FedEx ___ UPS ___ Swift ___ Senvoy ___ SDS ___ Other ___

Cooler Inspection Inspected by: CFH : 1/18/18 @ 1403

Chain of Custody Included? Yes X No ___ Custody Seals? Yes ___ No —

Signed/Dated by Client? Yes X No ___

Signed/Dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	4.6						
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)	~~4.6~~ CFH 1/18/18	2.4	3.4	3.4	5.5	5.0	
Ice Type: (Gel/Real/Other)							
Condition:	Good						

Cooler out of temp? (Y/N) Possible reason why: CFH 1/18/18

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CFH : 1/18/18 @ 1500 MS 1/18

All Samples Intact? Yes ___ No X Comments: B21-RD1-01172018 2/7

Imp. ambers broken CFH 1/18/18 in transit

Bottle Labels/COCs agree? Yes X No X Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No ___ Comments:

Do VOA Vials have Visible Headspace? Yes X No ___ NA ___

Comments 1/3 VOAs. On B21-CB2-01172018. 1/4TB have HS ~~#16~~ #1645 MS 1/18

Water Samples: pH Checked and Appropriate (except VOAs): Yes ___ No ___ NA ___

Comments:

Additional Information: No TB listed on COC, 3-#1646, 1-#1645 ~~rec~~ received 4TB.

Labeled by: CFH Witness: AKK Cooler Inspected by: KRS See Project Contact Form: Y

Apex Laboratories

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Philip Nerenberg

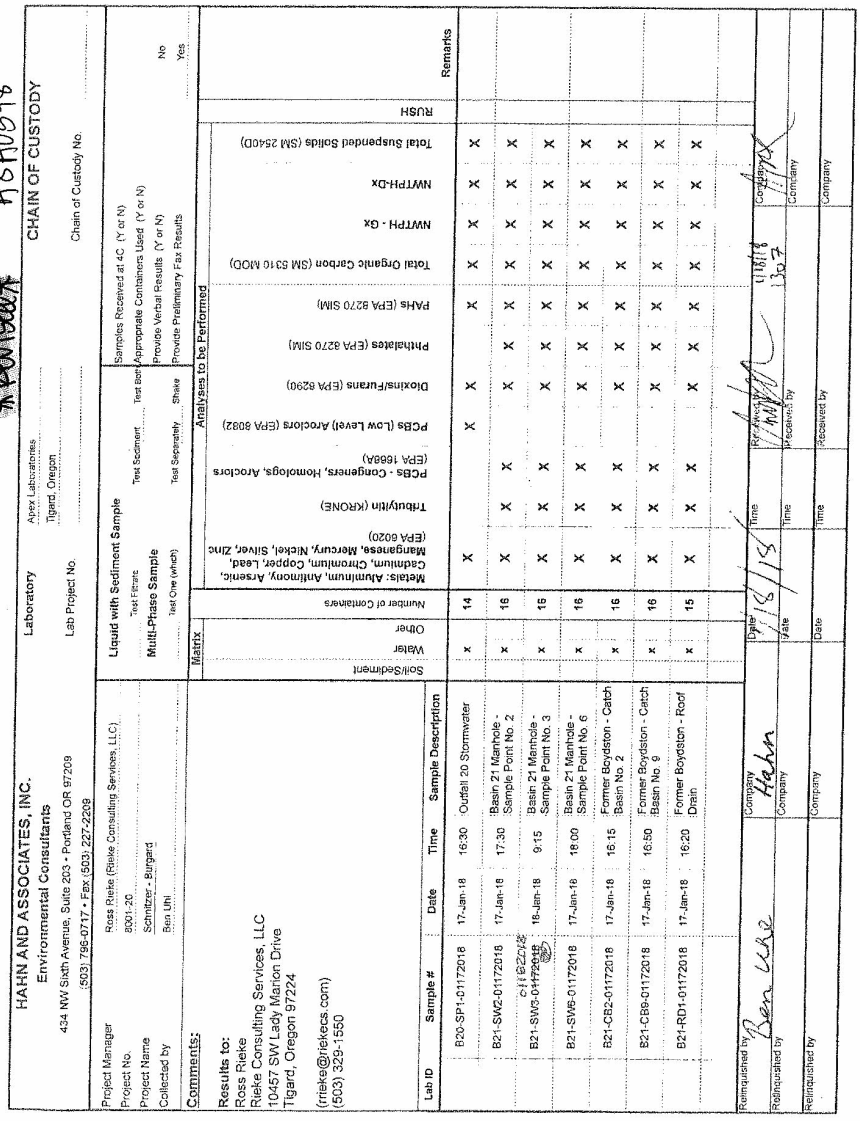
Philip Nerenberg, Lab Director

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:08



Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

Maxxam
A Bureau Veritas Group Company

Your Project #: A8A0548
Your C.O.C. #: na

Attention: Philip Nerenberg

Apex Laboratories
12232 SW Garden Place
Tigard, OR
USA 97223

Report Date: 2018/03/16
Report #: R5043922
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B814667
Received: 2018/01/20, 12:53

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Dioxins/Furans in Water (8290A) (1)	1	2018/01/29	2018/02/10	BRL SOP-00406	EPA 8290A m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Confirmatory runs for 2,3,7,8-TCDF are performed only if the primary result is greater than the RDL.

U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.
E = Analyte concentration exceeds the maximum concentration level.
K = Estimated maximum possible concentration due to ion abundance ratio failure.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Stephanie Pollen, Project Manager
Email: SPollen@maxxam.ca
Phone# (905) 817-5700

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B814667
Report Date: 2018/03/16

Apex Laboratories
Client Project #: A8A0548

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FYH631							
Sampling Date		2018/01/17 16:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B20-SP1-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.4 U	1.4	21	N/A	1.00	1.40	N/A	5378535
1,2,3,7,8-Penta CDD *	pg/L	5.0 J	1.3	52	N/A	1.00	5.00	N/A	5378535
1,2,3,4,7,8-Hexa CDD *	pg/L	9.8 J	1.5	52	N/A	0.100	0.980	N/A	5378535
1,2,3,6,7,8-Hexa CDD *	pg/L	37.8 J	1.5	52	N/A	0.100	3.78	N/A	5378535
1,2,3,7,8,9-Hexa CDD *	pg/L	20.9 J	1.5	52	N/A	0.100	2.09	N/A	5378535
1,2,3,4,6,7,8-Hepta CDD *	pg/L	946	1.3	52	N/A	0.0100	9.46	N/A	5378535
Octa CDD *	pg/L	10300	1.1	100	N/A	0.000300	3.09	N/A	5378535
Total Tetra CDD *	pg/L	1.4 U (1)	1.4	21	N/A	N/A	N/A	0	5378535
Total Penta CDD *	pg/L	8.6 J	1.3	52	N/A	N/A	N/A	2	5378535
Total Hexa CDD *	pg/L	206	1.5	52	N/A	N/A	N/A	7	5378535
Total Hepta CDD *	pg/L	2080	1.3	52	N/A	N/A	N/A	2	5378535
2,3,7,8-Tetra CDF **	pg/L	5.2 J	1.1	21	N/A	0.100	0.520	N/A	5378535
1,2,3,7,8-Penta CDF **	pg/L	3.3 J	1.5	52	N/A	0.0300	0.0990	N/A	5378535
2,3,4,7,8-Penta CDF **	pg/L	11.5 J	1.5	52	N/A	0.300	3.45	N/A	5378535
1,2,3,4,7,8-Hexa CDF **	pg/L	114	0.98	52	N/A	0.100	11.4	N/A	5378535
1,2,3,6,7,8-Hexa CDF **	pg/L	25.1 J	0.98	52	N/A	0.100	2.51	N/A	5378535
2,3,4,6,7,8-Hexa CDF **	pg/L	11.4 J	1.0	52	N/A	0.100	1.14	N/A	5378535
1,2,3,7,8,9-Hexa CDF **	pg/L	1.1 U	1.1	52	N/A	0.100	0.110	N/A	5378535
1,2,3,4,6,7,8-Hepta CDF **	pg/L	490 U (1)	490	52	N/A	0.0100	4.90	N/A	5378535
1,2,3,4,7,8,9-Hepta CDF **	pg/L	36.4 J	1.3	52	N/A	0.0100	0.364	N/A	5378535
Octa CDF **	pg/L	538	0.87	100	N/A	0.000300	0.161	N/A	5378535
Total Tetra CDF **	pg/L	57.0	1.1	21	N/A	N/A	N/A	11	5378535
Total Penta CDF **	pg/L	136	1.5	52	N/A	N/A	N/A	7	5378535
Total Hexa CDF **	pg/L	734	1.0	52	N/A	N/A	N/A	8	5378535
Total Hepta CDF **	pg/L	859	1.2	52	N/A	N/A	N/A	2	5378535
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	50.5	N/A	N/A

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B814667
Report Date: 2018/03/16

Apex Laboratories
Client Project #: A8A0548

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FYH631							
Sampling Date		2018/01/17 16:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B20-SP1-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	110	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-1234678 HeptaCDF **	%	128	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-123478 HexaCDF **	%	105	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-123678 HexaCDD *	%	104	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-12378 PentaCDD *	%	115	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-12378 PentaCDF **	%	118	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-2378 TetraCDD *	%	97	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-2378 TetraCDF **	%	108	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-OCDD *	%	106	N/A	N/A	N/A	N/A	N/A	N/A	5378535

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

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Maxxam Job #: B814667
Report Date: 2018/03/16

Apex Laboratories
Client Project #: A8A0548

TEST SUMMARY

Maxxam ID: FYH631
Sample ID: B20-SP1-01172018
Matrix: Water

Collected: 2018/01/17
Shipped:
Received: 2018/01/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	5378535	2018/01/29	2018/02/10	Angel Guerrero

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.8°C
Package 2	2.8°C
Package 3	4.4°C

Revised Report (2018/03/01): Including homologs and total PCB as per client request.

Split Report V3 and V4 (2018/03/16): Report split as per client request.

Sample FYH635 [B21-CB2-01172018] : sample FYH635 run at 10x dilution for pcb due to matrix effects.

Results relate only to the items tested.

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Maxxam Job #: B814667
Report Date: 2018/03/16

Apex Laboratories
Client Project #: A8A0548

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
5378535	AGU	Spiked Blank	C13-1234678 HeptaCDD	2018/02/02		113	%	40 - 135
			C13-1234678 HeptaCDF	2018/02/02		133	%	40 - 135
			C13-123478 HexaCDF	2018/02/02		117	%	40 - 135
			C13-123678 HexaCDD	2018/02/02		128	%	40 - 135
			C13-12378 PentaCDD	2018/02/02		116	%	40 - 135
			C13-12378 PentaCDF	2018/02/02		103	%	40 - 135
			C13-2378 TetraCDD	2018/02/02		69	%	40 - 135
			C13-2378 TetraCDF	2018/02/02		67	%	40 - 135
			C13-OCDD	2018/02/02		102	%	40 - 135
			2,3,7,8-Tetra CDD	2018/02/02		92	%	80 - 140
			1,2,3,7,8-Penta CDD	2018/02/02		91	%	80 - 140
			1,2,3,4,7,8-Hexa CDD	2018/02/02		90	%	80 - 140
			1,2,3,6,7,8-Hexa CDD	2018/02/02		97	%	80 - 140
			1,2,3,7,8,9-Hexa CDD	2018/02/02		81	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDD	2018/02/02		97	%	80 - 140
			Octa CDD	2018/02/02		100	%	80 - 140
			2,3,7,8-Tetra CDF	2018/02/02		97	%	80 - 140
			1,2,3,7,8-Penta CDF	2018/02/02		90	%	80 - 140
			2,3,4,7,8-Penta CDF	2018/02/02		101	%	80 - 140
			1,2,3,4,7,8-Hexa CDF	2018/02/02		92	%	80 - 140
			1,2,3,6,7,8-Hexa CDF	2018/02/02		86	%	80 - 140
			2,3,4,6,7,8-Hexa CDF	2018/02/02		95	%	80 - 140
			1,2,3,7,8,9-Hexa CDF	2018/02/02		91	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDF	2018/02/02		93	%	80 - 140
			1,2,3,4,7,8,9-Hepta CDF	2018/02/02		95	%	80 - 140
			Octa CDF	2018/02/02		106	%	80 - 140
5378535	AGU	Spiked Blank DUP	C13-1234678 HeptaCDD	2018/02/02		109	%	40 - 135
			C13-1234678 HeptaCDF	2018/02/02		124	%	40 - 135
			C13-123478 HexaCDF	2018/02/02		108	%	40 - 135
			C13-123678 HexaCDD	2018/02/02		119	%	40 - 135
			C13-12378 PentaCDD	2018/02/02		122	%	40 - 135
			C13-12378 PentaCDF	2018/02/02		102	%	40 - 135
			C13-2378 TetraCDD	2018/02/02		67	%	40 - 135
			C13-2378 TetraCDF	2018/02/02		68	%	40 - 135
			C13-OCDD	2018/02/02		92	%	40 - 135
			2,3,7,8-Tetra CDD	2018/02/02		91	%	80 - 140
			1,2,3,7,8-Penta CDD	2018/02/02		90	%	80 - 140
			1,2,3,4,7,8-Hexa CDD	2018/02/02		91	%	80 - 140
			1,2,3,6,7,8-Hexa CDD	2018/02/02		97	%	80 - 140
			1,2,3,7,8,9-Hexa CDD	2018/02/02		85	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDD	2018/02/02		94	%	80 - 140
			Octa CDD	2018/02/02		98	%	80 - 140
			2,3,7,8-Tetra CDF	2018/02/02		95	%	80 - 140
			1,2,3,7,8-Penta CDF	2018/02/02		91	%	80 - 140
			2,3,4,7,8-Penta CDF	2018/02/02		102	%	80 - 140
			1,2,3,4,7,8-Hexa CDF	2018/02/02		93	%	80 - 140
			1,2,3,6,7,8-Hexa CDF	2018/02/02		90	%	80 - 140
			2,3,4,6,7,8-Hexa CDF	2018/02/02		101	%	80 - 140
			1,2,3,7,8,9-Hexa CDF	2018/02/02		90	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDF	2018/02/02		97	%	80 - 140
			1,2,3,4,7,8,9-Hepta CDF	2018/02/02		97	%	80 - 140
			Octa CDF	2018/02/02		105	%	80 - 140
5378535	AGU	RPD	2,3,7,8-Tetra CDD	2018/02/02	1.1		%	25
			1,2,3,7,8-Penta CDD	2018/02/02	1.1		%	25
			1,2,3,4,7,8-Hexa CDD	2018/02/02	1.1		%	25

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			1,2,3,6,7,8-Hexa CDD	2018/02/02	0		%	25
			1,2,3,7,8,9-Hexa CDD	2018/02/02	4.8		%	25
			1,2,3,4,6,7,8-Hepta CDD	2018/02/02	3.1		%	25
			Octa CDD	2018/02/02	0		%	25
			2,3,7,8-Tetra CDF	2018/02/02	2.1		%	25
			1,2,3,7,8-Penta CDF	2018/02/02	1.1		%	25
			2,3,4,7,8-Penta CDF	2018/02/02	0.99		%	25
			1,2,3,4,7,8-Hexa CDF	2018/02/02	1.1		%	25
			1,2,3,6,7,8-Hexa CDF	2018/02/02	4.5		%	25
			2,3,4,6,7,8-Hexa CDF	2018/02/02	6.1		%	25
			1,2,3,7,8,9-Hexa CDF	2018/02/02	1.1		%	25
			1,2,3,4,6,7,8-Hepta CDF	2018/02/02	4.2		%	25
			1,2,3,4,7,8,9-Hepta CDF	2018/02/02	2.1		%	25
			Octa CDF	2018/02/02	0.95		%	25
5378535	AGU	Method Blank	C13-1234678 HeptaCDD	2018/02/02		116	%	40 - 135
			C13-1234678 HeptaCDF	2018/02/02		129	%	40 - 135
			C13-123478 HexaCDF	2018/02/02		114	%	40 - 135
			C13-123678 HexaCDD	2018/02/02		123	%	40 - 135
			C13-12378 PentaCDD	2018/02/02		111	%	40 - 135
			C13-12378 PentaCDF	2018/02/02		112	%	40 - 135
			C13-2378 TetraCDD	2018/02/02		90	%	40 - 135
			C13-2378 TetraCDF	2018/02/02		89	%	40 - 135
			C13-OCDD	2018/02/02		100	%	40 - 135
			2,3,7,8-Tetra CDD	2018/02/02	1.1 U, EDL=1.1		pg/L	
			1,2,3,7,8-Penta CDD	2018/02/02	0.98 U, EDL=0.98		pg/L	
			1,2,3,4,7,8-Hexa CDD	2018/02/02	1.0 U, EDL=1.0		pg/L	
			1,2,3,6,7,8-Hexa CDD	2018/02/02	1.0 U, EDL=1.0		pg/L	
			1,2,3,7,8,9-Hexa CDD	2018/02/02	1.0 U, EDL=1.0		pg/L	
			1,2,3,4,6,7,8-Hepta CDD	2018/02/02	1.2 U, EDL=1.2		pg/L	
			Octa CDD	2018/02/02	1.7 U, EDL=1.7 (1)		pg/L	
			Total Tetra CDD	2018/02/02	1.1 U, EDL=1.1		pg/L	
			Total Penta CDD	2018/02/02	0.98 U, EDL=0.98		pg/L	
			Total Hexa CDD	2018/02/02	1.0 U, EDL=1.0		pg/L	
			Total Hepta CDD	2018/02/02	1.2 U, EDL=1.2		pg/L	
			2,3,7,8-Tetra CDF	2018/02/02	0.98 U, EDL=0.98		pg/L	
			1,2,3,7,8-Penta CDF	2018/02/02	1.2 U, EDL=1.2		pg/L	
			2,3,4,7,8-Penta CDF	2018/02/02	1.2 U, EDL=1.2		pg/L	
			1,2,3,4,7,8-Hexa CDF	2018/02/02	1.1 U, EDL=1.1		pg/L	
			1,2,3,6,7,8-Hexa CDF	2018/02/02	1.1 U, EDL=1.1		pg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			2,3,4,6,7,8-Hexa CDF	2018/02/02	1.2 U, EDL=1.2		pg/L	
			1,2,3,7,8,9-Hexa CDF	2018/02/02	1.3 U, EDL=1.3		pg/L	
			1,2,3,4,6,7,8-Hepta CDF	2018/02/02	1.0 U, EDL=1.0		pg/L	
			1,2,3,4,7,8,9-Hepta CDF	2018/02/02	1.3 U, EDL=1.3		pg/L	
			Octa CDF	2018/02/02	1.3 U, EDL=1.3		pg/L	
			Total Tetra CDF	2018/02/02	0.98 U, EDL=0.98		pg/L	
			Total Penta CDF	2018/02/02	1.2 U, EDL=1.2		pg/L	
			Total Hexa CDF	2018/02/02	1.2 U, EDL=1.2		pg/L	
			Total Hepta CDF	2018/02/02	1.1 U, EDL=1.1		pg/L	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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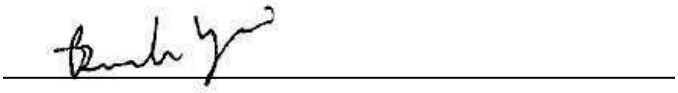
Maxxam Job #: B814667
Report Date: 2018/03/16

Apex Laboratories
Client Project #: A8A0548

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Branko Vrzic, A.SC.T., Senior Analyst, HRMS Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Basin 21/Former Boydstun Northeast Area Storm Water Sampling and Analysis Data April 5, 2018 Sampling Event, Burgard Industrial Park Source Control Project, Portland, Oregon

Rieke Consulting Services, LLC, 2018

RCS RIEKE CONSULTING SERVICES, LLC

Basin 21/Former Boydstun Northeast Area Storm Water Sampling and Analysis Data January 17, 2018 Sampling Event Burgard Industrial Park Source Control Project Portland, Oregon

TO: Ray Hoy/Oregon DEQ

CC: Jim Orr/Oregon DEQ
Eva DeMaria/EPA
Sean Sheldrake/EPA
Mat Cusma/Schnitzer

FROM: Ross Rieke/RCS

DATE: March 29, 2018

This memorandum presents the results of the January 17, 2018 storm water sampling and analysis performed at Basin 21 and the Former Boydstun Northeast area at the Burgard Industrial Park (BIP) in Portland, Oregon (Figure 1, Figure 2). The sampling and analysis was performed in general accordance with the following documents:

- September 29, 2016, Bridgewater Group, Inc. memorandum, *Former Boydstun Northeast Area, Supplemental Sampling and Analysis Plan*.
- September 8, 2017, DEQ letter, *DEQ Comments for...Former Boydstun Northeast Area Supplemental Sampling and Analysis Plan*.
- November 2, 2017, DEQ email from Jim Orr, *Response to Your October 18th Request to Change PCB Analytical Method for Basins 2, 20, 20A, and 21*.

The storm water data presented in this memorandum reflects the scope of sampling and analysis described in these documents. Figure 3 shows the currently inferred Basin 21 area.

Basin 21 and Former Boydstun Northeast Area Description

Basin 21 consists of an approximately 25-acre area in the northeast corner of the BIP. Figure 3 shows the approximate boundaries of Basin 21. There are three primary areas within Basin 21 where surface water runoff occurs (as opposed to infiltrating into the ground surface):

- Pro Truck Lines area;
- Portland Container East area; and
- Former Boydstun Northeast (FBNE) area.

The runoff from these areas combine and is discharged to the IT Slip at Outfall 21 as shown on Figure 3.

The Pro Truck Lines area is outside the BIP but does contribute storm water runoff to the Basin 21 system. The area is about 6.2 acres and is mostly paved. Storm water runoff is captured in catch basins and conveyed by gravity to the southeast corner of the property where it comingles with the runoff from the former Boydstun area and flows south in a buried pipe. The building is

currently used by Pro Truck Lines for freight warehousing and truck loading services.

Runoff from the approximately 11-acre Portland Container East Area is collected in catch basins and ponds and is conveyed via surface swales to a flocculant/sedimentation/filter treatment system. The treated water is discharged from the treatment system to a manhole where it comingles with the runoff flowing south from the junction of the former Boydstun and Pro Truck Lines drainage systems.

The FBNE area is a sub-basin located in the northeast corner of the BIP Basin 21 (Figure 4). The FBNE area is about 7.7 acres, generally flat, and is almost entirely paved. Storm water runoff is captured in catch basins and conveyed by gravity to a float-activated pump station located in the northeast corner of the area. The storm water is pumped from the pump station through buried pipes to a manhole near the southwestern corner of the area where it flows to the west and comingles with other Basin 21 runoff. Current outside use of the site consists of minor truck traffic and storage associated with limited use of the building interior. Most of the site is currently vacant and unused. Boydstun formerly manufactured automobile hauling trailers on the site.

The only potential pathway from the FBNE area to the Willamette River is the storm water pathway. The FBNE area is located about 1400 feet from the Willamette River. Thus, direct release of erodible soil, groundwater, and overwater activities are not material pathways for migration of Basin 21 chemicals of interest (COIs) from the FBNE area to the river. Groundwater sampling and analysis previously performed along the head of the IT slip (the nearest waterway connected to the Willamette River) noted low concentrations of the Basin 21 COIs and provides another line of evidence that groundwater migration from the FBNE area is not a material pathway for the Basin 21 COIs

Precipitation falling on the unpaved areas west of the FBNE area infiltrates into the ground rather than flowing into the Basin 21 storm water collection and conveyance system. Storm water runoff from the area east of the Portland Container East Area (i.e., Lot 7/8) either infiltrates or runs off onto Time Oil Road, into a catch basin, and, apparently, is conveyed to the Basin 18 storm water system south of Burgard Way.

Basin 21 and FBNE Area Storm Water Sampling and Analysis

Storm Water Sample Collection

Storm water samples from Basin 21, including the FBNE Area, were collected on January 17 and 18, 2018 at three points shown on Figure 3 and three points shown on Figure 4. The six sample points were:

Sample Point 2 – Collected January 17, 2018. Manhole at southwest corner of Pro Truck Lines area. This storm water location is representative of storm water runoff from the Pro Truck Lines site that flows onto the BIP and is subsequently comingled with the other Basin 21 runoff.

Sample Point 3 – Collected January 18, 2018. Portland Container East Area treatment system discharge. This sample location is representative of storm water runoff from the Portland Container East Area that is subsequently comingled with the other Basin 21 runoff.

Sample Point 6 – Collected January 17, 2018. Manhole about 280 feet upgradient from outfall. This location is representative of storm water that is discharged to the slip at Outfall 21.

FBNE Catch Basins CB2 and CB9 - Collected January 17, 2018. Surface runoff entering catch basins in the western and southern portion, respectively, of the FBNE paved area.

FBNE Roof Drain RD1 – Collected January 17, 2018. Roof runoff from the northeast portion of the FBNE building.

Table 1 presents the rainfall conditions preceding and during the storm water sampling event. Based on the rainfall event data shown in Table 1, all sampling event target criteria were met. That is:

- Rainfall occurring during the 24-hours preceding the sampled storm event (0.07 inch) was less than the target of 0.1 inch;
- The storm event was predicted to exceed (and did actually exceed) 0.2-inch of rainfall; and
- The event was expected to last (and did actually last) for more than three hours.

Except for the sample at the Portland Container East Area treatment system discharge (SP3), all samples were collected within the first three hours of discharge. Based on discharge conditions and timing observed during the sampling event, all of the samples, except SW3, represent first-flush condition (i.e., samples collected during first 30-minutes of discharge).

The Portland Container East Area storm water treatment system was not discharging the afternoon and evening of January 17, 2018, during the rainfall event. The treatment system does not discharge until after a significant amount of rainfall has occurred. Sample SP3 was collected the morning of January 18, 2018 when the treatment system was discharging. The water treated in the system on January 18th was, at least in large part, accumulated during the January 17th storm.

Storm Water Sample Analysis

The Basin 21 storm water samples were analyzed for the following:

- Aluminum, antimony, arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, silver, and zinc;
- Butyltins;
- PCB homologs and congeners;
- Dioxins/furans;
- Phthalates;
- Polycyclic aromatic hydrocarbons (PAHs);
- Total organic carbon (TOC);
- Total Petroleum Hydrocarbons (gasoline, diesel, and heavy oil); and
- Total suspended solids (TSS).

Table 2 presents the results of the Basin 21 storm water sample analyses. Copies of the analytical laboratory reports are provided in Appendix A. Review of the laboratory QA/QC results did not indicate any issues requiring corrective action. Table 2 also presents the results of previous storm water sampling and analysis in Basin 21.

Chemical concentrations in the January 2018 samples collected at SP2 were generally similar to concentrations noted in 2012, 2013, and 2014 SP2 samples. The January 2018 samples collected at SP3 and SP6 were generally less than the 2012, 2013, and 2014 SP3 and SP6 samples. The chemical concentrations in the storm water sample collected at the Portland Container East Area treatment system discharge (SP3) were particularly less than previous samples suggesting that the recently constructed treatment system effectively reduces chemical concentrations in the storm water runoff. For example, the total PCB concentration in the January 2018 SP3 sample (0.00319 ug/l) is less than two *percent* of the average total PCB concentrations in the 2012, 2013, and 2014 samples (0.1752 ug/l).

Attachments:

Table 1 - Storm Water Sampling Event Rainfall Data, 1/17/2018 Sampling Event
Table 2 – Storm Water Sample Analytical Laboratory Results
Figure 1 – Site Location Map
Figure 2 – Site Plan, Burgard Industrial Park
Figure 3 – Site Plan and Storm Water Sample Locations, Basin 21
Figure 4 – Site Plan and Storm Water Sample Locations, Former Boydstun NE Area
Appendix A – Analytical Laboratory Reports.

Tables

Table 1
Storm Water Sampling Event Rainfall Data
1/17/2018 Sampling Event
Burgard Industrial Park Basin 21

Date	Daily Total	Hourly Rain Fall (0.01 inches)																							
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1/4/18	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5	2	0	0	0	0	0
1/5/18	41	0	2	1	2	1	3	0	0	18	2	1	0	6	0	0	0	0	0	0	0	0	1	2	2
1/6/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/7/18	21	0	0	0	0	0	0	0	0	0	0	1	4	1	0	1	2	6	2	2	0	1	1	0	0
1/8/18	13	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	8
1/9/18	52	8	8	11	6	3	6	1	0	5	0	0	1	0	0	3	0	0	0	0	0	0	0	0	0
1/10/18	8	0	0	0	1	0	2	1	1	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
1/11/18	85	0	0	1	5	8	2	7	2	8	3	1	16	2	0	6	18	2	2	0	0	0	0	0	2
1/12/18	8	7	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/13/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/14/18	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
1/15/18	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	1	0	0	3
1/16/18	7	0	1	0	0	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/17/18	48	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	10	12	11	11	2	0	0	0
1/18/18	35	0	9	7	1	0	0	0	0	0	0	0	0	3	1	3	0	0	0	0	0	0	6	5	0

Hours are Pacific Standard Time
Data from Shipyard Rain Gage - 8900 N. Sever Road
Sampling Hours
PCE treatment system discharge (SP3) sampled 1/18/2018 when system was operating. Treatment system was not operating evening of 1/17/2018.

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 21

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	1/17/2018 CB2	1/17/2018 CB9	1/17/2018 RD1	1/17/2018 SW2	1/17/2018 SW3	1/17/2018 SW6	3/28/2014 SWP1	3/28/2014 SWP2	3/28/2014 SWP3	3/28/2014 SWP6	3/5/2013 SWP1	3/5/2013 SWP2	3/5/2013 SWP3	3/5/2013 SWP6	11/19/2012 SWP1	11/19/2012 SWP2	11/19/2012 SWP3	11/19/2012 SWP6
PAHs (ug/l)																					
1-Methylnaphthalene				1.89E-01 U	9.43E-02 U	1.89E-02 U	9.52E-02 U	2.06E-02 U	7.69E-02 U												
2-Methylnaphthalene	2.00E-01			1.89E-01 U	9.43E-02 U	1.89E-02 U	9.52E-02 U	2.06E-02 U	7.69E-02 U												
Acenaphthene	2.00E-01			9.43E-02 U	4.72E-02 U	9.43E-03 U	4.76E-02 U	2.11E-02	3.85E-02 U	1.94E-02 U	1.96E-02 U	3.88E-02 U	4.81E-02 U	5.16E-02 J	7.51E-02 J	5.21E-02 U	4.60E-02 J	9.35E-03 U	3.74E-02 U	3.85E-02 U	9.35E-02 U
Acenaphthylene	2.00E-01			9.43E-02 U	4.72E-02 U	9.43E-03 U	4.76E-02 U	1.03E-02 U	3.85E-02 U	1.94E-02 U	1.96E-02 U	3.88E-02 U	4.81E-02 U	4.00E-02 U	4.21E-02 U	5.21E-02 U	3.88E-02 U	9.35E-03 U	3.74E-02 U	3.85E-02 U	9.35E-02 U
Anthracene				9.43E-02 U	4.72E-02 U	9.43E-03 U	4.76E-02 U	2.34E-02	3.85E-02 U	1.94E-02 U	1.96E-02 U	3.88E-02 U	4.81E-02 U	4.00E-02 U	4.21E-02 U	5.21E-02 U	3.88E-02 U	9.35E-03 U	3.74E-02 U	3.85E-02 U	9.35E-02 U
Benzo(a)anthracene	1.80E-02	1.20E-03		9.43E-02 U	4.72E-02 U	1.05E-02 J	4.76E-02 U	1.03E-02 U	3.85E-02 U	1.94E-02 U	2.98E-02 J	7.22E-02 J	1.03E-01	4.00E-02 U	4.21E-02 U	6.08E-02 J	4.05E-02 J	1.21E-02 J	3.83E-02 J	3.85E-02 U	1.02E-01 J
Benzo(a)pyrene	1.80E-02	1.20E-04		1.52E-01 J	8.44E-02 J	1.67E-02 J	7.63E-02 J	1.55E-02 U	7.42E-02 J	2.91E-02 U	4.84E-02 J	1.42E-01	1.77E-01	6.00E-02 U	6.32E-02 U	1.02E-01 J	1.17E-01 U	2.61E-02 J	9.32E-02 J	1.15E-01 U	2.29E-01 J
Benzo(b)fluoranthene	1.80E-02	1.20E-03		1.42E-01 U	8.64E-02 J	1.42E-02 U	7.87E-02 J	1.55E-02 U	7.45E-02 J												
Benzo(g,h,i)perylene	2.00E-01			9.43E-02 U	7.37E-02 J	9.43E-03 U	4.76E-02 U	1.03E-02 U	5.16E-02 J	3.88E-02 U	6.65E-02	1.84E-01	2.35E-01	8.00E-02 U	8.40E-02 J	1.22E-01	7.88E-02	1.74E-02 J	7.43E-02 J	7.69E-02 U	2.33E-01
Benzo(k)fluoranthene	1.80E-02	1.30E-03		1.42E-01 U	7.08E-02 U	1.42E-02 U	7.14E-02 U	1.55E-02 U	5.77E-02 U												
Benzo(b+k)fluoranthene	1.80E-02	1.20E-03								5.83E-02 U	6.29E-02	2.25E-01	2.64E-01	6.00E-02 U	7.97E-02 J	1.62E-01	7.77E-02 J	3.16E-02	1.26E-01	8.80E-02 J	2.82E-01
Carbazole				1.42E-01 U	7.08E-02 U	1.42E-02 U	7.14E-02 U	2.72E-02 J	5.77E-02 U												
Chrysene	1.80E-02	1.30E-03		9.43E-02 U	6.45E-02 J	1.21E-02 J	4.76E-02 U	1.03E-02 U	5.22E-02 J	1.94E-02 U	5.84E-02	1.82E-01	1.96E-01	4.00E-02 U	4.21E-02 U	1.04E-01	3.88E-02 U	1.80E-02 J	8.38E-02	3.85E-02 U	1.88E-01
Dibenzo(a,h)anthracene	1.80E-02	1.20E-04		9.43E-02 U	4.72E-02 U	9.43E-03 U	4.76E-02 U	1.03E-02 U	3.85E-02 U	1.94E-02 U	1.96E-02 U	3.88E-02 U	4.81E-02 U	4.00E-02 U	4.21E-02 U	5.21E-02 U	3.88E-02 U	9.35E-03 U	3.74E-02 U	3.85E-02 U	9.35E-02 U
Dibenzofuran				9.43E-02 U	4.72E-02 U	1.89E-02 U	4.76E-02 U	2.06E-02 U	3.85E-02 U												
Fluoranthene	2.00E-01			9.43E-02 U	8.18E-02 J	1.99E-02	7.36E-02 J	1.72E-02 J	6.52E-02 J	2.33E-02 J	1.15E-01	2.09E-01	2.21E-01	4.00E-02 U	7.42E-02 J	1.06E-01	7.16E-02 J	2.64E-02	8.55E-02	4.17E-02 J	1.85E-01 J
Fluorene	2.00E-01			9.43E-02 U	4.72E-02 U	9.43E-03 U	4.76E-02 U	1.42E-02 J	3.85E-02 U	1.94E-02 U	1.99E-02 J	3.88E-02 U	4.81E-02 U	4.00E-02 U	4.21E-02 U	5.21E-02 U	3.88E-02 U	1.23E-02 J	3.74E-02 U	3.85E-02 U	9.35E-02 U
Indeno(1,2,3-cd)pyrene	1.80E-02	1.20E-03		9.43E-02 U	4.72E-02 U	9.43E-03 U	4.76E-02 U	1.03E-02 U	3.85E-02 U	1.94E-02 U	1.99E-02 J	1.02E-01	1.27E-01	4.00E-02 U	4.21E-02 U	6.29E-02 J	3.88E-02 U	1.17E-02 J	3.74E-02 U	3.85E-02 U	1.08E-01 J
Naphthalene	2.00E-01	1.20E+01		1.89E-01 U	9.43E-02 U	1.89E-02 U	9.52E-02 U	2.74E-02 J	7.69E-02 U	3.88E-02 U	3.92E-02 U	7.77E-02 U	9.62E-02 U	8.00E-02 U	8.42E-02 U	1.04E-01 U	7.77E-02 U	2.63E-02 JB	7.48E-02 U	7.69E-02 U	1.87E-01 U
Phenanthrene	2.00E-01			9.43E-02 U	8.83E-02 J	2.66E-02	6.90E-02 J	2.63E-02	4.93E-02 J	2.37E-02 J	1.00E-01	8.63E-02	8.06E-02 J	4.85E-02 J	7.84E-02 J	5.21E-02 U	6.47E-02 J	2.95E-02	5.19E-02 J	3.85E-02 U	9.35E-02 U
Pyrene	2.00E-01			1.22E-01 J	1.34E-01	1.88E-02 J	1.29E-01	2.21E-02	1.00E-01	1.94E-02 U	1.29E-01	3.19E-01	3.49E-01	4.00E-02 U	1.26E-01	1.87E-01	1.25E-01	2.60E-02	1.18E-01	7.55E-02 J	2.87E-01
Total Detected CPAHs (BaP TEF)		1.20E-04		1.52E-01	9.38E-02	1.78E-02	8.42E-02	0.00E+00	8.22E-02	0.00E+00	6.04E-02	1.84E-01	2.29E-01	0.00E+00	8.81E-03	1.32E-01	1.26E-02	3.18E-02	1.10E-01	8.80E-03	2.81E-01
Total Detected PAHs			1.50E+00	2.74E-01	6.13E-01	1.05E-01	4.27E-01	1.52E-01	4.67E-01	4.70E-02	6.50E-01	1.52E+00	1.75E+00	2.55E-01	6.71E-01	9.07E-01	4.26E-01	2.55E-01	6.71E-01	2.05E-01	1.61E+00
PCBs (ug/l)																					
Aroclor 1016	9.60E-01									9.52E-03 U	9.43E-03 U	1.89E-02 U	1.89E-02 U	9.62E-03 U	2.04E-02 U	1.87E-02 U	1.98E-02 U	2.15E-02 U	4.26E-02 U	4.30E-02 U	2.08E-02 U
Aroclor 1221	3.40E-02									9.52E-03 U	9.43E-03 U	1.89E-02 U	1.89E-02 U	9.62E-03 U	2.04E-02 U	1.87E-02 U	1.98E-02 U	2.15E-02 U	4.26E-02 U	4.30E-02 U	2.08E-02 U
Aroclor 1232	3.40E-02									9.52E-03 U	1.89E-02 U	1.89E-02 U	1.89E-02 U	9.62E-03 U	2.04E-02 U	1.87E-02 U	1.98E-02 U	2.15E-02 U	4.26E-02 U	4.30E-02 U	2.08E-02 U
Aroclor 1242	3.40E-02									9.52E-03 U	9.43E-03 U	2.99E-02 J	2.05E-02 J	9.62E-03 U	2.04E-02 U	1.87E-02 U	1.98E-02 U	2.15E-02 U	4.26E-02 U	4.30E-02 U	2.12E-02 J
Aroclor 1248	3.40E-02									9.52E-03 U	9.43E-03 U	1.89E-02 U	1.89E-02 U	9.62E-03 U	2.04E-02 U	1.87E-02 U	1.98E-02 U	2.15E-02 U	4.26E-02 U	4.30E-02 U	2.08E-02 U
Aroclor 1254	3.40E-02									9.52E-03 U	9.43E-03 U	1.41E-01	9.22E-02	9.62E-03 U	2.04E-02 U	3.82E-02 J	1.98E-02 U	2.15E-02 U	4.26E-02 U	4.30E-02 U	5.87E-02
Aroclor 1260	3.40E-02									9.52E-03 U	9.43E-03 U	1.20E-01	7.67E-02	9.62E-03 U	2.04E-02 U	2.87E-02 J	1.98E-02 U	2.15E-02 U	4.26E-02 U	4.30E-02 U	4.70E-02
Total Detected PCB aroclors	6.40E-05	6.40E-06	0.3							0.00E+00	0.00E+00	2.91E-01	1.89E-01	0.00E+00	0.00E+00	6.69E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-01
PCB Congeners (ug/l)																					
2-MonoCB-(1)				3.60E-05 J	4.30E-05 J	3.90E-05 J	1.74E-05 J	6.40E-06 U	2.21E-05 J	4.70E-06 U	1.50E-05 U	5.30E-05 J	1.40E-05 U	1.01E-05 J	8.60E-06 J	1.40E-05 U	7.80E-06 U	8.10E-06 J	2.17E-05 J	4.10E-06 U	2.30E-05 J
3-MonoCB-(2)				2.00E-05 U	1.40E-05 U	1.70E-05 U	7.90E-06 U	6.30E-06 U	7.10E-06 U	3.30E-06 U	3.40E-06 U	8.50E-06 J	2.70E-06 J	5.50E-06 J	2.20E-06 U	6.20E-06 U	2.70E-06 U	4.00E-06 J	1.01E-05 J	1.30E-06 U	5.40E-06 J
4-MonoCB-(3)				2.00E-05 U	1.90E-05 J	1.70E-05 U	9.40E-06 J	6.30E-06 U	1.02E-05 J	3.20E-06 U	7.10E-06 U	2.70E-05 U	7.70E-06 U	8.30E-06 U	7.20E-06 U	5.80E-06 U	5.60E-06 U	7.10E-06 J	1.66E-05 J	3.30E-06 U	1.83E-05 J
22'-DiCB-(4)				9.40E-04 U	2.33E-04	1.86E-04	2.26E-04	3.00E-05 U	1.87E-04	3.55E-05 J	1.71E-04	3.68E-04	1.36E-04	1.05E-04	1.90E-04	4.70E-04	1.95E-04	3.80E-05 J	1.76E-04	4.90E-05 J	1.75E-04
2,3-DiCB-(5)				8.10E-04 U	1.50E-05 U	1.90E-05 U	1.40E-05 U	1.40E-05 U	1.50E-05 U	2.20E-05 U	1.50E-05 U	1.20E-05 U	6.10E-06 U	1.10E-05 U	1.80E-05 U	2.10E-05 U	1.70E-05 U	1.40E-05 U	1.79E-05 J	1.60E-05 U	1.70E-05 U
2,3'-DiCB-(6)				7.40E-04 U	8.60E-05 J	5.40E-05 J	7.40E-05 J	1.20E-05 U	6.30E-05 J	2.10E-05 U	3.50E-05 U	1.67E-04	4.95E-05 J	4.10E-05 U	5.00E-05 U	2.19E-04	4.70E-05 U	1.70E-05 U	6.00E-05 J	2.60E-05 J	9.70E-05
2,4-DiCB-(7)				7.70E-04 U	1.70E-05 U	1.70E-05 U	1.70E-05 J	1.20E-05 U	1.40E-05 U	2.30E-05 U	1.60E-05 U	3.40E-05 J	1.01E-05 J	8.90E-06 U	1.50E-05 U	3.80E-05 J	1.40E-05 U	1.30E-05 U	1.28E-05 J	1.40E-05 U	1.80E-05 J
2,4'-DiCB-(8)				7.50E-04 U	3.55E-04	1.87E-04	2.59E-04	1.60E-05 J	2.27E-04	4.90E-05 J	2.10E-04	7.22E-04	2.31E-04	1.51E-04	2.00E-04	7.94E-04	1.82E-04	8.40E-05 J	2.79E-04	9.60E-05 J	3.78E-04
2,5-DiCB-(9)				7.40E-04 U	2.90E-05 J	1.60E-05 J	2.40E-05 J	1.20E-05 U	1.70E-05 U	2.10E-05 U	1.40E-05 U	4.50E-05 J	1.40E-05 J	1.18E-05 J	1.60E-05 U	7.40E-05 J	1.40E-05 U	1.30E-05 U	2.10E-05 U	1.40E-05 U	2.70E-05 U
2,6-DiCB-(10)				9.10E-04 U	2.80E-05 U	3.10E-05 U	4.10E-05 U	3.00E-05 U	2.70E-05 U	7.80E-06 U	6.60E-06 U	1.35E-05 J	5.40E-06 J	3.90E-06 U	8.30E-06 J	1.80E-05 U	6.20E-06 U	1.70E-05 U	1.50E-05 U	1.60E-05 U	1.70E-05 U
3,3'-DiCB-(11)				7.90E-04 U	2.89E-04	1.39E-04	4.51E-04	3.00E-05 J	3.68E-04	5.70E-05 J	4.29E-04	4.39E-04	1.95E-04	6.00E-05 U	2.40E-04	3.54E-04	2.35E-04	1.21E-04	2.77E-04	1.77E-04	2.47E-04
DiCB-(12)+(13)				8.30E-04 U	3.50E-05 J	2.20E-05 J	3.40E-05 U	1.30E-05 U	3.40E-05 J	2.30E-05 U	2.80E-05 J	8.80E-05 J	2.70E-05 U	2.60E-05 U	2.70E-05 U	8.40E-05 U	3.30E-05 U	1.20E-05 U	3.10E-05 U	1.40E-05 U	5.00E-05 U
3,5-DiCB-(14)				7.40E-04 U	1.30E-05 U	1.60E-05 U	1.20E-05 U	1.20E-05 U	1.30E-05 U	2.20E-05 U	1.50E-05 U	1.00E-05 U	6.00E-06 U	8.70E-06 U	1.40E-05 U	1.70E-05 U	1.30E-05 U	1.20E-05 U	3.30E-06 U	1.40E-05 U	1.50E-05 U
4,4'-DiCB-(15)				1.20E-03 U	2.30E-04	1.01E-04	2.27E-04	2.90E-05 J	2.44E-04	3.90E-05 U	1.40E-04	1.00E-03	3.24E-04	1.12E-04	2.30E-04	7.88E-04	2.50E-04	7.80E-05 J	2.46E-04	1.37E-04	5.00E-04
22'3-TriCB-(16)				4.10E-04 U	2.76E-04	1.31E-04	2.16E-04	1.80E-05 U	2.05E-04	3.78E-05 J	1.45E-04	6.74E-04	2.39E-04	3.30E-06 U	5.80E-06 U	6.00E-06 U	4.40E-06 U	4.66E-05 J	1.97E-04	8.05E-05 J	2.93E-04
22'4-TriCB-(17)				3.50E-04 U	2.84E-04	1.25E-04	2.45E-04	1.80E-05 U	2.32E-04	2.80E-05 U	1.29E-04	7.44E-04	2.32E-04	1.08E-04	2.40E-04	6.46E-04	2.51E-04	4.23E-05 J	1.95E-04	8.41E-05 J	3.37E-04
TriCB-(18)+(30)				3.20E-04 J	6.00E-04	2.54E-04	5.01E-04	3.90E-05 J	4.63E-04	6.86E-05 J	2.69E-04	1.60E-03	5.20E-04	2.30E-04	5.00E-04	1.34E-03	5.00E-04	8.77E-05 J	3.90E-04	1.79E-04 J	7.30E-04
22'6-TriCB-(19)				2.40E-04 U	6.50E-05 U	3.40E-05 U	7.05E-05 J	2.60E-05 J	7.20E-05 J	1.20E-05 J	4.89E-05 J	2.78E-04	9.21E-05 J	3.41E-05 J	7.03E-05 J	2.55E-04	7.74E-05 J	1.64E-05 J	6.21E-05 J	3.27E-05 J	1.44E-04
TriCB-(20) + (28)				4.36E-04 J	7.35E-04	2.85E-04	7.27E-04	6.39E-05 J	8.29E-04	1.20E-04 J	4.55E-04	3.75E-03	1.23E-03	3.30E-04	7.50E-04	2.81E-03	8.40E-04	1.66E-04 J	6.20E-04	3.70E-04	1.45E-03
TriCB-(21)+(33)				2.71E-04 J	4.73E-04	2.07E-04	4.19E-04	1.16E-05 J	3.72E-04	7.37E-05 J	3.02E-04	1.28E-03	4.45E-04	2.00E-04	4.40E-04	1.19E-03	4.80E-04	1.02E-04 J	3.90E-04	1.64E-04 J	5.70E-04
234'-TriCB-(22)				1.55E-04 J	3.03E-04	1.37E-04	2.93E-04	1.68E-05 J	2.93E-04	5.52E-05 J	2.01E-04	1.17E-03	3.92E-04	1.37E-04	2.90E-04	9.02E-04	3.38E-04	6.53E-05 J	2.59E-04	1.34E-04	4.73E-04
235-TriCB-(23)				3.70E-05 U	8.70E-06 U	6.70E-06 U	7.20E-06 U	7.50E-06 U	7.30E-06 U	2.90E-06 U	1.90E-06 U	7.30E-06 U	3.10E-06 U	3.10E-06 U	2.00E-06 U	6.60E-06 U	2.50E-06 U	3.50E-06 U	3.30E-06 U	3.50E-06 U	3.70E-06 U
236-TriCB-(24)				2.70E-04 U	2.10E-05 U	3.80E-05 U	1.30E-05 J	1.50E-05 U	1.30E-05 U	3.00E-06 U	4.80E-06 U	6.70E-06 U	1.70E-06 U	1.34E-04	2.70E-04	5.99E-04	2.89E-04	2.20E-06 U	1.36E-05 J	4.20E-06 U	2.90E-06 U
23'4-TriCB-(25)				3.50E-05 U	5.39E-05 J	2.40E-05 J	5.01E-05 J	6.50E-06 U	5.11E-05 J	7.70E-06 J	3.24E-05 J	2.21E-04	7.24E-05 J	2.40E-05 U	5.70E-05 J	1.95E-04	6.15E-05 J	1.16E-05 J	4.35E-05 J	2.53E-05 J	9.90E-05
TriCB-(26)+(29)				7.80E-05 J	1.21E-04 J	6.90E-05 J	1.14E-04 J	8.00E-06 J	1.14E-04 J	1.91E-05 J	7.34E-05 J	5.10E-04	1.67E-04 J	5.96E-05 J	1.18E-04 J	4.30E-04	1.32E-04 J	2.73E-05 J	1.04E-04 J	5.17E-05 J	2.30E-04
23'6-TriCB-(27)				2.20E-04 U	4.40E-05 J	3.10E-05 U	4.06E-05 J	1.20E-05 U	4.80E-05 J	4.10E-06 U	2.00E-05 U	2.07E-04	6.68E-05 J	1.40E-05 U	3.95E-05 J	1.30E-04 U	4.29E-05 J	7.10E-06 J	3.08E-05 J	1.99E-05 J	8.42E-05 J
24'5-TriCB-(31)				3.53E-04 J	6.04E-04	2.49E-04	5.70E-04	3.30E-05 J	5.78E-04	9.85E-05	3.81E-04	2.32E-03	7.70E-04	2.70E-04	6.20E-04	1.84E-03	6.72E-04	1.27E-04	5.19E-04	2.50E-04	8.67E-04
24'6-TriCB-(32)				2.20E-04 U	1.84E-04	7.90E-05 J	1.72E-04	2.90E-05 J	2.00E-04	2.30E-05 J	8.73E-05 J	8.01E-04	2.63E-04	7.30E-05 J	1.50E-04	5.23E-04	1.63E-04	2.96E-05 J	1.20E-04	7.69E-05 J	3.29E-04
23'5'-TriCB-(34)				3.70E-05 U	8.00E-06 U	6.20E-06 U	6.70E-06 U	6.90E-06 U	6.70E-06 U	2.90E-06 U	1.90E-06 U	7.30E-06 U	3.10E-06 U	2.90E-06 U	1.90E-06 U	6.20E-06 U	2.40E-06 U	3.80E-06 U	3.50E-06 U	3.80E-06 U	4.00E-06 U
33'4-TriCB-(35)				3.80E-05 U	1.65E-05 J	1.73E-05 J	1.51E-05 J	7.10E-06 U	1.76E-05 J	2.60E-06 U	1.17E-05 J	5.21E-05 J	1.78E-05 J	3.00E-06 U	1.20E-05 U	4.28E-05 J	1.39E-05 J	3.60E-06 U	1.37E-05 J	9.60E-06 J	2.91E-05 J
33'5-TriCB-(36)				3.20E-05 U	7.10E-06 U	5.40E-06 U	5.90E-06 U	6.00E-06 U	5.90E-06 U	2.60E-06 U	1.70E-06 U	6.50E-06 U	2.70E-06 U	2.60E-06 U	1.60E-06 U	5.50E-06 U	2.10E-06 U	3.00E-06 U	2.80E-06 U	3.00E-06 U	3.20E-06 U
344'-TriCB-(37)				1.96E-04 J	2.83E-04	1.16E-04	2.55E-04	1.80E-05 J	3.01E-04	4.72E-05 J	1.51E-04	1.56E-03	4.85E-04	1.15E-04	2.30E-04	7.85E-04	2.54E-04	8.00E-05 J	2.60E-04	1.65E-04	6.09E-04
345-TriCB-(38)				3.80E-05 U	8.40E-06 U	6.50E-06 U	7.00E-06 U	7.20E-06 U	7.00E-06 U	2.80E-06 U	1.80E-06 U	6.90E-06 U	2.90E-06 U	3.00E-06 U	1.90E-06 U	6.30E-06 U	2.50E-06 U	3.40E-06 U	3.20E-06 U	3.40E-06 U	3.70E-06 U
34'5-TriCB-(39)				3.70E-05 U	8.10E-06 U	6.20E-06 U	6.70E-06 U	6.90E-06 U	6.70E-06 U	2.90E-06 U	1.90E-06 U	1.78E-05 J	4.20E-06 J	2.80E-06 U	1.80E-06 U	1.19E-05 J	2.30E-06 U	3.20E-06 U	4.00E-06 U	3.20E-06 U	9.10E-06 J
TetraCB-(40)+(41)+(71)				2.40E-04 U	4.55E-04	1.79E-04 J	3.71E-04	4.50E-05 J	5.79E-04	5.98E-05 J	1.86E-04 J	2.70E-03	8.88E-04	1.87E-04 J	4.00E-04	2.26E-03	4.60E-04	1.06E-04 J	3.40E-04	3.30E-04	1.26E-03
22'34'-TetraCB-(42)				3.00E-04 U	2.49E-04	1.03E-04	2.22E-04	3.00E-05 U	3.48E-04	3.19E-05 J	9.95E-05	1.71E-03	5.23E-04	1.01E-04	2.10E-04	1.33E-03	2.52E-04	5.59E-05 J	1.75E-04	1.74E-04	7.05E-04
22'35-TetraCB-(43)				3.10E-04 U	2.80E-05 U	3.70E-05 U	3.16E-05 J	3.20E-05 U	4.70E-05 J	2.30E-06 U	9.60E-06 J	1.83E-04	5.85E-05 J	1.10E-05 U	3.56E-05 J	1.81E-04	4.46E-05 J	7.40E-06 U	2.76E-05 J	2.29E-05 J	1.00E-04
TetraCB-(44)+(47)+(65)				3.50E-04 J	6.93E-04	2.71E-04 J	5.76E-04	8.10E-05 J	1.12E-03	9.91E-05 J	2.80E-04 J	5.59E-03	1.74E-03	2.96E-04 J	6.20E-04	4.21E-03	7.90E-04	2.26E-04 J	5.80E-04	6.90E-04	2.49E-03
TetraCB-(45)+(51)				2.30E-04 U	1.45E-04 J	5.60E-05 J	1.28E-04 J	2.20E-05 U	1.96E-04	1.63E-05 J	5.68E-05 J	9.43E-04	2.83E-04	5.89E-05 J	1.29E-04 J	7.80E-04	1.65E-04 J	2.81E-05 J	1.06E-04 J	1.11E-04 J	4.30E-04
22'36'-TetraCB-(46)				2.70E-04 U	5.10E-05 J	3.00E-05 U	5.04E-05 J	2.60E-05 U	6.40E-05 J	5.50E-06 J	2.05E-05 J	3.22E-04	1.05E-04	2.16E-05 J	4.30E-05 U	3.03E-04	6.26E-05 J	1.12E-05 J	3.95E-05 J	4.13E-05 J	1.77E-04
22'45-TetraCB-(48)				2.40E-04 U	1.54E-04	6.10E-05 J	1.38E-04	2.30E-05 U	1.71E-04	1.96E-05 J	6.97E-05 J	7.67E-04	2.48E-04	5.92E-05 J	1.40E-04	6.60E-04	1.70E-04	3.11E-05 J	1.13E-04	8.66E-05 J	3.40E-04
TetraCB-(49)+TetraCB-(69)				2.00E-04 U	3.92E-04	1.50E-04 J	3.27E-04	4.70E-05 J	6.98E-04	4.86E-05 J	1.41E-04 J	3.24E-03	9.88E-04	1.51E-04 J	3.30E-04	2.47E-03	4.00E-04	1.16E-04 J	3.00E-04	3.20E-04	1.42E-03
TetraCB-(50)+(53)				2.20E-04 U	9.20E-05 J	3.70E-05 J	8.70E-05 J	2.10E-05 U	1.41E-04 J	1.17E-05 J	3.95E-05 J	6.94E-04	2.21E-04	3.94E-05 J	8.76E-05 J	6.30E-04	1.14E-04 J	2.42E-05 J	7.31E-05 J	7.72E-05 J	3.70E-04
22'55'-TetraCB-(52)				3.80E-04 J	7.58E-04	3.08E-04	5.76E-04	1.30E-04	1.50E-03	9.15E-05 J	2.43E-04	7.22E-03	2.31E-03	2.81E-04	6.10E-04	5.53E-03	7.32E-04	2.92E-04	5.61E-04	7.41E-04	3.16E-03
22'66'-TetraCB-(54)				1.80E-05 U	2.70E-06 U	2.40E-06 U	3.50E-06 U	4.00E-06 U	5.10E-06 U	8.10E-07 U	4.20E-06 U	8.10E-06 U	2.90E-06 U	2.50E-06 U	2.90E-06 U	8.40E-06 U	2.60E-06 U	3.60E-06 U	2.30E-06 U	3.00E-06 U	3.90E-06 U
233'4-TetraCB-(55)				7.30E-05 U	1.20E-05 U	9.70E-06 U	1.10E-05 U	9.20E-06 U	7.50E-06 U	2.10E-06 U	3.80E-06 U	4.70E-06 U	3.50E-06 U	1.80E-06 U	1.60E-06 U	5.10E-06 U	3.10E-06 U	3.40E-06 U	4.80E-06 U	6.20E-06 U	1.20E-05 U
233'4'-Tetra CB(56)				1.33E-04 J	1.83E-04	1.04E-04	1.64E-04	1.61E-05 J	2.69E-04	3.35E-05 J	8.43E-05 J	1.69E-03	5.51E-04	1.04E-04	1.70E-04	1.23E-03	2.10E-04	7.21E-05 J	1.84E-04	2.05E-04	6.84E-04
233'5-TetraCB-(57)				6.20E-05 U	1.00E-05 U	8.30E-06 U	9.90E-06 U	7.90E-06 U	6.40E-06 U	3.50E-06 U	7.00E-06 J	4.20E-06 U	1.34E-04	1.90E-06 U	1.60E-06 U	2.91E-04	3.20E-06 U	3.50E-06 U	4.80E-06 U	6.20E-06 U	1.20E-05 U
233'5'-TetraCB-(58)				6.70E-05 U	1.10E-05 U	9.10E-06 U	1.10E-05 U	8.60E-06 U	7.00E-06 U	1.90E-06 U	3.40E-06 U	4.30E-06 U	3.20E-06 U	1.90E-06 U	1.70E-06 U	5.30E-06 U	3.30E-06 U	3.30E-06 U	4.60E-06 U	6.00E-06 U	1.20E-05 U
TetraCB-(59)+(62)+(75)				1.70E-04 U	7.00E-05 J	2.70E-05 J	5.36E-05 J	1.60E-05 U	9.44E-05 J	8.97E-06 J	2.65E-05 J	4.65E-04	1.43E-04 J	2.58E-05 J	5.75E-05 J	4.00E-04	7.18E-05 J	1.44E-05 J	5.37E-05 J	6.09E-05 J	2.18E-04 J
2344'-TetraCB -(60)				7.00E-05 U	1.03E-04	5.40E-05 U	9.60E-05	8.70E-06 U	1.22E-04	1.80E-05 U	5.19E-05 J	6.70E-04	2.21E-04	5.20E-05 J	8.25E-05 J	4.76E-04	1.11E-04	2.90E-05 U	9.13E-05 J	8.86E-05 J	2.65E-04

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 21

Chemical	Portland Harbor JSCS SLV[1]	CL[2]	DEQ Appendix D "Typical PH Values"[3]	1/17/2018 CB2	CB9	RD1	SW2	SW3	SW6	3/28/2014 SWP1	SWP2	SWP3	SWP6	3/5/2013 SWP1	SWP2	SWP3	SWP6	11/19/2012 SWP1	SWP2	SWP3	SWP6
TetraCB-(61)+(70)+(74)+(76)				4.76E-04 J	7.20E-04	3.47E-04 J	6.13E-04	7.26E-05 J	1.15E-03	1.41E-04 J	3.31E-04 J	6.94E-03	2.29E-03	3.81E-04 J	6.80E-04	4.95E-03	8.20E-04	3.48E-04 J	7.00E-04	7.70E-04	2.68E-03
234'5-TetraCB-(63)				6.00E-05 U	1.49E-05 J	8.10E-06 U	1.10E-05 U	7.60E-06 U	1.39E-05 J	2.50E-06 J	5.20E-06 U	8.34E-05 J	2.74E-05 J	6.90E-06 J	1.10E-05 J	6.90E-05 J	1.59E-05 J	4.80E-06 J	1.50E-05 J	1.23E-05 J	3.90E-05 J
234'6-TetraCB-(64)				1.90E-04 U	3.33E-04	1.28E-04	2.84E-04	3.80E-05 J	5.21E-04	4.71E-05 J	1.34E-04	2.55E-03	8.06E-04	1.43E-04	3.00E-04	1.98E-03	3.58E-04	9.02E-05 J	2.73E-04	2.99E-04	1.13E-03
23'44'-TetraCB-(66)				2.24E-04 J	3.54E-04	1.62E-04	2.96E-04	3.78E-05 J	6.27E-04	5.81E-05 J	1.56E-04	3.73E-03	1.22E-03	1.93E-04	3.20E-04	2.77E-03	4.03E-04	1.45E-04	3.16E-04	3.93E-04	1.44E-03
23'45-TetraCB-(67)				5.50E-05 U	1.46E-05 J	1.34E-05 J	1.31E-05 J	7.00E-06 U	1.72E-05 J	2.40E-06 J	6.60E-06 J	1.01E-04	3.22E-05 J	8.00E-06 J	9.90E-06 U	8.76E-05 J	1.93E-05 J	5.00E-06 J	1.29E-05 J	1.03E-05 J	3.40E-05 J
23'45'-TetraCB-(68)				6.30E-05 U	1.00E-05 U	8.40E-06 U	1.00E-05 U	8.00E-06 U	1.06E-05 J	1.80E-06 U	3.40E-06 U	3.40E-05 J	1.27E-05 J	1.70E-06 U	1.50E-06 U	2.13E-05 J	7.10E-06 J	3.10E-06 U	4.30E-06 U	1.10E-05 U	1.70E-05 U
23'55'-TetraCB-(72)				6.30E-05 U	1.00E-05 U	8.40E-06 U	9.90E-06 U	7.90E-06 U	1.37E-05 J	1.80E-06 U	3.20E-06 U	4.92E-05 J	1.53E-05 J	1.80E-06 U	1.60E-06 U	3.24E-05 J	3.80E-06 U	3.30E-06 U	4.60E-06 U	5.90E-06 U	2.30E-05 J
23'5'6-TetraCB-(73)				1.60E-04 U	1.40E-05 U	1.80E-05 U	4.20E-06 U	1.60E-05 U	8.60E-06 U	9.40E-07 U	1.10E-06 U	3.80E-06 U	1.30E-06 U	1.70E-06 U	1.70E-06 U	2.40E-06 U	8.40E-07 U	3.70E-06 U	1.50E-06 U	2.90E-06 U	3.10E-06 U
33'44'-TetraCB-(77)				7.90E-05 U	6.60E-05 J	2.80E-05 U	4.40E-05 J	1.00E-05 U	8.25E-05 J	9.10E-06 J	2.34E-05 J	4.88E-04	1.61E-04	1.90E-06 U	3.50E-05 U	2.67E-04	4.85E-05 J	3.15E-05 J	5.44E-05 J	7.26E-05 J	2.39E-04
33'45-TetraCB-(78)				6.60E-05 U	1.10E-05 U	8.80E-06 U	1.00E-05 U	8.40E-06 U	6.80E-06 U	1.90E-06 U	3.40E-06 U	4.30E-06 U	3.20E-06 U	1.80E-06 U	1.60E-06 U	5.00E-06 U	3.10E-06 U	3.50E-06 U	4.90E-06 U	6.30E-06 U	1.20E-05 U
33'45'-TetraCB(79)				5.50E-05 U	9.10E-06 U	7.40E-06 U	8.80E-06 U	7.00E-06 U	5.70E-06 U	1.80E-06 U	2.90E-06 U	7.38E-05 J	3.95E-05 J	1.60E-06 U	1.40E-06 U	1.78E-04	7.40E-06 J	5.90E-06 U	8.70E-06 J	1.70E-05 U	4.60E-05 J
33'55'-TetraCB-(80)				5.60E-05 U	9.40E-06 U	7.70E-06 U	9.10E-06 U	7.30E-06 U	5.90E-06 U	1.70E-06 U	3.00E-06 U	3.70E-06 U	2.70E-06 U	1.70E-06 U	1.50E-06 U	4.80E-06 U	3.00E-06 U	3.10E-06 U	4.40E-06 U	5.70E-06 U	1.10E-05 U
344'5-TetraCB-(81)				8.00E-05 U	1.40E-05 U	1.10E-05 U	1.30E-05 U	1.10E-05 U	8.60E-06 U	2.30E-06 U	4.00E-06 U	5.10E-06 U	3.70E-06 U	2.10E-05 U	1.70E-06 U	5.40E-06 U	3.40E-06 U	3.80E-06 U	5.30E-06 U	6.90E-06 U	1.30E-05 U
22'33'4-PentaCB-(82)				1.70E-04 U	1.61E-04	4.70E-05 J	8.70E-05 J	1.80E-05 U	3.41E-04	1.69E-05 J	2.98E-05 J	1.62E-03	5.54E-04	4.79E-05 J	7.05E-05 J	8.82E-04	8.59E-05 J	6.73E-05 J	8.79E-05 J	2.01E-04	6.77E-04
PentaCB-(83)+(99)				2.20E-04 U	6.01E-04	1.55E-04 J	3.16E-04	9.40E-05 J	1.82E-03	5.79E-05 J	9.13E-05 J	7.48E-03	2.62E-03	1.85E-04 J	2.40E-04	4.22E-03	3.00E-04	2.70E-04	3.20E-04	8.70E-04	2.83E-03
22'33'6-PentaCB-(84)				1.70E-04 U	3.30E-04	9.00E-05 J	1.89E-04	4.80E-05 J	8.22E-04	3.18E-05 J	5.17E-05 J	3.82E-03	1.19E-03	9.41E-05 J	1.60E-04	2.64E-03	1.99E-04	1.46E-04	1.98E-04	5.21E-04	1.63E-03
PentaCB-(85)+(116)+(117)				1.30E-04 U	1.74E-04 J	4.20E-05 J	9.20E-05 J	2.30E-05 U	4.95E-04	1.57E-05 J	2.61E-05 J	1.81E-03	6.78E-04	4.76E-05 J	7.09E-05 J	1.35E-03	9.86E-05 J	8.76E-05 J	1.16E-04 J	2.80E-04 J	8.50E-04
PentaCB-(86)(87)(97)(109)(119)(125)				3.80E-04 J	7.91E-04	2.21E-04 J	4.38E-04 J	1.21E-04 J	2.10E-03	9.21E-05 J	1.43E-04 J	9.53E-03	3.33E-03	2.84E-04 J	3.96E-04 J	5.61E-03	4.81E-04 J	4.10E-04 J	5.34E-04 J	1.19E-03	3.97E-03
PentaCB-(88)+(91)				1.50E-04 U	1.55E-04 J	4.10E-05 J	8.60E-05 J	2.20E-05 U	4.26E-04	1.52E-05 J	2.54E-05 J	1.93E-03	6.46E-04	4.61E-05 J	6.81E-05 J	1.18E-03	9.60E-05 J	6.05E-05 J	9.06E-05 J	2.20E-04	7.10E-04
22'346'-PentaCB-(89)				1.60E-04 U	4.40E-05 U	1.50E-05 U	1.90E-05 U	1.60E-05 U	2.80E-05 U	2.80E-06 U	3.20E-06 U	1.21E-04	3.53E-05 J	1.30E-06 U	5.90E-06 U	8.62E-05 J	9.10E-06 U	2.60E-06 U	8.00E-06 J	1.55E-05 J	5.66E-05 J
PentaCB-(90)+(101)+(113)				4.40E-04 J	1.01E-03	2.71E-04 J	5.75E-04	1.66E-04 J	3.17E-03	1.06E-04 J	1.64E-04 J	1.38E-02	4.82E-03	3.30E-04	4.80E-04	8.01E-03	5.70E-04	5.10E-04	6.40E-04	1.58E-03	5.09E-03
22'355'-PentaCB-(92)				1.50E-04 U	2.12E-04	4.90E-05 U	1.11E-04	3.30E-05 U	6.49E-04	1.89E-05 J	3.03E-05 J	2.74E-03	9.29E-04	5.89E-05 J	8.24E-05 J	1.65E-03	1.06E-04	9.60E-05	1.20E-04	3.24E-04	1.01E-03
PentaCB-(93)+(98)+(100)+(102)				1.50E-04 U	5.20E-05 J	1.40E-05 U	2.80E-05 J	1.50E-05 U	1.06E-04 J	4.40E-06 J	1.01E-05 J	4.55E-04	1.57E-04 J	1.00E-05 U	2.10E-05 U	3.24E-04 J	2.50E-05 U	1.58E-05 J	2.79E-05 J	6.02E-05 J	2.02E-04 J
22'356'-PentaCB-(94)				1.60E-04 U	4.40E-05 U	1.50E-05 U	1.90E-05 U	1.60E-05 U	2.80E-05 U	3.00E-06 U	3.40E-06 U	5.90E-05 J	1.81E-05 J	1.30E-06 U	5.40E-06 U	4.23E-05 J	3.00E-06 U	2.60E-06 U	5.40E-06 U	9.80E-06 U	2.39E-05 J
22'35'6-PentaCB-(95)				3.60E-04 J	8.53E-04	2.38E-04	4.83E-04	1.49E-04	2.45E-03	7.36E-05 J	1.35E-04	1.09E-02	3.59E-03	2.32E-04	3.90E-04	6.95E-03	5.13E-04	3.72E-04	5.28E-04	1.35E-03	4.36E-03
22'366'-PentaCB-(96)				3.60E-05 U	1.09E-05 J	9.30E-06 U	5.50E-06 U	4.50E-06 U	1.90E-05 U	1.90E-06 U	1.60E-06 U	7.99E-05 J	2.59E-05 J	2.30E-06 U	3.70E-06 U	4.25E-05 J	5.50E-06 U	1.87E-06 J	4.81E-06 J	9.51E-06 J	2.96E-05 J
22'45'6-PentaCB-(103)				1.30E-04 U	3.50E-05 U	1.20E-05 U	1.50E-05 U	1.30E-05 U	2.20E-05 U	2.20E-06 U	2.60E-06 U	6.90E-05 J	2.25E-05 J	1.10E-06 U	4.30E-06 U	5.64E-05 J	2.50E-06 U	2.20E-06 U	4.60E-06 U	8.30E-06 U	3.24E-05 J
22'466'-PentaCB-(104)				2.60E-05 U	2.00E-06 U	5.90E-06 U	1.70E-06 U	2.80E-06 U	1.30E-06 U	2.00E-06 U	1.80E-06 U	2.10E-06 U	1.70E-06 U	2.90E-06 U	4.50E-06 U	5.20E-06 U	4.50E-06 U	7.50E-07 U	1.10E-06 U	8.70E-07 U	1.40E-06 U
233'44'-PentaCB-(105)				1.70E-04 U	3.81E-04	9.70E-05	2.26E-04	4.60E-05 J	8.30E-04	5.48E-05 J	9.64E-05	4.99E-03	1.72E-03	1.64E-04	2.20E-04	2.53E-03	2.59E-04	2.41E-04	3.50E-04	5.81E-04	2.12E-03
233'45-PentaCB-(106)				3.90E-05 U	2.10E-05 U	9.00E-06 U	1.30E-05 U	7.40E-06 U	8.80E-06 U	2.30E-06 U	3.20E-06 U	5.00E-06 U	2.20E-06 U	7.90E-06 J	3.60E-06 U	7.20E-06 U	5.20E-06 U	4.20E-06 U	4.90E-06 U	3.50E-06 U	7.30E-06 U
233'4'5-PentaCB-(107)				3.50E-05 U	7.30E-05 J	1.57E-05 J	2.80E-05 J	6.60E-06 U	1.59E-04	7.60E-06 J	1.10E-05 J	7.79E-04	2.84E-04	2.49E-05 J	2.45E-05 J	5.79E-04	3.60E-05 U	3.05E-05 J	4.08E-05 J	9.90E-05	3.46E-04
PentaCB-(108)+(124)				3.90E-05 U	3.50E-05 J	1.00E-05 U	1.80E-05 J	7.40E-06 U	9.30E-05 J	5.10E-06 U	8.70E-06 J	4.57E-04	1.68E-04 J	1.40E-05 U	1.60E-05 U	3.00E-04	2.10E-05 U	1.79E-05 J	2.81E-05 J	5.92E-05 J	2.00E-04
PentaCB-(110)+(115)				6.70E-04 J	1.56E-03	3.53E-04	8.30E-04	2.76E-04	4.74E-03	1.76E-04 J	2.87E-04	2.38E-02	8.23E-03	5.40E-04	7.20E-04	1.18E-02	8.80E-04	7.70E-04	9.90E-04	2.63E-03	8.16E-03
233'55'-PentaCB-(111)				1.10E-04 U	3.10E-05 U	1.00E-05 U	1.30E-05 U	1.10E-05 U	1.90E-05 U	2.00E-06 U	2.30E-06 U	9.50E-06 U	1.30E-06 U	8.70E-07 U	3.60E-06 U	5.40E-06 U	2.10E-06 U	1.80E-06 U	3.70E-06 U	6.70E-06 U	2.70E-06 U
233'56-PentaCB-(112)				1.20E-04 U	3.30E-05 U	1.10E-05 U	1.40E-05 U	1.20E-05 U	2.10E-05 U	2.00E-06 U	2.20E-06 U	9.20E-06 U	1.20E-06 U	9.30E-07 U	3.80E-06 U	5.80E-06 U	2.20E-06 U	1.90E-06 U	3.90E-06 U	7.00E-06 U	2.80E-06 U
2344'5-PentaCB-(114)				4.50E-05 U	2.40E-05 U	1.00E-05 U	1.50E-05 U	8.50E-06 U	2.90E-05 J	2.50E-06 U	3.40E-06 U	1.83E-04	6.37E-05 J	6.10E-06 U	9.40E-06 U	1.02E-04	1.21E-05 J	1.01E-05 J	1.58E-05 J	2.16E-05 J	8.02E-05 J
23'44'5-PentaCB-(118)				4.87E-04 J	9.22E-04	1.72E-04	4.76E-04	1.30E-04	2.36E-03	1.24E-04	2.03E-04	1.33E-02	4.77E-03	3.57E-04	4.70E-04	6.68E-03	5.52E-04	5.60E-04	7.42E-04	1.44E-03	5.48E-03
23'455'-PentaCB-(120)				1.00E-04 U	2.90E-05 U	9.90E-06 U	1.30E-05 U	1.10E-05 U	1.80E-05 U	1.90E-06 U	2.10E-06 U	3.48E-05 J	1.20E-05 U	8.30E-07 U	3.40E-06 U	1.70E-05 U	2.00E-06 U	1.70E-06 U	3.60E-06 U	6.50E-06 U	2.60E-06 U
23'45'6-PentaCB-(121)				1.10E-04 U	3.00E-05 U	1.00E-05 U	1.30E-05 U	1.10E-05 U	1.90E-05 U	2.00E-06 U	2.30E-06 U	9.40E-06 U	1.30E-06 U	8.60E-07 U	3.60E-06 U	5.40E-06 U	2.10E-06 U	1.80E-06 U	3.70E-06 U	6.70E-06 U	2.70E-06 U
233'4'5'-PentaCB-(122)				4.10E-05 U	2.20E-05 U	9.50E-06 U	1.40E-05 U	7.80E-06 U	2.50E-05 U	2.50E-06 U	3.50E-06 U	1.67E-04	6.43E-05 J	4.70E-06 U	4.50E-06 U	9.68E-05 J	4.40E-06 U	5.60E-06 J	9.20E-06 J	1.10E-05 U	6.45E-05 J
23'44'5'-PentaCB-(123)				5.00E-05 U	2.70E-05 U	1.20E-05 U	1.70E-05 U	9.50E-06 U	2.40E-05 U	2.70E-06 U	3.80E-06 U	1.31E-04	4.48E-05 J	5.10E-06 U	6.20E-06 U	5.10E-05 U	5.60E-06 U	4.90E-06 U	1.40E-05 J	2.53E-05 J	9.24E-05 J
33'44'5-PentaCB-(126)				4.20E-05 U	2.30E-05 U	9.70E-06 U	1.40E-05 U	8.00E-06 U	9.50E-06 U	2.50E-06 U	3.50E-06 U	2.32E-05 J	1.44E-05 J	4.30E-06 U	3.60E-06 U	2.00E-05 U	5.20E-06 U	4.70E-06 U	5.40E-06 U	1.30E-05 U	2.50E-05 J
33'455'-PentaCB-(127)				3.80E-05 U	2.00E-05 U	8.60E-06 U	1.30E-05 U	7.10E-06 U	8.40E-06 U	2.20E-06 U	3.10E-06 U	2.93E-05 J	1.22E-05 J	4.20E-06 U	3.50E-06 U	7.00E-06 U	5.10E-06 U	4.20E-06 U	4.80E-06 U	3.40E-06 U	7.20E-06 U
HexaCB-(128)+(166)				1.80E-04 U	2.58E-04	4.50E-05 J	1.21E-04 J	4.40E-05 J	7.12E-04	2.77E-05 J	5.42E-05 J	3.72E-03	1.43E-03	9.97E-05 J	1.15E-04 J	1.81E-03	1.39E-04 J	1.26E-04 J	1.68E-04 J	3.70E-04	1.27E-03
HexaCB-(129)+(138)+(163)				7.50E-04 U	1.58E-03	2.20E-04 U	8.19E-04	2.58E-04 J	4.79E-03	1.80E-04 J	3.29E-04	2.42E-02	9.37E-03	6.30E-04	7.50E-04	1.38E-02	9.30E-04	7.60E-04	1.05E-03	2.54E-03	8.64E-03
22'33'45'-HexaCB-(130)				2.20E-04 U	1.02E-04	3.70E-05 U	4.40E-05 U	3.30E-05 U	2.83E-04	1.12E-05 J	1.77E-05 J	1.31E-03	4.99E-04	3.39E-05 J	4.52E-05 J	7.94E-04	4.70E-05 U	4.68E-05 J	6.36E-05 J	1.52E-04	5.18E-04
22'33'46-HexaCB-(131)				2.30E-04 U	6.60E-05 U	4.00E-05 U	4.20E-05 U	3.50E-05 U	6.90E-05 J	7.70E-06 U	1.00E-05 U	2.97E-04	1.13E-04	3.90E-06 U	1.34E-05 J	2.12E-04	1.73E-05 J	1.00E-05 U	1.59E-05 J	3.70E-05 J	1.25E-04
22'33'46'-HexaCB-(132)				2.20E-04 U	5.66E-04	1.17E-04	2.76E-04	9.90E-05 J	1.59E-03	5.80E-05 J	1.06E-04	8.16E-03	3.15E-03	1.89E-04	2.30E-04	4.84E-03	2.96E-04	2.29E-04	3.23E-04	8.70E-04	2.75E-03
22'33'55'-HexaCB-(133)				2.00E-04 U	5.60E-05 U	3.30E-05 U	3.50E-05 U	3.00E-05 U	6.50E-05 J	6.30E-06 U	8.20E-06 U	2.57E-04	9.68E-05	3.30E-06 U	8.20E-06 U	1.59E-04	6.00E-06 U	9.50E-06 U	1.10E-05 J	3.22E-05 J	1.00E-04
HexaCB-(134)+(143)				2.20E-04 U	6.30E-05 U	3.80E-05 U	4.00E-05 U	3.40E-05 U	1.88E-04 J	7.00E-06 U	9.10E-06 U	1.04E-03	4.37E-04	2.77E-05 J	3.00E-05 U	7.30E-04	4.75E-05 J	3.00E-05 U	4.59E-05 J	1.24E-04 J	4.40E-04
HexaCB-(135)+(151)				1.50E-04 U	5.22E-04	7.00E-05 U	2.60E-04 U	8.60E-05 J	1.76E-03	3.06E-05 J	6.44E-05 J	6.37E-03	2.49E-03	1.15E-04 J	1.47E-04 J	3.11E-03	1.74E-04 J	1.39E-04 J	2.10E-04	6.70E-04	1.97E-03
22'33'66'-HexaCB-(136)				8.00E-05 J	1.96E-04	3.90E-05 J	1.01E-04	3.00E-05 J	6.33E-04	1.28E-05 J	2.29E-05 J	2.42E-03	9.30E-04	4.88E-05 J	6.11E-05 J	1.26E-03	8.04E-05 J	6.19E-05 J	8.80E-05 J	2.74E-04 J	7.50E-04
22'344'5-HexaCB-(137)				2.30E-04 U	6.50E-05 J	3.70E-05 U	4.10E-05 J	3.30E-05 U	1.68E-04	7.10E-06 U	1.48E-05 J	1.24E-03	3.98E-04	3.47E-05 J	4.03E-05 J	7.19E-04	5.03E-05 J	3.87E-05 J	4.87E-05 J	1.06E-04	4.21E-04
HexaCB-(139)+(140)				1.80E-04 U	5.10E-05 U	3.10E-05 U	3.20E-05 U	2.70E-05 U	7.50E-05 J	5.80E-06 U	7.60E-06 U	3.41E-04	1.40E-04 J	3.00E-06 U	9.70E-06 J	2.50E-04	1.10E-05 U	1.28E-05 J	1.45E-05 J	4.33E-05 J	1.47E-04 J
22'3455'-HexaCB-(141)				2.10E-04 U	2.53E-04	3.50E-05 U	1.48E-04	5.00E-05 J	8.09E-04	2.53E-05 J	5.04E-05 J	3.48E-03	1.37E-03	9.46E-05 J	1.20E-04	1.98E-03	1.48E-04	1.06E-04	1.62E-04	3.90E-04	1.28E-03
22'3456-HexaCB-(142)				2.10E-04 U	6.00E-05 U	3.60E-05 U	3.80E-05 U	3.20E-05 U	3.40E-05 U	6.70E-06 U	8.70E-06 U	6.70E-06 U	5.00E-06 U	3.60E-06 U	3.50E-06 U	4.10E-05 U	6.50E-06 U	5.80E-06 U	4.10E-06 U	1.10E-05 U	1.90E-05 U
22'345'6-HexaCB-(144)				1.10E-04 U	6.30E-05 U	2.40E-05 U	3.50E-05 U	1.90E-05 U	2.31E-04	4.20E-06 U	9.50E-06 J	7.71E-04	3.20E-04	1.30E-05 U	2.46E-05 J	1.10E-04 U	2.60E-05 U	2.00E-05 U	3.26E-05 J	8.07E-05 J	2.62E-04
22'3466'-HexaCB-(145)				8.40E-05 U	3.00E-05 U	1.70E-05 U	1.60E-05 U	1.40E-05 U	1.80E-05 U	1.90E-06 U	1.30E-06 U	1.80E-06 U	2.10E-06 U	1.50E-06 U	1.40E-06 U	1.80E-06 U	1.30E-06 U	8.60E-07 U	1.60E-06 U	1.70E-06 U	2.70E-06 U
22'34'55'-HexaCB-(146)				1.70E-04 U	2.34E-04	2.90E-05 U	9.20E-05 J	3.10E-05 U	5.84E-04	1.78E-05 J	3.30E-05 J	2.57E-03	1.01E-03	7.94E-05 J	8.23E-05 J	1.73E-03	1.06E-04	8.45E-05 J	1.15E-04	3.19E-04	1.07E-03
HexaCB-(147)+(149)				3.90E-04 U	9.86E-04	1.66E-04 J	5.64E-04	1.96E-04 J	3.16E-03	8.32E-05 J	1.69E-04 J	1.57E-02	6.26E-03	3.50E-04	4.30E-04	1.03E-02	5.80E-04	3.80E-04	6.00E-04	1.68E-03	5.37E-03
22'34'56'-HexaCB-(148)				1.10E-04 U	3.90E-05 U	2.20E-05 U	2.10E-05 U	1.70E-05 U	2.20E-05 U	2.30E-06 U	1.70E-06 U	2.30E-06 U	8.00E-06 U	2.00E-06 U	1.80E-06 U	1.50E-05 J	1.70E-06 U	1.10E-06 U	2.00E-06 U	2.10E-06 U	3.40E-06 U
22'34'66'-HexaCB-(150)				7.50E-05 U	3.00E-05 U	1.70E-05 U	1.60E-05 U	1.30E-05 U	1.70E-05 U	1.80E-06 U	1.30E-06 U	1.92E-05 J	7.50E-06 J	1.40E-06 U	1.30E-06 U	7.60E-06 U	1.20E-06 U	8.10E-07 U	1.50E-06 U	3.20E-06 J	7.10E-06 U
22'3566'-HexaCB-(152)				8.00E-05 U	2.50E-05 U	1.40E-05 U	1.30E-05 U	1.10E-05 U	1.40E-05 U	1.60E-06 U	1.20E-06 U	1.20E-05 U	4.40E-06 J	1.50E-06 U	1.40E-06 U	7.00E-06 J	1.30E-06 U	7.80E-07 U	1.50E-06 U	1.60E-06 U	3.30E-06 U
HexaCB-(153)+(168)				4.70E-04 U	1.02E-03	1.38E-04 J	5.63E-04	1.85E-04 J	3.45E-03	1.05E-04 J	1.98E-04	1.61E-02	6.42E-03	3.60E-04	4.30E-04	8.99E-03	5.50E-04	4.50E-04	6.20E-04	1.70E-03	5.60E-03
22'44'56'-HexaCB-(154)				1.00E-04 U	3.60E-05 U	2.00E-05 U	1.90E-05 U	1.60E-05 U	6.20E-05 U	2.00E-06 U	1.50E-06 U	1.61E-04	6.61E-05 J	1.80E-06 U	1.70E-06 U	8.33E-05 J	1.50E-06 U	3.80E-06 U	4.40E-06 U	2.00E-05 U	6.26E-05 J
22'44'66'-HexaCB-(155)				5.90E-05 U	1.80E-05 U	1.00E-05 U	9.80E-06 U	8.20E-06 U	1.10E-05 U	2.00E-06 U	1.50E-06 U	2.00E-06 U	2.30E-06 U	2.00E-06 U	1.90E-06 U	2.30E-06 U	1.70E-06 U	1.20E-06 U	2.30E-06 U	2.50E-06 U	3.80E-06 U
HexaCB-(156)+(157)				9.20E-05 U	1.50E-04 U	2.20E-05 U	8.90E-05 J	2.04E-05 J	4.15E-04	1.94E-05 J	3.64E-05 J	2.35E-03	8.22E-04	7.03E-05 J	7.70E-05 J	1.21E-03	9.20E-05 J	1.02E-04 J	1.43E-04 J	2.80E-04	9.30E-04
233'44'6-HexaCB-(158)				1.40E-04 U	1.50E-04	2.30E-05 U	8.00E-05 J	2.70E-05 J	4.34E-04	1.59E-05 J	3.27E-05 J	2.04E-03	7.77E-04	5.88E-05 J	7.11E-05 J	1.20E-03	9.12E-05 J	7.60E-05 J	1.05E-04	2.32E-04	8.28E-04
233'455'-HexaCB-(159)				3.20E-05 U	1.80E-05 U	1.10E-05 U	1.50E-05 U	5.80E-06 U	2.97E-05 J	4.00E-06 U	5.30E-06 U	1.50E-05 U	8.42E-05 J	3.10E-06 U	6.10E-06 U	1.00E-04 U	5.00E-06 U	4.80E-06 U	7.50E-06 J	1.80E-05 J	6.90E-05 J
233'456-HexaCB-(160)				1.70E-04 U	4.70E-05 U	2.80E-05 U	3.00E-05 U	2.50E-05 U	2.60E-05 U	5.50E-06 U	7.10E-06 U	5.50E-06 U	4.10E-06 U	2.30E-06 U	2.30E-06 U	2.70E-05 U	4.30E-06 U	4.30E-06 U	3.00E-06 U	7.80E-06 U	1.40E-05 U
233'45'6-HexaCB-(161)				1.50E-04 U	4.00E-05 U	2.40E-05 U	2.60E-05 U	2.10E-05 U	2.30E-05 U	4.60E-06 U	6.00E-06 U	4.60E-06 U	3.40E-06 U	2.30E-06 U	2.20E-06 U	2.60E-05 U	4.10E-06 U	3.90E-06 U	2.80E-06 U	7.20E-06 U	1.30E-05 U
233'4'55'-HexaCB-(162)				3.20E-05 U	1.90E-05 U	1.10E-05 U	1.50E-05 U	5.90E-06 U	7.50E-06 U	4.10E-06 U	5.40E-06 U	1.60E-04 U	6.80E-05 U	3.10E-06 U	6.10E-06 U	4.20E-05 U	4.90E-06 U	4.80E-06 U	5.70E-06 U	1.10E-05 U	3.00E-05 J
233'4'5'6-HexaCB-(164)				1.40E-04 U	1.07E-04	2.40E-05 U	4.80E-05 J	2.10E-05 U	3.32E-04	1.24E-05 J	2.01E-05 J	1.26E-03	5.22E-04	3.63E-05 J	4.68E-05 J	7.40E-04	5.31E-05 J	5.02E-05 J	6.98E-05 J	1.75E-04	4.97E-04
233'55'6-HexaCB-(165)				1.50E-04 U	4.30E-05 U	2.60E-05 U	2.70E-05 U	2.30E-05 U	2.40E-05 U	5.20E-06 U	6.70E-06 U	5.10E-06 U	3.80E-06 U	2.60E-06 U	2.50E-06 U	2.90E-05 U	4.70E-06 U	4.30E-06 U	3.00E-06 U	7.80E-06 U	1.40E-05 U
23'44'55'-HexaCB-(167)				3.70E-05 U	5.30E-05 U	1.30E-05 U	2.90E-05 J	7.00E-06 U	1.56E-04	7.00E-06 J	1.22E-05 J	8.25E-04	3.05E-04	2.26E-05 J	2.00E-05 U	4.36E-04	3.07E-05 J	3.36E-05 J	4.64E-05 J	1.13E-04	3.39E-04
33'44'55'-HexaCB-(169)				3.90E-05 U	2.30E-05 U	1.40E-05 U	1.90E-05 U	7.50E-06 U	9.40E-06 U	4.50E-06 U	6.00E-06 U	1.70E-05 U	7.30E-06 U	3.20E-06 U	6.30E-06 U	2.00E-05 U	5.10E-06 U	5.00E-06 U	6.00E-06 U	1.20E-05 U	1.70E-05 U
22'33'44'5-HeptaCB-(170)				1.10E-04 U	2.39E-04	1.50E-05 U	1.45E-04	4.20E-05 J	7.81E-04	2.10E-05 U	4.63E-05 J	4.57E-03	1.60E-03	9.88E-05 J	1.20E-04	2.65E-03	1.55E-04	1.27E-04	2.07E-04	5.98E-04	1.82E-03
HeptaCB-(171)+(173)				1.80E-04 U	8.70E-05 J	2.40E-05 U	4.40E-05 J	2.50E-05 U	2.59E-04	7.90E-06 J	1.31E-05 J	1.33E-03	4.74E-04	3.00E-05 J	3.65E-05 J	7.30E-04	4.34E-05 J	3.41E-05 J	5.95E-05 J	1.65E-04 J	5.10E-04
22'33'455'-HeptaCB-(172)				1.90E-04 U	6.80E-05 U	2.40E-05 U	2.70E-05 U	2.50E-05 U	1.52E-04	4.20E-06 U	9.10E-06 J	7.10E-04	2.64E-04	1.50E-05 U	1.74E-05 J	4.05E-04	2.50E-05 U	1.94E-05 J	2.90E-05 U	9.73E-05 J	2.91E-04
22'33'456'-HeptaCB-(174)				1.70E-04 U	2.91E-04	2.60E-05 J	1.59E-04	5.10E-05 J	9.43E-04	1.98E-05 J	4.39E-05 J	4.70E-03	1.71E-03	8.61E-05 J	1.10E-04	2.88E-03	1.45E-04	9.00E-05 J	1.80E-04	5.53E-04	1.83E-03
22'33'45'6-HeptaCB-(175)				1.10E-04 U	4.10E-05 U	1.80E-05 U	1.80E-05 U	1.60E-05 U	4.80E-05 U	2.00E-06 U	3.20E-06 U	2.23E-04	7.60E-05 J	3.80E-06 U	2.80E-06 U	8.90E-05 U	4.70E-06 J	4.80E-06 J	7.40E-06 U	2.11E-05 J	5.92E-05 J
22'33'466'-HeptaCB-(176)				8.10E-05 U	4.30E-05 J	1.30E-05 U	2.40E-05 J	1.20E-05 U	1.45E-04	2.60E-06 J	4.80E-06 J	5.88E-04	2.08E-04	1.14E-05 J	1.34E-05 J	3.32E-04	1.62E-05 J	1.21E-05 J	1.84E-05 J	6.61E-05 J	1.85E-04
22'33'45'6'-HeptaCB-(177)				1.80E-04 U	1.64E-04	2.40E-05 U	8.70E-05 J	2.60E-05 J	5.24E-04	1.26E-05 J	2.50E-05 J	2.53E-03	9.32E-04	4.92E-05 J	5.73E-05 J	1.45E-03	7.58E-05 J	5.45E-05 J	9.20E-05 J	2.80E-04	9.28E-04
22'33'55'6-HeptaCB-(178)				1.20E-04 U	7.60E-05 J	1.90E-05 U	4.00E-05 J	1.70E-05 U	2.40E-04	4.60E-06 U	7.20E-06 J	9.41E-04	3.35E-04	1.81E-05 J	1.90E-05 U	4.47E-04	2.20E-05 J	1.91E-05 J	3.19E-05 J	1.00E-04	3.14E-04
22'33'566'-HeptaCB-(179)				7.50E-05 U	1.34E-04	1.20E-05 U	8.10E-05 J	2.80E-05 U	4.64E-04	6.50E-06 J	1.45E-05 J	2.01E-03	7.36E-04	3.18E-05 J	3.20E-05 U	1.05E-03	4.00E-05 U	3.18E-05 J	5.50E-05 J	2.05E-04	6.02E-04
HeptaCB-(180)+(193)				3.40E-04 J	6.02E-04	5.50E-05 J	3.45E-04	1.08E-04 J	1.97E-03	4.67E-05 J	1.04E-04 J	1.06E-02	3.88E-03	1.85E-04 J	2.20E-04	5.65E-03	2.80E-04	2.10E-04	3.70E-04	1.22E-03	3.83E-03
22'344'56-HeptaCB-(181)				1.70E-04 U	6.40E-05 U	2.30E-05 U	2.50E-05 U	2.40E-05 U	3.20E-05 U	3.00E-06 U	2.80E-06 U	5.46E-05 J	8.20E-06 U	2.40E-06 U	2.70E-06 U	1.50E-05 U	5.00E-06 U	5.10E-06 U	5.20E-06 U	7.90E-06 U	1.20E-05 U

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 21

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	1/17/2018 CB2	1/17/2018 CB9	1/17/2018 RD1	1/17/2018 SW2	1/17/2018 SW3	1/17/2018 SW6	3/28/2014 SWP1	3/28/2014 SWP2	3/28/2014 SWP3	3/28/2014 SWP6	3/5/2013 SWP1	3/5/2013 SWP2	3/5/2013 SWP3	3/5/2013 SWP6	11/19/2012 SWP1	11/19/2012 SWP2	11/19/2012 SWP3	11/19/2012 SWP6
22'344'56'-HeptaCB-(182)				1.10E-04 U	4.20E-05 U	1.80E-05 U	1.80E-05 U	1.60E-05 U	8.50E-06 U	2.00E-06 U	3.20E-06 U	9.20E-06 U	1.15E-05 J	1.20E-06 U	2.60E-06 U	2.80E-06 U	1.40E-06 U	2.20E-06 U	1.30E-06 U	3.10E-06 U	5.40E-06 U
22'344'5'6-HeptaCB-(183)				1.40E-04 U	1.35E-04	1.90E-05 U	8.50E-05 J	2.30E-05 J	5.26E-04	1.18E-05 J	2.54E-05 J	2.80E-03	1.03E-03	4.53E-05 J	6.01E-05 J	1.75E-03	8.70E-05 J	4.35E-05 J	8.99E-05 J	3.15E-04	1.06E-03
22'344'66'-HeptaCB-(184)				7.80E-05 U	2.80E-05 U	1.20E-05 U	1.20E-05 U	1.10E-05 U	5.80E-06 U	1.50E-06 U	2.40E-06 U	6.80E-06 U	1.40E-06 U	8.30E-07 U	1.90E-06 U	2.00E-06 U	9.80E-07 U	1.60E-06 U	9.10E-07 U	2.20E-06 U	3.90E-06 U
22'3455'6-HeptaCB-(185)				1.90E-04 U	7.00E-05 U	2.50E-05 U	2.80E-05 U	2.60E-05 U	3.50E-05 U	3.60E-06 U	3.40E-06 U	1.10E-05 U	9.70E-06 U	5.90E-06 U	3.00E-06 U	1.70E-05 U	5.50E-06 U	5.40E-06 U	1.48E-05 J	5.39E-05 J	1.28E-04
22'34566'-HeptaCB-(186)				8.70E-05 U	3.20E-05 U	1.40E-05 U	1.40E-05 U	1.20E-05 U	6.40E-06 U	1.60E-06 U	2.60E-06 U	7.40E-06 U	1.60E-06 U	8.90E-07 U	2.00E-06 U	2.10E-06 U	1.00E-06 U	1.70E-06 U	9.70E-07 U	2.30E-06 U	4.20E-06 U
22'34'55'6-HeptaCB-(187)				1.90E-04 U	4.50E-04	3.70E-05 U	2.29E-04	8.70E-05 J	1.57E-03	2.40E-05 U	5.60E-05 J	6.50E-03	2.43E-03	9.52E-05 J	1.00E-04	2.71E-03	1.25E-04	1.11E-04	1.85E-04	6.15E-04	1.76E-03
22'34'566'-HeptaCB-(188)				7.90E-05 U	2.70E-05 U	1.20E-05 U	1.20E-05 U	1.10E-05 U	5.40E-06 U	2.00E-06 U	3.20E-06 U	9.10E-06 U	5.00E-06 J	1.30E-06 U	2.80E-06 U	3.00E-06 U	1.50E-06 U	2.60E-06 U	1.50E-06 U	3.60E-06 U	6.40E-06 U
233'44'55'-HeptaCB-(189)				5.20E-05 U	2.20E-05 U	7.90E-06 U	2.20E-05 U	7.00E-06 U	3.52E-05 J	2.40E-06 U	6.60E-06 U	1.88E-04	7.04E-05 J	2.90E-06 U	4.40E-06 U	1.05E-04	6.80E-06 U	1.10E-05 U	1.50E-05 U	2.80E-05 J	6.90E-05 J
233'44'56-HeptaCB-(190)				1.40E-04 U	5.00E-05 U	1.80E-05 U	2.90E-05 J	1.80E-05 U	1.77E-04	4.00E-06 J	8.70E-06 J	7.64E-04	2.73E-04	1.30E-05 U	1.66E-05 J	3.20E-04 U	2.61E-05 J	1.85E-05 J	3.18E-05 J	8.91E-05 J	2.93E-04
233'44'5'6-HeptaCB-(191)				1.30E-04 U	5.00E-05 U	1.80E-05 U	2.00E-05 U	1.80E-05 U	2.80E-05 U	2.20E-06 U	2.10E-06 U	1.61E-04	5.30E-05 U	3.90E-06 J	2.20E-06 U	4.80E-05 U	5.80E-06 U	4.10E-06 U	7.40E-06 U	2.13E-05 J	6.78E-05 J
233'455'6-HeptaCB-(192)				1.40E-04 U	5.50E-05 U	1.90E-05 U	2.20E-05 U	2.00E-05 U	2.70E-05 U	2.60E-06 U	2.40E-06 U	7.90E-06 U	6.90E-06 U	2.00E-06 U	2.30E-06 U	1.30E-05 U	4.20E-06 U	4.30E-06 U	4.40E-06 U	6.70E-06 U	1.00E-05 U
22'33'44'55'-OctaCB-(194)				1.90E-04 U	1.40E-04 U	2.70E-05 U	8.00E-05 J	2.70E-05 U	5.68E-04	1.40E-05 U	2.56E-05 J	3.02E-03	1.05E-03	4.35E-05 J	4.62E-05 J	1.82E-03	6.40E-05 U	5.30E-05 U	9.40E-05 J	3.51E-04	1.16E-03
22'33'44'56-OctaCB-(195)				2.10E-04 U	6.80E-05 U	2.90E-05 U	2.50E-05 U	2.90E-05 U	1.85E-04	5.20E-06 U	7.40E-06 U	9.44E-04	3.27E-04	1.55E-05 J	1.88E-05 J	5.70E-04	2.80E-05 J	2.00E-05 U	2.93E-05 J	9.20E-05 U	3.61E-04
22'33'44'56'-OctaCB-(196)				3.00E-04 U	1.10E-04 U	3.60E-05 U	5.80E-05 J	4.00E-05 U	3.66E-04	7.20E-06 J	1.45E-05 J	1.65E-03	5.57E-04	2.43E-05 J	2.27E-05 J	8.34E-04	3.50E-05 U	3.03E-05 J	4.60E-05 J	1.85E-04	5.35E-04
22'33'44'66'OctaCB-(197)				1.90E-04 U	4.80E-05 U	2.80E-05 U	3.30E-05 U	3.00E-05 U	1.90E-05 U	2.20E-06 U	4.70E-06 U	1.00E-04 U	3.60E-05 U	1.20E-06 U	3.20E-06 U	3.00E-05 U	5.40E-06 U	3.00E-06 U	3.20E-06 U	2.01E-05 J	3.30E-05 J
OctaCB-(198)+(199)				3.00E-04 U	2.71E-04	3.70E-05 U	1.37E-04 J	4.10E-05 U	9.09E-04	1.90E-05 U	3.57E-05 J	4.03E-03	1.39E-03	6.00E-05 J	5.92E-05 J	2.05E-03	8.91E-05 J	7.88E-05 J	1.38E-04 J	4.30E-04	1.31E-03
22'33'4566'-OctaCB-(200)				2.20E-04 U	3.90E-05 U	2.30E-05 U	2.70E-05 U	2.50E-05 U	9.40E-05 J	2.00E-06 U	4.40E-06 U	3.85E-04	1.37E-04	7.11E-06 J	5.20E-06 U	2.18E-04	8.10E-06 J	6.60E-06 J	1.34E-05 J	4.50E-05 U	1.45E-04
22'33'45'66'-OctaCB-(201)				2.00E-04 U	4.20E-05 U	2.40E-05 U	2.90E-05 U	2.70E-05 U	1.03E-04	2.00E-06 U	4.50E-06 U	4.52E-04	1.67E-04	7.30E-06 U	6.10E-06 J	2.54E-04	1.00E-05 J	1.08E-05 J	1.63E-05 J	5.95E-05 J	1.76E-04
22'33'55'66'-OctaCB-(202)				2.00E-04 U	3.90E-05 U	2.30E-05 U	2.70E-05 U	2.50E-05 U	1.58E-04	3.70E-06 U	7.20E-06 J	7.31E-04	2.62E-04	1.30E-05 U	1.56E-05 J	5.34E-04	2.40E-05 J	2.01E-05 J	4.56E-05 J	1.13E-04	3.78E-04
22'344'55'6-OctaCB-(203)				2.90E-04 U	1.83E-04	3.60E-05 U	9.60E-05	3.90E-05 U	5.70E-04	1.20E-05 U	2.46E-05 J	2.37E-03	8.21E-04	3.74E-05 J	3.00E-05 U	1.16E-03	5.22E-05 J	4.91E-05 J	9.03E-05 J	2.64E-04	7.68E-04
22'344'566'-OctaCB-(204)				2.00E-04 U	4.30E-05 U	2.50E-05 U	3.00E-05 U	2.70E-05 U	1.70E-05 U	2.10E-06 U	4.50E-06 U	6.40E-06 U	5.10E-06 U	1.00E-06 U	3.00E-06 U	6.30E-06 U	5.10E-06 U	2.50E-06 U	2.50E-06 U	6.60E-06 U	8.40E-06 U
233'44'55'6-OctaCB-(205)				1.70E-04 U	5.90E-05 U	2.50E-05 U	1.10E-05 U	2.50E-05 U	2.80E-05 U	3.80E-06 U	4.70E-06 U	1.51E-04	5.34E-05 J	1.80E-06 U	4.00E-06 U	8.90E-05 J	1.00E-05 U	5.10E-06 U	4.90E-06 U	1.00E-05 U	6.50E-05 U
22'33'44'55'6-NonaCB-(206)				2.90E-04 U	1.46E-04	1.50E-05 U	7.20E-05 J	2.30E-05 U	3.99E-04	1.15E-05 J	2.36E-05 J	2.00E-03	7.55E-04	4.90E-05 J	4.87E-05 J	1.30E-03	4.30E-05 U	6.60E-05 J	1.42E-04	2.83E-04	8.78E-04
22'33'44'566'-NonaCB-(207)				2.50E-04 U	4.00E-05 U	1.30E-05 U	2.40E-05 U	2.00E-05 U	5.68E-05 J	4.10E-06 U	5.70E-06 U	2.25E-04	8.54E-05 J	4.90E-06 U	6.40E-06 U	1.51E-04	1.30E-05 U	8.30E-06 U	1.48E-05 J	3.80E-05 J	1.05E-04
22'33'455'66'-NonaCB-(208)				2.80E-04 U	4.60E-05 U	1.50E-05 U	2.70E-05 U	2.30E-05 U	9.74E-05	5.00E-06 U	7.00E-06 U	4.55E-04	1.67E-04	1.00E-05 J	1.20E-05 U	3.26E-04	1.80E-05 U	1.10E-05 U	4.46E-05 J	7.40E-05 J	2.32E-04
DecaCB-(209)				1.20E-04 U	7.10E-05 U	2.40E-05 U	2.60E-05 U	3.50E-05 U	8.60E-05 U	5.40E-06 U	8.10E-06 J	3.59E-04	1.41E-04	1.00E-05 U	1.20E-05 U	2.04E-04	1.30E-05 U	1.30E-05 U	3.20E-05 U	6.94E-05 J	1.82E-04
PCB Homologs (ug/l)																					
Monochlorobiphenyl				3.60E-05	6.20E-05	3.90E-05	2.68E-05	6.40E-06 U	3.23E-05	3.30E-06 U	3.40E-06 U	6.15E-05	2.70E-06	1.56E-05	8.60E-06	6.20E-06 U	1.10E-06 U	1.92E-05	4.84E-05	1.50E-06 U	4.67E-05
Dichlorobiphenyl				1.20E-03 U	1.26E-03	7.05E-04	1.28E-03	7.50E-05	1.12E-03	1.41E-04	9.78E-04	2.88E-03	9.65E-04	3.80E-04	8.66E-04	2.74E-03	8.62E-04	3.22E-04	1.07E-03	4.86E-04	1.42E-03
Trichlorobiphenyl				1.81E-03	3.98E-03	1.69E-03	3.70E-03	2.45E-04	3.78E-03	5.62E-04	2.29E-03	1.52E-02	4.99E-03	1.69E-03	3.77E-03	1.16E-02	4.12E-03	8.09E-04	3.21E-03	1.64E-03	6.24E-03
Tetrachlorobiphenyl				1.56E-03	4.85E-03	1.95E-03	4.07E-03	4.68E-04	7.78E-03	6.89E-04	1.96E-03	4.03E-02	1.30E-02	2.11E-03	4.17E-03	3.11E-02	5.27E-03	1.60E-03	4.03E-03	4.51E-03	1.73E-02
Pentachlorobiphenyl				2.33E-03	7.32E-03	1.74E-03	3.98E-03	1.07E-03	2.06E-02	8.00E-04	1.31E-03	9.83E-02	3.40E-02	2.42E-03	3.38E-03	5.51E-02	4.16E-03	3.66E-03	4.86E-03	1.15E-02	3.80E-02
Hexachlorobiphenyl				2.30E-04 U	6.04E-03	5.27E-04	2.97E-03	9.95E-04	1.99E-02	6.06E-04	1.17E-03	9.45E-02	3.70E-02	2.25E-03	2.70E-03	5.43E-02	3.39E-03	2.71E-03	3.94E-03	1.02E-02	3.35E-02
Heptachlorobiphenyl				3.40E-04	2.22E-03	8.10E-05	1.27E-03	3.38E-04	7.79E-03	1.12E-04	3.58E-04	3.87E-02	1.40E-02	6.55E-04	7.39E-04	2.02E-02	9.76E-04	7.73E-04	1.33E-03	4.43E-03	1.37E-02
Octachlorobiphenyl				3.00E-04 U	4.54E-04	3.70E-05 U	3.71E-04	4.10E-05 U	2.95E-03	7.20E-06	1.08E-04	1.37E-02	4.76E-03	1.88E-04	1.69E-04	7.53E-03	2.11E-04	1.96E-04	4.73E-04	1.42E-03	4.86E-03
Nonachlorobiphenyl				2.90E-04 U	1.46E-04	1.50E-05 U	7.20E-05	2.30E-05 U	5.54E-04	1.15E-05	2.36E-05	2.68E-03	1.01E-03	5.90E-05	4.87E-05	1.77E-03	1.70E-05 U	6.60E-05	2.01E-04	3.95E-04	1.21E-03
Decachlorobiphenyl				1.20E-04 U	7.10E-05 U	2.40E-05 U	6.70E-06 U	3.50E-05 U	1.00E-05 U	5.40E-06 U	8.10E-06	3.59E-04	1.41E-04	5.50E-06 U	7.90E-06 U	2.04E-04	1.30E-05 U	3.30E-06	3.10E-06	6.94E-05	1.82E-04
Total Detected PCBs (Method 1668)	6.40E-05	6.40E-06	3.00E-01	6.16E-03	2.63E-02	6.73E-03	1.77E-02	3.19E-03	6.45E-02	2.93E-03	8.21E-03	3.07E-01	1.10E-01	9.77E-03	1.58E-02	1.84E-01	1.90E-02	1.02E-02	1.92E-02	3.47E-02	1.16E-01
Phthalates (ug/l)																					
Bis(2-ethylhexyl) phthalate	2.2	0.2	5	3.8 J	4.4	0.30 J	1.2 J	0.21 U	1.0 J	5.3	1.7	2.2	2.9	4.4 U	4.6 U	5.7 U	4.3 U	1.0 U	4.1 U	4.2 U	10 U
Butylbenzyl phthalate	3			1.9 U	0.94 U	0.19 U	0.95 U	0.21 U	0.77 U	0.49 U	0.49 U	0.97 U	1.2 U	6.0 U	6.3 U	7.8 U	5.8 U	1.4 U	5.6 U	5.8 U	14 U
Dibutyl phthalate	3			1.9 U	0.94 U	0.19 U	0.95 U	0.21 U	0.77 U	0.49 U	0.49 U	0.97 U	1.2 U	6.0 U	6.3 U	7.8 U	5.8 U	1.4 U	5.6 U	5.8 U	14 U
Diethyl phthalate	3			1.9 U	0.94 U	0.19 U	0.95 U	0.21 U	0.77 U	0.49 U	0.49 U	0.97 U	1.2 U	6.0 U	6.3 U	7.8 U	5.8 U	1.4 U	5.6 U	5.8 U	14 U
Dimethyl phthalate	3			1.9 U	0.94 U	0.31 J	1.2 J	0.55	2.0	0.49 U	0.49 U	0.97 U	1.2 U	6.0 U	6.3 U	7.8 U	5.8 U	1.4 U	5.6 U	5.8 U	14 U
Di-n-octyl phthalate	3			1.9 U	0.94 U	0.19 U	0.95 U	0.21 U	0.77 U	0.49 U	0.49 U	0.97 U	1.2 U	6.0 U	6.3 U	7.8 U	5.8 U	1.4 U	5.6 U	5.8 U	14 U
Pesticides (ug/l)																					
2,4'-DDD	3.10E-04	3.10E-05								9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
2,4'-DDE	2.20E-04	1.80E-05								9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	7.01E-02 J,	1.94E-02 U	4.67E-02 U
2,4'-DDT	2.00E-01	2.20E-05								9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
4,4'-DDD	3.10E-04	3.10E-05								9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
4,4'-DDE	2.20E-04	1.80E-05								9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
4,4'-DDT	2.20E-04	2.20E-05								9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Total DDx		1.00E-02																			
Aldrin	5.00E-05	7.70E-07								9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
alpha-BHC	4.90E-03									9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
beta-BHC	1.70E-02									9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-01 U	4.67E-02 U
Chlordane technical		8.10E-05								9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-01 U	2.04E-01 U	2.15E-01 U	1.98E-01 U	1.87E-01 U	4.67E-02 U	1.94E-02 U	4.67E-01 U
cis-Chlordane	8.10E-04	8.10E-05								9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-01 U	1.94E-02 U	4.67E-02 U
cis-Nonachlor	1.90E-01									3.62E-01 U	3.58E-01 U	3.72E-01 U	3.65E-01 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
delta-BHC	5.20E-02									9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Dieldrin	5.40E-05									9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Endosulfan I	5.10E-02									9.62E-03 U	1.81E-01 U	1.49E-01 U	9.71E-02 U	1.98E-02 U	2.99E-01	1.21E-01	2.69E-01	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Endosulfan II	5.10E-02									9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Endosulfan sulfate	8.90E+01									9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Endrin	3.60E-02									9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Endrin aldehyde										9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Endrin ketone										9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
gamma-BHC (Lindane)	3.70E-02									9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Heptachlor	7.90E-05									9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Heptachlor epoxide	3.90E-05									9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Hexachlorobenzene	2.90E-04	2.90E-05								2.88E-02 U	2.86E-02 U	2.97E-02 U	2.91E-02 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Hexachlorobutadiene	8.60E-01									9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Hexachloroethane	3.30E+00																				
Methoxychlor	3.00E-02									2.88E-02 U	2.86E-02 U	2.97E-02 U	2.91E-02 U	7.92E-02 U	8.16E-02 U	8.60E-02 U	7.92E-02 U	7.48E-02 U	1.87E-01 U	7.77E-02 U	1.87E-01 U
Mirex										9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Oxychlordane	1.90E-01	8.10E-05								9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Toxaphene	2.00E-04									3.62E-01 U	3.58E-01 U	3.72E-01 U	3.65E-01 U	1.98E-01 U	2.04E-01 U	2.15E-01 U	1.98E-01 U	1.87E-01 U	4.67E-01 U	1.94E-01 U	4.67E-01 U
trans-Chlordane	8.10E-04	8.10E-05								9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
trans-Nonachlor	1.90E-01									9.62E-03 U	9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Dioxins (ug/l)																					
1,2,3,4,6,7,8-HeptaCDD				3.46E-05 J	3.37E-05 J	3.25E-05 J	2.43E-05 J	3.10E-06 J	3.04E-05 J	9.00E-06 J	2.97E-05 J	7.23E-04	3.30E-04	1.22E-05 J	1.87E-05 J	1.07E-04	2.26E-05 J	2.05E-05 J	9.90E-05	5.50E-05	1.43E-04
1,2,3,4,6,7,8-HeptaCDF				7.20E-06 U	9.00E-06 U	7.80E-06 U	5.90E-06 U	1.10E-06 U	6.00E-06 U	4.10E-06 U	7.10E-06 U	9.10E-05 U	4.40E-05 U	2.50E-06 U	3.50E-06 U	1.50E-05 U	4.50E-06 U	5.65E-06 J	1.30E-05 U	1.20E-05 U	2.00E-05 U
1,2,3,4,7,8,9-HeptaCDF				1.20E-06 U	1.70E-06 U	1.30E-06 U	1.40E-06 U	1.30E-06 U	1.40E-06 U	1.30E-06 U	1.40E-06 U	8.90E-06 J	3.20E-06 U	1.00E-06 U	1.20E-06 U	1.70E-06 J	1.00E-06 U	1.20E-06 U	1.10E-06 U	1.30E-06 J	2.10E-06 J

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 21

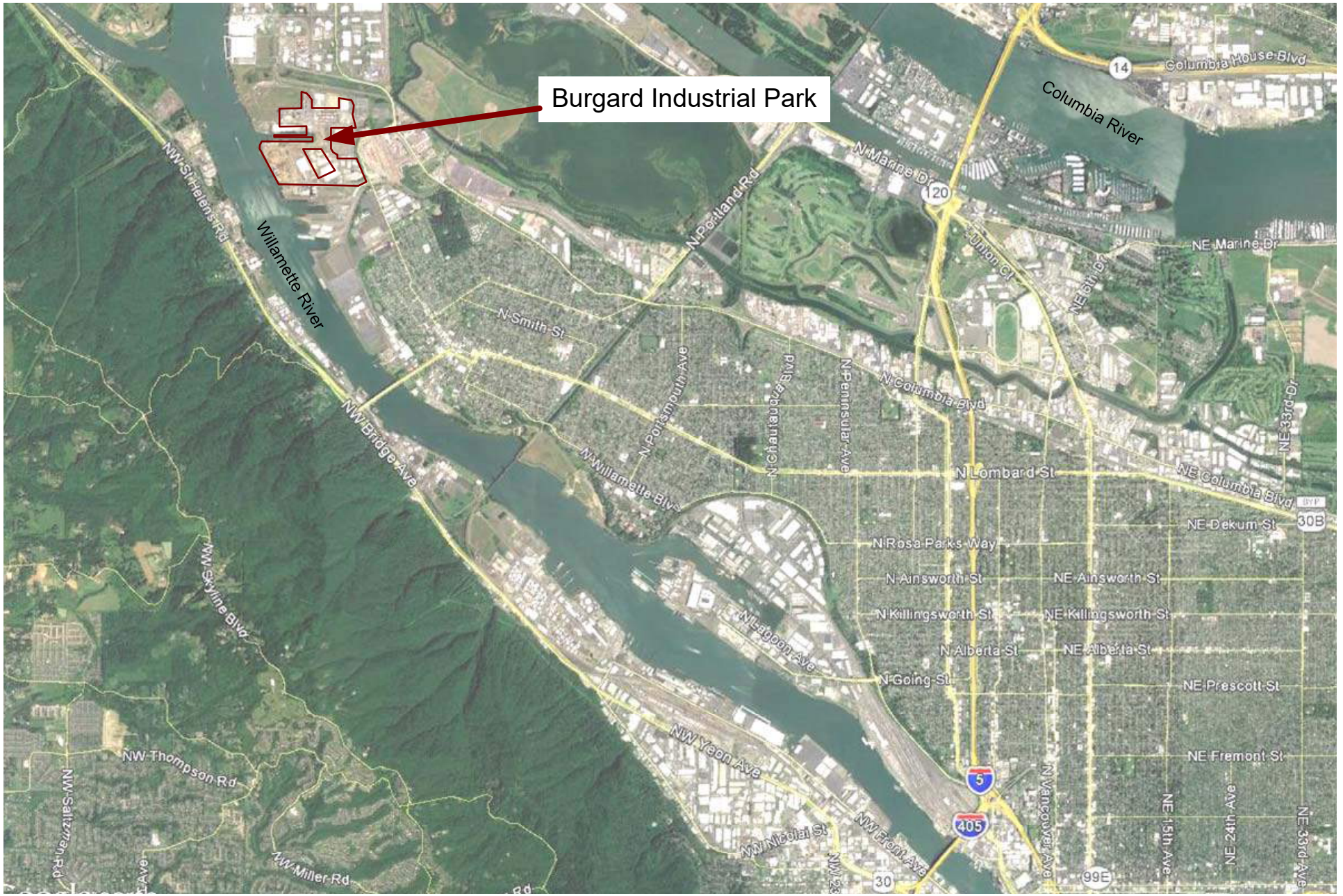
Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	1/17/2018 CB2	1/17/2018 CB9	1/17/2018 RD1	1/17/2018 SW2	1/17/2018 SW3	1/17/2018 SW6	3/28/2014 SWP1	3/28/2014 SWP2	3/28/2014 SWP3	3/28/2014 SWP6	3/5/2013 SWP1	3/5/2013 SWP2	3/5/2013 SWP3	3/5/2013 SWP6	11/19/2012 SWP1	11/19/2012 SWP2	11/19/2012 SWP3	11/19/2012 SWP6
1,2,3,4,7,8-HexaCDD				1.00E-06 U	1.20E-06 U	1.00E-06 U	9.80E-07 U	1.30E-06 U	1.10E-06 U	1.20E-06 U	1.40E-06 U	4.90E-06 U	2.90E-06 J	1.00E-06 U	1.10E-06 U	1.30E-06 J	1.00E-06 U	1.10E-06 U	1.30E-06 J	1.10E-06 U	2.30E-06 J
1,2,3,4,7,8-HexaCDF				9.90E-07 U	9.50E-07 U	9.20E-07 U	9.60E-07 U	1.10E-06 U	1.00E-06 U	1.20E-06 U	1.30E-06 U	1.11E-05 J	5.60E-06 J	9.40E-07 U	7.80E-07 U	2.16E-06 J	9.00E-07 J	9.00E-07 U	1.02E-06 J	1.09E-06 J	3.00E-06 J
1,2,3,6,7,8-HexaCDD				1.80E-06 J	1.50E-06 J	1.20E-06 J	9.90E-07 U	1.30E-06 U	1.70E-06 J	1.20E-06 U	1.90E-06 J	2.71E-05 J	1.28E-05 J	8.20E-07 U	1.00E-06 J	4.15E-06 J	1.11E-06 J	1.10E-06 J	3.96E-06 J	2.10E-06 J	6.02E-06 J
1,2,3,6,7,8-HexaCDF				9.90E-07 U	9.50E-07 U	9.20E-07 U	9.60E-07 U	1.10E-06 U	1.00E-06 U	1.10E-06 U	1.20E-06 U	5.30E-06 J	2.90E-06 J	8.70E-07 U	7.30E-07 U	1.12E-06 J	7.70E-07 U	8.90E-07 U	8.90E-07 U	9.90E-07 U	1.90E-06 J
1,2,3,7,8,9-HexaCDD				1.84E-06 J	2.00E-06 J	1.20E-06 J	9.70E-07 U	1.30E-06 U	1.90E-06 J	1.10E-06 U	1.30E-06 U	2.29E-05 J	1.30E-05 J	1.22E-06 J	1.13E-06 J	3.73E-06 J	1.15E-06 J	1.10E-06 J	3.10E-06 J	2.00E-06 J	4.82E-06 J
1,2,3,7,8,9-HexaCDF				1.10E-06 U	1.10E-06 U	1.00E-06 U	1.10E-06 U	1.20E-06 U	1.10E-06 U	1.30E-06 U	1.50E-06 U	1.30E-06 U	1.40E-06 U	1.20E-06 U	9.60E-07 U	1.20E-06 U	1.00E-06 U	1.10E-06 U	1.10E-06 U	1.20E-06 U	1.30E-06 U
1,2,3,7,8-PentaCDD				1.00E-06 U	1.10E-06 U	1.10E-06 U	1.30E-06 U	9.60E-07 U	1.10E-06 U	1.80E-06 U	1.80E-06 U	2.70E-06 U	1.80E-06 U	1.00E-06 U	1.00E-06 U	9.90E-07 U	8.90E-07 U	9.50E-07 U	1.10E-06 U	1.10E-06 U	1.30E-06 J
1,2,3,7,8-PentaCDF				1.00E-06 U	1.10E-06 U	1.20E-06 U	1.10E-06 U	8.50E-07 U	1.00E-06 U	1.20E-06 U	1.50E-06 U	1.10E-06 U	1.20E-06 U	9.40E-07 U	1.00E-06 U	1.00E-06 U	1.00E-06 U	9.70E-07 U	1.00E-06 U	9.40E-07 U	9.40E-07 U
2,3,4,6,7,8-HexaCDF				1.00E-06 U	9.90E-07 U	9.50E-07 U	1.00E-06 U	1.10E-06 U	1.00E-06 U	1.20E-06 U	1.30E-06 U	4.90E-06 J	2.00E-06 U	1.00E-06 U	8.60E-07 U	1.10E-06 U	9.10E-07 U	9.80E-07 U	9.80E-07 U	1.10E-06 U	1.60E-06 J
2,3,4,7,8-PentaCDF				1.00E-06 U	1.10E-06 U	1.20E-06 U	1.10E-06 U	8.40E-07 U	1.00E-06 U	1.20E-06 U	1.60E-06 U	5.00E-06 U	2.30E-06 U	1.10E-06 U	1.10E-06 J	1.90E-06 J	1.10E-06 U	9.80E-07 U	1.00E-06 U	9.50E-07 U	1.30E-06 U
2,3,7,8-TetraCDD	5.10E-09			1.30E-06 U	1.10E-06 U	8.80E-07 U	1.10E-06 U	8.80E-07 U	1.10E-06 U	1.20E-06 U	1.40E-06 U	1.10E-06 U	1.20E-06 U	1.00E-06 U	1.00E-06 U	1.00E-06 U	1.10E-06 U	1.00E-06 U	1.00E-06 U	1.00E-06 U	1.60E-06 U
2,3,7,8-TetraCDF				1.10E-06 U	1.10E-06 U	8.90E-07 U	1.10E-06 U	1.00E-06 U	1.20E-06 J	1.20E-06 U	1.30E-06 U	9.70E-06 J	3.90E-06 U	1.00E-06 U	8.90E-07 U	1.82E-06 J	1.00E-06 U	9.20E-07 U	9.10E-07 U	9.90E-07 J	2.58E-06 J
OCDD				3.01E-04	2.25E-04	1.93E-04	1.91E-04	2.50E-05 J	2.38E-04	5.83E-05 J	2.08E-04	6.56E-03	3.28E-03	5.42E-05 J	1.22E-04	1.12E-03	1.61E-04	1.66E-04	8.45E-04	6.01E-04	1.37E-03
OCDF				2.49E-05 J	2.34E-05 J	3.19E-05 J	1.52E-05 J	2.59E-06 J	1.73E-05 J	7.20E-06 J	1.63E-05 J	3.39E-04	1.29E-04	5.50E-06 J	9.90E-06 J	4.70E-05 J	1.13E-05 J	2.82E-05 J	3.93E-05 J	7.78E-05 J	7.31E-05 J
HeptaCDD homologs				6.89E-05	6.79E-05	5.86E-05	5.32E-05	6.20E-06 J	6.36E-05	1.69E-05 J	5.37E-05 J	1.58E-03	7.24E-04	2.71E-05 J	3.83E-05 J	2.39E-04	4.55E-05 J	3.65E-05 J	3.72E-04	1.08E-04	3.80E-04
HeptaCDF homologs				1.13E-05 J	1.26E-05 J	1.38E-05 J	8.50E-06 J	1.20E-06 U	9.00E-06 J	3.40E-06 J	8.70E-06 J	1.92E-04	7.84E-05	1.97E-06 J	4.90E-06 J	2.82E-05 J	6.13E-06 J	1.73E-05 J	2.56E-05 J	3.29E-05 J	4.14E-05 J
HexaCDD homologs				1.17E-05 J	1.16E-05 J	7.80E-06 J	6.44E-06 J	1.30E-06 U	1.16E-05 J	1.70E-05 U	7.70E-06 J	2.18E-04	1.04E-04	6.58E-06 J	7.65E-06 J	4.10E-05 J	8.46E-06 J	6.10E-06 J	4.34E-05 J	1.59E-05 J	6.00E-05
HexaCDF homologs				7.90E-06 J	1.55E-05 J	5.16E-06 J	4.50E-06 J	1.10E-06 U	7.40E-06 J	1.20E-06 U	4.90E-06 J	1.50E-04	7.18E-05	1.22E-06 J	3.70E-06 J	2.69E-05 J	5.29E-06 J	3.68E-06 J	1.86E-05 J	1.46E-05 J	3.71E-05 J
PentaCDD homologs				1.00E-06 U	1.10E-06 U	1.10E-06 U	1.30E-06 U	9.60E-07 U	1.10E-06 U	1.80E-06 U	2.20E-06 U	1.18E-05 J	2.90E-06 J	1.00E-06 U	1.00E-06 U	1.30E-06 U	8.90E-07 U	9.50E-07 U	1.80E-05 U	1.10E-06 U	2.50E-06 J
PentaCDF homologs				4.30E-06 J	6.50E-06 J	1.20E-06 U	1.10E-06 U	8.50E-07 U	1.20E-06 J	3.40E-06 U	2.40E-06 U	5.92E-05	4.09E-05 J	1.10E-06 U	2.20E-06 J	1.85E-05 J	1.10E-06 U	9.80E-07 U	5.40E-06 J	6.44E-06 J	1.64E-05 J
TetraCDD homologs				1.30E-06 U	1.10E-06 U	8.80E-07 U	1.10E-06 U	8.80E-07 U	1.10E-06 U	6.90E-06 U	1.40E-06 U	3.60E-06 U	1.70E-06 U	1.00E-06 U	1.00E-06 U	1.00E-06 U	1.10E-06 U	1.00E-06 U	1.00E-06 U	1.00E-06 U	1.60E-06 U
TetraCDF homologs				1.20E-06 J	1.10E-06 U	8.90E-07 U	1.10E-06 U	1.00E-06 U	1.20E-06 J	1.20E-06 U	1.30E-06 U	5.43E-05	1.11E-05 J	2.10E-06 J	8.90E-07 U	8.06E-06 J	1.00E-06 U	9.20E-07 U	9.10E-07 U	1.96E-06 J	8.19E-06 J
Total Dioxin TEQ (ND=DL/2)	5.10E-09	5.00E-10		2.47E-06	2.41E-06	2.15E-06	2.13E-06	1.58E-06	2.42E-06	2.31E-06	2.92E-06	2.09E-05	1.05E-05	1.80E-06	2.07E-06	4.64E-06	2.03E-06	1.98E-06	3.67E-06	2.87E-06	6.58E-06
Total Dioxin TEQ (ND=0)	5.10E-09	5.00E-10		8.08E-07	7.62E-07	6.32E-07	3.05E-07	3.93E-08	8.61E-07	1.10E-07	5.54E-07	1.75E-05	8.04E-06	2.62E-07	7.70E-07	3.44E-06	5.94E-07	5.40E-07	2.19E-06	1.38E-06	5.41E-06
Butyltins (ug/l)																					
Butyltin				2.30E-03 U	2.30E-03 U	1.10E-01	2.30E-03 U	2.30E-03 U	2.40E-03 U	2.00E-01 U	2.00E-01 U	2.00E-01 U	2.00E-01 U	1.10E-01 U	1.10E-01 U	1.10E-01 U	1.10E-01 U	1.10E-01 U	1.10E-01 U	1.10E-01 U	1.10E-01 U
Dibutyltin				1.70E-03 U	1.70E-03 U	1.70E-03 U	1.80E-03 U	1.80E-03 U	1.80E-03 U	2.90E-01 U	2.90E-01 U	2.90E-01 U	2.90E-01 U	9.60E-02 U	9.60E-02 U	9.60E-02 U	9.60E-02 U	6.90E-02 U	9.60E-02 U	9.60E-02 U	9.60E-02 U
Tributyltin	7.20E-02	6.30E-02		1.30E-03 U	1.30E-03 U	2.90E-03 U	1.30E-03 U	1.30E-03 U	1.40E-03 U	1.90E-01 U	1.90E-01 U	1.90E-01 U	1.90E-01 U	4.30E-02 U	4.30E-02 U	4.30E-02 U	4.30E-02 U	4.30E-02 U	4.30E-02 U	4.30E-02 U	4.30E-02 U
Tetrabutyltin				1.90E-03 U	1.90E-03 U	2.90E-03 U	1.90E-03 U	1.90E-03 U	1.90E-03 U												
Total Metals (ug/l)																					
Aluminum				660	1470	89.3	5090	244	2420	83	3000	34200	19200	155	4670	13800	5620	269	4520	3540	10900
Antimony	6			0.50 U	0.50 U	0.50 U	0.50 U	0.86 J	0.50 U	1.0 U	1.0 U	2.3 U	2.3 U	0.50 U	0.50 U	1.3	0.51 J	0.50 U	0.50 U	0.50 U	0.52 J
Arsenic	0.045	0.018	2	0.50 U	0.50 U	0.50 U	0.94 J	0.92 J	1.1	0.52 J	0.54 J	3.4	2.0 J	1.4 J	0.87 J	2.1	1.0 J	0.50 U	0.80 J	0.80 J	1.3 J
Cadmium	0.094		0.7	0.18 J	0.25	0.056 J	0.24	0.13 J	0.18 J	0.056 J	0.21	1.8	0.90	0.50 U	0.50 U	1.6	0.54 J	0.50 U	0.50 U	0.50 U	0.68 J
Chromium	100	100	10	6.2	9.4	1.0 J	7.4	2.8	9.3	0.54 J	5.4	296	230	0.92 J	7.3	83	18	2.1	23	28	128
Copper	2.7	2.74	60	9.1	19	5.1	13	4.9	11	9.1	6.6	128	67	5.1	10	60	16	3.4	13	27	41
Lead	0.54		50	3.7	5.5	1.0	6.0	0.94	6.7	1.0	4.7	93	55	1.7	6.6	42	10	4.3	12	8.6	29
Manganese	50			111	114	9.0	301	18	311	72	155	3240	2470	211	345	1090	459	30	235	332	1390
Mercury	0.77		0.2	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.090 U	0.090 U	0.040 U	0.040 U	0.051 J	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Nickel	16		8	6.6	4.3	0.54 J	3.7	0.87 J	2.6	0.50 U	2.0	24	13	0.92 J	3.0	11	3.6	0.82 J	3.0	2.6	7.1
Silver	0.12		0.1	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.23 J	0.23 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Zinc	36	36.5	700	95	137	30	155	19	106	29	77	594	367	50	131	290	148	37	92	74	211
Dissolved Metals (ug/l)																					
Aluminum										25 U	73	46 J	59	25 U	25 U	30 J	25 U	25 U	53	84	427
Antimony	6									0.50 U	0.50 U	0.97 J	0.50 U	0.50 U	0.50 U	1.2	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Arsenic	0.045	0.018	2							0.50 U	0.50 U	0.63 J	0.50 U	0.62 J	0.64 J	1.1 J	0.56 J	0.50 U	0.50 U	0.53 J	0.61 J
Cadmium	0.094		0.7							0.040 U	0.044 J	0.29	0.044 J	0.50 U	0.50 U	0.54 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chromium	100	100	10							0.50 U	0.70 J	1.8	1.0	0.50 U	0.50 U	1.4 J	0.50 U	0.50 U	2.0	0.94 J	3.2
Copper	2.7	2.74	60							1.7	1.4	6.6	2.0	3.3	2.3	12	3.2	1.3 J	2.0	6.5	3.7
Lead	0.54		50							0.10 U	0.22	0.54	0.20	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	1.1
Manganese	50									54	72	27	24	70	228	50	223	0.50 U	4.5	6.5	32
Mercury	0.77		0.2							0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.04 U	0.04 U	0.040 U	0.040 U
Nickel	16		8							0.90 J	1.6	1.0	0.50 U	0.50 U	0.82 J	3.3	1.1 J	0.50 U	0.70 J	0.82 J	0.63 J
Silver	0.12		0.1							0.10 U	0.10 U	0.10 U	0.10 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Zinc	36	36.5	700							23	23	16	4.5	32	50	32	36	4.3	2.4 J	3.2 J	8.0
Pertroleum Hydrocarbons (mg/l)																					
Gasoline				0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.094 U	0.094 U	0.050 U	0.050 U
Diesel				0.094 U	0.094 U	0.094 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.47 U	0.10 U	0.11 U	0.10 U	0.10 U	0.094 U	0.15 J	0.34 J	0.67
Oil				1.1	0.60	0.19 U	0.23 J	0.20 U	0.19 U	0.44	0.85	7.9	6.4	0.56	0.68	8.8	0.87	0.22 J	1.0	2.9	8.6
TSS (mg/l)			70	49	80	11	258	11	96	5.0 U	88	1000	802	12	105	245	152	9.0	262	74	520
TOC (mg/l)				3.0	1.9	5.6	3.3	3.2	2.7	1.0 U	2.8	7.1	3.8	4.2	5.9	5.4	5.2	4.5	9.9	7.8	17

U - Not detectet at noted detection limit
J- Estimated value
Blank cells indicate not analyzed

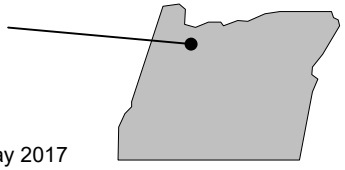
1 - Table 3-1 PH JSCS Guidance, 7/16/2007 revision
2 - Table 17 January 2017 PH ROD. Surface Water Cleanup Level.
3 - October 2010, DEQ Guidance for Evaluating Stormwater Pathway at Upland Sites, Appendix E, Tool For Evaluating Stormwater Data (12/2015 update)

Detected concentration > 10 x SLV (CL or JSCS if no CL)
Detected concentration > 100 x SLV (CL or JSCS if no CL)
Detected concentration > 1000 x SLV (CL or JSCS if no CL)

Figures



Portland, Oregon



Base photograph May 2017

N

Approximate Scale

5000 feet

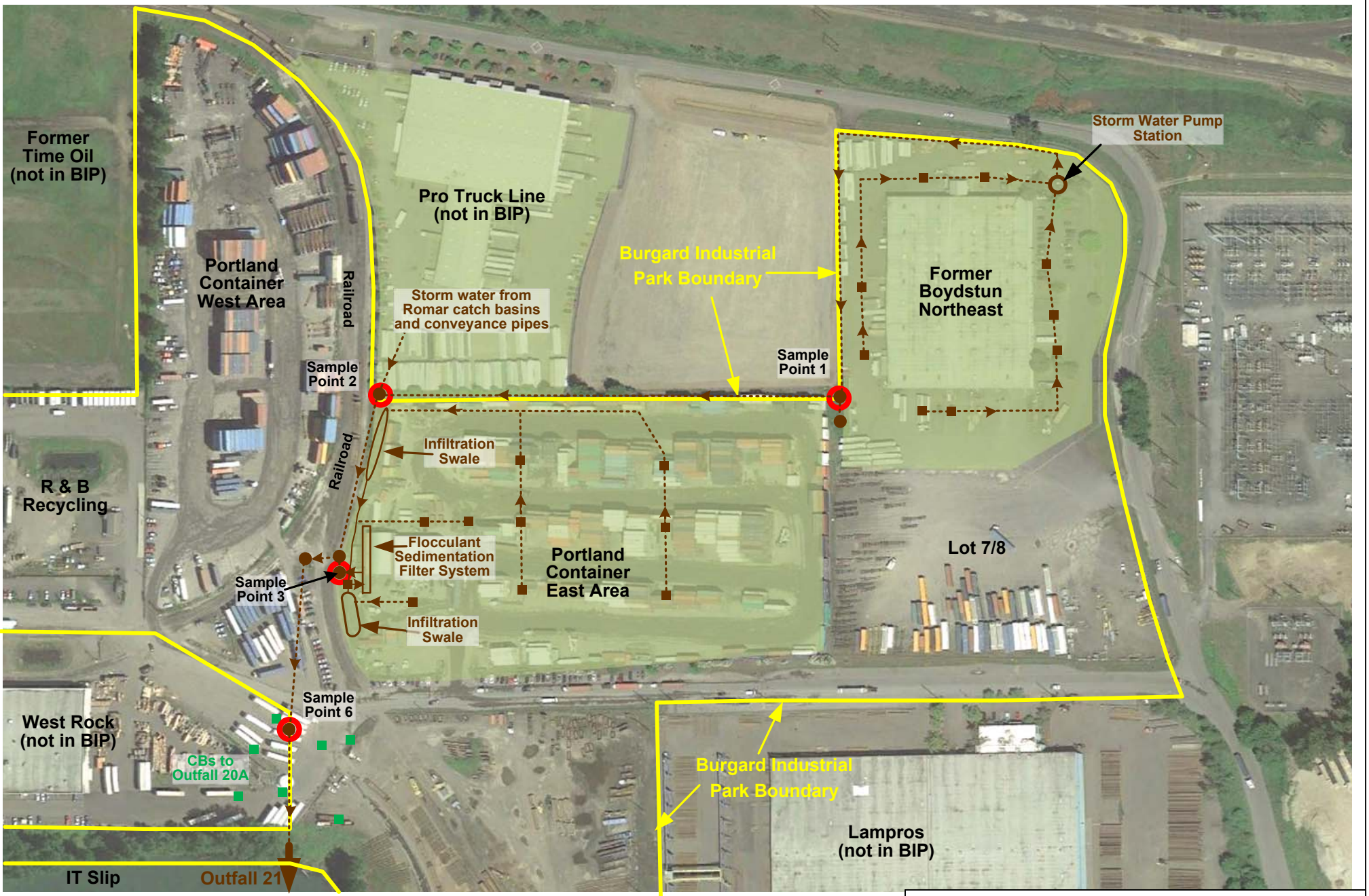
Figure 1
Site Location Map
Burgard Industrial Park
Portland, OR

RIEKE CONSULTING SERVICES, LLC

Base photograph May 2017

Figure 2
Site Plan
Burgard Industrial Park
Portland, Oregon

RIEKE CONSULTING SERVICES, LLC



Baes photograph May 2017

N

Approximate Scale

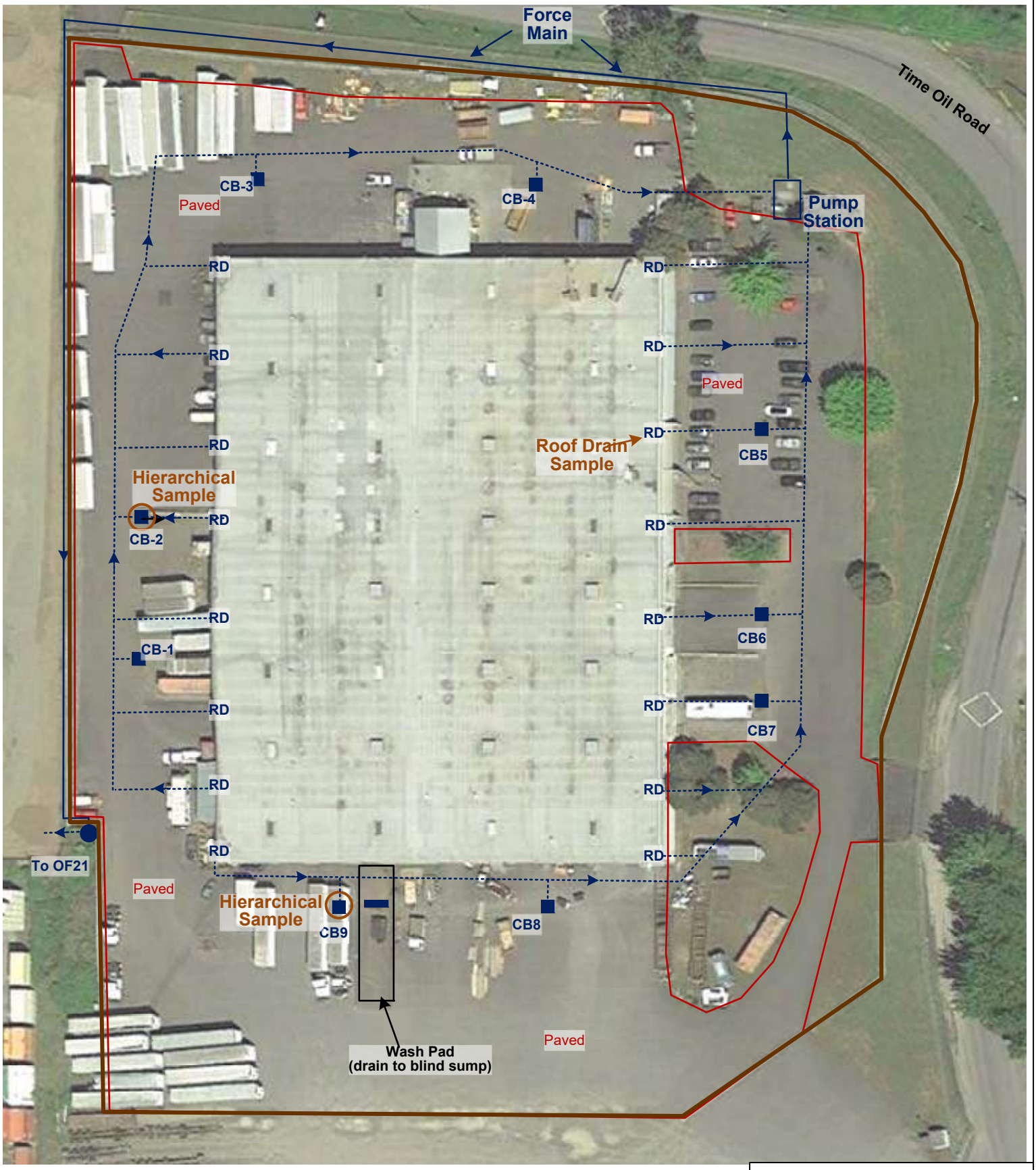
250 feet

- Catch Basin
- Manhole
- Storm Water Basin 21
- Storm Water Sample Location

Figure 3

Site Plan and Storm Water Sample Locations
Basin 21
Burgard Industrial Park

RIEKE CONSULTING SERVICES, LLC



N

Approximate Scale

80 feet

Site Drainage Area

Impervious Surface

Catch Basin

Manhole

RD Roof Drain

Figure 4
Site Plan and Storm Water Sample Locations
Former Boydstun NE Area
Burgard Industrial Park
Portland, OR

RIEKE CONSULTING SERVICES, LLC

Appendix A – Analytical Laboratory Reports

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Friday, March 16, 2018

Ross Rieke
Rieke Consulting Services, LLC
10457 SW Lady Marion Drive
Tigard, OR 97224

RE: Schnitzer Steel-Burgard / 8001-20

Enclosed are the results of analyses for work order A8A0548, which was received by the laboratory on 1/18/2018 at 1:07:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories

Philip Nerenberg, Lab Director

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Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B21-SW2-01172018	A8A0548-02	Water	01/17/18 17:30	01/18/18 13:07
B21-SW3-01182018	A8A0548-03	Water	01/18/18 09:15	01/18/18 13:07
B21-SW6-01172018	A8A0548-04	Water	01/17/18 18:00	01/18/18 13:07
B21-CB2-01172018	A8A0548-05	Water	01/17/18 16:15	01/18/18 13:07
B21-CB9-01172018	A8A0548-06	Water	01/17/18 16:50	01/18/18 13:07
B21-RD1-01172018	A8A0548-07	Water	01/17/18 16:20	01/18/18 13:07

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Philip Nerenberg

Philip Nerenberg, Lab Director

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-SW2-01172018 (A8A0548-02)			**Matrix: Water**		**Batch: 8010950**			
Diesel	ND	0.0980	0.196	mg/L	1	01/23/18 23:22	NWTPH-Dx	
Oil	**0.226**	0.196	0.392	"	"	"	"	J
Surrogate: o-Terphenyl (Surr)			*Recovery: 98 %*	*Limits: 50-150 %*	"	"	"	
B21-SW3-01182018 (A8A0548-03)			**Matrix: Water**		**Batch: 8010950**			
Diesel	ND	0.100	0.200	mg/L	1	01/23/18 23:45	NWTPH-Dx	
Oil	ND	0.200	0.400	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 95 %*	*Limits: 50-150 %*	"	"	"	
B21-SW6-01172018 (A8A0548-04)			**Matrix: Water**		**Batch: 8010950**			
Diesel	ND	0.0971	0.194	mg/L	1	01/24/18 00:08	NWTPH-Dx	
Oil	ND	0.194	0.388	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 96 %*	*Limits: 50-150 %*	"	"	"	
B21-CB2-01172018 (A8A0548-05RE1)			**Matrix: Water**		**Batch: 8010950**			
Diesel	ND	0.0935	0.187	mg/L	1	01/24/18 12:32	NWTPH-Dx	
Oil	**1.14**	0.187	0.374	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 94 %*	*Limits: 50-150 %*	"	"	"	
B21-CB9-01172018 (A8A0548-06)			**Matrix: Water**		**Batch: 8010950**			
Diesel	ND	0.0943	0.189	mg/L	1	01/24/18 01:17	NWTPH-Dx	
Oil	**0.602**	0.189	0.377	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 102 %*	*Limits: 50-150 %*	"	"	"	
B21-RD1-01172018 (A8A0548-07)			**Matrix: Water**		**Batch: 8010950**			
Diesel	ND	0.0943	0.189	mg/L	1	01/24/18 01:40	NWTPH-Dx	
Oil	ND	0.189	0.377	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 98 %*	*Limits: 50-150 %*	"	"	"	

Apex Laboratories

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Philip Nerenberg, Lab Director

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-SW2-01172018 (A8A0548-02)			**Matrix: Water**		**Batch: 8010835**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	01/18/18 21:13	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 96 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*102 %*	*Limits: 50-150 %*	"	"	"	
B21-SW3-01182018 (A8A0548-03)			**Matrix: Water**		**Batch: 8010835**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	01/18/18 21:41	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 101 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*103 %*	*Limits: 50-150 %*	"	"	"	
B21-SW6-01172018 (A8A0548-04)			**Matrix: Water**		**Batch: 8010835**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	01/18/18 22:09	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 103 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*103 %*	*Limits: 50-150 %*	"	"	"	
B21-CB2-01172018 (A8A0548-05)			**Matrix: Water**		**Batch: 8010835**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	01/18/18 22:37	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 101 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*104 %*	*Limits: 50-150 %*	"	"	"	
B21-CB9-01172018 (A8A0548-06)			**Matrix: Water**		**Batch: 8010835**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	01/18/18 23:05	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 102 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*104 %*	*Limits: 50-150 %*	"	"	"	
B21-RD1-01172018 (A8A0548-07)			**Matrix: Water**		**Batch: 8010835**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	01/19/18 00:02	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 100 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*104 %*	*Limits: 50-150 %*	"	"	"	

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Philip Nerenberg, Lab Director

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-SW2-01172018 (A8A0548-02RE1)			**Matrix: Water**		**Batch: 8010849**			
Acenaphthene	ND	0.0476	0.0952	ug/L	5	01/22/18 11:05	EPA 8270D	
Acenaphthylene	ND	0.0476	0.0952	"	"	"	"	
Anthracene	ND	0.0476	0.0952	"	"	"	"	
Benz(a)anthracene	ND	0.0476	0.0952	"	"	"	"	
Benzo(a)pyrene	**0.0763**	0.0714	0.143	"	"	"	"	J
Benzo(b)fluoranthene	**0.0787**	0.0714	0.143	"	"	"	"	J
Benzo(k)fluoranthene	ND	0.0714	0.143	"	"	"	"	
Benzo(g,h,i)perylene	ND	0.0476	0.0952	"	"	"	"	
Chrysene	ND	0.0476	0.0952	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.0476	0.0952	"	"	"	"	
Fluoranthene	**0.0736**	0.0476	0.0952	"	"	"	"	J
Fluorene	ND	0.0476	0.0952	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0476	0.0952	"	"	"	"	
1-Methylnaphthalene	ND	0.0952	0.190	"	"	"	"	
2-Methylnaphthalene	ND	0.0952	0.190	"	"	"	"	
Naphthalene	ND	0.0952	0.190	"	"	"	"	
Phenanthrene	**0.0690**	0.0476	0.0952	"	"	"	"	J
Pyrene	**0.129**	0.0476	0.0952	"	"	"	"	
Carbazole	ND	0.0714	0.143	"	"	"	"	
Dibenzofuran	ND	0.0476	0.0952	"	"	"	"	
Bis(2-ethylhexyl)phthalate	**1.20**	0.952	1.90	"	"	"	"	J
Butyl benzyl phthalate	ND	0.952	1.90	"	"	"	"	
Diethylphthalate	ND	0.952	1.90	"	"	"	"	
Dimethylphthalate	**1.16**	0.952	1.90	"	"	"	"	J
Di-n-butylphthalate	ND	0.952	1.90	"	"	"	"	
Di-n-octyl phthalate	ND	0.952	1.90	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 58 %*	*Limits: 44-120 %*	"	"	"	
2-Fluorobiphenyl (Surr)			*68 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*22 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*62 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*32 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*97 %*	*Limits: 43-140 %*	"	"	"	

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-SW3-01182018 (A8A0548-03RE2)			**Matrix: Water**		**Batch: 8010849**			
Acenaphthene	**0.0211**	0.0103	0.0206	ug/L	1	01/22/18 13:40	EPA 8270D	
Acenaphthylene	ND	0.0103	0.0206	"	"	"	"	
Anthracene	**0.0234**	0.0103	0.0206	"	"	"	"	
Benz(a)anthracene	ND	0.0103	0.0206	"	"	"	"	
Benzo(a)pyrene	ND	0.0155	0.0309	"	"	"	"	
Benzo(b)fluoranthene	ND	0.0155	0.0309	"	"	"	"	
Benzo(k)fluoranthene	ND	0.0155	0.0309	"	"	"	"	
Benzo(g,h,i)perylene	ND	0.0103	0.0206	"	"	"	"	
Chrysene	ND	0.0103	0.0206	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.0103	0.0206	"	"	"	"	
Fluoranthene	**0.0172**	0.0103	0.0206	"	"	"	"	J
Fluorene	**0.0142**	0.0103	0.0206	"	"	"	"	J
Indeno(1,2,3-cd)pyrene	ND	0.0103	0.0206	"	"	"	"	
1-Methylnaphthalene	ND	0.0206	0.0412	"	"	"	"	
2-Methylnaphthalene	ND	0.0206	0.0412	"	"	"	"	
Naphthalene	**0.0274**	0.0206	0.0412	"	"	"	"	J
Phenanthrene	**0.0263**	0.0103	0.0206	"	"	"	"	
Pyrene	**0.0221**	0.0103	0.0206	"	"	"	"	
Carbazole	**0.0272**	0.0155	0.0309	"	"	"	"	J
Dibenzofuran	ND	0.0206	0.0206	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.206	0.412	"	"	"	"	
Butyl benzyl phthalate	ND	0.206	0.412	"	"	"	"	
Diethylphthalate	ND	0.206	0.412	"	"	"	"	
Dimethylphthalate	**0.551**	0.206	0.412	"	"	"	"	
Di-n-butylphthalate	ND	0.206	0.412	"	"	"	"	
Di-n-octyl phthalate	ND	0.206	0.412	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 72 %*	*Limits: 44-120 %*	"	"	"	
2-Fluorobiphenyl (Surr)			*76 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*27 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*80 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*42 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*98 %*	*Limits: 43-140 %*	"	"	"	

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Labs

AMENDED REPORT

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503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-SW6-01172018 (A8A0548-04RE1)			**Matrix: Water**		**Batch: 8010849**			
Acenaphthene	ND	0.0385	0.0769	ug/L	4	01/22/18 11:46	EPA 8270D	
Acenaphthylene	ND	0.0385	0.0769	"	"	"	"	
Anthracene	ND	0.0385	0.0769	"	"	"	"	
Benz(a)anthracene	ND	0.0385	0.0769	"	"	"	"	
Benzo(a)pyrene	**0.0742**	0.0577	0.115	"	"	"	"	J
Benzo(b)fluoranthene	**0.0745**	0.0577	0.115	"	"	"	"	J
Benzo(k)fluoranthene	ND	0.0577	0.115	"	"	"	"	
Benzo(g,h,i)perylene	**0.0516**	0.0385	0.0769	"	"	"	"	J
Chrysene	**0.0522**	0.0385	0.0769	"	"	"	"	J
Dibenz(a,h)anthracene	ND	0.0385	0.0769	"	"	"	"	
Fluoranthene	**0.0652**	0.0385	0.0769	"	"	"	"	J
Fluorene	ND	0.0385	0.0769	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0385	0.0769	"	"	"	"	
1-Methylnaphthalene	ND	0.0769	0.154	"	"	"	"	
2-Methylnaphthalene	ND	0.0769	0.154	"	"	"	"	
Naphthalene	ND	0.0769	0.154	"	"	"	"	
Phenanthrene	**0.0493**	0.0385	0.0769	"	"	"	"	J
Pyrene	**0.100**	0.0385	0.0769	"	"	"	"	
Carbazole	ND	0.0577	0.115	"	"	"	"	
Dibenzofuran	ND	0.0385	0.0769	"	"	"	"	
Bis(2-ethylhexyl)phthalate	**0.965**	0.769	1.54	"	"	"	"	J
Butyl benzyl phthalate	ND	0.769	1.54	"	"	"	"	
Diethylphthalate	ND	0.769	1.54	"	"	"	"	
Dimethylphthalate	**1.98**	0.769	1.54	"	"	"	"	
Di-n-butylphthalate	ND	0.769	1.54	"	"	"	"	
Di-n-octyl phthalate	ND	0.769	1.54	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 52 %*	*Limits: 44-120 %*	"	"	"	
2-Fluorobiphenyl (Surr)			*62 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*19 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*62 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*29 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*90 %*	*Limits: 43-140 %*	"	"	"	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-CB2-01172018 (A8A0548-05RE1)			**Matrix: Water**		**Batch: 8010849**			**R-04**
Acenaphthene	ND	0.0943	0.189	ug/L	10	01/22/18 14:16	EPA 8270D	
Acenaphthylene	ND	0.0943	0.189	"	"	"	"	
Anthracene	ND	0.0943	0.189	"	"	"	"	
Benz(a)anthracene	ND	0.0943	0.189	"	"	"	"	
Benzo(a)pyrene	**0.152**	0.142	0.283	"	"	"	"	J
Benzo(b)fluoranthene	ND	0.142	0.283	"	"	"	"	
Benzo(k)fluoranthene	ND	0.142	0.283	"	"	"	"	
Benzo(g,h,i)perylene	ND	0.0943	0.189	"	"	"	"	
Chrysene	ND	0.0943	0.189	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.0943	0.189	"	"	"	"	
Fluoranthene	ND	0.0943	0.189	"	"	"	"	
Fluorene	ND	0.0943	0.189	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0943	0.189	"	"	"	"	
1-Methylnaphthalene	ND	0.189	0.377	"	"	"	"	
2-Methylnaphthalene	ND	0.189	0.377	"	"	"	"	
Naphthalene	ND	0.189	0.377	"	"	"	"	
Phenanthrene	ND	0.0943	0.189	"	"	"	"	
Pyrene	**0.122**	0.0943	0.189	"	"	"	"	J
Carbazole	ND	0.142	0.283	"	"	"	"	
Dibenzofuran	ND	0.0943	0.189	"	"	"	"	
Bis(2-ethylhexyl)phthalate	**3.75**	1.89	3.77	"	"	"	"	J
Butyl benzyl phthalate	ND	1.89	3.77	"	"	"	"	
Diethylphthalate	ND	1.89	3.77	"	"	"	"	
Dimethylphthalate	ND	1.89	3.77	"	"	"	"	
Di-n-butylphthalate	ND	1.89	3.77	"	"	"	"	
Di-n-octyl phthalate	ND	1.89	3.77	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 47 %*	*Limits: 44-120 %*	"	"	"	
2-Fluorobiphenyl (Surr)			*61 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*16 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*52 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*24 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*95 %*	*Limits: 43-140 %*	"	"	"	

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AMENDED REPORT

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-CB9-01172018 (A8A0548-06RE1)			**Matrix: Water**		**Batch: 8010849**			
Acenaphthene	ND	0.0472	0.0943	ug/L	5	01/22/18 10:29	EPA 8270D	
Acenaphthylene	ND	0.0472	0.0943	"	"	"	"	
Anthracene	ND	0.0472	0.0943	"	"	"	"	
Benz(a)anthracene	ND	0.0472	0.0943	"	"	"	"	
Benzo(a)pyrene	**0.0844**	0.0708	0.142	"	"	"	"	J
Benzo(b)fluoranthene	**0.0864**	0.0708	0.142	"	"	"	"	J
Benzo(k)fluoranthene	ND	0.0708	0.142	"	"	"	"	
Benzo(g,h,i)perylene	**0.0737**	0.0472	0.0943	"	"	"	"	J
Chrysene	**0.0645**	0.0472	0.0943	"	"	"	"	J
Dibenz(a,h)anthracene	ND	0.0472	0.0943	"	"	"	"	
Fluoranthene	**0.0818**	0.0472	0.0943	"	"	"	"	J
Fluorene	ND	0.0472	0.0943	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0472	0.0943	"	"	"	"	
1-Methylnaphthalene	ND	0.0943	0.189	"	"	"	"	
2-Methylnaphthalene	ND	0.0943	0.189	"	"	"	"	
Naphthalene	ND	0.0943	0.189	"	"	"	"	
Phenanthrene	**0.0883**	0.0472	0.0943	"	"	"	"	J
Pyrene	**0.134**	0.0472	0.0943	"	"	"	"	
Carbazole	ND	0.0708	0.142	"	"	"	"	
Dibenzofuran	ND	0.0472	0.0943	"	"	"	"	
Bis(2-ethylhexyl)phthalate	**4.39**	0.943	1.89	"	"	"	"	
Butyl benzyl phthalate	ND	0.943	1.89	"	"	"	"	
Diethylphthalate	ND	0.943	1.89	"	"	"	"	
Dimethylphthalate	ND	0.943	1.89	"	"	"	"	
Di-n-butylphthalate	ND	0.943	1.89	"	"	"	"	
Di-n-octyl phthalate	ND	0.943	1.89	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 52 %*	*Limits: 44-120 %*	"	"	"	
2-Fluorobiphenyl (Surr)			*63 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*20 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*51 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*26 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*91 %*	*Limits: 43-140 %*	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-RD1-01172018 (A8A0548-07RE1)			**Matrix: Water**		**Batch: 8010849**			
Acenaphthene	ND	0.00943	0.0189	ug/L	1	01/22/18 13:03	EPA 8270D	
Acenaphthylene	ND	0.00943	0.0189	"	"	"	"	
Anthracene	ND	0.00943	0.0189	"	"	"	"	
Benz(a)anthracene	**0.0105**	0.00943	0.0189	"	"	"	"	J
Benzo(a)pyrene	**0.0167**	0.0142	0.0283	"	"	"	"	J
Benzo(b)fluoranthene	ND	0.0142	0.0283	"	"	"	"	
Benzo(k)fluoranthene	ND	0.0142	0.0283	"	"	"	"	
Benzo(g,h,i)perylene	ND	0.00943	0.0189	"	"	"	"	
Chrysene	**0.0121**	0.00943	0.0189	"	"	"	"	J
Dibenz(a,h)anthracene	ND	0.00943	0.0189	"	"	"	"	
Fluoranthene	**0.0199**	0.00943	0.0189	"	"	"	"	
Fluorene	ND	0.00943	0.0189	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.00943	0.0189	"	"	"	"	
1-Methylnaphthalene	ND	0.0189	0.0377	"	"	"	"	
2-Methylnaphthalene	ND	0.0189	0.0377	"	"	"	"	
Naphthalene	ND	0.0189	0.0377	"	"	"	"	
Phenanthrene	**0.0266**	0.00943	0.0189	"	"	"	"	
Pyrene	**0.0188**	0.00943	0.0189	"	"	"	"	J
Carbazole	ND	0.0142	0.0283	"	"	"	"	
Dibenzofuran	ND	0.0189	0.0189	"	"	"	"	
Bis(2-ethylhexyl)phthalate	**0.301**	0.189	0.377	"	"	"	"	J
Butyl benzyl phthalate	ND	0.189	0.377	"	"	"	"	
Diethylphthalate	ND	0.189	0.377	"	"	"	"	
Dimethylphthalate	**0.307**	0.189	0.377	"	"	"	"	J
Di-n-butylphthalate	ND	0.189	0.377	"	"	"	"	
Di-n-octyl phthalate	ND	0.189	0.377	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 65 %*	*Limits: 44-120 %*	"	"	"	
2-Fluorobiphenyl (Surr)			*69 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*22 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*60 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*35 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*97 %*	*Limits: 43-140 %*	"	"	"	

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AMENDED REPORT

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-SW2-01172018 (A8A0548-02)			**Matrix: Water**					
Batch: 8011074								
Aluminum	**5090**	25.0	50.0	ug/L	1	01/26/18 17:12	EPA 6020A	
Antimony	ND	0.500	1.00	"	"	"	"	
Arsenic	**0.940**	0.500	1.00	"	"	"	"	J
Cadmium	**0.238**	0.0400	0.200	"	"	"	"	
Chromium	**7.40**	0.500	1.00	"	"	"	"	
Copper	**12.5**	0.500	1.00	"	"	"	"	
Lead	**5.97**	0.100	0.200	"	"	"	"	
Manganese	**301**	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Nickel	**3.69**	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	**155**	2.00	4.00	"	"	"	"	
B21-SW3-01182018 (A8A0548-03)			**Matrix: Water**					
Batch: 8011074								
Aluminum	**244**	25.0	50.0	ug/L	1	01/26/18 17:16	EPA 6020A	
Antimony	**0.860**	0.500	1.00	"	"	"	"	J
Arsenic	**0.924**	0.500	1.00	"	"	"	"	J
Cadmium	**0.126**	0.0400	0.200	"	"	"	"	J
Chromium	**2.82**	0.500	1.00	"	"	"	"	
Copper	**4.88**	0.500	1.00	"	"	"	"	
Lead	**0.937**	0.100	0.200	"	"	"	"	
Manganese	**18.0**	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Nickel	**0.874**	0.500	1.00	"	"	"	"	J
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	**18.7**	2.00	4.00	"	"	"	"	
B21-SW6-01172018 (A8A0548-04)			**Matrix: Water**					
Batch: 8011074								
Aluminum	**2420**	25.0	50.0	ug/L	1	01/26/18 17:28	EPA 6020A	
Antimony	ND	0.500	1.00	"	"	"	"	
Arsenic	**1.05**	0.500	1.00	"	"	"	"	
Cadmium	**0.178**	0.0400	0.200	"	"	"	"	J
Chromium	**9.32**	0.500	1.00	"	"	"	"	
Copper	**10.8**	0.500	1.00	"	"	"	"	
Lead	**6.68**	0.100	0.200	"	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-SW6-01172018 (A8A0548-04)				**Matrix: Water**				
Manganese	**311**	0.500	1.00	ug/L	1	"	EPA 6020A	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Nickel	**2.64**	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	**106**	2.00	4.00	"	"	"	"	
B21-CB2-01172018 (A8A0548-05)				**Matrix: Water**				
Batch: 8011074								
Aluminum	**660**	25.0	50.0	ug/L	1	01/26/18 17:32	EPA 6020A	
Antimony	ND	0.500	1.00	"	"	"	"	
Arsenic	ND	0.500	1.00	"	"	"	"	
Cadmium	**0.175**	0.0400	0.200	"	"	"	"	J
Chromium	**6.18**	0.500	1.00	"	"	"	"	
Copper	**9.05**	0.500	1.00	"	"	"	"	
Lead	**3.66**	0.100	0.200	"	"	"	"	
Manganese	**111**	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Nickel	**6.61**	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	**94.5**	2.00	4.00	"	"	"	"	
B21-CB9-01172018 (A8A0548-06)				**Matrix: Water**				
Batch: 8011074								
Aluminum	**1470**	25.0	50.0	ug/L	1	01/26/18 17:37	EPA 6020A	
Antimony	ND	0.500	1.00	"	"	"	"	
Arsenic	ND	0.500	1.00	"	"	"	"	
Cadmium	**0.247**	0.0400	0.200	"	"	"	"	
Chromium	**9.44**	0.500	1.00	"	"	"	"	
Copper	**19.2**	0.500	1.00	"	"	"	"	
Lead	**5.47**	0.100	0.200	"	"	"	"	
Manganese	**114**	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Nickel	**4.31**	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	**137**	2.00	4.00	"	"	"	"	
B21-RD1-01172018 (A8A0548-07)				**Matrix: Water**				
Batch: 8011074								
Aluminum	**89.3**	25.0	50.0	ug/L	1	01/26/18 17:41	EPA 6020A	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-RD1-01172018 (A8A0548-07)			**Matrix: Water**					
Antimony	ND	0.500	1.00	ug/L	1	"	EPA 6020A	
Arsenic	ND	0.500	1.00	"	"	"	"	
Cadmium	**0.0555**	0.0400	0.200	"	"	"	"	J
Chromium	**0.977**	0.500	1.00	"	"	"	"	J
Copper	**5.11**	0.500	1.00	"	"	"	"	
Lead	**1.04**	0.100	0.200	"	"	"	"	
Manganese	**9.03**	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Nickel	**0.541**	0.500	1.00	"	"	"	"	J
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	**29.5**	2.00	4.00	"	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-SW2-01172018 (A8A0548-02)			**Matrix: Water**					
Batch: 8010889								
Total Organic Carbon	**3.30**	1.00	1.00	mg/L	1	01/22/18 15:12	SM 5310 C	
Batch: 8010976								
Total Suspended Solids	**258**	5.00	5.00	"	"	01/24/18 14:50	SM 2540 D	
B21-SW3-01182018 (A8A0548-03)			**Matrix: Water**					
Batch: 8010889								
Total Organic Carbon	**3.21**	1.00	1.00	mg/L	1	01/22/18 15:39	SM 5310 C	
Batch: 8010976								
Total Suspended Solids	**11.0**	5.00	5.00	"	"	01/24/18 14:50	SM 2540 D	
B21-SW6-01172018 (A8A0548-04)			**Matrix: Water**					
Batch: 8010889								
Total Organic Carbon	**2.72**	1.00	1.00	mg/L	1	01/22/18 16:05	SM 5310 C	
Batch: 8010976								
Total Suspended Solids	**96.0**	5.00	5.00	"	"	01/24/18 14:50	SM 2540 D	
B21-CB2-01172018 (A8A0548-05)			**Matrix: Water**					
Batch: 8010889								
Total Organic Carbon	**3.01**	1.00	1.00	mg/L	1	01/22/18 16:33	SM 5310 C	
Batch: 8010976								
Total Suspended Solids	**49.0**	5.00	5.00	"	"	01/24/18 14:50	SM 2540 D	
B21-CB9-01172018 (A8A0548-06)			**Matrix: Water**					
Batch: 8010889								
Total Organic Carbon	**1.89**	1.00	1.00	mg/L	1	01/22/18 17:53	SM 5310 C	
Batch: 8010976								
Total Suspended Solids	**80.0**	5.00	5.00	"	"	01/24/18 14:50	SM 2540 D	
B21-RD1-01172018 (A8A0548-07)			**Matrix: Water**					
Batch: 8010889								
Total Organic Carbon	**5.56**	1.00	1.00	mg/L	1	01/22/18 18:21	SM 5310 C	
Batch: 8010976								
Total Suspended Solids	**11.0**	5.00	5.00	"	"	01/24/18 14:50	SM 2540 D	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010950 - EPA 3510C (Fuels/Acid Ext.)									**Water**			
Blank (8010950-BLK1)					Prepared: 01/23/18 13:42		Analyzed: 01/23/18 22:14					
NWTPH-Dx												
Diesel	ND	0.0909	0.182	mg/L	1	---	---	---	---	---	---	
Oil	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 96 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS (8010950-BS1)					Prepared: 01/23/18 13:42		Analyzed: 01/23/18 22:37					
NWTPH-Dx												
Diesel	1.05	0.100	0.200	mg/L	1	1.25	---	84	58-115	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 100 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS Dup (8010950-BSD1)					Prepared: 01/23/18 13:42		Analyzed: 01/23/18 22:59					Q-19
NWTPH-Dx												
Diesel	1.02	0.100	0.200	mg/L	1	1.25	---	81	58-115	3	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 97 %*	*Limits: 50-150 %*		*Dilution: 1x*						

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010835 - EPA 5030B									**Water**			
Blank (8010835-BLK1)					Prepared: 01/18/18 16:59 Analyzed: 01/18/18 18:24							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 99 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*102 %*	*50-150 %*			*"*					
LCS (8010835-BS2)					Prepared: 01/18/18 16:59 Analyzed: 01/18/18 17:55							
NWTPH-Gx (MS)												
Gasoline Range Organics	0.445	0.0500	0.100	mg/L	1	0.500	---	89	80-120	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 96 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*97 %*	*50-150 %*			*"*					
Duplicate (8010835-DUP1)					Prepared: 01/18/18 18:16 Analyzed: 01/18/18 23:33							
QC Source Sample: B21-CB9-01172018 (A8A0548-06)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 101 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*104 %*	*50-150 %*			*"*					

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Philip Nerenberg

Philip Nerenberg, Lab Director

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010849 - EPA 3510C (Acid Extraction)							**Water**					
Blank (8010849-BLK2)					Prepared: 01/19/18 09:37 Analyzed: 01/19/18 13:58							
EPA 8270D												
Acenaphthene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Chrysene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Fluoranthene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Fluorene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
Naphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
Phenanthrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Carbazole	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Diethylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Dimethylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Di-n-butylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	

Surr: Nitrobenzene-d5 (Surr)	*Recovery: 74 %*	*Limits: 44-120 %*	*Dilution: 1x*	
2-Fluorobiphenyl (Surr)	*80 %*	*44-120 %*	*"*	
Phenol-d6 (Surr)	*27 %*	*10-120 %*	*"*	
p-Terphenyl-d14 (Surr)	*94 %*	*50-133 %*	*"*	
2-Fluorophenol (Surr)	*43 %*	*19-120 %*	*"*	
2,4,6-Tribromophenol (Surr)	*75 %*	*43-140 %*	*"*	

LCS (8010849-BS2) Prepared: 01/19/18 09:37 Analyzed: 01/19/18 14:35

EPA 8270D

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Philip Nerenberg, Lab Director

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010849 - EPA 3510C (Acid Extraction)								**Water**				
LCS (8010849-BS2)						Prepared: 01/19/18 09:37		Analyzed: 01/19/18 14:35				
EPA 8270D												
Acenaphthene	3.57	0.0400	0.0800	ug/L	4	4.00	---	89	47-122	---	---	
Acenaphthylene	3.59	0.0400	0.0800	"	"	"	---	90	41-130	---	---	
Anthracene	3.73	0.0400	0.0800	"	"	"	---	93	57-123	---	---	
Benz(a)anthracene	3.79	0.0400	0.0800	"	"	"	---	95	58-125	---	---	
Benzo(a)pyrene	4.09	0.0600	0.120	"	"	"	---	102	54-128	---	---	
Benzo(b)fluoranthene	3.97	0.0600	0.120	"	"	"	---	99	53-131	---	---	
Benzo(k)fluoranthene	3.91	0.0600	0.120	"	"	"	---	98	57-129	---	---	
Benzo(g,h,i)perylene	3.95	0.0400	0.0800	"	"	"	---	99	50-134	---	---	
Chrysene	3.86	0.0400	0.0800	"	"	"	---	96	59-123	---	---	
Dibenz(a,h)anthracene	3.97	0.0400	0.0800	"	"	"	---	99	51-134	---	---	
Fluoranthene	3.96	0.0400	0.0800	"	"	"	---	99	57-128	---	---	
Fluorene	3.65	0.0400	0.0800	"	"	"	---	91	52-124	---	---	
Indeno(1,2,3-cd)pyrene	3.82	0.0400	0.0800	"	"	"	---	96	52-133	---	---	
1-Methylnaphthalene	3.57	0.0800	0.160	"	"	"	---	89	41-120	---	---	
2-Methylnaphthalene	3.51	0.0800	0.160	"	"	"	---	88	40-121	---	---	
Naphthalene	3.37	0.0800	0.160	"	"	"	---	84	"	---	---	
Phenanthrene	3.64	0.0400	0.0800	"	"	"	---	91	59-120	---	---	
Pyrene	3.88	0.0400	0.0800	"	"	"	---	97	57-126	---	---	
Carbazole	4.30	0.0600	0.120	"	"	"	---	107	60-122	---	---	
Dibenzofuran	3.66	0.0400	0.0800	"	"	"	---	91	53-120	---	---	
Bis(2-ethylhexyl)phthalate	3.74	0.800	1.60	"	"	"	---	93	55-135	---	---	
Butyl benzyl phthalate	4.05	0.800	1.60	"	"	"	---	101	53-134	---	---	
Diethylphthalate	3.84	0.800	1.60	"	"	"	---	96	55-125	---	---	
Dimethylphthalate	3.91	0.800	1.60	"	"	"	---	98	45-127	---	---	
Di-n-butylphthalate	3.90	0.800	1.60	"	"	"	---	97	59-127	---	---	
Di-n-octyl phthalate	3.84	0.800	1.60	"	"	"	---	96	51-140	---	---	

Surr: Nitrobenzene-d5 (Surr)	*Recovery: 80 %*	*Limits: 44-120 %*	*Dilution: 4x*
2-Fluorobiphenyl (Surr)	*82 %*	*44-120 %*	*"*
Phenol-d6 (Surr)	*29 %*	*10-120 %*	*"*
p-Terphenyl-d14 (Surr)	*97 %*	*50-133 %*	*"*
2-Fluorophenol (Surr)	*45 %*	*19-120 %*	*"*
2,4,6-Tribromophenol (Surr)	*98 %*	*43-140 %*	*"*

LCS Dup (8010849-BSD2)	Prepared: 01/19/18 09:37	Analyzed: 01/19/18 15:11		Q-19
EPA 8270D				

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Philip Nerenberg, Lab Director

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AMENDED REPORT

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503-718-2323 Phone
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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010849 - EPA 3510C (Acid Extraction)							**Water**					
LCS Dup (8010849-BSD2)					Prepared: 01/19/18 09:37		Analyzed: 01/19/18 15:11					Q-19
EPA 8270D												
Acenaphthene	3.52	0.0400	0.0800	ug/L	4	4.00	---	88	47-122	2	30%	
Acenaphthylene	3.52	0.0400	0.0800	"	"	"	---	88	41-130	2	30%	
Anthracene	3.73	0.0400	0.0800	"	"	"	---	93	57-123	0.03	30%	
Benz(a)anthracene	3.77	0.0400	0.0800	"	"	"	---	94	58-125	0.6	30%	
Benzo(a)pyrene	4.10	0.0600	0.120	"	"	"	---	103	54-128	0.3	30%	
Benzo(b)fluoranthene	3.98	0.0600	0.120	"	"	"	---	99	53-131	0.3	30%	
Benzo(k)fluoranthene	3.89	0.0600	0.120	"	"	"	---	97	57-129	0.7	30%	
Benzo(g,h,i)perylene	3.84	0.0400	0.0800	"	"	"	---	96	50-134	3	30%	
Chrysene	3.87	0.0400	0.0800	"	"	"	---	97	59-123	0.4	30%	
Dibenz(a,h)anthracene	3.94	0.0400	0.0800	"	"	"	---	98	51-134	0.9	30%	
Fluoranthene	3.98	0.0400	0.0800	"	"	"	---	100	57-128	0.7	30%	
Fluorene	3.58	0.0400	0.0800	"	"	"	---	90	52-124	2	30%	
Indeno(1,2,3-cd)pyrene	3.78	0.0400	0.0800	"	"	"	---	94	52-133	1	30%	
1-Methylnaphthalene	3.55	0.0800	0.160	"	"	"	---	89	41-120	0.4	30%	
2-Methylnaphthalene	3.41	0.0800	0.160	"	"	"	---	85	40-121	3	30%	
Naphthalene	3.35	0.0800	0.160	"	"	"	---	84	"	0.7	30%	
Phenanthrene	3.62	0.0400	0.0800	"	"	"	---	90	59-120	0.7	30%	
Pyrene	3.91	0.0400	0.0800	"	"	"	---	98	57-126	0.8	30%	
Carbazole	4.27	0.0600	0.120	"	"	"	---	107	60-122	0.6	30%	
Dibenzofuran	3.58	0.0400	0.0800	"	"	"	---	89	53-120	2	30%	
Bis(2-ethylhexyl)phthalate	3.77	0.800	1.60	"	"	"	---	94	55-135	0.8	30%	
Butyl benzyl phthalate	4.04	0.800	1.60	"	"	"	---	101	53-134	0.3	30%	
Diethylphthalate	3.86	0.800	1.60	"	"	"	---	97	55-125	0.5	30%	
Dimethylphthalate	3.86	0.800	1.60	"	"	"	---	97	45-127	1	30%	
Di-n-butylphthalate	3.97	0.800	1.60	"	"	"	---	99	59-127	2	30%	
Di-n-octyl phthalate	3.90	0.800	1.60	"	"	"	---	97	51-140	2	30%	

Surr: Nitrobenzene-d5 (Surr)	*Recovery: 80 %*	*Limits: 44-120 %*	*Dilution: 4x*	
2-Fluorobiphenyl (Surr)	*81 %*	*44-120 %*	*"*	
Phenol-d6 (Surr)	*29 %*	*10-120 %*	*"*	
p-Terphenyl-d14 (Surr)	*96 %*	*50-133 %*	*"*	
2-Fluorophenol (Surr)	*45 %*	*19-120 %*	*"*	
2,4,6-Tribromophenol (Surr)	*95 %*	*43-140 %*	*"*	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8011074 - EPA 3015A							**Water**					
Blank (8011074-BLK1)					Prepared: 01/26/18 09:42 Analyzed: 01/26/18 15:57							
EPA 6020A												
Aluminum	ND	25.0	50.0	ug/L	1	---	---	---	---	---	---	
Antimony	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Arsenic	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Cadmium	ND	0.0400	0.200	"	"	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Copper	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Lead	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Manganese	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Mercury	ND	0.0400	0.0800	"	"	---	---	---	---	---	---	
Nickel	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Silver	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Zinc	ND	2.00	4.00	"	"	---	---	---	---	---	---	
LCS (8011074-BS1)					Prepared: 01/26/18 09:42 Analyzed: 01/26/18 16:01							
EPA 6020A												
Aluminum	6610	25.0	50.0	ug/L	1	5560	---	119	80-120	---	---	
Antimony	26.0	0.500	1.00	"	"	27.8	---	94	"	---	---	
Arsenic	55.0	0.500	1.00	"	"	55.6	---	99	"	---	---	
Cadmium	56.8	0.0400	0.200	"	"	"	---	102	"	---	---	
Chromium	55.8	0.500	1.00	"	"	"	---	101	"	---	---	
Copper	55.5	0.500	1.00	"	"	"	---	100	"	---	---	
Lead	56.1	0.100	0.200	"	"	"	---	101	"	---	---	
Manganese	56.7	0.500	1.00	"	"	"	---	102	"	---	---	
Mercury	1.11	0.0400	0.0800	"	"	1.11	---	100	"	---	---	
Nickel	55.9	0.500	1.00	"	"	55.6	---	101	"	---	---	
Silver	28.0	0.100	0.200	"	"	27.8	---	101	"	---	---	
Zinc	56.3	2.00	4.00	"	"	55.6	---	101	"	---	---	
Duplicate (8011074-DUP1)					Prepared: 01/26/18 09:42 Analyzed: 01/26/18 16:22							
QC Source Sample: Other (A8A0539-02)												
EPA 6020A												
Aluminum	**535**	25.0	50.0	ug/L	1	---	647	---	---	19	20%	
Antimony	ND	0.500	1.00	"	"	---	ND	---	---	---	20%	
Arsenic	**1.18**	0.500	1.00	"	"	---	1.27	---	---	7	20%	
Cadmium	**0.0856**	0.0400	0.200	"	"	---	0.0820	---	---	4	20%	J

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8011074 - EPA 3015A							**Water**					
Duplicate (8011074-DUP1)					Prepared: 01/26/18 09:42		Analyzed: 01/26/18 16:22					
QC Source Sample: Other (A8A0539-02)												
EPA 6020A												
Chromium	**1.03**	0.500	1.00	ug/L	"	---	1.09	---	---	5	20%	
Copper	**5.01**	0.500	1.00	"	"	---	5.11	---	---	2	20%	
Lead	**0.977**	0.100	0.200	"	"	---	0.987	---	---	1	20%	
Manganese	**40.3**	0.500	1.00	"	"	---	41.1	---	---	2	20%	
Mercury	ND	0.0400	0.0800	"	"	---	ND	---	---	---	20%	
Nickel	**4.02**	0.500	1.00	"	"	---	3.33	---	---	19	20%	
Silver	ND	0.100	0.200	"	"	---	ND	---	---	---	20%	
Zinc	**12.8**	2.00	4.00	"	"	---	10.3	---	---	21	20%	Q-05
Matrix Spike (8011074-MS1)					Prepared: 01/26/18 09:42		Analyzed: 01/26/18 16:26					
QC Source Sample: Other (A8A0539-02)												
EPA 6020A												
Aluminum	7120	25.0	50.0	ug/L	1	5560	647	117	75-125	---	---	
Antimony	26.6	0.500	1.00	"	"	27.8	ND	96	"	---	---	
Arsenic	56.8	0.500	1.00	"	"	55.6	1.27	100	"	---	---	
Cadmium	57.9	0.0400	0.200	"	"	"	0.0820	104	"	---	---	
Chromium	56.9	0.500	1.00	"	"	"	1.09	100	"	---	---	
Copper	58.4	0.500	1.00	"	"	"	5.11	96	"	---	---	
Lead	58.5	0.100	0.200	"	"	"	0.987	103	"	---	---	
Manganese	94.0	0.500	1.00	"	"	"	41.1	95	"	---	---	
Mercury	1.14	0.0400	0.0800	"	"	1.11	ND	103	"	---	---	
Nickel	56.0	0.500	1.00	"	"	55.6	3.33	95	"	---	---	
Silver	27.6	0.100	0.200	"	"	27.8	ND	99	"	---	---	
Zinc	65.3	2.00	4.00	"	"	55.6	10.3	99	"	---	---	
Matrix Spike (8011074-MS2)					Prepared: 01/26/18 09:42		Analyzed: 01/26/18 17:45					
QC Source Sample: B21-RD1-01172018 (A8A0548-07)												
EPA 6020A												
Aluminum	6610	25.0	50.0	ug/L	1	5560	89.3	117	75-125	---	---	
Antimony	26.6	0.500	1.00	"	"	27.8	ND	96	"	---	---	
Arsenic	55.0	0.500	1.00	"	"	55.6	ND	99	"	---	---	
Cadmium	57.5	0.0400	0.200	"	"	"	0.0555	103	"	---	---	
Chromium	56.0	0.500	1.00	"	"	"	0.977	99	"	---	---	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8011074 - EPA 3015A												**Water**
Matrix Spike (8011074-MS2)					Prepared: 01/26/18 09:42 Analyzed: 01/26/18 17:45							
QC Source Sample: B21-RD1-01172018 (A8A0548-07)												
EPA 6020A												
Copper	59.8	0.500	1.00	ug/L	"	"	5.11	98	"	---	---	
Lead	58.3	0.100	0.200	"	"	"	1.04	103	"	---	---	
Manganese	65.2	0.500	1.00	"	"	"	9.03	101	"	---	---	
Mercury	1.13	0.0400	0.0800	"	"	1.11	ND	101	"	---	---	
Nickel	55.5	0.500	1.00	"	"	55.6	0.541	99	"	---	---	
Silver	28.2	0.100	0.200	"	"	27.8	ND	102	"	---	---	
Zinc	85.5	2.00	4.00	"	"	55.6	29.5	101	"	---	---	

Apex Laboratories

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Philip Nerenberg, Lab Director

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AMENDED REPORT

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010889 - Method Prep: Aq							**Water**					
Blank (8010889-BLK1)					Prepared: 01/22/18 09:23		Analyzed: 01/22/18 12:24					
SM 5310 C												
Total Organic Carbon	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	
LCS (8010889-BS1)					Prepared: 01/22/18 09:23		Analyzed: 01/22/18 12:51					
SM 5310 C												
Total Organic Carbon	10.1	1.00	1.00	mg/L	1	10.0	---	101	85-115	---	---	
LCS (8010889-BS2)					Prepared: 01/22/18 09:23		Analyzed: 01/22/18 13:18					
SM 5310 C												
Total Organic Carbon	ND	1.00	1.00	mg/L	1	0.00	---		85-115	---	---	TOC_I
Duplicate (8010889-DUP1)					Prepared: 01/22/18 09:23		Analyzed: 01/22/18 14:16					
QC Source Sample: B20-SP1-01172018 (A8A0548-01)												
SM 5310 C												
Total Organic Carbon	**8.52**	1.00	1.00	mg/L	1	---	8.38	---	---	2	20%	
Matrix Spike (8010889-MS1)					Prepared: 01/22/18 09:23		Analyzed: 01/22/18 14:45					
QC Source Sample: B20-SP1-01172018 (A8A0548-01)												
SM 5310 C												
Total Organic Carbon	19.9	1.01	1.01	mg/L	1	10.0	8.38	116	75-125	---	---	

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8010976 - Total Suspended Solids									Water			
Blank (8010976-BLK1)					Prepared: 01/24/18 11:24		Analyzed: 01/24/18 14:50					
SM 2540 D												
Total Suspended Solids	ND	5.00	5.00	mg/L	1	---	---	---	---	---	---	
Duplicate (8010976-DUP1)					Prepared: 01/24/18 11:24		Analyzed: 01/24/18 14:50					
QC Source Sample: Other (A8A0536-01)												
SM 2540 D												
Total Suspended Solids	**5.00**	5.00	5.00	mg/L	1	---	ND	---	---	---	10%	
Duplicate (8010976-DUP2)					Prepared: 01/24/18 11:24		Analyzed: 01/24/18 14:50					
QC Source Sample: B21-CB2-01172018 (A8A0548-05)												
SM 2540 D												
Total Suspended Solids	**63.0**	5.00	5.00	mg/L	1	---	49.0	---	---	25	10%	Q-04
Reference (8010976-SRM1)					Prepared: 01/24/18 11:24		Analyzed: 01/24/18 14:50					
SM 2540 D												
Total Suspended Solids	99.0			mg/L	1	100	---	99	77-110	---	---	

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Philip Nerenberg

Philip Nerenberg, Lab Director

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AMENDED REPORT

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010950							
A8A0548-02	Water	NWTPH-Dx	01/17/18 17:30	01/23/18 13:42	1020mL/5mL	1000mL/5mL	0.98
A8A0548-03	Water	NWTPH-Dx	01/18/18 09:15	01/23/18 13:42	1000mL/5mL	1000mL/5mL	1.00
A8A0548-04	Water	NWTPH-Dx	01/17/18 18:00	01/23/18 13:42	1030mL/5mL	1000mL/5mL	0.97
A8A0548-05RE	Water	NWTPH-Dx	01/17/18 16:15	01/23/18 13:42	1070mL/5mL	1000mL/5mL	0.94
A8A0548-06	Water	NWTPH-Dx	01/17/18 16:50	01/23/18 13:42	1060mL/5mL	1000mL/5mL	0.94
A8A0548-07	Water	NWTPH-Dx	01/17/18 16:20	01/23/18 13:42	1060mL/5mL	1000mL/5mL	0.94

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010835							
A8A0548-02	Water	NWTPH-Gx (MS)	01/17/18 17:30	01/18/18 18:16	5mL/5mL	5mL/5mL	1.00
A8A0548-03	Water	NWTPH-Gx (MS)	01/18/18 09:15	01/18/18 18:16	5mL/5mL	5mL/5mL	1.00
A8A0548-04	Water	NWTPH-Gx (MS)	01/17/18 18:00	01/18/18 18:16	5mL/5mL	5mL/5mL	1.00
A8A0548-05	Water	NWTPH-Gx (MS)	01/17/18 16:15	01/18/18 18:16	5mL/5mL	5mL/5mL	1.00
A8A0548-06	Water	NWTPH-Gx (MS)	01/17/18 16:50	01/18/18 18:16	5mL/5mL	5mL/5mL	1.00
A8A0548-07	Water	NWTPH-Gx (MS)	01/17/18 16:20	01/18/18 18:16	5mL/5mL	5mL/5mL	1.00

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3510C (Acid Extraction)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010849							
A8A0548-02RE1	Water	EPA 8270D	01/17/18 17:30	01/19/18 14:13	1050mL/1mL	1000mL/1mL	0.95
A8A0548-03RE1	Water	EPA 8270D	01/18/18 09:15	01/19/18 14:13	970mL/1mL	1000mL/1mL	1.03
A8A0548-04RE1	Water	EPA 8270D	01/17/18 18:00	01/19/18 14:13	1040mL/1mL	1000mL/1mL	0.96
A8A0548-05RE1	Water	EPA 8270D	01/17/18 16:15	01/19/18 14:13	1060mL/1mL	1000mL/1mL	0.94
A8A0548-06RE1	Water	EPA 8270D	01/17/18 16:50	01/19/18 14:13	1060mL/1mL	1000mL/1mL	0.94
A8A0548-07RE1	Water	EPA 8270D	01/17/18 16:20	01/19/18 14:13	1060mL/1mL	1000mL/1mL	0.94

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8011074							

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Philip Nerenberg, Lab Director

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AMENDED REPORT

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A8A0548-02	Water	EPA 6020A	01/17/18 17:30	01/26/18 09:42	45mL/50mL	45mL/50mL	1.00
A8A0548-03	Water	EPA 6020A	01/18/18 09:15	01/26/18 09:42	45mL/50mL	45mL/50mL	1.00
A8A0548-04	Water	EPA 6020A	01/17/18 18:00	01/26/18 09:42	45mL/50mL	45mL/50mL	1.00
A8A0548-05	Water	EPA 6020A	01/17/18 16:15	01/26/18 09:42	45mL/50mL	45mL/50mL	1.00
A8A0548-06	Water	EPA 6020A	01/17/18 16:50	01/26/18 09:42	45mL/50mL	45mL/50mL	1.00
A8A0548-07	Water	EPA 6020A	01/17/18 16:20	01/26/18 09:42	45mL/50mL	45mL/50mL	1.00

Conventional Chemistry Parameters

Prep: Method Prep: Ag

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010889							
A8A0548-02	Water	SM 5310 C	01/17/18 17:30	01/22/18 09:23	40mL/40mL	40mL/40mL	1.00
A8A0548-03	Water	SM 5310 C	01/18/18 09:15	01/22/18 09:23	40mL/40mL	40mL/40mL	1.00
A8A0548-04	Water	SM 5310 C	01/17/18 18:00	01/22/18 09:23	40mL/40mL	40mL/40mL	1.00
A8A0548-05	Water	SM 5310 C	01/17/18 16:15	01/22/18 09:23	40mL/40mL	40mL/40mL	1.00
A8A0548-06	Water	SM 5310 C	01/17/18 16:50	01/22/18 09:23	40mL/40mL	40mL/40mL	1.00
A8A0548-07	Water	SM 5310 C	01/17/18 16:20	01/22/18 09:23	40mL/40mL	40mL/40mL	1.00

Prep: Total Suspended Solids

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8010976							
A8A0548-02	Water	SM 2540 D	01/17/18 17:30	01/24/18 11:24	1N/A/1N/A	1N/A/1N/A	NA
A8A0548-03	Water	SM 2540 D	01/18/18 09:15	01/24/18 11:24	1N/A/1N/A	1N/A/1N/A	NA
A8A0548-04	Water	SM 2540 D	01/17/18 18:00	01/24/18 11:24	1N/A/1N/A	1N/A/1N/A	NA
A8A0548-05	Water	SM 2540 D	01/17/18 16:15	01/24/18 11:24	1N/A/1N/A	1N/A/1N/A	NA
A8A0548-06	Water	SM 2540 D	01/17/18 16:50	01/24/18 11:24	1N/A/1N/A	1N/A/1N/A	NA
A8A0548-07	Water	SM 2540 D	01/17/18 16:20	01/24/18 11:24	1N/A/1N/A	1N/A/1N/A	NA

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

Notes and Definitions

Qualifiers:

J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
Q-04	Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
Q-05	Analyses are not controlled on RPD values from sample and duplicate concentrations that are below 5 times the reporting level.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
R-04	Reporting levels elevated due to dilution necessary for analysis.
TOC_I	Inorganic Carbon Spike Check. Results are valid if Non Detect (No Inorganic Carbon detected.)

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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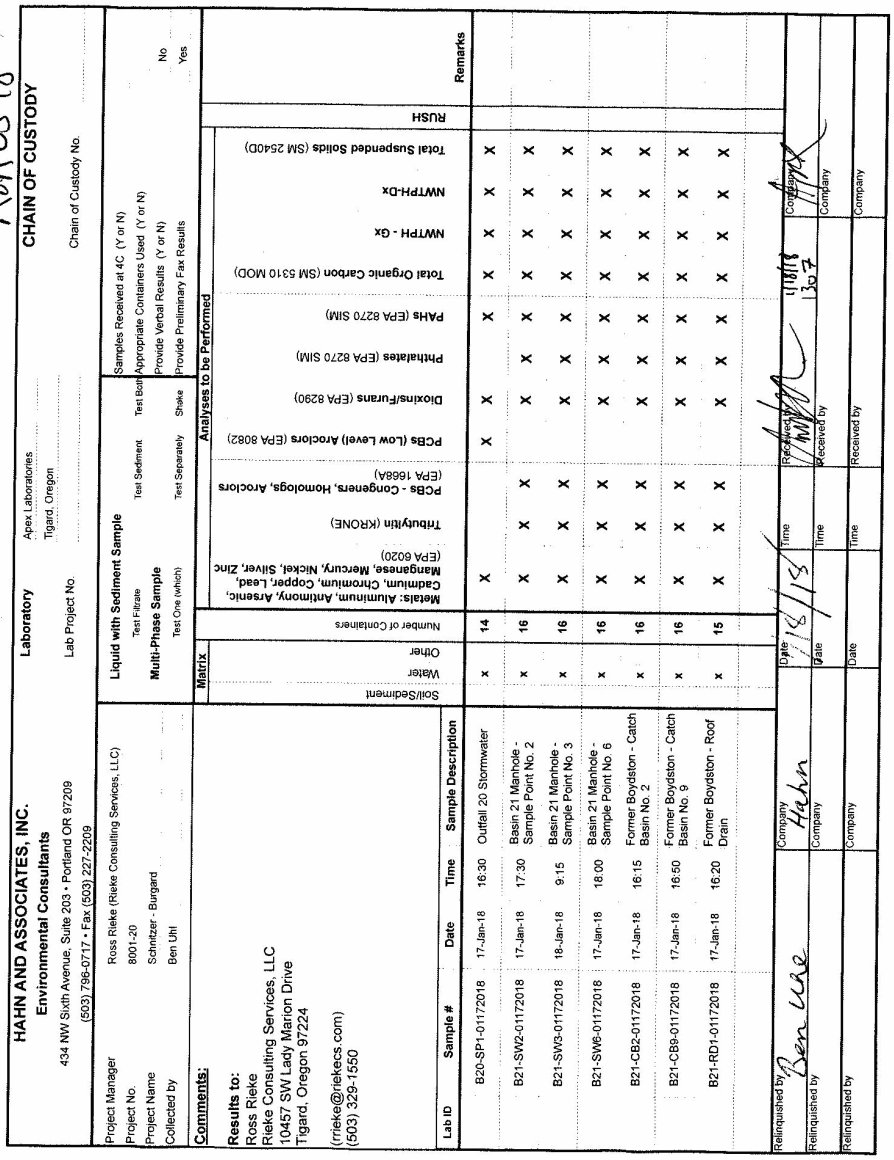
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12



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Philip Nerenberg

Philip Nerenberg, Lab Director

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AMENDED REPORT

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12

APEX LABS COOLER RECEIPT FORM

Client: Hahn Element WO#: A8A0548

Project/Project #: Schnitzer-Burgard 8001-20

Delivery info:

Date/Time Received: 1/18/18 @ 1307 By: CFH

Delivered by: Apex X Client ___ ESS ___ FedEx ___ UPS ___ Swift ___ Senvoy ___ SDS ___ Other ___

Cooler Inspection Inspected by: CFH : 1/18/18 @ 1403

Chain of Custody Included? Yes X No ___ Custody Seals? Yes ___ No —

Signed/Dated by Client? Yes X No ___

Signed/Dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	4.6						
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)	~~4.6~~ CFH 1/18/18	2.4	3.4	3.4	5.5	5.0	
Ice Type: (Gel/Real/Other)							
Condition:	Good						

Cooler out of temp? (Y/N) Possible reason why: CB 1/18/18

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CB : 1/18/18 @ 1500

All Samples Intact? Yes ___ No X Comments: B21-RD1-01172018 2/7

Imp. ambers broken CB 1/18/18 in transit

Bottle Labels/COCs agree? Yes X No X Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No ___ Comments:

Do VOA Vials have Visible Headspace? Yes X No ___ NA ___

Comments 1/3 VOAs. On B21-CB2-01172018. 1/4TB have HS ~~#16~~ #1645 MS 1/18

Water Samples: pH Checked and Appropriate (except VOAs): Yes ___ No ___ NA ___

Comments:

Additional Information: No TB listed on COC, 3-#1646, 1-#1645 ~~rec~~ received 4TB.

Labeled by: CB Witness: AK Cooler Inspected by: KRS See Project Contact Form: Y

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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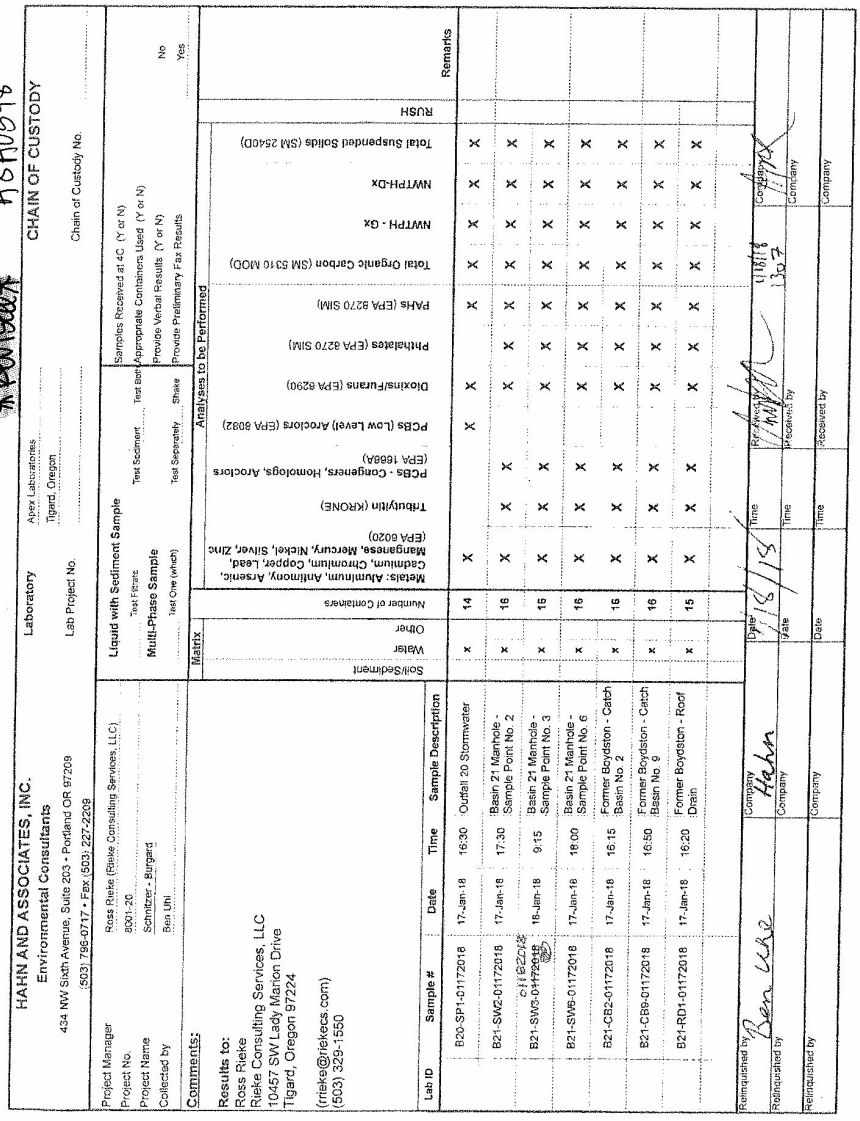
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	03/16/18 12:12



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Philip Nerenberg

Philip Nerenberg, Lab Director

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WORK ORDER NUMBER: 18-01-1472

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: APEX Laboratories, LLC

Client Project Name: A8A0548

Attention: Philip Nerenberg
12232 SW Garden Place
Portland, OR 97223-8246

Approved for release on 02/05/2018 by:
Lori Thompson
Project Manager

ResultLink

Email your PM

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Work Order Number: 18-01-1472

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Work Order Narrative

Work Order: 18-01-1472 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 01/20/18. They were assigned to Work Order 18-01-1472.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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Sample Summary

Client:	APEX Laboratories, LLC 12232 SW Garden Place Portland, OR 97223-8246	Work Order:	18-01-1472
		Project Name:	A8A0548
		PO Number:	
		Date/Time Received:	01/20/18 11:30
		Number of Containers:	11
Attn:	Philip Nerenberg		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
B21-SW2-01172018	18-01-1472-1	01/17/18 17:30	2	Aqueous
B21-SW3-01182018	18-01-1472-2	01/18/18 09:15	2	Aqueous
B21-SW6-01172018	18-01-1472-3	01/17/18 18:00	2	Aqueous
B21-CB2-01172018	18-01-1472-4	01/17/18 16:15	2	Aqueous
B21-CB9-01172018	18-01-1472-5	01/17/18 16:50	2	Aqueous
B21-RD1-01172018	18-01-1472-6	01/17/18 16:20	1	Aqueous

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Analytical Report

APEX Laboratories, LLC
12232 SW Garden Place
Portland, OR 97223-8246

Project: A8A0548

Date Received: 01/20/18
Work Order: 18-01-1472
Preparation: EPA 3510C
Method: Organotins by Krone et al.
Units: ng/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B21-SW2-01172018	**18-01-1472-1-A**	**01/17/18 17:30**	**Aqueous**	**GC/MS Y**	**01/22/18**	**01/25/18 21:23**	**180122L03**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	3.0	1.8	1.00	
Monobutyltin	ND	3.0	2.3	1.00	
Tetrabutyltin	ND	3.0	1.9	1.00	
Tributyltin	ND	3.0	1.3	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	66	19-121	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B21-SW3-01182018	**18-01-1472-2-A**	**01/18/18 09:15**	**Aqueous**	**GC/MS Y**	**01/22/18**	**01/25/18 21:40**	**180122L03**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	3.0	1.8	1.00	
Monobutyltin	ND	3.0	2.3	1.00	
Tetrabutyltin	ND	3.0	1.9	1.00	
Tributyltin	ND	3.0	1.3	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	66	19-121	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B21-SW6-01172018	**18-01-1472-3-A**	**01/17/18 18:00**	**Aqueous**	**GC/MS Y**	**01/22/18**	**01/25/18 21:58**	**180122L03**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	3.0	1.8	1.00	
Monobutyltin	ND	3.0	2.4	1.00	
Tetrabutyltin	ND	3.0	1.9	1.00	
Tributyltin	ND	3.0	1.4	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	70	19-121	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

APEX Laboratories, LLC
12232 SW Garden Place
Portland, OR 97223-8246

Project: A8A0548

Date Received: 01/20/18
Work Order: 18-01-1472
Preparation: EPA 3510C
Method: Organotins by Krone et al.
Units: ng/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B21-CB2-01172018	**18-01-1472-4-A**	**01/17/18 16:15**	**Aqueous**	**GC/MS Y**	**01/22/18**	**01/25/18 22:15**	**180122L03**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	2.9	1.7	1.00	
Monobutyltin	ND	2.9	2.3	1.00	
Tetrabutyltin	ND	2.9	1.9	1.00	
Tributyltin	ND	2.9	1.3	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	34	19-121	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B21-CB9-01172018	**18-01-1472-5-A**	**01/17/18 16:50**	**Aqueous**	**GC/MS Y**	**01/22/18**	**01/25/18 22:32**	**180122L03**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	2.9	1.7	1.00	
Monobutyltin	ND	2.9	2.3	1.00	
Tetrabutyltin	ND	2.9	1.9	1.00	
Tributyltin	ND	2.9	1.3	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	66	19-121	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B21-RD1-01172018	**18-01-1472-6-A**	**01/17/18 16:20**	**Aqueous**	**GC/MS Y**	**01/22/18**	**01/25/18 22:49**	**180122L03**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	2.9	1.7	1.00	
Monobutyltin	110	2.9	2.3	1.00	
Tetrabutyltin	ND	2.9	1.9	1.00	
Tributyltin	ND	2.9	1.3	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	67	19-121	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

APEX Laboratories, LLC
12232 SW Garden Place
Portland, OR 97223-8246

Date Received: 01/20/18
Work Order: 18-01-1472
Preparation: EPA 3510C
Method: Organotins by Krone et al.
Units: ng/L

Project: A8A0548

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-07-035-481**	**N/A**	**Aqueous**	**GC/MS Y**	**01/22/18**	**01/25/18 20:14**	**180122L03**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	3.0	1.8	1.00	
Monobutyltin	ND	3.0	2.4	1.00	
Tetrabutyltin	ND	3.0	1.9	1.00	
Tributyltin	ND	3.0	1.4	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	94	19-121	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - LCS/LCSD

APEX Laboratories, LLC
12232 SW Garden Place
Portland, OR 97223-8246

Project: A8A0548

Date Received: 01/20/18
Work Order: 18-01-1472
Preparation: EPA 3510C
Method: Organotins by Krone et al.

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-035-481	**LCS**	**Aqueous**	**GC/MS Y**	**01/22/18**	**01/25/18 20:31**	**180122L03**
099-07-035-481	**LCSD**	**Aqueous**	**GC/MS Y**	**01/22/18**	**01/25/18 20:49**	**180122L03**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	200.0	131.0	66	151.5	76	35-131	14	0-20	
Tributyltin	200.0	100.6	50	122.0	61	50-120	19	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 18-01-1472 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
Organotins by Krone et al.	EPA 3510C	907	GC/MS Y	1

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Glossary of Terms and Qualifiers

Work Order: 18-01-1472 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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DK
PN

SUBCONTRACT ORDER

Apex Laboratories

A8A0548

AKK 1/19/18

18-01-1472

SENDING LABORATORY:

Apex Laboratories
12232 S.W. Garden Place
Tigard, OR 97223
Phone: (503) 718-2323
Fax: (503) 718-0333
Project Manager: Philip Nerenberg

RECEIVING LABORATORY:

Eurofins_CalScience
7440 Lincoln Way
Garden Grove, CA 92841-1427
Phone :(714) 895-5494
Fax: (714) 894-7501

1 **Sample Name: B21-SW2-01172018** **Water** **Sampled: 01/17/18 17:30** (A8A0548-02)

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub)	01/31/18 17:00	01/31/18 17:30	Krone
Containers Supplied:			
(K)1 L Amber Glass - Non Preserved			
(L)1 L Amber Glass - Non Preserved			

2 **Sample Name: B21-SW3-01182018** **Water** **Sampled: 01/18/18 09:15** (A8A0548-03)

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub)	01/31/18 17:00	02/01/18 09:15	Krone
Containers Supplied:			
(K)1 L Amber Glass - Non Preserved			
(L)1 L Amber Glass - Non Preserved			

3 **Sample Name: B21-SW6-01172018** **Water** **Sampled: 01/17/18 18:00** (A8A0548-04)

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub)	01/31/18 17:00	01/31/18 18:00	Krone
Containers Supplied:			
(K)1 L Amber Glass - Non Preserved			
(L)1 L Amber Glass - Non Preserved			

4 **Sample Name: B21-CB2-01172018** **Water** **Sampled: 01/17/18 16:15** (A8A0548-05)

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub)	01/31/18 17:00	01/31/18 16:15	Krone
Containers Supplied:			
(K)1 L Amber Glass - Non Preserved			
(L)1 L Amber Glass - Non Preserved			

Standard TAT

Released By	Date	Received By	Date
	1/19/18	Fed Ex (Shipper)	
Fed Ex (Shipper)			
			1/20/18 1130

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SUBCONTRACT ORDER

Apex Laboratories

A8A0548

BCC 1/19/18

5 **Sample Name: B21-CB9-01172018** **Water** **Sampled: 01/17/18 16:50** (A8A0548-06)

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub)	01/31/18 17:00	01/31/18 16:50	Krone
Containers Supplied:			
(K)1 L Amber Glass - Non Preserved			
(L)1 L Amber Glass - Non Preserved			

(2) 1 L ambers broken in transit.

6 **Sample Name: B21-RD1-01172018** **Water** **Sampled: 01/17/18 16:20** (A8A0548-07)

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub)	01/31/18 17:00	01/31/18 16:20	Krone
Containers Supplied:			
(M)1 L Amber Glass - Non Preserved			

Standard TAT

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Released By	Date	Received By	Date
	1/19/18	Fed Ex (Shipper)	
Fed Ex (Shipper)			
Released By	Date	Received By	Date
			1/20/18 1130

1472

FedEx Ship Manager - Print Your Label(s)

ORIGIN ID:BNOA (503) 718-2323
SAMPLE CONTROL
APEX LABS
12232 SW GARDEN PLACE

TIGARD, OR 97223
UNITED STATES US

SHIP DATE: 19JAN18
ACTWGT: 45.00 LB
CAD: 4716258/INET3920

BILL SENDER

TO DANIELLE GONSMAN
CALSCIENCE
7440 LINCOLN WAY

GARDEN GROVE CA 92841
(714) 895-5494 REF:
INV:
PO: DEPT:

549J18040104G

FedEx Express

1 of 2

TRK# 0201 7712 7574 0568

MASTER

SATURDAY 12:00P
PRIORITY OVERNIGHT

W0 APVA

92841
CA-US SNA

FedEx Ship Manager - Print Your Label(s)

FedEx Express

2 of 2

MPS# 0263 7712 7574 0958

Mstr# 7712 7574 0568 0201

SATURDAY 12:00P
PRIORITY OVERNIGHT

W0 APVA

92841
CA-US SNA

fting this label:

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WORK ORDER NUMBER: 18-01-1472

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 2

CLIENT: APEX

DATE: 01/30/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 2.2 °C (w/ CF): 2.4 °C; ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter Checked by: SR

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: SR

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: ZS

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☐	☐	☑
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☑	☐	☐
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	☐	☐	☑
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOAh ☐ VOAna$_2$ ☐ 100PJ ☐ 100PJna$_2$ ☐ 125AGB ☐ 125AGBh ☐ 125AGBp ☐ 125PB ☐ 125PBznna (pH__9)

☐ 250AGB ☐ 250CGB ☐ 250CGBs (pH__2) ☐ 250PB ☐ 250PBn (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJs (pH__2) ☐ 500PB

☑ 1AGB ☐ 1AGBna$_2$ ☐ 1AGBs (pH__2) ☐ 1AGBs (O&G) ☐ 1PB ☐ 1PBna (pH__12) ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (___) ☐ EnCores® (___) ☐ TerraCores® (___) ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, Labeled/Checked by: ZS

s = H_2SO_4, **u** = ultra-pure, **x** = Na_2SO_3+$NaHSO_4.H_2O$, **znna** = Zn $(CH_3CO_2)_2$ + NaOH Reviewed by: SR

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WORK ORDER NUMBER: 18-01-1472

SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 2

CLIENT: APEX

DATE: 01/20/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 1.8 °C (w/ CF): 2.0 °C; ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter Checked by: SR

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: SR

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: TH

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑ 1/20/18	☐	☑
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☑	☐	☐ VG 1/20/18
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	☐	☐	☑
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB ☐ 125PB**znna** (pH__9)

☐ 250AGB ☐ 250CGB ☐ 250CGB**s** (pH__2) ☐ 250PB ☐ 250PB**n** (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s** (pH__2) ☐ 500PB

☑ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** (pH__2) ☐ 1AGB**s** (O&G) ☐ 1PB ☐ 1PB**na** (pH__12) ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (___) ☐ EnCores® (___) ☐ TerraCores® (___) ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, Labeled/Checked by: TH

s = H_2SO_4, **u** = ultra-pure, **x** = Na_2SO_3+$NaHSO_4.H_2O$, **znna** = Zn $(CH_3CO_2)_2$ + NaOH Reviewed by: SR

* +6) only 1AGB

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Your Project #: A8A0548
Your C.O.C. #: na

Attention: Philip Nerenberg

Apex Laboratories
12232 SW Garden Place
Tigard, OR
USA 97223

Report Date: 2018/03/16
Report #: R5043938
Version: 4 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B814667
Received: 2018/01/20, 12:53

Sample Matrix: Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Dioxins/Furans in Water (8290A) (1)	3	2018/01/29	2018/02/10	BRL SOP-00406	EPA 8290A m
Dioxins/Furans in Water (8290A) (1)	3	2018/01/29	2018/02/11	BRL SOP-00406	EPA 8290A m
PCB Congeners in Water (1668A)	3	2018/01/27	2018/02/01	BRL SOP-00408	EPA 1668A m
PCB Congeners in Water (1668A)	2	2018/01/27	2018/02/02	BRL SOP-00408	EPA 1668A m
PCB Congeners in Water (1668A)	1	2018/01/27	2018/02/03	BRL SOP-00408	EPA 1668A m

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Confirmatory runs for 2,3,7,8-TCDF are performed only if the primary result is greater than the RDL.

U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.
E = Analyte concentration exceeds the maximum concentration level.
K = Estimated maximum possible concentration due to ion abundance ratio failure.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Stephanie Pollen, Project Manager
Email: SPollen@maxxam.ca
Phone# (905) 817-5700

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FYH632							
Sampling Date		2018/01/17 17:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW2-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.1 U	1.1	19	N/A	1.00	1.10	N/A	5378535
1,2,3,7,8-Penta CDD *	pg/L	1.3 U	1.3	47	N/A	1.00	1.30	N/A	5378535
1,2,3,4,7,8-Hexa CDD *	pg/L	0.98 U	0.98	47	N/A	0.100	0.0980	N/A	5378535
1,2,3,6,7,8-Hexa CDD *	pg/L	0.99 U	0.99	47	N/A	0.100	0.0990	N/A	5378535
1,2,3,7,8,9-Hexa CDD *	pg/L	0.97 U	0.97	47	N/A	0.100	0.0970	N/A	5378535
1,2,3,4,6,7,8-Hepta CDD *	pg/L	24.3 J	1.1	47	N/A	0.0100	0.243	N/A	5378535
Octa CDD *	pg/L	191	1.2	94	N/A	0.000300	0.0573	N/A	5378535
Total Tetra CDD *	pg/L	1.1 U	1.1	19	N/A	N/A	N/A	0	5378535
Total Penta CDD *	pg/L	1.3 U	1.3	47	N/A	N/A	N/A	0	5378535
Total Hexa CDD *	pg/L	6.44 J	0.98	47	N/A	N/A	N/A	2	5378535
Total Hepta CDD *	pg/L	53.2	1.1	47	N/A	N/A	N/A	2	5378535
2,3,7,8-Tetra CDF **	pg/L	1.1 U	1.1	19	N/A	0.100	0.110	N/A	5378535
1,2,3,7,8-Penta CDF **	pg/L	1.1 U	1.1	47	N/A	0.0300	0.0330	N/A	5378535
2,3,4,7,8-Penta CDF **	pg/L	1.1 U	1.1	47	N/A	0.300	0.330	N/A	5378535
1,2,3,4,7,8-Hexa CDF **	pg/L	0.96 U	0.96	47	N/A	0.100	0.0960	N/A	5378535
1,2,3,6,7,8-Hexa CDF **	pg/L	0.96 U	0.96	47	N/A	0.100	0.0960	N/A	5378535
2,3,4,6,7,8-Hexa CDF **	pg/L	1.0 U	1.0	47	N/A	0.100	0.100	N/A	5378535
1,2,3,7,8,9-Hexa CDF **	pg/L	1.1 U	1.1	47	N/A	0.100	0.110	N/A	5378535
1,2,3,4,6,7,8-Hepta CDF **	pg/L	5.9 U (1)	5.9	47	N/A	0.0100	0.0590	N/A	5378535
1,2,3,4,7,8,9-Hepta CDF **	pg/L	1.4 U	1.4	47	N/A	0.0100	0.0140	N/A	5378535
Octa CDF **	pg/L	15.2 J	1.0	94	N/A	0.000300	0.00456	N/A	5378535
Total Tetra CDF **	pg/L	1.1 U	1.1	19	N/A	N/A	N/A	0	5378535
Total Penta CDF **	pg/L	1.1 U	1.1	47	N/A	N/A	N/A	0	5378535
Total Hexa CDF **	pg/L	4.5 J	1.0	47	N/A	N/A	N/A	2	5378535
Total Hepta CDF **	pg/L	8.5 J	1.2	47	N/A	N/A	N/A	1	5378535
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	3.95	N/A	N/A

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FYH632							
Sampling Date		2018/01/17 17:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW2-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	110	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-1234678 HeptaCDF **	%	126	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-123478 HexaCDF **	%	112	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-123678 HexaCDD *	%	116	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-12378 PentaCDD *	%	123	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-12378 PentaCDF **	%	124	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-2378 TetraCDD *	%	98	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-2378 TetraCDF **	%	102	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-OCDD *	%	132	N/A	N/A	N/A	N/A	N/A	N/A	5378535

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

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DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FYH633							
Sampling Date		2018/01/18 09:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW3-01182018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	0.88 U	0.88	21	N/A	1.00	0.880	N/A	5378535
1,2,3,7,8-Penta CDD *	pg/L	0.96 U	0.96	52	N/A	1.00	0.960	N/A	5378535
1,2,3,4,7,8-Hexa CDD *	pg/L	1.3 U	1.3	52	N/A	0.100	0.130	N/A	5378535
1,2,3,6,7,8-Hexa CDD *	pg/L	1.3 U	1.3	52	N/A	0.100	0.130	N/A	5378535
1,2,3,7,8,9-Hexa CDD *	pg/L	1.3 U	1.3	52	N/A	0.100	0.130	N/A	5378535
1,2,3,4,6,7,8-Hepta CDD *	pg/L	3.1 J	1.0	52	N/A	0.0100	0.0310	N/A	5378535
Octa CDD *	pg/L	25.0 J	1.1	100	N/A	0.000300	0.00750	N/A	5378535
Total Tetra CDD *	pg/L	0.88 U	0.88	21	N/A	N/A	N/A	0	5378535
Total Penta CDD *	pg/L	0.96 U	0.96	52	N/A	N/A	N/A	0	5378535
Total Hexa CDD *	pg/L	1.3 U	1.3	52	N/A	N/A	N/A	0	5378535
Total Hepta CDD *	pg/L	6.2 J	1.0	52	N/A	N/A	N/A	2	5378535
2,3,7,8-Tetra CDF **	pg/L	1.0 U	1.0	21	N/A	0.100	0.100	N/A	5378535
1,2,3,7,8-Penta CDF **	pg/L	0.85 U	0.85	52	N/A	0.0300	0.0255	N/A	5378535
2,3,4,7,8-Penta CDF **	pg/L	0.84 U	0.84	52	N/A	0.300	0.252	N/A	5378535
1,2,3,4,7,8-Hexa CDF **	pg/L	1.1 U	1.1	52	N/A	0.100	0.110	N/A	5378535
1,2,3,6,7,8-Hexa CDF **	pg/L	1.1 U	1.1	52	N/A	0.100	0.110	N/A	5378535
2,3,4,6,7,8-Hexa CDF **	pg/L	1.1 U	1.1	52	N/A	0.100	0.110	N/A	5378535
1,2,3,7,8,9-Hexa CDF **	pg/L	1.2 U	1.2	52	N/A	0.100	0.120	N/A	5378535
1,2,3,4,6,7,8-Hepta CDF **	pg/L	1.1 U	1.1	52	N/A	0.0100	0.0110	N/A	5378535
1,2,3,4,7,8,9-Hepta CDF **	pg/L	1.3 U	1.3	52	N/A	0.0100	0.0130	N/A	5378535
Octa CDF **	pg/L	2.59 J	0.87	100	N/A	0.000300	0.000777	N/A	5378535
Total Tetra CDF **	pg/L	1.0 U	1.0	21	N/A	N/A	N/A	0	5378535
Total Penta CDF **	pg/L	0.85 U	0.85	52	N/A	N/A	N/A	0	5378535
Total Hexa CDF **	pg/L	1.1 U	1.1	52	N/A	N/A	N/A	0	5378535
Total Hepta CDF **	pg/L	1.2 U	1.2	52	N/A	N/A	N/A	0	5378535
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	3.12	N/A	N/A
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	118	N/A	N/A	N/A	N/A	N/A	N/A	5378535

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

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DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FYH633							
Sampling Date		2018/01/18 09:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW3-01182018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-1234678 HeptaCDF **	%	158 (1)	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-123478 HexaCDF **	%	108	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-123678 HexaCDD *	%	109	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-12378 PentaCDD *	%	107	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-12378 PentaCDF **	%	114	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-2378 TetraCDD *	%	74	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-2378 TetraCDF **	%	88	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-OCDD *	%	104	N/A	N/A	N/A	N/A	N/A	N/A	5378535

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

** CDF = Chloro Dibenzo-p-Furan

N/A = Not Applicable

* CDD = Chloro Dibenzo-p-Dioxin

(1) Internal standard is above method criteria. May be due to possible heterogenity

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DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FYH634							
Sampling Date		2018/01/17 18:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW6-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.1 U	1.1	19	N/A	1.00	1.10	N/A	5378535
1,2,3,7,8-Penta CDD *	pg/L	1.1 U	1.1	47	N/A	1.00	1.10	N/A	5378535
1,2,3,4,7,8-Hexa CDD *	pg/L	1.1 U	1.1	47	N/A	0.100	0.110	N/A	5378535
1,2,3,6,7,8-Hexa CDD *	pg/L	1.7 J	1.1	47	N/A	0.100	0.170	N/A	5378535
1,2,3,7,8,9-Hexa CDD *	pg/L	1.9 J	1.1	47	N/A	0.100	0.190	N/A	5378535
1,2,3,4,6,7,8-Hepta CDD *	pg/L	30.4 J	0.90	47	N/A	0.0100	0.304	N/A	5378535
Octa CDD *	pg/L	238	1.0	94	N/A	0.000300	0.0714	N/A	5378535
Total Tetra CDD *	pg/L	1.1 U	1.1	19	N/A	N/A	N/A	0	5378535
Total Penta CDD *	pg/L	1.1 U	1.1	47	N/A	N/A	N/A	0	5378535
Total Hexa CDD *	pg/L	11.6 J	1.1	47	N/A	N/A	N/A	4	5378535
Total Hepta CDD *	pg/L	63.6	0.90	47	N/A	N/A	N/A	2	5378535
2,3,7,8-Tetra CDF **	pg/L	1.2 J	1.0	19	N/A	0.100	0.120	N/A	5378535
1,2,3,7,8-Penta CDF **	pg/L	1.0 U	1.0	47	N/A	0.0300	0.0300	N/A	5378535
2,3,4,7,8-Penta CDF **	pg/L	1.0 U	1.0	47	N/A	0.300	0.300	N/A	5378535
1,2,3,4,7,8-Hexa CDF **	pg/L	1.0 U	1.0	47	N/A	0.100	0.100	N/A	5378535
1,2,3,6,7,8-Hexa CDF **	pg/L	1.0 U	1.0	47	N/A	0.100	0.100	N/A	5378535
2,3,4,6,7,8-Hexa CDF **	pg/L	1.0 U	1.0	47	N/A	0.100	0.100	N/A	5378535
1,2,3,7,8,9-Hexa CDF **	pg/L	1.1 U	1.1	47	N/A	0.100	0.110	N/A	5378535
1,2,3,4,6,7,8-Hepta CDF **	pg/L	6.0 U (1)	6.0	47	N/A	0.0100	0.0600	N/A	5378535
1,2,3,4,7,8,9-Hepta CDF **	pg/L	1.4 U	1.4	47	N/A	0.0100	0.0140	N/A	5378535
Octa CDF **	pg/L	17.3 J	1.5	94	N/A	0.000300	0.00519	N/A	5378535
Total Tetra CDF **	pg/L	1.2 J	1.0	19	N/A	N/A	N/A	1	5378535
Total Penta CDF **	pg/L	1.2 J	1.0	47	N/A	N/A	N/A	1	5378535
Total Hexa CDF **	pg/L	7.4 J	1.0	47	N/A	N/A	N/A	3	5378535
Total Hepta CDF **	pg/L	9.0 J	1.2	47	N/A	N/A	N/A	1	5378535
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	3.98	N/A	N/A

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FYH634							
Sampling Date		2018/01/17 18:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW6-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	119	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-1234678 HeptaCDF **	%	128	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-123478 HexaCDF **	%	110	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-123678 HexaCDD *	%	114	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-12378 PentaCDD *	%	117	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-12378 PentaCDF **	%	130	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-2378 TetraCDD *	%	98	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-2378 TetraCDF **	%	113	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-OCDD *	%	111	N/A	N/A	N/A	N/A	N/A	N/A	5378535

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

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DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FYH635							
Sampling Date		2018/01/17 16:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB2-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.3 U	1.3	19	N/A	1.00	1.30	N/A	5378535
1,2,3,7,8-Penta CDD *	pg/L	1.0 U	1.0	47	N/A	1.00	1.00	N/A	5378535
1,2,3,4,7,8-Hexa CDD *	pg/L	1.0 U	1.0	47	N/A	0.100	0.100	N/A	5378535
1,2,3,6,7,8-Hexa CDD *	pg/L	1.8 J	1.0	47	N/A	0.100	0.180	N/A	5378535
1,2,3,7,8,9-Hexa CDD *	pg/L	1.84 J	0.99	47	N/A	0.100	0.184	N/A	5378535
1,2,3,4,6,7,8-Hepta CDD *	pg/L	34.6 J	1.1	47	N/A	0.0100	0.346	N/A	5378535
Octa CDD *	pg/L	301	1.0	94	N/A	0.000300	0.0903	N/A	5378535
Total Tetra CDD *	pg/L	1.3 U	1.3	19	N/A	N/A	N/A	0	5378535
Total Penta CDD *	pg/L	1.0 U	1.0	47	N/A	N/A	N/A	0	5378535
Total Hexa CDD *	pg/L	11.7 J	1.0	47	N/A	N/A	N/A	4	5378535
Total Hepta CDD *	pg/L	68.9	1.1	47	N/A	N/A	N/A	2	5378535
2,3,7,8-Tetra CDF **	pg/L	1.1 U	1.1	19	N/A	0.100	0.110	N/A	5378535
1,2,3,7,8-Penta CDF **	pg/L	1.0 U	1.0	47	N/A	0.0300	0.0300	N/A	5378535
2,3,4,7,8-Penta CDF **	pg/L	1.0 U	1.0	47	N/A	0.300	0.300	N/A	5378535
1,2,3,4,7,8-Hexa CDF **	pg/L	0.99 U	0.99	47	N/A	0.100	0.0990	N/A	5378535
1,2,3,6,7,8-Hexa CDF **	pg/L	0.99 U	0.99	47	N/A	0.100	0.0990	N/A	5378535
2,3,4,6,7,8-Hexa CDF **	pg/L	1.0 U	1.0	47	N/A	0.100	0.100	N/A	5378535
1,2,3,7,8,9-Hexa CDF **	pg/L	1.1 U	1.1	47	N/A	0.100	0.110	N/A	5378535
1,2,3,4,6,7,8-Hepta CDF **	pg/L	7.2 U (1)	7.2	47	N/A	0.0100	0.0720	N/A	5378535
1,2,3,4,7,8,9-Hepta CDF **	pg/L	1.2 U	1.2	47	N/A	0.0100	0.0120	N/A	5378535
Octa CDF **	pg/L	24.9 J	1.5	94	N/A	0.000300	0.00747	N/A	5378535
Total Tetra CDF **	pg/L	1.2 J	1.1	19	N/A	N/A	N/A	1	5378535
Total Penta CDF **	pg/L	4.3 J	1.0	47	N/A	N/A	N/A	2	5378535
Total Hexa CDF **	pg/L	7.9 J	1.0	47	N/A	N/A	N/A	3	5378535
Total Hepta CDF **	pg/L	11.3 J	1.1	47	N/A	N/A	N/A	1	5378535
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	4.14	N/A	N/A

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FYH635							
Sampling Date		2018/01/17 16:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB2-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	121	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-1234678 HeptaCDF **	%	133	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-123478 HexaCDF **	%	113	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-123678 HexaCDD *	%	114	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-12378 PentaCDD *	%	135	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-12378 PentaCDF **	%	135	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-2378 TetraCDD *	%	104	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-2378 TetraCDF **	%	112	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-OCDD *	%	110	N/A	N/A	N/A	N/A	N/A	N/A	5378535

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

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DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FYH636							
Sampling Date		2018/01/17 16:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB9-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.1 U	1.1	19	N/A	1.00	1.10	N/A	5378535
1,2,3,7,8-Penta CDD *	pg/L	1.1 U	1.1	47	N/A	1.00	1.10	N/A	5378535
1,2,3,4,7,8-Hexa CDD *	pg/L	1.2 U	1.2	47	N/A	0.100	0.120	N/A	5378535
1,2,3,6,7,8-Hexa CDD *	pg/L	1.5 J	1.2	47	N/A	0.100	0.150	N/A	5378535
1,2,3,7,8,9-Hexa CDD *	pg/L	2.0 J	1.1	47	N/A	0.100	0.200	N/A	5378535
1,2,3,4,6,7,8-Hepta CDD *	pg/L	33.7 J	1.4	47	N/A	0.0100	0.337	N/A	5378535
Octa CDD *	pg/L	225	0.83	94	N/A	0.000300	0.0675	N/A	5378535
Total Tetra CDD *	pg/L	1.1 U	1.1	19	N/A	N/A	N/A	0	5378535
Total Penta CDD *	pg/L	1.1 U	1.1	47	N/A	N/A	N/A	0	5378535
Total Hexa CDD *	pg/L	11.6 J	1.2	47	N/A	N/A	N/A	4	5378535
Total Hepta CDD *	pg/L	67.9	1.4	47	N/A	N/A	N/A	2	5378535
2,3,7,8-Tetra CDF **	pg/L	1.1 U	1.1	19	N/A	0.100	0.110	N/A	5378535
1,2,3,7,8-Penta CDF **	pg/L	1.1 U	1.1	47	N/A	0.0300	0.0330	N/A	5378535
2,3,4,7,8-Penta CDF **	pg/L	1.1 U	1.1	47	N/A	0.300	0.330	N/A	5378535
1,2,3,4,7,8-Hexa CDF **	pg/L	0.95 U	0.95	47	N/A	0.100	0.0950	N/A	5378535
1,2,3,6,7,8-Hexa CDF **	pg/L	0.95 U	0.95	47	N/A	0.100	0.0950	N/A	5378535
2,3,4,6,7,8-Hexa CDF **	pg/L	0.99 U	0.99	47	N/A	0.100	0.0990	N/A	5378535
1,2,3,7,8,9-Hexa CDF **	pg/L	1.1 U	1.1	47	N/A	0.100	0.110	N/A	5378535
1,2,3,4,6,7,8-Hepta CDF **	pg/L	9.0 U (1)	9.0	47	N/A	0.0100	0.0900	N/A	5378535
1,2,3,4,7,8,9-Hepta CDF **	pg/L	1.7 U	1.7	47	N/A	0.0100	0.0170	N/A	5378535
Octa CDF **	pg/L	23.4 J	0.83	94	N/A	0.000300	0.00702	N/A	5378535
Total Tetra CDF **	pg/L	1.1 U	1.1	19	N/A	N/A	N/A	0	5378535
Total Penta CDF **	pg/L	6.5 J	1.1	47	N/A	N/A	N/A	2	5378535
Total Hexa CDF **	pg/L	15.5 J	0.99	47	N/A	N/A	N/A	3	5378535
Total Hepta CDF **	pg/L	12.6 J	1.6	47	N/A	N/A	N/A	1	5378535
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	4.06	N/A	N/A

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
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WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FYH636							
Sampling Date		2018/01/17 16:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB9-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	119	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-1234678 HeptaCDF **	%	135	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-123478 HexaCDF **	%	80	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-123678 HexaCDD *	%	114	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-12378 PentaCDD *	%	122	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-12378 PentaCDF **	%	123	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-2378 TetraCDD *	%	98	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-2378 TetraCDF **	%	104	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-OCDD *	%	132	N/A	N/A	N/A	N/A	N/A	N/A	5378535

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

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DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FYH637							
Sampling Date		2018/01/17 16:20							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-RD1-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	0.88 U	0.88	19	N/A	1.00	0.880	N/A	5378535
1,2,3,7,8-Penta CDD *	pg/L	1.1 U	1.1	47	N/A	1.00	1.10	N/A	5378535
1,2,3,4,7,8-Hexa CDD *	pg/L	1.0 U	1.0	47	N/A	0.100	0.100	N/A	5378535
1,2,3,6,7,8-Hexa CDD *	pg/L	1.2 J	1.0	47	N/A	0.100	0.120	N/A	5378535
1,2,3,7,8,9-Hexa CDD *	pg/L	1.2 J	1.0	47	N/A	0.100	0.120	N/A	5378535
1,2,3,4,6,7,8-Hepta CDD *	pg/L	32.5 J	1.5	47	N/A	0.0100	0.325	N/A	5378535
Octa CDD *	pg/L	193	1.3	94	N/A	0.000300	0.0579	N/A	5378535
Total Tetra CDD *	pg/L	0.88 U	0.88	19	N/A	N/A	N/A	0	5378535
Total Penta CDD *	pg/L	1.1 U	1.1	47	N/A	N/A	N/A	0	5378535
Total Hexa CDD *	pg/L	7.8 J	1.0	47	N/A	N/A	N/A	4	5378535
Total Hepta CDD *	pg/L	58.6	1.5	47	N/A	N/A	N/A	2	5378535
2,3,7,8-Tetra CDF **	pg/L	0.89 U	0.89	19	N/A	0.100	0.0890	N/A	5378535
1,2,3,7,8-Penta CDF **	pg/L	1.2 U	1.2	47	N/A	0.0300	0.0360	N/A	5378535
2,3,4,7,8-Penta CDF **	pg/L	1.2 U	1.2	47	N/A	0.300	0.360	N/A	5378535
1,2,3,4,7,8-Hexa CDF **	pg/L	0.92 U	0.92	47	N/A	0.100	0.0920	N/A	5378535
1,2,3,6,7,8-Hexa CDF **	pg/L	0.92 U	0.92	47	N/A	0.100	0.0920	N/A	5378535
2,3,4,6,7,8-Hexa CDF **	pg/L	0.95 U	0.95	47	N/A	0.100	0.0950	N/A	5378535
1,2,3,7,8,9-Hexa CDF **	pg/L	1.0 U	1.0	47	N/A	0.100	0.100	N/A	5378535
1,2,3,4,6,7,8-Hepta CDF **	pg/L	7.8 U (1)	7.8	47	N/A	0.0100	0.0780	N/A	5378535
1,2,3,4,7,8,9-Hepta CDF **	pg/L	1.3 U	1.3	47	N/A	0.0100	0.0130	N/A	5378535
Octa CDF **	pg/L	31.9 J	1.5	94	N/A	0.000300	0.00957	N/A	5378535
Total Tetra CDF **	pg/L	0.89 U	0.89	19	N/A	N/A	N/A	0	5378535
Total Penta CDF **	pg/L	1.2 U	1.2	47	N/A	N/A	N/A	0	5378535
Total Hexa CDF **	pg/L	5.16 J	0.96	47	N/A	N/A	N/A	2	5378535
Total Hepta CDF **	pg/L	13.8 J	1.2	47	N/A	N/A	N/A	1	5378535
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	3.67	N/A	N/A

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
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* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		FYH637							
Sampling Date		2018/01/17 16:20							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-RD1-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	102	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-1234678 HeptaCDF **	%	129	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-123478 HexaCDF **	%	112	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-123678 HexaCDD *	%	105	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-12378 PentaCDD *	%	110	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-12378 PentaCDF **	%	121	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-2378 TetraCDD *	%	90	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-2378 TetraCDF **	%	96	N/A	N/A	N/A	N/A	N/A	N/A	5378535
C13-OCDD *	%	122	N/A	N/A	N/A	N/A	N/A	N/A	5378535

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH632							
Sampling Date		2018/01/17 17:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW2-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2-MonoCB-(1)	ng/L	0.0174 J	0.0081	0.094	N/A	N/A	N/A	N/A	5378519
3-MonoCB-(2)	ng/L	0.0079 U	0.0079	0.094	N/A	N/A	N/A	N/A	5378519
4-MonoCB-(3)	ng/L	0.0094 J	0.0080	0.094	N/A	N/A	N/A	N/A	5378519
22'-DiCB-(4)	ng/L	0.226	0.040	0.094	N/A	N/A	N/A	N/A	5378519
2,3-DiCB-(5)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5378519
2,3'-DiCB-(6)	ng/L	0.074 J	0.012	0.094	N/A	N/A	N/A	N/A	5378519
2,4-DiCB-(7)	ng/L	0.017 J	0.013	0.094	N/A	N/A	N/A	N/A	5378519
2,4'-DiCB-(8)	ng/L	0.259	0.011	0.094	N/A	N/A	N/A	N/A	5378519
2,5-DiCB-(9)	ng/L	0.024 J	0.012	0.094	N/A	N/A	N/A	N/A	5378519
2,6-DiCB-(10)	ng/L	0.041 U	0.041	0.094	N/A	N/A	N/A	N/A	5378519
3,3'-DiCB-(11)	ng/L	0.451	0.013	0.094	N/A	N/A	N/A	N/A	5378519
DiCB-(12)+(13)	ng/L	0.034 U (1)	0.034	0.19	N/A	N/A	N/A	N/A	5378519
3,5-DiCB-(14)	ng/L	0.012 U	0.012	0.094	N/A	N/A	N/A	N/A	5378519
4,4'-DiCB-(15)	ng/L	0.227	0.020	0.094	N/A	N/A	N/A	N/A	5378519
22'3-TriCB-(16)	ng/L	0.216	0.013	0.094	N/A	N/A	N/A	N/A	5378519
22'4-TriCB-(17)	ng/L	0.245	0.013	0.094	N/A	N/A	N/A	N/A	5378519
TriCB-(18)+(30)	ng/L	0.501	0.010	0.19	N/A	N/A	N/A	N/A	5378519
22'6-TriCB-(19)	ng/L	0.0705 J	0.0087	0.094	N/A	N/A	N/A	N/A	5378519
TriCB-(20) + (28)	ng/L	0.727	0.0068	0.19	N/A	N/A	N/A	N/A	5378519
TriCB-(21)+(33)	ng/L	0.419	0.0067	0.19	N/A	N/A	N/A	N/A	5378519
234'-TriCB-(22)	ng/L	0.293	0.0072	0.094	N/A	N/A	N/A	N/A	5378519
235-TriCB-(23)	ng/L	0.0072 U	0.0072	0.094	N/A	N/A	N/A	N/A	5378519
236-TriCB-(24)	ng/L	0.013 J	0.011	0.094	N/A	N/A	N/A	N/A	5378519
23'4-TriCB-(25)	ng/L	0.0501 J	0.0063	0.094	N/A	N/A	N/A	N/A	5378519
TriCB-(26)+(29)	ng/L	0.114 J	0.0066	0.19	N/A	N/A	N/A	N/A	5378519
23'6-TriCB-(27)	ng/L	0.0406 J	0.0088	0.094	N/A	N/A	N/A	N/A	5378519
24'5-TriCB-(31)	ng/L	0.570	0.0063	0.094	N/A	N/A	N/A	N/A	5378519
24'6-TriCB-(32)	ng/L	0.172	0.0083	0.094	N/A	N/A	N/A	N/A	5378519
23'5'-TriCB-(34)	ng/L	0.0067 U	0.0067	0.094	N/A	N/A	N/A	N/A	5378519
33'4-TriCB-(35)	ng/L	0.0151 J	0.0069	0.094	N/A	N/A	N/A	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH632							
Sampling Date		2018/01/17 17:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW2-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'5-TriCB-(36)	ng/L	0.0059 U	0.0059	0.094	N/A	N/A	N/A	N/A	5378519
344'-TriCB-(37)	ng/L	0.255	0.011	0.094	N/A	N/A	N/A	N/A	5378519
345-TriCB-(38)	ng/L	0.0070 U	0.0070	0.094	N/A	N/A	N/A	N/A	5378519
34'5-TriCB-(39)	ng/L	0.0067 U	0.0067	0.094	N/A	N/A	N/A	N/A	5378519
TetraCB-(40)+(41)+(71)	ng/L	0.371	0.0062	0.28	N/A	N/A	N/A	N/A	5378519
22'34'-TetraCB-(42)	ng/L	0.222	0.0078	0.094	N/A	N/A	N/A	N/A	5378519
22'35-TetraCB-(43)	ng/L	0.0316 J	0.0084	0.094	N/A	N/A	N/A	N/A	5378519
TetraCB-(44)+(47)+(65)	ng/L	0.576	0.0055	0.28	N/A	N/A	N/A	N/A	5378519
TetraCB-(45)+(51)	ng/L	0.128 J	0.0060	0.19	N/A	N/A	N/A	N/A	5378519
22'36'-TetraCB-(46)	ng/L	0.0504 J	0.0069	0.094	N/A	N/A	N/A	N/A	5378519
22'45-TetraCB-(48)	ng/L	0.138	0.0061	0.094	N/A	N/A	N/A	N/A	5378519
TetraCB-(49)+TetraCB-(69)	ng/L	0.327	0.0053	0.19	N/A	N/A	N/A	N/A	5378519
TetraCB-(50)+(53)	ng/L	0.0870 J	0.0055	0.19	N/A	N/A	N/A	N/A	5378519
22'55'-TetraCB-(52)	ng/L	0.576	0.0056	0.094	N/A	N/A	N/A	N/A	5378519
22'66'-TetraCB-(54)	ng/L	0.0035 U	0.0035	0.094	N/A	N/A	N/A	N/A	5378519
233'4-TetraCB-(55)	ng/L	0.011 U	0.011	0.094	N/A	N/A	N/A	N/A	5378519
233'4'-Tetra CB(56)	ng/L	0.164	0.010	0.094	N/A	N/A	N/A	N/A	5378519
233'5-TetraCB-(57)	ng/L	0.0099 U	0.0099	0.094	N/A	N/A	N/A	N/A	5378519
233'5'-TetraCB-(58)	ng/L	0.011 U	0.011	0.094	N/A	N/A	N/A	N/A	5378519
TetraCB-(59)+(62)+(75)	ng/L	0.0536 J	0.0043	0.28	N/A	N/A	N/A	N/A	5378519
2344'-TetraCB -(60)	ng/L	0.096	0.011	0.094	N/A	N/A	N/A	N/A	5378519
TetraCB-(61)+(70)+(74)+(76)	ng/L	0.613	0.010	0.38	N/A	N/A	N/A	N/A	5378519
234'5-TetraCB-(63)	ng/L	0.011 U (1)	0.011	0.094	N/A	N/A	N/A	N/A	5378519
234'6-TetraCB-(64)	ng/L	0.284	0.0047	0.094	N/A	N/A	N/A	N/A	5378519
23'44'-TetraCB-(66)	ng/L	0.296	0.0092	0.094	N/A	N/A	N/A	N/A	5378519
23'45-TetraCB-(67)	ng/L	0.0131 J	0.0087	0.094	N/A	N/A	N/A	N/A	5378519
23'45'-TetraCB-(68)	ng/L	0.010 U	0.010	0.094	N/A	N/A	N/A	N/A	5378519
23'55'-TetraCB-(72)	ng/L	0.0099 U	0.0099	0.094	N/A	N/A	N/A	N/A	5378519
23'5'6-TetraCB-(73)	ng/L	0.0042 U	0.0042	0.094	N/A	N/A	N/A	N/A	5378519
33'44'-TetraCB-(77)	ng/L	0.044 J	0.013	0.094	N/A	0.000100	0.00000440	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

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	UNITS	B21-SW2-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'45-TetraCB-(78)	ng/L	0.010 U	0.010	0.094	N/A	N/A	N/A	N/A	5378519
33'45'-TetraCB(79)	ng/L	0.0088 U	0.0088	0.094	N/A	N/A	N/A	N/A	5378519
33'55'-TetraCB-(80)	ng/L	0.0091 U	0.0091	0.094	N/A	N/A	N/A	N/A	5378519
344'5-TetraCB-(81)	ng/L	0.013 U	0.013	0.094	N/A	0.000300	0.00000390	N/A	5378519
22'33'4-PentaCB-(82)	ng/L	0.087 J	0.021	0.094	N/A	N/A	N/A	N/A	5378519
PentaCB-(83)+(99)	ng/L	0.316	0.018	0.19	N/A	N/A	N/A	N/A	5378519
22'33'6-PentaCB-(84)	ng/L	0.189	0.021	0.094	N/A	N/A	N/A	N/A	5378519
PentaCB-(85)+(116)+(117)	ng/L	0.092 J	0.015	0.28	N/A	N/A	N/A	N/A	5378519
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	0.438 J	0.015	0.57	N/A	N/A	N/A	N/A	5378519
PentaCB-(88)+(91)	ng/L	0.086 J	0.017	0.19	N/A	N/A	N/A	N/A	5378519
22'346'-PentaCB-(89)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5378519
PentaCB-(90)+(101)+(113)	ng/L	0.575	0.015	0.28	N/A	N/A	N/A	N/A	5378519
22'355'-PentaCB-(92)	ng/L	0.111	0.018	0.094	N/A	N/A	N/A	N/A	5378519
PentaCB-(93)+(98)+(100)+(102)	ng/L	0.028 J	0.017	0.38	N/A	N/A	N/A	N/A	5378519
22'356'-PentaCB-(94)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5378519
22'35'6-PentaCB-(95)	ng/L	0.483	0.016	0.094	N/A	N/A	N/A	N/A	5378519
22'366'-PentaCB-(96)	ng/L	0.0055 U (1)	0.0055	0.094	N/A	N/A	N/A	N/A	5378519
22'45'6-PentaCB-(103)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5378519
22'466'-PentaCB-(104)	ng/L	0.0017 U	0.0017	0.094	N/A	N/A	N/A	N/A	5378519
233'44'-PentaCB-(105)	ng/L	0.226	0.016	0.094	N/A	0.0000300	0.00000678	N/A	5378519
233'45-PentaCB-(106)	ng/L	0.013 U	0.013	0.094	N/A	N/A	N/A	N/A	5378519
233'4'5-PentaCB-(107)	ng/L	0.028 J	0.012	0.094	N/A	N/A	N/A	N/A	5378519
PentaCB-(108)+(124)	ng/L	0.018 J	0.013	0.19	N/A	N/A	N/A	N/A	5378519
PentaCB-(110)+(115)	ng/L	0.830	0.014	0.19	N/A	N/A	N/A	N/A	5378519
233'55'-PentaCB-(111)	ng/L	0.013 U	0.013	0.094	N/A	N/A	N/A	N/A	5378519
233'56-PentaCB-(112)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5378519
2344'5-PentaCB-(114)	ng/L	0.015 U	0.015	0.094	N/A	0.0000300	0.000000450	N/A	5378519
23'44'5-PentaCB-(118)	ng/L	0.476	0.015	0.094	N/A	0.0000300	0.0000143	N/A	5378519
23'455'-PentaCB-(120)	ng/L	0.013 U	0.013	0.094	N/A	N/A	N/A	N/A	5378519
23'45'6-PentaCB-(121)	ng/L	0.013 U	0.013	0.094	N/A	N/A	N/A	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

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	UNITS	B21-SW2-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'5'-PentaCB-(122)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5378519
23'44'5'-PentaCB-(123)	ng/L	0.017 U	0.017	0.094	N/A	0.0000300	0.000000510	N/A	5378519
33'44'5-PentaCB-(126)	ng/L	0.014 U	0.014	0.094	N/A	0.100	0.00140	N/A	5378519
33'455'-PentaCB-(127)	ng/L	0.013 U	0.013	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(128)+(166)	ng/L	0.121 J	0.030	0.19	N/A	N/A	N/A	N/A	5378519
HexaCB-(129)+(138)+(163)	ng/L	0.819	0.032	0.28	N/A	N/A	N/A	N/A	5378519
22'33'45'-HexaCB-(130)	ng/L	0.044 U (1)	0.044	0.094	N/A	N/A	N/A	N/A	5378519
22'33'46-HexaCB-(131)	ng/L	0.042 U	0.042	0.094	N/A	N/A	N/A	N/A	5378519
22'33'46'-HexaCB-(132)	ng/L	0.276	0.039	0.094	N/A	N/A	N/A	N/A	5378519
22'33'55'-HexaCB-(133)	ng/L	0.035 U	0.035	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(134)+(143)	ng/L	0.040 U	0.040	0.19	N/A	N/A	N/A	N/A	5378519
HexaCB-(135)+(151)	ng/L	0.26 U (1)	0.26	0.19	N/A	N/A	N/A	N/A	5378519
22'33'66'-HexaCB-(136)	ng/L	0.101	0.015	0.094	N/A	N/A	N/A	N/A	5378519
22'344'5-HexaCB-(137)	ng/L	0.041 J	0.039	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(139)+(140)	ng/L	0.032 U	0.032	0.19	N/A	N/A	N/A	N/A	5378519
22'3455'-HexaCB-(141)	ng/L	0.148	0.036	0.094	N/A	N/A	N/A	N/A	5378519
22'3456-HexaCB-(142)	ng/L	0.038 U	0.038	0.094	N/A	N/A	N/A	N/A	5378519
22'345'6-HexaCB-(144)	ng/L	0.035 U (1)	0.035	0.094	N/A	N/A	N/A	N/A	5378519
22'3466'-HexaCB-(145)	ng/L	0.016 U	0.016	0.094	N/A	N/A	N/A	N/A	5378519
22'34'55'-HexaCB-(146)	ng/L	0.092 J	0.030	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(147)+(149)	ng/L	0.564	0.035	0.19	N/A	N/A	N/A	N/A	5378519
22'34'56'-HexaCB-(148)	ng/L	0.021 U	0.021	0.094	N/A	N/A	N/A	N/A	5378519
22'34'66'-HexaCB-(150)	ng/L	0.016 U	0.016	0.094	N/A	N/A	N/A	N/A	5378519
22'3566'-HexaCB-(152)	ng/L	0.013 U	0.013	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(153)+(168)	ng/L	0.563	0.027	0.19	N/A	N/A	N/A	N/A	5378519
22'44'56'-HexaCB-(154)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5378519
22'44'66'-HexaCB-(155)	ng/L	0.0098 U	0.0098	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(156)+(157)	ng/L	0.089 J	0.019	0.19	N/A	0.0000300	0.00000267	N/A	5378519
233'44'6-HexaCB-(158)	ng/L	0.080 J	0.024	0.094	N/A	N/A	N/A	N/A	5378519
233'455'-HexaCB-(159)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5378519

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Maxxam ID		FYH632							
Sampling Date		2018/01/17 17:30							
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	UNITS	B21-SW2-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'456-HexaCB-(160)	ng/L	0.030 U	0.030	0.094	N/A	N/A	N/A	N/A	5378519
233'45'6-HexaCB-(161)	ng/L	0.026 U	0.026	0.094	N/A	N/A	N/A	N/A	5378519
233'4'55'-HexaCB-(162)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5378519
233'4'5'6-HexaCB-(164)	ng/L	0.048 J	0.025	0.094	N/A	N/A	N/A	N/A	5378519
233'55'6-HexaCB-(165)	ng/L	0.027 U	0.027	0.094	N/A	N/A	N/A	N/A	5378519
23'44'55'-HexaCB-(167)	ng/L	0.029 J	0.018	0.094	N/A	0.0000300	0.000000870	N/A	5378519
33'44'55'-HexaCB-(169)	ng/L	0.019 U	0.019	0.094	N/A	0.0300	0.000570	N/A	5378519
22'33'44'5-HeptaCB-(170)	ng/L	0.145	0.017	0.094	N/A	N/A	N/A	N/A	5378519
HeptaCB-(171)+(173)	ng/L	0.044 J	0.026	0.19	N/A	N/A	N/A	N/A	5378519
22'33'455'-HeptaCB-(172)	ng/L	0.027 U	0.027	0.094	N/A	N/A	N/A	N/A	5378519
22'33'456'-HeptaCB-(174)	ng/L	0.159	0.026	0.094	N/A	N/A	N/A	N/A	5378519
22'33'45'6-HeptaCB-(175)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5378519
22'33'466'-HeptaCB-(176)	ng/L	0.024 J	0.013	0.094	N/A	N/A	N/A	N/A	5378519
22'33'45'6'-HeptaCB-(177)	ng/L	0.087 J	0.026	0.094	N/A	N/A	N/A	N/A	5378519
22'33'55'6-HeptaCB-(178)	ng/L	0.040 J	0.019	0.094	N/A	N/A	N/A	N/A	5378519
22'33'566'-HeptaCB-(179)	ng/L	0.081 J	0.012	0.094	N/A	N/A	N/A	N/A	5378519
HeptaCB-(180)+(193)	ng/L	0.345	0.017	0.19	N/A	N/A	N/A	N/A	5378519
22'344'56-HeptaCB-(181)	ng/L	0.025 U	0.025	0.094	N/A	N/A	N/A	N/A	5378519
22'344'56'-HeptaCB-(182)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5378519
22'344'5'6-HeptaCB-(183)	ng/L	0.085 J	0.021	0.094	N/A	N/A	N/A	N/A	5378519
22'344'66'-HeptaCB-(184)	ng/L	0.012 U	0.012	0.094	N/A	N/A	N/A	N/A	5378519
22'3455'6-HeptaCB-(185)	ng/L	0.028 U	0.028	0.094	N/A	N/A	N/A	N/A	5378519
22'34566'-HeptaCB-(186)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5378519
22'34'55'6-HeptaCB-(187)	ng/L	0.229	0.018	0.094	N/A	N/A	N/A	N/A	5378519
22'34'566'-HeptaCB-(188)	ng/L	0.012 U	0.012	0.094	N/A	N/A	N/A	N/A	5378519
233'44'55'-HeptaCB-(189)	ng/L	0.022 U	0.022	0.094	N/A	0.0000300	0.000000660	N/A	5378519
233'44'56-HeptaCB-(190)	ng/L	0.029 J	0.020	0.094	N/A	N/A	N/A	N/A	5378519
233'44'5'6-HeptaCB-(191)	ng/L	0.020 U	0.020	0.094	N/A	N/A	N/A	N/A	5378519
233'455'6-HeptaCB-(192)	ng/L	0.022 U	0.022	0.094	N/A	N/A	N/A	N/A	5378519
22'33'44'55'-OctaCB-(194)	ng/L	0.080 J	0.012	0.094	N/A	N/A	N/A	N/A	5378519

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22'33'44'56-OctaCB-(195)	ng/L	0.025 U (1)	0.025	0.094	N/A	N/A	N/A	N/A	5378519
22'33'44'56'-OctaCB-(196)	ng/L	0.058 J	0.043	0.094	N/A	N/A	N/A	N/A	5378519
22'33'44'66'OctaCB-(197)	ng/L	0.033 U	0.033	0.094	N/A	N/A	N/A	N/A	5378519
OctaCB-(198)+(199)	ng/L	0.137 J	0.044	0.19	N/A	N/A	N/A	N/A	5378519
22'33'4566'-OctaCB-(200)	ng/L	0.027 U	0.027	0.094	N/A	N/A	N/A	N/A	5378519
22'33'45'66'-OctaCB-(201)	ng/L	0.029 U	0.029	0.094	N/A	N/A	N/A	N/A	5378519
22'33'55'66'-OctaCB-(202)	ng/L	0.027 U	0.027	0.094	N/A	N/A	N/A	N/A	5378519
22'344'55'6-OctaCB-(203)	ng/L	0.096	0.042	0.094	N/A	N/A	N/A	N/A	5378519
22'344'566'-OctaCB-(204)	ng/L	0.030 U	0.030	0.094	N/A	N/A	N/A	N/A	5378519
233'44'55'6-OctaCB-(205)	ng/L	0.011 U	0.011	0.094	N/A	N/A	N/A	N/A	5378519
22'33'44'55'6-NonaCB-(206)	ng/L	0.072 J	0.027	0.094	N/A	N/A	N/A	N/A	5378519
22'33'44'566'-NonaCB-(207)	ng/L	0.024 U	0.024	0.094	N/A	N/A	N/A	N/A	5378519
22'33'455'66'-NonaCB-(208)	ng/L	0.027 U	0.027	0.094	N/A	N/A	N/A	N/A	5378519
DecaCB-(209)	ng/L	0.026 U (1)	0.026	0.094	N/A	N/A	N/A	N/A	5378519
Monochlorobiphenyl	ng/L	0.0268	0.0081	N/A	N/A	N/A	N/A	2	5378519
Dichlorobiphenyl	ng/L	1.28	0.041	N/A	N/A	N/A	N/A	7	5378519
Trichlorobiphenyl	ng/L	3.70	0.013	N/A	N/A	N/A	N/A	15	5378519
Tetrachlorobiphenyl	ng/L	4.07	0.013	N/A	N/A	N/A	N/A	18	5378519
Pentachlorobiphenyl	ng/L	3.98	0.021	N/A	N/A	N/A	N/A	15	5378519
Hexachlorobiphenyl	ng/L	2.97	0.042	N/A	N/A	N/A	N/A	13	5378519
Heptachlorobiphenyl	ng/L	1.27	0.028	N/A	N/A	N/A	N/A	11	5378519
Octachlorobiphenyl	ng/L	0.371	0.044	N/A	N/A	N/A	N/A	4	5378519
Nonachlorobiphenyl	ng/L	0.072	0.027	N/A	N/A	N/A	N/A	1	5378519
Decachlorobiphenyl	ng/L	0.0067 U	0.0067	N/A	N/A	N/A	N/A	0	5378519
Total PCB	ng/L	17.7	N/A	N/A	N/A	N/A	N/A	N/A	5378519
TOTAL TOXIC EQUIVALENCY	ng/L	N/A	N/A	N/A	N/A	N/A	0.00200	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	87	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'44'55'6-NonaCB-(206)	%	119	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'44'5-HeptaCB-(170)	%	115	N/A	N/A	N/A	N/A	N/A	N/A	5378519

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(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH632							
Sampling Date		2018/01/17 17:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW2-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-22'33'455'66'-NonaCB-(208)	%	115	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'55'66'-OctaCB-(202)	%	121	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'55'6-HeptaCB-(178)	%	126 (1)	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'344'55'-HeptaCB-(180)	%	114	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'34'566'-HeptaCB-(188)	%	100	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'44'66'-HexaCB-(155)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'466'-PentaCB-(104)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'66'-TetraCB-(54)	%	78	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'6-TriCB-(19)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'-DiCB-(4)	%	67	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'55'6-OctaCB-(205)	%	99	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'55'-HeptaCB-(189)	%	88	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'-PentaCB-(105)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'55'-PentaCB-(111)	%	108	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-23'44'55'-HexaCB-(167)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2344'5-PentaCB-(114)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-23'44'5-PentaCB-(118)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2'344'5-PentaCB-(123)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2-MonoCB-(1)	%	53	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'55'-HexaCB-(169)	%	68	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'5-PentaCB-(126)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'-TetraCB-(77)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-344'5-TetraCB-(81)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-344'-TriCB-(37)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-44'-DiCB-(15)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-4-MonoCB-(3)	%	65	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-DecaCB-(209)	%	128	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-HexaCB-(156)+(157)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	5378519

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(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH633							
Sampling Date		2018/01/18 09:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW3-01182018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2-MonoCB-(1)	ng/L	0.0064 U	0.0064	0.10	N/A	N/A	N/A	N/A	5378519
3-MonoCB-(2)	ng/L	0.0063 U	0.0063	0.10	N/A	N/A	N/A	N/A	5378519
4-MonoCB-(3)	ng/L	0.0063 U	0.0063	0.10	N/A	N/A	N/A	N/A	5378519
22'-DiCB-(4)	ng/L	0.030 U	0.030	0.10	N/A	N/A	N/A	N/A	5378519
2,3-DiCB-(5)	ng/L	0.014 U	0.014	0.10	N/A	N/A	N/A	N/A	5378519
2,3'-DiCB-(6)	ng/L	0.012 U	0.012	0.10	N/A	N/A	N/A	N/A	5378519
2,4-DiCB-(7)	ng/L	0.012 U	0.012	0.10	N/A	N/A	N/A	N/A	5378519
2,4'-DiCB-(8)	ng/L	0.016 J	0.011	0.10	N/A	N/A	N/A	N/A	5378519
2,5-DiCB-(9)	ng/L	0.012 U	0.012	0.10	N/A	N/A	N/A	N/A	5378519
2,6-DiCB-(10)	ng/L	0.030 U	0.030	0.10	N/A	N/A	N/A	N/A	5378519
3,3'-DiCB-(11)	ng/L	0.030 J	0.012	0.10	N/A	N/A	N/A	N/A	5378519
DiCB-(12)+(13)	ng/L	0.013 U	0.013	0.20	N/A	N/A	N/A	N/A	5378519
3,5-DiCB-(14)	ng/L	0.012 U	0.012	0.10	N/A	N/A	N/A	N/A	5378519
4,4'-DiCB-(15)	ng/L	0.029 J	0.019	0.10	N/A	N/A	N/A	N/A	5378519
22'3-TriCB-(16)	ng/L	0.018 U	0.018	0.10	N/A	N/A	N/A	N/A	5378519
22'4-TriCB-(17)	ng/L	0.018 U	0.018	0.10	N/A	N/A	N/A	N/A	5378519
TriCB-(18)+(30)	ng/L	0.039 J	0.014	0.20	N/A	N/A	N/A	N/A	5378519
22'6-TriCB-(19)	ng/L	0.026 J	0.012	0.10	N/A	N/A	N/A	N/A	5378519
TriCB-(20) + (28)	ng/L	0.0639 J	0.0071	0.20	N/A	N/A	N/A	N/A	5378519
TriCB-(21)+(33)	ng/L	0.0116 J	0.0069	0.20	N/A	N/A	N/A	N/A	5378519
234'-TriCB-(22)	ng/L	0.0168 J	0.0074	0.10	N/A	N/A	N/A	N/A	5378519
235-TriCB-(23)	ng/L	0.0075 U	0.0075	0.10	N/A	N/A	N/A	N/A	5378519
236-TriCB-(24)	ng/L	0.015 U	0.015	0.10	N/A	N/A	N/A	N/A	5378519
23'4-TriCB-(25)	ng/L	0.0065 U	0.0065	0.10	N/A	N/A	N/A	N/A	5378519
TriCB-(26)+(29)	ng/L	0.0080 J	0.0068	0.20	N/A	N/A	N/A	N/A	5378519
23'6-TriCB-(27)	ng/L	0.012 U	0.012	0.10	N/A	N/A	N/A	N/A	5378519
24'5-TriCB-(31)	ng/L	0.0330 J	0.0065	0.10	N/A	N/A	N/A	N/A	5378519
24'6-TriCB-(32)	ng/L	0.029 J	0.012	0.10	N/A	N/A	N/A	N/A	5378519
23'5'-TriCB-(34)	ng/L	0.0069 U	0.0069	0.10	N/A	N/A	N/A	N/A	5378519
33'4-TriCB-(35)	ng/L	0.0071 U	0.0071	0.10	N/A	N/A	N/A	N/A	5378519
33'5-TriCB-(36)	ng/L	0.0060 U	0.0060	0.10	N/A	N/A	N/A	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH633							
Sampling Date		2018/01/18 09:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW3-01182018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
344'-TriCB-(37)	ng/L	0.018 J	0.012	0.10	N/A	N/A	N/A	N/A	5378519
345-TriCB-(38)	ng/L	0.0072 U	0.0072	0.10	N/A	N/A	N/A	N/A	5378519
34'5-TriCB-(39)	ng/L	0.0069 U	0.0069	0.10	N/A	N/A	N/A	N/A	5378519
TetraCB-(40)+(41)+(71)	ng/L	0.045 J	0.023	0.30	N/A	N/A	N/A	N/A	5378519
22'34'-TetraCB-(42)	ng/L	0.030 U	0.030	0.10	N/A	N/A	N/A	N/A	5378519
22'35-TetraCB-(43)	ng/L	0.032 U	0.032	0.10	N/A	N/A	N/A	N/A	5378519
TetraCB-(44)+(47)+(65)	ng/L	0.081 J	0.021	0.30	N/A	N/A	N/A	N/A	5378519
TetraCB-(45)+(51)	ng/L	0.022 U	0.022	0.20	N/A	N/A	N/A	N/A	5378519
22'36'-TetraCB-(46)	ng/L	0.026 U	0.026	0.10	N/A	N/A	N/A	N/A	5378519
22'45-TetraCB-(48)	ng/L	0.023 U	0.023	0.10	N/A	N/A	N/A	N/A	5378519
TetraCB-(49)+TetraCB-(69)	ng/L	0.047 J	0.020	0.20	N/A	N/A	N/A	N/A	5378519
TetraCB-(50)+(53)	ng/L	0.021 U	0.021	0.20	N/A	N/A	N/A	N/A	5378519
22'55'-TetraCB-(52)	ng/L	0.130	0.021	0.10	N/A	N/A	N/A	N/A	5378519
22'66'-TetraCB-(54)	ng/L	0.0040 U	0.0040	0.10	N/A	N/A	N/A	N/A	5378519
233'4-TetraCB-(55)	ng/L	0.0092 U	0.0092	0.10	N/A	N/A	N/A	N/A	5378519
233'4'-Tetra CB(56)	ng/L	0.0161 J	0.0083	0.10	N/A	N/A	N/A	N/A	5378519
233'5-TetraCB-(57)	ng/L	0.0079 U	0.0079	0.10	N/A	N/A	N/A	N/A	5378519
233'5'-TetraCB-(58)	ng/L	0.0086 U	0.0086	0.10	N/A	N/A	N/A	N/A	5378519
TetraCB-(59)+(62)+(75)	ng/L	0.016 U	0.016	0.30	N/A	N/A	N/A	N/A	5378519
2344'-TetraCB -(60)	ng/L	0.0087 U	0.0087	0.10	N/A	N/A	N/A	N/A	5378519
TetraCB-(61)+(70)+(74)+(76)	ng/L	0.0726 J	0.0081	0.40	N/A	N/A	N/A	N/A	5378519
234'5-TetraCB-(63)	ng/L	0.0076 U	0.0076	0.10	N/A	N/A	N/A	N/A	5378519
234'6-TetraCB-(64)	ng/L	0.038 J	0.018	0.10	N/A	N/A	N/A	N/A	5378519
23'44'-TetraCB-(66)	ng/L	0.0378 J	0.0074	0.10	N/A	N/A	N/A	N/A	5378519
23'45-TetraCB-(67)	ng/L	0.0070 U	0.0070	0.10	N/A	N/A	N/A	N/A	5378519
23'45'-TetraCB-(68)	ng/L	0.0080 U	0.0080	0.10	N/A	N/A	N/A	N/A	5378519
23'55'-TetraCB-(72)	ng/L	0.0079 U	0.0079	0.10	N/A	N/A	N/A	N/A	5378519
23'5'6-TetraCB-(73)	ng/L	0.016 U	0.016	0.10	N/A	N/A	N/A	N/A	5378519
33'44'-TetraCB-(77)	ng/L	0.010 U	0.010	0.10	N/A	0.000100	0.00000100	N/A	5378519
33'45-TetraCB-(78)	ng/L	0.0084 U	0.0084	0.10	N/A	N/A	N/A	N/A	5378519
33'45'-TetraCB(79)	ng/L	0.0070 U	0.0070	0.10	N/A	N/A	N/A	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH633							
Sampling Date		2018/01/18 09:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW3-01182018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'55'-TetraCB-(80)	ng/L	0.0073 U	0.0073	0.10	N/A	N/A	N/A	N/A	5378519
344'5-TetraCB-(81)	ng/L	0.011 U	0.011	0.10	N/A	0.000300	0.00000330	N/A	5378519
22'33'4-PentaCB-(82)	ng/L	0.018 U	0.018	0.10	N/A	N/A	N/A	N/A	5378519
PentaCB-(83)+(99)	ng/L	0.094 J	0.015	0.20	N/A	N/A	N/A	N/A	5378519
22'33'6-PentaCB-(84)	ng/L	0.048 J	0.017	0.10	N/A	N/A	N/A	N/A	5378519
PentaCB-(85)+(116)+(117)	ng/L	0.023 U (1)	0.023	0.30	N/A	N/A	N/A	N/A	5378519
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	0.121 J	0.013	0.61	N/A	N/A	N/A	N/A	5378519
PentaCB-(88)+(91)	ng/L	0.022 J	0.014	0.20	N/A	N/A	N/A	N/A	5378519
22'346'-PentaCB-(89)	ng/L	0.016 U	0.016	0.10	N/A	N/A	N/A	N/A	5378519
PentaCB-(90)+(101)+(113)	ng/L	0.166 J	0.013	0.30	N/A	N/A	N/A	N/A	5378519
22'355'-PentaCB-(92)	ng/L	0.033 U (1)	0.033	0.10	N/A	N/A	N/A	N/A	5378519
PentaCB-(93)+(98)+(100)+(102)	ng/L	0.015 U	0.015	0.40	N/A	N/A	N/A	N/A	5378519
22'356'-PentaCB-(94)	ng/L	0.016 U	0.016	0.10	N/A	N/A	N/A	N/A	5378519
22'35'6-PentaCB-(95)	ng/L	0.149	0.014	0.10	N/A	N/A	N/A	N/A	5378519
22'366'-PentaCB-(96)	ng/L	0.0045 U	0.0045	0.10	N/A	N/A	N/A	N/A	5378519
22'45'6-PentaCB-(103)	ng/L	0.013 U	0.013	0.10	N/A	N/A	N/A	N/A	5378519
22'466'-PentaCB-(104)	ng/L	0.0028 U	0.0028	0.10	N/A	N/A	N/A	N/A	5378519
233'44'-PentaCB-(105)	ng/L	0.0460 J	0.0086	0.10	N/A	0.0000300	0.00000138	N/A	5378519
233'45-PentaCB-(106)	ng/L	0.0074 U	0.0074	0.10	N/A	N/A	N/A	N/A	5378519
233'4'5-PentaCB-(107)	ng/L	0.0066 U	0.0066	0.10	N/A	N/A	N/A	N/A	5378519
PentaCB-(108)+(124)	ng/L	0.0074 U	0.0074	0.20	N/A	N/A	N/A	N/A	5378519
PentaCB-(110)+(115)	ng/L	0.276	0.012	0.20	N/A	N/A	N/A	N/A	5378519
233'55'-PentaCB-(111)	ng/L	0.011 U	0.011	0.10	N/A	N/A	N/A	N/A	5378519
233'56-PentaCB-(112)	ng/L	0.012 U	0.012	0.10	N/A	N/A	N/A	N/A	5378519
2344'5-PentaCB-(114)	ng/L	0.0085 U	0.0085	0.10	N/A	0.0000300	0.000000255	N/A	5378519
23'44'5-PentaCB-(118)	ng/L	0.130	0.0085	0.10	N/A	0.0000300	0.00000390	N/A	5378519
23'455'-PentaCB-(120)	ng/L	0.011 U	0.011	0.10	N/A	N/A	N/A	N/A	5378519
23'45'6-PentaCB-(121)	ng/L	0.011 U	0.011	0.10	N/A	N/A	N/A	N/A	5378519
233'4'5'-PentaCB-(122)	ng/L	0.0078 U	0.0078	0.10	N/A	N/A	N/A	N/A	5378519
23'44'5'-PentaCB-(123)	ng/L	0.0095 U	0.0095	0.10	N/A	0.0000300	0.000000285	N/A	5378519

EDL = Estimated Detection Limit

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The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

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N/A = Not Applicable

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH633							
Sampling Date		2018/01/18 09:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW3-01182018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'5-PentaCB-(126)	ng/L	0.0080 U	0.0080	0.10	N/A	0.100	0.000800	N/A	5378519
33'455'-PentaCB-(127)	ng/L	0.0071 U	0.0071	0.10	N/A	N/A	N/A	N/A	5378519
HexaCB-(128)+(166)	ng/L	0.044 J	0.025	0.20	N/A	N/A	N/A	N/A	5378519
HexaCB-(129)+(138)+(163)	ng/L	0.258 J	0.027	0.30	N/A	N/A	N/A	N/A	5378519
22'33'45'-HexaCB-(130)	ng/L	0.033 U	0.033	0.10	N/A	N/A	N/A	N/A	5378519
22'33'46-HexaCB-(131)	ng/L	0.035 U	0.035	0.10	N/A	N/A	N/A	N/A	5378519
22'33'46'-HexaCB-(132)	ng/L	0.099 J	0.033	0.10	N/A	N/A	N/A	N/A	5378519
22'33'55'-HexaCB-(133)	ng/L	0.030 U	0.030	0.10	N/A	N/A	N/A	N/A	5378519
HexaCB-(134)+(143)	ng/L	0.034 U	0.034	0.20	N/A	N/A	N/A	N/A	5378519
HexaCB-(135)+(151)	ng/L	0.086 J	0.018	0.20	N/A	N/A	N/A	N/A	5378519
22'33'66'-HexaCB-(136)	ng/L	0.030 J	0.012	0.10	N/A	N/A	N/A	N/A	5378519
22'344'5-HexaCB-(137)	ng/L	0.033 U	0.033	0.10	N/A	N/A	N/A	N/A	5378519
HexaCB-(139)+(140)	ng/L	0.027 U	0.027	0.20	N/A	N/A	N/A	N/A	5378519
22'3455'-HexaCB-(141)	ng/L	0.050 J	0.030	0.10	N/A	N/A	N/A	N/A	5378519
22'3456-HexaCB-(142)	ng/L	0.032 U	0.032	0.10	N/A	N/A	N/A	N/A	5378519
22'345'6-HexaCB-(144)	ng/L	0.019 U	0.019	0.10	N/A	N/A	N/A	N/A	5378519
22'3466'-HexaCB-(145)	ng/L	0.014 U	0.014	0.10	N/A	N/A	N/A	N/A	5378519
22'34'55'-HexaCB-(146)	ng/L	0.031 U (1)	0.031	0.10	N/A	N/A	N/A	N/A	5378519
HexaCB-(147)+(149)	ng/L	0.196 J	0.029	0.20	N/A	N/A	N/A	N/A	5378519
22'34'56'-HexaCB-(148)	ng/L	0.017 U	0.017	0.10	N/A	N/A	N/A	N/A	5378519
22'34'66'-HexaCB-(150)	ng/L	0.013 U	0.013	0.10	N/A	N/A	N/A	N/A	5378519
22'3566'-HexaCB-(152)	ng/L	0.011 U	0.011	0.10	N/A	N/A	N/A	N/A	5378519
HexaCB-(153)+(168)	ng/L	0.185 J	0.023	0.20	N/A	N/A	N/A	N/A	5378519
22'44'56'-HexaCB-(154)	ng/L	0.016 U	0.016	0.10	N/A	N/A	N/A	N/A	5378519
22'44'66'-HexaCB-(155)	ng/L	0.0082 U	0.0082	0.10	N/A	N/A	N/A	N/A	5378519
HexaCB-(156)+(157)	ng/L	0.0204 J	0.0072	0.20	N/A	0.0000300	0.000000612	N/A	5378519
233'44'6-HexaCB-(158)	ng/L	0.027 J	0.020	0.10	N/A	N/A	N/A	N/A	5378519
233'455'-HexaCB-(159)	ng/L	0.0058 U	0.0058	0.10	N/A	N/A	N/A	N/A	5378519
233'456-HexaCB-(160)	ng/L	0.025 U	0.025	0.10	N/A	N/A	N/A	N/A	5378519
233'45'6-HexaCB-(161)	ng/L	0.021 U	0.021	0.10	N/A	N/A	N/A	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH633							
Sampling Date		2018/01/18 09:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW3-01182018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'55'-HexaCB-(162)	ng/L	0.0059 U	0.0059	0.10	N/A	N/A	N/A	N/A	5378519
233'4'5'6-HexaCB-(164)	ng/L	0.021 U	0.021	0.10	N/A	N/A	N/A	N/A	5378519
233'55'6-HexaCB-(165)	ng/L	0.023 U	0.023	0.10	N/A	N/A	N/A	N/A	5378519
23'44'55'-HexaCB-(167)	ng/L	0.0070 U	0.0070	0.10	N/A	0.0000300	0.000000210	N/A	5378519
33'44'55'-HexaCB-(169)	ng/L	0.0075 U	0.0075	0.10	N/A	0.0300	0.000225	N/A	5378519
22'33'44'5-HeptaCB-(170)	ng/L	0.042 J	0.016	0.10	N/A	N/A	N/A	N/A	5378519
HeptaCB-(171)+(173)	ng/L	0.025 U	0.025	0.20	N/A	N/A	N/A	N/A	5378519
22'33'455'-HeptaCB-(172)	ng/L	0.025 U	0.025	0.10	N/A	N/A	N/A	N/A	5378519
22'33'456'-HeptaCB-(174)	ng/L	0.051 J	0.024	0.10	N/A	N/A	N/A	N/A	5378519
22'33'45'6-HeptaCB-(175)	ng/L	0.016 U	0.016	0.10	N/A	N/A	N/A	N/A	5378519
22'33'466'-HeptaCB-(176)	ng/L	0.012 U	0.012	0.10	N/A	N/A	N/A	N/A	5378519
22'33'45'6'-HeptaCB-(177)	ng/L	0.026 J	0.025	0.10	N/A	N/A	N/A	N/A	5378519
22'33'55'6-HeptaCB-(178)	ng/L	0.017 U	0.017	0.10	N/A	N/A	N/A	N/A	5378519
22'33'566'-HeptaCB-(179)	ng/L	0.028 U (1)	0.028	0.10	N/A	N/A	N/A	N/A	5378519
HeptaCB-(180)+(193)	ng/L	0.108 J	0.016	0.20	N/A	N/A	N/A	N/A	5378519
22'344'56-HeptaCB-(181)	ng/L	0.024 U	0.024	0.10	N/A	N/A	N/A	N/A	5378519
22'344'56'-HeptaCB-(182)	ng/L	0.016 U	0.016	0.10	N/A	N/A	N/A	N/A	5378519
22'344'5'6-HeptaCB-(183)	ng/L	0.023 J	0.019	0.10	N/A	N/A	N/A	N/A	5378519
22'344'66'-HeptaCB-(184)	ng/L	0.011 U	0.011	0.10	N/A	N/A	N/A	N/A	5378519
22'3455'6-HeptaCB-(185)	ng/L	0.026 U	0.026	0.10	N/A	N/A	N/A	N/A	5378519
22'34566'-HeptaCB-(186)	ng/L	0.012 U	0.012	0.10	N/A	N/A	N/A	N/A	5378519
22'34'55'6-HeptaCB-(187)	ng/L	0.087 J	0.016	0.10	N/A	N/A	N/A	N/A	5378519
22'34'566'-HeptaCB-(188)	ng/L	0.011 U	0.011	0.10	N/A	N/A	N/A	N/A	5378519
233'44'55'-HeptaCB-(189)	ng/L	0.0070 U	0.0070	0.10	N/A	0.0000300	0.000000210	N/A	5378519
233'44'56-HeptaCB-(190)	ng/L	0.018 U	0.018	0.10	N/A	N/A	N/A	N/A	5378519
233'44'5'6-HeptaCB-(191)	ng/L	0.018 U	0.018	0.10	N/A	N/A	N/A	N/A	5378519
233'455'6-HeptaCB-(192)	ng/L	0.020 U	0.020	0.10	N/A	N/A	N/A	N/A	5378519
22'33'44'55'-OctaCB-(194)	ng/L	0.027 U	0.027	0.10	N/A	N/A	N/A	N/A	5378519
22'33'44'56-OctaCB-(195)	ng/L	0.029 U	0.029	0.10	N/A	N/A	N/A	N/A	5378519
22'33'44'56'-OctaCB-(196)	ng/L	0.040 U	0.040	0.10	N/A	N/A	N/A	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH633							
Sampling Date		2018/01/18 09:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW3-01182018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'66'OctaCB-(197)	ng/L	0.030 U	0.030	0.10	N/A	N/A	N/A	N/A	5378519
OctaCB-(198)+(199)	ng/L	0.041 U	0.041	0.20	N/A	N/A	N/A	N/A	5378519
22'33'4566'-OctaCB-(200)	ng/L	0.025 U	0.025	0.10	N/A	N/A	N/A	N/A	5378519
22'33'45'66'-OctaCB-(201)	ng/L	0.027 U	0.027	0.10	N/A	N/A	N/A	N/A	5378519
22'33'55'66'-OctaCB-(202)	ng/L	0.025 U	0.025	0.10	N/A	N/A	N/A	N/A	5378519
22'344'55'6-OctaCB-(203)	ng/L	0.039 U	0.039	0.10	N/A	N/A	N/A	N/A	5378519
22'344'566'-OctaCB-(204)	ng/L	0.027 U	0.027	0.10	N/A	N/A	N/A	N/A	5378519
233'44'55'6-OctaCB-(205)	ng/L	0.025 U	0.025	0.10	N/A	N/A	N/A	N/A	5378519
22'33'44'55'6-NonaCB-(206)	ng/L	0.023 U	0.023	0.10	N/A	N/A	N/A	N/A	5378519
22'33'44'566'-NonaCB-(207)	ng/L	0.020 U	0.020	0.10	N/A	N/A	N/A	N/A	5378519
22'33'455'66'-NonaCB-(208)	ng/L	0.023 U	0.023	0.10	N/A	N/A	N/A	N/A	5378519
DecaCB-(209)	ng/L	0.035 U	0.035	0.10	N/A	N/A	N/A	N/A	5378519
Monochlorobiphenyl	ng/L	0.0064 U	0.0064	N/A	N/A	N/A	N/A	0	5378519
Dichlorobiphenyl	ng/L	0.075	0.030	N/A	N/A	N/A	N/A	3	5378519
Trichlorobiphenyl	ng/L	0.245	0.018	N/A	N/A	N/A	N/A	9	5378519
Tetrachlorobiphenyl	ng/L	0.468	0.032	N/A	N/A	N/A	N/A	8	5378519
Pentachlorobiphenyl	ng/L	1.07	0.018	N/A	N/A	N/A	N/A	10	5378519
Hexachlorobiphenyl	ng/L	0.995	0.035	N/A	N/A	N/A	N/A	10	5378519
Heptachlorobiphenyl	ng/L	0.338	0.026	N/A	N/A	N/A	N/A	6	5378519
Octachlorobiphenyl	ng/L	0.041 U	0.041	N/A	N/A	N/A	N/A	0	5378519
Nonachlorobiphenyl	ng/L	0.023 U	0.023	N/A	N/A	N/A	N/A	0	5378519
Decachlorobiphenyl	ng/L	0.035 U	0.035	N/A	N/A	N/A	N/A	0	5378519
Total PCB	ng/L	3.19	N/A	N/A	N/A	N/A	N/A	N/A	5378519
TOTAL TOXIC EQUIVALENCY	ng/L	N/A	N/A	N/A	N/A	N/A	0.00104	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'44'55'6-NonaCB-(206)	%	98	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'44'5-HeptaCB-(170)	%	147 (1)	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'455'66'-NonaCB-(208)	%	133	N/A	N/A	N/A	N/A	N/A	N/A	5378519

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QC Batch = Quality Control Batch

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(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH633							
Sampling Date		2018/01/18 09:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW3-01182018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-22'33'55'66'-OctaCB-(202)	%	177 (1)	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'55'6-HeptaCB-(178)	%	115	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'344'55'-HeptaCB-(180)	%	149 (2)	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'34'566'-HeptaCB-(188)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'44'66'-HexaCB-(155)	%	83	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'466'-PentaCB-(104)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'66'-TetraCB-(54)	%	59	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'6-TriCB-(19)	%	66	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'-DiCB-(4)	%	57	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'55'6-OctaCB-(205)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'55'-HeptaCB-(189)	%	98	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'-PentaCB-(105)	%	79	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'55'-PentaCB-(111)	%	108	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-23'44'55'-HexaCB-(167)	%	66	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2344'5-PentaCB-(114)	%	78	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-23'44'5-PentaCB-(118)	%	79	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2'344'5-PentaCB-(123)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2-MonoCB-(1)	%	45	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'55'-HexaCB-(169)	%	51	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'5-PentaCB-(126)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'-TetraCB-(77)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-344'5-TetraCB-(81)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-344'-TriCB-(37)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-44'-DiCB-(15)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-4-MonoCB-(3)	%	49	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-DecaCB-(209)	%	94	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-HexaCB-(156)+(157)	%	65	N/A	N/A	N/A	N/A	N/A	N/A	5378519

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QC Batch = Quality Control Batch

N/A = Not Applicable

(1) Internal standard recovery is outside method limits, possibly due to matrix effects.

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH634							
Sampling Date		2018/01/17 18:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW6-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2-MonoCB-(1)	ng/L	0.0221 J	0.0073	0.095	N/A	N/A	N/A	N/A	5378519
3-MonoCB-(2)	ng/L	0.0071 U	0.0071	0.095	N/A	N/A	N/A	N/A	5378519
4-MonoCB-(3)	ng/L	0.0102 J	0.0072	0.095	N/A	N/A	N/A	N/A	5378519
22'-DiCB-(4)	ng/L	0.187	0.026	0.095	N/A	N/A	N/A	N/A	5378519
2,3-DiCB-(5)	ng/L	0.015 U	0.015	0.095	N/A	N/A	N/A	N/A	5378519
2,3'-DiCB-(6)	ng/L	0.063 J	0.013	0.095	N/A	N/A	N/A	N/A	5378519
2,4-DiCB-(7)	ng/L	0.014 U	0.014	0.095	N/A	N/A	N/A	N/A	5378519
2,4'-DiCB-(8)	ng/L	0.227	0.012	0.095	N/A	N/A	N/A	N/A	5378519
2,5-DiCB-(9)	ng/L	0.017 U (1)	0.017	0.095	N/A	N/A	N/A	N/A	5378519
2,6-DiCB-(10)	ng/L	0.027 U	0.027	0.095	N/A	N/A	N/A	N/A	5378519
3,3'-DiCB-(11)	ng/L	0.368	0.014	0.095	N/A	N/A	N/A	N/A	5378519
DiCB-(12)+(13)	ng/L	0.034 J	0.015	0.19	N/A	N/A	N/A	N/A	5378519
3,5-DiCB-(14)	ng/L	0.013 U	0.013	0.095	N/A	N/A	N/A	N/A	5378519
4,4'-DiCB-(15)	ng/L	0.244	0.022	0.095	N/A	N/A	N/A	N/A	5378519
22'3-TriCB-(16)	ng/L	0.205	0.015	0.095	N/A	N/A	N/A	N/A	5378519
22'4-TriCB-(17)	ng/L	0.232	0.016	0.095	N/A	N/A	N/A	N/A	5378519
TriCB-(18)+(30)	ng/L	0.463	0.012	0.19	N/A	N/A	N/A	N/A	5378519
22'6-TriCB-(19)	ng/L	0.072 J	0.010	0.095	N/A	N/A	N/A	N/A	5378519
TriCB-(20) + (28)	ng/L	0.829	0.0069	0.19	N/A	N/A	N/A	N/A	5378519
TriCB-(21)+(33)	ng/L	0.372	0.0067	0.19	N/A	N/A	N/A	N/A	5378519
234'-TriCB-(22)	ng/L	0.293	0.0072	0.095	N/A	N/A	N/A	N/A	5378519
235-TriCB-(23)	ng/L	0.0073 U	0.0073	0.095	N/A	N/A	N/A	N/A	5378519
236-TriCB-(24)	ng/L	0.013 U	0.013	0.095	N/A	N/A	N/A	N/A	5378519
23'4-TriCB-(25)	ng/L	0.0511 J	0.0064	0.095	N/A	N/A	N/A	N/A	5378519
TriCB-(26)+(29)	ng/L	0.114 J	0.0066	0.19	N/A	N/A	N/A	N/A	5378519
23'6-TriCB-(27)	ng/L	0.048 J	0.010	0.095	N/A	N/A	N/A	N/A	5378519
24'5-TriCB-(31)	ng/L	0.578	0.0063	0.095	N/A	N/A	N/A	N/A	5378519
24'6-TriCB-(32)	ng/L	0.200	0.0098	0.095	N/A	N/A	N/A	N/A	5378519
23'5'-TriCB-(34)	ng/L	0.0067 U	0.0067	0.095	N/A	N/A	N/A	N/A	5378519
33'4-TriCB-(35)	ng/L	0.0176 J	0.0069	0.095	N/A	N/A	N/A	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

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COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW6-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'5-TriCB-(36)	ng/L	0.0059 U	0.0059	0.095	N/A	N/A	N/A	N/A	5378519
344'-TriCB-(37)	ng/L	0.301	0.011	0.095	N/A	N/A	N/A	N/A	5378519
345-TriCB-(38)	ng/L	0.0070 U	0.0070	0.095	N/A	N/A	N/A	N/A	5378519
34'5-TriCB-(39)	ng/L	0.0067 U	0.0067	0.095	N/A	N/A	N/A	N/A	5378519
TetraCB-(40)+(41)+(71)	ng/L	0.579	0.013	0.29	N/A	N/A	N/A	N/A	5378519
22'34'-TetraCB-(42)	ng/L	0.348	0.016	0.095	N/A	N/A	N/A	N/A	5378519
22'35-TetraCB-(43)	ng/L	0.047 J	0.017	0.095	N/A	N/A	N/A	N/A	5378519
TetraCB-(44)+(47)+(65)	ng/L	1.12	0.011	0.29	N/A	N/A	N/A	N/A	5378519
TetraCB-(45)+(51)	ng/L	0.196	0.012	0.19	N/A	N/A	N/A	N/A	5378519
22'36'-TetraCB-(46)	ng/L	0.064 J	0.014	0.095	N/A	N/A	N/A	N/A	5378519
22'45-TetraCB-(48)	ng/L	0.171	0.013	0.095	N/A	N/A	N/A	N/A	5378519
TetraCB-(49)+TetraCB-(69)	ng/L	0.698	0.011	0.19	N/A	N/A	N/A	N/A	5378519
TetraCB-(50)+(53)	ng/L	0.141 J	0.011	0.19	N/A	N/A	N/A	N/A	5378519
22'55'-TetraCB-(52)	ng/L	1.50	0.012	0.095	N/A	N/A	N/A	N/A	5378519
22'66'-TetraCB-(54)	ng/L	0.0051 U	0.0051	0.095	N/A	N/A	N/A	N/A	5378519
233'4-TetraCB-(55)	ng/L	0.0075 U	0.0075	0.095	N/A	N/A	N/A	N/A	5378519
233'4'-Tetra CB(56)	ng/L	0.269	0.0067	0.095	N/A	N/A	N/A	N/A	5378519
233'5-TetraCB-(57)	ng/L	0.0064 U	0.0064	0.095	N/A	N/A	N/A	N/A	5378519
233'5'-TetraCB-(58)	ng/L	0.0070 U	0.0070	0.095	N/A	N/A	N/A	N/A	5378519
TetraCB-(59)+(62)+(75)	ng/L	0.0944 J	0.0089	0.29	N/A	N/A	N/A	N/A	5378519
2344'-TetraCB -(60)	ng/L	0.122	0.0071	0.095	N/A	N/A	N/A	N/A	5378519
TetraCB-(61)+(70)+(74)+(76)	ng/L	1.15	0.0066	0.38	N/A	N/A	N/A	N/A	5378519
234'5-TetraCB-(63)	ng/L	0.0139 J	0.0062	0.095	N/A	N/A	N/A	N/A	5378519
234'6-TetraCB-(64)	ng/L	0.521	0.0098	0.095	N/A	N/A	N/A	N/A	5378519
23'44'-TetraCB-(66)	ng/L	0.627	0.0060	0.095	N/A	N/A	N/A	N/A	5378519
23'45-TetraCB-(67)	ng/L	0.0172 J	0.0057	0.095	N/A	N/A	N/A	N/A	5378519
23'45'-TetraCB-(68)	ng/L	0.0106 J	0.0065	0.095	N/A	N/A	N/A	N/A	5378519
23'55'-TetraCB-(72)	ng/L	0.0137 J	0.0065	0.095	N/A	N/A	N/A	N/A	5378519
23'5'6-TetraCB-(73)	ng/L	0.0086 U	0.0086	0.095	N/A	N/A	N/A	N/A	5378519
33'44'-TetraCB-(77)	ng/L	0.0825 J	0.0085	0.095	N/A	0.000100	0.00000825	N/A	5378519
33'45-TetraCB-(78)	ng/L	0.0068 U	0.0068	0.095	N/A	N/A	N/A	N/A	5378519

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	UNITS	B21-SW6-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'45'-TetraCB(79)	ng/L	0.0057 U	0.0057	0.095	N/A	N/A	N/A	N/A	5378519
33'55'-TetraCB-(80)	ng/L	0.0059 U	0.0059	0.095	N/A	N/A	N/A	N/A	5378519
344'5-TetraCB-(81)	ng/L	0.0086 U	0.0086	0.095	N/A	0.000300	0.00000258	N/A	5378519
22'33'4-PentaCB-(82)	ng/L	0.341	0.031	0.095	N/A	N/A	N/A	N/A	5378519
PentaCB-(83)+(99)	ng/L	1.82	0.026	0.19	N/A	N/A	N/A	N/A	5378519
22'33'6-PentaCB-(84)	ng/L	0.822	0.030	0.095	N/A	N/A	N/A	N/A	5378519
PentaCB-(85)+(116)+(117)	ng/L	0.495	0.022	0.29	N/A	N/A	N/A	N/A	5378519
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	2.10	0.022	0.57	N/A	N/A	N/A	N/A	5378519
PentaCB-(88)+(91)	ng/L	0.426	0.025	0.19	N/A	N/A	N/A	N/A	5378519
22'346'-PentaCB-(89)	ng/L	0.028 U	0.028	0.095	N/A	N/A	N/A	N/A	5378519
PentaCB-(90)+(101)+(113)	ng/L	3.17	0.022	0.29	N/A	N/A	N/A	N/A	5378519
22'355'-PentaCB-(92)	ng/L	0.649	0.027	0.095	N/A	N/A	N/A	N/A	5378519
PentaCB-(93)+(98)+(100)+(102)	ng/L	0.106 J	0.025	0.38	N/A	N/A	N/A	N/A	5378519
22'356'-PentaCB-(94)	ng/L	0.028 U	0.028	0.095	N/A	N/A	N/A	N/A	5378519
22'35'6-PentaCB-(95)	ng/L	2.45	0.024	0.095	N/A	N/A	N/A	N/A	5378519
22'366'-PentaCB-(96)	ng/L	0.019 U (1)	0.019	0.095	N/A	N/A	N/A	N/A	5378519
22'45'6-PentaCB-(103)	ng/L	0.022 U	0.022	0.095	N/A	N/A	N/A	N/A	5378519
22'466'-PentaCB-(104)	ng/L	0.0013 U	0.0013	0.095	N/A	N/A	N/A	N/A	5378519
233'44'-PentaCB-(105)	ng/L	0.830	0.010	0.095	N/A	0.0000300	0.0000249	N/A	5378519
233'45-PentaCB-(106)	ng/L	0.0088 U	0.0088	0.095	N/A	N/A	N/A	N/A	5378519
233'4'5-PentaCB-(107)	ng/L	0.159	0.0079	0.095	N/A	N/A	N/A	N/A	5378519
PentaCB-(108)+(124)	ng/L	0.0930 J	0.0088	0.19	N/A	N/A	N/A	N/A	5378519
PentaCB-(110)+(115)	ng/L	4.74	0.020	0.19	N/A	N/A	N/A	N/A	5378519
233'55'-PentaCB-(111)	ng/L	0.019 U	0.019	0.095	N/A	N/A	N/A	N/A	5378519
233'56-PentaCB-(112)	ng/L	0.021 U	0.021	0.095	N/A	N/A	N/A	N/A	5378519
2344'5-PentaCB-(114)	ng/L	0.029 J	0.010	0.095	N/A	0.0000300	0.000000870	N/A	5378519
23'44'5-PentaCB-(118)	ng/L	2.36	0.010	0.095	N/A	0.0000300	0.0000708	N/A	5378519
23'455'-PentaCB-(120)	ng/L	0.018 U	0.018	0.095	N/A	N/A	N/A	N/A	5378519
23'45'6-PentaCB-(121)	ng/L	0.019 U	0.019	0.095	N/A	N/A	N/A	N/A	5378519
233'4'5'-PentaCB-(122)	ng/L	0.025 U (1)	0.025	0.095	N/A	N/A	N/A	N/A	5378519

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23'44'5'-PentaCB-(123)	ng/L	0.024 U (1)	0.024	0.095	N/A	0.0000300	0.000000720	N/A	5378519
33'44'5-PentaCB-(126)	ng/L	0.0095 U	0.0095	0.095	N/A	0.100	0.000950	N/A	5378519
33'455'-PentaCB-(127)	ng/L	0.0084 U	0.0084	0.095	N/A	N/A	N/A	N/A	5378519
HexaCB-(128)+(166)	ng/L	0.712	0.027	0.19	N/A	N/A	N/A	N/A	5378519
HexaCB-(129)+(138)+(163)	ng/L	4.79	0.028	0.29	N/A	N/A	N/A	N/A	5378519
22'33'45'-HexaCB-(130)	ng/L	0.283	0.035	0.095	N/A	N/A	N/A	N/A	5378519
22'33'46-HexaCB-(131)	ng/L	0.069 J	0.038	0.095	N/A	N/A	N/A	N/A	5378519
22'33'46'-HexaCB-(132)	ng/L	1.59	0.035	0.095	N/A	N/A	N/A	N/A	5378519
22'33'55'-HexaCB-(133)	ng/L	0.065 J	0.031	0.095	N/A	N/A	N/A	N/A	5378519
HexaCB-(134)+(143)	ng/L	0.188 J	0.036	0.19	N/A	N/A	N/A	N/A	5378519
HexaCB-(135)+(151)	ng/L	1.76	0.024	0.19	N/A	N/A	N/A	N/A	5378519
22'33'66'-HexaCB-(136)	ng/L	0.633	0.016	0.095	N/A	N/A	N/A	N/A	5378519
22'344'5-HexaCB-(137)	ng/L	0.168	0.035	0.095	N/A	N/A	N/A	N/A	5378519
HexaCB-(139)+(140)	ng/L	0.075 J	0.029	0.19	N/A	N/A	N/A	N/A	5378519
22'3455'-HexaCB-(141)	ng/L	0.809	0.032	0.095	N/A	N/A	N/A	N/A	5378519
22'3456-HexaCB-(142)	ng/L	0.034 U	0.034	0.095	N/A	N/A	N/A	N/A	5378519
22'345'6-HexaCB-(144)	ng/L	0.231	0.024	0.095	N/A	N/A	N/A	N/A	5378519
22'3466'-HexaCB-(145)	ng/L	0.018 U	0.018	0.095	N/A	N/A	N/A	N/A	5378519
22'34'55'-HexaCB-(146)	ng/L	0.584	0.027	0.095	N/A	N/A	N/A	N/A	5378519
HexaCB-(147)+(149)	ng/L	3.16	0.031	0.19	N/A	N/A	N/A	N/A	5378519
22'34'56'-HexaCB-(148)	ng/L	0.022 U	0.022	0.095	N/A	N/A	N/A	N/A	5378519
22'34'66'-HexaCB-(150)	ng/L	0.017 U	0.017	0.095	N/A	N/A	N/A	N/A	5378519
22'3566'-HexaCB-(152)	ng/L	0.014 U	0.014	0.095	N/A	N/A	N/A	N/A	5378519
HexaCB-(153)+(168)	ng/L	3.45	0.024	0.19	N/A	N/A	N/A	N/A	5378519
22'44'56'-HexaCB-(154)	ng/L	0.062 U (1)	0.062	0.095	N/A	N/A	N/A	N/A	5378519
22'44'66'-HexaCB-(155)	ng/L	0.011 U	0.011	0.095	N/A	N/A	N/A	N/A	5378519
HexaCB-(156)+(157)	ng/L	0.415	0.0091	0.19	N/A	0.0000300	0.0000125	N/A	5378519
233'44'6-HexaCB-(158)	ng/L	0.434	0.021	0.095	N/A	N/A	N/A	N/A	5378519
233'455'-HexaCB-(159)	ng/L	0.0297 J	0.0073	0.095	N/A	N/A	N/A	N/A	5378519
233'456-HexaCB-(160)	ng/L	0.026 U	0.026	0.095	N/A	N/A	N/A	N/A	5378519

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233'45'6-HexaCB-(161)	ng/L	0.023 U	0.023	0.095	N/A	N/A	N/A	N/A	5378519
233'4'55'-HexaCB-(162)	ng/L	0.0075 U	0.0075	0.095	N/A	N/A	N/A	N/A	5378519
233'4'5'6-HexaCB-(164)	ng/L	0.332	0.022	0.095	N/A	N/A	N/A	N/A	5378519
233'55'6-HexaCB-(165)	ng/L	0.024 U	0.024	0.095	N/A	N/A	N/A	N/A	5378519
23'44'55'-HexaCB-(167)	ng/L	0.156	0.0088	0.095	N/A	0.0000300	0.00000468	N/A	5378519
33'44'55'-HexaCB-(169)	ng/L	0.0094 U	0.0094	0.095	N/A	0.0300	0.000282	N/A	5378519
22'33'44'5-HeptaCB-(170)	ng/L	0.781	0.021	0.095	N/A	N/A	N/A	N/A	5378519
HeptaCB-(171)+(173)	ng/L	0.259	0.034	0.19	N/A	N/A	N/A	N/A	5378519
22'33'455'-HeptaCB-(172)	ng/L	0.152	0.034	0.095	N/A	N/A	N/A	N/A	5378519
22'33'456'-HeptaCB-(174)	ng/L	0.943	0.033	0.095	N/A	N/A	N/A	N/A	5378519
22'33'45'6-HeptaCB-(175)	ng/L	0.048 U (1)	0.048	0.095	N/A	N/A	N/A	N/A	5378519
22'33'466'-HeptaCB-(176)	ng/L	0.145	0.0060	0.095	N/A	N/A	N/A	N/A	5378519
22'33'45'6'-HeptaCB-(177)	ng/L	0.524	0.034	0.095	N/A	N/A	N/A	N/A	5378519
22'33'55'6-HeptaCB-(178)	ng/L	0.240	0.0086	0.095	N/A	N/A	N/A	N/A	5378519
22'33'566'-HeptaCB-(179)	ng/L	0.464	0.0056	0.095	N/A	N/A	N/A	N/A	5378519
HeptaCB-(180)+(193)	ng/L	1.97	0.022	0.19	N/A	N/A	N/A	N/A	5378519
22'344'56-HeptaCB-(181)	ng/L	0.032 U	0.032	0.095	N/A	N/A	N/A	N/A	5378519
22'344'56'-HeptaCB-(182)	ng/L	0.0085 U	0.0085	0.095	N/A	N/A	N/A	N/A	5378519
22'344'5'6-HeptaCB-(183)	ng/L	0.526	0.027	0.095	N/A	N/A	N/A	N/A	5378519
22'344'66'-HeptaCB-(184)	ng/L	0.0058 U	0.0058	0.095	N/A	N/A	N/A	N/A	5378519
22'3455'6-HeptaCB-(185)	ng/L	0.035 U	0.035	0.095	N/A	N/A	N/A	N/A	5378519
22'34566'-HeptaCB-(186)	ng/L	0.0064 U	0.0064	0.095	N/A	N/A	N/A	N/A	5378519
22'34'55'6-HeptaCB-(187)	ng/L	1.57	0.0082	0.095	N/A	N/A	N/A	N/A	5378519
22'34'566'-HeptaCB-(188)	ng/L	0.0054 U	0.0054	0.095	N/A	N/A	N/A	N/A	5378519
233'44'55'-HeptaCB-(189)	ng/L	0.0352 J	0.0079	0.095	N/A	0.0000300	0.00000106	N/A	5378519
233'44'56-HeptaCB-(190)	ng/L	0.177	0.025	0.095	N/A	N/A	N/A	N/A	5378519
233'44'5'6-HeptaCB-(191)	ng/L	0.028 U (1)	0.028	0.095	N/A	N/A	N/A	N/A	5378519
233'455'6-HeptaCB-(192)	ng/L	0.027 U	0.027	0.095	N/A	N/A	N/A	N/A	5378519
22'33'44'55'-OctaCB-(194)	ng/L	0.568	0.030	0.095	N/A	N/A	N/A	N/A	5378519
22'33'44'56-OctaCB-(195)	ng/L	0.185	0.033	0.095	N/A	N/A	N/A	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH634							
Sampling Date		2018/01/17 18:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW6-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'56'-OctaCB-(196)	ng/L	0.366	0.024	0.095	N/A	N/A	N/A	N/A	5378519
22'33'44'66'OctaCB-(197)	ng/L	0.019 U	0.019	0.095	N/A	N/A	N/A	N/A	5378519
OctaCB-(198)+(199)	ng/L	0.909	0.025	0.19	N/A	N/A	N/A	N/A	5378519
22'33'4566'-OctaCB-(200)	ng/L	0.094 J	0.015	0.095	N/A	N/A	N/A	N/A	5378519
22'33'45'66'-OctaCB-(201)	ng/L	0.103	0.016	0.095	N/A	N/A	N/A	N/A	5378519
22'33'55'66'-OctaCB-(202)	ng/L	0.158	0.015	0.095	N/A	N/A	N/A	N/A	5378519
22'344'55'6-OctaCB-(203)	ng/L	0.570	0.024	0.095	N/A	N/A	N/A	N/A	5378519
22'344'566'-OctaCB-(204)	ng/L	0.017 U	0.017	0.095	N/A	N/A	N/A	N/A	5378519
233'44'55'6-OctaCB-(205)	ng/L	0.028 U	0.028	0.095	N/A	N/A	N/A	N/A	5378519
22'33'44'55'6-NonaCB-(206)	ng/L	0.399	0.0078	0.095	N/A	N/A	N/A	N/A	5378519
22'33'44'566'-NonaCB-(207)	ng/L	0.0568 J	0.0068	0.095	N/A	N/A	N/A	N/A	5378519
22'33'455'66'-NonaCB-(208)	ng/L	0.0974	0.0078	0.095	N/A	N/A	N/A	N/A	5378519
DecaCB-(209)	ng/L	0.086 U (1)	0.086	0.095	N/A	N/A	N/A	N/A	5378519
Monochlorobiphenyl	ng/L	0.0323	0.0073	N/A	N/A	N/A	N/A	2	5378519
Dichlorobiphenyl	ng/L	1.12	0.027	N/A	N/A	N/A	N/A	6	5378519
Trichlorobiphenyl	ng/L	3.78	0.016	N/A	N/A	N/A	N/A	14	5378519
Tetrachlorobiphenyl	ng/L	7.78	0.017	N/A	N/A	N/A	N/A	21	5378519
Pentachlorobiphenyl	ng/L	20.6	0.031	N/A	N/A	N/A	N/A	16	5378519
Hexachlorobiphenyl	ng/L	19.9	0.038	N/A	N/A	N/A	N/A	21	5378519
Heptachlorobiphenyl	ng/L	7.79	0.035	N/A	N/A	N/A	N/A	13	5378519
Octachlorobiphenyl	ng/L	2.95	0.033	N/A	N/A	N/A	N/A	8	5378519
Nonachlorobiphenyl	ng/L	0.554	0.0078	N/A	N/A	N/A	N/A	3	5378519
Decachlorobiphenyl	ng/L	0.010 U	0.010	N/A	N/A	N/A	N/A	0	5378519
Total PCB	ng/L	64.5	N/A	N/A	N/A	N/A	N/A	N/A	5378519
TOTAL TOXIC EQUIVALENCY	ng/L	N/A	N/A	N/A	N/A	N/A	0.00136	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'44'55'6-NonaCB-(206)	%	120	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'44'5-HeptaCB-(170)	%	116	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'455'66'-NonaCB-(208)	%	120	N/A	N/A	N/A	N/A	N/A	N/A	5378519

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	UNITS	B21-SW6-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-22'33'55'66'-OctaCB-(202)	%	131	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'55'6-HeptaCB-(178)	%	124	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'344'55'-HeptaCB-(180)	%	120	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'34'566'-HeptaCB-(188)	%	103	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'44'66'-HexaCB-(155)	%	110	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'466'-PentaCB-(104)	%	99	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'66'-TetraCB-(54)	%	84	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'6-TriCB-(19)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'-DiCB-(4)	%	84	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'55'6-OctaCB-(205)	%	102	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'55'-HeptaCB-(189)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'-PentaCB-(105)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'55'-PentaCB-(111)	%	111	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-23'44'55'-HexaCB-(167)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2344'5-PentaCB-(114)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-23'44'5-PentaCB-(118)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2'344'5-PentaCB-(123)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2-MonoCB-(1)	%	60	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'55'-HexaCB-(169)	%	62	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'5-PentaCB-(126)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'-TetraCB-(77)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-344'5-TetraCB-(81)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-344'-TriCB-(37)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-44'-DiCB-(15)	%	84	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-4-MonoCB-(3)	%	68	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-DecaCB-(209)	%	124	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-HexaCB-(156)+(157)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH635							
Sampling Date		2018/01/17 16:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB2-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2-MonoCB-(1)	ng/L	0.036 J	0.020	0.94	N/A	N/A	N/A	N/A	5378519
3-MonoCB-(2)	ng/L	0.020 U	0.020	0.94	N/A	N/A	N/A	N/A	5378519
4-MonoCB-(3)	ng/L	0.020 U	0.020	0.94	N/A	N/A	N/A	N/A	5378519
22'-DiCB-(4)	ng/L	0.94 U	0.94	0.94	N/A	N/A	N/A	N/A	5378519
2,3-DiCB-(5)	ng/L	0.81 U	0.81	0.94	N/A	N/A	N/A	N/A	5378519
2,3'-DiCB-(6)	ng/L	0.74 U	0.74	0.94	N/A	N/A	N/A	N/A	5378519
2,4-DiCB-(7)	ng/L	0.77 U	0.77	0.94	N/A	N/A	N/A	N/A	5378519
2,4'-DiCB-(8)	ng/L	0.75 U	0.75	0.94	N/A	N/A	N/A	N/A	5378519
2,5-DiCB-(9)	ng/L	0.74 U	0.74	0.94	N/A	N/A	N/A	N/A	5378519
2,6-DiCB-(10)	ng/L	0.91 U	0.91	0.94	N/A	N/A	N/A	N/A	5378519
3,3'-DiCB-(11)	ng/L	0.79 U	0.79	0.94	N/A	N/A	N/A	N/A	5378519
DiCB-(12)+(13)	ng/L	0.83 U	0.83	1.9	N/A	N/A	N/A	N/A	5378519
3,5-DiCB-(14)	ng/L	0.74 U	0.74	0.94	N/A	N/A	N/A	N/A	5378519
4,4'-DiCB-(15)	ng/L	1.2 U	1.2	0.94	N/A	N/A	N/A	N/A	5378519
22'3-TriCB-(16)	ng/L	0.41 U	0.41	0.94	N/A	N/A	N/A	N/A	5378519
22'4-TriCB-(17)	ng/L	0.35 U	0.35	0.94	N/A	N/A	N/A	N/A	5378519
TriCB-(18)+(30)	ng/L	0.32 J	0.28	1.9	N/A	N/A	N/A	N/A	5378519
22'6-TriCB-(19)	ng/L	0.24 U	0.24	0.94	N/A	N/A	N/A	N/A	5378519
TriCB-(20) + (28)	ng/L	0.436 J	0.039	1.9	N/A	N/A	N/A	N/A	5378519
TriCB-(21)+(33)	ng/L	0.271 J	0.036	1.9	N/A	N/A	N/A	N/A	5378519
234'-TriCB-(22)	ng/L	0.155 J	0.040	0.94	N/A	N/A	N/A	N/A	5378519
235-TriCB-(23)	ng/L	0.037 U	0.037	0.94	N/A	N/A	N/A	N/A	5378519
236-TriCB-(24)	ng/L	0.27 U	0.27	0.94	N/A	N/A	N/A	N/A	5378519
23'4-TriCB-(25)	ng/L	0.035 U	0.035	0.94	N/A	N/A	N/A	N/A	5378519
TriCB-(26)+(29)	ng/L	0.078 J	0.036	1.9	N/A	N/A	N/A	N/A	5378519
23'6-TriCB-(27)	ng/L	0.22 U	0.22	0.94	N/A	N/A	N/A	N/A	5378519
24'5-TriCB-(31)	ng/L	0.353 J	0.035	0.94	N/A	N/A	N/A	N/A	5378519
24'6-TriCB-(32)	ng/L	0.22 U	0.22	0.94	N/A	N/A	N/A	N/A	5378519
23'5'-TriCB-(34)	ng/L	0.037 U	0.037	0.94	N/A	N/A	N/A	N/A	5378519
33'4-TriCB-(35)	ng/L	0.038 U	0.038	0.94	N/A	N/A	N/A	N/A	5378519
33'5-TriCB-(36)	ng/L	0.032 U	0.032	0.94	N/A	N/A	N/A	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH635							
Sampling Date		2018/01/17 16:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB2-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
344'-TriCB-(37)	ng/L	0.196 J	0.062	0.94	N/A	N/A	N/A	N/A	5378519
345-TriCB-(38)	ng/L	0.038 U	0.038	0.94	N/A	N/A	N/A	N/A	5378519
34'5-TriCB-(39)	ng/L	0.037 U	0.037	0.94	N/A	N/A	N/A	N/A	5378519
TetraCB-(40)+(41)+(71)	ng/L	0.24 U	0.24	2.8	N/A	N/A	N/A	N/A	5378519
22'34'-TetraCB-(42)	ng/L	0.30 U	0.30	0.94	N/A	N/A	N/A	N/A	5378519
22'35-TetraCB-(43)	ng/L	0.31 U	0.31	0.94	N/A	N/A	N/A	N/A	5378519
TetraCB-(44)+(47)+(65)	ng/L	0.35 J	0.22	2.8	N/A	N/A	N/A	N/A	5378519
TetraCB-(45)+(51)	ng/L	0.23 U	0.23	1.9	N/A	N/A	N/A	N/A	5378519
22'36'-TetraCB-(46)	ng/L	0.27 U	0.27	0.94	N/A	N/A	N/A	N/A	5378519
22'45-TetraCB-(48)	ng/L	0.24 U	0.24	0.94	N/A	N/A	N/A	N/A	5378519
TetraCB-(49)+TetraCB-(69)	ng/L	0.20 U	0.20	1.9	N/A	N/A	N/A	N/A	5378519
TetraCB-(50)+(53)	ng/L	0.22 U	0.22	1.9	N/A	N/A	N/A	N/A	5378519
22'55'-TetraCB-(52)	ng/L	0.38 J	0.24	0.94	N/A	N/A	N/A	N/A	5378519
22'66'-TetraCB-(54)	ng/L	0.018 U	0.018	0.94	N/A	N/A	N/A	N/A	5378519
233'4-TetraCB-(55)	ng/L	0.073 U	0.073	0.94	N/A	N/A	N/A	N/A	5378519
233'4'-Tetra CB(56)	ng/L	0.133 J	0.065	0.94	N/A	N/A	N/A	N/A	5378519
233'5-TetraCB-(57)	ng/L	0.062 U	0.062	0.94	N/A	N/A	N/A	N/A	5378519
233'5'-TetraCB-(58)	ng/L	0.067 U	0.067	0.94	N/A	N/A	N/A	N/A	5378519
TetraCB-(59)+(62)+(75)	ng/L	0.17 U	0.17	2.8	N/A	N/A	N/A	N/A	5378519
2344'-TetraCB -(60)	ng/L	0.070 U	0.070	0.94	N/A	N/A	N/A	N/A	5378519
TetraCB-(61)+(70)+(74)+(76)	ng/L	0.476 J	0.065	3.8	N/A	N/A	N/A	N/A	5378519
234'5-TetraCB-(63)	ng/L	0.060 U	0.060	0.94	N/A	N/A	N/A	N/A	5378519
234'6-TetraCB-(64)	ng/L	0.19 U	0.19	0.94	N/A	N/A	N/A	N/A	5378519
23'44'-TetraCB-(66)	ng/L	0.224 J	0.058	0.94	N/A	N/A	N/A	N/A	5378519
23'45-TetraCB-(67)	ng/L	0.055 U	0.055	0.94	N/A	N/A	N/A	N/A	5378519
23'45'-TetraCB-(68)	ng/L	0.063 U	0.063	0.94	N/A	N/A	N/A	N/A	5378519
23'55'-TetraCB-(72)	ng/L	0.063 U	0.063	0.94	N/A	N/A	N/A	N/A	5378519
23'5'6-TetraCB-(73)	ng/L	0.16 U	0.16	0.94	N/A	N/A	N/A	N/A	5378519
33'44'-TetraCB-(77)	ng/L	0.079 U	0.079	0.94	N/A	0.000100	0.00000790	N/A	5378519
33'45-TetraCB-(78)	ng/L	0.066 U	0.066	0.94	N/A	N/A	N/A	N/A	5378519
33'45'-TetraCB(79)	ng/L	0.055 U	0.055	0.94	N/A	N/A	N/A	N/A	5378519

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	UNITS	B21-CB2-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'55'-TetraCB-(80)	ng/L	0.056 U	0.056	0.94	N/A	N/A	N/A	N/A	5378519
344'5-TetraCB-(81)	ng/L	0.080 U	0.080	0.94	N/A	0.000300	0.0000240	N/A	5378519
22'33'4-PentaCB-(82)	ng/L	0.17 U	0.17	0.94	N/A	N/A	N/A	N/A	5378519
PentaCB-(83)+(99)	ng/L	0.22 U (1)	0.22	1.9	N/A	N/A	N/A	N/A	5378519
22'33'6-PentaCB-(84)	ng/L	0.17 U	0.17	0.94	N/A	N/A	N/A	N/A	5378519
PentaCB-(85)+(116)+(117)	ng/L	0.13 U	0.13	2.8	N/A	N/A	N/A	N/A	5378519
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	0.38 J	0.13	5.7	N/A	N/A	N/A	N/A	5378519
PentaCB-(88)+(91)	ng/L	0.15 U	0.15	1.9	N/A	N/A	N/A	N/A	5378519
22'346'-PentaCB-(89)	ng/L	0.16 U	0.16	0.94	N/A	N/A	N/A	N/A	5378519
PentaCB-(90)+(101)+(113)	ng/L	0.44 J	0.13	2.8	N/A	N/A	N/A	N/A	5378519
22'355'-PentaCB-(92)	ng/L	0.15 U	0.15	0.94	N/A	N/A	N/A	N/A	5378519
PentaCB-(93)+(98)+(100)+(102)	ng/L	0.15 U	0.15	3.8	N/A	N/A	N/A	N/A	5378519
22'356'-PentaCB-(94)	ng/L	0.16 U	0.16	0.94	N/A	N/A	N/A	N/A	5378519
22'35'6-PentaCB-(95)	ng/L	0.36 J	0.14	0.94	N/A	N/A	N/A	N/A	5378519
22'366'-PentaCB-(96)	ng/L	0.036 U	0.036	0.94	N/A	N/A	N/A	N/A	5378519
22'45'6-PentaCB-(103)	ng/L	0.13 U	0.13	0.94	N/A	N/A	N/A	N/A	5378519
22'466'-PentaCB-(104)	ng/L	0.026 U	0.026	0.94	N/A	N/A	N/A	N/A	5378519
233'44'-PentaCB-(105)	ng/L	0.17 U (1)	0.17	0.94	N/A	0.0000300	0.00000510	N/A	5378519
233'45-PentaCB-(106)	ng/L	0.039 U	0.039	0.94	N/A	N/A	N/A	N/A	5378519
233'4'5-PentaCB-(107)	ng/L	0.035 U	0.035	0.94	N/A	N/A	N/A	N/A	5378519
PentaCB-(108)+(124)	ng/L	0.039 U	0.039	1.9	N/A	N/A	N/A	N/A	5378519
PentaCB-(110)+(115)	ng/L	0.67 J	0.12	1.9	N/A	N/A	N/A	N/A	5378519
233'55'-PentaCB-(111)	ng/L	0.11 U	0.11	0.94	N/A	N/A	N/A	N/A	5378519
233'56-PentaCB-(112)	ng/L	0.12 U	0.12	0.94	N/A	N/A	N/A	N/A	5378519
2344'5-PentaCB-(114)	ng/L	0.045 U	0.045	0.94	N/A	0.0000300	0.00000135	N/A	5378519
23'44'5-PentaCB-(118)	ng/L	0.487 J	0.045	0.94	N/A	0.0000300	0.0000146	N/A	5378519
23'455'-PentaCB-(120)	ng/L	0.10 U	0.10	0.94	N/A	N/A	N/A	N/A	5378519
23'45'6-PentaCB-(121)	ng/L	0.11 U	0.11	0.94	N/A	N/A	N/A	N/A	5378519
233'4'5'-PentaCB-(122)	ng/L	0.041 U	0.041	0.94	N/A	N/A	N/A	N/A	5378519
23'44'5'-PentaCB-(123)	ng/L	0.050 U	0.050	0.94	N/A	0.0000300	0.00000150	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH635							
Sampling Date		2018/01/17 16:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB2-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'5-PentaCB-(126)	ng/L	0.042 U	0.042	0.94	N/A	0.100	0.00420	N/A	5378519
33'455'-PentaCB-(127)	ng/L	0.038 U	0.038	0.94	N/A	N/A	N/A	N/A	5378519
HexaCB-(128)+(166)	ng/L	0.18 U	0.18	1.9	N/A	N/A	N/A	N/A	5378519
HexaCB-(129)+(138)+(163)	ng/L	0.75 U (1)	0.75	2.8	N/A	N/A	N/A	N/A	5378519
22'33'45'-HexaCB-(130)	ng/L	0.22 U	0.22	0.94	N/A	N/A	N/A	N/A	5378519
22'33'46-HexaCB-(131)	ng/L	0.23 U	0.23	0.94	N/A	N/A	N/A	N/A	5378519
22'33'46'-HexaCB-(132)	ng/L	0.22 U	0.22	0.94	N/A	N/A	N/A	N/A	5378519
22'33'55'-HexaCB-(133)	ng/L	0.20 U	0.20	0.94	N/A	N/A	N/A	N/A	5378519
HexaCB-(134)+(143)	ng/L	0.22 U	0.22	1.9	N/A	N/A	N/A	N/A	5378519
HexaCB-(135)+(151)	ng/L	0.15 U (1)	0.15	1.9	N/A	N/A	N/A	N/A	5378519
22'33'66'-HexaCB-(136)	ng/L	0.080 J	0.079	0.94	N/A	N/A	N/A	N/A	5378519
22'344'5-HexaCB-(137)	ng/L	0.23 U	0.23	0.94	N/A	N/A	N/A	N/A	5378519
HexaCB-(139)+(140)	ng/L	0.18 U	0.18	1.9	N/A	N/A	N/A	N/A	5378519
22'3455'-HexaCB-(141)	ng/L	0.21 U	0.21	0.94	N/A	N/A	N/A	N/A	5378519
22'3456-HexaCB-(142)	ng/L	0.21 U	0.21	0.94	N/A	N/A	N/A	N/A	5378519
22'345'6-HexaCB-(144)	ng/L	0.11 U	0.11	0.94	N/A	N/A	N/A	N/A	5378519
22'3466'-HexaCB-(145)	ng/L	0.084 U	0.084	0.94	N/A	N/A	N/A	N/A	5378519
22'34'55'-HexaCB-(146)	ng/L	0.17 U	0.17	0.94	N/A	N/A	N/A	N/A	5378519
HexaCB-(147)+(149)	ng/L	0.39 U (1)	0.39	1.9	N/A	N/A	N/A	N/A	5378519
22'34'56'-HexaCB-(148)	ng/L	0.11 U	0.11	0.94	N/A	N/A	N/A	N/A	5378519
22'34'66'-HexaCB-(150)	ng/L	0.075 U	0.075	0.94	N/A	N/A	N/A	N/A	5378519
22'3566'-HexaCB-(152)	ng/L	0.080 U	0.080	0.94	N/A	N/A	N/A	N/A	5378519
HexaCB-(153)+(168)	ng/L	0.47 U (1)	0.47	1.9	N/A	N/A	N/A	N/A	5378519
22'44'56'-HexaCB-(154)	ng/L	0.10 U	0.10	0.94	N/A	N/A	N/A	N/A	5378519
22'44'66'-HexaCB-(155)	ng/L	0.059 U	0.059	0.94	N/A	N/A	N/A	N/A	5378519
HexaCB-(156)+(157)	ng/L	0.092 U (2)	0.092	1.9	N/A	0.0000300	0.00000276	N/A	5378519
233'44'6-HexaCB-(158)	ng/L	0.14 U	0.14	0.94	N/A	N/A	N/A	N/A	5378519
233'455'-HexaCB-(159)	ng/L	0.032 U	0.032	0.94	N/A	N/A	N/A	N/A	5378519
233'456-HexaCB-(160)	ng/L	0.17 U	0.17	0.94	N/A	N/A	N/A	N/A	5378519

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(2) RT>2 seconds - PCDD/DF analysis-Peak maxima of monitored ions exceeds 2 seconds

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH635							
Sampling Date		2018/01/17 16:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB2-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'45'6-HexaCB-(161)	ng/L	0.15 U	0.15	0.94	N/A	N/A	N/A	N/A	5378519
233'4'55'-HexaCB-(162)	ng/L	0.032 U	0.032	0.94	N/A	N/A	N/A	N/A	5378519
233'4'5'6-HexaCB-(164)	ng/L	0.14 U	0.14	0.94	N/A	N/A	N/A	N/A	5378519
233'55'6-HexaCB-(165)	ng/L	0.15 U	0.15	0.94	N/A	N/A	N/A	N/A	5378519
23'44'55'-HexaCB-(167)	ng/L	0.037 U	0.037	0.94	N/A	0.0000300	0.00000111	N/A	5378519
33'44'55'-HexaCB-(169)	ng/L	0.039 U	0.039	0.94	N/A	0.0300	0.00117	N/A	5378519
22'33'44'5-HeptaCB-(170)	ng/L	0.11 U	0.11	0.94	N/A	N/A	N/A	N/A	5378519
HeptaCB-(171)+(173)	ng/L	0.18 U	0.18	1.9	N/A	N/A	N/A	N/A	5378519
22'33'455'-HeptaCB-(172)	ng/L	0.19 U	0.19	0.94	N/A	N/A	N/A	N/A	5378519
22'33'456'-HeptaCB-(174)	ng/L	0.17 U	0.17	0.94	N/A	N/A	N/A	N/A	5378519
22'33'45'6-HeptaCB-(175)	ng/L	0.11 U	0.11	0.94	N/A	N/A	N/A	N/A	5378519
22'33'466'-HeptaCB-(176)	ng/L	0.081 U	0.081	0.94	N/A	N/A	N/A	N/A	5378519
22'33'45'6'-HeptaCB-(177)	ng/L	0.18 U	0.18	0.94	N/A	N/A	N/A	N/A	5378519
22'33'55'6-HeptaCB-(178)	ng/L	0.12 U	0.12	0.94	N/A	N/A	N/A	N/A	5378519
22'33'566'-HeptaCB-(179)	ng/L	0.075 U	0.075	0.94	N/A	N/A	N/A	N/A	5378519
HeptaCB-(180)+(193)	ng/L	0.34 J	0.12	1.9	N/A	N/A	N/A	N/A	5378519
22'344'56-HeptaCB-(181)	ng/L	0.17 U	0.17	0.94	N/A	N/A	N/A	N/A	5378519
22'344'56'-HeptaCB-(182)	ng/L	0.11 U	0.11	0.94	N/A	N/A	N/A	N/A	5378519
22'344'5'6-HeptaCB-(183)	ng/L	0.14 U	0.14	0.94	N/A	N/A	N/A	N/A	5378519
22'344'66'-HeptaCB-(184)	ng/L	0.078 U	0.078	0.94	N/A	N/A	N/A	N/A	5378519
22'3455'6-HeptaCB-(185)	ng/L	0.19 U	0.19	0.94	N/A	N/A	N/A	N/A	5378519
22'34566'-HeptaCB-(186)	ng/L	0.087 U	0.087	0.94	N/A	N/A	N/A	N/A	5378519
22'34'55'6-HeptaCB-(187)	ng/L	0.19 U (1)	0.19	0.94	N/A	N/A	N/A	N/A	5378519
22'34'566'-HeptaCB-(188)	ng/L	0.079 U	0.079	0.94	N/A	N/A	N/A	N/A	5378519
233'44'55'-HeptaCB-(189)	ng/L	0.052 U	0.052	0.94	N/A	0.0000300	0.00000156	N/A	5378519
233'44'56-HeptaCB-(190)	ng/L	0.14 U	0.14	0.94	N/A	N/A	N/A	N/A	5378519
233'44'5'6-HeptaCB-(191)	ng/L	0.13 U	0.13	0.94	N/A	N/A	N/A	N/A	5378519
233'455'6-HeptaCB-(192)	ng/L	0.14 U	0.14	0.94	N/A	N/A	N/A	N/A	5378519
22'33'44'55'-OctaCB-(194)	ng/L	0.19 U	0.19	0.94	N/A	N/A	N/A	N/A	5378519
22'33'44'56-OctaCB-(195)	ng/L	0.21 U	0.21	0.94	N/A	N/A	N/A	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH635							
Sampling Date		2018/01/17 16:15							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB2-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'56'-OctaCB-(196)	ng/L	0.30 U	0.30	0.94	N/A	N/A	N/A	N/A	5378519
22'33'44'66'OctaCB-(197)	ng/L	0.19 U	0.19	0.94	N/A	N/A	N/A	N/A	5378519
OctaCB-(198)+(199)	ng/L	0.30 U	0.30	1.9	N/A	N/A	N/A	N/A	5378519
22'33'4566'-OctaCB-(200)	ng/L	0.22 U	0.22	0.94	N/A	N/A	N/A	N/A	5378519
22'33'45'66'-OctaCB-(201)	ng/L	0.20 U	0.20	0.94	N/A	N/A	N/A	N/A	5378519
22'33'55'66'-OctaCB-(202)	ng/L	0.20 U	0.20	0.94	N/A	N/A	N/A	N/A	5378519
22'344'55'6-OctaCB-(203)	ng/L	0.29 U	0.29	0.94	N/A	N/A	N/A	N/A	5378519
22'344'566'-OctaCB-(204)	ng/L	0.20 U	0.20	0.94	N/A	N/A	N/A	N/A	5378519
233'44'55'6-OctaCB-(205)	ng/L	0.17 U	0.17	0.94	N/A	N/A	N/A	N/A	5378519
22'33'44'55'6-NonaCB-(206)	ng/L	0.29 U	0.29	0.94	N/A	N/A	N/A	N/A	5378519
22'33'44'566'-NonaCB-(207)	ng/L	0.25 U	0.25	0.94	N/A	N/A	N/A	N/A	5378519
22'33'455'66'-NonaCB-(208)	ng/L	0.28 U	0.28	0.94	N/A	N/A	N/A	N/A	5378519
DecaCB-(209)	ng/L	0.12 U	0.12	0.94	N/A	N/A	N/A	N/A	5378519
Monochlorobiphenyl	ng/L	0.036	0.020	N/A	N/A	N/A	N/A	1	5378519
Dichlorobiphenyl	ng/L	1.2 U	1.2	N/A	N/A	N/A	N/A	0	5378519
Trichlorobiphenyl	ng/L	1.81	0.41	N/A	N/A	N/A	N/A	7	5378519
Tetrachlorobiphenyl	ng/L	1.56	0.31	N/A	N/A	N/A	N/A	5	5378519
Pentachlorobiphenyl	ng/L	2.33	0.17	N/A	N/A	N/A	N/A	5	5378519
Hexachlorobiphenyl	ng/L	0.23 U	0.23	N/A	N/A	N/A	N/A	1	5378519
Heptachlorobiphenyl	ng/L	0.34	0.19	N/A	N/A	N/A	N/A	1	5378519
Octachlorobiphenyl	ng/L	0.30 U	0.30	N/A	N/A	N/A	N/A	0	5378519
Nonachlorobiphenyl	ng/L	0.29 U	0.29	N/A	N/A	N/A	N/A	0	5378519
Decachlorobiphenyl	ng/L	0.12 U	0.12	N/A	N/A	N/A	N/A	0	5378519
Total PCB	ng/L	6.16	N/A	N/A	N/A	N/A	N/A	N/A	5378519
TOTAL TOXIC EQUIVALENCY	ng/L	N/A	N/A	N/A	N/A	N/A	0.00543	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'44'55'6-NonaCB-(206)	%	119	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'44'5-HeptaCB-(170)	%	117	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'455'66'-NonaCB-(208)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'55'66'-OctaCB-(202)	%	118	N/A	N/A	N/A	N/A	N/A	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH635							
Sampling Date		2018/01/17 16:15							
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	UNITS	B21-CB2-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-22'33'55'6-HeptaCB-(178)	%	131 (1)	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'344'55'-HeptaCB-(180)	%	108	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'34'566'-HeptaCB-(188)	%	102	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'44'66'-HexaCB-(155)	%	101	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'466'-PentaCB-(104)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'66'-TetraCB-(54)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'6-TriCB-(19)	%	103	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'-DiCB-(4)	%	100	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'55'6-OctaCB-(205)	%	103	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'55'-HeptaCB-(189)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'-PentaCB-(105)	%	102	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'55'-PentaCB-(111)	%	123	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-23'44'55'-HexaCB-(167)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2344'5-PentaCB-(114)	%	97	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-23'44'5-PentaCB-(118)	%	101	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2'344'5-PentaCB-(123)	%	96	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2-MonoCB-(1)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'55'-HexaCB-(169)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'5-PentaCB-(126)	%	96	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'-TetraCB-(77)	%	91	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-344'5-TetraCB-(81)	%	98	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-344'-TriCB-(37)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-44'-DiCB-(15)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-4-MonoCB-(3)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-DecaCB-(209)	%	123	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-HexaCB-(156)+(157)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	5378519

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(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH636							
Sampling Date		2018/01/17 16:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB9-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2-MonoCB-(1)	ng/L	0.043 J	0.015	0.094	N/A	N/A	N/A	N/A	5378519
3-MonoCB-(2)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5378519
4-MonoCB-(3)	ng/L	0.019 J	0.014	0.094	N/A	N/A	N/A	N/A	5378519
22'-DiCB-(4)	ng/L	0.233	0.027	0.094	N/A	N/A	N/A	N/A	5378519
2,3-DiCB-(5)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5378519
2,3'-DiCB-(6)	ng/L	0.086 J	0.013	0.094	N/A	N/A	N/A	N/A	5378519
2,4-DiCB-(7)	ng/L	0.017 U (1)	0.017	0.094	N/A	N/A	N/A	N/A	5378519
2,4'-DiCB-(8)	ng/L	0.355	0.012	0.094	N/A	N/A	N/A	N/A	5378519
2,5-DiCB-(9)	ng/L	0.029 J	0.013	0.094	N/A	N/A	N/A	N/A	5378519
2,6-DiCB-(10)	ng/L	0.028 U	0.028	0.094	N/A	N/A	N/A	N/A	5378519
3,3'-DiCB-(11)	ng/L	0.289	0.013	0.094	N/A	N/A	N/A	N/A	5378519
DiCB-(12)+(13)	ng/L	0.035 J	0.014	0.19	N/A	N/A	N/A	N/A	5378519
3,5-DiCB-(14)	ng/L	0.013 U	0.013	0.094	N/A	N/A	N/A	N/A	5378519
4,4'-DiCB-(15)	ng/L	0.230	0.021	0.094	N/A	N/A	N/A	N/A	5378519
22'3-TriCB-(16)	ng/L	0.276	0.025	0.094	N/A	N/A	N/A	N/A	5378519
22'4-TriCB-(17)	ng/L	0.284	0.025	0.094	N/A	N/A	N/A	N/A	5378519
TriCB-(18)+(30)	ng/L	0.600	0.020	0.19	N/A	N/A	N/A	N/A	5378519
22'6-TriCB-(19)	ng/L	0.065 U (1)	0.065	0.094	N/A	N/A	N/A	N/A	5378519
TriCB-(20) + (28)	ng/L	0.735	0.0083	0.19	N/A	N/A	N/A	N/A	5378519
TriCB-(21)+(33)	ng/L	0.473	0.0081	0.19	N/A	N/A	N/A	N/A	5378519
234'-TriCB-(22)	ng/L	0.303	0.0086	0.094	N/A	N/A	N/A	N/A	5378519
235-TriCB-(23)	ng/L	0.0087 U	0.0087	0.094	N/A	N/A	N/A	N/A	5378519
236-TriCB-(24)	ng/L	0.021 U	0.021	0.094	N/A	N/A	N/A	N/A	5378519
23'4-TriCB-(25)	ng/L	0.0539 J	0.0076	0.094	N/A	N/A	N/A	N/A	5378519
TriCB-(26)+(29)	ng/L	0.121 J	0.0080	0.19	N/A	N/A	N/A	N/A	5378519
23'6-TriCB-(27)	ng/L	0.044 J	0.017	0.094	N/A	N/A	N/A	N/A	5378519
24'5-TriCB-(31)	ng/L	0.604	0.0076	0.094	N/A	N/A	N/A	N/A	5378519
24'6-TriCB-(32)	ng/L	0.184	0.016	0.094	N/A	N/A	N/A	N/A	5378519
23'5'-TriCB-(34)	ng/L	0.0080 U	0.0080	0.094	N/A	N/A	N/A	N/A	5378519
33'4-TriCB-(35)	ng/L	0.0165 J	0.0083	0.094	N/A	N/A	N/A	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

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	UNITS	B21-CB9-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'5-TriCB-(36)	ng/L	0.0071 U	0.0071	0.094	N/A	N/A	N/A	N/A	5378519
344'-TriCB-(37)	ng/L	0.283	0.013	0.094	N/A	N/A	N/A	N/A	5378519
345-TriCB-(38)	ng/L	0.0084 U	0.0084	0.094	N/A	N/A	N/A	N/A	5378519
34'5-TriCB-(39)	ng/L	0.0081 U	0.0081	0.094	N/A	N/A	N/A	N/A	5378519
TetraCB-(40)+(41)+(71)	ng/L	0.455	0.021	0.28	N/A	N/A	N/A	N/A	5378519
22'34'-TetraCB-(42)	ng/L	0.249	0.026	0.094	N/A	N/A	N/A	N/A	5378519
22'35-TetraCB-(43)	ng/L	0.028 U	0.028	0.094	N/A	N/A	N/A	N/A	5378519
TetraCB-(44)+(47)+(65)	ng/L	0.693	0.018	0.28	N/A	N/A	N/A	N/A	5378519
TetraCB-(45)+(51)	ng/L	0.145 J	0.020	0.19	N/A	N/A	N/A	N/A	5378519
22'36'-TetraCB-(46)	ng/L	0.051 J	0.023	0.094	N/A	N/A	N/A	N/A	5378519
22'45-TetraCB-(48)	ng/L	0.154	0.021	0.094	N/A	N/A	N/A	N/A	5378519
TetraCB-(49)+TetraCB-(69)	ng/L	0.392	0.018	0.19	N/A	N/A	N/A	N/A	5378519
TetraCB-(50)+(53)	ng/L	0.092 J	0.019	0.19	N/A	N/A	N/A	N/A	5378519
22'55'-TetraCB-(52)	ng/L	0.758	0.019	0.094	N/A	N/A	N/A	N/A	5378519
22'66'-TetraCB-(54)	ng/L	0.0027 U	0.0027	0.094	N/A	N/A	N/A	N/A	5378519
233'4-TetraCB-(55)	ng/L	0.012 U	0.012	0.094	N/A	N/A	N/A	N/A	5378519
233'4'-Tetra CB(56)	ng/L	0.183	0.011	0.094	N/A	N/A	N/A	N/A	5378519
233'5-TetraCB-(57)	ng/L	0.010 U	0.010	0.094	N/A	N/A	N/A	N/A	5378519
233'5'-TetraCB-(58)	ng/L	0.011 U	0.011	0.094	N/A	N/A	N/A	N/A	5378519
TetraCB-(59)+(62)+(75)	ng/L	0.070 J	0.014	0.28	N/A	N/A	N/A	N/A	5378519
2344'-TetraCB -(60)	ng/L	0.103	0.011	0.094	N/A	N/A	N/A	N/A	5378519
TetraCB-(61)+(70)+(74)+(76)	ng/L	0.720	0.011	0.38	N/A	N/A	N/A	N/A	5378519
234'5-TetraCB-(63)	ng/L	0.0149 J	0.0099	0.094	N/A	N/A	N/A	N/A	5378519
234'6-TetraCB-(64)	ng/L	0.333	0.016	0.094	N/A	N/A	N/A	N/A	5378519
23'44'-TetraCB-(66)	ng/L	0.354	0.0096	0.094	N/A	N/A	N/A	N/A	5378519
23'45-TetraCB-(67)	ng/L	0.0146 J	0.0091	0.094	N/A	N/A	N/A	N/A	5378519
23'45'-TetraCB-(68)	ng/L	0.010 U	0.010	0.094	N/A	N/A	N/A	N/A	5378519
23'55'-TetraCB-(72)	ng/L	0.010 U	0.010	0.094	N/A	N/A	N/A	N/A	5378519
23'5'6-TetraCB-(73)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5378519
33'44'-TetraCB-(77)	ng/L	0.066 J	0.014	0.094	N/A	0.000100	0.00000660	N/A	5378519
33'45-TetraCB-(78)	ng/L	0.011 U	0.011	0.094	N/A	N/A	N/A	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

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	UNITS	B21-CB9-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'45'-TetraCB(79)	ng/L	0.0091 U	0.0091	0.094	N/A	N/A	N/A	N/A	5378519
33'55'-TetraCB-(80)	ng/L	0.0094 U	0.0094	0.094	N/A	N/A	N/A	N/A	5378519
344'5-TetraCB-(81)	ng/L	0.014 U	0.014	0.094	N/A	0.000300	0.00000420	N/A	5378519
22'33'4-PentaCB-(82)	ng/L	0.161	0.049	0.094	N/A	N/A	N/A	N/A	5378519
PentaCB-(83)+(99)	ng/L	0.601	0.042	0.19	N/A	N/A	N/A	N/A	5378519
22'33'6-PentaCB-(84)	ng/L	0.330	0.048	0.094	N/A	N/A	N/A	N/A	5378519
PentaCB-(85)+(116)+(117)	ng/L	0.174 J	0.035	0.28	N/A	N/A	N/A	N/A	5378519
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	0.791	0.036	0.57	N/A	N/A	N/A	N/A	5378519
PentaCB-(88)+(91)	ng/L	0.155 J	0.040	0.19	N/A	N/A	N/A	N/A	5378519
22'346'-PentaCB-(89)	ng/L	0.044 U	0.044	0.094	N/A	N/A	N/A	N/A	5378519
PentaCB-(90)+(101)+(113)	ng/L	1.01	0.035	0.28	N/A	N/A	N/A	N/A	5378519
22'355'-PentaCB-(92)	ng/L	0.212	0.042	0.094	N/A	N/A	N/A	N/A	5378519
PentaCB-(93)+(98)+(100)+(102)	ng/L	0.052 J	0.040	0.38	N/A	N/A	N/A	N/A	5378519
22'356'-PentaCB-(94)	ng/L	0.044 U	0.044	0.094	N/A	N/A	N/A	N/A	5378519
22'35'6-PentaCB-(95)	ng/L	0.853	0.038	0.094	N/A	N/A	N/A	N/A	5378519
22'366'-PentaCB-(96)	ng/L	0.0109 J	0.0032	0.094	N/A	N/A	N/A	N/A	5378519
22'45'6-PentaCB-(103)	ng/L	0.035 U	0.035	0.094	N/A	N/A	N/A	N/A	5378519
22'466'-PentaCB-(104)	ng/L	0.0020 U	0.0020	0.094	N/A	N/A	N/A	N/A	5378519
233'44'-PentaCB-(105)	ng/L	0.381	0.025	0.094	N/A	0.0000300	0.0000114	N/A	5378519
233'45-PentaCB-(106)	ng/L	0.021 U	0.021	0.094	N/A	N/A	N/A	N/A	5378519
233'4'5-PentaCB-(107)	ng/L	0.073 J	0.019	0.094	N/A	N/A	N/A	N/A	5378519
PentaCB-(108)+(124)	ng/L	0.035 J	0.021	0.19	N/A	N/A	N/A	N/A	5378519
PentaCB-(110)+(115)	ng/L	1.56	0.032	0.19	N/A	N/A	N/A	N/A	5378519
233'55'-PentaCB-(111)	ng/L	0.031 U	0.031	0.094	N/A	N/A	N/A	N/A	5378519
233'56-PentaCB-(112)	ng/L	0.033 U	0.033	0.094	N/A	N/A	N/A	N/A	5378519
2344'5-PentaCB-(114)	ng/L	0.024 U	0.024	0.094	N/A	0.0000300	0.000000720	N/A	5378519
23'44'5-PentaCB-(118)	ng/L	0.922	0.025	0.094	N/A	0.0000300	0.0000277	N/A	5378519
23'455'-PentaCB-(120)	ng/L	0.029 U	0.029	0.094	N/A	N/A	N/A	N/A	5378519
23'45'6-PentaCB-(121)	ng/L	0.030 U	0.030	0.094	N/A	N/A	N/A	N/A	5378519
233'4'5'-PentaCB-(122)	ng/L	0.022 U	0.022	0.094	N/A	N/A	N/A	N/A	5378519
23'44'5'-PentaCB-(123)	ng/L	0.027 U	0.027	0.094	N/A	0.0000300	0.000000810	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

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	UNITS	B21-CB9-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'5-PentaCB-(126)	ng/L	0.023 U	0.023	0.094	N/A	0.100	0.00230	N/A	5378519
33'455'-PentaCB-(127)	ng/L	0.020 U	0.020	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(128)+(166)	ng/L	0.258	0.047	0.19	N/A	N/A	N/A	N/A	5378519
HexaCB-(129)+(138)+(163)	ng/L	1.58	0.050	0.28	N/A	N/A	N/A	N/A	5378519
22'33'45'-HexaCB-(130)	ng/L	0.102	0.062	0.094	N/A	N/A	N/A	N/A	5378519
22'33'46-HexaCB-(131)	ng/L	0.066 U	0.066	0.094	N/A	N/A	N/A	N/A	5378519
22'33'46'-HexaCB-(132)	ng/L	0.566	0.061	0.094	N/A	N/A	N/A	N/A	5378519
22'33'55'-HexaCB-(133)	ng/L	0.056 U	0.056	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(134)+(143)	ng/L	0.063 U	0.063	0.19	N/A	N/A	N/A	N/A	5378519
HexaCB-(135)+(151)	ng/L	0.522	0.041	0.19	N/A	N/A	N/A	N/A	5378519
22'33'66'-HexaCB-(136)	ng/L	0.196	0.027	0.094	N/A	N/A	N/A	N/A	5378519
22'344'5-HexaCB-(137)	ng/L	0.065 J	0.062	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(139)+(140)	ng/L	0.051 U	0.051	0.19	N/A	N/A	N/A	N/A	5378519
22'3455'-HexaCB-(141)	ng/L	0.253	0.057	0.094	N/A	N/A	N/A	N/A	5378519
22'3456-HexaCB-(142)	ng/L	0.060 U	0.060	0.094	N/A	N/A	N/A	N/A	5378519
22'345'6-HexaCB-(144)	ng/L	0.063 U (1)	0.063	0.094	N/A	N/A	N/A	N/A	5378519
22'3466'-HexaCB-(145)	ng/L	0.030 U	0.030	0.094	N/A	N/A	N/A	N/A	5378519
22'34'55'-HexaCB-(146)	ng/L	0.234	0.048	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(147)+(149)	ng/L	0.986	0.055	0.19	N/A	N/A	N/A	N/A	5378519
22'34'56'-HexaCB-(148)	ng/L	0.039 U	0.039	0.094	N/A	N/A	N/A	N/A	5378519
22'34'66'-HexaCB-(150)	ng/L	0.030 U	0.030	0.094	N/A	N/A	N/A	N/A	5378519
22'3566'-HexaCB-(152)	ng/L	0.025 U	0.025	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(153)+(168)	ng/L	1.02	0.042	0.19	N/A	N/A	N/A	N/A	5378519
22'44'56'-HexaCB-(154)	ng/L	0.036 U	0.036	0.094	N/A	N/A	N/A	N/A	5378519
22'44'66'-HexaCB-(155)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(156)+(157)	ng/L	0.15 U (1)	0.15	0.19	N/A	0.0000300	0.00000450	N/A	5378519
233'44'6-HexaCB-(158)	ng/L	0.150	0.038	0.094	N/A	N/A	N/A	N/A	5378519
233'455'-HexaCB-(159)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5378519
233'456-HexaCB-(160)	ng/L	0.047 U	0.047	0.094	N/A	N/A	N/A	N/A	5378519
233'45'6-HexaCB-(161)	ng/L	0.040 U	0.040	0.094	N/A	N/A	N/A	N/A	5378519

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233'4'55'-HexaCB-(162)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5378519
233'4'5'6-HexaCB-(164)	ng/L	0.107	0.039	0.094	N/A	N/A	N/A	N/A	5378519
233'55'6-HexaCB-(165)	ng/L	0.043 U	0.043	0.094	N/A	N/A	N/A	N/A	5378519
23'44'55'-HexaCB-(167)	ng/L	0.053 U (1)	0.053	0.094	N/A	0.0000300	0.00000159	N/A	5378519
33'44'55'-HexaCB-(169)	ng/L	0.023 U	0.023	0.094	N/A	0.0300	0.000690	N/A	5378519
22'33'44'5-HeptaCB-(170)	ng/L	0.239	0.043	0.094	N/A	N/A	N/A	N/A	5378519
HeptaCB-(171)+(173)	ng/L	0.087 J	0.067	0.19	N/A	N/A	N/A	N/A	5378519
22'33'455'-HeptaCB-(172)	ng/L	0.068 U	0.068	0.094	N/A	N/A	N/A	N/A	5378519
22'33'456'-HeptaCB-(174)	ng/L	0.291	0.065	0.094	N/A	N/A	N/A	N/A	5378519
22'33'45'6-HeptaCB-(175)	ng/L	0.041 U	0.041	0.094	N/A	N/A	N/A	N/A	5378519
22'33'466'-HeptaCB-(176)	ng/L	0.043 J	0.030	0.094	N/A	N/A	N/A	N/A	5378519
22'33'45'6'-HeptaCB-(177)	ng/L	0.164	0.067	0.094	N/A	N/A	N/A	N/A	5378519
22'33'55'6-HeptaCB-(178)	ng/L	0.076 J	0.043	0.094	N/A	N/A	N/A	N/A	5378519
22'33'566'-HeptaCB-(179)	ng/L	0.134	0.028	0.094	N/A	N/A	N/A	N/A	5378519
HeptaCB-(180)+(193)	ng/L	0.602	0.044	0.19	N/A	N/A	N/A	N/A	5378519
22'344'56-HeptaCB-(181)	ng/L	0.064 U	0.064	0.094	N/A	N/A	N/A	N/A	5378519
22'344'56'-HeptaCB-(182)	ng/L	0.042 U	0.042	0.094	N/A	N/A	N/A	N/A	5378519
22'344'5'6-HeptaCB-(183)	ng/L	0.135	0.053	0.094	N/A	N/A	N/A	N/A	5378519
22'344'66'-HeptaCB-(184)	ng/L	0.028 U	0.028	0.094	N/A	N/A	N/A	N/A	5378519
22'3455'6-HeptaCB-(185)	ng/L	0.070 U	0.070	0.094	N/A	N/A	N/A	N/A	5378519
22'34566'-HeptaCB-(186)	ng/L	0.032 U	0.032	0.094	N/A	N/A	N/A	N/A	5378519
22'34'55'6-HeptaCB-(187)	ng/L	0.450	0.040	0.094	N/A	N/A	N/A	N/A	5378519
22'34'566'-HeptaCB-(188)	ng/L	0.027 U	0.027	0.094	N/A	N/A	N/A	N/A	5378519
233'44'55'-HeptaCB-(189)	ng/L	0.022 U	0.022	0.094	N/A	0.0000300	0.000000660	N/A	5378519
233'44'56-HeptaCB-(190)	ng/L	0.050 U	0.050	0.094	N/A	N/A	N/A	N/A	5378519
233'44'5'6-HeptaCB-(191)	ng/L	0.050 U	0.050	0.094	N/A	N/A	N/A	N/A	5378519
233'455'6-HeptaCB-(192)	ng/L	0.055 U	0.055	0.094	N/A	N/A	N/A	N/A	5378519
22'33'44'55'-OctaCB-(194)	ng/L	0.14 U (1)	0.14	0.094	N/A	N/A	N/A	N/A	5378519
22'33'44'56-OctaCB-(195)	ng/L	0.068 U	0.068	0.094	N/A	N/A	N/A	N/A	5378519
22'33'44'56'-OctaCB-(196)	ng/L	0.11 U (1)	0.11	0.094	N/A	N/A	N/A	N/A	5378519

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(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH636							
Sampling Date		2018/01/17 16:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB9-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'66'OctaCB-(197)	ng/L	0.048 U	0.048	0.094	N/A	N/A	N/A	N/A	5378519
OctaCB-(198)+(199)	ng/L	0.271	0.064	0.19	N/A	N/A	N/A	N/A	5378519
22'33'4566'-OctaCB-(200)	ng/L	0.039 U	0.039	0.094	N/A	N/A	N/A	N/A	5378519
22'33'45'66'-OctaCB-(201)	ng/L	0.042 U	0.042	0.094	N/A	N/A	N/A	N/A	5378519
22'33'55'66'-OctaCB-(202)	ng/L	0.039 U	0.039	0.094	N/A	N/A	N/A	N/A	5378519
22'344'55'6-OctaCB-(203)	ng/L	0.183	0.061	0.094	N/A	N/A	N/A	N/A	5378519
22'344'566'-OctaCB-(204)	ng/L	0.043 U	0.043	0.094	N/A	N/A	N/A	N/A	5378519
233'44'55'6-OctaCB-(205)	ng/L	0.059 U	0.059	0.094	N/A	N/A	N/A	N/A	5378519
22'33'44'55'6-NonaCB-(206)	ng/L	0.146	0.046	0.094	N/A	N/A	N/A	N/A	5378519
22'33'44'566'-NonaCB-(207)	ng/L	0.040 U	0.040	0.094	N/A	N/A	N/A	N/A	5378519
22'33'455'66'-NonaCB-(208)	ng/L	0.046 U	0.046	0.094	N/A	N/A	N/A	N/A	5378519
DecaCB-(209)	ng/L	0.071 U	0.071	0.094	N/A	N/A	N/A	N/A	5378519
Monochlorobiphenyl	ng/L	0.062	0.015	N/A	N/A	N/A	N/A	2	5378519
Dichlorobiphenyl	ng/L	1.26	0.028	N/A	N/A	N/A	N/A	7	5378519
Trichlorobiphenyl	ng/L	3.98	0.025	N/A	N/A	N/A	N/A	13	5378519
Tetrachlorobiphenyl	ng/L	4.85	0.028	N/A	N/A	N/A	N/A	18	5378519
Pentachlorobiphenyl	ng/L	7.32	0.049	N/A	N/A	N/A	N/A	16	5378519
Hexachlorobiphenyl	ng/L	6.04	0.066	N/A	N/A	N/A	N/A	13	5378519
Heptachlorobiphenyl	ng/L	2.22	0.070	N/A	N/A	N/A	N/A	10	5378519
Octachlorobiphenyl	ng/L	0.454	0.068	N/A	N/A	N/A	N/A	2	5378519
Nonachlorobiphenyl	ng/L	0.146	0.046	N/A	N/A	N/A	N/A	1	5378519
Decachlorobiphenyl	ng/L	0.071 U	0.071	N/A	N/A	N/A	N/A	0	5378519
Total PCB	ng/L	26.3	N/A	N/A	N/A	N/A	N/A	N/A	5378519
TOTAL TOXIC EQUIVALENCY	ng/L	N/A	N/A	N/A	N/A	N/A	0.00305	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	83	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'44'55'6-NonaCB-(206)	%	117	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'44'5-HeptaCB-(170)	%	119	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'455'66'-NonaCB-(208)	%	126	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'55'66'-OctaCB-(202)	%	135	N/A	N/A	N/A	N/A	N/A	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH636							
Sampling Date		2018/01/17 16:50							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB9-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-22'33'55'6-HeptaCB-(178)	%	129 (1)	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'344'55'-HeptaCB-(180)	%	118	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'34'566'-HeptaCB-(188)	%	103	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'44'66'-HexaCB-(155)	%	116	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'466'-PentaCB-(104)	%	119	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'66'-TetraCB-(54)	%	104	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'6-TriCB-(19)	%	100	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'-DiCB-(4)	%	103	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'55'6-OctaCB-(205)	%	105	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'55'-HeptaCB-(189)	%	87	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'-PentaCB-(105)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'55'-PentaCB-(111)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-23'44'55'-HexaCB-(167)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2344'5-PentaCB-(114)	%	68	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-23'44'5-PentaCB-(118)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2'344'5-PentaCB-(123)	%	71	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2-MonoCB-(1)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'55'-HexaCB-(169)	%	63	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'5-PentaCB-(126)	%	66	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'-TetraCB-(77)	%	66	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-344'5-TetraCB-(81)	%	65	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-344'-TriCB-(37)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-44'-DiCB-(15)	%	83	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-4-MonoCB-(3)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-DecaCB-(209)	%	131	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-HexaCB-(156)+(157)	%	71	N/A	N/A	N/A	N/A	N/A	N/A	5378519

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(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH637							
Sampling Date		2018/01/17 16:20							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-RD1-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2-MonoCB-(1)	ng/L	0.039 J	0.018	0.094	N/A	N/A	N/A	N/A	5378519
3-MonoCB-(2)	ng/L	0.017 U	0.017	0.094	N/A	N/A	N/A	N/A	5378519
4-MonoCB-(3)	ng/L	0.017 U	0.017	0.094	N/A	N/A	N/A	N/A	5378519
22'-DiCB-(4)	ng/L	0.186	0.030	0.094	N/A	N/A	N/A	N/A	5378519
2,3-DiCB-(5)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5378519
2,3'-DiCB-(6)	ng/L	0.054 J	0.016	0.094	N/A	N/A	N/A	N/A	5378519
2,4-DiCB-(7)	ng/L	0.017 U	0.017	0.094	N/A	N/A	N/A	N/A	5378519
2,4'-DiCB-(8)	ng/L	0.187	0.015	0.094	N/A	N/A	N/A	N/A	5378519
2,5-DiCB-(9)	ng/L	0.016 J	0.016	0.094	N/A	N/A	N/A	N/A	5378519
2,6-DiCB-(10)	ng/L	0.031 U	0.031	0.094	N/A	N/A	N/A	N/A	5378519
3,3'-DiCB-(11)	ng/L	0.139	0.017	0.094	N/A	N/A	N/A	N/A	5378519
DiCB-(12)+(13)	ng/L	0.022 J	0.018	0.19	N/A	N/A	N/A	N/A	5378519
3,5-DiCB-(14)	ng/L	0.016 U	0.016	0.094	N/A	N/A	N/A	N/A	5378519
4,4'-DiCB-(15)	ng/L	0.101	0.027	0.094	N/A	N/A	N/A	N/A	5378519
22'3-TriCB-(16)	ng/L	0.131	0.046	0.094	N/A	N/A	N/A	N/A	5378519
22'4-TriCB-(17)	ng/L	0.125	0.046	0.094	N/A	N/A	N/A	N/A	5378519
TriCB-(18)+(30)	ng/L	0.254	0.036	0.19	N/A	N/A	N/A	N/A	5378519
22'6-TriCB-(19)	ng/L	0.034 U (1)	0.034	0.094	N/A	N/A	N/A	N/A	5378519
TriCB-(20) + (28)	ng/L	0.285	0.0064	0.19	N/A	N/A	N/A	N/A	5378519
TriCB-(21)+(33)	ng/L	0.207	0.0062	0.19	N/A	N/A	N/A	N/A	5378519
234'-TriCB-(22)	ng/L	0.137	0.0066	0.094	N/A	N/A	N/A	N/A	5378519
235-TriCB-(23)	ng/L	0.0067 U	0.0067	0.094	N/A	N/A	N/A	N/A	5378519
236-TriCB-(24)	ng/L	0.038 U	0.038	0.094	N/A	N/A	N/A	N/A	5378519
23'4-TriCB-(25)	ng/L	0.0240 J	0.0059	0.094	N/A	N/A	N/A	N/A	5378519
TriCB-(26)+(29)	ng/L	0.0690 J	0.0061	0.19	N/A	N/A	N/A	N/A	5378519
23'6-TriCB-(27)	ng/L	0.031 U	0.031	0.094	N/A	N/A	N/A	N/A	5378519
24'5-TriCB-(31)	ng/L	0.249	0.0059	0.094	N/A	N/A	N/A	N/A	5378519
24'6-TriCB-(32)	ng/L	0.079 J	0.029	0.094	N/A	N/A	N/A	N/A	5378519
23'5'-TriCB-(34)	ng/L	0.0062 U	0.0062	0.094	N/A	N/A	N/A	N/A	5378519
33'4-TriCB-(35)	ng/L	0.0173 J	0.0064	0.094	N/A	N/A	N/A	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH637							
Sampling Date		2018/01/17 16:20							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-RD1-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'5-TriCB-(36)	ng/L	0.0054 U	0.0054	0.094	N/A	N/A	N/A	N/A	5378519
344'-TriCB-(37)	ng/L	0.116	0.010	0.094	N/A	N/A	N/A	N/A	5378519
345-TriCB-(38)	ng/L	0.0065 U	0.0065	0.094	N/A	N/A	N/A	N/A	5378519
34'5-TriCB-(39)	ng/L	0.0062 U	0.0062	0.094	N/A	N/A	N/A	N/A	5378519
TetraCB-(40)+(41)+(71)	ng/L	0.179 J	0.027	0.28	N/A	N/A	N/A	N/A	5378519
22'34'-TetraCB-(42)	ng/L	0.103	0.034	0.094	N/A	N/A	N/A	N/A	5378519
22'35-TetraCB-(43)	ng/L	0.037 U	0.037	0.094	N/A	N/A	N/A	N/A	5378519
TetraCB-(44)+(47)+(65)	ng/L	0.271 J	0.024	0.28	N/A	N/A	N/A	N/A	5378519
TetraCB-(45)+(51)	ng/L	0.056 J	0.026	0.19	N/A	N/A	N/A	N/A	5378519
22'36'-TetraCB-(46)	ng/L	0.030 U	0.030	0.094	N/A	N/A	N/A	N/A	5378519
22'45-TetraCB-(48)	ng/L	0.061 J	0.027	0.094	N/A	N/A	N/A	N/A	5378519
TetraCB-(49)+TetraCB-(69)	ng/L	0.150 J	0.023	0.19	N/A	N/A	N/A	N/A	5378519
TetraCB-(50)+(53)	ng/L	0.037 J	0.024	0.19	N/A	N/A	N/A	N/A	5378519
22'55'-TetraCB-(52)	ng/L	0.308	0.025	0.094	N/A	N/A	N/A	N/A	5378519
22'66'-TetraCB-(54)	ng/L	0.0024 U	0.0024	0.094	N/A	N/A	N/A	N/A	5378519
233'4-TetraCB-(55)	ng/L	0.0097 U	0.0097	0.094	N/A	N/A	N/A	N/A	5378519
233'4'-Tetra CB(56)	ng/L	0.104	0.0087	0.094	N/A	N/A	N/A	N/A	5378519
233'5-TetraCB-(57)	ng/L	0.0083 U	0.0083	0.094	N/A	N/A	N/A	N/A	5378519
233'5'-TetraCB-(58)	ng/L	0.0091 U	0.0091	0.094	N/A	N/A	N/A	N/A	5378519
TetraCB-(59)+(62)+(75)	ng/L	0.027 J	0.019	0.28	N/A	N/A	N/A	N/A	5378519
2344'-TetraCB -(60)	ng/L	0.054 U (1)	0.054	0.094	N/A	N/A	N/A	N/A	5378519
TetraCB-(61)+(70)+(74)+(76)	ng/L	0.347 J	0.0085	0.38	N/A	N/A	N/A	N/A	5378519
234'5-TetraCB-(63)	ng/L	0.0081 U	0.0081	0.094	N/A	N/A	N/A	N/A	5378519
234'6-TetraCB-(64)	ng/L	0.128	0.021	0.094	N/A	N/A	N/A	N/A	5378519
23'44'-TetraCB-(66)	ng/L	0.162	0.0078	0.094	N/A	N/A	N/A	N/A	5378519
23'45-TetraCB-(67)	ng/L	0.0134 J	0.0074	0.094	N/A	N/A	N/A	N/A	5378519
23'45'-TetraCB-(68)	ng/L	0.0084 U	0.0084	0.094	N/A	N/A	N/A	N/A	5378519
23'55'-TetraCB-(72)	ng/L	0.0084 U	0.0084	0.094	N/A	N/A	N/A	N/A	5378519
23'5'6-TetraCB-(73)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5378519
33'44'-TetraCB-(77)	ng/L	0.028 U (1)	0.028	0.094	N/A	0.000100	0.00000280	N/A	5378519

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		FYH637							
Sampling Date		2018/01/17 16:20							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-RD1-01172018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'45-TetraCB-(78)	ng/L	0.0088 U	0.0088	0.094	N/A	N/A	N/A	N/A	5378519
33'45'-TetraCB(79)	ng/L	0.0074 U	0.0074	0.094	N/A	N/A	N/A	N/A	5378519
33'55'-TetraCB-(80)	ng/L	0.0077 U	0.0077	0.094	N/A	N/A	N/A	N/A	5378519
344'5-TetraCB-(81)	ng/L	0.011 U	0.011	0.094	N/A	0.000300	0.00000330	N/A	5378519
22'33'4-PentaCB-(82)	ng/L	0.047 J	0.016	0.094	N/A	N/A	N/A	N/A	5378519
PentaCB-(83)+(99)	ng/L	0.155 J	0.014	0.19	N/A	N/A	N/A	N/A	5378519
22'33'6-PentaCB-(84)	ng/L	0.090 J	0.016	0.094	N/A	N/A	N/A	N/A	5378519
PentaCB-(85)+(116)+(117)	ng/L	0.042 J	0.012	0.28	N/A	N/A	N/A	N/A	5378519
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	0.221 J	0.012	0.57	N/A	N/A	N/A	N/A	5378519
PentaCB-(88)+(91)	ng/L	0.041 J	0.014	0.19	N/A	N/A	N/A	N/A	5378519
22'346'-PentaCB-(89)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5378519
PentaCB-(90)+(101)+(113)	ng/L	0.271 J	0.012	0.28	N/A	N/A	N/A	N/A	5378519
22'355'-PentaCB-(92)	ng/L	0.049 U (1)	0.049	0.094	N/A	N/A	N/A	N/A	5378519
PentaCB-(93)+(98)+(100)+(102)	ng/L	0.014 U	0.014	0.38	N/A	N/A	N/A	N/A	5378519
22'356'-PentaCB-(94)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5378519
22'35'6-PentaCB-(95)	ng/L	0.238	0.013	0.094	N/A	N/A	N/A	N/A	5378519
22'366'-PentaCB-(96)	ng/L	0.0093 U	0.0093	0.094	N/A	N/A	N/A	N/A	5378519
22'45'6-PentaCB-(103)	ng/L	0.012 U	0.012	0.094	N/A	N/A	N/A	N/A	5378519
22'466'-PentaCB-(104)	ng/L	0.0059 U	0.0059	0.094	N/A	N/A	N/A	N/A	5378519
233'44'-PentaCB-(105)	ng/L	0.097	0.010	0.094	N/A	0.0000300	0.00000291	N/A	5378519
233'45-PentaCB-(106)	ng/L	0.0090 U	0.0090	0.094	N/A	N/A	N/A	N/A	5378519
233'4'5-PentaCB-(107)	ng/L	0.0157 J	0.0081	0.094	N/A	N/A	N/A	N/A	5378519
PentaCB-(108)+(124)	ng/L	0.010 U (1)	0.010	0.19	N/A	N/A	N/A	N/A	5378519
PentaCB-(110)+(115)	ng/L	0.353	0.011	0.19	N/A	N/A	N/A	N/A	5378519
233'55'-PentaCB-(111)	ng/L	0.010 U	0.010	0.094	N/A	N/A	N/A	N/A	5378519
233'56-PentaCB-(112)	ng/L	0.011 U	0.011	0.094	N/A	N/A	N/A	N/A	5378519
2344'5-PentaCB-(114)	ng/L	0.010 U	0.010	0.094	N/A	0.0000300	0.000000300	N/A	5378519
23'44'5-PentaCB-(118)	ng/L	0.172	0.010	0.094	N/A	0.0000300	0.00000516	N/A	5378519
23'455'-PentaCB-(120)	ng/L	0.0099 U	0.0099	0.094	N/A	N/A	N/A	N/A	5378519
23'45'6-PentaCB-(121)	ng/L	0.010 U	0.010	0.094	N/A	N/A	N/A	N/A	5378519

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233'4'5'-PentaCB-(122)	ng/L	0.0095 U	0.0095	0.094	N/A	N/A	N/A	N/A	5378519
23'44'5'-PentaCB-(123)	ng/L	0.012 U	0.012	0.094	N/A	0.0000300	0.000000360	N/A	5378519
33'44'5-PentaCB-(126)	ng/L	0.0097 U	0.0097	0.094	N/A	0.100	0.000970	N/A	5378519
33'455'-PentaCB-(127)	ng/L	0.0086 U	0.0086	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(128)+(166)	ng/L	0.045 J	0.028	0.19	N/A	N/A	N/A	N/A	5378519
HexaCB-(129)+(138)+(163)	ng/L	0.22 U (1)	0.22	0.28	N/A	N/A	N/A	N/A	5378519
22'33'45'-HexaCB-(130)	ng/L	0.037 U	0.037	0.094	N/A	N/A	N/A	N/A	5378519
22'33'46-HexaCB-(131)	ng/L	0.040 U	0.040	0.094	N/A	N/A	N/A	N/A	5378519
22'33'46'-HexaCB-(132)	ng/L	0.117	0.037	0.094	N/A	N/A	N/A	N/A	5378519
22'33'55'-HexaCB-(133)	ng/L	0.033 U	0.033	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(134)+(143)	ng/L	0.038 U	0.038	0.19	N/A	N/A	N/A	N/A	5378519
HexaCB-(135)+(151)	ng/L	0.070 U (1)	0.070	0.19	N/A	N/A	N/A	N/A	5378519
22'33'66'-HexaCB-(136)	ng/L	0.039 J	0.016	0.094	N/A	N/A	N/A	N/A	5378519
22'344'5-HexaCB-(137)	ng/L	0.037 U	0.037	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(139)+(140)	ng/L	0.031 U	0.031	0.19	N/A	N/A	N/A	N/A	5378519
22'3455'-HexaCB-(141)	ng/L	0.035 U (1)	0.035	0.094	N/A	N/A	N/A	N/A	5378519
22'3456-HexaCB-(142)	ng/L	0.036 U	0.036	0.094	N/A	N/A	N/A	N/A	5378519
22'345'6-HexaCB-(144)	ng/L	0.024 U	0.024	0.094	N/A	N/A	N/A	N/A	5378519
22'3466'-HexaCB-(145)	ng/L	0.017 U	0.017	0.094	N/A	N/A	N/A	N/A	5378519
22'34'55'-HexaCB-(146)	ng/L	0.029 U	0.029	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(147)+(149)	ng/L	0.166 J	0.033	0.19	N/A	N/A	N/A	N/A	5378519
22'34'56'-HexaCB-(148)	ng/L	0.022 U	0.022	0.094	N/A	N/A	N/A	N/A	5378519
22'34'66'-HexaCB-(150)	ng/L	0.017 U	0.017	0.094	N/A	N/A	N/A	N/A	5378519
22'3566'-HexaCB-(152)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(153)+(168)	ng/L	0.138 J	0.025	0.19	N/A	N/A	N/A	N/A	5378519
22'44'56'-HexaCB-(154)	ng/L	0.020 U	0.020	0.094	N/A	N/A	N/A	N/A	5378519
22'44'66'-HexaCB-(155)	ng/L	0.010 U	0.010	0.094	N/A	N/A	N/A	N/A	5378519
HexaCB-(156)+(157)	ng/L	0.022 U (1)	0.022	0.19	N/A	0.0000300	0.000000660	N/A	5378519
233'44'6-HexaCB-(158)	ng/L	0.023 U	0.023	0.094	N/A	N/A	N/A	N/A	5378519
233'455'-HexaCB-(159)	ng/L	0.011 U	0.011	0.094	N/A	N/A	N/A	N/A	5378519

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233'456-HexaCB-(160)	ng/L	0.028 U	0.028	0.094	N/A	N/A	N/A	N/A	5378519
233'45'6-HexaCB-(161)	ng/L	0.024 U	0.024	0.094	N/A	N/A	N/A	N/A	5378519
233'4'55'-HexaCB-(162)	ng/L	0.011 U	0.011	0.094	N/A	N/A	N/A	N/A	5378519
233'4'5'6-HexaCB-(164)	ng/L	0.024 U	0.024	0.094	N/A	N/A	N/A	N/A	5378519
233'55'6-HexaCB-(165)	ng/L	0.026 U	0.026	0.094	N/A	N/A	N/A	N/A	5378519
23'44'55'-HexaCB-(167)	ng/L	0.013 U	0.013	0.094	N/A	0.0000300	0.000000390	N/A	5378519
33'44'55'-HexaCB-(169)	ng/L	0.014 U	0.014	0.094	N/A	0.0300	0.000420	N/A	5378519
22'33'44'5-HeptaCB-(170)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5378519
HeptaCB-(171)+(173)	ng/L	0.024 U	0.024	0.19	N/A	N/A	N/A	N/A	5378519
22'33'455'-HeptaCB-(172)	ng/L	0.024 U	0.024	0.094	N/A	N/A	N/A	N/A	5378519
22'33'456'-HeptaCB-(174)	ng/L	0.026 J	0.023	0.094	N/A	N/A	N/A	N/A	5378519
22'33'45'6-HeptaCB-(175)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5378519
22'33'466'-HeptaCB-(176)	ng/L	0.013 U	0.013	0.094	N/A	N/A	N/A	N/A	5378519
22'33'45'6'-HeptaCB-(177)	ng/L	0.024 U	0.024	0.094	N/A	N/A	N/A	N/A	5378519
22'33'55'6-HeptaCB-(178)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5378519
22'33'566'-HeptaCB-(179)	ng/L	0.012 U	0.012	0.094	N/A	N/A	N/A	N/A	5378519
HeptaCB-(180)+(193)	ng/L	0.055 J	0.016	0.19	N/A	N/A	N/A	N/A	5378519
22'344'56-HeptaCB-(181)	ng/L	0.023 U	0.023	0.094	N/A	N/A	N/A	N/A	5378519
22'344'56'-HeptaCB-(182)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5378519
22'344'5'6-HeptaCB-(183)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5378519
22'344'66'-HeptaCB-(184)	ng/L	0.012 U	0.012	0.094	N/A	N/A	N/A	N/A	5378519
22'3455'6-HeptaCB-(185)	ng/L	0.025 U	0.025	0.094	N/A	N/A	N/A	N/A	5378519
22'34566'-HeptaCB-(186)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5378519
22'34'55'6-HeptaCB-(187)	ng/L	0.037 U (1)	0.037	0.094	N/A	N/A	N/A	N/A	5378519
22'34'566'-HeptaCB-(188)	ng/L	0.012 U	0.012	0.094	N/A	N/A	N/A	N/A	5378519
233'44'55'-HeptaCB-(189)	ng/L	0.0079 U	0.0079	0.094	N/A	0.0000300	0.000000237	N/A	5378519
233'44'56-HeptaCB-(190)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5378519
233'44'5'6-HeptaCB-(191)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5378519
233'455'6-HeptaCB-(192)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5378519
22'33'44'55'-OctaCB-(194)	ng/L	0.027 U	0.027	0.094	N/A	N/A	N/A	N/A	5378519

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22'33'44'56-OctaCB-(195)	ng/L	0.029 U	0.029	0.094	N/A	N/A	N/A	N/A	5378519
22'33'44'56'-OctaCB-(196)	ng/L	0.036 U	0.036	0.094	N/A	N/A	N/A	N/A	5378519
22'33'44'66'OctaCB-(197)	ng/L	0.028 U	0.028	0.094	N/A	N/A	N/A	N/A	5378519
OctaCB-(198)+(199)	ng/L	0.037 U	0.037	0.19	N/A	N/A	N/A	N/A	5378519
22'33'4566'-OctaCB-(200)	ng/L	0.023 U	0.023	0.094	N/A	N/A	N/A	N/A	5378519
22'33'45'66'-OctaCB-(201)	ng/L	0.024 U	0.024	0.094	N/A	N/A	N/A	N/A	5378519
22'33'55'66'-OctaCB-(202)	ng/L	0.023 U	0.023	0.094	N/A	N/A	N/A	N/A	5378519
22'344'55'6-OctaCB-(203)	ng/L	0.036 U	0.036	0.094	N/A	N/A	N/A	N/A	5378519
22'344'566'-OctaCB-(204)	ng/L	0.025 U	0.025	0.094	N/A	N/A	N/A	N/A	5378519
233'44'55'6-OctaCB-(205)	ng/L	0.025 U	0.025	0.094	N/A	N/A	N/A	N/A	5378519
22'33'44'55'6-NonaCB-(206)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5378519
22'33'44'566'-NonaCB-(207)	ng/L	0.013 U	0.013	0.094	N/A	N/A	N/A	N/A	5378519
22'33'455'66'-NonaCB-(208)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5378519
DecaCB-(209)	ng/L	0.024 U	0.024	0.094	N/A	N/A	N/A	N/A	5378519
Monochlorobiphenyl	ng/L	0.039	0.018	N/A	N/A	N/A	N/A	1	5378519
Dichlorobiphenyl	ng/L	0.705	0.031	N/A	N/A	N/A	N/A	7	5378519
Trichlorobiphenyl	ng/L	1.69	0.046	N/A	N/A	N/A	N/A	12	5378519
Tetrachlorobiphenyl	ng/L	1.95	0.037	N/A	N/A	N/A	N/A	14	5378519
Pentachlorobiphenyl	ng/L	1.74	0.016	N/A	N/A	N/A	N/A	12	5378519
Hexachlorobiphenyl	ng/L	0.527	0.040	N/A	N/A	N/A	N/A	6	5378519
Heptachlorobiphenyl	ng/L	0.081	0.025	N/A	N/A	N/A	N/A	2	5378519
Octachlorobiphenyl	ng/L	0.037 U	0.037	N/A	N/A	N/A	N/A	0	5378519
Nonachlorobiphenyl	ng/L	0.015 U	0.015	N/A	N/A	N/A	N/A	0	5378519
Decachlorobiphenyl	ng/L	0.024 U	0.024	N/A	N/A	N/A	N/A	0	5378519
Total PCB	ng/L	6.73	N/A	N/A	N/A	N/A	N/A	N/A	5378519
TOTAL TOXIC EQUIVALENCY	ng/L	N/A	N/A	N/A	N/A	N/A	0.00141	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'44'55'6-NonaCB-(206)	%	115	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'44'5-HeptaCB-(170)	%	138	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'455'66'-NonaCB-(208)	%	131	N/A	N/A	N/A	N/A	N/A	N/A	5378519

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C13-22'33'55'66'-OctaCB-(202)	%	164 (1)	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'33'55'6-HeptaCB-(178)	%	123	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'344'55'-HeptaCB-(180)	%	136	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'34'566'-HeptaCB-(188)	%	98	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'44'66'-HexaCB-(155)	%	99	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'466'-PentaCB-(104)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'66'-TetraCB-(54)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'6-TriCB-(19)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-22'-DiCB-(4)	%	71	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'55'6-OctaCB-(205)	%	101	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'55'-HeptaCB-(189)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'44'-PentaCB-(105)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-233'55'-PentaCB-(111)	%	111	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-23'44'55'-HexaCB-(167)	%	68	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2344'5-PentaCB-(114)	%	73	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-23'44'5-PentaCB-(118)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2'344'5-PentaCB-(123)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-2-MonoCB-(1)	%	46	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'55'-HexaCB-(169)	%	56	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'5-PentaCB-(126)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-33'44'-TetraCB-(77)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-344'5-TetraCB-(81)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-344'-TriCB-(37)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-44'-DiCB-(15)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-4-MonoCB-(3)	%	57	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-DecaCB-(209)	%	113	N/A	N/A	N/A	N/A	N/A	N/A	5378519
C13-HexaCB-(156)+(157)	%	69	N/A	N/A	N/A	N/A	N/A	N/A	5378519

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

N/A = Not Applicable

(1) Internal standard recovery is outside method limits, possibly due to matrix effects.

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TEST SUMMARY

Maxxam ID: FYH632 **Collected:** 2018/01/17
Sample ID: B21-SW2-01172018 **Shipped:**
Matrix: Water **Received:** 2018/01/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	5378535	2018/01/29	2018/02/10	Angel Guerrero
PCB Congeners in Water (1668A)	HRMS/MS	5378519	2018/01/27	2018/02/01	Cathy Xu

Maxxam ID: FYH633 **Collected:** 2018/01/18
Sample ID: B21-SW3-01182018 **Shipped:**
Matrix: Water **Received:** 2018/01/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	5378535	2018/01/29	2018/02/10	Angel Guerrero
PCB Congeners in Water (1668A)	HRMS/MS	5378519	2018/01/27	2018/02/01	Cathy Xu

Maxxam ID: FYH634 **Collected:** 2018/01/17
Sample ID: B21-SW6-01172018 **Shipped:**
Matrix: Water **Received:** 2018/01/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	5378535	2018/01/29	2018/02/10	Angel Guerrero
PCB Congeners in Water (1668A)	HRMS/MS	5378519	2018/01/27	2018/02/01	Cathy Xu

Maxxam ID: FYH635 **Collected:** 2018/01/17
Sample ID: B21-CB2-01172018 **Shipped:**
Matrix: Water **Received:** 2018/01/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	5378535	2018/01/29	2018/02/11	Angel Guerrero
PCB Congeners in Water (1668A)	HRMS/MS	5378519	2018/01/27	2018/02/03	Cathy Xu

Maxxam ID: FYH636 **Collected:** 2018/01/17
Sample ID: B21-CB9-01172018 **Shipped:**
Matrix: Water **Received:** 2018/01/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	5378535	2018/01/29	2018/02/11	Angel Guerrero
PCB Congeners in Water (1668A)	HRMS/MS	5378519	2018/01/27	2018/02/02	Cathy Xu

Maxxam ID: FYH637 **Collected:** 2018/01/17
Sample ID: B21-RD1-01172018 **Shipped:**
Matrix: Water **Received:** 2018/01/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	5378535	2018/01/29	2018/02/11	Angel Guerrero
PCB Congeners in Water (1668A)	HRMS/MS	5378519	2018/01/27	2018/02/02	Cathy Xu

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.8°C
Package 2	2.8°C
Package 3	4.4°C

Revised Report (2018/03/01): Including homologs and total PCB as per client request.

Split Report V3 and V4 (2018/03/16): Report split as per client request.

Sample FYH635 [B21-CB2-01172018] : sample FYH635 run at 10x dilution for pcb due to matrix effects.

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Sample FYH635 [B21-CB2-01172018] PCB Congeners in Water (1668A): ** All results taken from 10X Dilution Run **

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
5378519	CXU	Spiked Blank	C13-2,44'-TriCB-(28)	2018/02/01		87	%	40 - 125
			C13-22'33'44'55'6-NonaCB-(206)	2018/02/01		103	%	30 - 140
			C13-22'33'44'5-HeptaCB-(170)	2018/02/01		104	%	30 - 140
			C13-22'33'455'66'-NonaCB-(208)	2018/02/01		100	%	30 - 140
			C13-22'33'55'66'-OctaCB-(202)	2018/02/01		97	%	30 - 140
			C13-22'33'55'6-HeptaCB-(178)	2018/02/01		100	%	40 - 125
			C13-22'344'55'-HeptaCB-(180)	2018/02/01		103	%	30 - 140
			C13-22'34'566'-HeptaCB-(188)	2018/02/01		78	%	30 - 140
			C13-22'44'66'-HexaCB-(155)	2018/02/01		65	%	30 - 140
			C13-22'466'-PentaCB-(104)	2018/02/01		67	%	30 - 140
			C13-22'66'-TetraCB-(54)	2018/02/01		50	%	30 - 140
			C13-22'6-TriCB-(19)	2018/02/01		53	%	30 - 140
			C13-22'-DiCB-(4)	2018/02/01		44	%	30 - 140
			C13-233'44'55'6-OctaCB-(205)	2018/02/01		102	%	30 - 140
			C13-233'44'55'-HeptaCB-(189)	2018/02/01		104	%	30 - 140
			C13-233'44'-PentaCB-(105)	2018/02/01		103	%	30 - 140
			C13-233'55'-PentaCB-(111)	2018/02/01		107	%	40 - 125
			C13-23'44'55'-HexaCB-(167)	2018/02/01		91	%	30 - 140
			C13-2344'5-PentaCB-(114)	2018/02/01		98	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2018/02/01		102	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2018/02/01		97	%	30 - 140
			C13-2-MonoCB-(1)	2018/02/01		46	%	15 - 140
			C13-33'44'55'-HexaCB-(169)	2018/02/01		63	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2018/02/01		95	%	30 - 140
			C13-33'44'-TetraCB-(77)	2018/02/01		93	%	30 - 140
			C13-344'5-TetraCB-(81)	2018/02/01		92	%	30 - 140
			C13-344'-TriCB-(37)	2018/02/01		82	%	30 - 140
			C13-44'-DiCB-(15)	2018/02/01		68	%	30 - 140
			C13-4-MonoCB-(3)	2018/02/01		47	%	15 - 140
			C13-DecaCB-(209)	2018/02/01		91	%	30 - 140
			C13-HexaCB-(156)+(157)	2018/02/01		95	%	30 - 140
			2-MonoCB-(1)	2018/02/01		96	%	50 - 150
			4-MonoCB-(3)	2018/02/01		94	%	50 - 150
			22'-DiCB-(4)	2018/02/01		102	%	50 - 150
			4,4'-DiCB-(15)	2018/02/01		98	%	50 - 150
			22'6-TriCB-(19)	2018/02/01		99	%	50 - 150
			235-TriCB-(23)	2018/02/01		89	%	50 - 150
			23'5'-TriCB-(34)	2018/02/01		76	%	50 - 150
			344'-TriCB-(37)	2018/02/01		100	%	50 - 150
			22'66'-TetraCB-(54)	2018/02/01		104	%	50 - 150
			33'44'-TetraCB-(77)	2018/02/01		98	%	50 - 150
			344'5-TetraCB-(81)	2018/02/01		99	%	50 - 150
			PentaCB-(90)+(101)+(113)	2018/02/01		77	%	N/A
			22'466'-PentaCB-(104)	2018/02/01		106	%	50 - 150
			233'44'-PentaCB-(105)	2018/02/01		98	%	50 - 150
			2344'5-PentaCB-(114)	2018/02/01		99	%	50 - 150
			23'44'5-PentaCB-(118)	2018/02/01		100	%	50 - 150
			23'44'5'-PentaCB-(123)	2018/02/01		100	%	50 - 150
			33'44'5-PentaCB-(126)	2018/02/01		100	%	50 - 150
			HexaCB-(128)+(166)	2018/02/01		80	%	N/A
			22'44'66'-HexaCB-(155)	2018/02/01		107	%	50 - 150
			HexaCB-(156)+(157)	2018/02/01		98	%	50 - 150
			23'44'55'-HexaCB-(167)	2018/02/01		100	%	50 - 150
			33'44'55'-HexaCB-(169)	2018/02/01		99	%	50 - 150
			22'33'44'5-HeptaCB-(170)	2018/02/01		95	%	50 - 150

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			HeptaCB-(180)+(193)	2018/02/01		83	%	50 - 150
			22'344'56'-HeptaCB-(182)	2018/02/01		95	%	50 - 150
			22'34'55'6-HeptaCB-(187)	2018/02/01		94	%	50 - 150
			22'34'566'-HeptaCB-(188)	2018/02/01		103	%	50 - 150
			233'44'55'-HeptaCB-(189)	2018/02/01		96	%	50 - 150
			22'33'55'66'-OctaCB-(202)	2018/02/01		98	%	50 - 150
			233'44'55'6-OctaCB-(205)	2018/02/01		98	%	50 - 150
			22'33'44'55'6-NonaCB-(206)	2018/02/01		96	%	50 - 150
			22'33'455'66'-NonaCB-(208)	2018/02/01		98	%	50 - 150
			DecaCB-(209)	2018/02/01		102	%	50 - 150
5378519	CXU	Spiked Blank DUP	C13-2,44'-TriCB-(28)	2018/02/01		80	%	40 - 125
			C13-22'33'44'55'6-NonaCB-(206)	2018/02/01		101	%	30 - 140
			C13-22'33'44'5-HeptaCB-(170)	2018/02/01		139	%	30 - 140
			C13-22'33'455'66'-NonaCB-(208)	2018/02/01		122	%	30 - 140
			C13-22'33'55'66'-OctaCB-(202)	2018/02/01		148 (1)	%	30 - 140
			C13-22'33'55'6-HeptaCB-(178)	2018/02/01		103	%	40 - 125
			C13-22'344'55'-HeptaCB-(180)	2018/02/01		145 (1)	%	30 - 140
			C13-22'34'566'-HeptaCB-(188)	2018/02/01		85	%	30 - 140
			C13-22'44'66'-HexaCB-(155)	2018/02/01		73	%	30 - 140
			C13-22'466'-PentaCB-(104)	2018/02/01		69	%	30 - 140
			C13-22'66'-TetraCB-(54)	2018/02/01		49	%	30 - 140
			C13-22'6-TriCB-(19)	2018/02/01		52	%	30 - 140
			C13-22'-DiCB-(4)	2018/02/01		44	%	30 - 140
			C13-233'44'55'6-OctaCB-(205)	2018/02/01		107	%	30 - 140
			C13-233'44'55'-HeptaCB-(189)	2018/02/01		119	%	30 - 140
			C13-233'44'-PentaCB-(105)	2018/02/01		100	%	30 - 140
			C13-233'55'-PentaCB-(111)	2018/02/01		108	%	40 - 125
			C13-23'44'55'-HexaCB-(167)	2018/02/01		86	%	30 - 140
			C13-2344'5-PentaCB-(114)	2018/02/01		99	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2018/02/01		103	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2018/02/01		98	%	30 - 140
			C13-2-MonoCB-(1)	2018/02/01		43	%	15 - 140
			C13-33'44'55'-HexaCB-(169)	2018/02/01		72	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2018/02/01		100	%	30 - 140
			C13-33'44'-TetraCB-(77)	2018/02/01		101	%	30 - 140
			C13-344'5-TetraCB-(81)	2018/02/01		94	%	30 - 140
			C13-344'-TriCB-(37)	2018/02/01		82	%	30 - 140
			C13-44'-DiCB-(15)	2018/02/01		64	%	30 - 140
			C13-4-MonoCB-(3)	2018/02/01		45	%	15 - 140
			C13-DecaCB-(209)	2018/02/01		87	%	30 - 140
			C13-HexaCB-(156)+(157)	2018/02/01		89	%	30 - 140
			2-MonoCB-(1)	2018/02/01		97	%	50 - 150
			4-MonoCB-(3)	2018/02/01		92	%	50 - 150
			22'-DiCB-(4)	2018/02/01		103	%	50 - 150
			4,4'-DiCB-(15)	2018/02/01		98	%	50 - 150
			22'6-TriCB-(19)	2018/02/01		102	%	50 - 150
			235-TriCB-(23)	2018/02/01		82	%	50 - 150
			23'5'-TriCB-(34)	2018/02/01		79	%	50 - 150
			344'-TriCB-(37)	2018/02/01		101	%	50 - 150
			22'66'-TetraCB-(54)	2018/02/01		100	%	50 - 150
			33'44'-TetraCB-(77)	2018/02/01		97	%	50 - 150
			344'5-TetraCB-(81)	2018/02/01		101	%	50 - 150
			PentaCB-(90)+(101)+(113)	2018/02/01		78	%	N/A
			22'466'-PentaCB-(104)	2018/02/01		104	%	50 - 150
			233'44'-PentaCB-(105)	2018/02/01		101	%	50 - 150

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			2344'5-PentaCB-(114)	2018/02/01		97	%	50 - 150
			23'44'5-PentaCB-(118)	2018/02/01		98	%	50 - 150
			23'44'5'-PentaCB-(123)	2018/02/01		98	%	50 - 150
			33'44'5-PentaCB-(126)	2018/02/01		97	%	50 - 150
			HexaCB-(128)+(166)	2018/02/01		79	%	N/A
			22'44'66'-HexaCB-(155)	2018/02/01		102	%	50 - 150
			HexaCB-(156)+(157)	2018/02/01		97	%	50 - 150
			23'44'55'-HexaCB-(167)	2018/02/01		101	%	50 - 150
			33'44'55'-HexaCB-(169)	2018/02/01		98	%	50 - 150
			22'33'44'5-HeptaCB-(170)	2018/02/01		97	%	50 - 150
			HeptaCB-(180)+(193)	2018/02/01		83	%	50 - 150
			22'344'56'-HeptaCB-(182)	2018/02/01		110	%	50 - 150
			22'34'55'6-HeptaCB-(187)	2018/02/01		110	%	50 - 150
			22'34'566'-HeptaCB-(188)	2018/02/01		100	%	50 - 150
			233'44'55'-HeptaCB-(189)	2018/02/01		99	%	50 - 150
			22'33'55'66'-OctaCB-(202)	2018/02/01		100	%	50 - 150
			233'44'55'6-OctaCB-(205)	2018/02/01		97	%	50 - 150
			22'33'44'55'6-NonaCB-(206)	2018/02/01		97	%	50 - 150
			22'33'455'66'-NonaCB-(208)	2018/02/01		98	%	50 - 150
			DecaCB-(209)	2018/02/01		98	%	50 - 150
5378519	CXU	RPD	2-MonoCB-(1)	2018/02/01	1.0		%	30
			4-MonoCB-(3)	2018/02/01	2.2		%	30
			22'-DiCB-(4)	2018/02/01	0.98		%	30
			4,4'-DiCB-(15)	2018/02/01	0		%	30
			22'6-TriCB-(19)	2018/02/01	3.0		%	30
			235-TriCB-(23)	2018/02/01	8.2		%	30
			23'5'-TriCB-(34)	2018/02/01	3.9		%	30
			344'-TriCB-(37)	2018/02/01	1.0		%	30
			22'66'-TetraCB-(54)	2018/02/01	3.9		%	30
			33'44'-TetraCB-(77)	2018/02/01	1.0		%	30
			344'5-TetraCB-(81)	2018/02/01	2.0		%	30
			PentaCB-(90)+(101)+(113)	2018/02/01	1.3		%	30
			22'466'-PentaCB-(104)	2018/02/01	1.9		%	30
			233'44'-PentaCB-(105)	2018/02/01	3.0		%	30
			2344'5-PentaCB-(114)	2018/02/01	2.0		%	30
			23'44'5-PentaCB-(118)	2018/02/01	2.0		%	30
			23'44'5'-PentaCB-(123)	2018/02/01	2.0		%	30
			33'44'5-PentaCB-(126)	2018/02/01	3.0		%	30
			HexaCB-(128)+(166)	2018/02/01	1.3		%	30
			22'44'66'-HexaCB-(155)	2018/02/01	4.8		%	30
			HexaCB-(156)+(157)	2018/02/01	1.0		%	30
			23'44'55'-HexaCB-(167)	2018/02/01	1.0		%	30
			33'44'55'-HexaCB-(169)	2018/02/01	1.0		%	30
			22'33'44'5-HeptaCB-(170)	2018/02/01	2.1		%	30
			HeptaCB-(180)+(193)	2018/02/01	0		%	30
			22'344'56'-HeptaCB-(182)	2018/02/01	15		%	30
			22'34'55'6-HeptaCB-(187)	2018/02/01	16		%	30
			22'34'566'-HeptaCB-(188)	2018/02/01	3.0		%	30
			233'44'55'-HeptaCB-(189)	2018/02/01	3.1		%	30
			22'33'55'66'-OctaCB-(202)	2018/02/01	2.0		%	30
			233'44'55'6-OctaCB-(205)	2018/02/01	1.0		%	30
			22'33'44'55'6-NonaCB-(206)	2018/02/01	1.0		%	30
			22'33'455'66'-NonaCB-(208)	2018/02/01	0		%	30
			DecaCB-(209)	2018/02/01	4.0		%	30
5378519	CXU	Method Blank	C13-2,44'-TriCB-(28)	2018/02/01		79	%	40 - 125

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			C13-22'33'44'55'6-NonaCB-(206)	2018/02/01		95	%	30 - 140
			C13-22'33'44'5-HeptaCB-(170)	2018/02/01		132	%	30 - 140
			C13-22'33'455'66'-NonaCB-(208)	2018/02/01		119	%	30 - 140
			C13-22'33'55'66'-OctaCB-(202)	2018/02/01		142 (1)		30 - 140
			C13-22'33'55'6-HeptaCB-(178)	2018/02/01		106	%	40 - 125
			C13-22'344'55'-HeptaCB-(180)	2018/02/01		138	%	30 - 140
			C13-22'34'566'-HeptaCB-(188)	2018/02/01		87	%	30 - 140
			C13-22'44'66'-HexaCB-(155)	2018/02/01		80	%	30 - 140
			C13-22'466'-PentaCB-(104)	2018/02/01		74	%	30 - 140
			C13-22'66'-TetraCB-(54)	2018/02/01		53	%	30 - 140
			C13-22'6-TriCB-(19)	2018/02/01		55	%	30 - 140
			C13-22'-DiCB-(4)	2018/02/01		45	%	30 - 140
			C13-233'44'55'6-OctaCB-(205)	2018/02/01		98	%	30 - 140
			C13-233'44'55'-HeptaCB-(189)	2018/02/01		114	%	30 - 140
			C13-233'44'-PentaCB-(105)	2018/02/01		96	%	30 - 140
			C13-233'55'-PentaCB-(111)	2018/02/01		109	%	40 - 125
			C13-23'44'55'-HexaCB-(167)	2018/02/01		84	%	30 - 140
			C13-2344'5-PentaCB-(114)	2018/02/01		93	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2018/02/01		98	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2018/02/01		95	%	30 - 140
			C13-2-MonoCB-(1)	2018/02/01		40	%	15 - 140
			C13-33'44'55'-HexaCB-(169)	2018/02/01		66	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2018/02/01		94	%	30 - 140
			C13-33'44'-TetraCB-(77)	2018/02/01		94	%	30 - 140
			C13-344'5-TetraCB-(81)	2018/02/01		92	%	30 - 140
			C13-344'-TriCB-(37)	2018/02/01		80	%	30 - 140
			C13-44'-DiCB-(15)	2018/02/01		64	%	30 - 140
			C13-4-MonoCB-(3)	2018/02/01		44	%	15 - 140
			C13-DecaCB-(209)	2018/02/01		85	%	30 - 140
			C13-HexaCB-(156)+(157)	2018/02/01		85	%	30 - 140
			2-MonoCB-(1)	2018/02/01	0.0049 U, EDL=0.0049		ng/L	
			3-MonoCB-(2)	2018/02/01	0.0048 U, EDL=0.0048		ng/L	
			4-MonoCB-(3)	2018/02/01	0.0048 U, EDL=0.0048		ng/L	
			22'-DiCB-(4)	2018/02/01	0.011 U, EDL=0.011		ng/L	
			2,3-DiCB-(5)	2018/02/01	0.031 U, EDL=0.031		ng/L	
			2,3'-DiCB-(6)	2018/02/01	0.027 U, EDL=0.027		ng/L	
			2,4-DiCB-(7)	2018/02/01	0.028 U, EDL=0.028		ng/L	
			2,4'-DiCB-(8)	2018/02/01	0.025 U, EDL=0.025		ng/L	
			2,5-DiCB-(9)	2018/02/01	0.027 U, EDL=0.027		ng/L	
			2,6-DiCB-(10)	2018/02/01	0.011 U, EDL=0.011		ng/L	
			3,3'-DiCB-(11)	2018/02/01	0.028 U, EDL=0.028		ng/L	
			DiCB-(12)+(13)	2018/02/01	0.029 U, EDL=0.029		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			3,5-DiCB-(14)	2018/02/01	0.027 U, EDL=0.027		ng/L	
			4,4'-DiCB-(15)	2018/02/01	0.044 U, EDL=0.044		ng/L	
			22'3-TriCB-(16)	2018/02/01	0.020 U, EDL=0.020		ng/L	
			22'4-TriCB-(17)	2018/02/01	0.020 U, EDL=0.020		ng/L	
			TriCB-(18)+(30)	2018/02/01	0.016 U, EDL=0.016		ng/L	
			22'6-TriCB-(19)	2018/02/01	0.013 U, EDL=0.013		ng/L	
			TriCB-(20) + (28)	2018/02/01	0.0042 J, EDL=0.0038		ng/L	
			TriCB-(21)+(33)	2018/02/01	0.0037 U, EDL=0.0037		ng/L	
			234'-TriCB-(22)	2018/02/01	0.0040 U, EDL=0.0040		ng/L	
			235-TriCB-(23)	2018/02/01	0.0040 U, EDL=0.0040		ng/L	
			236-TriCB-(24)	2018/02/01	0.017 U, EDL=0.017		ng/L	
			23'4-TriCB-(25)	2018/02/01	0.0035 U, EDL=0.0035		ng/L	
			TriCB-(26)+(29)	2018/02/01	0.0037 U, EDL=0.0037		ng/L	
			23'6-TriCB-(27)	2018/02/01	0.014 U, EDL=0.014		ng/L	
			24'5-TriCB-(31)	2018/02/01	0.0035 U, EDL=0.0035		ng/L	
			24'6-TriCB-(32)	2018/02/01	0.013 U, EDL=0.013		ng/L	
			23'5'-TriCB-(34)	2018/02/01	0.0037 U, EDL=0.0037		ng/L	
			33'4-TriCB-(35)	2018/02/01	0.0038 U, EDL=0.0038		ng/L	
			33'5-TriCB-(36)	2018/02/01	0.0033 U, EDL=0.0033		ng/L	
			344'-TriCB-(37)	2018/02/01	0.0062 U, EDL=0.0062		ng/L	
			345-TriCB-(38)	2018/02/01	0.0039 U, EDL=0.0039		ng/L	
			34'5-TriCB-(39)	2018/02/01	0.0037 U, EDL=0.0037		ng/L	
			TetraCB-(40)+(41)+(71)	2018/02/01	0.010 U, EDL=0.010		ng/L	
			22'34'-TetraCB-(42)	2018/02/01	0.013 U, EDL=0.013		ng/L	
			22'35-TetraCB-(43)	2018/02/01	0.014 U, EDL=0.014		ng/L	
			TetraCB-(44)+(47)+(65)	2018/02/01	0.0092 U, EDL=0.0092		ng/L	
			TetraCB-(45)+(51)	2018/02/01	0.010 U, EDL=0.010		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'36'-TetraCB-(46)	2018/02/01	0.012 U, EDL=0.012		ng/L	
			22'45-TetraCB-(48)	2018/02/01	0.010 U, EDL=0.010		ng/L	
			TetraCB-(49)+TetraCB-(69)	2018/02/01	0.0089 U, EDL=0.0089		ng/L	
			TetraCB-(50)+(53)	2018/02/01	0.0092 U, EDL=0.0092		ng/L	
			22'55'-TetraCB-(52)	2018/02/01	0.0094 U, EDL=0.0094		ng/L	
			22'66'-TetraCB-(54)	2018/02/01	0.0027 U, EDL=0.0027		ng/L	
			233'4-TetraCB-(55)	2018/02/01	0.0053 U, EDL=0.0053		ng/L	
			233'4'-Tetra CB(56)	2018/02/01	0.0048 U, EDL=0.0048		ng/L	
			233'5-TetraCB-(57)	2018/02/01	0.0046 U, EDL=0.0046		ng/L	
			233'5'-TetraCB-(58)	2018/02/01	0.0050 U, EDL=0.0050		ng/L	
			TetraCB-(59)+(62)+(75)	2018/02/01	0.0072 U, EDL=0.0072		ng/L	
			2344'-TetraCB -(60)	2018/02/01	0.0051 U, EDL=0.0051		ng/L	
			TetraCB-(61)+(70)+(74)+(76)	2018/02/01	0.0047 U, EDL=0.0047		ng/L	
			234'5-TetraCB-(63)	2018/02/01	0.0044 U, EDL=0.0044		ng/L	
			234'6-TetraCB-(64)	2018/02/01	0.0079 U, EDL=0.0079		ng/L	
			23'44'-TetraCB-(66)	2018/02/01	0.0043 U, EDL=0.0043		ng/L	
			23'45-TetraCB-(67)	2018/02/01	0.0041 U, EDL=0.0041		ng/L	
			23'45'-TetraCB-(68)	2018/02/01	0.0046 U, EDL=0.0046		ng/L	
			23'55'-TetraCB-(72)	2018/02/01	0.0046 U, EDL=0.0046		ng/L	
			23'5'6-TetraCB-(73)	2018/02/01	0.0069 U, EDL=0.0069		ng/L	
			33'44'-TetraCB-(77)	2018/02/01	0.0061 U, EDL=0.0061		ng/L	
			33'45-TetraCB-(78)	2018/02/01	0.0049 U, EDL=0.0049		ng/L	
			33'45'-TetraCB(79)	2018/02/01	0.0041 U, EDL=0.0041		ng/L	
			33'55'-TetraCB-(80)	2018/02/01	0.0042 U, EDL=0.0042		ng/L	
			344'5-TetraCB-(81)	2018/02/01	0.0061 U, EDL=0.0061		ng/L	
			22'33'4-PentaCB-(82)	2018/02/01	0.0090 U, EDL=0.0090		ng/L	
			PentaCB-(83)+(99)	2018/02/01	0.0078 U, EDL=0.0078		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'33'6-PentaCB-(84)	2018/02/01	0.0089 U, EDL=0.0089		ng/L	
			PentaCB-(85)+(116)+(117)	2018/02/01	0.0065 U, EDL=0.0065		ng/L	
			PentaCB-(86)(87)(97)(109)(119)(125)	2018/02/01	0.0066 U, EDL=0.0066		ng/L	
			PentaCB-(88)+(91)	2018/02/01	0.0074 U, EDL=0.0074		ng/L	
			22'346'-PentaCB-(89)	2018/02/01	0.0081 U, EDL=0.0081		ng/L	
			PentaCB-(90)+(101)+(113)	2018/02/01	0.0065 U, EDL=0.0065		ng/L	
			22'355'-PentaCB-(92)	2018/02/01	0.0079 U, EDL=0.0079		ng/L	
			PentaCB-(93)+(98)+(100)+(102)	2018/02/01	0.0075 U, EDL=0.0075		ng/L	
			22'356'-PentaCB-(94)	2018/02/01	0.0082 U, EDL=0.0082		ng/L	
			22'35'6-PentaCB-(95)	2018/02/01	0.0070 U, EDL=0.0070		ng/L	
			22'366'-PentaCB-(96)	2018/02/01	0.0011 U, EDL=0.0011		ng/L	
			22'45'6-PentaCB-(103)	2018/02/01	0.0066 U, EDL=0.0066		ng/L	
			22'466'-PentaCB-(104)	2018/02/01	0.00068 U, EDL=0.00068		ng/L	
			233'44'-PentaCB-(105)	2018/02/01	0.0026 U, EDL=0.0026		ng/L	
			233'45-PentaCB-(106)	2018/02/01	0.0022 U, EDL=0.0022		ng/L	
			233'4'5-PentaCB-(107)	2018/02/01	0.0020 U, EDL=0.0020		ng/L	
			PentaCB-(108)+(124)	2018/02/01	0.0022 U, EDL=0.0022		ng/L	
			PentaCB-(110)+(115)	2018/02/01	0.0060 U, EDL=0.0060		ng/L	
			233'55'-PentaCB-(111)	2018/02/01	0.0057 U, EDL=0.0057		ng/L	
			233'56-PentaCB-(112)	2018/02/01	0.0062 U, EDL=0.0062		ng/L	
			2344'5-PentaCB-(114)	2018/02/01	0.0025 U, EDL=0.0025		ng/L	
			23'44'5-PentaCB-(118)	2018/02/01	0.0140 J, EDL=0.0025		ng/L	
			23'455'-PentaCB-(120)	2018/02/01	0.0054 U, EDL=0.0054		ng/L	
			23'45'6-PentaCB-(121)	2018/02/01	0.0056 U, EDL=0.0056		ng/L	
			233'4'5'-PentaCB-(122)	2018/02/01	0.0023 U, EDL=0.0023		ng/L	
			23'44'5'-PentaCB-(123)	2018/02/01	0.0028 U, EDL=0.0028		ng/L	
			33'44'5-PentaCB-(126)	2018/02/01	0.0024 U, EDL=0.0024		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			33'455'-PentaCB-(127)	2018/02/01	0.0021 U, EDL=0.0021		ng/L	
			HexaCB-(128)+(166)	2018/02/01	0.020 U, EDL=0.020		ng/L	
			HexaCB-(129)+(138)+(163)	2018/02/01	0.022 U, EDL=0.022		ng/L	
			22'33'45'-HexaCB-(130)	2018/02/01	0.027 U, EDL=0.027		ng/L	
			22'33'46-HexaCB-(131)	2018/02/01	0.028 U, EDL=0.028		ng/L	
			22'33'46'-HexaCB-(132)	2018/02/01	0.026 U, EDL=0.026		ng/L	
			22'33'55'-HexaCB-(133)	2018/02/01	0.024 U, EDL=0.024		ng/L	
			HexaCB-(134)+(143)	2018/02/01	0.027 U, EDL=0.027		ng/L	
			HexaCB-(135)+(151)	2018/02/01	0.0039 U, EDL=0.0039		ng/L	
			22'33'66'-HexaCB-(136)	2018/02/01	0.0026 U, EDL=0.0026		ng/L	
			22'344'5-HexaCB-(137)	2018/02/01	0.027 U, EDL=0.027		ng/L	
			HexaCB-(139)+(140)	2018/02/01	0.022 U, EDL=0.022		ng/L	
			22'3455'-HexaCB-(141)	2018/02/01	0.024 U, EDL=0.024		ng/L	
			22'3456-HexaCB-(142)	2018/02/01	0.026 U, EDL=0.026		ng/L	
			22'345'6-HexaCB-(144)	2018/02/01	0.0040 U, EDL=0.0040		ng/L	
			22'3466'-HexaCB-(145)	2018/02/01	0.0029 U, EDL=0.0029		ng/L	
			22'34'55'-HexaCB-(146)	2018/02/01	0.020 U, EDL=0.020		ng/L	
			HexaCB-(147)+(149)	2018/02/01	0.024 U, EDL=0.024		ng/L	
			22'34'56'-HexaCB-(148)	2018/02/01	0.0037 U, EDL=0.0037		ng/L	
			22'34'66'-HexaCB-(150)	2018/02/01	0.0028 U, EDL=0.0028		ng/L	
			22'3566'-HexaCB-(152)	2018/02/01	0.0024 U, EDL=0.0024		ng/L	
			HexaCB-(153)+(168)	2018/02/01	0.018 U, EDL=0.018		ng/L	
			22'44'56'-HexaCB-(154)	2018/02/01	0.0034 U, EDL=0.0034		ng/L	
			22'44'66'-HexaCB-(155)	2018/02/01	0.0017 U, EDL=0.0017		ng/L	
			HexaCB-(156)+(157)	2018/02/01	0.0019 U, EDL=0.0019		ng/L	
			233'44'6-HexaCB-(158)	2018/02/01	0.016 U, EDL=0.016		ng/L	
			233'455'-HexaCB-(159)	2018/02/01	0.0015 U, EDL=0.0015		ng/L	

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QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			233'456-HexaCB-(160)	2018/02/01	0.020 U, EDL=0.020		ng/L	
			233'45'6-HexaCB-(161)	2018/02/01	0.017 U, EDL=0.017		ng/L	
			233'4'55'-HexaCB-(162)	2018/02/01	0.0016 U, EDL=0.0016		ng/L	
			233'4'5'6-HexaCB-(164)	2018/02/01	0.017 U, EDL=0.017		ng/L	
			233'55'6-HexaCB-(165)	2018/02/01	0.018 U, EDL=0.018		ng/L	
			23'44'55'-HexaCB-(167)	2018/02/01	0.0018 U, EDL=0.0018		ng/L	
			33'44'55'-HexaCB-(169)	2018/02/01	0.0020 U, EDL=0.0020		ng/L	
			22'33'44'5-HeptaCB-(170)	2018/02/01	0.015 U, EDL=0.015		ng/L	
			HeptaCB-(171)+(173)	2018/02/01	0.023 U, EDL=0.023		ng/L	
			22'33'455'-HeptaCB-(172)	2018/02/01	0.024 U, EDL=0.024		ng/L	
			22'33'456'-HeptaCB-(174)	2018/02/01	0.022 U, EDL=0.022		ng/L	
			22'33'45'6-HeptaCB-(175)	2018/02/01	0.0078 U, EDL=0.0078		ng/L	
			22'33'466'-HeptaCB-(176)	2018/02/01	0.0056 U, EDL=0.0056		ng/L	
			22'33'45'6'-HeptaCB-(177)	2018/02/01	0.023 U, EDL=0.023		ng/L	
			22'33'55'6-HeptaCB-(178)	2018/02/01	0.0082 U, EDL=0.0082		ng/L	
			22'33'566'-HeptaCB-(179)	2018/02/01	0.0053 U, EDL=0.0053		ng/L	
			HeptaCB-(180)+(193)	2018/02/01	0.015 U, EDL=0.015		ng/L	
			22'344'56-HeptaCB-(181)	2018/02/01	0.022 U, EDL=0.022		ng/L	
			22'344'56'-HeptaCB-(182)	2018/02/01	0.0080 U, EDL=0.0080		ng/L	
			22'344'5'6-HeptaCB-(183)	2018/02/01	0.018 U, EDL=0.018		ng/L	
			22'344'66'-HeptaCB-(184)	2018/02/01	0.0054 U, EDL=0.0054		ng/L	
			22'3455'6-HeptaCB-(185)	2018/02/01	0.024 U, EDL=0.024		ng/L	
			22'34566'-HeptaCB-(186)	2018/02/01	0.0060 U, EDL=0.0060		ng/L	
			22'34'55'6-HeptaCB-(187)	2018/02/01	0.0077 U, EDL=0.0077		ng/L	
			22'34'566'-HeptaCB-(188)	2018/02/01	0.0051 U, EDL=0.0051		ng/L	
			233'44'55'-HeptaCB-(189)	2018/02/01	0.0054 U, EDL=0.0054		ng/L	
			233'44'56-HeptaCB-(190)	2018/02/01	0.017 U, EDL=0.017		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			233'44'5'6-HeptaCB-(191)	2018/02/01	0.017 U, EDL=0.017		ng/L	
			233'455'6-HeptaCB-(192)	2018/02/01	0.019 U, EDL=0.019		ng/L	
			22'33'44'55'-OctaCB-(194)	2018/02/01	0.011 U, EDL=0.011		ng/L	
			22'33'44'56-OctaCB-(195)	2018/02/01	0.012 U, EDL=0.012		ng/L	
			22'33'44'56'-OctaCB-(196)	2018/02/01	0.010 U, EDL=0.010		ng/L	
			22'33'44'66'OctaCB-(197)	2018/02/01	0.0078 U, EDL=0.0078		ng/L	
			OctaCB-(198)+(199)	2018/02/01	0.010 U, EDL=0.010		ng/L	
			22'33'4566'-OctaCB-(200)	2018/02/01	0.0064 U, EDL=0.0064		ng/L	
			22'33'45'66'-OctaCB-(201)	2018/02/01	0.0069 U, EDL=0.0069		ng/L	
			22'33'55'66'-OctaCB-(202)	2018/02/01	0.0064 U, EDL=0.0064		ng/L	
			22'344'55'6-OctaCB-(203)	2018/02/01	0.010 U, EDL=0.010		ng/L	
			22'344'566'-OctaCB-(204)	2018/02/01	0.0070 U, EDL=0.0070		ng/L	
			233'44'55'6-OctaCB-(205)	2018/02/01	0.010 U, EDL=0.010		ng/L	
			22'33'44'55'6-NonaCB-(206)	2018/02/01	0.0076 U, EDL=0.0076		ng/L	
			22'33'44'566'-NonaCB-(207)	2018/02/01	0.0066 U, EDL=0.0066		ng/L	
			22'33'455'66'-NonaCB-(208)	2018/02/01	0.0075 U, EDL=0.0075		ng/L	
			DecaCB-(209)	2018/02/01	0.014 U, EDL=0.014		ng/L	
			Monochlorobiphenyl	2018/02/01	0.0049 U, EDL=0.0049		ng/L	
			Dichlorobiphenyl	2018/02/01	0.044 U, EDL=0.044		ng/L	
			Trichlorobiphenyl	2018/02/01	0.020 U, EDL=0.020		ng/L	
			Tetrachlorobiphenyl	2018/02/01	0.014 U, EDL=0.014		ng/L	
			Pentachlorobiphenyl	2018/02/01	0.0140, EDL=0.0090		ng/L	
			Hexachlorobiphenyl	2018/02/01	0.028 U, EDL=0.028		ng/L	
			Heptachlorobiphenyl	2018/02/01	0.024 U, EDL=0.024		ng/L	
			Octachlorobiphenyl	2018/02/01	0.012 U, EDL=0.012		ng/L	
			Nonachlorobiphenyl	2018/02/01	0.0076 U, EDL=0.0076		ng/L	
			Decachlorobiphenyl	2018/02/01	0.014 U, EDL=0.014		ng/L	
			Total PCB	2018/02/01	0.0182		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
5378535	AGU	Spiked Blank	C13-1234678 HeptaCDD	2018/02/02		113	%	40 - 135
			C13-1234678 HeptaCDF	2018/02/02		133	%	40 - 135
			C13-123478 HexaCDF	2018/02/02		117	%	40 - 135
			C13-123678 HexaCDD	2018/02/02		128	%	40 - 135
			C13-12378 PentaCDD	2018/02/02		116	%	40 - 135
			C13-12378 PentaCDF	2018/02/02		103	%	40 - 135
			C13-2378 TetraCDD	2018/02/02		69	%	40 - 135
			C13-2378 TetraCDF	2018/02/02		67	%	40 - 135
			C13-OCDD	2018/02/02		102	%	40 - 135
			2,3,7,8-Tetra CDD	2018/02/02		92	%	80 - 140
			1,2,3,7,8-Penta CDD	2018/02/02		91	%	80 - 140
			1,2,3,4,7,8-Hexa CDD	2018/02/02		90	%	80 - 140
			1,2,3,6,7,8-Hexa CDD	2018/02/02		97	%	80 - 140
			1,2,3,7,8,9-Hexa CDD	2018/02/02		81	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDD	2018/02/02		97	%	80 - 140
			Octa CDD	2018/02/02		100	%	80 - 140
			2,3,7,8-Tetra CDF	2018/02/02		97	%	80 - 140
			1,2,3,7,8-Penta CDF	2018/02/02		90	%	80 - 140
			2,3,4,7,8-Penta CDF	2018/02/02		101	%	80 - 140
			1,2,3,4,7,8-Hexa CDF	2018/02/02		92	%	80 - 140
			1,2,3,6,7,8-Hexa CDF	2018/02/02		86	%	80 - 140
			2,3,4,6,7,8-Hexa CDF	2018/02/02		95	%	80 - 140
			1,2,3,7,8,9-Hexa CDF	2018/02/02		91	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDF	2018/02/02		93	%	80 - 140
			1,2,3,4,7,8,9-Hepta CDF	2018/02/02		95	%	80 - 140
			Octa CDF	2018/02/02		106	%	80 - 140
5378535	AGU	Spiked Blank DUP	C13-1234678 HeptaCDD	2018/02/02		109	%	40 - 135
			C13-1234678 HeptaCDF	2018/02/02		124	%	40 - 135
			C13-123478 HexaCDF	2018/02/02		108	%	40 - 135
			C13-123678 HexaCDD	2018/02/02		119	%	40 - 135
			C13-12378 PentaCDD	2018/02/02		122	%	40 - 135
			C13-12378 PentaCDF	2018/02/02		102	%	40 - 135
			C13-2378 TetraCDD	2018/02/02		67	%	40 - 135
			C13-2378 TetraCDF	2018/02/02		68	%	40 - 135
			C13-OCDD	2018/02/02		92	%	40 - 135
			2,3,7,8-Tetra CDD	2018/02/02		91	%	80 - 140
			1,2,3,7,8-Penta CDD	2018/02/02		90	%	80 - 140
			1,2,3,4,7,8-Hexa CDD	2018/02/02		91	%	80 - 140
			1,2,3,6,7,8-Hexa CDD	2018/02/02		97	%	80 - 140
			1,2,3,7,8,9-Hexa CDD	2018/02/02		85	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDD	2018/02/02		94	%	80 - 140
			Octa CDD	2018/02/02		98	%	80 - 140
			2,3,7,8-Tetra CDF	2018/02/02		95	%	80 - 140
			1,2,3,7,8-Penta CDF	2018/02/02		91	%	80 - 140
			2,3,4,7,8-Penta CDF	2018/02/02		102	%	80 - 140
			1,2,3,4,7,8-Hexa CDF	2018/02/02		93	%	80 - 140
			1,2,3,6,7,8-Hexa CDF	2018/02/02		90	%	80 - 140
			2,3,4,6,7,8-Hexa CDF	2018/02/02		101	%	80 - 140
			1,2,3,7,8,9-Hexa CDF	2018/02/02		90	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDF	2018/02/02		97	%	80 - 140
			1,2,3,4,7,8,9-Hepta CDF	2018/02/02		97	%	80 - 140
			Octa CDF	2018/02/02		105	%	80 - 140
5378535	AGU	RPD	2,3,7,8-Tetra CDD	2018/02/02	1.1		%	25
			1,2,3,7,8-Penta CDD	2018/02/02	1.1		%	25
			1,2,3,4,7,8-Hexa CDD	2018/02/02	1.1		%	25

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			1,2,3,6,7,8-Hexa CDD	2018/02/02	0		%	25
			1,2,3,7,8,9-Hexa CDD	2018/02/02	4.8		%	25
			1,2,3,4,6,7,8-Hepta CDD	2018/02/02	3.1		%	25
			Octa CDD	2018/02/02	0		%	25
			2,3,7,8-Tetra CDF	2018/02/02	2.1		%	25
			1,2,3,7,8-Penta CDF	2018/02/02	1.1		%	25
			2,3,4,7,8-Penta CDF	2018/02/02	0.99		%	25
			1,2,3,4,7,8-Hexa CDF	2018/02/02	1.1		%	25
			1,2,3,6,7,8-Hexa CDF	2018/02/02	4.5		%	25
			2,3,4,6,7,8-Hexa CDF	2018/02/02	6.1		%	25
			1,2,3,7,8,9-Hexa CDF	2018/02/02	1.1		%	25
			1,2,3,4,6,7,8-Hepta CDF	2018/02/02	4.2		%	25
			1,2,3,4,7,8,9-Hepta CDF	2018/02/02	2.1		%	25
			Octa CDF	2018/02/02	0.95		%	25
5378535	AGU	Method Blank	C13-1234678 HeptaCDD	2018/02/02		116	%	40 - 135
			C13-1234678 HeptaCDF	2018/02/02		129	%	40 - 135
			C13-123478 HexaCDF	2018/02/02		114	%	40 - 135
			C13-123678 HexaCDD	2018/02/02		123	%	40 - 135
			C13-12378 PentaCDD	2018/02/02		111	%	40 - 135
			C13-12378 PentaCDF	2018/02/02		112	%	40 - 135
			C13-2378 TetraCDD	2018/02/02		90	%	40 - 135
			C13-2378 TetraCDF	2018/02/02		89	%	40 - 135
			C13-OCDD	2018/02/02		100	%	40 - 135
			2,3,7,8-Tetra CDD	2018/02/02	1.1 U, EDL=1.1		pg/L	
			1,2,3,7,8-Penta CDD	2018/02/02	0.98 U, EDL=0.98		pg/L	
			1,2,3,4,7,8-Hexa CDD	2018/02/02	1.0 U, EDL=1.0		pg/L	
			1,2,3,6,7,8-Hexa CDD	2018/02/02	1.0 U, EDL=1.0		pg/L	
			1,2,3,7,8,9-Hexa CDD	2018/02/02	1.0 U, EDL=1.0		pg/L	
			1,2,3,4,6,7,8-Hepta CDD	2018/02/02	1.2 U, EDL=1.2		pg/L	
			Octa CDD	2018/02/02	1.7 U, EDL=1.7 (2)		pg/L	
			Total Tetra CDD	2018/02/02	1.1 U, EDL=1.1		pg/L	
			Total Penta CDD	2018/02/02	0.98 U, EDL=0.98		pg/L	
			Total Hexa CDD	2018/02/02	1.0 U, EDL=1.0		pg/L	
			Total Hepta CDD	2018/02/02	1.2 U, EDL=1.2		pg/L	
			2,3,7,8-Tetra CDF	2018/02/02	0.98 U, EDL=0.98		pg/L	
			1,2,3,7,8-Penta CDF	2018/02/02	1.2 U, EDL=1.2		pg/L	
			2,3,4,7,8-Penta CDF	2018/02/02	1.2 U, EDL=1.2		pg/L	
			1,2,3,4,7,8-Hexa CDF	2018/02/02	1.1 U, EDL=1.1		pg/L	
			1,2,3,6,7,8-Hexa CDF	2018/02/02	1.1 U, EDL=1.1		pg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			2,3,4,6,7,8-Hexa CDF	2018/02/02	1.2 U, EDL=1.2		pg/L	
			1,2,3,7,8,9-Hexa CDF	2018/02/02	1.3 U, EDL=1.3		pg/L	
			1,2,3,4,6,7,8-Hepta CDF	2018/02/02	1.0 U, EDL=1.0		pg/L	
			1,2,3,4,7,8,9-Hepta CDF	2018/02/02	1.3 U, EDL=1.3		pg/L	
			Octa CDF	2018/02/02	1.3 U, EDL=1.3		pg/L	
			Total Tetra CDF	2018/02/02	0.98 U, EDL=0.98		pg/L	
			Total Penta CDF	2018/02/02	1.2 U, EDL=1.2		pg/L	
			Total Hexa CDF	2018/02/02	1.2 U, EDL=1.2		pg/L	
			Total Hepta CDF	2018/02/02	1.1 U, EDL=1.1		pg/L	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(2) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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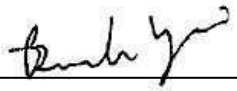
Maxxam Job #: B814667
Report Date: 2018/03/16

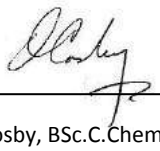
Apex Laboratories
Client Project #: A8A0548

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Branko Vrzic, A.SC.T., Senior Analyst, HRMS Services



Owen Cosby, BSc.C.Chem, Supervisor, HRMS Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Basin 20 and Basin 20A Storm Water Sampling and Analysis Data
April 5, 2018 Sampling Event, Burgard Industrial Park
Source Control Project, Portland, Oregon
Rieke Consulting Services, LLC, 2018

RCS RIEKE CONSULTING SERVICES, LLC

Basin 20 and Basin 20A
Storm Water Sampling and Analysis Data
April 5, 2018 Sampling Event
Burgard Industrial Park Source Control Project
Portland, Oregon

TO: Ray Hoy/Oregon DEQ

CC: Jim Orr/Oregon DEQ
Eva DeMaria/EPA
Sean Sheldrake/EPA
Mat Cusma/Schnitzer

FROM: Ross Rieke/RCS

DATE: May 18, 2018

This memorandum presents the results of the April 5, 2018 storm water sampling and analysis performed at Basin 20/Basin 20A at the Burgard Industrial Park (BIP) in Portland, Oregon (Figure 1, Figure 2). The sampling and analysis was performed in general accordance with the following documents:

- October 7, 2016, Bridgewater Group, Inc. memorandum, *Basin 20 and Basin 20A, Supplemental Sampling and Analysis Plan*.
- September 8, 2017, DEQ letter, *DEQ Comments for Basin 20 and 20A Supplemental Sampling and Analysis Plan*.
- November 2, 2017, DEQ email from Jim Orr, *Response to Your October 18th Request to Change PCB Analytical Method for Basins 2, 20, 20A, and 21*.

The storm water data presented in this memorandum reflects the scope of sampling and analysis described in these documents.

Basin 20 and Basin 20A Description

Outfall 20 appears to drain an approximately 1.7-acre area north of the head of the IT slip (Basin 20, Figure 3). Outfall 20 consists of a corrugated steel pipe that does not extend beyond the ground surface in the slope of the head of the IT slip. As such, the discharge resembles a small stream, and requires special sampling considerations (i.e., construction of a shallow "quieting basin" where the stream daylights) to avoid entraining solids. Activities in Basin 20 include Schnitzer Steel vendor and employee vehicle traffic and vehicle traffic related to other BIP entities (Portland Container Repair, Wilbur Ellis, RB Rubber Recycling), as well as non-BIP (WestRock) employee, vendor, and customer car and truck traffic and material storage. Historical storm water system drawings showed Outfall 20 draining an area immediately south of Burgard Way, east of the head of the IT slip. However, site observations during periods of extended heavy rainfall in 2011 noted that this area does not drain and storm water is retained on the area and eventually infiltrates and/or evaporates.

Runoff from the western portion of Burgard Way is conveyed to a previously unmapped outfall, now designated Outfall 20A (Figure 3). In particular, Basin 20A appears to consist of an

approximate 500-foot length of Burgard Way northeast of the head of the IT slip. Storm water runoff from this approximate 0.7-acre paved area flows to catch basins present along the northern and southern edges of the roadway and is conveyed to Outfall 20A located just south of Outfall 20 in the IT slip. Outfall 20A consists of a 10-inch diameter steel pipe day-lighting on the slope at the head of the slip. Activities along Burgard Way consist of Schnitzer Steel and other BIP and non-BIP entity employee, vendor, and customer car and truck traffic. Based on the camera survey performed in August 2015, a portion of the storm water flow from the Burgard Way catch basins may flow to a sanitary sewer pipe beneath the paved roadway east of the IT slip.

The activities occurring in Basin 20 and Basin 20A, and the associated potential for releases of hazardous substances, are similar in the two basins. Based on these similarities, sampling and analysis in either of these relatively small basins, or at either of the two outfalls, is believed to be representative of the other basin and outfall. Consistent with their relative basin areas and the apparent diversion of some storm water flow to the sanitary sewer, significantly less flow has been observed at Outfall 20A, relative to Outfall 20 during rainfall events. For these reasons Basin 20 and Basin 20A are assessed by collecting storm water samples from Basin 20. Catch basin solids samples have also been collected from Basin 20A (i.e., Burgard Way) catch basins.

Basin 20 and Basin 20A Storm Water Sampling and Analysis

Storm Water Sample Collection

A Basin 20 storm water sample was collected on April 5, 2018 at the Basin 20 outfall (i.e., Outfall 20) at the IT Slip (Figure 3). Table 1 presents the rainfall conditions preceding, and during, the storm water sampling event. Based on the rainfall event data shown in Table 1, all sampling event target criteria were met. That is:

- Rainfall occurring during the 24-hours preceding the sampled storm event (0.02 inch) was less than the target of 0.1 inch;
- The storm event was predicted to exceed (and did actually exceed) 0.2-inch of rainfall; and
- The event was expected to last (and did actually last) for more than three hours.

Based on discharge conditions and timing observed during the sampling event, the sample was collected within the first three hours of discharge.

Consistent with previous sampling events, the Basin 20 storm water sample was collected by lowering a stainless steel container into the discharging water in the quieting basin constructed several days prior to the sampling event. The container was filled by placing the container opening facing away from the flowing water. The sample was then poured into the laboratory-supplied sample container specific for each analysis. Overall, the storm water sample was collected in a manner that minimized potential suspended bank soil particulates in the sample.

Storm Water Sample Analysis

The Basin 20 storm water sample was analyzed for the following:

- Aluminum, antimony, arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, silver, and zinc;
- PCB Aroclors;
- Dioxins/furans;

- Polycyclic aromatic hydrocarbons (PAHs);
- Total organic carbon (TOC);
- Total Petroleum Hydrocarbons (gasoline, diesel, and heavy oil); and
- Total suspended solids (TSS).

Table 2 presents the results of the Basin 20 storm water sample analyses. Copies of the analytical laboratory reports are provided in Appendix A. Review of the laboratory QA/QC results did not indicate any issues requiring corrective action. Table 2 also presents the results of previous storm water sampling and analysis in Basin 20 (i.e., at Outfall 20). Table 3 presents the results of previous Basin 20A storm water solids sample analysis results to date.

The concentrations in the April 2018 storm water samples were generally similar to those noted in previous Basin 20 storm water samples.

Attachments:

Table 1 - Storm Water Sampling Event Rainfall Data, 4/5/2018 Sampling Event
Table 2 – Storm Water Sample Analytical Laboratory Results
Table 3 - Catch Basin Solids Sample Analytical Laboratory Results
Figure 1 – Site Location Map
Figure 2 – Site Plan, Burgard Industrial Park
Figure 3 – Site Plan and Sample Locations, Basin 20/Basin 20A
Appendix A – Analytical Laboratory Reports.

Tables

Table 1
Storm Water Sampling Event Rainfall Data
4/5/2018 Sampling Event
Burgard Industrial Park Basin 20

Date	Daily Total	Hourly Rain Fall (0.01 inches)																							
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
3/22/18	52	0	1	4	8	11	3	4	7	2	4	0	0	4	2	0	0	2	0	0	0	0	0	0	0
3/23/18	72	17	11	7	0	1	8	2	1	0	0	0	0	0	2	0	0	1	0	3	6	5	5	3	0
3/24/18	21	2	4	1	0	0	0	0	0	0	0	3	3	1	1	1	1	0	0	1	1	0	2	0	0
3/25/18	4	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/26/18	5	0	0	0	0	3	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
3/27/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/28/18	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/29/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/30/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/31/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/1/18	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	27	1	1	0	0	0	0	0	0
4/2/18	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4/3/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/4/18	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
4/5/18	34	0	0	0	0	0	0	5	0	2	2	3	4	4	5	5	2	1	1	0	0	0	0	0	0

Hours are Pacific Standard Time
Data from Shipyard Rain Gage - 8900 N. Sever Road
Sampling Hours

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 20

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	B20-SP1 4/5/2018	B20-SP1 1/17/2018	Basin 20 SP1 3/28/2014	B20-SP1 1/7/2014	B20-SP1 11/18/2013
PAHs (ug/l)								
1-Methylnaphthalene				9.62E-02 U	2.06E-01 U			
2-Methylnaphthalene	2.00E-01			9.62E-02 U	2.06E-01 U			
Acenaphthene	2.00E-01			4.81E-02 U	1.03E-01 U	3.77E-02 U	1.01E-01 U	9.52E-02 U
Acenaphthylene	2.00E-01			4.81E-02 U	1.03E-01 U	3.77E-02 U	1.01E-01 U	9.52E-02 U
Anthracene				5.11E-02 J	1.03E-01 U	3.77E-02 U	1.01E-01 U	9.52E-02 U
Benzo(a)anthracene	1.80E-02	1.20E-03		1.25E-01	2.15E-01	5.09E-02 J	1.01E-01 U	9.52E-02 U
Benzo(a)pyrene	1.80E-02	1.20E-04		1.64E-01	3.83E-01	5.66E-02 U	1.52E-01 U	1.55E-01 J
Benzo(b)fluoranthene	1.80E-02	1.20E-03		3.11E-01	5.22E-01			
Benzo(g,h,i)perylene	2.00E-01			1.83E-01	3.10E-01	9.34E-02	1.01E-01 U	9.64E-02 J
Benzo(k)fluoranthene	1.80E-02	1.30E-03		1.29E-01 J	2.41E-01 J			
Benzo(b+k)fluoranthene	1.80E-02	1.20E-03				1.06E-01 J	1.52E-01 U	1.36E-01 J
Carbazole				1.44E-01 U	1.55E-01 U			
Chrysene	1.80E-02	1.30E-03		2.99E-01	4.24E-01	1.22E-01	1.24E-01 J	1.25E-01 J
Dibenzo(a,h)anthracene	1.80E-02	1.20E-04		4.81E-02 U	1.03E-01 U	3.77E-02 U	1.01E-01 U	9.52E-02 U
Dibenzofuran				4.81E-02 U	1.03E-01 U			
Fluoranthene	2.00E-01			3.68E-01	5.42E-01	1.21E-01	1.49E-01 J	1.37E-01 J
Fluorene	2.00E-01			4.81E-02 U	1.03E-01 U	3.77E-02 U	1.01E-01 U	9.52E-02 U
Indeno(1,2,3-cd)pyrene	1.80E-02	1.20E-03		1.40E-01	2.37E-01	5.92E-02 J	1.01E-01 U	9.52E-02 U
Naphthalene	2.00E-01	1.20E+01		9.62E-02 U	2.06E-01 U	7.55E-02 U	2.02E-01 U	1.90E-01 U
Phenanthrene	2.00E-01			1.75E-01	2.60E-01	6.66E-02 J	1.15E-01 J	9.52E-02 U
Pyrene	2.00E-01			4.38E-01	7.21E-01	1.55E-01	1.92E-01 J	1.71E-01 J
Total Detected CPAHs (BaP TEF)		1.20E-04		2.25E-01	4.86E-01	2.27E-02	1.24E-04	1.70E-01
Total Detected PAHs			1.50E+00	2.38E+00	4.17E+00	6.81E-01	5.80E-01	8.20E-01
PCBs (ug/l)								
Aroclor 1016	9.60E-01			1.02E-02 U	9.43E-03 U	9.43E-03 U	1.90E-02 U	9.80E-03 U
Aroclor 1221	3.40E-02			1.02E-02 U	9.43E-03 U	9.43E-03 U	1.90E-02 U	9.80E-03 U
Aroclor 1232	3.40E-02			1.02E-02 U	9.43E-03 U	9.43E-03 U	1.90E-02 U	9.80E-03 U
Aroclor 1242	3.40E-02			6.53E-02	1.02E-01	1.78E-02 J	5.52E-02	2.12E-02
Aroclor 1248	3.40E-02			1.02E-02 U	9.43E-03 U	9.43E-03 U	1.90E-02 U	9.80E-03 U
Aroclor 1254	3.40E-02			6.34E-02	8.81E-02	2.76E-02	7.54E-02	3.79E-02
Aroclor 1260	3.40E-02			3.83E-02	5.52E-02	2.18E-02	4.25E-02	2.33E-02
Total Detected PCB aroclors	6.40E-05	6.40E-06	3.00E-01	1.67E-01	2.45E-01	6.72E-02	1.73E-01	8.24E-02
PCB Congeners (ug/l)								
2-MonoCB-(1)						1.60E-05 U	1.11E-04	3.30E-05 U
3-MonoCB-(2)						5.10E-06 U	1.60E-05 J	1.60E-05 U
4-MonoCB-(3)						1.10E-05 U	5.66E-05 J	2.40E-05 J
22'-DiCB-(4)						1.71E-04	9.96E-04	3.30E-04
2,3-DiCB-(5)						9.90E-06 U	3.10E-05 U	1.70E-05 U
2,3'-DiCB-(6)						5.13E-05 J	3.27E-04	1.11E-04
2,4-DiCB-(7)						1.00E-05 U	5.00E-05 U	1.50E-05 U
2,4'-DiCB-(8)						2.81E-04	1.32E-03	5.41E-04
2,5-DiCB-(9)						1.46E-05 J	8.60E-05 U	2.80E-05 J
2,6-DiCB-(10)						9.30E-06 U	1.90E-05 U	1.50E-05 U
3,3'-DiCB-(11)						7.64E-04	7.22E-04	5.03E-04
DiCB-(12)+(13)						5.60E-05 J	1.61E-04 J	6.30E-05 U
3,5-DiCB-(14)						9.70E-06 U	2.10E-05 U	1.50E-05 U
4,4'-DiCB-(15)						3.18E-04	1.68E-03	6.58E-04
22'3-TriCB-(16)						2.64E-04	2.00E-03	5.76E-04
22'4-TriCB-(17)						2.31E-04	1.50E-03	5.21E-04
TriCB-(18)+(30)						5.05E-04	2.99E-03	1.05E-03
22'6-TriCB-(19)						7.24E-05 J	3.91E-04	1.37E-04
TriCB-(20) + (28)						1.18E-03	6.06E-03	2.50E-03
TriCB-(21)+(33)						6.83E-04	3.66E-03	1.42E-03
234'-TriCB-(22)						4.90E-04	2.42E-03	9.69E-04
235-TriCB-(23)						2.80E-06 U	3.30E-06 U	2.00E-05 U
236-TriCB-(24)						2.40E-06 U	5.00E-06 U	2.90E-05 J
23'4-TriCB-(25)						7.56E-05 J	4.37E-04	1.80E-04
TriCB-(26)+(29)						1.67E-04 J	9.61E-04	3.60E-04
23'6-TriCB-(27)						4.56E-05 J	2.63E-04	9.60E-05 J
24'5-TriCB-(31)						8.85E-04	4.80E-03	1.92E-03
24'6-TriCB-(32)						1.79E-04	1.10E-03	3.83E-04
23'5'-TriCB-(34)						2.80E-06 U	3.20E-06 U	2.00E-05 U
33'4-TriCB-(35)						1.90E-05 U	1.18E-04	4.70E-05 J
33'5-TriCB-(36)						2.50E-06 U	3.00E-06 U	1.60E-05 U

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 20

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	B20-SP1 4/5/2018	B20-SP1 1/17/2018	Basin 20 SP1 3/28/2014	B20-SP1 1/7/2014	B20-SP1 11/18/2013
344'-TriCB-(37)						5.12E-04	2.15E-03	9.36E-04
345-TriCB-(38)						2.70E-06 U	3.30E-06 U	1.90E-05 U
34'5-TriCB-(39)						5.10E-06 J	2.23E-05 J	1.70E-05 U
TetraCB-(40)+(41)+(71)						6.81E-04	3.06E-03	1.31E-03
22'34'-TetraCB-(42)						3.57E-04	1.72E-03	6.67E-04
22'35-TetraCB-(43)						4.10E-05 J	2.25E-04	9.50E-05 J
TetraCB-(44)+(47)+(65)						1.07E-03	5.29E-03	2.24E-03
TetraCB-(45)+(51)						1.76E-04 J	8.51E-04	3.30E-04
22'36'-TetraCB-(46)						6.34E-05 J	3.13E-04	1.34E-04
22'45-TetraCB-(48)						2.32E-04	9.23E-04	3.94E-04
TetraCB-(49)+TetraCB-(69)						5.46E-04	2.75E-03	1.12E-03
TetraCB-(50)+(53)						1.19E-04 J	5.82E-04	2.30E-04
22'55'-TetraCB-(52)						1.05E-03	5.55E-03	2.17E-03
22'66'-TetraCB-(54)						5.20E-06 U	1.00E-05 U	1.60E-05 U
233'4-TetraCB-(55)						3.20E-06 U	5.40E-06 U	1.80E-05 U
233'4'-Tetra CB(56)						4.03E-04	1.83E-03	8.31E-04
233'5-TetraCB-(57)						4.88E-05 J	5.30E-06 U	1.80E-05 U
233'5'-TetraCB-(58)						2.90E-06 U	5.20E-06 U	1.80E-05 U
TetraCB-(59)+(62)+(75)						9.71E-05 J	4.49E-04	1.98E-04 J
2344'-TetraCB -(60)						2.20E-04	8.05E-04	3.52E-04
TetraCB-(61)+(70)+(74)+(76)						1.50E-03	6.52E-03	3.01E-03
234'5-TetraCB-(63)						2.46E-05 J	1.06E-04	4.80E-05 J
234'6-TetraCB-(64)						5.16E-04	2.41E-03	1.06E-03
23'44'-TetraCB-(66)						7.23E-04	3.39E-03	1.51E-03
23'45-TetraCB-(67)						2.64E-05 J	1.28E-04	5.30E-05 J
23'45'-TetraCB-(68)						3.50E-06 J	1.18E-05 J	1.60E-05 U
23'55'-TetraCB-(72)						4.60E-06 J	2.04E-05 J	1.70E-05 U
23'5'6-TetraCB-(73)						1.60E-06 U	9.30E-07 U	1.60E-05 U
33'44'-TetraCB-(77)						1.11E-04	4.62E-04	2.44E-04
33'45-TetraCB-(78)						2.90E-06 U	5.60E-06 U	1.80E-05 U
33'45'-TetraCB(79)						1.45E-05 J	5.84E-05 J	3.00E-05 J
33'55'-TetraCB-(80)						2.50E-06 U	5.00E-06 U	1.60E-05 U
344'5-TetraCB-(81)						3.50E-06 U	1.29E-05 J	2.20E-05 U
22'33'4-PentaCB-(82)						2.33E-04	9.92E-04	5.07E-04
PentaCB-(83)+(99)						7.95E-04	3.25E-03	1.66E-03
22'33'6-PentaCB-(84)						4.42E-04	1.88E-03	8.97E-04
PentaCB-(85)+(116)+(117)						2.18E-04 J	1.01E-03	5.20E-04
PentaCB-(86)(87)(97)(109)(119)(125)						1.20E-03	5.08E-03	2.62E-03
PentaCB-(88)+(91)						1.95E-04	7.81E-04	3.90E-04
22'346'-PentaCB-(89)						1.79E-05 J	6.82E-05 J	3.60E-05 J
PentaCB-(90)+(101)+(113)						1.51E-03	6.49E-03	3.33E-03
22'355'-PentaCB-(92)						2.53E-04	1.08E-03	5.54E-04
PentaCB-(93)+(98)+(100)+(102)						5.63E-05 J	2.26E-04 J	1.15E-04 J
22'356'-PentaCB-(94)						6.00E-06 J	2.67E-05 J	2.10E-05 U
22'35'6-PentaCB-(95)						1.13E-03	4.66E-03	2.33E-03
22'366'-PentaCB-(96)						7.90E-06 U	3.92E-05 J	1.90E-05 U
22'45'6-PentaCB-(103)						4.80E-06 J	2.50E-05 J	1.80E-05 U
22'466'-PentaCB-(104)						1.60E-06 U	2.60E-06 U	1.60E-05 U
233'44'-PentaCB-(105)						7.94E-04	3.32E-03	1.76E-03
233'45-PentaCB-(106)						5.80E-06 U	1.10E-06 U	2.00E-05 U
233'4'5-PentaCB-(107)						1.02E-04	4.53E-04	2.08E-04
PentaCB-(108)+(124)						6.40E-05 J	2.70E-04	1.44E-04 J
PentaCB-(110)+(115)						2.76E-03	1.03E-02	5.75E-03
233'55'-PentaCB-(111)						1.00E-06 U	1.40E-06 U	1.40E-05 U
233'56-PentaCB-(112)						1.00E-06 U	1.60E-06 U	1.50E-05 U
2344'5-PentaCB-(114)						3.35E-05 J	1.41E-04	7.40E-05 J
23'44'5-PentaCB-(118)						1.73E-03	7.53E-03	3.98E-03
23'455'-PentaCB-(120)						9.50E-07 U	9.60E-06 J	1.40E-05 U
23'45'6-PentaCB-(121)						1.00E-06 U	1.40E-06 U	1.40E-05 U
233'4'5'-PentaCB-(122)						2.10E-05 U	9.22E-05 J	5.40E-05 J
23'44'5'-PentaCB-(123)						1.80E-05 U	8.97E-05 J	7.10E-05 J
33'44'5-PentaCB-(126)						6.20E-06 U	3.53E-05 J	2.50E-05 J
33'455'-PentaCB-(127)						5.60E-06 U	7.60E-06 U	2.00E-05 U
HexaCB-(128)+(166)						4.74E-04	1.78E-03	9.70E-04
HexaCB-(129)+(138)+(163)						3.20E-03	1.15E-02	6.63E-03
22'33'45'-HexaCB-(130)						1.78E-04	6.27E-04	3.25E-04
22'33'46-HexaCB-(131)						4.37E-05 J	1.41E-04	8.10E-05 J
22'33'46'-HexaCB-(132)						9.97E-04	3.37E-03	1.82E-03
22'33'55'-HexaCB-(133)						3.09E-05 J	9.56E-05	5.40E-05 J
HexaCB-(134)+(143)						1.28E-04 J	4.18E-04	2.60E-04
HexaCB-(135)+(151)						6.76E-04	2.14E-03	1.14E-03

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 20

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	B20-SP1 4/5/2018	B20-SP1 1/17/2018	Basin 20 SP1 3/28/2014	B20-SP1 1/7/2014	B20-SP1 11/18/2013
22'33'66'-HexaCB-(136)						2.41E-04	8.22E-04	4.33E-04
22'344'5-HexaCB-(137)						1.35E-04	5.44E-04	3.07E-04
HexaCB-(139)+(140)						4.09E-05 J	1.44E-04 J	8.30E-05 J
22'3455'-HexaCB-(141)						4.84E-04	1.82E-03	9.65E-04
22'3456-HexaCB-(142)						4.40E-06 U	9.60E-06 U	2.10E-05 U
22'345'6-HexaCB-(144)						9.88E-05	3.38E-04	1.91E-04
22'3466'-HexaCB-(145)						3.90E-06 U	2.20E-06 U	2.00E-05 U
22'34'55'-HexaCB-(146)						3.05E-04	1.11E-03	5.98E-04
HexaCB-(147)+(149)						1.85E-03	5.96E-03	3.26E-03
22'34'56'-HexaCB-(148)						4.90E-06 U	4.90E-06 J	2.50E-05 U
22'34'66'-HexaCB-(150)						3.80E-06 U	7.50E-06 J	1.80E-05 U
22'3566'-HexaCB-(152)						3.30E-06 U	5.20E-06 U	1.90E-05 U
HexaCB-(153)+(168)						2.07E-03	6.71E-03	3.77E-03
22'44'56'-HexaCB-(154)						1.61E-05 J	4.90E-05 J	2.90E-05 J
22'44'66'-HexaCB-(155)						4.20E-06 U	1.20E-06 U	2.00E-05 U
HexaCB-(156)+(157)						3.27E-04	1.29E-03	6.80E-04
233'44'6-HexaCB-(158)						2.90E-04	1.07E-03	6.04E-04
233'455'-HexaCB-(159)						2.15E-05 J	6.63E-05 J	3.50E-05 J
233'456-HexaCB-(160)						3.60E-06 U	7.50E-06 U	1.50E-05 U
233'45'6-HexaCB-(161)						3.00E-06 U	6.50E-06 U	1.40E-05 U
233'4'55'-HexaCB-(162)						7.80E-06 U	2.85E-05 J	2.40E-05 J
233'4'5'6-HexaCB-(164)						1.97E-04	6.69E-04	3.46E-04
233'55'6-HexaCB-(165)						3.40E-06 U	7.10E-06 U	1.50E-05 U
23'44'55'-HexaCB-(167)						1.14E-04	4.12E-04	2.33E-04
33'44'55'-HexaCB-(169)						5.00E-06 U	6.00E-06 U	2.30E-05 U
22'33'44'5-HeptaCB-(170)						5.74E-04	1.73E-03	9.79E-04
HeptaCB-(171)+(173)						1.68E-04 J	5.50E-04	2.80E-04
22'33'455'-HeptaCB-(172)						1.07E-04	3.06E-04	1.81E-04
22'33'456'-HeptaCB-(174)						5.73E-04	4.40E-06 U	9.34E-04
22'33'45'6-HeptaCB-(175)						2.33E-05 J	7.69E-05 J	3.50E-05 J
22'33'466'-HeptaCB-(176)						6.23E-05 J	1.98E-04	1.02E-04
22'33'45'6'-HeptaCB-(177)						3.19E-04	1.03E-03	5.22E-04
22'33'55'6-HeptaCB-(178)						1.03E-04	3.27E-04	1.80E-04
22'33'566'-HeptaCB-(179)						2.02E-04	6.64E-04	3.18E-04
HeptaCB-(180)+(193)						1.33E-03	4.74E-03	2.48E-03
22'344'56-HeptaCB-(181)						6.40E-06 U	4.50E-06 U	2.00E-05 U
22'344'56'-HeptaCB-(182)						4.90E-06 U	2.10E-06 U	1.90E-05 U
22'344'5'6-HeptaCB-(183)						3.24E-04	1.11E-03	4.95E-04
22'344'66'-HeptaCB-(184)						3.60E-06 U	1.40E-06 U	1.30E-05 U
22'3455'6-HeptaCB-(185)						7.50E-06 U	2.19E-03	8.30E-05 J
22'34566'-HeptaCB-(186)						3.90E-06 U	1.60E-06 U	1.40E-05 U
22'34'55'6-HeptaCB-(187)						7.28E-04	2.27E-03	1.13E-03
22'34'566'-HeptaCB-(188)						4.80E-06 U	2.40E-06 U	1.60E-05 U
233'44'55'-HeptaCB-(189)						2.30E-05 U	7.30E-05 U	4.20E-05 U
233'44'56-HeptaCB-(190)						1.06E-04	3.40E-04	2.09E-04
233'44'5'6-HeptaCB-(191)						2.12E-05 J	7.36E-05 J	3.90E-05 J
233'455'6-HeptaCB-(192)						5.30E-06 U	3.80E-06 U	1.70E-05 U
22'33'44'55'-OctaCB-(194)						3.46E-04	1.18E-03	6.30E-04
22'33'44'56-OctaCB-(195)						1.11E-04	3.60E-04	1.84E-04
22'33'44'56'-OctaCB-(196)						1.85E-04	6.42E-04	3.27E-04
22'33'44'66'OctaCB-(197)						1.24E-05 J	2.76E-05 J	1.80E-05 U
OctaCB-(198)+(199)						4.79E-04	1.71E-03	8.00E-04
22'33'4566'-OctaCB-(200)						4.77E-05 J	1.98E-04	7.20E-05 J
22'33'45'66'-OctaCB-(201)						5.61E-05 J	1.90E-04	7.40E-05 U
22'33'55'66'-OctaCB-(202)						8.68E-05 J	3.52E-04	1.80E-04
22'344'55'6-OctaCB-(203)						3.05E-04	1.10E-03	5.00E-04
22'344'566'-OctaCB-(204)						7.10E-06 U	4.00E-06 U	1.70E-05 U
233'44'55'6-OctaCB-(205)						1.90E-05 U	4.90E-05 U	2.60E-05 U
22'33'44'55'6-NonaCB-(206)						2.79E-04	1.25E-03	5.92E-04
22'33'44'566'-NonaCB-(207)						3.50E-05 J	1.43E-04	6.30E-05 J
22'33'455'66'-NonaCB-(208)						6.68E-05 J	2.88E-04	1.41E-04
DecaCB-(209)						7.70E-05 J	3.06E-04	1.42E-04
PCB Homologs (ug/l)								
Monochlorobiphenyl						5.10E-06 U	1.84E-04	2.40E-05
Dichlorobiphenyl						1.66E-03	5.21E-03	2.17E-03
Trichlorobiphenyl						5.29E-03	2.89E-02	1.11E-02
Tetrachlorobiphenyl						8.03E-03	3.75E-02	1.60E-02
Pentachlorobiphenyl						1.16E-02	4.79E-02	2.50E-02
Hexachlorobiphenyl						1.19E-02	4.11E-02	2.28E-02
Heptachlorobiphenyl						4.64E-03	1.56E-02	7.97E-03

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 20

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	B20-SP1 4/5/2018	B20-SP1 1/17/2018	Basin 20 SP1 3/28/2014	B20-SP1 1/7/2014	B20-SP1 11/18/2013
Octachlorobiphenyl						1.63E-03	5.77E-03	2.69E-03
Nonachlorobiphenyl						3.81E-04	1.68E-03	7.96E-04
Decachlorobiphenyl						7.70E-05	3.06E-04	1.42E-04
Total Detected PCBs (Method 1668)	6.40E-05	6.40E-06	3.00E-01			4.52E-02	1.84E-01	8.88E-02
Phthalates (ug/l)								
Bis(2-ethylhexyl) phthalate	2.2	0.2	5			2.0	11 U	11 U
Butylbenzyl phthalate	3					0.943 U	15 U	14 U
Dibutyl phthalate	3					0.943 U	15 U	14 U
Diethyl phthalate	3					0.943 U	15 U	14 U
Dimethyl phthalate	3					0.943 U	15 U	14 U
Di-n-octyl phthalate	3					0.943 U	15 U	14 U
Pesticides (ug/l)								
2,4'-DDD	3.10E-04	3.10E-05				9.52E-03 U	9.52E-03 U	9.52E-03 U
2,4'-DDE	2.20E-04	1.80E-05				9.52E-03 U	9.52E-03 U	9.52E-03 U
2,4'-DDT	2.00E-01	2.20E-05				1.90E-02 U	9.52E-03 U	1.90E-02 U
4,4'-DDD	3.10E-04	3.10E-05				9.52E-03 U	9.52E-03 U	9.52E-03 U
4,4'-DDE	2.20E-04	1.80E-05				9.52E-03 U	9.52E-03 U	9.52E-03 U
4,4'-DDT	2.20E-04	2.20E-05				1.90E-02 U	1.90E-02 U	9.52E-03 U
Total DDx		1.00E-02						
Aldrin	5.00E-05	7.70E-07				9.52E-03 U	9.52E-03 U	9.52E-03 U
alpha-BHC	4.90E-03					9.52E-03 U	9.52E-03 U	9.52E-03 U
beta-BHC	1.70E-02					9.52E-03 U	9.52E-03 U	9.52E-03 U
cis-Chlordane	8.10E-04	8.10E-05				9.52E-03 U	9.52E-03 U	9.52E-03 U
cis-Nonachlor	1.90E-01					9.52E-03 U	9.52E-03 U	9.52E-03 U
Chlordane Technical		8.10E-05				3.58E-01 U	3.58E-01 U	3.58E-01 U
delta-BHC	5.20E-02					9.52E-03 U	9.52E-03 U	9.52E-03 U
Dieldrin	5.40E-05					9.52E-03 U	9.52E-03 U	9.52E-03 U
Endosulfan I	5.10E-02					4.76E-02 U	4.76E-02 U	2.86E-02 U
Endosulfan II	5.10E-02					9.52E-03 U	9.52E-03 U	9.52E-03 U
Endosulfan sulfate	8.90E+01					9.52E-03 U	9.52E-03 U	9.52E-03 U
Endrin	3.60E-02					9.52E-03 U	9.52E-03 U	9.52E-03 U
Endrin aldehyde						9.52E-03 U	9.52E-03 U	9.52E-03 U
Endrin ketone						9.52E-03 U	9.52E-03 U	9.52E-03 U
gamma-BHC	3.70E-02					9.52E-03 U	9.52E-03 U	9.52E-03 U
Heptachlor	7.90E-05					9.52E-03 U	9.52E-03 U	1.90E-02 U
Heptachlor epoxide	3.90E-05					9.52E-03 U	9.52E-03 U	9.52E-03 U
Hexachlorobenzene	2.90E-04	2.90E-05				2.86E-02 U	2.86E-02 U	2.86E-02 U
Hexachlorobutadiene	8.60E-01					9.52E-03 U	9.52E-03 U	9.52E-03 U
Hexachloroethane	3.30E+00							
Methoxychlor	3.00E-02					2.86E-02 U	2.86E-02 U	2.86E-02 U
Mirex	NC					9.52E-03 U	9.52E-03 U	9.52E-03 U
Oxychlordane	1.90E-01	8.10E-05				9.52E-03 U	9.52E-03 U	9.52E-03 U
Toxaphene	2.00E-04					3.58E-01 U	3.58E-01 U	3.58E-01 U
trans-Chlordane	8.10E-04	8.10E-05				9.52E-03 U	9.52E-03 U	9.52E-03 U
trans-Nonachlor	1.90E-01					9.52E-03 U	9.52E-03 U	9.52E-03 U
Dioxins (ug/l)								
1,2,3,4,6,7,8-HeptaCDD				3.28E-04	9.46E-04	2.77E-04	3.75E-04	1.37E-04
1,2,3,4,6,7,8-HeptaCDF				6.00E-05 U	4.90E-04 U	4.30E-05 U	6.40E-05 U	2.80E-05 U
1,2,3,4,7,8,9-HeptaCDF				4.50E-06 J	3.64E-05 J	2.60E-06 J	4.90E-06 U	1.50E-06 U
1,2,3,4,7,8-HexaCDD				2.80E-06 U	9.80E-06 J	2.90E-06 J	4.45E-06 J	2.90E-06 U
1,2,3,4,7,8-HexaCDF				1.03E-05 J	1.14E-04	4.80E-06 J	8.16E-06 J	2.60E-06 U
1,2,3,6,7,8-HexaCDD				9.80E-06 J	3.78E-05 J	1.24E-05 J	1.53E-05 J	6.40E-06 J
1,2,3,6,7,8-HexaCDF				2.90E-06 J	2.51E-05 J	2.60E-06 J	3.67E-06 J	1.61E-06 J
1,2,3,7,8,9-HexaCDD				6.50E-06 J	2.09E-05 J	9.70E-06 J	1.19E-05 J	5.00E-06 J
1,2,3,7,8,9-HexaCDF				1.50E-06 U	1.10E-06 U	1.30E-06 U	1.20E-06 U	1.10E-06 U
1,2,3,7,8-PentaCDD				1.30E-06 U	5.00E-06 J	1.30E-06 U	2.90E-06 J	1.20E-06 U
1,2,3,7,8-PentaCDF				1.40E-06 U	3.30E-06 J	1.10E-06 U	2.00E-06 J	1.40E-06 U
2,3,4,6,7,8-HexaCDF				2.00E-06 U	1.14E-05 J	2.10E-06 J	3.10E-06 J	1.81E-06 J
2,3,4,7,8-PentaCDF				1.40E-06 U	1.15E-05 J	1.10E-06 U	3.20E-06 J	1.40E-06 U
2,3,7,8-TetraCDD	5.1E-09			1.20E-06 U	1.40E-06 U	1.70E-06 U	9.00E-07 U	1.20E-06 U
2,3,7,8-TetraCDF				4.90E-06 J	5.20E-06 J	3.10E-06 J	5.20E-06 J	2.00E-06 J
OCDD				3.18E-03	1.03E-02	2.09E-03	3.29E-03	1.10E-03
OCDF				1.21E-04	5.38E-04	8.60E-05 J	1.43E-04	4.40E-05
HeptaCDD homologs				8.12E-04	2.08E-03	6.00E-04	8.83E-04	3.28E-04
HeptaCDF homologs				1.11E-04	8.59E-04	7.07E-05	1.26E-04	4.30E-05
HexaCDD homologs				8.11E-05	2.06E-04	7.55E-05	1.18E-04	5.50E-05
HexaCDF homologs				9.46E-05	7.34E-04	7.21E-05	1.06E-04	4.20E-05
PentaCDD homologs				1.60E-06 U	8.60E-06 J	1.30E-06 U	7.37E-06 J	1.20E-06 U

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 20

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	B20-SP1 4/5/2018	B20-SP1 1/17/2018	Basin 20 SP1 3/28/2014	B20-SP1 1/7/2014	B20-SP1 11/18/2013
PentaCDF homologs				2.96E-05 J	1.36E-04	1.87E-05 J	4.03E-05 J	1.20E-05
TetraCDD homologs				1.20E-06 U	1.40E-06 U	8.60E-06 U	1.01E-06 J	1.20E-06 U
TetraCDF homologs				8.80E-06 J	5.70E+01	1.22E-05 J	3.09E-05	4.70E-06
Total Dioxin TEQ (ND=DL/2)	5.1E-09	5.0E-10		9.85E-06	4.72E-05	9.17E-06	1.47E-05	5.30E-06
Total Dioxin TEQ (ND=0)	5.1E-09	5.0E-10		7.76E-06	4.40E-05	7.21E-06	1.39E-05	3.40E-06
Butyltins (ug/l)								
Butyltin ion						0.20 U	0.20 U	0.20 U
Dibutyltin ion						0.29 U	0.29 U	0.29 U
Tributyltin ion	0.072	0.063				0.19 U	0.19 U	0.19 U
Total Metals (ug/l)								
Aluminum				5720	3680	1840	6040	1880
Antimony	6			2.0	1.7	1.5 J	1.8	1.2
Arsenic	0.045	0.018	3	1.7	1.3	0.84 J	1.6	1.0
Cadmium	0.094		0.7	0.69	0.98	0.33	1.0	0.42
Chromium	100	100	10	41	31	17	65	18
Copper	2.7	2.74	60	38	44	18	59	25
Lead	0.54		50	54	77	23	78	24
Manganese	50			742	1210	184	744	222
Mercury	0.77		0.2	0.040 U	0.046 J	0.043 J	0.079 J	0.040 U
Nickel	16		8	8.0	8.4	3.0	9.2	3.7
Silver	0.12		0.1	0.10 U	0.10 U	0.10 U	0.11 J	0.10 U
Zinc	36	36.5	700	311	712	109	381	159
Dissolved Metals (ug/l)								
Aluminum						91	51	79
Antimony	6					0.50 U	0.51 J	0.72 J
Arsenic	0.045	0.018	2			0.50 U	0.50 U	0.50 U
Cadmium	0.094		0.7			0.044 J	0.04 J	0.12 J
Chromium	100	100	10			1.7	0.72 J	1.2
Copper	2.7	2.74	60			3.9	5.5	9.8
Lead	0.54		50			0.93	0.33	0.68
Manganese	50					10	15	56
Mercury	0.77		0.2			0.040 U	0.040 U	0.040 U
Nickel	16		8			0.66 J	0.82 J	1.6
Silver	0.12		0.1			0.10 U	0.10 U	0.10 U
Zinc	36	36.5	700			24	11	52
Pertroleum Hydrocarbons (mg/l)								
Gasoline				0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Diesel				0.14 J	0.10 U	0.10 U	0.47 U	0.10 U
Oil				0.99	0.40 J	1.5	3.7	1.5
TSS (mg/l)			70	144	159	53	215	49
TOC (mg/l)				9.5	8.4	6.1	6.4	15

U - Not detectet at noted detection limit
J- Estimated value
Blank cells indicate not analyzed

1 - Table 3-1 PH JSCS Guidance, 7/16/2007 revision
2 - Table 17 January 2017 PH ROD. Surface Water Cleanup Level.
3 - October 2010, DEQ Guidance for Evaluating Stormwater Pathway at Upland Sites, Appendix E, Tool For Evaluating Stormwater Data (12/2015 update)

Detected concentration > 10 x SLV (CL or JSCS if no CL)
Detected concentration > 100 x SLV (CL or JSCS if no CL)
Detected concentration > 1000 x SLV (CL or JSCS if no CL)

Table 3
Catch Basin Solids Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 20A

Chemical	Portland Harbor SLV JSCS[1]	Portland Harbor SLV CL[2]	DEQ Appendix E "Typical PH Values"[3]	SW CB 10/29/2013	NW CB 10/29/2013
PAHs (ug/kg)					
2-Methylnaphthalene	200			1440 U	934 U
Acenaphthene	300			719 U	467 U
Acenaphthylene	200			719 U	467 U
Anthracene	845			719 U	919 J
Benzo(a)anthracene	1050			1260 J	32600
Benzo(a)pyrene	1450			1690 J	3450
Benzo(b+k)fluoranthene	13000			3760 J	3990
Benzo(g,h,i)perylene	300			1460	931 J
Chrysene	1290			1290 J	63700
Dibenzo(a,h)anthracene	1300			719 U	467 U
Fluoranthene	2230			1810	23800
Fluorene	536			719 U	467 U
Indeno(1,2,3-cd)pyrene	100			894 J	467 U
Naphthalene	561			1440 U	934 U
Phenanthrene	1170			1100 J	2630
Pyrene	1520			2150	279000
Total Detected PAHs (BaP TEQ)		12		2294	7746
Total Detected PAHs		23000	15000	15414	411020
PCBs (ug/kg)					
Aroclor 1016	530			8.7 U	5.9 U
Aroclor 1221				8.7 U	5.9 U
Aroclor 1232				8.7 U	5.9 U
Aroclor 1242				181	83
Aroclor 1248	1500			8.7 U	5.9 U
Aroclor 1254	300			353	174
Aroclor 1260	200			131	52
Total Detected PCB Aroclors	0.39	9	150	665	309
Phthalates (ug/kg)					
Bis(2-ethylhexyl) phthalate	330	135	30000	10800 J	17800
Butylbenzyl phthalate				7190 U	5460 J
Diethyl phthalate	600			7190 U	4670 U
Dimethyl phthalate				7190 U	4670 U
Dibutyl phthalate				7190 U	4670 U
Di-n-octyl phthalate	60			14400 U	9340 U
Pesticides (ug/kg)					
2,4'-DDD	0.33	114		17 U	4.5 U
2,4'-DDE	0.33	226		8.7 U	4.5 U
2,4'-DDT	0.33	246		8.7 U	4.5 U
4,4'-DDD	0.33	114		38 U	4.5 U
4,4'-DDE	0.33	226		26 U	4.5 U
4,4'-DDT	0.33	246		35 U	11 U
Total DDx		6.1		0	0
Aldrin	40	2		8.7 U	4.5 U
alpha-Hexachlorocyclohexane				8.7 U	4.5 U

Table 3
Catch Basin Solids Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 20A

Chemical	Portland Harbor SLV JSCS[1]	SLV CL[2]	DEQ Appendix E "Typical PH Values"[3]	SW CB 10/29/2013	NW CB 10/29/2013
beta-Hexachlorocyclohexane				8.7 U	4.5 U
Chlordane Technical		1.4		259 U	135 U
cis-Chlordane	0.37	1.4		8.7 U	4.5 U
cis-Nonachlor				26 U	4.5 U
delta-Hexachlorocyclohexane	4.99			8.7 U	4.5 U
Dieldrin	0.0081	0.07		17 U	4.5 U
alpha-Endosulfan				8.7 U	4.5 U
beta-Endosulfan				8.7 U	4.5 U
Endosulfan sulfate				8.7 U	4.5 U
Endrin	207			8.7 U	4.5 U
Endrin aldehyde				8.7 U	4.5 U
Endrin ketone				8.7 U	4.5 U
gamma-Hexachlorocyclohexane				8.7 U	4.5 U
Heptachlor	10			8.7 U	4.5 U
Heptachlor epoxide	16			8.7 U	4.5 U
Hexachlorobenzene	19	0.3		22 U	11 U
Hexachlorobutadiene	600			8.7 U	4.5 U
Methoxychlor				26 U	14 U
Mirex				17 U	4.5 U
Oxychlordane				8.7 U	4.5 U
Toxaphene				259 U	135 U
trans-Chlordane	0.37	1.4		8.7 U	4.5 U
trans-Nonachlor				8.7 U	4.5 U
Dioxins (ug/kg)					
1,2,3,4,6,7,8-HeptaCDD	6.90E-01			5.98E-01	2.42E-01
1,2,3,4,6,7,8-HeptaCDF	6.90E-01			9.69E-02	4.31E-02
1,2,3,4,7,8,9-HeptaCDF	6.90E-01			7.83E-03 J	2.97E-03 J
1,2,3,4,7,8-HexaCDD				7.64E-03 J	3.41E-03 J
1,2,3,4,7,8-HexaCDF	2.70E-03	4.00E-04		1.16E-02	4.07E-03 J
1,2,3,6,7,8-HexaCDD				3.21E-02	1.17E-02
1,2,3,6,7,8-HexaCDF	2.70E-03			5.62E-03 J	2.21E-03 J
1,2,3,7,8,9-HexaCDD				2.06E-02	9.70E-03
1,2,3,7,8,9-HexaCDF	2.70E-03			3.30E-04 J	1.80E-04 J
1,2,3,7,8-PentaCDD	2.60E-03	2.00E-04		4.28E-03 J	1.86E-03 J
1,2,3,7,8-PentaCDF	2.60E-03			2.80E-03 J	8.70E-04 U
2,3,4,6,7,8-HexaCDF	2.70E-03			4.21E-03 J	1.99E-03 J
2,3,4,7,8-PentaCDF	3.00E-05	3.00E-04		4.18E-03 J	2.04E-03 J
2,3,7,8-TetraCDD	9.10E-06	2.00E-04		9.30E-04 U	3.00E-04 U
2,3,7,8-TetraCDF	7.70E-04	4.07E-04		5.50E-03	2.60E-03
OCDD	2.30E+01			5.49E+00	2.26E+00
OCDF	2.30E+01			3.31E-01	1.84E-01
Total Hepta CDD				1.44E+00	5.56E-01
Total Hepta CDF				2.79E-01	1.27E-01
Total Hexa CDD				2.36E-01	9.70E-02
Total Hexa CDF				1.51E-01	6.34E-02
Total Penta CDD				1.29E-02	5.70E-03
Total Penta CDF				5.35E-02	3.16E-02

Table 3
Catch Basin Solids Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 20A

Chemical	Portland Harbor SLV JSCS[1]	Portland Harbor SLV CL[2]	DEQ Appendix E "Typical PH Values"[3]	SW CB 10/29/2013	NW CB 10/29/2013
Total Tetra CDD				1.17E-03 J	4.80E-04 J
Total Tetra CDF				1.37E-02	9.40E-03
Total Dioxin TEQ (ND=DL/2)	9.10E-05			2.36E-02	9.83E-03
Total Dioxin TEQ (ND=0)	9.10E-05			2.32E-02	9.67E-03
Butyltins (ug/kg)					
Butyltin ion				110	120
Dibutyltin ion				170	180
Tributyltin ion	2.3	3080		17	3.6 U
Metals (mg/kg)					
Aluminum				9150	4880
Antimony	64			4.3	1.4
Arsenic	7	3	10	4.4	1.4
Cadmium	1	0.51	2	2.5	0.77
Chromium	111		130	434	271
Copper	149	359	500	144	46
Lead	17	196	300	179	56
Manganese	1100			4670	2970
Mercury	0.07	0.085	0.35	0.25	0.056 U
Nickel	48.6		60	45	14
Silver	5		0.7	0.31 J	0.14 U
Zinc	459	459	1400	918	360
Total Petroluem Hydrcarbons (mg/kg)					
Gasoline				6.1 U	3.6 U
Diesel				1190 U	439 U
Oil				9290	3890

U - Not detected at noted detection limit

J - Estimated value

1 - Table 3-1 PH JSCS Guidance, 7/16/2007 revision

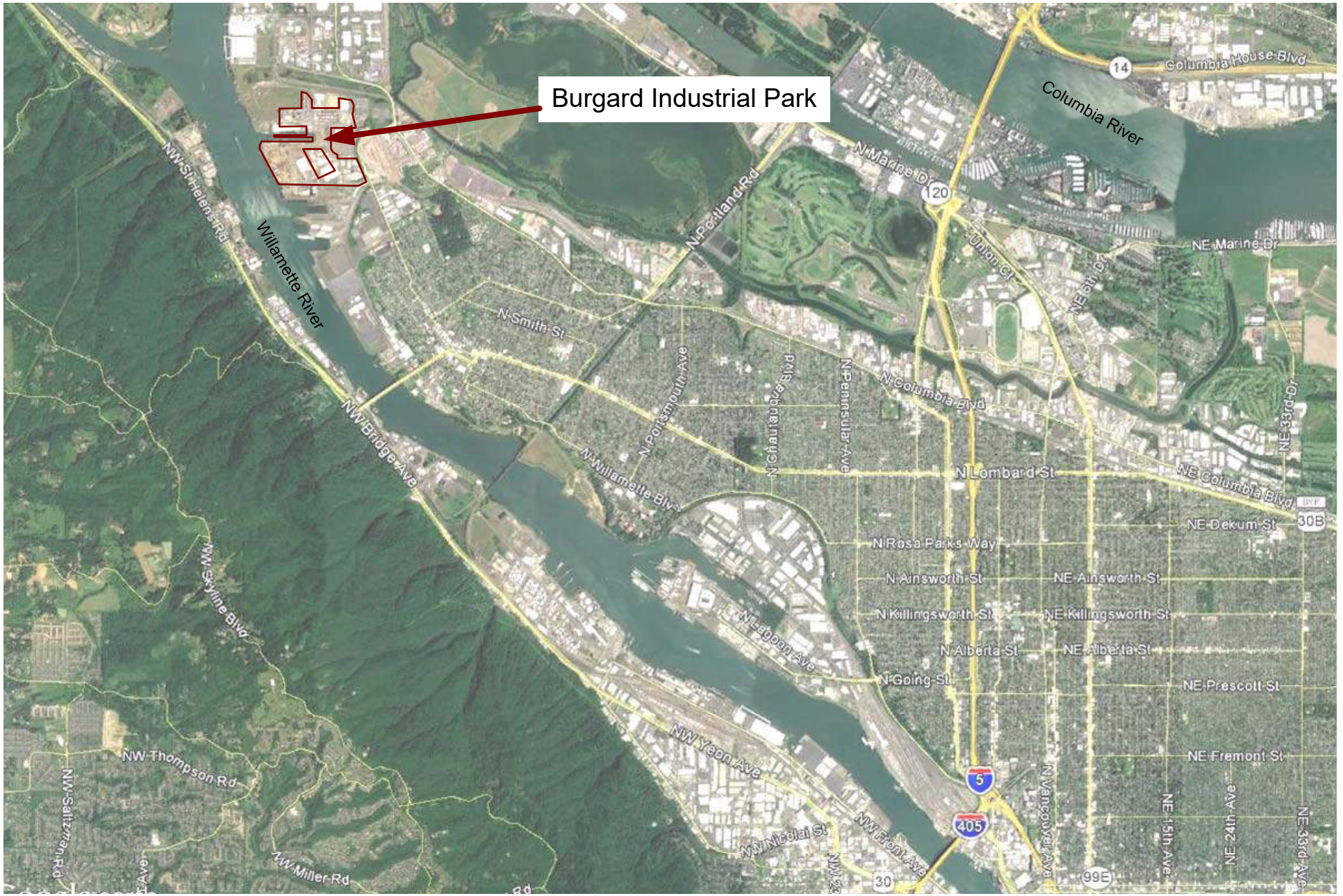
2 - Table 17 January 2017 PH ROD. Riverbank/Soil Cleanup Level

3 - October 2010, DEQ Guidance for Evaluating Stormwater Pathway at Upland Sites, Appendix E,
Tool For Evaluating Stormwater Data (12/2015 update)

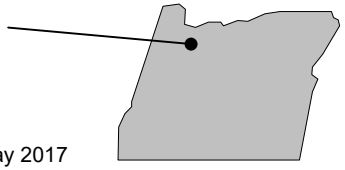
Detected concentration > 10 x SLV (CL or JSCS if no CL)

Detected concentration > 100 x SLV (CL or JSCS if no CL)

Figures



Portland, Oregon



Base photograph May 2017

N

Approximate Scale

5000 feet

Figure 1
Site Location Map
Burgard Industrial Park
Portland, OR

RIEKE CONSULTING SERVICES, LLC

Base photograph May 2017

Figure 2
Site Plan
Burgard Industrial Park
Portland, Oregon

RIEKE CONSULTING SERVICES, LLC

Base photograph May 2017

Approximate Scale

100 feet

N

Storm Water Sample Location

Previous Catch Basin
Solids Sample Location

Pavement

Figure 3
Site Plan and Sample Locations
Basin 20/Basin 20A
Burgard Industrial Park
Portland, OR

RIEKE CONSULTING SERVICES, LLC

Appendix A – Analytical Laboratory Reports

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Tuesday, April 24, 2018

Ross Rieke
Rieke Consulting Services, LLC
10457 SW Lady Marion Drive
Tigard, OR 97224

RE: Schnitzer Steel-Burgard / 8001-20

Enclosed are the results of analyses for work order A8D0223, which was received by the laboratory on 4/6/2018 at 3:20:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B20-SP1-04052018	A8D0223-01	Water	04/05/18 09:30	04/06/18 15:20

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B20-SP1-04052018 (A8D0223-01)			**Matrix: Water**		**Batch: 8040714**			
Diesel	**0.137**	0.110	0.220	mg/L	1	04/13/18 00:35	NWTPH-Dx	J
Oil	**0.985**	0.220	0.440	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 97 %*	*Limits: 50-150 %*	"	"	"	

Apex Laboratories

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Philip Nerenberg, Lab Director

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B20-SP1-04052018 (A8D0223-01)			**Matrix: Water**		**Batch: 8040590**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	04/09/18 16:47	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 97 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*107 %*	*Limits: 50-150 %*	"	"	"	

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B20-SP1-04052018 (A8D0223-01)			**Matrix: Water**		**Batch: 8040682**			**C-07**
Aroclor 1016	ND	0.0102	0.0204	ug/L	1	04/12/18 09:40	EPA 8082A	
Aroclor 1221	ND	0.0102	0.0204	"	"	"	"	
Aroclor 1232	ND	0.0102	0.0204	"	"	"	"	
Aroclor 1242	**0.0653**	0.0102	0.0204	"	"	"	"	P-10
Aroclor 1248	ND	0.0102	0.0204	"	"	"	"	
Aroclor 1254	**0.0634**	0.0102	0.0204	"	"	"	"	P-10
Aroclor 1260	**0.0383**	0.0102	0.0204	"	"	"	"	P-10
Surrogate: Decachlorobiphenyl (Surr)			*Recovery: 60 %*	*Limits: 39-120 %*	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B20-SP1-04052018 (A8D0223-01)			**Matrix: Water**		**Batch: 8040594**			
Acenaphthene	ND	0.0481	0.0962	ug/L	5	04/09/18 16:33	EPA 8270D	
Acenaphthylene	ND	0.0481	0.0962	"	"	"	"	
Anthracene	**0.0511**	0.0481	0.0962	"	"	"	"	J
Benz(a)anthracene	**0.125**	0.0481	0.0962	"	"	"	"	M-05
Benzo(a)pyrene	**0.164**	0.0721	0.144	"	"	"	"	
Benzo(b)fluoranthene	**0.311**	0.0721	0.144	"	"	"	"	M-05
Benzo(k)fluoranthene	**0.129**	0.0721	0.144	"	"	"	"	J
Benzo(g,h,i)perylene	**0.183**	0.0481	0.0962	"	"	"	"	
Chrysene	**0.299**	0.0481	0.0962	"	"	"	"	M-05
Dibenz(a,h)anthracene	ND	0.0481	0.0962	"	"	"	"	
Fluoranthene	**0.368**	0.0481	0.0962	"	"	"	"	
Fluorene	ND	0.0481	0.0962	"	"	"	"	
Indeno(1,2,3-cd)pyrene	**0.140**	0.0481	0.0962	"	"	"	"	
1-Methylnaphthalene	ND	0.0962	0.192	"	"	"	"	
2-Methylnaphthalene	ND	0.0962	0.192	"	"	"	"	
Naphthalene	ND	0.0962	0.192	"	"	"	"	
Phenanthrene	**0.175**	0.0481	0.0962	"	"	"	"	
Pyrene	**0.438**	0.0481	0.0962	"	"	"	"	
Carbazole	ND	0.144	0.144	"	"	"	"	
Dibenzofuran	ND	0.0481	0.0962	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 78 %*	*Limits: 44-120 %*	"	"	"	
2-Fluorobiphenyl (Surr)			*79 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*26 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*69 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*40 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*110 %*	*Limits: 43-140 %*	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B20-SP1-04052018 (A8D0223-01)			**Matrix: Water**					
Batch: 8040873								
Antimony	**1.96**	0.500	1.00	ug/L	1	04/17/18 22:53	EPA 6020A	
Arsenic	**1.70**	0.500	1.00	"	"	"	"	
Cadmium	**0.689**	0.0400	0.200	"	"	"	"	
Chromium	**40.7**	0.500	1.00	"	"	"	"	
Copper	**38.3**	0.500	1.00	"	"	"	"	
Lead	**54.0**	0.100	0.200	"	"	"	"	
Manganese	**742**	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Nickel	**7.98**	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	**311**	2.00	4.00	"	"	"	"	
B20-SP1-04052018 (A8D0223-01RE1)			**Matrix: Water**					
Batch: 8040873								
Aluminum	**5720**	125	250	ug/L	5	04/18/18 17:59	EPA 6020A	

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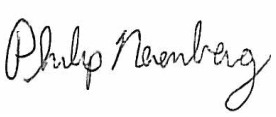

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B20-SP1-04052018 (A8D0223-01)			**Matrix: Water**					
Batch: 8040608								
Total Organic Carbon	**9.47**	1.00	1.00	mg/L	1	04/09/18 18:10	SM 5310 C	
Batch: 8040727								
Total Suspended Solids	**144**	5.00	5.00	"	"	04/12/18 16:55	SM 2540 D	

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040714 - EPA 3510C (Fuels/Acid Ext.)									**Water**			
Blank (8040714-BLK1)					Prepared: 04/12/18 08:45 Analyzed: 04/12/18 23:26							
NWTPH-Dx												
Diesel	ND	0.0909	0.182	mg/L	1	---	---	---	---	---	---	
Oil	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 90 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS (8040714-BS1)					Prepared: 04/12/18 08:45 Analyzed: 04/12/18 23:49							
NWTPH-Dx												
Diesel	0.958	0.100	0.200	mg/L	1	1.25	---	77	58-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 95 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS Dup (8040714-BSD1)					Prepared: 04/12/18 08:45 Analyzed: 04/13/18 00:12							Q-19
NWTPH-Dx												
Diesel	0.920	0.100	0.200	mg/L	1	1.25	---	74	58-115%	4	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 93 %*	*Limits: 50-150 %*		*Dilution: 1x*						

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040590 - EPA 5030B									Water			
Blank (8040590-BLK1)					Prepared: 04/09/18 08:23 Analyzed: 04/09/18 13:22							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 101 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*108 %*	*50-150 %*			*"*					
LCS (8040590-BS4)					Prepared: 04/09/18 08:23 Analyzed: 04/09/18 12:54							
NWTPH-Gx (MS)												
Gasoline Range Organics	0.488	0.0500	0.100	mg/L	1	0.500	---	98	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 98 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*103 %*	*50-150 %*			*"*					

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040682 - EPA 3510C (Neutral pH)									Water			
Blank (8040682-BLK1)					Prepared: 04/11/18 11:18		Analyzed: 04/12/18 08:28					C-07
EPA 8082A												
Aroclor 1016	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Aroclor 1221	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1232	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1242	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1248	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1254	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1260	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 88 %*	*Limits: 39-120 %*		*Dilution: 1x*						
LCS (8040682-BS1)					Prepared: 04/11/18 11:18		Analyzed: 04/12/18 08:46					C-07
EPA 8082A												
Aroclor 1016	0.854	0.0100	0.0200	ug/L	1	1.25	---	68	46-129%	---	---	
Aroclor 1260	1.00	0.0100	0.0200	"	"	"	---	80	45-134%	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 93 %*	*Limits: 39-120 %*		*Dilution: 1x*						
LCS Dup (8040682-BSD1)					Prepared: 04/11/18 11:18		Analyzed: 04/12/18 09:04					C-07, Q-19
EPA 8082A												
Aroclor 1016	0.827	0.0100	0.0200	ug/L	1	1.25	---	66	46-129%	3	30%	
Aroclor 1260	1.04	0.0100	0.0200	"	"	"	---	83	45-134%	3	30%	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 92 %*	*Limits: 39-120 %*		*Dilution: 1x*						

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040594 - EPA 3510C (Acid Extraction)							**Water**					
Blank (8040594-BLK1)					Prepared: 04/09/18 09:25 Analyzed: 04/09/18 14:46							
EPA 8270D												
Acenaphthene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Chrysene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Fluoranthene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Fluorene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
Naphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
Phenanthrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Carbazole	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
4-Chloro-3-methylphenol	ND	0.0909	0.182	"	"	---	---	---	---	---	---	
2-Chlorophenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
2,4-Dichlorophenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
2,4-Dimethylphenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
2,4-Dinitrophenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
2-Methylphenol	ND	0.0227	0.0455	"	"	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	0.0227	0.0455	"	"	---	---	---	---	---	---	
2-Nitrophenol	ND	0.0909	0.182	"	"	---	---	---	---	---	---	
4-Nitrophenol	ND	0.0909	0.182	"	"	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	0.0909	0.182	"	"	---	---	---	---	---	---	
Phenol	ND	0.182	0.364	"	"	---	---	---	---	---	---	
2,3,4,6-Tetrachlorophenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
2,3,5,6-Tetrachlorophenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040594 - EPA 3510C (Acid Extraction)									**Water**			
Blank (8040594-BLK1)					Prepared: 04/09/18 09:25 Analyzed: 04/09/18 14:46							
EPA 8270D												
2,4,5-Trichlorophenol	ND	0.0455	0.0909	ug/L	"	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Diethylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Dimethylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Di-n-butylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 79 %*		*Limits: 44-120 %*			*Dilution: 1x*				
2-Fluorobiphenyl (Surr)			*68 %*		*44-120 %*			*"*				
Phenol-d6 (Surr)			*25 %*		*10-120 %*			*"*				
p-Terphenyl-d14 (Surr)			*70 %*		*50-133 %*			*"*				
2-Fluorophenol (Surr)			*42 %*		*19-120 %*			*"*				
2,4,6-Tribromophenol (Surr)			*90 %*		*43-140 %*			*"*				
LCS (8040594-BS1)					Prepared: 04/09/18 09:25 Analyzed: 04/09/18 15:21							
EPA 8270D												
Acenaphthene	2.99	0.0100	0.0200	ug/L	1	4.00	---	75	47-122%	---	---	
Acenaphthylene	2.94	0.0100	0.0200	"	"	"	---	73	41-130%	---	---	
Anthracene	3.04	0.0100	0.0200	"	"	"	---	76	57-123%	---	---	
Benz(a)anthracene	3.43	0.0100	0.0200	"	"	"	---	86	58-125%	---	---	
Benzo(a)pyrene	3.65	0.0150	0.0300	"	"	"	---	91	54-128%	---	---	
Benzo(b)fluoranthene	3.62	0.0150	0.0300	"	"	"	---	90	53-131%	---	---	
Benzo(k)fluoranthene	3.64	0.0150	0.0300	"	"	"	---	91	57-129%	---	---	
Benzo(g,h,i)perylene	3.64	0.0100	0.0200	"	"	"	---	91	50-134%	---	---	
Chrysene	3.51	0.0100	0.0200	"	"	"	---	88	59-123%	---	---	
Dibenz(a,h)anthracene	3.61	0.0100	0.0200	"	"	"	---	90	51-134%	---	---	
Fluoranthene	3.25	0.0100	0.0200	"	"	"	---	81	57-128%	---	---	
Fluorene	2.83	0.0100	0.0200	"	"	"	---	71	52-124%	---	---	
Indeno(1,2,3-cd)pyrene	3.51	0.0100	0.0200	"	"	"	---	88	52-133%	---	---	
1-Methylnaphthalene	2.84	0.0200	0.0400	"	"	"	---	71	41-120%	---	---	
2-Methylnaphthalene	2.94	0.0200	0.0400	"	"	"	---	74	40-121%	---	---	
Naphthalene	2.77	0.0200	0.0400	"	"	"	---	69	"	---	---	
Phenanthrene	2.99	0.0100	0.0200	"	"	"	---	75	59-120%	---	---	
Pyrene	3.22	0.0100	0.0200	"	"	"	---	80	57-126%	---	---	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040594 - EPA 3510C (Acid Extraction)									**Water**			
LCS (8040594-BS1)					Prepared: 04/09/18 09:25 Analyzed: 04/09/18 15:21							
EPA 8270D												
Carbazole	3.32	0.0150	0.0300	ug/L	"	"	---	83	60-122%	---	---	
Dibenzofuran	2.82	0.0100	0.0200	"	"	"	---	71	53-120%	---	---	
4-Chloro-3-methylphenol	3.70	0.100	0.200	"	"	"	---	93	52-120%	---	---	
2-Chlorophenol	3.03	0.0500	0.100	"	"	"	---	76	38-120%	---	---	
2,4-Dichlorophenol	3.40	0.0500	0.100	"	"	"	---	85	47-121%	---	---	
2,4-Dimethylphenol	2.86	0.0500	0.100	"	"	"	---	71	31-124%	---	---	
2,4-Dinitrophenol	3.47	0.250	0.500	"	"	"	---	87	23-143%	---	---	
4,6-Dinitro-2-methylphenol	3.74	0.250	0.500	"	"	"	---	94	44-137%	---	---	
2-Methylphenol	2.47	0.0250	0.0500	"	"	"	---	62	30-120%	---	---	
3+4-Methylphenol(s)	2.27	0.0250	0.0500	"	"	"	---	57	29-120%	---	---	
2-Nitrophenol	3.39	0.100	0.200	"	"	"	---	85	47-123%	---	---	
4-Nitrophenol	1.12	0.100	0.200	"	"	"	---	28	5-120%	---	---	
Pentachlorophenol (PCP)	3.06	0.100	0.200	"	"	"	---	76	35-138%	---	---	
Phenol	1.15	0.200	0.400	"	"	"	---	29	5-120%	---	---	
2,3,4,6-Tetrachlorophenol	3.32	0.0500	0.100	"	"	"	---	83	50-128%	---	---	
2,3,5,6-Tetrachlorophenol	3.22	0.0500	0.100	"	"	"	---	80	50-121%	---	---	
2,4,5-Trichlorophenol	3.31	0.0500	0.100	"	"	"	---	83	53-123%	---	---	
2,4,6-Trichlorophenol	3.37	0.0500	0.100	"	"	"	---	84	50-125%	---	---	
Bis(2-ethylhexyl)phthalate	4.05	0.200	0.400	"	"	"	---	101	55-135%	---	---	
Butyl benzyl phthalate	3.93	0.200	0.400	"	"	"	---	98	53-134%	---	---	
Diethylphthalate	3.13	0.200	0.400	"	"	"	---	78	55-125%	---	---	
Dimethylphthalate	3.21	0.200	0.400	"	"	"	---	80	45-127%	---	---	
Di-n-butylphthalate	3.56	0.200	0.400	"	"	"	---	89	59-127%	---	---	
Di-n-octyl phthalate	4.05	0.200	0.400	"	"	"	---	101	51-140%	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 75 %*		*Limits: 44-120 %*		*Dilution: 1x*					
2-Fluorobiphenyl (Surr)			*65 %*		*44-120 %*		*"*					
Phenol-d6 (Surr)			*30 %*		*10-120 %*		*"*					
p-Terphenyl-d14 (Surr)			*84 %*		*50-133 %*		*"*					
2-Fluorophenol (Surr)			*49 %*		*19-120 %*		*"*					
2,4,6-Tribromophenol (Surr)			*89 %*		*43-140 %*		*"*					
LCS Dup (8040594-BSD1)					Prepared: 04/09/18 09:25 Analyzed: 04/09/18 15:57							Q-19
EPA 8270D												
Acenaphthene	3.02	0.0100	0.0200	ug/L	1	4.00	---	76	47-122%	1	30%	
Acenaphthylene	2.99	0.0100	0.0200	"	"	"	---	75	41-130%	2	30%	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040594 - EPA 3510C (Acid Extraction)							**Water**					
LCS Dup (8040594-BSD1)					Prepared: 04/09/18 09:25		Analyzed: 04/09/18 15:57					Q-19
EPA 8270D												
Anthracene	3.01	0.0100	0.0200	ug/L	"	"	---	75	57-123%	1	30%	
Benz(a)anthracene	3.40	0.0100	0.0200	"	"	"	---	85	58-125%	0.9	30%	
Benzo(a)pyrene	3.61	0.0150	0.0300	"	"	"	---	90	54-128%	1	30%	
Benzo(b)fluoranthene	3.62	0.0150	0.0300	"	"	"	---	90	53-131%	0.02	30%	
Benzo(k)fluoranthene	3.56	0.0150	0.0300	"	"	"	---	89	57-129%	2	30%	
Benzo(g,h,i)perylene	3.61	0.0100	0.0200	"	"	"	---	90	50-134%	0.9	30%	
Chrysene	3.49	0.0100	0.0200	"	"	"	---	87	59-123%	0.6	30%	
Dibenz(a,h)anthracene	3.52	0.0100	0.0200	"	"	"	---	88	51-134%	2	30%	
Fluoranthene	3.28	0.0100	0.0200	"	"	"	---	82	57-128%	0.9	30%	
Fluorene	2.84	0.0100	0.0200	"	"	"	---	71	52-124%	0.4	30%	
Indeno(1,2,3-cd)pyrene	3.53	0.0100	0.0200	"	"	"	---	88	52-133%	0.5	30%	
1-Methylnaphthalene	2.93	0.0200	0.0400	"	"	"	---	73	41-120%	3	30%	
2-Methylnaphthalene	3.11	0.0200	0.0400	"	"	"	---	78	40-121%	5	30%	
Naphthalene	2.88	0.0200	0.0400	"	"	"	---	72	"	4	30%	
Phenanthrene	2.94	0.0100	0.0200	"	"	"	---	74	59-120%	2	30%	
Pyrene	3.22	0.0100	0.0200	"	"	"	---	80	57-126%	0.1	30%	
Carbazole	3.39	0.0150	0.0300	"	"	"	---	85	60-122%	2	30%	
Dibenzofuran	2.87	0.0100	0.0200	"	"	"	---	72	53-120%	2	30%	
4-Chloro-3-methylphenol	3.76	0.100	0.200	"	"	"	---	94	52-120%	1	30%	
2-Chlorophenol	3.19	0.0500	0.100	"	"	"	---	80	38-120%	5	30%	
2,4-Dichlorophenol	3.47	0.0500	0.100	"	"	"	---	87	47-121%	2	30%	
2,4-Dimethylphenol	2.93	0.0500	0.100	"	"	"	---	73	31-124%	3	30%	
2,4-Dinitrophenol	3.71	0.250	0.500	"	"	"	---	93	23-143%	7	30%	
4,6-Dinitro-2-methylphenol	3.92	0.250	0.500	"	"	"	---	98	44-137%	5	30%	
2-Methylphenol	2.73	0.0250	0.0500	"	"	"	---	68	30-120%	10	30%	
3+4-Methylphenol(s)	2.47	0.0250	0.0500	"	"	"	---	62	29-120%	9	30%	
2-Nitrophenol	3.56	0.100	0.200	"	"	"	---	89	47-123%	5	30%	
4-Nitrophenol	1.27	0.100	0.200	"	"	"	---	32	5-120%	12	30%	
Pentachlorophenol (PCP)	3.19	0.100	0.200	"	"	"	---	80	35-138%	4	30%	
Phenol	1.26	0.200	0.400	"	"	"	---	32	5-120%	9	30%	
2,3,4,6-Tetrachlorophenol	3.35	0.0500	0.100	"	"	"	---	84	50-128%	0.9	30%	
2,3,5,6-Tetrachlorophenol	3.27	0.0500	0.100	"	"	"	---	82	50-121%	2	30%	
2,4,5-Trichlorophenol	3.35	0.0500	0.100	"	"	"	---	84	53-123%	1	30%	
2,4,6-Trichlorophenol	3.39	0.0500	0.100	"	"	"	---	85	50-125%	0.7	30%	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040594 - EPA 3510C (Acid Extraction)									**Water**			
LCS Dup (8040594-BSD1)					Prepared: 04/09/18 09:25		Analyzed: 04/09/18 15:57					Q-19
EPA 8270D												
Bis(2-ethylhexyl)phthalate	4.02	0.200	0.400	ug/L	"	"	---	100	55-135%	0.9	30%	
Butyl benzyl phthalate	3.93	0.200	0.400	"	"	"	---	98	53-134%	0.01	30%	
Diethylphthalate	3.11	0.200	0.400	"	"	"	---	78	55-125%	0.6	30%	
Dimethylphthalate	3.19	0.200	0.400	"	"	"	---	80	45-127%	0.7	30%	
Di-n-butylphthalate	3.52	0.200	0.400	"	"	"	---	88	59-127%	1	30%	
Di-n-octyl phthalate	4.00	0.200	0.400	"	"	"	---	100	51-140%	1	30%	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 81 %*		*Limits: 44-120 %*		*Dilution: 1x*					
2-Fluorobiphenyl (Surr)			*64 %*		*44-120 %*		*"*					
Phenol-d6 (Surr)			*32 %*		*10-120 %*		*"*					
p-Terphenyl-d14 (Surr)			*80 %*		*50-133 %*		*"*					
2-Fluorophenol (Surr)			*50 %*		*19-120 %*		*"*					
2,4,6-Tribromophenol (Surr)			*87 %*		*43-140 %*		*"*					

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040873 - EPA 3015A									**Water**			
Blank (8040873-BLK1)					Prepared: 04/17/18 09:04 Analyzed: 04/17/18 21:38							
EPA 6020A												
Aluminum	ND	25.0	50.0	ug/L	1	---	---	---	---	---	---	
Antimony	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Arsenic	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Cadmium	ND	0.0400	0.200	"	"	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Copper	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Lead	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Manganese	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Mercury	ND	0.0400	0.0800	"	"	---	---	---	---	---	---	
Nickel	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Silver	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Zinc	ND	2.00	4.00	"	"	---	---	---	---	---	---	
LCS (8040873-BS1)					Prepared: 04/17/18 09:04 Analyzed: 04/17/18 21:42							
EPA 6020A												
Aluminum	5630	25.0	50.0	ug/L	1	5560	---	101	80-120%	---	---	
Antimony	26.6	0.500	1.00	"	"	27.8	---	96	"	---	---	
Arsenic	54.7	0.500	1.00	"	"	55.6	---	98	"	---	---	
Cadmium	54.7	0.0400	0.200	"	"	"	---	98	"	---	---	
Chromium	55.6	0.500	1.00	"	"	"	---	100	"	---	---	
Copper	54.3	0.500	1.00	"	"	"	---	98	"	---	---	
Lead	54.0	0.100	0.200	"	"	"	---	97	"	---	---	
Manganese	55.6	0.500	1.00	"	"	"	---	100	"	---	---	
Mercury	1.08	0.0400	0.0800	"	"	1.11	---	97	"	---	---	
Nickel	55.2	0.500	1.00	"	"	55.6	---	99	"	---	---	
Silver	27.7	0.100	0.200	"	"	27.8	---	100	"	---	---	
Zinc	55.2	2.00	4.00	"	"	55.6	---	99	"	---	---	
Matrix Spike (8040873-MS2)					Prepared: 04/17/18 09:04 Analyzed: 04/17/18 23:23							
QC Source Sample: B21-CB9-04052018 (A8D0223-06)												
EPA 6020A												
Antimony	25.3	0.500	1.00	ug/L	1	27.8	0.633	89	75-125%	---	---	
Arsenic	53.9	0.500	1.00	"	"	55.6	0.556	96	"	---	---	
Cadmium	54.0	0.0400	0.200	"	"	"	0.411	97	"	---	---	
Chromium	69.2	0.500	1.00	"	"	"	13.7	100	"	---	---	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040873 - EPA 3015A									**Water**			
Matrix Spike (8040873-MS2)					Prepared: 04/17/18 09:04		Analyzed: 04/17/18 23:23					
QC Source Sample: B21-CB9-04052018 (A8D0223-06)												
EPA 6020A												
Copper	81.5	0.500	1.00	ug/L	"	"	28.7	95	"	---	---	
Lead	62.0	0.100	0.200	"	"	"	9.69	94	"	---	---	
Manganese	235	0.500	1.00	"	"	"	178	102	"	---	---	
Mercury	1.03	0.0400	0.0800	"	"	1.11	ND	93	"	---	---	
Nickel	59.8	0.500	1.00	"	"	55.6	4.83	99	"	---	---	
Silver	27.5	0.100	0.200	"	"	27.8	ND	99	"	---	---	
Zinc	279	2.00	4.00	"	"	55.6	221	105	"	---	---	
Matrix Spike (8040873-MS4)					Prepared: 04/17/18 09:04		Analyzed: 04/18/18 18:14					
QC Source Sample: B21-CB9-04052018 (A8D0223-06)												
EPA 6020A												
Aluminum	9250	125	250	ug/L	5	5560	2660	119	75-125%	---	---	Q-16

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040608 - Method Prep: Aq							**Water**					
Blank (8040608-BLK1)					Prepared: 04/09/18 13:40		Analyzed: 04/09/18 16:44					
SM 5310 C												
Total Organic Carbon	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	
LCS (8040608-BS1)					Prepared: 04/09/18 13:40		Analyzed: 04/09/18 17:12					
SM 5310 C												
Total Organic Carbon	11.0	1.00	1.00	mg/L	1	10.0	---	110	85-115%	---	---	
LCS (8040608-BS2)					Prepared: 04/09/18 13:40		Analyzed: 04/09/18 17:41					
SM 5310 C												
Total Organic Carbon	ND	1.00	1.00	mg/L	1	0.00	---		85-115%	---	---	TOC_I
Duplicate (8040608-DUP1)					Prepared: 04/09/18 13:40		Analyzed: 04/09/18 18:39					
QC Source Sample: B20-SP1-04052018 (A8D0223-01)												
SM 5310 C												
Total Organic Carbon	**9.44**	1.00	1.00	mg/L	1	---	9.47	---	---	0.3	20%	
Matrix Spike (8040608-MS2)					Prepared: 04/09/18 13:40		Analyzed: 04/10/18 10:54					
QC Source Sample: B20-SP1-04052018 (A8D0223-01)												
SM 5310 C												
Total Organic Carbon	24.7	2.02	2.02	mg/L	2	20.0	9.47	76	75-125%	---	---	

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QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040727 - Total Suspended Solids									Water			
Blank (8040727-BLK1)					Prepared: 04/12/18 12:55		Analyzed: 04/12/18 16:55					
SM 2540 D												
Total Suspended Solids	ND	2.00	2.00	mg/L	1	---	---	---	---	---	---	
Reference (8040727-SRM1)					Prepared: 04/12/18 12:55		Analyzed: 04/12/18 16:55					
SM 2540 D												
Total Suspended Solids	83.0			mg/L	1	100		83	77.1-110%	---	---	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8040714							
A8D0223-01	Water	NWTPH-Dx	04/05/18 09:30	04/12/18 08:45	910mL/5mL	1000mL/5mL	1.10

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8040590							
A8D0223-01	Water	NWTPH-Gx (MS)	04/05/18 09:30	04/09/18 13:49	5mL/5mL	5mL/5mL	1.00

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3510C (Neutral pH)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8040682							
A8D0223-01	Water	EPA 8082A	04/05/18 09:30	04/11/18 11:36	980mL/1mL	1000mL/1mL	1.02

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3510C (Acid Extraction)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8040594							
A8D0223-01	Water	EPA 8270D	04/05/18 09:30	04/09/18 09:25	1040mL/1mL	1000mL/1mL	0.96

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8040873							
A8D0223-01	Water	EPA 6020A	04/05/18 09:30	04/17/18 09:04	45mL/50mL	45mL/50mL	1.00
A8D0223-01RE1	Water	EPA 6020A	04/05/18 09:30	04/17/18 09:04	45mL/50mL	45mL/50mL	1.00

Conventional Chemistry Parameters

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8040608							
A8D0223-01	Water	SM 5310 C	04/05/18 09:30	04/09/18 13:40	40mL/40mL	40mL/40mL	1.00

Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

SAMPLE PREPARATION INFORMATION

Conventional Chemistry Parameters

Prep: Total Suspended Solids

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8040727							
A8D0223-01	Water	SM 2540 D	04/05/18 09:30	04/12/18 12:55	1N/A/1N/A	1N/A/1N/A	NA

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

Notes and Definitions

Qualifiers:

C-07	Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
M-05	Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.
P-10	Result estimated due to the presence of multiple PCB Aroclors and/or matrix interference.
Q-16	Reanalysis of an original Batch QC sample.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
TOC_I	Inorganic Carbon Spike Check. Results are valid if Non Detect (No Inorganic Carbon detected.)

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

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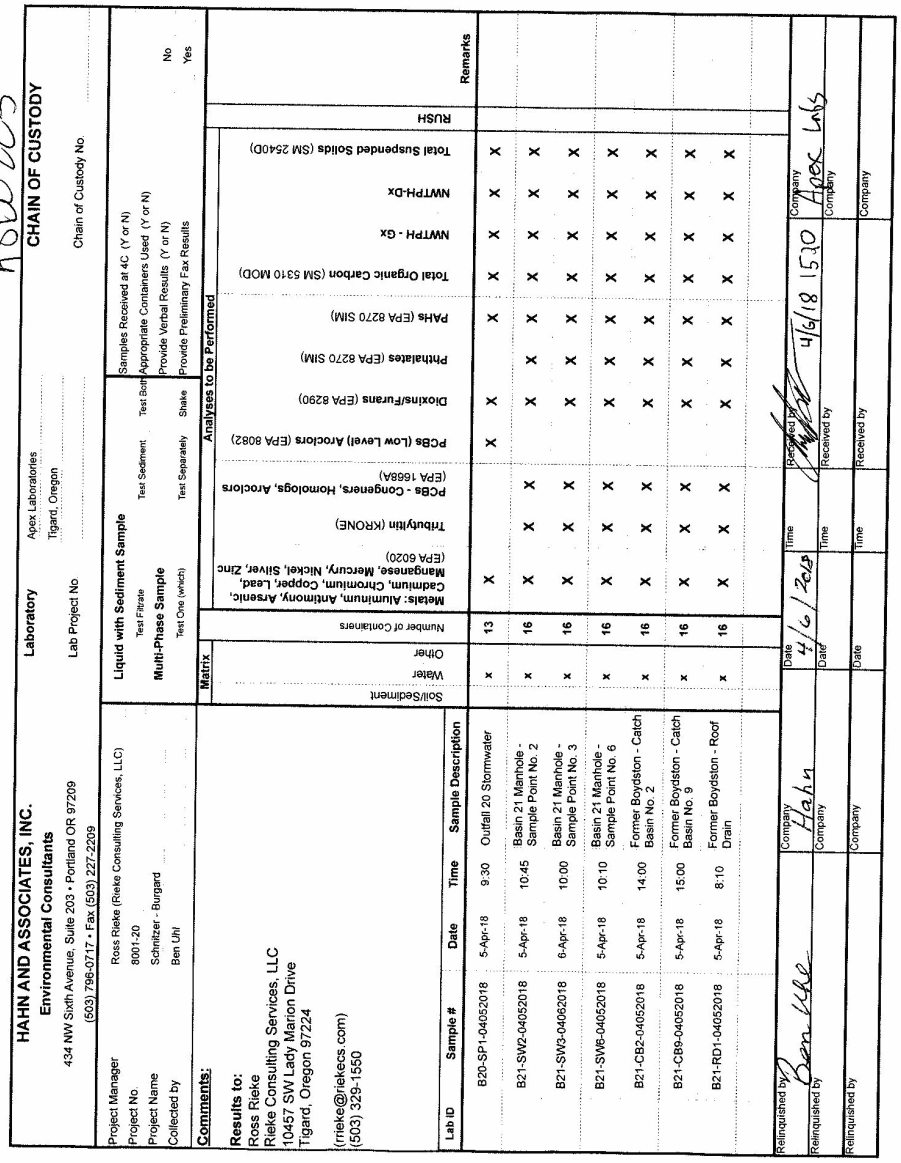
Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48



HAHN AND ASSOCIATES, INC.
Environmental Consultants
434 NW Sixth Avenue, Suite 203 • Portland OR 97209
(503) 796-0717 • Fax (503) 227-2209

Laboratory Apex Laboratories, Tigard, Oregon
Lab Project No.
Chain of Custody No.

CHAIN OF CUSTODY

Project Manager: Ross Rieke (Rieke Consulting Services, LLC)
Project No.: 8001-20
Project Name: Schnitzer - Burgard
Collected by: Ben Uhl

Liquid with Sediment Sample — Test Filtrate / Test Sediment / Test Both
Multi-Phase Sample — Test One (which) / Test Separately / Shake

Samples Received at 4C (Y or N)
Appropriate Containers Used (Y or N)
Provide Verbal Results (Y or N)
Provide Preliminary Fax Results

Comments:

Results to:
Ross Rieke
Rieke Consulting Services, LLC
10457 SW Lady Marion Drive
Tigard, Oregon 97224
(rrieke@riekecs.com)
(503) 329-1550

Lab ID	Sample #	Date	Time	Sample Description	Matrix: Soil/Sediment	Water	Other	Number of Containers	Analyses to be Performed: Metals: Aluminum, Antimony, Arsenic, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Silver, Zinc (EPA 6020)	Tributyltin (KRONE)	PCBs - Congeners, Homologs, Aroclors (EPA 1668A)	PCBs (Low Level) Aroclors (EPA 8082)	Dioxins/Furans (EPA 8290)	Phthalates (EPA 8270 SIM)	PAHs (EPA 8270 SIM)	Total Organic Carbon (SM 5310 MOD)	NWTPH - Gx	NWTPH-Dx	Total Suspended Solids (SM 2540D)	RUSH	Remarks
	B20-SP1-04052018	5-Apr-18	9:30	Outfall 20 Stormwater	x			13	X			X	X		X	X	X	X	X		
	B21-SW2-04052018	5-Apr-18	10:45	Basin 21 Manhole - Sample Point No. 2	x			16	X	X	X		X	X	X	X	X	X	X		
	B21-SW3-04062018	6-Apr-18	10:00	Basin 21 Manhole - Sample Point No. 3	x			16	X	X	X		X	X	X	X	X	X	X		
	B21-SW6-04052018	5-Apr-18	10:10	Basin 21 Manhole - Sample Point No. 6	x			16	X	X	X		X	X	X	X	X	X	X		
	B21-CB2-04052018	5-Apr-18	14:00	Former Boydston - Catch Basin No. 2	x			16	X	X	X		X	X	X	X	X	X	X		
	B21-CB9-04052018	5-Apr-18	15:00	Former Boydston - Catch Basin No. 9	x			16	X	X	X		X	X	X	X	X	X	X		
	B21-RD1-04052018	5-Apr-18	8:10	Former Boydston - Roof Drain	x			16	X	X	X		X	X	X	X	X	X	X		

Relinquished by: Ben Uhl — Company: Hahn — Date: 4/6/2018 — Time: 15:30 — Received by: [signature] — Company: Apex Labs
Relinquished by: — Company: — Date: — Time: — Received by: — Company:
Relinquished by: — Company: — Date: — Time: — Received by: — Company:

Apex Laboratories

Philip Nerenberg

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Philip Nerenberg, Lab Director

Apex Labs

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503-718-2323 Phone
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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 15:48

APEX LABS COOLER RECEIPT FORM

Client: Hahn Element WO#: A8 D0223

Project/Project #: Schnitzer - Burgard 8001-20

Delivery info:

Date/Time Received: 4/6/18 @ 1520 By: CFH

Delivered by: Apex X Client ESS FedEx UPS Swift Senvoy SDS Other

Cooler Inspection Inspected by: CFH : 4/6/18 @ 1800

Chain of Custody Included? Yes X No Custody Seals? Yes No X

Signed/Dated by Client? Yes X No

Signed/Dated by Apex? Yes X No

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)							
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)	5.9	0.1	3.9	3.5	2.4	1.7	3.9
Ice Type: (Gel/Real/Other)							
Condition:	Good						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: KM : 4/7/18 @ 0905

All Samples Intact? Yes X No Comments:

Bottle Labels/COCs agree? Yes X No X Comments: Temperature Blanks not on COC Have Sample ID labels

Containers/Volumes Received Appropriate for Analysis? Yes X No Comments:

Do VOA Vials have Visible Headspace? Yes X No NA

Comments RD-1 2/3 H/S

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No NA

Comments:

Additional Information: Temperature blanks have IDs.

Labeled by: Witness: Cooler Inspected by: CFH See Project Contact Form: Y

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Success Through Science®

Your Project #: A8D0223
Your C.O.C. #: na

Attention: Philip Nerenberg

Apex Laboratories
12232 SW Garden Place
Tigard, OR
USA 97223

Report Date: 2018/05/04
Report #: R5103834
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B879641
Received: 2018/04/10, 13:41

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Dioxins/Furans in Water (8290A) (1)	1	2018/04/19	2018/04/29	BRL SOP-00406	EPA 8290A m

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Confirmatory runs for 2,3,7,8-TCDF are performed only if the primary result is greater than the RDL.

U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.
E = Analyte concentration exceeds the maximum concentration level.
K = Estimated maximum possible concentration due to ion abundance ratio failure.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Stephanie Pollen, Project Manager
Email: SPollen@maxxam.ca
Phone# (905) 817-5700

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		GKR522							
Sampling Date		2018/04/05 09:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B20-SP1-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.2 U	1.2	22	N/A	1.00	1.20	N/A	5495989
1,2,3,7,8-Penta CDD *	pg/L	1.3 U	1.3	56	N/A	1.00	1.30	N/A	5495989
1,2,3,4,7,8-Hexa CDD *	pg/L	2.8 U (1)	2.8	56	N/A	0.100	0.280	N/A	5495989
1,2,3,6,7,8-Hexa CDD *	pg/L	9.8 J	1.2	56	N/A	0.100	0.980	N/A	5495989
1,2,3,7,8,9-Hexa CDD *	pg/L	6.5 J	1.3	56	N/A	0.100	0.650	N/A	5495989
1,2,3,4,6,7,8-Hepta CDD *	pg/L	328	1.3	56	N/A	0.0100	3.28	N/A	5495989
Octa CDD *	pg/L	3180	1.2	110	N/A	0.000300	0.954	N/A	5495989
Total Tetra CDD *	pg/L	1.2 U	1.2	22	N/A	N/A	N/A	0	5495989
Total Penta CDD *	pg/L	1.6 U (1)	1.6	56	N/A	N/A	N/A	0	5495989
Total Hexa CDD *	pg/L	81.1	1.3	56	N/A	N/A	N/A	5	5495989
Total Hepta CDD *	pg/L	812	1.3	56	N/A	N/A	N/A	2	5495989
2,3,7,8-Tetra CDF **	pg/L	4.9 J	1.3	22	N/A	0.100	0.490	N/A	5495989
1,2,3,7,8-Penta CDF **	pg/L	1.4 U	1.4	56	N/A	0.0300	0.0420	N/A	5495989
2,3,4,7,8-Penta CDF **	pg/L	1.4 U	1.4	56	N/A	0.300	0.420	N/A	5495989
1,2,3,4,7,8-Hexa CDF **	pg/L	10.3 J	1.3	56	N/A	0.100	1.03	N/A	5495989
1,2,3,6,7,8-Hexa CDF **	pg/L	2.9 J	1.1	56	N/A	0.100	0.290	N/A	5495989
2,3,4,6,7,8-Hexa CDF **	pg/L	2.0 U (1)	2.0	56	N/A	0.100	0.200	N/A	5495989
1,2,3,7,8,9-Hexa CDF **	pg/L	1.5 U	1.5	56	N/A	0.100	0.150	N/A	5495989
1,2,3,4,6,7,8-Hepta CDF **	pg/L	60 U (1)	60	56	N/A	0.0100	0.600	N/A	5495989
1,2,3,4,7,8,9-Hepta CDF **	pg/L	4.5 J	1.6	56	N/A	0.0100	0.0450	N/A	5495989
Octa CDF **	pg/L	121	1.3	110	N/A	0.000300	0.0363	N/A	5495989
Total Tetra CDF **	pg/L	8.8 J	1.3	22	N/A	N/A	N/A	3	5495989
Total Penta CDF **	pg/L	29.6 J	1.4	56	N/A	N/A	N/A	2	5495989
Total Hexa CDF **	pg/L	94.6	1.3	56	N/A	N/A	N/A	6	5495989
Total Hepta CDF **	pg/L	111	1.3	56	N/A	N/A	N/A	2	5495989
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	11.9	N/A	N/A

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) 1.15044277

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		GKR522							
Sampling Date		2018/04/05 09:30							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B20-SP1-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	118	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-1234678 HeptaCDF **	%	117	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-123478 HexaCDF **	%	102	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-123678 HexaCDD *	%	106	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-12378 PentaCDD *	%	104	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-12378 PentaCDF **	%	93	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-2378 TetraCDD *	%	125	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-2378 TetraCDF **	%	111	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-OCDD *	%	129	N/A	N/A	N/A	N/A	N/A	N/A	5495989

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

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N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

TEST SUMMARY

Maxxam ID: GKR522
Sample ID: B20-SP1-04052018
Matrix: Water

Collected: 2018/04/05
Shipped:
Received: 2018/04/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	5495989	2018/04/19	2018/04/29	Angel Guerrero

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.0°C
Package 2	3.2°C
Package 3	4.4°C

Split Report V1: To include sample B20.

Results relate only to the items tested.

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
5495989	AGU	Spiked Blank	C13-1234678 HeptaCDD	2018/04/29		123	%	40 - 135
			C13-1234678 HeptaCDF	2018/04/29		123	%	40 - 135
			C13-123478 HexaCDF	2018/04/29		106	%	40 - 135
			C13-123678 HexaCDD	2018/04/29		107	%	40 - 135
			C13-12378 PentaCDD	2018/04/29		86	%	40 - 135
			C13-12378 PentaCDF	2018/04/29		79	%	40 - 135
			C13-2378 TetraCDD	2018/04/29		92	%	40 - 135
			C13-2378 TetraCDF	2018/04/29		74	%	40 - 135
			C13-OCDD	2018/04/29		127	%	40 - 135
			2,3,7,8-Tetra CDD	2018/04/29		81	%	80 - 140
			1,2,3,7,8-Penta CDD	2018/04/29		97	%	80 - 140
			1,2,3,4,7,8-Hexa CDD	2018/04/29		86	%	80 - 140
			1,2,3,6,7,8-Hexa CDD	2018/04/29		98	%	80 - 140
			1,2,3,7,8,9-Hexa CDD	2018/04/29		100	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDD	2018/04/29		92	%	80 - 140
			Octa CDD	2018/04/29		97	%	80 - 140
			2,3,7,8-Tetra CDF	2018/04/29		93	%	80 - 140
			1,2,3,7,8-Penta CDF	2018/04/29		89	%	80 - 140
			2,3,4,7,8-Penta CDF	2018/04/29		93	%	80 - 140
			1,2,3,4,7,8-Hexa CDF	2018/04/29		88	%	80 - 140
			1,2,3,6,7,8-Hexa CDF	2018/04/29		91	%	80 - 140
			2,3,4,6,7,8-Hexa CDF	2018/04/29		93	%	80 - 140
			1,2,3,7,8,9-Hexa CDF	2018/04/29		91	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDF	2018/04/29		85	%	80 - 140
			1,2,3,4,7,8,9-Hepta CDF	2018/04/29		93	%	80 - 140
			Octa CDF	2018/04/29		99	%	80 - 140
5495989	AGU	Spiked Blank DUP	C13-1234678 HeptaCDD	2018/04/29		129	%	40 - 135
			C13-1234678 HeptaCDF	2018/04/29		130	%	40 - 135
			C13-123478 HexaCDF	2018/04/29		108	%	40 - 135
			C13-123678 HexaCDD	2018/04/29		117	%	40 - 135
			C13-12378 PentaCDD	2018/04/29		100	%	40 - 135
			C13-12378 PentaCDF	2018/04/29		87	%	40 - 135
			C13-2378 TetraCDD	2018/04/29		117	%	40 - 135
			C13-2378 TetraCDF	2018/04/29		103	%	40 - 135
			C13-OCDD	2018/04/29		128	%	40 - 135
			2,3,7,8-Tetra CDD	2018/04/29		82	%	80 - 140
			1,2,3,7,8-Penta CDD	2018/04/29		99	%	80 - 140
			1,2,3,4,7,8-Hexa CDD	2018/04/29		83	%	80 - 140
			1,2,3,6,7,8-Hexa CDD	2018/04/29		88	%	80 - 140
			1,2,3,7,8,9-Hexa CDD	2018/04/29		88	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDD	2018/04/29		91	%	80 - 140
			Octa CDD	2018/04/29		97	%	80 - 140
			2,3,7,8-Tetra CDF	2018/04/29		88	%	80 - 140
			1,2,3,7,8-Penta CDF	2018/04/29		93	%	80 - 140
			2,3,4,7,8-Penta CDF	2018/04/29		103	%	80 - 140
			1,2,3,4,7,8-Hexa CDF	2018/04/29		91	%	80 - 140
			1,2,3,6,7,8-Hexa CDF	2018/04/29		94	%	80 - 140
			2,3,4,6,7,8-Hexa CDF	2018/04/29		92	%	80 - 140
			1,2,3,7,8,9-Hexa CDF	2018/04/29		94	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDF	2018/04/29		80	%	80 - 140
			1,2,3,4,7,8,9-Hepta CDF	2018/04/29		90	%	80 - 140
			Octa CDF	2018/04/29		97	%	80 - 140
5495989	AGU	RPD	2,3,7,8-Tetra CDD	2018/04/29	1.2		%	25
			1,2,3,7,8-Penta CDD	2018/04/29	2.0		%	25
			1,2,3,4,7,8-Hexa CDD	2018/04/29	3.6		%	25

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			1,2,3,6,7,8-Hexa CDD	2018/04/29	11		%	25
			1,2,3,7,8,9-Hexa CDD	2018/04/29	13		%	25
			1,2,3,4,6,7,8-Hepta CDD	2018/04/29	1.1		%	25
			Octa CDD	2018/04/29	0		%	25
			2,3,7,8-Tetra CDF	2018/04/29	5.5		%	25
			1,2,3,7,8-Penta CDF	2018/04/29	4.4		%	25
			2,3,4,7,8-Penta CDF	2018/04/29	10		%	25
			1,2,3,4,7,8-Hexa CDF	2018/04/29	3.4		%	25
			1,2,3,6,7,8-Hexa CDF	2018/04/29	3.2		%	25
			2,3,4,6,7,8-Hexa CDF	2018/04/29	1.1		%	25
			1,2,3,7,8,9-Hexa CDF	2018/04/29	3.2		%	25
			1,2,3,4,6,7,8-Hepta CDF	2018/04/29	6.1		%	25
			1,2,3,4,7,8,9-Hepta CDF	2018/04/29	3.3		%	25
			Octa CDF	2018/04/29	0		%	25
5495989	AGU	Method Blank	C13-1234678 HeptaCDD	2018/04/29		117	%	40 - 135
			C13-1234678 HeptaCDF	2018/04/29		114	%	40 - 135
			C13-123478 HexaCDF	2018/04/29		104	%	40 - 135
			C13-123678 HexaCDD	2018/04/29		103	%	40 - 135
			C13-12378 PentaCDD	2018/04/29		95	%	40 - 135
			C13-12378 PentaCDF	2018/04/29		87	%	40 - 135
			C13-2378 TetraCDD	2018/04/29		105	%	40 - 135
			C13-2378 TetraCDF	2018/04/29		98	%	40 - 135
			C13-OCDD	2018/04/29		115	%	40 - 135
			2,3,7,8-Tetra CDD	2018/04/29	1.1 U, EDL=1.1		pg/L	
			1,2,3,7,8-Penta CDD	2018/04/29	1.1 U, EDL=1.1		pg/L	
			1,2,3,4,7,8-Hexa CDD	2018/04/29	1.2 U, EDL=1.2		pg/L	
			1,2,3,6,7,8-Hexa CDD	2018/04/29	1.0 U, EDL=1.0		pg/L	
			1,2,3,7,8,9-Hexa CDD	2018/04/29	1.1 U, EDL=1.1		pg/L	
			1,2,3,4,6,7,8-Hepta CDD	2018/04/29	1.2 U, EDL=1.2 (1)		pg/L	
			Octa CDD	2018/04/29	13.8 J, EDL=1.2		pg/L	
			Total Tetra CDD	2018/04/29	1.1 U, EDL=1.1		pg/L	
			Total Penta CDD	2018/04/29	1.1 U, EDL=1.1		pg/L	
			Total Hexa CDD	2018/04/29	1.1 U, EDL=1.1		pg/L	
			Total Hepta CDD	2018/04/29	1.2 U, EDL=1.2 (1)		pg/L	
			2,3,7,8-Tetra CDF	2018/04/29	1.2 U, EDL=1.2		pg/L	
			1,2,3,7,8-Penta CDF	2018/04/29	1.1 U, EDL=1.1		pg/L	
			2,3,4,7,8-Penta CDF	2018/04/29	1.1 U, EDL=1.1		pg/L	
			1,2,3,4,7,8-Hexa CDF	2018/04/29	1.1 U, EDL=1.1		pg/L	
			1,2,3,6,7,8-Hexa CDF	2018/04/29	0.96 U, EDL=0.96		pg/L	

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			2,3,4,6,7,8-Hexa CDF	2018/04/29	1.1 U, EDL=1.1		pg/L	
			1,2,3,7,8,9-Hexa CDF	2018/04/29	1.3 U, EDL=1.3		pg/L	
			1,2,3,4,6,7,8-Hepta CDF	2018/04/29	1.0 U, EDL=1.0		pg/L	
			1,2,3,4,7,8,9-Hepta CDF	2018/04/29	1.4 U, EDL=1.4		pg/L	
			Octa CDF	2018/04/29	1.1 U, EDL=1.1		pg/L	
			Total Tetra CDF	2018/04/29	1.2 U, EDL=1.2		pg/L	
			Total Penta CDF	2018/04/29	1.1 U, EDL=1.1		pg/L	
			Total Hexa CDF	2018/04/29	1.1 U, EDL=1.1		pg/L	
			Total Hepta CDF	2018/04/29	1.2 U, EDL=1.2		pg/L	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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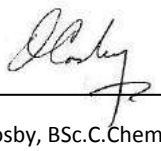
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Owen Cosby, BSc.C.Chem, Supervisor, HRMS Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Basin 21/Former Boydstun Northeast Area Storm Water Sampling and Analysis Data April 5, 2018 Sampling Event, Burgard Industrial Park Source Control Project, Portland, Oregon

Rieke Consulting Services, LLC, 2018

RCS RIEKE CONSULTING SERVICES, LLC

Basin 21/Former Boydstun Northeast Area Storm Water Sampling and Analysis Data April 5, 2018 Sampling Event Burgard Industrial Park Source Control Project Portland, Oregon

TO: Ray Hoy/Oregon DEQ

CC: Jim Orr/Oregon DEQ
Eva DeMaria/EPA
Sean Sheldrake/EPA
Mat Cusma/Schnitzer

FROM: Ross Rieke/RCS

DATE: June 3, 2018

This memorandum presents the results of the April 5, 2018 storm water sampling and analysis performed at Basin 21 and the Former Boydstun Northeast area at the Burgard Industrial Park (BIP) in Portland, Oregon (Figure 1, Figure 2). The sampling and analysis was performed in general accordance with the following documents:

- September 29, 2016, Bridgewater Group, Inc. memorandum, *Former Boydstun Northeast Area, Supplemental Sampling and Analysis Plan*.
- September 8, 2017, DEQ letter, *DEQ Comments for...Former Boydstun Northeast Area Supplemental Sampling and Analysis Plan*.
- November 2, 2017, DEQ email from Jim Orr, *Response to Your October 18th Request to Change PCB Analytical Method for Basins 2, 20, 20A, and 21*.

The storm water data presented in this memorandum reflects the scope of sampling and analysis described in these documents. Figure 3 shows the currently inferred Basin 21 area.

Basin 21 and Former Boydstun Northeast Area Description

Basin 21 consists of an approximately 25-acre area in the northeast corner of the BIP. Figure 3 shows the approximate boundaries of Basin 21. There are three primary areas within Basin 21 where surface water runoff occurs (as opposed to infiltrating into the ground surface):

- Pro Truck Lines area;
- Portland Container East area; and
- Former Boydstun Northeast (FBNE) area.

The runoff from these areas combine and is discharged to the IT Slip at Outfall 21 as shown on Figure 3.

The Pro Truck Lines area is outside the BIP but does contribute storm water runoff to the Basin 21 system. The area is about 6.2 acres and is mostly paved. Storm water runoff is captured in catch basins and conveyed by gravity to the southeast corner of the property where it comingles with the runoff from the former Boydstun area and flows south in a buried pipe. The building is

currently used by Pro Truck Lines for freight warehousing and truck loading services.

Runoff from the approximately 11-acre Portland Container East Area is collected in catch basins and ponds and is conveyed via surface swales to a flocculant/sedimentation/filter treatment system. The treated water is discharged from the treatment system to a manhole where it comingles with the runoff flowing south from the junction of the former Boydstun and Pro Truck Lines drainage systems.

The FBNE area is a sub-basin located in the northeast corner of the BIP Basin 21 (Figure 4). The FBNE area is about 7.7 acres, generally flat, and is almost entirely paved. Storm water runoff is captured in catch basins and conveyed by gravity to a float-activated pump station located in the northeast corner of the area. The storm water is pumped from the pump station through buried pipes to a manhole near the southwestern corner of the area where it flows to the west and comingles with other Basin 21 runoff. Current outside use of the site consists of minor truck traffic and storage associated with limited use of the building interior. Most of the site is currently vacant and unused. Boydstun formerly manufactured automobile hauling trailers on the site.

The only potential pathway from the FBNE area to the Willamette River is the storm water pathway. The FBNE area is located about 1400 feet from the Willamette River. Thus, direct release of erodible soil, groundwater, and overwater activities are not material pathways for migration of Basin 21 chemicals of interest (COIs) from the FBNE area to the river. Groundwater sampling and analysis previously performed along the head of the IT slip (the nearest waterway connected to the Willamette River) noted low concentrations of the Basin 21 COIs and provides another line of evidence that groundwater migration from the FBNE area is not a material pathway for the Basin 21 COIs

Precipitation falling on the unpaved areas west of the FBNE area infiltrates into the ground rather than flowing into the Basin 21 storm water collection and conveyance system. Much of the storm water runoff from the area east of the Portland Container East Area (i.e., Lot 7/8) infiltrates. The Lot 7/8 runoff that does not infiltrate runs off onto Time Oil Road and either into a ditch along the edge of Time Oil Road, which appears to flow north, eventually to the Columbia Slough, or into a catch basin along Time Oil Road, which appears to convey the runoff to the Basin 18 storm water system.

Basin 21 and FBNE Area Storm Water Sampling and Analysis

Storm Water Sample Collection

Storm water samples from Basin 21, including the FBNE Area, were collected on April 5 and 6, 2018 at three points shown on Figure 3 and three points shown on Figure 4. The six sample points were:

Sample Point 2 – Collected April 5, 2018. Manhole at southwest corner of Pro Truck Lines area. This storm water location is representative of storm water runoff from the Pro Truck Lines site that flows onto the BIP and is subsequently comingled with the other Basin 21 runoff.

Sample Point 3 – Collected April 6, 2018. Portland Container East Area treatment system discharge. This sample location is representative of storm water runoff from the Portland Container East Area that is subsequently comingled with the other Basin 21 runoff.

Sample Point 6 – Collected April 5, 2018. Manhole about 280 feet upgradient from outfall. This location is representative of storm water that is discharged to the slip at

Outfall 21.

FBNE Catch Basins CB2 and CB9 - Collected April 5, 2018. Surface runoff entering catch basins in the western and southern portion, respectively, of the FBNE paved area.

FBNE Roof Drain RD1 – Collected April 5, 2018. Roof runoff from the northeast portion of the FBNE building.

Table 1 presents the rainfall conditions preceding and during the storm water sampling event. Based on the rainfall event data shown in Table 1, all sampling event target criteria were met. That is:

- Rainfall occurring during the 24-hours preceding the sampled storm event (0.02 inch) was less than the target of 0.1 inch;
- The storm event was predicted to exceed (and did actually exceed) 0.2-inch of rainfall; and
- The event was expected to last (and did actually last) for more than three hours.

Except for the sample at the Portland Container East Area treatment system discharge (SP3), all samples were collected within the first three hours of discharge. Based on discharge conditions and timing observed during the sampling event, the sample from CB-9 represents first-flush condition (i.e., sample collected during first 30-minutes of discharge).

The Portland Container East Area storm water treatment system was not discharging April 5, 2018, during the rainfall event. The treatment system does not discharge until after a significant amount of rainfall has occurred. Sample SP3 was collected the morning of April 6, 2018 when the treatment system was discharging. The water treated in the system on April 6th was, at least in large part, accumulated during the April 5th storm.

Storm Water Sample Analysis

The Basin 21 storm water samples were analyzed for the following:

- Aluminum, antimony, arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, silver, and zinc;
- Butyltins;
- PCB Aroclors, homologs, and congeners;
- Dioxins/furans;
- Phthalates;
- Polycyclic aromatic hydrocarbons (PAHs);
- Total organic carbon (TOC);
- Total Petroleum Hydrocarbons (gasoline, diesel, and heavy oil); and
- Total suspended solids (TSS).

Table 2 presents the results of the Basin 21 storm water sample analyses. Copies of the analytical laboratory reports are provided in Appendix A. Review of the laboratory QA/QC results did not indicate any issues requiring corrective action. Table 2 also presents the results of previous storm water sampling and analysis in Basin 21.

The concentrations noted in the two 2018 samples collected at the Portland Container East Area treatment system discharge (SP3) were less than earlier samples suggesting that Portland Container's recently constructed treatment system effectively reduces chemical concentrations in the storm water runoff. For example, the average total PCB concentration in the January 2018 and April 2018 SP3 samples (0.00372 ug/l) is about two *percent* of the average total PCB concentrations in the 2012, 2013, and 2014 samples (0.1752 ug/l).

The concentrations noted in the April 2018 storm water samples collected from the FBNE area were generally similar to the concentrations noted in the January 2018 samples.

Attachments:

Table 1 - Storm Water Sampling Event Rainfall Data, 4/5/2018 Sampling Event
Table 2 – Storm Water Sample Analytical Laboratory Results
Figure 1 – Site Location Map
Figure 2 – Site Plan, Burgard Industrial Park
Figure 3 – Site Plan and Storm Water Sample Locations, Basin 21
Figure 4 – Site Plan and Storm Water Sample Locations, Former Boydstun NE Area
Appendix A – Analytical Laboratory Reports.

Tables

Table 1
Storm Water Sampling Event Rainfall Data
4/5/2018 Sampling Event
Burgard Industrial Park Basin 21

Date	Daily Total	Hourly Rain Fall (0.01 inches)																							
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
3/22/18	52	0	1	4	8	11	3	4	7	2	4	0	0	4	2	0	0	2	0	0	0	0	0	0	0
3/23/18	72	17	11	7	0	1	8	2	1	0	0	0	0	0	2	0	0	1	0	3	6	5	5	3	0
3/24/18	21	2	4	1	0	0	0	0	0	0	0	3	3	1	1	1	1	0	0	1	1	0	2	0	0
3/25/18	4	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/26/18	5	0	0	0	0	3	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
3/27/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/28/18	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/29/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/30/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/31/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/1/18	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	27	1	1	0	0	0	0	0	0
4/2/18	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4/3/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/4/18	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
4/5/18	34	0	0	0	0	0	0	5	0	2	2	3	4	4	5	5	2	1	1	0	0	0	0	0	0

Hours are Pacific Standard Time
Data from Shipyard Rain Gage - 8900 N. Sever Road
Sampling Hours
PCS treatment system discharge (SP3) sampled 4/6/2018 when system was operating. Treatment system was not discharging 4/5/2018.

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 21

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	4/5/2018 CB2	4/5/2018 CB9	4/5/2018 RD1	4/5/2018 SW2	4/5/2018 SW3	4/5/2018 SW6	1/17/2018 CB2	1/17/2018 CB9	1/17/2018 RD1	1/17/2018 SW2	1/17/2018 SW3	1/17/2018 SW6	1/17/2018 SWP1
PAHs (ug/l)																
1-Methylnaphthalene				2.04E-01 U	3.42E-01 J	1.89E-02 U	1.01E-01 U	7.84E-02 U	7.55E-02 U	1.89E-01 U	9.43E-02 U	1.89E-02 U	9.52E-02 U	2.06E-02 U	7.69E-02 U	
2-Methylnaphthalene	2.00E-01			2.04E-01 U	4.85E-01	1.89E-02 U	1.01E-01 U	7.84E-02 U	7.55E-02 U	1.89E-01 U	9.43E-02 U	1.89E-02 U	9.52E-02 U	2.06E-02 U	7.69E-02 U	
Acenaphthene	2.00E-01			1.02E-01 U	1.09E-01 U	9.43E-03 U	5.05E-02 U	3.92E-02 U	3.77E-02 U	9.43E-02 U	4.72E-02 U	9.43E-03 U	4.76E-02 U	2.11E-02	3.85E-02 U	1.94E-02 U
Acenaphthylene	2.00E-01			1.02E-01 U	1.09E-01 U	1.80E-02 J	5.05E-02 U	3.92E-02 U	3.77E-02 U	9.43E-02 U	4.72E-02 U	9.43E-03 U	4.76E-02 U	1.03E-02 U	3.85E-02 U	1.94E-02 U
Anthracene				1.02E-01 U	1.09E-01 U	1.89E-02 U	5.05E-02 U	3.92E-02 U	3.77E-02 U	9.43E-02 U	4.72E-02 U	9.43E-03 U	4.76E-02 U	2.34E-02	3.85E-02 U	1.94E-02 U
Benzo(a)anthracene	1.80E-02	1.20E-03		1.02E-01 U	1.09E-01 U	9.43E-03 U	5.05E-02 U	3.92E-02 U	3.77E-02 U	9.43E-02 U	4.72E-02 U	1.05E-02 J	4.76E-02 U	1.03E-02 U	3.85E-02 U	1.94E-02 U
Benzo(a)pyrene	1.80E-02	1.20E-04		1.53E-01 U	1.63E-01 U	1.42E-02 U	7.58E-02 U	5.88E-02 U	5.66E-02 U	1.52E-01 J	8.44E-02 J	1.67E-02 J	7.63E-02 J	1.55E-02 U	7.42E-02 J	2.91E-02 U
Benzo(b)fluoranthene	1.80E-02	1.20E-03		1.53E-01 U	1.72E-01 J	1.42E-02 U	7.58E-02 U	5.88E-02 U	5.66E-02 U	1.42E-01 U	8.64E-02 J	1.42E-02 U	7.87E-02 J	1.55E-02 U	7.45E-02 J	
Benzo(g,h,i)perylene	2.00E-01			1.25E-01 J	1.11E-01 J	9.43E-03 U	5.05E-02 U	3.92E-02 U	3.77E-02 U	9.43E-02 U	7.37E-02 J	9.43E-03 U	4.76E-02 U	1.03E-02 U	5.16E-02 J	3.88E-02 U
Benzo(k)fluoranthene	1.80E-02	1.30E-03		1.53E-01 U	1.63E-01 U	1.42E-02 U	7.58E-02 U	5.88E-02 U	5.66E-02 U	1.42E-01 U	7.08E-02 U	1.42E-02 U	7.14E-02 U	1.55E-02 U	5.77E-02 U	
Benzo(b+k)fluoranthene	1.80E-02	1.20E-03														5.83E-02 U
Carbazole				1.53E-01 U	1.63E-01 U	1.42E-02 U	7.58E-02 U	5.88E-02 U	5.66E-02 U	1.42E-01 U	7.08E-02 U	1.42E-02 U	7.14E-02 U	2.72E-02 J	5.77E-02 U	
Chrysene	1.80E-02	1.30E-03		1.02E-01 U	1.22E-01 J	9.43E-03 U	5.05E-02 U	3.92E-02 U	3.77E-02 U	9.43E-02 U	6.45E-02 J	1.21E-02 J	4.76E-02 U	1.03E-02 U	5.22E-02 J	1.94E-02 U
Dibenzo(a,h)anthracene	1.80E-02	1.20E-04		1.02E-01 U	1.09E-01 U	9.43E-03 U	5.05E-02 U	3.92E-02 U	3.77E-02 U	9.43E-02 U	4.72E-02 U	9.43E-03 U	4.76E-02 U	1.03E-02 U	3.85E-02 U	1.94E-02 U
Dibenzofuran				1.02E-01 U	1.09E-01 U	1.89E-02 U	5.05E-02 U	3.92E-02 U	3.77E-02 U	9.43E-02 U	4.72E-02 U	1.89E-02 U	4.76E-02 U	2.06E-02 U	3.85E-02 U	
Fluoranthene	2.00E-01			1.58E-01 J	1.38E-01 J	1.29E-02 J	5.45E-02 J	3.92E-02 U	3.77E-02 U	9.43E-02 U	8.18E-02 J	1.99E-02	7.36E-02 J	1.72E-02 J	6.52E-02 J	2.33E-02 J
Fluorene	2.00E-01			1.02E-01 U	1.31E-01 J	9.48E-03 J	5.05E-02 U	3.92E-02 U	3.77E-02 U	9.43E-02 U	4.72E-02 U	9.43E-03 U	4.76E-02 U	1.42E-02 J	3.85E-02 U	1.94E-02 U
Indeno(1,2,3-cd)pyrene	1.80E-02	1.20E-03		1.02E-01 U	1.09E-01 U	9.43E-03 U	5.05E-02 U	3.92E-02 U	3.77E-02 U	9.43E-02 U	4.72E-02 U	9.43E-03 U	4.76E-02 U	1.03E-02 U	3.85E-02 U	1.94E-02 U
Naphthalene	2.00E-01	1.20E+01		2.04E-01 U	2.17E-01 U	2.18E-02 J	1.01E-01 U	7.84E-02 U	7.55E-02 U	1.89E-01 U	9.43E-02 U	1.89E-02 U	9.52E-02 U	2.74E-02 J	7.69E-02 U	3.88E-02 U
Phenanthrene	2.00E-01			1.25E-01 J	3.53E-01	3.04E-02	6.33E-02 J	3.92E-02 U	3.77E-02 U	9.43E-02 U	8.83E-02 J	2.66E-02	6.90E-02 J	2.63E-02	4.93E-02 J	2.37E-02 J
Pyrene	2.00E-01			3.59E-01	2.50E-01	9.43E-03 U	9.26E-02 J	3.92E-02 U	3.77E-02 U	1.22E-01 J	1.34E-01	1.88E-02 J	1.29E-01	2.21E-02	1.00E-01	1.94E-02 U
Total Detected CPAHs (BaP TEF)		1.20E-04		1.25E-03	1.84E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.52E-01	9.38E-02	1.78E-02	8.42E-02	0.00E+00	8.22E-02	0.00E+00
Total Detected PAHs			1.50E+00	7.67E-01	1.28E+00	9.26E-02	2.10E-01	0.00E+00	0.00E+00	2.74E-01	6.13E-01	1.05E-01	4.27E-01	1.52E-01	4.67E-01	4.70E-02
PCBs (ug/l)																
Aroclor 1016	9.60E-01			1.09E-02 U	1.14E-02 U	9.62E-03 U	9.80E-03 U	9.62E-03 U	1.01E-02 U							9.52E-03 U
Aroclor 1221	3.40E-02			1.09E-02 U	1.14E-02 U	9.62E-03 U	9.80E-03 U	9.62E-03 U	1.01E-02 U							9.52E-03 U
Aroclor 1232	3.40E-02			1.09E-02 U	1.14E-02 U	9.62E-03 U	1.96E-02 U	9.62E-03 U	1.01E-02 U							9.52E-03 U
Aroclor 1242	3.40E-02			1.39E-02 J	1.56E-02 J	9.62E-03 U	9.80E-03 U	9.62E-03 U	1.01E-02 U							9.52E-03 U
Aroclor 1248	3.40E-02			1.09E-02 U	1.14E-02 U	9.62E-03 U	9.80E-03 U	9.62E-03 U	1.01E-02 U							9.52E-03 U
Aroclor 1254	3.40E-02			1.09E-02 U	1.66E-02 J	9.62E-03 U	9.80E-03 U	9.62E-03 U	1.01E-02 U							9.52E-03 U
Aroclor 1260	3.40E-02			1.09E-02 U	1.66E-02 J	9.62E-03 U	9.80E-03 U	9.62E-03 U	1.01E-02 U							9.52E-03 U
Total Detected PCB aroclors	6.40E-05	6.40E-06	0.3	1.39E-02	4.88E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00							0.00E+00
PCB Congeners (ug/l)																
2-MonoCB-(1)				4.45E-05 J	1.39E-05 J	1.78E-04	4.50E-06 U	3.80E-06 U	8.30E-06 U	3.60E-05 J	4.30E-05 J	3.90E-05 J	1.74E-05 J	6.40E-06 U	2.21E-05 J	4.70E-06 U
3-MonoCB-(2)				1.02E-05 J	5.30E-06 U	9.70E-06 U	1.40E-06 U	3.70E-06 U	8.20E-06 U	2.00E-05 U	1.40E-05 U	1.70E-05 U	7.90E-06 U	6.30E-06 U	7.10E-06 U	3.30E-06 U
4-MonoCB-(3)				2.63E-05 J	1.15E-05 J	2.79E-05 J	3.10E-06 J	3.70E-06 U	8.10E-06 U	2.00E-05 U	1.90E-05 J	1.70E-05 U	9.40E-06 J	6.30E-06 U	1.02E-05 J	3.20E-06 U
22'-DiCB-(4)				3.70E-04	1.84E-04	7.55E-04	3.57E-04	2.60E-05 U	1.97E-04	9.40E-04 U	2.33E-04	1.86E-04	2.26E-04	3.00E-05 U	1.87E-04	3.55E-05 J
2,3-DiCB-(5)				7.40E-06 U	6.30E-06 U	6.30E-06 U	1.40E-05 U	3.40E-05 U	6.80E-06 U	8.10E-04 U	1.50E-05 U	1.90E-05 U	1.40E-05 U	1.40E-05 U	1.50E-05 U	2.20E-05 U
2,3'-DiCB-(6)				1.41E-04	5.88E-05 J	1.34E-04	2.10E-05 U	2.50E-05 U	6.90E-06 U	7.40E-04 U	8.60E-05 J	5.40E-05 J	7.40E-05 J	1.20E-05 U	6.30E-05 J	2.10E-05 U
2,4-DiCB-(7)				2.60E-05 U	1.10E-05 U	1.70E-05 U	1.10E-05 U	2.60E-05 U	5.20E-06 U	7.70E-04 U	1.70E-05 U	1.70E-05 U	1.70E-05 J	1.20E-05 U	1.40E-05 U	2.30E-05 U
2,4'-DiCB-(8)				5.47E-04	1.75E-04	5.85E-04	1.05E-04	2.10E-05 U	2.70E-05 U	7.50E-04 U	3.55E-04	1.87E-04	2.59E-04	1.60E-05 J	2.27E-04	4.90E-05 J
2,5-DiCB-(9)				4.41E-05 J	2.00E-05 U	4.84E-05 J	1.10E-05 U	2.70E-05 U	5.30E-06 U	7.40E-04 U	2.90E-05 J	1.60E-05 J	2.40E-05 J	1.20E-05 U	1.70E-05 U	2.10E-05 U
2,6-DiCB-(10)				1.21E-05 J	7.90E-06 J	1.60E-05 U	1.11E-05 J	2.40E-05 U	4.40E-06 U	9.10E-04 U	2.80E-05 U	3.10E-05 U	4.10E-05 U	3.00E-05 U	2.70E-05 U	7.80E-06 U
3,3'-DiCB-(11)				9.36E-04	5.18E-04	5.00E-05 U	2.08E-04	2.80E-05 U	6.68E-05 J	7.90E-04 U	2.89E-04	1.39E-04	4.51E-04	3.00E-05 J	3.68E-04	5.70E-05 J
DiCB-(12)+(13)				8.63E-05 J	4.64E-05 J	2.10E-05 U	1.10E-05 U	2.80E-05 U	6.30E-06 U	8.30E-04 U	3.50E-05 J	2.20E-05 J	3.40E-05 U	1.30E-05 U	3.40E-05 J	2.30E-05 U
3,5-DiCB-(14)				5.70E-06 U	4.90E-06 U	4.80E-06 U	1.10E-05 U	2.60E-05 U	5.20E-06 U	7.40E-04 U	1.30E-05 U	1.60E-05 U	1.20E-05 U	1.20E-05 U	1.30E-05 U	2.20E-05 U
4,4'-DiCB-(15)				4.58E-04	2.77E-04	1.89E-04	1.48E-04	4.50E-05 U	4.96E-05 J	1.20E-03 U	2.30E-04	1.01E-04	2.27E-04	2.90E-05 J	2.44E-04	3.90E-05 U
22'3-TriCB-(16)				4.65E-04	2.37E-04	3.23E-04	2.22E-04	1.39E-05 J	6.90E-05 J	4.10E-04 U	2.76E-04	1.31E-04	2.16E-04	1.80E-05 U	2.05E-04	3.78E-05 J
22'4-TriCB-(17)				4.14E-04	2.21E-04	2.80E-04	2.10E-04	1.20E-05 J	6.70E-05 J	3.50E-04 U	2.84E-04	1.25E-04	2.45E-04	1.80E-05 U	2.32E-04	2.80E-05 U
TriCB-(18)+(30)				8.55E-04	4.49E-04	5.76E-04	4.22E-04	3.23E-05 J	1.17E-04 J	3.20E-04 J	6.00E-04	2.54E-04	5.01E-04	3.90E-05 J	4.63E-04	6.86E-05 J
22'6-TriCB-(19)				1.03E-04 J	5.80E-05 U	1.15E-04	7.48E-05 J	2.44E-05 J	3.75E-05 J	2.40E-04 U	6.50E-05 U	3.40E-05 U	7.05E-05 J	2.60E-05 J	7.20E-05 J	1.20E-05 J
TriCB-(20) + (28)				1.46E-03	8.53E-04	7.82E-04	5.04E-04	5.76E-05 J	1.45E-04 J	4.36E-04 J	7.35E-04	2.85E-04	7.27E-04	6.39E-05 J	8.29E-04	1.20E-04 J
TriCB-(21)+(33)				9.68E-04	4.91E-04	6.05E-04	2.61E-04	8.70E-06 J	6.19E-05 J	2.71E-04 J	4.73E-04	2.07E-04	4.19E-04	1.16E-05 J	3.72E-04	7.37E-05 J
234'-TriCB-(22)				6.17E-04	3.57E-04	3.53E-04	1.84E-04	1.19E-05 J	4.91E-05 J	1.55E-04 J	3.03E-04	1.37E-04	2.93E-04	1.68E-05 J	2.93E-04	5.52E-05 J
235-TriCB-(23)				9.50E-06 U	7.70E-06 U	6.90E-06 U	5.10E-06 U	4.60E-06 U	2.60E-06 U	3.70E-05 U	8.70E-06 U	6.70E-06 U	7.20E-06 U	7.50E-06 U	7.30E-06 U	2.90E-06 U
236-TriCB-(24)				2.30E-05 U	9.90E-06 U	1.80E-05 U	7.50E-06 U	6.20E-06 U	9.60E-06 U	2.70E-04 U	2.10E-05 U	3.80E-05 U	1.30E-05 J	1.50E-05 U	1.30E-05 U	3.00E-06 U
23'4-TriCB-(25)				1.01E-04 J	5.61E-05 J	5.96E-05 J	3.55E-05 J	3.80E-06 U	1.10E-05 J	3.50E-05 U	5.39E-05 J	2.40E-05 J	5.01E-05 J	6.50E-06 U	5.11E-05 J	7.70E-06 J
TriCB-(26)+(29)				2.42E-04	1.37E-04 J	1.22E-04 J	8.63E-05 J	7.80E-06 J	2.40E-05 J	7.80E-05 J	1.21E-04 J	6.90E-05 J	1.14E-04 J	8.00E-06 J	1.14E-04 J	1.91E-05 J
23'6-TriCB-(27)				6.50E-05 J	3.44E-05 J	4.20E-05 J	2.82E-05 J	6.80E-06 J	1.35E-05 J	2.20E-04 U	4.40E-05 J	3.10E-05 U	4.06E-05 J	1.20E-05 U	4.80E-05 J	4.10E-06 U
24'5-TriCB-(31)				1.20E-03	6.80E-04	6.17E-04	4.09E-04	3.10E-05 J	1.08E-04	3.53E-04 J	6.04E-04	2.49E-04	5.70E-04	3.30E-05 J	5.78E-04	9.85E-05
24'6-TriCB-(32)				2.50E-04	1.41E-04	1.60E-04	1.14E-04	2.46E-05 J	4.22E-05 J	2.20E-04 U	1.84E-04	7.90E-05 J	1.72E-04	2.90E-05 J	2.00E-04	2.30E-05 J
23'5'-TriCB-(34)				8.60E-06 U	7.00E-06 U	6.20E-06 U	4.60E-06 U	4.20E-06 U	2.40E-06 U	3.70E-05 U	8.00E-06 U	6.20E-06 U	6.70E-06 U	6.90E-06 U	6.70E-06 U	2.90E-06 U
33'4-TriCB-(35)				3.36E-05 J	1.90E-05 U	1.07E-05 J	7.90E-06 J	4.30E-06 U	2.40E-06 U	3.80E-05 U	1.65E-05 J	1.73E-05 J	1.51E-05 J	7.10E-06 U	1.76E-05 J	2.60E-06 U
33'5-TriCB-(36)				7.50E-06 U	6.10E-06 U	5.40E-06 U	4.00E-06 U	3.60E-06 U	2.10E-06 U	3.20E-05 U	7.10E-06 U	5.40E-06 U	5.90E-06 U	6.00E-06 U	5.90E-06 U	2.60E-06 U
344'-TriCB-(37)				5.27E-04	3.81E-04	1.62E-04	1.24E-04	1.80E-05 U	4.10E-05 J	1.96E-04 J	2.83E-04	1.16E-04	2.55E-04	1.80E-05 J	3.01E-04	4.72E-05 J
345-TriCB-(38)				8.80E-06 U	7.10E-06 U	6.40E-06 U	4.70E-06 U	4.30E-06 U	2.40E-06 U	3.80E-05 U	8.40E-06 U	6.50E-06 U	7.00E-06 U	7.20E-06 U	7.00E-06 U	2.80E-06 U
34'5-TriCB-(39)				8.50E-06 U	6.90E-06 U	6.20E-06 U	4.60E-06 U	4.10E-06 U	2.40E-06 U	3.70E-05 U	8.10E-06 U	6.20E-06 U	6.70E-06 U	6.90E-06 U	6.70E-06 U	2.90E-06 U

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 21

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	4/5/2018 CB2	4/5/2018 CB9	4/5/2018 RD1	4/5/2018 SW2	4/5/2018 SW3	4/5/2018 SW6	1/17/2018 CB2	1/17/2018 CB9	1/17/2018 RD1	1/17/2018 SW2	1/17/2018 SW3	1/17/2018 SW6	1/17/2018 SWP1
TetraCB-(40)+(41)+(71)				8.12E-04	5.65E-04	4.62E-04	2.25E-04 J	5.28E-05 J	7.70E-05 J	2.40E-04 U	4.55E-04	1.79E-04 J	3.71E-04	4.50E-05 J	5.79E-04	5.98E-05 J
22'34'-TetraCB-(42)				4.06E-04	3.10E-04	2.52E-04	1.14E-04	2.80E-05 J	3.80E-05 J	3.00E-04 U	2.49E-04	1.03E-04	2.22E-04	3.00E-05 U	3.48E-04	3.19E-05 J
22'35-TetraCB-(43)				6.40E-05 J	4.50E-05 J	4.10E-05 J	2.00E-05 U	1.20E-05 U	2.60E-05 U	3.10E-04 U	2.80E-05 U	3.70E-05 U	3.16E-05 J	3.20E-05 U	4.70E-05 J	2.30E-06 U
TetraCB-(44)+(47)+(65)				1.36E-03	9.48E-04	6.36E-04	3.51E-04	1.02E-04 J	1.22E-04 J	3.50E-04 J	6.93E-04	2.71E-04 J	5.76E-04	8.10E-05 J	1.12E-03	9.91E-05 J
TetraCB-(45)+(51)				2.61E-04	1.72E-04 J	1.49E-04 J	8.52E-05 J	2.42E-05 J	3.50E-05 J	2.30E-04 U	1.45E-04 J	5.60E-05 J	1.28E-04 J	2.20E-05 U	1.96E-04	1.63E-05 J
22'36'-TetraCB-(46)				8.30E-05 J	6.30E-05 J	5.60E-05 J	3.15E-05 J	9.80E-06 U	2.20E-05 U	2.70E-04 U	5.10E-05 J	3.00E-05 U	5.04E-05 J	2.60E-05 U	6.40E-05 J	5.50E-06 J
22'45-TetraCB-(48)				3.08E-04	2.07E-04	1.87E-04	8.88E-05 J	8.00E-06 U	2.40E-05 J	2.40E-04 U	1.54E-04	6.10E-05 J	1.38E-04	2.30E-05 U	1.71E-04	1.96E-05 J
TetraCB-(49)+TetraCB-(69)				6.97E-04	5.23E-04	3.52E-04	1.99E-04 J	5.60E-05 J	6.30E-05 J	2.00E-04 U	3.92E-04	1.50E-04 J	3.27E-04	4.70E-05 J	6.98E-04	4.86E-05 J
TetraCB-(50)+(53)				1.65E-04 J	1.14E-04 J	9.30E-05 J	6.44E-05 J	1.85E-05 J	3.30E-05 J	2.20E-04 U	9.20E-05 J	3.70E-05 J	8.70E-05 J	2.10E-05 U	1.41E-04 J	1.17E-05 J
22'55'-TetraCB-(52)				1.29E-03	1.07E-03	4.77E-04	3.59E-04	1.62E-04	1.56E-04	3.80E-04 J	7.58E-04	3.08E-04	5.76E-04	1.30E-04	1.50E-03	9.15E-05 J
22'66'-TetraCB-(54)				7.90E-06 U	3.20E-06 U	6.10E-06 U	5.00E-06 U	2.10E-06 U	2.90E-06 U	1.80E-05 U	2.70E-06 U	2.40E-06 U	3.50E-06 U	4.00E-06 U	5.10E-06 U	8.10E-07 U
233'4-TetraCB-(55)				2.40E-05 U	1.30E-05 U	9.20E-06 U	3.70E-06 U	6.60E-06 U	6.60E-06 U	7.30E-05 U	1.20E-05 U	9.70E-06 U	1.10E-05 U	9.20E-06 U	7.50E-06 U	2.10E-06 U
233'4'-Tetra CB(56)				3.15E-04	2.80E-04	3.28E-05 J	7.55E-05 J	2.04E-05 J	2.53E-05 J	1.33E-04 J	1.83E-04	1.04E-04	1.64E-04	1.61E-05 J	2.69E-04	3.35E-05 J
233'5-TetraCB-(57)				2.30E-05 U	1.20E-05 U	8.70E-06 U	3.50E-06 U	6.20E-06 U	6.30E-06 U	6.20E-05 U	1.00E-05 U	8.30E-06 U	9.90E-06 U	7.90E-06 U	6.40E-06 U	3.50E-06 U
233'5'-TetraCB-(58)				2.20E-05 U	1.20E-05 U	8.50E-06 U	3.40E-06 U	6.10E-06 U	6.10E-06 U	6.70E-05 U	1.10E-05 U	9.10E-06 U	1.10E-05 U	8.60E-06 U	7.00E-06 U	1.90E-06 U
TetraCB-(59)+(62)+(75)				1.20E-04 J	8.70E-05 J	6.30E-05 J	3.68E-05 J	8.50E-06 J	1.30E-05 U	1.70E-04 U	7.00E-05 J	2.70E-05 J	5.36E-05 J	1.60E-05 U	9.44E-05 J	8.97E-06 J
2344'-TetraCB -(60)				1.92E-04	1.79E-04	1.90E-05 U	4.86E-05 J	7.60E-06 J	1.30E-05 U	7.00E-05 U	1.03E-04	5.40E-05 U	9.60E-05	8.70E-06 U	1.22E-04	1.80E-05 U
TetraCB-(61)+(70)+(74)+(76)				1.37E-03	1.19E-03	2.66E-04 J	3.16E-04 J	1.00E-04 J	1.17E-04 J	4.76E-04 J	7.20E-04	3.47E-04 J	6.13E-04	7.26E-05 J	1.15E-03	1.41E-04 J
234'5-TetraCB-(63)				2.20E-05 J	2.00E-05 U	9.40E-06 U	5.20E-06 U	5.80E-06 U	5.90E-06 U	6.00E-05 U	1.49E-05 J	8.10E-06 U	1.10E-05 U	7.60E-06 U	1.39E-05 J	2.50E-06 J
234'6-TetraCB-(64)				6.19E-04	4.71E-04	3.00E-04	1.65E-04	4.83E-05 J	5.70E-05 J	1.90E-04 U	3.33E-04	1.28E-04	2.84E-04	3.80E-05 J	5.21E-04	4.71E-05 J
23'44'-TetraCB-(66)				6.47E-04	6.12E-04	1.15E-04	1.57E-04	5.55E-05 J	5.03E-05 J	2.24E-04 J	3.54E-04	1.62E-04	2.96E-04	3.78E-05 J	6.27E-04	5.81E-05 J
23'45-TetraCB-(67)				2.80E-05 J	2.00E-05 U	1.40E-05 J	7.90E-06 J	5.80E-06 U	5.80E-06 U	5.50E-05 U	1.46E-05 J	1.34E-05 J	1.31E-05 J	7.00E-06 U	1.72E-05 J	2.40E-06 J
23'45'-TetraCB-(68)				2.10E-05 U	1.20E-05 U	8.20E-06 U	3.30E-06 U	5.80E-06 U	5.90E-06 U	6.30E-05 U	1.00E-05 U	8.40E-06 U	1.00E-05 U	8.00E-06 U	1.06E-05 J	1.80E-06 U
23'55'-TetraCB-(72)				2.10E-05 U	1.10E-05 U	8.10E-06 U	3.20E-06 U	5.80E-06 U	5.80E-06 U	6.30E-05 U	1.00E-05 U	8.40E-06 U	9.90E-06 U	7.90E-06 U	1.37E-05 J	1.80E-06 U
23'5'6-TetraCB-(73)				1.50E-05 U	1.70E-05 U	1.60E-05 U	2.30E-06 U	5.60E-06 U	1.30E-05 U	1.60E-04 U	1.40E-05 U	1.80E-05 U	4.20E-06 U	1.60E-05 U	8.60E-06 U	9.40E-07 U
33'44'-TetraCB-(77)				1.03E-04 J	9.70E-05 J	1.10E-05 U	2.11E-05 J	8.10E-06 U	8.20E-06 U	7.90E-05 U	6.60E-05 J	2.80E-05 U	4.40E-05 J	1.00E-05 U	8.25E-05 J	9.10E-06 J
33'45-TetraCB-(78)				2.20E-05 U	1.20E-05 U	8.60E-06 U	3.40E-06 U	6.10E-06 U	6.20E-06 U	6.60E-05 U	1.10E-05 U	8.80E-06 U	1.00E-05 U	8.40E-06 U	6.80E-06 U	1.90E-06 U
33'45'-TetraCB(79)				1.90E-05 U	1.00E-05 U	7.30E-06 U	4.00E-06 J	5.20E-06 U	5.30E-06 U	5.50E-05 U	9.10E-06 U	7.40E-06 U	8.80E-06 U	7.00E-06 U	5.70E-06 U	1.80E-06 J
33'55'-TetraCB-(80)				2.00E-05 U	1.10E-05 U	7.70E-06 U	3.00E-06 U	5.50E-06 U	5.50E-06 U	5.60E-05 U	9.40E-06 U	7.70E-06 U	9.10E-06 U	7.30E-06 U	5.90E-06 U	1.70E-06 U
344'5-TetraCB-(81)				2.90E-05 U	1.60E-05 U	1.10E-05 U	4.40E-06 U	8.00E-06 U	8.00E-06 U	8.00E-05 U	1.40E-05 U	1.10E-05 U	1.30E-05 U	1.10E-05 U	8.60E-06 U	2.30E-06 U
22'33'4-PentaCB-(82)				1.56E-04	1.82E-04	1.00E-05 U	3.66E-05 J	2.54E-05 J	1.89E-05 J	1.70E-04 U	1.61E-04	4.70E-05 J	8.70E-05 J	1.80E-05 U	3.41E-04	1.69E-05 J
PentaCB-(83)+(99)				5.67E-04	7.71E-04	2.92E-05 J	1.22E-04 J	1.19E-04 J	5.69E-05 J	2.20E-04 U	6.01E-04	1.55E-04 J	3.16E-04	9.40E-05 J	1.82E-03	5.79E-05 J
22'33'6-PentaCB-(84)				3.26E-04	4.08E-04	2.80E-05 U	8.29E-05 J	6.32E-05 J	4.51E-05 J	1.70E-04 U	3.30E-04	9.00E-05 J	1.89E-04	4.80E-05 J	8.22E-04	3.18E-05 J
PentaCB-(85)+(116)+(117)				1.43E-04 J	1.86E-04 J	9.20E-06 J	4.21E-05 J	2.88E-05 J	1.56E-05 J	1.30E-04 U	1.74E-04 J	4.20E-05 J	9.20E-05 J	2.30E-05 U	4.95E-04	1.57E-05 J
PentaCB-(86)(87)(97)(109)(119)(125)				7.72E-04	9.76E-04	4.43E-05 J	1.75E-04 J	1.47E-04 J	8.74E-05 J	3.80E-04 J	7.91E-04	2.21E-04 J	4.38E-04 J	1.21E-04 J	2.10E-03	9.21E-05 J
PentaCB-(88)+(91)				1.66E-04 J	1.92E-04 J	2.93E-05 J	4.05E-05 J	3.22E-05 J	2.30E-05 U	1.50E-04 U	1.55E-04 J	4.10E-05 J	8.60E-05 J	2.20E-05 J	4.26E-04	1.52E-05 J
22'346'-PentaCB-(89)				2.60E-05 U	5.70E-05 U	9.30E-06 U	5.30E-06 U	6.60E-06 U	7.20E-06 U	1.60E-04 U	4.40E-05 U	1.50E-05 U	1.90E-05 U	1.60E-05 U	2.80E-05 U	2.80E-06 U
PentaCB-(90)+(101)+(113)				1.07E-03	1.34E-03	6.01E-05 J	2.33E-04 J	2.14E-04 J	1.22E-04 J	4.40E-04 J	1.01E-03	2.71E-04 J	5.75E-04	1.66E-04 J	3.17E-03	1.06E-04 J
22'355'-PentaCB-(92)				1.94E-04	2.61E-04	1.00E-05 U	4.26E-05 J	4.36E-05 J	2.71E-05 J	1.50E-04 U	2.12E-04	4.90E-05 U	1.11E-04	3.30E-05 U	6.49E-04	1.89E-05 J
PentaCB-(93)+(98)+(100)+(102)				5.60E-05 J	5.30E-05 U	2.03E-05 J	1.40E-05 J	8.70E-06 J	6.60E-06 U	1.50E-04 U	5.20E-05 J	1.40E-05 U	2.80E-05 J	1.50E-05 U	1.06E-04 J	4.40E-06 J
22'356'-PentaCB-(94)				2.60E-05 U	5.80E-05 U	9.50E-06 U	5.40E-06 U	6.70E-06 U	7.30E-06 U	1.60E-04 U	4.40E-05 U	1.50E-05 U	1.90E-05 U	1.60E-05 U	2.80E-05 U	3.00E-06 U
22'35'6-PentaCB-(95)				8.93E-04	1.10E-03	1.25E-04	2.35E-04	1.84E-04	1.41E-04	3.60E-04 J	8.53E-04	2.38E-04	4.83E-04	1.49E-04	2.45E-03	7.36E-05 J
22'366'-PentaCB-(96)				1.10E-05 J	9.00E-06 U	4.90E-06 U	3.80E-06 U	3.80E-06 U	1.70E-06 U	3.60E-05 U	1.09E-05 J	9.30E-06 U	5.50E-06 U	4.50E-06 U	1.90E-05 U	1.90E-06 U
22'45'6-PentaCB-(103)				2.10E-05 U	4.70E-05 U	7.70E-06 U	4.40E-06 U	5.40E-06 U	5.90E-06 U	1.30E-04 U	3.50E-05 U	1.20E-05 U	1.50E-05 U	1.30E-05 U	2.20E-05 U	2.20E-06 U
22'466'-PentaCB-(104)				3.10E-06 U	3.00E-06 U	3.00E-06 U	1.10E-06 U	2.70E-06 U	4.90E-07 U	2.60E-05 U	2.00E-06 U	5.90E-06 U	1.70E-06 U	2.80E-06 U	1.30E-06 U	2.00E-06 U
233'44'-PentaCB-(105)				5.18E-04	5.84E-04	2.96E-05 J	1.13E-04	7.36E-05 J	5.31E-05 J	1.70E-04 U	3.81E-04	9.70E-05	2.26E-04	4.60E-05 J	8.30E-04	5.48E-05 J
233'45-PentaCB-(106)				8.70E-06 U	1.50E-05 U	4.50E-06 U	3.50E-06 U	5.60E-06 U	6.60E-06 U	3.90E-05 U	2.10E-05 U	9.00E-06 U	1.30E-05 U	7.40E-06 U	8.80E-06 U	2.30E-06 U
233'4'5-PentaCB-(107)				7.69E-05 J	9.10E-05 J	4.30E-06 U	1.33E-05 J	1.10E-05 U	7.40E-06 J	3.50E-05 U	7.30E-05 J	1.57E-05 J	2.80E-05 J	6.60E-06 U	1.59E-04	7.60E-06 J
PentaCB-(108)+(124)				4.09E-05 J	4.90E-05 J	4.40E-06 U	7.90E-06 J	8.20E-06 J	6.50E-06 U	3.90E-05 U	3.50E-05 J	1.00E-05 U	1.80E-05 J	7.40E-06 U	9.30E-05 J	5.10E-06 J
PentaCB-(110)+(115)				1.65E-03	2.17E-03	8.11E-05 J	3.52E-04	3.44E-04	1.80E-04 J	6.70E-04 J	1.56E-03	3.53E-04	8.30E-04	2.76E-04	4.74E-03	1.76E-04 J
233'55'-PentaCB-(111)				1.80E-05 U	4.00E-05 U	6.60E-06 U	3.80E-06 U	4.70E-06 U	5.10E-06 U	1.10E-04 U	3.10E-05 U	1.00E-05 U	1.30E-05 U	1.10E-05 U	1.90E-05 U	2.00E-06 U
233'56-PentaCB-(112)				1.70E-05 U	3.80E-05 U	6.30E-06 U	3.60E-06 U	4.50E-06 U	4.80E-06 U	1.20E-04 U	3.30E-05 U	1.10E-05 U	1.40E-05 U	1.20E-05 U	2.10E-05 U	2.00E-06 U
2344'5-PentaCB-(114)				2.90E-05 J	2.80E-05 J	5.60E-06 U	5.50E-06 J	7.00E-06 U	8.20E-06 U	4.50E-05 U	2.40E-05 U	1.00E-05 U	1.50E-05 U	8.50E-06 U	2.90E-05 J	2.50E-06 U
23'44'5-PentaCB-(118)				1.18E-03	1.43E-03	5.77E-05 J	2.28E-04	1.83E-04	1.15E-04	4.87E-04 J	9.22E-04	1.72E-04	4.76E-04	1.30E-04	2.36E-03	1.24E-04
23'455'-PentaCB-(120)				1.70E-05 U	3.70E-05 U	6.00E-06 U	3.40E-06 U	4.30E-06 U	4.60E-06 U	1.00E-04 U	2.90E-05 U	9.90E-06 U	1.30E-05 U	1.10E-05 U	1.80E-05 U	1.90E-06 U
23'45'6-PentaCB-(121)				1.80E-05 U	4.00E-05 U	6.50E-06 U	3.70E-06 U	4.60E-06 U	5.00E-06 U	1.10E-04 U	3.00E-05 U	1.00E-05 U	1.30E-05 U	1.10E-05 U	1.90E-05 U	2.00E-06 U
233'4'5'-PentaCB-(122)				1.65E-05 J	1.60E-05 U	4.90E-06 U	3.80E-06 U	6.20E-06 U	7.20E-06 U	4.10E-05 U	2.20E-05 U	9.50E-06 U	1.40E-05 U	7.80E-06 U	2.50E-05 U	2.50E-06 U
23'44'5'-PentaCB-(123)				1.20E-05 U	2.00E-05 U	6.20E-06 U	4.80E-06 U	7.80E-06 U	9.10E-06 U	5.00E-05 U	2.70E-05 U	1.20E-05 U	1.70E-05 U	9.50E-06 U	2.40E-05 U	2.70E-06 U
33'44'5-PentaCB-(126)				1.00E-05 U	1.70E-05 U	5.20E-06 U	4.00E-06 U	6.50E-06 U	7.60E-06 U	4.20E-05 U	2.30E-05 U	9.70E-06 U	1.40E-05 U	8.00E-06 U	9.50E-06 U	2.50E-06 U
33'455'-PentaCB-(127)				8.60E-06 U	1.40E-05 U	4.40E-06 U	3.40E-06 U	5.50E-06 U	6.50E-06 U	3.80E-05 U	2.00E-05 U	8.60E-06 U	1.30E-05 U	7.10E-06 U	8.40E-06 U	2.20E-06 U
HexaCB-(128)+(166)				2.61E-04	3.75E-04	2.00E-05 U	5.00E-05 U	4.60E-05 J	2.80E-05 J	1.80E-04 U	2.58E-04	4.50E-05 J	1.21E-04 J	4.40E-05 J	7.12E-04	2.77E-05 J
HexaCB-(129)+(138)+(163)				1.66E-03	2.38E-03	9.30E-05 J	3.54E-04	3.12E-04 J	1.73E-04 J	7.50E-04 U	1.58E-03	2.20E-04 U	8.19E-04	2.58E-04 J	4.79E-03	1.80E-04 J
22'33'45'-HexaCB-(130)				1.05E-04 J	1.50E-04	2.70E-05 U	2.10E-05 U	2.40E-05 U	1.50E-05 U	2.20E-04 U	1.02E-04	3.70E-05 U	4.40E-05 U	3.30E-05 U	2.83E-04	1.12E-05 J
22'33'46-HexaCB-(131)				2.30E-05 J	5.60E-05 U	2.90E-05 U	1.70E-05 U	2.50E-05 U	1.60E-05 U	2.30E-04 U	6.60E-05 U	4.00E-05 U	4.20E-05 U	3.50E-05 U	6.90E-05 J	7.70E-06 U
22'33'46'-HexaCB-(132)				5.77E-04	8.17E-04	3.80E-05 J	1.35E-04	1.22E-04	7.40E-05 J	2.20E-04 U	5.66E-04	1.17E-04	2.76E-04	9.90E-05 J	1.59E-03	5.80E-05 J
22'33'55'-HexaCB-(133)				1.60E-05 U	4.50E-05 U	2.30E-05 U	1.40E-05 U	2.10E-05 U	1.30E-05 U	2.00E-04 U	5.60E-05 U	3.30E-05 U	3.50E-05 U	3.00E-05 U	6.50E-05 J	6.30E-06 U
HexaCB-(134)+(143)				8.40E-05 J	1.00E-04 U	2.50E-05 U	1.50E-05 U	2.30E-05 U	1.40E-05 U	2.20E-04 U	6.30E-05 U	3.80E-05 U	4.00E-05 U	3.40E-05 U	1.88E-04 J	7.00E-06 U
HexaCB-(135)+(151)				3.86E-04	5.77E-04	2.40E-05 U	9.24E-05 J	1.01E-04 J	5.11E-05 J	1.50E-04 U	5.22E-04	7.00E-05 U	2.60E-04 U	8.60E-05 J	1.76E-03	3.06E-05 J
22'33'66'-HexaCB-(136)				1.53E-04	2.35E-04	1.15E-05 J	4.04E-05 J	4.20E-05 J	2.37E-05 J	8.00E-05 J	1.96E-04	3.90E-05 J	1.01E-04	3.00E-05 J	6.33E-04	1.28E-05 J
22'344'5-HexaCB-(137)				6.40E-05 J	1.06E-04 J	2.50E-05 U	1.90E-05 J	2.20E-05 U	1.30E-05 U	2.30E-04 U	6.50E-05 J	3.70E-05 U	4.10E-05 J	3.30E-05 U	1.68E-04	7.10E-06 U

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 21

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	4/5/2018 CB2	4/5/2018 CB9	4/5/2018 RD1	4/5/2018 SW2	4/5/2018 SW3	4/5/2018 SW6	1/17/2018 CB2	1/17/2018 CB9	1/17/2018 RD1	1/17/2018 SW2	1/17/2018 SW3	1/17/2018 SW6	1/17/2018 SWP1
HexaCB-(139)+(140)				2.80E-05 J	4.20E-05 U	2.10E-05 U	1.30E-05 U	1.90E-05 U	1.20E-05 U	1.80E-04 U	5.10E-05 U	3.10E-05 U	3.20E-05 U	2.70E-05 U	7.50E-05 J	5.80E-06 U
22'3455'-HexaCB-(141)				2.61E-04	3.79E-04	2.30E-05 U	5.90E-05 J	6.00E-05 J	2.90E-05 J	2.10E-04 U	2.53E-04	3.50E-05 U	1.48E-04	5.00E-05 J	8.09E-04	2.53E-05 J
22'3456-HexaCB-(142)				1.80E-05 U	4.90E-05 U	2.50E-05 U	1.50E-05 U	2.20E-05 U	1.40E-05 U	2.10E-04 U	6.00E-05 U	3.60E-05 U	3.80E-05 U	3.20E-05 U	3.40E-05 U	6.70E-06 U
22'345'6-HexaCB-(144)				6.29E-05 J	7.00E-05 U	8.40E-06 U	1.42E-05 J	1.00E-05 U	8.40E-06 J	1.10E-04 U	6.30E-05 U	2.40E-05 U	3.50E-05 U	1.90E-05 U	2.31E-04	4.20E-06 U
22'3466'-HexaCB-(145)				6.70E-06 U	6.60E-06 U	6.20E-06 U	5.30E-06 U	6.40E-06 U	1.60E-06 U	8.40E-05 U	3.00E-05 U	1.70E-05 U	1.60E-05 U	1.40E-05 U	1.80E-05 U	1.90E-06 U
22'34'55'-HexaCB-(146)				2.03E-04	3.48E-04	2.20E-05 U	4.20E-05 J	4.50E-05 J	2.20E-05 J	1.70E-04 U	2.34E-04	2.90E-05 U	9.20E-05 J	3.10E-05 U	5.84E-04	1.78E-05 J
HexaCB-(147)+(149)				1.02E-03	1.52E-03	6.70E-05 J	2.45E-04	2.49E-04	1.21E-04 J	3.90E-04 U	9.86E-04	1.66E-04 J	5.64E-04	1.96E-04 J	3.16E-03	8.32E-05 J
22'34'56'-HexaCB-(148)				8.80E-06 U	8.70E-06 U	8.10E-06 U	7.00E-06 U	8.40E-06 U	2.20E-06 U	1.10E-04 U	3.90E-05 U	2.20E-05 U	2.10E-05 U	1.70E-05 U	2.20E-05 U	2.30E-06 U
22'34'66'-HexaCB-(150)				6.30E-06 U	6.20E-06 U	5.80E-06 U	5.00E-06 U	6.00E-06 U	1.50E-06 U	7.50E-05 U	3.00E-05 U	1.70E-05 U	1.60E-05 U	1.30E-05 U	1.70E-05 U	1.80E-06 U
22'3566'-HexaCB-(152)				6.10E-06 U	6.00E-06 U	5.60E-06 U	4.80E-06 U	5.80E-06 U	1.50E-06 U	8.00E-05 U	2.50E-05 U	1.40E-05 U	1.30E-05 U	1.10E-05 U	1.40E-05 U	1.60E-06 U
HexaCB-(153)+(168)				1.06E-03	1.47E-03	5.40E-05 J	2.17E-04	2.18E-04	1.02E-04 J	4.70E-04 U	1.02E-03	1.38E-04 J	5.63E-04	1.85E-04 J	3.45E-03	1.05E-04 J
22'44'56'-HexaCB-(154)				1.00E-05 U	2.07E-05 J	7.20E-06 U	6.20E-06 U	7.40E-06 U	1.90E-06 U	1.00E-04 U	3.60E-05 U	2.00E-05 U	1.90E-05 U	1.60E-05 U	6.20E-05 U	2.00E-06 U
22'44'66'-HexaCB-(155)				5.20E-06 U	5.10E-06 U	4.80E-06 U	4.10E-06 U	4.90E-06 U	1.30E-06 U	5.90E-05 U	1.80E-05 U	1.00E-05 U	9.80E-06 U	8.20E-06 U	1.10E-05 U	2.00E-06 U
HexaCB-(156)+(157)				1.94E-04 J	2.67E-04	1.10E-05 U	4.22E-05 J	3.18E-05 J	2.35E-05 J	9.20E-05 U	1.50E-04 U	2.20E-05 U	8.90E-05 J	2.04E-05 J	4.15E-04	1.94E-05 J
233'44'6-HexaCB-(158)				1.56E-04	2.25E-04	1.60E-05 U	3.07E-05 J	3.00E-05 J	1.81E-05 J	1.40E-04 U	1.50E-04	2.30E-05 U	8.00E-05 J	2.70E-05 J	4.34E-04	1.59E-05 J
233'455'-HexaCB-(159)				1.20E-05 U	2.30E-05 U	7.50E-06 U	5.80E-06 U	4.60E-06 U	5.80E-06 U	3.20E-05 U	1.80E-05 U	1.10E-05 U	1.50E-05 U	5.80E-06 U	2.97E-05 J	4.00E-06 U
233'456-HexaCB-(160)				1.30E-05 U	3.60E-05 U	1.80E-05 U	1.10E-05 U	1.60E-05 U	1.00E-05 U	1.70E-04 U	4.70E-05 U	2.80E-05 U	3.00E-05 U	2.50E-05 U	2.60E-05 U	5.50E-06 U
233'45'6-HexaCB-(161)				1.10E-05 U	3.00E-05 U	1.50E-05 U	9.40E-06 U	1.40E-05 U	8.40E-06 U	1.50E-04 U	4.00E-05 U	2.40E-05 U	2.60E-05 U	2.10E-05 U	2.30E-05 U	4.60E-06 U
233'4'55'-HexaCB-(162)				1.10E-05 U	2.30E-05 U	7.50E-06 U	5.80E-06 U	4.60E-06 U	5.80E-06 U	3.20E-05 U	1.90E-05 U	1.10E-05 U	1.50E-05 U	5.90E-06 U	7.50E-06 U	4.10E-06 U
233'4'5'6-HexaCB-(164)				1.12E-04	1.63E-04	1.60E-05 U	1.90E-05 J	2.10E-05 J	1.00E-05 U	1.40E-04 U	1.07E-04	2.40E-05 U	4.80E-05 J	2.10E-05 U	3.32E-04	1.24E-05 J
233'55'6-HexaCB-(165)				1.30E-05 U	3.50E-05 U	1.80E-05 U	1.10E-05 U	1.60E-05 U	9.90E-06 U	1.50E-04 U	4.30E-05 U	2.60E-05 U	2.70E-05 U	2.30E-05 U	2.40E-05 U	5.20E-06 U
23'44'55'-HexaCB-(167)				6.70E-05 J	9.10E-05 J	9.60E-06 U	1.10E-05 U	1.23E-05 J	7.40E-06 U	3.70E-05 U	5.30E-05 U	1.30E-05 U	2.90E-05 J	7.00E-06 U	1.56E-04	7.00E-06 J
33'44'55'-HexaCB-(169)				1.60E-05 U	3.20E-05 U	1.00E-05 U	7.90E-06 U	6.20E-06 U	7.90E-06 U	3.90E-05 U	2.30E-05 U	1.40E-05 U	1.90E-05 U	7.50E-06 U	9.40E-06 U	4.50E-06 U
22'33'44'5-HeptaCB-(170)				2.62E-04	3.60E-04	1.30E-05 U	5.40E-05 J	5.62E-05 J	2.10E-05 J	1.10E-04 U	2.39E-04	1.50E-05 U	1.45E-04	4.20E-05 J	7.81E-04	2.10E-05 U
HeptaCB-(171)+(173)				6.90E-05 J	1.12E-04 J	1.80E-05 U	2.10E-05 U	2.00E-05 J	1.40E-05 U	1.80E-04 U	8.70E-05 J	2.40E-05 U	4.40E-05 J	2.50E-05 U	2.59E-04	7.90E-06 J
22'33'455'-HeptaCB-(172)				4.90E-05 J	6.70E-05 J	1.90E-05 U	2.20E-05 U	1.30E-05 U	1.40E-05 U	1.90E-04 U	6.80E-05 U	2.40E-05 U	2.70E-05 U	2.50E-05 U	1.52E-04	4.20E-06 U
22'33'456'-HeptaCB-(174)				2.60E-04	3.76E-04	1.70E-05 U	6.20E-05 J	6.60E-05 J	2.40E-05 J	1.70E-04 U	2.91E-04	2.60E-05 J	1.59E-04	5.10E-05 J	9.43E-04	1.98E-05 J
22'33'45'6-HeptaCB-(175)				2.70E-05 U	2.70E-05 J	4.40E-06 U	6.90E-06 U	5.50E-06 U	2.70E-06 U	1.10E-04 U	4.10E-05 U	1.80E-05 U	1.80E-05 U	1.60E-05 U	4.80E-05 U	2.00E-06 U
22'33'466'-HeptaCB-(176)				3.20E-05 J	4.80E-05 J	3.00E-06 U	5.50E-06 U	1.02E-05 J	2.60E-06 U	8.10E-05 U	4.30E-05 J	1.30E-05 U	2.40E-05 J	1.20E-05 U	1.45E-04	2.60E-06 J
22'33'45'6'-HeptaCB-(177)				1.45E-04	1.90E-04 U	1.80E-05 U	2.70E-05 U	3.80E-05 J	1.40E-05 U	1.80E-04 U	1.64E-04	2.40E-05 U	8.70E-05 J	2.60E-05 J	5.24E-04	1.26E-05 J
22'33'55'6-HeptaCB-(178)				5.70E-05 J	1.02E-04 J	4.50E-06 U	1.00E-05 U	1.40E-05 U	2.70E-06 U	1.20E-04 U	7.60E-05 J	1.90E-05 U	4.00E-05 J	1.70E-05 U	2.40E-04	4.60E-06 U
22'33'566'-HeptaCB-(179)				9.80E-05 J	1.59E-04	6.90E-06 J	2.27E-05 J	3.65E-05 J	1.07E-05 J	7.50E-05 U	1.34E-04	1.20E-05 U	8.10E-05 J	2.80E-05 U	4.64E-04	6.50E-06 J
HeptaCB-(180)+(193)				5.78E-04	8.75E-04	2.00E-05 J	1.13E-04 J	1.43E-04 J	4.24E-05 J	3.40E-04 J	6.02E-04	5.50E-05 J	3.45E-04	1.08E-04 J	1.97E-03	4.67E-05 J
22'344'56-HeptaCB-(181)				4.60E-05 U	5.80E-05 U	1.80E-05 U	2.10E-05 U	1.20E-05 U	1.40E-05 U	1.70E-04 U	6.40E-05 U	2.30E-05 U	2.50E-05 U	2.40E-05 U	3.20E-05 U	3.00E-06 U
22'344'56'-HeptaCB-(182)				2.80E-05 U	1.80E-05 U	4.60E-06 U	7.10E-06 U	5.70E-06 U	2.70E-06 U	1.10E-04 U	4.20E-05 U	1.80E-05 U	1.80E-05 U	1.60E-05 U	8.50E-06 U	2.00E-06 U
22'344'5'6-HeptaCB-(183)				1.77E-04	2.54E-04	1.60E-05 U	3.90E-05 J	3.90E-05 J	1.40E-05 J	1.40E-04 U	1.35E-04	1.90E-05 U	8.50E-05 J	2.30E-05 J	5.26E-04	1.18E-05 J
22'344'66'-HeptaCB-(184)				1.80E-05 U	1.20E-05 U	2.90E-06 U	4.50E-06 U	3.60E-06 U	1.70E-06 U	7.80E-05 U	2.80E-05 U	1.20E-05 U	1.20E-05 U	1.10E-05 U	5.80E-06 U	1.50E-06 U
22'3455'6-HeptaCB-(185)				3.90E-05 U	5.00E-05 U	1.50E-05 U	1.80E-05 U	1.00E-05 U	1.20E-05 U	1.90E-04 U	7.00E-05 U	2.50E-05 U	2.80E-05 U	2.60E-05 U	3.50E-05 U	3.60E-06 U
22'34566'-HeptaCB-(186)				2.00E-05 U	1.30E-05 U	3.20E-06 U	5.00E-06 U	4.00E-06 U	1.90E-06 U	8.70E-05 U	3.20E-05 U	1.40E-05 U	1.40E-05 U	1.20E-05 U	6.40E-06 U	1.60E-06 U
22'34'55'6-HeptaCB-(187)				3.45E-04	5.54E-04	1.80E-05 U	7.34E-05 J	8.59E-05 J	2.63E-05 J	1.90E-04 U	4.50E-04	3.70E-05 U	2.29E-04	8.70E-05 J	1.57E-03	2.40E-05 U
22'34'566'-HeptaCB-(188)				2.10E-05 U	1.40E-05 U	3.50E-06 U	5.40E-06 U	4.30E-06 U	2.10E-06 U	7.90E-05 U	2.70E-05 U	1.20E-05 U	1.20E-05 U	1.10E-05 U	5.40E-06 U	2.00E-06 U
233'44'55'-HeptaCB-(189)				3.40E-05 U	6.00E-05 U	1.70E-05 U	8.50E-06 U	7.50E-06 U	7.20E-06 U	5.20E-05 U	2.20E-05 U	7.90E-06 U	2.20E-05 U	7.00E-06 U	3.52E-05 J	2.40E-06 U
233'44'56-HeptaCB-(190)				3.70E-05 J	5.50E-05 J	1.40E-05 U	1.60E-05 U	9.40E-06 U	1.10E-05 U	1.40E-04 U	5.00E-05 U	1.80E-05 U	2.90E-05 J	1.80E-05 U	1.77E-04	4.00E-06 J
233'44'5'6-HeptaCB-(191)				3.40E-05 U	4.30E-05 U	1.30E-05 U	1.60E-05 U	9.00E-06 U	1.00E-05 U	1.30E-04 U	5.00E-05 U	1.80E-05 U	2.00E-05 U	1.80E-05 U	2.80E-05 U	2.20E-06 U
233'455'6-HeptaCB-(192)				3.90E-05 U	4.90E-05 U	1.50E-05 U	1.80E-05 U	1.00E-05 U	1.10E-05 U	1.40E-04 U	5.50E-05 U	1.90E-05 U	2.20E-05 U	2.00E-05 U	2.70E-05 U	2.60E-06 U
22'33'44'55'-OctaCB-(194)				1.66E-04	2.70E-04 U	3.50E-05 U	2.50E-05 U	2.40E-05 U	2.30E-05 U	1.90E-04 U	1.40E-04 U	2.70E-05 U	8.00E-05 J	2.70E-05 U	5.68E-04	1.40E-05 U
22'33'44'56-OctaCB-(195)				4.40E-05 U	7.30E-05 J	3.70E-05 U	2.70E-05 U	2.60E-05 U	2.40E-05 U	2.10E-04 U	6.80E-05 U	2.90E-05 U	2.50E-05 U	2.90E-05 U	1.85E-04	5.20E-06 U
22'33'44'56'-OctaCB-(196)				1.10E-04	1.65E-04	2.70E-05 U	2.30E-05 U	2.20E-05 U	3.10E-05 U	3.00E-04 U	1.10E-04 U	3.60E-05 U	5.80E-05 J	4.00E-05 U	3.66E-04	7.20E-06 J
22'33'44'66'OctaCB-(197)				1.90E-05 U	3.30E-05 U	1.70E-05 U	1.40E-05 U	1.40E-05 U	1.90E-05 U	1.90E-04 U	4.80E-05 U	2.80E-05 U	3.30E-05 U	3.00E-05 U	1.90E-05 U	2.20E-06 U
OctaCB-(198)+(199)				2.57E-04	4.27E-04	2.70E-05 U	4.90E-05 J	6.60E-05 J	3.10E-05 U	3.00E-04 U	2.71E-04	3.70E-05 U	1.37E-04 J	4.10E-05 U	9.09E-04	1.90E-05 U
22'33'4566'-OctaCB-(200)				2.30E-05 J	3.50E-05 U	1.50E-05 U	1.30E-05 U	1.30E-05 U	1.80E-05 U	2.20E-04 U	3.90E-05 U	2.30E-05 U	2.70E-05 U	2.50E-05 U	9.40E-05 J	2.00E-06 U
22'33'45'66'-OctaCB-(201)				2.60E-05 U	3.90E-05 U	1.50E-05 U	1.30E-05 U	1.30E-05 U	1.80E-05 U	2.00E-04 U	4.20E-05 U	2.40E-05 U	2.90E-05 U	2.70E-05 U	1.03E-04	2.00E-06 U
22'33'55'66'-OctaCB-(202)				5.10E-05 J	7.60E-05 J	1.70E-05 U	1.50E-05 U	1.40E-05 U	2.00E-05 U	2.00E-04 U	3.90E-05 U	2.30E-05 U	2.70E-05 U	2.50E-05 U	1.58E-04	3.70E-06 U
22'344'55'6-OctaCB-(203)				1.70E-04	2.41E-04	2.50E-05 U	3.10E-05 U	3.80E-05 U	2.90E-05 U	2.90E-04 U	1.83E-04	3.60E-05 U	9.60E-05	3.90E-05 U	5.70E-04	1.20E-05 U
22'344'566'-OctaCB-(204)				1.80E-05 U	3.20E-05 U	1.60E-05 U	1.40E-05 U	1.30E-05 U	1.90E-05 U	2.00E-04 U	4.30E-05 U	2.50E-05 U	3.00E-05 U	2.70E-05 U	1.70E-05 U	2.10E-06 U
233'44'55'6-OctaCB-(205)				1.70E-05 U	4.60E-05 U	3.10E-05 U	2.30E-05 U	2.20E-05 U	2.00E-05 U	1.70E-04 U	5.90E-05 U	2.50E-05 U	1.10E-05 U	2.50E-05 U	2.80E-05 U	3.80E-06 U
22'33'44'55'6-NonaCB-(206)				1.74E-04	2.48E-04	3.20E-05 U	3.20E-05 U	2.40E-05 U	1.90E-05 U	2.90E-04 U	1.46E-04	1.50E-05 U	7.20E-05 J	2.30E-05 U	3.99E-04	1.15E-05 J
22'33'44'566'-NonaCB-(207)				1.40E-05 U	3.00E-05 J	2.40E-05 U	2.40E-05 U	1.80E-05 U	1.40E-05 U	2.50E-04 U	4.00E-05 U	1.30E-05 U	2.40E-05 U	2.00E-05 U	5.68E-05 J	4.10E-06 U
22'33'455'66'-NonaCB-(208)				5.00E-05 J	6.30E-05 J	3.20E-05 U	3.20E-05 U	2.40E-05 U	1.90E-05 U	2.80E-04 U	4.60E-05 U	1.50E-05 U	2.70E-05 U	2.30E-05 U	9.74E-05	5.00E-06 U
DecaCB-(209)				6.10E-05 J	4.00E-05 U	5.90E-05 U	3.80E-05 U	2.90E-05 U	3.40E-05 U	1.20E-04 U	7.10E-05 U	2.40E-05 U	2.60E-05 U	3.50E-05 U	8.60E-05 U	5.40E-06 U
PCB Homologs (ug/l)																
Monochlorobiphenyl				8.11E-05	2.54E-05	2.05E-04	3.10E-06	3.80E-06 U	8.30E-06 U	3.60E-05	6.20E-05	3.90E-05	2.68E-05	6.40E-06 U	3.23E-05	3.30E-06 U
Dichlorobiphenyl				2.59E-03	1.27E-03	1.71E-03	8.29E-04	4.50E-05 U	3.14E-04	1.20E-03 U	1.26E-03	7.05E-04	1.28E-03	7.50E-05	1.12E-03	1.41E-04
Trichlorobiphenyl				7.30E-03	4.04E-03	4.21E-03	2.68E-03	2.31E-04	7.87E-04	1.81E-03	3.98E-03	1.69E-03	3.70E-03	2.45E-04	3.78E-03	5.62E-04
Tetrachlorobiphenyl				8.86E-03	6.93E-03	3.50E-03	2.35E-03	6.84E-04	7.97E-04	1.56E-03	4.85E-03	1.95E-03	4.07E-03	4.68E-04	7.78E-03	6.89E-04
Pentachlorobiphenyl				7.87E-03	9.76E-03	4.86E-04	1.74E-03	1.48E-03	8.70E-04	2.33E-03	7.32E-03	1.74E-03	3.98E-03	1.07E-03	2.06E-02	8.00E-04
Hexachlorobiphenyl				6.48E-03	9.12E-03	2.64E-04	1.31E-03	1.29E-03	6.74E-04	2.30E-04 U	6.04E-03	5.27E-04	2.97E-03	9.95E-04	1.99E-02	6.06E-04
Heptachlorobiphenyl				2.11E-03	2.99E-03	2.70E-05	3.64E-04	4.94E-04	1.38E-04	3.40E-04	2.22E-03	8.10E-05	1.27E-03	3.38E-04	7.79E-03	1.12E-04
Octachlorobiphenyl				7.77E-04	9.82E-04	3.70E-05 U	4.90E-05	6.60E-05	3.10E-05 U	3.00E-04 U	4.54E-04	3.70E-05 U	3.71E-04	4.10E-05 U	2.95E-03	7.20E-06

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 21

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	4/5/2018 CB2	4/5/2018 CB9	4/5/2018 RD1	4/5/2018 SW2	4/5/2018 SW3	4/5/2018 SW6	1/17/2018 CB2	1/17/2018 CB9	1/17/2018 RD1	1/17/2018 SW2	1/17/2018 SW3	1/17/2018 SW6	1/17/2018 SWP1
Nonachlorobiphenyl				2.24E-04	3.41E-04	3.20E-05 U	3.20E-05 U	2.40E-05 U	1.90E-05 U	2.90E-04 U	1.46E-04	1.50E-05 U	7.20E-05	2.30E-05 U	5.54E-04	1.15E-05
Decachlorobiphenyl				6.10E-05	2.10E-05 U	5.90E-05 U	3.80E-05 U	2.90E-05 U	3.40E-05 U	1.20E-04 U	7.10E-05 U	2.40E-05 U	6.70E-06 U	3.50E-05 U	1.00E-05 U	5.40E-06 U
Total Detected PCBs (Method 1668)	6.40E-05	6.40E-06	3.00E-01	3.64E-02	3.55E-02	1.04E-02	9.33E-03	4.24E-03	3.58E-03	6.16E-03	2.63E-02	6.73E-03	1.77E-02	3.19E-03	6.45E-02	2.93E-03
Phthalates (ug/l)																
Bis(2-ethylhexyl) phthalate	2.2	0.2	5	2.1 J	4.4	0.25 J	1.3 J	0.78 U	0.76 U	3.8 J	4.4	0.30 J	1.2 J	0.21 U	1.0 J	5.3
Butylbenzyl phthalate	3			2.0 U	2.2 U	0.24 J	1.0 U	0.78 U	0.76 U	1.9 U	0.94 U	0.19 U	0.95 U	0.21 U	0.77 U	0.49 U
Dibutyl phthalate	3			2.0 U	2.2 U	0.19 U	1.0 U	0.78 U	0.76 U	1.9 U	0.94 U	0.19 U	0.95 U	0.21 U	0.77 U	0.49 U
Diethyl phthalate	3			2.0 U	2.2 U	0.19 U	1.0 U	0.78 U	0.76 U	1.9 U	0.94 U	0.19 U	0.95 U	0.21 U	0.77 U	0.49 U
Dimethyl phthalate	3			2.0 U	2.2 U	0.19 U	1.0 U	0.78 U	0.76 U	1.9 U	0.94 U	0.31 J	1.2 J	0.55	2.0	0.49 U
Di-n-octyl phthalate	3			2.0 U	2.2 U	0.19 U	1.0 U	0.78 U	0.76 U	1.9 U	0.94 U	0.19 U	0.95 U	0.21 U	0.77 U	0.49 U
Pesticides (ug/l)																
2,4'-DDD	3.10E-04	3.10E-05														9.62E-03 U
2,4'-DDE	2.20E-04	1.80E-05														9.62E-03 U
2,4'-DDT	2.00E-01	2.20E-05														9.62E-03 U
4,4'-DDD	3.10E-04	3.10E-05														9.62E-03 U
4,4'-DDE	2.20E-04	1.80E-05														9.62E-03 U
4,4'-DDT	2.20E-04	2.20E-05														9.62E-03 U
Total DDx		1.00E-02														
Aldrin	5.00E-05	7.70E-07														9.62E-03 U
alpha-BHC	4.90E-03															9.62E-03 U
beta-BHC	1.70E-02															9.62E-03 U
Chlordane technical		8.10E-05														9.62E-03 U
cis-Chlordane	8.10E-04	8.10E-05														9.62E-03 U
cis-Nonachlor	1.90E-01															3.62E-01 U
delta-BHC	5.20E-02															9.62E-03 U
Dieldrin	5.40E-05															9.62E-03 U
Endosulfan I	5.10E-02															9.62E-03 U
Endosulfan II	5.10E-02															9.62E-03 U
Endosulfan sulfate	8.90E+01															9.62E-03 U
Endrin	3.60E-02															9.62E-03 U
Endrin aldehyde																9.62E-03 U
Endrin ketone																9.62E-03 U
gamma-BHC (Lindane)	3.70E-02															9.62E-03 U
Heptachlor	7.90E-05															9.62E-03 U
Heptachlor epoxide	3.90E-05															9.62E-03 U
Hexachlorobenzene	2.90E-04	2.90E-05														2.88E-02 U
Hexachlorobutadiene	8.60E-01															9.62E-03 U
Hexachloroethane	3.30E+00															
Methoxychlor	3.00E-02															2.88E-02 U
Mirex																9.62E-03 U
Oxychlordane	1.90E-01	8.10E-05														9.62E-03 U
Toxaphene	2.00E-04															3.62E-01 U
trans-Chlordane	8.10E-04	8.10E-05														9.62E-03 U
trans-Nonachlor	1.90E-01															9.62E-03 U
Dioxins (ug/l)																
1,2,3,4,6,7,8-HeptaCDD				5.41E-05 J	4.20E-05 J	3.50E-06 J	1.18E-05 J	2.40E-06 J	4.40E-06 J	3.46E-05 J	3.37E-05 J	3.25E-05 J	2.43E-05 J	3.10E-06 J	3.04E-05 J	9.00E-06 J
1,2,3,4,6,7,8-HeptaCDF				9.70E-06 U	9.00E-06 U	1.00E-06 U	2.70E-06 U	1.20E-06 U	1.20E-06 U	7.20E-06 U	9.00E-06 U	7.80E-06 U	5.90E-06 U	1.10E-06 U	6.00E-06 U	4.10E-06 U
1,2,3,4,7,8,9-HeptaCDF				1.40E-06 U	1.60E-06 U	1.50E-06 U	1.50E-06 U	1.70E-06 U	1.70E-06 U	1.20E-06 U	1.70E-06 U	1.30E-06 U	1.40E-06 U	1.30E-06 U	1.40E-06 U	1.30E-06 U
1,2,3,4,7,8-HexaCDD				1.30E-06 U	1.30E-06 U	1.30E-06 U	1.40E-06 U	1.20E-06 U	1.30E-06 U	1.00E-06 U	1.20E-06 U	1.00E-06 U	9.80E-07 U	1.30E-06 U	1.10E-06 U	1.20E-06 U
1,2,3,4,7,8-HexaCDF				1.20E-06 U	1.20E-06 U	1.10E-06 U	1.30E-06 U	1.20E-06 U	1.00E-06 U	9.90E-07 U	9.50E-07 U	9.20E-07 U	9.60E-07 U	1.10E-06 U	1.00E-06 U	1.20E-06 U
1,2,3,6,7,8-HexaCDD				1.90E-06 J	1.80E-06 J	1.10E-06 U	1.20E-06 U	9.90E-07 U	1.10E-06 U	1.80E-06 J	1.50E-06 J	1.20E-06 J	9.90E-07 U	1.30E-06 U	1.70E-06 J	1.20E-06 U
1,2,3,6,7,8-HexaCDF				1.10E-06 U	1.10E-06 U	9.30E-07 U	1.10E-06 U	1.10E-06 U	8.90E-07 U	9.90E-07 U	9.50E-07 U	9.20E-07 U	9.60E-07 U	1.10E-06 U	1.00E-06 U	1.10E-06 U
1,2,3,7,8,9-HexaCDD				3.00E-06 J	2.40E-06 J	1.20E-06 U	1.30E-06 U	1.10E-06 U	1.20E-06 U	1.84E-06 J	2.00E-06 J	1.20E-06 J	9.70E-07 U	1.30E-06 U	1.90E-06 J	1.10E-06 U
1,2,3,7,8,9-HexaCDF				1.40E-06 U	1.40E-06 U	1.20E-06 U	1.50E-06 U	1.40E-06 U	1.20E-06 U	1.10E-06 U	1.10E-06 U	1.00E-06 U	1.10E-06 U	1.20E-06 U	1.10E-06 U	1.30E-06 U
1,2,3,7,8-PentaCDD				1.50E-06 U	1.70E-06 U	1.30E-06 U	1.30E-06 U	1.00E-06 U	9.70E-07 U	1.00E-06 U	1.10E-06 U	1.10E-06 U	1.30E-06 U	9.60E-07 U	1.10E-06 U	1.80E-06 U
1,2,3,7,8-PentaCDF				1.50E-06 U	1.40E-06 U	1.20E-06 U	1.40E-06 U	1.10E-06 U	1.10E-06 U	1.00E-06 U	1.10E-06 U	1.20E-06 U	1.10E-06 U	8.50E-07 U	1.00E-06 U	1.20E-06 U
2,3,4,6,7,8-HexaCDF				1.20E-06 U	1.20E-06 U	1.00E-06 U	1.30E-06 U	1.20E-06 U	9.90E-07 U	1.00E-06 U	9.90E-07 U	9.50E-07 U	1.00E-06 U	1.10E-06 U	1.00E-06 U	1.20E-06 U
2,3,4,7,8-PentaCDF				1.50E-06 U	1.40E-06 U	1.20E-06 U	1.40E-06 U	1.10E-06 U	1.10E-06 U	1.00E-06 U	1.10E-06 U	1.20E-06 U	1.10E-06 U	8.40E-07 U	1.00E-06 U	1.20E-06 U
2,3,7,8-TetraCDD	5.10E-09			1.40E-06 U	1.60E-06 U	1.10E-06 U	1.20E-06 U	1.30E-06 U	1.10E-06 U	1.30E-06 U	1.10E-06 U	8.80E-07 U	1.10E-06 U	8.80E-07 U	1.10E-06 U	1.20E-06 U
2,3,7,8-TetraCDF				1.40E-06 U	1.40E-06 U	1.00E-06 U	1.30E-06 U	1.30E-06 U	1.50E-06 U	1.10E-06 U	1.10E-06 U	8.90E-07 U	1.10E-06 U	1.00E-06 U	1.20E-06 J	1.20E-06 U
OCDD				4.25E-04	3.50E-04	1.26E-05 J	7.76E-05 J	2.58E-05 J	2.63E-05 J	3.01E-04	2.25E-04	1.93E-04	1.91E-04	2.50E-05 J	2.38E-04	5.83E-05 J
OCDF				2.84E-05 J	2.36E-05 J	1.20E-06 U	6.53E-06 J	1.30E-06 U	1.70E-06 U	2.49E-05 J	2.34E-05 J	3.19E-05 J	1.52E-05 J	2.59E-06 J	1.73E-05 J	7.20E-06 J
HeptaCDD homologs				1.10E-04	8.53E-05	6.80E-06 J	2.40E-05 J	2.40E-06 J	9.20E-06 J	6.89E-05	6.79E-05	5.86E-05	5.32E-05	6.20E-06 J	6.36E-05	1.69E-05 J
HeptaCDF homologs				1.32E-05 J	1.30E-05 J	1.20E-06 U	3.20E-06 J	1.40E-06 U	1.40E-06 U	1.13E-05 J	1.26E-05 J	1.38E-05 J	8.50E-06 J	1.20E-06 U	9.00E-06 J	3.40E-06 J
HexaCDD homologs				2.04E-05 J	1.68E-05 J	2.20E-06 U	3.20E-06 U	2.00E-06 U	2.30E-06 U	1.17E-05 J	1.16E-05 J	7.80E-06 J	6.44E-06 J	1.30E-06 U	1.16E-05 J	1.70E-05 U
HexaCDF homologs				1.09E-05 J	7.50E-06 J	1.10E-06 U	1.30E-06 U	1.20E-06 U	1.00E-06 U	7.90E-06 J	1.55E-05 J	5.16E-06 J	4.50E-06 J	1.10E-06 U	7.40E-06 J	1.20E-06 U
PentaCDD homologs				1.50E-06 U	1.70E-06 U	1.30E-06 U	1.30E-06 U	1.00E-06 U	9.70E-07 U	1.00E-06 U	1.10E-06 U	1.10E-06 U	1.30E-06 U	9.60E-07 U	1.10E-06 U	1.80E-06 U

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 21

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	4/5/2018 CB2	4/5/2018 CB9	4/5/2018 RD1	4/5/2018 SW2	4/5/2018 SW3	4/5/2018 SW6	1/17/2018 CB2	1/17/2018 CB9	1/17/2018 RD1	1/17/2018 SW2	1/17/2018 SW3	1/17/2018 SW6	1/17/2018 SWP1
PentaCDF homologs				3.70E-06 J	7.00E-06 J	1.20E-06 U	1.40E-06 U	1.10E-06 U	1.10E-06 U	4.30E-06 J	6.50E-06 J	1.20E-06 U	1.10E-06 U	8.50E-07 U	1.20E-06 J	3.40E-06 U
TetraCDD homologs				1.40E-06 U	1.60E-06 U	1.10E-06 U	1.20E-06 U	1.30E-06 U	1.10E-06 U	1.30E-06 U	1.10E-06 U	8.80E-07 U	1.10E-06 U	8.80E-07 U	1.10E-06 U	6.90E-06 U
TetraCDF homologs				1.40E-06 U	1.40E-06 U	1.00E-06 U	1.30E-06 U	1.30E-06 U	1.50E-06 U	1.20E-06 J	1.10E-06 U	8.90E-07 U	1.10E-06 U	1.00E-06 U	1.20E-06 J	1.20E-06 U
Total Dioxin TEQ (ND=DL/2)	5.10E-09	5.00E-10		3.30E-06	3.27E-06	1.89E-06	2.17E-06	1.85E-06	1.74E-06	2.47E-06	2.41E-06	2.15E-06	2.13E-06	1.58E-06	2.42E-06	2.31E-06
Total Dioxin TEQ (ND=0)	5.10E-09	5.00E-10		1.17E-06	9.52E-07	3.88E-08	1.43E-07	3.17E-08	5.19E-08	8.08E-07	7.62E-07	6.32E-07	3.05E-07	3.93E-08	8.61E-07	1.10E-07
Butyltins (ug/l)																
Butyltin				2.30E-03 U	2.30E-03 U	2.30E-03 U	2.30E-03 U	2.30E-03 U	2.30E-03 U	2.30E-03 U	2.30E-03 U	1.10E-01	2.30E-03 U	2.30E-03 U	2.40E-03 U	2.00E-01 U
Dibutyltin				1.70E-03 U	1.70E-03 U	1.70E-03 U	1.70E-03 U	1.80E-03 U	1.70E-03 U	1.70E-03 U	1.70E-03 U	1.70E-03 U	1.80E-03 U	1.80E-03 U	1.80E-03 U	2.90E-01 U
Tributyltin	7.20E-02	6.30E-02		1.30E-03 U	1.30E-03 U	1.30E-03 U	1.30E-03 U	1.30E-03 U	1.30E-03 U	1.30E-03 U	1.30E-03 U	2.90E-03 U	1.30E-03 U	1.30E-03 U	1.40E-03 U	1.90E-01 U
Tetrabutyltin				1.90E-03 U	1.90E-03 U	1.90E-03 U	1.90E-03 U	1.90E-03 U	1.90E-03 U	1.90E-03 U	1.90E-03 U	2.90E-03 U	1.90E-03 U	1.90E-03 U	1.90E-03 U	
Total Metals (ug/l)																
Aluminum				2380	2660	33 J	2500	1160	787	660	1470	89.3	5090	244	2420	83
Antimony	6			0.74 J	0.63 J	0.50 U	0.50 U	1.1	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.86 J	0.50 U	1.0 U
Arsenic	0.045	0.018	2	0.87 J	0.56 J	0.50 U	2.2	0.97 J	2.8	0.50 U	0.50 U	0.50 U	0.94 J	0.92 J	1.1	0.52 J
Cadmium	0.094		0.7	0.36	0.41	0.040 U	0.18 J	0.14 J	0.10 J	0.18 J	0.25	0.056 J	0.24	0.13 J	0.18 J	0.056 J
Chromium	100	100	10	13	14	0.5 U	3.5	4.2	1.3	6.2	9.4	1.0 J	7.4	2.8	9.3	0.54 J
Copper	2.7	2.74	60	32	29	8.3	7.9	9.4	3.5	9.1	19	5.1	13	4.9	11	9.1
Lead	0.54		50	15	9.7	0.36	2.7	2.4	0.91	3.7	5.5	1.0	6.0	0.94	6.7	1.0
Manganese	50			204	178	1.5	557	51	968	111	114	9.0	301	18	311	72
Mercury	0.77		0.2	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Nickel	16		8	5.6	4.8	0.59 J	2.6	1.6	1.7	6.6	4.3	0.54 J	3.7	0.87 J	2.6	0.50 U
Silver	0.12		0.1	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Zinc	36	36.5	700	389	221	32	124	38	64	95	137	30	155	19	106	29
Dissolved Metals (ug/l)																
Aluminum																25 U
Antimony	6															0.50 U
Arsenic	0.045	0.018	2													0.50 U
Cadmium	0.094		0.7													0.040 U
Chromium	100	100	10													0.50 U
Copper	2.7	2.74	60													1.7
Lead	0.54		50													0.10 U
Manganese	50															54
Mercury	0.77		0.2													0.040 U
Nickel	16		8													0.90 J
Silver	0.12		0.1													0.10 U
Zinc	36	36.5	700													23
Pertroleum Hydrocarbons (mg/l)																
Gasoline				0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Diesel				0.11 U	0.46	0.35	0.10 U	0.11 U	0.10 U	0.094 U	0.094 U	0.094 U	0.10 U	0.10 U	0.10 U	0.10 U
Oil				2.7	3.2	0.21 U	0.62	0.22 U	0.20 J	1.1	0.60	0.19 U	0.23 J	0.20 U	0.19 U	0.44
TSS (mg/l)			70	108	149	5.0 U	69	24	13	49	80	11	258	11	96	5.0 U
TOC (mg/l)				5.2	3.4	11	5.0	3.1	4.0	3.0	1.9	5.6	3.3	3.2	2.7	1.0 U

U - Not detectet at noted detection limit
J- Estimated value
Blank cells indicate not analyzed

1 - Table 3-1 PH JSCS Guidance, 7/16/2007 revision
2 - Table 17 January 2017 PH ROD. Surface Water Cleanup Level.
3 - October 2010, DEQ Guidance for Evaluating Stormwater Pathway at Upland Sites, Appendix E, Tool For Evaluating Stormwater Data (12/2015 update)

Detected concentration > 10 x SLV (CL or JSCS if no CL)
Detected concentration > 100 x SLV (CL or JSCS if no CL)
Detected concentration > 1000 x SLV (CL or JSCS if no CL)

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 21

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	3/28/2014 SWP2	3/28/2014 SWP3	3/28/2014 SWP6	3/5/2013 SWP1	3/5/2013 SWP2	3/5/2013 SWP3	3/5/2013 SWP6	11/19/2012 SWP1	11/19/2012 SWP2	11/19/2012 SWP3	11/19/2012 SWP6
PAHs (ug/l)														
1-Methylnaphthalene														
2-Methylnaphthalene	2.00E-01													
Acenaphthene	2.00E-01			1.96E-02 U	3.88E-02 U	4.81E-02 U	5.16E-02 J	7.51E-02 J	5.21E-02 U	4.60E-02 J	9.35E-03 U	3.74E-02 U	3.85E-02 U	9.35E-02 U
Acenaphthylene	2.00E-01			1.96E-02 U	3.88E-02 U	4.81E-02 U	4.00E-02 U	4.21E-02 U	5.21E-02 U	3.88E-02 U	9.35E-03 U	3.74E-02 U	3.85E-02 U	9.35E-02 U
Anthracene				1.96E-02 U	3.88E-02 U	4.81E-02 U	4.00E-02 U	4.21E-02 U	5.21E-02 U	3.88E-02 U	9.35E-03 U	3.74E-02 U	3.85E-02 U	9.35E-02 U
Benzo(a)anthracene	1.80E-02	1.20E-03		2.98E-02 J	7.22E-02 J	1.03E-01	4.00E-02 U	4.21E-02 U	6.08E-02 J	4.05E-02 J	1.21E-02 J	3.83E-02 J	3.85E-02 U	1.02E-01 J
Benzo(a)pyrene	1.80E-02	1.20E-04		4.84E-02 J	1.42E-01	1.77E-01	6.00E-02 U	6.32E-02 U	1.02E-01 J	1.17E-01 U	2.61E-02 J	9.32E-02 J	1.15E-01 U	2.29E-01 J
Benzo(b)fluoranthene	1.80E-02	1.20E-03												
Benzo(g,h,i)perylene	2.00E-01			6.65E-02	1.84E-01	2.35E-01	8.00E-02 U	8.40E-02 J	1.22E-01	7.88E-02	1.74E-02 J	7.43E-02 J	7.69E-02 U	2.33E-01
Benzo(k)fluoranthene	1.80E-02	1.30E-03												
Benzo(b+k)fluoranthene	1.80E-02	1.20E-03		6.29E-02	2.25E-01	2.64E-01	6.00E-02 U	7.97E-02 J	1.62E-01	7.77E-02 J	3.16E-02	1.26E-01	8.80E-02 J	2.82E-01
Carbazole														
Chrysene	1.80E-02	1.30E-03		5.84E-02	1.82E-01	1.96E-01	4.00E-02 U	4.21E-02 U	1.04E-01	3.88E-02 U	1.80E-02 J	8.38E-02	3.85E-02 U	1.88E-01
Dibenz(a,h)anthracene	1.80E-02	1.20E-04		1.96E-02 U	3.88E-02 U	4.81E-02 U	4.00E-02 U	4.21E-02 U	5.21E-02 U	3.88E-02 U	9.35E-03 U	3.74E-02 U	3.85E-02 U	9.35E-02 U
Dibenzofuran														
Fluoranthene	2.00E-01			1.15E-01	2.09E-01	2.21E-01	4.00E-02 U	7.42E-02 J	1.06E-01	7.16E-02 J	2.64E-02	8.55E-02	4.17E-02 J	1.85E-01 J
Fluorene	2.00E-01			1.99E-02 J	3.88E-02 U	4.81E-02 U	4.00E-02 U	4.21E-02 U	5.21E-02 U	3.88E-02 U	1.23E-02 J	3.74E-02 U	3.85E-02 U	9.35E-02 U
Indeno(1,2,3-cd)pyrene	1.80E-02	1.20E-03		1.99E-02 J	1.02E-01	1.27E-01	4.00E-02 U	4.21E-02 U	6.29E-02 J	3.88E-02 U	1.17E-02 J	3.74E-02 U	3.85E-02 U	1.08E-01 J
Naphthalene	2.00E-01	1.20E+01		3.92E-02 U	7.77E-02 U	9.62E-02 U	8.00E-02 U	8.42E-02 U	1.04E-01 U	7.77E-02 U	2.63E-02 JB	7.48E-02 U	7.69E-02 U	1.87E-01 U
Phenanthrene	2.00E-01			1.00E-01	8.63E-02	8.06E-02 J	4.85E-02 J	7.84E-02 J	5.21E-02 U	6.47E-02 J	2.95E-02	5.19E-02 J	3.85E-02 U	9.35E-02 U
Pyrene	2.00E-01			1.29E-01	3.19E-01	3.49E-01	4.00E-02 U	1.26E-01	1.87E-01	1.25E-01	2.60E-02	1.18E-01	7.55E-02 J	2.87E-01
Total Detected CPAHs (BaP TEF)		1.20E-04		6.04E-02	1.84E-01	2.29E-01	0.00E+00	8.81E-03	1.32E-01	1.26E-02	3.18E-02	1.10E-01	8.80E-03	2.81E-01
Total Detected PAHs			1.50E+00	6.50E-01	1.52E+00	1.75E+00	2.55E-01	6.71E-01	9.07E-01	4.26E-01	2.55E-01	6.71E-01	2.05E-01	1.61E+00
PCBs (ug/l)														
Aroclor 1016	9.60E-01			9.43E-03 U	1.89E-02 U	1.89E-02 U	9.62E-03 U	2.04E-02 U	1.87E-02 U	1.98E-02 U	2.15E-02 U	4.26E-02 U	4.30E-02 U	2.08E-02 U
Aroclor 1221	3.40E-02			9.43E-03 U	1.89E-02 U	1.89E-02 U	9.62E-03 U	2.04E-02 U	1.87E-02 U	1.98E-02 U	2.15E-02 U	4.26E-02 U	4.30E-02 U	2.08E-02 U
Aroclor 1232	3.40E-02			1.89E-02 U	1.89E-02 U	1.89E-02 U	9.62E-03 U	2.04E-02 U	1.87E-02 U	1.98E-02 U	2.15E-02 U	4.26E-02 U	4.30E-02 U	2.08E-02 U
Aroclor 1242	3.40E-02			9.43E-03 U	2.99E-02 J	2.05E-02 J	9.62E-03 U	2.04E-02 U	1.87E-02 U	1.98E-02 U	2.15E-02 U	4.26E-02 U	4.30E-02 U	2.12E-02 J
Aroclor 1248	3.40E-02			9.43E-03 U	1.89E-02 U	1.89E-02 U	9.62E-03 U	2.04E-02 U	1.87E-02 U	1.98E-02 U	2.15E-02 U	4.26E-02 U	4.30E-02 U	2.08E-02 U
Aroclor 1254	3.40E-02			9.43E-03 U	1.41E-01	9.22E-02	9.62E-03 U	2.04E-02 U	3.82E-02 J	1.98E-02 U	2.15E-02 U	4.26E-02 U	4.30E-02 U	5.87E-02
Aroclor 1260	3.40E-02			9.43E-03 U	1.20E-01	7.67E-02	9.62E-03 U	2.04E-02 U	2.87E-02 J	1.98E-02 U	2.15E-02 U	4.26E-02 U	4.30E-02 U	4.70E-02
Total Detected PCB aroclors	6.40E-05	6.40E-06	0.3	0.00E+00	2.91E-01	1.89E-01	0.00E+00	0.00E+00	6.69E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-01
PCB Congeners (ug/l)														
2-MonoCB-(1)				1.50E-05 U	5.30E-05 J	1.40E-05 U	1.01E-05 J	8.60E-06 J	1.40E-05 U	7.80E-06 U	8.10E-06 J	2.17E-05 J	4.10E-06 U	2.30E-05 J
3-MonoCB-(2)				3.40E-06 U	8.50E-06 J	2.70E-06 J	5.50E-06 J	2.20E-06 U	6.20E-06 U	2.70E-06 U	4.00E-06 J	1.01E-05 J	1.30E-06 U	5.40E-06 J
4-MonoCB-(3)				7.10E-06 U	2.70E-05 U	7.70E-06 U	8.30E-06 U	7.20E-06 U	5.80E-06 U	5.60E-06 U	7.10E-06 J	1.66E-05 J	3.30E-06 U	1.83E-05 J
22'-DiCB-(4)				1.71E-04	3.68E-04	1.36E-04	1.05E-04	1.90E-04	4.70E-04	1.95E-04	3.80E-05 J	1.76E-04	4.90E-05 J	1.75E-04
2,3-DiCB-(5)				1.50E-05 U	1.20E-05 U	6.10E-06 U	1.10E-05 U	1.80E-05 U	2.10E-05 U	1.70E-05 U	1.40E-05 U	1.79E-05 J	1.60E-05 U	1.70E-05 U
2,3'-DiCB-(6)				3.50E-05 U	1.67E-04	4.95E-05 J	4.10E-05 U	5.00E-05 U	2.19E-04	4.70E-05 U	1.70E-05 U	6.00E-05 J	2.60E-05 J	9.70E-05
2,4-DiCB-(7)				1.60E-05 U	3.40E-05 J	1.01E-05 J	8.90E-06 U	1.50E-05 U	3.80E-05 J	1.40E-05 U	1.30E-05 U	1.28E-05 J	1.40E-05 U	1.80E-05 J
2,4'-DiCB-(8)				2.10E-04	7.22E-04	2.31E-04	1.51E-04	2.00E-04	7.94E-04	1.82E-04	8.40E-05 J	2.79E-04	9.60E-05 J	3.78E-04
2,5-DiCB-(9)				1.40E-05 U	4.50E-05 J	1.40E-05 J	1.18E-05 J	1.60E-05 U	7.40E-05 J	1.40E-05 U	1.30E-05 U	2.10E-05 U	1.40E-05 U	2.70E-05 U
2,6-DiCB-(10)				6.60E-06 U	1.35E-05 J	5.40E-06 J	3.90E-06 U	8.30E-06 J	1.80E-05 U	6.20E-06 U	1.70E-05 U	1.50E-05 U	1.60E-05 U	1.70E-05 U
3,3'-DiCB-(11)				4.29E-04	4.39E-04	1.95E-04	6.00E-05 U	2.40E-04	3.54E-04	2.35E-04	1.21E-04	2.77E-04	1.77E-04	2.47E-04
DiCB-(12)+(13)				2.80E-05 J	8.80E-05 J	2.70E-05 U	2.60E-05 U	2.70E-05 U	8.40E-05 U	3.30E-05 U	1.20E-05 U	3.10E-05 U	1.40E-05 U	5.00E-05 U
3,5-DiCB-(14)				1.50E-05 U	1.00E-05 U	6.00E-06 U	8.70E-06 U	1.40E-05 U	1.70E-05 U	1.30E-05 U	1.20E-05 U	3.30E-06 U	1.40E-05 U	1.50E-05 U
4,4'-DiCB-(15)				1.40E-04	1.00E-03	3.24E-04	1.12E-04	2.30E-04	7.88E-04	2.50E-04	7.80E-05 J	2.46E-04	1.37E-04	5.00E-04
22'3-TriCB-(16)				1.45E-04	6.74E-04	2.39E-04	3.30E-06 U	5.80E-06 U	6.00E-06 U	4.40E-06 U	4.66E-05 J	1.97E-04	8.05E-05 J	2.93E-04
22'4-TriCB-(17)				1.29E-04	7.44E-04	2.32E-04	1.08E-04	2.40E-04	6.46E-04	2.51E-04	4.23E-05 J	1.95E-04	8.41E-05 J	3.37E-04
TriCB-(18)+(30)				2.69E-04	1.60E-03	5.20E-04	2.30E-04	5.00E-04	1.34E-03	5.00E-04	8.77E-05 J	3.90E-04	1.79E-04 J	7.30E-04
22'6-TriCB-(19)				4.89E-05 J	2.78E-04	9.21E-05 J	3.41E-05 J	7.03E-05 J	2.55E-04	7.74E-05 J	1.64E-05 J	6.21E-05 J	3.27E-05 J	1.44E-04
TriCB-(20) + (28)				4.55E-04	3.75E-03	1.23E-03	3.30E-04	7.50E-04	2.81E-03	8.40E-04	1.66E-04 J	6.20E-04	3.70E-04	1.45E-03
TriCB-(21)+(33)				3.02E-04	1.28E-03	4.45E-04	2.00E-04	4.40E-04	1.19E-03	4.80E-04	1.02E-04 J	3.90E-04	1.64E-04 J	5.70E-04
234'-TriCB-(22)				2.01E-04	1.17E-03	3.92E-04	1.37E-04	2.90E-04	9.02E-04	3.38E-04	6.53E-05 J	2.59E-04	1.34E-04	4.73E-04
235-TriCB-(23)				1.90E-06 U	7.30E-06 U	3.10E-06 U	3.10E-06 U	2.00E-06 U	6.60E-06 U	2.50E-06 U	3.50E-06 U	3.30E-06 U	3.50E-06 U	3.70E-06 U
236-TriCB-(24)				4.80E-06 U	6.70E-06 U	1.70E-06 U	1.34E-04	2.70E-04	5.99E-04	2.89E-04	2.20E-06 U	1.36E-05 J	4.20E-06 U	2.90E-06 U
23'4-TriCB-(25)				3.24E-05 J	2.21E-04	7.24E-05 J	2.40E-05 U	5.70E-05 J	1.95E-04	6.15E-05 J	1.16E-05 J	4.35E-05 J	2.53E-05 J	9.90E-05
TriCB-(26)+(29)				7.34E-05 J	5.10E-04	1.67E-04 J	5.96E-05 J	1.18E-04 J	4.30E-04	1.32E-04 J	2.73E-05 J	1.04E-04 J	5.17E-05 J	2.30E-04
23'6-TriCB-(27)				2.00E-05 U	2.07E-04	6.68E-05 J	1.40E-05 U	3.95E-05 J	1.30E-04 U	4.29E-05 J	7.10E-06 J	3.08E-05 J	1.99E-05 J	8.42E-05 J
24'5-TriCB-(31)				3.81E-04	2.32E-03	7.70E-04	2.70E-04	6.20E-04	1.84E-03	6.72E-04	1.27E-04	5.19E-04	2.50E-04	8.67E-04
24'6-TriCB-(32)				8.73E-05 J	8.01E-04	2.63E-04	7.30E-05 J	1.50E-04	5.23E-04	1.63E-04	2.96E-05 J	1.20E-04	7.69E-05 J	3.29E-04
23'5'-TriCB-(34)				1.90E-06 U	7.30E-06 U	3.10E-06 U	2.90E-06 U	1.90E-06 U	6.20E-06 U	2.40E-06 U	3.80E-06 U	3.50E-06 U	3.80E-06 U	4.00E-06 U
33'4-TriCB-(35)				1.17E-05 J	5.21E-05 J	1.78E-05 J	3.00E-06 U	1.20E-05 U	4.28E-05 J	1.39E-05 J	3.60E-06 U	1.37E-05 J	9.60E-06 J	2.91E-05 J
33'5-TriCB-(36)				1.70E-06 U	6.50E-06 U	2.70E-06 U	2.60E-06 U	1.60E-06 U	5.50E-06 U	2.10E-06 U	3.00E-06 U	2.80E-06 U	3.00E-06 U	3.20E-06 U
344'-TriCB-(37)				1.51E-04	1.56E-03	4.85E-04	1.15E-04	2.30E-04	7.85E-04	2.54E-04	8.00E-05 J	2.60E-04	1.65E-04	6.09E-04
345-TriCB-(38)				1.80E-06 U	6.90E-06 U	2.90E-06 U	3.00E-06 U	1.90E-06 U	6.30E-06 U	2.50E-06 U	3.40E-06 U	3.20E-06 U	3.40E-06 U	3.70E-06 U
34'5-TriCB-(39)				1.90E-06 U	1.78E-05 J	4.20E-06 J	2.80E-06 U	1.80E-06 U	1.19E-05 J	2.30E-06 U	3.20E-06 U	4.00E-06 U	3.20E-06 U	9.10E-06 J

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 21

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	3/28/2014 SWP2	3/28/2014 SWP3	3/28/2014 SWP6	3/5/2013 SWP1	3/5/2013 SWP2	3/5/2013 SWP3	3/5/2013 SWP6	11/19/2012 SWP1	11/19/2012 SWP2	11/19/2012 SWP3	11/19/2012 SWP6
TetraCB-(40)+(41)+(71)				1.86E-04 J	2.70E-03	8.88E-04	1.87E-04 J	4.00E-04	2.26E-03	4.60E-04	1.06E-04 J	3.40E-04	3.30E-04	1.26E-03
22'34'-TetraCB-(42)				9.95E-05	1.71E-03	5.23E-04	1.01E-04	2.10E-04	1.33E-03	2.52E-04	5.59E-05 J	1.75E-04	1.74E-04	7.05E-04
22'35-TetraCB-(43)				9.60E-06 J	1.83E-04	5.85E-05 J	1.10E-05 U	3.56E-05 J	1.81E-04	4.46E-05 J	7.40E-06 U	2.76E-05 J	2.29E-05 J	1.00E-04
TetraCB-(44)+(47)+(65)				2.80E-04 J	5.59E-03	1.74E-03	2.96E-04 J	6.20E-04	4.21E-03	7.90E-04	2.26E-04 J	5.80E-04	6.90E-04	2.49E-03
TetraCB-(45)+(51)				5.68E-05 J	9.43E-04	2.83E-04	5.89E-05 J	1.29E-04 J	7.80E-04	1.65E-04 J	2.81E-05 J	1.06E-04 J	1.11E-04 J	4.30E-04
22'36'-TetraCB-(46)				2.05E-05 J	3.22E-04	1.05E-04	2.16E-05 J	4.30E-05 U	3.03E-04	6.26E-05 J	1.12E-05 J	3.95E-05 J	4.13E-05 J	1.77E-04
22'45-TetraCB-(48)				6.97E-05 J	7.67E-04	2.48E-04	5.92E-05 J	1.40E-04	6.60E-04	1.70E-04	3.11E-05 J	1.13E-04	8.66E-05 J	3.40E-04
TetraCB-(49)+TetraCB-(69)				1.41E-04 J	3.24E-03	9.88E-04	1.51E-04 J	3.30E-04	2.47E-03	4.00E-04	1.16E-04 J	3.00E-04	3.20E-04	1.42E-03
TetraCB-(50)+(53)				3.95E-05 J	6.94E-04	2.21E-04	3.94E-05 J	8.76E-05 J	6.30E-04	1.14E-04 J	2.42E-05 J	7.31E-05 J	7.72E-05 J	3.70E-04
22'55'-TetraCB-(52)				2.43E-04	7.22E-03	2.31E-03	2.81E-04	6.10E-04	5.53E-03	7.32E-04	2.92E-04	5.61E-04	7.41E-04	3.16E-03
22'66'-TetraCB-(54)				4.20E-06 U	8.10E-06 U	2.90E-06 U	2.50E-06 U	2.90E-06 U	8.40E-06 U	2.60E-06 U	3.60E-06 U	2.30E-06 U	3.00E-06 U	3.90E-06 U
233'4-TetraCB-(55)				3.80E-06 U	4.70E-06 U	3.50E-06 U	1.80E-06 U	1.60E-06 U	5.10E-06 U	3.10E-06 U	3.40E-06 U	4.80E-06 U	6.20E-06 U	1.20E-05 U
233'4'-Tetra CB(56)				8.43E-05 J	1.69E-03	5.51E-04	1.04E-04	1.70E-04	1.23E-03	2.10E-04	7.21E-05 J	1.84E-04	2.05E-04	6.84E-04
233'5-TetraCB-(57)				7.00E-06 J	4.20E-06 U	1.34E-04	1.90E-06 U	1.60E-06 U	2.91E-04	3.20E-06 U	3.50E-06 U	4.80E-06 U	6.20E-06 U	1.20E-05 U
233'5'-TetraCB-(58)				3.40E-06 U	4.30E-06 U	3.20E-06 U	1.90E-06 U	1.70E-06 U	5.30E-06 U	3.30E-06 U	3.30E-06 U	4.60E-06 U	6.00E-06 U	1.20E-05 U
TetraCB-(59)+(62)+(75)				2.65E-05 J	4.65E-04	1.43E-04 J	2.58E-05 J	5.75E-05 J	4.00E-04	7.18E-05 J	1.44E-05 J	5.37E-05 J	6.09E-05 J	2.18E-04 J
2344'-TetraCB -(60)				5.19E-05 J	6.70E-04	2.21E-04	5.20E-05 J	8.25E-05 J	4.76E-04	1.11E-04	2.90E-05 U	9.13E-05 J	8.86E-05 J	2.65E-04
TetraCB-(61)+(70)+(74)+(76)				3.31E-04 J	6.94E-03	2.29E-03	3.81E-04 J	6.80E-04	4.95E-03	8.20E-04	3.48E-04 J	7.00E-04	7.70E-04	2.68E-03
234'5-TetraCB-(63)				5.20E-06 U	8.34E-05 J	2.74E-05 J	6.90E-06 J	1.10E-05 J	6.90E-05 J	1.59E-05 J	4.80E-06 J	1.50E-05 J	1.23E-05 J	3.90E-05 J
234'6-TetraCB-(64)				1.34E-04	2.55E-03	8.06E-04	1.43E-04	3.00E-04	1.98E-03	3.58E-04	9.02E-05 J	2.73E-04	2.99E-04	1.13E-03
23'44'-TetraCB-(66)				1.56E-04	3.73E-03	1.22E-03	1.93E-04	3.20E-04	2.77E-03	4.03E-04	1.45E-04	3.16E-04	3.93E-04	1.44E-03
23'45-TetraCB-(67)				6.60E-06 J	1.01E-04	3.22E-05 J	8.00E-06 J	9.90E-06 U	8.76E-05 J	1.93E-05 J	5.00E-06 J	1.29E-05 J	1.03E-05 J	3.40E-05 J
23'45'-TetraCB-(68)				3.40E-06 U	3.40E-05 J	1.27E-05 J	1.70E-06 U	1.50E-06 U	2.13E-05 J	7.10E-06 J	3.10E-06 U	4.30E-06 U	1.10E-05 U	1.70E-05 U
23'55'-TetraCB-(72)				3.20E-06 U	4.92E-05 J	1.53E-05 J	1.80E-06 U	1.60E-06 U	3.24E-05 J	3.80E-06 U	3.30E-06 U	4.60E-06 U	5.90E-06 U	2.30E-05 J
23'5'6-TetraCB-(73)				1.10E-06 U	3.80E-06 U	1.30E-06 U	1.70E-06 U	1.70E-06 U	2.40E-06 U	8.40E-07 U	3.70E-06 U	1.50E-06 U	2.90E-06 U	3.10E-06 U
33'44'-TetraCB-(77)				2.34E-05 J	4.88E-04	1.61E-04	1.90E-06 U	3.50E-05 U	2.67E-04	4.85E-05 J	3.15E-05 J	5.44E-05 J	7.26E-05 J	2.39E-04
33'45-TetraCB-(78)				3.40E-06 U	4.30E-06 U	3.20E-06 U	1.80E-06 U	1.60E-06 U	5.00E-06 U	3.10E-06 U	3.50E-06 U	4.90E-06 U	6.30E-06 U	1.20E-05 U
33'45'-TetraCB(79)				2.90E-06 U	7.38E-05 J	3.95E-05 J	1.60E-06 U	1.40E-06 U	1.78E-04	7.40E-06 J	5.90E-06 U	8.70E-06 J	1.70E-05 U	4.60E-05 J
33'55'-TetraCB-(80)				3.00E-06 U	3.70E-06 U	2.70E-06 U	1.70E-06 U	1.50E-06 U	4.80E-06 U	3.00E-06 U	3.10E-06 U	4.40E-06 U	5.70E-06 U	1.10E-05 U
344'5-TetraCB-(81)				4.00E-06 U	5.10E-06 U	3.70E-06 U	2.10E-05 U	1.70E-06 U	5.40E-06 U	3.40E-06 U	3.80E-06 U	5.30E-06 U	6.90E-06 U	1.30E-05 U
22'33'4-PentaCB-(82)				2.98E-05 J	1.62E-03	5.54E-04	4.79E-05 J	7.05E-05 J	8.82E-04	8.59E-05 J	6.73E-05 J	8.79E-05 J	2.01E-04	6.77E-04
PentaCB-(83)+(99)				9.13E-05 J	7.48E-03	2.62E-03	1.85E-04 J	2.40E-04	4.22E-03	3.00E-04	2.70E-04	3.20E-04	8.70E-04	2.83E-03
22'33'6-PentaCB-(84)				5.17E-05 J	3.82E-03	1.19E-03	9.41E-05 J	1.60E-04	2.64E-03	1.99E-04	1.46E-04	1.98E-04	5.21E-04	1.63E-03
PentaCB-(85)+(116)+(117)				2.61E-05 J	1.81E-03	6.78E-04	4.76E-05 J	7.09E-05 J	1.35E-03	9.86E-05 J	8.76E-05 J	1.16E-04 J	2.80E-04 J	8.50E-04
PentaCB-(86)(87)(97)(109)(119)(125)				1.43E-04 J	9.53E-03	3.33E-03	2.84E-04 J	3.96E-04 J	5.61E-03	4.81E-04 J	4.10E-04 J	5.34E-04 J	1.19E-03	3.97E-03
PentaCB-(88)+(91)				2.54E-05 J	1.93E-03	6.46E-04	4.61E-05 J	6.81E-05 J	1.18E-03	9.60E-05 J	6.05E-05 J	9.06E-05 J	2.20E-04	7.10E-04
22'346'-PentaCB-(89)				3.20E-06 U	1.21E-04	3.53E-05 J	1.30E-06 U	5.90E-06 U	8.62E-05 J	9.10E-06 U	2.60E-06 U	8.00E-06 J	1.55E-05 J	5.66E-05 J
PentaCB-(90)+(101)+(113)				1.64E-04 J	1.38E-02	4.82E-03	3.30E-04	4.80E-04	8.01E-03	5.70E-04	5.10E-04	6.40E-04	1.58E-03	5.09E-03
22'355'-PentaCB-(92)				3.03E-05 J	2.74E-03	9.29E-04	5.89E-05 J	8.24E-05 J	1.65E-03	1.06E-04	9.60E-05	1.20E-04	3.24E-04	1.01E-03
PentaCB-(93)+(98)+(100)+(102)				1.01E-05 J	4.55E-04	1.57E-04 J	1.00E-05 U	2.10E-05 U	3.24E-04 J	2.50E-05 U	1.58E-05 J	2.79E-05 J	6.02E-05 J	2.02E-04 J
22'356'-PentaCB-(94)				3.40E-06 U	5.90E-05 J	1.81E-05 J	1.30E-06 U	5.40E-06 U	4.23E-05 J	3.00E-06 U	2.60E-06 U	5.40E-06 U	9.80E-06 U	2.39E-05 J
22'35'6-PentaCB-(95)				1.35E-04	1.09E-02	3.59E-03	2.32E-04	3.90E-04	6.95E-03	5.13E-04	3.72E-04	5.28E-04	1.35E-03	4.36E-03
22'366'-PentaCB-(96)				1.60E-06 U	7.99E-05 J	2.59E-05 J	2.30E-06 U	3.70E-06 U	4.25E-05 J	5.50E-06 U	1.87E-06 J	4.81E-06 J	9.51E-06 J	2.96E-05 J
22'45'6-PentaCB-(103)				2.60E-06 U	6.90E-05 J	2.25E-05 J	1.10E-06 U	4.30E-06 U	5.64E-05 J	2.50E-06 U	2.20E-06 U	4.60E-06 U	8.30E-06 U	3.24E-05 J
22'466'-PentaCB-(104)				1.80E-06 U	2.10E-06 U	1.70E-06 U	2.90E-06 U	4.50E-06 U	5.20E-06 U	4.50E-06 U	7.50E-07 U	1.10E-06 U	8.70E-07 U	1.40E-06 U
233'44'-PentaCB-(105)				9.64E-05	4.99E-03	1.72E-03	1.64E-04	2.20E-04	2.53E-03	2.59E-04	2.41E-04	3.50E-04	5.81E-04	2.12E-03
233'45-PentaCB-(106)				3.20E-06 U	5.00E-06 U	2.20E-06 U	7.90E-06 J	3.60E-06 U	7.20E-06 U	5.20E-06 U	4.20E-06 U	4.90E-06 U	3.50E-06 U	7.30E-06 U
233'4'5-PentaCB-(107)				1.10E-05 J	7.79E-04	2.84E-04	2.49E-05 J	2.45E-05 J	5.79E-04	3.60E-05 U	3.05E-05 J	4.08E-05 J	9.90E-05	3.46E-04
PentaCB-(108)+(124)				8.70E-06 J	4.57E-04	1.68E-04 J	1.40E-05 U	1.60E-05 U	3.00E-04	2.10E-05 U	1.79E-05 J	2.81E-05 J	5.92E-05 J	2.00E-04
PentaCB-(110)+(115)				2.87E-04	2.38E-02	8.23E-03	5.40E-04	7.20E-04	1.18E-02	8.80E-04	7.70E-04	9.90E-04	2.63E-03	8.16E-03
233'55'-PentaCB-(111)				2.30E-06 U	9.50E-06 U	1.30E-06 U	8.70E-07 U	3.60E-06 U	5.40E-06 U	2.10E-06 U	1.80E-06 U	3.70E-06 U	6.70E-06 U	2.70E-06 U
233'56-PentaCB-(112)				2.20E-06 U	9.20E-06 U	1.20E-06 U	9.30E-07 U	3.80E-06 U	5.80E-06 U	2.20E-06 U	1.90E-06 U	3.90E-06 U	7.00E-06 U	2.80E-06 U
2344'5-PentaCB-(114)				3.40E-06 U	1.83E-04	6.37E-05 J	6.10E-06 U	9.40E-06 U	1.02E-04	1.21E-05 J	1.01E-05 J	1.58E-05 J	2.16E-05 J	8.02E-05 J
23'44'5-PentaCB-(118)				2.03E-04	1.33E-02	4.77E-03	3.57E-04	4.70E-04	6.68E-03	5.52E-04	5.60E-04	7.42E-04	1.44E-03	5.48E-03
23'455'-PentaCB-(120)				2.10E-06 U	3.48E-05 J	1.20E-05 U	8.30E-07 U	3.40E-06 U	1.70E-05 U	2.00E-06 U	1.70E-06 U	3.60E-06 U	6.50E-06 U	2.60E-06 U
23'45'6-PentaCB-(121)				2.30E-06 U	9.40E-06 U	1.30E-06 U	8.60E-07 U	3.60E-06 U	5.40E-06 U	2.10E-06 U	1.80E-06 U	3.70E-06 U	6.70E-06 U	2.70E-06 U
233'4'5'-PentaCB-(122)				3.50E-06 U	1.67E-04	6.43E-05 J	4.70E-06 U	4.50E-06 U	9.68E-05 J	4.40E-06 U	5.60E-06 J	9.20E-06 J	1.10E-05 U	6.45E-05 J
23'44'5'-PentaCB-(123)				3.80E-06 U	1.31E-04	4.48E-05 J	5.10E-06 U	6.20E-06 U	5.10E-05 U	5.60E-06 U	4.90E-06 U	1.40E-05 J	2.53E-05 J	9.24E-05 J
33'44'5-PentaCB-(126)				3.50E-06 U	2.32E-05 J	1.44E-05 J	4.30E-06 U	3.60E-06 U	2.00E-05 U	5.20E-06 U	4.70E-06 U	5.40E-06 U	1.30E-05 U	2.50E-05 J
33'455'-PentaCB-(127)				3.10E-06 U	2.93E-05 J	1.22E-05 J	4.20E-06 U	3.50E-06 U	7.00E-06 U	5.10E-06 U	4.20E-06 U	4.80E-06 U	3.40E-06 U	7.20E-06 U
HexaCB-(128)+(166)				5.42E-05 J	3.72E-03	1.43E-03	9.97E-05 J	1.15E-04 J	1.81E-03	1.39E-04 J	1.26E-04 J	1.68E-04 J	3.70E-04	1.27E-03
HexaCB-(129)+(138)+(163)				3.29E-04	2.42E-02	9.37E-03	6.30E-04	7.50E-04	1.38E-02	9.30E-04	7.60E-04	1.05E-03	2.54E-03	8.64E-03
22'33'45'-HexaCB-(130)				1.77E-05 J	1.31E-03	4.99E-04	3.39E-05 J	4.52E-05 J	7.94E-04	4.70E-05 U	4.68E-05 J	6.36E-05 J	1.52E-04	5.18E-04
22'33'46-HexaCB-(131)				1.00E-05 U	2.97E-04	1.13E-04	3.90E-06 U	1.34E-05 J	2.12E-04	1.73E-05 J	1.00E-05 U	1.59E-05 J	3.70E-05 J	1.25E-04
22'33'46'-HexaCB-(132)				1.06E-04	8.16E-03	3.15E-03	1.89E-04	2.30E-04	4.84E-03	2.96E-04	2.29E-04	3.23E-04	8.70E-04	2.75E-03
22'33'55'-HexaCB-(133)				8.20E-06 U	2.57E-04	9.68E-05	3.30E-06 U	8.20E-06 U	1.59E-04	6.00E-06 U	9.50E-06 J	1.10E-05 J	3.22E-05 J	1.00E-04
HexaCB-(134)+(143)				9.10E-06 U	1.04E-03	4.37E-04	2.77E-05 J	3.00E-05 U	7.30E-04	4.75E-05 J	3.00E-05 U	4.59E-05 J	1.24E-04 J	4.40E-04
HexaCB-(135)+(151)				6.44E-05 J	6.37E-03	2.49E-03	1.15E-04 J	1.47E-04 J	3.11E-03	1.74E-04 J	1.39E-04 J	2.10E-04	6.70E-04	1.97E-03
22'33'66'-HexaCB-(136)				2.29E-05 J	2.42E-03	9.30E-04	4.88E-05 J	6.11E-05 J	1.26E-03	8.04E-05 J	6.19E-05 J	8.80E-05 J	2.74E-04	7.50E-04
22'344'5-HexaCB-(137)				1.48E-05 J	1.24E-03	3.98E-04	3.47E-05 J	4.03E-05 J	7.19E-04	5.03E-05 J	3.87E-05 J	4.87E-05 J	1.06E-04	4.21E-04

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 21

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	3/28/2014 SWP2	3/28/2014 SWP3	3/28/2014 SWP6	3/5/2013 SWP1	3/5/2013 SWP2	3/5/2013 SWP3	3/5/2013 SWP6	11/19/2012 SWP1	11/19/2012 SWP2	11/19/2012 SWP3	11/19/2012 SWP6
HexaCB-(139)+(140)				7.60E-06 U	3.41E-04	1.40E-04 J	3.00E-06 U	9.70E-06 J	2.50E-04	1.10E-05 U	1.28E-05 J	1.45E-05 J	4.33E-05 J	1.47E-04 J
22'3455'-HexaCB-(141)				5.04E-05 J	3.48E-03	1.37E-03	9.46E-05 J	1.20E-04	1.98E-03	1.48E-04	1.06E-04	1.62E-04	3.90E-04	1.28E-03
22'3456-HexaCB-(142)				8.70E-06 U	6.70E-06 U	5.00E-06 U	3.60E-06 U	3.50E-06 U	4.10E-05 U	6.50E-06 U	5.80E-06 U	4.10E-06 U	1.10E-05 U	1.90E-05 U
22'345'6-HexaCB-(144)				9.50E-06 J	7.71E-04	3.20E-04	1.30E-05 U	2.46E-05 J	1.10E-04 U	2.60E-05 U	2.00E-05 U	3.26E-05 J	8.07E-05 J	2.62E-04
22'3466'-HexaCB-(145)				1.30E-06 U	1.80E-06 U	2.10E-06 U	1.50E-06 U	1.40E-06 U	1.80E-06 U	1.30E-06 U	8.60E-07 U	1.60E-06 U	1.70E-06 U	2.70E-06 U
22'34'55'-HexaCB-(146)				3.30E-05 J	2.57E-03	1.01E-03	7.94E-05 J	8.23E-05 J	1.73E-03	1.06E-04	8.45E-05 J	1.15E-04	3.19E-04	1.07E-03
HexaCB-(147)+(149)				1.69E-04 J	1.57E-02	6.26E-03	3.50E-04	4.30E-04	1.03E-02	5.80E-04	3.80E-04	6.00E-04	1.68E-03	5.37E-03
22'34'56'-HexaCB-(148)				1.70E-06 U	2.30E-06 U	8.00E-06 U	2.00E-06 U	1.80E-06 U	1.50E-05 J	1.70E-06 U	1.10E-06 U	2.00E-06 U	2.10E-06 U	3.40E-06 U
22'34'66'-HexaCB-(150)				1.30E-06 U	1.92E-05 J	7.50E-06 J	1.40E-06 U	1.30E-06 U	7.60E-06 U	1.20E-06 U	8.10E-07 U	1.50E-06 U	3.20E-06 J	7.10E-06 U
22'3566'-HexaCB-(152)				1.20E-06 U	1.20E-05 U	4.40E-06 J	1.50E-06 U	1.40E-06 U	7.00E-06 J	1.30E-06 U	7.80E-07 U	1.50E-06 U	1.60E-06 U	3.30E-06 U
HexaCB-(153)+(168)				1.98E-04	1.61E-02	6.42E-03	3.60E-04	4.30E-04	8.99E-03	5.50E-04	4.50E-04	6.20E-04	1.70E-03	5.60E-03
22'44'56'-HexaCB-(154)				1.50E-06 U	1.61E-04	6.61E-05 J	1.80E-06 U	1.70E-06 U	8.33E-05 J	1.50E-06 U	3.80E-06 U	4.40E-06 U	2.00E-05 U	6.26E-05 J
22'44'66'-HexaCB-(155)				1.50E-06 U	2.00E-06 U	2.30E-06 U	2.00E-06 U	1.90E-06 U	2.30E-06 U	1.70E-06 U	1.20E-06 U	2.30E-06 U	2.50E-06 U	3.80E-06 U
HexaCB-(156)+(157)				3.64E-05 J	2.35E-03	8.22E-04	7.03E-05 J	7.70E-05 J	1.21E-03	9.20E-05 J	1.02E-04 J	1.43E-04 J	2.80E-04	9.30E-04
233'44'6-HexaCB-(158)				3.27E-05 J	2.04E-03	7.77E-04	5.88E-05 J	7.11E-05 J	1.20E-03	9.12E-05 J	7.60E-05 J	1.05E-04	2.32E-04	8.28E-04
233'455'-HexaCB-(159)				5.30E-06 U	1.50E-05 U	8.42E-05 J	3.10E-06 U	6.10E-06 U	1.00E-04 U	5.00E-06 U	4.80E-06 U	7.50E-06 J	1.80E-05 J	6.90E-05 J
233'456-HexaCB-(160)				7.10E-06 U	5.50E-06 U	4.10E-06 U	2.30E-06 U	2.30E-06 U	2.70E-05 U	4.30E-06 U	4.30E-06 U	3.00E-06 U	7.80E-06 U	1.40E-05 U
233'45'6-HexaCB-(161)				6.00E-06 U	4.60E-06 U	3.40E-06 U	2.30E-06 U	2.20E-06 U	2.60E-05 U	4.10E-06 U	3.90E-06 U	2.80E-06 U	7.20E-06 U	1.30E-05 U
233'4'55'-HexaCB-(162)				5.40E-06 U	1.60E-04 U	6.80E-05 U	3.10E-06 U	6.10E-06 U	4.20E-05 U	4.90E-06 U	4.80E-06 U	5.70E-06 U	1.10E-05 U	3.00E-05 J
233'4'5'6-HexaCB-(164)				2.01E-05 J	1.26E-03	5.22E-04	3.63E-05 J	4.68E-05 J	7.40E-04	5.31E-05 J	5.02E-05 J	6.98E-05 J	1.75E-04	4.97E-04
233'55'6-HexaCB-(165)				6.70E-06 U	5.10E-06 U	3.80E-06 U	2.60E-06 U	2.50E-06 U	2.90E-05 U	4.70E-06 U	4.30E-06 U	3.00E-06 U	7.80E-06 U	1.40E-05 U
23'44'55'-HexaCB-(167)				1.22E-05 J	8.25E-04	3.05E-04	2.26E-05 J	2.00E-05 U	4.36E-04	3.07E-05 J	3.36E-05 J	4.64E-05 J	1.13E-04	3.39E-04
33'44'55'-HexaCB-(169)				6.00E-06 U	1.70E-05 U	7.30E-06 U	3.20E-06 U	6.30E-06 U	2.00E-05 U	5.10E-06 U	5.00E-06 U	6.00E-06 U	1.20E-05 U	1.70E-05 U
22'33'44'5-HeptaCB-(170)				4.63E-05 J	4.57E-03	1.60E-03	9.88E-05 J	1.20E-04	2.65E-03	1.55E-04	1.27E-04	2.07E-04	5.98E-04	1.82E-03
HeptaCB-(171)+(173)				1.31E-05 J	1.33E-03	4.74E-04	3.00E-05 J	3.65E-05 J	7.30E-04	4.34E-05 J	3.41E-05 J	5.95E-05 J	1.65E-04 J	5.10E-04
22'33'455'-HeptaCB-(172)				9.10E-06 J	7.10E-04	2.64E-04	1.50E-05 U	1.74E-05 J	4.05E-04	2.50E-05 U	1.94E-05 J	2.90E-05 U	9.73E-05 J	2.91E-04
22'33'456'-HeptaCB-(174)				4.39E-05 J	4.70E-03	1.71E-03	8.61E-05 J	1.10E-04	2.88E-03	1.45E-04	9.00E-05 J	1.80E-04	5.53E-04	1.83E-03
22'33'45'6-HeptaCB-(175)				3.20E-06 U	2.23E-04	7.60E-05 J	3.80E-06 U	2.80E-06 U	8.90E-05 U	4.70E-06 J	4.80E-06 J	7.40E-06 U	2.11E-05 J	5.92E-05 J
22'33'466'-HeptaCB-(176)				4.80E-06 J	5.88E-04	2.08E-04	1.14E-05 J	1.34E-05 J	3.32E-04	1.62E-05 J	1.21E-05 J	1.84E-05 J	6.61E-05 J	1.85E-04
22'33'45'6'-HeptaCB-(177)				2.50E-05 J	2.53E-03	9.32E-04	4.92E-05 J	5.73E-05 J	1.45E-03	7.58E-05 J	5.45E-05 J	9.20E-05 J	2.80E-04	9.28E-04
22'33'55'6-HeptaCB-(178)				7.20E-06 J	9.41E-04	3.35E-04	1.81E-05 J	1.90E-05 U	4.47E-04	2.20E-05 J	1.91E-05 J	3.19E-05 J	1.00E-04	3.14E-04
22'33'566'-HeptaCB-(179)				1.45E-05 J	2.01E-03	7.36E-04	3.18E-05 J	3.20E-05 U	1.05E-03	4.00E-05 U	3.18E-05 J	5.50E-05 J	2.05E-04	6.02E-04
HeptaCB-(180)+(193)				1.04E-04 J	1.06E-02	3.88E-03	1.85E-04 J	2.20E-04	5.65E-03	2.80E-04	2.10E-04	3.70E-04	1.22E-03	3.83E-03
22'344'56-HeptaCB-(181)				2.80E-06 U	5.46E-05 J	8.20E-06 U	2.40E-06 U	2.70E-06 U	1.50E-05 U	5.00E-06 U	5.10E-06 U	5.20E-06 U	7.90E-06 U	1.20E-05 U
22'344'56'-HeptaCB-(182)				3.20E-06 U	9.20E-06 U	1.15E-05 J	1.20E-06 U	2.60E-06 U	2.80E-06 U	1.40E-06 U	2.20E-06 U	1.30E-06 U	3.10E-06 U	5.40E-06 U
22'344'5'6-HeptaCB-(183)				2.54E-05 J	2.80E-03	1.03E-03	4.53E-05 J	6.01E-05 J	1.75E-03	8.70E-05 J	4.35E-05 J	8.99E-05 J	3.15E-04	1.06E-03
22'344'66'-HeptaCB-(184)				2.40E-06 U	6.80E-06 U	1.40E-06 U	8.30E-07 U	1.90E-06 U	2.00E-06 U	9.80E-07 U	1.60E-06 U	9.10E-07 U	2.20E-06 U	3.90E-06 U
22'3455'6-HeptaCB-(185)				3.40E-06 U	1.10E-05 U	9.70E-06 U	5.90E-06 U	3.00E-06 U	1.70E-05 U	5.50E-06 U	5.40E-06 U	1.48E-05 J	5.39E-05 J	1.28E-04
22'34566'-HeptaCB-(186)				2.60E-06 U	7.40E-06 U	1.60E-06 U	8.90E-07 U	2.00E-06 U	2.10E-06 U	1.00E-06 U	1.70E-06 U	9.70E-07 U	2.30E-06 U	4.20E-06 U
22'34'55'6-HeptaCB-(187)				5.60E-05 J	6.50E-03	2.43E-03	9.52E-05 J	1.00E-04	2.71E-03	1.25E-04	1.11E-04	1.85E-04	6.15E-04	1.76E-03
22'34'566'-HeptaCB-(188)				3.20E-06 U	9.10E-06 U	5.00E-06 J	1.30E-06 U	2.80E-06 U	3.00E-06 U	1.50E-06 U	2.60E-06 U	1.50E-06 U	3.60E-06 U	6.40E-06 U
233'44'55'-HeptaCB-(189)				6.60E-06 U	1.88E-04	7.04E-05 J	2.90E-06 U	4.40E-06 U	1.05E-04	6.80E-06 U	1.10E-05 U	1.50E-05 U	2.80E-05 J	6.90E-05 J
233'44'56-HeptaCB-(190)				8.70E-06 J	7.64E-04	2.73E-04	1.30E-05 U	1.66E-05 J	3.20E-04 U	2.61E-05 J	1.85E-05 J	3.18E-05 J	8.91E-05 J	2.93E-04
233'44'5'6-HeptaCB-(191)				2.10E-06 U	1.61E-04	5.30E-05 U	3.90E-06 J	2.20E-06 U	4.80E-05 U	5.80E-06 U	4.10E-06 U	7.40E-06 U	2.13E-05 J	6.78E-05 J
233'455'6-HeptaCB-(192)				2.40E-06 U	7.90E-06 U	6.90E-06 U	2.00E-06 U	2.30E-06 U	1.30E-05 U	4.20E-06 U	4.30E-06 U	4.40E-06 U	6.70E-06 U	1.00E-05 U
22'33'44'55'-OctaCB-(194)				2.56E-05 J	3.02E-03	1.05E-03	4.35E-05 J	4.62E-05 J	1.82E-03	6.40E-05 U	5.30E-05 U	9.40E-05 J	3.51E-04	1.16E-03
22'33'44'56-OctaCB-(195)				7.40E-06 U	9.44E-04	3.27E-04	1.55E-05 J	1.88E-05 J	5.70E-04	2.80E-05 J	2.00E-05 U	2.93E-05 J	9.20E-05 U	3.61E-04
22'33'44'56'-OctaCB-(196)				1.45E-05 J	1.65E-03	5.57E-04	2.43E-05 J	2.27E-05 J	8.34E-04	3.50E-05 U	3.03E-05 J	4.60E-05 J	1.85E-04	5.35E-04
22'33'44'66'OctaCB-(197)				4.70E-06 U	1.00E-04 U	3.60E-05 U	1.20E-06 U	3.20E-06 U	3.00E-05 U	5.40E-06 U	3.00E-06 U	3.20E-06 U	2.01E-05 J	3.30E-05 J
OctaCB-(198)+(199)				3.57E-05 J	4.03E-03	1.39E-03	6.00E-05 J	5.92E-05 J	2.05E-03	8.91E-05 J	7.88E-05 J	1.38E-04 J	4.30E-04	1.31E-03
22'33'4566'-OctaCB-(200)				4.40E-06 U	3.85E-04	1.37E-04	7.11E-06 J	5.20E-06 U	2.18E-04	8.10E-06 J	6.60E-06 J	1.34E-05 J	4.50E-05 U	1.45E-04
22'33'45'66'-OctaCB-(201)				4.50E-06 U	4.52E-04	1.67E-04	7.30E-06 U	6.10E-06 J	2.54E-04	1.00E-05 J	1.08E-05 J	1.63E-05 J	5.95E-05 J	1.76E-04
22'33'55'66'-OctaCB-(202)				7.20E-06 J	7.31E-04	2.62E-04	1.30E-05 U	1.56E-05 J	5.34E-04	2.40E-05 J	2.01E-05 J	4.56E-05 J	1.13E-04	3.78E-04
22'344'55'6-OctaCB-(203)				2.46E-05 J	2.37E-03	8.21E-04	3.74E-05 J	3.00E-05 U	1.16E-03	5.22E-05 J	4.91E-05 J	9.03E-05 J	2.64E-04	7.68E-04
22'344'566'-OctaCB-(204)				4.50E-06 U	6.40E-06 U	5.10E-06 U	1.00E-06 U	3.00E-06 U	6.30E-06 U	5.10E-06 U	2.50E-06 U	2.50E-06 U	6.60E-06 U	8.40E-06 U
233'44'55'6-OctaCB-(205)				4.70E-06 U	1.51E-04	5.34E-05 J	1.80E-06 U	4.00E-06 U	8.90E-05 J	1.00E-05 U	5.10E-06 U	4.90E-06 U	1.00E-05 U	6.50E-05 U
22'33'44'55'6-NonaCB-(206)				2.36E-05 J	2.00E-03	7.55E-04	4.90E-05 J	4.87E-05 J	1.30E-03	4.30E-05 U	6.60E-05 J	1.42E-04	2.83E-04	8.78E-04
22'33'44'566'-NonaCB-(207)				5.70E-06 U	2.25E-04	8.54E-05 J	4.90E-06 U	6.40E-06 U	1.51E-04	1.30E-05 U	8.30E-06 U	1.48E-05 J	3.80E-05 J	1.05E-04
22'33'455'66'-NonaCB-(208)				7.00E-06 U	4.55E-04	1.67E-04	1.00E-05 J	1.20E-05 U	3.26E-04	1.80E-05 U	1.10E-05 U	4.46E-05 J	7.40E-05 J	2.32E-04
DecaCB-(209)				8.10E-06 J	3.59E-04	1.41E-04	1.00E-05 U	1.20E-05 U	2.04E-04	1.30E-05 U	1.30E-05 U	3.20E-05 U	6.94E-05 J	1.82E-04
PCB Homologs (ug/l)														
Monochlorobiphenyl				3.40E-06 U	6.15E-05	2.70E-06	1.56E-05	8.60E-06	6.20E-06 U	1.10E-06 U	1.92E-05	4.84E-05	1.50E-06 U	4.67E-05
Dichlorobiphenyl				9.78E-04	2.88E-03	9.65E-04	3.80E-04	8.66E-04	2.74E-03	8.62E-04	3.22E-04	1.07E-03	4.86E-04	1.42E-03
Trichlorobiphenyl				2.29E-03	1.52E-02	4.99E-03	1.69E-03	3.77E-03	1.16E-02	4.12E-03	8.09E-04	3.21E-03	1.64E-03	6.24E-03
Tetrachlorobiphenyl				1.96E-03	4.03E-02	1.30E-02	2.11E-03	4.17E-03	3.11E-02	5.27E-03	1.60E-03	4.03E-03	4.51E-03	1.73E-02
Pentachlorobiphenyl				1.31E-03	9.83E-02	3.40E-02	2.42E-03	3.38E-03	5.51E-02	4.16E-03	3.66E-03	4.86E-03	1.15E-02	3.80E-02
Hexachlorobiphenyl				1.17E-03	9.45E-02	3.70E-02	2.25E-03	2.70E-03	5.43E-02	3.39E-03	2.71E-03	3.94E-03	1.02E-02	3.35E-02
Heptachlorobiphenyl				3.58E-04	3.87E-02	1.40E-02	6.55E-04	7.39E-04	2.02E-02	9.76E-04	7.73E-04	1.33E-03	4.43E-03	1.37E-02
Octachlorobiphenyl				1.08E-04	1.37E-02	4.76E-03	1.88E-04	1.69E-04	7.53E-03	2.11E-04	1.96E-04	4.73E-04	1.42E-03	4.86E-03

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 21

Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	3/28/2014 SWP2	3/28/2014 SWP3	3/28/2014 SWP6	3/5/2013 SWP1	3/5/2013 SWP2	3/5/2013 SWP3	3/5/2013 SWP6	11/19/2012 SWP1	11/19/2012 SWP2	11/19/2012 SWP3	11/19/2012 SWP6
Nonachlorobiphenyl				2.36E-05	2.68E-03	1.01E-03	5.90E-05	4.87E-05	1.77E-03	1.70E-05 U	6.60E-05	2.01E-04	3.95E-04	1.21E-03
Decachlorobiphenyl				8.10E-06	3.59E-04	1.41E-04	5.50E-06 U	7.90E-06 U	2.04E-04	1.30E-05 U	3.30E-06	3.10E-06	6.94E-05	1.82E-04
Total Detected PCBs (Method 1668)	6.40E-05	6.40E-06	3.00E-01	8.21E-03	3.07E-01	1.10E-01	9.77E-03	1.58E-02	1.84E-01	1.90E-02	1.02E-02	1.92E-02	3.47E-02	1.16E-01
Phthalates (ug/l)														
Bis(2-ethylhexyl) phthalate	2.2	0.2	5	1.7	2.2	2.9	4.4 U	4.6 U	5.7 U	4.3 U	1.0 U	4.1 U	4.2 U	10 U
Butylbenzyl phthalate	3			0.49 U	0.97 U	1.2 U	6.0 U	6.3 U	7.8 U	5.8 U	1.4 U	5.6 U	5.8 U	14 U
Dibutyl phthalate	3			0.49 U	0.97 U	1.2 U	6.0 U	6.3 U	7.8 U	5.8 U	1.4 U	5.6 U	5.8 U	14 U
Diethyl phthalate	3			0.49 U	0.97 U	1.2 U	6.0 U	6.3 U	7.8 U	5.8 U	1.4 U	5.6 U	5.8 U	14 U
Dimethyl phthalate	3			0.49 U	0.97 U	1.2 U	6.0 U	6.3 U	7.8 U	5.8 U	1.4 U	5.6 U	5.8 U	14 U
Di-n-octyl phthalate	3			0.49 U	0.97 U	1.2 U	6.0 U	6.3 U	7.8 U	5.8 U	1.4 U	5.6 U	5.8 U	14 U
Pesticides (ug/l)														
2,4'-DDD	3.10E-04	3.10E-05		9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
2,4'-DDE	2.20E-04	1.80E-05		9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	7.01E-02 J,	1.94E-02 U	4.67E-02 U
2,4'-DDT	2.00E-01	2.20E-05		9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
4,4'-DDD	3.10E-04	3.10E-05		9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
4,4'-DDE	2.20E-04	1.80E-05		9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
4,4'-DDT	2.20E-04	2.20E-05		9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Total DDx		1.00E-02												
Aldrin	5.00E-05	7.70E-07		9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
alpha-BHC	4.90E-03			9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
beta-BHC	1.70E-02			9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-01 U	4.67E-02 U
Chlordane technical		8.10E-05		9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-01 U	2.04E-01 U	2.15E-01 U	1.98E-01 U	1.87E-01 U	4.67E-02 U	1.94E-02 U	4.67E-01 U
cis-Chlordane	8.10E-04	8.10E-05		9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-01 U	1.94E-02 U	4.67E-02 U
cis-Nonachlor	1.90E-01			3.58E-01 U	3.72E-01 U	3.65E-01 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
delta-BHC	5.20E-02			9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Dieldrin	5.40E-05			9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Endosulfan I	5.10E-02			1.81E-01 U	1.49E-01 U	9.71E-02 U	1.98E-02 U	2.99E-01	1.21E-01	2.69E-01	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Endosulfan II	5.10E-02			9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Endosulfan sulfate	8.90E+01			9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Endrin	3.60E-02			9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Endrin aldehyde				9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Endrin ketone				9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
gamma-BHC (Lindane)	3.70E-02			9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Heptachlor	7.90E-05			9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Heptachlor epoxide	3.90E-05			9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Hexachlorobenzene	2.90E-04	2.90E-05		2.86E-02 U	2.97E-02 U	2.91E-02 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Hexachlorobutadiene	8.60E-01			9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Hexachloroethane	3.30E+00													
Methoxychlor	3.00E-02			2.86E-02 U	2.97E-02 U	2.91E-02 U	7.92E-02 U	8.16E-02 U	8.60E-02 U	7.92E-02 U	7.48E-02 U	1.87E-01 U	7.77E-02 U	1.87E-01 U
Mirex				9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Oxychlordane	1.90E-01	8.10E-05		9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Toxaphene	2.00E-04			3.58E-01 U	3.72E-01 U	3.65E-01 U	1.98E-01 U	2.04E-01 U	2.15E-01 U	1.98E-01 U	1.87E-01 U	4.67E-01 U	1.94E-01 U	4.67E-01 U
trans-Chlordane	8.10E-04	8.10E-05		9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
trans-Nonachlor	1.90E-01			9.52E-03 U	9.90E-03 U	9.71E-03 U	1.98E-02 U	2.04E-02 U	2.15E-02 U	1.98E-02 U	1.87E-02 U	4.67E-02 U	1.94E-02 U	4.67E-02 U
Dioxins (ug/l)														
1,2,3,4,6,7,8-HeptaCDD				2.97E-05 J	7.23E-04	3.30E-04	1.22E-05 J	1.87E-05 J	1.07E-04	2.26E-05 J	2.05E-05 J	9.90E-05	5.50E-05	1.43E-04
1,2,3,4,6,7,8-HeptaCDF				7.10E-06 U	9.10E-05 U	4.40E-05 U	2.50E-06 U	3.50E-06 U	1.50E-05 U	4.50E-06 U	5.65E-06 J	1.30E-05 U	1.20E-05 U	2.00E-05 U
1,2,3,4,7,8,9-HeptaCDF				1.40E-06 U	8.90E-06 J	3.20E-06 U	1.00E-06 U	1.20E-06 U	1.70E-06 J	1.00E-06 U	1.20E-06 U	1.10E-06 U	1.30E-06 J	2.10E-06 J
1,2,3,4,7,8-HexaCDD				1.40E-06 U	4.90E-06 U	2.90E-06 J	1.00E-06 U	1.10E-06 U	1.30E-06 J	1.00E-06 U	1.10E-06 U	1.30E-06 J	1.10E-06 U	2.30E-06 J
1,2,3,4,7,8-HexaCDF				1.30E-06 U	1.11E-05 J	5.60E-06 J	9.40E-07 U	7.80E-07 U	2.16E-06 J	9.00E-07 J	9.00E-07 U	1.02E-06 J	1.09E-06 J	3.00E-06 J
1,2,3,6,7,8-HexaCDD				1.90E-06 J	2.71E-05 J	1.28E-05 J	8.20E-07 U	1.00E-06 J	4.15E-06 J	1.11E-06 J	1.10E-06 J	3.96E-06 J	2.10E-06 J	6.02E-06 J
1,2,3,6,7,8-HexaCDF				1.20E-06 U	5.30E-06 J	2.90E-06 J	8.70E-07 U	7.30E-07 U	1.12E-06 J	7.70E-07 U	8.90E-07 U	8.90E-07 U	9.90E-07 U	1.90E-06 J
1,2,3,7,8,9-HexaCDD				1.30E-06 U	2.29E-05 J	1.30E-05 J	1.22E-06 J	1.13E-06 J	3.73E-06 J	1.15E-06 J	1.10E-06 J	3.10E-06 J	2.00E-06 J	4.82E-06 J
1,2,3,7,8,9-HexaCDF				1.50E-06 U	1.30E-06 U	1.40E-06 U	1.20E-06 U	9.60E-07 U	1.20E-06 U	1.00E-06 U	1.10E-06 U	1.10E-06 U	1.20E-06 U	1.30E-06 U
1,2,3,7,8-PentaCDD				1.80E-06 U	2.70E-06 U	1.80E-06 U	1.00E-06 U	1.00E-06 U	9.90E-07 U	8.90E-07 U	9.50E-07 U	1.10E-06 U	1.10E-06 U	1.30E-06 J
1,2,3,7,8-PentaCDF				1.50E-06 U	1.10E-06 U	1.20E-06 U	9.40E-07 U	1.00E-06 U	1.00E-06 U	1.00E-06 U	9.70E-07 U	1.00E-06 U	9.40E-07 U	9.40E-07 U
2,3,4,6,7,8-HexaCDF				1.30E-06 U	4.90E-06 J	2.00E-06 U	1.00E-06 U	8.60E-07 U	1.10E-06 U	9.10E-07 U	9.80E-07 U	9.80E-07 U	1.10E-06 U	1.60E-06 J
2,3,4,7,8-PentaCDF				1.60E-06 U	5.00E-06 U	2.30E-06 U	1.10E-06 U	1.10E-06 J	1.90E-06 J	1.10E-06 U	9.80E-07 U	1.00E-06 U	9.50E-07 U	1.30E-06 U
2,3,7,8-TetraCDD	5.10E-09			1.40E-06 U	1.10E-06 U	1.20E-06 U	1.00E-06 U	1.00E-06 U	1.00E-06 U	1.10E-06 U	1.00E-06 U	1.00E-06 U	1.00E-06 U	1.60E-06 U
2,3,7,8-TetraCDF				1.30E-06 U	9.70E-06 J	3.90E-06 U	1.00E-06 U	8.90E-07 U	1.82E-06 J	1.00E-06 U	9.20E-07 U	9.10E-07 U	9.90E-07 J	2.58E-06 J
OCDD				2.08E-04	6.56E-03	3.28E-03	5.42E-05 J	1.22E-04	1.12E-03	1.61E-04	1.66E-04	8.45E-04	6.01E-04	1.37E-03
OCDF				1.63E-05 J	3.39E-04	1.29E-04	5.50E-06 J	9.90E-06 J	4.70E-05 J	1.13E-05 J	2.82E-05 J	3.93E-05 J	7.78E-05 J	7.31E-05 J
HeptaCDD homologs				5.37E-05 J	1.58E-03	7.24E-04	2.71E-05 J	3.83E-05 J	2.39E-04	4.55E-05 J	3.65E-05 J	3.72E-04	1.08E-04	3.80E-04
HeptaCDF homologs				8.70E-06 J	1.92E-04	7.84E-05	1.97E-06 J	4.90E-06 J	2.82E-05 J	6.13E-06 J	1.73E-05 J	2.56E-05 J	3.29E-05 J	4.14E-05 J
HexaCDD homologs				7.70E-06 J	2.18E-04	1.04E-04	6.58E-06 J	7.65E-06 J	4.10E-05 J	8.46E-06 J	6.10E-06 J	4.34E-05 J	1.59E-05 J	6.00E-05
HexaCDF homologs				4.90E-06 J	1.50E-04	7.18E-05	1.22E-06 J	3.70E-06 J	2.69E-05 J	5.29E-06 J	3.68E-06 J	1.86E-05 J	1.46E-05 J	3.71E-05 J
PentaCDD homologs				2.20E-06 U	1.18E-05 J	2.90E-06 J	1.00E-06 U	1.00E-06 U	1.30E-06 U	8.90E-07 U	9.50E-07 U	1.80E-05 U	1.10E-06 U	2.50E-06 J

Table 2
Storm Water Sample Analytical Laboratory Results
Burgard Industrial Park - Basin 21

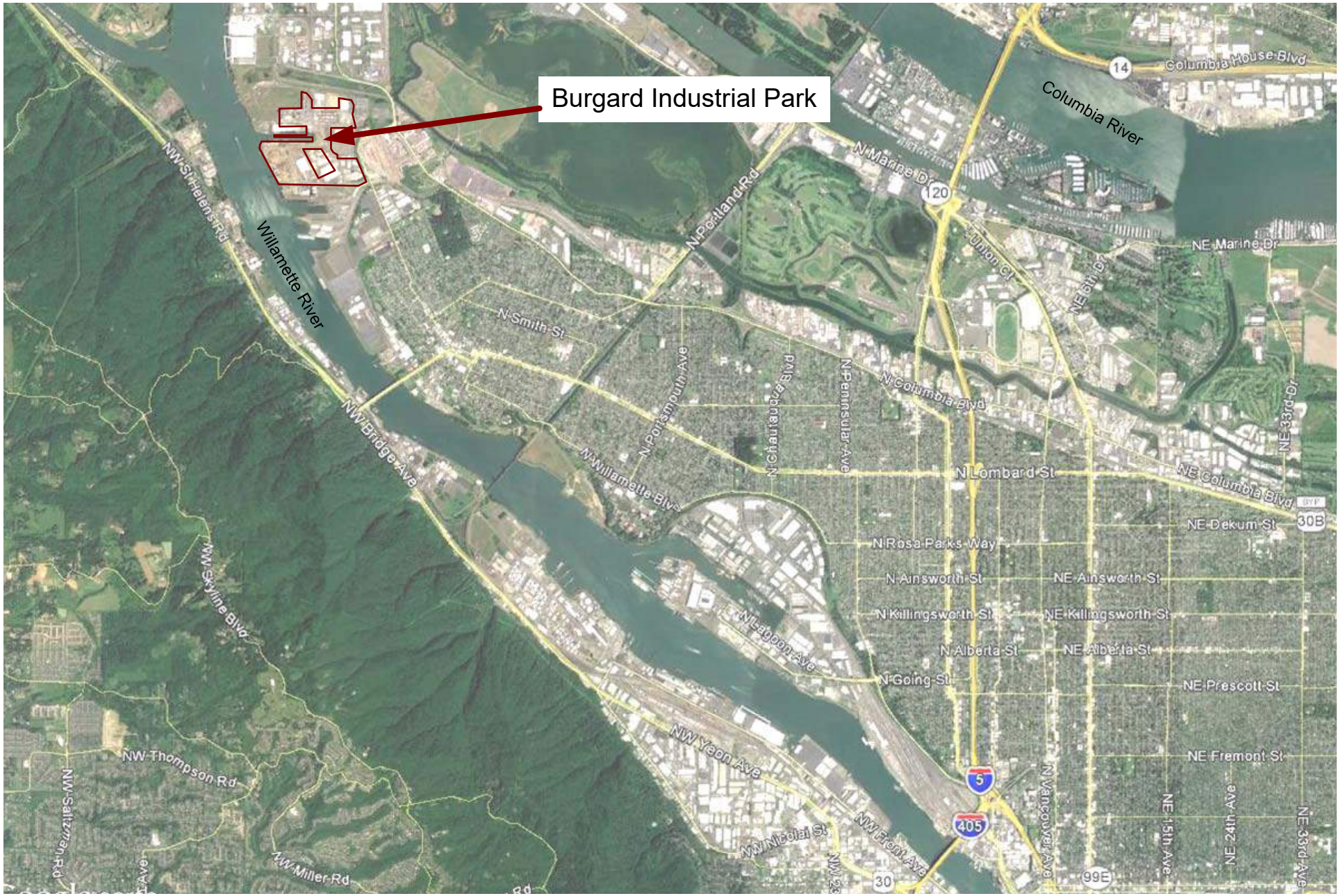
Chemical	Portland Harbor JSCS SLV[1]	Portland Harbor CL[2]	DEQ Appendix D "Typical PH Values"[3]	3/28/2014 SWP2	3/28/2014 SWP3	3/28/2014 SWP6	3/5/2013 SWP1	3/5/2013 SWP2	3/5/2013 SWP3	3/5/2013 SWP6	11/19/2012 SWP1	11/19/2012 SWP2	11/19/2012 SWP3	11/19/2012 SWP6
PentaCDF homologs				2.40E-06 U	5.92E-05	4.09E-05 J	1.10E-06 U	2.20E-06 J	1.85E-05 J	1.10E-06 U	9.80E-07 U	5.40E-06 J	6.44E-06 J	1.64E-05 J
TetraCDD homologs				1.40E-06 U	3.60E-06 U	1.70E-06 U	1.00E-06 U	1.00E-06 U	1.00E-06 U	1.10E-06 U	1.00E-06 U	1.00E-06 U	1.00E-06 U	1.60E-06 U
TetraCDF homologs				1.30E-06 U	5.43E-05	1.11E-05 J	2.10E-06 J	8.90E-07 U	8.06E-06 J	1.00E-06 U	9.20E-07 U	9.10E-07 U	1.96E-06 J	8.19E-06 J
Total Dioxin TEQ (ND=DL/2)	5.10E-09	5.00E-10		2.92E-06	2.09E-05	1.05E-05	1.80E-06	2.07E-06	4.64E-06	2.03E-06	1.98E-06	3.67E-06	2.87E-06	6.58E-06
Total Dioxin TEQ (ND=0)	5.10E-09	5.00E-10		5.54E-07	1.75E-05	8.04E-06	2.62E-07	7.70E-07	3.44E-06	5.94E-07	5.40E-07	2.19E-06	1.38E-06	5.41E-06
Butyltins (ug/l)														
Butyltin				2.00E-01 U	2.00E-01 U	2.00E-01 U	1.10E-01 U	1.10E-01 U	1.10E-01 U	1.10E-01 U	1.10E-01 U	1.10E-01 U	1.10E-01 U	1.10E-01 U
Dibutyltin				2.90E-01 U	2.90E-01 U	2.90E-01 U	9.60E-02 U	9.60E-02 U	9.60E-02 U	9.60E-02 U	6.90E-02 U	9.60E-02 U	9.60E-02 U	9.60E-02 U
Tributyltin	7.20E-02	6.30E-02		1.90E-01 U	1.90E-01 U	1.90E-01 U	4.30E-02 U	4.30E-02 U	4.30E-02 U	4.30E-02 U	4.30E-02 U	4.30E-02 U	4.30E-02 U	4.30E-02 U
Tetrabutyltin														
Total Metals (ug/l)														
Aluminum				3000	34200	19200	155	4670	13800	5620	269	4520	3540	10900
Antimony	6			1.0 U	2.3 U	2.3 U	0.50 U	0.50 U	1.3	0.51 J	0.50 U	0.50 U	0.50 U	0.52 J
Arsenic	0.045	0.018	2	0.54 J	3.4	2.0 J	1.4 J	0.87 J	2.1	1.0 J	0.50 U	0.80 J	0.80 J	1.3 J
Cadmium	0.094		0.7	0.21	1.8	0.90	0.50 U	0.50 U	1.6	0.54 J	0.50 U	0.50 U	0.50 U	0.68 J
Chromium	100	100	10	5.4	296	230	0.92 J	7.3	83	18	2.1	23	28	128
Copper	2.7	2.74	60	6.6	128	67	5.1	10	60	16	3.4	13	27	41
Lead	0.54		50	4.7	93	55	1.7	6.6	42	10	4.3	12	8.6	29
Manganese	50			155	3240	2470	211	345	1090	459	30	235	332	1390
Mercury	0.77		0.2	0.040 U	0.090 U	0.090 U	0.040 U	0.040 U	0.051 J	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Nickel	16		8	2.0	24	13	0.92 J	3.0	11	3.6	0.82 J	3.0	2.6	7.1
Silver	0.12		0.1	0.10 U	0.23 J	0.23 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Zinc	36	36.5	700	77	594	367	50	131	290	148	37	92	74	211
Dissolved Metals (ug/l)														
Aluminum				73	46 J	59	25 U	25 U	30 J	25 U	25 U	53	84	427
Antimony	6			0.50 U	0.97 J	0.50 U	0.50 U	0.50 U	1.2	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Arsenic	0.045	0.018	2	0.50 U	0.63 J	0.50 U	0.62 J	0.64 J	1.1 J	0.56 J	0.50 U	0.50 U	0.53 J	0.61 J
Cadmium	0.094		0.7	0.044 J	0.29	0.044 J	0.50 U	0.50 U	0.54 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chromium	100	100	10	0.70 J	1.8	1.0	0.50 U	0.50 U	1.4 J	0.50 U	0.50 U	2.0	0.94 J	3.2
Copper	2.7	2.74	60	1.4	6.6	2.0	3.3	2.3	12	3.2	1.3 J	2.0	6.5	3.7
Lead	0.54		50	0.22	0.54	0.20	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	1.1
Manganese	50			72	27	24	70	228	50	223	0.50 U	4.5	6.5	32
Mercury	0.77		0.2	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.04 U	0.04 U	0.040 U	0.040 U
Nickel	16		8	1.6	1.0	0.50 U	0.50 U	0.82 J	3.3	1.1 J	0.50 U	0.70 J	0.82 J	0.63 J
Silver	0.12		0.1	0.10 U	0.10 U	0.10 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Zinc	36	36.5	700	23	16	4.5	32	50	32	36	4.3	2.4 J	3.2 J	8.0
Pertroleum Hydrocarbons (mg/l)														
Gasoline				0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.094 U	0.094 U	0.050 U	0.050 U
Diesel				0.10 U	0.10 U	0.47 U	0.10 U	0.11 U	0.10 U	0.10 U	0.094 U	0.15 J	0.34 J	0.67
Oil				0.85	7.9	6.4	0.56	0.68	8.8	0.87	0.22 J	1.0	2.9	8.6
TSS (mg/l)			70	88	1000	802	12	105	245	152	9.0	262	74	520
TOC (mg/l)				2.8	7.1	3.8	4.2	5.9	5.4	5.2	4.5	9.9	7.8	17

U - Not detectet at noted detection limit
J- Estimated value
Blank cells indicate not analyzed

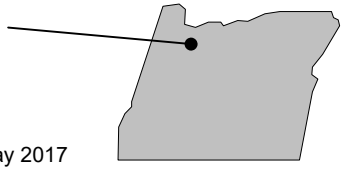
1 - Table 3-1 PH JSCS Guidance, 7/16/2007 revision
2 - Table 17 January 2017 PH ROD. Surface Water Cleanup Level.
3 - October 2010, DEQ Guidance for Evaluating Stormwater Pathway at Upland Sites, Appendix E, Tool For Evaluating Stormwater Data (12/2015 update)

Detected concentration > 10 x SLV (CL or JSCS if no CL)
Detected concentration > 100 x SLV (CL or JSCS if no CL)
Detected concentration > 1000 x SLV (CL or JSCS if no CL)

Figures



Portland, Oregon



Base photograph May 2017

N

Approximate Scale

5000 feet

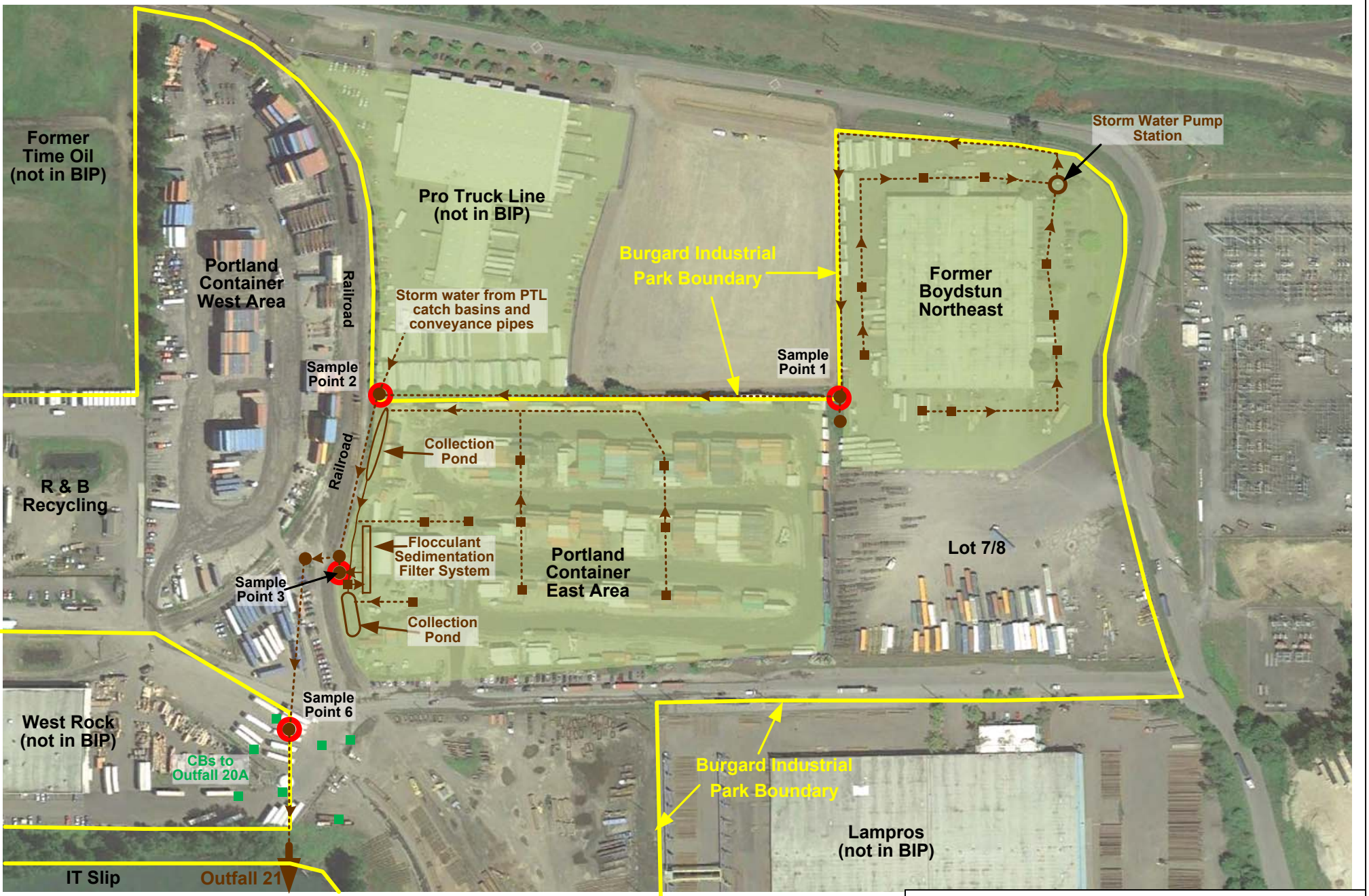
Figure 1
Site Location Map
Burgard Industrial Park
Portland, OR

RIEKE CONSULTING SERVICES, LLC

Base photograph May 2017

Figure 2
Site Plan
Burgard Industrial Park
Portland, Oregon

RIEKE CONSULTING SERVICES, LLC



Baes photograph May 2017

N

Approximate Scale

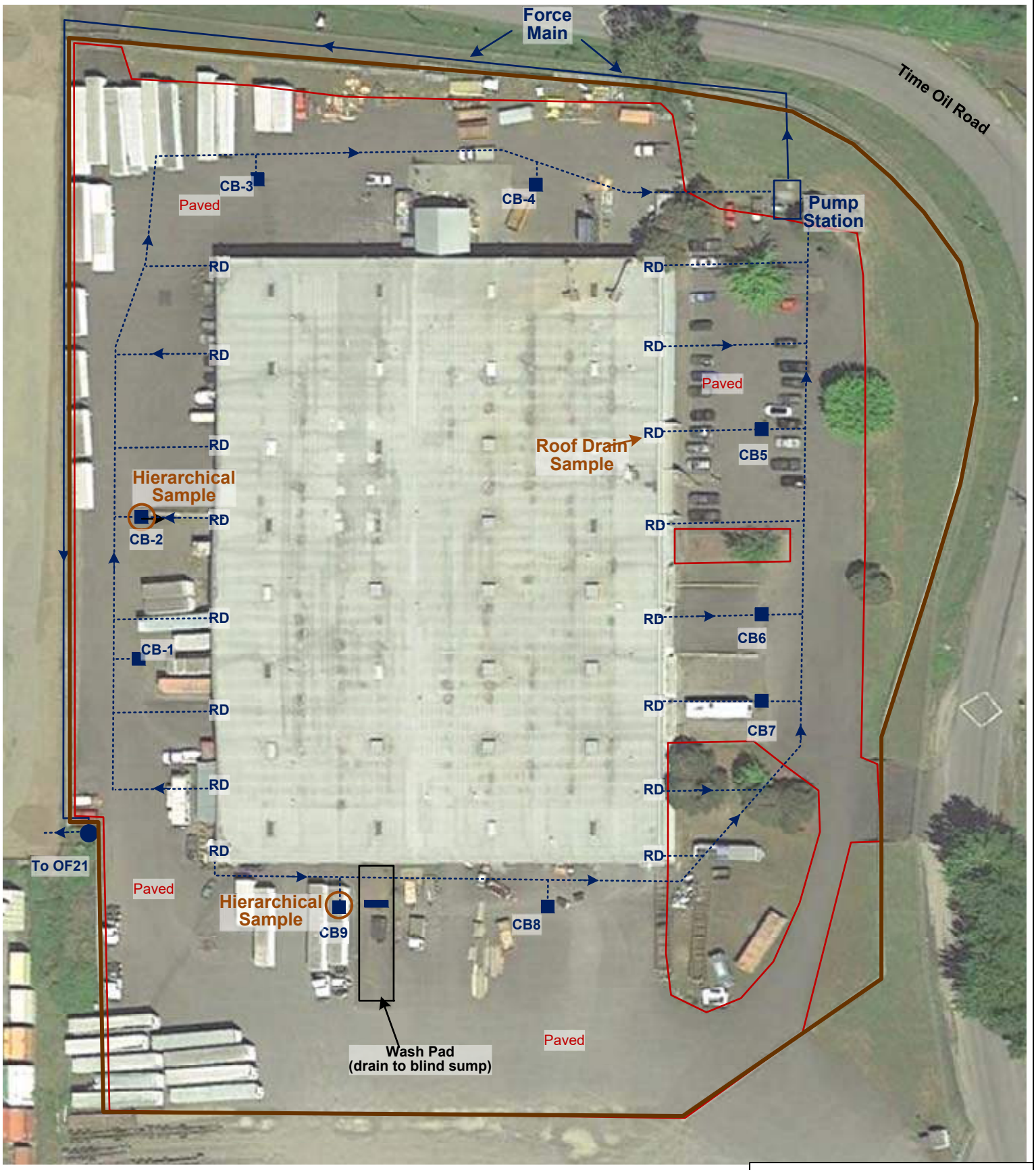
250 feet

- Catch Basin
- Manhole
- Storm Water Basin 21
- Storm Water Sample Location

Figure 3

Site Plan and Storm Water Sample Locations
Basin 21
Burgard Industrial Park

RIEKE CONSULTING SERVICES, LLC



N

Approximate Scale

80 feet

Site Drainage Area

Impervious Surface

Catch Basin

Manhole

RD Roof Drain

Figure 4
Site Plan and Storm Water Sample Locations
Former Boydstun NE Area
Burgard Industrial Park
Portland, OR

RIEKE CONSULTING SERVICES, LLC

Appendix A – Analytical Laboratory Reports

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Tuesday, April 24, 2018

Ross Rieke
Rieke Consulting Services, LLC
10457 SW Lady Marion Drive
Tigard, OR 97224

RE: Schnitzer Steel-Burgard / 8001-20

Enclosed are the results of analyses for work order A8D0223, which was received by the laboratory on 4/6/2018 at 3:20:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Labs

12232 S.W. Garden Place
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503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B21-SW2-04052018	A8D0223-02	Water	04/05/18 10:45	04/06/18 15:20
B21-SW3-04062018	A8D0223-03	Water	04/06/18 10:00	04/06/18 15:20
B21-SW6-04052018	A8D0223-04	Water	04/05/18 10:10	04/06/18 15:20
B21-CB2-04052018	A8D0223-05	Water	04/05/18 14:00	04/06/18 15:20
B21-CB9-04052018	A8D0223-06	Water	04/05/18 15:00	04/06/18 15:20
B21-RD1-04052018	A8D0223-07	Water	04/05/18 08:10	04/06/18 15:20

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Labs

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-SW2-04052018 (A8D0223-02)			**Matrix: Water**		**Batch: 8040714**			
Diesel	ND	0.0952	0.190	mg/L	1	04/13/18 00:57	NWTPH-Dx	
Oil	**0.622**	0.190	0.381	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 100 %*	*Limits: 50-150 %*	"	"	"	
B21-SW3-04062018 (A8D0223-03)			**Matrix: Water**		**Batch: 8040714**			
Diesel	ND	0.108	0.215	mg/L	1	04/13/18 01:20	NWTPH-Dx	
Oil	ND	0.215	0.430	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 99 %*	*Limits: 50-150 %*	"	"	"	
B21-SW6-04052018 (A8D0223-04)			**Matrix: Water**		**Batch: 8040714**			
Diesel	ND	0.0971	0.194	mg/L	1	04/13/18 01:43	NWTPH-Dx	
Oil	**0.199**	0.194	0.388	"	"	"	"	J
Surrogate: o-Terphenyl (Surr)			*Recovery: 100 %*	*Limits: 50-150 %*	"	"	"	
B21-CB2-04052018 (A8D0223-05)			**Matrix: Water**		**Batch: 8040699**			
Diesel	ND	0.105	0.211	mg/L	1	04/11/18 23:59	NWTPH-Dx	
Oil	**2.70**	0.211	0.421	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 98 %*	*Limits: 50-150 %*	"	"	"	
B21-CB9-04052018 (A8D0223-06)			**Matrix: Water**		**Batch: 8040699**			
Diesel	**0.458**	0.103	0.206	mg/L	1	04/12/18 00:22	NWTPH-Dx	F-15
Oil	**3.20**	0.206	0.412	"	"	"	"	F-16
Surrogate: o-Terphenyl (Surr)			*Recovery: 98 %*	*Limits: 50-150 %*	"	"	"	
B21-RD1-04052018 (A8D0223-07)			**Matrix: Water**		**Batch: 8040699**			
Diesel	**0.352**	0.105	0.211	mg/L	1	04/12/18 00:45	NWTPH-Dx	F-11
Oil	ND	0.211	0.421	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 93 %*	*Limits: 50-150 %*	"	"	"	

Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Labs

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503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-SW2-04052018 (A8D0223-02)			**Matrix: Water**		**Batch: 8040590**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	04/09/18 17:17	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 101 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*108 %*	*Limits: 50-150 %*	"	"	"	
B21-SW3-04062018 (A8D0223-03)			**Matrix: Water**		**Batch: 8040590**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	04/09/18 17:45	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 100 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*110 %*	*Limits: 50-150 %*	"	"	"	
B21-SW6-04052018 (A8D0223-04)			**Matrix: Water**		**Batch: 8040590**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	04/09/18 18:15	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 101 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*110 %*	*Limits: 50-150 %*	"	"	"	
B21-CB2-04052018 (A8D0223-05)			**Matrix: Water**		**Batch: 8040590**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	04/09/18 18:44	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 100 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*108 %*	*Limits: 50-150 %*	"	"	"	
B21-CB9-04052018 (A8D0223-06)			**Matrix: Water**		**Batch: 8040590**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	04/09/18 19:13	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 101 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*109 %*	*Limits: 50-150 %*	"	"	"	
B21-RD1-04052018 (A8D0223-07)			**Matrix: Water**		**Batch: 8040590**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	04/09/18 19:41	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 102 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*110 %*	*Limits: 50-150 %*	"	"	"	

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Philip Nerenberg, Lab Director

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-SW2-04052018 (A8D0223-02)			**Matrix: Water**		**Batch: 8040877**			**C-07**
Aroclor 1016	ND	0.00980	0.0196	ug/L	1	04/18/18 09:40	EPA 8082A	
Aroclor 1221	ND	0.00980	0.0196	"	"	"	"	
Aroclor 1232	ND	0.0196	0.0196	"	"	"	"	
Aroclor 1242	ND	0.00980	0.0196	"	"	"	"	
Aroclor 1248	ND	0.00980	0.0196	"	"	"	"	
Aroclor 1254	ND	0.00980	0.0196	"	"	"	"	
Aroclor 1260	ND	0.00980	0.0196	"	"	"	"	
Surrogate: Decachlorobiphenyl (Surr)			*Recovery: 62 %*	*Limits: 39-120 %*	"	"	"	
B21-SW3-04062018 (A8D0223-03)			**Matrix: Water**		**Batch: 8040877**			**C-07**
Aroclor 1016	ND	0.00962	0.0192	ug/L	1	04/18/18 09:58	EPA 8082A	
Aroclor 1221	ND	0.00962	0.0192	"	"	"	"	
Aroclor 1232	ND	0.00962	0.0192	"	"	"	"	
Aroclor 1242	ND	0.00962	0.0192	"	"	"	"	
Aroclor 1248	ND	0.00962	0.0192	"	"	"	"	
Aroclor 1254	ND	0.00962	0.0192	"	"	"	"	
Aroclor 1260	ND	0.00962	0.0192	"	"	"	"	
Surrogate: Decachlorobiphenyl (Surr)			*Recovery: 71 %*	*Limits: 39-120 %*	"	"	"	
B21-SW6-04052018 (A8D0223-04)			**Matrix: Water**		**Batch: 8040877**			**C-07**
Aroclor 1016	ND	0.0101	0.0202	ug/L	1	04/18/18 10:15	EPA 8082A	
Aroclor 1221	ND	0.0101	0.0202	"	"	"	"	
Aroclor 1232	ND	0.0101	0.0202	"	"	"	"	
Aroclor 1242	ND	0.0101	0.0202	"	"	"	"	
Aroclor 1248	ND	0.0101	0.0202	"	"	"	"	
Aroclor 1254	ND	0.0101	0.0202	"	"	"	"	
Aroclor 1260	ND	0.0101	0.0202	"	"	"	"	
Surrogate: Decachlorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 39-120 %*	"	"	"	
B21-CB2-04052018 (A8D0223-05)			**Matrix: Water**		**Batch: 8040877**			**C-07**
Aroclor 1016	ND	0.0109	0.0217	ug/L	1	04/18/18 10:33	EPA 8082A	
Aroclor 1221	ND	0.0109	0.0217	"	"	"	"	
Aroclor 1232	ND	0.0109	0.0217	"	"	"	"	
Aroclor 1242	**0.0139**	0.0109	0.0217	"	"	"	"	J
Aroclor 1248	ND	0.0109	0.0217	"	"	"	"	
Aroclor 1254	ND	0.0109	0.0217	"	"	"	"	
Aroclor 1260	ND	0.0109	0.0217	"	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-CB2-04052018 (A8D0223-05)			**Matrix: Water**		**Batch: 8040877**			**C-07**
Surrogate: Decachlorobiphenyl (Surr)			*Recovery: 61 %*	*Limits: 39-120 %*	1	"	EPA 8082A	
B21-CB9-04052018 (A8D0223-06)			**Matrix: Water**		**Batch: 8040877**			**C-07**
Aroclor 1016	ND	0.0114	0.0227	ug/L	1	04/18/18 10:51	EPA 8082A	
Aroclor 1221	ND	0.0114	0.0227	"	"	"	"	
Aroclor 1232	ND	0.0114	0.0227	"	"	"	"	
Aroclor 1242	**0.0156**	0.0114	0.0227	"	"	"	"	J
Aroclor 1248	ND	0.0114	0.0227	"	"	"	"	
Aroclor 1254	**0.0166**	0.0114	0.0227	"	"	"	"	J
Aroclor 1260	**0.0166**	0.0114	0.0227	"	"	"	"	J
Surrogate: Decachlorobiphenyl (Surr)			*Recovery: 57 %*	*Limits: 39-120 %*	"	"	"	
B21-RD1-04052018 (A8D0223-07)			**Matrix: Water**		**Batch: 8040877**			**C-07**
Aroclor 1016	ND	0.00962	0.0192	ug/L	1	04/18/18 08:47	EPA 8082A	
Aroclor 1221	ND	0.00962	0.0192	"	"	"	"	
Aroclor 1232	ND	0.00962	0.0192	"	"	"	"	
Aroclor 1242	ND	0.00962	0.0192	"	"	"	"	
Aroclor 1248	ND	0.00962	0.0192	"	"	"	"	
Aroclor 1254	ND	0.00962	0.0192	"	"	"	"	
Aroclor 1260	ND	0.00962	0.0192	"	"	"	"	
Surrogate: Decachlorobiphenyl (Surr)			*Recovery: 57 %*	*Limits: 39-120 %*	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-SW2-04052018 (A8D0223-02)			**Matrix: Water**		**Batch: 8040594**			**R-04**
Acenaphthene	ND	0.0505	0.101	ug/L	5	04/09/18 17:08	EPA 8270D	
Acenaphthylene	ND	0.0505	0.101	"	"	"	"	
Anthracene	ND	0.0505	0.101	"	"	"	"	
Benz(a)anthracene	ND	0.0505	0.101	"	"	"	"	
Benzo(a)pyrene	ND	0.0758	0.152	"	"	"	"	
Benzo(b)fluoranthene	ND	0.0758	0.152	"	"	"	"	
Benzo(k)fluoranthene	ND	0.0758	0.152	"	"	"	"	
Benzo(g,h,i)perylene	ND	0.0505	0.101	"	"	"	"	
Chrysene	ND	0.0505	0.101	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.0505	0.101	"	"	"	"	
Fluoranthene	**0.0545**	0.0505	0.101	"	"	"	"	J
Fluorene	ND	0.0505	0.101	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0505	0.101	"	"	"	"	
1-Methylnaphthalene	ND	0.101	0.202	"	"	"	"	
2-Methylnaphthalene	ND	0.101	0.202	"	"	"	"	
Naphthalene	ND	0.101	0.202	"	"	"	"	
Phenanthrene	**0.0633**	0.0505	0.101	"	"	"	"	J
Pyrene	**0.0926**	0.0505	0.101	"	"	"	"	J
Carbazole	ND	0.0758	0.152	"	"	"	"	
Dibenzofuran	ND	0.0505	0.101	"	"	"	"	
Bis(2-ethylhexyl)phthalate	**1.27**	1.01	2.02	"	"	"	"	J
Butyl benzyl phthalate	ND	1.01	2.02	"	"	"	"	
Diethylphthalate	ND	1.01	2.02	"	"	"	"	
Dimethylphthalate	ND	1.01	2.02	"	"	"	"	
Di-n-butylphthalate	ND	1.01	2.02	"	"	"	"	
Di-n-octyl phthalate	ND	1.01	2.02	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 82 %*	*Limits: 44-120 %*	"	"	"	
2-Fluorobiphenyl (Surr)			*75 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*28 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*70 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*44 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*110 %*	*Limits: 43-140 %*	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-SW3-04062018 (A8D0223-03)			**Matrix: Water**		**Batch: 8040594**			**R-04**
Acenaphthene	ND	0.0392	0.0784	ug/L	4	04/09/18 17:44	EPA 8270D	
Acenaphthylene	ND	0.0392	0.0784	"	"	"	"	
Anthracene	ND	0.0392	0.0784	"	"	"	"	
Benz(a)anthracene	ND	0.0392	0.0784	"	"	"	"	
Benzo(a)pyrene	ND	0.0588	0.118	"	"	"	"	
Benzo(b)fluoranthene	ND	0.0588	0.118	"	"	"	"	
Benzo(k)fluoranthene	ND	0.0588	0.118	"	"	"	"	
Benzo(g,h,i)perylene	ND	0.0392	0.0784	"	"	"	"	
Chrysene	ND	0.0392	0.0784	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.0392	0.0784	"	"	"	"	
Fluoranthene	ND	0.0392	0.0784	"	"	"	"	
Fluorene	ND	0.0392	0.0784	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0392	0.0784	"	"	"	"	
1-Methylnaphthalene	ND	0.0784	0.157	"	"	"	"	
2-Methylnaphthalene	ND	0.0784	0.157	"	"	"	"	
Naphthalene	ND	0.0784	0.157	"	"	"	"	
Phenanthrene	ND	0.0392	0.0784	"	"	"	"	
Pyrene	ND	0.0392	0.0784	"	"	"	"	
Carbazole	ND	0.0588	0.118	"	"	"	"	
Dibenzofuran	ND	0.0392	0.0784	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.784	1.57	"	"	"	"	
Butyl benzyl phthalate	ND	0.784	1.57	"	"	"	"	
Diethylphthalate	ND	0.784	1.57	"	"	"	"	
Dimethylphthalate	ND	0.784	1.57	"	"	"	"	
Di-n-butylphthalate	ND	0.784	1.57	"	"	"	"	
Di-n-octyl phthalate	ND	0.784	1.57	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 81 %*	*Limits: 44-120 %*	"	"	"	
2-Fluorobiphenyl (Surr)			*74 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*27 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*75 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*42 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*106 %*	*Limits: 43-140 %*	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-SW6-04052018 (A8D0223-04)			**Matrix: Water**		**Batch: 8040594**			**R-04**
Acenaphthene	ND	0.0377	0.0755	ug/L	4	04/09/18 18:20	EPA 8270D	
Acenaphthylene	ND	0.0377	0.0755	"	"	"	"	
Anthracene	ND	0.0377	0.0755	"	"	"	"	
Benz(a)anthracene	ND	0.0377	0.0755	"	"	"	"	
Benzo(a)pyrene	ND	0.0566	0.113	"	"	"	"	
Benzo(b)fluoranthene	ND	0.0566	0.113	"	"	"	"	
Benzo(k)fluoranthene	ND	0.0566	0.113	"	"	"	"	
Benzo(g,h,i)perylene	ND	0.0377	0.0755	"	"	"	"	
Chrysene	ND	0.0377	0.0755	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.0377	0.0755	"	"	"	"	
Fluoranthene	ND	0.0377	0.0755	"	"	"	"	
Fluorene	ND	0.0377	0.0755	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0377	0.0755	"	"	"	"	
1-Methylnaphthalene	ND	0.0755	0.151	"	"	"	"	
2-Methylnaphthalene	ND	0.0755	0.151	"	"	"	"	
Naphthalene	ND	0.0755	0.151	"	"	"	"	
Phenanthrene	ND	0.0377	0.0755	"	"	"	"	
Pyrene	ND	0.0377	0.0755	"	"	"	"	
Carbazole	ND	0.0566	0.113	"	"	"	"	
Dibenzofuran	ND	0.0377	0.0755	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	0.755	1.51	"	"	"	"	
Butyl benzyl phthalate	ND	0.755	1.51	"	"	"	"	
Diethylphthalate	ND	0.755	1.51	"	"	"	"	
Dimethylphthalate	ND	0.755	1.51	"	"	"	"	
Di-n-butylphthalate	ND	0.755	1.51	"	"	"	"	
Di-n-octyl phthalate	ND	0.755	1.51	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 67 %*	*Limits: 44-120 %*	"	"	"	
2-Fluorobiphenyl (Surr)			*68 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*22 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*80 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*34 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*106 %*	*Limits: 43-140 %*	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-CB2-04052018 (A8D0223-05RE1)			**Matrix: Water**		**Batch: 8040594**			
Acenaphthene	ND	0.102	0.204	ug/L	5	04/10/18 11:03	EPA 8270D	
Acenaphthylene	ND	0.102	0.204	"	"	"	"	
Anthracene	ND	0.102	0.204	"	"	"	"	
Benz(a)anthracene	ND	0.102	0.204	"	"	"	"	
Benzo(a)pyrene	ND	0.153	0.306	"	"	"	"	
Benzo(b)fluoranthene	ND	0.153	0.306	"	"	"	"	
Benzo(k)fluoranthene	ND	0.153	0.306	"	"	"	"	
Benzo(g,h,i)perylene	**0.125**	0.102	0.204	"	"	"	"	J
Chrysene	ND	0.102	0.204	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.102	0.204	"	"	"	"	
Fluoranthene	**0.158**	0.102	0.204	"	"	"	"	J
Fluorene	ND	0.102	0.204	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.102	0.204	"	"	"	"	
1-Methylnaphthalene	ND	0.204	0.408	"	"	"	"	
2-Methylnaphthalene	ND	0.204	0.408	"	"	"	"	
Naphthalene	ND	0.204	0.408	"	"	"	"	
Phenanthrene	**0.125**	0.102	0.204	"	"	"	"	J
Pyrene	**0.359**	0.102	0.204	"	"	"	"	
Carbazole	ND	0.153	0.306	"	"	"	"	
Dibenzofuran	ND	0.102	0.204	"	"	"	"	
Bis(2-ethylhexyl)phthalate	**2.11**	2.04	4.08	"	"	"	"	J
Butyl benzyl phthalate	ND	2.04	4.08	"	"	"	"	
Diethylphthalate	ND	2.04	4.08	"	"	"	"	
Dimethylphthalate	ND	2.04	4.08	"	"	"	"	
Di-n-butylphthalate	ND	2.04	4.08	"	"	"	"	
Di-n-octyl phthalate	ND	2.04	4.08	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 68 %*	*Limits: 44-120 %*	"	"	"	
2-Fluorobiphenyl (Surr)			*71 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*24 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*67 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*34 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*99 %*	*Limits: 43-140 %*	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-CB9-04052018 (A8D0223-06)			**Matrix: Water**		**Batch: 8040594**			
Acenaphthene	ND	0.109	0.217	ug/L	5	04/09/18 23:38	EPA 8270D	
Acenaphthylene	ND	0.109	0.217	"	"	"	"	
Anthracene	ND	0.109	0.217	"	"	"	"	
Benz(a)anthracene	ND	0.109	0.217	"	"	"	"	
Benzo(a)pyrene	ND	0.163	0.326	"	"	"	"	
Benzo(b)fluoranthene	**0.172**	0.163	0.326	"	"	"	"	J
Benzo(k)fluoranthene	ND	0.163	0.326	"	"	"	"	
Benzo(g,h,i)perylene	**0.111**	0.109	0.217	"	"	"	"	J
Chrysene	**0.122**	0.109	0.217	"	"	"	"	J
Dibenz(a,h)anthracene	ND	0.109	0.217	"	"	"	"	
Fluoranthene	**0.138**	0.109	0.217	"	"	"	"	J
Fluorene	**0.131**	0.109	0.217	"	"	"	"	J
Indeno(1,2,3-cd)pyrene	ND	0.109	0.217	"	"	"	"	
1-Methylnaphthalene	**0.342**	0.217	0.435	"	"	"	"	J
2-Methylnaphthalene	**0.485**	0.217	0.435	"	"	"	"	
Naphthalene	ND	0.217	0.435	"	"	"	"	
Phenanthrene	**0.353**	0.109	0.217	"	"	"	"	
Pyrene	**0.250**	0.109	0.217	"	"	"	"	
Carbazole	ND	0.163	0.326	"	"	"	"	
Dibenzofuran	ND	0.109	0.217	"	"	"	"	
Bis(2-ethylhexyl)phthalate	**4.44**	2.17	4.35	"	"	"	"	
Butyl benzyl phthalate	ND	2.17	4.35	"	"	"	"	
Diethylphthalate	ND	2.17	4.35	"	"	"	"	
Dimethylphthalate	ND	2.17	4.35	"	"	"	"	
Di-n-butylphthalate	ND	2.17	4.35	"	"	"	"	
Di-n-octyl phthalate	ND	2.17	4.35	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 71 %*	*Limits: 44-120 %*	"	"	"	
2-Fluorobiphenyl (Surr)			*76 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*27 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*80 %*	*Limits: 50-133 %*	"	"	"	
2-Fluorophenol (Surr)			*37 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*117 %*	*Limits: 43-140 %*	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-RD1-04052018 (A8D0223-07)			**Matrix: Water**		**Batch: 8040594**			
Acenaphthene	ND	0.00943	0.0189	ug/L	1	04/10/18 00:14	EPA 8270D	
Acenaphthylene	**0.0180**	0.00943	0.0189	"	"	"	"	J
Anthracene	ND	0.0189	0.0189	"	"	"	"	
Benz(a)anthracene	ND	0.00943	0.0189	"	"	"	"	
Benzo(a)pyrene	ND	0.0142	0.0283	"	"	"	"	
Benzo(b)fluoranthene	ND	0.0142	0.0283	"	"	"	"	
Benzo(k)fluoranthene	ND	0.0142	0.0283	"	"	"	"	
Benzo(g,h,i)perylene	ND	0.00943	0.0189	"	"	"	"	
Chrysene	ND	0.00943	0.0189	"	"	"	"	
Dibenz(a,h)anthracene	ND	0.00943	0.0189	"	"	"	"	
Fluoranthene	**0.0129**	0.00943	0.0189	"	"	"	"	J
Fluorene	**0.00948**	0.00943	0.0189	"	"	"	"	J
Indeno(1,2,3-cd)pyrene	ND	0.00943	0.0189	"	"	"	"	
1-Methylnaphthalene	ND	0.0189	0.0377	"	"	"	"	
2-Methylnaphthalene	ND	0.0189	0.0377	"	"	"	"	
Naphthalene	**0.0218**	0.0189	0.0377	"	"	"	"	J
Phenanthrene	**0.0304**	0.00943	0.0189	"	"	"	"	
Pyrene	ND	0.00943	0.0189	"	"	"	"	
Carbazole	ND	0.0142	0.0283	"	"	"	"	
Dibenzofuran	ND	0.0189	0.0189	"	"	"	"	
Bis(2-ethylhexyl)phthalate	**0.252**	0.189	0.377	"	"	"	"	J
Butyl benzyl phthalate	**0.241**	0.189	0.377	"	"	"	"	J
Diethylphthalate	ND	0.189	0.377	"	"	"	"	
Dimethylphthalate	ND	0.189	0.377	"	"	"	"	
Di-n-butylphthalate	ND	0.189	0.377	"	"	"	"	
Di-n-octyl phthalate	ND	0.189	0.377	"	"	"	"	
Surrogate: Nitrobenzene-d5 (Surr)			*Recovery: 71 %*	*Limits: 44-120 %*	"	"	"	
2-Fluorobiphenyl (Surr)			*60 %*	*Limits: 44-120 %*	"	"	"	
Phenol-d6 (Surr)			*25 %*	*Limits: 10-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*38 %*	*Limits: 50-133 %*	"	"	"	*S-06*
2-Fluorophenol (Surr)			*41 %*	*Limits: 19-120 %*	"	"	"	
2,4,6-Tribromophenol (Surr)			*107 %*	*Limits: 43-140 %*	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-SW2-04052018 (A8D0223-02)			**Matrix: Water**					
Batch: 8040873								
Antimony	ND	0.500	1.00	ug/L	1	04/17/18 22:57	EPA 6020A	
Arsenic	**2.19**	0.500	1.00	"	"	"	"	
Cadmium	**0.178**	0.0400	0.200	"	"	"	"	J
Chromium	**3.51**	0.500	1.00	"	"	"	"	
Copper	**7.87**	0.500	1.00	"	"	"	"	
Lead	**2.66**	0.100	0.200	"	"	"	"	
Manganese	**557**	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Nickel	**2.60**	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	**124**	2.00	4.00	"	"	"	"	
B21-SW2-04052018 (A8D0223-02RE1)			**Matrix: Water**					
Batch: 8040873								
Aluminum	**2500**	125	250	ug/L	5	04/18/18 18:03	EPA 6020A	
B21-SW3-04062018 (A8D0223-03)			**Matrix: Water**					
Batch: 8040873								
Antimony	**1.11**	0.500	1.00	ug/L	1	04/17/18 23:00	EPA 6020A	
Arsenic	**0.967**	0.500	1.00	"	"	"	"	J
Cadmium	**0.144**	0.0400	0.200	"	"	"	"	J
Chromium	**4.21**	0.500	1.00	"	"	"	"	
Copper	**9.41**	0.500	1.00	"	"	"	"	
Lead	**2.36**	0.100	0.200	"	"	"	"	
Manganese	**50.5**	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Nickel	**1.64**	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	**37.5**	2.00	4.00	"	"	"	"	
B21-SW3-04062018 (A8D0223-03RE1)			**Matrix: Water**					
Batch: 8040873								
Aluminum	**1160**	125	250	ug/L	5	04/18/18 18:07	EPA 6020A	
B21-SW6-04052018 (A8D0223-04)			**Matrix: Water**					
Batch: 8040873								
Antimony	ND	0.500	1.00	ug/L	1	04/17/18 23:04	EPA 6020A	
Arsenic	**2.78**	0.500	1.00	"	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-SW6-04052018 (A8D0223-04)			**Matrix: Water**					
Cadmium	**0.100**	0.0400	0.200	ug/L	1	"	EPA 6020A	J
Chromium	**1.33**	0.500	1.00	"	"	"	"	
Copper	**3.46**	0.500	1.00	"	"	"	"	
Lead	**0.911**	0.100	0.200	"	"	"	"	
Manganese	**968**	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Nickel	**1.73**	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	**64.4**	2.00	4.00	"	"	"	"	
B21-SW6-04052018 (A8D0223-04RE1)			**Matrix: Water**					
Batch: 8040873								
Aluminum	**787**	125	250	ug/L	5	04/18/18 18:11	EPA 6020A	
B21-CB2-04052018 (A8D0223-05)			**Matrix: Water**					
Batch: 8040873								
Aluminum	**2380**	25.0	50.0	ug/L	1	04/17/18 23:08	EPA 6020A	
Antimony	**0.744**	0.500	1.00	"	"	"	"	J
Arsenic	**0.867**	0.500	1.00	"	"	"	"	J
Cadmium	**0.356**	0.0400	0.200	"	"	"	"	
Chromium	**13.1**	0.500	1.00	"	"	"	"	
Copper	**32.2**	0.500	1.00	"	"	"	"	
Lead	**14.9**	0.100	0.200	"	"	"	"	
Manganese	**204**	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Nickel	**5.64**	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	**389**	2.00	4.00	"	"	"	"	
B21-CB9-04052018 (A8D0223-06)			**Matrix: Water**					
Batch: 8040873								
Aluminum	**2660**	25.0	50.0	ug/L	1	04/17/18 23:12	EPA 6020A	
Antimony	**0.633**	0.500	1.00	"	"	"	"	J
Arsenic	**0.556**	0.500	1.00	"	"	"	"	J
Cadmium	**0.411**	0.0400	0.200	"	"	"	"	
Chromium	**13.7**	0.500	1.00	"	"	"	"	
Copper	**28.7**	0.500	1.00	"	"	"	"	
Lead	**9.69**	0.100	0.200	"	"	"	"	

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-CB9-04052018 (A8D0223-06)			**Matrix: Water**					
Manganese	**178**	0.500	1.00	ug/L	1	"	EPA 6020A	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Nickel	**4.83**	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	**221**	2.00	4.00	"	"	"	"	
B21-RD1-04052018 (A8D0223-07)			**Matrix: Water**					
Batch: 8040897								
Aluminum	**33.2**	25.0	50.0	ug/L	1	04/17/18 23:42	EPA 6020A	J
Antimony	ND	0.500	1.00	"	"	"	"	
Arsenic	ND	0.500	1.00	"	"	"	"	
Cadmium	ND	0.0400	0.200	"	"	"	"	
Chromium	ND	0.500	1.00	"	"	"	"	
Copper	**8.32**	0.500	1.00	"	"	"	"	
Lead	**0.356**	0.100	0.200	"	"	"	"	
Manganese	**1.52**	0.500	1.00	"	"	"	"	
Mercury	ND	0.0400	0.0800	"	"	"	"	
Nickel	**0.589**	0.500	1.00	"	"	"	"	J
Silver	ND	0.100	0.200	"	"	"	"	
Zinc	**31.8**	2.00	4.00	"	"	"	"	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
B21-SW2-04052018 (A8D0223-02)			**Matrix: Water**					
Batch: 8040608								
Total Organic Carbon	**5.02**	1.00	1.00	mg/L	1	04/09/18 19:37	SM 5310 C	
Batch: 8040727								
Total Suspended Solids	**69.0**	5.00	5.00	"	"	04/12/18 16:55	SM 2540 D	
B21-SW3-04062018 (A8D0223-03)			**Matrix: Water**					
Batch: 8040608								
Total Organic Carbon	**3.09**	1.00	1.00	mg/L	1	04/09/18 20:06	SM 5310 C	
Batch: 8040727								
Total Suspended Solids	**24.0**	5.00	5.00	"	"	04/12/18 16:55	SM 2540 D	
B21-SW6-04052018 (A8D0223-04)			**Matrix: Water**					
Batch: 8040608								
Total Organic Carbon	**3.96**	1.00	1.00	mg/L	1	04/09/18 20:35	SM 5310 C	
Batch: 8040727								
Total Suspended Solids	**13.0**	5.00	5.00	"	"	04/12/18 16:55	SM 2540 D	
B21-CB2-04052018 (A8D0223-05)			**Matrix: Water**					
Batch: 8040608								
Total Organic Carbon	**5.24**	1.00	1.00	mg/L	1	04/09/18 21:06	SM 5310 C	
Batch: 8040727								
Total Suspended Solids	**108**	5.00	5.00	"	"	04/12/18 16:55	SM 2540 D	
B21-CB9-04052018 (A8D0223-06)			**Matrix: Water**					
Batch: 8040608								
Total Organic Carbon	**3.42**	1.00	1.00	mg/L	1	04/09/18 22:33	SM 5310 C	
Batch: 8040727								
Total Suspended Solids	**149**	5.00	5.00	"	"	04/12/18 16:55	SM 2540 D	
B21-RD1-04052018 (A8D0223-07)			**Matrix: Water**					
Batch: 8040608								
Total Organic Carbon	**11.4**	1.00	1.00	mg/L	1	04/09/18 23:02	SM 5310 C	
Batch: 8040727								
Total Suspended Solids	ND	5.00	5.00	"	"	04/12/18 16:55	SM 2540 D	

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040699 - EPA 3510C (Fuels/Acid Ext.)									**Water**			
Blank (8040699-BLK1)					Prepared: 04/11/18 14:44		Analyzed: 04/11/18 22:50					
NWTPH-Dx												
Diesel	ND	0.0909	0.182	mg/L	1	---	---	---	---	---	---	
Oil	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 94 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS (8040699-BS1)					Prepared: 04/11/18 14:44		Analyzed: 04/11/18 23:13					
NWTPH-Dx												
Diesel	0.877	0.100	0.200	mg/L	1	1.25	---	70	58-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 96 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS Dup (8040699-BSD1)					Prepared: 04/11/18 14:44		Analyzed: 04/11/18 23:36					Q-19
NWTPH-Dx												
Diesel	0.919	0.100	0.200	mg/L	1	1.25	---	74	58-115%	5	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 98 %*	*Limits: 50-150 %*			*Dilution: 1x*					
Batch 8040714 - EPA 3510C (Fuels/Acid Ext.)									**Water**			
Blank (8040714-BLK1)					Prepared: 04/12/18 08:45		Analyzed: 04/12/18 23:26					
NWTPH-Dx												
Diesel	ND	0.0909	0.182	mg/L	1	---	---	---	---	---	---	
Oil	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 90 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS (8040714-BS1)					Prepared: 04/12/18 08:45		Analyzed: 04/12/18 23:49					
NWTPH-Dx												
Diesel	0.958	0.100	0.200	mg/L	1	1.25	---	77	58-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 95 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS Dup (8040714-BSD1)					Prepared: 04/12/18 08:45		Analyzed: 04/13/18 00:12					Q-19
NWTPH-Dx												
Diesel	0.920	0.100	0.200	mg/L	1	1.25	---	74	58-115%	4	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 93 %*	*Limits: 50-150 %*			*Dilution: 1x*					

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040590 - EPA 5030B									**Water**			
Blank (8040590-BLK1)					Prepared: 04/09/18 08:23 Analyzed: 04/09/18 13:22							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 101 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*108 %*		*50-150 %*				*"*			
LCS (8040590-BS4)					Prepared: 04/09/18 08:23 Analyzed: 04/09/18 12:54							
NWTPH-Gx (MS)												
Gasoline Range Organics	0.488	0.0500	0.100	mg/L	1	0.500	---	98	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 98 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*103 %*		*50-150 %*				*"*			

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040877 - EPA 3510C (Neutral pH)								**Water**				
Blank (8040877-BLK1)					Prepared: 04/17/18 10:27	Analyzed: 04/18/18 08:47						C-07
EPA 8082A												
Aroclor 1016	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Aroclor 1221	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1232	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1242	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1248	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1254	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Aroclor 1260	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 78 %*	*Limits: 39-120 %*		*Dilution: 1x*						
LCS (8040877-BS1)					Prepared: 04/17/18 10:27	Analyzed: 04/18/18 09:04						C-07
EPA 8082A												
Aroclor 1016	0.819	0.0100	0.0200	ug/L	1	1.25	---	66	46-129%	---	---	
Aroclor 1260	1.04	0.0100	0.0200	"	"	"	---	83	45-134%	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 81 %*	*Limits: 39-120 %*		*Dilution: 1x*						
LCS Dup (8040877-BSD1)					Prepared: 04/17/18 10:27	Analyzed: 04/18/18 09:22						C-07, Q-19
EPA 8082A												
Aroclor 1016	0.793	0.0100	0.0200	ug/L	1	1.25	---	63	46-129%	3	30%	
Aroclor 1260	0.931	0.0100	0.0200	"	"	"	---	74	45-134%	11	30%	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 75 %*	*Limits: 39-120 %*		*Dilution: 1x*						

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040594 - EPA 3510C (Acid Extraction)							**Water**					
Blank (8040594-BLK1)					Prepared: 04/09/18 09:25 Analyzed: 04/09/18 14:46							
EPA 8270D												
Acenaphthene	ND	0.00909	0.0182	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Chrysene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Fluoranthene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Fluorene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
Naphthalene	ND	0.0182	0.0364	"	"	---	---	---	---	---	---	
Phenanthrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Pyrene	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
Carbazole	ND	0.0136	0.0273	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	0.00909	0.0182	"	"	---	---	---	---	---	---	
4-Chloro-3-methylphenol	ND	0.0909	0.182	"	"	---	---	---	---	---	---	
2-Chlorophenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
2,4-Dichlorophenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
2,4-Dimethylphenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
2,4-Dinitrophenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	ND	0.227	0.455	"	"	---	---	---	---	---	---	
2-Methylphenol	ND	0.0227	0.0455	"	"	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	0.0227	0.0455	"	"	---	---	---	---	---	---	
2-Nitrophenol	ND	0.0909	0.182	"	"	---	---	---	---	---	---	
4-Nitrophenol	ND	0.0909	0.182	"	"	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	0.0909	0.182	"	"	---	---	---	---	---	---	
Phenol	ND	0.182	0.364	"	"	---	---	---	---	---	---	
2,3,4,6-Tetrachlorophenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
2,3,5,6-Tetrachlorophenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040594 - EPA 3510C (Acid Extraction)									**Water**			
Blank (8040594-BLK1)					Prepared: 04/09/18 09:25 Analyzed: 04/09/18 14:46							
EPA 8270D												
2,4,5-Trichlorophenol	ND	0.0455	0.0909	ug/L	"	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	0.0455	0.0909	"	"	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Diethylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Dimethylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Di-n-butylphthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 79 %*		*Limits: 44-120 %*				*Dilution: 1x*			
2-Fluorobiphenyl (Surr)			*68 %*		*44-120 %*				*"*			
Phenol-d6 (Surr)			*25 %*		*10-120 %*				*"*			
p-Terphenyl-d14 (Surr)			*70 %*		*50-133 %*				*"*			
2-Fluorophenol (Surr)			*42 %*		*19-120 %*				*"*			
2,4,6-Tribromophenol (Surr)			*90 %*		*43-140 %*				*"*			
LCS (8040594-BS1)					Prepared: 04/09/18 09:25 Analyzed: 04/09/18 15:21							
EPA 8270D												
Acenaphthene	2.99	0.0100	0.0200	ug/L	1	4.00	---	75	47-122%	---	---	
Acenaphthylene	2.94	0.0100	0.0200	"	"	"	---	73	41-130%	---	---	
Anthracene	3.04	0.0100	0.0200	"	"	"	---	76	57-123%	---	---	
Benz(a)anthracene	3.43	0.0100	0.0200	"	"	"	---	86	58-125%	---	---	
Benzo(a)pyrene	3.65	0.0150	0.0300	"	"	"	---	91	54-128%	---	---	
Benzo(b)fluoranthene	3.62	0.0150	0.0300	"	"	"	---	90	53-131%	---	---	
Benzo(k)fluoranthene	3.64	0.0150	0.0300	"	"	"	---	91	57-129%	---	---	
Benzo(g,h,i)perylene	3.64	0.0100	0.0200	"	"	"	---	91	50-134%	---	---	
Chrysene	3.51	0.0100	0.0200	"	"	"	---	88	59-123%	---	---	
Dibenz(a,h)anthracene	3.61	0.0100	0.0200	"	"	"	---	90	51-134%	---	---	
Fluoranthene	3.25	0.0100	0.0200	"	"	"	---	81	57-128%	---	---	
Fluorene	2.83	0.0100	0.0200	"	"	"	---	71	52-124%	---	---	
Indeno(1,2,3-cd)pyrene	3.51	0.0100	0.0200	"	"	"	---	88	52-133%	---	---	
1-Methylnaphthalene	2.84	0.0200	0.0400	"	"	"	---	71	41-120%	---	---	
2-Methylnaphthalene	2.94	0.0200	0.0400	"	"	"	---	74	40-121%	---	---	
Naphthalene	2.77	0.0200	0.0400	"	"	"	---	69	"	---	---	
Phenanthrene	2.99	0.0100	0.0200	"	"	"	---	75	59-120%	---	---	
Pyrene	3.22	0.0100	0.0200	"	"	"	---	80	57-126%	---	---	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040594 - EPA 3510C (Acid Extraction)									**Water**			
LCS (8040594-BS1)					Prepared: 04/09/18 09:25 Analyzed: 04/09/18 15:21							
EPA 8270D												
Carbazole	3.32	0.0150	0.0300	ug/L	"	"	---	83	60-122%	---	---	
Dibenzofuran	2.82	0.0100	0.0200	"	"	"	---	71	53-120%	---	---	
4-Chloro-3-methylphenol	3.70	0.100	0.200	"	"	"	---	93	52-120%	---	---	
2-Chlorophenol	3.03	0.0500	0.100	"	"	"	---	76	38-120%	---	---	
2,4-Dichlorophenol	3.40	0.0500	0.100	"	"	"	---	85	47-121%	---	---	
2,4-Dimethylphenol	2.86	0.0500	0.100	"	"	"	---	71	31-124%	---	---	
2,4-Dinitrophenol	3.47	0.250	0.500	"	"	"	---	87	23-143%	---	---	
4,6-Dinitro-2-methylphenol	3.74	0.250	0.500	"	"	"	---	94	44-137%	---	---	
2-Methylphenol	2.47	0.0250	0.0500	"	"	"	---	62	30-120%	---	---	
3+4-Methylphenol(s)	2.27	0.0250	0.0500	"	"	"	---	57	29-120%	---	---	
2-Nitrophenol	3.39	0.100	0.200	"	"	"	---	85	47-123%	---	---	
4-Nitrophenol	1.12	0.100	0.200	"	"	"	---	28	5-120%	---	---	
Pentachlorophenol (PCP)	3.06	0.100	0.200	"	"	"	---	76	35-138%	---	---	
Phenol	1.15	0.200	0.400	"	"	"	---	29	5-120%	---	---	
2,3,4,6-Tetrachlorophenol	3.32	0.0500	0.100	"	"	"	---	83	50-128%	---	---	
2,3,5,6-Tetrachlorophenol	3.22	0.0500	0.100	"	"	"	---	80	50-121%	---	---	
2,4,5-Trichlorophenol	3.31	0.0500	0.100	"	"	"	---	83	53-123%	---	---	
2,4,6-Trichlorophenol	3.37	0.0500	0.100	"	"	"	---	84	50-125%	---	---	
Bis(2-ethylhexyl)phthalate	4.05	0.200	0.400	"	"	"	---	101	55-135%	---	---	
Butyl benzyl phthalate	3.93	0.200	0.400	"	"	"	---	98	53-134%	---	---	
Diethylphthalate	3.13	0.200	0.400	"	"	"	---	78	55-125%	---	---	
Dimethylphthalate	3.21	0.200	0.400	"	"	"	---	80	45-127%	---	---	
Di-n-butylphthalate	3.56	0.200	0.400	"	"	"	---	89	59-127%	---	---	
Di-n-octyl phthalate	4.05	0.200	0.400	"	"	"	---	101	51-140%	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 75 %*		*Limits: 44-120 %*			*Dilution: 1x*				
2-Fluorobiphenyl (Surr)			*65 %*		*44-120 %*			*"*				
Phenol-d6 (Surr)			*30 %*		*10-120 %*			*"*				
p-Terphenyl-d14 (Surr)			*84 %*		*50-133 %*			*"*				
2-Fluorophenol (Surr)			*49 %*		*19-120 %*			*"*				
2,4,6-Tribromophenol (Surr)			*89 %*		*43-140 %*			*"*				
LCS Dup (8040594-BSD1)					Prepared: 04/09/18 09:25 Analyzed: 04/09/18 15:57							Q-19
EPA 8270D												
Acenaphthene	3.02	0.0100	0.0200	ug/L	1	4.00	---	76	47-122%	1	30%	
Acenaphthylene	2.99	0.0100	0.0200	"	"	"	---	75	41-130%	2	30%	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040594 - EPA 3510C (Acid Extraction)							**Water**					
LCS Dup (8040594-BSD1)					Prepared: 04/09/18 09:25		Analyzed: 04/09/18 15:57					Q-19
EPA 8270D												
Anthracene	3.01	0.0100	0.0200	ug/L	"	"	---	75	57-123%	1	30%	
Benz(a)anthracene	3.40	0.0100	0.0200	"	"	"	---	85	58-125%	0.9	30%	
Benzo(a)pyrene	3.61	0.0150	0.0300	"	"	"	---	90	54-128%	1	30%	
Benzo(b)fluoranthene	3.62	0.0150	0.0300	"	"	"	---	90	53-131%	0.02	30%	
Benzo(k)fluoranthene	3.56	0.0150	0.0300	"	"	"	---	89	57-129%	2	30%	
Benzo(g,h,i)perylene	3.61	0.0100	0.0200	"	"	"	---	90	50-134%	0.9	30%	
Chrysene	3.49	0.0100	0.0200	"	"	"	---	87	59-123%	0.6	30%	
Dibenz(a,h)anthracene	3.52	0.0100	0.0200	"	"	"	---	88	51-134%	2	30%	
Fluoranthene	3.28	0.0100	0.0200	"	"	"	---	82	57-128%	0.9	30%	
Fluorene	2.84	0.0100	0.0200	"	"	"	---	71	52-124%	0.4	30%	
Indeno(1,2,3-cd)pyrene	3.53	0.0100	0.0200	"	"	"	---	88	52-133%	0.5	30%	
1-Methylnaphthalene	2.93	0.0200	0.0400	"	"	"	---	73	41-120%	3	30%	
2-Methylnaphthalene	3.11	0.0200	0.0400	"	"	"	---	78	40-121%	5	30%	
Naphthalene	2.88	0.0200	0.0400	"	"	"	---	72	"	4	30%	
Phenanthrene	2.94	0.0100	0.0200	"	"	"	---	74	59-120%	2	30%	
Pyrene	3.22	0.0100	0.0200	"	"	"	---	80	57-126%	0.1	30%	
Carbazole	3.39	0.0150	0.0300	"	"	"	---	85	60-122%	2	30%	
Dibenzofuran	2.87	0.0100	0.0200	"	"	"	---	72	53-120%	2	30%	
4-Chloro-3-methylphenol	3.76	0.100	0.200	"	"	"	---	94	52-120%	1	30%	
2-Chlorophenol	3.19	0.0500	0.100	"	"	"	---	80	38-120%	5	30%	
2,4-Dichlorophenol	3.47	0.0500	0.100	"	"	"	---	87	47-121%	2	30%	
2,4-Dimethylphenol	2.93	0.0500	0.100	"	"	"	---	73	31-124%	3	30%	
2,4-Dinitrophenol	3.71	0.250	0.500	"	"	"	---	93	23-143%	7	30%	
4,6-Dinitro-2-methylphenol	3.92	0.250	0.500	"	"	"	---	98	44-137%	5	30%	
2-Methylphenol	2.73	0.0250	0.0500	"	"	"	---	68	30-120%	10	30%	
3+4-Methylphenol(s)	2.47	0.0250	0.0500	"	"	"	---	62	29-120%	9	30%	
2-Nitrophenol	3.56	0.100	0.200	"	"	"	---	89	47-123%	5	30%	
4-Nitrophenol	1.27	0.100	0.200	"	"	"	---	32	5-120%	12	30%	
Pentachlorophenol (PCP)	3.19	0.100	0.200	"	"	"	---	80	35-138%	4	30%	
Phenol	1.26	0.200	0.400	"	"	"	---	32	5-120%	9	30%	
2,3,4,6-Tetrachlorophenol	3.35	0.0500	0.100	"	"	"	---	84	50-128%	0.9	30%	
2,3,5,6-Tetrachlorophenol	3.27	0.0500	0.100	"	"	"	---	82	50-121%	2	30%	
2,4,5-Trichlorophenol	3.35	0.0500	0.100	"	"	"	---	84	53-123%	1	30%	
2,4,6-Trichlorophenol	3.39	0.0500	0.100	"	"	"	---	85	50-125%	0.7	30%	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040594 - EPA 3510C (Acid Extraction)									**Water**			
LCS Dup (8040594-BSD1)					Prepared: 04/09/18 09:25		Analyzed: 04/09/18 15:57					Q-19
EPA 8270D												
Bis(2-ethylhexyl)phthalate	4.02	0.200	0.400	ug/L	"	"	---	100	55-135%	0.9	30%	
Butyl benzyl phthalate	3.93	0.200	0.400	"	"	"	---	98	53-134%	0.01	30%	
Diethylphthalate	3.11	0.200	0.400	"	"	"	---	78	55-125%	0.6	30%	
Dimethylphthalate	3.19	0.200	0.400	"	"	"	---	80	45-127%	0.7	30%	
Di-n-butylphthalate	3.52	0.200	0.400	"	"	"	---	88	59-127%	1	30%	
Di-n-octyl phthalate	4.00	0.200	0.400	"	"	"	---	100	51-140%	1	30%	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 81 %*		*Limits: 44-120 %*		*Dilution: 1x*					
2-Fluorobiphenyl (Surr)			*64 %*		*44-120 %*		*"*					
Phenol-d6 (Surr)			*32 %*		*10-120 %*		*"*					
p-Terphenyl-d14 (Surr)			*80 %*		*50-133 %*		*"*					
2-Fluorophenol (Surr)			*50 %*		*19-120 %*		*"*					
2,4,6-Tribromophenol (Surr)			*87 %*		*43-140 %*		*"*					

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040873 - EPA 3015A									**Water**			
Blank (8040873-BLK1)					Prepared: 04/17/18 09:04 Analyzed: 04/17/18 21:38							
EPA 6020A												
Aluminum	ND	25.0	50.0	ug/L	1	---	---	---	---	---	---	
Antimony	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Arsenic	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Cadmium	ND	0.0400	0.200	"	"	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Copper	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Lead	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Manganese	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Mercury	ND	0.0400	0.0800	"	"	---	---	---	---	---	---	
Nickel	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Silver	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Zinc	ND	2.00	4.00	"	"	---	---	---	---	---	---	
LCS (8040873-BS1)					Prepared: 04/17/18 09:04 Analyzed: 04/17/18 21:42							
EPA 6020A												
Aluminum	5630	25.0	50.0	ug/L	1	5560	---	101	80-120%	---	---	
Antimony	26.6	0.500	1.00	"	"	27.8	---	96	"	---	---	
Arsenic	54.7	0.500	1.00	"	"	55.6	---	98	"	---	---	
Cadmium	54.7	0.0400	0.200	"	"	"	---	98	"	---	---	
Chromium	55.6	0.500	1.00	"	"	"	---	100	"	---	---	
Copper	54.3	0.500	1.00	"	"	"	---	98	"	---	---	
Lead	54.0	0.100	0.200	"	"	"	---	97	"	---	---	
Manganese	55.6	0.500	1.00	"	"	"	---	100	"	---	---	
Mercury	1.08	0.0400	0.0800	"	"	1.11	---	97	"	---	---	
Nickel	55.2	0.500	1.00	"	"	55.6	---	99	"	---	---	
Silver	27.7	0.100	0.200	"	"	27.8	---	100	"	---	---	
Zinc	55.2	2.00	4.00	"	"	55.6	---	99	"	---	---	
Matrix Spike (8040873-MS2)					Prepared: 04/17/18 09:04 Analyzed: 04/17/18 23:23							
QC Source Sample: B21-CB9-04052018 (A8D0223-06)												
EPA 6020A												
Antimony	25.3	0.500	1.00	ug/L	1	27.8	0.633	89	75-125%	---	---	
Arsenic	53.9	0.500	1.00	"	"	55.6	0.556	96	"	---	---	
Cadmium	54.0	0.0400	0.200	"	"	"	0.411	97	"	---	---	
Chromium	69.2	0.500	1.00	"	"	"	13.7	100	"	---	---	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040873 - EPA 3015A									**Water**			
Matrix Spike (8040873-MS2)					Prepared: 04/17/18 09:04		Analyzed: 04/17/18 23:23					
QC Source Sample: B21-CB9-04052018 (A8D0223-06)												
EPA 6020A												
Copper	81.5	0.500	1.00	ug/L	"	"	28.7	95	"	---	---	
Lead	62.0	0.100	0.200	"	"	"	9.69	94	"	---	---	
Manganese	235	0.500	1.00	"	"	"	178	102	"	---	---	
Mercury	1.03	0.0400	0.0800	"	"	1.11	ND	93	"	---	---	
Nickel	59.8	0.500	1.00	"	"	55.6	4.83	99	"	---	---	
Silver	27.5	0.100	0.200	"	"	27.8	ND	99	"	---	---	
Zinc	279	2.00	4.00	"	"	55.6	221	105	"	---	---	
Matrix Spike (8040873-MS4)					Prepared: 04/17/18 09:04		Analyzed: 04/18/18 18:14					
QC Source Sample: B21-CB9-04052018 (A8D0223-06)												
EPA 6020A												
Aluminum	9250	125	250	ug/L	5	5560	2660	119	75-125%	---	---	Q-16

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040897 - EPA 3015A									Water			
Blank (8040897-BLK1)					Prepared: 04/17/18 16:08 Analyzed: 04/17/18 23:35							
EPA 6020A												
Aluminum	ND	25.0	50.0	ug/L	1	---	---	---	---	---	---	
Antimony	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Arsenic	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Cadmium	ND	0.0400	0.200	"	"	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Copper	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Lead	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Manganese	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Mercury	ND	0.0400	0.0800	"	"	---	---	---	---	---	---	
Nickel	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Silver	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Zinc	ND	2.00	4.00	"	"	---	---	---	---	---	---	
LCS (8040897-BS1)					Prepared: 04/17/18 16:08 Analyzed: 04/17/18 23:38							
EPA 6020A												
Aluminum	5360	25.0	50.0	ug/L	1	5560	---	96	80-120%	---	---	
Antimony	26.7	0.500	1.00	"	"	27.8	---	96	"	---	---	
Arsenic	54.2	0.500	1.00	"	"	55.6	---	98	"	---	---	
Cadmium	53.8	0.0400	0.200	"	"	"	---	97	"	---	---	
Chromium	55.1	0.500	1.00	"	"	"	---	99	"	---	---	
Copper	54.3	0.500	1.00	"	"	"	---	98	"	---	---	
Lead	52.9	0.100	0.200	"	"	"	---	95	"	---	---	
Manganese	55.7	0.500	1.00	"	"	"	---	100	"	---	---	
Mercury	1.07	0.0400	0.0800	"	"	1.11	---	97	"	---	---	
Nickel	55.4	0.500	1.00	"	"	55.6	---	100	"	---	---	
Silver	27.2	0.100	0.200	"	"	27.8	---	98	"	---	---	
Zinc	54.7	2.00	4.00	"	"	55.6	---	98	"	---	---	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040608 - Method Prep: Aq							**Water**					
Blank (8040608-BLK1)					Prepared: 04/09/18 13:40		Analyzed: 04/09/18 16:44					
SM 5310 C												
Total Organic Carbon	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	
LCS (8040608-BS1)					Prepared: 04/09/18 13:40		Analyzed: 04/09/18 17:12					
SM 5310 C												
Total Organic Carbon	11.0	1.00	1.00	mg/L	1	10.0	---	110	85-115%	---	---	
LCS (8040608-BS2)					Prepared: 04/09/18 13:40		Analyzed: 04/09/18 17:41					
SM 5310 C												
Total Organic Carbon	ND	1.00	1.00	mg/L	1	0.00	---		85-115%	---	---	TOC_I
Duplicate (8040608-DUP1)					Prepared: 04/09/18 13:40		Analyzed: 04/09/18 18:39					
QC Source Sample: B20-SP1-04052018 (A8D0223-01)												
SM 5310 C												
Total Organic Carbon	**9.44**	1.00	1.00	mg/L	1	---	9.47	---	---	0.3	20%	
Matrix Spike (8040608-MS2)					Prepared: 04/09/18 13:40		Analyzed: 04/10/18 10:54					
QC Source Sample: B20-SP1-04052018 (A8D0223-01)												
SM 5310 C												
Total Organic Carbon	24.7	2.02	2.02	mg/L	2	20.0	9.47	76	75-125%	---	---	

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8040727 - Total Suspended Solids									Water			
Blank (8040727-BLK1)					Prepared: 04/12/18 12:55		Analyzed: 04/12/18 16:55					
SM 2540 D												
Total Suspended Solids	ND	2.00	2.00	mg/L	1	---	---	---	---	---	---	
Reference (8040727-SRM1)					Prepared: 04/12/18 12:55		Analyzed: 04/12/18 16:55					
SM 2540 D												
Total Suspended Solids	83.0			mg/L	1	100		83	77.1-110%	---	---	

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8040699							
A8D0223-05	Water	NWTPH-Dx	04/05/18 14:00	04/11/18 14:44	950mL/5mL	1000mL/5mL	1.05
A8D0223-06	Water	NWTPH-Dx	04/05/18 15:00	04/11/18 14:44	970mL/5mL	1000mL/5mL	1.03
A8D0223-07	Water	NWTPH-Dx	04/05/18 08:10	04/11/18 14:44	950mL/5mL	1000mL/5mL	1.05
Batch: 8040714							
A8D0223-02	Water	NWTPH-Dx	04/05/18 10:45	04/12/18 08:45	1050mL/5mL	1000mL/5mL	0.95
A8D0223-03	Water	NWTPH-Dx	04/06/18 10:00	04/12/18 08:45	930mL/5mL	1000mL/5mL	1.08
A8D0223-04	Water	NWTPH-Dx	04/05/18 10:10	04/12/18 08:45	1030mL/5mL	1000mL/5mL	0.97

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8040590							
A8D0223-02	Water	NWTPH-Gx (MS)	04/05/18 10:45	04/09/18 13:49	5mL/5mL	5mL/5mL	1.00
A8D0223-03	Water	NWTPH-Gx (MS)	04/06/18 10:00	04/09/18 13:49	5mL/5mL	5mL/5mL	1.00
A8D0223-04	Water	NWTPH-Gx (MS)	04/05/18 10:10	04/09/18 13:49	5mL/5mL	5mL/5mL	1.00
A8D0223-05	Water	NWTPH-Gx (MS)	04/05/18 14:00	04/09/18 13:49	5mL/5mL	5mL/5mL	1.00
A8D0223-06	Water	NWTPH-Gx (MS)	04/05/18 15:00	04/09/18 13:49	5mL/5mL	5mL/5mL	1.00
A8D0223-07	Water	NWTPH-Gx (MS)	04/05/18 08:10	04/09/18 13:49	5mL/5mL	5mL/5mL	1.00

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3510C (Neutral pH)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8040877							
A8D0223-02	Water	EPA 8082A	04/05/18 10:45	04/17/18 10:27	1020mL/1mL	1000mL/1mL	0.98
A8D0223-03	Water	EPA 8082A	04/06/18 10:00	04/17/18 10:27	1040mL/1mL	1000mL/1mL	0.96
A8D0223-04	Water	EPA 8082A	04/05/18 10:10	04/17/18 10:27	990mL/1mL	1000mL/1mL	1.01
A8D0223-05	Water	EPA 8082A	04/05/18 14:00	04/17/18 10:27	920mL/1mL	1000mL/1mL	1.09
A8D0223-06	Water	EPA 8082A	04/05/18 15:00	04/17/18 10:27	880mL/1mL	1000mL/1mL	1.14
A8D0223-07	Water	EPA 8082A	04/05/18 08:10	04/17/18 10:27	1040mL/1mL	1000mL/1mL	0.96

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3510C (Acid Extraction)

Sample	Default	RL Prep

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

SAMPLE PREPARATION INFORMATION

Semivolatile Organic Compounds by EPA 8270D

Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
Batch: 8040594							
A8D0223-02	Water	EPA 8270D	04/05/18 10:45	04/09/18 09:25	990mL/1mL	1000mL/1mL	1.01
A8D0223-03	Water	EPA 8270D	04/06/18 10:00	04/09/18 09:25	1020mL/1mL	1000mL/1mL	0.98
A8D0223-04	Water	EPA 8270D	04/05/18 10:10	04/09/18 09:25	1060mL/1mL	1000mL/1mL	0.94
A8D0223-05RE1	Water	EPA 8270D	04/05/18 14:00	04/09/18 13:07	980mL/2mL	1000mL/1mL	2.04
A8D0223-06	Water	EPA 8270D	04/05/18 15:00	04/09/18 13:07	920mL/2mL	1000mL/1mL	2.17
A8D0223-07	Water	EPA 8270D	04/05/18 08:10	04/09/18 13:07	1060mL/1mL	1000mL/1mL	0.94

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8040873							
A8D0223-02	Water	EPA 6020A	04/05/18 10:45	04/17/18 09:04	45mL/50mL	45mL/50mL	1.00
A8D0223-02RE1	Water	EPA 6020A	04/05/18 10:45	04/17/18 09:04	45mL/50mL	45mL/50mL	1.00
A8D0223-03	Water	EPA 6020A	04/06/18 10:00	04/17/18 09:04	45mL/50mL	45mL/50mL	1.00
A8D0223-03RE1	Water	EPA 6020A	04/06/18 10:00	04/17/18 09:04	45mL/50mL	45mL/50mL	1.00
A8D0223-04	Water	EPA 6020A	04/05/18 10:10	04/17/18 09:04	45mL/50mL	45mL/50mL	1.00
A8D0223-04RE1	Water	EPA 6020A	04/05/18 10:10	04/17/18 09:04	45mL/50mL	45mL/50mL	1.00
A8D0223-05	Water	EPA 6020A	04/05/18 14:00	04/17/18 09:04	45mL/50mL	45mL/50mL	1.00
A8D0223-06	Water	EPA 6020A	04/05/18 15:00	04/17/18 09:04	45mL/50mL	45mL/50mL	1.00
Batch: 8040897							
A8D0223-07	Water	EPA 6020A	04/05/18 08:10	04/17/18 16:08	45mL/50mL	45mL/50mL	1.00

Conventional Chemistry Parameters

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8040608							
A8D0223-02	Water	SM 5310 C	04/05/18 10:45	04/09/18 13:40	40mL/40mL	40mL/40mL	1.00
A8D0223-03	Water	SM 5310 C	04/06/18 10:00	04/09/18 13:40	40mL/40mL	40mL/40mL	1.00
A8D0223-04	Water	SM 5310 C	04/05/18 10:10	04/09/18 13:40	40mL/40mL	40mL/40mL	1.00
A8D0223-05	Water	SM 5310 C	04/05/18 14:00	04/09/18 13:40	40mL/40mL	40mL/40mL	1.00
A8D0223-06	Water	SM 5310 C	04/05/18 15:00	04/09/18 13:40	40mL/40mL	40mL/40mL	1.00
A8D0223-07	Water	SM 5310 C	04/05/18 08:10	04/09/18 13:40	40mL/40mL	40mL/40mL	1.00

Prep: Total Suspended Solids

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor

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Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

SAMPLE PREPARATION INFORMATION

Conventional Chemistry Parameters

Batch: 8040727

A8D0223-02	Water	SM 2540 D	04/05/18 10:45	04/12/18 12:55	1N/A/1N/A	1N/A/1N/A	NA
A8D0223-03	Water	SM 2540 D	04/06/18 10:00	04/12/18 12:55	1N/A/1N/A	1N/A/1N/A	NA
A8D0223-04	Water	SM 2540 D	04/05/18 10:10	04/12/18 12:55	1N/A/1N/A	1N/A/1N/A	NA
A8D0223-05	Water	SM 2540 D	04/05/18 14:00	04/12/18 12:55	1N/A/1N/A	1N/A/1N/A	NA
A8D0223-06	Water	SM 2540 D	04/05/18 15:00	04/12/18 12:55	1N/A/1N/A	1N/A/1N/A	NA
A8D0223-07	Water	SM 2540 D	04/05/18 08:10	04/12/18 12:55	1N/A/1N/A	1N/A/1N/A	NA

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

Notes and Definitions

Qualifiers:

C-07	Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
F-11	The hydrocarbon pattern indicates possible weathered diesel, or a contribution from a related component.
F-15	Results for diesel are estimated due to overlap from the reported oil result.
F-16	Results for oil are estimated due to overlap from the reported diesel result.
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
Q-16	Reanalysis of an original Batch QC sample.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
R-04	Reporting levels elevated due to dilution necessary for analysis.
S-06	Surrogate recovery is outside of established control limits.
TOC_I	Inorganic Carbon Spike Check. Results are valid if Non Detect (No Inorganic Carbon detected.)

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.

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10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
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--- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

*** Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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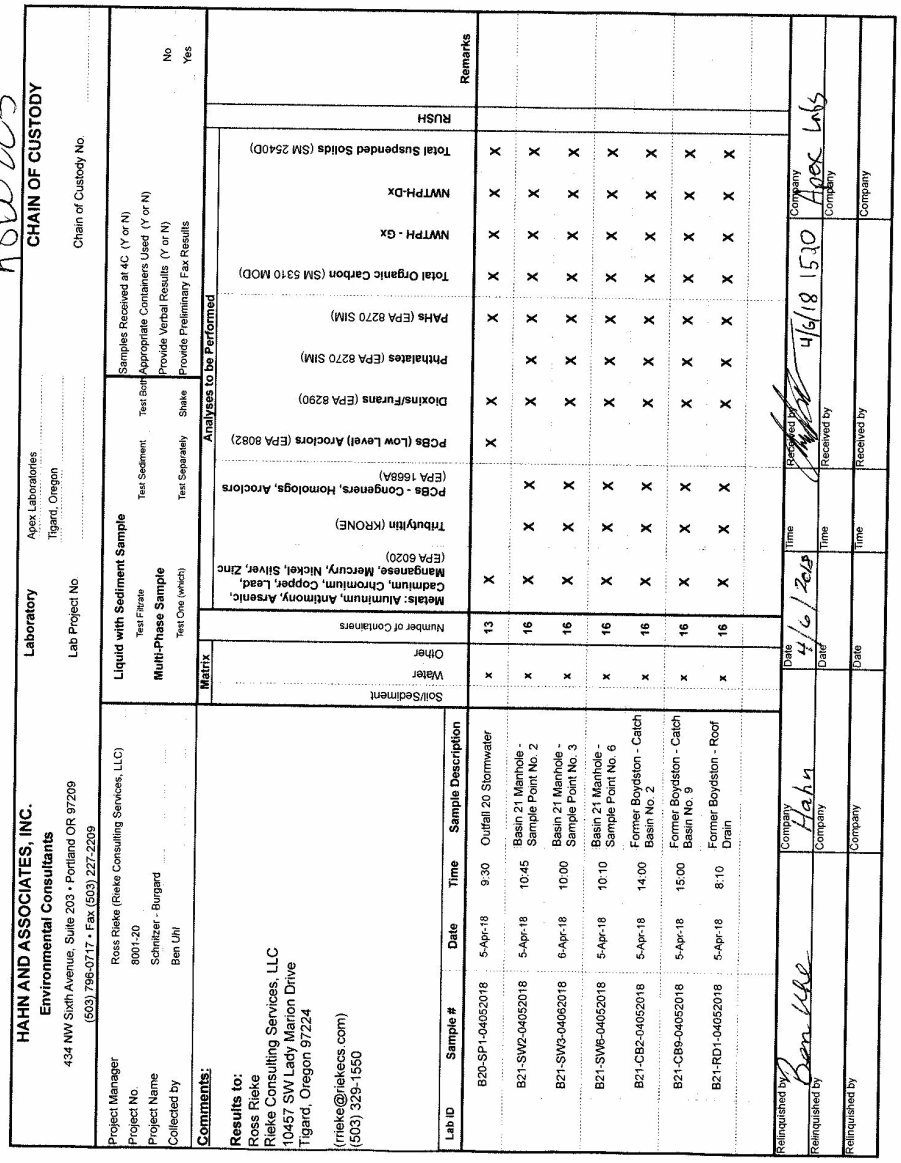
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50



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Laboratory: Apex Laboratories, Tigard, Oregon
Lab Project No.:

CHAIN OF CUSTODY
Chain of Custody No.:

Project Manager: Ross Rieke (Rieke Consulting Services, LLC)
Project No.: 8001-20
Project Name: Schnitzer - Burgard
Collected by: Ben Uhl

Liquid with Sediment Sample — Test Filtrate / Test Sediment / Test Both
Multi-Phase Sample — Test One (which) / Test Separately / Shake

Samples Received at 4C (Y or N)
Appropriate Containers Used (Y or N)
Provide Verbal Results (Y or N)
Provide Preliminary Fax Results

Comments:

Results to:
Ross Rieke
Rieke Consulting Services, LLC
10457 SW Lady Marion Drive
Tigard, Oregon 97224
(rrieke@riekecs.com)
(503) 329-1550

Lab ID	Sample #	Date	Time	Sample Description	Matrix: Soil/Sediment	Water	Other	Number of Containers	Analyses to be Performed: Metals: Aluminum, Antimony, Arsenic, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Silver, Zinc (EPA 6020)	Tributyltin (KRONE)	PCBs - Congeners, Homologs, Aroclors (EPA 1668A)	PCBs (Low Level) Aroclors (EPA 8082)	Dioxins/Furans (EPA 8290)	Phthalates (EPA 8270 SIM)	PAHs (EPA 8270 SIM)	Total Organic Carbon (SM 5310 MOD)	NWTPH - Gx	NWTPH-Dx	Total Suspended Solids (SM 2540D)	RUSH	Remarks
	B20-SP1-04052018	5-Apr-18	9:30	Outfall 20 Stormwater	x			13	X			X	X		X	X	X	X	X		
	B21-SW2-04052018	5-Apr-18	10:45	Basin 21 Manhole - Sample Point No. 2	x			16	X	X	X		X	X	X	X	X	X	X		
	B21-SW3-04062018	6-Apr-18	10:00	Basin 21 Manhole - Sample Point No. 3	x			16	X	X	X		X	X	X	X	X	X	X		
	B21-SW6-04052018	5-Apr-18	10:10	Basin 21 Manhole - Sample Point No. 6	x			16	X	X	X		X	X	X	X	X	X	X		
	B21-CB2-04052018	5-Apr-18	14:00	Former Boydston - Catch Basin No. 2	x			16	X	X	X		X	X	X	X	X	X	X		
	B21-CB9-04052018	5-Apr-18	15:00	Former Boydston - Catch Basin No. 9	x			16	X	X	X		X	X	X	X	X	X	X		
	B21-RD1-04052018	5-Apr-18	8:10	Former Boydston - Roof Drain	x			16	X	X	X		X	X	X	X	X	X	X		

Relinquished by: Ben Uhl — Company: Hahn — Date: 4/6/2018 — Time: 1530 — Received by: [signature] — Company: Apex Labs
Relinquished by: — Company: — Date: — Time: — Received by: — Company:
Relinquished by: — Company: — Date: — Time: — Received by: — Company:

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Rieke Consulting Services, LLC	Project: **Schnitzer Steel-Burgard**	
10457 SW Lady Marion Drive	Project Number: 8001-20	**Reported:**
Tigard, OR 97224	Project Manager: Ross Rieke	04/24/18 08:50

APEX LABS COOLER RECEIPT FORM

Client: Hahn Element WO#: A8 D0223

Project/Project #: Schnitzer - Burgard 8001-20

Delivery info:

Date/Time Received: 4/6/18 @ 1520 By: CFH

Delivered by: Apex X Client ESS FedEx UPS Swift Senvoy SDS Other

Cooler Inspection Inspected by: CFH : 4/6/18 @ 1800

Chain of Custody Included? Yes X No Custody Seals? Yes No X

Signed/Dated by Client? Yes X No

Signed/Dated by Apex? Yes X No

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)							
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)	5.9	0.1	3.9	3.5	2.4	1.7	3.9
Ice Type: (Gel/Real/Other)							
Condition:	Good						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: KM : 4/7/18 @ 0905

All Samples Intact? Yes X No Comments:

Bottle Labels/COCs agree? Yes X No X Comments: Temperature Blanks not on COC Have Sample ID labels

Containers/Volumes Received Appropriate for Analysis? Yes X No Comments:

Do VOA Vials have Visible Headspace? Yes X No NA

Comments RD-1 2/3 HS

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No NA

Comments:

Additional Information: Temperature blanks have IDs.

Labeled by: Witness: Cooler Inspected by: CFH See Project Contact Form: Y

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: A8D0223
Your C.O.C. #: na

Attention: Philip Nerenberg

Apex Laboratories
12232 SW Garden Place
Tigard, OR
USA 97223

Report Date: 2018/05/04
Report #: R5103916
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B879641
Received: 2018/04/10, 13:41

Sample Matrix: Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Dioxins/Furans in Water (8290A) (1)	6	2018/04/19	2018/04/30	BRL SOP-00406	EPA 8290A m
PCB Congeners in Water (1668A)	1	2018/04/27	2018/04/30	BRL SOP-00408	EPA 1668A m
PCB Congeners in Water (1668A)	5	2018/04/27	2018/05/01	BRL SOP-00408	EPA 1668A m

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Confirmatory runs for 2,3,7,8-TCDF are performed only if the primary result is greater than the RDL.

U = Undetected at the limit of quantitation.
J = Estimated concentration between the EDL & RDL.
B = Blank Contamination.
Q = One or more quality control criteria failed.
E = Analyte concentration exceeds the maximum concentration level.
K = Estimated maximum possible concentration due to ion abundance ratio failure.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Stephanie Pollen, Project Manager
Email: SPollen@maxxam.ca
Phone# (905) 817-5700

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		GKR523							
Sampling Date		2018/04/05 10:45							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW2-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.2 U	1.2	22	N/A	1.00	1.20	N/A	5495989
1,2,3,7,8-Penta CDD *	pg/L	1.3 U	1.3	56	N/A	1.00	1.30	N/A	5495989
1,2,3,4,7,8-Hexa CDD *	pg/L	1.4 U	1.4	56	N/A	0.100	0.140	N/A	5495989
1,2,3,6,7,8-Hexa CDD *	pg/L	1.2 U	1.2	56	N/A	0.100	0.120	N/A	5495989
1,2,3,7,8,9-Hexa CDD *	pg/L	1.3 U	1.3	56	N/A	0.100	0.130	N/A	5495989
1,2,3,4,6,7,8-Hepta CDD *	pg/L	11.8 J	1.4	56	N/A	0.0100	0.118	N/A	5495989
Octa CDD *	pg/L	77.6 J	1.1	110	N/A	0.000300	0.0233	N/A	5495989
Total Tetra CDD *	pg/L	1.2 U	1.2	22	N/A	N/A	N/A	0	5495989
Total Penta CDD *	pg/L	1.3 U	1.3	56	N/A	N/A	N/A	0	5495989
Total Hexa CDD *	pg/L	3.2 U (1)	3.2	56	N/A	N/A	N/A	0	5495989
Total Hepta CDD *	pg/L	24.0 J	1.4	56	N/A	N/A	N/A	2	5495989
2,3,7,8-Tetra CDF **	pg/L	1.3 U	1.3	22	N/A	0.100	0.130	N/A	5495989
1,2,3,7,8-Penta CDF **	pg/L	1.4 U	1.4	56	N/A	0.0300	0.0420	N/A	5495989
2,3,4,7,8-Penta CDF **	pg/L	1.4 U	1.4	56	N/A	0.300	0.420	N/A	5495989
1,2,3,4,7,8-Hexa CDF **	pg/L	1.3 U	1.3	56	N/A	0.100	0.130	N/A	5495989
1,2,3,6,7,8-Hexa CDF **	pg/L	1.1 U	1.1	56	N/A	0.100	0.110	N/A	5495989
2,3,4,6,7,8-Hexa CDF **	pg/L	1.3 U	1.3	56	N/A	0.100	0.130	N/A	5495989
1,2,3,7,8,9-Hexa CDF **	pg/L	1.5 U	1.5	56	N/A	0.100	0.150	N/A	5495989
1,2,3,4,6,7,8-Hepta CDF **	pg/L	2.7 U (1)	2.7	56	N/A	0.0100	0.0270	N/A	5495989
1,2,3,4,7,8,9-Hepta CDF **	pg/L	1.5 U	1.5	56	N/A	0.0100	0.0150	N/A	5495989
Octa CDF **	pg/L	6.53 J	0.99	110	N/A	0.000300	0.00196	N/A	5495989
Total Tetra CDF **	pg/L	1.3 U	1.3	22	N/A	N/A	N/A	0	5495989
Total Penta CDF **	pg/L	1.4 U	1.4	56	N/A	N/A	N/A	0	5495989
Total Hexa CDF **	pg/L	1.3 U	1.3	56	N/A	N/A	N/A	0	5495989
Total Hepta CDF **	pg/L	3.2 J	1.2	56	N/A	N/A	N/A	1	5495989
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	4.19	N/A	N/A

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
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WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

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** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		GKR523							
Sampling Date		2018/04/05 10:45							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW2-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	118	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-1234678 HeptaCDF **	%	110	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-123478 HexaCDF **	%	101	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-123678 HexaCDD *	%	113	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-12378 PentaCDD *	%	97	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-12378 PentaCDF **	%	79	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-2378 TetraCDD *	%	104	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-2378 TetraCDF **	%	83	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-OCDD *	%	132	N/A	N/A	N/A	N/A	N/A	N/A	5495989

EDL = Estimated Detection Limit

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		GKR524							
Sampling Date		2018/04/06 10:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW3-04062018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.3 U	1.3	22	N/A	1.00	1.30	N/A	5495989
1,2,3,7,8-Penta CDD *	pg/L	1.0 U	1.0	55	N/A	1.00	1.00	N/A	5495989
1,2,3,4,7,8-Hexa CDD *	pg/L	1.2 U	1.2	55	N/A	0.100	0.120	N/A	5495989
1,2,3,6,7,8-Hexa CDD *	pg/L	0.99 U	0.99	55	N/A	0.100	0.0990	N/A	5495989
1,2,3,7,8,9-Hexa CDD *	pg/L	1.1 U	1.1	55	N/A	0.100	0.110	N/A	5495989
1,2,3,4,6,7,8-Hepta CDD *	pg/L	2.4 J	1.2	55	N/A	0.0100	0.0240	N/A	5495989
Octa CDD *	pg/L	25.8 J	1.3	110	N/A	0.000300	0.00774	N/A	5495989
Total Tetra CDD *	pg/L	1.3 U	1.3	22	N/A	N/A	N/A	0	5495989
Total Penta CDD *	pg/L	1.0 U	1.0	55	N/A	N/A	N/A	0	5495989
Total Hexa CDD *	pg/L	2.0 U (1)	2.0	55	N/A	N/A	N/A	0	5495989
Total Hepta CDD *	pg/L	2.4 J	1.2	55	N/A	N/A	N/A	1	5495989
2,3,7,8-Tetra CDF **	pg/L	1.3 U	1.3	22	N/A	0.100	0.130	N/A	5495989
1,2,3,7,8-Penta CDF **	pg/L	1.1 U	1.1	55	N/A	0.0300	0.0330	N/A	5495989
2,3,4,7,8-Penta CDF **	pg/L	1.1 U	1.1	55	N/A	0.300	0.330	N/A	5495989
1,2,3,4,7,8-Hexa CDF **	pg/L	1.2 U	1.2	55	N/A	0.100	0.120	N/A	5495989
1,2,3,6,7,8-Hexa CDF **	pg/L	1.1 U	1.1	55	N/A	0.100	0.110	N/A	5495989
2,3,4,6,7,8-Hexa CDF **	pg/L	1.2 U	1.2	55	N/A	0.100	0.120	N/A	5495989
1,2,3,7,8,9-Hexa CDF **	pg/L	1.4 U	1.4	55	N/A	0.100	0.140	N/A	5495989
1,2,3,4,6,7,8-Hepta CDF **	pg/L	1.2 U	1.2	55	N/A	0.0100	0.0120	N/A	5495989
1,2,3,4,7,8,9-Hepta CDF **	pg/L	1.7 U	1.7	55	N/A	0.0100	0.0170	N/A	5495989
Octa CDF **	pg/L	1.3 U	1.3	110	N/A	0.000300	0.000390	N/A	5495989
Total Tetra CDF **	pg/L	1.3 U	1.3	22	N/A	N/A	N/A	0	5495989
Total Penta CDF **	pg/L	1.1 U	1.1	55	N/A	N/A	N/A	0	5495989
Total Hexa CDF **	pg/L	1.2 U	1.2	55	N/A	N/A	N/A	0	5495989
Total Hepta CDF **	pg/L	1.4 U	1.4	55	N/A	N/A	N/A	0	5495989
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	3.67	N/A	N/A

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

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N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		GKR524							
Sampling Date		2018/04/06 10:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW3-04062018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	127	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-1234678 HeptaCDF **	%	112	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-123478 HexaCDF **	%	96	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-123678 HexaCDD *	%	109	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-12378 PentaCDD *	%	114	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-12378 PentaCDF **	%	81	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-2378 TetraCDD *	%	91	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-2378 TetraCDF **	%	76	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-OCDD *	%	133	N/A	N/A	N/A	N/A	N/A	N/A	5495989

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		GKR525							
Sampling Date		2018/04/05 10:10							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW6-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.1 U	1.1	22	N/A	1.00	1.10	N/A	5495989
1,2,3,7,8-Penta CDD *	pg/L	0.97 U	0.97	56	N/A	1.00	0.970	N/A	5495989
1,2,3,4,7,8-Hexa CDD *	pg/L	1.3 U	1.3	56	N/A	0.100	0.130	N/A	5495989
1,2,3,6,7,8-Hexa CDD *	pg/L	1.1 U	1.1	56	N/A	0.100	0.110	N/A	5495989
1,2,3,7,8,9-Hexa CDD *	pg/L	1.2 U	1.2	56	N/A	0.100	0.120	N/A	5495989
1,2,3,4,6,7,8-Hepta CDD *	pg/L	4.4 J	1.2	56	N/A	0.0100	0.0440	N/A	5495989
Octa CDD *	pg/L	26.3 J	1.4	110	N/A	0.000300	0.00789	N/A	5495989
Total Tetra CDD *	pg/L	1.1 U	1.1	22	N/A	N/A	N/A	0	5495989
Total Penta CDD *	pg/L	0.97 U	0.97	56	N/A	N/A	N/A	0	5495989
Total Hexa CDD *	pg/L	2.3 U (1)	2.3	56	N/A	N/A	N/A	0	5495989
Total Hepta CDD *	pg/L	9.2 J	1.2	56	N/A	N/A	N/A	2	5495989
2,3,7,8-Tetra CDF **	pg/L	1.5 U	1.5	22	N/A	0.100	0.150	N/A	5495989
1,2,3,7,8-Penta CDF **	pg/L	1.1 U	1.1	56	N/A	0.0300	0.0330	N/A	5495989
2,3,4,7,8-Penta CDF **	pg/L	1.1 U	1.1	56	N/A	0.300	0.330	N/A	5495989
1,2,3,4,7,8-Hexa CDF **	pg/L	1.0 U	1.0	56	N/A	0.100	0.100	N/A	5495989
1,2,3,6,7,8-Hexa CDF **	pg/L	0.89 U	0.89	56	N/A	0.100	0.0890	N/A	5495989
2,3,4,6,7,8-Hexa CDF **	pg/L	0.99 U	0.99	56	N/A	0.100	0.0990	N/A	5495989
1,2,3,7,8,9-Hexa CDF **	pg/L	1.2 U	1.2	56	N/A	0.100	0.120	N/A	5495989
1,2,3,4,6,7,8-Hepta CDF **	pg/L	1.2 U	1.2	56	N/A	0.0100	0.0120	N/A	5495989
1,2,3,4,7,8,9-Hepta CDF **	pg/L	1.7 U	1.7	56	N/A	0.0100	0.0170	N/A	5495989
Octa CDF **	pg/L	1.7 U (1)	1.7	110	N/A	0.000300	0.000510	N/A	5495989
Total Tetra CDF **	pg/L	1.5 U	1.5	22	N/A	N/A	N/A	0	5495989
Total Penta CDF **	pg/L	1.1 U	1.1	56	N/A	N/A	N/A	0	5495989
Total Hexa CDF **	pg/L	1.0 U	1.0	56	N/A	N/A	N/A	0	5495989
Total Hepta CDF **	pg/L	1.4 U	1.4	56	N/A	N/A	N/A	0	5495989
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	3.43	N/A	N/A

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

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N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		GKR525							
Sampling Date		2018/04/05 10:10							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW6-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	110	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-1234678 HeptaCDF **	%	109	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-123478 HexaCDF **	%	99	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-123678 HexaCDD *	%	102	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-12378 PentaCDD *	%	93	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-12378 PentaCDF **	%	83	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-2378 TetraCDD *	%	107	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-2378 TetraCDF **	%	101	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-OCDD *	%	133	N/A	N/A	N/A	N/A	N/A	N/A	5495989

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		GKR526							
Sampling Date		2018/04/05 14:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB2-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.4 U	1.4	22	N/A	1.00	1.40	N/A	5495989
1,2,3,7,8-Penta CDD *	pg/L	1.5 U	1.5	56	N/A	1.00	1.50	N/A	5495989
1,2,3,4,7,8-Hexa CDD *	pg/L	1.3 U	1.3	56	N/A	0.100	0.130	N/A	5495989
1,2,3,6,7,8-Hexa CDD *	pg/L	1.9 J	1.1	56	N/A	0.100	0.190	N/A	5495989
1,2,3,7,8,9-Hexa CDD *	pg/L	3.0 J	1.2	56	N/A	0.100	0.300	N/A	5495989
1,2,3,4,6,7,8-Hepta CDD *	pg/L	54.1 J	1.3	56	N/A	0.0100	0.541	N/A	5495989
Octa CDD *	pg/L	425	1.1	110	N/A	0.000300	0.128	N/A	5495989
Total Tetra CDD *	pg/L	1.4 U	1.4	22	N/A	N/A	N/A	0	5495989
Total Penta CDD *	pg/L	1.5 U	1.5	56	N/A	N/A	N/A	0	5495989
Total Hexa CDD *	pg/L	20.4 J	1.2	56	N/A	N/A	N/A	4	5495989
Total Hepta CDD *	pg/L	110	1.3	56	N/A	N/A	N/A	2	5495989
2,3,7,8-Tetra CDF **	pg/L	1.4 U	1.4	22	N/A	0.100	0.140	N/A	5495989
1,2,3,7,8-Penta CDF **	pg/L	1.5 U	1.5	56	N/A	0.0300	0.0450	N/A	5495989
2,3,4,7,8-Penta CDF **	pg/L	1.5 U	1.5	56	N/A	0.300	0.450	N/A	5495989
1,2,3,4,7,8-Hexa CDF **	pg/L	1.2 U	1.2	56	N/A	0.100	0.120	N/A	5495989
1,2,3,6,7,8-Hexa CDF **	pg/L	1.1 U	1.1	56	N/A	0.100	0.110	N/A	5495989
2,3,4,6,7,8-Hexa CDF **	pg/L	1.2 U	1.2	56	N/A	0.100	0.120	N/A	5495989
1,2,3,7,8,9-Hexa CDF **	pg/L	1.4 U	1.4	56	N/A	0.100	0.140	N/A	5495989
1,2,3,4,6,7,8-Hepta CDF **	pg/L	9.7 U (1)	9.7	56	N/A	0.0100	0.0970	N/A	5495989
1,2,3,4,7,8,9-Hepta CDF **	pg/L	1.4 U	1.4	56	N/A	0.0100	0.0140	N/A	5495989
Octa CDF **	pg/L	28.4 J	1.3	110	N/A	0.000300	0.00852	N/A	5495989
Total Tetra CDF **	pg/L	1.4 U	1.4	22	N/A	N/A	N/A	0	5495989
Total Penta CDF **	pg/L	3.7 J	1.5	56	N/A	N/A	N/A	1	5495989
Total Hexa CDF **	pg/L	10.9 J	1.2	56	N/A	N/A	N/A	3	5495989
Total Hepta CDF **	pg/L	13.2 J	1.2	56	N/A	N/A	N/A	1	5495989
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	5.43	N/A	N/A

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		GKR526							
Sampling Date		2018/04/05 14:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB2-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	131	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-1234678 HeptaCDF **	%	115	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-123478 HexaCDF **	%	103	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-123678 HexaCDD *	%	108	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-12378 PentaCDD *	%	110	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-12378 PentaCDF **	%	96	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-2378 TetraCDD *	%	123	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-2378 TetraCDF **	%	111	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-OCDD *	%	133	N/A	N/A	N/A	N/A	N/A	N/A	5495989

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
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DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		GKR527							
Sampling Date		2018/04/05 15:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB9-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.6 U	1.6	22	N/A	1.00	1.60	N/A	5495989
1,2,3,7,8-Penta CDD *	pg/L	1.7 U	1.7	55	N/A	1.00	1.70	N/A	5495989
1,2,3,4,7,8-Hexa CDD *	pg/L	1.3 U	1.3	55	N/A	0.100	0.130	N/A	5495989
1,2,3,6,7,8-Hexa CDD *	pg/L	1.8 J	1.1	55	N/A	0.100	0.180	N/A	5495989
1,2,3,7,8,9-Hexa CDD *	pg/L	2.4 J	1.2	55	N/A	0.100	0.240	N/A	5495989
1,2,3,4,6,7,8-Hepta CDD *	pg/L	42.0 J	1.5	55	N/A	0.0100	0.420	N/A	5495989
Octa CDD *	pg/L	350	1.3	110	N/A	0.000300	0.105	N/A	5495989
Total Tetra CDD *	pg/L	1.6 U	1.6	22	N/A	N/A	N/A	0	5495989
Total Penta CDD *	pg/L	1.7 U	1.7	55	N/A	N/A	N/A	0	5495989
Total Hexa CDD *	pg/L	16.8 J	1.2	55	N/A	N/A	N/A	4	5495989
Total Hepta CDD *	pg/L	85.3	1.5	55	N/A	N/A	N/A	2	5495989
2,3,7,8-Tetra CDF **	pg/L	1.4 U	1.4	22	N/A	0.100	0.140	N/A	5495989
1,2,3,7,8-Penta CDF **	pg/L	1.4 U	1.4	55	N/A	0.0300	0.0420	N/A	5495989
2,3,4,7,8-Penta CDF **	pg/L	1.4 U	1.4	55	N/A	0.300	0.420	N/A	5495989
1,2,3,4,7,8-Hexa CDF **	pg/L	1.2 U	1.2	55	N/A	0.100	0.120	N/A	5495989
1,2,3,6,7,8-Hexa CDF **	pg/L	1.1 U	1.1	55	N/A	0.100	0.110	N/A	5495989
2,3,4,6,7,8-Hexa CDF **	pg/L	1.2 U	1.2	55	N/A	0.100	0.120	N/A	5495989
1,2,3,7,8,9-Hexa CDF **	pg/L	1.4 U	1.4	55	N/A	0.100	0.140	N/A	5495989
1,2,3,4,6,7,8-Hepta CDF **	pg/L	9.0 U (1)	9.0	55	N/A	0.0100	0.0900	N/A	5495989
1,2,3,4,7,8,9-Hepta CDF **	pg/L	1.6 U	1.6	55	N/A	0.0100	0.0160	N/A	5495989
Octa CDF **	pg/L	23.6 J	1.3	110	N/A	0.000300	0.00708	N/A	5495989
Total Tetra CDF **	pg/L	1.4 U	1.4	22	N/A	N/A	N/A	0	5495989
Total Penta CDF **	pg/L	7.0 J	1.4	55	N/A	N/A	N/A	2	5495989
Total Hexa CDF **	pg/L	7.5 J	1.2	55	N/A	N/A	N/A	2	5495989
Total Hepta CDF **	pg/L	13.0 J	1.3	55	N/A	N/A	N/A	1	5495989
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	5.58	N/A	N/A

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
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WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		GKR527							
Sampling Date		2018/04/05 15:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB9-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	117	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-1234678 HeptaCDF **	%	98	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-123478 HexaCDF **	%	93	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-123678 HexaCDD *	%	101	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-12378 PentaCDD *	%	101	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-12378 PentaCDF **	%	87	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-2378 TetraCDD *	%	116	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-2378 TetraCDF **	%	106	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-OCDD *	%	122	N/A	N/A	N/A	N/A	N/A	N/A	5495989

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

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DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		GKR528							
Sampling Date		2018/04/05 08:10							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-RD1-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2,3,7,8-Tetra CDD *	pg/L	1.1 U	1.1	19	N/A	1.00	1.10	N/A	5495989
1,2,3,7,8-Penta CDD *	pg/L	1.3 U	1.3	48	N/A	1.00	1.30	N/A	5495989
1,2,3,4,7,8-Hexa CDD *	pg/L	1.3 U	1.3	48	N/A	0.100	0.130	N/A	5495989
1,2,3,6,7,8-Hexa CDD *	pg/L	1.1 U	1.1	48	N/A	0.100	0.110	N/A	5495989
1,2,3,7,8,9-Hexa CDD *	pg/L	1.2 U	1.2	48	N/A	0.100	0.120	N/A	5495989
1,2,3,4,6,7,8-Hepta CDD *	pg/L	3.5 J	1.1	48	N/A	0.0100	0.0350	N/A	5495989
Octa CDD *	pg/L	12.6 J	0.84	95	N/A	0.000300	0.00378	N/A	5495989
Total Tetra CDD *	pg/L	1.1 U	1.1	19	N/A	N/A	N/A	0	5495989
Total Penta CDD *	pg/L	1.3 U	1.3	48	N/A	N/A	N/A	0	5495989
Total Hexa CDD *	pg/L	2.2 U (1)	2.2	48	N/A	N/A	N/A	0	5495989
Total Hepta CDD *	pg/L	6.8 J	1.1	48	N/A	N/A	N/A	2	5495989
2,3,7,8-Tetra CDF **	pg/L	1.0 U	1.0	19	N/A	0.100	0.100	N/A	5495989
1,2,3,7,8-Penta CDF **	pg/L	1.2 U	1.2	48	N/A	0.0300	0.0360	N/A	5495989
2,3,4,7,8-Penta CDF **	pg/L	1.2 U	1.2	48	N/A	0.300	0.360	N/A	5495989
1,2,3,4,7,8-Hexa CDF **	pg/L	1.1 U	1.1	48	N/A	0.100	0.110	N/A	5495989
1,2,3,6,7,8-Hexa CDF **	pg/L	0.93 U	0.93	48	N/A	0.100	0.0930	N/A	5495989
2,3,4,6,7,8-Hexa CDF **	pg/L	1.0 U	1.0	48	N/A	0.100	0.100	N/A	5495989
1,2,3,7,8,9-Hexa CDF **	pg/L	1.2 U	1.2	48	N/A	0.100	0.120	N/A	5495989
1,2,3,4,6,7,8-Hepta CDF **	pg/L	1.0 U	1.0	48	N/A	0.0100	0.0100	N/A	5495989
1,2,3,4,7,8,9-Hepta CDF **	pg/L	1.5 U	1.5	48	N/A	0.0100	0.0150	N/A	5495989
Octa CDF **	pg/L	1.2 U	1.2	95	N/A	0.000300	0.000360	N/A	5495989
Total Tetra CDF **	pg/L	1.0 U	1.0	19	N/A	N/A	N/A	0	5495989
Total Penta CDF **	pg/L	1.2 U	1.2	48	N/A	N/A	N/A	0	5495989
Total Hexa CDF **	pg/L	1.1 U	1.1	48	N/A	N/A	N/A	0	5495989
Total Hepta CDF **	pg/L	1.2 U	1.2	48	N/A	N/A	N/A	0	5495989
TOTAL TOXIC EQUIVALENCY	pg/L	N/A	N/A	N/A	N/A	N/A	3.74	N/A	N/A

EDL = Estimated Detection Limit

RDL = Reportable Detection Limit

TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
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DIOXINS AND FURANS BY HRMS (WATER)

Maxxam ID		GKR528							
Sampling Date		2018/04/05 08:10							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-RD1-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
Surrogate Recovery (%)									
C13-1234678 HeptaCDD *	%	125	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-1234678 HeptaCDF **	%	104	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-123478 HexaCDF **	%	89	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-123678 HexaCDD *	%	96	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-12378 PentaCDD *	%	94	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-12378 PentaCDF **	%	78	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-2378 TetraCDD *	%	98	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-2378 TetraCDF **	%	83	N/A	N/A	N/A	N/A	N/A	N/A	5495989
C13-OCDD *	%	129	N/A	N/A	N/A	N/A	N/A	N/A	5495989

EDL = Estimated Detection Limit

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* CDD = Chloro Dibenzo-p-Dioxin

N/A = Not Applicable

** CDF = Chloro Dibenzo-p-Furan

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR523							
Sampling Date		2018/04/05 10:45							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW2-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2-MonoCB-(1)	ng/L	0.0045 U (1)	0.0045	0.10	N/A	N/A	N/A	N/A	5504923
3-MonoCB-(2)	ng/L	0.0014 U	0.0014	0.10	N/A	N/A	N/A	N/A	5504923
4-MonoCB-(3)	ng/L	0.0031 J	0.0014	0.10	N/A	N/A	N/A	N/A	5504923
22'-DiCB-(4)	ng/L	0.357	0.0077	0.10	N/A	N/A	N/A	N/A	5504923
2,3-DiCB-(5)	ng/L	0.014 U	0.014	0.10	N/A	N/A	N/A	N/A	5504923
2,3'-DiCB-(6)	ng/L	0.021 U (1)	0.021	0.10	N/A	N/A	N/A	N/A	5504923
2,4-DiCB-(7)	ng/L	0.011 U	0.011	0.10	N/A	N/A	N/A	N/A	5504923
2,4'-DiCB-(8)	ng/L	0.105	0.0087	0.10	N/A	N/A	N/A	N/A	5504923
2,5-DiCB-(9)	ng/L	0.011 U	0.011	0.10	N/A	N/A	N/A	N/A	5504923
2,6-DiCB-(10)	ng/L	0.0111 J	0.0071	0.10	N/A	N/A	N/A	N/A	5504923
3,3'-DiCB-(11)	ng/L	0.208	0.011	0.10	N/A	N/A	N/A	N/A	5504923
DiCB-(12)+(13)	ng/L	0.011 U	0.011	0.20	N/A	N/A	N/A	N/A	5504923
3,5-DiCB-(14)	ng/L	0.011 U	0.011	0.10	N/A	N/A	N/A	N/A	5504923
4,4'-DiCB-(15)	ng/L	0.148	0.018	0.10	N/A	N/A	N/A	N/A	5504923
22'3-TriCB-(16)	ng/L	0.222	0.011	0.10	N/A	N/A	N/A	N/A	5504923
22'4-TriCB-(17)	ng/L	0.210	0.010	0.10	N/A	N/A	N/A	N/A	5504923
TriCB-(18)+(30)	ng/L	0.422	0.0077	0.20	N/A	N/A	N/A	N/A	5504923
22'6-TriCB-(19)	ng/L	0.0748 J	0.0074	0.10	N/A	N/A	N/A	N/A	5504923
TriCB-(20) + (28)	ng/L	0.504	0.0047	0.20	N/A	N/A	N/A	N/A	5504923
TriCB-(21)+(33)	ng/L	0.261	0.0045	0.20	N/A	N/A	N/A	N/A	5504923
234'-TriCB-(22)	ng/L	0.184	0.0048	0.10	N/A	N/A	N/A	N/A	5504923
235-TriCB-(23)	ng/L	0.0051 U	0.0051	0.10	N/A	N/A	N/A	N/A	5504923
236-TriCB-(24)	ng/L	0.0075 U	0.0075	0.10	N/A	N/A	N/A	N/A	5504923
23'4-TriCB-(25)	ng/L	0.0355 J	0.0042	0.10	N/A	N/A	N/A	N/A	5504923
TriCB-(26)+(29)	ng/L	0.0863 J	0.0047	0.20	N/A	N/A	N/A	N/A	5504923
23'6-TriCB-(27)	ng/L	0.0282 J	0.0064	0.10	N/A	N/A	N/A	N/A	5504923
24'5-TriCB-(31)	ng/L	0.409	0.0043	0.10	N/A	N/A	N/A	N/A	5504923
24'6-TriCB-(32)	ng/L	0.114	0.0059	0.10	N/A	N/A	N/A	N/A	5504923
23'5'-TriCB-(34)	ng/L	0.0046 U	0.0046	0.10	N/A	N/A	N/A	N/A	5504923
33'4-TriCB-(35)	ng/L	0.0079 J	0.0047	0.10	N/A	N/A	N/A	N/A	5504923

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	UNITS	B21-SW2-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'5-TriCB-(36)	ng/L	0.0040 U	0.0040	0.10	N/A	N/A	N/A	N/A	5504923
344'-TriCB-(37)	ng/L	0.124	0.0080	0.10	N/A	N/A	N/A	N/A	5504923
345-TriCB-(38)	ng/L	0.0047 U	0.0047	0.10	N/A	N/A	N/A	N/A	5504923
34'5-TriCB-(39)	ng/L	0.0046 U	0.0046	0.10	N/A	N/A	N/A	N/A	5504923
TetraCB-(40)+(41)+(71)	ng/L	0.225 J	0.0033	0.30	N/A	N/A	N/A	N/A	5504923
22'34'-TetraCB-(42)	ng/L	0.114	0.0041	0.10	N/A	N/A	N/A	N/A	5504923
22'35-TetraCB-(43)	ng/L	0.020 U (1)	0.020	0.10	N/A	N/A	N/A	N/A	5504923
TetraCB-(44)+(47)+(65)	ng/L	0.351	0.0031	0.30	N/A	N/A	N/A	N/A	5504923
TetraCB-(45)+(51)	ng/L	0.0852 J	0.0034	0.20	N/A	N/A	N/A	N/A	5504923
22'36'-TetraCB-(46)	ng/L	0.0315 J	0.0040	0.10	N/A	N/A	N/A	N/A	5504923
22'45-TetraCB-(48)	ng/L	0.0888 J	0.0034	0.10	N/A	N/A	N/A	N/A	5504923
TetraCB-(49)+TetraCB-(69)	ng/L	0.199 J	0.0029	0.20	N/A	N/A	N/A	N/A	5504923
TetraCB-(50)+(53)	ng/L	0.0644 J	0.0032	0.20	N/A	N/A	N/A	N/A	5504923
22'55'-TetraCB-(52)	ng/L	0.359	0.0032	0.10	N/A	N/A	N/A	N/A	5504923
22'66'-TetraCB-(54)	ng/L	0.0050 U	0.0050	0.10	N/A	N/A	N/A	N/A	5504923
233'4-TetraCB-(55)	ng/L	0.0037 U	0.0037	0.10	N/A	N/A	N/A	N/A	5504923
233'4'-Tetra CB(56)	ng/L	0.0755 J	0.0034	0.10	N/A	N/A	N/A	N/A	5504923
233'5-TetraCB-(57)	ng/L	0.0035 U	0.0035	0.10	N/A	N/A	N/A	N/A	5504923
233'5'-TetraCB-(58)	ng/L	0.0034 U	0.0034	0.10	N/A	N/A	N/A	N/A	5504923
TetraCB-(59)+(62)+(75)	ng/L	0.0368 J	0.0024	0.30	N/A	N/A	N/A	N/A	5504923
2344'-TetraCB -(60)	ng/L	0.0486 J	0.0037	0.10	N/A	N/A	N/A	N/A	5504923
TetraCB-(61)+(70)+(74)+(76)	ng/L	0.316 J	0.0034	0.40	N/A	N/A	N/A	N/A	5504923
234'5-TetraCB-(63)	ng/L	0.0052 U (1)	0.0052	0.10	N/A	N/A	N/A	N/A	5504923
234'6-TetraCB-(64)	ng/L	0.165	0.0026	0.10	N/A	N/A	N/A	N/A	5504923
23'44'-TetraCB-(66)	ng/L	0.157	0.0032	0.10	N/A	N/A	N/A	N/A	5504923
23'45-TetraCB-(67)	ng/L	0.0079 J	0.0032	0.10	N/A	N/A	N/A	N/A	5504923
23'45'-TetraCB-(68)	ng/L	0.0033 U	0.0033	0.10	N/A	N/A	N/A	N/A	5504923
23'55'-TetraCB-(72)	ng/L	0.0032 U	0.0032	0.10	N/A	N/A	N/A	N/A	5504923
23'5'6-TetraCB-(73)	ng/L	0.0023 U	0.0023	0.10	N/A	N/A	N/A	N/A	5504923
33'44'-TetraCB-(77)	ng/L	0.0211 J	0.0045	0.10	N/A	0.000100	0.00000211	N/A	5504923

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR523							
Sampling Date		2018/04/05 10:45							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW2-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'45-TetraCB-(78)	ng/L	0.0034 U	0.0034	0.10	N/A	N/A	N/A	N/A	5504923
33'45'-TetraCB(79)	ng/L	0.0040 J	0.0029	0.10	N/A	N/A	N/A	N/A	5504923
33'55'-TetraCB-(80)	ng/L	0.0030 U	0.0030	0.10	N/A	N/A	N/A	N/A	5504923
344'5-TetraCB-(81)	ng/L	0.0044 U	0.0044	0.10	N/A	0.000300	0.00000132	N/A	5504923
22'33'4-PentaCB-(82)	ng/L	0.0366 J	0.0059	0.10	N/A	N/A	N/A	N/A	5504923
PentaCB-(83)+(99)	ng/L	0.122 J	0.0051	0.20	N/A	N/A	N/A	N/A	5504923
22'33'6-PentaCB-(84)	ng/L	0.0829 J	0.0058	0.10	N/A	N/A	N/A	N/A	5504923
PentaCB-(85)+(116)+(117)	ng/L	0.0421 J	0.0040	0.30	N/A	N/A	N/A	N/A	5504923
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	0.175 J	0.0042	0.60	N/A	N/A	N/A	N/A	5504923
PentaCB-(88)+(91)	ng/L	0.0405 J	0.0050	0.20	N/A	N/A	N/A	N/A	5504923
22'346'-PentaCB-(89)	ng/L	0.0053 U	0.0053	0.10	N/A	N/A	N/A	N/A	5504923
PentaCB-(90)+(101)+(113)	ng/L	0.233 J	0.0042	0.30	N/A	N/A	N/A	N/A	5504923
22'355'-PentaCB-(92)	ng/L	0.0426 J	0.0050	0.10	N/A	N/A	N/A	N/A	5504923
PentaCB-(93)+(98)+(100)+(102)	ng/L	0.0140 J	0.0049	0.40	N/A	N/A	N/A	N/A	5504923
22'356'-PentaCB-(94)	ng/L	0.0054 U	0.0054	0.10	N/A	N/A	N/A	N/A	5504923
22'35'6-PentaCB-(95)	ng/L	0.235	0.0048	0.10	N/A	N/A	N/A	N/A	5504923
22'366'-PentaCB-(96)	ng/L	0.0038 U (1)	0.0038	0.10	N/A	N/A	N/A	N/A	5504923
22'45'6-PentaCB-(103)	ng/L	0.0044 U	0.0044	0.10	N/A	N/A	N/A	N/A	5504923
22'466'-PentaCB-(104)	ng/L	0.0011 U	0.0011	0.10	N/A	N/A	N/A	N/A	5504923
233'44'-PentaCB-(105)	ng/L	0.113	0.0043	0.10	N/A	0.0000300	0.00000339	N/A	5504923
233'45-PentaCB-(106)	ng/L	0.0035 U	0.0035	0.10	N/A	N/A	N/A	N/A	5504923
233'4'5-PentaCB-(107)	ng/L	0.0133 J	0.0033	0.10	N/A	N/A	N/A	N/A	5504923
PentaCB-(108)+(124)	ng/L	0.0079 J	0.0034	0.20	N/A	N/A	N/A	N/A	5504923
PentaCB-(110)+(115)	ng/L	0.352	0.0040	0.20	N/A	N/A	N/A	N/A	5504923
233'55'-PentaCB-(111)	ng/L	0.0038 U	0.0038	0.10	N/A	N/A	N/A	N/A	5504923
233'56-PentaCB-(112)	ng/L	0.0036 U	0.0036	0.10	N/A	N/A	N/A	N/A	5504923
2344'5-PentaCB-(114)	ng/L	0.0055 J	0.0043	0.10	N/A	0.0000300	0.000000165	N/A	5504923
23'44'5-PentaCB-(118)	ng/L	0.228	0.0043	0.10	N/A	0.0000300	0.00000684	N/A	5504923
23'455'-PentaCB-(120)	ng/L	0.0034 U	0.0034	0.10	N/A	N/A	N/A	N/A	5504923
23'45'6-PentaCB-(121)	ng/L	0.0037 U	0.0037	0.10	N/A	N/A	N/A	N/A	5504923

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	UNITS	B21-SW2-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'5'-PentaCB-(122)	ng/L	0.0038 U	0.0038	0.10	N/A	N/A	N/A	N/A	5504923
23'44'5'-PentaCB-(123)	ng/L	0.0048 U	0.0048	0.10	N/A	0.0000300	0.000000144	N/A	5504923
33'44'5-PentaCB-(126)	ng/L	0.0040 U	0.0040	0.10	N/A	0.100	0.000400	N/A	5504923
33'455'-PentaCB-(127)	ng/L	0.0034 U	0.0034	0.10	N/A	N/A	N/A	N/A	5504923
HexaCB-(128)+(166)	ng/L	0.050 U (1)	0.050	0.20	N/A	N/A	N/A	N/A	5504923
HexaCB-(129)+(138)+(163)	ng/L	0.354	0.013	0.30	N/A	N/A	N/A	N/A	5504923
22'33'45'-HexaCB-(130)	ng/L	0.021 U (1)	0.021	0.10	N/A	N/A	N/A	N/A	5504923
22'33'46-HexaCB-(131)	ng/L	0.017 U	0.017	0.10	N/A	N/A	N/A	N/A	5504923
22'33'46'-HexaCB-(132)	ng/L	0.135	0.016	0.10	N/A	N/A	N/A	N/A	5504923
22'33'55'-HexaCB-(133)	ng/L	0.014 U	0.014	0.10	N/A	N/A	N/A	N/A	5504923
HexaCB-(134)+(143)	ng/L	0.015 U	0.015	0.20	N/A	N/A	N/A	N/A	5504923
HexaCB-(135)+(151)	ng/L	0.0924 J	0.0072	0.20	N/A	N/A	N/A	N/A	5504923
22'33'66'-HexaCB-(136)	ng/L	0.0404 J	0.0049	0.10	N/A	N/A	N/A	N/A	5504923
22'344'5-HexaCB-(137)	ng/L	0.019 J	0.015	0.10	N/A	N/A	N/A	N/A	5504923
HexaCB-(139)+(140)	ng/L	0.013 U	0.013	0.20	N/A	N/A	N/A	N/A	5504923
22'3455'-HexaCB-(141)	ng/L	0.059 J	0.014	0.10	N/A	N/A	N/A	N/A	5504923
22'3456-HexaCB-(142)	ng/L	0.015 U	0.015	0.10	N/A	N/A	N/A	N/A	5504923
22'345'6-HexaCB-(144)	ng/L	0.0142 J	0.0072	0.10	N/A	N/A	N/A	N/A	5504923
22'3466'-HexaCB-(145)	ng/L	0.0053 U	0.0053	0.10	N/A	N/A	N/A	N/A	5504923
22'34'55'-HexaCB-(146)	ng/L	0.042 J	0.013	0.10	N/A	N/A	N/A	N/A	5504923
HexaCB-(147)+(149)	ng/L	0.245	0.013	0.20	N/A	N/A	N/A	N/A	5504923
22'34'56'-HexaCB-(148)	ng/L	0.0070 U	0.0070	0.10	N/A	N/A	N/A	N/A	5504923
22'34'66'-HexaCB-(150)	ng/L	0.0050 U	0.0050	0.10	N/A	N/A	N/A	N/A	5504923
22'3566'-HexaCB-(152)	ng/L	0.0048 U	0.0048	0.10	N/A	N/A	N/A	N/A	5504923
HexaCB-(153)+(168)	ng/L	0.217	0.010	0.20	N/A	N/A	N/A	N/A	5504923
22'44'56'-HexaCB-(154)	ng/L	0.0062 U	0.0062	0.10	N/A	N/A	N/A	N/A	5504923
22'44'66'-HexaCB-(155)	ng/L	0.0041 U	0.0041	0.10	N/A	N/A	N/A	N/A	5504923
HexaCB-(156)+(157)	ng/L	0.0422 J	0.0078	0.20	N/A	0.0000300	0.00000127	N/A	5504923
233'44'6-HexaCB-(158)	ng/L	0.0307 J	0.0095	0.10	N/A	N/A	N/A	N/A	5504923
233'455'-HexaCB-(159)	ng/L	0.0058 U	0.0058	0.10	N/A	N/A	N/A	N/A	5504923

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233'456-HexaCB-(160)	ng/L	0.011 U	0.011	0.10	N/A	N/A	N/A	N/A	5504923
233'45'6-HexaCB-(161)	ng/L	0.0094 U	0.0094	0.10	N/A	N/A	N/A	N/A	5504923
233'4'55'-HexaCB-(162)	ng/L	0.0058 U	0.0058	0.10	N/A	N/A	N/A	N/A	5504923
233'4'5'6-HexaCB-(164)	ng/L	0.019 J	0.010	0.10	N/A	N/A	N/A	N/A	5504923
233'55'6-HexaCB-(165)	ng/L	0.011 U	0.011	0.10	N/A	N/A	N/A	N/A	5504923
23'44'55'-HexaCB-(167)	ng/L	0.011 U (1)	0.011	0.10	N/A	0.0000300	0.000000330	N/A	5504923
33'44'55'-HexaCB-(169)	ng/L	0.0079 U	0.0079	0.10	N/A	0.0300	0.000237	N/A	5504923
22'33'44'5-HeptaCB-(170)	ng/L	0.054 J	0.016	0.10	N/A	N/A	N/A	N/A	5504923
HeptaCB-(171)+(173)	ng/L	0.021 U	0.021	0.20	N/A	N/A	N/A	N/A	5504923
22'33'455'-HeptaCB-(172)	ng/L	0.022 U	0.022	0.10	N/A	N/A	N/A	N/A	5504923
22'33'456'-HeptaCB-(174)	ng/L	0.062 J	0.020	0.10	N/A	N/A	N/A	N/A	5504923
22'33'45'6-HeptaCB-(175)	ng/L	0.0069 U	0.0069	0.10	N/A	N/A	N/A	N/A	5504923
22'33'466'-HeptaCB-(176)	ng/L	0.0055 U (1)	0.0055	0.10	N/A	N/A	N/A	N/A	5504923
22'33'45'6'-HeptaCB-(177)	ng/L	0.027 U (1)	0.027	0.10	N/A	N/A	N/A	N/A	5504923
22'33'55'6-HeptaCB-(178)	ng/L	0.010 U (1)	0.010	0.10	N/A	N/A	N/A	N/A	5504923
22'33'566'-HeptaCB-(179)	ng/L	0.0227 J	0.0044	0.10	N/A	N/A	N/A	N/A	5504923
HeptaCB-(180)+(193)	ng/L	0.113 J	0.015	0.20	N/A	N/A	N/A	N/A	5504923
22'344'56-HeptaCB-(181)	ng/L	0.021 U	0.021	0.10	N/A	N/A	N/A	N/A	5504923
22'344'56'-HeptaCB-(182)	ng/L	0.0071 U	0.0071	0.10	N/A	N/A	N/A	N/A	5504923
22'344'5'6-HeptaCB-(183)	ng/L	0.039 J	0.019	0.10	N/A	N/A	N/A	N/A	5504923
22'344'66'-HeptaCB-(184)	ng/L	0.0045 U	0.0045	0.10	N/A	N/A	N/A	N/A	5504923
22'3455'6-HeptaCB-(185)	ng/L	0.018 U	0.018	0.10	N/A	N/A	N/A	N/A	5504923
22'34566'-HeptaCB-(186)	ng/L	0.0050 U	0.0050	0.10	N/A	N/A	N/A	N/A	5504923
22'34'55'6-HeptaCB-(187)	ng/L	0.0734 J	0.0067	0.10	N/A	N/A	N/A	N/A	5504923
22'34'566'-HeptaCB-(188)	ng/L	0.0054 U	0.0054	0.10	N/A	N/A	N/A	N/A	5504923
233'44'55'-HeptaCB-(189)	ng/L	0.0085 U	0.0085	0.10	N/A	0.0000300	0.000000255	N/A	5504923
233'44'56-HeptaCB-(190)	ng/L	0.016 U	0.016	0.10	N/A	N/A	N/A	N/A	5504923
233'44'5'6-HeptaCB-(191)	ng/L	0.016 U	0.016	0.10	N/A	N/A	N/A	N/A	5504923
233'455'6-HeptaCB-(192)	ng/L	0.018 U	0.018	0.10	N/A	N/A	N/A	N/A	5504923
22'33'44'55'-OctaCB-(194)	ng/L	0.025 U	0.025	0.10	N/A	N/A	N/A	N/A	5504923

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The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

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N/A = Not Applicable

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR523							
Sampling Date		2018/04/05 10:45							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW2-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'56-OctaCB-(195)	ng/L	0.027 U	0.027	0.10	N/A	N/A	N/A	N/A	5504923
22'33'44'56'-OctaCB-(196)	ng/L	0.023 U	0.023	0.10	N/A	N/A	N/A	N/A	5504923
22'33'44'66'OctaCB-(197)	ng/L	0.014 U	0.014	0.10	N/A	N/A	N/A	N/A	5504923
OctaCB-(198)+(199)	ng/L	0.049 J	0.022	0.20	N/A	N/A	N/A	N/A	5504923
22'33'4566'-OctaCB-(200)	ng/L	0.013 U	0.013	0.10	N/A	N/A	N/A	N/A	5504923
22'33'45'66'-OctaCB-(201)	ng/L	0.013 U	0.013	0.10	N/A	N/A	N/A	N/A	5504923
22'33'55'66'-OctaCB-(202)	ng/L	0.015 U	0.015	0.10	N/A	N/A	N/A	N/A	5504923
22'344'55'6-OctaCB-(203)	ng/L	0.031 U (1)	0.031	0.10	N/A	N/A	N/A	N/A	5504923
22'344'566'-OctaCB-(204)	ng/L	0.014 U	0.014	0.10	N/A	N/A	N/A	N/A	5504923
233'44'55'6-OctaCB-(205)	ng/L	0.023 U	0.023	0.10	N/A	N/A	N/A	N/A	5504923
22'33'44'55'6-NonaCB-(206)	ng/L	0.032 U	0.032	0.10	N/A	N/A	N/A	N/A	5504923
22'33'44'566'-NonaCB-(207)	ng/L	0.024 U	0.024	0.10	N/A	N/A	N/A	N/A	5504923
22'33'455'66'-NonaCB-(208)	ng/L	0.032 U	0.032	0.10	N/A	N/A	N/A	N/A	5504923
DecaCB-(209)	ng/L	0.038 U	0.038	0.10	N/A	N/A	N/A	N/A	5504923
Monochlorobiphenyl	ng/L	0.0031	0.0014	N/A	N/A	N/A	N/A	N/A	5504923
Dichlorobiphenyl	ng/L	0.829	0.018	N/A	N/A	N/A	N/A	N/A	5504923
Trichlorobiphenyl	ng/L	2.68	0.011	N/A	N/A	N/A	N/A	N/A	5504923
Tetrachlorobiphenyl	ng/L	2.35	0.0050	N/A	N/A	N/A	N/A	N/A	5504923
Pentachlorobiphenyl	ng/L	1.74	0.0059	N/A	N/A	N/A	N/A	N/A	5504923
Hexachlorobiphenyl	ng/L	1.31	0.018	N/A	N/A	N/A	N/A	N/A	5504923
Heptachlorobiphenyl	ng/L	0.364	0.022	N/A	N/A	N/A	N/A	N/A	5504923
Octachlorobiphenyl	ng/L	0.049	0.027	N/A	N/A	N/A	N/A	N/A	5504923
Nonachlorobiphenyl	ng/L	0.032 U	0.032	N/A	N/A	N/A	N/A	N/A	5504923
Decachlorobiphenyl	ng/L	0.038 U	0.038	N/A	N/A	N/A	N/A	N/A	5504923
Total PCB	ng/L	9.33	N/A	N/A	N/A	N/A	N/A	N/A	5504923
TOTAL TOXIC EQUIVALENCY	ng/L	N/A	N/A	N/A	N/A	N/A	0.000653	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'44'55'6-NonaCB-(206)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'44'5-HeptaCB-(170)	%	94	N/A	N/A	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR523							
Sampling Date		2018/04/05 10:45							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW2-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-22'33'455'66'-NonaCB-(208)	%	79	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'55'66'-OctaCB-(202)	%	90	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'55'6-HeptaCB-(178)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'344'55'-HeptaCB-(180)	%	98	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'34'566'-HeptaCB-(188)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'44'66'-HexaCB-(155)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'466'-PentaCB-(104)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'66'-TetraCB-(54)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'6-TriCB-(19)	%	68	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'-DiCB-(4)	%	53	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'55'6-OctaCB-(205)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'55'-HeptaCB-(189)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'-PentaCB-(105)	%	91	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'55'-PentaCB-(111)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-23'44'55'-HexaCB-(167)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2344'5-PentaCB-(114)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-23'44'5-PentaCB-(118)	%	94	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2'344'5-PentaCB-(123)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2-MonoCB-(1)	%	47	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'55'-HexaCB-(169)	%	64	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'5-PentaCB-(126)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'-TetraCB-(77)	%	88	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-344'5-TetraCB-(81)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-344'-TriCB-(37)	%	100	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-44'-DiCB-(15)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-4-MonoCB-(3)	%	61	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-DecaCB-(209)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-HexaCB-(156)+(157)	%	84	N/A	N/A	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR524							
Sampling Date		2018/04/06 10:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW3-04062018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2-MonoCB-(1)	ng/L	0.0038 U	0.0038	0.11	N/A	N/A	N/A	N/A	5504923
3-MonoCB-(2)	ng/L	0.0037 U	0.0037	0.11	N/A	N/A	N/A	N/A	5504923
4-MonoCB-(3)	ng/L	0.0037 U	0.0037	0.11	N/A	N/A	N/A	N/A	5504923
22'-DiCB-(4)	ng/L	0.026 U	0.026	0.11	N/A	N/A	N/A	N/A	5504923
2,3-DiCB-(5)	ng/L	0.034 U	0.034	0.11	N/A	N/A	N/A	N/A	5504923
2,3'-DiCB-(6)	ng/L	0.025 U	0.025	0.11	N/A	N/A	N/A	N/A	5504923
2,4-DiCB-(7)	ng/L	0.026 U	0.026	0.11	N/A	N/A	N/A	N/A	5504923
2,4'-DiCB-(8)	ng/L	0.021 U	0.021	0.11	N/A	N/A	N/A	N/A	5504923
2,5-DiCB-(9)	ng/L	0.027 U	0.027	0.11	N/A	N/A	N/A	N/A	5504923
2,6-DiCB-(10)	ng/L	0.024 U	0.024	0.11	N/A	N/A	N/A	N/A	5504923
3,3'-DiCB-(11)	ng/L	0.028 U	0.028	0.11	N/A	N/A	N/A	N/A	5504923
DiCB-(12)+(13)	ng/L	0.028 U	0.028	0.21	N/A	N/A	N/A	N/A	5504923
3,5-DiCB-(14)	ng/L	0.026 U	0.026	0.11	N/A	N/A	N/A	N/A	5504923
4,4'-DiCB-(15)	ng/L	0.045 U	0.045	0.11	N/A	N/A	N/A	N/A	5504923
22'3-TriCB-(16)	ng/L	0.0139 J	0.0091	0.11	N/A	N/A	N/A	N/A	5504923
22'4-TriCB-(17)	ng/L	0.0120 J	0.0084	0.11	N/A	N/A	N/A	N/A	5504923
TriCB-(18)+(30)	ng/L	0.0323 J	0.0064	0.21	N/A	N/A	N/A	N/A	5504923
22'6-TriCB-(19)	ng/L	0.0244 J	0.0061	0.11	N/A	N/A	N/A	N/A	5504923
TriCB-(20) + (28)	ng/L	0.0576 J	0.0043	0.21	N/A	N/A	N/A	N/A	5504923
TriCB-(21)+(33)	ng/L	0.0087 J	0.0041	0.21	N/A	N/A	N/A	N/A	5504923
234'-TriCB-(22)	ng/L	0.0119 J	0.0044	0.11	N/A	N/A	N/A	N/A	5504923
235-TriCB-(23)	ng/L	0.0046 U	0.0046	0.11	N/A	N/A	N/A	N/A	5504923
236-TriCB-(24)	ng/L	0.0062 U	0.0062	0.11	N/A	N/A	N/A	N/A	5504923
23'4-TriCB-(25)	ng/L	0.0038 U	0.0038	0.11	N/A	N/A	N/A	N/A	5504923
TriCB-(26)+(29)	ng/L	0.0078 J	0.0043	0.21	N/A	N/A	N/A	N/A	5504923
23'6-TriCB-(27)	ng/L	0.0068 J	0.0053	0.11	N/A	N/A	N/A	N/A	5504923
24'5-TriCB-(31)	ng/L	0.0310 J	0.0039	0.11	N/A	N/A	N/A	N/A	5504923
24'6-TriCB-(32)	ng/L	0.0246 J	0.0049	0.11	N/A	N/A	N/A	N/A	5504923
23'5'-TriCB-(34)	ng/L	0.0042 U	0.0042	0.11	N/A	N/A	N/A	N/A	5504923
33'4-TriCB-(35)	ng/L	0.0043 U	0.0043	0.11	N/A	N/A	N/A	N/A	5504923
33'5-TriCB-(36)	ng/L	0.0036 U	0.0036	0.11	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR524							
Sampling Date		2018/04/06 10:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW3-04062018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
344'-TriCB-(37)	ng/L	0.018 U (1)	0.018	0.11	N/A	N/A	N/A	N/A	5504923
345-TriCB-(38)	ng/L	0.0043 U	0.0043	0.11	N/A	N/A	N/A	N/A	5504923
34'5-TriCB-(39)	ng/L	0.0041 U	0.0041	0.11	N/A	N/A	N/A	N/A	5504923
TetraCB-(40)+(41)+(71)	ng/L	0.0528 J	0.0081	0.32	N/A	N/A	N/A	N/A	5504923
22'34'-TetraCB-(42)	ng/L	0.028 J	0.010	0.11	N/A	N/A	N/A	N/A	5504923
22'35-TetraCB-(43)	ng/L	0.012 U	0.012	0.11	N/A	N/A	N/A	N/A	5504923
TetraCB-(44)+(47)+(65)	ng/L	0.102 J	0.0075	0.32	N/A	N/A	N/A	N/A	5504923
TetraCB-(45)+(51)	ng/L	0.0242 J	0.0082	0.21	N/A	N/A	N/A	N/A	5504923
22'36'-TetraCB-(46)	ng/L	0.0098 U	0.0098	0.11	N/A	N/A	N/A	N/A	5504923
22'45-TetraCB-(48)	ng/L	0.0080 U (1)	0.0080	0.11	N/A	N/A	N/A	N/A	5504923
TetraCB-(49)+TetraCB-(69)	ng/L	0.0560 J	0.0070	0.21	N/A	N/A	N/A	N/A	5504923
TetraCB-(50)+(53)	ng/L	0.0185 J	0.0078	0.21	N/A	N/A	N/A	N/A	5504923
22'55'-TetraCB-(52)	ng/L	0.162	0.0077	0.11	N/A	N/A	N/A	N/A	5504923
22'66'-TetraCB-(54)	ng/L	0.0021 U	0.0021	0.11	N/A	N/A	N/A	N/A	5504923
233'4-TetraCB-(55)	ng/L	0.0066 U	0.0066	0.11	N/A	N/A	N/A	N/A	5504923
233'4'-Tetra CB(56)	ng/L	0.0204 J	0.0062	0.11	N/A	N/A	N/A	N/A	5504923
233'5-TetraCB-(57)	ng/L	0.0062 U	0.0062	0.11	N/A	N/A	N/A	N/A	5504923
233'5'-TetraCB-(58)	ng/L	0.0061 U	0.0061	0.11	N/A	N/A	N/A	N/A	5504923
TetraCB-(59)+(62)+(75)	ng/L	0.0085 J	0.0059	0.32	N/A	N/A	N/A	N/A	5504923
2344'-TetraCB -(60)	ng/L	0.0076 J	0.0066	0.11	N/A	N/A	N/A	N/A	5504923
TetraCB-(61)+(70)+(74)+(76)	ng/L	0.100 J	0.0062	0.42	N/A	N/A	N/A	N/A	5504923
234'5-TetraCB-(63)	ng/L	0.0058 U	0.0058	0.11	N/A	N/A	N/A	N/A	5504923
234'6-TetraCB-(64)	ng/L	0.0483 J	0.0064	0.11	N/A	N/A	N/A	N/A	5504923
23'44'-TetraCB-(66)	ng/L	0.0555 J	0.0058	0.11	N/A	N/A	N/A	N/A	5504923
23'45-TetraCB-(67)	ng/L	0.0058 U	0.0058	0.11	N/A	N/A	N/A	N/A	5504923
23'45'-TetraCB-(68)	ng/L	0.0058 U	0.0058	0.11	N/A	N/A	N/A	N/A	5504923
23'55'-TetraCB-(72)	ng/L	0.0058 U	0.0058	0.11	N/A	N/A	N/A	N/A	5504923
23'5'6-TetraCB-(73)	ng/L	0.0056 U	0.0056	0.11	N/A	N/A	N/A	N/A	5504923
33'44'-TetraCB-(77)	ng/L	0.0081 U	0.0081	0.11	N/A	0.000100	0.000000810	N/A	5504923
33'45-TetraCB-(78)	ng/L	0.0061 U	0.0061	0.11	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR524							
Sampling Date		2018/04/06 10:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW3-04062018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'45'-TetraCB(79)	ng/L	0.0052 U	0.0052	0.11	N/A	N/A	N/A	N/A	5504923
33'55'-TetraCB-(80)	ng/L	0.0055 U	0.0055	0.11	N/A	N/A	N/A	N/A	5504923
344'5-TetraCB-(81)	ng/L	0.0080 U	0.0080	0.11	N/A	0.000300	0.00000240	N/A	5504923
22'33'4-PentaCB-(82)	ng/L	0.0254 J	0.0072	0.11	N/A	N/A	N/A	N/A	5504923
PentaCB-(83)+(99)	ng/L	0.119 J	0.0064	0.21	N/A	N/A	N/A	N/A	5504923
22'33'6-PentaCB-(84)	ng/L	0.0632 J	0.0072	0.11	N/A	N/A	N/A	N/A	5504923
PentaCB-(85)+(116)+(117)	ng/L	0.0288 J	0.0049	0.32	N/A	N/A	N/A	N/A	5504923
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	0.147 J	0.0052	0.63	N/A	N/A	N/A	N/A	5504923
PentaCB-(88)+(91)	ng/L	0.0322 J	0.0062	0.21	N/A	N/A	N/A	N/A	5504923
22'346'-PentaCB-(89)	ng/L	0.0066 U	0.0066	0.11	N/A	N/A	N/A	N/A	5504923
PentaCB-(90)+(101)+(113)	ng/L	0.214 J	0.0052	0.32	N/A	N/A	N/A	N/A	5504923
22'355'-PentaCB-(92)	ng/L	0.0436 J	0.0062	0.11	N/A	N/A	N/A	N/A	5504923
PentaCB-(93)+(98)+(100)+(102)	ng/L	0.0087 J	0.0061	0.42	N/A	N/A	N/A	N/A	5504923
22'356'-PentaCB-(94)	ng/L	0.0067 U	0.0067	0.11	N/A	N/A	N/A	N/A	5504923
22'35'6-PentaCB-(95)	ng/L	0.184	0.0059	0.11	N/A	N/A	N/A	N/A	5504923
22'366'-PentaCB-(96)	ng/L	0.0038 U	0.0038	0.11	N/A	N/A	N/A	N/A	5504923
22'45'6-PentaCB-(103)	ng/L	0.0054 U	0.0054	0.11	N/A	N/A	N/A	N/A	5504923
22'466'-PentaCB-(104)	ng/L	0.0027 U	0.0027	0.11	N/A	N/A	N/A	N/A	5504923
233'44'-PentaCB-(105)	ng/L	0.0736 J	0.0070	0.11	N/A	0.0000300	0.00000221	N/A	5504923
233'45-PentaCB-(106)	ng/L	0.0056 U	0.0056	0.11	N/A	N/A	N/A	N/A	5504923
233'4'5-PentaCB-(107)	ng/L	0.011 U (1)	0.011	0.11	N/A	N/A	N/A	N/A	5504923
PentaCB-(108)+(124)	ng/L	0.0082 J	0.0055	0.21	N/A	N/A	N/A	N/A	5504923
PentaCB-(110)+(115)	ng/L	0.344	0.0049	0.21	N/A	N/A	N/A	N/A	5504923
233'55'-PentaCB-(111)	ng/L	0.0047 U	0.0047	0.11	N/A	N/A	N/A	N/A	5504923
233'56-PentaCB-(112)	ng/L	0.0045 U	0.0045	0.11	N/A	N/A	N/A	N/A	5504923
2344'5-PentaCB-(114)	ng/L	0.0070 U	0.0070	0.11	N/A	0.0000300	0.000000210	N/A	5504923
23'44'5-PentaCB-(118)	ng/L	0.183	0.0069	0.11	N/A	0.0000300	0.00000549	N/A	5504923
23'455'-PentaCB-(120)	ng/L	0.0043 U	0.0043	0.11	N/A	N/A	N/A	N/A	5504923
23'45'6-PentaCB-(121)	ng/L	0.0046 U	0.0046	0.11	N/A	N/A	N/A	N/A	5504923
233'4'5'-PentaCB-(122)	ng/L	0.0062 U	0.0062	0.11	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR524							
Sampling Date		2018/04/06 10:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW3-04062018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
23'44'5'-PentaCB-(123)	ng/L	0.0078 U	0.0078	0.11	N/A	0.0000300	0.000000234	N/A	5504923
33'44'5-PentaCB-(126)	ng/L	0.0065 U	0.0065	0.11	N/A	0.100	0.000650	N/A	5504923
33'455'-PentaCB-(127)	ng/L	0.0055 U	0.0055	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(128)+(166)	ng/L	0.046 J	0.018	0.21	N/A	N/A	N/A	N/A	5504923
HexaCB-(129)+(138)+(163)	ng/L	0.312 J	0.019	0.32	N/A	N/A	N/A	N/A	5504923
22'33'45'-HexaCB-(130)	ng/L	0.024 U	0.024	0.11	N/A	N/A	N/A	N/A	5504923
22'33'46-HexaCB-(131)	ng/L	0.025 U	0.025	0.11	N/A	N/A	N/A	N/A	5504923
22'33'46'-HexaCB-(132)	ng/L	0.122	0.023	0.11	N/A	N/A	N/A	N/A	5504923
22'33'55'-HexaCB-(133)	ng/L	0.021 U	0.021	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(134)+(143)	ng/L	0.023 U	0.023	0.21	N/A	N/A	N/A	N/A	5504923
HexaCB-(135)+(151)	ng/L	0.101 J	0.0086	0.21	N/A	N/A	N/A	N/A	5504923
22'33'66'-HexaCB-(136)	ng/L	0.0420 J	0.0059	0.11	N/A	N/A	N/A	N/A	5504923
22'344'5-HexaCB-(137)	ng/L	0.022 U	0.022	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(139)+(140)	ng/L	0.019 U	0.019	0.21	N/A	N/A	N/A	N/A	5504923
22'3455'-HexaCB-(141)	ng/L	0.060 J	0.020	0.11	N/A	N/A	N/A	N/A	5504923
22'3456-HexaCB-(142)	ng/L	0.022 U	0.022	0.11	N/A	N/A	N/A	N/A	5504923
22'345'6-HexaCB-(144)	ng/L	0.010 U (1)	0.010	0.11	N/A	N/A	N/A	N/A	5504923
22'3466'-HexaCB-(145)	ng/L	0.0064 U	0.0064	0.11	N/A	N/A	N/A	N/A	5504923
22'34'55'-HexaCB-(146)	ng/L	0.045 J	0.019	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(147)+(149)	ng/L	0.249	0.018	0.21	N/A	N/A	N/A	N/A	5504923
22'34'56'-HexaCB-(148)	ng/L	0.0084 U	0.0084	0.11	N/A	N/A	N/A	N/A	5504923
22'34'66'-HexaCB-(150)	ng/L	0.0060 U	0.0060	0.11	N/A	N/A	N/A	N/A	5504923
22'3566'-HexaCB-(152)	ng/L	0.0058 U	0.0058	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(153)+(168)	ng/L	0.218	0.015	0.21	N/A	N/A	N/A	N/A	5504923
22'44'56'-HexaCB-(154)	ng/L	0.0074 U	0.0074	0.11	N/A	N/A	N/A	N/A	5504923
22'44'66'-HexaCB-(155)	ng/L	0.0049 U	0.0049	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(156)+(157)	ng/L	0.0318 J	0.0061	0.21	N/A	0.0000300	0.000000954	N/A	5504923
233'44'6-HexaCB-(158)	ng/L	0.030 J	0.014	0.11	N/A	N/A	N/A	N/A	5504923
233'455'-HexaCB-(159)	ng/L	0.0046 U	0.0046	0.11	N/A	N/A	N/A	N/A	5504923
233'456-HexaCB-(160)	ng/L	0.016 U	0.016	0.11	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR524							
Sampling Date		2018/04/06 10:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW3-04062018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'45'6-HexaCB-(161)	ng/L	0.014 U	0.014	0.11	N/A	N/A	N/A	N/A	5504923
233'4'55'-HexaCB-(162)	ng/L	0.0046 U	0.0046	0.11	N/A	N/A	N/A	N/A	5504923
233'4'5'6-HexaCB-(164)	ng/L	0.021 J	0.015	0.11	N/A	N/A	N/A	N/A	5504923
233'55'6-HexaCB-(165)	ng/L	0.016 U	0.016	0.11	N/A	N/A	N/A	N/A	5504923
23'44'55'-HexaCB-(167)	ng/L	0.0123 J	0.0058	0.11	N/A	0.0000300	0.000000369	N/A	5504923
33'44'55'-HexaCB-(169)	ng/L	0.0062 U	0.0062	0.11	N/A	0.0300	0.000186	N/A	5504923
22'33'44'5-HeptaCB-(170)	ng/L	0.0562 J	0.0091	0.11	N/A	N/A	N/A	N/A	5504923
HeptaCB-(171)+(173)	ng/L	0.020 J	0.012	0.21	N/A	N/A	N/A	N/A	5504923
22'33'455'-HeptaCB-(172)	ng/L	0.013 U	0.013	0.11	N/A	N/A	N/A	N/A	5504923
22'33'456'-HeptaCB-(174)	ng/L	0.066 J	0.011	0.11	N/A	N/A	N/A	N/A	5504923
22'33'45'6-HeptaCB-(175)	ng/L	0.0055 U	0.0055	0.11	N/A	N/A	N/A	N/A	5504923
22'33'466'-HeptaCB-(176)	ng/L	0.0102 J	0.0037	0.11	N/A	N/A	N/A	N/A	5504923
22'33'45'6'-HeptaCB-(177)	ng/L	0.038 J	0.012	0.11	N/A	N/A	N/A	N/A	5504923
22'33'55'6-HeptaCB-(178)	ng/L	0.014 U (1)	0.014	0.11	N/A	N/A	N/A	N/A	5504923
22'33'566'-HeptaCB-(179)	ng/L	0.0365 J	0.0035	0.11	N/A	N/A	N/A	N/A	5504923
HeptaCB-(180)+(193)	ng/L	0.143 J	0.0085	0.21	N/A	N/A	N/A	N/A	5504923
22'344'56-HeptaCB-(181)	ng/L	0.012 U	0.012	0.11	N/A	N/A	N/A	N/A	5504923
22'344'56'-HeptaCB-(182)	ng/L	0.0057 U	0.0057	0.11	N/A	N/A	N/A	N/A	5504923
22'344'5'6-HeptaCB-(183)	ng/L	0.039 J	0.011	0.11	N/A	N/A	N/A	N/A	5504923
22'344'66'-HeptaCB-(184)	ng/L	0.0036 U	0.0036	0.11	N/A	N/A	N/A	N/A	5504923
22'3455'6-HeptaCB-(185)	ng/L	0.010 U	0.010	0.11	N/A	N/A	N/A	N/A	5504923
22'34566'-HeptaCB-(186)	ng/L	0.0040 U	0.0040	0.11	N/A	N/A	N/A	N/A	5504923
22'34'55'6-HeptaCB-(187)	ng/L	0.0859 J	0.0054	0.11	N/A	N/A	N/A	N/A	5504923
22'34'566'-HeptaCB-(188)	ng/L	0.0043 U	0.0043	0.11	N/A	N/A	N/A	N/A	5504923
233'44'55'-HeptaCB-(189)	ng/L	0.0075 U	0.0075	0.11	N/A	0.0000300	0.000000225	N/A	5504923
233'44'56-HeptaCB-(190)	ng/L	0.0094 U	0.0094	0.11	N/A	N/A	N/A	N/A	5504923
233'44'5'6-HeptaCB-(191)	ng/L	0.0090 U	0.0090	0.11	N/A	N/A	N/A	N/A	5504923
233'455'6-HeptaCB-(192)	ng/L	0.010 U	0.010	0.11	N/A	N/A	N/A	N/A	5504923
22'33'44'55'-OctaCB-(194)	ng/L	0.024 U	0.024	0.11	N/A	N/A	N/A	N/A	5504923
22'33'44'56-OctaCB-(195)	ng/L	0.026 U	0.026	0.11	N/A	N/A	N/A	N/A	5504923

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Maxxam ID		GKR524							
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	UNITS	B21-SW3-04062018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'56'-OctaCB-(196)	ng/L	0.022 U	0.022	0.11	N/A	N/A	N/A	N/A	5504923
22'33'44'66'OctaCB-(197)	ng/L	0.014 U	0.014	0.11	N/A	N/A	N/A	N/A	5504923
OctaCB-(198)+(199)	ng/L	0.066 J	0.022	0.21	N/A	N/A	N/A	N/A	5504923
22'33'4566'-OctaCB-(200)	ng/L	0.013 U	0.013	0.11	N/A	N/A	N/A	N/A	5504923
22'33'45'66'-OctaCB-(201)	ng/L	0.013 U	0.013	0.11	N/A	N/A	N/A	N/A	5504923
22'33'55'66'-OctaCB-(202)	ng/L	0.014 U	0.014	0.11	N/A	N/A	N/A	N/A	5504923
22'344'55'6-OctaCB-(203)	ng/L	0.038 U (1)	0.038	0.11	N/A	N/A	N/A	N/A	5504923
22'344'566'-OctaCB-(204)	ng/L	0.013 U	0.013	0.11	N/A	N/A	N/A	N/A	5504923
233'44'55'6-OctaCB-(205)	ng/L	0.022 U	0.022	0.11	N/A	N/A	N/A	N/A	5504923
22'33'44'55'6-NonaCB-(206)	ng/L	0.024 U	0.024	0.11	N/A	N/A	N/A	N/A	5504923
22'33'44'566'-NonaCB-(207)	ng/L	0.018 U	0.018	0.11	N/A	N/A	N/A	N/A	5504923
22'33'455'66'-NonaCB-(208)	ng/L	0.024 U	0.024	0.11	N/A	N/A	N/A	N/A	5504923
DecaCB-(209)	ng/L	0.029 U	0.029	0.11	N/A	N/A	N/A	N/A	5504923
Monochlorobiphenyl	ng/L	0.0038 U	0.0038	N/A	N/A	N/A	N/A	N/A	5504923
Dichlorobiphenyl	ng/L	0.045 U	0.045	N/A	N/A	N/A	N/A	N/A	5504923
Trichlorobiphenyl	ng/L	0.231	0.0091	N/A	N/A	N/A	N/A	N/A	5504923
Tetrachlorobiphenyl	ng/L	0.684	0.012	N/A	N/A	N/A	N/A	N/A	5504923
Pentachlorobiphenyl	ng/L	1.48	0.0078	N/A	N/A	N/A	N/A	N/A	5504923
Hexachlorobiphenyl	ng/L	1.29	0.025	N/A	N/A	N/A	N/A	N/A	5504923
Heptachlorobiphenyl	ng/L	0.494	0.013	N/A	N/A	N/A	N/A	N/A	5504923
Octachlorobiphenyl	ng/L	0.066	0.026	N/A	N/A	N/A	N/A	N/A	5504923
Nonachlorobiphenyl	ng/L	0.024 U	0.024	N/A	N/A	N/A	N/A	N/A	5504923
Decachlorobiphenyl	ng/L	0.029 U	0.029	N/A	N/A	N/A	N/A	N/A	5504923
Total PCB	ng/L	4.24	N/A	N/A	N/A	N/A	N/A	N/A	5504923
TOTAL TOXIC EQUIVALENCY	ng/L	N/A	N/A	N/A	N/A	N/A	0.000849	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'44'55'6-NonaCB-(206)	%	79	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'44'5-HeptaCB-(170)	%	114	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'455'66'-NonaCB-(208)	%	101	N/A	N/A	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR524							
Sampling Date		2018/04/06 10:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW3-04062018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-22'33'55'66'-OctaCB-(202)	%	109	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'55'6-HeptaCB-(178)	%	64	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'344'55'-HeptaCB-(180)	%	114	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'34'566'-HeptaCB-(188)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'44'66'-HexaCB-(155)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'466'-PentaCB-(104)	%	79	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'66'-TetraCB-(54)	%	64	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'6-TriCB-(19)	%	59	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'-DiCB-(4)	%	47	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'55'6-OctaCB-(205)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'55'-HeptaCB-(189)	%	103	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'-PentaCB-(105)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'55'-PentaCB-(111)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-23'44'55'-HexaCB-(167)	%	87	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2344'5-PentaCB-(114)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-23'44'5-PentaCB-(118)	%	97	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2'344'5-PentaCB-(123)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2-MonoCB-(1)	%	47	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'55'-HexaCB-(169)	%	63	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'5-PentaCB-(126)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'-TetraCB-(77)	%	91	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-344'5-TetraCB-(81)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-344'-TriCB-(37)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-44'-DiCB-(15)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-4-MonoCB-(3)	%	51	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-DecaCB-(209)	%	68	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-HexaCB-(156)+(157)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR525							
Sampling Date		2018/04/05 10:10							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW6-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2-MonoCB-(1)	ng/L	0.0083 U	0.0083	0.094	N/A	N/A	N/A	N/A	5504923
3-MonoCB-(2)	ng/L	0.0082 U	0.0082	0.094	N/A	N/A	N/A	N/A	5504923
4-MonoCB-(3)	ng/L	0.0081 U	0.0081	0.094	N/A	N/A	N/A	N/A	5504923
22'-DiCB-(4)	ng/L	0.197	0.0048	0.094	N/A	N/A	N/A	N/A	5504923
2,3-DiCB-(5)	ng/L	0.0068 U	0.0068	0.094	N/A	N/A	N/A	N/A	5504923
2,3'-DiCB-(6)	ng/L	0.0069 U (1)	0.0069	0.094	N/A	N/A	N/A	N/A	5504923
2,4-DiCB-(7)	ng/L	0.0052 U	0.0052	0.094	N/A	N/A	N/A	N/A	5504923
2,4'-DiCB-(8)	ng/L	0.027 U (1)	0.027	0.094	N/A	N/A	N/A	N/A	5504923
2,5-DiCB-(9)	ng/L	0.0053 U	0.0053	0.094	N/A	N/A	N/A	N/A	5504923
2,6-DiCB-(10)	ng/L	0.0044 U	0.0044	0.094	N/A	N/A	N/A	N/A	5504923
3,3'-DiCB-(11)	ng/L	0.0668 J	0.0056	0.094	N/A	N/A	N/A	N/A	5504923
DiCB-(12)+(13)	ng/L	0.0063 U (1)	0.0063	0.19	N/A	N/A	N/A	N/A	5504923
3,5-DiCB-(14)	ng/L	0.0052 U	0.0052	0.094	N/A	N/A	N/A	N/A	5504923
4,4'-DiCB-(15)	ng/L	0.0496 J	0.0088	0.094	N/A	N/A	N/A	N/A	5504923
22'3-TriCB-(16)	ng/L	0.069 J	0.014	0.094	N/A	N/A	N/A	N/A	5504923
22'4-TriCB-(17)	ng/L	0.067 J	0.013	0.094	N/A	N/A	N/A	N/A	5504923
TriCB-(18)+(30)	ng/L	0.117 J	0.0098	0.19	N/A	N/A	N/A	N/A	5504923
22'6-TriCB-(19)	ng/L	0.0375 J	0.0095	0.094	N/A	N/A	N/A	N/A	5504923
TriCB-(20) + (28)	ng/L	0.145 J	0.0024	0.19	N/A	N/A	N/A	N/A	5504923
TriCB-(21)+(33)	ng/L	0.0619 J	0.0023	0.19	N/A	N/A	N/A	N/A	5504923
234'-TriCB-(22)	ng/L	0.0491 J	0.0025	0.094	N/A	N/A	N/A	N/A	5504923
235-TriCB-(23)	ng/L	0.0026 U	0.0026	0.094	N/A	N/A	N/A	N/A	5504923
236-TriCB-(24)	ng/L	0.0096 U	0.0096	0.094	N/A	N/A	N/A	N/A	5504923
23'4-TriCB-(25)	ng/L	0.0110 J	0.0022	0.094	N/A	N/A	N/A	N/A	5504923
TriCB-(26)+(29)	ng/L	0.0240 J	0.0024	0.19	N/A	N/A	N/A	N/A	5504923
23'6-TriCB-(27)	ng/L	0.0135 J	0.0082	0.094	N/A	N/A	N/A	N/A	5504923
24'5-TriCB-(31)	ng/L	0.108	0.0022	0.094	N/A	N/A	N/A	N/A	5504923
24'6-TriCB-(32)	ng/L	0.0422 J	0.0076	0.094	N/A	N/A	N/A	N/A	5504923
23'5'-TriCB-(34)	ng/L	0.0024 U	0.0024	0.094	N/A	N/A	N/A	N/A	5504923
33'4-TriCB-(35)	ng/L	0.0024 U	0.0024	0.094	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR525							
Sampling Date		2018/04/05 10:10							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW6-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'5-TriCB-(36)	ng/L	0.0021 U	0.0021	0.094	N/A	N/A	N/A	N/A	5504923
344'-TriCB-(37)	ng/L	0.0410 J	0.0041	0.094	N/A	N/A	N/A	N/A	5504923
345-TriCB-(38)	ng/L	0.0024 U	0.0024	0.094	N/A	N/A	N/A	N/A	5504923
34'5-TriCB-(39)	ng/L	0.0024 U	0.0024	0.094	N/A	N/A	N/A	N/A	5504923
TetraCB-(40)+(41)+(71)	ng/L	0.077 J	0.018	0.28	N/A	N/A	N/A	N/A	5504923
22'34'-TetraCB-(42)	ng/L	0.038 J	0.023	0.094	N/A	N/A	N/A	N/A	5504923
22'35-TetraCB-(43)	ng/L	0.026 U	0.026	0.094	N/A	N/A	N/A	N/A	5504923
TetraCB-(44)+(47)+(65)	ng/L	0.122 J	0.017	0.28	N/A	N/A	N/A	N/A	5504923
TetraCB-(45)+(51)	ng/L	0.035 J	0.019	0.19	N/A	N/A	N/A	N/A	5504923
22'36'-TetraCB-(46)	ng/L	0.022 U	0.022	0.094	N/A	N/A	N/A	N/A	5504923
22'45-TetraCB-(48)	ng/L	0.024 J	0.019	0.094	N/A	N/A	N/A	N/A	5504923
TetraCB-(49)+TetraCB-(69)	ng/L	0.063 J	0.016	0.19	N/A	N/A	N/A	N/A	5504923
TetraCB-(50)+(53)	ng/L	0.033 J	0.018	0.19	N/A	N/A	N/A	N/A	5504923
22'55'-TetraCB-(52)	ng/L	0.156	0.017	0.094	N/A	N/A	N/A	N/A	5504923
22'66'-TetraCB-(54)	ng/L	0.0029 U	0.0029	0.094	N/A	N/A	N/A	N/A	5504923
233'4-TetraCB-(55)	ng/L	0.0066 U	0.0066	0.094	N/A	N/A	N/A	N/A	5504923
233'4'-Tetra CB(56)	ng/L	0.0253 J	0.0062	0.094	N/A	N/A	N/A	N/A	5504923
233'5-TetraCB-(57)	ng/L	0.0063 U	0.0063	0.094	N/A	N/A	N/A	N/A	5504923
233'5'-TetraCB-(58)	ng/L	0.0061 U	0.0061	0.094	N/A	N/A	N/A	N/A	5504923
TetraCB-(59)+(62)+(75)	ng/L	0.013 U	0.013	0.28	N/A	N/A	N/A	N/A	5504923
2344'-TetraCB -(60)	ng/L	0.013 U (1)	0.013	0.094	N/A	N/A	N/A	N/A	5504923
TetraCB-(61)+(70)+(74)+(76)	ng/L	0.117 J	0.0062	0.38	N/A	N/A	N/A	N/A	5504923
234'5-TetraCB-(63)	ng/L	0.0059 U	0.0059	0.094	N/A	N/A	N/A	N/A	5504923
234'6-TetraCB-(64)	ng/L	0.057 J	0.014	0.094	N/A	N/A	N/A	N/A	5504923
23'44'-TetraCB-(66)	ng/L	0.0503 J	0.0058	0.094	N/A	N/A	N/A	N/A	5504923
23'45-TetraCB-(67)	ng/L	0.0058 U	0.0058	0.094	N/A	N/A	N/A	N/A	5504923
23'45'-TetraCB-(68)	ng/L	0.0059 U	0.0059	0.094	N/A	N/A	N/A	N/A	5504923
23'55'-TetraCB-(72)	ng/L	0.0058 U	0.0058	0.094	N/A	N/A	N/A	N/A	5504923
23'5'6-TetraCB-(73)	ng/L	0.013 U	0.013	0.094	N/A	N/A	N/A	N/A	5504923
33'44'-TetraCB-(77)	ng/L	0.0082 U	0.0082	0.094	N/A	0.000100	0.000000820	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR525							
Sampling Date		2018/04/05 10:10							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW6-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'45-TetraCB-(78)	ng/L	0.0062 U	0.0062	0.094	N/A	N/A	N/A	N/A	5504923
33'45'-TetraCB(79)	ng/L	0.0053 U	0.0053	0.094	N/A	N/A	N/A	N/A	5504923
33'55'-TetraCB-(80)	ng/L	0.0055 U	0.0055	0.094	N/A	N/A	N/A	N/A	5504923
344'5-TetraCB-(81)	ng/L	0.0080 U	0.0080	0.094	N/A	0.000300	0.00000240	N/A	5504923
22'33'4-PentaCB-(82)	ng/L	0.0189 J	0.0079	0.094	N/A	N/A	N/A	N/A	5504923
PentaCB-(83)+(99)	ng/L	0.0569 J	0.0069	0.19	N/A	N/A	N/A	N/A	5504923
22'33'6-PentaCB-(84)	ng/L	0.0451 J	0.0078	0.094	N/A	N/A	N/A	N/A	5504923
PentaCB-(85)+(116)+(117)	ng/L	0.0156 J	0.0054	0.28	N/A	N/A	N/A	N/A	5504923
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	0.0874 J	0.0056	0.57	N/A	N/A	N/A	N/A	5504923
PentaCB-(88)+(91)	ng/L	0.023 U (1)	0.023	0.19	N/A	N/A	N/A	N/A	5504923
22'346'-PentaCB-(89)	ng/L	0.0072 U	0.0072	0.094	N/A	N/A	N/A	N/A	5504923
PentaCB-(90)+(101)+(113)	ng/L	0.122 J	0.0056	0.28	N/A	N/A	N/A	N/A	5504923
22'355'-PentaCB-(92)	ng/L	0.0271 J	0.0067	0.094	N/A	N/A	N/A	N/A	5504923
PentaCB-(93)+(98)+(100)+(102)	ng/L	0.0066 U	0.0066	0.38	N/A	N/A	N/A	N/A	5504923
22'356'-PentaCB-(94)	ng/L	0.0073 U	0.0073	0.094	N/A	N/A	N/A	N/A	5504923
22'35'6-PentaCB-(95)	ng/L	0.141	0.0064	0.094	N/A	N/A	N/A	N/A	5504923
22'366'-PentaCB-(96)	ng/L	0.0017 U (1)	0.0017	0.094	N/A	N/A	N/A	N/A	5504923
22'45'6-PentaCB-(103)	ng/L	0.0059 U	0.0059	0.094	N/A	N/A	N/A	N/A	5504923
22'466'-PentaCB-(104)	ng/L	0.00049 U	0.00049	0.094	N/A	N/A	N/A	N/A	5504923
233'44'-PentaCB-(105)	ng/L	0.0531 J	0.0082	0.094	N/A	0.0000300	0.00000159	N/A	5504923
233'45-PentaCB-(106)	ng/L	0.0066 U	0.0066	0.094	N/A	N/A	N/A	N/A	5504923
233'4'5-PentaCB-(107)	ng/L	0.0074 J	0.0062	0.094	N/A	N/A	N/A	N/A	5504923
PentaCB-(108)+(124)	ng/L	0.0065 U	0.0065	0.19	N/A	N/A	N/A	N/A	5504923
PentaCB-(110)+(115)	ng/L	0.180 J	0.0054	0.19	N/A	N/A	N/A	N/A	5504923
233'55'-PentaCB-(111)	ng/L	0.0051 U	0.0051	0.094	N/A	N/A	N/A	N/A	5504923
233'56-PentaCB-(112)	ng/L	0.0048 U	0.0048	0.094	N/A	N/A	N/A	N/A	5504923
2344'5-PentaCB-(114)	ng/L	0.0082 U	0.0082	0.094	N/A	0.0000300	0.000000246	N/A	5504923
23'44'5-PentaCB-(118)	ng/L	0.115	0.0081	0.094	N/A	0.0000300	0.00000345	N/A	5504923
23'455'-PentaCB-(120)	ng/L	0.0046 U	0.0046	0.094	N/A	N/A	N/A	N/A	5504923
23'45'6-PentaCB-(121)	ng/L	0.0050 U	0.0050	0.094	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR525							
Sampling Date		2018/04/05 10:10							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW6-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'5'-PentaCB-(122)	ng/L	0.0072 U	0.0072	0.094	N/A	N/A	N/A	N/A	5504923
23'44'5'-PentaCB-(123)	ng/L	0.0091 U	0.0091	0.094	N/A	0.0000300	0.000000273	N/A	5504923
33'44'5-PentaCB-(126)	ng/L	0.0076 U	0.0076	0.094	N/A	0.100	0.000760	N/A	5504923
33'455'-PentaCB-(127)	ng/L	0.0065 U	0.0065	0.094	N/A	N/A	N/A	N/A	5504923
HexaCB-(128)+(166)	ng/L	0.028 J	0.011	0.19	N/A	N/A	N/A	N/A	5504923
HexaCB-(129)+(138)+(163)	ng/L	0.173 J	0.012	0.28	N/A	N/A	N/A	N/A	5504923
22'33'45'-HexaCB-(130)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5504923
22'33'46-HexaCB-(131)	ng/L	0.016 U	0.016	0.094	N/A	N/A	N/A	N/A	5504923
22'33'46'-HexaCB-(132)	ng/L	0.074 J	0.014	0.094	N/A	N/A	N/A	N/A	5504923
22'33'55'-HexaCB-(133)	ng/L	0.013 U	0.013	0.094	N/A	N/A	N/A	N/A	5504923
HexaCB-(134)+(143)	ng/L	0.014 U	0.014	0.19	N/A	N/A	N/A	N/A	5504923
HexaCB-(135)+(151)	ng/L	0.0511 J	0.0022	0.19	N/A	N/A	N/A	N/A	5504923
22'33'66'-HexaCB-(136)	ng/L	0.0237 J	0.0015	0.094	N/A	N/A	N/A	N/A	5504923
22'344'5-HexaCB-(137)	ng/L	0.013 U	0.013	0.094	N/A	N/A	N/A	N/A	5504923
HexaCB-(139)+(140)	ng/L	0.012 U	0.012	0.19	N/A	N/A	N/A	N/A	5504923
22'3455'-HexaCB-(141)	ng/L	0.029 J	0.013	0.094	N/A	N/A	N/A	N/A	5504923
22'3456-HexaCB-(142)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5504923
22'345'6-HexaCB-(144)	ng/L	0.0084 J	0.0022	0.094	N/A	N/A	N/A	N/A	5504923
22'3466'-HexaCB-(145)	ng/L	0.0016 U	0.0016	0.094	N/A	N/A	N/A	N/A	5504923
22'34'55'-HexaCB-(146)	ng/L	0.022 J	0.012	0.094	N/A	N/A	N/A	N/A	5504923
HexaCB-(147)+(149)	ng/L	0.121 J	0.011	0.19	N/A	N/A	N/A	N/A	5504923
22'34'56'-HexaCB-(148)	ng/L	0.0022 U	0.0022	0.094	N/A	N/A	N/A	N/A	5504923
22'34'66'-HexaCB-(150)	ng/L	0.0015 U	0.0015	0.094	N/A	N/A	N/A	N/A	5504923
22'3566'-HexaCB-(152)	ng/L	0.0015 U	0.0015	0.094	N/A	N/A	N/A	N/A	5504923
HexaCB-(153)+(168)	ng/L	0.102 J	0.0093	0.19	N/A	N/A	N/A	N/A	5504923
22'44'56'-HexaCB-(154)	ng/L	0.0019 U	0.0019	0.094	N/A	N/A	N/A	N/A	5504923
22'44'66'-HexaCB-(155)	ng/L	0.0013 U	0.0013	0.094	N/A	N/A	N/A	N/A	5504923
HexaCB-(156)+(157)	ng/L	0.0235 J	0.0077	0.19	N/A	0.0000300	0.000000705	N/A	5504923
233'44'6-HexaCB-(158)	ng/L	0.0181 J	0.0085	0.094	N/A	N/A	N/A	N/A	5504923
233'455'-HexaCB-(159)	ng/L	0.0058 U	0.0058	0.094	N/A	N/A	N/A	N/A	5504923
233'456-HexaCB-(160)	ng/L	0.010 U	0.010	0.094	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR525							
Sampling Date		2018/04/05 10:10							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW6-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'45'6-HexaCB-(161)	ng/L	0.0084 U	0.0084	0.094	N/A	N/A	N/A	N/A	5504923
233'4'55'-HexaCB-(162)	ng/L	0.0058 U	0.0058	0.094	N/A	N/A	N/A	N/A	5504923
233'4'5'6-HexaCB-(164)	ng/L	0.010 U (1)	0.010	0.094	N/A	N/A	N/A	N/A	5504923
233'55'6-HexaCB-(165)	ng/L	0.0099 U	0.0099	0.094	N/A	N/A	N/A	N/A	5504923
23'44'55'-HexaCB-(167)	ng/L	0.0074 U	0.0074	0.094	N/A	0.0000300	0.000000222	N/A	5504923
33'44'55'-HexaCB-(169)	ng/L	0.0079 U	0.0079	0.094	N/A	0.0300	0.000237	N/A	5504923
22'33'44'5-HeptaCB-(170)	ng/L	0.021 J	0.010	0.094	N/A	N/A	N/A	N/A	5504923
HeptaCB-(171)+(173)	ng/L	0.014 U	0.014	0.19	N/A	N/A	N/A	N/A	5504923
22'33'455'-HeptaCB-(172)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5504923
22'33'456'-HeptaCB-(174)	ng/L	0.024 J	0.013	0.094	N/A	N/A	N/A	N/A	5504923
22'33'45'6-HeptaCB-(175)	ng/L	0.0027 U	0.0027	0.094	N/A	N/A	N/A	N/A	5504923
22'33'466'-HeptaCB-(176)	ng/L	0.0026 U (1)	0.0026	0.094	N/A	N/A	N/A	N/A	5504923
22'33'45'6'-HeptaCB-(177)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5504923
22'33'55'6-HeptaCB-(178)	ng/L	0.0027 U	0.0027	0.094	N/A	N/A	N/A	N/A	5504923
22'33'566'-HeptaCB-(179)	ng/L	0.0107 J	0.0017	0.094	N/A	N/A	N/A	N/A	5504923
HeptaCB-(180)+(193)	ng/L	0.0424 J	0.0095	0.19	N/A	N/A	N/A	N/A	5504923
22'344'56-HeptaCB-(181)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5504923
22'344'56'-HeptaCB-(182)	ng/L	0.0027 U	0.0027	0.094	N/A	N/A	N/A	N/A	5504923
22'344'5'6-HeptaCB-(183)	ng/L	0.014 J	0.012	0.094	N/A	N/A	N/A	N/A	5504923
22'344'66'-HeptaCB-(184)	ng/L	0.0017 U	0.0017	0.094	N/A	N/A	N/A	N/A	5504923
22'3455'6-HeptaCB-(185)	ng/L	0.012 U	0.012	0.094	N/A	N/A	N/A	N/A	5504923
22'34566'-HeptaCB-(186)	ng/L	0.0019 U	0.0019	0.094	N/A	N/A	N/A	N/A	5504923
22'34'55'6-HeptaCB-(187)	ng/L	0.0263 J	0.0026	0.094	N/A	N/A	N/A	N/A	5504923
22'34'566'-HeptaCB-(188)	ng/L	0.0021 U	0.0021	0.094	N/A	N/A	N/A	N/A	5504923
233'44'55'-HeptaCB-(189)	ng/L	0.0072 U	0.0072	0.094	N/A	0.0000300	0.000000216	N/A	5504923
233'44'56-HeptaCB-(190)	ng/L	0.011 U	0.011	0.094	N/A	N/A	N/A	N/A	5504923
233'44'5'6-HeptaCB-(191)	ng/L	0.010 U	0.010	0.094	N/A	N/A	N/A	N/A	5504923
233'455'6-HeptaCB-(192)	ng/L	0.011 U	0.011	0.094	N/A	N/A	N/A	N/A	5504923
22'33'44'55'-OctaCB-(194)	ng/L	0.023 U	0.023	0.094	N/A	N/A	N/A	N/A	5504923
22'33'44'56-OctaCB-(195)	ng/L	0.024 U	0.024	0.094	N/A	N/A	N/A	N/A	5504923

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(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR525							
Sampling Date		2018/04/05 10:10							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW6-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'56'-OctaCB-(196)	ng/L	0.031 U	0.031	0.094	N/A	N/A	N/A	N/A	5504923
22'33'44'66'OctaCB-(197)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5504923
OctaCB-(198)+(199)	ng/L	0.031 U	0.031	0.19	N/A	N/A	N/A	N/A	5504923
22'33'4566'-OctaCB-(200)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5504923
22'33'45'66'-OctaCB-(201)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5504923
22'33'55'66'-OctaCB-(202)	ng/L	0.020 U	0.020	0.094	N/A	N/A	N/A	N/A	5504923
22'344'55'6-OctaCB-(203)	ng/L	0.029 U	0.029	0.094	N/A	N/A	N/A	N/A	5504923
22'344'566'-OctaCB-(204)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5504923
233'44'55'6-OctaCB-(205)	ng/L	0.020 U	0.020	0.094	N/A	N/A	N/A	N/A	5504923
22'33'44'55'6-NonaCB-(206)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5504923
22'33'44'566'-NonaCB-(207)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5504923
22'33'455'66'-NonaCB-(208)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5504923
DecaCB-(209)	ng/L	0.034 U	0.034	0.094	N/A	N/A	N/A	N/A	5504923
Monochlorobiphenyl	ng/L	0.0083 U	0.0083	N/A	N/A	N/A	N/A	0	5504923
Dichlorobiphenyl	ng/L	0.314	0.0088	N/A	N/A	N/A	N/A	3	5504923
Trichlorobiphenyl	ng/L	0.787	0.014	N/A	N/A	N/A	N/A	13	5504923
Tetrachlorobiphenyl	ng/L	0.797	0.026	N/A	N/A	N/A	N/A	12	5504923
Pentachlorobiphenyl	ng/L	0.870	0.0091	N/A	N/A	N/A	N/A	12	5504923
Hexachlorobiphenyl	ng/L	0.674	0.016	N/A	N/A	N/A	N/A	12	5504923
Heptachlorobiphenyl	ng/L	0.138	0.014	N/A	N/A	N/A	N/A	6	5504923
Octachlorobiphenyl	ng/L	0.031 U	0.031	N/A	N/A	N/A	N/A	0	5504923
Nonachlorobiphenyl	ng/L	0.019 U	0.019	N/A	N/A	N/A	N/A	0	5504923
Decachlorobiphenyl	ng/L	0.034 U	0.034	N/A	N/A	N/A	N/A	0	5504923
Total PCB	ng/L	3.58	N/A	N/A	N/A	N/A	N/A	N/A	5504923
TOTAL TOXIC EQUIVALENCY	ng/L	N/A	N/A	N/A	N/A	N/A	0.00101	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	104	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'44'55'6-NonaCB-(206)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'44'5-HeptaCB-(170)	%	125	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'455'66'-NonaCB-(208)	%	103	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'55'66'-OctaCB-(202)	%	132	N/A	N/A	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR525							
Sampling Date		2018/04/05 10:10							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-SW6-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-22'33'55'6-HeptaCB-(178)	%	87	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'344'55'-HeptaCB-(180)	%	126	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'34'566'-HeptaCB-(188)	%	105	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'44'66'-HexaCB-(155)	%	118	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'466'-PentaCB-(104)	%	105	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'66'-TetraCB-(54)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'6-TriCB-(19)	%	74	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'-DiCB-(4)	%	58	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'55'6-OctaCB-(205)	%	102	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'55'-HeptaCB-(189)	%	114	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'-PentaCB-(105)	%	102	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'55'-PentaCB-(111)	%	97	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-23'44'55'-HexaCB-(167)	%	91	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2344'5-PentaCB-(114)	%	104	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-23'44'5-PentaCB-(118)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2'344'5-PentaCB-(123)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2-MonoCB-(1)	%	51	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'55'-HexaCB-(169)	%	60	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'5-PentaCB-(126)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'-TetraCB-(77)	%	102	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-344'5-TetraCB-(81)	%	102	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-344'-TriCB-(37)	%	112	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-44'-DiCB-(15)	%	91	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-4-MonoCB-(3)	%	61	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-DecaCB-(209)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-HexaCB-(156)+(157)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR526							
Sampling Date		2018/04/05 14:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB2-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2-MonoCB-(1)	ng/L	0.0445 J	0.0069	0.11	N/A	N/A	N/A	N/A	5504923
3-MonoCB-(2)	ng/L	0.0102 J	0.0068	0.11	N/A	N/A	N/A	N/A	5504923
4-MonoCB-(3)	ng/L	0.0263 J	0.0068	0.11	N/A	N/A	N/A	N/A	5504923
22'-DiCB-(4)	ng/L	0.370	0.011	0.11	N/A	N/A	N/A	N/A	5504923
2,3-DiCB-(5)	ng/L	0.0074 U	0.0074	0.11	N/A	N/A	N/A	N/A	5504923
2,3'-DiCB-(6)	ng/L	0.141	0.0054	0.11	N/A	N/A	N/A	N/A	5504923
2,4-DiCB-(7)	ng/L	0.026 U (1)	0.026	0.11	N/A	N/A	N/A	N/A	5504923
2,4'-DiCB-(8)	ng/L	0.547	0.0046	0.11	N/A	N/A	N/A	N/A	5504923
2,5-DiCB-(9)	ng/L	0.0441 J	0.0058	0.11	N/A	N/A	N/A	N/A	5504923
2,6-DiCB-(10)	ng/L	0.0121 J	0.0099	0.11	N/A	N/A	N/A	N/A	5504923
3,3'-DiCB-(11)	ng/L	0.936	0.0060	0.11	N/A	N/A	N/A	N/A	5504923
DiCB-(12)+(13)	ng/L	0.0863 J	0.0060	0.23	N/A	N/A	N/A	N/A	5504923
3,5-DiCB-(14)	ng/L	0.0057 U	0.0057	0.11	N/A	N/A	N/A	N/A	5504923
4,4'-DiCB-(15)	ng/L	0.458	0.0096	0.11	N/A	N/A	N/A	N/A	5504923
22'3-TriCB-(16)	ng/L	0.465	0.034	0.11	N/A	N/A	N/A	N/A	5504923
22'4-TriCB-(17)	ng/L	0.414	0.031	0.11	N/A	N/A	N/A	N/A	5504923
TriCB-(18)+(30)	ng/L	0.855	0.023	0.23	N/A	N/A	N/A	N/A	5504923
22'6-TriCB-(19)	ng/L	0.103 J	0.023	0.11	N/A	N/A	N/A	N/A	5504923
TriCB-(20) + (28)	ng/L	1.46	0.0088	0.23	N/A	N/A	N/A	N/A	5504923
TriCB-(21)+(33)	ng/L	0.968	0.0084	0.23	N/A	N/A	N/A	N/A	5504923
234'-TriCB-(22)	ng/L	0.617	0.0090	0.11	N/A	N/A	N/A	N/A	5504923
235-TriCB-(23)	ng/L	0.0095 U	0.0095	0.11	N/A	N/A	N/A	N/A	5504923
236-TriCB-(24)	ng/L	0.023 U	0.023	0.11	N/A	N/A	N/A	N/A	5504923
23'4-TriCB-(25)	ng/L	0.101 J	0.0078	0.11	N/A	N/A	N/A	N/A	5504923
TriCB-(26)+(29)	ng/L	0.242	0.0088	0.23	N/A	N/A	N/A	N/A	5504923
23'6-TriCB-(27)	ng/L	0.065 J	0.020	0.11	N/A	N/A	N/A	N/A	5504923
24'5-TriCB-(31)	ng/L	1.20	0.0080	0.11	N/A	N/A	N/A	N/A	5504923
24'6-TriCB-(32)	ng/L	0.250	0.018	0.11	N/A	N/A	N/A	N/A	5504923
23'5'-TriCB-(34)	ng/L	0.0086 U	0.0086	0.11	N/A	N/A	N/A	N/A	5504923
33'4-TriCB-(35)	ng/L	0.0336 J	0.0088	0.11	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR526							
Sampling Date		2018/04/05 14:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB2-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'5-TriCB-(36)	ng/L	0.0075 U	0.0075	0.11	N/A	N/A	N/A	N/A	5504923
344'-TriCB-(37)	ng/L	0.527	0.015	0.11	N/A	N/A	N/A	N/A	5504923
345-TriCB-(38)	ng/L	0.0088 U	0.0088	0.11	N/A	N/A	N/A	N/A	5504923
34'5-TriCB-(39)	ng/L	0.0085 U	0.0085	0.11	N/A	N/A	N/A	N/A	5504923
TetraCB-(40)+(41)+(71)	ng/L	0.812	0.022	0.34	N/A	N/A	N/A	N/A	5504923
22'34'-TetraCB-(42)	ng/L	0.406	0.027	0.11	N/A	N/A	N/A	N/A	5504923
22'35-TetraCB-(43)	ng/L	0.064 J	0.032	0.11	N/A	N/A	N/A	N/A	5504923
TetraCB-(44)+(47)+(65)	ng/L	1.36	0.021	0.34	N/A	N/A	N/A	N/A	5504923
TetraCB-(45)+(51)	ng/L	0.261	0.023	0.23	N/A	N/A	N/A	N/A	5504923
22'36'-TetraCB-(46)	ng/L	0.083 J	0.027	0.11	N/A	N/A	N/A	N/A	5504923
22'45-TetraCB-(48)	ng/L	0.308	0.023	0.11	N/A	N/A	N/A	N/A	5504923
TetraCB-(49)+TetraCB-(69)	ng/L	0.697	0.019	0.23	N/A	N/A	N/A	N/A	5504923
TetraCB-(50)+(53)	ng/L	0.165 J	0.022	0.23	N/A	N/A	N/A	N/A	5504923
22'55'-TetraCB-(52)	ng/L	1.29	0.021	0.11	N/A	N/A	N/A	N/A	5504923
22'66'-TetraCB-(54)	ng/L	0.0079 U	0.0079	0.11	N/A	N/A	N/A	N/A	5504923
233'4-TetraCB-(55)	ng/L	0.024 U	0.024	0.11	N/A	N/A	N/A	N/A	5504923
233'4'-Tetra CB(56)	ng/L	0.315	0.023	0.11	N/A	N/A	N/A	N/A	5504923
233'5-TetraCB-(57)	ng/L	0.023 U	0.023	0.11	N/A	N/A	N/A	N/A	5504923
233'5'-TetraCB-(58)	ng/L	0.022 U	0.022	0.11	N/A	N/A	N/A	N/A	5504923
TetraCB-(59)+(62)+(75)	ng/L	0.120 J	0.016	0.34	N/A	N/A	N/A	N/A	5504923
2344'-TetraCB -(60)	ng/L	0.192	0.024	0.11	N/A	N/A	N/A	N/A	5504923
TetraCB-(61)+(70)+(74)+(76)	ng/L	1.37	0.022	0.46	N/A	N/A	N/A	N/A	5504923
234'5-TetraCB-(63)	ng/L	0.022 J	0.021	0.11	N/A	N/A	N/A	N/A	5504923
234'6-TetraCB-(64)	ng/L	0.619	0.018	0.11	N/A	N/A	N/A	N/A	5504923
23'44'-TetraCB-(66)	ng/L	0.647	0.021	0.11	N/A	N/A	N/A	N/A	5504923
23'45-TetraCB-(67)	ng/L	0.028 J	0.021	0.11	N/A	N/A	N/A	N/A	5504923
23'45'-TetraCB-(68)	ng/L	0.021 U	0.021	0.11	N/A	N/A	N/A	N/A	5504923
23'55'-TetraCB-(72)	ng/L	0.021 U	0.021	0.11	N/A	N/A	N/A	N/A	5504923
23'5'6-TetraCB-(73)	ng/L	0.015 U	0.015	0.11	N/A	N/A	N/A	N/A	5504923
33'44'-TetraCB-(77)	ng/L	0.103 J	0.030	0.11	N/A	0.000100	0.0000103	N/A	5504923
33'45-TetraCB-(78)	ng/L	0.022 U	0.022	0.11	N/A	N/A	N/A	N/A	5504923

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SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR526							
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	UNITS	B21-CB2-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'45'-TetraCB(79)	ng/L	0.019 U	0.019	0.11	N/A	N/A	N/A	N/A	5504923
33'55'-TetraCB-(80)	ng/L	0.020 U	0.020	0.11	N/A	N/A	N/A	N/A	5504923
344'5-TetraCB-(81)	ng/L	0.029 U	0.029	0.11	N/A	0.000300	0.00000870	N/A	5504923
22'33'4-PentaCB-(82)	ng/L	0.156	0.028	0.11	N/A	N/A	N/A	N/A	5504923
PentaCB-(83)+(99)	ng/L	0.567	0.025	0.23	N/A	N/A	N/A	N/A	5504923
22'33'6-PentaCB-(84)	ng/L	0.326	0.028	0.11	N/A	N/A	N/A	N/A	5504923
PentaCB-(85)+(116)+(117)	ng/L	0.143 J	0.019	0.34	N/A	N/A	N/A	N/A	5504923
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	0.772	0.020	0.69	N/A	N/A	N/A	N/A	5504923
PentaCB-(88)+(91)	ng/L	0.166 J	0.024	0.23	N/A	N/A	N/A	N/A	5504923
22'346'-PentaCB-(89)	ng/L	0.026 U	0.026	0.11	N/A	N/A	N/A	N/A	5504923
PentaCB-(90)+(101)+(113)	ng/L	1.07	0.020	0.34	N/A	N/A	N/A	N/A	5504923
22'355'-PentaCB-(92)	ng/L	0.194	0.024	0.11	N/A	N/A	N/A	N/A	5504923
PentaCB-(93)+(98)+(100)+(102)	ng/L	0.056 J	0.024	0.46	N/A	N/A	N/A	N/A	5504923
22'356'-PentaCB-(94)	ng/L	0.026 U	0.026	0.11	N/A	N/A	N/A	N/A	5504923
22'35'6-PentaCB-(95)	ng/L	0.893	0.023	0.11	N/A	N/A	N/A	N/A	5504923
22'366'-PentaCB-(96)	ng/L	0.0110 J	0.0044	0.11	N/A	N/A	N/A	N/A	5504923
22'45'6-PentaCB-(103)	ng/L	0.021 U	0.021	0.11	N/A	N/A	N/A	N/A	5504923
22'466'-PentaCB-(104)	ng/L	0.0031 U	0.0031	0.11	N/A	N/A	N/A	N/A	5504923
233'44'-PentaCB-(105)	ng/L	0.518	0.011	0.11	N/A	0.0000300	0.0000155	N/A	5504923
233'45-PentaCB-(106)	ng/L	0.0087 U	0.0087	0.11	N/A	N/A	N/A	N/A	5504923
233'4'5-PentaCB-(107)	ng/L	0.0769 J	0.0083	0.11	N/A	N/A	N/A	N/A	5504923
PentaCB-(108)+(124)	ng/L	0.0409 J	0.0086	0.23	N/A	N/A	N/A	N/A	5504923
PentaCB-(110)+(115)	ng/L	1.65	0.019	0.23	N/A	N/A	N/A	N/A	5504923
233'55'-PentaCB-(111)	ng/L	0.018 U	0.018	0.11	N/A	N/A	N/A	N/A	5504923
233'56-PentaCB-(112)	ng/L	0.017 U	0.017	0.11	N/A	N/A	N/A	N/A	5504923
2344'5-PentaCB-(114)	ng/L	0.029 J	0.011	0.11	N/A	0.0000300	0.000000870	N/A	5504923
23'44'5-PentaCB-(118)	ng/L	1.18	0.011	0.11	N/A	0.0000300	0.0000354	N/A	5504923
23'455'-PentaCB-(120)	ng/L	0.017 U	0.017	0.11	N/A	N/A	N/A	N/A	5504923
23'45'6-PentaCB-(121)	ng/L	0.018 U	0.018	0.11	N/A	N/A	N/A	N/A	5504923
233'4'5'-PentaCB-(122)	ng/L	0.0165 J	0.0096	0.11	N/A	N/A	N/A	N/A	5504923
23'44'5'-PentaCB-(123)	ng/L	0.012 U	0.012	0.11	N/A	0.0000300	0.000000360	N/A	5504923

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Maxxam ID		GKR526							
Sampling Date		2018/04/05 14:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB2-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'44'5-PentaCB-(126)	ng/L	0.010 U	0.010	0.11	N/A	0.100	0.00100	N/A	5504923
33'455'-PentaCB-(127)	ng/L	0.0086 U	0.0086	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(128)+(166)	ng/L	0.261	0.014	0.23	N/A	N/A	N/A	N/A	5504923
HexaCB-(129)+(138)+(163)	ng/L	1.66	0.015	0.34	N/A	N/A	N/A	N/A	5504923
22'33'45'-HexaCB-(130)	ng/L	0.105 J	0.019	0.11	N/A	N/A	N/A	N/A	5504923
22'33'46-HexaCB-(131)	ng/L	0.023 J	0.020	0.11	N/A	N/A	N/A	N/A	5504923
22'33'46'-HexaCB-(132)	ng/L	0.577	0.018	0.11	N/A	N/A	N/A	N/A	5504923
22'33'55'-HexaCB-(133)	ng/L	0.016 U	0.016	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(134)+(143)	ng/L	0.084 J	0.018	0.23	N/A	N/A	N/A	N/A	5504923
HexaCB-(135)+(151)	ng/L	0.386	0.0090	0.23	N/A	N/A	N/A	N/A	5504923
22'33'66'-HexaCB-(136)	ng/L	0.153	0.0062	0.11	N/A	N/A	N/A	N/A	5504923
22'344'5-HexaCB-(137)	ng/L	0.064 J	0.017	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(139)+(140)	ng/L	0.028 J	0.015	0.23	N/A	N/A	N/A	N/A	5504923
22'3455'-HexaCB-(141)	ng/L	0.261	0.016	0.11	N/A	N/A	N/A	N/A	5504923
22'3456-HexaCB-(142)	ng/L	0.018 U	0.018	0.11	N/A	N/A	N/A	N/A	5504923
22'345'6-HexaCB-(144)	ng/L	0.0629 J	0.0091	0.11	N/A	N/A	N/A	N/A	5504923
22'3466'-HexaCB-(145)	ng/L	0.0067 U	0.0067	0.11	N/A	N/A	N/A	N/A	5504923
22'34'55'-HexaCB-(146)	ng/L	0.203	0.015	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(147)+(149)	ng/L	1.02	0.014	0.23	N/A	N/A	N/A	N/A	5504923
22'34'56'-HexaCB-(148)	ng/L	0.0088 U	0.0088	0.11	N/A	N/A	N/A	N/A	5504923
22'34'66'-HexaCB-(150)	ng/L	0.0063 U	0.0063	0.11	N/A	N/A	N/A	N/A	5504923
22'3566'-HexaCB-(152)	ng/L	0.0061 U	0.0061	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(153)+(168)	ng/L	1.06	0.012	0.23	N/A	N/A	N/A	N/A	5504923
22'44'56'-HexaCB-(154)	ng/L	0.010 U (1)	0.010	0.11	N/A	N/A	N/A	N/A	5504923
22'44'66'-HexaCB-(155)	ng/L	0.0052 U	0.0052	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(156)+(157)	ng/L	0.194 J	0.015	0.23	N/A	0.0000300	0.00000582	N/A	5504923
233'44'6-HexaCB-(158)	ng/L	0.156	0.011	0.11	N/A	N/A	N/A	N/A	5504923
233'455'-HexaCB-(159)	ng/L	0.012 U	0.012	0.11	N/A	N/A	N/A	N/A	5504923
233'456-HexaCB-(160)	ng/L	0.013 U	0.013	0.11	N/A	N/A	N/A	N/A	5504923
233'45'6-HexaCB-(161)	ng/L	0.011 U	0.011	0.11	N/A	N/A	N/A	N/A	5504923

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	UNITS	B21-CB2-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'55'-HexaCB-(162)	ng/L	0.011 U	0.011	0.11	N/A	N/A	N/A	N/A	5504923
233'4'5'6-HexaCB-(164)	ng/L	0.112	0.011	0.11	N/A	N/A	N/A	N/A	5504923
233'55'6-HexaCB-(165)	ng/L	0.013 U	0.013	0.11	N/A	N/A	N/A	N/A	5504923
23'44'55'-HexaCB-(167)	ng/L	0.067 J	0.015	0.11	N/A	0.0000300	0.00000201	N/A	5504923
33'44'55'-HexaCB-(169)	ng/L	0.016 U	0.016	0.11	N/A	0.0300	0.000480	N/A	5504923
22'33'44'5-HeptaCB-(170)	ng/L	0.262	0.034	0.11	N/A	N/A	N/A	N/A	5504923
HeptaCB-(171)+(173)	ng/L	0.069 J	0.046	0.23	N/A	N/A	N/A	N/A	5504923
22'33'455'-HeptaCB-(172)	ng/L	0.049 J	0.048	0.11	N/A	N/A	N/A	N/A	5504923
22'33'456'-HeptaCB-(174)	ng/L	0.260	0.043	0.11	N/A	N/A	N/A	N/A	5504923
22'33'45'6-HeptaCB-(175)	ng/L	0.027 U	0.027	0.11	N/A	N/A	N/A	N/A	5504923
22'33'466'-HeptaCB-(176)	ng/L	0.032 J	0.018	0.11	N/A	N/A	N/A	N/A	5504923
22'33'45'6'-HeptaCB-(177)	ng/L	0.145	0.045	0.11	N/A	N/A	N/A	N/A	5504923
22'33'55'6-HeptaCB-(178)	ng/L	0.057 J	0.028	0.11	N/A	N/A	N/A	N/A	5504923
22'33'566'-HeptaCB-(179)	ng/L	0.098 J	0.017	0.11	N/A	N/A	N/A	N/A	5504923
HeptaCB-(180)+(193)	ng/L	0.578	0.032	0.23	N/A	N/A	N/A	N/A	5504923
22'344'56-HeptaCB-(181)	ng/L	0.046 U	0.046	0.11	N/A	N/A	N/A	N/A	5504923
22'344'56'-HeptaCB-(182)	ng/L	0.028 U	0.028	0.11	N/A	N/A	N/A	N/A	5504923
22'344'5'6-HeptaCB-(183)	ng/L	0.177	0.041	0.11	N/A	N/A	N/A	N/A	5504923
22'344'66'-HeptaCB-(184)	ng/L	0.018 U	0.018	0.11	N/A	N/A	N/A	N/A	5504923
22'3455'6-HeptaCB-(185)	ng/L	0.039 U	0.039	0.11	N/A	N/A	N/A	N/A	5504923
22'34566'-HeptaCB-(186)	ng/L	0.020 U	0.020	0.11	N/A	N/A	N/A	N/A	5504923
22'34'55'6-HeptaCB-(187)	ng/L	0.345	0.027	0.11	N/A	N/A	N/A	N/A	5504923
22'34'566'-HeptaCB-(188)	ng/L	0.021 U	0.021	0.11	N/A	N/A	N/A	N/A	5504923
233'44'55'-HeptaCB-(189)	ng/L	0.034 U	0.034	0.11	N/A	0.0000300	0.00000102	N/A	5504923
233'44'56-HeptaCB-(190)	ng/L	0.037 J	0.036	0.11	N/A	N/A	N/A	N/A	5504923
233'44'5'6-HeptaCB-(191)	ng/L	0.034 U	0.034	0.11	N/A	N/A	N/A	N/A	5504923
233'455'6-HeptaCB-(192)	ng/L	0.039 U	0.039	0.11	N/A	N/A	N/A	N/A	5504923
22'33'44'55'-OctaCB-(194)	ng/L	0.166	0.019	0.11	N/A	N/A	N/A	N/A	5504923
22'33'44'56-OctaCB-(195)	ng/L	0.044 U (1)	0.044	0.11	N/A	N/A	N/A	N/A	5504923
22'33'44'56'-OctaCB-(196)	ng/L	0.110	0.030	0.11	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR526							
Sampling Date		2018/04/05 14:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB2-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'66'OctaCB-(197)	ng/L	0.019 U	0.019	0.11	N/A	N/A	N/A	N/A	5504923
OctaCB-(198)+(199)	ng/L	0.257	0.030	0.23	N/A	N/A	N/A	N/A	5504923
22'33'4566'-OctaCB-(200)	ng/L	0.023 J	0.017	0.11	N/A	N/A	N/A	N/A	5504923
22'33'45'66'-OctaCB-(201)	ng/L	0.026 U (1)	0.026	0.11	N/A	N/A	N/A	N/A	5504923
22'33'55'66'-OctaCB-(202)	ng/L	0.051 J	0.020	0.11	N/A	N/A	N/A	N/A	5504923
22'344'55'6-OctaCB-(203)	ng/L	0.170	0.028	0.11	N/A	N/A	N/A	N/A	5504923
22'344'566'-OctaCB-(204)	ng/L	0.018 U	0.018	0.11	N/A	N/A	N/A	N/A	5504923
233'44'55'6-OctaCB-(205)	ng/L	0.017 U	0.017	0.11	N/A	N/A	N/A	N/A	5504923
22'33'44'55'6-NonaCB-(206)	ng/L	0.174	0.019	0.11	N/A	N/A	N/A	N/A	5504923
22'33'44'566'-NonaCB-(207)	ng/L	0.014 U	0.014	0.11	N/A	N/A	N/A	N/A	5504923
22'33'455'66'-NonaCB-(208)	ng/L	0.050 J	0.019	0.11	N/A	N/A	N/A	N/A	5504923
DecaCB-(209)	ng/L	0.061 J	0.016	0.11	N/A	N/A	N/A	N/A	5504923
Monochlorobiphenyl	ng/L	0.0811	0.0069	N/A	N/A	N/A	N/A	3	5504923
Dichlorobiphenyl	ng/L	2.59	0.011	N/A	N/A	N/A	N/A	8	5504923
Trichlorobiphenyl	ng/L	7.30	0.034	N/A	N/A	N/A	N/A	14	5504923
Tetrachlorobiphenyl	ng/L	8.86	0.032	N/A	N/A	N/A	N/A	19	5504923
Pentachlorobiphenyl	ng/L	7.87	0.028	N/A	N/A	N/A	N/A	18	5504923
Hexachlorobiphenyl	ng/L	6.48	0.020	N/A	N/A	N/A	N/A	19	5504923
Heptachlorobiphenyl	ng/L	2.11	0.048	N/A	N/A	N/A	N/A	12	5504923
Octachlorobiphenyl	ng/L	0.777	0.030	N/A	N/A	N/A	N/A	6	5504923
Nonachlorobiphenyl	ng/L	0.224	0.019	N/A	N/A	N/A	N/A	2	5504923
Decachlorobiphenyl	ng/L	0.061	0.016	N/A	N/A	N/A	N/A	1	5504923
Total PCB	ng/L	36.4	N/A	N/A	N/A	N/A	N/A	N/A	5504923
TOTAL TOXIC EQUIVALENCY	ng/L	N/A	N/A	N/A	N/A	N/A	0.00156	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	117	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'44'55'6-NonaCB-(206)	%	104	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'44'5-HeptaCB-(170)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'455'66'-NonaCB-(208)	%	97	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'55'66'-OctaCB-(202)	%	96	N/A	N/A	N/A	N/A	N/A	N/A	5504923

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C13-22'33'55'6-HeptaCB-(178)	%	94	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'344'55'-HeptaCB-(180)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'34'566'-HeptaCB-(188)	%	99	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'44'66'-HexaCB-(155)	%	102	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'466'-PentaCB-(104)	%	110	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'66'-TetraCB-(54)	%	96	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'6-TriCB-(19)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'-DiCB-(4)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'55'6-OctaCB-(205)	%	108	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'55'-HeptaCB-(189)	%	104	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'-PentaCB-(105)	%	111	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'55'-PentaCB-(111)	%	102	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-23'44'55'-HexaCB-(167)	%	103	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2344'5-PentaCB-(114)	%	113	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-23'44'5-PentaCB-(118)	%	114	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2'344'5-PentaCB-(123)	%	113	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2-MonoCB-(1)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'55'-HexaCB-(169)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'5-PentaCB-(126)	%	102	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'-TetraCB-(77)	%	100	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-344'5-TetraCB-(81)	%	102	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-344'-TriCB-(37)	%	121	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-44'-DiCB-(15)	%	106	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-4-MonoCB-(3)	%	90	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-DecaCB-(209)	%	97	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-HexaCB-(156)+(157)	%	104	N/A	N/A	N/A	N/A	N/A	N/A	5504923

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Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR527							
Sampling Date		2018/04/05 15:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB9-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2-MonoCB-(1)	ng/L	0.0139 J	0.0054	0.11	N/A	N/A	N/A	N/A	5504923
3-MonoCB-(2)	ng/L	0.0053 U	0.0053	0.11	N/A	N/A	N/A	N/A	5504923
4-MonoCB-(3)	ng/L	0.0115 J	0.0053	0.11	N/A	N/A	N/A	N/A	5504923
22'-DiCB-(4)	ng/L	0.184	0.0068	0.11	N/A	N/A	N/A	N/A	5504923
2,3-DiCB-(5)	ng/L	0.0063 U	0.0063	0.11	N/A	N/A	N/A	N/A	5504923
2,3'-DiCB-(6)	ng/L	0.0588 J	0.0047	0.11	N/A	N/A	N/A	N/A	5504923
2,4-DiCB-(7)	ng/L	0.011 U (1)	0.011	0.11	N/A	N/A	N/A	N/A	5504923
2,4'-DiCB-(8)	ng/L	0.175	0.0040	0.11	N/A	N/A	N/A	N/A	5504923
2,5-DiCB-(9)	ng/L	0.020 U (1)	0.020	0.11	N/A	N/A	N/A	N/A	5504923
2,6-DiCB-(10)	ng/L	0.0079 J	0.0062	0.11	N/A	N/A	N/A	N/A	5504923
3,3'-DiCB-(11)	ng/L	0.518	0.0052	0.11	N/A	N/A	N/A	N/A	5504923
DiCB-(12)+(13)	ng/L	0.0464 J	0.0052	0.22	N/A	N/A	N/A	N/A	5504923
3,5-DiCB-(14)	ng/L	0.0049 U	0.0049	0.11	N/A	N/A	N/A	N/A	5504923
4,4'-DiCB-(15)	ng/L	0.277	0.0082	0.11	N/A	N/A	N/A	N/A	5504923
22'3-TriCB-(16)	ng/L	0.237	0.015	0.11	N/A	N/A	N/A	N/A	5504923
22'4-TriCB-(17)	ng/L	0.221	0.013	0.11	N/A	N/A	N/A	N/A	5504923
TriCB-(18)+(30)	ng/L	0.449	0.010	0.22	N/A	N/A	N/A	N/A	5504923
22'6-TriCB-(19)	ng/L	0.058 U (1)	0.058	0.11	N/A	N/A	N/A	N/A	5504923
TriCB-(20) + (28)	ng/L	0.853	0.0072	0.22	N/A	N/A	N/A	N/A	5504923
TriCB-(21)+(33)	ng/L	0.491	0.0069	0.22	N/A	N/A	N/A	N/A	5504923
234'-TriCB-(22)	ng/L	0.357	0.0073	0.11	N/A	N/A	N/A	N/A	5504923
235-TriCB-(23)	ng/L	0.0077 U	0.0077	0.11	N/A	N/A	N/A	N/A	5504923
236-TriCB-(24)	ng/L	0.0099 U	0.0099	0.11	N/A	N/A	N/A	N/A	5504923
23'4-TriCB-(25)	ng/L	0.0561 J	0.0064	0.11	N/A	N/A	N/A	N/A	5504923
TriCB-(26)+(29)	ng/L	0.137 J	0.0071	0.22	N/A	N/A	N/A	N/A	5504923
23'6-TriCB-(27)	ng/L	0.0344 J	0.0085	0.11	N/A	N/A	N/A	N/A	5504923
24'5-TriCB-(31)	ng/L	0.680	0.0065	0.11	N/A	N/A	N/A	N/A	5504923
24'6-TriCB-(32)	ng/L	0.141	0.0079	0.11	N/A	N/A	N/A	N/A	5504923
23'5'-TriCB-(34)	ng/L	0.0070 U	0.0070	0.11	N/A	N/A	N/A	N/A	5504923
33'4-TriCB-(35)	ng/L	0.019 U (1)	0.019	0.11	N/A	N/A	N/A	N/A	5504923

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Maxxam ID		GKR527							
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	UNITS	B21-CB9-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'5-TriCB-(36)	ng/L	0.0061 U	0.0061	0.11	N/A	N/A	N/A	N/A	5504923
344'-TriCB-(37)	ng/L	0.381	0.012	0.11	N/A	N/A	N/A	N/A	5504923
345-TriCB-(38)	ng/L	0.0071 U	0.0071	0.11	N/A	N/A	N/A	N/A	5504923
34'5-TriCB-(39)	ng/L	0.0069 U	0.0069	0.11	N/A	N/A	N/A	N/A	5504923
TetraCB-(40)+(41)+(71)	ng/L	0.565	0.025	0.32	N/A	N/A	N/A	N/A	5504923
22'34'-TetraCB-(42)	ng/L	0.310	0.031	0.11	N/A	N/A	N/A	N/A	5504923
22'35-TetraCB-(43)	ng/L	0.045 J	0.036	0.11	N/A	N/A	N/A	N/A	5504923
TetraCB-(44)+(47)+(65)	ng/L	0.948	0.023	0.32	N/A	N/A	N/A	N/A	5504923
TetraCB-(45)+(51)	ng/L	0.172 J	0.026	0.22	N/A	N/A	N/A	N/A	5504923
22'36'-TetraCB-(46)	ng/L	0.063 J	0.030	0.11	N/A	N/A	N/A	N/A	5504923
22'45-TetraCB-(48)	ng/L	0.207	0.026	0.11	N/A	N/A	N/A	N/A	5504923
TetraCB-(49)+TetraCB-(69)	ng/L	0.523	0.022	0.22	N/A	N/A	N/A	N/A	5504923
TetraCB-(50)+(53)	ng/L	0.114 J	0.024	0.22	N/A	N/A	N/A	N/A	5504923
22'55'-TetraCB-(52)	ng/L	1.07	0.024	0.11	N/A	N/A	N/A	N/A	5504923
22'66'-TetraCB-(54)	ng/L	0.0032 U	0.0032	0.11	N/A	N/A	N/A	N/A	5504923
233'4-TetraCB-(55)	ng/L	0.013 U	0.013	0.11	N/A	N/A	N/A	N/A	5504923
233'4'-Tetra CB(56)	ng/L	0.280	0.012	0.11	N/A	N/A	N/A	N/A	5504923
233'5-TetraCB-(57)	ng/L	0.012 U	0.012	0.11	N/A	N/A	N/A	N/A	5504923
233'5'-TetraCB-(58)	ng/L	0.012 U	0.012	0.11	N/A	N/A	N/A	N/A	5504923
TetraCB-(59)+(62)+(75)	ng/L	0.087 J	0.018	0.32	N/A	N/A	N/A	N/A	5504923
2344'-TetraCB -(60)	ng/L	0.179	0.013	0.11	N/A	N/A	N/A	N/A	5504923
TetraCB-(61)+(70)+(74)+(76)	ng/L	1.19	0.012	0.43	N/A	N/A	N/A	N/A	5504923
234'5-TetraCB-(63)	ng/L	0.020 U (1)	0.020	0.11	N/A	N/A	N/A	N/A	5504923
234'6-TetraCB-(64)	ng/L	0.471	0.020	0.11	N/A	N/A	N/A	N/A	5504923
23'44'-TetraCB-(66)	ng/L	0.612	0.011	0.11	N/A	N/A	N/A	N/A	5504923
23'45-TetraCB-(67)	ng/L	0.020 U (1)	0.020	0.11	N/A	N/A	N/A	N/A	5504923
23'45'-TetraCB-(68)	ng/L	0.012 U	0.012	0.11	N/A	N/A	N/A	N/A	5504923
23'55'-TetraCB-(72)	ng/L	0.011 U	0.011	0.11	N/A	N/A	N/A	N/A	5504923
23'5'6-TetraCB-(73)	ng/L	0.017 U	0.017	0.11	N/A	N/A	N/A	N/A	5504923
33'44'-TetraCB-(77)	ng/L	0.097 J	0.016	0.11	N/A	0.000100	0.00000970	N/A	5504923

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	UNITS	B21-CB9-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'45-TetraCB-(78)	ng/L	0.012 U	0.012	0.11	N/A	N/A	N/A	N/A	5504923
33'45'-TetraCB(79)	ng/L	0.010 U	0.010	0.11	N/A	N/A	N/A	N/A	5504923
33'55'-TetraCB-(80)	ng/L	0.011 U	0.011	0.11	N/A	N/A	N/A	N/A	5504923
344'5-TetraCB-(81)	ng/L	0.016 U	0.016	0.11	N/A	0.000300	0.00000480	N/A	5504923
22'33'4-PentaCB-(82)	ng/L	0.182	0.062	0.11	N/A	N/A	N/A	N/A	5504923
PentaCB-(83)+(99)	ng/L	0.771	0.055	0.22	N/A	N/A	N/A	N/A	5504923
22'33'6-PentaCB-(84)	ng/L	0.408	0.062	0.11	N/A	N/A	N/A	N/A	5504923
PentaCB-(85)+(116)+(117)	ng/L	0.186 J	0.042	0.32	N/A	N/A	N/A	N/A	5504923
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	0.976	0.045	0.65	N/A	N/A	N/A	N/A	5504923
PentaCB-(88)+(91)	ng/L	0.192 J	0.053	0.22	N/A	N/A	N/A	N/A	5504923
22'346'-PentaCB-(89)	ng/L	0.057 U	0.057	0.11	N/A	N/A	N/A	N/A	5504923
PentaCB-(90)+(101)+(113)	ng/L	1.34	0.045	0.32	N/A	N/A	N/A	N/A	5504923
22'355'-PentaCB-(92)	ng/L	0.261	0.053	0.11	N/A	N/A	N/A	N/A	5504923
PentaCB-(93)+(98)+(100)+(102)	ng/L	0.053 U	0.053	0.43	N/A	N/A	N/A	N/A	5504923
22'356'-PentaCB-(94)	ng/L	0.058 U	0.058	0.11	N/A	N/A	N/A	N/A	5504923
22'35'6-PentaCB-(95)	ng/L	1.10	0.051	0.11	N/A	N/A	N/A	N/A	5504923
22'366'-PentaCB-(96)	ng/L	0.0090 U (1)	0.0090	0.11	N/A	N/A	N/A	N/A	5504923
22'45'6-PentaCB-(103)	ng/L	0.047 U	0.047	0.11	N/A	N/A	N/A	N/A	5504923
22'466'-PentaCB-(104)	ng/L	0.0030 U	0.0030	0.11	N/A	N/A	N/A	N/A	5504923
233'44'-PentaCB-(105)	ng/L	0.584	0.018	0.11	N/A	0.0000300	0.0000175	N/A	5504923
233'45-PentaCB-(106)	ng/L	0.015 U	0.015	0.11	N/A	N/A	N/A	N/A	5504923
233'4'5-PentaCB-(107)	ng/L	0.091 J	0.014	0.11	N/A	N/A	N/A	N/A	5504923
PentaCB-(108)+(124)	ng/L	0.049 J	0.014	0.22	N/A	N/A	N/A	N/A	5504923
PentaCB-(110)+(115)	ng/L	2.17	0.043	0.22	N/A	N/A	N/A	N/A	5504923
233'55'-PentaCB-(111)	ng/L	0.040 U	0.040	0.11	N/A	N/A	N/A	N/A	5504923
233'56-PentaCB-(112)	ng/L	0.038 U	0.038	0.11	N/A	N/A	N/A	N/A	5504923
2344'5-PentaCB-(114)	ng/L	0.028 J	0.018	0.11	N/A	0.0000300	0.000000840	N/A	5504923
23'44'5-PentaCB-(118)	ng/L	1.43	0.018	0.11	N/A	0.0000300	0.0000429	N/A	5504923
23'455'-PentaCB-(120)	ng/L	0.037 U	0.037	0.11	N/A	N/A	N/A	N/A	5504923
23'45'6-PentaCB-(121)	ng/L	0.040 U	0.040	0.11	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR527							
Sampling Date		2018/04/05 15:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB9-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'4'5'-PentaCB-(122)	ng/L	0.016 U	0.016	0.11	N/A	N/A	N/A	N/A	5504923
23'44'5'-PentaCB-(123)	ng/L	0.020 U	0.020	0.11	N/A	0.0000300	0.000000600	N/A	5504923
33'44'5-PentaCB-(126)	ng/L	0.017 U	0.017	0.11	N/A	0.100	0.00170	N/A	5504923
33'455'-PentaCB-(127)	ng/L	0.014 U	0.014	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(128)+(166)	ng/L	0.375	0.039	0.22	N/A	N/A	N/A	N/A	5504923
HexaCB-(129)+(138)+(163)	ng/L	2.38	0.041	0.32	N/A	N/A	N/A	N/A	5504923
22'33'45'-HexaCB-(130)	ng/L	0.150	0.052	0.11	N/A	N/A	N/A	N/A	5504923
22'33'46-HexaCB-(131)	ng/L	0.056 U	0.056	0.11	N/A	N/A	N/A	N/A	5504923
22'33'46'-HexaCB-(132)	ng/L	0.817	0.050	0.11	N/A	N/A	N/A	N/A	5504923
22'33'55'-HexaCB-(133)	ng/L	0.045 U	0.045	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(134)+(143)	ng/L	0.10 U (1)	0.10	0.22	N/A	N/A	N/A	N/A	5504923
HexaCB-(135)+(151)	ng/L	0.577	0.0089	0.22	N/A	N/A	N/A	N/A	5504923
22'33'66'-HexaCB-(136)	ng/L	0.235	0.0061	0.11	N/A	N/A	N/A	N/A	5504923
22'344'5-HexaCB-(137)	ng/L	0.106 J	0.048	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(139)+(140)	ng/L	0.042 U	0.042	0.22	N/A	N/A	N/A	N/A	5504923
22'3455'-HexaCB-(141)	ng/L	0.379	0.045	0.11	N/A	N/A	N/A	N/A	5504923
22'3456-HexaCB-(142)	ng/L	0.049 U	0.049	0.11	N/A	N/A	N/A	N/A	5504923
22'345'6-HexaCB-(144)	ng/L	0.070 U (1)	0.070	0.11	N/A	N/A	N/A	N/A	5504923
22'3466'-HexaCB-(145)	ng/L	0.0066 U	0.0066	0.11	N/A	N/A	N/A	N/A	5504923
22'34'55'-HexaCB-(146)	ng/L	0.348	0.043	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(147)+(149)	ng/L	1.52	0.040	0.22	N/A	N/A	N/A	N/A	5504923
22'34'56'-HexaCB-(148)	ng/L	0.0087 U	0.0087	0.11	N/A	N/A	N/A	N/A	5504923
22'34'66'-HexaCB-(150)	ng/L	0.0062 U	0.0062	0.11	N/A	N/A	N/A	N/A	5504923
22'3566'-HexaCB-(152)	ng/L	0.0060 U	0.0060	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(153)+(168)	ng/L	1.47	0.033	0.22	N/A	N/A	N/A	N/A	5504923
22'44'56'-HexaCB-(154)	ng/L	0.0207 J	0.0077	0.11	N/A	N/A	N/A	N/A	5504923
22'44'66'-HexaCB-(155)	ng/L	0.0051 U	0.0051	0.11	N/A	N/A	N/A	N/A	5504923
HexaCB-(156)+(157)	ng/L	0.267	0.031	0.22	N/A	0.0000300	0.00000801	N/A	5504923
233'44'6-HexaCB-(158)	ng/L	0.225	0.030	0.11	N/A	N/A	N/A	N/A	5504923
233'455'-HexaCB-(159)	ng/L	0.023 U	0.023	0.11	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

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	UNITS	B21-CB9-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
233'456-HexaCB-(160)	ng/L	0.036 U	0.036	0.11	N/A	N/A	N/A	N/A	5504923
233'45'6-HexaCB-(161)	ng/L	0.030 U	0.030	0.11	N/A	N/A	N/A	N/A	5504923
233'4'55'-HexaCB-(162)	ng/L	0.023 U	0.023	0.11	N/A	N/A	N/A	N/A	5504923
233'4'5'6-HexaCB-(164)	ng/L	0.163	0.032	0.11	N/A	N/A	N/A	N/A	5504923
233'55'6-HexaCB-(165)	ng/L	0.035 U	0.035	0.11	N/A	N/A	N/A	N/A	5504923
23'44'55'-HexaCB-(167)	ng/L	0.091 J	0.030	0.11	N/A	0.0000300	0.00000273	N/A	5504923
33'44'55'-HexaCB-(169)	ng/L	0.032 U	0.032	0.11	N/A	0.0300	0.000960	N/A	5504923
22'33'44'5-HeptaCB-(170)	ng/L	0.360	0.044	0.11	N/A	N/A	N/A	N/A	5504923
HeptaCB-(171)+(173)	ng/L	0.112 J	0.058	0.22	N/A	N/A	N/A	N/A	5504923
22'33'455'-HeptaCB-(172)	ng/L	0.067 J	0.062	0.11	N/A	N/A	N/A	N/A	5504923
22'33'456'-HeptaCB-(174)	ng/L	0.376	0.055	0.11	N/A	N/A	N/A	N/A	5504923
22'33'45'6-HeptaCB-(175)	ng/L	0.027 J	0.018	0.11	N/A	N/A	N/A	N/A	5504923
22'33'466'-HeptaCB-(176)	ng/L	0.048 J	0.012	0.11	N/A	N/A	N/A	N/A	5504923
22'33'45'6'-HeptaCB-(177)	ng/L	0.19 U (1)	0.19	0.11	N/A	N/A	N/A	N/A	5504923
22'33'55'6-HeptaCB-(178)	ng/L	0.102 J	0.018	0.11	N/A	N/A	N/A	N/A	5504923
22'33'566'-HeptaCB-(179)	ng/L	0.159	0.011	0.11	N/A	N/A	N/A	N/A	5504923
HeptaCB-(180)+(193)	ng/L	0.875	0.041	0.22	N/A	N/A	N/A	N/A	5504923
22'344'56-HeptaCB-(181)	ng/L	0.058 U	0.058	0.11	N/A	N/A	N/A	N/A	5504923
22'344'56'-HeptaCB-(182)	ng/L	0.018 U	0.018	0.11	N/A	N/A	N/A	N/A	5504923
22'344'5'6-HeptaCB-(183)	ng/L	0.254	0.053	0.11	N/A	N/A	N/A	N/A	5504923
22'344'66'-HeptaCB-(184)	ng/L	0.012 U	0.012	0.11	N/A	N/A	N/A	N/A	5504923
22'3455'6-HeptaCB-(185)	ng/L	0.050 U	0.050	0.11	N/A	N/A	N/A	N/A	5504923
22'34566'-HeptaCB-(186)	ng/L	0.013 U	0.013	0.11	N/A	N/A	N/A	N/A	5504923
22'34'55'6-HeptaCB-(187)	ng/L	0.554	0.017	0.11	N/A	N/A	N/A	N/A	5504923
22'34'566'-HeptaCB-(188)	ng/L	0.014 U	0.014	0.11	N/A	N/A	N/A	N/A	5504923
233'44'55'-HeptaCB-(189)	ng/L	0.060 U	0.060	0.11	N/A	0.0000300	0.00000180	N/A	5504923
233'44'56-HeptaCB-(190)	ng/L	0.055 J	0.046	0.11	N/A	N/A	N/A	N/A	5504923
233'44'5'6-HeptaCB-(191)	ng/L	0.043 U	0.043	0.11	N/A	N/A	N/A	N/A	5504923
233'455'6-HeptaCB-(192)	ng/L	0.049 U	0.049	0.11	N/A	N/A	N/A	N/A	5504923
22'33'44'55'-OctaCB-(194)	ng/L	0.27 U (1)	0.27	0.11	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR527							
Sampling Date		2018/04/05 15:00							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-CB9-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'56-OctaCB-(195)	ng/L	0.073 J	0.055	0.11	N/A	N/A	N/A	N/A	5504923
22'33'44'56'-OctaCB-(196)	ng/L	0.165	0.054	0.11	N/A	N/A	N/A	N/A	5504923
22'33'44'66'OctaCB-(197)	ng/L	0.033 U	0.033	0.11	N/A	N/A	N/A	N/A	5504923
OctaCB-(198)+(199)	ng/L	0.427	0.053	0.22	N/A	N/A	N/A	N/A	5504923
22'33'4566'-OctaCB-(200)	ng/L	0.035 U (1)	0.035	0.11	N/A	N/A	N/A	N/A	5504923
22'33'45'66'-OctaCB-(201)	ng/L	0.039 U (1)	0.039	0.11	N/A	N/A	N/A	N/A	5504923
22'33'55'66'-OctaCB-(202)	ng/L	0.076 J	0.035	0.11	N/A	N/A	N/A	N/A	5504923
22'344'55'6-OctaCB-(203)	ng/L	0.241	0.050	0.11	N/A	N/A	N/A	N/A	5504923
22'344'566'-OctaCB-(204)	ng/L	0.032 U	0.032	0.11	N/A	N/A	N/A	N/A	5504923
233'44'55'6-OctaCB-(205)	ng/L	0.046 U	0.046	0.11	N/A	N/A	N/A	N/A	5504923
22'33'44'55'6-NonaCB-(206)	ng/L	0.248	0.029	0.11	N/A	N/A	N/A	N/A	5504923
22'33'44'566'-NonaCB-(207)	ng/L	0.030 J	0.022	0.11	N/A	N/A	N/A	N/A	5504923
22'33'455'66'-NonaCB-(208)	ng/L	0.063 J	0.029	0.11	N/A	N/A	N/A	N/A	5504923
DecaCB-(209)	ng/L	0.040 U (1)	0.040	0.11	N/A	N/A	N/A	N/A	5504923
Monochlorobiphenyl	ng/L	0.0254	0.0054	N/A	N/A	N/A	N/A	2	5504923
Dichlorobiphenyl	ng/L	1.27	0.0082	N/A	N/A	N/A	N/A	7	5504923
Trichlorobiphenyl	ng/L	4.04	0.015	N/A	N/A	N/A	N/A	12	5504923
Tetrachlorobiphenyl	ng/L	6.93	0.036	N/A	N/A	N/A	N/A	17	5504923
Pentachlorobiphenyl	ng/L	9.76	0.062	N/A	N/A	N/A	N/A	15	5504923
Hexachlorobiphenyl	ng/L	9.12	0.056	N/A	N/A	N/A	N/A	16	5504923
Heptachlorobiphenyl	ng/L	2.99	0.062	N/A	N/A	N/A	N/A	12	5504923
Octachlorobiphenyl	ng/L	0.982	0.055	N/A	N/A	N/A	N/A	5	5504923
Nonachlorobiphenyl	ng/L	0.341	0.029	N/A	N/A	N/A	N/A	3	5504923
Decachlorobiphenyl	ng/L	0.021 U	0.021	N/A	N/A	N/A	N/A	0	5504923
Total PCB	ng/L	35.5	N/A	N/A	N/A	N/A	N/A	N/A	5504923
TOTAL TOXIC EQUIVALENCY	ng/L	N/A	N/A	N/A	N/A	N/A	0.00275	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'44'55'6-NonaCB-(206)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'44'5-HeptaCB-(170)	%	96	N/A	N/A	N/A	N/A	N/A	N/A	5504923

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	UNITS	B21-CB9-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-22'33'455'66'-NonaCB-(208)	%	84	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'55'66'-OctaCB-(202)	%	90	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'55'6-HeptaCB-(178)	%	82	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'344'55'-HeptaCB-(180)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'34'566'-HeptaCB-(188)	%	88	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'44'66'-HexaCB-(155)	%	97	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'466'-PentaCB-(104)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'66'-TetraCB-(54)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'6-TriCB-(19)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'-DiCB-(4)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'55'6-OctaCB-(205)	%	89	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'55'-HeptaCB-(189)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'-PentaCB-(105)	%	81	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'55'-PentaCB-(111)	%	79	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-23'44'55'-HexaCB-(167)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2344'5-PentaCB-(114)	%	83	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-23'44'5-PentaCB-(118)	%	84	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2'344'5-PentaCB-(123)	%	84	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2-MonoCB-(1)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'55'-HexaCB-(169)	%	58	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'5-PentaCB-(126)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'-TetraCB-(77)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-344'5-TetraCB-(81)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-344'-TriCB-(37)	%	99	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-44'-DiCB-(15)	%	80	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-4-MonoCB-(3)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-DecaCB-(209)	%	99	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-HexaCB-(156)+(157)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR528							
Sampling Date		2018/04/05 08:10							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-RD1-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
2-MonoCB-(1)	ng/L	0.178	0.0099	0.094	N/A	N/A	N/A	N/A	5504923
3-MonoCB-(2)	ng/L	0.0097 U	0.0097	0.094	N/A	N/A	N/A	N/A	5504923
4-MonoCB-(3)	ng/L	0.0279 J	0.0096	0.094	N/A	N/A	N/A	N/A	5504923
22'-DiCB-(4)	ng/L	0.755	0.015	0.094	N/A	N/A	N/A	N/A	5504923
2,3-DiCB-(5)	ng/L	0.0063 U	0.0063	0.094	N/A	N/A	N/A	N/A	5504923
2,3'-DiCB-(6)	ng/L	0.134	0.0046	0.094	N/A	N/A	N/A	N/A	5504923
2,4-DiCB-(7)	ng/L	0.017 U (1)	0.017	0.094	N/A	N/A	N/A	N/A	5504923
2,4'-DiCB-(8)	ng/L	0.585	0.0039	0.094	N/A	N/A	N/A	N/A	5504923
2,5-DiCB-(9)	ng/L	0.0484 J	0.0049	0.094	N/A	N/A	N/A	N/A	5504923
2,6-DiCB-(10)	ng/L	0.016 U (1)	0.016	0.094	N/A	N/A	N/A	N/A	5504923
3,3'-DiCB-(11)	ng/L	0.050 U (1)	0.050	0.094	N/A	N/A	N/A	N/A	5504923
DiCB-(12)+(13)	ng/L	0.021 U (1)	0.021	0.19	N/A	N/A	N/A	N/A	5504923
3,5-DiCB-(14)	ng/L	0.0048 U	0.0048	0.094	N/A	N/A	N/A	N/A	5504923
4,4'-DiCB-(15)	ng/L	0.189	0.0081	0.094	N/A	N/A	N/A	N/A	5504923
22'3-TriCB-(16)	ng/L	0.323	0.027	0.094	N/A	N/A	N/A	N/A	5504923
22'4-TriCB-(17)	ng/L	0.280	0.025	0.094	N/A	N/A	N/A	N/A	5504923
TriCB-(18)+(30)	ng/L	0.576	0.019	0.19	N/A	N/A	N/A	N/A	5504923
22'6-TriCB-(19)	ng/L	0.115	0.018	0.094	N/A	N/A	N/A	N/A	5504923
TriCB-(20) + (28)	ng/L	0.782	0.0064	0.19	N/A	N/A	N/A	N/A	5504923
TriCB-(21)+(33)	ng/L	0.605	0.0061	0.19	N/A	N/A	N/A	N/A	5504923
234'-TriCB-(22)	ng/L	0.353	0.0066	0.094	N/A	N/A	N/A	N/A	5504923
235-TriCB-(23)	ng/L	0.0069 U	0.0069	0.094	N/A	N/A	N/A	N/A	5504923
236-TriCB-(24)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5504923
23'4-TriCB-(25)	ng/L	0.0596 J	0.0057	0.094	N/A	N/A	N/A	N/A	5504923
TriCB-(26)+(29)	ng/L	0.122 J	0.0064	0.19	N/A	N/A	N/A	N/A	5504923
23'6-TriCB-(27)	ng/L	0.042 J	0.016	0.094	N/A	N/A	N/A	N/A	5504923
24'5-TriCB-(31)	ng/L	0.617	0.0058	0.094	N/A	N/A	N/A	N/A	5504923
24'6-TriCB-(32)	ng/L	0.160	0.015	0.094	N/A	N/A	N/A	N/A	5504923
23'5'-TriCB-(34)	ng/L	0.0062 U	0.0062	0.094	N/A	N/A	N/A	N/A	5504923
33'4-TriCB-(35)	ng/L	0.0107 J	0.0064	0.094	N/A	N/A	N/A	N/A	5504923

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	UNITS	B21-RD1-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'5-TriCB-(36)	ng/L	0.0054 U	0.0054	0.094	N/A	N/A	N/A	N/A	5504923
344'-TriCB-(37)	ng/L	0.162	0.011	0.094	N/A	N/A	N/A	N/A	5504923
345-TriCB-(38)	ng/L	0.0064 U	0.0064	0.094	N/A	N/A	N/A	N/A	5504923
34'5-TriCB-(39)	ng/L	0.0062 U	0.0062	0.094	N/A	N/A	N/A	N/A	5504923
TetraCB-(40)+(41)+(71)	ng/L	0.462	0.023	0.28	N/A	N/A	N/A	N/A	5504923
22'34'-TetraCB-(42)	ng/L	0.252	0.028	0.094	N/A	N/A	N/A	N/A	5504923
22'35-TetraCB-(43)	ng/L	0.041 J	0.032	0.094	N/A	N/A	N/A	N/A	5504923
TetraCB-(44)+(47)+(65)	ng/L	0.636	0.021	0.28	N/A	N/A	N/A	N/A	5504923
TetraCB-(45)+(51)	ng/L	0.149 J	0.023	0.19	N/A	N/A	N/A	N/A	5504923
22'36'-TetraCB-(46)	ng/L	0.056 J	0.027	0.094	N/A	N/A	N/A	N/A	5504923
22'45-TetraCB-(48)	ng/L	0.187	0.023	0.094	N/A	N/A	N/A	N/A	5504923
TetraCB-(49)+TetraCB-(69)	ng/L	0.352	0.020	0.19	N/A	N/A	N/A	N/A	5504923
TetraCB-(50)+(53)	ng/L	0.093 J	0.022	0.19	N/A	N/A	N/A	N/A	5504923
22'55'-TetraCB-(52)	ng/L	0.477	0.021	0.094	N/A	N/A	N/A	N/A	5504923
22'66'-TetraCB-(54)	ng/L	0.0061 U	0.0061	0.094	N/A	N/A	N/A	N/A	5504923
233'4-TetraCB-(55)	ng/L	0.0092 U	0.0092	0.094	N/A	N/A	N/A	N/A	5504923
233'4'-Tetra CB(56)	ng/L	0.0328 J	0.0087	0.094	N/A	N/A	N/A	N/A	5504923
233'5-TetraCB-(57)	ng/L	0.0087 U	0.0087	0.094	N/A	N/A	N/A	N/A	5504923
233'5'-TetraCB-(58)	ng/L	0.0085 U	0.0085	0.094	N/A	N/A	N/A	N/A	5504923
TetraCB-(59)+(62)+(75)	ng/L	0.063 J	0.016	0.28	N/A	N/A	N/A	N/A	5504923
2344'-TetraCB -(60)	ng/L	0.019 U (1)	0.019	0.094	N/A	N/A	N/A	N/A	5504923
TetraCB-(61)+(70)+(74)+(76)	ng/L	0.266 J	0.0086	0.38	N/A	N/A	N/A	N/A	5504923
234'5-TetraCB-(63)	ng/L	0.0094 U (1)	0.0094	0.094	N/A	N/A	N/A	N/A	5504923
234'6-TetraCB-(64)	ng/L	0.300	0.018	0.094	N/A	N/A	N/A	N/A	5504923
23'44'-TetraCB-(66)	ng/L	0.115	0.0081	0.094	N/A	N/A	N/A	N/A	5504923
23'45-TetraCB-(67)	ng/L	0.0140 J	0.0081	0.094	N/A	N/A	N/A	N/A	5504923
23'45'-TetraCB-(68)	ng/L	0.0082 U	0.0082	0.094	N/A	N/A	N/A	N/A	5504923
23'55'-TetraCB-(72)	ng/L	0.0081 U	0.0081	0.094	N/A	N/A	N/A	N/A	5504923
23'5'6-TetraCB-(73)	ng/L	0.016 U	0.016	0.094	N/A	N/A	N/A	N/A	5504923
33'44'-TetraCB-(77)	ng/L	0.011 U	0.011	0.094	N/A	0.000100	0.00000110	N/A	5504923

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	UNITS	B21-RD1-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
33'45-TetraCB-(78)	ng/L	0.0086 U	0.0086	0.094	N/A	N/A	N/A	N/A	5504923
33'45'-TetraCB(79)	ng/L	0.0073 U	0.0073	0.094	N/A	N/A	N/A	N/A	5504923
33'55'-TetraCB-(80)	ng/L	0.0077 U	0.0077	0.094	N/A	N/A	N/A	N/A	5504923
344'5-TetraCB-(81)	ng/L	0.011 U	0.011	0.094	N/A	0.000300	0.00000330	N/A	5504923
22'33'4-PentaCB-(82)	ng/L	0.010 U	0.010	0.094	N/A	N/A	N/A	N/A	5504923
PentaCB-(83)+(99)	ng/L	0.0292 J	0.0090	0.19	N/A	N/A	N/A	N/A	5504923
22'33'6-PentaCB-(84)	ng/L	0.028 U (1)	0.028	0.094	N/A	N/A	N/A	N/A	5504923
PentaCB-(85)+(116)+(117)	ng/L	0.0092 J	0.0070	0.28	N/A	N/A	N/A	N/A	5504923
PentaCB-(86)(87)(97)(109)(119)(125)	ng/L	0.0443 J	0.0073	0.57	N/A	N/A	N/A	N/A	5504923
PentaCB-(88)+(91)	ng/L	0.0293 J	0.0087	0.19	N/A	N/A	N/A	N/A	5504923
22'346'-PentaCB-(89)	ng/L	0.0093 U	0.0093	0.094	N/A	N/A	N/A	N/A	5504923
PentaCB-(90)+(101)+(113)	ng/L	0.0601 J	0.0073	0.28	N/A	N/A	N/A	N/A	5504923
22'355'-PentaCB-(92)	ng/L	0.010 U (1)	0.010	0.094	N/A	N/A	N/A	N/A	5504923
PentaCB-(93)+(98)+(100)+(102)	ng/L	0.0203 J	0.0086	0.38	N/A	N/A	N/A	N/A	5504923
22'356'-PentaCB-(94)	ng/L	0.0095 U	0.0095	0.094	N/A	N/A	N/A	N/A	5504923
22'35'6-PentaCB-(95)	ng/L	0.125	0.0084	0.094	N/A	N/A	N/A	N/A	5504923
22'366'-PentaCB-(96)	ng/L	0.0049 U (1)	0.0049	0.094	N/A	N/A	N/A	N/A	5504923
22'45'6-PentaCB-(103)	ng/L	0.0077 U	0.0077	0.094	N/A	N/A	N/A	N/A	5504923
22'466'-PentaCB-(104)	ng/L	0.0030 U	0.0030	0.094	N/A	N/A	N/A	N/A	5504923
233'44'-PentaCB-(105)	ng/L	0.0296 J	0.0056	0.094	N/A	0.0000300	0.000000888	N/A	5504923
233'45-PentaCB-(106)	ng/L	0.0045 U	0.0045	0.094	N/A	N/A	N/A	N/A	5504923
233'4'5-PentaCB-(107)	ng/L	0.0043 U	0.0043	0.094	N/A	N/A	N/A	N/A	5504923
PentaCB-(108)+(124)	ng/L	0.0044 U	0.0044	0.19	N/A	N/A	N/A	N/A	5504923
PentaCB-(110)+(115)	ng/L	0.0811 J	0.0070	0.19	N/A	N/A	N/A	N/A	5504923
233'55'-PentaCB-(111)	ng/L	0.0066 U	0.0066	0.094	N/A	N/A	N/A	N/A	5504923
233'56-PentaCB-(112)	ng/L	0.0063 U	0.0063	0.094	N/A	N/A	N/A	N/A	5504923
2344'5-PentaCB-(114)	ng/L	0.0056 U	0.0056	0.094	N/A	0.0000300	0.000000168	N/A	5504923
23'44'5-PentaCB-(118)	ng/L	0.0577 J	0.0056	0.094	N/A	0.0000300	0.00000173	N/A	5504923
23'455'-PentaCB-(120)	ng/L	0.0060 U	0.0060	0.094	N/A	N/A	N/A	N/A	5504923
23'45'6-PentaCB-(121)	ng/L	0.0065 U	0.0065	0.094	N/A	N/A	N/A	N/A	5504923

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233'4'5'-PentaCB-(122)	ng/L	0.0049 U	0.0049	0.094	N/A	N/A	N/A	N/A	5504923
23'44'5'-PentaCB-(123)	ng/L	0.0062 U	0.0062	0.094	N/A	0.0000300	0.000000186	N/A	5504923
33'44'5-PentaCB-(126)	ng/L	0.0052 U	0.0052	0.094	N/A	0.100	0.000520	N/A	5504923
33'455'-PentaCB-(127)	ng/L	0.0044 U	0.0044	0.094	N/A	N/A	N/A	N/A	5504923
HexaCB-(128)+(166)	ng/L	0.020 U	0.020	0.19	N/A	N/A	N/A	N/A	5504923
HexaCB-(129)+(138)+(163)	ng/L	0.093 J	0.021	0.28	N/A	N/A	N/A	N/A	5504923
22'33'45'-HexaCB-(130)	ng/L	0.027 U	0.027	0.094	N/A	N/A	N/A	N/A	5504923
22'33'46-HexaCB-(131)	ng/L	0.029 U	0.029	0.094	N/A	N/A	N/A	N/A	5504923
22'33'46'-HexaCB-(132)	ng/L	0.038 J	0.026	0.094	N/A	N/A	N/A	N/A	5504923
22'33'55'-HexaCB-(133)	ng/L	0.023 U	0.023	0.094	N/A	N/A	N/A	N/A	5504923
HexaCB-(134)+(143)	ng/L	0.025 U	0.025	0.19	N/A	N/A	N/A	N/A	5504923
HexaCB-(135)+(151)	ng/L	0.024 U (1)	0.024	0.19	N/A	N/A	N/A	N/A	5504923
22'33'66'-HexaCB-(136)	ng/L	0.0115 J	0.0057	0.094	N/A	N/A	N/A	N/A	5504923
22'344'5-HexaCB-(137)	ng/L	0.025 U	0.025	0.094	N/A	N/A	N/A	N/A	5504923
HexaCB-(139)+(140)	ng/L	0.021 U	0.021	0.19	N/A	N/A	N/A	N/A	5504923
22'3455'-HexaCB-(141)	ng/L	0.023 U	0.023	0.094	N/A	N/A	N/A	N/A	5504923
22'3456-HexaCB-(142)	ng/L	0.025 U	0.025	0.094	N/A	N/A	N/A	N/A	5504923
22'345'6-HexaCB-(144)	ng/L	0.0084 U	0.0084	0.094	N/A	N/A	N/A	N/A	5504923
22'3466'-HexaCB-(145)	ng/L	0.0062 U	0.0062	0.094	N/A	N/A	N/A	N/A	5504923
22'34'55'-HexaCB-(146)	ng/L	0.022 U	0.022	0.094	N/A	N/A	N/A	N/A	5504923
HexaCB-(147)+(149)	ng/L	0.067 J	0.021	0.19	N/A	N/A	N/A	N/A	5504923
22'34'56'-HexaCB-(148)	ng/L	0.0081 U	0.0081	0.094	N/A	N/A	N/A	N/A	5504923
22'34'66'-HexaCB-(150)	ng/L	0.0058 U	0.0058	0.094	N/A	N/A	N/A	N/A	5504923
22'3566'-HexaCB-(152)	ng/L	0.0056 U	0.0056	0.094	N/A	N/A	N/A	N/A	5504923
HexaCB-(153)+(168)	ng/L	0.054 J	0.017	0.19	N/A	N/A	N/A	N/A	5504923
22'44'56'-HexaCB-(154)	ng/L	0.0072 U	0.0072	0.094	N/A	N/A	N/A	N/A	5504923
22'44'66'-HexaCB-(155)	ng/L	0.0048 U	0.0048	0.094	N/A	N/A	N/A	N/A	5504923
HexaCB-(156)+(157)	ng/L	0.011 U (1)	0.011	0.19	N/A	0.0000300	0.000000330	N/A	5504923
233'44'6-HexaCB-(158)	ng/L	0.016 U	0.016	0.094	N/A	N/A	N/A	N/A	5504923
233'455'-HexaCB-(159)	ng/L	0.0075 U	0.0075	0.094	N/A	N/A	N/A	N/A	5504923

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233'456-HexaCB-(160)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5504923
233'45'6-HexaCB-(161)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5504923
233'4'55'-HexaCB-(162)	ng/L	0.0075 U	0.0075	0.094	N/A	N/A	N/A	N/A	5504923
233'4'5'6-HexaCB-(164)	ng/L	0.016 U	0.016	0.094	N/A	N/A	N/A	N/A	5504923
233'55'6-HexaCB-(165)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5504923
23'44'55'-HexaCB-(167)	ng/L	0.0096 U	0.0096	0.094	N/A	0.0000300	0.000000288	N/A	5504923
33'44'55'-HexaCB-(169)	ng/L	0.010 U	0.010	0.094	N/A	0.0300	0.000300	N/A	5504923
22'33'44'5-HeptaCB-(170)	ng/L	0.013 U	0.013	0.094	N/A	N/A	N/A	N/A	5504923
HeptaCB-(171)+(173)	ng/L	0.018 U	0.018	0.19	N/A	N/A	N/A	N/A	5504923
22'33'455'-HeptaCB-(172)	ng/L	0.019 U	0.019	0.094	N/A	N/A	N/A	N/A	5504923
22'33'456'-HeptaCB-(174)	ng/L	0.017 U	0.017	0.094	N/A	N/A	N/A	N/A	5504923
22'33'45'6-HeptaCB-(175)	ng/L	0.0044 U	0.0044	0.094	N/A	N/A	N/A	N/A	5504923
22'33'466'-HeptaCB-(176)	ng/L	0.0030 U	0.0030	0.094	N/A	N/A	N/A	N/A	5504923
22'33'45'6'-HeptaCB-(177)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5504923
22'33'55'6-HeptaCB-(178)	ng/L	0.0045 U	0.0045	0.094	N/A	N/A	N/A	N/A	5504923
22'33'566'-HeptaCB-(179)	ng/L	0.0069 J	0.0028	0.094	N/A	N/A	N/A	N/A	5504923
HeptaCB-(180)+(193)	ng/L	0.020 J	0.012	0.19	N/A	N/A	N/A	N/A	5504923
22'344'56-HeptaCB-(181)	ng/L	0.018 U	0.018	0.094	N/A	N/A	N/A	N/A	5504923
22'344'56'-HeptaCB-(182)	ng/L	0.0046 U	0.0046	0.094	N/A	N/A	N/A	N/A	5504923
22'344'5'6-HeptaCB-(183)	ng/L	0.016 U	0.016	0.094	N/A	N/A	N/A	N/A	5504923
22'344'66'-HeptaCB-(184)	ng/L	0.0029 U	0.0029	0.094	N/A	N/A	N/A	N/A	5504923
22'3455'6-HeptaCB-(185)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5504923
22'34566'-HeptaCB-(186)	ng/L	0.0032 U	0.0032	0.094	N/A	N/A	N/A	N/A	5504923
22'34'55'6-HeptaCB-(187)	ng/L	0.018 U (1)	0.018	0.094	N/A	N/A	N/A	N/A	5504923
22'34'566'-HeptaCB-(188)	ng/L	0.0035 U	0.0035	0.094	N/A	N/A	N/A	N/A	5504923
233'44'55'-HeptaCB-(189)	ng/L	0.017 U	0.017	0.094	N/A	0.0000300	0.000000510	N/A	5504923
233'44'56-HeptaCB-(190)	ng/L	0.014 U	0.014	0.094	N/A	N/A	N/A	N/A	5504923
233'44'5'6-HeptaCB-(191)	ng/L	0.013 U	0.013	0.094	N/A	N/A	N/A	N/A	5504923
233'455'6-HeptaCB-(192)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5504923
22'33'44'55'-OctaCB-(194)	ng/L	0.035 U	0.035	0.094	N/A	N/A	N/A	N/A	5504923

EDL = Estimated Detection Limit

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TEF = Toxic Equivalency Factor, TEQ = Toxic Equivalency Quotient,
The Total Toxic Equivalency (TEQ) value reported is the sum of Toxic Equivalent Quotients for the congeners tested.

WHO(2005): The 2005 World Health Organization, Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds

QC Batch = Quality Control Batch

N/A = Not Applicable

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR528							
Sampling Date		2018/04/05 08:10							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-RD1-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
22'33'44'56-OctaCB-(195)	ng/L	0.037 U	0.037	0.094	N/A	N/A	N/A	N/A	5504923
22'33'44'56'-OctaCB-(196)	ng/L	0.027 U	0.027	0.094	N/A	N/A	N/A	N/A	5504923
22'33'44'66'OctaCB-(197)	ng/L	0.017 U	0.017	0.094	N/A	N/A	N/A	N/A	5504923
OctaCB-(198)+(199)	ng/L	0.027 U	0.027	0.19	N/A	N/A	N/A	N/A	5504923
22'33'4566'-OctaCB-(200)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5504923
22'33'45'66'-OctaCB-(201)	ng/L	0.015 U	0.015	0.094	N/A	N/A	N/A	N/A	5504923
22'33'55'66'-OctaCB-(202)	ng/L	0.017 U	0.017	0.094	N/A	N/A	N/A	N/A	5504923
22'344'55'6-OctaCB-(203)	ng/L	0.025 U	0.025	0.094	N/A	N/A	N/A	N/A	5504923
22'344'566'-OctaCB-(204)	ng/L	0.016 U	0.016	0.094	N/A	N/A	N/A	N/A	5504923
233'44'55'6-OctaCB-(205)	ng/L	0.031 U	0.031	0.094	N/A	N/A	N/A	N/A	5504923
22'33'44'55'6-NonaCB-(206)	ng/L	0.032 U	0.032	0.094	N/A	N/A	N/A	N/A	5504923
22'33'44'566'-NonaCB-(207)	ng/L	0.024 U	0.024	0.094	N/A	N/A	N/A	N/A	5504923
22'33'455'66'-NonaCB-(208)	ng/L	0.032 U	0.032	0.094	N/A	N/A	N/A	N/A	5504923
DecaCB-(209)	ng/L	0.059 U	0.059	0.094	N/A	N/A	N/A	N/A	5504923
Monochlorobiphenyl	ng/L	0.205	0.0099	N/A	N/A	N/A	N/A	2	5504923
Dichlorobiphenyl	ng/L	1.71	0.015	N/A	N/A	N/A	N/A	5	5504923
Trichlorobiphenyl	ng/L	4.21	0.027	N/A	N/A	N/A	N/A	14	5504923
Tetrachlorobiphenyl	ng/L	3.50	0.032	N/A	N/A	N/A	N/A	16	5504923
Pentachlorobiphenyl	ng/L	0.486	0.010	N/A	N/A	N/A	N/A	10	5504923
Hexachlorobiphenyl	ng/L	0.264	0.029	N/A	N/A	N/A	N/A	5	5504923
Heptachlorobiphenyl	ng/L	0.027	0.019	N/A	N/A	N/A	N/A	2	5504923
Octachlorobiphenyl	ng/L	0.037 U	0.037	N/A	N/A	N/A	N/A	0	5504923
Nonachlorobiphenyl	ng/L	0.032 U	0.032	N/A	N/A	N/A	N/A	0	5504923
Decachlorobiphenyl	ng/L	0.059 U	0.059	N/A	N/A	N/A	N/A	0	5504923
Total PCB	ng/L	10.4	N/A	N/A	N/A	N/A	N/A	N/A	5504923
TOTAL TOXIC EQUIVALENCY	ng/L	N/A	N/A	N/A	N/A	N/A	0.000829	N/A	N/A
Surrogate Recovery (%)									
C13-2,44'-TriCB-(28)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'44'55'6-NonaCB-(206)	%	77	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'44'5-HeptaCB-(170)	%	142 (1)	N/A	N/A	N/A	N/A	N/A	N/A	5504923

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(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

SEMI-VOLATILE ORGANICS BY HRMS (WATER)

Maxxam ID		GKR528							
Sampling Date		2018/04/05 08:10							
COC Number		na				TOXIC EQUIVALENCY		# of	
	UNITS	B21-RD1-04052018	EDL	RDL	MDL	TEF (2005 WHO)	TEQ(DL)	Isomers	QC Batch
C13-22'33'455'66'-NonaCB-(208)	%	107	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'55'66'-OctaCB-(202)	%	169 (1)	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'33'55'6-HeptaCB-(178)	%	76	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'344'55'-HeptaCB-(180)	%	150 (1)	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'34'566'-HeptaCB-(188)	%	88	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'44'66'-HexaCB-(155)	%	95	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'466'-PentaCB-(104)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'66'-TetraCB-(54)	%	63	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'6-TriCB-(19)	%	57	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-22'-DiCB-(4)	%	47	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'55'6-OctaCB-(205)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'55'-HeptaCB-(189)	%	109	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'44'-PentaCB-(105)	%	87	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-233'55'-PentaCB-(111)	%	86	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-23'44'55'-HexaCB-(167)	%	72	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2344'5-PentaCB-(114)	%	91	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-23'44'5-PentaCB-(118)	%	92	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2'344'5-PentaCB-(123)	%	93	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-2-MonoCB-(1)	%	45	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'55'-HexaCB-(169)	%	42	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'5-PentaCB-(126)	%	69	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-33'44'-TetraCB-(77)	%	84	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-344'5-TetraCB-(81)	%	85	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-344'-TriCB-(37)	%	98	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-44'-DiCB-(15)	%	75	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-4-MonoCB-(3)	%	53	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-DecaCB-(209)	%	65	N/A	N/A	N/A	N/A	N/A	N/A	5504923
C13-HexaCB-(156)+(157)	%	70	N/A	N/A	N/A	N/A	N/A	N/A	5504923

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

TEST SUMMARY

Maxxam ID: GKR523
Sample ID: B21-SW2-04052018
Matrix: Water

Collected: 2018/04/05
Shipped:
Received: 2018/04/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	5495989	2018/04/19	2018/04/30	Angel Guerrero
PCB Congeners in Water (1668A)	HRMS/MS	5504923	2018/04/27	2018/04/30	Cathy Xu

Maxxam ID: GKR524
Sample ID: B21-SW3-04062018
Matrix: Water

Collected: 2018/04/06
Shipped:
Received: 2018/04/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	5495989	2018/04/19	2018/04/30	Angel Guerrero
PCB Congeners in Water (1668A)	HRMS/MS	5504923	2018/04/27	2018/05/01	Cathy Xu

Maxxam ID: GKR525
Sample ID: B21-SW6-04052018
Matrix: Water

Collected: 2018/04/05
Shipped:
Received: 2018/04/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	5495989	2018/04/19	2018/04/30	Angel Guerrero
PCB Congeners in Water (1668A)	HRMS/MS	5504923	2018/04/27	2018/05/01	Cathy Xu

Maxxam ID: GKR526
Sample ID: B21-CB2-04052018
Matrix: Water

Collected: 2018/04/05
Shipped:
Received: 2018/04/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	5495989	2018/04/19	2018/04/30	Angel Guerrero
PCB Congeners in Water (1668A)	HRMS/MS	5504923	2018/04/27	2018/05/01	Cathy Xu

Maxxam ID: GKR527
Sample ID: B21-CB9-04052018
Matrix: Water

Collected: 2018/04/05
Shipped:
Received: 2018/04/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	5495989	2018/04/19	2018/04/30	Angel Guerrero
PCB Congeners in Water (1668A)	HRMS/MS	5504923	2018/04/27	2018/05/01	Cathy Xu

Maxxam ID: GKR528
Sample ID: B21-RD1-04052018
Matrix: Water

Collected: 2018/04/05
Shipped:
Received: 2018/04/10

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dioxins/Furans in Water (8290A)	HRMS/MS	5495989	2018/04/19	2018/04/30	Angel Guerrero
PCB Congeners in Water (1668A)	HRMS/MS	5504923	2018/04/27	2018/05/01	Cathy Xu

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.0°C
Package 2	3.2°C
Package 3	4.4°C

Split Report V2: To include samples B21.

Results relate only to the items tested.

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Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
5495989	AGU	Spiked Blank	C13-1234678 HeptaCDD	2018/04/29		123	%	40 - 135
			C13-1234678 HeptaCDF	2018/04/29		123	%	40 - 135
			C13-123478 HexaCDF	2018/04/29		106	%	40 - 135
			C13-123678 HexaCDD	2018/04/29		107	%	40 - 135
			C13-12378 PentaCDD	2018/04/29		86	%	40 - 135
			C13-12378 PentaCDF	2018/04/29		79	%	40 - 135
			C13-2378 TetraCDD	2018/04/29		92	%	40 - 135
			C13-2378 TetraCDF	2018/04/29		74	%	40 - 135
			C13-OCDD	2018/04/29		127	%	40 - 135
			2,3,7,8-Tetra CDD	2018/04/29		81	%	80 - 140
			1,2,3,7,8-Penta CDD	2018/04/29		97	%	80 - 140
			1,2,3,4,7,8-Hexa CDD	2018/04/29		86	%	80 - 140
			1,2,3,6,7,8-Hexa CDD	2018/04/29		98	%	80 - 140
			1,2,3,7,8,9-Hexa CDD	2018/04/29		100	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDD	2018/04/29		92	%	80 - 140
			Octa CDD	2018/04/29		97	%	80 - 140
			2,3,7,8-Tetra CDF	2018/04/29		93	%	80 - 140
			1,2,3,7,8-Penta CDF	2018/04/29		89	%	80 - 140
			2,3,4,7,8-Penta CDF	2018/04/29		93	%	80 - 140
			1,2,3,4,7,8-Hexa CDF	2018/04/29		88	%	80 - 140
			1,2,3,6,7,8-Hexa CDF	2018/04/29		91	%	80 - 140
			2,3,4,6,7,8-Hexa CDF	2018/04/29		93	%	80 - 140
			1,2,3,7,8,9-Hexa CDF	2018/04/29		91	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDF	2018/04/29		85	%	80 - 140
			1,2,3,4,7,8,9-Hepta CDF	2018/04/29		93	%	80 - 140
			Octa CDF	2018/04/29		99	%	80 - 140
5495989	AGU	Spiked Blank DUP	C13-1234678 HeptaCDD	2018/04/29		129	%	40 - 135
			C13-1234678 HeptaCDF	2018/04/29		130	%	40 - 135
			C13-123478 HexaCDF	2018/04/29		108	%	40 - 135
			C13-123678 HexaCDD	2018/04/29		117	%	40 - 135
			C13-12378 PentaCDD	2018/04/29		100	%	40 - 135
			C13-12378 PentaCDF	2018/04/29		87	%	40 - 135
			C13-2378 TetraCDD	2018/04/29		117	%	40 - 135
			C13-2378 TetraCDF	2018/04/29		103	%	40 - 135
			C13-OCDD	2018/04/29		128	%	40 - 135
			2,3,7,8-Tetra CDD	2018/04/29		82	%	80 - 140
			1,2,3,7,8-Penta CDD	2018/04/29		99	%	80 - 140
			1,2,3,4,7,8-Hexa CDD	2018/04/29		83	%	80 - 140
			1,2,3,6,7,8-Hexa CDD	2018/04/29		88	%	80 - 140
			1,2,3,7,8,9-Hexa CDD	2018/04/29		88	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDD	2018/04/29		91	%	80 - 140
			Octa CDD	2018/04/29		97	%	80 - 140
			2,3,7,8-Tetra CDF	2018/04/29		88	%	80 - 140
			1,2,3,7,8-Penta CDF	2018/04/29		93	%	80 - 140
			2,3,4,7,8-Penta CDF	2018/04/29		103	%	80 - 140
			1,2,3,4,7,8-Hexa CDF	2018/04/29		91	%	80 - 140
			1,2,3,6,7,8-Hexa CDF	2018/04/29		94	%	80 - 140
			2,3,4,6,7,8-Hexa CDF	2018/04/29		92	%	80 - 140
			1,2,3,7,8,9-Hexa CDF	2018/04/29		94	%	80 - 140
			1,2,3,4,6,7,8-Hepta CDF	2018/04/29		80	%	80 - 140
			1,2,3,4,7,8,9-Hepta CDF	2018/04/29		90	%	80 - 140
			Octa CDF	2018/04/29		97	%	80 - 140
5495989	AGU	RPD	2,3,7,8-Tetra CDD	2018/04/29	1.2		%	25
			1,2,3,7,8-Penta CDD	2018/04/29	2.0		%	25
			1,2,3,4,7,8-Hexa CDD	2018/04/29	3.6		%	25

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			1,2,3,6,7,8-Hexa CDD	2018/04/29	11		%	25
			1,2,3,7,8,9-Hexa CDD	2018/04/29	13		%	25
			1,2,3,4,6,7,8-Hepta CDD	2018/04/29	1.1		%	25
			Octa CDD	2018/04/29	0		%	25
			2,3,7,8-Tetra CDF	2018/04/29	5.5		%	25
			1,2,3,7,8-Penta CDF	2018/04/29	4.4		%	25
			2,3,4,7,8-Penta CDF	2018/04/29	10		%	25
			1,2,3,4,7,8-Hexa CDF	2018/04/29	3.4		%	25
			1,2,3,6,7,8-Hexa CDF	2018/04/29	3.2		%	25
			2,3,4,6,7,8-Hexa CDF	2018/04/29	1.1		%	25
			1,2,3,7,8,9-Hexa CDF	2018/04/29	3.2		%	25
			1,2,3,4,6,7,8-Hepta CDF	2018/04/29	6.1		%	25
			1,2,3,4,7,8,9-Hepta CDF	2018/04/29	3.3		%	25
			Octa CDF	2018/04/29	0		%	25
5495989	AGU	Method Blank	C13-1234678 HeptaCDD	2018/04/29		117	%	40 - 135
			C13-1234678 HeptaCDF	2018/04/29		114	%	40 - 135
			C13-123478 HexaCDF	2018/04/29		104	%	40 - 135
			C13-123678 HexaCDD	2018/04/29		103	%	40 - 135
			C13-12378 PentaCDD	2018/04/29		95	%	40 - 135
			C13-12378 PentaCDF	2018/04/29		87	%	40 - 135
			C13-2378 TetraCDD	2018/04/29		105	%	40 - 135
			C13-2378 TetraCDF	2018/04/29		98	%	40 - 135
			C13-OCDD	2018/04/29		115	%	40 - 135
			2,3,7,8-Tetra CDD	2018/04/29	1.1 U, EDL=1.1		pg/L	
			1,2,3,7,8-Penta CDD	2018/04/29	1.1 U, EDL=1.1		pg/L	
			1,2,3,4,7,8-Hexa CDD	2018/04/29	1.2 U, EDL=1.2		pg/L	
			1,2,3,6,7,8-Hexa CDD	2018/04/29	1.0 U, EDL=1.0		pg/L	
			1,2,3,7,8,9-Hexa CDD	2018/04/29	1.1 U, EDL=1.1		pg/L	
			1,2,3,4,6,7,8-Hepta CDD	2018/04/29	1.2 U, EDL=1.2 (1)		pg/L	
			Octa CDD	2018/04/29	13.8 J, EDL=1.2		pg/L	
			Total Tetra CDD	2018/04/29	1.1 U, EDL=1.1		pg/L	
			Total Penta CDD	2018/04/29	1.1 U, EDL=1.1		pg/L	
			Total Hexa CDD	2018/04/29	1.1 U, EDL=1.1		pg/L	
			Total Hepta CDD	2018/04/29	1.2 U, EDL=1.2 (1)		pg/L	
			2,3,7,8-Tetra CDF	2018/04/29	1.2 U, EDL=1.2		pg/L	
			1,2,3,7,8-Penta CDF	2018/04/29	1.1 U, EDL=1.1		pg/L	
			2,3,4,7,8-Penta CDF	2018/04/29	1.1 U, EDL=1.1		pg/L	
			1,2,3,4,7,8-Hexa CDF	2018/04/29	1.1 U, EDL=1.1		pg/L	
			1,2,3,6,7,8-Hexa CDF	2018/04/29	0.96 U, EDL=0.96		pg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			2,3,4,6,7,8-Hexa CDF	2018/04/29	1.1 U, EDL=1.1		pg/L	
			1,2,3,7,8,9-Hexa CDF	2018/04/29	1.3 U, EDL=1.3		pg/L	
			1,2,3,4,6,7,8-Hepta CDF	2018/04/29	1.0 U, EDL=1.0		pg/L	
			1,2,3,4,7,8,9-Hepta CDF	2018/04/29	1.4 U, EDL=1.4		pg/L	
			Octa CDF	2018/04/29	1.1 U, EDL=1.1		pg/L	
			Total Tetra CDF	2018/04/29	1.2 U, EDL=1.2		pg/L	
			Total Penta CDF	2018/04/29	1.1 U, EDL=1.1		pg/L	
			Total Hexa CDF	2018/04/29	1.1 U, EDL=1.1		pg/L	
			Total Hepta CDF	2018/04/29	1.2 U, EDL=1.2		pg/L	
5504923	CXU	Spiked Blank	C13-2,44'-TriCB-(28)	2018/04/30		85	%	40 - 125
			C13-22'33'44'55'6-NonaCB-(206)	2018/04/30		85	%	30 - 140
			C13-22'33'44'5-HeptaCB-(170)	2018/04/30		76	%	30 - 140
			C13-22'33'455'66'-NonaCB-(208)	2018/04/30		75	%	30 - 140
			C13-22'33'55'66'-OctaCB-(202)	2018/04/30		56	%	30 - 140
			C13-22'33'55'6-HeptaCB-(178)	2018/04/30		77	%	40 - 125
			C13-22'344'55'-HeptaCB-(180)	2018/04/30		74	%	30 - 140
			C13-22'34'566'-HeptaCB-(188)	2018/04/30		70	%	30 - 140
			C13-22'44'66'-HexaCB-(155)	2018/04/30		67	%	30 - 140
			C13-22'466'-PentaCB-(104)	2018/04/30		58	%	30 - 140
			C13-22'66'-TetraCB-(54)	2018/04/30		49	%	30 - 140
			C13-22'6-TriCB-(19)	2018/04/30		49	%	30 - 140
			C13-22'-DiCB-(4)	2018/04/30		45	%	30 - 140
			C13-233'44'55'6-OctaCB-(205)	2018/04/30		95	%	30 - 140
			C13-233'44'55'-HeptaCB-(189)	2018/04/30		87	%	30 - 140
			C13-233'44'-PentaCB-(105)	2018/04/30		101	%	30 - 140
			C13-233'55'-PentaCB-(111)	2018/04/30		90	%	40 - 125
			C13-23'44'55'-HexaCB-(167)	2018/04/30		106	%	30 - 140
			C13-2344'5-PentaCB-(114)	2018/04/30		100	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2018/04/30		102	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2018/04/30		101	%	30 - 140
			C13-2-MonoCB-(1)	2018/04/30		52	%	15 - 140
			C13-33'44'55'-HexaCB-(169)	2018/04/30		93	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2018/04/30		101	%	30 - 140
			C13-33'44'-TetraCB-(77)	2018/04/30		100	%	30 - 140
			C13-344'5-TetraCB-(81)	2018/04/30		97	%	30 - 140
			C13-344'-TriCB-(37)	2018/04/30		93	%	30 - 140
			C13-44'-DiCB-(15)	2018/04/30		63	%	30 - 140
			C13-4-MonoCB-(3)	2018/04/30		53	%	15 - 140
			C13-DecaCB-(209)	2018/04/30		77	%	30 - 140
			C13-HexaCB-(156)+(157)	2018/04/30		108	%	30 - 140
			2-MonoCB-(1)	2018/04/30		114	%	58 - 115
			4-MonoCB-(3)	2018/04/30		106	%	64 - 123
			22'-DiCB-(4)	2018/04/30		119	%	62 - 128
			4,4'-DiCB-(15)	2018/04/30		110	%	74 - 133
			22'6-TriCB-(19)	2018/04/30		116	%	79 - 118
			344'-TriCB-(37)	2018/04/30		110	%	60 - 134

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'66'-TetraCB-(54)	2018/04/30		120	%	67 - 123
			33'44'-TetraCB-(77)	2018/04/30		111	%	75 - 113
			344'5-TetraCB-(81)	2018/04/30		112	%	77 - 125
			22'466'-PentaCB-(104)	2018/04/30		135 (2)	%	79 - 120
			233'44'-PentaCB-(105)	2018/04/30		114	%	77 - 133
			2344'5-PentaCB-(114)	2018/04/30		113	%	81 - 133
			23'44'5-PentaCB-(118)	2018/04/30		112	%	82 - 128
			23'44'5'-PentaCB-(123)	2018/04/30		112	%	76 - 138
			33'44'5-PentaCB-(126)	2018/04/30		113	%	78 - 119
			22'44'66'-HexaCB-(155)	2018/04/30		128 (2)	%	69 - 126
			HexaCB-(156)+(157)	2018/04/30		111	%	78 - 137
			23'44'55'-HexaCB-(167)	2018/04/30		111	%	78 - 143
			33'44'55'-HexaCB-(169)	2018/04/30		109	%	71 - 123
			22'33'44'5-HeptaCB-(170)	2018/04/30		114	%	78 - 138
			HeptaCB-(180)+(193)	2018/04/30		88	%	N/A
			22'34'566'-HeptaCB-(188)	2018/04/30		120 (2)	%	76 - 115
			233'44'55'-HeptaCB-(189)	2018/04/30		106	%	81 - 124
			22'33'55'66'-OctaCB-(202)	2018/04/30		115 (2)	%	77 - 114
			233'44'55'6-OctaCB-(205)	2018/04/30		103	%	69 - 122
			22'33'44'55'6-NonaCB-(206)	2018/04/30		109	%	74 - 113
			22'33'455'66'-NonaCB-(208)	2018/04/30		112	%	79 - 118
			DecaCB-(209)	2018/04/30		109	%	80 - 128
5504923	CXU	Spiked Blank DUP	C13-2,44'-TriCB-(28)	2018/04/30		86	%	40 - 125
			C13-22'33'44'55'6-NonaCB-(206)	2018/04/30		80	%	30 - 140
			C13-22'33'44'5-HeptaCB-(170)	2018/04/30		84	%	30 - 140
			C13-22'33'455'66'-NonaCB-(208)	2018/04/30		79	%	30 - 140
			C13-22'33'55'66'-OctaCB-(202)	2018/04/30		72	%	30 - 140
			C13-22'33'55'6-HeptaCB-(178)	2018/04/30		80	%	40 - 125
			C13-22'344'55'-HeptaCB-(180)	2018/04/30		86	%	30 - 140
			C13-22'34'566'-HeptaCB-(188)	2018/04/30		72	%	30 - 140
			C13-22'44'66'-HexaCB-(155)	2018/04/30		67	%	30 - 140
			C13-22'466'-PentaCB-(104)	2018/04/30		58	%	30 - 140
			C13-22'66'-TetraCB-(54)	2018/04/30		51	%	30 - 140
			C13-22'6-TriCB-(19)	2018/04/30		46	%	30 - 140
			C13-22'-DiCB-(4)	2018/04/30		38	%	30 - 140
			C13-233'44'55'6-OctaCB-(205)	2018/04/30		88	%	30 - 140
			C13-233'44'55'-HeptaCB-(189)	2018/04/30		84	%	30 - 140
			C13-233'44'-PentaCB-(105)	2018/04/30		96	%	30 - 140
			C13-233'55'-PentaCB-(111)	2018/04/30		93	%	40 - 125
			C13-23'44'55'-HexaCB-(167)	2018/04/30		99	%	30 - 140
			C13-2344'5-PentaCB-(114)	2018/04/30		95	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2018/04/30		97	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2018/04/30		96	%	30 - 140
			C13-2-MonoCB-(1)	2018/04/30		42	%	15 - 140
			C13-33'44'55'-HexaCB-(169)	2018/04/30		80	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2018/04/30		96	%	30 - 140
			C13-33'44'-TetraCB-(77)	2018/04/30		99	%	30 - 140
			C13-344'5-TetraCB-(81)	2018/04/30		97	%	30 - 140
			C13-344'-TriCB-(37)	2018/04/30		91	%	30 - 140
			C13-44'-DiCB-(15)	2018/04/30		62	%	30 - 140
			C13-4-MonoCB-(3)	2018/04/30		45	%	15 - 140
			C13-DecaCB-(209)	2018/04/30		72	%	30 - 140
			C13-HexaCB-(156)+(157)	2018/04/30		101	%	30 - 140
			2-MonoCB-(1)	2018/04/30		110	%	58 - 115
			4-MonoCB-(3)	2018/04/30		98	%	64 - 123

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'-DiCB-(4)	2018/04/30		118	%	62 - 128
			4,4'-DiCB-(15)	2018/04/30		115	%	74 - 133
			22'6-TriCB-(19)	2018/04/30		121 (2)	%	79 - 118
			344'-TriCB-(37)	2018/04/30		112	%	60 - 134
			22'66'-TetraCB-(54)	2018/04/30		123	%	67 - 123
			33'44'-TetraCB-(77)	2018/04/30		109	%	75 - 113
			344'5-TetraCB-(81)	2018/04/30		111	%	77 - 125
			22'466'-PentaCB-(104)	2018/04/30		141 (2)	%	79 - 120
			233'44'-PentaCB-(105)	2018/04/30		112	%	77 - 133
			2344'5-PentaCB-(114)	2018/04/30		114	%	81 - 133
			23'44'5-PentaCB-(118)	2018/04/30		111	%	82 - 128
			23'44'5'-PentaCB-(123)	2018/04/30		113	%	76 - 138
			33'44'5-PentaCB-(126)	2018/04/30		111	%	78 - 119
			22'44'66'-HexaCB-(155)	2018/04/30		129 (2)	%	69 - 126
			HexaCB-(156)+(157)	2018/04/30		111	%	78 - 137
			23'44'55'-HexaCB-(167)	2018/04/30		110	%	78 - 143
			33'44'55'-HexaCB-(169)	2018/04/30		108	%	71 - 123
			22'33'44'5-HeptaCB-(170)	2018/04/30		117	%	78 - 138
			HeptaCB-(180)+(193)	2018/04/30		88	%	N/A
			22'34'566'-HeptaCB-(188)	2018/04/30		116 (2)	%	76 - 115
			233'44'55'-HeptaCB-(189)	2018/04/30		110	%	81 - 124
			22'33'55'66'-OctaCB-(202)	2018/04/30		113	%	77 - 114
			233'44'55'6-OctaCB-(205)	2018/04/30		109	%	69 - 122
			22'33'44'55'6-NonaCB-(206)	2018/04/30		109	%	74 - 113
			22'33'455'66'-NonaCB-(208)	2018/04/30		113	%	79 - 118
			DecaCB-(209)	2018/04/30		110	%	80 - 128
5504923	CXU	RPD	2-MonoCB-(1)	2018/04/30	3.2		%	30
			4-MonoCB-(3)	2018/04/30	7.0		%	30
			22'-DiCB-(4)	2018/04/30	1.1		%	30
			4,4'-DiCB-(15)	2018/04/30	4.1		%	30
			22'6-TriCB-(19)	2018/04/30	4.5		%	30
			344'-TriCB-(37)	2018/04/30	1.8		%	30
			22'66'-TetraCB-(54)	2018/04/30	2.1		%	30
			33'44'-TetraCB-(77)	2018/04/30	2.0		%	30
			344'5-TetraCB-(81)	2018/04/30	0.15		%	30
			22'466'-PentaCB-(104)	2018/04/30	4.3		%	30
			233'44'-PentaCB-(105)	2018/04/30	1.3		%	30
			2344'5-PentaCB-(114)	2018/04/30	0.74		%	30
			23'44'5-PentaCB-(118)	2018/04/30	1.3		%	30
			23'44'5'-PentaCB-(123)	2018/04/30	0.53		%	30
			33'44'5-PentaCB-(126)	2018/04/30	1.7		%	30
			22'44'66'-HexaCB-(155)	2018/04/30	0.25		%	30
			HexaCB-(156)+(157)	2018/04/30	0.43		%	30
			23'44'55'-HexaCB-(167)	2018/04/30	1.4		%	30
			33'44'55'-HexaCB-(169)	2018/04/30	0.91		%	30
			22'33'44'5-HeptaCB-(170)	2018/04/30	2.1		%	30
			HeptaCB-(180)+(193)	2018/04/30	0		%	30
			22'34'566'-HeptaCB-(188)	2018/04/30	3.2		%	30
			233'44'55'-HeptaCB-(189)	2018/04/30	3.6		%	30
			22'33'55'66'-OctaCB-(202)	2018/04/30	1.6		%	30
			233'44'55'6-OctaCB-(205)	2018/04/30	6.2		%	30
			22'33'44'55'6-NonaCB-(206)	2018/04/30	0.59		%	30
			22'33'455'66'-NonaCB-(208)	2018/04/30	0.34		%	30
			DecaCB-(209)	2018/04/30	1.3		%	30
5504923	CXU	Method Blank	C13-2,44'-TriCB-(28)	2018/04/30		68	%	40 - 125

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			C13-22'33'44'55'6-NonaCB-(206)	2018/04/30		80	%	30 - 140
			C13-22'33'44'5-HeptaCB-(170)	2018/04/30		80	%	30 - 140
			C13-22'33'455'66'-NonaCB-(208)	2018/04/30		75	%	30 - 140
			C13-22'33'55'66'-OctaCB-(202)	2018/04/30		65	%	30 - 140
			C13-22'33'55'6-HeptaCB-(178)	2018/04/30		74	%	40 - 125
			C13-22'344'55'-HeptaCB-(180)	2018/04/30		78	%	30 - 140
			C13-22'34'566'-HeptaCB-(188)	2018/04/30		75	%	30 - 140
			C13-22'44'66'-HexaCB-(155)	2018/04/30		70	%	30 - 140
			C13-22'466'-PentaCB-(104)	2018/04/30		64	%	30 - 140
			C13-22'66'-TetraCB-(54)	2018/04/30		39	%	30 - 140
			C13-22'6-TriCB-(19)	2018/04/30		27 (2)		30 - 140
			C13-22'-DiCB-(4)	2018/04/30		16 (2)		30 - 140
			C13-233'44'55'6-OctaCB-(205)	2018/04/30		87	%	30 - 140
			C13-233'44'55'-HeptaCB-(189)	2018/04/30		85	%	30 - 140
			C13-233'44'-PentaCB-(105)	2018/04/30		98	%	30 - 140
			C13-233'55'-PentaCB-(111)	2018/04/30		86	%	40 - 125
			C13-23'44'55'-HexaCB-(167)	2018/04/30		84	%	30 - 140
			C13-2344'5-PentaCB-(114)	2018/04/30		96	%	30 - 140
			C13-23'44'5-PentaCB-(118)	2018/04/30		98	%	30 - 140
			C13-2'344'5-PentaCB-(123)	2018/04/30		97	%	30 - 140
			C13-2-MonoCB-(1)	2018/04/30		15	%	15 - 140
			C13-33'44'55'-HexaCB-(169)	2018/04/30		71	%	30 - 140
			C13-33'44'5-PentaCB-(126)	2018/04/30		93	%	30 - 140
			C13-33'44'-TetraCB-(77)	2018/04/30		93	%	30 - 140
			C13-344'5-TetraCB-(81)	2018/04/30		92	%	30 - 140
			C13-344'-TriCB-(37)	2018/04/30		83	%	30 - 140
			C13-44'-DiCB-(15)	2018/04/30		43	%	30 - 140
			C13-4-MonoCB-(3)	2018/04/30		18	%	15 - 140
			C13-DecaCB-(209)	2018/04/30		74	%	30 - 140
			C13-HexaCB-(156)+(157)	2018/04/30		87	%	30 - 140
			2-MonoCB-(1)	2018/04/30	0.0089 U, EDL=0.0089		ng/L	
			3-MonoCB-(2)	2018/04/30	0.0087 U, EDL=0.0087		ng/L	
			4-MonoCB-(3)	2018/04/30	0.0086 U, EDL=0.0086		ng/L	
			22'-DiCB-(4)	2018/04/30	0.044 U, EDL=0.044		ng/L	
			2,3-DiCB-(5)	2018/04/30	0.025 U, EDL=0.025		ng/L	
			2,3'-DiCB-(6)	2018/04/30	0.019 U, EDL=0.019		ng/L	
			2,4-DiCB-(7)	2018/04/30	0.019 U, EDL=0.019		ng/L	
			2,4'-DiCB-(8)	2018/04/30	0.016 U, EDL=0.016		ng/L	
			2,5-DiCB-(9)	2018/04/30	0.020 U, EDL=0.020		ng/L	
			2,6-DiCB-(10)	2018/04/30	0.040 U, EDL=0.040		ng/L	
			3,3'-DiCB-(11)	2018/04/30	0.023 U, EDL=0.023 (1)		ng/L	
			DiCB-(12)+(13)	2018/04/30	0.020 U, EDL=0.020		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			3,5-DiCB-(14)	2018/04/30	0.019 U, EDL=0.019		ng/L	
			4,4'-DiCB-(15)	2018/04/30	0.033 U, EDL=0.033		ng/L	
			22'3-TriCB-(16)	2018/04/30	0.035 U, EDL=0.035		ng/L	
			22'4-TriCB-(17)	2018/04/30	0.032 U, EDL=0.032		ng/L	
			TriCB-(18)+(30)	2018/04/30	0.025 U, EDL=0.025		ng/L	
			22'6-TriCB-(19)	2018/04/30	0.024 U, EDL=0.024		ng/L	
			TriCB-(20) + (28)	2018/04/30	0.0054 J, EDL=0.0040		ng/L	
			TriCB-(21)+(33)	2018/04/30	0.0039 U, EDL=0.0039		ng/L	
			234'-TriCB-(22)	2018/04/30	0.0041 U, EDL=0.0041		ng/L	
			235-TriCB-(23)	2018/04/30	0.0043 U, EDL=0.0043		ng/L	
			236-TriCB-(24)	2018/04/30	0.024 U, EDL=0.024		ng/L	
			23'4-TriCB-(25)	2018/04/30	0.0036 U, EDL=0.0036		ng/L	
			TriCB-(26)+(29)	2018/04/30	0.0040 U, EDL=0.0040		ng/L	
			23'6-TriCB-(27)	2018/04/30	0.021 U, EDL=0.021		ng/L	
			24'5-TriCB-(31)	2018/04/30	0.0040 J, EDL=0.0037		ng/L	
			24'6-TriCB-(32)	2018/04/30	0.019 U, EDL=0.019		ng/L	
			23'5'-TriCB-(34)	2018/04/30	0.0039 U, EDL=0.0039		ng/L	
			33'4-TriCB-(35)	2018/04/30	0.0040 U, EDL=0.0040		ng/L	
			33'5-TriCB-(36)	2018/04/30	0.0034 U, EDL=0.0034		ng/L	
			344'-TriCB-(37)	2018/04/30	0.0068 U, EDL=0.0068		ng/L	
			345-TriCB-(38)	2018/04/30	0.0040 U, EDL=0.0040		ng/L	
			34'5-TriCB-(39)	2018/04/30	0.0039 U, EDL=0.0039		ng/L	
			TetraCB-(40)+(41)+(71)	2018/04/30	0.0073 U, EDL=0.0073		ng/L	
			22'34'-TetraCB-(42)	2018/04/30	0.0090 U, EDL=0.0090		ng/L	
			22'35-TetraCB-(43)	2018/04/30	0.010 U, EDL=0.010		ng/L	
			TetraCB-(44)+(47)+(65)	2018/04/30	0.0067 U, EDL=0.0067		ng/L	
			TetraCB-(45)+(51)	2018/04/30	0.0074 U, EDL=0.0074		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'36'-TetraCB-(46)	2018/04/30	0.0088 U, EDL=0.0088		ng/L	
			22'45-TetraCB-(48)	2018/04/30	0.0074 U, EDL=0.0074		ng/L	
			TetraCB-(49)+TetraCB-(69)	2018/04/30	0.0063 U, EDL=0.0063		ng/L	
			TetraCB-(50)+(53)	2018/04/30	0.0071 U, EDL=0.0071		ng/L	
			22'55'-TetraCB-(52)	2018/04/30	0.0070 U, EDL=0.0070		ng/L	
			22'66'-TetraCB-(54)	2018/04/30	0.0025 U, EDL=0.0025		ng/L	
			233'4-TetraCB-(55)	2018/04/30	0.0025 U, EDL=0.0025		ng/L	
			233'4'-Tetra CB(56)	2018/04/30	0.0023 U, EDL=0.0023		ng/L	
			233'5-TetraCB-(57)	2018/04/30	0.0023 U, EDL=0.0023		ng/L	
			233'5'-TetraCB-(58)	2018/04/30	0.0023 U, EDL=0.0023		ng/L	
			TetraCB-(59)+(62)+(75)	2018/04/30	0.0053 U, EDL=0.0053		ng/L	
			2344'-TetraCB -(60)	2018/04/30	0.0025 U, EDL=0.0025		ng/L	
			TetraCB-(61)+(70)+(74)+(76)	2018/04/30	0.0023 U, EDL=0.0023		ng/L	
			234'5-TetraCB-(63)	2018/04/30	0.0022 U, EDL=0.0022		ng/L	
			234'6-TetraCB-(64)	2018/04/30	0.0057 U, EDL=0.0057		ng/L	
			23'44'-TetraCB-(66)	2018/04/30	0.0022 U, EDL=0.0022		ng/L	
			23'45-TetraCB-(67)	2018/04/30	0.0022 U, EDL=0.0022		ng/L	
			23'45'-TetraCB-(68)	2018/04/30	0.0022 U, EDL=0.0022		ng/L	
			23'55'-TetraCB-(72)	2018/04/30	0.0022 U, EDL=0.0022		ng/L	
			23'5'6-TetraCB-(73)	2018/04/30	0.0050 U, EDL=0.0050		ng/L	
			33'44'-TetraCB-(77)	2018/04/30	0.0030 U, EDL=0.0030		ng/L	
			33'45-TetraCB-(78)	2018/04/30	0.0023 U, EDL=0.0023		ng/L	
			33'45'-TetraCB(79)	2018/04/30	0.0020 U, EDL=0.0020		ng/L	
			33'55'-TetraCB-(80)	2018/04/30	0.0020 U, EDL=0.0020		ng/L	
			344'5-TetraCB-(81)	2018/04/30	0.0030 U, EDL=0.0030		ng/L	
			22'33'4-PentaCB-(82)	2018/04/30	0.0059 U, EDL=0.0059		ng/L	
			PentaCB-(83)+(99)	2018/04/30	0.0052 U, EDL=0.0052		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			22'33'6-PentaCB-(84)	2018/04/30	0.0059 U, EDL=0.0059		ng/L	
			PentaCB-(85)+(116)+(117)	2018/04/30	0.0040 U, EDL=0.0040		ng/L	
			PentaCB-(86)(87)(97)(109)(119)(125)	2018/04/30	0.0043 U, EDL=0.0043		ng/L	
			PentaCB-(88)+(91)	2018/04/30	0.0051 U, EDL=0.0051		ng/L	
			22'346'-PentaCB-(89)	2018/04/30	0.0054 U, EDL=0.0054		ng/L	
			PentaCB-(90)+(101)+(113)	2018/04/30	0.0042 U, EDL=0.0042		ng/L	
			22'355'-PentaCB-(92)	2018/04/30	0.0051 U, EDL=0.0051		ng/L	
			PentaCB-(93)+(98)+(100)+(102)	2018/04/30	0.0050 U, EDL=0.0050		ng/L	
			22'356'-PentaCB-(94)	2018/04/30	0.0055 U, EDL=0.0055		ng/L	
			22'35'6-PentaCB-(95)	2018/04/30	0.0049 U, EDL=0.0049		ng/L	
			22'366'-PentaCB-(96)	2018/04/30	0.0030 U, EDL=0.0030		ng/L	
			22'45'6-PentaCB-(103)	2018/04/30	0.0044 U, EDL=0.0044		ng/L	
			22'466'-PentaCB-(104)	2018/04/30	0.0021 U, EDL=0.0021		ng/L	
			233'44'-PentaCB-(105)	2018/04/30	0.0029 U, EDL=0.0029		ng/L	
			233'45-PentaCB-(106)	2018/04/30	0.0024 U, EDL=0.0024		ng/L	
			233'4'5-PentaCB-(107)	2018/04/30	0.0022 U, EDL=0.0022		ng/L	
			PentaCB-(108)+(124)	2018/04/30	0.0023 U, EDL=0.0023		ng/L	
			PentaCB-(110)+(115)	2018/04/30	0.0041 U, EDL=0.0041		ng/L	
			233'55'-PentaCB-(111)	2018/04/30	0.0038 U, EDL=0.0038		ng/L	
			233'56-PentaCB-(112)	2018/04/30	0.0037 U, EDL=0.0037		ng/L	
			2344'5-PentaCB-(114)	2018/04/30	0.0029 U, EDL=0.0029		ng/L	
			23'44'5-PentaCB-(118)	2018/04/30	0.0029 U, EDL=0.0029		ng/L	
			23'455'-PentaCB-(120)	2018/04/30	0.0035 U, EDL=0.0035		ng/L	
			23'45'6-PentaCB-(121)	2018/04/30	0.0038 U, EDL=0.0038		ng/L	
			233'4'5'-PentaCB-(122)	2018/04/30	0.0026 U, EDL=0.0026		ng/L	
			23'44'5'-PentaCB-(123)	2018/04/30	0.0033 U, EDL=0.0033		ng/L	
			33'44'5-PentaCB-(126)	2018/04/30	0.0027 U, EDL=0.0027		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			33'455'-PentaCB-(127)	2018/04/30	0.0023 U, EDL=0.0023		ng/L	
			HexaCB-(128)+(166)	2018/04/30	0.0025 U, EDL=0.0025		ng/L	
			HexaCB-(129)+(138)+(163)	2018/04/30	0.0026 U, EDL=0.0026		ng/L	
			22'33'45'-HexaCB-(130)	2018/04/30	0.0033 U, EDL=0.0033		ng/L	
			22'33'46-HexaCB-(131)	2018/04/30	0.0036 U, EDL=0.0036		ng/L	
			22'33'46'-HexaCB-(132)	2018/04/30	0.0032 U, EDL=0.0032		ng/L	
			22'33'55'-HexaCB-(133)	2018/04/30	0.0029 U, EDL=0.0029		ng/L	
			HexaCB-(134)+(143)	2018/04/30	0.0032 U, EDL=0.0032		ng/L	
			HexaCB-(135)+(151)	2018/04/30	0.0032 U, EDL=0.0032		ng/L	
			22'33'66'-HexaCB-(136)	2018/04/30	0.0022 U, EDL=0.0022		ng/L	
			22'344'5-HexaCB-(137)	2018/04/30	0.0031 U, EDL=0.0031		ng/L	
			HexaCB-(139)+(140)	2018/04/30	0.0027 U, EDL=0.0027		ng/L	
			22'3455'-HexaCB-(141)	2018/04/30	0.0029 U, EDL=0.0029		ng/L	
			22'3456-HexaCB-(142)	2018/04/30	0.0031 U, EDL=0.0031		ng/L	
			22'345'6-HexaCB-(144)	2018/04/30	0.0032 U, EDL=0.0032		ng/L	
			22'3466'-HexaCB-(145)	2018/04/30	0.0024 U, EDL=0.0024		ng/L	
			22'34'55'-HexaCB-(146)	2018/04/30	0.0027 U, EDL=0.0027		ng/L	
			HexaCB-(147)+(149)	2018/04/30	0.0026 U, EDL=0.0026		ng/L	
			22'34'56'-HexaCB-(148)	2018/04/30	0.0031 U, EDL=0.0031		ng/L	
			22'34'66'-HexaCB-(150)	2018/04/30	0.0022 U, EDL=0.0022		ng/L	
			22'3566'-HexaCB-(152)	2018/04/30	0.0021 U, EDL=0.0021		ng/L	
			HexaCB-(153)+(168)	2018/04/30	0.0021 U, EDL=0.0021		ng/L	
			22'44'56'-HexaCB-(154)	2018/04/30	0.0027 U, EDL=0.0027		ng/L	
			22'44'66'-HexaCB-(155)	2018/04/30	0.0018 U, EDL=0.0018		ng/L	
			HexaCB-(156)+(157)	2018/04/30	0.0031 U, EDL=0.0031		ng/L	
			233'44'6-HexaCB-(158)	2018/04/30	0.0019 U, EDL=0.0019		ng/L	
			233'455'-HexaCB-(159)	2018/04/30	0.0023 U, EDL=0.0023		ng/L	

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			233'456-HexaCB-(160)	2018/04/30	0.0023 U, EDL=0.0023		ng/L	
			233'45'6-HexaCB-(161)	2018/04/30	0.0019 U, EDL=0.0019		ng/L	
			233'4'55'-HexaCB-(162)	2018/04/30	0.0023 U, EDL=0.0023		ng/L	
			233'4'5'6-HexaCB-(164)	2018/04/30	0.0021 U, EDL=0.0021		ng/L	
			233'55'6-HexaCB-(165)	2018/04/30	0.0022 U, EDL=0.0022		ng/L	
			23'44'55'-HexaCB-(167)	2018/04/30	0.0029 U, EDL=0.0029		ng/L	
			33'44'55'-HexaCB-(169)	2018/04/30	0.0031 U, EDL=0.0031		ng/L	
			22'33'44'5-HeptaCB-(170)	2018/04/30	0.0053 U, EDL=0.0053		ng/L	
			HeptaCB-(171)+(173)	2018/04/30	0.0071 U, EDL=0.0071		ng/L	
			22'33'455'-HeptaCB-(172)	2018/04/30	0.0075 U, EDL=0.0075		ng/L	
			22'33'456'-HeptaCB-(174)	2018/04/30	0.0067 U, EDL=0.0067		ng/L	
			22'33'45'6-HeptaCB-(175)	2018/04/30	0.0027 U, EDL=0.0027		ng/L	
			22'33'466'-HeptaCB-(176)	2018/04/30	0.0018 U, EDL=0.0018		ng/L	
			22'33'45'6'-HeptaCB-(177)	2018/04/30	0.0071 U, EDL=0.0071		ng/L	
			22'33'55'6-HeptaCB-(178)	2018/04/30	0.0027 U, EDL=0.0027		ng/L	
			22'33'566'-HeptaCB-(179)	2018/04/30	0.0017 U, EDL=0.0017		ng/L	
			HeptaCB-(180)+(193)	2018/04/30	0.0050 U, EDL=0.0050		ng/L	
			22'344'56-HeptaCB-(181)	2018/04/30	0.0071 U, EDL=0.0071		ng/L	
			22'344'56'-HeptaCB-(182)	2018/04/30	0.0028 U, EDL=0.0028		ng/L	
			22'344'5'6-HeptaCB-(183)	2018/04/30	0.0064 U, EDL=0.0064		ng/L	
			22'344'66'-HeptaCB-(184)	2018/04/30	0.0018 U, EDL=0.0018		ng/L	
			22'3455'6-HeptaCB-(185)	2018/04/30	0.0061 U, EDL=0.0061		ng/L	
			22'34566'-HeptaCB-(186)	2018/04/30	0.0019 U, EDL=0.0019		ng/L	
			22'34'55'6-HeptaCB-(187)	2018/04/30	0.0026 U, EDL=0.0026		ng/L	
			22'34'566'-HeptaCB-(188)	2018/04/30	0.0021 U, EDL=0.0021		ng/L	
			233'44'55'-HeptaCB-(189)	2018/04/30	0.0033 U, EDL=0.0033		ng/L	
			233'44'56-HeptaCB-(190)	2018/04/30	0.0055 U, EDL=0.0055		ng/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			233'44'5'6-HeptaCB-(191)	2018/04/30	0.0053 U, EDL=0.0053		ng/L	
			233'455'6-HeptaCB-(192)	2018/04/30	0.0060 U, EDL=0.0060		ng/L	
			22'33'44'55'-OctaCB-(194)	2018/04/30	0.0038 U, EDL=0.0038		ng/L	
			22'33'44'56-OctaCB-(195)	2018/04/30	0.0040 U, EDL=0.0040		ng/L	
			22'33'44'56'-OctaCB-(196)	2018/04/30	0.0049 U, EDL=0.0049		ng/L	
			22'33'44'66'OctaCB-(197)	2018/04/30	0.0030 U, EDL=0.0030		ng/L	
			OctaCB-(198)+(199)	2018/04/30	0.0048 U, EDL=0.0048		ng/L	
			22'33'4566'-OctaCB-(200)	2018/04/30	0.0027 U, EDL=0.0027		ng/L	
			22'33'45'66'-OctaCB-(201)	2018/04/30	0.0028 U, EDL=0.0028		ng/L	
			22'33'55'66'-OctaCB-(202)	2018/04/30	0.0032 U, EDL=0.0032		ng/L	
			22'344'55'6-OctaCB-(203)	2018/04/30	0.0046 U, EDL=0.0046		ng/L	
			22'344'566'-OctaCB-(204)	2018/04/30	0.0029 U, EDL=0.0029		ng/L	
			233'44'55'6-OctaCB-(205)	2018/04/30	0.0034 U, EDL=0.0034		ng/L	
			22'33'44'55'6-NonaCB-(206)	2018/04/30	0.0068 U, EDL=0.0068		ng/L	
			22'33'44'566'-NonaCB-(207)	2018/04/30	0.0051 U, EDL=0.0051		ng/L	
			22'33'455'66'-NonaCB-(208)	2018/04/30	0.0069 U, EDL=0.0069		ng/L	
			DecaCB-(209)	2018/04/30	0.0098 U, EDL=0.0098		ng/L	
			Monochlorobiphenyl	2018/04/30	0.0089 U, EDL=0.0089		ng/L	
			Dichlorobiphenyl	2018/04/30	0.044 U, EDL=0.044		ng/L	
			Trichlorobiphenyl	2018/04/30	0.035 U, EDL=0.035		ng/L	
			Tetrachlorobiphenyl	2018/04/30	0.010 U, EDL=0.010		ng/L	
			Pentachlorobiphenyl	2018/04/30	0.0060 U, EDL=0.0060		ng/L	
			Hexachlorobiphenyl	2018/04/30	0.0036 U, EDL=0.0036		ng/L	
			Heptachlorobiphenyl	2018/04/30	0.0075 U, EDL=0.0075		ng/L	
			Octachlorobiphenyl	2018/04/30	0.0049 U, EDL=0.0049		ng/L	
			Nonachlorobiphenyl	2018/04/30	0.0069 U, EDL=0.0069		ng/L	
			Decachlorobiphenyl	2018/04/30	0.0098 U, EDL=0.0098		ng/L	

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Maxxam Job #: B879641
Report Date: 2018/05/04

Apex Laboratories
Client Project #: A8D0223

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
			Total PCB	2018/04/30	0.00939		ng/L	

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

(1) EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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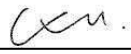
Maxxam Job #: B879641
Report Date: 2018/05/04

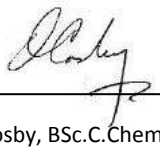
Apex Laboratories
Client Project #: A8D0223

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Cathy Xu, Senior Analyst, HRMS Services, Senior Analyst, HRMS Services



Owen Cosby, BSc.C.Chem, Supervisor, HRMS Services

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

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WORK ORDER NUMBER: 18-04-0722

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: APEX Laboratories, LLC

Client Project Name: A8D0223

Attention: Philip Nerenberg
12232 SW Garden Place
Portland, OR 97223-8246

Approved for release on 04/18/2018 by:
Lori Thompson
Project Manager

ResultLink

Email your PM

Eurofins Calscience (Calscience) certifies that the test results provided in this report meet all NELAC Institute requirements for parameters for which accreditation is required or available. Any exceptions to NELAC Institute requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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Work Order Number: 18-04-0722

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Work Order Narrative

Work Order: 18-04-0722 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 04/10/18. They were assigned to Work Order 18-04-0722.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

DoD Projects:

The test results contained in this report are accredited under the laboratory's ISO/IEC 17025:2005 and DoD-ELAP accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation ADE-1864.

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Sample Summary

Client:	APEX Laboratories, LLC 12232 SW Garden Place Portland, OR 97223-8246	Work Order:	18-04-0722
		Project Name:	A8D0223
		PO Number:	
		Date/Time Received:	04/10/18 07:45
		Number of Containers:	12
Attn:	Philip Nerenberg		

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
B21-SW2-04052018	18-04-0722-1	04/05/18 10:45	2	Aqueous
B21-SW3-04062018	18-04-0722-2	04/06/18 10:00	2	Aqueous
B21-SW6-04052018	18-04-0722-3	04/05/18 10:10	2	Aqueous
B21-CB2-04052018	18-04-0722-4	04/05/18 14:00	2	Aqueous
B21-CB9-04052018	18-04-0722-5	04/05/18 15:00	2	Aqueous
B21-RD1-04052018	18-04-0722-6	04/05/18 08:10	2	Aqueous

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Analytical Report

APEX Laboratories, LLC
12232 SW Garden Place
Portland, OR 97223-8246

Project: A8D0223

Date Received: 04/10/18
Work Order: 18-04-0722
Preparation: EPA 3510C
Method: Organotins by Krone et al.
Units: ng/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B21-SW2-04052018	**18-04-0722-1-A**	**04/05/18 10:45**	**Aqueous**	**GC/MS Y**	**04/10/18**	**04/12/18 00:32**	**180410L10**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	2.9	1.7	1.00	
Monobutyltin	ND	2.9	2.3	1.00	
Tetrabutyltin	ND	2.9	1.9	1.00	
Tributyltin	ND	2.9	1.3	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	42	19-121	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B21-SW3-04062018	**18-04-0722-2-A**	**04/06/18 10:00**	**Aqueous**	**GC/MS Y**	**04/10/18**	**04/12/18 00:50**	**180410L10**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	3.0	1.8	1.00	
Monobutyltin	ND	3.0	2.3	1.00	
Tetrabutyltin	ND	3.0	1.9	1.00	
Tributyltin	ND	3.0	1.3	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	58	19-121	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B21-SW6-04052018	**18-04-0722-3-A**	**04/05/18 10:10**	**Aqueous**	**GC/MS Y**	**04/10/18**	**04/12/18 01:07**	**180410L10**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	2.9	1.7	1.00	
Monobutyltin	ND	2.9	2.3	1.00	
Tetrabutyltin	ND	2.9	1.9	1.00	
Tributyltin	ND	2.9	1.3	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	61	19-121	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

APEX Laboratories, LLC
12232 SW Garden Place
Portland, OR 97223-8246

Date Received: 04/10/18
Work Order: 18-04-0722
Preparation: EPA 3510C
Method: Organotins by Krone et al.
Units: ng/L

Project: A8D0223

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B21-CB2-04052018	**18-04-0722-4-A**	**04/05/18 14:00**	**Aqueous**	**GC/MS Y**	**04/10/18**	**04/12/18 01:24**	**180410L10**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	2.9	1.7	1.00	
Monobutyltin	ND	2.9	2.3	1.00	
Tetrabutyltin	ND	2.9	1.9	1.00	
Tributyltin	ND	2.9	1.3	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	50	19-121	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B21-CB9-04052018	**18-04-0722-5-A**	**04/05/18 15:00**	**Aqueous**	**GC/MS Y**	**04/10/18**	**04/12/18 01:41**	**180410L10**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	2.9	1.7	1.00	
Monobutyltin	ND	2.9	2.3	1.00	
Tetrabutyltin	ND	2.9	1.9	1.00	
Tributyltin	ND	2.9	1.3	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	31	19-121	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B21-RD1-04052018	**18-04-0722-6-A**	**04/05/18 08:10**	**Aqueous**	**GC/MS Y**	**04/10/18**	**04/12/18 01:59**	**180410L10**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	2.9	1.7	1.00	
Monobutyltin	ND	2.9	2.3	1.00	
Tetrabutyltin	ND	2.9	1.9	1.00	
Tributyltin	ND	2.9	1.3	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	53	19-121	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

APEX Laboratories, LLC
12232 SW Garden Place
Portland, OR 97223-8246

Date Received: 04/10/18
Work Order: 18-04-0722
Preparation: EPA 3510C
Method: Organotins by Krone et al.
Units: ng/L

Project: A8D0223

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-07-035-493**	**N/A**	**Aqueous**	**GC/MS Y**	**04/10/18**	**04/11/18 23:40**	**180410L10**

Comment(s): - Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Dibutyltin	ND	3.0	1.8	1.00	
Monobutyltin	ND	3.0	2.4	1.00	
Tetrabutyltin	ND	3.0	1.9	1.00	
Tributyltin	ND	3.0	1.4	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Tripentyltin	35	19-121	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - LCS/LCSD

APEX Laboratories, LLC
12232 SW Garden Place
Portland, OR 97223-8246

Project: A8D0223

Date Received: 04/10/18
Work Order: 18-04-0722
Preparation: EPA 3510C
Method: Organotins by Krone et al.

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-07-035-493	**LCS**	**Aqueous**	**GC/MS Y**	**04/10/18**	**04/11/18 23:58**	**180410L10**
099-07-035-493	**LCSD**	**Aqueous**	**GC/MS Y**	**04/10/18**	**04/12/18 00:15**	**180410L10**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Tetrabutyltin	200.0	210.1	105	205.5	103	35-131	2	0-20	
Tributyltin	200.0	145.0	73	138.6	69	50-120	5	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 18-04-0722 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
Organotins by Krone et al.	EPA 3510C	907	GC/MS Y	1

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Glossary of Terms and Qualifiers

Work Order: 18-04-0722 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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SUBCONTRACT ORDER

Apex Laboratories

A8D0223 **18-04-0722**

SENDING LABORATORY:

Apex Laboratories
12232 S.W. Garden Place
Tigard, OR 97223
Phone: (503) 718-2323
Fax: (503) 718-0333
Project Manager: Philip Nerenberg

RECEIVING LABORATORY:

Eurofins_CalScience
7440 Lincoln Way
Garden Grove, CA 92841-1427
Phone :(714) 895-5494
Fax: (714) 894-7501

Basin 21 Manhole-Sample Point No. 2

1 **Sample Name: B21-SW2-04052018** **Water** **Sampled: 04/05/18 10:45** (A8D0223-02)

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub)	04/19/18 17:00	04/19/18 10:45	Krone
Containers Supplied:			
(K)1 L Amber Glass - Non Preserved			
(L)1 L Amber Glass - Non Preserved			

Basin 21 Manhole-Sample Point No.3

2 **Sample Name: B21-SW3-04062018** **Water** **Sampled: 04/06/18 10:00** (A8D0223-03)

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub)	04/19/18 17:00	04/20/18 10:00	Krone
Containers Supplied:			
(K)1 L Amber Glass - Non Preserved			
(L)1 L Amber Glass - Non Preserved			

Basin 21 Manhole-Sample Point No.6

3 **Sample Name: B21-SW6-04052018** **Water** **Sampled: 04/05/18 10:10** (A8D0223-04)

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub)	04/19/18 17:00	04/19/18 10:10	Krone
Containers Supplied:			
(K)1 L Amber Glass - Non Preserved			
(L)1 L Amber Glass - Non Preserved			

Former Boydston-Catch Basin No. 2

4 **Sample Name: B21-CB2-04052018** **Water** **Sampled: 04/05/18 14:00** (A8D0223-05)

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub)	04/19/18 17:00	04/19/18 14:00	Krone
Containers Supplied:			
(K)1 L Amber Glass - Non Preserved			
(L)1 L Amber Glass - Non Preserved			

Released By [signature] Date 4/9/18 — Fed Ex (Shipper) — Received By — Date

Released By Fed Ex (Shipper) Date 4/10/18 — Received By Wbath ECI Date 4/10/18 0745

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SUBCONTRACT ORDER

Apex Laboratories

A8D0223

0722

Former Boydston-Catch Basin No. 9

5 **Sample Name: B21-CB9-04052018** **Water** **Sampled: 04/05/18 15:00** (A8D0223-06)

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub)	04/19/18 17:00	04/19/18 15:00	Krone
Containers Supplied:			
(K)1 L Amber Glass - Non Preserved			
(L)1 L Amber Glass - Non Preserved			

Former Boydston-Roof Drain

6 **Sample Name: B21-RD1-04052018** **Water** **Sampled: 04/05/18 08:10** (A8D0223-07)

Analysis	Due	Expires	Comments
TBT, Butyl Tins (3) (Sub)	04/19/18 17:00	04/19/18 08:10	Krone
Containers Supplied:			
(K)1 L Amber Glass - Non Preserved			
(L)1 L Amber Glass - Non Preserved			

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Released By	Date	Received By	Date
	4/9/18	Fed Ex (Shipper)	
Fed Ex (Shipper)	4/10/18	Wchat ECI	4/10/18 0745
Released By	Date	Received By	Date

ORIGIN ID:BNOA (503) 718-2323
SAMPLE CONTROL
APEX LABS
12232 SW GARDEN PLACE

TIGARD, OR 97223
UNITED STATES US

SHIP DATE: 09APR18
ACTWGT: 45.00 LB
CAD: 4716258/INET3980

BILL SENDER

0722

TO DANIELLE GONSMAN
CALSCIENCE
7440 LINCOLN WAY

GARDEN GROVE CA 92841
(714) 895-5494 REF
INV:
PO: DEPT:

552J1/9132/DOAG

FedEx Express

FedEx Ship Manager - Print Your Label(s)

1 of 2

TRK# 0201 7719 5094 2080
MASTER

TUE - 10 APR 8:00A
FIRST OVERNIGHT

W1 APVA

92841
CA-US SNA

PO: DEPT:

FedEx Express

FedEx Ship Manager - Print Your Label(s)

2 of 2

MPS# 0263 7719 5094 1911
Mstr# 7719 5094 2080

0201

TUE - 10 APR 8:00A
FIRST OVERNIGHT

W1 APVA

92841
CA-US SNA

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WORK ORDER NUMBER: 18-04-0722

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 2

CLIENT: Apex Labs

DATE: 04/10/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.1°C); Temperature (w/o CF): 2.5 °C (w/ CF): 2.6 °C; ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter Checked by: AZ6

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: AZ6

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: AZ6

SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☑ No relinquished time			
Sampler's name indicated on COC	☐	☐	☑
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☑	☐	☐
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	☐	☐	☑
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

PS 4/10/18

4/10/18

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOAh ☐ VOAna_2 ☐ 100PJ ☐ 100PJna_2 ☐ 125AGB ☐ 125AGBh ☐ 125AGBp ☐ 125PB ☐ 125PBznna (pH__9)

☐ 250AGB ☐ 250CGB ☐ 250CGBs (pH__2) ☐ 250PB ☐ 250PBn (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJs (pH__2) ☐ 500PB

☑ 1AGB (2) ☐ 1AGBna_2 ☐ 1AGBs (pH__2) ☐ 1AGBs (O&G) ☐ 1PB ☐ 1PBna (pH__12) ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (___) ☐ EnCores® (___) ☐ TerraCores® (___) ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na_2** = $Na_2S_2O_3$, **p** = H_3PO_4, Labeled/Checked by: AZ6

s = H_2SO_4, **u** = ultra-pure, **x** = Na_2SO_3+$NaHSO_4.H_2O$, **znna** = Zn $(CH_3CO_2)_2$ + NaOH Reviewed by: JMO

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WORK ORDER NUMBER: 18-04-0722

SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 2

CLIENT: Apex Labs

DATE: 04 / 10 / 2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.1°C); Temperature (w/o CF): 2.7 °C (w/ CF): 2.8 °C; ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter Checked by: AZ6

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: AZ6

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: AZ6

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☐	☑	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☑ No relinquished time			
Sampler's name indicated on COC	☐	☐	☑
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☑	☐	☐
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	☐	☐	☑
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB ☐ 125PB**znna** (pH__9)

☐ 250AGB ☐ 250CGB ☐ 250CGB**s** (pH__2) ☐ 250PB ☐ 250PB**n** (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s** (pH__2) ☐ 500PB

☑ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** (pH__2) ☐ 1AGB**s** (O&G) ☐ 1PB ☐ 1PB**na** (pH__12) ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (___) ☐ EnCores® (___) ☐ TerraCores® (___) ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, Labeled/Checked by: AZ6

s = H_2SO_4, **u** = ultra-pure, **x** = Na_2SO_3+$NaHSO_4.H_2O$, **znna** = Zn $(CH_3CO_2)_2$ + NaOH Reviewed by: SM

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Quarter 2, 2019 Groundwater Source Control Measure Performance Monitoring Report (April through June 2019)

Environmental Resources Management, 2019

ERM

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December 19, 2019

Via Electronic Mail

Ms. Erin McDonnell
Oregon Department of Environmental Quality
Northwest Region
700 NE Multnomah St, Suite 600
Portland, OR 97232

Reference: 0499738

Subject: Quarter 2, 2019 Groundwater Source Control Measure Performance Monitoring Report
(April through June 2019)
MMGL / Premier Edible Oils Site

Dear Ms. McDonnell:

ERM-West, Inc. (ERM) is submitting this Quarterly Groundwater Source Control Measure (GW SCM) Performance Monitoring Report (Report) on behalf of MMGL to present the Quarter 2, 2019 groundwater monitoring results at the Premier Edible Oils (PEO) site located at 10400 North Burgard Way in Portland, Oregon (the "site") (See Figure 1).

This report has been prepared pursuant to the Voluntary Agreement for Upland Remedial Investigation (FI)/Feasibility Study (FS) and Source Control Measures issued by the Oregon Department of Environmental Quality (ODEQ) and signed 6 March 2001 (ODEQ ECDVC-NWR-01-06) (Voluntary Agreement).

Quarter 2, 2019 (April through June) Monitoring

Quarterly groundwater monitoring included collecting groundwater elevations, groundwater field parameters, laboratory analytical samples, and air sparge remediation observations from the monitoring wells as shown in Figure 2 and summarized in Table 1.

Air Sparge Oxygenation/Biobarrier Monitoring

During the quarter, the air sparge system was increased from 60% to 80% of target flow rates. Residual work with system programming has been ongoing.

On 15 April, 29 April, and 20 May, ERM was onsite to download air sparge performance data. The air sparge system was shut down between 10 June and 18 June while conducting the monthly water level monitoring and quarterly groundwater monitoring.

Groundwater Elevation Monitoring

The groundwater elevations are manually measured on a quarterly basis in 29 groundwater monitoring wells. Transducers are installed in 15 select monitoring wells, as summarized in Table 1. The monitoring wells with transducers are manually gauged approximately monthly for calibration and data downloaded. Groundwater elevations measured manually during each monthly calibration

event and quarterly site wide events for April, May, and June 2019 are presented in Tables 2 through 4, respectively. Interpreted potentiometric surfaces for the water level monitoring events in April, May, and June 2019 are presented in Figures 3 through 5, respectively. Figures 3 through 5 show dashed lines where the groundwater elevations are inferred. The potentiometric surfaces observed in April, May, and June 2019 were consistent with previous monitoring events.

All historical data collected on site since the baseline monitoring event in May 2017 of the GW SCM are presented in Attachment C.

Groundwater at the site generally flows to the west and south west, towards the Willamette River. The influence of the groundwater barrier wall is observed as flattened gradients and some mounding directly upland of the barrier wall. During high groundwater and high river stage periods, such as April, the groundwater gradients are relatively flat with only slight mounding. During periods of rapid river stage rise (i.e., May) inward gradients from the river across the barrier wall can occur. During low groundwater and low river stages periods, such as October, the mounding is more pronounced, but is limited to areas immediately adjacent to the barrier wall. This mounding occurs as a response lag as river stage and groundwater levels outside of the wall change seasonally.

Fifteen monitoring wells have pressure transducers installed (see Table 1). The transducers record water levels every hour. The recorded data are downloaded and calibrated on an approximately monthly basis. The transducer data is used to compare water levels in monitoring wells at the upgradient site boundary, upland to, and riverward of the barrier wall.

The locations of monitoring wells within each hydrograph cluster are shown in Figure 1 in Attachment A. Groundwater levels at the site are tidally influenced by the water levels in the Willamette River. In accordance with PMP, the transducer data and the Willamette River gage data was averaged using the Serfes averaging method in order to filter out tidal effects. The Serfes averaged hydrographs of select groups of monitoring wells (i.e., clusters) and the Willamette River elevations are presented in Attachment A.

Over this quarter, water levels across the site are generally decreasing. This is likely due to decreased rainfall and falling river levels over the quarter. The hydrographs indicate a very sharp spike in river levels between April 6 and April 11 due to seasonal river stage increases and operation of the upstream dams. Shallow groundwater elevations inside the barrier wall are generally equal to or lower than shallow levels outside the wall. The average gradient from the upland shallow wells to the riverward shallow wells increases from -0.07 ft/ft in April to 0.003 ft/ft in June. The shallow wells inside the barrier wall also have small response lags when water levels changes occur, due to the effects of the barrier wall.

Deep groundwater elevations are generally consistent and similar on the inside and outside of the barrier. The average gradient from the upland deep wells to the riverward deep wells decreases from 0.02 ft/ft in April to -0.007 ft/ft in June. The groundwater elevation response in wells inside barrier is similar to the changes in elevations in outside wells.

The groundwater elevation in shallow wells inside the wall is generally higher than or equal to the elevation in the deep wells inside the wall. This indicates a slight downward gradient, as anticipated due to the effects of the barrier wall and subsequent groundwater mounding. During Q2 2019, there were no periods when the vertical gradient is upward.

MW-07 was included in this quarter's monitoring events but the well was dry and no water level or sample was collected.

Light Non-Aqueous Phase Liquids

Light Non-Aqueous Phase Liquid (LNAPL) was observed in several monitoring wells during the monthly water level measurement event in May 2019. LNAPL occurrence is sporadic and typically limited to minor thicknesses. During the monthly water level events this quarter, observations of LNAPL ranged from 0.00 ft (sheen) to 0.04 ft. All measurements for April, May, and June water level events are presented in Tables 2, 3, and 4, respectively. Monthly transducer calibration offsets are presented in Table 5. All historical data measurements are presented in Attachment C.

During the June 2019 groundwater monitoring event, LNAPL was observed in in the four wells detailed in Table 6. Due to the presence of LNAPL at these four wells, no water quality samples were collected.

Due to minimal observed thickness, LNAPL was not recovered this quarter (Table 7). All historical data measurements and LNAPL recovery volumes are presented in Attachment C.

These intermittent LNAPL observations are indicative of LNAPL present as a residual in the formation. The results of the Q1 2019 LNAPL recovery test and LNAPL removal volumes observed to date indicate that potential LNAPL recovery is limited. Future LNAPL recovery will be performed when recoverable LNAPL is observed during water level monitoring events. The volume of LNAPL recovered during these events is anticipated to be small.

Groundwater Sampling

Groundwater samples are scheduled to be collected quarterly from 29 wells at the site, as summarized in Table 1. For Quarter 2 of 2019, samples were collected on 10 to 18 June 2019. On 17 June 2019 ERM was informed that the volatile organic samples collected from MW-25, MW-27, MW-36, and MW-40 on 14 June 2019 were received at the lab outside of receiving temperature range. For MW-28, all samples were out of hold except, except metals, NWEPH, and NWVPH. All samples for MW-26, except NWEPH and NWVPH, were out of hold as well. Resampling of these wells was conducted 17-18 June 2019.

Groundwater samples were collected using standard low flow sampling techniques with disposable sampling equipment and a stainless steel submersible pump. All groundwater samples were collected in accordance with the ODEQ approved PMP. Samples were analyzed at Pace Analytical Laboratories in Minneapolis, MN and Fremont Analytical Laboratories in Seattle, WA. Laboratory data and validation reports are included as Attachment B.

Field parameter values measured immediately prior to sample collection are presented in Table 8. Laboratory analytical results are presented in Tables 9 through 11. Figures 6 through 11 summarize the results of the primary site contaminants of concern (i.e., benzene, total petroleum hydrocarbons, C10-C12 aliphatics, arsenic, and manganese). Figures 6 through 11 have dashed lines are used to indicate inferred concentration boundaries.

Benzene results (Figure 6) ranged from non-detect to 28.9 micrograms per liter (µg/L), which is a decrease from Q1 2019 results. Concentrations of benzene in monitoring wells located at the ends of

the barrier wall were non-detect or at least an order of magnitude below the performance criteria. This indicates that these contaminants have not migrated laterally from the source area around the ends of the barrier wall.

TPH as diesel (TPH-Dx) results (Figure 7) ranged from non-detect to 9,400 µg/L. The results are consistent with historical results. The highest TPH-Dx results were observed in well MW-34 in the center of and upgradient from the barrier wall. Historically, high TPH-Dx concentrations have been observed near the central area of the barrier wall. Consistent to historical observations, a portion of the central wells were not sampled this quarter due to LNAPL observations in this area. The results observed in well MW-06 for TPH-Dx was 490 µg/L, a decrease from results historically seen at MW-06.

TPH as gasoline (TPH-Gx) results (Figure 8) ranged from non-detect to 24,000 µg/L. The highest TPH-Gx results were observed in MW-28 located upgradient of the barrier wall. Historically, high TPH-Gx concentrations have been observed near the central area of the barrier wall. Consistent to historical observations, a portion of the central wells were not sampled this quarter due to LNAPL observations in this area. Shallow well concentrations, except MW-24A, on the ends of the barrier wall were lower than the performance criteria. We are investigating the potential reasons why MW-24A results indicate higher concentrations and will continue to monitor the location. The results observed in well MW-06 for TPH-Gx was 1,700 µg/L, consistent with results historically seen at MW-06.

The results for C10-C12 aliphatics are presented in Figure 9. Two methods, NWTPH-EPH and NWTPH-VPH, were used to analyze the concentration of the C10-C12 aliphatic range in the samples. Table 7 presents the results of both methods. Figure 9 also presents the results of both methods and the concentration contour lines were generated based on the higher of the two method results. The C10-C12 aliphatics concentrations measured with the EPH method ranged from non-detect to 255 µg/L, which is consistent with historical concentrations. The C10-C12 aliphatics concentrations measured with the VPH method ranged from non-detect to 534 µg/L, which is consistent with historical concentrations. The highest concentrations were observed in monitoring wells located in the center of the barrier wall. Monitoring wells located at the ends of the barrier wall had low or non-detect concentrations of C10-C12 aliphatics, indicating that these contaminants have not migrated laterally to the ends of the barrier wall. As previously mentioned, we are investigating the potential reasons why MW-24A results indicate higher concentrations and will continue to monitor the location. The results observed in well MW-06 for NWEPH and NWVPH were 255 and 279 µg/L, respectively. These results were a decrease from Q1 2019 concentrations observed at MW-06.

Arsenic results are summarized in Figure 10. Concentrations ranged from non-detect to 36 µg/L, which is consistent with historical concentrations. The highest concentrations were observed in the area in the center of the barrier wall and upgradient. Concentrations at the ends of the barrier wall were below the performance criteria, indicating that arsenic has not migrated laterally to the ends of the barrier wall. The results observed in well MW-06 for arsenic was 5.5 µg/L. This result was consistent with Q1 2019 concentrations observed at MW-06.

Manganese results are summarized in Figure 11. Concentrations ranged from non-detect to 6,460 µg/L, which is consistent with historical results. The highest concentrations were observed in the center of the barrier wall and at MW-08. Concentrations at the ends of the barrier wall were below

the performance criteria, indicating that manganese has not migrated laterally to the ends of the barrier wall.

Recommendations

Quarterly groundwater monitoring events will continue in accordance with the ODEQ-approved PMP. Groundwater samples will be collected from the 29 monitoring wells on site. LNAPL recovery will be performed when LNAPL is observed in monitoring wells, and recovery is feasible.

Available performance monitoring results will be provided in the Quarterly Monitoring Reports. In addition, an annual report will be submitted to provide summarized results for each year of performance monitoring including a discussion regarding the performance of the air sparge system.

If you have questions or comments pertaining to this progress report, please contact me at (503) 488-5282.

Yours sincerely

Rita Cooper
Project Manager

Brendan Robinson, PE
Partner in Charge

cc: Tom Graf, GrafCon
Eva DeMaria, USEPA

FIGURES

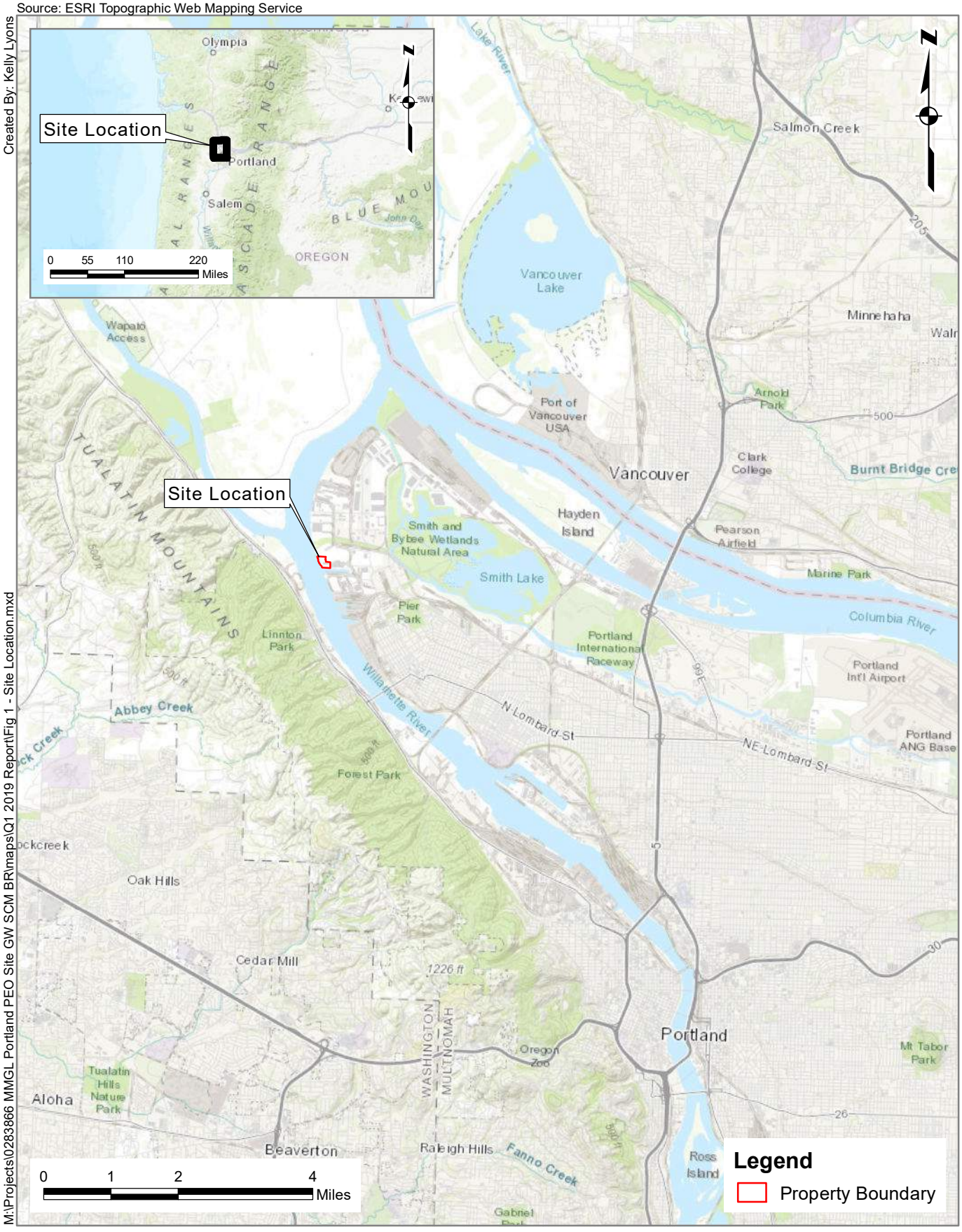

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Figure 1
Site Location
Southern PEO Site
Portland, Oregon

Notes:
Aerial Imagery: City of Portland, Summer 2016.
† = Indicates Performance Monitoring Well.
* = Indicates Compliance Monitoring Well.

Figure 2
Monitoring Well Locations
PEO Site
Portland, Oregon

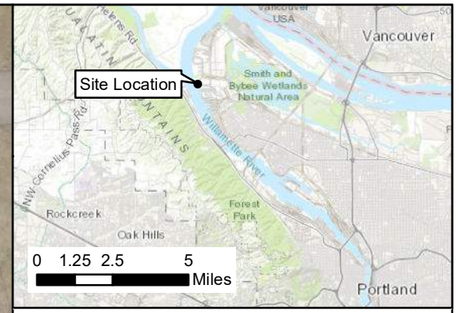
Environmental Resources Management
www.erm.com
ERM

Source: Esri - World Imagery; NAD 1983 StatePlane Oregon North FIPS 3601 Feet

FILE: M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q1 2019 Report\Fig 2 PEO Q2 2018 MW Locations.mxd, REVISED: 05/10/2019, SCALE: 1:900 when printed at 11x17
DRAWN BY: Kelly Lyons

DRAWN BY: Kelly Lyons
FILE: M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q2 2019 Report\Fig 3 PEO Groundwater P-Map April 2019.mxd REVISED: 11/04/2019 , SCALE: 1:1,200 when printed at 11x17

NAD 1983 StatePlane Oregon North FIPS 3601 Feet



Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Shallow Monitoring Well NM
- Deep Monitoring Well NM
- Shallow Zone Groundwater Contours (ft NAVD88) Dashed where Inferred
- Ordinary High Water (20.1 ft)
- Top of Bank
- Barrier Wall
- Property Boundary
- Approximate Maximum LNAPL Extent Observed
- Parcels

Notes:
* Value not used for contouring.
† Approximate value, not used for contouring.
Water levels collected 10 April 2019.
LNAPL extent represents all observed occurances during monitoring since May 2017.
Aerial Imagery: City of Portland, Summer 2017.

ft NAVD88: feet North American Vertical Datum of 1988.
NM: Not measured.

Figure 3
April 2019 Shallow Zone Groundwater Potentiometric Surface
PEO Site
Portland, Oregon

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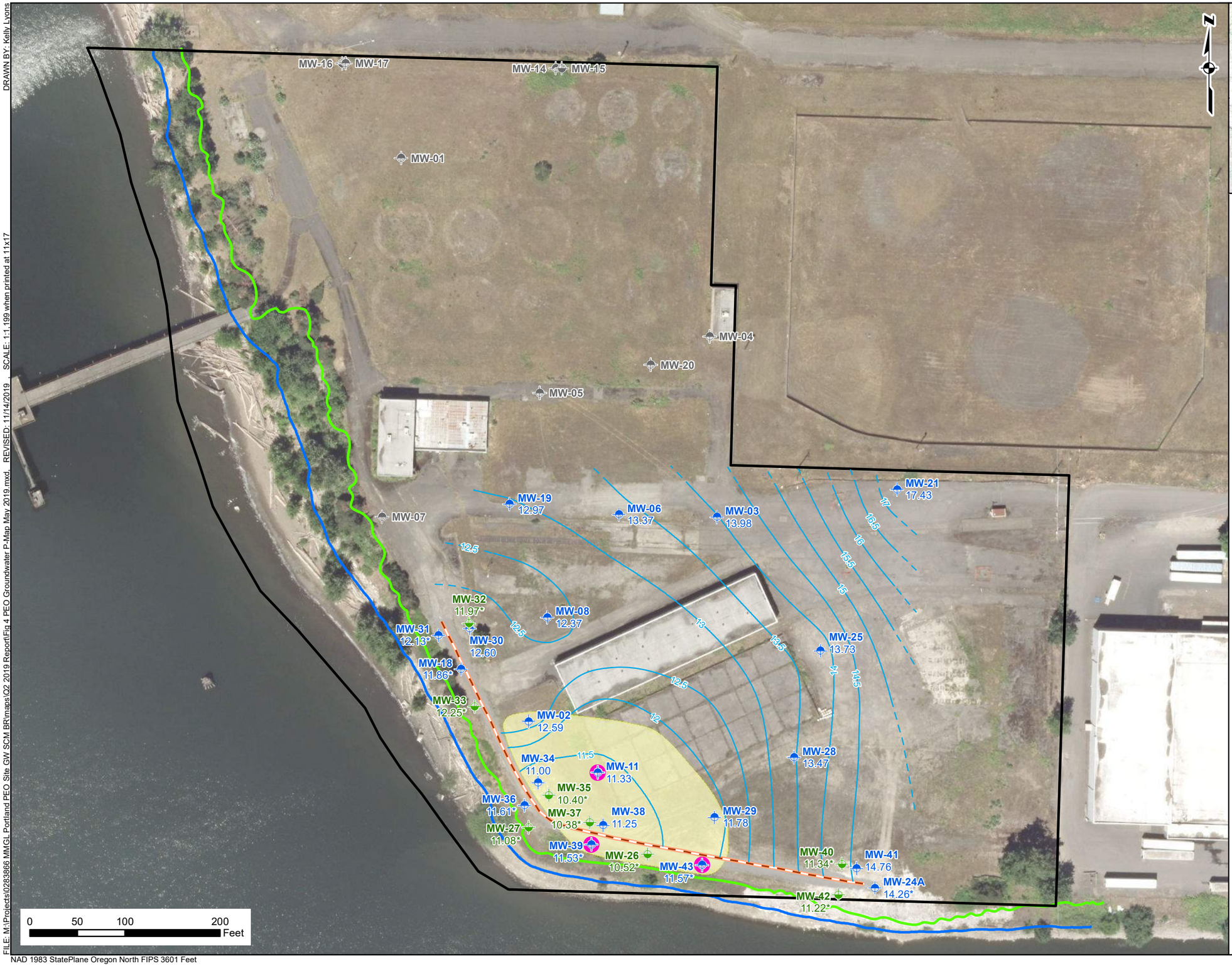

Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Shallow Monitoring Well NM
- Deep Monitoring Well NM
- LNAPL Observed
- Shallow Zone Groundwater Contours (ft NAVD88) Dashed where Inferred
- Ordinary High Water (20.1 ft)
- Top of Bank
- Barrier Wall
- Property Boundary
- Approximate Maximum LNAPL Extent Observed
- Parcels

Notes:
* Value not used for contouring.
Water levels collected 8 May 2019.
LNAPL extent represents all observed occurances during monitoring since May 2017.
Aerial Imagery: City of Portland, Summer 2017.

ft NAVD88: feet North American Vertical Datum of 1988.
NM: Not measured.

Figure 4
May 2019 Shallow Zone Groundwater Potentiometric Surface
PEO Site
Portland, Oregon

Environmental Resources Management
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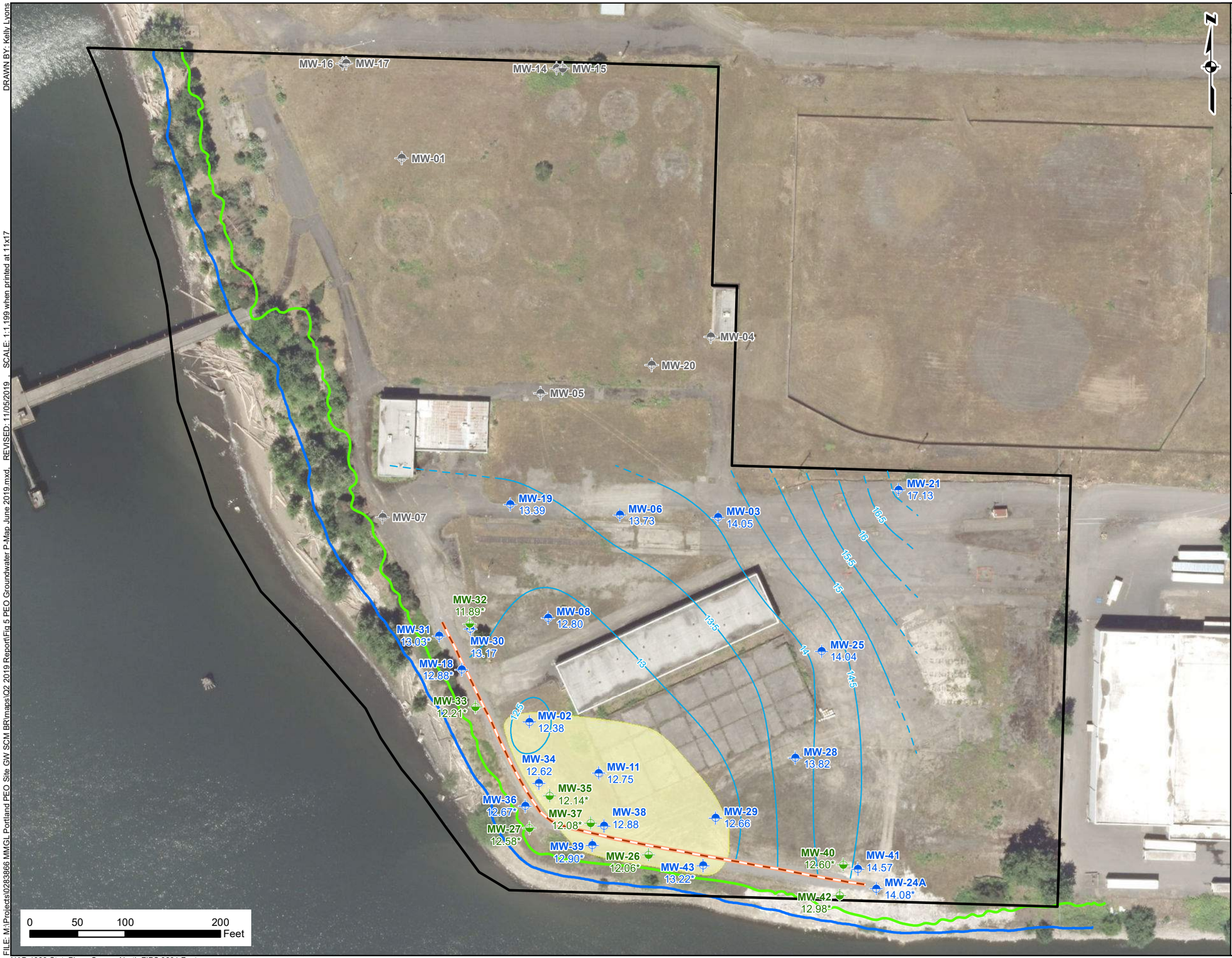
DRAWN BY: Kelly Lyons
SCALE: 1:1,199 when printed at 11x17
REVISED: 11/14/2019
FILE: M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q2 2019 Report\Fig 4 PEO Groundwater P-Map May 2019.mxd
NAD 1983 StatePlane Oregon North FIPS 3601 Feet



Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Shallow Monitoring Well NM
- Deep Monitoring Well NM
- Shallow Zone Groundwater Contours (ft NAVD88) Dashed where Inferred
- Ordinary High Water (20.1 ft)
- Top of Bank
- Barrier Wall
- Property Boundary
- Approximate Maximum LNAPL Extent Observed
- Parcels

Notes:
* Value not used for contouring.
Water levels collected 6 June 2019.
LNAPL extent represents all observed occurances during monitoring since May 2017.
Aerial Imagery: City of Portland, Summer 2017.

ft NAVD88: feet North American Vertical Datum of 1988.
NM: Not measured.

Figure 5
June 2019 Shallow Zone Groundwater Potentiometric Surface
PEO Site
Portland, Oregon

Environmental Resources Management
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FILE: M:\Projects\0283866 MM\GL Portland PEO Site GW SCM BR\maps\Q2 2019 Report\Fig 5 PEO Groundwater P-Map June 2019.mxd REVISED: 11/05/2019 , SCALE: 1:1,199 when printed at 11x17
DRAWN BY: Kelly Lyons
NAD 1983 StatePlane Oregon North FIPS 3601 Feet

Notes:
All results in µg/L (micrograms per liter).
Benzene Performance Criteria = 1.4 µg/L.
j = Analyte detected below Reporting Detection Limit but above Method Reporting Limit; result is an estimate.
* Not sampled due to presence of LNAPL.
Samples collected June 2019.
Aerial Imagery: City of Portland, Summer 2016.
LNAPL extent shown is the extent of all LNAPL occurrences observed during performance monitoring since May 2017.
Shallow screened wells used for iso-concentration contouring.

Figure 6
Benzene
Concentrations in Groundwater
Q2 Performance Monitoring Report
Premier Edible Oils
10400 N Burgard Way
Portland, Oregon

Environmental Resources Management
www.erm.com
ERM

Source: Esri - World Imagery; NAD 1983 StatePlane Oregon North FIPS 3601 Feet

FILE: M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q2 2019 Report\Fig 6 PEO Q2 2019 Groundwater Benzene June 2019.mxd, REVISED: 11/14/2019, SCALE: 1:900 when printed at 11x17 DRAWN BY: Kelly Lyons

Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Not Sampled
- LNAPL Observed June 2019
- TPH-Dx Isocontour (Dashed where inferred)
- Ordinary High Water (20.1 ft)
- Top of Bank
- Barrier Wall Alignment
- Property Boundary
- Approximate Maximum LNAPL Extent Observed.
- Parcels

Notes:
All results in µg/L (micrograms per liter).
TPH-D Performance Criteria = 1,000 µg/L.
j = Analyte detected below Reporting Detection Limit but above Method Reporting Limit; result is an estimate.
* Not sampled due to presence of LNAPL.
Samples collected March 2019.
Aerial Imagery: City of Portland, Summer 2016.
LNAPL extent shown is the extent of all LNAPL occurrences observed during performance monitoring since May 2017.
Shallow screened wells used for iso-concentration contouring.

Figure 7
TPH-DRO
Concentrations in Groundwater
Q2 Performance Monitoring Report
Premier Edible Oils
10400 N Burgard Way
Portland, Oregon

Environmental Resources Management
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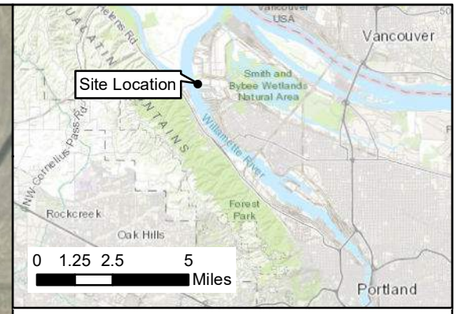
Source: Esri - World Imagery; NAD 1983 StatePlane Oregon North FIPS 3601 Feet

FILE: M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q2 2019 Report\Fig 7 PEO Q2 2019 Groundwater TPH-D June 2019.mxd REVISED: 11/14/2019 , SCALE: 1:900 when printed at 11x17
DRAWN BY: Kelly Lyons



Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Not Sampled
- LNAPL Observed June 2019
- TPH-Gx Isocontour (Dashed where inferred)
- Ordinary High Water (20.1 ft)
- Top of Bank
- Barrier Wall Alignment
- Property Boundary
- Approximate Maximum LNAPL Extent Observed
- Parcels

Notes:
All results in µg/L (micrograms per liter).
TPH-G Performance Criteria = 1,000 µg/L.
j = Analyte detected below Reporting Detection Limit but above Method Reporting Limit; result is an estimate.
NJ = Evidence of the compound at an estimated quantity.
U = Nondetected.
* Not sampled due to presence of LNAPL.
Samples collected June 2019.
Aerial Imagery: City of Portland, Summer 2016.
LNAPL extent shown is the extent of all LNAPL occurrences observed during performance monitoring since May 2017.
Shallow screened wells used for iso-concentration contouring.

Figure 8
TPH-Gx
Concentrations in Groundwater
Q2 Performance Monitoring Report
Premier Edible Oils
10400 N Burgard Way
Portland, Oregon

Environmental Resources Management
www.erm.com

Source: Esri - World Imagery; NAD 1983 StatePlane Oregon North FIPS 3601 Feet

DRAWN BY: Kelly Lyons
FILE: M:\Projects\0283866 MM\GL Portland PEO Site GW SCM BR\maps\Q2 2019 Report\Fig 8 PEO Q2 2019 Groundwater TPH-G June 2019.mxd REVISED: 11/14/2019 SCALE: 1:900 when printed at 11x17

Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Not Sampled
- LNAPL Observed June 2019
- Aliphatics Isocontour (Dashed where Inferrred)
- Ordinary High Water (20.1 ft)
- Top of Bank
- Barrier Wall Alignment
- Property Boundary
- Approximate Maximum LNAPL Extent Observed
- Parcels

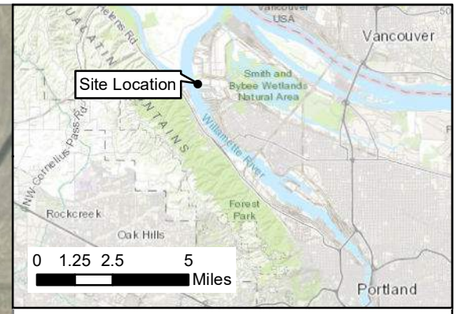
Notes:
All results in µg/L (micrograms per liter).
C10-C12 Aliphatics Perfomrance Criteria: 2.6 µg/L.
J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits.
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits.
33.1 / 41.8: NWEPH / NWVPH.
Concentration contours based on the larger result of the NWEPH or NWVPH analysis method.
* Not sampled due to presence of LNAPL.
Samples collected June 2019.
Aerial Imagery: City of Portland, Summer 2016.
LNAPL extent shown is the extent of all LNAPL occurrences observed during performance monitoring since May 2017.
Shallow screened wells used for iso-concentration contouring.

Figure 9
C10-C12 Aliphatics Concentrations in Groundwater
Q2 Performance Monitoring Report
Premier Edible Oils
10400 N Burgard Way
Portland, Oregon

Environmental Resources Management
www.erm.com

Source: Esri - World Imagery; NAD 1983 StatePlane Oregon North FIPS 3601 Feet

DRAWN BY: Kelly Lyons
REVISED: 11/14/2019 , SCALE: 1:900 when printed at 11x17
FILE: M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q2 2019 Report\Fig 9 PEO Q2 20019 Groundwater PAHs June 2019.mxd



Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Not Sampled
- LNAPL Observed June 2019
- Arsenic Isocontour (Dashed where Inferred)
- Ordinary High Water (20.1 ft)
- Top of Bank
- Barrier Wall Alignment
- Property Boundary
- Approximate Maximum LNAPL Extent Observed
- Parcels

Notes:
All results in µg/L (micrograms per liter).
As: Arsenic.
Arsenic Performance Criteria = 2.1 µg/L.
j = Analyte detected below Reporting Detection Limit but above Method Reporting Limit; result is an estimate.
* Not sampled due to presence of LNAPL.
Samples collected June 2019.
Aerial Imagery: City of Portland, Summer 2016.
LNAPL extent shown is the extent of all LNAPL occurrences observed during performance monitoring since May 2017.
Shallow screened wells used for iso-concentration contouring.

Figure 10
Arsenic
Concentrations in Groundwater
Q2 Performance Monitoring Report
Premier Edible Oils
10400 N Burgard Way
Portland, Oregon

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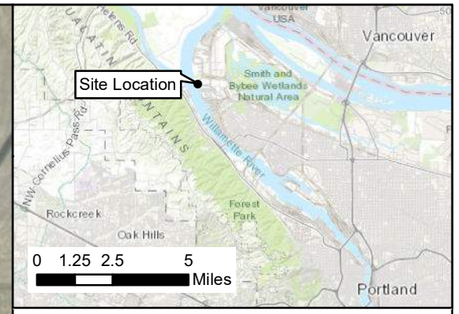
FILE: M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q2 2019 Report\Fig 10 PEO Q2 2019 Groundwater_Arsenic June 2019.mxd

Source: Esri - World Imagery; NAD 1983 StatePlane Oregon North FIPS 3601 Feet



Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Not Sampled
- LNAPL Observed June 2019
- Manganese Isocontour (Dashed where Inferred)
- Ordinary High Water (20.1 ft)
- Top of Bank
- Barrier Wall Alignment
- Property Boundary
- Approximate Maximum LNAPL Extent Observed
- Parcels

Notes:
All results in µg/L (micrograms per liter).
Mn: Manganese.
Manganese Performance Criteria = 1,925 µg/L.
* Not sampled due to presence of LNAPL.
Samples collected June 2019.
Aerial Imagery: City of Portland, Summer 2016.
LNAPL extent shown is the extent of all LNAPL occurrences observed during performance monitoring since May 2017.
Shallow screened wells used for iso-concentration contouring.

Figure 11
Manganese Concentrations in Groundwater
Q2 Performance Monitoring Report
Premier Edible Oils
10400 N Burgard Way
Portland, Oregon

Environmental Resources Management
www.erm.com

Source: Esri - World Imagery; NAD 1983 StatePlane Oregon North FIPS 3601 Feet

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FILE: M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q2 2019 Report\Fig 11 PEO Q2 2019 Groundwater Manganese June 2019.mxd

TABLES

Table 1
Monitoring Well Summary
Premier Edible Oils
Portland, Oregon

Well Identification	Status	Well Depth (ft)	Screen Zone	Screen Interval (ft bgs)		Measuring Point (Top of Casing)	Sitewide Monitoring Point	Water Level Monitoring Point[1]	Transducer Installed	Quarterly Monitoring[2]
				Top	Bottom	ft-NAVD88				
MW-02	Active	26	Shallow	11	26	31.18	X	X		X
MW-03	Active	26	Shallow	11	26	31.67	X	X		X
MW-04	Active	26	Shallow	11	26	31.37				
MW-05	Active	26	Shallow	11	26	31.27				
MW-06	Active	27	Shallow	12	27	31.23	X	X		X
MW-07	Active	27	Shallow	12	27	30.31	X	X		X
MW-08	Active	27	Shallow	12	27	30.93	X	X	X	X
MW-11	Active	27	Shallow	12	27	31.06	X	X	X	X
MW-18	Active	27	Shallow	12	27	30.87	X	X	X	X
MW-19	Active	27	Shallow	12	27	31.7	X	X		X
MW-21	Active	27	Shallow	12	27	31.36	X	X	X	X
MW-24A	Active	27	Shallow	12	27	32.35	X	X		X
MW-25	Active	-	Shallow	-	-	31.78	X	X		X
MW-26	Active	39	Deep	34	39	31.89	X	X		X
MW-27	Active	40	Deep	35	40	31.46	X	X	X	X
MW-28	Active	28	Shallow	13	28	31.26	X	X	X	X
MW-29	Active	30	Shallow	13	28	31.9	X	X		X
MW-30	Active	28	Shallow	13	28	31.05	X	X	X	X
MW-31	Active	28	Shallow	13	28	30.77	X	X		X
MW-32	Active	40	Deep	35	40	31.08	X	X	X	X
MW-33	Active	40	Deep	35	40	30.88	X	X	X	X
MW-34	Active	28	Shallow	13	28	30.72	X	X	X	X
MW-35	Active	40	Deep	35	40	30.83	X	X	X	X
MW-36	Active	30	Shallow	25	30	30.16	X	X	X	X
MW-37	Active	40	Deep	35	40	31.27	X	X		X
MW-38	Active	27	Shallow	13	27	31.54	X	X		X
MW-39	Active	30	Shallow	25	30	31.08	X	X		X
MW-40	Active	40	Deep	35	40	31.71	X	X	X	X
MW-41	Active	27	Shallow	13	27	31.32	X	X	X	X
MW-42	Active	40	Deep	35	40	31.94	X	X	X	X
MW-43	Active	30	Shallow	15	30	31.39	X	X		X

Notes:
– = not applicable
[1] = Manual water level measurment collected monthly
[2] = Groundwater analytical samples
NAVD88 = North America Vertical Datum 1988

Table 2
Groundwater Elevations - April 2019
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point (Top of Casing) ft-NAVD88	Date	Time	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-02	Shallow	31.18	04/10/2019	10:54	18.11*	-	ND	-	13.07*
MW-03	Shallow	31.67	04/10/2019	09:11	19.29	-	ND	-	12.38
MW-06	Shallow	31.23	04/10/2019	09:13	19.16	-	ND	-	12.07
MW-07	Shallow	30.31	04/10/2019				Dry		
MW-08	Shallow	30.93	04/10/2019	10:05	19.21	-	ND	-	11.72
MW-11	Shallow	31.06	04/10/2019	10:57	17.75	-	ND	-	13.31
MW-18	Shallow	30.87	04/10/2019	09:18	15.56	-	ND	-	15.31
MW-19	Shallow	31.70	04/10/2019	09:14	19.78	-	ND	-	11.92
MW-21	Shallow	31.36	04/10/2019	09:08	14.09	-	ND	-	17.27
MW-24A	Shallow	32.35	04/10/2019	09:35	17.31	-	ND	-	15.04
MW-25	Shallow	31.78	04/10/2019	09:06	18.56	-	ND	-	13.22
MW-26	Deep	31.89	04/10/2019	09:26	15.33	-	ND	-	16.56
MW-27	Deep	31.46	04/10/2019	09:23	14.88	-	ND	-	16.58
MW-28	Shallow	31.26	04/10/2019	09:47	17.14	-	ND	-	14.12
MW-29	Shallow	31.90	04/10/2019	09:50	19.05	-	ND	-	12.85
MW-30	Shallow	31.05	04/10/2019	09:57	18.80	-	ND	-	12.25
MW-31	Shallow	30.77	04/10/2019	09:17	16.56	-	ND	-	14.21
MW-32	Deep	31.08	04/10/2019	09:54	16.92	-	ND	-	14.16
MW-33	Deep	30.88	04/10/2019	09:20	23.41	-	ND	-	7.47
MW-34	Shallow	30.72	04/10/2019	10:59	16.94	-	ND	-	13.78
MW-35	Deep	30.83	04/10/2019	10:50	14.66	-	ND	-	16.17
MW-36	Shallow	30.16	04/10/2019	09:22	14.03	-	ND	-	16.13
MW-37	Deep	31.27	04/10/2019	10:47	14.82	-	ND	-	16.45
MW-38	Shallow	31.54	04/10/2019	10:45	19.04	-	ND	-	12.50
MW-39	Shallow	31.08	04/10/2019	09:24	15.02	-	ND	-	16.06
MW-40	Deep	31.71	04/10/2019	09:44	15.34	-	ND	-	16.37
MW-41	Shallow	31.32	04/10/2019	09:41	16.65	-	ND	-	14.67
MW-42	Deep	31.94	04/10/2019	09:31	16.39	-	ND	-	15.55
MW-43	Shallow	31.39	04/10/2019	09:28	14.98	-	ND	-	16.41

Notes:
**Unstable field reading; value is an approximation.*
– = not applicable
NAVD88 = North America Vertical Datum 1988
ND = Non-detect
Corrected groundwater water elevation (GWE) calculated as: $GWE_{corr} = GWE + (NAPL_{thickness} * SG)$
Specific Gravity (SG) of light nonaqueous phase liquid (LNAPL) assumed to be 0.8 based on analysis of LNAPL

Table 3
Groundwater Elevations - May 2019
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point (Top of Casing) ft-NAVD88	Date	Time	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-02	Shallow	31.18	05/08/2019	10:00	18.59	-	ND	-	12.59
MW-03	Shallow	31.67	05/08/2019	08:24	17.69	-	ND	-	13.98
MW-06	Shallow	31.23	05/08/2019	08:28	17.86	-	ND	-	13.37
MW-07	Shallow	30.31	05/08/2019				Dry		
MW-08	Shallow	30.93	05/08/2019	09:45	18.56	-	ND	-	12.37
MW-11	Shallow	31.06	05/08/2019	10:05	19.73	19.73	Trace	-	11.33
MW-18	Shallow	30.87	05/08/2019	08:43	19.01	-	ND	-	11.86
MW-19	Shallow	31.70	05/08/2019	08:31	18.73	-	ND	-	12.97
MW-21	Shallow	31.36	05/08/2019	08:20	13.93	-	ND	-	17.43
MW-24A	Shallow	32.35	05/08/2019	09:15	18.09	-	ND	-	14.26
MW-25	Shallow	31.78	05/08/2019	09:28	18.05	-	ND	-	13.73
MW-26	Deep	31.89	05/08/2019	09:04	21.37	-	ND	-	10.52
MW-27	Deep	31.46	05/08/2019	08:54	20.38	-	ND	-	11.08
MW-28	Shallow	31.26	05/08/2019	09:25	17.79	-	ND	-	13.47
MW-29	Shallow	31.90	05/08/2019	09:32	20.12	-	ND	-	11.78
MW-30	Shallow	31.05	05/08/2019	09:42	18.45	-	ND	-	12.60
MW-31	Shallow	30.77	05/08/2019	08:38	18.64	-	ND	-	12.13
MW-32	Deep	31.08	05/08/2019	09:40	19.11	-	ND	-	11.97
MW-33	Deep	30.88	05/08/2019	08:46	18.63	-	ND	-	12.25
MW-34	Shallow	30.72	05/08/2019	10:15	19.72	-	ND	-	11.00
MW-35	Deep	30.83	05/08/2019	09:57	20.43	-	ND	-	10.40
MW-36	Shallow	30.16	05/08/2019	08:50	18.55	-	ND	-	11.61
MW-37	Deep	31.27	05/08/2019	09:53	20.89	-	ND	-	10.38
MW-38	Shallow	31.54	05/08/2019	09:50	20.29	-	ND	-	11.25
MW-39	Shallow	31.08	05/08/2019	08:58	19.58	19.54	0.04	0.01	11.53
MW-40	Deep	31.71	05/08/2019	09:23	20.37	-	ND	-	11.34
MW-41	Shallow	31.32	05/08/2019	09:20	16.56	-	ND	-	14.76
MW-42	Deep	31.94	05/08/2019	09:13	20.72	-	ND	-	11.22
MW-43	Shallow	31.39	05/08/2019	09:08	19.82	19.82	Trace	-	11.57

Notes:
– = not applicable
NAVD88 = North America Vertical Datum 1988
ND = Non-detect
Corrected groundwater water elevation (GWE) calculated as: $GWE_{corr} = GWE + (NAPL_{thickness} * SG)$
Specific Gravity (SG) of light nonaqueous phase liquid (LNAPL) assumed to be 0.8 based on analysis of LNAPL

Table 4
Groundwater Elevations - June 2019
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point (Top of Casing) ft-NAVD88	Date	Time	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-02	Shallow	31.18	06/06/2019	09:47	18.80	-	ND	-	12.38
MW-03	Shallow	31.67	06/06/2019	08:23	17.62	-	ND	-	14.05
MW-06	Shallow	31.23	06/06/2019	08:26	17.50	-	ND	-	13.73
MW-07	Shallow	30.31	06/06/2019	Dry					
MW-08	Shallow	30.93	06/06/2019	09:30	18.13	-	ND	-	12.80
MW-11	Shallow	31.06	06/06/2019	09:54	18.31	-	ND	-	12.75
MW-18	Shallow	30.87	06/06/2019	08:33	17.99	-	ND	-	12.88
MW-19	Shallow	31.70	06/06/2019	08:28	18.31	-	ND	-	13.39
MW-21	Shallow	31.36	06/06/2019	08:19	14.23	-	ND	-	17.13
MW-24A	Shallow	32.35	06/06/2019	09:02	18.27	-	ND	-	14.08
MW-25	Shallow	31.78	06/06/2019	09:15	17.74	-	ND	-	14.04
MW-26	Deep	31.89	06/06/2019	08:50	19.83	-	ND	-	12.06
MW-27	Deep	31.46	06/06/2019	08:43	18.88	-	ND	-	12.58
MW-28	Shallow	31.26	06/06/2019	09:12	17.44	-	ND	-	13.82
MW-29	Shallow	31.90	06/06/2019	09:19	19.24	-	ND	-	12.66
MW-30	Shallow	31.05	06/06/2019	09:27	17.88	-	ND	-	13.17
MW-31	Shallow	30.77	06/06/2019	08:31	17.74	-	ND	-	13.03
MW-32	Deep	31.08	06/06/2019	09:25	19.19	-	ND	-	11.89
MW-33	Deep	30.88	06/06/2019	08:36	18.67	-	ND	-	12.21
MW-34	Shallow	30.72	06/06/2019	09:50	18.10	-	ND	-	12.62
MW-35	Deep	30.83	06/06/2019	09:44	18.69	-	ND	-	12.14
MW-36	Shallow	30.16	06/06/2019	08:41	17.49	-	ND	-	12.67
MW-37	Deep	31.27	06/06/2019	09:38	19.19	-	ND	-	12.08
MW-38	Shallow	31.54	06/06/2019	09:36	18.66	-	ND	-	12.88
MW-39	Shallow	31.08	06/06/2019	08:47	18.18	-	ND	-	12.90
MW-40	Deep	31.71	06/06/2019	09:08	19.11	-	ND	-	12.60
MW-41	Shallow	31.32	06/06/2019	09:06	16.75	-	ND	-	14.57
MW-42	Deep	31.94	06/06/2019	08:58	18.96	-	ND	-	12.98
MW-43	Shallow	31.39	06/06/2019	08:54	18.17	-	ND	-	13.22

Notes:
– = not applicable
NAVD88 = North America Vertical Datum 1988
ND = Non-detect
Corrected groundwater water elevation (GWE) calculated as: $GWE_{corr} = GWE + (NAPL_{thickness} * SG)$
Specific Gravity (SG) of light nonaqueous phase liquid (LNAPL) assumed to be 0.8 based on analysis of LNAPL

Table 5
Transducer Calibration Offsets
Premier Edible Oils
Portland, Oregon

Calibration Event	Measurement	MW-08	MW-11	MW-18	MW-21	MW-27	MW-28	MW-30	MW-32	MW-33	MW-34	MW-35	MW-36	MW-40	MW-41	MW-42
Transducer Position	TOC Elev Adj. (ft above NAVD88)	30.93	31.06	30.87	31.36	31.46	31.26	31.05	31.08	30.88	30.72	30.83	30.16	31.71	31.32	31.94
	Datalogger depth (ft BTOC)	26.91	27.00	27.00	18.05	39.87	28.12	28.00	38.14	39.31	27.90	39.83	29.92	39.84	27.35	39.04
4/10/2019	DTW measured (ft BTOC)	19.21	17.75	15.56	14.09	14.88	17.14	18.80	16.92	23.41	16.94	14.66	14.03	15.34	14.65	16.39
	DTW calculated (ft BTOC)	19.19	18.27	15.70	14.16	14.97	17.22	18.97	17.34	23.84	17.26	15.00	14.21	15.70	16.83	16.83
	Calibration Offset	-0.02	0.52	0.14	0.07	0.09	0.08	0.17	0.42	0.43	0.32	0.34	0.18	0.36	2.18	0.44
5/8/2019	DTW measured (ft BTOC)	18.56	19.73	19.01	13.93	20.38	17.79	18.45	19.11	18.63	19.72	20.43	18.55	20.37	14.56	20.72
	DTW calculated (ft BTOC)	18.64	20.12	19.11	14.03	20.52	17.79	18.66	19.54	18.91	20.11	20.80	18.63	20.70	16.76	21.20
	Calibration Offset	0.08	0.39	0.10	0.10	0.14	0.00	0.21	0.43	0.28	0.39	0.37	0.08	0.33	2.20	0.48
6/6/2019	DTW measured (ft BTOC)	18.13	18.81	17.99	14.23	18.88	17.44	17.88	19.19	18.67	18.10	18.69	17.49	19.11	14.75	18.96
	DTW calculated (ft BTOC)	18.13	19.15	18.06	14.29	19.00	17.77	18.11	19.59	18.83	18.43	19.06	17.58	19.45	16.97	19.43
	Calibration Offset	0.00	0.34	0.07	0.06	0.12	0.33	0.23	0.40	0.16	0.33	0.37	0.09	0.34	2.22	0.47

Notes:
NAVD88 = North America Vertical Datum 1988
DTW = Depth to Water
BTOC = Below Top of Casing
** = Pressure Transducer stopped recording on 8/15/18 for a period of 30 days. Measurements started again on 9/13/18.*

Table 6
LNAPL Observations during Groundwater Sampling Event
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point ft-NAVD88	Date	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-02	Shallow	31.18	6/13/2019	18.83	18.81	0.02	0.003	12.37
MW-03	Shallow	31.67	6/13/2019	-	-	ND	-	-
MW-06	Shallow	31.23	6/13/2019	-	-	ND	-	-
MW-07	Shallow	30.31	6/13/2019	-	-	ND	-	-
MW-08	Shallow	30.93	6/13/2019	-	-	ND	-	-
MW-11	Shallow	31.06	6/13/2019	19.57	19.56	0.01	0.002	11.50
MW-18	Shallow	30.87	6/13/2019	-	-	ND	-	-
MW-19	Shallow	31.70	6/13/2019	-	-	ND	-	-
MW-21	Shallow	31.36	6/13/2019	-	-	ND	-	-
MW-24A	Shallow	32.35	6/13/2019	-	-	ND	-	-
MW-25	Shallow	31.78	6/13/2019	-	-	ND	-	-
MW-26	Deep	31.89	6/13/2019	-	-	ND	-	-
MW-27	Deep	31.46	6/13/2019	-	-	ND	-	-
MW-28	Shallow	31.26	6/13/2019	-	-	ND	-	-
MW-29	Shallow	31.90	6/13/2019	-	-	ND	-	-
MW-30	Shallow	31.05	6/13/2019	-	-	ND	-	-
MW-31	Shallow	30.77	6/13/2019	-	-	ND	-	-
MW-32	Deep	31.08	6/13/2019	-	-	ND	-	-
MW-33	Deep	30.88	6/13/2019	-	-	ND	-	-
MW-34	Shallow	30.72	6/13/2019	-	-	ND	-	-
MW-35	Deep	30.83	6/13/2019	-	-	ND	-	-
MW-36	Shallow	30.16	6/13/2019	-	-	ND	-	-
MW-37	Deep	31.27	6/13/2019	-	-	ND	-	-
MW-38	Shallow	31.54	6/13/2019	-	-	ND	-	-
MW-39	Shallow	31.08	6/13/2019	19.86	19.82	0.04	0.01	11.25
MW-40	Deep	31.71	6/13/2019	-	-	ND	-	-
MW-41	Shallow	31.32	6/13/2019	-	-	ND	-	-
MW-42	Deep	31.94	6/13/2019	-	-	ND	-	-
MW-43	Shallow	31.39	6/13/2019	20.76	20.75	0.01	0.002	10.64

Notes:
– = not applicable
NAVD88 = North America Vertical Datum 1988
ND = Non-detect
Corrected groundwater water elevation (GWE) calculated as: $GWE_{corr} = GWE + (NAPL_{thickness} * SG)$
Specific Gravity (SG) of light nonaqueous phase liquid (LNAPL) assumed to be 0.8 based on analysis of LNAPL

Table 7
LNAPL Recovery Volumes
Premier Edible Oils
Portland, Oregon

Quarter	Date	MW-02 gal	MW-11 gal	MW-34 gal	MW-38 gal	MW-39 gal	MW-43 gal	Total gal
Q1 2019	3/15/2019	1.0*	0.04	0.06	0.02	0.02	0.03	1.18
Q2 2019	6/13/2019	-	-	-	-	-	-	0.00
Total Recovered		**0.00**	**0.04**	**0.06**	**0.02**	**0.02**	**0.03**	**1.18**

Notes:
– = not applicable
** = approximate value*

Table 8
Groundwater Field Parameters - June 2019
Premier Edible Oils, 10400 N Burgard Way
Portland OR

Monitoring Well	Date	pH	Specific Conductance µS/cm	Temperature °C	ORP mV	Dissolved Oxygen mg/L	Turbidity NTU
MW-02	6/13/2019	Not collected due to presence of LNAPL					
MW-03	6/11/2019	6.52	110	16.17	175.6	3.16	1.14
MW-06	6/11/2019	6.33	146	17.31	-43.7	0.24	2.72
MW-07	6/6/2019	Dry					
MW-08	6/12/2019	5.50	499	17.95	82.2	0.46	12.6
MW-11	6/17/2019	Not collected due to presence of LNAPL					
MW-18	6/12/2019	5.96	195	16.24	83.3	0.50	6.63
MW-19	6/11/2019	6.63	129	15.56	228.9	3.00	1.34
MW-21	6/11/2019	6.44	61	16.08	196.6	1.28	0.42
MW-24A	6/10/2019	6.47	88	17.81	298.9	3.85	9.27
MW-25	6/18/2019	6.35	96	15.33	111.0	2.02	--
MW-26	6/18/2019	6.61	371	16.37	-54.0	0.30	--
MW-27	6/18/2019	6.56	522	17.31	-99.8	0.48	--
MW-28	6/18/2019	6.34	132	15.98	130.0	3.07	--
MW-29	6/12/2019	6.27	260	19.46	-64.5	0.34	10.74
MW-30	6/17/2019	5.86	189	14.83	222.5	6.80	2.98
MW-31	6/11/2019	6.25	102	14.78	205.4	2.95	3.13
MW-32	6/10/2019	11.26	296	16.41	-34.8	4.06	--
MW-33	6/11/2019	10.87	177	19.40	-26.6	2.68	31.2
MW-34	6/17/2019	6.12	470	33.08	-94.0	0.21	22.3
MW-35	6/17/2019	6.57	199	22.56	100.2	0.21	9.80
MW-36	6/13/2019	5.97	247	17.86	-49.9	0.34	8.91
MW-37	6/12/2019	7.01	339	18.52	-138.8	0.16	26.4
MW-38	6/12/2019	6.26	314	19.84	-57.4	0.49	7.01
MW-39	6/13/2019	Not collected due to presence of LNAPL					
MW-40	6/18/2019	6.73	233	15.83	0.28	-99	8.91
MW-41	6/10/2019	6.44	107	16.47	-4.2	0.35	3.20
MW-42	6/10/2019	10.39	120	17.53	-8.1	0.15	28.9
MW-43	6/13/2019	Not collected due to presence of LNAPL					

Notes:
-- = not analyzed
°C = degrees Celsius
mg/L = milligrams per liter
mV = millivolts
NTU = Nephelometric Turbidity Units
ORP = oxidation reduction potential, measured in millivolts (mV)
pH standard units
µS/cm = microsiemens per centimeter

Table 9
Groundwater Analytical Data - Petroleum Related Compounds
Premier Edible Oils, 10400 N Burgard Way
Portland OR

Method		SW8260C/SW8260C-SIM					NWTPH-Dx, SGT		NWTPH-Gx	NWEPH	NWVPH
Analyte		Benzene	Ethylbenzene	m,p-Xylenes	o-Xylene	Toluene	Motor Oil Range Organics (C24-C36)	TPH Diesel Range Organics	TPH-GRO (Gasoline Range Organics)	C10-C12-Aliphatics	C10-C12-Aliphatics
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		1.4	210	13	13	1,500	NS	1000	1000	2.6	2.6
Well	Sample Date										
MW-03	11-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 190	300 j	510	< 5.91	< 4.07
MW-06	11-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	0.50 j	< 180	490	1,700 NJ	255	279
MW-08	12-Jun-19	0.75 j	< 0.14	< 0.31	< 0.16	< 0.083	< 180	990	432 NJ	45.1	< 4.07
MW-18	12-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 180	500	363	< 5.87	< 4.07
MW-19	11-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 190	75 j	301	31.0	< 4.07
MW-21	11-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 190	200 j	366	< 5.89	< 4.07
MW-24A	10-Jun-19	0.71 j	< 0.14	< 0.31	< 0.16	0.38 j	190 j	870	2,040 NJ	< 5.91	132
MW-25*	13-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 190	< 58	< 38.3	< 5.83	< 4.07
MW-26*	13-Jun-19	25.2	2.9	13.6	9.1	18.4	< 190	870	2,240 NJ	234 J-	172
MW-27*	13-Jun-19	28.9	1.2	5.2	3.2	5.3	< 180	1,500	2,680 NJ	76.9	247
MW-28*	13-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 180	< 56	< 38.3	< 5.91	< 4.07
MW-29	12-Jun-19	0.86 j	1.6	9.2	1.1	2.9	< 180	3,800	4,290 NJ	150 J+	449
MW-30	17-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 190	88 j	66.6 j	< 5.85	< 4.07
MW-31	11-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 190	340 j	418	< 5.89	< 4.07
MW-32	10-Jun-19	0.61 j	< 0.14	0.56 j	< 0.16	1.1	210 j	1,400	1,250 NJ	< 5.88	< 4.07
MW-33	11-Jun-19	0.33 j	0.18 j	1.5 j	0.23 j	0.64 j	400 j	2,000	1,160 NJ	33.1	41.8
MW-34	17-Jun-19	0.56 j	< 0.14	0.33 j	0.41 j	< 0.083	250 j	9,400	1,490 NJ	22.5 J-	337
MW-35	17-Jun-19	1.4	< 0.14	< 0.31	< 0.16	0.28 j	< 190	960	587 NJ	22.4	< 4.07
MW-35 Dup	17-Jun-19	1.5	< 0.14	< 0.31	0.17 j	< 0.083	< 190	270 j	602	< 5.83	< 4.07
MW-36*	13-Jun-19	3.1	0.39 j	2.9	1.7	2.3	< 180	3,500	1,900 NJ	114	142
MW-36 Dup*	13-Jun-19	3.1	0.48 j	2.9	1.7	2.3	< 180	2,900	1,820 NJ	92.7 J-	130
MW-37	12-Jun-19	12.4	2.1	14.1	6.2	10.8	230 j	1,400	2,900 NJ	75.0	358
MW-38	12-Jun-19	11.4	1.3	7.1	4.0	8.0	< 180	3,500	4,020 NJ	64.7	534
MW-40*	13-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 190	71 j	< 100 U	80.6	< 4.07
MW-41	10-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 180	< 54	210	< 5.92	< 4.07
MW-42	10-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	310 j	1,100	503	23.7	< 4.07

Notes:

< = Compound not detected. Reportable detection limit shown.
-- = not analyzed
µg/L = micrograms per liter
GW SCM = Groundwater Source Control Measure
NS = No Standard for GW SCM Performation Evaluation
Dup = Field Duplicate Sample
Bolded values indicate concentrations above the Reportable Detection Limit.
Shaded values indicate concentrations above the GW SCM Performance Evaluation Criteria.
**= Select analytes resampled 17-18 June.*

Qualifiers - Organics
j = The result is an estimated concentration, detected between the Method Detection Limit and the Reporting Limit.
J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits
NJ = Evidence of the compound at an estimated quantity.
UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.
U = Analyte was analuzed for, but not detected.
NWTPH-Dx, SGT analyses performed by PACE.
NWTPH-Gx analyses performed by PACE.
NWVPH analyses performed by Fremont.
NWEPH analyses performed by Fremont.

Table 10
Groundwater Analytical Data - Semi-volatile Organic Compounds and Metals
Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

Method		EPA 6020A		EPA 8270 by SIM				
Analyte		Arsenic	Manganese	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene
Unit		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		2.1	1,925	NS	NS	99	NS	4,000
Well	Sample Date							
MW-03	11-Jun-19	**0.30 j**	**6.5**	**0.040 j**	**0.026 j**	*< 0.0033*	*< 0.0048*	*< 0.0064*
MW-06	11-Jun-19	**5.5**	**392**	**13.1**	**9.7**	**1.0**	**0.32**	**0.12**
MW-08	12-Jun-19	**1.9**	**2,830**	*< 0.0056*	**0.069**	**0.31**	*< 0.0047*	*< 0.0063*
MW-18	12-Jun-19	**0.53**	**540**	*< 0.0057*	*< 0.016*	*< 0.0033*	*< 0.0048*	*< 0.0064*
MW-19	11-Jun-19	**0.27 j**	**17.5**	*< 0.0056*	*< 0.016*	*< 0.0032*	*< 0.0047*	*< 0.0062*
MW-21	11-Jun-19	**0.20 j**	**3.6**	*< 0.0056*	*< 0.016*	*< 0.0033*	*< 0.0047*	*< 0.0063*
MW-24A	10-Jun-19	**0.23 j**	**16.6**	*< 0.0056*	*< 0.016*	*< 0.0033*	*< 0.0047*	*< 0.0063*
MW-25	13-Jun-19	**0.19 j**	**2.0**	*< 0.0056*	*< 0.016*	*< 0.0032*	*< 0.0047*	*< 0.0062*
MW-26	13-Jun-19	**12.5**	**2,850**	**0.67**	**0.13**	**0.63**	**0.084**	*< 0.0064*
MW-27	13-Jun-19	**31.8**	**6,460**	**2.0**	**0.27**	**1.7**	**0.29**	**0.12**
MW-28*	13-Jun-19	**0.15 j**	**1.6**	*< 0.0056*	*< 0.016*	*< 0.0033*	*< 0.0047*	*< 0.0063*
MW-29	12-Jun-19	**17.0**	**2,190**	*< 0.0055*	**0.13**	**0.28**	*< 0.0046*	*< 0.0062*
MW-30	17-Jun-19	**0.19 j**	**13.2**	*< 0.0056*	*< 0.016*	*< 0.0032*	*< 0.0047*	*< 0.0063*
MW-31	11-Jun-19	**0.25 j**	**2.7**	*< 0.0056*	*< 0.016*	*< 0.0032*	*< 0.0047*	*< 0.0063*
MW-32	10-Jun-19	**6.1**	**1.9**	*< 0.0057*	*< 0.016*	**0.033 j**	*< 0.0048*	*< 0.0064*
MW-33	11-Jun-19	**7.0**	**1,680**	**0.049**	**0.018 j**	**0.25**	**0.044**	*< 0.0065*
MW-34	17-Jun-19	**36.2**	**3,220**	*< 0.057*	*< 0.16*	**2.0**	**0.64**	*< 0.064*
MW-35	17-Jun-19	**17.1**	**1,540**	**0.063**	**0.063**	**0.38**	**0.075**	**0.14**
MW-35 Dup	17-Jun-19	**17.6**	**1,440**	**0.18**	**0.064**	**0.32**	**0.091**	**0.15**
MW-36	13-Jun-19	**7.2**	**1,760**	**0.11**	**0.099**	**0.20**	*< 0.0047*	*< 0.0062*
MW-36 Dup	13-Jun-19	**7.6**	**1,760**	**0.14**	**0.079**	**0.15**	*< 0.0047*	**0.083**
MW-37	12-Jun-19	**23.2**	**3,160**	**0.48**	**0.083**	**0.37**	*< 0.0047*	*< 0.0063*
MW-38	12-Jun-19	**22.7**	**2,600**	**0.41 J-**	**0.91 J-**	*< 0.0032 UJ*	**0.067 J-**	*< 0.0063 UJ*
MW-40	13-Jun-19	**4.6**	**1,740**	*< 0.0056*	*< 0.016*	*< 0.0032*	*< 0.0047*	*< 0.0063*
MW-41	10-Jun-19	**1.8**	**423**	*< 0.0057*	*< 0.016*	*< 0.0033*	*< 0.0047*	*< 0.0063*
MW-42	10-Jun-19	**4.0**	**6.2**	*< 0.0056*	*< 0.016*	*< 0.0032*	*< 0.0047*	*< 0.0062*

Notes:
< = Compound not detected. Reportable detection limit shown.
-- = not analyzed
µg/L = micrograms per liter
GW SCM = Groundwater Source Control Measure
NS = No Standard for GW SCM Performation Evaluation
Dup = Field Duplicate Sample

Bolded values indicate concentrations above the Reportable Detection Limit.

Shaded values indicate concentrations above the GW SCM Performance Evaluation Criteria.
**= Select analytes resampled 17-18 June.*

Qualifiers - Organics

j = The result is an estimated concentration, detected between the Method Detection Limit and the Reporting Limit.

J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits

J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits
NJ = Evidence of the compound at an estimated quantity.
UJ = Analyte was analyzed for, but not detected. The detection limit is
U = Analyte was analuzed for, but not detected.
EPA 6020A analyses performed by PACE.
EPA 8270 BY SIM analyses performed by PACE.

Table 10
Groundwater Analytical Data - Semi-volatile Organ
Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

Method			EPA 8270 by SIM				
Analyte		Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene
Unit		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
Well	Sample Date						
MW-03	11-Jun-19	*< 0.018*	*< 0.0041*	*< 0.0050*	*< 0.010*	*< 0.011*	*< 0.0095*
MW-06	11-Jun-19	*< 0.018*	*< 0.0041*	*< 0.0049*	*< 0.010*	*< 0.011*	*< 0.0094*
MW-08	12-Jun-19	*< 0.018*	*< 0.0041*	*< 0.0049*	*< 0.010*	*< 0.011*	*< 0.0094*
MW-18	12-Jun-19	*< 0.018*	*< 0.0041*	*< 0.0050*	*< 0.010*	*< 0.011*	*< 0.0095*
MW-19	11-Jun-19	*< 0.018*	*< 0.0041*	*< 0.0049*	*< 0.0099*	*< 0.011*	*< 0.0093*
MW-21	11-Jun-19	*< 0.018*	*< 0.0041*	*< 0.0049*	*< 0.010*	*< 0.011*	*< 0.0094*
MW-24A	10-Jun-19	*< 0.018*	*< 0.0041*	*< 0.0049*	*< 0.010*	*< 0.011*	*< 0.0094*
MW-25	13-Jun-19	*< 0.018*	*< 0.0041*	*< 0.0049*	*< 0.0099*	*< 0.011*	*< 0.0093*
MW-26	13-Jun-19	*< 0.018*	*< 0.0041*	*< 0.0050*	*< 0.010*	*< 0.011*	*< 0.0095*
MW-27	13-Jun-19	*< 0.017*	*< 0.0040*	*< 0.0048*	*< 0.0097*	*< 0.010*	*< 0.0091*
MW-28*	13-Jun-19	*< 0.018*	*< 0.0041*	*< 0.0049*	*< 0.010*	*< 0.011*	*< 0.0094*
MW-29	12-Jun-19	*< 0.017*	*< 0.0040*	*< 0.0048*	*< 0.0098*	*< 0.010*	*< 0.0092*
MW-30	17-Jun-19	*< 0.018*	*< 0.0041*	*< 0.0049*	*< 0.010*	*< 0.011*	*< 0.0093*
MW-31	11-Jun-19	*< 0.018*	*< 0.0041*	*< 0.0049*	*< 0.010*	*< 0.011*	*< 0.0093*
MW-32	10-Jun-19	*< 0.018*	*< 0.0041*	*< 0.0050*	*< 0.010*	*< 0.011*	*< 0.0095*
MW-33	11-Jun-19	*< 0.018*	*< 0.0042*	*< 0.0051*	*< 0.010*	*< 0.011*	*< 0.0096*
MW-34	17-Jun-19	*< 0.18*	*< 0.041*	*< 0.050*	*< 0.10*	*< 0.11*	*< 0.095*
MW-35	17-Jun-19	**0.033 j**	*< 0.0041*	*< 0.0049*	*< 0.010*	*< 0.011*	*< 0.0093*
MW-35 Dup	17-Jun-19	**0.022 j**	*< 0.0041*	*< 0.0050*	*< 0.010*	*< 0.011*	*< 0.0094*
MW-36	13-Jun-19	**0.030 j**	*< 0.0041*	*< 0.0049*	*< 0.0099*	*< 0.011*	**0.026 j**
MW-36 Dup	13-Jun-19	**0.029 j**	*< 0.0041*	**0.023 j**	*< 0.010*	*< 0.011*	**0.027 j**
MW-37	12-Jun-19	*< 0.018*	*< 0.0041*	*< 0.0049*	*< 0.010*	*< 0.011*	*< 0.0094*
MW-38	12-Jun-19	*< 0.018 UJ*	*< 0.0041 UJ*	*< 0.0049 UJ*	*< 0.010 UJ*	*< 0.011 UJ*	*< 0.0093 UJ*
MW-40	13-Jun-19	*< 0.018*	*< 0.0041*	*< 0.0049*	*< 0.010*	*< 0.011*	*< 0.0093*
MW-41	10-Jun-19	*< 0.018*	*< 0.0041*	*< 0.0050*	*< 0.010*	*< 0.011*	*< 0.0094*
MW-42	10-Jun-19	*< 0.017*	*< 0.0040*	*< 0.0049*	*< 0.0099*	*< 0.010*	*< 0.0092*

Notes:
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-- = not analyzed
µg/L = micrograms per liter
GW SCM = Groundwater Source Control Measure
NS = No Standard for GW SCM Performation Evaluation
Dup = Field Duplicate Sample

Bolded values indicate concentrations above the Reportable Detection Limit.

Shaded values indicate concentrations above the GW SCM Performance Evaluation Criteria.
**= Select analytes resampled 17-18 June.*

Qualifiers - Organics

j = The result is an estimated concentration, detected between the Method Detection Limit and the Reporting Limit.

J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits

J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits
NJ = Evidence of the compound at an estimated quantity.
UJ = Analyte was analyzed for, but not detected. The detection limit is
U = Analyte was analuzed for, but not detected.
EPA 6020A analyses performed by PACE.
EPA 8270 BY SIM analyses performed by PACE.

Table 10
Groundwater Analytical Data - Semi-volatile Organ
Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

Method					EPA 8270 by SIM		
Analyte		Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene
Unit		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		0.0018	14	530	0.0018	12	NS
Well	Sample Date						
MW-03	11-Jun-19	*< 0.0095*	*< 0.019*	*< 0.0061*	*< 0.0052*	*< 0.0070*	*< 0.011*
MW-06	11-Jun-19	*< 0.0094*	**0.043**	**2.4**	*< 0.0051*	**2.1**	**1.6**
MW-08	12-Jun-19	*< 0.0094*	*< 0.019*	**0.20**	*< 0.0051*	**0.38**	*< 0.011*
MW-18	12-Jun-19	*< 0.0095*	*< 0.019*	*< 0.0061*	*< 0.0052*	**0.23**	*< 0.011*
MW-19	11-Jun-19	*< 0.0093*	*< 0.018*	*< 0.0060*	*< 0.0051*	*< 0.0069*	*< 0.011*
MW-21	11-Jun-19	*< 0.0094*	*< 0.019*	*< 0.0061*	*< 0.0051*	*< 0.0069*	*< 0.011*
MW-24A	10-Jun-19	*< 0.0094*	*< 0.019*	*< 0.0061*	*< 0.0051*	**0.010 j**	*< 0.011*
MW-25	13-Jun-19	*< 0.0093*	*< 0.018*	*< 0.0060*	*< 0.0051*	*< 0.0069*	*< 0.011*
MW-26	13-Jun-19	*< 0.0095*	**0.039 j**	**0.54**	*< 0.0052*	**1.2**	**0.087**
MW-27	13-Jun-19	*< 0.0091*	**0.054**	**1.3**	*< 0.0050*	**0.95**	**0.72**
MW-28*	13-Jun-19	*< 0.0094*	*< 0.019*	*< 0.0061*	*< 0.0051*	*< 0.0069*	*< 0.011*
MW-29	12-Jun-19	*< 0.0092*	*< 0.018*	*< 0.0059*	*< 0.0050*	**6.9**	*< 0.010*
MW-30	17-Jun-19	*< 0.0093*	*< 0.019*	*< 0.0060*	*< 0.0051*	*< 0.0069*	*< 0.011*
MW-31	11-Jun-19	*< 0.0093*	*< 0.019*	*< 0.0060*	*< 0.0051*	*< 0.0069*	*< 0.011*
MW-32	10-Jun-19	*< 0.0095*	*< 0.019*	*< 0.0061*	*< 0.0052*	**0.055**	*< 0.011*
MW-33	11-Jun-19	*< 0.0096*	*< 0.019*	*< 0.0062*	*< 0.0053*	**0.26**	**0.033 j**
MW-34	17-Jun-19	*< 0.095*	*< 0.19*	*< 0.061*	*< 0.052*	**2.0**	*< 0.11*
MW-35	17-Jun-19	*< 0.0093*	**0.13**	**0.12**	*< 0.0051*	**0.47**	**0.052**
MW-35 Dup	17-Jun-19	*< 0.0094*	**0.12**	**0.13**	*< 0.0051*	**0.54**	**0.089**
MW-36	13-Jun-19	*< 0.0093*	*< 0.018*	**0.048**	*< 0.0051*	**4.1**	*< 0.011*
MW-36 Dup	13-Jun-19	*< 0.0093*	**0.030 j**	*< 0.0060*	*< 0.0051*	**3.7**	**0.082**
MW-37	12-Jun-19	*< 0.0094*	**0.022 j**	**0.15**	*< 0.0051*	**0.53**	**0.044**
MW-38	12-Jun-19	*< 0.0093 UJ*	*< 0.019 UJ*	*< 0.0060 UJ*	*< 0.0051 UJ*	**13.9 J-**	*< 0.011 UJ*
MW-40	13-Jun-19	*< 0.0093*	*< 0.019*	*< 0.0060*	*< 0.0051*	*< 0.0069*	*< 0.011*
MW-41	10-Jun-19	*< 0.0094*	*< 0.019*	*< 0.0061*	*< 0.0051*	*< 0.0070*	*< 0.011*
MW-42	10-Jun-19	*< 0.0092*	*< 0.018*	*< 0.0060*	*< 0.0050*	**0.015 j**	*< 0.011*

Notes:
< = Compound not detected. Reportable detection limit shown.
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µg/L = micrograms per liter
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NS = No Standard for GW SCM Performation Evaluation
Dup = Field Duplicate Sample

Bolded values indicate concentrations above the Reportable Detection Limit.

Shaded values indicate concentrations above the GW SCM Performance Evaluation Criteria.
**= Select analytes resampled 17-18 June.*

Qualifiers - Organics

j = The result is an estimated concentration, detected between the Method Detection Limit and the Reporting Limit.

J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits

J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits
NJ = Evidence of the compound at an estimated quantity.
UJ = Analyte was analyzed for, but not detected. The detection limit is
U = Analyte was analuzed for, but not detected.
EPA 6020A analyses performed by PACE.
EPA 8270 BY SIM analyses performed by PACE.

Table 10
Groundwater Analytical Data - Semi-volatile Organ
Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

Method			Calculated
Analyte		Pyrene	Benzo(a)pyrene TEQ (ND=0)
Unit		µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		400	0.0018
Well	Sample Date		
MW-03	11-Jun-19	*< 0.015*	*< 0.018*
MW-06	11-Jun-19	**0.052**	*< 0.018*
MW-08	12-Jun-19	**0.11**	*< 0.018*
MW-18	12-Jun-19	*< 0.015*	*< 0.018*
MW-19	11-Jun-19	*< 0.015*	*< 0.018*
MW-21	11-Jun-19	*< 0.015*	*< 0.018*
MW-24A	10-Jun-19	*< 0.015*	*< 0.018*
MW-25	13-Jun-19	*< 0.015*	*< 0.018*
MW-26	13-Jun-19	*< 0.015*	*< 0.018*
MW-27	13-Jun-19	**0.070**	*< 0.017*
MW-28*	13-Jun-19	*< 0.015*	*< 0.018*
MW-29	12-Jun-19	*< 0.015*	*< 0.017*
MW-30	17-Jun-19	*< 0.015*	*< 0.018*
MW-31	11-Jun-19	*< 0.015*	*< 0.018*
MW-32	10-Jun-19	*< 0.015*	*< 0.018*
MW-33	11-Jun-19	*< 0.015*	*< 0.018*
MW-34	17-Jun-19	*< 0.15*	*< 0.18*
MW-35	17-Jun-19	**0.13**	**0.0033**
MW-35 Dup	17-Jun-19	**0.13**	**0.0022**
MW-36	13-Jun-19	**0.064**	**0.0030**
MW-36 Dup	13-Jun-19	**0.054**	**0.0052**
MW-37	12-Jun-19	*< 0.015*	*< 0.018*
MW-38	12-Jun-19	*< 0.015 UJ*	*< 0.018*
MW-40	13-Jun-19	*< 0.015*	*< 0.018*
MW-41	10-Jun-19	*< 0.015*	*< 0.018*
MW-42	10-Jun-19	*< 0.015*	*< 0.017*

Notes:
< = Compound not detected. Reportable detection limit shown.
-- = not analyzed
µg/L = micrograms per liter
GW SCM = Groundwater Source Control Measure
NS = No Standard for GW SCM Performation Evaluation
Dup = Field Duplicate Sample

Bolded values indicate concentrations above the Reportable Detection Limit.

Shaded values indicate concentrations above the GW SCM Performance Evaluation Criteria.
**= Select analytes resampled 17-18 June.*

Qualifiers - Organics

j = The result is an estimated concentration, detected between the Method Detection Limit and the Reporting Limit.

J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits

J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits
NJ = Evidence of the compound at an estimated quantity.
UJ = Analyte was analyzed for, but not detected. The detection limit is
U = Analyte was analuzed for, but not detected.
EPA 6020A analyses performed by PACE.
EPA 8270 BY SIM analyses performed by PACE.

Table 11
Groundwater Analytical Data - Water Quality Parameters
Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

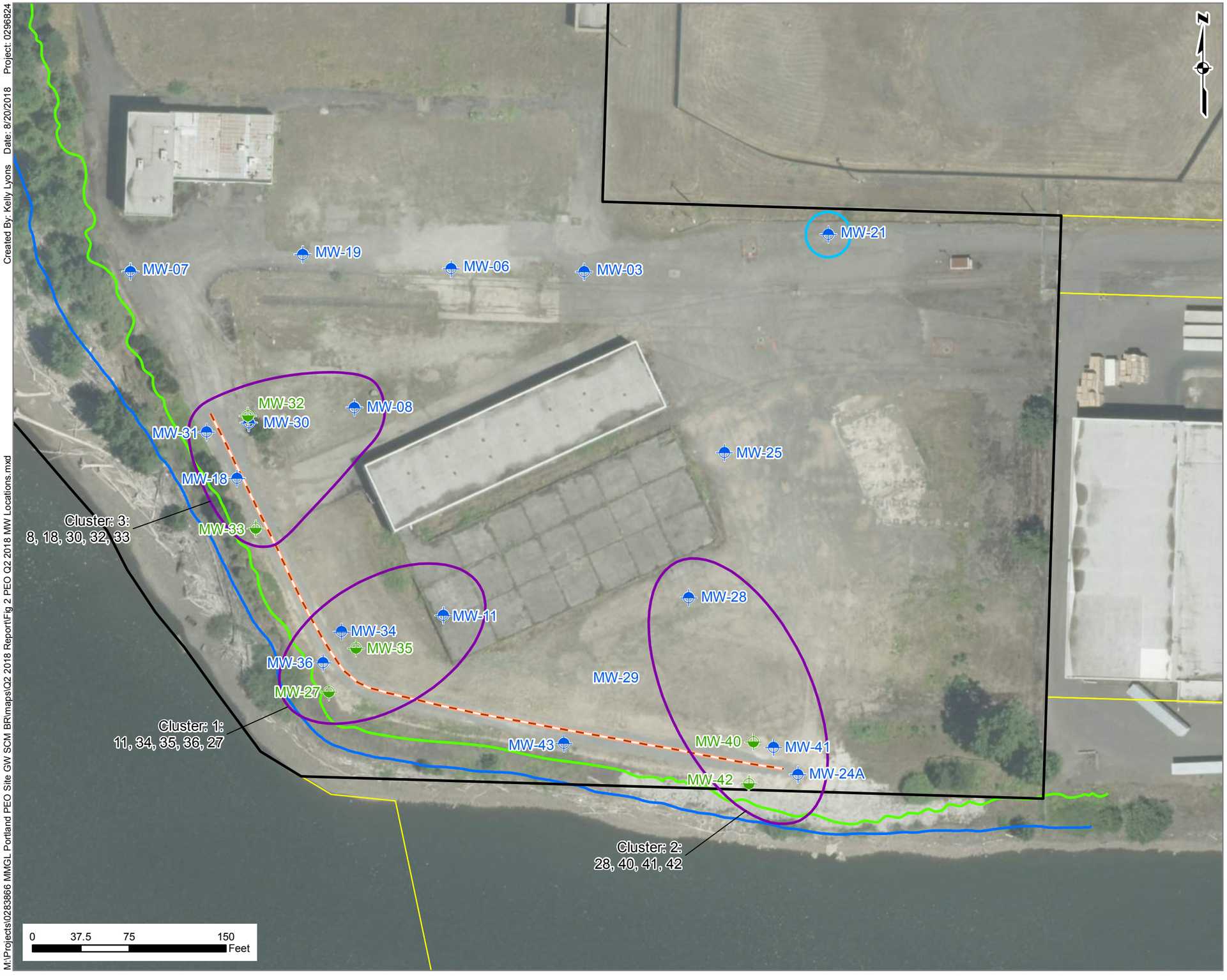
Method		EPA 353.2	EPA 300.0	SM2320B	SM2340B
Analyte		Nitrate as N	Sulfate	Alkalinity, Total as CaCO3	Hardness as CaCO3
Unit		µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		10,000	NS	20,000	NS
Well	Sample Date				
MW-03	11-Jun-19	**230**	**6,700**	**71,500**	**61,300**
MW-06	11-Jun-19	*< 18*	**4,800**	**83,100**	**33,200**
MW-08	12-Jun-19	*< 18*	**253,000**	*< 2,000*	**149,000**
MW-18	12-Jun-19	**59 j**	**24,000**	**105,000**	**96,000**
MW-19	11-Jun-19	**1,200**	**10,200**	**81,400**	**71,000**
MW-21	11-Jun-19	**250**	**3,700**	**37,700**	**26,200**
MW-24A	10-Jun-19	**140**	**1,400 J-**	**58,200**	**46,300**
MW-25	13-Jun-19	**180**	**11,100 J-**	**62,600**	**50,100**
MW-26	13-Jun-19	*< 18*	**1,600 J**	**239,000**	**180,000**
MW-27	13-Jun-19	*< 18*	*< 1,200 UJ*	**367,000**	**294,000**
MW-28*	18-Jun-19	**960**	**6,200**	**82,200**	**70,200**
MW-29	12-Jun-19	*< 18*	**4,900**	**146,000**	**108,000**
MW-30	17-Jun-19	**56 j**	**25,900 J-**	**109,000**	**113,000**
MW-31	11-Jun-19	**34 j**	**9,700 J-**	**60,800**	**54,200**
MW-32	10-Jun-19	*< 18*	**6,100 J-**	**139,000**	**87,400**
MW-33	11-Jun-19	*< 18*	**6,300**	**221,000**	**164,000**
MW-34	17-Jun-19	*< 18*	**92,100 J-**	**59,300**	**129,000**
MW-35	17-Jun-19	*< 18*	**24,500 J-**	**71,900**	**69,900**
MW-35 Dup	17-Jun-19	*< 18*	**24,800 J-**	**72,400**	**69,700**
MW-36	13-Jun-19	*< 18*	**19,800 J-**	**96,900**	**92,200**
MW-36 Dup	13-Jun-19	*< 18*	**19,400 J-**	**97,700**	**90,400**
MW-37	12-Jun-19	*< 18*	**1,800**	**205,000**	**159,000**
MW-38	12-Jun-19	*< 18*	**3,600**	**168,000**	**119,000**
MW-40	13-Jun-19	*< 18*	*< 1,200 UJ*	**145,000**	**117,000**
MW-41	10-Jun-19	*< 18*	**2,300 J-**	**66,600**	**46,600**
MW-42	10-Jun-19	*< 18*	**8,200 J-**	**81,100**	**41,700**

Notes:
< = Compound not detected. Reportable detection limit shown.
-- = not analyzed
µg/L = micrograms per liter
GW SCM = Groundwater Source Control Measure
NS = No Standard for GW SCM Performation Evaluation
Dup = Field Duplicate Sample
Bolded values indicate concentrations above the Reportable Detection Limit.
Shaded values indicate concentrations above the GW SCM Performance Evaluation Criteria.
**= Select analytes resampled 17-18 June.*

Qualifiers - Organics
j = The result is an estimated concentration, detected between the Method Detection Limit and the Reporting Limit.
J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits
NJ = Evidence of the compound at an estimated quantity.
UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.
U = Analyte was analuzed for, but not detected.
EPA 300.0 analyses performed by PACE.
EPA 353.2 analyses performed by PACE.
SM2320B analyses performed by PACE.
SM2340B analyses performed by PACE.

ATTACHMENT A – CLUSTERED HYDROGRAPHS

Project: 0296824
Date: 8/20/2018
Created By: Kelly Lyons
M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q2 2018 Report\Fig 2 PEO Q2 2018 MW Locations.mxd



Legend

- Monitoring Well, Shallow
- Monitoring Well, Deep
- Barrier Wall Alignment
- Top of Bank
- Ordinary High Water (20.1 ft)
- Property Boundary
- Parcels
- Clustered Hydrograph
- Individual Hydrograph

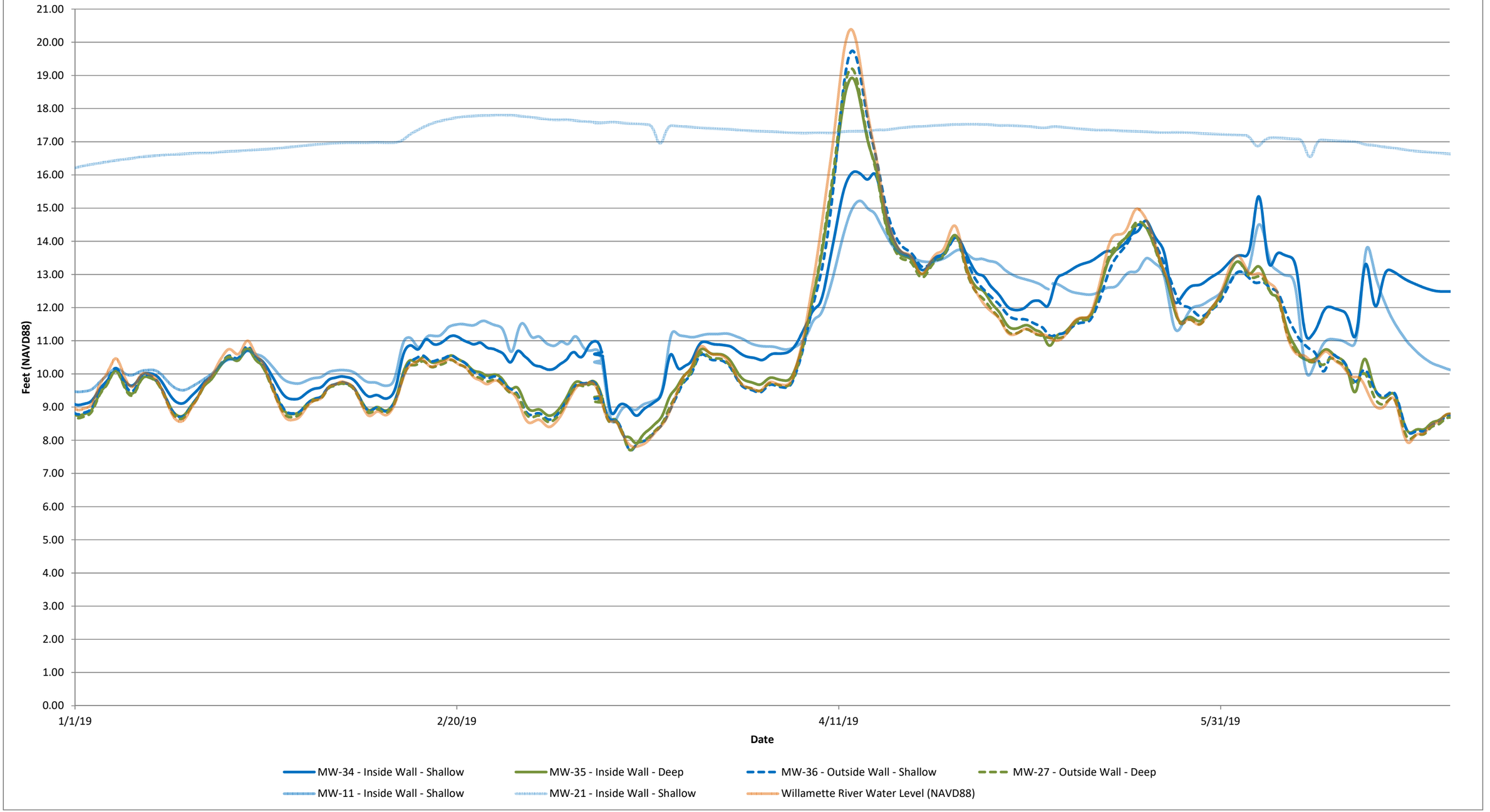
Notes:
Aerial Imagery: City of Portland, Summer 2016.

Figure 1
Monitoring Well Locations
PEO Site
Portland, Oregon

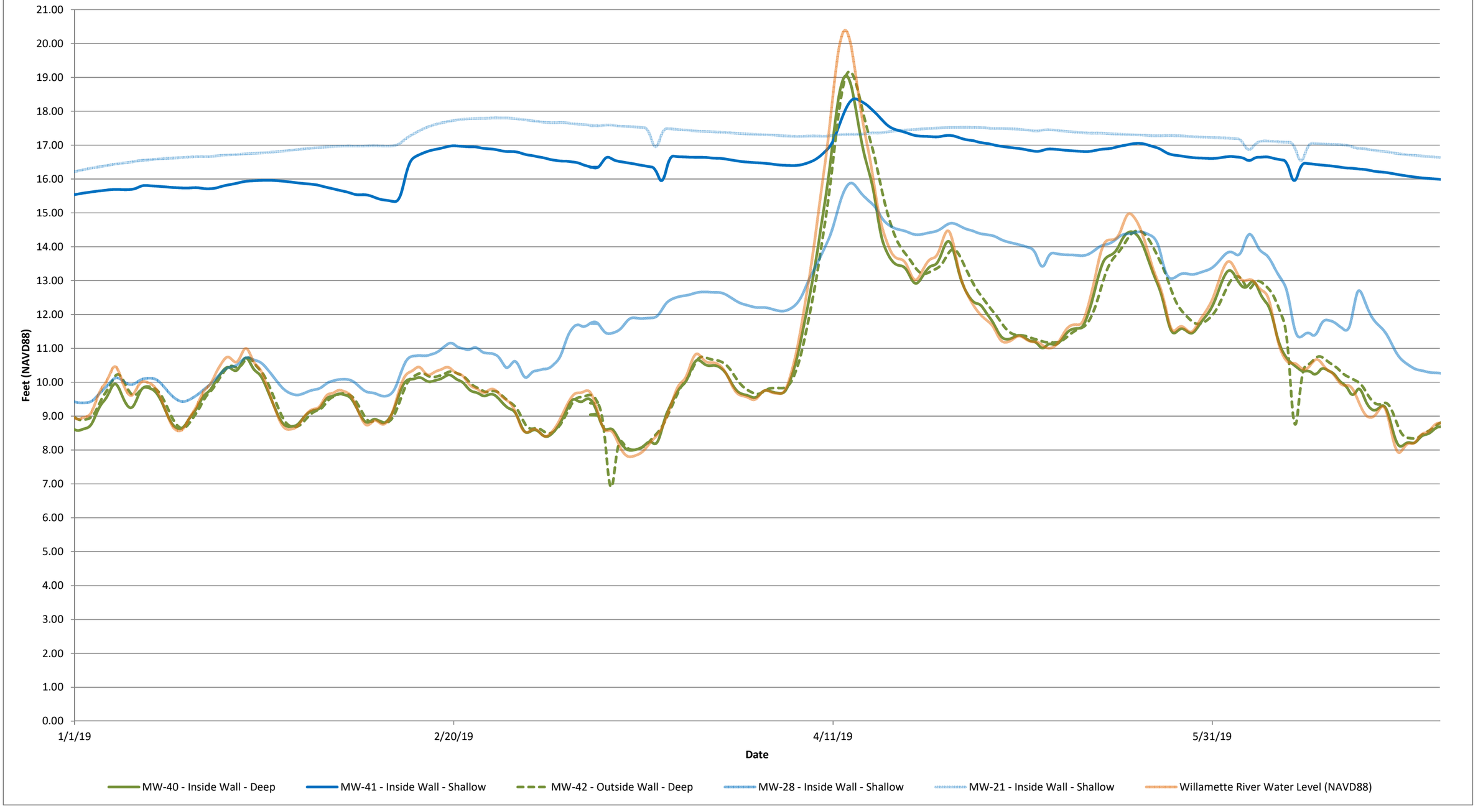
Environmental Resources Management
1001 SW 5th St, Suite 1010
Portland, Oregon 97204

ERM

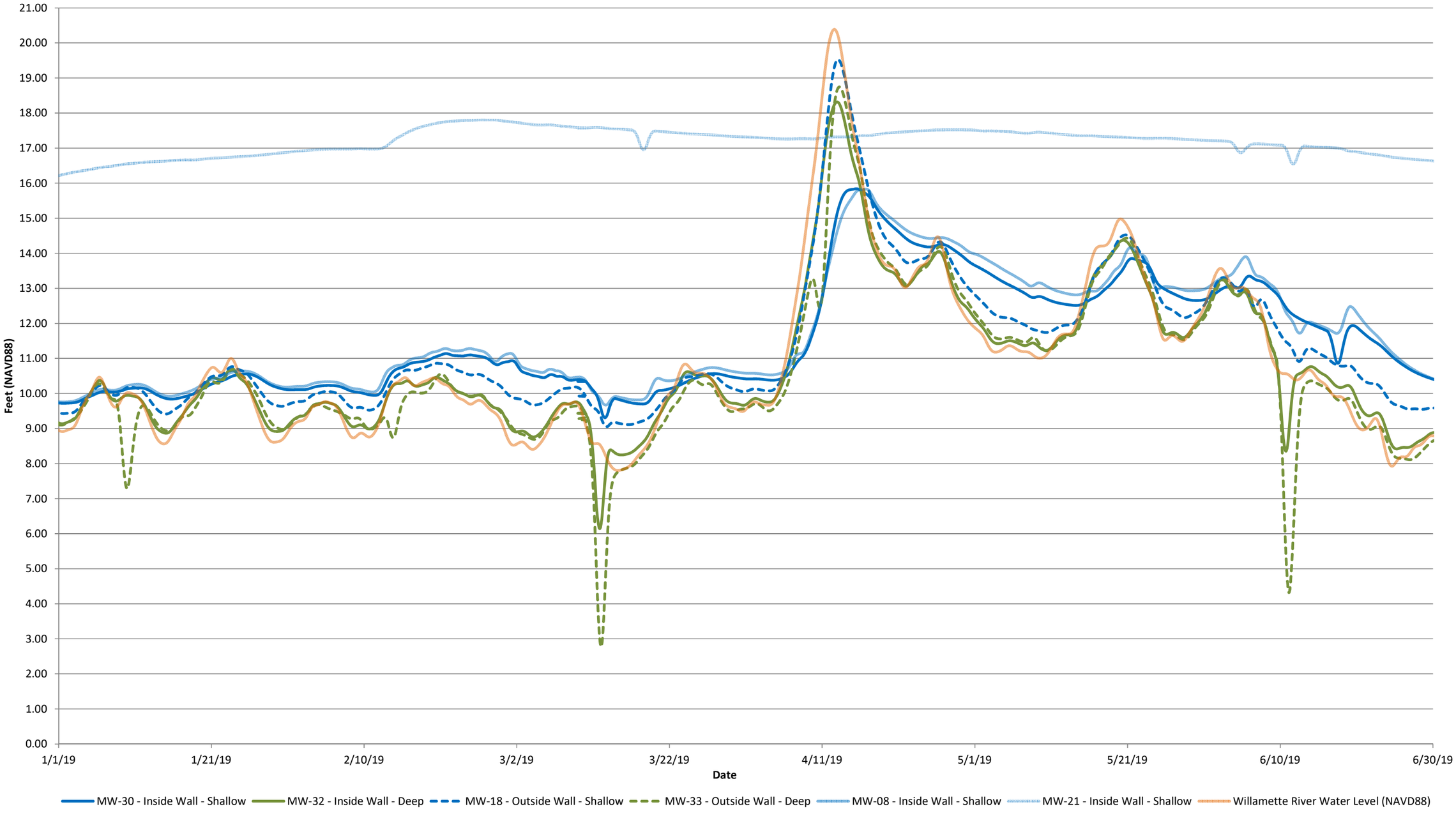
Water Elevations - Cluster 1
MW-34, MW-35, MW-36, & MW-27, MW-11



Water Elevations - Cluster 2
MW-40, MW-41, MW-42, & MW-28



Water Elevations - Cluster 3
MW-18, MW-30, MW-32, MW-33, & MW-08



ATTACHMENT B – ANALYTICAL DATA AND VALIDATION

ERM

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Memorandum

To	Rita Cooper
From	Rachel James
Date	20 November 2019
Reference	0499738
Subject	Data Review of PEO Groundwater Sampling, Third Quarter 2019: Pace Analytical Services, LLC Data Packages 10490877, 10491044, 10491256, and 10491419 (Issued 11/14/19), 10491887 (Issued 11/15/19), and 10492093 (Issued 11/19/19).

The data quality was assessed and any necessary qualifiers were applied following the *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*, January 2017 and *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review*, January 2017.

CHAIN-OF-CUSTODY DISCREPANCIES

The inter-laboratory chain-of-custody (COC) for report 10490877 indicated NWEPH analysis for sample PEO-MW-33-201909; however, no sample volume was received at the subcontracted laboratory (Fremont Analytical). Fremont Analytical analyzed the sample for NWVPH only.

HOLDING TIME AND PRESERVATION EVALUATION

The sample shipments were received at the laboratory within the method-prescribed temperature preservation requirements of less than 6°C with one exception. The subcontracted cooler sent to Fremont Analytical for lab report 10491044 was in transit for four days and arrived at the laboratory with a temperature of 14.6°C. The laboratory proceeded with the requested NWEPH and NWVPH analyses. A comparison of historical results for NWEPH and NWVPH results for affected samples was done. Current results that were in agreement with historical results were qualified as estimates (J/UJ). Current results that were not in agreement (currently non-detected and historically detected at least once) were rejected (R). The qualified results are summarized in Table 1.

The laboratory noted that 7 of 9 VOA vials for sample PEO-MW-34-201909 had headspace. At least three vials were used for NWTPH-Gx, 8260B, and NWVPH analyses and the laboratory did not note whether vials containing headspace were used. Since it is not possible to tell which vials were used for which analyses and there were not sufficient headspace-free vials for all requested volatiles analyses, the results for NWTPH-Gx, 8260B, and NWVPH were all qualified as estimates with a low bias (J-) as noted in Table 1.

The samples were prepared and analyzed within the method-prescribed time period from the date of collection. No qualifications were necessary.

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BLANK EVALUATION

The method blank results were non-detected for each of the target analytes with two exceptions. Motor Oil Range Silica Gel (SG) and phenanthrene were detected at concentrations less than the reporting limit in method blank samples. Associated sample results within five times the blank concentrations and less than the reporting limits were qualified as non-detect (U) at the reporting limit. Associated sample results within five times the blank concentrations and greater than the reporting limits were qualified as estimates with a high bias (J+).

The trip blank results were non-detected for each of the volatile target analytes with two exceptions. Toluene was detected at concentrations less than the reporting limit in two trip blank samples. Associated sample results within five times the blank concentrations and less than the reporting limits were qualified as non-detect (U) at the reporting limit. Associated sample results within five times the blank concentrations and greater than the reporting limits were qualified as estimates with a high bias (J+).

No trip blank was included with the NWVPH samples subcontracted to Fremont Analytical in lab report 10490887. It is not possible to assess whether the detected NWVPH Aromatic Hydrocarbon (C10-C12) results in samples PEO-MW-32-201909 and PEO-MW-33-201909 were potentially influenced by cross-contamination during shipment, handling, and storage.

The blank detections and associated data are presented in Table 2.

BLANK SPIKE EVALUATION

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries and relative percent differences (RPDs) were within the laboratory's limits of acceptance, with exceptions noted in Table 3. No data were qualified based on RPDs if both the LCS and LCSD recoveries were within laboratory limits. Remaining sample results associated with low LCS/LCSD recoveries were non-detected and were qualified as estimates (UJ).

MATRIX SPIKE EVALUATION

The MS and MSD recoveries and RPDs were within laboratory limits of acceptance with several exceptions. No data were qualified if the outlier was from a non-project sample or if the outlier can be verified by an in-control result. The naphthalene result in MS/MSD parent sample PEO-MW-30-201909 was qualified as an estimate with a low bias (J-) due to low MS/MSD recovery. Additionally, several sulfate results were qualified as estimates with a low bias (J-/UJ) due to low MS/MSD recoveries. The sulfate results in the MS/MSD parent samples and all project samples in the same lab reports as the affected MS/MSDs were qualified. The outliers and associated qualified results can be found in Table 3.

SURROGATE SPIKE EVALUATION

The surrogate recoveries were within acceptable limits with several exceptions. Data were not qualified if the dilution factor was 10 times or greater. Additionally, data were not qualified for surrogates recovered out of acceptance criteria on duplicate, LCS/LCSD, MS/MSD, or blank samples. These samples were instead assessed based upon the recovery of target analytes or a duplicate precision criterion. Remaining sample results associated with low surrogate recoveries were qualified as estimates with a low bias (J-/UJ). Surrogate spikes outside control limits and associated qualified sample data are provided in Table 4.

CALIBRATION RANGE EXCEEDANCES

The ethylbenzene and m&p-xylene results for a batch MS/MSD sample and the dissolved manganese results for MS/MSD samples prepared from sample PEO-MW-30-201909 exceeded the instrument calibration ranges as noted in Table 5. Since the parent sample results were within the calibration range, no qualifications were applied.

RESULTS LACKING CONFIRMATION

Select sample results were qualified by the laboratory for confirmation issues, as summarized in Table 6. The initial PAH analysis for sample PEO-MW-27-201909 had a low surrogate recovery for p-terphenyl. The laboratory re-extracted the sample outside the holding time and the re-analysis results did not confirm the original. The original results were reported and were qualified J-/UJ as estimates with a low bias due to the low surrogate recovery and the disagreement of results between the original and re-analysis runs. Additionally, the Fremont case narrative for lab report 10492093 stated that, "The analyses yielded different results between the Extractable Pertroleum [sic] Hydrocarbon (EPH) and Volatile Petroleum Hydrocarbon (VPH) analyses for sample PEO-MW-34-201909. An investigation demonstrated that the contents in the VOA vials submitted for VPH, were different than the 1L Amber supplied for the EPH analsysis [sic]. The laboratory attempted to perform a microextraction from the VOA vial for the EPH analysis, however an emulsion formed that prevented the test." The EPH and VPH results for sample PEO-MW-34-201909 were qualified as estimates with a low bias (J-) due to the differing results and additional low surrogate recovery.

LABORATORY DUPLICATE EVALUATION

The laboratories prepared several project and non-project samples as laboratory duplicates. The RPDs for detected analytes were within the control limits. The acceptable RPDs indicate acceptable laboratory precision.

FIELD DUPLICATE EVALUATION

Two samples collected and submitted had duplicate samples taken in the field. ERM calculated the RPD between the duplicate with detected results. The USEPA has not established control criteria for field duplicate samples; therefore, sample data are not qualified on the basis of field duplicate imprecision. A list of the field duplicate detections and the calculated RPDs is provided in Table 7.

TPH EVALUATION

The laboratory noted early and/or late peaks outside the gasoline range organics (GRO) window for several samples. ERM qualified the affected results as tentatively identified and estimated (NJ), with the exception of the GRO result for sample PEO-MW-34-201909, which was qualified as an estimate with a low bias (J-) due to headspace in the VOA vial. The qualified results are presented in Table 8.

OVERALL ASSESSMENT

The NWVPH results for samples PEO-MW-24A-201909 and Trip Blank-20190911 and the NWEPH results for samples PEO-MW-06-201909, PEO-MW-19-201909, and Trip Blank-20190911 were determined to be unusable due to the high cooler temperature upon receipt. With exception of the rejected results, all of the data, including qualified data, can be used for decision-making purposes; however, the limitations indicated by the applied qualifiers should be

considered when using the data. The quality of the data generated during this investigation is acceptable for the preparation of technically-defensible documents.

Table 1
Samples with Exceeded Preservation Requirements
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Sample ID	Method	Preservation Condition	Limits	ERM Qualifier
10491044	PEO-MW-24A-201909	NWVPH	Cooler temperature = 14.6°C	0 - 6°C	R
	PEO-MW-21-201909	NWEPH NWVPH			UJ
	PEO-MW-03-201909	NWEPH NWVPH			UJ
	PEO-MW-06-201909	NWEPH			R
		NWVPH			J
	PEO-MW-19-201909	NWEPH			R
		NWVPH			UJ
	Trip Blank-20190911	NWEPH NWVPH			R
10492093	PEO-MW-34-201909	NWTPH-Gx 8260B NWVPH	7 of 9 vials with headspace	No headspace	J-

Lab packages reviewed: 10490877, 10491044, 10491256, 10491419, 10491887, and 10492093

Notes:
°C = Degrees Celsius
J- = Detected results are estimated with a low bias
J = Estimated detected result
R = Result is rejected
UJ = Nondetected, estimated report limit

Table 2
Blank and Associated Suspect Sample Detections
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Blank ID	Detected Compound	Reported Blank Concentration	Blank Report Limit	Associated Sample	Associated Sample Result	Associated Sample Report Limit	Units	ERM Qualifier
10491044	Trip Blank-20190911	Toluene	0.20	1.0	PEO-MW-24A-201909	ND	1.0	µg/L	--
					PEO-MW-21-201909	ND	1.0	µg/L	--
					PEO-MW-03-201909	ND	1.0	µg/L	--
					PEO-MW-06-201909	0.28	1.0	µg/L	1.0 U
					PEO-MW-19-201909	ND	1.0	µg/L	--
10491419	Method Blank 3411132	Motor Oil Range SG	0.11	0.40	PEO-MW-26-201909	0.095	0.40	mg/L	0.40 U
					PEO-MW-41-201909	ND	0.40	mg/L	--
					PEO-MW-40-201909	ND	0.40	mg/L	--
					PEO-MW-38-201909	0.43	0.40	mg/L	J+
10491887	Trip Blank-20190917	Toluene	0.13	1.0	PEO-MW-37-201909	1.4	1.0	µg/L	J+
					PEO-MW-35-201909	0.22	1.0	µg/L	1.0 U
					PEO-MW-Z2-201909	0.21	1.0	µg/L	1.0 U
					PEO-MW-30-201909	ND	1.0	µg/L	--
	Method Blank 3412920	Phenanthrene	0.022	0.040	PEO-MW-37-201909	ND	0.040	µg/L	--
					PEO-MW-35-201909	ND	0.039	µg/L	--
					PEO-MW-Z2-201909	ND	0.039	µg/L	--
					PEO-MW-30-201909	ND	0.040	µg/L	--

Lab packages reviewed: 10490877, 10491044, 10491256, 10491419, 10491887, and 10492093

Notes:
mg/L = Milligrams per liter
J+ = Detected results are estimated with a high bias
SG = Silica gel
U = Nondetected
µg/L = Micrograms per liter

Table 3
Spike Recoveries Outside of Acceptable Limits
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Result	Units	ERM Qualifier
LCS/LCSD										
10490877	LCS/LCSD 3405193/3405194	None for qualification	Diesel Fuel Range SG	81/65	50-150	23	20	--	--	--
			Motor Oil Range SG	85/67	50-150	23	20	--	--	--
	LCS/LCSD 25776	See below	EPH Aliphatic Hydrocarbon (C10-C12)	66.3/42.6	70-130	43.6	20	--	--	--
	--	PEO-MW-32-201909		--	--	--	--	ND	µg/L	UJ
	--	PEO-MW-42-201909		--	--	--	--	ND	µg/L	UJ
10491044	LCS/LCSD 3406200/3406201	None for qualification	Diesel Fuel Range SG	62/83	50-150	30	20	--	--	--
			Motor Oil Range SG	63/85	50-150	30	20	--	--	--
MS/MSD										
10490877	Batch MS/MSD	None for qualification	Sulfate	66/66	90-110	0	20	--	--	--
	Batch MS/MSD	None for qualification	Sulfate	90/89	90-110	0	20	--	--	--
10491044	Batch MS/MSD	None for qualification	Alkalinity, Total as CaCO3	70/73	80-120	2	20	--	--	--
10491256	Batch MS/MSD	None for qualification	Ethylbenzene	340/322	30-150	1	30	--	--	--
	Batch MS/MSD	None for qualification	Alkalinity, Total as CaCO3	45/55	80-120	3	20	--	--	--
10491256 10491419	Batch MS/MSD	None for qualification	EPH Aliphatic Hydrocarbon (C10-C12)	151/73.8	70-130	48.7	30	--	--	--

Table 3
Spike Recoveries Outside of Acceptable Limits
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Result	Units	ERM Qualifier
10491256 10491419	PEO-MW-26-201909 MS/MSD	See below	Sulfate	61/60	90-110	0	20	--	--	--
10491256		PEO-MW-31-201909		--	--	--	--	34.9	mg/L	J-
		PEO-MW-18-201909		--	--	--	--	55.9	mg/L	J-
		PEO-MW-36-201909		--	--	--	--	0.94	mg/L	J-
		PEO-MW-Z1-201909		--	--	--	--	ND	mg/L	UJ
		PEO-MW-27-201909		--	--	--	--	12.7	mg/L	J-
		PEO-MW-39-201909		--	--	--	--	ND	mg/L	UJ
10491419		PEO-MW-26-201909		--	--	--	--	26.1	mg/L	J-
		PEO-MW-41-201909		--	--	--	--	2.3	mg/L	J-
		PEO-MW-40-201909		--	--	--	--	54.3	mg/L	J-
		PEO-MW-38-201909		--	--	--	--	0.64	mg/L	J-
10491419	Batch MS/MSD	None for qualification	Alkalinity, Total as CaCO3	73/72	80-120	0	20	--	--	--
	Batch MS/MSD	None for qualification	Alkalinity, Total as CaCO3	44/73	80-120	1	20	--	--	--
	Batch MS/MSD	None for qualification	Alkalinity, Total as CaCO3	79/87	80-120	0	20	--	--	--
10491887	PEO-MW-30-201909 MS/MSD	None for qualification	Manganese, Dissolved	79/155	75-125	2	20	--	--	--
		PEO-MW-30-201909	1-Methylnaphthalene	141/130	30-125	5	30	ND	µg/L	--
			Naphthalene	6/9	38-125	8	30	0.25	µg/L	J-
		See below	Sulfate	24/34	90-110	3	20	--	--	--
		PEO-MW-37-201909		--	--	--	--	14.4	mg/L	J-
		PEO-MW-35-201909		--	--	--	--	26.5	mg/L	J-
		PEO-MW-Z2-201909		--	--	--	--	26.0	mg/L	J-
		PEO-MW-30-201909		--	--	--	--	42.2	mg/L	J-

Table 3
Spike Recoveries Outside of Acceptable Limits
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Result	Units	ERM Qualifier
10491887 10492093	PEO-MW-30-201909 MS/MSD	None for qualification	Diesel Fuel Range SG	77/209	50-150	43	30	--	--	--
			Motor Oil Range SG	51/78	50-150	36	30	--	--	--
10492093	PEO-MW-34-201909 MS/MSD	None for qualification	Manganese, Dissolved	183/109	75-125	3	20	--	--	--
	PEO-MW-08-201909 MS/MSD	See below	Sulfate	14/24	90-110	3	20	--	--	--
		PEO-MW-08-201909		--	--	--	--	45.2	mg/L	J-
		PEO-MW-34-201909		--	--	--	--	10.9	mg/L	J-
		PEO-MW-28-201909		--	--	--	--	6.6	mg/L	J-
		PEO-MW-25-201909		--	--	--	--	1.6	mg/L	J-
		None for qualification	EPH Aliphatic Hydrocarbon (C10-C12)	76.0/156	70-130	47.1	30	--	--	--

Lab packages reviewed: 10490877, 10491044, 10491256, 10491419, 10491887, and 10492093

Notes:
Batch = Spike sample was prepared using non-client sample
EPH = Extractable Petroleum Hydrocarbons
J- = Estimated detection with low bias
LCS/LCSD = Laboratory control sample/laboratory control sample duplicate
mg/L = Milligrams per liter
MS/MSD - Matrix spike/matrix spike duplicate
ND = Not detected
RPD = Relative percent difference
SG = Silica gel
µg/L = Micrograms per liter
UJ = Nondetected, estimated report limit

Table 4
Surrogate Recovery Results out of Acceptable Limits
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Sample ID	Method	Surrogate	Recovery (%)	Limit (%)	Affected Compound	Dilution Factor	ERM Qualifier
10490877	PEO-MW-33-201909	NWTPH-Dx	n-Triacontane	45	50-150	Motor Oil Range SG	1	J-
	PEO-MW-42-201909	NWEPH	1-Chlorooctadecane	39.9	60-140	EPH Aliphatic Hydrocarbon (C10-C12)	1	UJ
	Batch Lab Duplicate 1909035-001A	NWEPH	1-Chlorooctadecane	45.8	60-140	EPH Aliphatic Hydrocarbon (C10-C12)	NR	--
	Method Blank 25796	NWVPH	1,4-Difluorobenzene	64.8	65-140	VPH Aliphatic Hydrocarbon (C10-C12)	NR	--
10491256	PEO-MW-27-201909	8270 SIM	p-Terphenyl-d14	54	62-125	All PAHs	1	J-/UJ
	PEO-MW-Z1-201909	NWEPH	1-Chlorooctadecane	58.1	60-140	EPH Aliphatic Hydrocarbon (C10-C12)	1	UJ
10491256 10491419 10491887	Batch Lab Duplicate 1909226-001A	NWEPH	1-Chlorooctadecane	54.6	60-140	EPH Aliphatic Hydrocarbon (C10-C12)	NR	--
10491887	PEO-MW-35-201909	NWEPH	1-Chlorooctadecane	48.9	60-140	EPH Aliphatic Hydrocarbon (C10-C12)	1	UJ

Table 4
Surrogate Recovery Results out of Acceptable Limits
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Sample ID	Method	Surrogate	Recovery (%)	Limit (%)	Affected Compound	Dilution Factor	ERM Qualifier
10492093	PEO-MW-34-201909	NWTPH-Dx	o-Terphenyl	0	50-150	Diesel Fuel Range SG	20	--
			n-Triacontane	0	50-150	Motor Oil Range SG		
		8270 SIM	2-Fluorobiphenyl	10	47-125	All PAHs	1	J-/UJ
			p-Terphenyl-d14	9	62-125			
	PEO-MW-08-201909	NWEPH	1-Chlorooctadecane	52.4	60-140	EPH Aliphatic Hydrocarbon (C10-C12)	1	UJ
	PEO-MW-34-201909	NWEPH	1-Chlorooctadecane	57.7	60-140	EPH Aliphatic Hydrocarbon (C10-C12)	1	J-
	PEO-MW-08-201909 MSD	NWEPH	1-Chlorooctadecane	160	60-140	EPH Aliphatic Hydrocarbon (C10-C12)	NR	--

Lab packages reviewed: 10490877, 10491044, 10491256, 10491419, 10491887, and 10492093

Notes:
EPH = Extractable Petroleum Hydrocarbons
J- = Detected results are estimated with a low bias
J-/UJ = Detected results are estimated with low bias; nondetected results are estimated at the report limit
LCS = Laboratory control sample
NR = Not reported
SG = Silica gel
UJ = Nondetected, estimated report limit
VPH = Volatile Petroleum Hydrocarbons

Table 5
Calibration Range Exceedances
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Sample ID	Compound	Reported Concentration	Units	ERM Qualifier
10491256	Batch MS/MSD	Ethylbenzene	560/556	µg/L	--
		m&p-Xylene	522/515	µg/L	--
10491887	PEO-MW-30-201909 MS/MSD	Manganese, Dissolved	3270/3340	µg/L	--

Lab packages reviewed: 10490877, 10491044, 10491256, 10491419, 10491887, and 10492093

Notes:
MS/MSD = Matrix spike/matrix spike duplicate
µg/L = Micrograms per liter

Table 6
Results Lacking Confirmation
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Sample ID	Method	Compound	ERM Qualifier
10491256	PEO-MW-27-201909	8270 SIM	All	J-[1]/UJ
10492093	PEO-MW-34-201909	NWEPH	All	J-[1]

Lab packages reviewed: 10490877, 10491044, 10491256, 10491419, 10491887, and 10492093

Notes:

1 = Qualified J- due to additional low surrogate recovery

J = Estimated detected result

J- = Detected results are estimated with a low bias

J-/UJ = Detected results are estimated with a low bias; nondetected results are estimated at the report limit

Table 7
Field Duplicate Results and Calculated Relative Percent Differences
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Primary/Duplicate Sample ID	Compound	Concentration		Report Limit		Units	RPD
			Sample	Duplicate	Sample	Duplicate		
10491256	PEO-MW-36-201909/ PEO-MW-Z1-201909	Diesel Fuel Range SG	2.9	2.2	0.40	0.41	mg/L	27
		Motor Oil Range SG	0.088	ND	0.40	0.41	mg/L	NC
		TPH as Gas	2650	2540	200	200	µg/L	4.2
		Total Hardness, Dissolved	166000	163000	3300	3300	µg/L	1.8
		Arsenic, Dissolved	28.5	28.9	0.50	0.50	µg/L	1.4
		Manganese, Dissolved	2800	2900	10.0	10.0	µg/L	3.5
		Acenaphthene	ND	1.1	0.040	0.039	µg/L	NC
		Benzo(a)pyrene	ND	0.0048	0.040	0.039	µg/L	NC
		Fluoranthene	ND	0.031	0.040	0.039	µg/L	NC
		Fluorene	ND	0.46	0.040	0.039	µg/L	NC
		Naphthalene	0.83	0.76	0.040	0.039	µg/L	8.8
		Pyrene	0.031	0.046	0.040	0.039	µg/L	39
		Benzene	34.7	33.8	1.0	1.0	µg/L	2.6
		Ethylbenzene	5.4	5.4	1.0	1.0	µg/L	0.0
		Toluene	31.7	31.3	1.0	1.0	µg/L	1.3
		m&p-Xylene	32.7	32.3	2.0	2.0	µg/L	1.2
		o-Xylene	11.7	11.6	1.0	1.0	µg/L	0.86
		Alkalinity, Total as CaCO3	221	222	5.0	5.0	mg/L	0.45
		Sulfate	0.94	ND	1.2	1.2	mg/L	NC
		VPH Aliphatic Hydrocarbon (C10-C12)	222	217	4.07	40.7	µg/L	2.3

Table 7
Field Duplicate Results and Calculated Relative Percent Differences
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Primary/Duplicate Sample ID	Compound	Concentration		Report Limit		Units	RPD
			Sample	Duplicate	Sample	Duplicate		
10491887	PEO-MW-35-201909/ PEO-MW-Z2-201909	Diesel Fuel Range SG	0.58	0.51	0.39	0.39	mg/L	13
		Motor Oil Range SG	0.080	ND	0.39	0.39	mg/L	NC
		TPH as Gas	209	214	100	100	µg/L	2.4
		Total Hardness, Dissolved	29100	31100	3300	3300	µg/L	6.6
		Arsenic, Dissolved	17.5	17.4	0.50	0.50	µg/L	0.57
		Manganese, Dissolved	621	610	10.0	10.0	µg/L	1.8
		Acenaphthene	0.19	0.19	0.039	0.039	µg/L	0.0
		Acenaphthylene	0.053	0.051	0.039	0.039	µg/L	3.8
		Anthracene	0.13	0.13	0.039	0.039	µg/L	0.0
		Fluoranthene	0.091	0.092	0.039	0.039	µg/L	1.1
		Fluorene	0.061	0.057	0.039	0.039	µg/L	6.8
		1-Methylnaphthalene	0.10	0.11	0.039	0.039	µg/L	9.5
		Naphthalene	0.11	0.11	0.039	0.039	µg/L	0.0
		Pyrene	0.088	0.087	0.039	0.039	µg/L	1.1
		Benzene	0.50	0.48	1.0	1.0	µg/L	4.1
		Toluene	0.22	0.21	1.0	1.0	µg/L	4.7
		Alkalinity, Total as CaCO3	27.4	27.6	5.0	5.0	mg/L	0.73
		Sulfate	26.5	26.0	1.2	1.2	mg/L	1.9

Lab packages reviewed: 10490877, 10491044, 10491256, 10491419, 10491887, and 10492093

Notes:
EPH = Extractable Petroleum Hydrocarbons
mg/L = Milligrams per liter
ND = Not detected
NC = Not calculated, one result not detected
RPD = Relative percent difference
SG = Silica gel
TPH = Total Petroleum Hydrocarbons
µg/L = Micrograms per liter
VPH = Volatile Petroleum Hydrocarbons

Table 8
Suspect TPH Results
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Sample ID	Compound	Reported Concentration	Units	Comment	ERM Qualifier
10491256	PEO-MW-18-201909	TPH as Gas	354	µg/L	Late peaks present outside the GRO window.	NJ
	PEO-MW-36-201909		2650	µg/L	Early peaks present outside the GRO window.	NJ
	PEO-MW-36-201909 Lab Duplicate		2670	µg/L		--
	PEO-MW-39-201909		4530	µg/L		NJ
	Batch Lab Duplicate 3410987		2740	µg/L		--
10491419	PEO-MW-38-201909	TPH as Gas	4270	µg/L	Late and early peaks present outside the GRO window.	NJ
	Batch Lab Duplicate 3410006		24600	µg/L	Early peaks present outside the GRO window.	--
10491887	Batch Lab Duplicate 3415417	TPH as Gas	987	µg/L	Early peaks present outside the GRO window.	--
10492093	PEO-MW-34-201909	TPH as Gas	7340	µg/L	Late peaks present outside the GRO window.	J-[1]
	Batch Lab Duplicate 3418939		5740	µg/L		--
	Batch Lab Duplicate 3421042		743	µg/L	Early peaks present outside the GRO window.	--

Lab packages reviewed: 10490877, 10491044, 10491256, 10491419, 10491887, and 10492093

Notes:
1 = Qualified J- due to additional preservation issue
GRO = Gasoline range organics
J- = Detected results are estimated with a low bias
NJ = Tentatively identified and estimated - chromatogram did not resemble the standard hydrocarbon pattern
TPH = Total petroleum hydrocarbons
µg/L = Micrograms per liter

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

August 02, 2019

Joe Casey
ERM Portland
1050 SW 6th Ave
Suite 1650
Portland, OR 97204

RE: Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

Dear Joe Casey:
Enclosed are the analytical results for sample(s) received by the laboratory on June 11, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

This repot was revised on July 7, 2019 to update the carbon ranges of the NWTPH/EPH.

This report was further revised on 8/2/19 to add the motor oil range to NWTPH, add 1 & 2 methylnapthalene to the 8270 SIM analysis, add o-xylene and m/p-xylenes by 8260 and update the subcontract data to report down to the MDL.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Julie Bowser
julie.bowser@pacelabs.com
612-607-6390
Project Manager

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

Enclosures

cc: Rita Cooper, ERM Portland
ERM Global EDD Mailbox, ERM

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CERTIFICATIONS

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

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SAMPLE SUMMARY

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10478554001	**Trip Blank**	Water	06/10/19 07:00	06/11/19 08:45
10478554002	**PEO-MW-32-201906**	Water	06/10/19 09:10	06/11/19 08:45
10478554003	**PEO-MW-42-201906**	Water	06/10/19 13:10	06/11/19 08:45
10478554004	**PEO-MW-24A-201906**	Water	06/10/19 14:20	06/11/19 08:45
10478554005	**PEO-MW-41-201906**	Water	06/10/19 15:20	06/11/19 08:45

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SAMPLE ANALYTE COUNT

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10478554001	**Trip Blank**	NWTPH-Gx	AJR	2	PASI-M
		EPA 8260B	MJD	8	PASI-M
10478554002	**PEO-MW-32-201906**	NWTPH-Dx	EC2	4	PASI-M
		NWTPH-Gx	AJR	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		EPA 8260B	MJD	8	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10478554003	**PEO-MW-42-201906**	NWTPH-Dx	EC2	4	PASI-M
		NWTPH-Gx	AJR	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		EPA 8260B	MJD	8	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10478554004	**PEO-MW-24A-201906**	NWTPH-Dx	EC2	4	PASI-M
		NWTPH-Gx	AJR	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		EPA 8260B	MJD	8	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10478554005	**PEO-MW-41-201906**	NWTPH-Dx	EC2	4	PASI-M
		NWTPH-Gx	AJR	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		EPA 8260B	MJD	8	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M

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SAMPLE ANALYTE COUNT

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 353.2	JFP	1	PASI-M

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ANALYTICAL RESULTS

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

Sample: Trip Blank **Lab ID: 10478554001** Collected: 06/10/19 07:00 Received: 06/11/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		06/13/19 09:03		
Surrogates								
a,a,a-Trifluorotoluene (S)	87	%.	50-150	1		06/13/19 09:03	98-08-8	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		06/13/19 18:01	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/13/19 18:01	100-41-4	
Toluene	ND	ug/L	1.0	1		06/13/19 18:01	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		06/13/19 18:01	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/13/19 18:01	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	102	%.	75-125	1		06/13/19 18:01	17060-07-0	
Toluene-d8 (S)	96	%.	75-125	1		06/13/19 18:01	2037-26-5	
4-Bromofluorobenzene (S)	101	%.	75-125	1		06/13/19 18:01	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

Sample: PEO-MW-32-201906 **Lab ID: 10478554002** Collected: 06/10/19 09:10 Received: 06/11/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**1.4**	mg/L	0.38	1	06/11/19 15:15	06/14/19 14:41	68334-30-5	
Motor Oil Range SG	**0.21J**	mg/L	0.38	1	06/11/19 15:15	06/14/19 14:41	64742-65-0	
Surrogates								
o-Terphenyl (S)	75	%.	50-150	1	06/11/19 15:15	06/14/19 14:41	84-15-1	
n-Triacontane (S)	80	%.	50-150	1	06/11/19 15:15	06/14/19 14:41	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**1250**	ug/L	100	1		06/13/19 07:22		G+,G-
Surrogates								
a,a,a-Trifluorotoluene (S)	90	%.	50-150	1		06/13/19 07:22	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**87400**	ug/L	3300	1	06/13/19 06:54	06/13/19 15:18		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**6.1**	ug/L	0.50	1	06/14/19 05:14	06/18/19 16:56	7440-38-2	
Manganese, Dissolved	**1.9**	ug/L	0.50	1	06/14/19 05:14	06/18/19 16:56	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**0.033J**	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	83-32-9	
Acenaphthylene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	208-96-8	
Anthracene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	207-08-9	
Chrysene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	53-70-3	
Fluoranthene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	206-44-0	
Fluorene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	91-57-6	
Naphthalene	**0.055**	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	91-20-3	
Phenanthrene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	85-01-8	
Pyrene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 19:34	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	56	%.	47-125	1	06/11/19 17:42	06/12/19 19:34	321-60-8	
p-Terphenyl-d14 (S)	64	%.	62-125	1	06/11/19 17:42	06/12/19 19:34	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**0.61J**	ug/L	1.0	1		06/13/19 20:15	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/13/19 20:15	100-41-4	
Toluene	**1.1**	ug/L	1.0	1		06/13/19 20:15	108-88-3	
m&p-Xylene	**0.56J**	ug/L	2.0	1		06/13/19 20:15	179601-23-1	

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ANALYTICAL RESULTS

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

Sample: PEO-MW-32-201906 **Lab ID: 10478554002** Collected: 06/10/19 09:10 Received: 06/11/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		06/13/19 20:15	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	101	%.	75-125	1		06/13/19 20:15	17060-07-0	
Toluene-d8 (S)	97	%.	75-125	1		06/13/19 20:15	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		06/13/19 20:15	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**139**	mg/L	5.0	1		06/14/19 09:56		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**6.1**	mg/L	1.2	1		06/17/19 04:41	14808-79-8	M1
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		06/12/19 08:57	14797-55-8	

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ANALYTICAL RESULTS

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

Sample: PEO-MW-42-201906 **Lab ID: 10478554003** Collected: 06/10/19 13:10 Received: 06/11/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**1.1**	mg/L	0.40	1	06/11/19 15:15	06/14/19 15:03	68334-30-5	
Motor Oil Range SG	**0.31J**	mg/L	0.40	1	06/11/19 15:15	06/14/19 15:03	64742-65-0	
Surrogates								
o-Terphenyl (S)	80	%.	50-150	1	06/11/19 15:15	06/14/19 15:03	84-15-1	
n-Triacontane (S)	79	%.	50-150	1	06/11/19 15:15	06/14/19 15:03	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**503**	ug/L	100	1		06/13/19 07:39		
Surrogates								
a,a,a-Trifluorotoluene (S)	94	%.	50-150	1		06/13/19 07:39	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**41700**	ug/L	3300	1	06/13/19 06:54	06/13/19 15:39		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**4.0**	ug/L	0.50	1	06/14/19 05:14	06/18/19 16:59	7440-38-2	
Manganese, Dissolved	**6.2**	ug/L	0.50	1	06/14/19 05:14	06/18/19 16:59	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	83-32-9	
Acenaphthylene	ND	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	208-96-8	
Anthracene	ND	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	207-08-9	
Chrysene	ND	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	53-70-3	
Fluoranthene	ND	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	206-44-0	
Fluorene	ND	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	91-57-6	
Naphthalene	**0.015J**	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	91-20-3	
Phenanthrene	ND	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	85-01-8	
Pyrene	ND	ug/L	0.040	1	06/11/19 17:42	06/12/19 19:56	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	64	%.	47-125	1	06/11/19 17:42	06/12/19 19:56	321-60-8	
p-Terphenyl-d14 (S)	68	%.	62-125	1	06/11/19 17:42	06/12/19 19:56	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		06/13/19 22:28	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/13/19 22:28	100-41-4	
Toluene	ND	ug/L	1.0	1		06/13/19 22:28	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		06/13/19 22:28	179601-23-1	

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ANALYTICAL RESULTS

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

Sample: PEO-MW-42-201906 **Lab ID: 10478554003** Collected: 06/10/19 13:10 Received: 06/11/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		06/13/19 22:28	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	101	%.	75-125	1		06/13/19 22:28	17060-07-0	
Toluene-d8 (S)	94	%.	75-125	1		06/13/19 22:28	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		06/13/19 22:28	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**81.1**	mg/L	5.0	1		06/14/19 10:02		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**8.2**	mg/L	1.2	1		06/17/19 05:45	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		06/12/19 08:58	14797-55-8	

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ANALYTICAL RESULTS

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

Sample: PEO-MW-24A-201906 **Lab ID: 10478554004** Collected: 06/10/19 14:20 Received: 06/11/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.87**	mg/L	0.38	1	06/11/19 15:15	06/14/19 15:14	68334-30-5	
Motor Oil Range SG	**0.19J**	mg/L	0.38	1	06/11/19 15:15	06/14/19 15:14	64742-65-0	
Surrogates								
o-Terphenyl (S)	59	%.	50-150	1	06/11/19 15:15	06/14/19 15:14	84-15-1	
n-Triacontane (S)	62	%.	50-150	1	06/11/19 15:15	06/14/19 15:14	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**2040**	ug/L	100	1		06/13/19 07:56		G+
Surrogates								
a,a,a-Trifluorotoluene (S)	92	%.	50-150	1		06/13/19 07:56	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**46300**	ug/L	3300	1	06/13/19 06:54	06/13/19 15:42		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**0.23J**	ug/L	0.50	1	06/14/19 05:14	06/18/19 17:21	7440-38-2	
Manganese, Dissolved	**16.6**	ug/L	0.50	1	06/14/19 05:14	06/18/19 17:21	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	83-32-9	
Acenaphthylene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	208-96-8	
Anthracene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	207-08-9	
Chrysene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	53-70-3	
Fluoranthene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	206-44-0	
Fluorene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	91-57-6	
Naphthalene	**0.010J**	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	91-20-3	
Phenanthrene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	85-01-8	
Pyrene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:18	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	56	%.	47-125	1	06/11/19 17:42	06/12/19 20:18	321-60-8	
p-Terphenyl-d14 (S)	70	%.	62-125	1	06/11/19 17:42	06/12/19 20:18	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**0.71J**	ug/L	1.0	1		06/13/19 22:45	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/13/19 22:45	100-41-4	
Toluene	**0.38J**	ug/L	1.0	1		06/13/19 22:45	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		06/13/19 22:45	179601-23-1	

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ANALYTICAL RESULTS

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

Sample: PEO-MW-24A-201906 **Lab ID: 10478554004** Collected: 06/10/19 14:20 Received: 06/11/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		06/13/19 22:45	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	100	%.	75-125	1		06/13/19 22:45	17060-07-0	
Toluene-d8 (S)	97	%.	75-125	1		06/13/19 22:45	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		06/13/19 22:45	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**58.2**	mg/L	5.0	1		06/14/19 10:07		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**1.4**	mg/L	1.2	1		06/17/19 06:00	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	**0.14**	mg/L	0.10	1		06/12/19 08:59	14797-55-8	

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ANALYTICAL RESULTS

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

Sample: PEO-MW-41-201906 **Lab ID: 10478554005** Collected: 06/10/19 15:20 Received: 06/11/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	ND	mg/L	0.38	1	06/11/19 15:15	06/14/19 15:25	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.38	1	06/11/19 15:15	06/14/19 15:25	64742-65-0	
Surrogates								
o-Terphenyl (S)	84	%.	50-150	1	06/11/19 15:15	06/14/19 15:25	84-15-1	
n-Triacontane (S)	90	%.	50-150	1	06/11/19 15:15	06/14/19 15:25	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**210**	ug/L	100	1		06/13/19 08:12		
Surrogates								
a,a,a-Trifluorotoluene (S)	88	%.	50-150	1		06/13/19 08:12	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**46600**	ug/L	3300	1	06/13/19 06:54	06/13/19 15:45		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**1.8**	ug/L	0.50	1	06/14/19 05:14	06/18/19 17:24	7440-38-2	
Manganese, Dissolved	**423**	ug/L	0.50	1	06/14/19 05:14	06/18/19 17:24	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	83-32-9	
Acenaphthylene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	208-96-8	
Anthracene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	207-08-9	
Chrysene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	53-70-3	
Fluoranthene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	206-44-0	
Fluorene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	91-57-6	
Naphthalene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	91-20-3	
Phenanthrene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	85-01-8	
Pyrene	ND	ug/L	0.041	1	06/11/19 17:42	06/12/19 20:41	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	67	%.	47-125	1	06/11/19 17:42	06/12/19 20:41	321-60-8	
p-Terphenyl-d14 (S)	80	%.	62-125	1	06/11/19 17:42	06/12/19 20:41	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		06/13/19 23:02	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/13/19 23:02	100-41-4	
Toluene	ND	ug/L	1.0	1		06/13/19 23:02	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		06/13/19 23:02	179601-23-1	

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ANALYTICAL RESULTS

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

Sample: PEO-MW-41-201906 **Lab ID: 10478554005** Collected: 06/10/19 15:20 Received: 06/11/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		06/13/19 23:02	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	102	%.	75-125	1		06/13/19 23:02	17060-07-0	
Toluene-d8 (S)	94	%.	75-125	1		06/13/19 23:02	2037-26-5	
4-Bromofluorobenzene (S)	103	%.	75-125	1		06/13/19 23:02	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**66.6**	mg/L	5.0	1		06/14/19 10:10		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**2.3**	mg/L	1.2	1		06/17/19 10:59	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		06/12/19 09:00	14797-55-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

QC Batch: 612489 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Water
Associated Lab Samples: 10478554001, 10478554002, 10478554003, 10478554004, 10478554005

METHOD BLANK: 3309352 Matrix: Water
Associated Lab Samples: 10478554001, 10478554002, 10478554003, 10478554004, 10478554005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	06/13/19 00:53	
a,a,a-Trifluorotoluene (S)	%.	92	50-150	06/13/19 00:53	

METHOD BLANK: 3309353 Matrix: Water
Associated Lab Samples: 10478554001, 10478554002, 10478554003, 10478554004, 10478554005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	06/13/19 01:10	
a,a,a-Trifluorotoluene (S)	%.	94	50-150	06/13/19 01:10	

LABORATORY CONTROL SAMPLE & LCSD: 3309354 3309355

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	1100	975	110	98	75-125	12	20	
a,a,a-Trifluorotoluene (S)	%.				108	103	50-150			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3310417 3310418

Parameter	Units	10478338001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
TPH as Gas	ug/L	<38.3	1000	1000	1010	959	101	96	75-125	5	30	
a,a,a-Trifluorotoluene (S)	%.						100	98	50-150			

SAMPLE DUPLICATE: 3310416

Parameter	Units	10477269012 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	<38.3	ND		30	
a,a,a-Trifluorotoluene (S)	%.	94	93			

SAMPLE DUPLICATE: 3310419

Parameter	Units	10478338003 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	<38.3	ND		30	

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QUALITY CONTROL DATA

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

SAMPLE DUPLICATE: 3310419

Parameter	Units	10478338003 Result	Dup Result	RPD	Max RPD	Qualifiers
a,a,a-Trifluorotoluene (S)	%.	95	89			

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QUALITY CONTROL DATA

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

QC Batch: 612647 Analysis Method: EPA 6020A
QC Batch Method: EPA 3020 Analysis Description: 6020A Water Dissolved UPD4
Associated Lab Samples: 10478554002, 10478554003, 10478554004, 10478554005

METHOD BLANK: 3310284 Matrix: Water
Associated Lab Samples: 10478554002, 10478554003, 10478554004, 10478554005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	06/18/19 16:50	
Manganese, Dissolved	ug/L	ND	0.50	06/18/19 16:50	

LABORATORY CONTROL SAMPLE: 3310285

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	100	103	103	80-120	
Manganese, Dissolved	ug/L	100	112	112	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3310286 3310287

Parameter	Units	10478554003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	4.0	100	100	109	111	105	107	75-125	1	20	
Manganese, Dissolved	ug/L	6.2	100	100	111	113	105	107	75-125	1	20	

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QUALITY CONTROL DATA

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

QC Batch: 612785 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10478554001, 10478554002, 10478554003, 10478554004, 10478554005

METHOD BLANK: 3310978 Matrix: Water
Associated Lab Samples: 10478554001, 10478554002, 10478554003, 10478554004, 10478554005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	06/13/19 17:27	
Ethylbenzene	ug/L	ND	1.0	06/13/19 17:27	
m&p-Xylene	ug/L	ND	2.0	06/13/19 17:27	
o-Xylene	ug/L	ND	1.0	06/13/19 17:27	
Toluene	ug/L	ND	1.0	06/13/19 17:27	
1,2-Dichloroethane-d4 (S)	%.	101	75-125	06/13/19 17:27	
4-Bromofluorobenzene (S)	%.	101	75-125	06/13/19 17:27	
Toluene-d8 (S)	%.	96	75-125	06/13/19 17:27	

LABORATORY CONTROL SAMPLE: 3310979

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.4	102	75-125	
Ethylbenzene	ug/L	20	21.7	109	75-125	
m&p-Xylene	ug/L	40	44.1	110	75-125	
o-Xylene	ug/L	20	21.8	109	75-125	
Toluene	ug/L	20	19.5	98	75-125	
1,2-Dichloroethane-d4 (S)	%.			102	75-125	
4-Bromofluorobenzene (S)	%.			101	75-125	
Toluene-d8 (S)	%.			99	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3311013 3311014

Parameter	Units	10478338002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	<0.10	20	20	20.3	19.7	102	99	30-150	3	30	
Ethylbenzene	ug/L	<0.14	20	20	20.4	21.1	102	106	30-150	3	30	
m&p-Xylene	ug/L	<0.31	40	40	40.8	42.2	102	105	30-150	3	30	
o-Xylene	ug/L	<0.16	20	20	19.9	21.2	100	106	30-150	6	30	
Toluene	ug/L	<0.083	20	20	19.2	18.7	96	94	30-150	2	30	
1,2-Dichloroethane-d4 (S)	%.						107	104	75-125			
4-Bromofluorobenzene (S)	%.						102	103	75-125			
Toluene-d8 (S)	%.						98	99	75-125			

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QUALITY CONTROL DATA

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

QC Batch: 612063 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA Mod. 3510C Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10478554002, 10478554003, 10478554004, 10478554005

METHOD BLANK: 3307262 Matrix: Water
Associated Lab Samples: 10478554002, 10478554003, 10478554004, 10478554005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	ND	0.040	06/12/19 17:42	
2-Methylnaphthalene	ug/L	ND	0.040	06/12/19 17:42	
Acenaphthene	ug/L	ND	0.040	06/12/19 17:42	
Acenaphthylene	ug/L	ND	0.040	06/12/19 17:42	
Anthracene	ug/L	ND	0.040	06/12/19 17:42	
Benzo(a)anthracene	ug/L	ND	0.040	06/12/19 17:42	
Benzo(a)pyrene	ug/L	ND	0.040	06/12/19 17:42	
Benzo(b)fluoranthene	ug/L	ND	0.040	06/12/19 17:42	
Benzo(g,h,i)perylene	ug/L	ND	0.040	06/12/19 17:42	
Benzo(k)fluoranthene	ug/L	ND	0.040	06/12/19 17:42	
Chrysene	ug/L	ND	0.040	06/12/19 17:42	
Dibenz(a,h)anthracene	ug/L	ND	0.040	06/12/19 17:42	
Fluoranthene	ug/L	ND	0.040	06/12/19 17:42	
Fluorene	ug/L	ND	0.040	06/12/19 17:42	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.040	06/12/19 17:42	
Naphthalene	ug/L	ND	0.040	06/12/19 17:42	
Phenanthrene	ug/L	ND	0.040	06/12/19 17:42	
Pyrene	ug/L	ND	0.040	06/12/19 17:42	
2-Fluorobiphenyl (S)	%.	71	47-125	06/12/19 17:42	
p-Terphenyl-d14 (S)	%.	81	62-125	06/12/19 17:42	

LABORATORY CONTROL SAMPLE & LCSD: 3307263 3307264

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1-Methylnaphthalene	ug/L	1	0.80	0.65	80	65	31-125	21	20	R1
2-Methylnaphthalene	ug/L	1	0.81	0.66	81	66	43-125	20	20	
Acenaphthene	ug/L	1	0.81	0.64	81	64	50-125	23	20	R1
Acenaphthylene	ug/L	1	0.80	0.66	80	66	46-125	20	20	
Anthracene	ug/L	1	0.86	0.77	86	77	59-125	11	20	
Benzo(a)anthracene	ug/L	1	0.81	0.79	81	79	55-125	3	20	
Benzo(a)pyrene	ug/L	1	0.77	0.75	77	75	66-125	2	20	
Benzo(b)fluoranthene	ug/L	1	0.83	0.81	83	81	64-125	4	20	
Benzo(g,h,i)perylene	ug/L	1	0.74	0.70	74	70	58-125	5	20	
Benzo(k)fluoranthene	ug/L	1	0.78	0.75	78	75	60-125	3	20	
Chrysene	ug/L	1	0.77	0.75	77	75	62-125	2	20	
Dibenz(a,h)anthracene	ug/L	1	0.64	0.61	64	61	51-125	5	20	
Fluoranthene	ug/L	1	0.75	0.71	75	71	64-125	5	20	
Fluorene	ug/L	1	0.81	0.66	81	66	55-125	20	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.74	0.71	74	71	61-125	4	20	
Naphthalene	ug/L	1	0.84	0.69	84	69	48-125	19	20	

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QUALITY CONTROL DATA

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

LABORATORY CONTROL SAMPLE & LCSD: 3307263 3307264

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Phenanthrene	ug/L	1	0.80	0.71	80	71	63-125	11	20	
Pyrene	ug/L	1	0.84	0.78	84	78	61-125	7	20	
2-Fluorobiphenyl (S)	%.				77	61	47-125			
p-Terphenyl-d14 (S)	%.				80	78	62-125			

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QUALITY CONTROL DATA

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

QC Batch: 612049 Analysis Method: NWTPH-Dx
QC Batch Method: EPA Mod. 3510C Analysis Description: NWTPH-Dx GCS LV SG
Associated Lab Samples: 10478554002, 10478554003, 10478554004, 10478554005

METHOD BLANK: 3307209 Matrix: Water
Associated Lab Samples: 10478554002, 10478554003, 10478554004, 10478554005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Fuel Range SG	mg/L	ND	0.40	06/14/19 14:07	
Motor Oil Range SG	mg/L	ND	0.40	06/14/19 14:07	
n-Triacontane (S)	%.	80	50-150	06/14/19 14:07	
o-Terphenyl (S)	%.	86	50-150	06/14/19 14:07	

LABORATORY CONTROL SAMPLE & LCSD: 3307210 3307211

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Fuel Range SG	mg/L	2	1.5	1.9	77	94	50-150	20	20	
Motor Oil Range SG	mg/L	2	1.5	1.8	75	92	50-150	20	20	
n-Triacontane (S)	%.				63	81	50-150			
o-Terphenyl (S)	%.				73	87	50-150			

SAMPLE DUPLICATE: 3307212

Parameter	Units	10478554002 Result	Dup Result	RPD	Max RPD	Qualifiers
Diesel Fuel Range SG	mg/L	1.4	1.6	12	30	
Motor Oil Range SG	mg/L	0.21J	0.24J		30	
n-Triacontane (S)	%.	80	89			
o-Terphenyl (S)	%.	75	83			

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QUALITY CONTROL DATA

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

QC Batch: 612847 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10478554002, 10478554003, 10478554004, 10478554005

METHOD BLANK: 3311455 Matrix: Water
Associated Lab Samples: 10478554002, 10478554003, 10478554004, 10478554005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	5.0	06/14/19 06:49	

LABORATORY CONTROL SAMPLE & LCSD: 3311456 3311457

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	42.5	42.5	106	106	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3311458 3311459

Parameter	Units	10477447003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	121	40	40	162	161	103	99	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3311460 3311461

Parameter	Units	10477777005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	82.1	40	40	124	123	105	102	80-120	1	20	

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QUALITY CONTROL DATA

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

QC Batch: 613262 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10478554002, 10478554003, 10478554004, 10478554005

METHOD BLANK: 3314075 Matrix: Water
Associated Lab Samples: 10478554002, 10478554003, 10478554004, 10478554005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.2	06/17/19 03:25	

LABORATORY CONTROL SAMPLE: 3314076

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	12.5	12.0	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3314077 3314078

Parameter	Units	10478554002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	6.1	12.5	12.5	15.5	15.2	75	73	90-110	2	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3314079 3314080

Parameter	Units	10477777005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	3880	2500	2500	5250	5220	55	54	90-110	1	20	M6

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QUALITY CONTROL DATA

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

QC Batch: 612281 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10478554002, 10478554003, 10478554004, 10478554005

METHOD BLANK: 3308381 Matrix: Water
Associated Lab Samples: 10478554002, 10478554003, 10478554004, 10478554005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.10	06/12/19 09:11	

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QUALIFIERS

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

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TNI - The NELAC Institute.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

G+	Late peaks present outside the GRO window.
G-	Early peaks present outside the GRO window.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.
R1	RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 0499738 PEO GWSC-Revised Report
Pace Project No.: 10478554

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10478554002	**PEO-MW-32-201906**	EPA Mod. 3510C	612049	NWTPH-Dx	612935
10478554003	**PEO-MW-42-201906**	EPA Mod. 3510C	612049	NWTPH-Dx	612935
10478554004	**PEO-MW-24A-201906**	EPA Mod. 3510C	612049	NWTPH-Dx	612935
10478554005	**PEO-MW-41-201906**	EPA Mod. 3510C	612049	NWTPH-Dx	612935
10478554001	**Trip Blank**	NWTPH-Gx	612489		
10478554002	**PEO-MW-32-201906**	NWTPH-Gx	612489		
10478554003	**PEO-MW-42-201906**	NWTPH-Gx	612489		
10478554004	**PEO-MW-24A-201906**	NWTPH-Gx	612489		
10478554005	**PEO-MW-41-201906**	NWTPH-Gx	612489		
10478554002	**PEO-MW-32-201906**	EPA 3010	612402	EPA 6010D	612735
10478554003	**PEO-MW-42-201906**	EPA 3010	612402	EPA 6010D	612735
10478554004	**PEO-MW-24A-201906**	EPA 3010	612402	EPA 6010D	612735
10478554005	**PEO-MW-41-201906**	EPA 3010	612402	EPA 6010D	612735
10478554002	**PEO-MW-32-201906**	EPA 3020	612647	EPA 6020A	613809
10478554003	**PEO-MW-42-201906**	EPA 3020	612647	EPA 6020A	613809
10478554004	**PEO-MW-24A-201906**	EPA 3020	612647	EPA 6020A	613809
10478554005	**PEO-MW-41-201906**	EPA 3020	612647	EPA 6020A	613809
10478554002	**PEO-MW-32-201906**	EPA Mod. 3510C	612063	EPA 8270 by SIM	612493
10478554003	**PEO-MW-42-201906**	EPA Mod. 3510C	612063	EPA 8270 by SIM	612493
10478554004	**PEO-MW-24A-201906**	EPA Mod. 3510C	612063	EPA 8270 by SIM	612493
10478554005	**PEO-MW-41-201906**	EPA Mod. 3510C	612063	EPA 8270 by SIM	612493
10478554001	**Trip Blank**	EPA 8260B	612785		
10478554002	**PEO-MW-32-201906**	EPA 8260B	612785		
10478554003	**PEO-MW-42-201906**	EPA 8260B	612785		
10478554004	**PEO-MW-24A-201906**	EPA 8260B	612785		
10478554005	**PEO-MW-41-201906**	EPA 8260B	612785		
10478554002	**PEO-MW-32-201906**	SM 2320B	612847		
10478554003	**PEO-MW-42-201906**	SM 2320B	612847		
10478554004	**PEO-MW-24A-201906**	SM 2320B	612847		
10478554005	**PEO-MW-41-201906**	SM 2320B	612847		
10478554002	**PEO-MW-32-201906**	EPA 300.0	613262		
10478554003	**PEO-MW-42-201906**	EPA 300.0	613262		
10478554004	**PEO-MW-24A-201906**	EPA 300.0	613262		
10478554005	**PEO-MW-41-201906**	EPA 300.0	613262		
10478554002	**PEO-MW-32-201906**	EPA 353.2	612281		
10478554003	**PEO-MW-42-201906**	EPA 353.2	612281		
10478554004	**PEO-MW-24A-201906**	EPA 353.2	612281		
10478554005	**PEO-MW-41-201906**	EPA 353.2	612281		

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Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / WO# : 10478554

The Chain-of-Custody is a LEGAL DOCUI

10478554

1 of 1

2285880

Section A Required Client Information:

Company: ERM
Address: 1050 SW 6th Ave
Suite 1650 Portland, OR
Email To: Rita.Cooper@erm.com 97204
Phone: 207-319-6310 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Rita Cooper
Copy To:
Purchase Order No.: 0
Project Name: PEO GWSC
Project Number: 0499738

Section C Invoice Information:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #: 40125/1

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE:

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	NWTPH-GX	NWTPH-DX	NWTPH VPH	ERH	~~VPH~~ BTEX	Dissolved metal-Asym	Hardness	PAH	Alkalinity to Sulfate	Nitrate	Nitrate/Nitrite	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Trip Blank	WT	G	6/10/19	0700				9				X						X		X		X								001
2	PEO-MW-32-201906	WT	G	6/10/19	0910				19	X	X	X	X						X	X	X	X	X	X	X	X	X	X	X		002
3	PEO-MW-42-201906	WT	G	6/10/19	1310				19	X	X	X	X						X	X	X	X	X	X	X	X	X	X	X		003
4	PEO-MW-24A-201906	WT	G	6/10/19	1410				19	X	X	X	X						X	X	X	X	X	X	X	X	X	X	X		004
5	PEO-MW-41-201906	WT	G	6/10/19	1520				19	X	X	X	X						X	X	X	X	X	X	X	X	X	X	X		005
6																															
7																															
8																															
9																															
10																															
11																															
12																															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Standard TAT	Joe Casey for ERM	6/10/19	1630	Jennifer Johnson Pace	6/11/19	9:45	1.6 1.0 0.8	Y	Y	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Joe Casey

SIGNATURE of SAMPLER:

DATE Signed (MM/DD/YY): 06/10/2019

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-C-010-rev.00, 09Nov2017

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 09May2019 Page 1 of 1
	Document No.: F-MN-L-213-rev.28	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: ERM

Project #: **WO# : 10478554**

PM: JMT **Due Date: 06/18/19**

CLIENT: ERM-Oregon

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☐ Commercial See Exception ☐

Tracking Number: 7475 9398 5469/5241/5230

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other: _____ **Temp Blank?** ☑ Yes ☐ No

Thermometer: ☑ T1(0461) ☐ T2(1336) ☐ T3(0459) ☐ T4(0254) ☐ T5(0489) **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 1.7, 1.1, 0.9 °C **Average Corrected Temp (no temp blank only):** _____ °C See Exceptions ☐

Correction Factor: -0.1 **Cooler Temp Corrected w/temp blank:** 1.6, 1.0, 0.8 °C

USDA Regulated Soil: (☑ N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** JJ 6/11/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present and Filled Out?	☑ Yes	☐ No		1.
Chain of Custody Relinquished?	☑ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	3.
Samples Arrived within Hold Time?	☑ Yes	☐ No		4.
Short Hold Time Analysis (<72 hr)?	☑ Yes	☐ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☑ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other
Rush Turn Around Time Requested?	☐ Yes	☑ No		6.
Sufficient Volume?	☑ Yes	☐ No		7.
Correct Containers Used? -Pace Containers Used?	☑ Yes ☑ Yes	☐ No ☐ No		8.
Containers Intact?	☑ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☑ Yes	☐ No	☐ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC? Matrix: ☑ Water ☐ Soil ☐ Oil ☐ Other	☑ Yes	☐ No		11. If no, write ID/ Date/Time on Container Below: See Exception ☐
All containers needing acid/base preservation have been checked?	☑ Yes	☐ No	☐ N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	☑ Yes	☐ No	☐ N/A	☐ NaOH ☑ HNO_3 2-5% ☑ H_2SO_4 2-5% ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☑ Yes	☐ No	☐ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No pH Paper Lot# See Exception ☐
				Res. Chlorine: 0-6 Roll 220416A; 0-6 Strip: ; 0-14 Strip:
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☑ No	☐ N/A	13. See Exception ☐
Trip Blank Present?	☑ Yes	☐ No	☐ N/A	14.
Trip Blank Custody Seals Present?	☑ Yes	☐ No	☐ N/A	Pace Trip Blank Lot # (if purchased): 211058

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Rita Cooper Date/Time: 6/11/19

Comments/Resolution: Emailed to verify if the metals have been filtered in the field and they have. Verifying if hardness should be ran on totals.

Project Manager Review: Julie Ryan **Date:** 6/11/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: JJ

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Pace Analytical Minnesota
Julie Boswer
1700 Elm Street, Ste. 200
Minneapolis, MN 55414

RE: 0499738 PEO GWSC
Work Order Number: 1906134

July 25, 2019

Attention Julie Boswer:

Fremont Analytical, Inc. received 5 sample(s) on 6/12/2019 for the analyses presented in the following report.

Extractable Petroleum Hydrocarbons by NWEPH
Volatile Petroleum Hydrocarbons by NWVPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *07/25/2019*

CLIENT: Pace Analytical Minnesota
Project: 0499738 PEO GWSC
Work Order: 1906134

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1906134-001	PEO-MW-32-201906	06/10/2019 9:10 AM	06/12/2019 9:17 AM
1906134-002	PEO-MW-42-201906	06/10/2019 1:10 PM	06/12/2019 9:17 AM
1906134-003	PEO-MW-24A-201906	06/10/2019 2:20 PM	06/12/2019 9:17 AM
1906134-004	PEO-MW-41-201906	06/10/2019 3:20 PM	06/12/2019 9:17 AM
1906134-005	Trip Blank	06/10/2019 7:00 AM	06/12/2019 9:17 AM

Case Narrative

WO#: **1906134**
Date: **7/25/2019**

CLIENT: Pace Analytical Minnesota
Project: 0499738 PEO GWSC

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

7/5/19: Rev1 includes a select list of carbon ranges.
7/25/19: Rev2 includes data reported to the MDL.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1906134**
Date Reported: **7/25/2019**

CLIENT: Pace Analytical Minnesota
Project: 0499738 PEO GWSC

Lab ID: 1906134-001 **Collection Date:** 6/10/2019 9:10:00 AM
Client Sample ID: **PEO-MW-32-201906** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 24901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	13.8	5.88	JMDL	µg/L	1	6/19/2019 4:00:00 PM
Surr: 1-Chlorooctadecane	68.6	60 - 140		%Rec	1	6/19/2019 4:00:00 PM
Surr: o-Terphenyl	80.2	60 - 140		%Rec	1	6/20/2019 2:30:00 PM

NOTES:
MDL - Analyte reported to Method Detection Limit (MDL)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 24918		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07	MDL	µg/L	1	6/17/2019 2:47:56 PM
Surr: 1,4-Difluorobenzene	97.0	65 - 140		%Rec	1	6/17/2019 2:47:56 PM
Surr: Bromofluorobenzene	101	65 - 140		%Rec	1	6/17/2019 2:47:56 PM

NOTES:
MDL - Analyte reported to Method Detection Limit (MDL)

Lab ID: 1906134-002 **Collection Date:** 6/10/2019 1:10:00 PM
Client Sample ID: **PEO-MW-42-201906** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 24901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	23.7	19.9		µg/L	1	6/19/2019 5:29:00 PM
Surr: 1-Chlorooctadecane	76.6	60 - 140		%Rec	1	6/19/2019 5:29:00 PM
Surr: o-Terphenyl	91.4	60 - 140		%Rec	1	6/20/2019 3:58:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 24918		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07	MDL	µg/L	1	6/17/2019 3:28:30 PM
Surr: 1,4-Difluorobenzene	96.6	65 - 140		%Rec	1	6/17/2019 3:28:30 PM
Surr: Bromofluorobenzene	104	65 - 140		%Rec	1	6/17/2019 3:28:30 PM

NOTES:
MDL - Analyte reported to Method Detection Limit (MDL)

Analytical Report

Work Order: **1906134**
Date Reported: **7/25/2019**

CLIENT: Pace Analytical Minnesota
Project: 0499738 PEO GWSC

Lab ID: 1906134-003 **Collection Date:** 6/10/2019 2:20:00 PM
Client Sample ID: **PEO-MW-24A-201906** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 24901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.91	MDL	µg/L	1	6/19/2019 6:14:00 PM
Surr: 1-Chlorooctadecane	90.5	60 - 140		%Rec	1	6/19/2019 6:14:00 PM
Surr: o-Terphenyl	98.1	60 - 140		%Rec	1	6/20/2019 4:43:00 PM
NOTES: MDL - Analyte reported to Method Detection Limit (MDL)						
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 24918		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	132	20.0		µg/L	1	6/17/2019 4:09:30 PM
Surr: 1,4-Difluorobenzene	101	65 - 140		%Rec	1	6/17/2019 4:09:30 PM
Surr: Bromofluorobenzene	110	65 - 140		%Rec	1	6/17/2019 4:09:30 PM

Analytical Report

Work Order: **1906134**
Date Reported: **7/25/2019**

CLIENT: Pace Analytical Minnesota
Project: 0499738 PEO GWSC

Lab ID: 1906134-004 **Collection Date:** 6/10/2019 3:20:00 PM
Client Sample ID: **PEO-MW-41-201906** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 24901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.92	MDL	µg/L	1	6/19/2019 6:58:00 PM
Surr: 1-Chlorooctadecane	79.2	60 - 140		%Rec	1	6/19/2019 6:58:00 PM
Surr: o-Terphenyl	92.4	60 - 140		%Rec	1	6/20/2019 5:28:00 PM

NOTES:
MDL - Analyte reported to Method Detection Limit (MDL)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 24918		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07	MDL	µg/L	1	6/17/2019 4:50:31 PM
Surr: 1,4-Difluorobenzene	102	65 - 140		%Rec	1	6/17/2019 4:50:31 PM
Surr: Bromofluorobenzene	110	65 - 140		%Rec	1	6/17/2019 4:50:31 PM

NOTES:
MDL - Analyte reported to Method Detection Limit (MDL)

Work Order: 1906134
CLIENT: Pace Analytical Minnesota
Project: 0499738 PEO GWSC

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **MB-24901**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **6/13/2019**		RunNo: **52191**			
Client ID: **MBLKW**	Batch ID: **24901**					Analysis Date: **6/19/2019**		SeqNo: **1030406**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	5.88		0	0						MDL
Surr: 1-Chlorooctadecane	1,540		1,998		77.1	60	140				

NOTES:
MDL - Analyte reported to Method Detection Limit (MDL)

Sample ID: **LCS-24901**	SampType: **LCS**			Units: **µg/L**		Prep Date: **6/13/2019**		RunNo: **52191**			
Client ID: **LCSW**	Batch ID: **24901**					Analysis Date: **6/19/2019**		SeqNo: **1030405**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	2,490	20.0	2,494	0	100	70	130				
Surr: 1-Chlorooctadecane	1,800		1,995		90.1	60	140				

Sample ID: **1906134-001BDUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **6/13/2019**		RunNo: **52191**			
Client ID: **PEO-MW-32-201906**	Batch ID: **24901**					Analysis Date: **6/19/2019**		SeqNo: **1030404**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	20.1		0	0			0		25	
Surr: 1-Chlorooctadecane	1,510		2,006		75.3	60	140		0		

Sample ID: **1906134-002BMS**	SampType: **MS**			Units: **µg/L**		Prep Date: **6/13/2019**		RunNo: **52191**			
Client ID: **PEO-MW-42-201906**	Batch ID: **24901**					Analysis Date: **6/20/2019**		SeqNo: **1030407**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	2,910	19.9	2,486	23.75	116	70	130				
Surr: 1-Chlorooctadecane	1,710		1,989		85.7	60	140				

Work Order: 1906134
CLIENT: Pace Analytical Minnesota
Project: 0499738 PEO GWSC

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **1906134-002BMSD** SampType: **MSD** Units: **µg/L** Prep Date: **6/13/2019** RunNo: **52191**
Client ID: **PEO-MW-42-201906** Batch ID: **24901** Analysis Date: **6/20/2019** SeqNo: **1030408**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	2,110	19.9	2,483	23.75	84.2	70	130	2,905	31.5	30	R
Surr: 1-Chlorooctadecane	1,720		1,986		86.8	60	140		0		

NOTES:
R - High RPD observed, spike recovery is within range.

Work Order: 1906134
CLIENT: Pace Analytical Minnesota
Project: 0499738 PEO GWSC

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **LCS-24918**	SampType: **LCS**			Units: **µg/L**		Prep Date: **6/14/2019**			RunNo: **52154**		
Client ID: **LCSW**	Batch ID: **24918**					Analysis Date: **6/17/2019**			SeqNo: **1029780**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	200	20.0	200.0	0	99.9	70	130				
Surr: 1,4-Difluorobenzene	49.0		50.00		98.0	65	140				
Surr: Bromofluorobenzene	48.6		50.00		97.2	65	140				

Sample ID: **LCSD-24918**	SampType: **LCSD**			Units: **µg/L**		Prep Date: **6/14/2019**			RunNo: **52154**		
Client ID: **LCSW02**	Batch ID: **24918**					Analysis Date: **6/17/2019**			SeqNo: **1029781**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	204	20.0	200.0	0	102	70	130	199.9	1.80	20	
Surr: 1,4-Difluorobenzene	48.9		50.00		97.9	65	140		0		
Surr: Bromofluorobenzene	48.6		50.00		97.2	65	140		0		

Sample ID: **MB-24918**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **6/14/2019**			RunNo: **52154**		
Client ID: **MBLKW**	Batch ID: **24918**					Analysis Date: **6/17/2019**			SeqNo: **1029782**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	4.07		0	0						MDL
Surr: 1,4-Difluorobenzene	47.9		50.00		95.8	65	140				
Surr: Bromofluorobenzene	49.8		50.00		99.6	65	140				

NOTES:
MDL - Analyte reported to Method Detection Limit (MDL)

Sample ID: **1906134-004ADUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **6/14/2019**			RunNo: **52154**		
Client ID: **PEO-MW-41-201906**	Batch ID: **24918**					Analysis Date: **6/17/2019**			SeqNo: **1029777**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	20.0		0	0			0		25	
Surr: 1,4-Difluorobenzene	51.4		50.00		103	65	140		0		
Surr: Bromofluorobenzene	53.5		50.00		107	65	140		0		

Sample Log-In Check List

Client Name:	**PACEMINN**	Work Order Number:	**1906134**
Logged by:	**Clare Griggs**	Date Received:	**6/12/2019 9:17:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	FedEx		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☑	No ☐	Not Required ☐
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☑	NA ☐
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	6.4
Sample	3.1
Temp Blank	2.8

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody

1906134

Pace Analytical®
www.pacelabs.com

Workorder: 10478554 **Workorder Name:** 0499738 PEO GWSC **Results Requested By:** 6/18/2019

Report / Invoice To	Subcontract To
Julie Bowser Pace Analytical Minnesota 1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone 612-607-6390 Email: julie.bowser@pacelabs.com	Fremont Analytical 3600 Fremont Ave N Seattle, WA 98103 P.O. 10478554

State of Sample Origin: OR

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HCL (VOH)	Preserved Containers: AG1U unpreserved	NWTPH EPH	NWTPH VPH	LAB USE ONLY
1	PEO-MW-32-201906	6/10/2019 09:10	10478554002	Water	3	2	X	X	
2	PEO-MW-42-201906	6/10/2019 13:10	10478554003	Water	3	2	X	X	
3	PEO-MW-24A-201906	6/10/2019 14:20	10478554004	Water	3	2	X	X	
4	PEO-MW-41-201906	6/10/2019 15:20	10478554005	Water	3	2	X	X	
5									

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	6/11/19 1500	[signature]	6-12-19 0917
2				
3				

Comments

Cooler Temperature on Receipt _____ °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

August 02, 2019

Joe Casey
ERM Portland
1050 SW 6th Ave
Suite 1650
Portland, OR 97204

RE: Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Dear Joe Casey:
Enclosed are the analytical results for sample(s) received by the laboratory on June 12, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

This report was revised on July 7, 2019 to update the carbon ranges for NWTPH EPH/VPH.

This report was further revised on 8/2/19 to add the motor oil range to NWTPH, add 1 & 2 methylnapthalene to the 8270 SIM analysis, add o-xylene and m/p-xylenes by 8260 and update the subcontract data to report down to the MDL.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Julie Bowser
julie.bowser@pacelabs.com
612-607-6390
Project Manager

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Enclosures

cc: Rita Cooper, ERM Portland
ERM Global EDD Mailbox, ERM

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CERTIFICATIONS

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

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SAMPLE SUMMARY

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10478743001	**Trip Blank**	Water	06/11/19 07:00	06/12/19 08:50
10478743002	**PEO-MW-33-201906**	Water	06/11/19 07:55	06/12/19 08:50
10478743003	**PEO-MW-31-201906**	Water	06/11/19 09:15	06/12/19 08:50
10478743004	**PEO-MW-19-201906**	Water	06/11/19 10:25	06/12/19 08:50
10478743005	**PEO-MW-06-201906**	Water	06/11/19 11:45	06/12/19 08:50
10478743006	**PEO-MW-03-201906**	Water	06/11/19 13:00	06/12/19 08:50
10478743007	**PEO-MW-21-201906**	Water	06/11/19 14:15	06/12/19 08:50

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SAMPLE ANALYTE COUNT

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10478743001	**Trip Blank**	NWTPH-Gx	AJR	2	PASI-M
		EPA 8260B	DS2	8	PASI-M
10478743002	**PEO-MW-33-201906**	NWTPH-Dx	EC2	4	PASI-M
		NWTPH-Gx	AJR	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		EPA 8260B	ML4	8	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10478743003	**PEO-MW-31-201906**	NWTPH-Dx	EC2	4	PASI-M
		NWTPH-Gx	AJR	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		EPA 8260B	ML4	8	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10478743004	**PEO-MW-19-201906**	NWTPH-Dx	EC2	4	PASI-M
		NWTPH-Gx	AJR	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		EPA 8260B	ML4	8	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10478743005	**PEO-MW-06-201906**	NWTPH-Dx	EC2	4	PASI-M
		NWTPH-Gx	AJR	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		EPA 8260B	ML4	8	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M

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SAMPLE ANALYTE COUNT

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 353.2	JFP	1	PASI-M
10478743006	**PEO-MW-03-201906**	NWTPH-Dx	EC2	4	PASI-M
		NWTPH-Gx	AJR	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		EPA 8260B	ML4	8	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10478743007	**PEO-MW-21-201906**	NWTPH-Dx	EC2	4	PASI-M
		NWTPH-Gx	AJR	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		EPA 8260B	ML4	8	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M

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ANALYTICAL RESULTS

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Sample: Trip Blank **Lab ID: 10478743001** Collected: 06/11/19 07:00 Received: 06/12/19 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		06/14/19 01:18		
Surrogates								
a,a,a-Trifluorotoluene (S)	90	%.	50-150	1		06/14/19 01:18	98-08-8	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		06/14/19 04:40	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/14/19 04:40	100-41-4	
Toluene	ND	ug/L	1.0	1		06/14/19 04:40	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		06/14/19 04:40	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/14/19 04:40	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	103	%.	75-125	1		06/14/19 04:40	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1		06/14/19 04:40	2037-26-5	
4-Bromofluorobenzene (S)	92	%.	75-125	1		06/14/19 04:40	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Sample: PEO-MW-33-201906 **Lab ID: 10478743002** Collected: 06/11/19 07:55 Received: 06/12/19 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**2.0**	mg/L	0.43	1	06/12/19 13:18	06/19/19 14:14	68334-30-5	
Motor Oil Range SG	**0.40J**	mg/L	0.43	1	06/12/19 13:18	06/19/19 14:14	64742-65-0	
Surrogates								
o-Terphenyl (S)	76	%.	50-150	1	06/12/19 13:18	06/19/19 14:14	84-15-1	
n-Triacontane (S)	84	%.	50-150	1	06/12/19 13:18	06/19/19 14:14	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**1160**	ug/L	100	1		06/14/19 02:09		G+,G-
Surrogates								
a,a,a-Trifluorotoluene (S)	97	%.	50-150	1		06/14/19 02:09	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**164000**	ug/L	3300	1	06/13/19 06:54	06/13/19 15:48		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**7.0**	ug/L	0.50	1	06/14/19 05:14	06/18/19 17:27	7440-38-2	
Manganese, Dissolved	**1680**	ug/L	2.5	5	06/14/19 05:14	06/19/19 10:37	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**0.25**	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	83-32-9	
Acenaphthylene	**0.044**	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	208-96-8	
Anthracene	ND	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	207-08-9	
Chrysene	ND	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	53-70-3	
Fluoranthene	ND	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	206-44-0	
Fluorene	ND	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	193-39-5	
1-Methylnaphthalene	**0.049**	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	90-12-0	
2-Methylnaphthalene	**0.018J**	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	91-57-6	
Naphthalene	**0.26**	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	91-20-3	
Phenanthrene	**0.033J**	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	85-01-8	
Pyrene	ND	ug/L	0.042	1	06/13/19 12:30	06/14/19 20:58	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	75	%.	47-125	1	06/13/19 12:30	06/14/19 20:58	321-60-8	
p-Terphenyl-d14 (S)	92	%.	62-125	1	06/13/19 12:30	06/14/19 20:58	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**0.33J**	ug/L	1.0	1		06/18/19 15:27	71-43-2	
Ethylbenzene	**0.18J**	ug/L	1.0	1		06/18/19 15:27	100-41-4	
Toluene	**0.64J**	ug/L	1.0	1		06/18/19 15:27	108-88-3	
m&p-Xylene	**1.5J**	ug/L	2.0	1		06/18/19 15:27	179601-23-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Sample: PEO-MW-33-201906 **Lab ID: 10478743002** Collected: 06/11/19 07:55 Received: 06/12/19 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	**0.23J**	ug/L	1.0	1		06/18/19 15:27	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%.	75-125	1		06/18/19 15:27	17060-07-0	
Toluene-d8 (S)	97	%.	75-125	1		06/18/19 15:27	2037-26-5	
4-Bromofluorobenzene (S)	101	%.	75-125	1		06/18/19 15:27	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**221**	mg/L	5.0	1		06/17/19 08:07		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**6.3**	mg/L	1.2	1		06/17/19 18:58	14808-79-8	M1
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		06/12/19 18:10	14797-55-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Sample: PEO-MW-31-201906 **Lab ID: 10478743003** Collected: 06/11/19 09:15 Received: 06/12/19 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.34J**	mg/L	0.42	1	06/12/19 13:18	06/19/19 14:25	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.42	1	06/12/19 13:18	06/19/19 14:25	64742-65-0	
Surrogates								
o-Terphenyl (S)	63	%.	50-150	1	06/12/19 13:18	06/19/19 14:25	84-15-1	
n-Triacontane (S)	68	%.	50-150	1	06/12/19 13:18	06/19/19 14:25	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**418**	ug/L	100	1		06/14/19 02:26		
Surrogates								
a,a,a-Trifluorotoluene (S)	95	%.	50-150	1		06/14/19 02:26	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**54200**	ug/L	3300	1	06/13/19 06:54	06/13/19 15:50		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**0.25J**	ug/L	0.50	1	06/14/19 05:14	06/18/19 17:30	7440-38-2	
Manganese, Dissolved	**2.7**	ug/L	0.50	1	06/14/19 05:14	06/18/19 17:30	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	83-32-9	
Acenaphthylene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	208-96-8	
Anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	207-08-9	
Chrysene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	53-70-3	
Fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	206-44-0	
Fluorene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	91-57-6	
Naphthalene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	91-20-3	
Phenanthrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	85-01-8	
Pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 21:19	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	66	%.	47-125	1	06/13/19 12:30	06/14/19 21:19	321-60-8	
p-Terphenyl-d14 (S)	91	%.	62-125	1	06/13/19 12:30	06/14/19 21:19	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		06/14/19 14:38	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/14/19 14:38	100-41-4	
Toluene	ND	ug/L	1.0	1		06/14/19 14:38	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		06/14/19 14:38	179601-23-1	

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ANALYTICAL RESULTS

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Sample: PEO-MW-31-201906 **Lab ID: 10478743003** Collected: 06/11/19 09:15 Received: 06/12/19 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		06/14/19 14:38	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	104	%.	75-125	1		06/14/19 14:38	17060-07-0	
Toluene-d8 (S)	99	%.	75-125	1		06/14/19 14:38	2037-26-5	
4-Bromofluorobenzene (S)	103	%.	75-125	1		06/14/19 14:38	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**60.8**	mg/L	5.0	1		06/17/19 08:11		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**9.7**	mg/L	1.2	1		06/17/19 20:49	14808-79-8	M1
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	**0.034J**	mg/L	0.10	1		06/12/19 18:13	14797-55-8	

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ANALYTICAL RESULTS

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Sample: PEO-MW-19-201906 **Lab ID: 10478743004** Collected: 06/11/19 10:25 Received: 06/12/19 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.075J**	mg/L	0.41	1	06/12/19 13:18	06/19/19 14:36	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.41	1	06/12/19 13:18	06/19/19 14:36	64742-65-0	
Surrogates								
o-Terphenyl (S)	84	%.	50-150	1	06/12/19 13:18	06/19/19 14:36	84-15-1	
n-Triacontane (S)	89	%.	50-150	1	06/12/19 13:18	06/19/19 14:36	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**301**	ug/L	100	1		06/14/19 02:43		
Surrogates								
a,a,a-Trifluorotoluene (S)	94	%.	50-150	1		06/14/19 02:43	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**71000**	ug/L	3300	1	06/13/19 06:54	06/13/19 15:53		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**0.27J**	ug/L	0.50	1	06/14/19 05:14	06/18/19 17:33	7440-38-2	
Manganese, Dissolved	**17.5**	ug/L	0.50	1	06/14/19 05:14	06/18/19 17:33	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	83-32-9	
Acenaphthylene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	208-96-8	
Anthracene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	207-08-9	
Chrysene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	53-70-3	
Fluoranthene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	206-44-0	
Fluorene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	91-57-6	
Naphthalene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	91-20-3	
Phenanthrene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	85-01-8	
Pyrene	ND	ug/L	0.040	1	06/13/19 12:30	06/14/19 21:41	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	54	%.	47-125	1	06/13/19 12:30	06/14/19 21:41	321-60-8	
p-Terphenyl-d14 (S)	85	%.	62-125	1	06/13/19 12:30	06/14/19 21:41	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		06/14/19 14:55	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/14/19 14:55	100-41-4	
Toluene	ND	ug/L	1.0	1		06/14/19 14:55	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		06/14/19 14:55	179601-23-1	

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ANALYTICAL RESULTS

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Sample: PEO-MW-19-201906 **Lab ID: 10478743004** Collected: 06/11/19 10:25 Received: 06/12/19 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		06/14/19 14:55	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	104	%.	75-125	1		06/14/19 14:55	17060-07-0	
Toluene-d8 (S)	98	%.	75-125	1		06/14/19 14:55	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		06/14/19 14:55	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**81.4**	mg/L	5.0	1		06/17/19 08:14		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**10.2**	mg/L	1.2	1		06/18/19 14:09	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	**1.2**	mg/L	0.10	1		06/12/19 18:43	14797-55-8	

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ANALYTICAL RESULTS

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Sample: PEO-MW-06-201906 **Lab ID: 10478743005** Collected: 06/11/19 11:45 Received: 06/12/19 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.49**	mg/L	0.40	1	06/12/19 13:18	06/19/19 14:47	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.40	1	06/12/19 13:18	06/19/19 14:47	64742-65-0	
Surrogates								
o-Terphenyl (S)	82	%.	50-150	1	06/12/19 13:18	06/19/19 14:47	84-15-1	
n-Triacontane (S)	84	%.	50-150	1	06/12/19 13:18	06/19/19 14:47	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**1700**	ug/L	100	1		06/14/19 02:59		G+,G-
Surrogates								
a,a,a-Trifluorotoluene (S)	111	%.	50-150	1		06/14/19 02:59	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**33200**	ug/L	3300	1	06/13/19 06:54	06/13/19 15:56		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**5.5**	ug/L	0.50	1	06/14/19 05:14	06/18/19 17:36	7440-38-2	
Manganese, Dissolved	**392**	ug/L	0.50	1	06/14/19 05:14	06/18/19 17:36	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**1.0**	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	83-32-9	
Acenaphthylene	**0.32**	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	208-96-8	
Anthracene	**0.12**	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	207-08-9	
Chrysene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	53-70-3	
Fluoranthene	**0.043**	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	206-44-0	
Fluorene	**2.4**	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	193-39-5	
1-Methylnaphthalene	**13.1**	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	90-12-0	
2-Methylnaphthalene	**9.7**	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	91-57-6	
Naphthalene	**2.1**	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	91-20-3	
Phenanthrene	**1.6**	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	85-01-8	
Pyrene	**0.052**	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:02	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	62	%.	47-125	1	06/13/19 12:30	06/14/19 22:02	321-60-8	
p-Terphenyl-d14 (S)	83	%.	62-125	1	06/13/19 12:30	06/14/19 22:02	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		06/14/19 15:12	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/14/19 15:12	100-41-4	
Toluene	**0.50J**	ug/L	1.0	1		06/14/19 15:12	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		06/14/19 15:12	179601-23-1	

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ANALYTICAL RESULTS

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Sample: PEO-MW-06-201906 **Lab ID: 10478743005** Collected: 06/11/19 11:45 Received: 06/12/19 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		06/14/19 15:12	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	106	%.	75-125	1		06/14/19 15:12	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1		06/14/19 15:12	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125	1		06/14/19 15:12	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**83.1**	mg/L	5.0	1		06/17/19 08:41		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**4.8**	mg/L	1.2	1		06/17/19 22:38	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		06/12/19 18:45	14797-55-8	

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ANALYTICAL RESULTS

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Sample: PEO-MW-03-201906 **Lab ID: 10478743006** Collected: 06/11/19 13:00 Received: 06/12/19 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.30J**	mg/L	0.42	1	06/12/19 13:18	06/19/19 14:57	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.42	1	06/12/19 13:18	06/19/19 14:57	64742-65-0	
Surrogates								
o-Terphenyl (S)	72	%.	50-150	1	06/12/19 13:18	06/19/19 14:57	84-15-1	
n-Triacontane (S)	76	%.	50-150	1	06/12/19 13:18	06/19/19 14:57	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**510**	ug/L	100	1		06/14/19 03:16		
Surrogates								
a,a,a-Trifluorotoluene (S)	88	%.	50-150	1		06/14/19 03:16	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**61300**	ug/L	3300	1	06/13/19 06:54	06/13/19 16:05		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**0.30J**	ug/L	0.50	1	06/14/19 05:14	06/18/19 17:39	7440-38-2	
Manganese, Dissolved	**6.5**	ug/L	0.50	1	06/14/19 05:14	06/18/19 17:39	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	83-32-9	
Acenaphthylene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	208-96-8	
Anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	207-08-9	
Chrysene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	53-70-3	
Fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	206-44-0	
Fluorene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	193-39-5	
1-Methylnaphthalene	**0.040J**	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	90-12-0	
2-Methylnaphthalene	**0.026J**	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	91-57-6	
Naphthalene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	91-20-3	
Phenanthrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	85-01-8	
Pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:23	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	61	%.	47-125	1	06/13/19 12:30	06/14/19 22:23	321-60-8	
p-Terphenyl-d14 (S)	84	%.	62-125	1	06/13/19 12:30	06/14/19 22:23	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		06/14/19 15:28	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/14/19 15:28	100-41-4	
Toluene	ND	ug/L	1.0	1		06/14/19 15:28	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		06/14/19 15:28	179601-23-1	

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ANALYTICAL RESULTS

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Sample: PEO-MW-03-201906 **Lab ID: 10478743006** Collected: 06/11/19 13:00 Received: 06/12/19 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		06/14/19 15:28	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	104	%.	75-125	1		06/14/19 15:28	17060-07-0	
Toluene-d8 (S)	99	%.	75-125	1		06/14/19 15:28	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		06/14/19 15:28	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**71.5**	mg/L	5.0	1		06/17/19 08:43		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**6.7**	mg/L	1.2	1		06/17/19 22:53	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	**0.23**	mg/L	0.10	1		06/12/19 18:46	14797-55-8	

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ANALYTICAL RESULTS

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Sample: PEO-MW-21-201906 **Lab ID: 10478743007** Collected: 06/11/19 14:15 Received: 06/12/19 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.20J**	mg/L	0.42	1	06/12/19 13:18	06/19/19 15:08	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.42	1	06/12/19 13:18	06/19/19 15:08	64742-65-0	
Surrogates								
o-Terphenyl (S)	82	%.	50-150	1	06/12/19 13:18	06/19/19 15:08	84-15-1	
n-Triacontane (S)	82	%.	50-150	1	06/12/19 13:18	06/19/19 15:08	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**366**	ug/L	100	1		06/14/19 03:33		
Surrogates								
a,a,a-Trifluorotoluene (S)	93	%.	50-150	1		06/14/19 03:33	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**26200**	ug/L	3300	1	06/13/19 06:54	06/13/19 16:08		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**0.20J**	ug/L	0.50	1	06/14/19 05:14	06/18/19 17:42	7440-38-2	
Manganese, Dissolved	**3.6**	ug/L	0.50	1	06/14/19 05:14	06/18/19 17:42	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	83-32-9	
Acenaphthylene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	208-96-8	
Anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	207-08-9	
Chrysene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	53-70-3	
Fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	206-44-0	
Fluorene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	91-57-6	
Naphthalene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	91-20-3	
Phenanthrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	85-01-8	
Pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 22:44	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	66	%.	47-125	1	06/13/19 12:30	06/14/19 22:44	321-60-8	
p-Terphenyl-d14 (S)	85	%.	62-125	1	06/13/19 12:30	06/14/19 22:44	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		06/14/19 15:45	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/14/19 15:45	100-41-4	
Toluene	ND	ug/L	1.0	1		06/14/19 15:45	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		06/14/19 15:45	179601-23-1	

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ANALYTICAL RESULTS

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Sample: PEO-MW-21-201906 **Lab ID: 10478743007** Collected: 06/11/19 14:15 Received: 06/12/19 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		06/14/19 15:45	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	103	%.	75-125	1		06/14/19 15:45	17060-07-0	
Toluene-d8 (S)	98	%.	75-125	1		06/14/19 15:45	2037-26-5	
4-Bromofluorobenzene (S)	100	%.	75-125	1		06/14/19 15:45	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**37.7**	mg/L	5.0	1		06/17/19 08:46		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**3.7**	mg/L	1.2	1		06/17/19 23:09	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	**0.25**	mg/L	0.10	1		06/12/19 18:47	14797-55-8	

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QUALITY CONTROL DATA

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

QC Batch: 612820 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Water
Associated Lab Samples: 10478743001, 10478743002, 10478743003, 10478743004, 10478743005, 10478743006, 10478743007

METHOD BLANK: 3311177 Matrix: Water
Associated Lab Samples: 10478743001, 10478743002, 10478743003, 10478743004, 10478743005, 10478743006, 10478743007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	06/13/19 19:58	
a,a,a-Trifluorotoluene (S)	%.	95	50-150	06/13/19 19:58	

METHOD BLANK: 3311178 Matrix: Water
Associated Lab Samples: 10478743001, 10478743002, 10478743003, 10478743004, 10478743005, 10478743006, 10478743007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	06/13/19 20:15	
a,a,a-Trifluorotoluene (S)	%.	98	50-150	06/13/19 20:15	

LABORATORY CONTROL SAMPLE & LCSD: 3311179 3311180

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	1040	1020	104	102	75-125	2	20	
a,a,a-Trifluorotoluene (S)	%.				110	104	50-150			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3314127 3314128

Parameter	Units	10478684002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
TPH as Gas	ug/L	ND	1000	1000	1040	1090	104	109	75-125	5	30	
a,a,a-Trifluorotoluene (S)	%.						103	105	50-150			

SAMPLE DUPLICATE: 3314126

Parameter	Units	10478576006 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	<38.3	ND		30	
a,a,a-Trifluorotoluene (S)	%.	88	98			

SAMPLE DUPLICATE: 3314129

Parameter	Units	10477997001 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	<38.3	ND		30	

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QUALITY CONTROL DATA

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

SAMPLE DUPLICATE: 3314129

Parameter	Units	10477997001 Result	Dup Result	RPD	Max RPD	Qualifiers
a,a,a-Trifluorotoluene (S)	%.	90	93			

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QUALITY CONTROL DATA

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

QC Batch: 612647 Analysis Method: EPA 6020A
QC Batch Method: EPA 3020 Analysis Description: 6020A Water Dissolved UPD4
Associated Lab Samples: 10478743002, 10478743003, 10478743004, 10478743005, 10478743006, 10478743007

METHOD BLANK: 3310284 Matrix: Water
Associated Lab Samples: 10478743002, 10478743003, 10478743004, 10478743005, 10478743006, 10478743007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	06/18/19 16:50	
Manganese, Dissolved	ug/L	ND	0.50	06/18/19 16:50	

LABORATORY CONTROL SAMPLE: 3310285

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	100	103	103	80-120	
Manganese, Dissolved	ug/L	100	112	112	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3310286 3310287

Parameter	Units	10478554003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	4.0	100	100	109	111	105	107	75-125	1	20	
Manganese, Dissolved	ug/L	6.2	100	100	111	113	105	107	75-125	1	20	

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QUALITY CONTROL DATA

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

QC Batch: 612776 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10478743001

METHOD BLANK: 3310916 Matrix: Water
Associated Lab Samples: 10478743001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	06/14/19 03:06	
Ethylbenzene	ug/L	ND	1.0	06/14/19 03:06	
m&p-Xylene	ug/L	ND	2.0	06/14/19 03:06	
o-Xylene	ug/L	ND	1.0	06/14/19 03:06	
Toluene	ug/L	ND	1.0	06/14/19 03:06	
1,2-Dichloroethane-d4 (S)	%.	104	75-125	06/14/19 03:06	
4-Bromofluorobenzene (S)	%.	95	75-125	06/14/19 03:06	
Toluene-d8 (S)	%.	100	75-125	06/14/19 03:06	

LABORATORY CONTROL SAMPLE: 3310917

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	19.3	97	75-125	
Ethylbenzene	ug/L	20	21.6	108	75-125	
m&p-Xylene	ug/L	40	42.5	106	75-125	
o-Xylene	ug/L	20	19.9	100	75-125	
Toluene	ug/L	20	19.7	98	75-125	
1,2-Dichloroethane-d4 (S)	%.			102	75-125	
4-Bromofluorobenzene (S)	%.			95	75-125	
Toluene-d8 (S)	%.			97	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3311234 3311235

Parameter	Units	10478446001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	17.2	16.3	86	82	30-150	5	30	
Ethylbenzene	ug/L	ND	20	20	21.8	20.7	109	104	30-150	5	30	
m&p-Xylene	ug/L	ND	40	40	42.5	41.1	106	103	30-150	3	30	
o-Xylene	ug/L	ND	20	20	20.7	19.9	104	99	30-150	4	30	
Toluene	ug/L	0.94J	20	20	20.4	19.9	97	95	30-150	3	30	
1,2-Dichloroethane-d4 (S)	%.						107	108	75-125			
4-Bromofluorobenzene (S)	%.						95	96	75-125			
Toluene-d8 (S)	%.						96	95	75-125			

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QUALITY CONTROL DATA

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

QC Batch: 612921 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10478743003, 10478743004, 10478743005, 10478743006, 10478743007

METHOD BLANK: 3311682 Matrix: Water
Associated Lab Samples: 10478743003, 10478743004, 10478743005, 10478743006, 10478743007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	06/14/19 11:17	
Ethylbenzene	ug/L	ND	1.0	06/14/19 11:17	
m&p-Xylene	ug/L	ND	2.0	06/14/19 11:17	
o-Xylene	ug/L	ND	1.0	06/14/19 11:17	
Toluene	ug/L	ND	1.0	06/14/19 11:17	
1,2-Dichloroethane-d4 (S)	%.	104	75-125	06/14/19 11:17	
4-Bromofluorobenzene (S)	%.	102	75-125	06/14/19 11:17	
Toluene-d8 (S)	%.	100	75-125	06/14/19 11:17	

LABORATORY CONTROL SAMPLE: 3311683

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	21.7	109	75-125	
Ethylbenzene	ug/L	20	20.7	103	75-125	
m&p-Xylene	ug/L	40	40.9	102	75-125	
o-Xylene	ug/L	20	20.4	102	75-125	
Toluene	ug/L	20	21.1	105	75-125	
1,2-Dichloroethane-d4 (S)	%.			106	75-125	
4-Bromofluorobenzene (S)	%.			104	75-125	
Toluene-d8 (S)	%.			101	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3312254 3312255

Parameter	Units	10478904001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	22.8	21.9	109	105	30-150	4	30	
Ethylbenzene	ug/L	55.5	20	20	70.5	74.3	75	94	30-150	5	30	
m&p-Xylene	ug/L	68.6	40	40	105	110	92	104	30-150	5	30	
o-Xylene	ug/L	3.6	20	20	23.6	23.7	100	100	30-150	0	30	
Toluene	ug/L	1.6	20	20	22.5	22.4	104	104	30-150	1	30	
1,2-Dichloroethane-d4 (S)	%.						107	107	75-125			
4-Bromofluorobenzene (S)	%.						102	100	75-125			
Toluene-d8 (S)	%.						101	101	75-125			

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QUALITY CONTROL DATA

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

QC Batch: 613500 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10478743002

METHOD BLANK: 3315034 Matrix: Water
Associated Lab Samples: 10478743002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	06/18/19 12:57	
Ethylbenzene	ug/L	ND	1.0	06/18/19 12:57	
m&p-Xylene	ug/L	ND	2.0	06/18/19 12:57	
o-Xylene	ug/L	ND	1.0	06/18/19 12:57	
Toluene	ug/L	ND	1.0	06/18/19 12:57	
1,2-Dichloroethane-d4 (S)	%.	105	75-125	06/18/19 12:57	
4-Bromofluorobenzene (S)	%.	102	75-125	06/18/19 12:57	
Toluene-d8 (S)	%.	95	75-125	06/18/19 12:57	

LABORATORY CONTROL SAMPLE: 3315035

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	21.7	109	75-125	
Ethylbenzene	ug/L	20	19.3	96	75-125	
m&p-Xylene	ug/L	40	38.0	95	75-125	
o-Xylene	ug/L	20	19.5	98	75-125	
Toluene	ug/L	20	19.7	99	75-125	
1,2-Dichloroethane-d4 (S)	%.			106	75-125	
4-Bromofluorobenzene (S)	%.			101	75-125	
Toluene-d8 (S)	%.			99	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3315036 3315037

Parameter	Units	10477983051 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	26.1	25.5	130	128	30-150	2	30	
Ethylbenzene	ug/L	ND	20	20	22.2	22.3	111	112	30-150	1	30	
m&p-Xylene	ug/L	ND	40	40	44.6	44.8	112	112	30-150	0	30	
o-Xylene	ug/L	ND	20	20	21.1	21.9	106	109	30-150	4	30	
Toluene	ug/L	ND	20	20	22.6	22.5	113	112	30-150	1	30	
1,2-Dichloroethane-d4 (S)	%.						107	101	75-125			
4-Bromofluorobenzene (S)	%.						102	100	75-125			
Toluene-d8 (S)	%.						98	97	75-125			

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Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

QC Batch: 612671 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA Mod. 3510C Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10478743002, 10478743003, 10478743004, 10478743005, 10478743006, 10478743007

METHOD BLANK: 3310443 Matrix: Water
Associated Lab Samples: 10478743002, 10478743003, 10478743004, 10478743005, 10478743006, 10478743007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	ND	0.040	06/14/19 17:04	
2-Methylnaphthalene	ug/L	ND	0.040	06/14/19 17:04	
Acenaphthene	ug/L	ND	0.040	06/14/19 17:04	
Acenaphthylene	ug/L	ND	0.040	06/14/19 17:04	
Anthracene	ug/L	ND	0.040	06/14/19 17:04	
Benzo(a)anthracene	ug/L	ND	0.040	06/14/19 17:04	
Benzo(a)pyrene	ug/L	ND	0.040	06/14/19 17:04	
Benzo(b)fluoranthene	ug/L	ND	0.040	06/14/19 17:04	
Benzo(g,h,i)perylene	ug/L	ND	0.040	06/14/19 17:04	
Benzo(k)fluoranthene	ug/L	ND	0.040	06/14/19 17:04	
Chrysene	ug/L	ND	0.040	06/14/19 17:04	
Dibenz(a,h)anthracene	ug/L	ND	0.040	06/14/19 17:04	
Fluoranthene	ug/L	ND	0.040	06/14/19 17:04	
Fluorene	ug/L	ND	0.040	06/14/19 17:04	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.040	06/14/19 17:04	
Naphthalene	ug/L	ND	0.040	06/14/19 17:04	
Phenanthrene	ug/L	ND	0.040	06/14/19 17:04	
Pyrene	ug/L	ND	0.040	06/14/19 17:04	
2-Fluorobiphenyl (S)	%.	71	47-125	06/14/19 17:04	
p-Terphenyl-d14 (S)	%.	96	62-125	06/14/19 17:04	

LABORATORY CONTROL SAMPLE & LCSD: 3310444 3310445

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1-Methylnaphthalene	ug/L	1	0.84	0.61	84	61	31-125	32	20	R1
2-Methylnaphthalene	ug/L	1	0.79	0.58	79	58	43-125	30	20	R1
Acenaphthene	ug/L	1	0.86	0.63	86	63	50-125	30	20	R1
Acenaphthylene	ug/L	1	0.74	0.63	74	63	46-125	15	20	
Anthracene	ug/L	1	0.83	0.80	83	80	59-125	3	20	
Benzo(a)anthracene	ug/L	1	0.88	0.84	88	84	55-125	5	20	
Benzo(a)pyrene	ug/L	1	1.0	0.96	101	96	66-125	5	20	
Benzo(b)fluoranthene	ug/L	1	0.89	0.86	89	86	64-125	4	20	
Benzo(g,h,i)perylene	ug/L	1	0.95	0.93	95	93	58-125	2	20	
Benzo(k)fluoranthene	ug/L	1	1.1	1.0	111	100	60-125	11	20	
Chrysene	ug/L	1	1.0	0.96	102	96	62-125	6	20	
Dibenz(a,h)anthracene	ug/L	1	0.96	0.93	96	93	51-125	3	20	
Fluoranthene	ug/L	1	0.85	0.80	85	80	64-125	6	20	
Fluorene	ug/L	1	0.77	0.64	77	64	55-125	19	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.97	0.95	97	95	61-125	2	20	
Naphthalene	ug/L	1	0.78	0.59	78	59	48-125	28	20	R1

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

LABORATORY CONTROL SAMPLE & LCSD: 3310444 3310445

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Phenanthrene	ug/L	1	0.82	0.74	82	74	63-125	10	20	
Pyrene	ug/L	1	0.97	0.90	97	90	61-125	7	20	
2-Fluorobiphenyl (S)	%.				82	58	47-125			
p-Terphenyl-d14 (S)	%.				89	87	62-125			

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QUALITY CONTROL DATA

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

QC Batch: 614190 Analysis Method: NWTPH-Dx
QC Batch Method: EPA Mod. 3510C Analysis Description: NWTPH-Dx GCS LV SG
Associated Lab Samples: 10478743002, 10478743003, 10478743004, 10478743005, 10478743006, 10478743007

METHOD BLANK: 3318113 Matrix: Water
Associated Lab Samples: 10478743002, 10478743003, 10478743004, 10478743005, 10478743006, 10478743007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Fuel Range SG	mg/L	ND	0.40	06/19/19 13:42	
Motor Oil Range SG	mg/L	ND	0.40	06/19/19 13:42	
n-Triacontane (S)	%.	86	50-150	06/19/19 13:42	
o-Terphenyl (S)	%.	82	50-150	06/19/19 13:42	

LABORATORY CONTROL SAMPLE & LCSD: 3318114 3318115

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Fuel Range SG	mg/L	2	1.1	1.9	55	93	50-150	51	20	R1
Motor Oil Range SG	mg/L	2	1.1	1.9	55	94	50-150	51	20	R1
n-Triacontane (S)	%.				59	93	50-150			
o-Terphenyl (S)	%.				56	89	50-150			

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QUALITY CONTROL DATA

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

QC Batch: 613284 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10478743002, 10478743003, 10478743004, 10478743005, 10478743006, 10478743007

METHOD BLANK: 3314132 Matrix: Water
Associated Lab Samples: 10478743002, 10478743003, 10478743004, 10478743005, 10478743006, 10478743007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	5.0	06/17/19 06:47	

LABORATORY CONTROL SAMPLE & LCSD: 3314133 3314134

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	42.0	42.2	105	106	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3314135 3314136

Parameter	Units	10478566003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	ND	40	40	42.0	42.3	103	104	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3314137 3314138

Parameter	Units	10478566004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	190	40	40	233	238	108	120	80-120	2	20	

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QUALITY CONTROL DATA

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

QC Batch: 613296 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10478743002, 10478743003, 10478743004, 10478743005, 10478743006, 10478743007

METHOD BLANK: 3314186 Matrix: Water
Associated Lab Samples: 10478743002, 10478743003, 10478743004, 10478743005, 10478743006, 10478743007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.2	06/17/19 20:33	

LABORATORY CONTROL SAMPLE: 3314187

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	12.5	11.4	91	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3314188 3314189

Parameter	Units	10478743002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	6.3	12.5	12.5	17.6	16.6	91	83	90-110	6	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3314190 3314191

Parameter	Units	10478743003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	9.7	12.5	12.5	19.1	19.2	76	76	90-110	0	20	M1

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QUALITY CONTROL DATA

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

QC Batch: 612496 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10478743002, 10478743003, 10478743004, 10478743005, 10478743006, 10478743007

METHOD BLANK: 3309426 Matrix: Water
Associated Lab Samples: 10478743002, 10478743003, 10478743004, 10478743005, 10478743006, 10478743007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.10	06/12/19 18:21	

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QUALIFIERS

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

G+	Late peaks present outside the GRO window.
G-	Early peaks present outside the GRO window.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10478743002	**PEO-MW-33-201906**	EPA Mod. 3510C	614190	NWTPH-Dx	614196
10478743003	**PEO-MW-31-201906**	EPA Mod. 3510C	614190	NWTPH-Dx	614196
10478743004	**PEO-MW-19-201906**	EPA Mod. 3510C	614190	NWTPH-Dx	614196
10478743005	**PEO-MW-06-201906**	EPA Mod. 3510C	614190	NWTPH-Dx	614196
10478743006	**PEO-MW-03-201906**	EPA Mod. 3510C	614190	NWTPH-Dx	614196
10478743007	**PEO-MW-21-201906**	EPA Mod. 3510C	614190	NWTPH-Dx	614196
10478743001	**Trip Blank**	NWTPH-Gx	612820		
10478743002	**PEO-MW-33-201906**	NWTPH-Gx	612820		
10478743003	**PEO-MW-31-201906**	NWTPH-Gx	612820		
10478743004	**PEO-MW-19-201906**	NWTPH-Gx	612820		
10478743005	**PEO-MW-06-201906**	NWTPH-Gx	612820		
10478743006	**PEO-MW-03-201906**	NWTPH-Gx	612820		
10478743007	**PEO-MW-21-201906**	NWTPH-Gx	612820		
10478743002	**PEO-MW-33-201906**	EPA 3010	612402	EPA 6010D	612735
10478743003	**PEO-MW-31-201906**	EPA 3010	612402	EPA 6010D	612735
10478743004	**PEO-MW-19-201906**	EPA 3010	612402	EPA 6010D	612735
10478743005	**PEO-MW-06-201906**	EPA 3010	612402	EPA 6010D	612735
10478743006	**PEO-MW-03-201906**	EPA 3010	612402	EPA 6010D	612735
10478743007	**PEO-MW-21-201906**	EPA 3010	612402	EPA 6010D	612735
10478743002	**PEO-MW-33-201906**	EPA 3020	612647	EPA 6020A	613809
10478743003	**PEO-MW-31-201906**	EPA 3020	612647	EPA 6020A	613809
10478743004	**PEO-MW-19-201906**	EPA 3020	612647	EPA 6020A	613809
10478743005	**PEO-MW-06-201906**	EPA 3020	612647	EPA 6020A	613809
10478743006	**PEO-MW-03-201906**	EPA 3020	612647	EPA 6020A	613809
10478743007	**PEO-MW-21-201906**	EPA 3020	612647	EPA 6020A	613809
10478743002	**PEO-MW-33-201906**	EPA Mod. 3510C	612671	EPA 8270 by SIM	613073
10478743003	**PEO-MW-31-201906**	EPA Mod. 3510C	612671	EPA 8270 by SIM	613073
10478743004	**PEO-MW-19-201906**	EPA Mod. 3510C	612671	EPA 8270 by SIM	613073
10478743005	**PEO-MW-06-201906**	EPA Mod. 3510C	612671	EPA 8270 by SIM	613073
10478743006	**PEO-MW-03-201906**	EPA Mod. 3510C	612671	EPA 8270 by SIM	613073
10478743007	**PEO-MW-21-201906**	EPA Mod. 3510C	612671	EPA 8270 by SIM	613073
10478743001	**Trip Blank**	EPA 8260B	612776		
10478743002	**PEO-MW-33-201906**	EPA 8260B	613500		
10478743003	**PEO-MW-31-201906**	EPA 8260B	612921		
10478743004	**PEO-MW-19-201906**	EPA 8260B	612921		
10478743005	**PEO-MW-06-201906**	EPA 8260B	612921		
10478743006	**PEO-MW-03-201906**	EPA 8260B	612921		
10478743007	**PEO-MW-21-201906**	EPA 8260B	612921		
10478743002	**PEO-MW-33-201906**	SM 2320B	613284		
10478743003	**PEO-MW-31-201906**	SM 2320B	613284		
10478743004	**PEO-MW-19-201906**	SM 2320B	613284		
10478743005	**PEO-MW-06-201906**	SM 2320B	613284		
10478743006	**PEO-MW-03-201906**	SM 2320B	613284		
10478743007	**PEO-MW-21-201906**	SM 2320B	613284		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 0499738 PEO-Revised Report
Pace Project No.: 10478743

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10478743002	**PEO-MW-33-201906**	EPA 300.0	613296		
10478743003	**PEO-MW-31-201906**	EPA 300.0	613296		
10478743004	**PEO-MW-19-201906**	EPA 300.0	613296		
10478743005	**PEO-MW-06-201906**	EPA 300.0	613296		
10478743006	**PEO-MW-03-201906**	EPA 300.0	613296		
10478743007	**PEO-MW-21-201906**	EPA 300.0	613296		
10478743002	**PEO-MW-33-201906**	EPA 353.2	612496		
10478743003	**PEO-MW-31-201906**	EPA 353.2	612496		
10478743004	**PEO-MW-19-201906**	EPA 353.2	612496		
10478743005	**PEO-MW-06-201906**	EPA 353.2	612496		
10478743006	**PEO-MW-03-201906**	EPA 353.2	612496		
10478743007	**PEO-MW-21-201906**	EPA 353.2	612496		

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CHAIN-OF-CU

The Chain-of-Custody is

WO# : 10478743

10478743

Page: 1 of 1

2285879

Section A Required Client Information:

Company:	ERM
Address:	1050 SW 6th Ave Suite 1650 Portland, OR 97204
Email To:	nick.cooper@erm.com
Phone: 503-488-5282	Fax:
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Nick Cooper
Copy To:	
Purchase Order No.:	
Project Name:	
Project Number:	0499778

Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Julie Bowyer
Pace Profile #:	40125/1

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: OR

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	GRO	BTEX	VPH	Nitrate	Nitrate + Nitrite	DRO	Diss Meth Gas/Meth/Ethane	Alkalinity + Sulfate	PAH	EPH		Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Trip Blank	WT	G	06/11/19	0700				6				X						X	X	X								
2	MEO-MW-33-201906	WT	G	06/11/19	0755				19	X	X	X	X						X	X	X	X	X	X	X	X	X		
3	MEO-MW-31-201906	WT	G	6/11/19	0910				19	X	X	X	X						X	X	X	X	X	X	X	X	X		
4	MEO-MW-17-201906	WT	G	6/11/19	1025				19	X	X	X	X						X	X	X	X	X	X	X	X	X		
5	MEO-MW-06-201906	WT	G	6/11/19	1145				19	X	X	X	X						X	X	X	X	X	X	X	X	X		
6	MEO-MW-03-201906	WT	G	6/11/19	1300				19	X	X	X	X						X	X	X	X	X	X	X	X	X		
7	MEO-MW-21-201906	WT	G	6/11/19	1415				19	X	X	X	X						X	X	X	X	X	X	X	X	X		
8																													
9																													
10																													
11																													
12																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Standard TAT	Joe Casey ERM	06/11/19		Face	6/11/19	0850	02 Y Y Y
							03
							04
							05

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Joe Casey

SIGNATURE of SAMPLER:

DATE Signed (MM/DD/YY): 06/11/2019

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-C-010-rev.00, 09Nov2017

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 09May2019 Page 1 of 1
	Document No.: F-MN-L-213-rev.28	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: ERM

Project #: WO#: 10478743

PM: JMT Due Date: 06/19/19

CLIENT: ERM-Oregon

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☐ Commercial See Exception ☑

Tracking Number:

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other: **Temp Blank?** ☑ Yes ☐ No

Thermometer: ☑ T1(0461) ☐ T2(1336) ☐ T3(0459) ☐ T4(0254) ☐ T5(0489) **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** °C **Average Corrected Temp (no temp blank only):** °C See Exceptions ☐

Correction Factor: -0.1 **Cooler Temp Corrected w/temp blank:** See Exception °C

USDA Regulated Soil: (☑ N/A, water sample/Other:) **Date/Initials of Person Examining Contents:** FE 6/12/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present and Filled Out?	☑ Yes	☐ No		1.
Chain of Custody Relinquished?	☑ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	3.
Samples Arrived within Hold Time?	☑ Yes	☐ No		4.
Short Hold Time Analysis (<72 hr)?	☑ Yes	☐ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☑ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other
Rush Turn Around Time Requested?	☐ Yes	☑ No		6.
Sufficient Volume?	☑ Yes	☐ No		7.
Correct Containers Used? -Pace Containers Used?	☑ Yes ☑ Yes	☐ No ☐ No		8.
Containers Intact?	☑ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☑ Yes	☐ No	☐ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC? Matrix: ☑ Water ☐ Soil ☐ Oil ☐ Other	☑ Yes	☐ No		11. If no, write ID/ Date/Time on Container Below: See Exception ☐
All containers needing acid/base preservation have been checked?	☑ Yes	☐ No	☐ N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	☑ Yes	☐ No	☐ N/A	☐ NaOH FE 6/12/19 ☐ HNO_3 ☑ H_2SO_4 ☐ Zinc Acetate 2-6 2-7: 1/1 1/1
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☑ Yes	☐ No	☐ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No pH Paper Lot# See Exception ☐
				Res. Chlorine: 0-6 Roll 220416A; 0-6 Strip; 0-14 Strip
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☑ No	☐ N/A	13. See Exception ☐
Trip Blank Present?	☑ Yes	☐ No	☐ N/A	14.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☐ N/A	Pace Trip Blank Lot # (if purchased): 211058

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: Julie Rowe **Date:** 6/12/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: FE

Pace Analytical	Document Name: SCUR Exception Form – Coolers Above 6°C	Document Revised: 08Apr2019 Page 1 of 1
	Document No.: F-MN-C-298-Rev.02	Issuing Authority: Pace Minnesota Quality Office

During sample triage, this form is to be placed in each cooler that arrives above 6.0 degrees Celsius

SCUR Exceptions: **Workorder #:**

Out of Temp Sample IDs	Container Type	# of Containers

PM Notified? ☐ Yes ☐ No

If yes, indicate who was contacted/date/time.
If no, indicate reason why.

Multiple Cooler Project? ☐ Yes ☐ No
If you answered yes, fill out information to the left.

No Temp Blank

Read Temp	Corrected Temp	Average Temp

Tracking Number/Temperature

7475 9398 5458	0.2
" " 5436	0.6
" " 5447	0.5
" " 5425	0.5

Other Issues

Issue Type: Sample ID	Container Type	# of Containers

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition?	Initials
								☐ Yes ☐ No	
								☐ Yes ☐ No	
								☐ Yes ☐ No	
								☐ Yes ☐ No	

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

August 02, 2019

Joe Casey
ERM Portland
1050 SW 6th Ave
Suite 1650
Portland, OR 97204

RE: Project: 0499738-Revised Report
Pace Project No.: 10478972

Dear Joe Casey:
Enclosed are the analytical results for sample(s) received by the laboratory on June 13, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

This repot was revised on July 7, 2019 to update the carbon ranges for NWTPH EPH/VPH.

This report was further revised on 8/2/19 to add the motor oil range to NWTPH, add 1 & 2 methylnapthalene to the 8270 SIM analysis, add o-xylene and m/p-xylenes by 8260 and update the subcontract data to report down to the MDL.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Julie Bowser
julie.bowser@pacelabs.com
612-607-6390
Project Manager

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Enclosures

cc: Rita Cooper, ERM Portland
ERM Global EDD Mailbox, ERM

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CERTIFICATIONS

Project: 0499738-Revised Report
Pace Project No.: 10478972

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

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SAMPLE SUMMARY

Project: 0499738-Revised Report
Pace Project No.: 10478972

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10478972001	**Trip Blank**	Water	06/12/19 07:00	06/13/19 08:45
10478972002	**PEO-MW-18-201906**	Water	06/12/19 08:20	06/13/19 08:45
10478972003	**PEO-MW-08-201906**	Water	06/12/19 09:30	06/13/19 08:45
10478972004	**PEO-MW-38-201906**	Water	06/12/19 10:40	06/13/19 08:45
10478972005	**PEO-MW-37-201906**	Water	06/12/19 11:55	06/13/19 08:45
10478972006	**PEO-MW-29-201906**	Water	06/12/19 13:20	06/13/19 08:45

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SAMPLE ANALYTE COUNT

Project: 0499738-Revised Report
Pace Project No.: 10478972

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10478972001	**Trip Blank**	NWTPH-Gx	AJR	2	PASI-M
		EPA 8260B	MJD	8	PASI-M
10478972002	**PEO-MW-18-201906**	NWTPH-Dx	EC2	4	PASI-M
		NWTPH-Gx	AJR	2	PASI-M
		EPA 6010D	BD1	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		EPA 8260B	MJD	8	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10478972003	**PEO-MW-08-201906**	NWTPH-Dx	EC2	4	PASI-M
		NWTPH-Gx	AJR	2	PASI-M
		EPA 6010D	BD1	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		EPA 8260B	MJD	8	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10478972004	**PEO-MW-38-201906**	NWTPH-Dx	EC2	4	PASI-M
		NWTPH-Gx	AJR	2	PASI-M
		EPA 6010D	BD1	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		EPA 8260B	MJD	8	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10478972005	**PEO-MW-37-201906**	NWTPH-Dx	EC2	4	PASI-M
		NWTPH-Gx	AJR	2	PASI-M
		EPA 6010D	BD1	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		EPA 8260B	MJD	8	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M

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SAMPLE ANALYTE COUNT

Project: 0499738-Revised Report
Pace Project No.: 10478972

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 353.2	JFP	1	PASI-M
10478972006	**PEO-MW-29-201906**	NWTPH-Dx	EC2	4	PASI-M
		NWTPH-Gx	AJR	2	PASI-M
		EPA 6010D	BD1	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		EPA 8260B	MJD	8	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10478972

Sample: Trip Blank **Lab ID: 10478972001** Collected: 06/12/19 07:00 Received: 06/13/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		06/14/19 04:58		
Surrogates								
a,a,a-Trifluorotoluene (S)	93	%.	50-150	1		06/14/19 04:58	98-08-8	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		06/14/19 19:21	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/14/19 19:21	100-41-4	
Toluene	ND	ug/L	1.0	1		06/14/19 19:21	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		06/14/19 19:21	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		06/14/19 19:21	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	97	%.	75-125	1		06/14/19 19:21	17060-07-0	
Toluene-d8 (S)	95	%.	75-125	1		06/14/19 19:21	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		06/14/19 19:21	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10478972

Sample: PEO-MW-18-201906 **Lab ID: 10478972002** Collected: 06/12/19 08:20 Received: 06/13/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.50**	mg/L	0.40	1	06/13/19 14:36	06/18/19 13:21	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.40	1	06/13/19 14:36	06/18/19 13:21	64742-65-0	
Surrogates								
o-Terphenyl (S)	85	%.	50-150	1	06/13/19 14:36	06/18/19 13:21	84-15-1	
n-Triacontane (S)	81	%.	50-150	1	06/13/19 14:36	06/18/19 13:21	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**363**	ug/L	100	1		06/14/19 03:50		
Surrogates								
a,a,a-Trifluorotoluene (S)	93	%.	50-150	1		06/14/19 03:50	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**96000**	ug/L	3300	1	06/18/19 06:43	06/19/19 10:17		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**0.53**	ug/L	0.50	1	06/18/19 06:43	06/25/19 18:27	7440-38-2	
Manganese, Dissolved	**540**	ug/L	2.5	5	06/18/19 06:43	06/26/19 20:25	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	83-32-9	
Acenaphthylene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	208-96-8	
Anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	207-08-9	
Chrysene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	53-70-3	
Fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	206-44-0	
Fluorene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	91-57-6	
Naphthalene	**0.23**	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	91-20-3	
Phenanthrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	85-01-8	
Pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:06	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	75	%.	47-125	1	06/13/19 12:30	06/14/19 23:06	321-60-8	
p-Terphenyl-d14 (S)	91	%.	62-125	1	06/13/19 12:30	06/14/19 23:06	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		06/14/19 22:59	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/14/19 22:59	100-41-4	
Toluene	ND	ug/L	1.0	1		06/14/19 22:59	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		06/14/19 22:59	179601-23-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10478972

Sample: PEO-MW-18-201906 **Lab ID: 10478972002** Collected: 06/12/19 08:20 Received: 06/13/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		06/14/19 22:59	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%.	75-125	1		06/14/19 22:59	17060-07-0	
Toluene-d8 (S)	95	%.	75-125	1		06/14/19 22:59	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		06/14/19 22:59	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**105**	mg/L	5.0	1		06/18/19 12:15		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**24.0**	mg/L	1.2	1		06/18/19 14:25	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	**0.059J**	mg/L	0.10	1		06/13/19 16:32	14797-55-8	FS

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10478972

Sample: PEO-MW-08-201906 **Lab ID: 10478972003** Collected: 06/12/19 09:30 Received: 06/13/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.99**	mg/L	0.40	1	06/13/19 14:36	06/18/19 13:44	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.40	1	06/13/19 14:36	06/18/19 13:44	64742-65-0	
Surrogates								
o-Terphenyl (S)	90	%.	50-150	1	06/13/19 14:36	06/18/19 13:44	84-15-1	
n-Triacontane (S)	81	%.	50-150	1	06/13/19 14:36	06/18/19 13:44	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**432**	ug/L	100	1		06/14/19 04:07		G-
Surrogates								
a,a,a-Trifluorotoluene (S)	86	%.	50-150	1		06/14/19 04:07	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**149000**	ug/L	3300	1	06/18/19 06:43	06/19/19 10:18		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**1.9**	ug/L	0.50	1	06/18/19 06:43	06/25/19 18:48	7440-38-2	
Manganese, Dissolved	**2830**	ug/L	5.0	10	06/18/19 06:43	06/26/19 20:34	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**0.31**	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	83-32-9	
Acenaphthylene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	208-96-8	
Anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	207-08-9	
Chrysene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	53-70-3	
Fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	206-44-0	
Fluorene	**0.20**	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	90-12-0	
2-Methylnaphthalene	**0.069**	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	91-57-6	
Naphthalene	**0.38**	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	91-20-3	
Phenanthrene	ND	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	85-01-8	
Pyrene	**0.11**	ug/L	0.041	1	06/13/19 12:30	06/14/19 23:27	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	60	%.	47-125	1	06/13/19 12:30	06/14/19 23:27	321-60-8	
p-Terphenyl-d14 (S)	86	%.	62-125	1	06/13/19 12:30	06/14/19 23:27	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**0.75J**	ug/L	1.0	1		06/14/19 23:16	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		06/14/19 23:16	100-41-4	
Toluene	ND	ug/L	1.0	1		06/14/19 23:16	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		06/14/19 23:16	179601-23-1	

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10478972

Sample: PEO-MW-08-201906 **Lab ID: 10478972003** Collected: 06/12/19 09:30 Received: 06/13/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		06/14/19 23:16	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%.	75-125	1		06/14/19 23:16	17060-07-0	
Toluene-d8 (S)	95	%.	75-125	1		06/14/19 23:16	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125	1		06/14/19 23:16	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	ND	mg/L	5.0	1		06/18/19 12:17		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**253**	mg/L	6.0	5		06/18/19 13:53	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		06/13/19 16:35	14797-55-8	FS

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10478972

Sample: PEO-MW-38-201906 **Lab ID: 10478972004** Collected: 06/12/19 10:40 Received: 06/13/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**3.5**	mg/L	0.40	1	06/13/19 14:36	06/18/19 13:55	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.40	1	06/13/19 14:36	06/18/19 13:55	64742-65-0	
Surrogates								
o-Terphenyl (S)	68	%.	50-150	1	06/13/19 14:36	06/18/19 13:55	84-15-1	
n-Triacontane (S)	62	%.	50-150	1	06/13/19 14:36	06/18/19 13:55	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**4020**	ug/L	100	1		06/14/19 04:24		G+,G-
Surrogates								
a,a,a-Trifluorotoluene (S)	103	%.	50-150	1		06/14/19 04:24	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**119000**	ug/L	3300	1	06/18/19 06:43	06/19/19 10:20		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**22.7**	ug/L	0.50	1	06/18/19 06:43	06/25/19 18:51	7440-38-2	
Manganese, Dissolved	**2600**	ug/L	5.0	10	06/18/19 06:43	06/26/19 20:37	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:01	83-32-9	
Acenaphthylene	**0.067**	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:01	208-96-8	
Anthracene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:01	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:01	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:01	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:01	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:01	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:01	207-08-9	
Chrysene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:01	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:01	53-70-3	
Fluoranthene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:01	206-44-0	
Fluorene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:01	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:01	193-39-5	
1-Methylnaphthalene	**0.41**	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:01	90-12-0	
2-Methylnaphthalene	**0.91**	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:01	91-57-6	
Naphthalene	**13.9**	ug/L	0.20	5	06/18/19 15:49	06/20/19 15:25	91-20-3	
Phenanthrene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:01	85-01-8	
Pyrene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:01	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	35	%.	47-125	1	06/18/19 15:49	06/20/19 01:01	321-60-8	S2
p-Terphenyl-d14 (S)	67	%.	62-125	1	06/18/19 15:49	06/20/19 01:01	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**11.4**	ug/L	1.0	1		06/14/19 23:33	71-43-2	
Ethylbenzene	**1.3**	ug/L	1.0	1		06/14/19 23:33	100-41-4	
Toluene	**8.0**	ug/L	1.0	1		06/14/19 23:33	108-88-3	
m&p-Xylene	**7.1**	ug/L	2.0	1		06/14/19 23:33	179601-23-1	

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10478972

Sample: PEO-MW-38-201906 **Lab ID: 10478972004** Collected: 06/12/19 10:40 Received: 06/13/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	**4.0**	ug/L	1.0	1		06/14/19 23:33	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	98	%.	75-125	1		06/14/19 23:33	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1		06/14/19 23:33	2037-26-5	
4-Bromofluorobenzene (S)	104	%.	75-125	1		06/14/19 23:33	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**168**	mg/L	5.0	1		06/18/19 12:21		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**3.6**	mg/L	1.2	1		06/18/19 17:23	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		06/13/19 16:36	14797-55-8	FS

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10478972

Sample: PEO-MW-37-201906 **Lab ID: 10478972005** Collected: 06/12/19 11:55 Received: 06/13/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**1.4**	mg/L	0.40	1	06/13/19 14:36	06/18/19 14:06	68334-30-5	
Motor Oil Range SG	**0.23J**	mg/L	0.40	1	06/13/19 14:36	06/18/19 14:06	64742-65-0	
Surrogates								
o-Terphenyl (S)	87	%.	50-150	1	06/13/19 14:36	06/18/19 14:06	84-15-1	
n-Triacontane (S)	88	%.	50-150	1	06/13/19 14:36	06/18/19 14:06	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**2900**	ug/L	100	1		06/19/19 04:06		G+,G-
Surrogates								
a,a,a-Trifluorotoluene (S)	109	%.	50-150	1		06/19/19 04:06	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**159000**	ug/L	3300	1	06/18/19 06:43	06/19/19 10:22		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**23.2**	ug/L	0.50	1	06/18/19 06:43	06/25/19 18:53	7440-38-2	
Manganese, Dissolved	**3160**	ug/L	5.0	10	06/18/19 06:43	06/26/19 20:40	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**0.37**	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	83-32-9	
Acenaphthylene	ND	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	208-96-8	
Anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	207-08-9	
Chrysene	ND	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	53-70-3	
Fluoranthene	**0.022J**	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	206-44-0	
Fluorene	**0.15**	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	193-39-5	
1-Methylnaphthalene	**0.48**	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	90-12-0	
2-Methylnaphthalene	**0.083**	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	91-57-6	
Naphthalene	**0.53**	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	91-20-3	
Phenanthrene	**0.044**	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	85-01-8	
Pyrene	ND	ug/L	0.041	1	06/13/19 12:30	06/15/19 00:09	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	72	%.	47-125	1	06/13/19 12:30	06/15/19 00:09	321-60-8	
p-Terphenyl-d14 (S)	84	%.	62-125	1	06/13/19 12:30	06/15/19 00:09	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**12.4**	ug/L	1.0	1		06/14/19 23:49	71-43-2	
Ethylbenzene	**2.1**	ug/L	1.0	1		06/14/19 23:49	100-41-4	
Toluene	**10.8**	ug/L	1.0	1		06/14/19 23:49	108-88-3	
m&p-Xylene	**14.1**	ug/L	2.0	1		06/14/19 23:49	179601-23-1	

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10478972

Sample: PEO-MW-37-201906 **Lab ID: 10478972005** Collected: 06/12/19 11:55 Received: 06/13/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	**6.2**	ug/L	1.0	1		06/14/19 23:49	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%.	75-125	1		06/14/19 23:49	17060-07-0	
Toluene-d8 (S)	97	%.	75-125	1		06/14/19 23:49	2037-26-5	
4-Bromofluorobenzene (S)	103	%.	75-125	1		06/14/19 23:49	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**205**	mg/L	5.0	1		06/18/19 12:24		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**1.8**	mg/L	1.2	1		06/18/19 17:39	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		06/13/19 16:37	14797-55-8	FS

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10478972

Sample: PEO-MW-29-201906 **Lab ID: 10478972006** Collected: 06/12/19 13:20 Received: 06/13/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**3.8**	mg/L	0.40	1	06/13/19 14:36	06/18/19 14:17	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.40	1	06/13/19 14:36	06/18/19 14:17	64742-65-0	
Surrogates								
o-Terphenyl (S)	80	%.	50-150	1	06/13/19 14:36	06/18/19 14:17	84-15-1	
n-Triacontane (S)	79	%.	50-150	1	06/13/19 14:36	06/18/19 14:17	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**4290**	ug/L	100	1		06/19/19 06:21		G+,G-
Surrogates								
a,a,a-Trifluorotoluene (S)	124	%.	50-150	1		06/19/19 06:21	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**108000**	ug/L	3300	1	06/18/19 06:43	06/19/19 10:23		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**17.0**	ug/L	0.50	1	06/18/19 06:43	06/25/19 18:56	7440-38-2	
Manganese, Dissolved	**2190**	ug/L	5.0	10	06/18/19 06:43	06/26/19 20:44	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**0.28**	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	83-32-9	
Acenaphthylene	ND	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	208-96-8	
Anthracene	ND	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	207-08-9	
Chrysene	ND	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	53-70-3	
Fluoranthene	ND	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	206-44-0	
Fluorene	ND	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	90-12-0	
2-Methylnaphthalene	**0.13**	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	91-57-6	
Naphthalene	**6.9**	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	91-20-3	
Phenanthrene	ND	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	85-01-8	
Pyrene	ND	ug/L	0.040	1	06/13/19 12:30	06/15/19 00:31	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	69	%.	47-125	1	06/13/19 12:30	06/15/19 00:31	321-60-8	
p-Terphenyl-d14 (S)	85	%.	62-125	1	06/13/19 12:30	06/15/19 00:31	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**0.86J**	ug/L	1.0	1		06/15/19 00:06	71-43-2	
Ethylbenzene	**1.6**	ug/L	1.0	1		06/15/19 00:06	100-41-4	
Toluene	**2.9**	ug/L	1.0	1		06/15/19 00:06	108-88-3	
m&p-Xylene	**9.2**	ug/L	2.0	1		06/15/19 00:06	179601-23-1	

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10478972

Sample: PEO-MW-29-201906 **Lab ID: 10478972006** Collected: 06/12/19 13:20 Received: 06/13/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	**1.1**	ug/L	1.0	1		06/15/19 00:06	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%.	75-125	1		06/15/19 00:06	17060-07-0	
Toluene-d8 (S)	99	%.	75-125	1		06/15/19 00:06	2037-26-5	
4-Bromofluorobenzene (S)	103	%.	75-125	1		06/15/19 00:06	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**146**	mg/L	5.0	1		06/18/19 12:27		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**4.9**	mg/L	1.2	1		06/18/19 17:55	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		06/13/19 16:40	14797-55-8	FS

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10478972

QC Batch: 612820 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Water
Associated Lab Samples: 10478972001, 10478972002, 10478972003, 10478972004

METHOD BLANK: 3311177 Matrix: Water
Associated Lab Samples: 10478972001, 10478972002, 10478972003, 10478972004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	06/13/19 19:58	
a,a,a-Trifluorotoluene (S)	%.	95	50-150	06/13/19 19:58	

METHOD BLANK: 3311178 Matrix: Water
Associated Lab Samples: 10478972001, 10478972002, 10478972003, 10478972004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	06/13/19 20:15	
a,a,a-Trifluorotoluene (S)	%.	98	50-150	06/13/19 20:15	

LABORATORY CONTROL SAMPLE & LCSD: 3311179 3311180

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	1040	1020	104	102	75-125	2	20	
a,a,a-Trifluorotoluene (S)	%.				110	104	50-150			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3314127 3314128

Parameter	Units	10478684002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
TPH as Gas	ug/L	ND	1000	1000	1040	1090	104	109	75-125	5	30	
a,a,a-Trifluorotoluene (S)	%.						103	105	50-150			

SAMPLE DUPLICATE: 3314126

Parameter	Units	10478576006 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	<38.3	ND		30	
a,a,a-Trifluorotoluene (S)	%.	88	98			

SAMPLE DUPLICATE: 3314129

Parameter	Units	10477997001 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	<38.3	ND		30	

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10478972

SAMPLE DUPLICATE: 3314129

Parameter	Units	10477997001 Result	Dup Result	RPD	Max RPD	Qualifiers
a,a,a-Trifluorotoluene (S)	%.	90	93			

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10478972

QC Batch: 613279 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Water
Associated Lab Samples: 10478972005, 10478972006

METHOD BLANK: 3314118 Matrix: Water
Associated Lab Samples: 10478972005, 10478972006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	06/19/19 03:32	
a,a,a-Trifluorotoluene (S)	%.	96	50-150	06/19/19 03:32	

METHOD BLANK: 3314119 Matrix: Water
Associated Lab Samples: 10478972005, 10478972006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	06/19/19 03:49	
a,a,a-Trifluorotoluene (S)	%.	96	50-150	06/19/19 03:49	

LABORATORY CONTROL SAMPLE & LCSD: 3314120 3314121

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	963	927	96	93	75-125	4	20	
a,a,a-Trifluorotoluene (S)	%.				108	96	50-150			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3316801 3316802

Parameter	Units	10478972005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
TPH as Gas	ug/L	2900	1000	1000	3990	3960	109	106	75-125	1	30	G+,G-
a,a,a-Trifluorotoluene (S)	%.						120	122	50-150			

SAMPLE DUPLICATE: 3316803

Parameter	Units	10478685006 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	ND	ND		30	
a,a,a-Trifluorotoluene (S)	%.	91	96			

SAMPLE DUPLICATE: 3316804

Parameter	Units	10478685009 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10478972

SAMPLE DUPLICATE: 3316804

Parameter	Units	10478685009 Result	Dup Result	RPD	Max RPD	Qualifiers
a,a,a-Trifluorotoluene (S)	%.	92	90			

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10478972

QC Batch: 613219 Analysis Method: EPA 6020A
QC Batch Method: EPA 3020 Analysis Description: 6020A Water Dissolved UPD4
Associated Lab Samples: 10478972002, 10478972003, 10478972004, 10478972005, 10478972006

METHOD BLANK: 3313914 Matrix: Water
Associated Lab Samples: 10478972002, 10478972003, 10478972004, 10478972005, 10478972006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	06/25/19 18:21	
Manganese, Dissolved	ug/L	ND	0.50	06/25/19 18:21	

LABORATORY CONTROL SAMPLE: 3313915

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	100	106	106	80-120	
Manganese, Dissolved	ug/L	100	112	112	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3313916 3313917

Parameter	Units	10478972002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	0.53	100	100	103	102	103	101	75-125	1	20	
Manganese, Dissolved	ug/L	540	100	100	646	632	106	92	75-125	2	20	E

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10478972

QC Batch: 613110 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10478972001, 10478972002, 10478972003, 10478972004, 10478972005, 10478972006

METHOD BLANK: 3312805 Matrix: Water
Associated Lab Samples: 10478972001, 10478972002, 10478972003, 10478972004, 10478972005, 10478972006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	06/14/19 18:48	
Ethylbenzene	ug/L	ND	1.0	06/14/19 18:48	
m&p-Xylene	ug/L	ND	2.0	06/14/19 18:48	
o-Xylene	ug/L	ND	1.0	06/14/19 18:48	
Toluene	ug/L	ND	1.0	06/14/19 18:48	
1,2-Dichloroethane-d4 (S)	%.	100	75-125	06/14/19 18:48	
4-Bromofluorobenzene (S)	%.	99	75-125	06/14/19 18:48	
Toluene-d8 (S)	%.	96	75-125	06/14/19 18:48	

LABORATORY CONTROL SAMPLE: 3312807

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	17.0	85	75-125	
Ethylbenzene	ug/L	20	18.9	95	75-125	
m&p-Xylene	ug/L	40	38.7	97	75-125	
o-Xylene	ug/L	20	20.1	101	75-125	
Toluene	ug/L	20	17.3	86	75-125	
1,2-Dichloroethane-d4 (S)	%.			100	75-125	
4-Bromofluorobenzene (S)	%.			103	75-125	
Toluene-d8 (S)	%.			98	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3312808 3312809

Parameter	Units	10478706001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	19.6	20.3	94	97	30-150	3	30	
Ethylbenzene	ug/L	ND	20	20	19.8	21.3	99	107	30-150	7	30	
m&p-Xylene	ug/L	ND	40	40	39.6	42.1	99	105	30-150	6	30	
o-Xylene	ug/L	ND	20	20	19.9	21.1	99	106	30-150	6	30	
Toluene	ug/L	ND	20	20	18.5	19.8	90	97	30-150	7	30	
1,2-Dichloroethane-d4 (S)	%.						103	101	75-125			
4-Bromofluorobenzene (S)	%.						103	103	75-125			
Toluene-d8 (S)	%.						99	99	75-125			

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10478972

QC Batch: 612671 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA Mod. 3510C Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10478972002, 10478972003, 10478972005, 10478972006

METHOD BLANK: 3310443 Matrix: Water
Associated Lab Samples: 10478972002, 10478972003, 10478972005, 10478972006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	ND	0.040	06/14/19 17:04	
2-Methylnaphthalene	ug/L	ND	0.040	06/14/19 17:04	
Acenaphthene	ug/L	ND	0.040	06/14/19 17:04	
Acenaphthylene	ug/L	ND	0.040	06/14/19 17:04	
Anthracene	ug/L	ND	0.040	06/14/19 17:04	
Benzo(a)anthracene	ug/L	ND	0.040	06/14/19 17:04	
Benzo(a)pyrene	ug/L	ND	0.040	06/14/19 17:04	
Benzo(b)fluoranthene	ug/L	ND	0.040	06/14/19 17:04	
Benzo(g,h,i)perylene	ug/L	ND	0.040	06/14/19 17:04	
Benzo(k)fluoranthene	ug/L	ND	0.040	06/14/19 17:04	
Chrysene	ug/L	ND	0.040	06/14/19 17:04	
Dibenz(a,h)anthracene	ug/L	ND	0.040	06/14/19 17:04	
Fluoranthene	ug/L	ND	0.040	06/14/19 17:04	
Fluorene	ug/L	ND	0.040	06/14/19 17:04	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.040	06/14/19 17:04	
Naphthalene	ug/L	ND	0.040	06/14/19 17:04	
Phenanthrene	ug/L	ND	0.040	06/14/19 17:04	
Pyrene	ug/L	ND	0.040	06/14/19 17:04	
2-Fluorobiphenyl (S)	%.	71	47-125	06/14/19 17:04	
p-Terphenyl-d14 (S)	%.	96	62-125	06/14/19 17:04	

LABORATORY CONTROL SAMPLE & LCSD: 3310444 3310445

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1-Methylnaphthalene	ug/L	1	0.84	0.61	84	61	31-125	32	20	R1
2-Methylnaphthalene	ug/L	1	0.79	0.58	79	58	43-125	30	20	R1
Acenaphthene	ug/L	1	0.86	0.63	86	63	50-125	30	20	R1
Acenaphthylene	ug/L	1	0.74	0.63	74	63	46-125	15	20	
Anthracene	ug/L	1	0.83	0.80	83	80	59-125	3	20	
Benzo(a)anthracene	ug/L	1	0.88	0.84	88	84	55-125	5	20	
Benzo(a)pyrene	ug/L	1	1.0	0.96	101	96	66-125	5	20	
Benzo(b)fluoranthene	ug/L	1	0.89	0.86	89	86	64-125	4	20	
Benzo(g,h,i)perylene	ug/L	1	0.95	0.93	95	93	58-125	2	20	
Benzo(k)fluoranthene	ug/L	1	1.1	1.0	111	100	60-125	11	20	
Chrysene	ug/L	1	1.0	0.96	102	96	62-125	6	20	
Dibenz(a,h)anthracene	ug/L	1	0.96	0.93	96	93	51-125	3	20	
Fluoranthene	ug/L	1	0.85	0.80	85	80	64-125	6	20	
Fluorene	ug/L	1	0.77	0.64	77	64	55-125	19	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.97	0.95	97	95	61-125	2	20	
Naphthalene	ug/L	1	0.78	0.59	78	59	48-125	28	20	R1

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10478972

LABORATORY CONTROL SAMPLE & LCSD: 3310444 3310445

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Phenanthrene	ug/L	1	0.82	0.74	82	74	63-125	10	20	
Pyrene	ug/L	1	0.97	0.90	97	90	61-125	7	20	
2-Fluorobiphenyl (S)	%.				82	58	47-125			
p-Terphenyl-d14 (S)	%.				89	87	62-125			

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10478972

QC Batch: 613746
QC Batch Method: EPA Mod. 3510C
Analysis Method: EPA 8270 by SIM
Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10478972004

METHOD BLANK: 3315992
Matrix: Water
Associated Lab Samples: 10478972004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	ND	0.040	06/19/19 19:01	
2-Methylnaphthalene	ug/L	ND	0.040	06/19/19 19:01	
Acenaphthene	ug/L	ND	0.040	06/19/19 19:01	
Acenaphthylene	ug/L	ND	0.040	06/19/19 19:01	
Anthracene	ug/L	ND	0.040	06/19/19 19:01	
Benzo(a)anthracene	ug/L	ND	0.040	06/19/19 19:01	
Benzo(a)pyrene	ug/L	ND	0.040	06/19/19 19:01	
Benzo(b)fluoranthene	ug/L	ND	0.040	06/19/19 19:01	
Benzo(g,h,i)perylene	ug/L	ND	0.040	06/19/19 19:01	
Benzo(k)fluoranthene	ug/L	ND	0.040	06/19/19 19:01	
Chrysene	ug/L	ND	0.040	06/19/19 19:01	
Dibenz(a,h)anthracene	ug/L	ND	0.040	06/19/19 19:01	
Fluoranthene	ug/L	ND	0.040	06/19/19 19:01	
Fluorene	ug/L	ND	0.040	06/19/19 19:01	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.040	06/19/19 19:01	
Naphthalene	ug/L	ND	0.040	06/19/19 19:01	
Phenanthrene	ug/L	ND	0.040	06/19/19 19:01	
Pyrene	ug/L	ND	0.040	06/19/19 19:01	
2-Fluorobiphenyl (S)	%.	73	47-125	06/19/19 19:01	
p-Terphenyl-d14 (S)	%.	92	62-125	06/19/19 19:01	

LABORATORY CONTROL SAMPLE: 3315993

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	ug/L	1	0.68	68	31-125	
2-Methylnaphthalene	ug/L	1	0.68	68	43-125	
Acenaphthene	ug/L	1	0.69	69	50-125	
Acenaphthylene	ug/L	1	0.66	66	46-125	
Anthracene	ug/L	1	0.78	78	59-125	
Benzo(a)anthracene	ug/L	1	0.89	89	55-125	
Benzo(a)pyrene	ug/L	1	0.90	90	66-125	
Benzo(b)fluoranthene	ug/L	1	0.84	84	64-125	
Benzo(g,h,i)perylene	ug/L	1	0.82	82	58-125	
Benzo(k)fluoranthene	ug/L	1	0.91	91	60-125	
Chrysene	ug/L	1	0.92	92	62-125	
Dibenz(a,h)anthracene	ug/L	1	0.76	76	51-125	
Fluoranthene	ug/L	1	0.86	86	64-125	
Fluorene	ug/L	1	0.67	67	55-125	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.87	87	61-125	
Naphthalene	ug/L	1	0.64	64	48-125	

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REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10478972

LABORATORY CONTROL SAMPLE: 3315993

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenanthrene	ug/L	1	0.83	83	63-125	
Pyrene	ug/L	1	0.95	95	61-125	
2-Fluorobiphenyl (S)	%.			64	47-125	
p-Terphenyl-d14 (S)	%.			87	62-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3315994 3315995

Parameter	Units	10479591002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1-Methylnaphthalene	ug/L	ND	1	1	0.66	0.66	65	65	30-125	1	30	
2-Methylnaphthalene	ug/L	ND	1	1	0.66	0.65	65	63	42-125	3	30	
Acenaphthene	ug/L	ND	1	1	0.76	0.73	75	71	46-125	4	30	
Acenaphthylene	ug/L	ND	1	1	0.72	0.74	71	72	48-125	2	30	
Anthracene	ug/L	ND	1	1	0.80	0.86	79	84	59-125	7	30	
Benzo(a)anthracene	ug/L	ND	1	1	0.91	0.87	90	85	56-125	5	30	
Benzo(a)pyrene	ug/L	ND	1	1	0.93	0.90	91	87	58-125	3	30	
Benzo(b)fluoranthene	ug/L	ND	1	1	0.89	0.83	88	81	51-125	7	30	
Benzo(g,h,i)perylene	ug/L	ND	1	1	0.89	0.80	87	78	50-125	10	30	
Benzo(k)fluoranthene	ug/L	ND	1	1	0.97	0.95	95	92	52-125	2	30	
Chrysene	ug/L	ND	1	1	1.0	0.91	99	88	58-125	10	30	
Dibenz(a,h)anthracene	ug/L	ND	1	1	0.84	0.80	82	78	45-125	4	30	
Fluoranthene	ug/L	ND	1	1	0.88	0.91	87	89	60-125	4	30	
Fluorene	ug/L	ND	1	1	0.78	0.79	77	77	47-125	1	30	
Indeno(1,2,3-cd)pyrene	ug/L	ND	1	1	0.89	0.84	88	82	48-125	6	30	
Naphthalene	ug/L	ND	1	1	0.62	0.63	61	61	38-125	1	30	
Phenanthrene	ug/L	ND	1	1	0.86	0.84	84	82	60-125	2	30	
Pyrene	ug/L	ND	1	1	0.97	0.96	96	93	62-125	2	30	
2-Fluorobiphenyl (S)	%.						70	65	47-125			
p-Terphenyl-d14 (S)	%.						91	83	62-125			

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10478972

QC Batch: 612719 Analysis Method: NWTPH-Dx
QC Batch Method: EPA Mod. 3510C Analysis Description: NWTPH-Dx GCS LV SG
Associated Lab Samples: 10478972002, 10478972003, 10478972004, 10478972005, 10478972006

METHOD BLANK: 3310633 Matrix: Water
Associated Lab Samples: 10478972002, 10478972003, 10478972004, 10478972005, 10478972006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Fuel Range SG	mg/L	ND	0.40	06/18/19 12:48	
Motor Oil Range SG	mg/L	ND	0.40	06/18/19 12:48	
n-Triacontane (S)	%.	79	50-150	06/18/19 12:48	
o-Terphenyl (S)	%.	88	50-150	06/18/19 12:48	

LABORATORY CONTROL SAMPLE & LCSD: 3310634 3310635

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Fuel Range SG	mg/L	2	1.6	1.8	82	91	50-150	10	20	
Motor Oil Range SG	mg/L	2	1.7	1.8	83	89	50-150	7	20	
n-Triacontane (S)	%.				81	75	50-150			
o-Terphenyl (S)	%.				85	88	50-150			

SAMPLE DUPLICATE: 3310636

Parameter	Units	10478972002 Result	Dup Result	RPD	Max RPD	Qualifiers
Diesel Fuel Range SG	mg/L	0.50	0.62	21	30	
Motor Oil Range SG	mg/L	ND	ND		30	
n-Triacontane (S)	%.	81	84			
o-Terphenyl (S)	%.	85	89			

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10478972

QC Batch: 613604 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10478972002, 10478972003, 10478972004, 10478972005, 10478972006

METHOD BLANK: 3315505 Matrix: Water
Associated Lab Samples: 10478972002, 10478972003, 10478972004, 10478972005, 10478972006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	5.0	06/18/19 10:19	

LABORATORY CONTROL SAMPLE & LCSD: 3315506 3315507

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	42.3	42.4	106	106	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3315508 3315509

Parameter	Units	10478409024 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	412	40	40	471	471	149	148	80-120	0	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3315510 3315511

Parameter	Units	10478409025 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	427	40	40	449	450	54	56	80-120	0	20	M1

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10478972

QC Batch: 613296 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10478972002, 10478972003, 10478972004, 10478972005, 10478972006

METHOD BLANK: 3314186 Matrix: Water
Associated Lab Samples: 10478972002, 10478972003, 10478972004, 10478972005, 10478972006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.2	06/17/19 20:33	

LABORATORY CONTROL SAMPLE: 3314187

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	12.5	11.4	91	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3314188 3314189

Parameter	Units	10478743002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	6.3	12.5	12.5	17.6	16.6	91	83	90-110	6	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3314190 3314191

Parameter	Units	10478743003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	9.7	12.5	12.5	19.1	19.2	76	76	90-110	0	20	M1

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10478972

QC Batch: 612793 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10478972002, 10478972003, 10478972004, 10478972005, 10478972006

METHOD BLANK: 3311033 Matrix: Water
Associated Lab Samples: 10478972002, 10478972003, 10478972004, 10478972005, 10478972006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.10	06/13/19 16:43	FS

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QUALIFIERS

Project: 0499738-Revised Report
Pace Project No.: 10478972

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

E	Analyte concentration exceeded the calibration range. The reported result is estimated.
FS	The sample was filtered in the laboratory prior to analysis.
G+	Late peaks present outside the GRO window.
G-	Early peaks present outside the GRO window.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.
S2	Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 0499738-Revised Report
Pace Project No.: 10478972

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10478972002	**PEO-MW-18-201906**	EPA Mod. 3510C	612719	NWTPH-Dx	613713
10478972003	**PEO-MW-08-201906**	EPA Mod. 3510C	612719	NWTPH-Dx	613713
10478972004	**PEO-MW-38-201906**	EPA Mod. 3510C	612719	NWTPH-Dx	613713
10478972005	**PEO-MW-37-201906**	EPA Mod. 3510C	612719	NWTPH-Dx	613713
10478972006	**PEO-MW-29-201906**	EPA Mod. 3510C	612719	NWTPH-Dx	613713
10478972001	**Trip Blank**	NWTPH-Gx	612820		
10478972002	**PEO-MW-18-201906**	NWTPH-Gx	612820		
10478972003	**PEO-MW-08-201906**	NWTPH-Gx	612820		
10478972004	**PEO-MW-38-201906**	NWTPH-Gx	612820		
10478972005	**PEO-MW-37-201906**	NWTPH-Gx	613279		
10478972006	**PEO-MW-29-201906**	NWTPH-Gx	613279		
10478972002	**PEO-MW-18-201906**	EPA 3010	613206	EPA 6010D	613826
10478972003	**PEO-MW-08-201906**	EPA 3010	613206	EPA 6010D	613826
10478972004	**PEO-MW-38-201906**	EPA 3010	613206	EPA 6010D	613826
10478972005	**PEO-MW-37-201906**	EPA 3010	613206	EPA 6010D	613826
10478972006	**PEO-MW-29-201906**	EPA 3010	613206	EPA 6010D	613826
10478972002	**PEO-MW-18-201906**	EPA 3020	613219	EPA 6020A	614473
10478972003	**PEO-MW-08-201906**	EPA 3020	613219	EPA 6020A	614473
10478972004	**PEO-MW-38-201906**	EPA 3020	613219	EPA 6020A	614473
10478972005	**PEO-MW-37-201906**	EPA 3020	613219	EPA 6020A	614473
10478972006	**PEO-MW-29-201906**	EPA 3020	613219	EPA 6020A	614473
10478972002	**PEO-MW-18-201906**	EPA Mod. 3510C	612671	EPA 8270 by SIM	613073
10478972003	**PEO-MW-08-201906**	EPA Mod. 3510C	612671	EPA 8270 by SIM	613073
10478972004	**PEO-MW-38-201906**	EPA Mod. 3510C	613746	EPA 8270 by SIM	614212
10478972005	**PEO-MW-37-201906**	EPA Mod. 3510C	612671	EPA 8270 by SIM	613073
10478972006	**PEO-MW-29-201906**	EPA Mod. 3510C	612671	EPA 8270 by SIM	613073
10478972001	**Trip Blank**	EPA 8260B	613110		
10478972002	**PEO-MW-18-201906**	EPA 8260B	613110		
10478972003	**PEO-MW-08-201906**	EPA 8260B	613110		
10478972004	**PEO-MW-38-201906**	EPA 8260B	613110		
10478972005	**PEO-MW-37-201906**	EPA 8260B	613110		
10478972006	**PEO-MW-29-201906**	EPA 8260B	613110		
10478972002	**PEO-MW-18-201906**	SM 2320B	613604		
10478972003	**PEO-MW-08-201906**	SM 2320B	613604		
10478972004	**PEO-MW-38-201906**	SM 2320B	613604		
10478972005	**PEO-MW-37-201906**	SM 2320B	613604		
10478972006	**PEO-MW-29-201906**	SM 2320B	613604		
10478972002	**PEO-MW-18-201906**	EPA 300.0	613296		
10478972003	**PEO-MW-08-201906**	EPA 300.0	613296		
10478972004	**PEO-MW-38-201906**	EPA 300.0	613296		
10478972005	**PEO-MW-37-201906**	EPA 300.0	613296		
10478972006	**PEO-MW-29-201906**	EPA 300.0	613296		
10478972002	**PEO-MW-18-201906**	EPA 353.2	612793		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 0499738-Revised Report
Pace Project No.: 10478972

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10478972003	**PEO-MW-08-201906**	EPA 353.2	612793		
10478972004	**PEO-MW-38-201906**	EPA 353.2	612793		
10478972005	**PEO-MW-37-201906**	EPA 353.2	612793		
10478972006	**PEO-MW-29-201906**	EPA 353.2	612793		

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CHAIN-OF-CUSTODY / WO#: 10478972

The Chain-of-Custody is a LEGAL DOCUI

10478972

of 2285878

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: ERM	Report To: Rita Cooper	Attention:
Address: 1050 SW 6th Ave Suite 1650 Portland, OR 97204	Copy To:	Company Name:
		Address:
Email To: ritacooper@erm.com	Purchase Order No.:	Pace Quote Reference:
Phone: 207-329-6329 Fax:	Project Name:	Pace Project Manager:
Requested Due Date/TAT: Standard	Project Number: 0499738	Pace Profile #: 40125/1

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE:

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test	GRO	BTEX	VPH	DRO	Phosphorus / Metals	Hardness	PAH	Nitrate	Nitrate + Nitrite	Alkalinity + Sulfate	EPH	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	~~Trip Blank~~	~~WT~~	~~G~~	~~0700~~																											~~JC~~
2	Trip Blank	WT	G	6/12/19	0700				6				X						X	X	X										001
3	PEO-MW-18-201906	WT	G	6/12/19	0820				19	X	X	X	X						X	X	X	X	X	X	X	X	X	X	X		002
4	PEO-MW-08-201906	WT	G	6/12/19	0930				19	X	X	X	X						X	X	X	X	X	X	X	X	X	X	X		003
5	PEO-MW-38-201906	WT	G	6/12/19	1040				19	X	X	X	X						X	X	X	X	X	X	X	X	X	X	X		004
6	PEO-MW-37-201906	WT	G	6/12/19	1155				19	X	X	X	X						X	X	X	X	X	X	X	X	X	X	X		005
7	PEO-MW-29-201906	WT	G	6/12/19	1320				19	X	X	X	X						X	X	X	X	X	X	X	X	X	X	X		006
8																															
9																															
10																															
11																															
12																															

JC

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Joe Casey for ERM	6/12/19	1500	[signature] PACE	6/13/19	8:45	1.0	~~N~~	N	Y

ST 6/13/19

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Joe Casey

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 06/12/19

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-C-010-rev.00, 09Nov2017

Pace Analytical	Document Name: **Sample Condition Upon Receipt Form**	Document Revised: 09May2019 Page 1 of 1
	Document No.: **F-MN-L-213-rev.28**	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: ERM

Project #: **WO#: 10478972**

PM: JMT **Due Date: 06/20/19**

CLIENT: ERM-Oregon

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☐ Commercial **See Exception** ☐

Tracking Number: see exceptions

Custody Seal on Cooler/Box Present? ☐ Yes ☒ No **Seals Intact?** ☐ Yes ☒ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Packing Material: ☒ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other: _____ **Temp Blank?** ☒ Yes ☐ No

Thermometer: ☐ T1(0461) ☒ T2(1336) ☐ T3(0459) ☐ T4(0254) ☐ T5(0489) **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 1.5 °C **Average Corrected Temp (no temp blank only):** °C **See Exceptions** ☐

Correction Factor: +0.1 **Cooler Temp Corrected w/temp blank:** 1.6 °C

USDA Regulated Soil: (☒ N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** SS 6/13/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present and Filled Out?	☒ Yes	☐ No		1.
Chain of Custody Relinquished?	☒ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☒ Yes	☐ No	☐ N/A	3.
Samples Arrived within Hold Time?	☒ Yes	☐ No		4.
Short Hold Time Analysis (<72 hr)?	☒ Yes	☐ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☐ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other
Rush Turn Around Time Requested?	☐ Yes	☒ No		6.
Sufficient Volume?	☒ Yes	☐ No		7.
Correct Containers Used?	☒ Yes	☐ No		8.
-Pace Containers Used?	☒ Yes	☐ No		
Containers Intact?	☒ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☒ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC?	☒ Yes	☐ No		11. If no, write ID/ Date/Time on Container Below: **See Exception** ☐
Matrix: ☒ Water ☐ Soil ☐ Oil ☐ Other _____				
All containers needing acid/base preservation have been checked?	☒ Yes	☐ No	☐ N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	☒ Yes	☐ No	☐ N/A	☐ NaOH ☒ HNO_3 ☒ H_2SO_4 ☐ Zinc Acetate 1-5 : 1 1
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☒ Yes	☐ No	☐ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No **pH Paper Lot#** 220416A **See Exception** ☐
				Res. Chlorine | 0-6 Roll | 0-6 Strip | 0-14 Strip
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☒ No	☐ N/A	13. **See Exception** ☐
Trip Blank Present?	☒ Yes	☐ No	☐ N/A	14. Pace Trip Blank Lot # (if purchased): 211058
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☐ N/A	

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Julie Pace **Date:** 6/14/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: SS

Pace Analytical	Document Name: SCUR Exception Form – Coolers Above 6°C	Document Revised: 08Apr2019 Page 1 of 1
	Document No.: F-MN-C-298-Rev.02	Issuing Authority: Pace Minnesota Quality Office

During sample triage, this form is to be placed in each cooler that arrives above 6.0 degrees Celsius

SCUR Exceptions: **Workorder #:**

Out of Temp Sample IDs	Container Type	# of Containers

PM Notified? ☐Yes ☐No

If yes, indicate who was contacted/date/time.
If no, indicate reason why.

Multiple Cooler Project? ☐Yes ☐No
If you answered yes, fill out information to the left.

No Temp Blank

Read Temp	Corrected Temp	Average Temp

Tracking Number/Temperature	
7475 9398 5403	
" " 5414	
" " 5396	

Other Issues

Issue Type: Sample ID	Container Type	# of Containers

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition?	Initials
								☐Yes ☐No	
								☐Yes ☐No	
								☐Yes ☐No	
								☐Yes ☐No	

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Pace Analytical Minnesota
Julie Bowser
1700 Elm Street, Ste. 200
Minneapolis, MN 55414

RE: 0499738
Work Order Number: 1906168

July 05, 2019

Attention Julie Bowser:

Fremont Analytical, Inc. received 6 sample(s) on 6/14/2019 for the analyses presented in the following report.

Extractable Petroleum Hydrocarbons by NWEPH
Volatile Petroleum Hydrocarbons by NWVPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *07/29/2019*

CLIENT: Pace Analytical Minnesota
Project: 0499738
Work Order: 1906168

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1906168-001	Trip Blank	06/12/2019 7:00 AM	06/14/2019 9:22 AM
1906168-002	PEO-MW-18-201906	06/12/2019 8:20 AM	06/14/2019 9:22 AM
1906168-003	PEO-MW-08-201906	06/12/2019 9:30 AM	06/14/2019 9:22 AM
1906168-004	PEO-MW-38-201906	06/12/2019 10:40 AM	06/14/2019 9:22 AM
1906168-005	PEO-MW-37-201906	06/12/2019 11:55 AM	06/14/2019 9:22 AM
1906168-006	PEO-MW-29-201906	06/12/2019 1:20 PM	06/14/2019 9:22 AM

Case Narrative

WO#: **1906168**
Date: **7/5/2019**

CLIENT: Pace Analytical Minnesota
Project: 0499738

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

7/5/19: Rev1 includes a select list of carbon ranges.
7/29/19: Rev2 includes data reported to the MDL.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1906168**
Date Reported: **7/5/2019**

Client: Pace Analytical Minnesota
Collection Date: 6/12/2019 7:00:00 AM
Project: 0499738
Lab ID: 1906168-001
Matrix: Water
Client Sample ID: **Trip Blank**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 24954		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07	MDL	µg/L	1	6/19/2019 2:45:01 AM
Surr: 1,4-Difluorobenzene	99.2	65 - 140		%Rec	1	6/19/2019 2:45:01 AM
Surr: Bromofluorobenzene	98.4	65 - 140		%Rec	1	6/19/2019 2:45:01 AM

NOTES:
MDL - Analyte reported to Method Detection Limit (MDL)

Analytical Report

Work Order: **1906168**
Date Reported: **7/5/2019**

Client: Pace Analytical Minnesota
Collection Date: 6/12/2019 8:20:00 AM
Project: 0499738
Lab ID: 1906168-002
Matrix: Water
Client Sample ID: **PEO-MW-18-201906**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 24968		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.87	MDL	µg/L	1	6/26/2019 3:00:00 PM
Surr: 1-Chlorooctadecane	95.5	60 - 140		%Rec	1	6/26/2019 3:00:00 PM
Surr: o-Terphenyl	90.6	60 - 140		%Rec	1	6/27/2019 5:03:00 AM
NOTES: MDL - Analyte reported to Method Detection Limit (MDL)						
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 24954		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07	MDL	µg/L	1	6/19/2019 3:25:42 AM
Surr: 1,4-Difluorobenzene	100	65 - 140		%Rec	1	6/19/2019 3:25:42 AM
Surr: Bromofluorobenzene	99.4	65 - 140		%Rec	1	6/19/2019 3:25:42 AM
NOTES: MDL - Analyte reported to Method Detection Limit (MDL)						

Analytical Report

Work Order: **1906168**
Date Reported: **7/5/2019**

Client: Pace Analytical Minnesota
Collection Date: 6/12/2019 9:30:00 AM
Project: 0499738
Lab ID: 1906168-003
Matrix: Water
Client Sample ID: **PEO-MW-08-201906**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 24968		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	45.1	20.1		µg/L	1	6/26/2019 4:29:00 PM
Surr: 1-Chlorooctadecane	96.6	60 - 140		%Rec	1	6/26/2019 4:29:00 PM
Surr: o-Terphenyl	86.4	60 - 140		%Rec	1	6/27/2019 6:31:00 AM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 24954		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	8.56	4.07	JMDL	µg/L	1	6/19/2019 5:28:07 AM
Surr: 1,4-Difluorobenzene	101	65 - 140		%Rec	1	6/19/2019 5:28:07 AM
Surr: Bromofluorobenzene	104	65 - 140		%Rec	1	6/19/2019 5:28:07 AM

NOTES:
MDL - Analyte reported to Method Detection Limit (MDL)

Analytical Report

Work Order: **1906168**
Date Reported: **7/5/2019**

Client: Pace Analytical Minnesota
Collection Date: 6/12/2019 10:40:00 AM
Project: 0499738
Lab ID: 1906168-004
Matrix: Water
Client Sample ID: **PEO-MW-38-201906**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 24968		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	64.7	20.0		µg/L	1	6/26/2019 5:13:00 PM
Surr: 1-Chlorooctadecane	80.9	60 - 140		%Rec	1	6/26/2019 5:13:00 PM
Surr: o-Terphenyl	71.8	60 - 140		%Rec	1	6/27/2019 7:15:00 AM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 24954		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	534	20.0		µg/L	1	6/19/2019 4:47:12 AM
Surr: 1,4-Difluorobenzene	111	65 - 140		%Rec	1	6/19/2019 4:47:12 AM
Surr: Bromofluorobenzene	108	65 - 140		%Rec	1	6/19/2019 4:47:12 AM

Analytical Report

Work Order: **1906168**
Date Reported: **7/5/2019**

Client: Pace Analytical Minnesota
Collection Date: 6/12/2019 11:55:00 AM
Project: 0499738
Lab ID: 1906168-005
Matrix: Water
Client Sample ID: **PEO-MW-37-201906**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 24968		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	75.0	20.1		µg/L	1	6/26/2019 5:57:00 PM
Surr: 1-Chlorooctadecane	107	60 - 140		%Rec	1	6/26/2019 5:57:00 PM
Surr: o-Terphenyl	88.3	60 - 140		%Rec	1	6/27/2019 7:59:00 AM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 24954		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	358	20.0		µg/L	1	6/19/2019 7:30:39 AM
Surr: 1,4-Difluorobenzene	107	65 - 140		%Rec	1	6/19/2019 7:30:39 AM
Surr: Bromofluorobenzene	105	65 - 140		%Rec	1	6/19/2019 7:30:39 AM

Analytical Report

Work Order: **1906168**
Date Reported: **7/5/2019**

Client: Pace Analytical Minnesota
Collection Date: 6/12/2019 1:20:00 PM
Project: 0499738
Lab ID: 1906168-006
Matrix: Water
Client Sample ID: **PEO-MW-29-201906**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 24968		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	150	20.0		µg/L	1	6/26/2019 6:42:00 PM
Surr: 1-Chlorooctadecane	181	60 - 140	S	%Rec	1	6/26/2019 6:42:00 PM
Surr: o-Terphenyl	150	60 - 140	S	%Rec	1	6/27/2019 8:43:00 AM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 24954		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	449	20.0		µg/L	1	6/19/2019 6:08:56 AM
Surr: 1,4-Difluorobenzene	115	65 - 140		%Rec	1	6/19/2019 6:08:56 AM
Surr: Bromofluorobenzene	108	65 - 140		%Rec	1	6/19/2019 6:08:56 AM

NOTES:
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 1906168
CLIENT: Pace Analytical Minnesota
Project: 0499738

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **MB-24968**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **6/19/2019**		RunNo: **52370**			
Client ID: **MBLKW**	Batch ID: **24968**					Analysis Date: **6/26/2019**		SeqNo: **1034231**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	5.89		0	0						MDL
Surr: 1-Chlorooctadecane	1,910		1,998		95.5	60	140				

NOTES:
MDL - Analyte reported to Method Detection Limit (MDL)

Sample ID: **LCS-24968**	SampType: **LCS**			Units: **µg/L**		Prep Date: **6/19/2019**		RunNo: **52370**			
Client ID: **LCSW**	Batch ID: **24968**					Analysis Date: **6/26/2019**		SeqNo: **1034230**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	2,720	19.9	2,491	0	109	70	130				
Surr: 1-Chlorooctadecane	2,120		1,993		106	60	140				

Sample ID: **1906168-002BDUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **6/19/2019**		RunNo: **52370**			
Client ID: **PEO-MW-18-201906**	Batch ID: **24968**					Analysis Date: **6/26/2019**		SeqNo: **1034224**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	20.9		0	0			0		25	
Surr: 1-Chlorooctadecane	2,160		2,087		104	60	140		0		

Sample ID: **1906240-002BMS**	SampType: **MS**			Units: **µg/L**		Prep Date: **6/19/2019**		RunNo: **52370**			
Client ID: **BATCH**	Batch ID: **24968**					Analysis Date: **6/26/2019**		SeqNo: **1034232**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	3,030	20.0	2,498	0	121	70	130				
Surr: 1-Chlorooctadecane	2,450		1,999		123	60	140				

Work Order: 1906168
CLIENT: Pace Analytical Minnesota
Project: 0499738

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **1906240-002BMSD** SampType: **MSD** Units: **µg/L** Prep Date: **6/19/2019** RunNo: **52370**
Client ID: **BATCH** Batch ID: **24968** Analysis Date: **6/26/2019** SeqNo: **1034233**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	2,200	20.1	2,506	0	87.8	70	130	3,035	31.8	30	R
Surr: 1-Chlorooctadecane	2,370		2,005		118	60	140		0		

NOTES:
R - High RPD observed, spike recovery is within range.

Sample ID: **LCS-24968** SampType: **LCS** Units: **µg/L** Prep Date: **6/19/2019** RunNo: **52370**
Client ID: **LCSW** Batch ID: **24968** Analysis Date: **6/28/2019** SeqNo: **1035003**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	2,460	19.9	2,491	0	98.7	70	130				
Surr: 1-Chlorooctadecane	2,110		1,993		106	60	140				

Sample ID: **1906206-006ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **6/19/2019** RunNo: **52370**
Client ID: **BATCH** Batch ID: **24968** Analysis Date: **6/28/2019** SeqNo: **1034996**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	20.0		0	0			0		25	
Surr: 1-Chlorooctadecane	1,310		1,999		65.7	60	140		0		

Work Order: 1906168
CLIENT: Pace Analytical Minnesota
Project: 0499738

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **LCS-24954**	SampType: **LCS**			Units: **µg/L**		Prep Date: **6/18/2019**			RunNo: **52175**		
Client ID: **LCSW**	Batch ID: **24954**					Analysis Date: **6/18/2019**			SeqNo: **1030196**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	200	20.0	200.0	0	100	70	130				
Surr: 1,4-Difluorobenzene	49.9		50.00		99.9	65	140				
Surr: Bromofluorobenzene	47.9		50.00		95.8	65	140				

Sample ID: **LCSD-24954**	SampType: **LCSD**			Units: **µg/L**		Prep Date: **6/18/2019**			RunNo: **52175**		
Client ID: **LCSW02**	Batch ID: **24954**					Analysis Date: **6/18/2019**			SeqNo: **1030197**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	201	20.0	200.0	0	101	70	130	200.2	0.497	20	
Surr: 1,4-Difluorobenzene	50.8		50.00		102	65	140		0		
Surr: Bromofluorobenzene	48.9		50.00		97.9	65	140		0		

Sample ID: **MB-24954**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **6/18/2019**			RunNo: **52175**		
Client ID: **MBLKW**	Batch ID: **24954**					Analysis Date: **6/18/2019**			SeqNo: **1030198**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	4.07		0	0						MDL
Surr: 1,4-Difluorobenzene	48.5		50.00		97.0	65	140				
Surr: Bromofluorobenzene	48.3		50.00		96.6	65	140				

NOTES:
MDL - Analyte reported to Method Detection Limit (MDL)

Sample ID: **1906148-006ADUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **6/18/2019**			RunNo: **52175**		
Client ID: **BATCH**	Batch ID: **24954**					Analysis Date: **6/19/2019**			SeqNo: **1030183**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	20.0		0	0			0		25	
Surr: 1,4-Difluorobenzene	49.8		50.00		99.6	65	140		0		
Surr: Bromofluorobenzene	50.5		50.00		101	65	140		0		

Work Order: 1906168
CLIENT: Pace Analytical Minnesota
Project: 0499738

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **1906168-006ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **6/18/2019** RunNo: **52175**
Client ID: **PEO-MW-29-201906** Batch ID: **24954** Analysis Date: **6/19/2019** SeqNo: **1030192**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	477	20.0		0	0			448.6	6.15	25	
Surr: 1,4-Difluorobenzene	57.1		50.00		114	65	140		0		
Surr: Bromofluorobenzene	54.3		50.00		109	65	140		0		

Sample Log-In Check List

Client Name:	**PACEMINN**	Work Order Number:	**1906168**
Logged by:	**Clare Griggs**	Date Received:	**6/14/2019 9:22:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	FedEx		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☑	No ☐	Not Required ☐
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☑	NA ☐
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler 1	1.4
Cooler 2	2.8
Sample 1	3.7
Sample 2	4.3
Temp Blank 1	3.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Sample Log-In Check List

Client Name:	**PACEMINN**	Work Order Number:	**1906168**
Logged by:	**Clare Griggs**	Date Received:	**6/14/2019 9:22:00 AM**

Item #	Temp ºC
Temp Blank 2	1.9

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody

1906168

Pace Analytical®
www.pacelabs.com

Workorder: 10478972 **Workorder Name:** 0499738 **Results Requested By:** 6/20/2019

Report / Invoice To	Subcontract To
Julie Bowser Pace Analytical Minnesota 1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone 612-607-6390 Email: julie.bowser@pacelabs.com	Fremont Analytical 3600 Fremont Ave N Seattle, WA 98103 P.O. 10478972

State of Sample Origin: OR

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HCL	Preserved Containers: Unpreserved	Preserved Containers	Preserved Containers	Preserved Containers	Preserved Containers	Requested Analysis: NWTPH VPH	Requested Analysis: NWTPH EPH	Requested Analysis	Requested Analysis	Requested Analysis	Requested Analysis	Requested Analysis	Requested Analysis	Requested Analysis	Requested Analysis	Requested Analysis	Requested Analysis	LAB USE ONLY
1	Trip Blank	6/12/2019 07:00	10478972001	Water	3						X												
2	PEO-MW-18-201906	6/12/2019 08:20	10478972002	Water	3	2					X	X											
3	PEO-MW-08-201906	6/12/2019 09:30	10478972003	Water	3	2					X	x											
4	PEO-MW-38-201906	6/12/2019 10:40	10478972004	Water	3	2					X	x											
5	PEO-MW-37-201906	6/12/2019 11:55	10478972005	Water	3	2					X	X											
6	PEO-MW-29-201906	6/12/2019 13:20	10478972006	Water	3	2					X	X											

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature] Pace	6/13/19 1500	[signature]	6.13.19 1500 PA
2				
3				

Comments: 0922

Cooler Temperature on Receipt _____ °C | **Custody Seal** Y or N | **Received on Ice** Y or N | **Samples Intact** Y or N

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

August 02, 2019

Joe Casey
ERM Portland
1050 SW 6th Ave
Suite 1650
Portland, OR 97204

RE: Project: 0499738-Revised Report
Pace Project No.: 10479533

Dear Joe Casey:
Enclosed are the analytical results for sample(s) received by the laboratory on June 14, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

This report was revised on July, 17 2019 to update the sample ID of Pace sample number 10479533007.

This report was further revised on 8/2/19 to add the motor oil range to NWTPH, add 1 & 2 methylnapthalene to the 8270 SIM analysis and update the subcontract data to report down to the MDL.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Julie Bowser
julie.bowser@pacelabs.com
612-607-6390
Project Manager

REPORT OF LABORATORY ANALYSIS

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Enclosures

cc: Rita Cooper, ERM Portland
ERM Global EDD Mailbox, ERM

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CERTIFICATIONS

Project: 0499738-Revised Report
Pace Project No.: 10479533

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

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SAMPLE SUMMARY

Project: 0499738-Revised Report
Pace Project No.: 10479533

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10479533001	**PEO-MW-36-201906**	Water	06/13/19 08:20	06/14/19 08:45
10479533002	**PEO-MW-Z2-201906**	Water	06/13/19 08:30	06/14/19 08:45
10479533003	**PEO-MW-27-201906**	Water	06/13/19 09:40	06/14/19 08:45
10479533004	**PEO-MW-26-201906**	Water	06/13/19 10:50	06/14/19 08:45
10479533005	**PEO-MW-40-201906**	Water	06/13/19 12:10	06/14/19 08:45
10479533006	**PEO-MW-28-201906**	Water	06/13/19 13:20	06/14/19 08:45
10479533007	**PEO-MW-25-201906**	Water	06/13/19 13:10	06/14/19 08:45

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SAMPLE ANALYTE COUNT

Project: 0499738-Revised Report
Pace Project No.: 10479533

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10479533001	**PEO-MW-36-201906**	NWTPH-Dx	EC2	4	PASI-M
		EPA 6010D	BD1	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10479533002	**PEO-MW-Z2-201906**	NWTPH-Dx	EC2	4	PASI-M
		EPA 6010D	BD1	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10479533003	**PEO-MW-27-201906**	NWTPH-Dx	EC2	4	PASI-M
		EPA 6010D	BD1	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10479533004	**PEO-MW-26-201906**	NWTPH-Dx	EC2	4	PASI-M
		EPA 6010D	BD1	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10479533005	**PEO-MW-40-201906**	NWTPH-Dx	EC2	4	PASI-M
		EPA 6010D	BD1	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10479533006	**PEO-MW-28-201906**	EPA 8270 by SIM	SNG	20	PASI-M
10479533007	**PEO-MW-25-201906**	NWTPH-Dx	EC2	4	PASI-M

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SAMPLE ANALYTE COUNT

Project: 0499738-Revised Report
Pace Project No.: 10479533

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6010D	BD1	1	PASI-M
		EPA 6020A	PW1	2	PASI-M
		EPA 8270 by SIM	SNG	20	PASI-M
		SM 2320B	DCL	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10479533

Sample: PEO-MW-36-201906 **Lab ID: 10479533001** Collected: 06/13/19 08:20 Received: 06/14/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**3.5**	mg/L	0.40	1	06/18/19 12:23	06/20/19 12:08	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.40	1	06/18/19 12:23	06/20/19 12:08	64742-65-0	
Surrogates								
o-Terphenyl (S)	89	%.	50-150	1	06/18/19 12:23	06/20/19 12:08	84-15-1	
n-Triacontane (S)	82	%.	50-150	1	06/18/19 12:23	06/20/19 12:08	638-68-6	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**92200**	ug/L	3300	1	06/18/19 09:56	06/20/19 10:38		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**7.2**	ug/L	2.5	5	06/18/19 09:56	06/25/19 16:25	7440-38-2	
Manganese, Dissolved	**1760**	ug/L	2.5	5	06/18/19 09:56	06/25/19 16:25	7439-96-5	M1
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**0.20**	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	83-32-9	
Acenaphthylene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	208-96-8	
Anthracene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	120-12-7	
Benzo(a)anthracene	**0.030J**	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	207-08-9	
Chrysene	**0.026J**	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	53-70-3	
Fluoranthene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	206-44-0	
Fluorene	**0.048**	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	193-39-5	
1-Methylnaphthalene	**0.11**	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	90-12-0	
2-Methylnaphthalene	**0.099**	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	91-57-6	
Naphthalene	**4.1**	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	91-20-3	
Phenanthrene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	85-01-8	
Pyrene	**0.064**	ug/L	0.040	1	06/18/19 15:49	06/20/19 01:22	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	69	%.	47-125	1	06/18/19 15:49	06/20/19 01:22	321-60-8	
p-Terphenyl-d14 (S)	79	%.	62-125	1	06/18/19 15:49	06/20/19 01:22	1718-51-0	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**96.9**	mg/L	5.0	1		06/19/19 08:23		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**19.8**	mg/L	1.2	1		06/19/19 00:02	14808-79-8	M1
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		06/14/19 17:03	14797-55-8	FS

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10479533

Sample: PEO-MW-Z2-201906 **Lab ID: 10479533002** Collected: 06/13/19 08:30 Received: 06/14/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**2.9**	mg/L	0.40	1	06/18/19 12:23	06/20/19 12:19	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.40	1	06/18/19 12:23	06/20/19 12:19	64742-65-0	
Surrogates								
o-Terphenyl (S)	82	%.	50-150	1	06/18/19 12:23	06/20/19 12:19	84-15-1	
n-Triacontane (S)	72	%.	50-150	1	06/18/19 12:23	06/20/19 12:19	638-68-6	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**90400**	ug/L	3300	1	06/18/19 09:56	06/20/19 10:40		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**7.6**	ug/L	2.5	5	06/18/19 09:56	06/25/19 16:46	7440-38-2	
Manganese, Dissolved	**1760**	ug/L	2.5	5	06/18/19 09:56	06/25/19 16:46	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**0.15**	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	83-32-9	
Acenaphthylene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	208-96-8	
Anthracene	**0.083**	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	120-12-7	
Benzo(a)anthracene	**0.029J**	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	50-32-8	
Benzo(b)fluoranthene	**0.023J**	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	207-08-9	
Chrysene	**0.027J**	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	53-70-3	
Fluoranthene	**0.030J**	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	206-44-0	
Fluorene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	193-39-5	
1-Methylnaphthalene	**0.14**	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	90-12-0	
2-Methylnaphthalene	**0.079**	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	91-57-6	
Naphthalene	**3.7**	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	91-20-3	
Phenanthrene	**0.082**	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	85-01-8	
Pyrene	**0.054**	ug/L	0.041	1	06/18/19 15:49	06/20/19 01:43	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	67	%.	47-125	1	06/18/19 15:49	06/20/19 01:43	321-60-8	
p-Terphenyl-d14 (S)	75	%.	62-125	1	06/18/19 15:49	06/20/19 01:43	1718-51-0	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**97.7**	mg/L	5.0	1		06/19/19 08:51		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**19.4**	mg/L	1.2	1		06/18/19 09:56	14808-79-8	M1
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		06/14/19 17:04	14797-55-8	FS

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10479533

Sample: PEO-MW-27-201906 **Lab ID: 10479533003** Collected: 06/13/19 09:40 Received: 06/14/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**1.5**	mg/L	0.40	1	06/18/19 12:23	06/20/19 12:30	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.40	1	06/18/19 12:23	06/20/19 12:30	64742-65-0	
Surrogates								
o-Terphenyl (S)	98	%.	50-150	1	06/18/19 12:23	06/20/19 12:30	84-15-1	
n-Triacontane (S)	92	%.	50-150	1	06/18/19 12:23	06/20/19 12:30	638-68-6	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**294000**	ug/L	3300	1	06/18/19 09:56	06/20/19 10:42		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**31.8**	ug/L	10.0	20	06/18/19 09:56	06/25/19 16:49	7440-38-2	
Manganese, Dissolved	**6460**	ug/L	10.0	20	06/18/19 09:56	06/25/19 16:49	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**1.7**	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	83-32-9	
Acenaphthylene	**0.29**	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	208-96-8	
Anthracene	**0.12**	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	207-08-9	
Chrysene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	53-70-3	
Fluoranthene	**0.054**	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	206-44-0	
Fluorene	**1.3**	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	193-39-5	
1-Methylnaphthalene	**2.0**	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	90-12-0	
2-Methylnaphthalene	**0.27**	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	91-57-6	
Naphthalene	**0.95**	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	91-20-3	
Phenanthrene	**0.72**	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	85-01-8	
Pyrene	**0.070**	ug/L	0.040	1	06/18/19 15:49	06/20/19 02:04	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	74	%.	47-125	1	06/18/19 15:49	06/20/19 02:04	321-60-8	
p-Terphenyl-d14 (S)	80	%.	62-125	1	06/18/19 15:49	06/20/19 02:04	1718-51-0	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**367**	mg/L	5.0	1		06/19/19 08:55		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**0.76J**	mg/L	1.2	1		06/18/19 12:47	14808-79-8	B
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		06/14/19 17:05	14797-55-8	FS

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10479533

Sample: PEO-MW-26-201906 **Lab ID: 10479533004** Collected: 06/13/19 10:50 Received: 06/14/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.87**	mg/L	0.42	1	06/18/19 12:23	06/20/19 12:41	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.42	1	06/18/19 12:23	06/20/19 12:41	64742-65-0	
Surrogates								
o-Terphenyl (S)	91	%.	50-150	1	06/18/19 12:23	06/20/19 12:41	84-15-1	
n-Triacontane (S)	83	%.	50-150	1	06/18/19 12:23	06/20/19 12:41	638-68-6	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**180000**	ug/L	3300	1	06/18/19 09:56	06/20/19 10:43		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**12.5**	ug/L	5.0	10	06/18/19 09:56	06/25/19 16:52	7440-38-2	
Manganese, Dissolved	**2850**	ug/L	5.0	10	06/18/19 09:56	06/25/19 16:52	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**0.63**	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	83-32-9	
Acenaphthylene	**0.084**	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	208-96-8	
Anthracene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	207-08-9	
Chrysene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	53-70-3	
Fluoranthene	**0.039J**	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	206-44-0	
Fluorene	**0.54**	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	193-39-5	
1-Methylnaphthalene	**0.67**	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	90-12-0	
2-Methylnaphthalene	**0.13**	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	91-57-6	
Naphthalene	**1.2**	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	91-20-3	
Phenanthrene	**0.087**	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	85-01-8	
Pyrene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:25	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	80	%.	47-125	1	06/18/19 15:49	06/20/19 02:25	321-60-8	
p-Terphenyl-d14 (S)	91	%.	62-125	1	06/18/19 15:49	06/20/19 02:25	1718-51-0	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**239**	mg/L	5.0	1		06/19/19 08:58		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**1.6**	mg/L	1.2	1		06/18/19 13:03	14808-79-8	B
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		06/14/19 17:06	14797-55-8	FS

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10479533

Sample: PEO-MW-40-201906 **Lab ID: 10479533005** Collected: 06/13/19 12:10 Received: 06/14/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.071J**	mg/L	0.42	1	06/18/19 12:23	06/20/19 12:53	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.42	1	06/18/19 12:23	06/20/19 12:53	64742-65-0	
Surrogates								
o-Terphenyl (S)	86	%.	50-150	1	06/18/19 12:23	06/20/19 12:53	84-15-1	
n-Triacontane (S)	79	%.	50-150	1	06/18/19 12:23	06/20/19 12:53	638-68-6	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**117000**	ug/L	3300	1	06/18/19 09:56	06/20/19 10:45		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**4.6**	ug/L	2.5	5	06/18/19 09:56	06/25/19 16:55	7440-38-2	
Manganese, Dissolved	**1740**	ug/L	2.5	5	06/18/19 09:56	06/25/19 16:55	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	83-32-9	
Acenaphthylene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	208-96-8	
Anthracene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	207-08-9	
Chrysene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	53-70-3	
Fluoranthene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	206-44-0	
Fluorene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	91-57-6	
Naphthalene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	91-20-3	
Phenanthrene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	85-01-8	
Pyrene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 02:46	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	65	%.	47-125	1	06/18/19 15:49	06/20/19 02:46	321-60-8	
p-Terphenyl-d14 (S)	89	%.	62-125	1	06/18/19 15:49	06/20/19 02:46	1718-51-0	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**145**	mg/L	5.0	1		06/19/19 09:02		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**0.61J**	mg/L	1.2	1		06/18/19 13:19	14808-79-8	B
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		06/14/19 17:07	14797-55-8	FS

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10479533

Sample: PEO-MW-28-201906 **Lab ID: 10479533006** Collected: 06/13/19 13:20 Received: 06/14/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	83-32-9	
Acenaphthylene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	208-96-8	
Anthracene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	207-08-9	
Chrysene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	53-70-3	
Fluoranthene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	206-44-0	
Fluorene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	91-57-6	
Naphthalene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	91-20-3	
Phenanthrene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	85-01-8	
Pyrene	ND	ug/L	0.041	1	06/18/19 15:49	06/20/19 03:07	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	60	%.	47-125	1	06/18/19 15:49	06/20/19 03:07	321-60-8	
p-Terphenyl-d14 (S)	82	%.	62-125	1	06/18/19 15:49	06/20/19 03:07	1718-51-0	

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ANALYTICAL RESULTS

Project: 0499738-Revised Report
Pace Project No.: 10479533

Sample: PEO-MW-25-201906 **Lab ID: 10479533007** Collected: 06/13/19 13:10 Received: 06/14/19 08:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	ND	mg/L	0.42	1	06/18/19 12:23	06/20/19 13:04	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.42	1	06/18/19 12:23	06/20/19 13:04	64742-65-0	
Surrogates								
o-Terphenyl (S)	96	%.	50-150	1	06/18/19 12:23	06/20/19 13:04	84-15-1	
n-Triacontane (S)	91	%.	50-150	1	06/18/19 12:23	06/20/19 13:04	638-68-6	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**50100**	ug/L	3300	1	06/18/19 09:56	06/20/19 10:47		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**0.19J**	ug/L	0.50	1	06/18/19 09:56	06/25/19 16:58	7440-38-2	
Manganese, Dissolved	**2.0**	ug/L	0.50	1	06/18/19 09:56	06/25/19 16:58	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	83-32-9	
Acenaphthylene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	208-96-8	
Anthracene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	207-08-9	
Chrysene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	53-70-3	
Fluoranthene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	206-44-0	
Fluorene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	91-57-6	
Naphthalene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	91-20-3	
Phenanthrene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	85-01-8	
Pyrene	ND	ug/L	0.040	1	06/18/19 15:49	06/20/19 03:28	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	74	%.	47-125	1	06/18/19 15:49	06/20/19 03:28	321-60-8	
p-Terphenyl-d14 (S)	90	%.	62-125	1	06/18/19 15:49	06/20/19 03:28	1718-51-0	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**62.6**	mg/L	5.0	1		06/19/19 09:07		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**11.1**	mg/L	1.2	1		06/19/19 16:43	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	**0.18**	mg/L	0.10	1		06/14/19 17:09	14797-55-8	FS

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10479533

QC Batch: 613600 Analysis Method: EPA 6020A
QC Batch Method: EPA 3020 Analysis Description: 6020A Water Dissolved UPD4
Associated Lab Samples: 10479533001, 10479533002, 10479533003, 10479533004, 10479533005, 10479533007

METHOD BLANK: 3315492 Matrix: Water
Associated Lab Samples: 10479533001, 10479533002, 10479533003, 10479533004, 10479533005, 10479533007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	06/25/19 16:19	
Manganese, Dissolved	ug/L	ND	0.50	06/25/19 16:19	

LABORATORY CONTROL SAMPLE: 3315493

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	100	103	103	80-120	
Manganese, Dissolved	ug/L	100	108	108	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3315494 3315495

Parameter	Units	10479533001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	7.2	100	100	111	108	103	101	75-125	2	20	
Manganese, Dissolved	ug/L	1760	100	100	1850	1810	93	52	75-125	2	20	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10479533

QC Batch: 613746 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA Mod. 3510C Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10479533001, 10479533002, 10479533003, 10479533004, 10479533005, 10479533006, 10479533007

METHOD BLANK: 3315992 Matrix: Water
Associated Lab Samples: 10479533001, 10479533002, 10479533003, 10479533004, 10479533005, 10479533006, 10479533007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	ND	0.040	06/19/19 19:01	
2-Methylnaphthalene	ug/L	ND	0.040	06/19/19 19:01	
Acenaphthene	ug/L	ND	0.040	06/19/19 19:01	
Acenaphthylene	ug/L	ND	0.040	06/19/19 19:01	
Anthracene	ug/L	ND	0.040	06/19/19 19:01	
Benzo(a)anthracene	ug/L	ND	0.040	06/19/19 19:01	
Benzo(a)pyrene	ug/L	ND	0.040	06/19/19 19:01	
Benzo(b)fluoranthene	ug/L	ND	0.040	06/19/19 19:01	
Benzo(g,h,i)perylene	ug/L	ND	0.040	06/19/19 19:01	
Benzo(k)fluoranthene	ug/L	ND	0.040	06/19/19 19:01	
Chrysene	ug/L	ND	0.040	06/19/19 19:01	
Dibenz(a,h)anthracene	ug/L	ND	0.040	06/19/19 19:01	
Fluoranthene	ug/L	ND	0.040	06/19/19 19:01	
Fluorene	ug/L	ND	0.040	06/19/19 19:01	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.040	06/19/19 19:01	
Naphthalene	ug/L	ND	0.040	06/19/19 19:01	
Phenanthrene	ug/L	ND	0.040	06/19/19 19:01	
Pyrene	ug/L	ND	0.040	06/19/19 19:01	
2-Fluorobiphenyl (S)	%.	73	47-125	06/19/19 19:01	
p-Terphenyl-d14 (S)	%.	92	62-125	06/19/19 19:01	

LABORATORY CONTROL SAMPLE: 3315993

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	ug/L	1	0.68	68	31-125	
2-Methylnaphthalene	ug/L	1	0.68	68	43-125	
Acenaphthene	ug/L	1	0.69	69	50-125	
Acenaphthylene	ug/L	1	0.66	66	46-125	
Anthracene	ug/L	1	0.78	78	59-125	
Benzo(a)anthracene	ug/L	1	0.89	89	55-125	
Benzo(a)pyrene	ug/L	1	0.90	90	66-125	
Benzo(b)fluoranthene	ug/L	1	0.84	84	64-125	
Benzo(g,h,i)perylene	ug/L	1	0.82	82	58-125	
Benzo(k)fluoranthene	ug/L	1	0.91	91	60-125	
Chrysene	ug/L	1	0.92	92	62-125	
Dibenz(a,h)anthracene	ug/L	1	0.76	76	51-125	
Fluoranthene	ug/L	1	0.86	86	64-125	
Fluorene	ug/L	1	0.67	67	55-125	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.87	87	61-125	
Naphthalene	ug/L	1	0.64	64	48-125	

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REPORT OF LABORATORY ANALYSIS

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Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10479533

LABORATORY CONTROL SAMPLE: 3315993

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenanthrene	ug/L	1	0.83	83	63-125	
Pyrene	ug/L	1	0.95	95	61-125	
2-Fluorobiphenyl (S)	%.			64	47-125	
p-Terphenyl-d14 (S)	%.			87	62-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3315994 3315995

Parameter	Units	10479591002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1-Methylnaphthalene	ug/L	ND	1	1	0.66	0.66	65	65	30-125	1	30	
2-Methylnaphthalene	ug/L	ND	1	1	0.66	0.65	65	63	42-125	3	30	
Acenaphthene	ug/L	ND	1	1	0.76	0.73	75	71	46-125	4	30	
Acenaphthylene	ug/L	ND	1	1	0.72	0.74	71	72	48-125	2	30	
Anthracene	ug/L	ND	1	1	0.80	0.86	79	84	59-125	7	30	
Benzo(a)anthracene	ug/L	ND	1	1	0.91	0.87	90	85	56-125	5	30	
Benzo(a)pyrene	ug/L	ND	1	1	0.93	0.90	91	87	58-125	3	30	
Benzo(b)fluoranthene	ug/L	ND	1	1	0.89	0.83	88	81	51-125	7	30	
Benzo(g,h,i)perylene	ug/L	ND	1	1	0.89	0.80	87	78	50-125	10	30	
Benzo(k)fluoranthene	ug/L	ND	1	1	0.97	0.95	95	92	52-125	2	30	
Chrysene	ug/L	ND	1	1	1.0	0.91	99	88	58-125	10	30	
Dibenz(a,h)anthracene	ug/L	ND	1	1	0.84	0.80	82	78	45-125	4	30	
Fluoranthene	ug/L	ND	1	1	0.88	0.91	87	89	60-125	4	30	
Fluorene	ug/L	ND	1	1	0.78	0.79	77	77	47-125	1	30	
Indeno(1,2,3-cd)pyrene	ug/L	ND	1	1	0.89	0.84	88	82	48-125	6	30	
Naphthalene	ug/L	ND	1	1	0.62	0.63	61	61	38-125	1	30	
Phenanthrene	ug/L	ND	1	1	0.86	0.84	84	82	60-125	2	30	
Pyrene	ug/L	ND	1	1	0.97	0.96	96	93	62-125	2	30	
2-Fluorobiphenyl (S)	%.						70	65	47-125			
p-Terphenyl-d14 (S)	%.						91	83	62-125			

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10479533

QC Batch: 613749 Analysis Method: NWTPH-Dx
QC Batch Method: EPA Mod. 3510C Analysis Description: NWTPH-Dx GCS LV SG
Associated Lab Samples: 10479533001, 10479533002, 10479533003, 10479533004, 10479533005, 10479533007

METHOD BLANK: 3316009 Matrix: Water
Associated Lab Samples: 10479533001, 10479533002, 10479533003, 10479533004, 10479533005, 10479533007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Fuel Range SG	mg/L	ND	0.40	06/20/19 11:45	
Motor Oil Range SG	mg/L	ND	0.40	06/20/19 11:45	
n-Triacontane (S)	%.	83	50-150	06/20/19 11:45	
o-Terphenyl (S)	%.	99	50-150	06/20/19 11:45	

LABORATORY CONTROL SAMPLE: 3316010

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Fuel Range SG	mg/L	2	1.9	95	50-150	
Motor Oil Range SG	mg/L	2	2.0	100	50-150	
n-Triacontane (S)	%.			100	50-150	
o-Terphenyl (S)	%.			102	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3316011 3316012

Parameter	Units	10479591002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diesel Fuel Range SG	mg/L	0.088J	2.1	2.1	1.9	1.7	87	78	50-150	10	30	
Motor Oil Range SG	mg/L	ND	2.1	2.1	1.9	1.8	92	84	50-150	9	30	
n-Triacontane (S)	%.						85	84	50-150			
o-Terphenyl (S)	%.						87	79	50-150			

SAMPLE DUPLICATE: 3316013

Parameter	Units	10479266001 Result	Dup Result	RPD	Max RPD	Qualifiers
Diesel Fuel Range SG	mg/L	995 ug/L	0.87	14	30	
Motor Oil Range SG	mg/L	ND	ND		30	
n-Triacontane (S)	%.	57	77			
o-Terphenyl (S)	%.	89	85			

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10479533

QC Batch: 613930 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10479533001, 10479533002, 10479533003, 10479533004, 10479533005, 10479533007

METHOD BLANK: 3317100 Matrix: Water
Associated Lab Samples: 10479533001, 10479533002, 10479533003, 10479533004, 10479533005, 10479533007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	5.0	06/19/19 07:41	

LABORATORY CONTROL SAMPLE & LCSD: 3317101 3317102

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	42.4	42.5	106	106	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3317103 3317104

Parameter	Units	10479312003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	146	40	40	185	185	98	97	80-120	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3317105 3317106

Parameter	Units	10479533001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	96.9	40	40	141	141	110	110	80-120	0	20	

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10479533

QC Batch: 613493 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10479533001, 10479533002, 10479533003, 10479533004, 10479533005

METHOD BLANK: 3314977 Matrix: Water
Associated Lab Samples: 10479533001, 10479533002, 10479533003, 10479533004, 10479533005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	0.60J	1.2	06/18/19 16:02	

LABORATORY CONTROL SAMPLE: 3314978

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	12.5	13.0	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3314979 3314980

Parameter	Units	10479533001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	19.8	12.5	12.5	27.8	27.4	65	61	90-110	2	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3314981 3314982

Parameter	Units	10479533002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	19.4	12.5	12.5	24.0	29.3	37	79	90-110	20	20	M1

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10479533

QC Batch: 613725 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10479533007

METHOD BLANK: 3315861 Matrix: Water
Associated Lab Samples: 10479533007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	0.58J	1.2	06/18/19 22:38	

LABORATORY CONTROL SAMPLE: 3315862

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	12.5	13.0	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3315863 3315864

Parameter	Units	10478967003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	6.3	12.5	12.5	18.6	18.5	98	97	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3315865 3315866

Parameter	Units	10478967004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	3.4	12.5	12.5	16.0	15.7	101	99	90-110	2	20	

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QUALITY CONTROL DATA

Project: 0499738-Revised Report
Pace Project No.: 10479533

QC Batch: 613704 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10479533001, 10479533002, 10479533003, 10479533004, 10479533005, 10479533007

METHOD BLANK: 3315793 Matrix: Water
Associated Lab Samples: 10479533001, 10479533002, 10479533003, 10479533004, 10479533005, 10479533007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.10	06/14/19 17:14	FS

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QUALIFIERS

Project: 0499738-Revised Report
Pace Project No.: 10479533

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
FS	The sample was filtered in the laboratory prior to analysis.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 0499738-Revised Report
Pace Project No.: 10479533

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10479533001	**PEO-MW-36-201906**	EPA Mod. 3510C	613749	NWTPH-Dx	614428
10479533002	**PEO-MW-Z2-201906**	EPA Mod. 3510C	613749	NWTPH-Dx	614428
10479533003	**PEO-MW-27-201906**	EPA Mod. 3510C	613749	NWTPH-Dx	614428
10479533004	**PEO-MW-26-201906**	EPA Mod. 3510C	613749	NWTPH-Dx	614428
10479533005	**PEO-MW-40-201906**	EPA Mod. 3510C	613749	NWTPH-Dx	614428
10479533007	**PEO-MW-25-201906**	EPA Mod. 3510C	613749	NWTPH-Dx	614428
10479533001	**PEO-MW-36-201906**	EPA 3010	613599	EPA 6010D	613926
10479533002	**PEO-MW-Z2-201906**	EPA 3010	613599	EPA 6010D	613926
10479533003	**PEO-MW-27-201906**	EPA 3010	613599	EPA 6010D	613926
10479533004	**PEO-MW-26-201906**	EPA 3010	613599	EPA 6010D	613926
10479533005	**PEO-MW-40-201906**	EPA 3010	613599	EPA 6010D	613926
10479533007	**PEO-MW-25-201906**	EPA 3010	613599	EPA 6010D	613926
10479533001	**PEO-MW-36-201906**	EPA 3020	613600	EPA 6020A	615191
10479533002	**PEO-MW-Z2-201906**	EPA 3020	613600	EPA 6020A	615191
10479533003	**PEO-MW-27-201906**	EPA 3020	613600	EPA 6020A	615191
10479533004	**PEO-MW-26-201906**	EPA 3020	613600	EPA 6020A	615191
10479533005	**PEO-MW-40-201906**	EPA 3020	613600	EPA 6020A	615191
10479533007	**PEO-MW-25-201906**	EPA 3020	613600	EPA 6020A	615191
10479533001	**PEO-MW-36-201906**	EPA Mod. 3510C	613746	EPA 8270 by SIM	614212
10479533002	**PEO-MW-Z2-201906**	EPA Mod. 3510C	613746	EPA 8270 by SIM	614212
10479533003	**PEO-MW-27-201906**	EPA Mod. 3510C	613746	EPA 8270 by SIM	614212
10479533004	**PEO-MW-26-201906**	EPA Mod. 3510C	613746	EPA 8270 by SIM	614212
10479533005	**PEO-MW-40-201906**	EPA Mod. 3510C	613746	EPA 8270 by SIM	614212
10479533006	**PEO-MW-28-201906**	EPA Mod. 3510C	613746	EPA 8270 by SIM	614212
10479533007	**PEO-MW-25-201906**	EPA Mod. 3510C	613746	EPA 8270 by SIM	614212
10479533001	**PEO-MW-36-201906**	SM 2320B	613930		
10479533002	**PEO-MW-Z2-201906**	SM 2320B	613930		
10479533003	**PEO-MW-27-201906**	SM 2320B	613930		
10479533004	**PEO-MW-26-201906**	SM 2320B	613930		
10479533005	**PEO-MW-40-201906**	SM 2320B	613930		
10479533007	**PEO-MW-25-201906**	SM 2320B	613930		
10479533001	**PEO-MW-36-201906**	EPA 300.0	613493		
10479533002	**PEO-MW-Z2-201906**	EPA 300.0	613493		
10479533003	**PEO-MW-27-201906**	EPA 300.0	613493		
10479533004	**PEO-MW-26-201906**	EPA 300.0	613493		
10479533005	**PEO-MW-40-201906**	EPA 300.0	613493		
10479533007	**PEO-MW-25-201906**	EPA 300.0	613725		
10479533001	**PEO-MW-36-201906**	EPA 353.2	613704		
10479533002	**PEO-MW-Z2-201906**	EPA 353.2	613704		
10479533003	**PEO-MW-27-201906**	EPA 353.2	613704		
10479533004	**PEO-MW-26-201906**	EPA 353.2	613704		
10479533005	**PEO-MW-40-201906**	EPA 353.2	613704		
10479533007	**PEO-MW-25-201906**	EPA 353.2	613704		

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CHAIN-OF-CUSTODY / Analytical Request Do

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be complete

WO# : 10479533

10479533

C285811

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: ERM	Report To: Rita Cooper	Attention:
Address: 1050 SW 6th Ave Suite 1650 Portland, OR 97204	Copy To:	Company Name:
		Address:
Email To: rita.cooper@erm.com	Purchase Order No.:	Pace Quote Reference:
Phone: 207-329-6306 Fax:	Project Name:	Pace Project Manager: Julie Bowser
Requested Due Date/TAT: Standard	Project Number: 0499738	Pace Profile #: 40125/1

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: OR

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE)

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: GRO	BTEX	VPH	DRO	Hydrocarbons	Dissolved metals As, Mn	Nitrate	Nitrate + Nitrite	Alkalinity + Sulfate	EDB	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Trip Blank	WT	G	06/13/19	0700				6				X						X	X	X							
2	PEO-MW-36-201906	WT	G	6/13/19	0810				19	X	X	X	X						X	X	X	X	X	X	X	X	X	001
3	PEO-MW-22-201906	WT	G	6/13/19	0830				19	X	X	X	X						X	X	X	X	X	X	X	X	X	002
4	PEO-MW-27-201906	WT	G	6/13/19	0940				19	X	X	X	X						X	X	X	X	X	X	X	X	X	003
5	PEO-MW-26-201906	WT	G	6/13/19	1050				19	X	X	X	X						X	X	X	X	X	X	X	X	X	004
6	PEO-MW-40-201906	WT	G	6/13/19	1210				19	X	X	X	X						X	X	X	X	X	X	X	X	X	005
7	PEO-MW-28-201906	WT	G	6/13/19	1310				19	X	X	X	X						X	X	X	X	X	X	X	X	X	006
8	PEO-MW-25-201906	WT	G	6/13/19	1430				19	X	X	X	X						X	X	X	X	X	X	X	X	X	007
9																												
10																												
11																												
12																												

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Joe Casey for ERM	6/13/19	1530	pace	06/14/19	845	*	Y	Y	N
				pace	06/14/19	925	1.6.3	N*	Y	N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Joe Casey

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 06/19/19

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

ORIGINAL

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*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

* 1.4, 1.5, 0.4, 2.4

F-ALL-C-010-rev.00, 09Nov2017

* MELTED

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 09May2019 Page 1 of 1
	Document No.: F-MN-L-213-rev.28	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt **Client Name:** ERM **Project #:** **WO#: 10479533**

PM: JMT **Due Date: 06/21/19**

CLIENT: ERM-Oregon

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☐ Commercial See Exception ☐

Tracking Number:

Custody Seal on Cooler/Box Present? ☒ Yes ☐ No **Seals Intact?** ☒ Yes ☐ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☒ N/A

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☒ Other: PB **Temp Blank?** ☒ Yes ☐ No

Thermometer: ☐ T1(0461) ☐ T2(1336) ☒ T3(0459) ☒ T4(0254) ☐ T5(0489) **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Dry ☒ Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** °C **Average Corrected Temp (no temp blank only):** °C See Exceptions ☒

Correction Factor: +0.1 **Cooler Temp Corrected w/temp blank:** °C

USDA Regulated Soil: (☒ N/A, water sample/Other:) **Date/Initials of Person Examining Contents:** GPT 06/14/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present and Filled Out?	☒ Yes	☐ No		1.
Chain of Custody Relinquished?	☒ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☒ Yes	☐ No	☐ N/A	3.
Samples Arrived within Hold Time?	☒ Yes	☐ No		4. SAMPLE "PRB-MW-24-20190606" RECEIVED OUT OF HOLD & TEMP ON 06/14 FOR CONTAINERS TO BE RECEIVED
Short Hold Time Analysis (<72 hr)?	☒ Yes	☐ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☒ Nitrate ☒ Nitrite ☐ Orthophos ☐ Other ALL OUT LOGGED-IN, PER JM 6/18.
Rush Turn Around Time Requested?	☐ Yes	☒ No		6.
Sufficient Volume?	☐ Yes	☒ No		7. SEE EXCEPTIONS
Correct Containers Used?	☒ Yes	☐ No		8.
-Pace Containers Used?	☒ Yes	☐ No		
Containers Intact?	☐ Yes	☒ No		9. SEE EXCEPTIONS
Field Filtered Volume Received for Dissolved Tests?	☒ Yes	☐ No	☐ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☒ No
Is sufficient information available to reconcile the samples to the COC?	☒ Yes	☐ No		11. If no, write ID/ Date/Time on Container Below: See Exception ☐
Matrix: ☒ Water ☐ Soil ☐ Oil ☐ Other				
All containers needing acid/base preservation have been checked?	☒ Yes	☐ No	☐ N/A	12. Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO3, H2SO4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	☒ Yes	☐ No	☐ N/A	☐ NaOH ☒ HNO3 ☒ H2SO4 ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☒ Yes	☐ No	☐ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No pH Paper Lot# See Exception ☐
				Res. Chlorine: 0-6 Roll 203619; 0-6 Strip; 0-14 Strip
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☐ No	☒ N/A	13. ALL VG9H CONTAINERS OUT OF TEMP, & WILL NOT BE ANALYZED, PER THE PM. See Exception ☐
Trip Blank Present?	☒ Yes	☐ No	☐ N/A	14.
Trip Blank Custody Seals Present?	☒ Yes	☐ No	☐ N/A	Pace Trip Blank Lot # (if purchased): 210558

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: Joe Casey + Rita Cooper Date/Time: 6/17/19 **Field Data Required?** ☐ Yes ☐ No

Comments/Resolution: Out of temp samples will be re-collected

Project Manager Review: Julie Pace **Date:** 6/17/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: GPT

Pace Analytical	Document Name: SCUR Exception Form – Coolers Above 6°C	Document Revised: 08Apr2019 Page 1 of 1
	Document No.: F-MN-C-298-Rev.02	Issuing Authority: Pace Minnesota Quality Office

During sample triage, this form is to be placed in each cooler that arrives above 6.0 degrees Celsius

SCUR Exceptions: **Workorder #:**

Out of Temp Sample IDs	Container Type	# of Containers
PEO-MW-25-201906	AG3H	2/2
"	BP3S	1/1
"	BP3N	1/1
"	BP3U	1/1
"	BP4U	1/1
"	VG9H	8/8

PM Notified? ☑ Yes ☐ No

If yes, indicate who was contacted/date/time.
If no, indicate reason why.

JMB CONTACTED 06/14/19 @ 9:30 VIA PHONE CALL(S)

Multiple Cooler Project? ☑ Yes ☐ No
If you answered yes, fill out information to the left.

No Temp Blank		
Read Temp	Corrected Temp	Average Temp

Temp. Gun #

	Tracking Number/Temperature	
(3)	7475 9398 5274	1.4
(3)	" 5285	1.3
(3)	" 5296	0.4
(3)	" 5252	2.4
(4)	7475 9398 5263	16.3

Other Issues		
Issue Type: BROKEN CONTAINERS		
Sample ID	Container Type	# of Containers
PEO-MW-25-201906	AG1U	1/4
PEO-MW-28-201906	AG1U	1/4
PEO-MW-29-201906	VG9H	1/9

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition?	Initials
								☐Yes ☐No	
								☐Yes ☐No	
								☐Yes ☐No	
								☐Yes ☐No	

Pace Analytical	Document Name: SCUR Exception Form – Coolers Above 6°C	Document Revised: 08Apr2019 Page 1 of 1
	Document No.: F-MN-C-298-Rev.02	Issuing Authority: Pace Minnesota Quality Office

During sample triage, this form is to be placed in each cooler that arrives above 6.0 degrees Celsius

SCUR Exceptions: **Workorder #:**

Out of Temp Sample IDs	Container Type	# of Containers

PM Notified? ☐Yes ☐No

If yes, indicate who was contacted/date/time.
If no, indicate reason why.

Multiple Cooler Project? ☐Yes ☐No
If you answered yes, fill out information to the left.

No Temp Blank

Read Temp	Corrected Temp	Average Temp

Tracking Number/Temperature	

Other Issues

Issue Type: VOCore

Sample ID	Container Type	# of Containers
Sample "PEO-MW-28-20190606" CONTAINERS RECEIVED 06/17/19 OUT OF TEMP & HOLD - ONLY THREE AGIN CONTAINERS UNAFFECTED.	(SEE OTHER EXCEPTION FORM)	1/6
ALL VG9H CONTAINERS FOR PROJECT RECEIVED 06/17/19 OUT OF TEMP & HOLD TIME TO BE DISPOSED OF PER PM'S INSTRUCTION.	VG9H	ALL

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition?	Initials
								☐Yes ☐No	
								☐Yes ☐No	
								☐Yes ☐No	
								☐Yes ☐No	

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Pace Analytical Minnesota
Julie Bowser
1700 Elm Street, Ste. 200
Minneapolis, MN 55414

RE: 0499738
Work Order Number: 1906206

July 05, 2019

Attention Julie Bowser:

Fremont Analytical, Inc. received 7 sample(s) on 6/18/2019 for the analyses presented in the following report.

Extractable Petroleum Hydrocarbons by NWEPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *07/29/2019*

CLIENT: Pace Analytical Minnesota
Project: 0499738
Work Order: 1906206

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1906206-001	PEO-MW-36-201906	06/13/2019 8:20 AM	06/18/2019 10:13 AM
1906206-002	PEO-MW-Z2-201906	06/13/2019 8:30 AM	06/18/2019 10:13 AM
1906206-003	PEO-MW-27-201906	06/13/2019 9:40 AM	06/18/2019 10:13 AM
1906206-004	PEO-MW-26-201906	06/13/2019 10:50 AM	06/18/2019 10:13 AM
1906206-005	PEO-MW-40-201906	06/13/2019 12:10 PM	06/18/2019 10:13 AM
1906206-006	PEO-MW-28-201906	06/13/2019 1:10 PM	06/18/2019 10:13 AM
1906206-007	PEO-MW-25-201906	06/13/2019 1:10 PM	06/18/2019 10:13 AM

Case Narrative

WO#: **1906206**

Date: **7/5/2019**

CLIENT: Pace Analytical Minnesota
Project: 0499738

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

7/5/19: Rev1 includes a select list of carbon ranges.
7/16/19: Rev2 includes a sample ID revision.
7/29/19: Rev3 includes data reported to the MDL.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1906206**
Date Reported: **7/5/2019**

CLIENT: Pace Analytical Minnesota
Project: 0499738

Lab ID: 1906206-001 **Collection Date:** 6/13/2019 8:20:00 AM
Client Sample ID: **PEO-MW-36-201906** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 24968		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	114	20.1		µg/L	1	6/26/2019 9:40:00 PM
Surr: 1-Chlorooctadecane	101	60 - 140		%Rec	1	6/26/2019 9:40:00 PM
Surr: o-Terphenyl	84.2	60 - 140		%Rec	1	6/27/2019 11:40:00 AM

Lab ID: 1906206-002 **Collection Date:** 6/13/2019 8:30:00 AM
Client Sample ID: **PEO-MW-Z2-201906** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 24968		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	92.7	19.8		µg/L	1	6/28/2019 4:57:00 PM
Surr: 1-Chlorooctadecane	64.8	60 - 140		%Rec	1	6/28/2019 4:57:00 PM
Surr: o-Terphenyl	55.5	60 - 140	S	%Rec	1	6/29/2019 3:19:00 AM

NOTES:
S - Outlying surrogate recovery(ies) observed.

Lab ID: 1906206-003 **Collection Date:** 6/13/2019 9:40:00 AM
Client Sample ID: **PEO-MW-27-201906** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 24968		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	76.9	20.0		µg/L	1	6/28/2019 5:42:00 PM
Surr: 1-Chlorooctadecane	65.4	60 - 140		%Rec	1	6/28/2019 5:42:00 PM
Surr: o-Terphenyl	61.9	60 - 140		%Rec	1	6/29/2019 4:03:00 AM

Analytical Report

Work Order: **1906206**
Date Reported: **7/5/2019**

CLIENT: Pace Analytical Minnesota
Project: 0499738

Lab ID: 1906206-004 **Collection Date:** 6/13/2019 10:50:00 AM
Client Sample ID: **PEO-MW-26-201906** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 24968		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	234	19.9		µg/L	1	6/28/2019 6:27:00 PM
Surr: 1-Chlorooctadecane	75.4	60 - 140		%Rec	1	6/28/2019 6:27:00 PM
Surr: o-Terphenyl	55.7	60 - 140	S	%Rec	1	6/29/2019 4:46:00 AM

NOTES:
S - Outlying surrogate recovery(ies) observed.

Lab ID: 1906206-005 **Collection Date:** 6/13/2019 12:10:00 PM
Client Sample ID: **PEO-MW-40-201906** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 24968		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	80.6	20.0		µg/L	1	6/28/2019 7:12:00 PM
Surr: 1-Chlorooctadecane	78.2	60 - 140		%Rec	1	6/28/2019 7:12:00 PM
Surr: o-Terphenyl	82.4	60 - 140		%Rec	1	7/1/2019 5:04:00 PM

Lab ID: 1906206-006 **Collection Date:** 6/13/2019 1:10:00 PM
Client Sample ID: **PEO-MW-28-201906** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 24968		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	14.1	5.91	JMDL	µg/L	1	6/28/2019 7:57:00 PM
Surr: 1-Chlorooctadecane	68.0	60 - 140		%Rec	1	6/28/2019 7:57:00 PM
Surr: o-Terphenyl	89.9	60 - 140		%Rec	1	7/1/2019 5:50:00 PM

NOTES:
MDL - Analyte reported to Method Detection Limit (MDL)

Analytical Report

Work Order: **1906206**
Date Reported: **7/5/2019**

CLIENT: Pace Analytical Minnesota
Project: 0499738

Lab ID: 1906206-007 **Collection Date:** 6/13/2019 1:10:00 PM
Client Sample ID: **PEO-MW-25-201906** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 24968		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	7.45	5.83	JMDL	µg/L	1	6/28/2019 9:26:00 PM
Surr: 1-Chlorooctadecane	70.9	60 - 140		%Rec	1	6/28/2019 9:26:00 PM
Surr: o-Terphenyl	70.3	60 - 140		%Rec	1	6/29/2019 7:42:00 AM

NOTES:
MDL - Analyte reported to Method Detection Limit (MDL)

Work Order: 1906206
CLIENT: Pace Analytical Minnesota
Project: 0499738

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **MB-24968** SampType: **MBLK** Units: **µg/L** Prep Date: **6/19/2019** RunNo: **52370**
Client ID: **MBLKW** Batch ID: **24968** Analysis Date: **6/26/2019** SeqNo: **1034231**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	5.89		0	0						MDL
Surr: 1-Chlorooctadecane	1,910		1,998		95.5	60	140				

NOTES:
MDL - Analyte reported to Method Detection Limit (MDL)

Sample ID: **LCS-24968** SampType: **LCS** Units: **µg/L** Prep Date: **6/19/2019** RunNo: **52370**
Client ID: **LCSW** Batch ID: **24968** Analysis Date: **6/26/2019** SeqNo: **1034230**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	2,720	19.9	2,491	0	109	70	130				
Surr: 1-Chlorooctadecane	2,120		1,993		106	60	140				

Sample ID: **1906168-002BDUP** SampType: **DUP** Units: **µg/L** Prep Date: **6/19/2019** RunNo: **52370**
Client ID: **BATCH** Batch ID: **24968** Analysis Date: **6/26/2019** SeqNo: **1034224**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	20.9		0	0			0		25	
Surr: 1-Chlorooctadecane	2,160		2,087		104	60	140		0		

Sample ID: **1906240-002BMS** SampType: **MS** Units: **µg/L** Prep Date: **6/19/2019** RunNo: **52370**
Client ID: **BATCH** Batch ID: **24968** Analysis Date: **6/26/2019** SeqNo: **1034232**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	3,030	20.0	2,498	0	121	70	130				
Surr: 1-Chlorooctadecane	2,450		1,999		123	60	140				

Work Order: 1906206
CLIENT: Pace Analytical Minnesota
Project: 0499738

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **1906240-002BMSD** SampType: **MSD** Units: **µg/L** Prep Date: **6/19/2019** RunNo: **52370**
Client ID: **BATCH** Batch ID: **24968** Analysis Date: **6/26/2019** SeqNo: **1034233**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	2,200	20.1	2,506	0	87.8	70	130	3,035	31.8	30	R
Surr: 1-Chlorooctadecane	2,370		2,005		118	60	140		0		

NOTES:
R - High RPD observed, spike recovery is within range.

Sample ID: **LCS-24968** SampType: **LCS** Units: **µg/L** Prep Date: **6/19/2019** RunNo: **52370**
Client ID: **LCSW** Batch ID: **24968** Analysis Date: **6/28/2019** SeqNo: **1035003**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	2,460	19.9	2,491	0	98.7	70	130				
Surr: 1-Chlorooctadecane	2,110		1,993		106	60	140				

Sample ID: **1906206-006ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **6/19/2019** RunNo: **52370**
Client ID: **PEO-MW-28-201906** Batch ID: **24968** Analysis Date: **6/28/2019** SeqNo: **1034996**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	20.0		0	0			0		25	
Surr: 1-Chlorooctadecane	1,310		1,999		65.7	60	140		0		

Sample Log-In Check List

Client Name:	PACEMINN	Work Order Number:	1906206
Logged by:	Carissa True	Date Received:	6/18/2019 10:13:00 AM

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	FedEx		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☑	No ☐	Not Required ☐
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☑	No ☐	NA ☐

Person Notified:	Julie Bowser	Date:	6/18/2019
By Whom:	Carissa True	Via:	☑ eMail ☑ Phone ☐ Fax ☐ In Person
Regarding:	TAT requested.		
Client Instructions:	10 day TAT.		

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler 1	6.7
Cooler 2	7.4
Sample 1	2.6
Sample 2	3.2
Temp Blank 1	5.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Sample Log-In Check List

Client Name:	PACEMINN	Work Order Number:	1906206
Logged by:	Carissa True	Date Received:	6/18/2019 10:13:00 AM

Item #	Temp ºC
Temp Blank 2	2.3

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody

Pace Analytical®
www.pacelabs.com

1906200

Workorder: 10479533 **Workorder Name:** 0499738 **Results Requested By:** 6/21/2019

Report / Invoice To	Subcontract To
Julie Bowser Pace Analytical Minnesota 1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone 612-607-6390 Email: julie.bowser@pacelabs.com	Fremont Analytical 3600 Fremont Ave N Seattle, WA 98103 P.O. 10479533

State of Sample Origin: OR

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Preserved Containers: AG1U	Requested Analysis: NWTPH EPH	LAB USE ONLY
1	PEO-MW-36-201906	6/13/2019 08:20	10479533001	Water	2		X	
2	PEO-MW-Z2-201906	6/13/2019 08:30	10479533002	Water	2		X	
3	PEO-MW-27-201906	6/13/2019 09:40	10479533003	Water	2		X	
4	PEO-MW-26-201906	6/13/2019 10:50	10479533004	Water	2		X	
5	PEO-MW-40-201906	6/13/2019 12:10	10479533005	Water	2		X	
6	PEO-MW-28-201906	6/13/2019 13:10	10479533006	Water	2		X	
7	PEO-MW-25-201907	6/13/2019 13:10	10479533007	Water	2		X	

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature] / Pace	6/17/19 1510	[signature]	6/18/19 10:13
2				
3				

Comments

Cooler Temperature on Receipt °C | **Custody Seal** Y or N | **Received on Ice** Y or N | **Samples Intact** Y or N

Chain of Custody

Pace Analytical®
www.pacelabs.com

1906206

Workorder: 10479533 **Workorder Name:** 0499738 **Results Requested By:** 6/21/2019

Report / Invoice To	Subcontract To
Julie Bowser Pace Analytical Minnesota 1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone 612-607-6390 Email: julie.bowser@pacelabs.com	Fremont Analytical 3600 Fremont Ave N Seattle, WA 98103 P.O. 10479533

State of Sample Origin: OR

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Preserved Containers: AG1U	Requested Analysis: NWTPH EPH	LAB USE ONLY
	PEO-MW-36-201906	6/13/2019 08:20	10479533001	Water	2		X	
2	PEO-MW-Z2-201906	6/13/2019 08:30	10479533002	Water	2		X	
3	PEO-MW-27-201906	6/13/2019 09:40	10479533003	Water	2		X	
4	PEO-MW-26-201906	6/13/2019 10:50	10479533004	Water	2		X	
5	PEO-MW-40-201906	6/13/2019 12:10	10479533005	Water	2		X	
6	PEO-MW-28-201906	6/13/2019 13:10	10479533006	Water	2		X	
7	PEO-MW-25-201907-16	6/13/2019 13:10	10479533007	Water	2		X	

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature] / Pace	6/17/19 1530	[signature]	6/18/19 10:13
2				
3				

Comments: edits per JB 7/16/2019 mm

Cooler Temperature on Receipt ____ °C | **Custody Seal** Y or N | **Received on Ice** Y or N | **Samples Intact** Y or N

ATTACHMENT C – HISTORICAL DATA

Table 1
Monitoring Well Summary
Premier Edible Oils
Portland, Oregon

Well Identification	Status	Well Depth (ft)	Screen Zone	Screen Interval (ft bgs)		Measuring Point (Top of Casing)	Sitewide Monitoring Point	Water Level Monitoring Point[1]	Transducer Installed	Quarterly Monitoring[2]
				Top	Bottom	ft-NAVD88				
MW-02	Active	26	Shallow	11	26	31.18	X	X		X
MW-03	Active	26	Shallow	11	26	31.67	X	X		X
MW-04	Active	26	Shallow	11	26	31.37				
MW-05	Active	26	Shallow	11	26	31.27				
MW-06	Active	27	Shallow	12	27	31.23	X	X		X
MW-07	Active	27	Shallow	12	27	30.31	X	X		X
MW-08	Active	27	Shallow	12	27	30.93	X	X	X	X
MW-11	Active	27	Shallow	12	27	31.06	X	X	X	X
MW-18	Active	27	Shallow	12	27	30.87	X	X	X	X
MW-19	Active	27	Shallow	12	27	31.70	X	X		X
MW-21	Active	27	Shallow	12	27	31.36	X	X	X	X
MW-24A	Active	27	Shallow	12	27	32.35	X	X		X
MW-25	Active	-	Shallow	-	-	31.78	X	X		X
MW-26	Active	39	Deep	34	39	31.89	X	X		X
MW-27	Active	40	Deep	35	40	31.46	X	X	X	X
MW-28	Active	28	Shallow	13	28	31.26	X	X	X	X
MW-29	Active	30	Shallow	13	28	31.90	X	X		X
MW-30	Active	28	Shallow	13	28	31.05	X	X	X	X
MW-31	Active	28	Shallow	13	28	30.77	X	X		X
MW-32	Active	40	Deep	35	40	31.08	X	X	X	X
MW-33	Active	40	Deep	35	40	30.88	X	X	X	X
MW-34	Active	28	Shallow	13	28	30.72	X	X	X	X
MW-35	Active	40	Deep	35	40	30.83	X	X	X	X
MW-36	Active	30	Shallow	25	30	30.16	X	X	X	X
MW-37	Active	40	Deep	35	40	31.27	X	X		X
MW-38	Active	27	Shallow	13	27	31.54	X	X		X
MW-39	Active	30	Shallow	25	30	31.08	X	X		X
MW-40	Active	40	Deep	35	40	31.71	X	X	X	X
MW-41	Active	27	Shallow	13	27	31.32	X	X	X	X
MW-42	Active	40	Deep	35	40	31.94	X	X	X	X
MW-43	Active	30	Shallow	15	30	31.39	X	X		X

Notes:
– = not applicable
[1] = Manual water level measurment collected monthly
[2] = Groundwater analytical samples
NAVD88 = North America Vertical Datum 1988

Table 2
Groundwater Elevations
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point ft-NAVD88	Date	Time	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MP-D-1	Deep	30.76	12/8/2017	09:58	20.85	-	ND	-	9.91
MP-D-2	Deep	30.68	12/8/2017	10:00	27.50	-	ND	-	3.18
MP-D-3	Deep	31.21	12/8/2017	10:02	21.05	-	ND	-	10.16
MP-S-1	Shallow	30.49	12/8/2017	09:56	18.99	-	ND	-	11.50
MP-S-2	Shallow	30.54	12/8/2017	09:55	19.00	-	ND	-	11.54
MP-S-3	Shallow	30.42	12/8/2017	09:52	19.11	-	ND	-	11.31
MW-02	Shallow	31.18	5/23/2017	13:34	11.90	-	ND	-	19.28
MW-02	Shallow	31.18	7/20/2017	12:46	21.73	-	ND	-	9.45
MW-02	Shallow	31.18	9/15/2017	10:56	23.90	22.10	1.80	0.29	8.72
MW-02	Shallow	31.18	12/8/2017	13:23	20.47	19.99	0.48	0.08	11.09
MW-02	Shallow	31.18	4/19/2018	11:20	16.65	-	ND	-	14.53
MW-02	Shallow	31.18	5/22/2018	09:59	13.14	-	ND	-	18.04
MW-02	Shallow	31.18	6/14/2018	10:44	20.12	15.16	4.96	0.81	15.03
MW-02	Shallow	31.18	9/13/2018	11:13	23.21	22.15	1.06	0.17	8.82
MW-02	Shallow	31.18	1/9/2019	09:21	21.05	-	ND	-	10.13
MW-02	Shallow	31.18	2/13/2019	09:16	20.87	20.87	Trace	-	10.31
MW-02	Shallow	31.18	3/11/2019	09:49	20.96	-	ND	-	10.22
MW-02	Shallow	31.18	4/10/2019	10:54	18.11*	-	ND	-	13.07*
MW-02	Shallow	31.18	5/8/2019	10:00	18.59	-	ND	-	12.59
MW-02	Shallow	31.18	6/6/2019	09:47	18.80	-	ND	-	12.38
MW-02	Shallow	31.18	10/18/2018	10:49	24.55	24.16	0.39	0.06	6.94
MW-02	Shallow	31.18	11/26/2018	10:56	22.50		ND	-	8.68
MW-02	Shallow	31.18	12/17/2018	12:47	22.13		ND	-	9.05
MW-03	Shallow	31.67	5/23/2017	12:10	11.72	-	ND	-	19.95
MW-03	Shallow	31.67	7/20/2017	11:32	18.08	-	ND	-	13.59
MW-03	Shallow	31.67	9/15/2017	08:59	21.01	-	ND	-	10.66
MW-03	Shallow	31.67	12/8/2017	11:00	19.08	-	ND	-	12.59
MW-03	Shallow	31.67	4/16/2018	11:24	16.55	-	ND	-	15.12
MW-03	Shallow	31.67	5/22/2018	11:41	13.33	-	ND	-	18.34
MW-03	Shallow	31.67	9/13/2018	10:55	21.70	-	ND	-	9.97
MW-03	Shallow	31.67	1/9/2019	09:02	20.64	-	ND	-	11.03
MW-03	Shallow	31.67	2/13/2019	08:51	20.03	-	ND	-	11.64
MW-03	Shallow	31.67	3/11/2019	08:47	19.62	-	ND	-	12.05
MW-03	Shallow	31.67	4/10/2019	09:11	19.29	-	ND	-	12.38
MW-03	Shallow	31.67	5/8/2019	08:24	17.69	-	ND	-	13.98
MW-03	Shallow	31.67	6/6/2019	08:23	17.62	-	ND	-	14.05
MW-03	Shallow	31.67	10/18/2018	09:26	22.75		ND	-	8.92
MW-03	Shallow	31.67	11/26/2018	10:04	22.46		ND	-	9.21
MW-03	Shallow	31.67	12/18/2018	09:28	21.97		ND	-	9.70
MW-04	Shallow	31.37	7/20/2017	11:03	15.28	-	ND	-	16.09
MW-04	Shallow	31.37	4/19/2018	11:10	15.25	-	ND	-	16.12
MW-04	Shallow	31.37	5/22/2018	11:44	12.98	-	ND	-	18.39
MW-05	Shallow	31.27	7/20/2017	11:15	18.95	-	ND	-	12.32
MW-05	Shallow	31.27	4/19/2018	11:03	16.53	-	ND	-	14.74
MW-05	Shallow	31.27	5/22/2018	11:46	11.55	-	ND	-	19.72
MW-06	Shallow	31.23	5/23/2017	12:06	11.75	-	ND	-	19.48

Table 2
Groundwater Elevations
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point ft-NAVD88	Date	Time	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-06	Shallow	31.23	7/20/2017	11:28	18.75	-	ND	-	12.48
MW-06	Shallow	31.23	9/15/2017	09:05	21.83	-	ND	-	9.40
MW-06	Shallow	31.23	12/8/2017	09:17	19.55	-	ND	-	11.68
MW-06	Shallow	31.23	1/9/2019	09:05	20.86	-	ND	-	10.37
MW-06	Shallow	31.23	2/13/2019	08:53	20.47	-	ND	-	10.76
MW-06	Shallow	31.23	3/11/2019	08:49	20.26	-	ND	-	10.97
MW-06	Shallow	31.23	4/19/2018	11:17	16.40	-	ND	-	14.83
MW-06	Shallow	31.23	5/22/2018	11:48	12.55	-	ND	-	18.68
MW-06	Shallow	31.23	9/13/2018	10:53	22.30	-	ND	-	8.93
MW-06	Shallow	31.23	4/10/2019	09:13	19.16	-	ND	-	12.07
MW-06	Shallow	31.23	5/8/2019	08:28	17.86	-	ND	-	13.37
MW-06	Shallow	31.23	6/6/2019	08:26	17.50	-	ND	-	13.73
MW-06	Shallow	31.23	10/18/2018	09:33	23.22		ND	-	8.01
MW-06	Shallow	31.23	11/26/2018	10:02	22.53		ND	-	8.70
MW-06	Shallow	31.23	12/18/2018	10:53	22.12		ND	-	9.11
MW-07	Shallow	30.31	4/10/2019				Dry		
MW-07	Shallow	30.31	4/10/2019				Dry		
MW-07	Shallow	30.31	4/10/2019				Dry		
MW-07	Shallow	30.31	10/18/2018				Unknown		
MW-07	Shallow	0.00	11/26/2018				Unknown		
MW-07	Shallow	0.00	12/18/2018				Dry		
MW-08	Shallow	30.93	5/23/2017	12:53	12.80	-	ND	-	18.13
MW-08	Shallow	30.93	7/20/2017	12:50	19.20	-	ND	-	11.73
MW-08	Shallow	30.93	9/15/2017	09:28	21.93	-	ND	-	9.00
MW-08	Shallow	30.93	11/7/2017	09:41	21.75	-	ND	-	9.18
MW-08	Shallow	30.93	1/9/2019	09:19	20.74	-	ND	-	10.19
MW-08	Shallow	30.93	2/13/2019	09:14	20.66	-	ND	-	10.27
MW-08	Shallow	30.93	3/11/2019	09:26	21.03	-	ND	-	9.90
MW-08	Shallow	30.93	12/8/2017	11:57	19.73	-	ND	-	11.20
MW-08	Shallow	30.93	1/31/2018	11:43	17.07	-	ND	-	13.86
MW-08	Shallow	30.93	3/6/2018	11:17	18.24	-	ND	-	12.69
MW-08	Shallow	30.93	4/19/2018	13:32	16.10	-	ND	-	14.83
MW-08	Shallow	30.93	5/22/2018	10:00	12.14	-	ND	-	18.79
MW-08	Shallow	30.93	6/14/2018	10:27	15.93	-	ND	-	15.00
MW-08	Shallow	30.93	7/13/2018	09:53	19.90	-	ND	-	11.03
MW-08	Shallow	30.93	8/9/2018	09:33	21.34	-	ND	-	9.59
MW-08	Shallow	30.93	9/13/2018	11:07	22.23	-	ND	-	8.70
MW-08	Shallow	30.93	4/10/2019	10:05	19.21	-	ND	-	11.72
MW-08	Shallow	30.93	5/8/2019	09:45	18.56	-	ND	-	12.37
MW-08	Shallow	30.93	6/6/2019	09:30	18.13	-	ND	-	12.80
MW-08	Shallow	30.93	10/18/2018	10:41	23.31	-	ND	-	7.62
MW-08	Shallow	30.93	11/26/2018	09:58	22.28	-	ND	-	8.65
MW-08	Shallow	30.93	12/18/2018	13:12	21.82	-	ND	-	9.11
MW-11	Shallow	31.06	5/26/2017	10:45	14.16	-	ND	-	16.90
MW-11	Shallow	31.06	1/9/2019	09:25	20.89	20.88	0.01	0.002	10.18
MW-11	Shallow	31.06	2/13/2019	09:18	20.69	-	ND	-	10.37
MW-11	Shallow	31.06	3/11/2019	09:52	21.62	-	ND	-	9.44
MW-11	Shallow	31.06	7/20/2017	12:20	22.32	-	ND	-	8.74
MW-11	Shallow	31.06	9/15/2017	11:00	22.40	22.39	0.01	0.001	8.67
MW-11	Shallow	31.06	11/7/2017	10:54	22.20	21.79	0.41	0.07	9.19
MW-11	Shallow	31.06	12/8/2017	13:28	20.41	19.91	0.50	0.08	11.05
MW-11	Shallow	31.06	1/31/2018	12:05	17.34	17.21	0.13	0.02	13.82
MW-11	Shallow	31.06	3/6/2018	11:31	18.70	18.20	0.50	0.08	12.76
MW-11	Shallow	31.06	4/19/2018	14:02	16.29	-	ND	-	14.77
MW-11	Shallow	31.06	5/22/2018	10:00	13.60	-	ND	-	17.46
MW-11	Shallow	31.06	6/14/2018	11:04	17.97	15.56	2.41	0.39	15.02
MW-11	Shallow	31.06	7/13/2018	10:39	20.07	18.87	1.20	0.20	11.95
MW-11	Shallow	31.06	8/9/2018	10:25	21.77	21.32	0.45	0.07	9.65
MW-11	Shallow	31.06	9/13/2018	11:10	22.30	22.30	Trace	-	8.76
MW-11	Shallow	31.06	4/10/2019	10:57	17.75	-	ND	-	13.31
MW-11	Shallow	31.06	5/8/2019	10:05	19.73	19.73	Trace	-	11.33
MW-11	Shallow	31.06	6/6/2019	09:54	18.31	-	ND	-	12.75
MW-11	Shallow	31.06	10/18/2018	11:01	24.07	23.90	0.17	0.03	7.13

Table 2
Groundwater Elevations
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point ft-NAVD88	Date	Time	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-11	Shallow	31.06	11/26/2018	10:57	22.33		ND	-	8.73
MW-11	Shallow	31.06	12/17/2018	14:00	21.98	21.95	0.03	0.005	9.10
MW-14	Shallow	32.58	5/23/2017	11:15	11.46	-	ND	-	21.12
MW-14	Shallow	32.58	7/20/2017	10:38	15.27	-	ND	-	17.31
MW-14	Shallow	32.58	9/15/2017	09:10	16.67	-	ND	-	15.91
MW-14	Shallow	32.58	12/8/2017	08:58	16.03	-	ND	-	16.55
MW-15	Shallow	32.35	5/23/2017	11:12	13.83	-	ND	-	18.52
MW-15	Shallow	32.35	7/20/2017	10:41	21.10	-	ND	-	11.25
MW-15	Shallow	32.35	9/15/2017	09:13	23.72	-	ND	-	8.63
MW-15	Shallow	32.35	12/8/2017	08:58	21.57	-	ND	-	10.78
MW-16	Shallow	31.88	5/23/2017	11:25	13.92	-	ND	-	17.96
MW-16	Shallow	31.88	7/20/2017	10:28	26.55	-	ND	-	5.33
MW-16	Shallow	31.88	9/15/2017	09:19	23.81	-	ND	-	8.07
MW-16	Shallow	31.88	12/8/2017	09:04	21.48	-	ND	-	10.40
MW-17	Shallow	31.79	5/23/2017	11:20	12.70	-	ND	-	19.09
MW-17	Shallow	31.79	7/20/2017	10:32	20.05	-	ND	-	11.74
MW-17	Shallow	31.79	9/15/2017	09:17	22.53	-	ND	-	9.26
MW-17	Shallow	31.79	12/8/2017	09:03	20.55	-	ND	-	11.24
MW-18	Shallow	30.87	1/9/2019	09:15	20.50	-	ND	-	10.37
MW-18	Shallow	30.87	2/13/2019	09:02	20.63	-	ND	-	10.24
MW-18	Shallow	30.87	3/11/2019	08:54	20.91	-	ND	-	9.96
MW-18	Shallow	30.87	5/23/2017	13:16	12.99	-	ND	-	17.88
MW-18	Shallow	30.87	7/20/2017	11:40	20.43	-	ND	-	10.44
MW-18	Shallow	30.87	9/15/2017	09:40	22.76	-	ND	-	8.11
MW-18	Shallow	30.87	11/7/2017	10:03	21.77	-	ND	-	9.10
MW-18	Shallow	30.87	12/8/2017	12:15	20.31	-	ND	-	10.56
MW-18	Shallow	30.87	1/31/2018	10:50	17.09	-	ND	-	13.78
MW-18	Shallow	30.87	3/6/2018	09:55	18.91	-	ND	-	11.96
MW-18	Shallow	30.87	4/19/2018	13:12	15.32	-	ND	-	15.55
MW-18	Shallow	30.87	5/22/2018	10:00	11.05	-	ND	-	19.82
MW-18	Shallow	30.87	6/14/2018	10:16	17.56	-	ND	-	13.31
MW-18	Shallow	30.87	7/13/2018	09:43	20.33	-	ND	-	10.54
MW-18	Shallow	30.87	8/9/2018	09:20	21.71	-	ND	-	9.16
MW-18	Shallow	30.87	9/13/2018	10:37	22.18	-	ND	-	8.69
MW-18	Shallow	30.87	4/10/2019	09:18	15.56	-	ND	-	15.31
MW-18	Shallow	30.87	5/8/2019	08:43	19.01	-	ND	-	11.86
MW-18	Shallow	30.87	6/6/2019	08:33	17.99	-	ND	-	12.88
MW-18	Shallow	30.87	10/18/2018	09:42	23.89	-	ND	-	6.98
MW-18	Shallow	30.87	11/26/2018	10:45	22.06	-	ND	-	8.81
MW-18	Shallow	30.87	12/19/2018	11:45	21.31	-	ND	-	9.56
MW-19	Shallow	31.70	1/9/2019	09:07	21.56	-	ND	-	10.14
MW-19	Shallow	31.70	2/13/2019	08:55	21.29	-	ND	-	10.41
MW-19	Shallow	31.70	3/11/2019	08:51	21.17	-	ND	-	10.53
MW-19	Shallow	31.70	5/23/2017	11:58	12.61	-	ND	-	19.09
MW-19	Shallow	31.70	7/20/2017	11:20	19.94	-	ND	-	11.76
MW-19	Shallow	31.70	9/15/2017	09:24	22.86	-	ND	-	8.84
MW-19	Shallow	31.70	12/8/2017	09:20	20.48	-	ND	-	11.22
MW-19	Shallow	31.70	4/19/2018	11:00	16.96	-	ND	-	14.74
MW-19	Shallow	31.70	5/22/2018	11:52	12.63	-	ND	-	19.07
MW-19	Shallow	31.70	9/13/2018	10:48	23.04	-	ND	-	8.66
MW-19	Shallow	31.70	4/10/2019	09:14	19.78	-	ND	-	11.92
MW-19	Shallow	31.70	5/8/2019	08:31	18.73	-	ND	-	12.97
MW-19	Shallow	31.70	6/6/2019	08:28	18.31	-	ND	-	13.39
MW-19	Shallow	31.70	10/18/2018	09:35	23.89	-	ND	-	7.81
MW-19	Shallow	31.70	11/26/2018	10:00	23.15	-	ND	-	8.55
MW-19	Shallow	31.70	12/18/2018	11:54	22.74	-	ND	-	8.96
MW-20	Shallow	30.11	7/20/2017	11:11	16.08	-	ND	-	14.03
MW-20	Shallow	30.11	4/19/2018	11:07	14.77	-	ND	-	15.34

Table 2
Groundwater Elevations
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point ft-NAVD88	Date	Time	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-21	Shallow	31.36	1/9/2019	09:01	14.80	-	ND	-	16.56
MW-21	Shallow	31.36	2/13/2019	08:49	14.18	-	ND	-	17.18
MW-21	Shallow	31.36	3/11/2019	08:45	13.78	-	ND	-	17.58
MW-21	Shallow	31.36	5/23/2017	12:22	9.89	-	ND	-	21.47
MW-21	Shallow	31.36	5/31/2017	15:15	10.09	-	ND	-	21.27
MW-21	Shallow	31.36	7/20/2017	10:52	13.85	-	ND	-	17.51
MW-21	Shallow	31.36	9/15/2017	08:55	14.76	-	ND	-	16.60
MW-21	Shallow	31.36	11/7/2017	09:01	14.74	-	ND	-	16.62
MW-21	Shallow	31.36	12/8/2017	11:22	13.70	-	ND	-	17.66
MW-21	Shallow	31.36	1/31/2018	10:30	13.19	-	ND	-	18.17
MW-21	Shallow	31.36	3/6/2018	09:30	13.48	-	ND	-	17.88
MW-21	Shallow	31.36	4/19/2018	13:48	13.32	-	ND	-	18.04
MW-21	Shallow	31.36	5/22/2018	10:00	12.83	-	ND	-	18.53
MW-21	Shallow	31.36	6/14/2018	10:40	12.96	-	ND	-	18.40
MW-21	Shallow	31.36	7/13/2018	11:12	14.05	-	ND	-	17.31
MW-21	Shallow	31.36	8/9/2018	10:54	14.43	-	ND	-	16.93
MW-21	Shallow	31.36	9/13/2018	10:59	15.23	-	ND	-	16.13
MW-21	Shallow	31.36	4/10/2019	09:08	14.09	-	ND	-	17.27
MW-21	Shallow	31.36	5/8/2019	08:20	13.93	-	ND	-	17.43
MW-21	Shallow	31.36	6/6/2019	08:19	14.23	-	ND	-	17.13
MW-21	Shallow	31.36	10/18/2018	09:24	15.72	-	ND	-	15.64
MW-21	Shallow	31.36	11/26/2018	10:07	15.94	-	ND	-	15.42
MW-21	Shallow	31.36	12/18/2018	07:50	15.92	-	ND	-	15.44
MW-24A	Shallow	32.35	1/9/2019	08:55	18.75	-	ND	-	13.60
MW-24A	Shallow	32.35	2/13/2019	08:43	18.33	-	ND	-	14.02
MW-24A	Shallow	32.35	3/11/2019	09:15	18.12	-	ND	-	14.23
MW-24A	Shallow	32.35	5/23/2017	15:48	13.99	-	ND	-	18.36
MW-24A	Shallow	32.35	7/20/2017	10:05	18.47	-	ND	-	13.88
MW-24A	Shallow	32.35	9/15/2017	08:36	19.30	-	ND	-	13.05
MW-24A	Shallow	32.35	12/8/2017	10:47	17.86	-	ND	-	14.49
MW-24A	Shallow	32.35	4/19/2018	10:30	16.65	-	ND	-	15.70
MW-24A	Shallow	32.35	5/22/2018	11:02	13.06	-	ND	-	19.29
MW-24A	Shallow	32.35	6/14/2018	09:31	16.90	-	ND	-	15.45
MW-24A	Shallow	32.35	9/13/2018	09:58	20.01	-	ND	-	12.34
MW-24A	Shallow	32.35	4/10/2019	09:35	17.31	-	ND	-	15.04
MW-24A	Shallow	32.35	5/8/2019	09:15	18.09	-	ND	-	14.26
MW-24A	Shallow	32.35	6/6/2019	09:02	18.27	-	ND	-	14.08
MW-24A	Shallow	32.35	10/18/2018				Dry		
MW-24A	Shallow	32.35	11/26/2018	10:18	23.26	-	ND	-	9.09
MW-24A	Shallow	32.35	12/13/2018	10:50	21.93	-	ND	-	10.42
MW-25	Shallow	31.78	1/9/2019	08:58	21.15	-	ND	-	10.63
MW-25	Shallow	31.78	3/11/2019	08:42	21.20	-	ND	-	10.58
MW-25	Shallow	31.78	5/23/2017	09:39	11.69	-	ND	-	20.09
MW-25	Shallow	31.78	7/20/2017	11:02	18.80	-	ND	-	12.98
MW-25	Shallow	31.78	9/15/2017	08:52	23.36	-	ND	-	8.42
MW-25	Shallow	31.78	12/8/2017	10:53	19.98	-	ND	-	11.80
MW-25	Shallow	31.78	4/19/2018	11:27	16.08	-	ND	-	15.70
MW-25	Shallow	31.78	5/22/2018	11:29	13.33	-	ND	-	18.45
MW-25	Shallow	31.78	9/13/2018	11:01	22.84	-	ND	-	8.94
MW-25	Shallow	31.78	4/10/2019	09:06	18.56	-	ND	-	13.22
MW-25	Shallow	31.78	5/8/2019	09:28	18.05	-	ND	-	13.73
MW-25	Shallow	31.78	6/6/2019	09:15	17.74	-	ND	-	14.04
MW-25	Shallow	31.78	10/18/2018	10:38	24.97	-	ND	-	6.81
MW-25	Shallow	31.78	11/26/2018	10:09	22.45	-	ND	-	9.33
MW-25	Shallow	31.78	12/20/2018	09:38	21.66	-	ND	-	10.12
MW-26	Deep	31.89	1/9/2019	08:44	21.47	-	ND	-	10.42
MW-26	Deep	31.89	2/13/2019	08:35	21.49	-	ND	-	10.40
MW-26	Deep	31.89	3/11/2019	09:05	22.90	-	ND	-	8.99
MW-26	Deep	31.89	5/23/2017	15:25	14.32	-	ND	-	17.57
MW-26	Deep	31.89	7/20/2017	12:03	23.08	-	ND	-	8.81
MW-26	Deep	31.89	9/15/2017	10:03	25.33	-	ND	-	6.56
MW-26	Deep	31.89	12/8/2017	10:25	21.66	-	ND	-	10.23
MW-26	Deep	31.89	4/19/2018	10:41	16.17	-	ND	-	15.72
MW-26	Deep	31.89	5/22/2018	10:50	12.39	-	ND	-	19.50

Table 2
Groundwater Elevations
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point ft-NAVD88	Date	Time	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-26	Deep	31.89	6/14/2018	08:46	19.28	-	ND	-	12.61
MW-26	Deep	31.89	9/13/2018	10:14	23.23	-	ND	-	8.66
MW-26	Deep	31.89	4/10/2019	09:26	15.33	-	ND	-	16.56
MW-26	Deep	31.89	5/8/2019	09:04	21.37	-	ND	-	10.52
MW-26	Deep	31.89	6/6/2019	08:50	19.83	-	ND	-	12.06
MW-26	Deep	31.89	10/18/2018	10:02	26.77	-	ND	-	5.12
MW-26	Deep	31.89	11/26/2018	10:27	23.08	-	ND	-	8.81
MW-26	Deep	31.89	12/14/2018	08:45	23.09	-	ND	-	8.80
MW-27	Deep	31.46	1/9/2019	08:34	20.98	-	ND	-	10.48
MW-27	Deep	31.46	2/13/2019	09:06	21.04	-	ND	-	10.42
MW-27	Deep	31.46	3/11/2019	08:59	22.14	-	ND	-	9.32
MW-27	Deep	31.46	5/23/2017	14:55	13.88	-	ND	-	17.58
MW-27	Deep	31.46	7/20/2017	11:10	22.39	-	ND	-	9.07
MW-27	Deep	31.46	9/15/2017	09:51	25.11	-	ND	-	6.35
MW-27	Deep	31.46	11/7/2017	10:17	22.58	-	ND	-	8.88
MW-27	Deep	31.46	12/8/2017	12:29	21.55	-	ND	-	9.91
MW-27	Deep	31.46	1/31/2018	11:08	17.94	-	ND	-	13.52
MW-27	Deep	31.46	3/6/2018	10:17	19.90	-	ND	-	11.56
MW-27	Deep	31.46	4/19/2018	12:39	15.89	-	ND	-	15.57
MW-27	Deep	31.46	5/22/2018	10:00	11.95	-	ND	-	19.51
MW-27	Deep	31.46	6/14/2018	10:04	18.91	-	ND	-	12.55
MW-27	Deep	31.46	7/13/2018	10:06	20.96	-	ND	-	10.50
MW-27	Deep	31.46	8/9/2018	09:46	23.04	-	ND	-	8.42
MW-27	Deep	31.46	9/13/2018	10:31	22.91	-	ND	-	8.55
MW-27	Deep	31.46	4/10/2019	09:23	14.88	-	ND	-	16.58
MW-27	Deep	31.46	5/8/2019	08:54	20.38	-	ND	-	11.08
MW-27	Deep	31.46	6/6/2019	08:43	18.88	-	ND	-	12.58
MW-27	Deep	31.46	10/18/2018	09:48	26.28	-	ND	-	5.18
MW-27	Deep	31.46	11/26/2018	10:40	22.73	-	ND	-	8.73
MW-27	Deep	31.46	12/17/2018	09:45	23.30	-	ND	-	8.16
MW-28	Shallow	31.26	1/9/2019	08:57	21.20	-	ND	-	10.06
MW-28	Shallow	31.26	2/13/2019	08:57	20.52	-	ND	-	10.74
MW-28	Shallow	31.26	3/11/2019	09:21	19.74	-	ND	-	11.52
MW-28	Shallow	31.26	5/23/2017	10:38	12.66	-	ND	-	18.60
MW-28	Shallow	31.26	7/20/2017	10:42	18.10	-	ND	-	13.16
MW-28	Shallow	31.26	9/15/2017	08:50	22.99	-	ND	-	8.27
MW-28	Shallow	31.26	11/7/2017	08:45	22.11	-	ND	-	9.15
MW-28	Shallow	31.26	12/8/2017	13:10	20.39	-	ND	-	10.87
MW-28	Shallow	31.26	1/31/2018	11:34	16.98	-	ND	-	14.28
MW-28	Shallow	31.26	3/6/2018	11:49	18.82	-	ND	-	12.44
MW-28	Shallow	31.26	4/19/2018	13:42	15.82	-	ND	-	15.44
MW-28	Shallow	31.26	5/22/2018	10:00	12.69	-	ND	-	18.57
MW-28	Shallow	31.26	6/14/2018	11:15	16.71	-	ND	-	14.55
MW-28	Shallow	31.26	7/13/2018	11:20	20.31	-	ND	-	10.95
MW-28	Shallow	31.26	8/9/2018	11:07	22.05	-	ND	-	9.21
MW-28	Shallow	31.26	9/13/2018	10:08	22.76	-	ND	-	8.50
MW-28	Shallow	31.26	4/10/2019	09:47	17.14	-	ND	-	14.12
MW-28	Shallow	31.26	5/8/2019	09:25	17.79	-	ND	-	13.47
MW-28	Shallow	31.26	6/6/2019	09:12	17.44	-	ND	-	13.82
MW-28	Shallow	31.26	10/18/2018	10:16	24.23	-	ND	-	7.03
MW-28	Shallow	31.26	11/26/2018	10:12	22.50	-	ND	-	8.76
MW-28	Shallow	31.26	12/13/2018	12:45	22.25	-	ND	-	9.01
MW-29	Shallow	31.90	1/9/2019	08:48	20.91	-	ND	-	10.99
MW-29	Shallow	31.90	2/13/2019	08:45	19.37	-	ND	-	12.53
MW-29	Shallow	31.90	3/11/2019	09:23	18.89	-	ND	-	13.01
MW-29	Shallow	31.90	5/23/2017	15:26	12.19	-	ND	-	19.71
MW-29	Shallow	31.90	7/20/2017	10:38	16.93	-	ND	-	14.97
MW-29	Shallow	31.90	9/15/2017	10:10	19.41	-	ND	-	12.49
MW-29	Shallow	31.90	12/8/2017	10:37	18.29	-	ND	-	13.61
MW-29	Shallow	31.90	4/19/2018	10:35	16.67	-	ND	-	15.23
MW-29	Shallow	31.90	5/22/2018	10:59	14.38	-	ND	-	17.52
MW-29	Shallow	31.90	6/14/2018	09:45	15.33	-	ND	-	16.57
MW-29	Shallow	31.90	9/13/2018	10:09	19.77	-	ND	-	12.13
MW-29	Shallow	31.90	4/10/2019	09:50	19.05	-	ND	-	12.85

Table 2
Groundwater Elevations
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point ft-NAVD88	Date	Time	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-29	Shallow	31.90	5/8/2019	09:32	20.12	-	ND	-	11.78
MW-29	Shallow	31.90	6/6/2019	09:19	19.24	-	ND	-	12.66
MW-29	Shallow	31.90	10/18/2018	10:07	21.83	-	ND	-	10.07
MW-29	Shallow	31.90	11/26/2018	10:23	22.30	-	ND	-	9.60
MW-29	Shallow	31.90	12/12/2018	10:20	22.02	-	ND	-	9.88
MW-30	Shallow	31.05	1/9/2019	09:14	20.93	-	ND	-	10.12
MW-30	Shallow	31.05	2/13/2019	09:01	20.71	-	ND	-	10.34
MW-30	Shallow	31.05	3/11/2019	09:29	20.86	-	ND	-	10.19
MW-30	Shallow	31.05	5/23/2017	13:10	12.20	-	ND	-	18.85
MW-30	Shallow	31.05	7/20/2017	11:49	19.49	-	ND	-	11.56
MW-30	Shallow	31.05	9/15/2017	09:34	22.49	-	ND	-	8.56
MW-30	Shallow	31.05	11/7/2017	09:52	22.00	-	ND	-	9.05
MW-30	Shallow	31.05	12/8/2017	12:08	19.96	-	ND	-	11.09
MW-30	Shallow	31.05	1/31/2018	10:42	17.31	-	ND	-	13.74
MW-30	Shallow	31.05	3/6/2018	09:45	18.47	-	ND	-	12.58
MW-30	Shallow	31.05	4/19/2018	13:17	16.22	-	ND	-	14.83
MW-30	Shallow	31.05	5/22/2018	10:00	12.07	-	ND	-	18.98
MW-30	Shallow	31.05	6/14/2018	10:20	16.35	-	ND	-	14.70
MW-30	Shallow	31.05	7/13/2018	09:39	20.17	-	ND	-	10.88
MW-30	Shallow	31.05	8/9/2018	09:16	21.57	-	ND	-	9.48
MW-30	Shallow	31.05	9/13/2018	10:44	22.45	-	ND	-	8.60
MW-30	Shallow	31.05	4/10/2019	09:57	18.80	-	ND	-	12.25
MW-30	Shallow	31.05	5/8/2019	09:42	18.45	-	ND	-	12.60
MW-30	Shallow	31.05	6/6/2019	09:27	17.88	-	ND	-	13.17
MW-30	Shallow	31.05	10/18/2018	09:39	23.51	-	ND	-	7.54
MW-30	Shallow	31.05	11/26/2018	10:50	22.47	-	ND	-	8.58
MW-30	Shallow	31.05	12/12/2018	11:53	22.18	-	ND	-	8.87
MW-31	Shallow	30.77	1/9/2019	09:09	20.62	-	ND	-	10.15
MW-31	Shallow	30.77	2/13/2019	08:57	20.60	-	ND	-	10.17
MW-31	Shallow	30.77	3/11/2019	08:53	20.73	-	ND	-	10.04
MW-31	Shallow	30.77	5/23/2017	13:02	12.71	-	ND	-	18.06
MW-31	Shallow	30.77	7/20/2017	11:43	20.23	-	ND	-	10.54
MW-31	Shallow	30.77	9/15/2017	09:37	22.56	-	ND	-	8.21
MW-31	Shallow	30.77	12/8/2017	09:34	20.06	-	ND	-	10.71
MW-31	Shallow	30.77	4/19/2018	10:52	15.52	-	ND	-	15.25
MW-31	Shallow	30.77	5/22/2018	09:49	11.23	-	ND	-	19.54
MW-31	Shallow	30.77	9/13/2018	10:40	22.26	-	ND	-	8.51
MW-31	Shallow	30.77	4/10/2019	09:17	16.56	-	ND	-	14.21
MW-31	Shallow	30.77	5/8/2019	08:38	18.64	-	ND	-	12.13
MW-31	Shallow	30.77	6/6/2019	08:31	17.74	-	ND	-	13.03
MW-31	Shallow	30.77	10/18/2018	09:40	23.82	-	ND	-	6.95
MW-31	Shallow	30.77	11/26/2018	10:46	22.17	-	ND	-	8.60
MW-31	Shallow	30.77	12/19/2018	13:07	21.35	-	ND	-	9.42
MW-32	Deep	31.08	1/9/2019	09:13	21.28	-	ND	-	9.80
MW-32	Deep	31.08	2/13/2019	08:59	21.53	-	ND	-	9.55
MW-32	Deep	31.08	3/11/2019	09:27	21.42	-	ND	-	9.66
MW-32	Deep	31.08	5/23/2017	13:08	13.40	-	ND	-	17.68
MW-32	Deep	31.08	7/20/2017	11:54	21.50	-	ND	-	9.58
MW-32	Deep	31.08	9/15/2017	09:31	24.81	-	ND	-	6.27
MW-32	Deep	31.08	11/7/2017	09:47	22.56	-	ND	-	8.52
MW-32	Deep	31.08	12/8/2017	12:04	21.02	-	ND	-	10.06
MW-32	Deep	31.08	1/31/2018	10:38	18.62	-	ND	-	12.46
MW-32	Deep	31.08	3/6/2018	09:40	19.12	-	ND	-	11.96
MW-32	Deep	31.08	4/19/2018	13:23	15.93	-	ND	-	15.15
MW-32	Deep	31.08	5/22/2018	10:00	12.22	-	ND	-	18.86
MW-32	Deep	31.08	6/14/2018	10:23	18.11	-	ND	-	12.97
MW-32	Deep	31.08	7/13/2018	09:35	20.19	-	ND	-	10.89
MW-32	Deep	31.08	8/9/2018	09:12	21.88	-	ND	-	9.20
MW-32	Deep	31.08	9/13/2018	10:46	22.56	-	ND	-	8.52
MW-32	Deep	31.08	4/10/2019	09:54	16.92	-	ND	-	14.16
MW-32	Deep	31.08	5/8/2019	09:40	19.11	-	ND	-	11.97
MW-32	Deep	31.08	6/6/2019	09:25	19.19	-	ND	-	11.89
MW-32	Deep	31.08	10/18/2018	09:38	24.04	-	ND	-	7.04
MW-32	Deep	31.08	11/26/2018	10:48	22.85	-	ND	-	8.23

Table 2
Groundwater Elevations
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point ft-NAVD88	Date	Time	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-32	Deep	31.08	12/20/2018	07:44	22.28	-	ND	-	8.80
MW-33	Deep	30.88	1/9/2019	09:17	27.57	-	ND	-	3.31
MW-33	Deep	30.88	2/13/2019	09:04	24.65	-	ND	-	6.23
MW-33	Deep	30.88	3/11/2019	08:56	23.05	-	ND	-	7.83
MW-33	Deep	30.88	5/23/2017	13:22	12.08	-	ND	-	18.80
MW-33	Deep	30.88	7/20/2017	11:34	19.57	-	ND	-	11.31
MW-33	Deep	30.88	9/15/2017	09:42	21.79	-	ND	-	9.09
MW-33	Deep	30.88	11/7/2017	10:08	22.18	-	ND	-	8.70
MW-33	Deep	30.88	12/8/2017	12:20	21.40	-	ND	-	9.48
MW-33	Deep	30.88	1/31/2018	10:55	19.70	-	ND	-	11.18
MW-33	Deep	30.88	3/6/2018	10:02	19.67	-	ND	-	11.21
MW-33	Deep	30.88	4/19/2018	13:04	17.68	-	ND	-	13.20
MW-33	Deep	30.88	5/22/2018	10:00	15.64	-	ND	-	15.24
MW-33	Deep	30.88	6/14/2018	10:13	19.18	-	ND	-	11.70
MW-33	Deep	30.88	7/13/2018	09:47	19.69	-	ND	-	11.19
MW-33	Deep	30.88	8/9/2018	09:24	20.60	-	ND	-	10.28
MW-33	Deep	30.88	9/13/2018	10:35	26.77	-	ND	-	4.11
MW-33	Deep	30.88	4/10/2019	09:20	23.41	-	ND	-	7.47
MW-33	Deep	30.88	5/8/2019	08:46	18.63	-	ND	-	12.25
MW-33	Deep	30.88	6/6/2019	08:36	18.67	-	ND	-	12.21
MW-33	Deep	30.88	10/18/2018	09:44	25.33	-	ND	-	5.55
MW-33	Deep	30.88	11/26/2018	10:44	23.75	-	ND	-	7.13
MW-33	Deep	30.88	12/19/2018	10:30	21.53	-	ND	-	9.35
MW-34	Shallow	30.72	1/9/2019	09:22	20.47	-	ND	-	10.25
MW-34	Shallow	30.72	2/13/2019	09:21	20.60	-	ND	-	10.12
MW-34	Shallow	30.72	3/11/2019	09:42	22.20	21.86	0.34	0.06	8.79
MW-34	Shallow	30.72	5/23/2017	13:59	11.18	-	ND	-	19.54
MW-34	Shallow	30.72	7/20/2017	11:27	17.66	-	ND	-	13.06
MW-34	Shallow	30.72	8/13/2017	07:32	20.72	20.63	0.09	0.01	10.07
MW-34	Shallow	30.72	8/17/2017	10:02	18.88	-	ND	-	11.84
MW-34	Shallow	30.72	9/15/2017	10:45	23.34	23.06	0.28	0.05	7.60
MW-34	Shallow	30.72	11/7/2017	10:27	21.88	21.69	0.19	0.03	8.99
MW-34	Shallow	30.72	12/8/2017	12:56	20.35	20.21	0.14	0.02	10.48
MW-34	Shallow	30.72	1/31/2018	11:55	17.09	-	ND	-	13.63
MW-34	Shallow	30.72	3/6/2018	10:52	20.10	18.02	2.08	0.34	12.28
MW-34	Shallow	30.72	4/19/2018	12:50	15.88	15.88	Trace	-	14.84
MW-34	Shallow	30.72	5/22/2018	10:00	12.63	-	ND	-	18.09
MW-34	Shallow	30.72	6/14/2018	10:57	16.51	15.71	0.80	0.13	14.85
MW-34	Shallow	30.72	7/13/2018	10:20	19.85	18.40	1.45	0.24	12.03
MW-34	Shallow	30.72	8/9/2018	10:12	22.54	21.10	1.44	0.24	9.33
MW-34	Shallow	30.72	9/13/2018	11:25	22.25	22.22	0.03	0.005	8.49
MW-34	Shallow	30.72	4/10/2019	10:59	16.94	-	ND	-	13.78
MW-34	Shallow	30.72	5/8/2019	10:15	19.72	-	ND	-	11.00
MW-34	Shallow	30.72	6/6/2019	09:50	18.10	-	ND	-	12.62
MW-34	Shallow	30.72	10/18/2018	10:46	24.58	24.50	0.08	0.01	6.20
MW-34	Shallow	30.72	11/26/2018	10:54	21.98	-	ND	-	8.74
MW-34	Shallow	30.72	12/19/2018	09:17	21.40	-	ND	-	9.32
MW-35	Deep	30.83	1/9/2019	09:24	20.48	-	ND	-	10.35
MW-35	Deep	30.83	2/13/2019	09:12	20.47	-	ND	-	10.36
MW-35	Deep	30.83	3/11/2019	09:39	21.92	-	ND	-	8.91
MW-35	Deep	30.83	5/23/2017	14:38	13.19	-	ND	-	17.64
MW-35	Deep	30.83	7/20/2017	11:20	21.58	-	ND	-	9.25
MW-35	Deep	30.83	8/13/2017	07:27	22.65	-	ND	-	8.18
MW-35	Deep	30.83	8/17/2017	09:54	23.68	-	ND	-	7.15
MW-35	Deep	30.83	9/15/2017	10:35	24.40	-	ND	-	6.43
MW-35	Deep	30.83	11/7/2017	10:22	21.91	-	ND	-	8.92
MW-35	Deep	30.83	12/8/2017	12:41	20.84	-	ND	-	9.99
MW-35	Deep	30.83	1/31/2018	11:48	17.33	-	ND	-	13.50
MW-35	Deep	30.83	3/6/2018	11:08	19.29	-	ND	-	11.54
MW-35	Deep	30.83	4/19/2018	12:30	15.29	-	ND	-	15.54
MW-35	Deep	30.83	5/22/2018	10:00	11.41	-	ND	-	19.42
MW-35	Deep	30.83	6/14/2018	10:53	18.29	-	ND	-	12.54
MW-35	Deep	30.83	7/13/2018	10:30	20.37	-	ND	-	10.46
MW-35	Deep	30.83	8/9/2018	10:06	22.39	-	ND	-	8.44

Table 2
Groundwater Elevations
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point ft-NAVD88	Date	Time	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-35	Deep	30.83	9/13/2018	11:05	22.49	-	ND	-	8.34
MW-35	Deep	30.83	4/10/2019	10:50	14.66	-	ND	-	16.17
MW-35	Deep	30.83	5/8/2019	09:57	20.43	-	ND	-	10.40
MW-35	Deep	30.83	6/6/2019	09:44	18.69	-	ND	-	12.14
MW-35	Deep	30.83	10/18/2018	10:44	25.28	-	ND	-	5.55
MW-35	Deep	30.83	11/26/2018	10:52	22.10	-	ND	-	8.73
MW-35	Deep	30.83	12/19/2018	08:15	21.22	-	ND	-	9.61
MW-36	Shallow	30.16	1/9/2019	08:33	19.66	-	ND	-	10.50
MW-36	Shallow	30.16	2/13/2019	09:05	19.72	-	ND	-	10.44
MW-36	Shallow	30.16	3/11/2019	08:57	20.74	-	ND	-	9.42
MW-36	Shallow	30.16	5/23/2017	14:54	12.68	-	ND	-	17.48
MW-36	Shallow	30.16	7/20/2017	11:15	20.89	-	ND	-	9.27
MW-36	Shallow	30.16	9/15/2017	09:46	23.49	-	ND	-	6.67
MW-36	Shallow	30.16	11/7/2017	10:12	21.25	-	ND	-	8.91
MW-36	Shallow	30.16	12/8/2017	12:33	20.16	-	ND	-	10.00
MW-36	Shallow	30.16	1/31/2018	11:02	16.49	-	ND	-	13.67
MW-36	Shallow	30.16	3/6/2018	10:10	18.56	-	ND	-	11.60
MW-36	Shallow	30.16	4/19/2018	12:45	14.51	-	ND	-	15.65
MW-36	Shallow	30.16	5/22/2018	10:00	10.43	-	ND	-	19.73
MW-36	Shallow	30.16	6/14/2018	10:08	17.42	-	ND	-	12.74
MW-36	Shallow	30.16	7/13/2018	10:12	19.68	-	ND	-	10.48
MW-36	Shallow	30.16	8/9/2018	09:53	21.66	-	ND	-	8.50
MW-36	Shallow	30.16	9/13/2018	10:33	21.59	-	ND	-	8.57
MW-36	Shallow	30.16	4/10/2019	09:22	14.03	-	ND	-	16.13
MW-36	Shallow	30.16	5/8/2019	08:50	18.55	-	ND	-	11.61
MW-36	Shallow	30.16	6/6/2019	08:41	17.49	-	ND	-	12.67
MW-36	Shallow	30.16	10/18/2018	09:46	24.36	-	ND	-	5.80
MW-36	Shallow	30.16	11/26/2018	10:42	21.35	-	ND	-	8.81
MW-36	Shallow	30.16	12/17/2018	11:35	20.96	-	ND	-	9.20
MW-37	Deep	31.27	1/9/2019	08:38	20.81	-	ND	-	10.46
MW-37	Deep	31.27	2/13/2019	09:10	20.67	-	ND	-	10.60
MW-37	Deep	31.27	3/11/2019	09:37	22.31	-	ND	-	8.96
MW-37	Deep	31.27	5/23/2017	15:03	13.65	-	ND	-	17.62
MW-37	Deep	31.27	7/20/2017	11:55	22.28	-	ND	-	8.99
MW-37	Deep	31.27	9/15/2017	10:22	24.49	-	ND	-	6.78
MW-37	Deep	31.27	12/8/2017	10:18	21.01	-	ND	-	10.26
MW-37	Deep	31.27	4/19/2018	10:46	15.56	-	ND	-	15.71
MW-37	Deep	31.27	5/22/2018	10:46	11.79	-	ND	-	19.48
MW-37	Deep	31.27	6/14/2018	09:56	18.80	-	ND	-	12.47
MW-37	Deep	31.27	9/13/2018	10:23	22.63	-	ND	-	8.64
MW-37	Deep	31.27	4/10/2019	10:47	14.82	-	ND	-	16.45
MW-37	Deep	31.27	5/8/2019	09:53	20.89	-	ND	-	10.38
MW-37	Deep	31.27	6/6/2019	09:38	19.19	-	ND	-	12.08
MW-37	Deep	31.27	10/18/2018	09:52	26.00	-	ND	-	5.27
MW-37	Deep	31.27	11/26/2018	10:36	22.50	-	ND	-	8.77
MW-37	Deep	31.27	12/17/2018	08:26	23.68	-	ND	-	7.59
MW-38	Shallow	31.54	1/9/2019	08:40	21.23	-	ND	-	10.31
MW-38	Shallow	31.54	2/13/2019	09:09	20.85	-	ND	-	10.69
MW-38	Shallow	31.54	3/11/2019	09:32	20.41	20.40	0.01	0.002	11.14
MW-38	Shallow	31.54	5/23/2017	15:10	11.85	-	ND	-	19.69
MW-38	Shallow	31.54	7/20/2017	11:51	16.81	-	ND	-	14.73
MW-38	Shallow	31.54	9/15/2017	10:15	19.91	19.85	0.06	0.01	11.68
MW-38	Shallow	31.54	12/8/2017	10:19	19.38	19.33	0.05	0.01	12.20
MW-38	Shallow	31.54	4/19/2018	10:44	17.13	-	ND	-	14.41
MW-38	Shallow	31.54	5/22/2018	10:47	14.42	-	ND	-	17.12
MW-38	Shallow	31.54	6/14/2018	09:55	14.95	-	ND	-	16.59
MW-38	Shallow	31.54	9/13/2018	10:20	20.26	-	ND	-	11.28
MW-38	Shallow	31.54	4/10/2019	10:45	19.04	-	ND	-	12.50
MW-38	Shallow	31.54	5/8/2019	09:50	20.29	-	ND	-	11.25
MW-38	Shallow	31.54	6/6/2019	09:36	18.66	-	ND	-	12.88
MW-38	Shallow	31.54	10/18/2018	09:54	21.95	-	ND	-	9.59
MW-38	Shallow	31.54	11/26/2018	10:37	22.39	-	ND	-	9.15
MW-38	Shallow	31.54	12/17/2018	08:10	22.44	22.43	0.01	0.002	9.11
MW-39	Shallow	31.08	1/9/2019	08:36	20.67	-	ND	-	10.41

Table 2
Groundwater Elevations
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point ft-NAVD88	Date	Time	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-39	Shallow	31.08	2/13/2019	09:07	20.91	-	ND	-	10.17
MW-39	Shallow	31.08	3/11/2019	09:00	21.67	-	ND	-	9.41
MW-39	Shallow	31.08	5/23/2017	15:15	13.61	-	ND	-	17.47
MW-39	Shallow	31.08	7/20/2017	11:58	22.16	-	ND	-	8.92
MW-39	Shallow	31.08	9/15/2017	09:54	24.13	24.11	0.02	0.003	6.97
MW-39	Shallow	31.08	12/8/2017	10:23	20.88	-	ND	-	10.20
MW-39	Shallow	31.08	4/19/2018	10:49	15.29	-	ND	-	15.79
MW-39	Shallow	31.08	5/22/2018	10:44	11.35	11.35	Trace	-	19.73
MW-39	Shallow	31.08	6/14/2018	09:59	18.49	18.46	0.03	0.005	12.61
MW-39	Shallow	31.08	9/13/2018	10:16	22.41	-	ND	-	8.67
MW-39	Shallow	31.08	4/10/2019	09:24	15.02	-	ND	-	16.06
MW-39	Shallow	31.08	5/8/2019	08:58	19.58	19.54	0.04	0.01	11.53
MW-39	Shallow	31.08	6/6/2019	08:47	18.18	-	ND	-	12.90
MW-39	Shallow	31.08	10/18/2018	09:58	24.82	-	ND	-	6.26
MW-39	Shallow	31.08	11/26/2018	10:29	22.20	-	ND	-	8.88
MW-39	Shallow	31.08	12/14/2018	10:50	21.53	-	ND	-	9.55
MW-40	Deep	31.71	1/9/2019	08:49	21.36	-	ND	-	10.35
MW-40	Deep	31.71	2/13/2019	08:41	21.48	-	ND	-	10.23
MW-40	Deep	31.71	3/11/2019	09:19	22.12	-	ND	-	9.59
MW-40	Deep	31.71	5/23/2017	15:46	14.05	-	ND	-	17.66
MW-40	Deep	31.71	7/20/2017	10:20	22.22	-	ND	-	9.49
MW-40	Deep	31.71	9/15/2017	08:42	25.93	-	ND	-	5.78
MW-40	Deep	31.71	11/7/2017	08:30	24.42	-	ND	-	7.29
MW-40	Deep	31.71	12/8/2017	11:39	21.81	-	ND	-	9.90
MW-40	Deep	31.71	1/31/2018	11:19	18.20	-	ND	-	13.51
MW-40	Deep	31.71	3/6/2018	10:30	20.15	-	ND	-	11.56
MW-40	Deep	31.71	4/19/2018	12:15	16.14	-	ND	-	15.57
MW-40	Deep	31.71	5/22/2018	10:00	12.34	-	ND	-	19.37
MW-40	Deep	31.71	6/14/2018	09:37	18.98	-	ND	-	12.73
MW-40	Deep	31.71	7/13/2018	10:50	21.41	-	ND	-	10.30
MW-40	Deep	31.71	8/9/2018	10:40	23.50	-	ND	-	8.21
MW-40	Deep	31.71	9/13/2018	10:03	22.96	-	ND	-	8.75
MW-40	Deep	31.71	4/10/2019	09:44	15.34	-	ND	-	16.37
MW-40	Deep	31.71	5/8/2019	09:23	20.37	-	ND	-	11.34
MW-40	Deep	31.71	6/6/2019	09:08	19.11	-	ND	-	12.60
MW-40	Deep	31.71	10/18/2018	10:39	26.23	-	ND	-	5.48
MW-40	Deep	31.71	11/26/2018	10:14	22.84	-	ND	-	8.87
MW-40	Deep	31.71	12/13/2018	11:24	22.66	-	ND	-	9.05
MW-41	Shallow	31.32	1/9/2019	08:51	17.52	-	ND	-	13.80
MW-41	Shallow	31.32	2/13/2019	08:42	17.01	-	ND	-	14.31
MW-41	Shallow	31.32	3/11/2019	09:17	16.68	-	ND	-	14.64
MW-41	Shallow	31.32	5/23/2017	15:49	12.07	-	ND	-	19.25
MW-41	Shallow	31.32	7/20/2017	10:27	19.56	-	ND	-	11.76
MW-41	Shallow	31.32	9/15/2017	08:40	19.61	-	ND	-	11.71
MW-41	Shallow	31.32	11/07/2017	08:28	17.38	-	ND	-	13.94
MW-41	Shallow	31.32	12/8/2017	11:30	16.45	-	ND	-	14.87
MW-41	Shallow	31.32	1/31/2018	11:28	15.74	-	ND	-	15.58
MW-41	Shallow	31.32	3/6/2018	10:36	16.17	-	ND	-	15.15
MW-41	Shallow	31.32	4/19/2018	12:01	15.59	-	ND	-	15.73
MW-41	Shallow	31.32	5/22/2018	10:00	13.26	-	ND	-	18.06
MW-41	Shallow	31.32	6/14/2018	09:32	14.95	-	ND	-	16.37
MW-41	Shallow	31.32	7/13/2018	10:56	16.58	-	ND	-	14.74
MW-41	Shallow	31.32	8/9/2018	10:46	17.47	-	ND	-	13.85
MW-41	Shallow	31.32	9/13/2018	10:00	18.11	-	ND	-	13.21
MW-41	Shallow	31.32	4/10/2019	09:41	16.65	-	ND	-	14.67
MW-41	Shallow	31.32	5/8/2019	09:20	16.56	-	ND	-	14.76
MW-41	Shallow	31.32	6/6/2019	09:06	16.75	-	ND	-	14.57
MW-41	Shallow	31.32	10/18/2018	10:19	18.77	-	ND	-	12.55
MW-41	Shallow	31.32	11/26/2018	10:16	19.00	-	ND	-	12.32
MW-41	Shallow	31.32	12/13/2018	09:30	18.68	-	ND	-	12.64
MW-42	Deep	31.94	1/9/2019	08:53	22.28	-	ND	-	9.66
MW-42	Deep	31.94	2/13/2019	08:39	22.33	-	ND	-	9.61
MW-42	Deep	31.94	3/11/2019	09:12	22.87	-	ND	-	9.07
MW-42	Deep	31.94	5/23/2017	15:44	14.85	-	ND	-	17.09

Table 2
Groundwater Elevations
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point ft-NAVD88	Date	Time	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-42	Deep	31.94	7/20/2017	15:44	14.85	-	ND	-	17.09
MW-42	Deep	31.94	9/15/2017	08:45	26.28	-	ND	-	5.66
MW-42	Deep	31.94	11/7/2017	08:26	23.10	-	ND	-	8.84
MW-42	Deep	31.94	12/8/2017	11:46	22.05	-	ND	-	9.89
MW-42	Deep	31.94	1/31/2018	11:15	18.37	-	ND	-	13.57
MW-42	Deep	31.94	3/6/2018	10:25	20.75	-	ND	-	11.19
MW-42	Deep	31.94	4/19/2018	12:20	16.40	-	ND	-	15.54
MW-42	Deep	31.94	5/22/2018	10:00	12.55	-	ND	-	19.39
MW-42	Deep	31.94	6/14/2018	09:40	19.30	-	ND	-	12.64
MW-42	Deep	31.94	7/13/2018	11:08	21.38	-	ND	-	10.56
MW-42	Deep	31.94	8/9/2018	10:51	23.17	-	ND	-	8.77
MW-42	Deep	31.94	9/13/2018	10:06	23.88	-	ND	-	8.06
MW-42	Deep	31.94	4/10/2019	09:31	16.39	-	ND	-	15.55
MW-42	Deep	31.94	5/8/2019	09:13	20.72	-	ND	-	11.22
MW-42	Deep	31.94	6/6/2019	08:58	18.96	-	ND	-	12.98
MW-42	Deep	31.94	10/18/2018	10:21	25.80	-	ND	-	6.14
MW-42	Deep	31.94	11/26/2018	10:21	23.21	-	ND	-	8.73
MW-42	Deep	31.94	12/13/2018	07:30	23.58	-	ND	-	8.36
MW-43	Shallow	31.39	1/9/2019	08:45	21.12	-	ND	-	10.27
MW-43	Shallow	31.39	2/13/2019	08:37	21.51	-	ND	-	9.88
MW-43	Shallow	31.39	3/11/2019	09:09	21.89	21.88	0.01	0.002	9.51
MW-43	Shallow	31.39	5/23/2017	15:21	13.88	-	ND	-	17.51
MW-43	Shallow	31.39	7/20/2017	10:34	21.96	-	ND	-	9.43
MW-43	Shallow	31.39	9/15/2017	10:07	24.21	-	ND	-	7.18
MW-43	Shallow	31.39	12/8/2017	10:32	21.20	-	ND	-	10.19
MW-43	Shallow	31.39	4/19/2018	10:39	15.65	-	ND	-	15.74
MW-43	Shallow	31.39	5/22/2018	10:55	11.66	-	ND	-	19.73
MW-43	Shallow	31.39	6/14/2018	8:48	18.69	-	ND	-	12.70
MW-43	Shallow	31.39	9/13/2018	10:12	22.90	-	ND	-	8.49
MW-43	Shallow	31.39	4/10/2019	09:28	14.98	-	ND	-	16.41
MW-43	Shallow	31.39	5/8/2019	09:08	19.82	19.82	Trace	-	11.57
MW-43	Shallow	31.39	6/6/2019	08:54	18.17	-	ND	-	13.22
MW-43	Shallow	31.39	10/18/2018	10:05	25.03	-	ND	-	6.36
MW-43	Shallow	31.39	11/26/2018	10:25	22.53	-	ND	-	8.86
MW-43	Shallow	31.39	12/12/2018	09:10	22.23	-	ND	-	9.16

Notes:
**Unstable field reading; value is an approximation.*
– = not applicable
NAVD88 = North America Vertical Datum 1988
ND = Non-detect
Corrected groundwater water elevation (GWE) calculated as: $GWE_{corr} = GWE + (NAPL_{thickness} * SG)$
Specific Gravity (SG) of light nonaqueous phase liquid (LNAPL) assumed to be 0.8 based on analysis of LNAPL

Table 3
Transducer Calibration Offsets
Premier Edible Oils
Portland, Oregon

Calibration Event	Measurement	MW-08	MW-11	MW-18	MW-21	MW-27	MW-28	MW-30	MW-32	MW-33	MW-34	MW-35	MW-36	MW-40	MW-41	MW-42
Transducer Position	TOC Elev Adj. (ft above NAVD88)	30.93	31.06	30.87	31.36	31.46	31.26	31.05	31.08	30.88	30.72	30.83	30.16	31.71	31.32	31.94
	Datalogger depth (ft BTOC)	26.91	27.00	27.00	18.05	39.87	28.12	28.00	38.14	39.31	27.90	39.83	29.92	39.84	27.35	39.04
6/2/2017	DTW measured (ft BTOC)	11.72	12.20	11.93	10.15	12.67	12.07	12.00	12.34	16.51	11.32	12.05	11.35	12.90	11.88	13.20
	DTW calculated (ft BTOC)	11.75	12.04	11.99	10.29	12.78	12.14	12.17	12.70	15.91	11.48	12.24	11.49	13.27	12.03	13.46
	Calibration Offset	0.03	-0.16	0.06	0.14	0.11	0.07	0.17	0.36	-0.60	0.16	0.19	0.14	0.37	0.15	0.26
7/20/2017	DTW measured (ft BTOC)	19.20	19.32	20.36	12.85	22.39	20.10	19.49	21.50	19.57	17.66	21.58	20.89	22.22	15.75	22.56
	DTW calculated (ft BTOC)	19.22	19.05	20.48	12.96	22.51	20.17	19.67	21.91	20.42	17.48	21.72	21.01	22.60	16.52	22.18
	Calibration Offset	0.02	-0.27	0.12	0.11	0.12	0.07	0.18	0.41	0.85	-0.18	0.14	0.12	0.38	0.77	-0.38
9/15/2017	DTW measured (ft BTOC)	22.03	22.47	22.80	14.42	24.81	22.79	22.20	23.00	21.07	23.34	24.12	23.22	24.44	17.52	24.18
	DTW calculated (ft BTOC)	21.96	22.73	22.73	14.42	24.81	22.79	22.20	23.00	21.43	23.36	24.44	23.36	25.06	18.43	24.84
	Calibration Offset	-0.07	0.26	-0.07	0.16	0.15	0.07	0.15	0.89	0.36	0.02	0.32	0.14	0.62	0.91	0.66
11/7/2017	DTW measured (ft BTOC)	21.75	21.87	21.77	14.74	22.58	22.11	22.00	22.56	22.18	21.88	21.91	21.25	23.42	17.38	23.10
	DTW calculated (ft BTOC)	21.70	22.24	21.83	14.86	22.63	22.16	22.14	22.52	22.30	21.97	22.12	21.30	22.93	18.17	23.63
	Calibration Offset	-0.05	0.37	0.06	0.12	0.05	0.05	0.14	-0.04	0.12	0.09	0.21	0.05	-0.49	0.79	0.53
12/8/2017	DTW measured (ft BTOC)	19.73	20.01	20.31	13.70	21.55	20.39	19.96	21.02	21.40	20.35	20.84	20.16	21.81	16.45	22.05
	DTW calculated (ft BTOC)	19.69	20.41	20.34	13.73	21.56	20.43	20.14	21.29	21.47	20.58	21.25	20.16	21.91	17.46	22.30
	Calibration Offset	-0.04	0.40	0.03	0.03	0.01	0.04	0.18	0.27	0.07	0.23	0.41	0.00	0.10	1.01	0.25
1/31/2018	DTW measured (ft BTOC)	17.07	17.24	17.09	13.19	17.94	16.98	17.31	18.62	19.70	17.09	17.33	16.49	18.20	15.74	18.37
	DTW calculated (ft BTOC)	17.08	17.68	17.21	13.24	18.07	17.03	17.46	18.28	19.69	17.37	17.62	16.60	18.52	16.85	18.70
	Calibration Offset	0.01	0.45	0.12	0.05	0.13	0.05	0.15	-0.34	-0.01	0.28	0.29	0.11	0.32	1.11	0.33
3/6/2018	DTW measured (ft BTOC)	18.24	18.30	18.91	13.48	19.90	18.82	18.47	19.12	19.67	18.02	19.29	18.56	20.15	16.17	20.75
	DTW calculated (ft BTOC)	18.22	18.73	18.91	13.53	20.02	18.87	18.58	19.33	19.77	18.61	19.58	18.63	20.46	17.47	21.02
	Calibration Offset	-0.02	0.43	0.00	0.05	0.12	0.05	0.11	0.21	0.10	0.59	0.29	0.07	0.31	1.30	0.27
4/19/2018	DTW measured (ft BTOC)	16.10	16.29	15.32	13.32	15.89	15.82	16.22	15.93	17.68	15.88	15.29	14.51	16.14	15.59	16.40
	DTW calculated (ft BTOC)	16.10	16.77	15.41	13.39	16.03	15.88	16.47	16.31	17.85	16.19	15.63	14.65	16.49	17.59	16.73
	Calibration Offset	0.00	0.48	0.09	0.07	0.14	0.06	0.25	0.38	0.17	0.31	0.34	0.14	0.35	2.00	0.33
5/22/2018	DTW measured (ft BTOC)	12.14	13.60	11.05	12.83	11.95	12.69	12.07	12.22	15.64	12.63	11.41	10.43	12.34	13.26	12.55
	DTW calculated (ft BTOC)	12.14	14.28	11.17	12.91	12.05	12.79	12.24	12.47	15.75	12.99	11.81	10.58	12.66	15.10	12.95
	Calibration Offset	0.00	0.68	0.12	0.08	0.10	0.10	0.17	0.25	0.11	0.36	0.40	0.15	0.32	1.84	0.40
6/14/2018	DTW measured (ft BTOC)	15.93	16.04	17.56	12.96	18.91	16.71	16.35	18.11	19.18	15.87	18.29	17.42	18.98	19.95	19.30
	DTW calculated (ft BTOC)	15.93	16.46	17.63	13.03	19.00	16.76	16.54	18.38	19.33	16.13	18.46	17.59	19.42	18.28	19.82
	Calibration Offset	0.00	0.42	0.07	0.07	0.09	0.05	0.19	0.27	0.15	0.26	0.17	0.17	0.44	-1.67	0.52
7/13/2018	DTW measured (ft BTOC)	19.90	19.11	20.33	14.05	20.96	20.31	20.17	20.19	19.69	18.69	20.37	19.68	21.41	16.58	21.38
	DTW calculated (ft BTOC)	19.84	19.69	20.34	14.10	21.05	20.36	20.31	20.51	20.06	18.89	20.59	19.75	21.54	18.67	21.74
	Calibration Offset	-0.06	0.58	0.01	0.05	0.09	0.05	0.14	0.32	0.37	0.20	0.22	0.07	0.13	2.09	0.36
8/9/2018	DTW measured (ft BTOC)	21.34	21.41	21.71	14.43	23.04	22.05	21.57	21.88	20.60	21.39	22.39	21.66	23.50	17.47	23.17
	DTW calculated (ft BTOC)	21.26	21.90	21.75	14.66	23.23	22.07	21.74	22.20	20.72	21.54	22.70	21.70	23.69	19.59	23.42
	Calibration Offset	-0.08	0.49	0.04	0.23	0.19	0.02	0.17	0.32	0.12	0.15	0.31	0.04	0.19	2.12	0.25
9/13/2018	DTW measured (ft BTOC)	22.23	22.30	22.18	15.23	22.91	22.76	22.45	22.56	26.77	22.23	22.49	21.59	22.96	16.11	23.88
	DTW calculated (ft BTOC)	22.20	22.86	22.18	15.29	22.78	22.81	22.63	*	27.17	22.43	22.78	21.53	23.32	18.26	24.36
	Calibration Offset	-0.03	0.56	0.00	0.06	-0.13	0.05	0.18	*	0.40	0.20	0.29	-0.06	0.36	2.15	0.48
10/18/2018	DTW measured (ft BTOC)	23.31	23.93	23.89	15.72	26.28	24.23	23.51	24.04	25.33	24.52	25.28	24.36	26.23	16.77	25.80
	DTW calculated (ft BTOC)	23.27	24.44	23.98	15.78	26.36	24.27	23.66	24.38	25.60	24.78	25.48	24.42	26.43	19.01	26.21
	Calibration Offset	-0.04	0.51	0.09	0.06	0.08	0.04	0.15	0.34	0.27	0.26	0.20	0.06	0.20	2.24	0.41
11/26/2018	DTW measured (ft BTOC)	22.28	22.33	22.06	15.94	22.73	22.50	22.47	22.85	23.75	21.98	22.10	21.35	22.84	17.00	23.21
	DTW calculated (ft BTOC)	22.20	22.85	22.03	15.99	22.63	22.52	22.68	23.40	24.15	22.14	22.21	21.32	22.88	19.17	23.67
	Calibration Offset	-0.08	0.52	-0.03	0.05	-0.10	0.02	0.21	0.55	0.40	0.16	0.11	-0.03	0.04	2.17	0.46
12/18/2018	DTW measured (ft BTOC)	21.82	21.98	21.31	15.92	23.30	22.25	22.18	22.28	21.53	21.40	21.22	20.96	22.66	18.68	23.58
	DTW calculated (ft BTOC)	21.75	22.62	21.51	15.98	23.94	22.28	22.33	21.29	21.58	21.59	21.46	21.52	22.75	18.90	23.89
	Calibration Offset	-0.07	0.64	0.20	0.06	0.64	0.03	0.15	-0.99	0.05	0.19	0.24	0.56	0.09	0.22	0.31
1/9/2019	DTW measured (ft BTOC)	20.74	20.88	20.50	14.80	20.98	21.20	20.93	21.28	27.57	20.47	20.48	19.66	21.36	15.52	22.28
	DTW calculated (ft BTOC)	20.72	21.40	20.61	14.86	21.10	21.27	21.17	21.72	27.89	20.78	20.78	19.80	21.69	17.70	22.74
	Calibration Offset	-0.02	0.52	0.11	0.06	0.12	0.07	0.24	0.44	0.32	0.31	0.30	0.14	0.33	2.18	0.46

Table 3
Transducer Calibration Offsets
Premier Edible Oils
Portland, Oregon

Calibration Event	Measurement	MW-08	MW-11	MW-18	MW-21	MW-27	MW-28	MW-30	MW-32	MW-33	MW-34	MW-35	MW-36	MW-40	MW-41	MW-42
2/13/2019	DTW measured (ft BTOC)	20.66	20.69	20.63	14.18	21.04	20.52	20.71	21.53	24.65	20.60	20.47	19.72	21.48	15.01	22.33
	DTW calculated (ft BTOC)	20.64	21.20	20.80	14.27	21.21	20.57	20.94	21.98	24.94	21.32	20.90	19.92	21.69	17.45	22.78
	Calibration Offset	-0.02	0.51	0.17	0.09	0.17	0.05	0.23	0.45	0.29	0.72	0.43	0.20	0.21	2.44	0.45
3/11/2019	DTW measured (ft BTOC)	21.03	21.62	20.91	13.78	22.14	19.74	20.86	21.42	23.05	21.93	21.92	20.74	22.12	14.68	22.87
	DTW calculated (ft BTOC)	20.99	21.99	21.00	13.84	22.27	19.79	21.05	21.86	23.32	22.34	22.35	20.83	22.54	17.03	23.34
	Calibration Offset	-0.04	0.37	0.09	0.06	0.13	0.05	0.19	0.44	0.27	0.41	0.43	0.09	0.42	2.35	0.47
4/10/2019	DTW measured (ft BTOC)	19.21	17.75	15.56	14.09	14.88	17.14	18.80	16.92	23.41	16.94	14.66	14.03	15.34	14.65	16.39
	DTW calculated (ft BTOC)	19.19	18.27	15.70	14.16	14.97	17.22	18.97	17.34	23.84	17.26	15.00	14.21	15.70	16.83	16.83
	Calibration Offset	-0.02	0.52	0.14	0.07	0.09	0.08	0.17	0.42	0.43	0.32	0.34	0.18	0.36	2.18	0.44
5/8/2019	DTW measured (ft BTOC)	18.56	19.73	19.01	13.93	20.38	17.79	18.45	19.11	18.63	19.72	20.43	18.55	20.37	14.56	20.72
	DTW calculated (ft BTOC)	18.64	20.12	19.11	14.03	20.52	17.79	18.66	19.54	18.91	20.11	20.80	18.63	20.70	16.76	21.20
	Calibration Offset	0.08	0.39	0.10	0.10	0.14	0.00	0.21	0.43	0.28	0.39	0.37	0.08	0.33	2.20	0.48
6/6/2019	DTW measured (ft BTOC)	18.13	18.81	17.99	14.23	18.88	17.44	17.88	19.19	18.67	18.10	18.69	17.49	19.11	14.75	18.96
	DTW calculated (ft BTOC)	18.13	19.15	18.06	14.29	19.00	17.77	18.11	19.59	18.83	18.43	19.06	17.58	19.45	16.97	19.43
	Calibration Offset	0.00	0.34	0.07	0.06	0.12	0.33	0.23	0.40	0.16	0.33	0.37	0.09	0.34	2.22	0.47

Notes:
NAVD88 = North America Vertical Datum 1988
DTW = Depth to Water
BTOC = Below Top of Casing
** = Pressure Transducer stopped recording on 8/15/18 for a period of 30 days. Measurements started again on 9/13/18.*

Table 4
LNAPL Observations during Groundwater Sampling Event
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point ft-NAVD88	Date	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-02	Shallow	31.18	5/25/2018	-	-	ND	-	-
MW-02	Shallow	31.18	8/31/2018	-	-	0.90	0.15	-
MW-02	Shallow	31.18	12/17/2018	-	-	ND	-	-
MW-02	Shallow	31.18	3/17/2019	23.03	20.73	2.30	0.38	9.99
MW-02	Shallow	31.18	6/13/2019	18.83	18.81	0.02	0.003	12.37
MW-03	Shallow	31.67	8/31/2018	-	-	ND	-	-
MW-03	Shallow	31.67	12/18/2018	-	-	ND	-	-
MW-03	Shallow	31.67	3/18/2019	-	-	ND	-	-
MW-03	Shallow	31.67	6/11/2019	-	-	ND	-	-
MW-06	Shallow	31.23	8/31/2018	-	-	ND	-	-
MW-06	Shallow	31.23	12/18/2018	-	-	ND	-	-
MW-06	Shallow	31.23	3/13/2019	-	-	ND	-	-
MW-06	Shallow	31.23	6/11/2019	-	-	ND	-	-
MW-07	Shallow	30.31	12/18/2018	-	-	ND	-	-
MW-07	Shallow	30.31	3/13/2019	-	-	ND	-	-
MW-07	Shallow	30.31	6/6/2019	-	-	ND	-	-
MW-08	Shallow	30.93	8/31/2018	-	-	ND	-	-
MW-08	Shallow	30.93	12/17/2018	-	-	ND	-	-
MW-08	Shallow	30.93	3/13/2019	-	-	ND	-	-
MW-08	Shallow	30.93	6/12/2019	-	-	ND	-	-
MW-11	Shallow	31.06	5/25/2018	-	-	ND	-	-
MW-11	Shallow	31.06	8/31/2018	-	-	0.23	0.04	-
MW-11	Shallow	31.06	12/19/2018	21.98	21.95	0.03	0.005	9.10
MW-11	Shallow	31.06	3/13/2019	21.84	21.51	0.33	0.05	9.48
MW-11	Shallow	31.06	6/17/2019	19.57	19.56	0.01	0.00	11.50
MW-18	Shallow	30.87	5/24/2018	-	-	ND	-	-
MW-18	Shallow	30.87	12/18/2018	-	-	ND	-	-
MW-18	Shallow	30.87	3/13/2019	-	-	ND	-	-
MW-18	Shallow	30.87	6/12/2019	-	-	ND	-	-
MW-19	Shallow	31.70	8/31/2018	-	-	ND	-	-
MW-19	Shallow	31.70	12/18/2018	-	-	ND	-	-
MW-19	Shallow	31.70	3/18/2019	-	-	ND	-	-
MW-19	Shallow	31.70	6/11/2019	-	-	ND	-	-
MW-21	Shallow	31.36	8/31/2018	-	-	ND	-	-
MW-21	Shallow	31.36	12/14/2018	-	-	ND	-	-
MW-21	Shallow	31.36	3/18/2019	-	-	ND	-	-
MW-21	Shallow	31.36	6/11/2019	-	-	ND	-	-
MW-24A	Shallow	32.35	5/25/2018	-	-	ND	-	-
MW-24A	Shallow	32.35	12/20/2018	-	-	ND	-	-
MW-24A	Shallow	32.35	3/12/2019	-	-	ND	-	-
MW-24A	Shallow	32.35	6/10/2019	-	-	ND	-	-
MW-25	Shallow	31.78	8/31/2018	-	-	ND	-	-
MW-25	Shallow	31.78	12/14/2018	-	-	ND	-	-
MW-25	Shallow	31.78	3/18/2019			ND	-	-
MW-25	Shallow	31.78	6/18/2019	-	-	ND	-	-
MW-26	Deep	31.89	5/24/2018	-	-	ND	-	-
MW-26	Deep	31.89	8/29/2018	-	-	ND	-	-
MW-26	Deep	31.89	12/17/2018	-	-	ND	-	-
MW-26	Deep	31.89	3/14/2019			ND	-	-
MW-26	Deep	31.89	6/18/2019	-	-	ND	-	-
MW-27	Deep	31.46	5/24/2018	-	-	ND	-	-
MW-27	Deep	31.46	8/30/2018	-	-	ND	-	-
MW-27	Deep	31.46	12/13/2018	-	-	ND	-	-
MW-27	Deep	31.46	3/14/2019			ND	-	-
MW-27	Deep	31.46	6/18/2019	-	-	ND	-	-
MW-28	Shallow	31.26	8/31/2018	-	-	ND	-	-
MW-28	Shallow	31.26	12/12/2018	-	-	ND	-	-
MW-28	Shallow	31.26	3/14/2019			ND	-	-

Table 4
LNAPL Observations during Groundwater Sampling Event
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point ft-NAVD88	Date	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-28	Shallow	31.26	6/18/2019	-	-	ND	-	-
MW-29	Shallow	31.90	12/12/2018	-	-	ND	-	-
MW-29	Shallow	31.90	3/14/2019			ND	-	-
MW-29	Shallow	31.90	6/12/2019	-	-	ND	-	-
MW-30	Shallow	31.05	5/23/2018	-	-	ND	-	-
MW-30	Shallow	31.05	8/31/2018	-	-	ND	-	-
MW-30	Shallow	31.05	12/19/2018	-	-	ND	-	-
MW-30	Shallow	31.05	3/13/2019			ND	-	-
MW-30	Shallow	31.05	6/17/2019	-	-	ND	-	-
MW-31	Shallow	30.77	5/23/2018	-	-	ND	-	-
MW-31	Shallow	30.77	12/20/2018	-	-	ND	-	-
MW-31	Shallow	30.77	3/13/2019			ND	-	-
MW-31	Shallow	30.77	6/11/2019	-	-	ND	-	-
MW-32	Deep	31.08	5/24/2018	-	-	ND	-	-
MW-32	Deep	31.08	8/31/2018	-	-	ND	-	-
MW-32	Deep	31.08	12/19/2018	-	-	ND	-	-
MW-32	Deep	31.08	3/12/2019			ND	-	-
MW-32	Deep	31.08	6/10/2019	-	-	ND	-	-
MW-33	Deep	30.88	5/23/2018	-	-	ND	-	-
MW-33	Deep	30.88	12/21/2018	-	-	ND	-	-
MW-33	Deep	30.88	3/12/2019			ND	-	-
MW-33	Deep	30.88	6/11/2019	-	-	ND	-	-
MW-34	Shallow	30.72	5/24/2018	-	-	ND	-	-
MW-34	Shallow	30.72	8/31/2018	-	-	1.49	0.24	-
MW-34	Shallow	30.72	12/19/2018	-	-	ND	-	-
MW-34	Shallow	30.72	3/11/2019	22.20	21.83	0.37	0.06	8.82
MW-34	Shallow	30.72	6/17/2019	-	-	ND	-	-
MW-35	Deep	30.83	5/23/2018	-	-	ND	-	-
MW-35	Deep	30.83	8/31/2018	-	-	ND	-	-
MW-35	Deep	30.83	12/19/2018	-	-	ND	-	-
MW-35	Deep	30.83	3/13/2019			ND	-	-
MW-35	Deep	30.83	6/17/2019	-	-	ND	-	-
MW-36	Shallow	30.16	5/23/2018	-	-	ND	-	-
MW-36	Shallow	30.16	8/30/2018	-	-	ND	-	-
MW-36	Shallow	30.16	12/17/2018	-	-	ND	-	-
MW-36	Shallow	30.16	3/14/2019			ND	-	-
MW-36	Shallow	30.16	6/13/2019	-	-	ND	-	-
MW-37	Deep	31.27	5/24/2018	-	-	ND	-	-
MW-37	Deep	31.27	8/31/2018	-	-	ND	-	-
MW-37	Deep	31.27	12/17/2018	-	-	ND	-	-
MW-37	Deep	31.27	3/14/2019			ND	-	-
MW-37	Deep	31.27	6/12/2019	-	-	ND	-	-
MW-38	Shallow	31.54	5/25/2018	-	-	ND	-	-
MW-38	Shallow	31.54	8/31/2018	-	-	ND	-	-
MW-38	Shallow	31.54	12/17/2018	22.44	22.43	0.01	0.002	9.11
MW-38	Shallow	31.54	3/11/2019	20.90	20.80	0.10	0.02	10.72
MW-38	Shallow	31.54	6/12/2019	-	-	ND	-	-
MW-39	Shallow	31.08	5/25/2018	-	-	ND	-	-
MW-39	Shallow	31.08	8/29/2018	-	-	ND	-	-
MW-39	Shallow	31.08	12/14/2018	-	-	ND	-	-
MW-39	Shallow	31.08	3/14/2019	23.29	23.19	0.10	0.02	7.87
MW-39	Shallow	31.08	6/13/2019	19.86	19.82	0.04	0.01	11.25
MW-40	Deep	31.71	5/24/2018	-	-	ND	-	-
MW-40	Deep	31.71	12/13/2018	-	-	ND	-	-
MW-40	Deep	31.71	3/14/2019			ND	-	-
MW-40	Deep	31.71	6/18/2019	-	-	ND	-	-
MW-41	Shallow	31.32	5/25/2018	-	-	ND	-	-
MW-41	Shallow	31.32	12/13/2018	-	-	ND	-	-

Table 4
LNAPL Observations during Groundwater Sampling Event
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point ft-NAVD88	Date	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-41	Shallow	31.32	3/19/2019			ND	-	-
MW-41	Shallow	31.32	6/10/2019	-	-	ND	-	-
MW-42	Deep	31.94	5/25/2018	-	-	ND	-	-
MW-42	Deep	31.94	8/29/2018	-	-	ND	-	-
MW-42	Deep	31.94	12/13/2018	-	-	ND	-	-
MW-42	Deep	31.94	3/12/2019			ND	-	-
MW-42	Deep	31.94	6/10/2019	-	-	ND	-	-
MW-43	Shallow	31.39	5/24/2018	-	-	0.0*	-	-
MW-43	Shallow	31.39	12/12/2018	-	-	ND	-	-
MW-43	Shallow	31.39	3/11/2019	22.95	22.74	ND	-	-
MW-43	Shallow	31.39	6/13/2019	20.76	20.75	0.01	0.002	10.64

Notes:
** = LNAPL observed; thickness not measured*
– = not applicable
NAVD88 = North America Vertical Datum 1988
ND = Non-detect
Corrected groundwater water elevation (GWE) calculated as: $GWE_{corr} = GWE + (NAPL_{thickness} * SG)$
Specific Gravity (SG) of light nonaqueous phase liquid (LNAPL) assumed to be 0.8 based on analysis of LNAPL

Table 5
LNAPL Recovery Volumes
Premier Edible Oils
Portland, Oregon

Quarter	Date	MW-02 gal	MW-11 gal	MW-34 gal	MW-38 gal	MW-39 gal	MW-43 gal	Total gal
Q1 2018	3/6/2018	-	-	-	-	-	-	0.00
Q2 2018	6/14/2018	0.80	-	-	-	-	-	0.80
Q3 2018	8/31/2018	0.15	0.04	0.24	-	-	-	0.43
Q4 2018	12/17/2018	-	-	-	-	-	-	0.00
Q1 2019	3/15/2019	1.0*	0.04	0.06	0.02	0.02	0.03	1.18
Q2 2019	6/13/2019	-	-	-	-	-	-	0.00
Total Recovered		**0.95**	**0.08**	**0.30**	**0.02**	**0.02**	**0.03**	**2.41**

Notes:
– = not applicable
** = approximate value*

Table 6
Groundwater Field Parameters
Premier Edible Oils, 10400 N Burgard Way
Portland OR

Monitoring Well	Date	pH	Specific Conductance µS/cm	Temperature °C	ORP mV	Dissolved Oxygen mg/L	Turbidity NTU
MW-02	5/25/2018	6.57	449	15.63	-127.80	2.36	4.26
MW-02	8/31/2018	Not collected due to presence of LNAPL					
MW-02	12/17/2018	6.26	465	15.90	-91.80	0.24	0.11
MW-02	3/17/2019	Not collected due to presence of LNAPL					
MW-02	6/13/2019	Not collected due to presence of LNAPL					
MW-03	5/25/2017	6.97	0	10.85	87.50	7.15	2.50
MW-03	8/31/2018	Not collected due to presence of LNAPL					
MW-03	12/18/2018	6.19	102	14.89	162.60	3.97	13.15
MW-03	3/18/2019	6.31	105	15.41	93.1	3.61	4.28
MW-03	6/11/2019	6.52	110	16.17	175.60	3.16	1.14
MW-06	5/25/2017	6.65	0	11.13	84.70	3.20	30.40
MW-06	8/31/2018	--	--	--	--	--	--
MW-06	12/18/2018	6.05	136	14.69	55.60	0.35	1.75
MW-06	3/13/2019	6.13	175	16.12	85.0	0.67	5.68
MW-06	6/11/2019	6.33	146	17.31	-43.7	0.24	2.72
MW-07	6/6/2019	Dry					
MW-08	5/26/2017	6.58	0	--	-78.60	0.28	25.30
MW-08	8/31/2018	Not collected due to presence of LNAPL					
MW-08	12/18/2018	6.23	226	15.36	-45.70	0.15	1.76
MW-08	3/13/2019	6.32	212	16.17	-13.8	0.49	1.81
MW-08	6/12/2019	5.50	499	17.95	82.2	0.46	12.6
MW-11	5/25/2018	6.56	459	15.58	-117.00	0.80	3.11
MW-11	8/31/2018	Not collected due to presence of LNAPL					
MW-11	12/17/2018	Not collected due to presence of LNAPL					
MW-11	3/13/2019	Not collected due to presence of LNAPL					
MW-11	6/17/2019	Not collected due to presence of LNAPL					
MW-18	5/31/2017	6.38	0	11.64	-44.50	0.25	62.10
MW-18	5/24/2018	6.46	240	14.41	98.70	1.31	25.10
MW-18	9/4/2018	5.95	167	16.19	158.50	0.41	4.00
MW-18	12/19/2018	6.44	321	14.45	-47.80	0.17	9.39
MW-18	3/13/2019	6.09	304	15.23	65.0	0.61	5.56
MW-18	6/12/2019	5.96	195	16.24	83.3	0.50	6.63
MW-19	5/31/2017	7.17	--	--	107.80	3.10	3.90
MW-19	8/31/2018	--	--	--	--	--	--
MW-19	12/18/2018	6.39	174	15.15	109.10	0.30	3.08
MW-19	3/18/2019	6.48	160	16.09	106.4	0.96	4.02
MW-19	6/11/2019	6.63	129	15.56	228.9	3.00	1.34
MW-21	5/31/2017	7.03	--	--	115.10	2.18	9.40
MW-21	8/31/2018	--	--	--	--	--	--
MW-21	12/18/2018	6.19	77	15.28	148.90	1.83	4.97
MW-21	3/18/2019	6.33	80	15.96	135.3	3.02	0.76
MW-21	6/11/2019	6.44	61	16.08	196.6	1.28	0.42

Table 6
Groundwater Field Parameters
Premier Edible Oils, 10400 N Burgard Way
Portland OR

Monitoring Well	Date	pH	Specific Conductance µS/cm	Temperature °C	ORP mV	Dissolved Oxygen mg/L	Turbidity NTU
MW-24A	5/26/2017	6.17	146	15.19	29.10	1.39	2.18
MW-24A	5/25/2018	6.58	108	13.72	47.60	9.32	13.80
MW-24A	9/5/2018	5.83	161	16.23	173.90	3.57	233.00
MW-24A	12/14/2018	6.38	98	13.88	102.40	6.60	--
MW-24A	3/12/2019	6.35	72	13.19	199.0	5.36	--
MW-24A	6/10/2019	6.47	88	17.81	298.9	3.85	9.27
MW-25	5/26/2017	5.96	173	14.89	139.90	1.97	0.87
MW-25	8/31/2018	--	--	--	--	--	--
MW-25	12/20/2018	7.25	100	14.46	76.60	0.22	1.52
MW-25	3/18/2019	6.15	128	17.20	157.5	0.72	1.01
MW-25	6/18/2019	6.35	96	15.33	111.0	2.02	--
MW-26	5/26/2017	6.06	215	15.04	116.50	2.17	3.68
MW-26	5/24/2018	7.10	451	16.95	-123.50	0.29	47.40
MW-26	8/29/2018	6.54	455	17.61	-113.90	0.19	11.90
MW-26	12/14/2018	6.35	375	13.81	37.70	0.29	4.30
MW-26	3/14/2019	6.5	419	14.87	65.8	0.63	7.72
MW-26	6/18/2019	6.61	371	16.37	-54.0	0.30	--
MW-27	5/30/2017	6.47	658	15.17	-68.90	0.35	4.87
MW-27	5/30/2017	6.47	658	15.17	-68.90	0.35	4.87
MW-27	5/24/2018	6.69	515	17.57	-118.50	0.62	4.29
MW-27	8/30/2018	6.48	624	18.17	-90.50	0.23	8.56
MW-27	12/17/2018	6.37	577	15.38	-69.00	0.27	1.43
MW-27	3/14/2019	6.47	633	16.26	-5.5	0.49	5.38
MW-27	6/18/2019	6.56	522	17.31	-99.8	0.48	--
MW-28	6/1/2017	6.48	0	12.29	121.80	4.06	17.90
MW-28	8/31/2018	--	--	--	--	--	--
MW-28	12/13/2018	6.21	145	15.80	102.30	3.48	0.73
MW-28	3/14/2019	6.26	154	16.90	78.5	2.95	5.69
MW-28	6/18/2019	6.34	132	15.98	130.0	3.07	--
MW-29	6/1/2017	6.62	1	12.92	-123.70	0.21	28.10
MW-29	5/23/2018	6.76	509	18.02	-118.70	0.14	--
MW-29	9/5/2018	6.27	558	18.55	-84.60	0.23	38.30
MW-29	12/12/2018	6.12	423	15.21	-92.80	0.32	16.02
MW-29	3/14/2019	6.41	503	17.48	-5.8	0.37	3.67
MW-29	6/12/2019	6.27	260	19.46	-64.5	0.34	10.74
MW-30	5/31/2017	6.28	0	--	97.60	0.26	3.40
MW-30	5/23/2018	6.02	126	15.20	94.50	4.13	11.80
MW-30	8/31/2018	6.23	350	15.84	19.30	0.33	5.22
MW-30	12/12/2018	6.15	255	14.03	6.00	0.29	14.71
MW-30	3/13/2019	5.97	176	14.37	157.5	3.27	4.82
MW-30	6/17/2019	5.86	189	14.83	222.5	6.80	2.98
MW-31	5/31/2017	6.26	0	11.58	56.20	0.50	3.30
MW-31	5/24/2018	6.29	180	14.29	206.40	6.64	2.13
MW-31	9/4/2018	6.04	256	15.93	164.40	2.39	2.85
MW-31	12/19/2018	6.29	226	14.33	52.70	0.25	5.26
MW-31	3/13/2019	6.22	149	14.93	147.5	3.65	1.77

Table 6
Groundwater Field Parameters
Premier Edible Oils, 10400 N Burgard Way
Portland OR

Monitoring Well	Date	pH	Specific Conductance µS/cm	Temperature °C	ORP mV	Dissolved Oxygen mg/L	Turbidity NTU
MW-31	6/11/2019	6.25	102	14.78	205.4	2.95	3.13
MW-32	5/31/2017	11.79	--	--	-140.00	0.37	11.90
MW-32	5/23/2018	11.43	601	15.85	24.60	2.30	2.08
MW-32	8/31/2018	11.08	505	16.40	142.80	0.35	8.93
MW-32	12/20/2018	11.03	227	14.02	75.00	3.33	--
MW-32	3/12/2019	11.67	794	16.08	74.5	1.36	--
MW-32	6/10/2019	11.26	296	16.41	-34.8	4.06	--
MW-33	5/25/2017	12.29	4	13.77	-87.40	5.37	4.20
MW-33	5/24/2018	12.37	3487	15.99	-641.40	0.81	2.13
MW-33	9/4/2018	11.81	2179	18.33	76.60	0.67	7.11
MW-33	12/19/2018	12.23	2392	14.89	-22.00	0.24	13.22
MW-33	12/21/2018	12.39	2220	11.60	-26.30	0.86	9.10
MW-33	3/12/2019	12.08	1753	15.85	32.1	0.48	--
MW-33	6/11/2019	10.87	177	19.40	-26.6	2.68	31.2
MW-34	5/26/2017	6.40	0	13.53	-66.80	0.16	9.10
MW-34	5/23/2018	6.40	397	18.44	-68.70	0.20	--
MW-34	8/31/2018	Not collected due to presence of LNAPL					
MW-34	12/19/2018	6.19	517	16.14	39.40	0.29	3.66
MW-34	3/11/2019	Not collected due to presence of LNAPL					
MW-34	6/17/2019	6.12	470	33.08	-94.0	0.21	22.3
MW-35	5/30/2017	6.85	0	--	-138.60	0.04	30.10
MW-35	5/23/2018	6.53	357	18.35	-74.90	0.00	--
MW-35	8/31/2018	6.15	459	17.31	-22.50	0.29	2.76
MW-35	12/19/2018	6.14	488	15.80	115.00	0.29	9.21
MW-35	3/13/2019	6.39	447	17.73	-14.7	0.41	3.78
MW-35	6/17/2019	6.57	199	22.56	100.2	0.21	9.80
MW-36	5/30/2017	6.73	1	11.67	-83.80	0.21	91.40
MW-36	5/24/2018	6.68	471	17.08	-101.20	0.17	11.60
MW-36	8/30/2018	6.30	461	18.11	-84.50	0.17	6.54
MW-36	12/17/2018	6.25	459	15.79	-44.60	0.24	1.18
MW-36	3/14/2019	6.25	359	16.77	14.5	0.58	5.20
MW-36	6/13/2019	5.97	247	17.86	-49.9	0.34	8.91
MW-37	5/30/2017	12.20	2	13.37	-271.90	0.17	30.90
MW-37	5/25/2018	6.85	532	15.40	-34.90	0.58	4.76
MW-37	8/31/2018	6.78	469	17.66	-117.00	0.22	9.70
MW-37	12/17/2018	6.40	382	14.57	74.60	0.29	29.29
MW-37	3/14/2019	6.67	413	16.65	53.9	0.42	5.22
MW-37	6/12/2019	7.01	339	18.52	-138.8	0.16	26.4
MW-38	5/26/2017	6.05	410	16.44	-1.90	0.78	3.65
MW-38	5/25/2018	6.51	540	15.86	-59.10	0.73	2.57

Table 6
Groundwater Field Parameters
Premier Edible Oils, 10400 N Burgard Way
Portland OR

Monitoring Well	Date	pH	Specific Conductance µS/cm	Temperature °C	ORP mV	Dissolved Oxygen mg/L	Turbidity NTU
MW-38	8/31/2018	6.26	452	18.54	-69.10	0.17	3.28
MW-38	12/17/2018	Not collected due to presence of LNAPL					
MW-38	3/11/2019	Not collected due to presence of LNAPL					
MW-38	6/12/2019	6.26	314	19.84	-57.4	0.49	7.01
MW-39	5/26/2017	6.34	561	17.81	-80.80	0.60	7.59
MW-39	5/24/2018	6.68	472	17.08	-101.20	0.17	11.60
MW-39	8/29/2018	6.3	551	19.13	-100.5	0.25	7.87
MW-39	12/14/2018	6.23	553	14.91	-11.50	0.27	1.65
MW-39	3/14/2019	Not collected due to presence of LNAPL					
MW-39	6/13/2019	Not collected due to presence of LNAPL					
MW-40	5/26/2017	12.98	3.34	14.44	-61.8	1.61	4.84
MW-40	5/25/2018	6.78	233	15.30	22.20	0.47	11.03
MW-40	9/5/2018	6.49	271	17.15	-27.00	0.21	8.12
MW-40	12/13/2018	6.52	236	14.59	-87.00	0.29	4.53
MW-40	3/14/2019	6.45	251	16.27	92.0	0.38	2.36
MW-40	6/18/2019	6.73	233	15.83	0.28	-99	8.91
MW-41	5/25/2017	6.63	0	12.42	-108.20	0.13	17.60
MW-41	5/25/2018	6.56	107	14.48	70.60	6.41	78.70
MW-41	9/5/2018	6.13	126	16.42	58.90	0.48	7.46
MW-41	12/13/2018	6.28	134	14.94	-44.90	0.34	2.46
MW-41	3/19/2019	6.11	130	14.97	118.9	0.82	16.60
MW-41	6/10/2019	6.44	107	16.47	-4.2	0.35	3.20
MW-42	5/25/2017	12.60	6	14.17	-160.60	0.26	2.60
MW-42	5/24/2018	12.31	1935	15.55	-318.90	0.28	14.60
MW-42	8/29/2018	11.15	523	21.09	-13.20	3.07	22.10
MW-42	12/13/2018	10.34	141	12.90	83.50	0.28	7.28
MW-42	3/12/2019	10.75	146	14.34	103.0	0.80	--
MW-42	6/10/2019	10.39	120	17.53	-8.1	0.15	28.9
MW-43	5/26/2017	6.62	1	12.79	-150.20	0.16	312.00
MW-43	8/29/2018	6.16	564	19.40	-127.00	0.15	1.90
MW-43	12/12/2018	6.27	455	14.27	100.80	0.25	0.84
MW-43	3/11/2019	Not collected due to presence of LNAPL					
MW-43	6/13/2019	Not collected due to presence of LNAPL					

Notes:
-- = not analyzed
°C = degrees Celsius
mg/L = milligrams per liter
mV = millivolts
NTU = Nephelometric Turbidity Units
ORP = oxidation reduction potential, measured in millivolts (mV)
pH standard units
µS/cm = microsiemens per centimeter

Table 7
Groundwater Analytical Data - Petroleum Related Compounds
Premier Edible Oils, 10400 N Burgard Way
Portland OR

Method		SW8260C/SW8260C-SIM					NWTPH-Dx, SGT		NWTPH-Gx	NWEPH	NWVPH
Analyte		Benzene	Ethylbenzene	m,p-Xylenes	o-Xylene	Toluene	Motor Oil Range Organics (C24-C36)	TPH Diesel Range Organics	TPH-GRO (Gasoline Range Organics)	C10-C12-Aliphatics	C10-C12-Aliphatics
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		1.4	210	13	13	1,500	NS	1000	1000	2.6	2.6
Well	Sample Date										
MW-02	25-May-18	2.1	1.1	4.3	2.6	4.0	< 350	2,600	1,900 j	--	--
MW-02	17-Dec-18	5.2	1.7	8.2	4.2	5.9	3,500 J-	65,000 J-	3,000	280 J-	470
MW-03	25-May-17	< 0.025	< 0.030	< 0.050	< 0.060	< 0.025	< 81	< 310 U	< 50	< 49	< 50 U
MW-03	18-Dec-18	< 0.030	< 0.030	< 0.12	< 0.15	< 0.050	< 98	120	< 100	< 4.1 UJ	< 21
MW-03	18-Mar-19	< 0.016 UJ	< 0.011	< 0.011	< 0.010	< 0.20 UJ	< 93	< 63	< 100	< 5.7 UJ	< 21
MW-03	11-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 190	300 j	510	< 5.91	< 4.07
MW-06	25-May-17	< 0.025	0.038 j	< 0.050	< 0.060	0.053 j	85 j	< 400 U	< 50	< 3.0	< 50 U
MW-06	18-Dec-18	0.072 j	0.17 j	0.29 j	< 0.15	0.35	< 97	1,500 NJ	1,300 J+	63 J-	670
MW-06	18-Mar-19	0.057 J	0.085 J-	0.14 J+	0.077 J+	1.6 J-	< 95	1,700 NJ	2,200	< 5.7 UJ	630
MW-06	11-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	0.50 j	< 180	490	1,700 NJ	255	279
MW-08	26-May-17	0.081 j	0.064 j	0.12 j	0.12 j	0.090 j	88 j	< 1,500 U	770	19 j	44 j
MW-08	18-Dec-18	0.82	0.053 j	0.20 j	0.19 j	0.14 j	< 97	600	410	21 J-	< 21
MW-08	13-Mar-19	0.25	0.044 j	0.27 j	0.13 j	0.12 j	150 j	670 NJ	590	10 J-	57
MW-08	12-Jun-19	0.75 j	< 0.14	< 0.31	< 0.16	< 0.083	< 180	990	432 NJ	45.1	< 4.07
MW-11	25-May-18	22	2.5	17	6.0	12	880 J+	30,000 J+	2,700	--	--
MW-18	31-May-17	0.11 j	< 0.030	0.059 j	0.094 j	0.20	< 80	430	88 j	< 3.0	< 50 U
MW-18	24-May-18	< 0.20	< 0.20	< 0.50	< 0.50	0.077 j	< 360	< 110	< 250	--	< 50
MW-18	4-Sep-18	0.041 j	0.15 j	0.69	0.28 j	0.27	< 97	820	320	--	130
MW-18	19-Dec-18	0.39	< 0.030	< 0.12	< 0.15	0.057 j	480	1,300	180 j	4.3 J-	< 21
MW-18	13-Mar-19	0.087 j	0.052 j	0.30 j	0.24 j	0.18 j	< 96	550	380	< 6.0 UJ	66
MW-18	12-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 180	500	363	< 5.87	< 4.07
MW-18 - Dup	4-Sep-18	0.047 j	0.15 j	0.79	0.31 j	0.28	< 97	770 NJ	430	--	120
MW-19	31-May-17	< 0.025	< 0.030	< 0.050	< 0.060	0.042 j	< 79	46 j	< 50	< 3.1	< 6.1
MW-19	18-Dec-18	< 0.030	< 0.030	< 0.12	< 0.15	< 0.050	160 j	470	< 100	< 4.2 UJ	< 21
MW-19	18-Mar-19	< 0.016 UJ	< 0.011	< 0.011	< 0.010	< 0.20 UJ	< 97	< 65	< 100	< 5.7 UJ	< 21
MW-19	11-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 190	75 j	301	31.0	< 4.07
MW-21	31-May-17	< 0.025	< 0.030	< 0.050	< 0.060	< 0.025	< 79	34 j	< 50	< 3.4	< 6.1
MW-21	18-Dec-18	< 0.030	< 0.030	< 0.12	< 0.15	< 0.050	< 98	< 66	< 100	4.1 J-	< 21
MW-21	18-Mar-19	< 0.016 UJ	< 0.011	< 0.011	< 0.010	< 0.20 UJ	< 95	< 64	< 100	--	< 21
MW-21	11-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 190	200 j	366	< 5.89	< 4.07
MW-24A	26-May-17	< 0.025	0.031 j	< 0.050	< 0.060	0.036 j	< 79	< 220 U	< 50	< 3.0	< 6.1
MW-24A	25-May-18	< 0.20	< 0.20	< 0.50	< 0.50	0.063 j	< 360	< 110	< 250	--	--
MW-24A	5-Sep-18	< 0.030	< 0.030	< 0.12	< 0.15	< 0.050	< 98	< 66	< 70	--	--
MW-24A	14-Dec-18	< 0.030	< 0.030	< 0.12	< 0.15	0.12 j	< 100	< 69	< 100	--	--
MW-24A	12-Mar-19	0.10 J-	0.019 J-	0.030 J-	0.014 J-	0.074 J-	660	2,200 NJ	740	180 J-	< 21
MW-24A	10-Jun-19	0.71 j	< 0.14	< 0.31	< 0.16	0.38 j	190 j	870	2,040 NJ	< 5.91	132
MW-25	26-May-17	< 0.025	< 0.030	< 0.050	< 0.060	< 0.025	< 78	< 300 U	< 50	< 3.0	< 6.1
MW-25	20-Dec-18	< 0.030	< 0.030	< 0.12	< 0.15	< 0.050	< 98	< 66	< 100	< 4.1 UJ	< 21
MW-25	18-Mar-19	0.56 J	< 0.011 UJ	0.57 J-	0.13 J	0.39 J-	< 100	< 68	130 j	< 5.8 UJ	< 21
MW-25*	13-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 190	< 58	< 38.3	< 5.83	< 4.07
MW-26	26-May-17	< 0.025	0.030 j	< 0.050	< 0.060	0.025 j	< 79	< 120 U	< 50	< 3.0	< 50 U
MW-26	24-May-18	29	2.1	20	6.8	16	< 350	520 NJ	2,200 J+	--	110 J+
MW-26	29-Aug-18	31	3.2	23	8.7	18	< 98	1,800 NJ	2,300	--	350
MW-26	14-Dec-18	31	3.2	26	11	19	< 99	1,100	2,000	< 4.2 UJ	370
MW-26	14-Mar-19	29 J-	3.4 J-	25 J-	10 J-	20 J-	< 95	1,100 NJ	130 J-	< 5.9 UJ	460
MW-26*	13-Jun-19	25.2	2.9	13.6	9.1	18.4	< 190	870	2,240 NJ	234 J-	172
MW-27	30-May-17	43	4.7	24	11	29	430	6,700	3,000 J+	18 J+	88 J+
MW-27	24-May-18	18	1.5	9.7	4.3	11	< 350	1,300 NJ	1,800 J+	--	120
MW-27	30-Aug-18	17	1.4	4.7	4.6	4.2	98 J+	4,600 NJ	1,300	--	370
MW-27	17-Dec-18	22	1.4	4.9	4.2	3.7	1,500	6,400	2,100	64 J-	380
MW-27	14-Mar-19	22	1.6	3.6	2.7	2.9	< 94	2,400	160 J-	< 5.8 UJ	480
MW-27 - Dup	30-May-17	46	4.8	24	11	30	430	6,700	3,000 J+	23 J+	95 J+

Table 7
Groundwater Analytical Data - Petroleum Related Compounds
Premier Edible Oils, 10400 N Burgard Way
Portland OR

	Method	SW8260C/SW8260C-SIM					NWTPH-Dx, SGT		NWTPH-Gx	NWEPH	NWVPH
	Analyte	Benzene	Ethylbenzene	m,p-Xylenes	o-Xylene	Toluene	Motor Oil Range Organics (C24-C36)	TPH Diesel Range Organics	TPH-GRO (Gasoline Range Organics)	C10-C12-Aliphatics	C10-C12-Aliphatics
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW-27 - Dup	17-Dec-18	21	1.4	5.0	4.2	3.8	2,300	7,400	2,200	51 J-	380
MW-27*	13-Jun-19	28.9	1.2	5.2	3.2	5.3	< 180	1,500	2,680 NJ	76.9	247
MW-28	1-Jun-17	< 0.025	< 0.030	< 0.050	< 0.060	0.050 j	< 79	24 j	< 50	< 3.2	< 50 U
MW-28	13-Dec-18	< 0.030	< 0.030	< 0.12	< 0.15	< 0.050	< 98	< 66	< 100	< 4.1 UJ	< 21
MW-28	14-Mar-19	0.045 j	0.020 j	0.090 j	0.046 j	< 0.20 U	< 98	< 67	24,000 J-	< 5.8 UJ	< 21
MW-28*	13-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 180	< 56	< 38.3	< 5.91	< 4.07
MW-29	1-Jun-17	2.3	2.3	10	1.1	4.2	< 79	2,400 NJ	3,700 J+	29 J+	130 J+
MW-29	23-May-18	9.0	2.7	15	1.9	8.3	< 98	1,200	2,600 J+	--	--
MW-29	5-Sep-18	1.2	2.7	11	1.1	4.4	200 j	2,700 NJ	2,200	--	--
MW-29	12-Dec-18	2.4	3.9	19	1.6	4.6	210 j	3,700	3,800 J+	65 J-	--
MW-29	14-Mar-19	0.85	2.8	11	1.3	3.7	< 95	2,500 NJ	1,700 J-	9.6 J-	800
MW-29	12-Jun-19	0.86 j	1.6	9.2	1.1	2.9	< 180	3,800	4,290 NJ	150 J+	449
MW-30	31-May-17	< 0.025	< 0.030	< 0.050	< 0.060	0.037 j	< 80	110	< 50	< 3.1	< 6.1
MW-30	23-May-18	0.040 j	< 0.030	< 0.12	< 0.15	0.12 j	< 97	< 66	< 100	--	--
MW-30	31-Aug-18	0.44	< 0.030	0.13 j	0.15 j	< 0.050	140 j	1,300	< 70	--	--
MW-30	12-Dec-18	0.14 j	< 0.030	< 0.12	< 0.15	< 0.050	220 j	1,100	180 j	< 4.1 UJ	< 21
MW-30	13-Mar-19	< 0.016 UJ	< 0.011	< 0.011	< 0.010	< 0.0070	< 94	< 64	< 100	< 5.9 UJ	< 21
MW-30	17-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 190	88 j	66.6 j	< 5.85	< 4.07
MW-31	31-May-17	0.064 j	0.032 j	< 0.050	< 0.060	0.072 j	< 80	110	< 50	< 3.1	< 6.1
MW-31	24-May-18	< 0.20	< 0.20	< 0.50	< 0.50	0.080 j	< 360	< 110	< 250	--	< 50
MW-31	4-Sep-18	0.042 j	< 0.030	< 0.12	< 0.15	< 0.050	< 97	150	< 70	--	< 21
MW-31	19-Dec-18	0.24	< 0.030	< 0.12	< 0.15	< 0.050	380	770	< 100	< 4.1 UJ	< 21
MW-31	13-Mar-19	< 0.016	< 0.011	< 0.011	< 0.010	< 0.0070	< 100	< 71	< 100	< 6.5 UJ	< 21
MW-31	11-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 190	340 j	418	< 5.89	< 4.07
MW-32	31-May-17	0.96	0.080 j	0.80	0.11 j	0.28	< 79	320	300 j	4.9 j	< 50 U
MW-32	23-May-18	0.14 j	0.060 j	0.31 j	0.18 j	22	< 100	130	200 j	--	--
MW-32	31-Aug-18	0.35	0.062 j	0.60	0.15 j	10	< 99	530	220	--	--
MW-32	20-Dec-18	0.45	0.063 j	< 12	< 0.15	5.0	140 j	1,000	300	22 J-	42 j
MW-32	12-Mar-19	0.69 J-	0.052 J-	0.77 J-	0.10 J-	0.50 J-	1,500	4,800 NJ	1,200 J-	170 J-	180
MW-32	10-Jun-19	0.61 j	< 0.14	0.56 j	< 0.16	1.1	210 j	1,400	1,250 NJ	< 5.88	< 4.07
MW-33	25-May-17	0.18 j	0.17 j	1.5	0.40 j	0.58	110 j	< 970 U	640	< 3.1	32 J+
MW-33	24-May-18	0.18 j	0.12 j	1.1	0.30 j	2.5	< 360	420	390	--	48 j
MW-33	4-Sep-18	0.12 j	0.065 j	0.56	0.17 j	4.0	130 j	1,100	590 NJ	--	380
MW-33	19-Dec-18	0.18 j	0.069 j	0.35 j	< 0.15	1.9	320 j	2,100	730	< 4.2 UJ	190
MW-33	12-Mar-19	0.43 J-	0.087 J-	0.45 J-	0.11 J-	1.0 J-	1,000	3,400 NJ	1,200	450 J-	130
MW-33	11-Jun-19	0.33 j	0.18 j	1.5 j	0.23 j	0.64 j	400 j	2,000	1,160 NJ	33.1	41.8
MW-34	26-May-17	11	0.78	3.9	4.1	5.5	110 j	1,400	1,200 J+	8.3 j	42 J+
MW-34	23-May-18	17	1.4	2.7	4.4	2.7	< 98	1,400	1,700	--	--
MW-34	19-Dec-18	23	3.6	2.8	2.5	0.99	2,000	6,900	2,200	98 J-	370
MW-34	17-Jun-19	0.56 j	< 0.14	0.33 j	0.41 j	< 0.083	250 j	9,400	1,490 NJ	22.5 J-	337
MW-34 - Dup	23-May-18	17	1.4	2.7	4.5	2.7	< 98	2,600	1,700	--	--
MW-35	30-May-17	44	5.5	30	15	31	620	6,700	3,000 J+	25 J+	100 J+
MW-35	23-May-18	40	1.3	4.6	6.8	12	< 98	1,200	1,800	--	--
MW-35	31-Aug-18	24	0.44	4.4	6.2	4.7	210 j	3,000	1,600	--	--
MW-35	19-Dec-18	38	0.74	4.1	5.5	6.2	640 J+	4,200 J+	2,200	36 J-	420
MW-35	13-Mar-19	57 J-	0.90	6.1	6.9	10	< 94	1,200 NJ	2,200	< 6.0 UJ	440
MW-35	17-Jun-19	1.4	< 0.14	< 0.31	< 0.16	0.28 j	< 190	960	587 NJ	22.4	< 4.07
MW-35 - Dup	30-May-17	45	5.2	29	14	32	340	5,200	3,000 J+	12 J+	85 J+
MW-35 - Dup	31-Aug-18	24	0.45	4.5	6.3	4.8	160 j	3,300	1,700	--	
MW-35 - Dup	13-Mar-19	61 J-	0.87	6.0	6.3	9.9	< 93	1,200 NJ	2,100	< 5.9 UJ	450 J+
MW-35 - Dup	17-Jun-19	1.5	< 0.14	< 0.31	0.17 j	< 0.083	< 190	270 j	602	< 5.83	< 4.07
MW-36	30-May-17	9.1	0.50	3.1	2.0	3.0	170 j	1,900	1,200 J+	13 j	53 J+
MW-36	24-May-18	2.0	0.38	0.96	1.1	1.2	< 360	1,200	810	--	60
MW-36	30-Aug-18	12	2.5	12	4.3	11	< 97	3,200 NJ	1,100	--	280 J+
MW-36	17-Dec-18	30	4.2	23	10	23	630	5,000	2,100	91 J-	320
MW-36	14-Mar-19	9.2	1.6	8.2	3.1	8.9	< 94	1,500	4,000 J	6.3 J-	300
MW-36 - Dup	30-May-17	9.1	0.51	3.1	2.1	2.9	180 j	1,900	1,300	33 j	46 J+
MW-36 - Dup	24-May-18	2.0	0.37	1.0	1.2	1.2	< 360	1,100 NJ	780	--	65
MW-36 - Dup	14-Mar-19	8.8	1.5	7.5	2.8	7.1	< 95	2,000	2,100 J-	< 5.8 UJ	300
MW-36 - Dup*	13-Jun-19	3.1	0.48 j	2.9	1.7	2.3	< 180	2,900	1,820 NJ	92.7 J-	130
MW-36*	13-Jun-19	3.1	0.39 j	2.9	1.7	2.3	< 180	3,500	1,900 NJ	114	142
MW-37	30-May-17	14	1.7	15	4.2	11	< 79	1,200	2,000 J+	7.2 J+	79 J+

Table 7
Groundwater Analytical Data - Petroleum Related Compounds
Premier Edible Oils, 10400 N Burgard Way
Portland OR

	Method	SW8260C/SW8260C-SIM					NWTPH-Dx, SGT		NWTPH-Gx	NWEPH	NWVPH
	Analyte	Benzene	Ethylbenzene	m,p-Xylenes	o-Xylene	Toluene	Motor Oil Range Organics (C24-C36)	TPH Diesel Range Organics	TPH-GRO (Gasoline Range Organics)	C10-C12-Aliphatics	C10-C12-Aliphatics
	Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW-37	25-May-18	15	2.0	14	5.3	12	< 360	1,400	1,800 j	--	--
MW-37	31-Aug-18	20	2.8	18	7.5	15	< 98	1,500	2,000	--	--
MW-37	17-Dec-18	14	2.5	18	7.0	11	330 j	2,500	1,800 J+	< 4.2 UJ	390
MW-37	14-Mar-19	13	2.1	15	6.6	11	< 100	900 NJ	1,700 J-	< 5.8 UJ	450
MW-37	12-Jun-19	12.4	2.1	14.1	6.2	10.8	230 j	1,400	2,900 NJ	75.0	358
MW-38	26-May-17	37	2.6	17	6.3	14	610	6,900	2,500 J+	16 J+	89 J+
MW-38	25-May-18	83	4.3	32	9.0	29	< 350	2,600	2,900	--	--
MW-38	31-Aug-18	26	2.2	15	5.2	11	160 j	3,700	2,100	--	--
MW-38	12-Jun-19	11.4	1.3	7.1	4.0	8.0	< 180	3,500	4,020 NJ	64.7	534
MW-39	26-May-17	21	5.9	20	9.7	17	610	7,500	3,000 J+	68	110 J
MW-39	24-May-18	22	2.9	20	8.3	14	< 360	2,900 NJ	2,600 J+	--	160 J+
MW-39	29-Aug-18	30	7.9	35	13	21	< 97	4,900 NJ	2,700	--	560 J+
MW-39	14-Dec-18	60	9.7	39	15	32	230 j	4,200	3,200	110 J-	500
MW-40	26-May-17	< 0.025	0.034 j	< 0.050	< 0.060	0.046 j	< 79	< 230 U	< 50	< 3.0	< 50 U
MW-40	25-May-18	< 0.20	< 0.20	< 0.50	< 0.50	0.076 j	< 360	< 110	< 250	--	--
MW-40	5-Sep-18	< 0.030	< 0.030	< 0.12	< 0.15	0.068 j	< 98	< 66	120 NJ	--	--
MW-40	13-Dec-18	< 0.030	< 0.030	< 0.12	< 0.15	0.083 j	< 98	< 67	< 100	< 4.1 UJ	< 21
MW-40	18-Mar-19	0.028 J	< 0.011 UJ	< 0.50 UJ	< 0.010 UJ	< 0.2 UJ	< 94	< 64	< 100	< 5.8 UJ	< 21
MW-40*	13-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 190	71 j	< 100 U	80.6	< 4.07
MW-41	25-May-17	< 0.025	< 0.030	< 0.050	< 0.060	0.047 j	91 j	< 280 U	< 50	< 3.2	< 6.1
MW-41	25-May-18	< 0.20	< 0.20	< 0.50	< 0.50	0.061 j	< 360	< 110	< 250	--	--
MW-41	5-Sep-18	< 0.030	< 0.030	< 0.12	< 0.15	< 0.050	< 97	< 66	< 70	--	--
MW-41	13-Dec-18	< 0.030	< 0.030	< 0.12	< 0.15	< 0.050	< 98	< 66	< 100	< 4.1 UJ	--
MW-41	19-Mar-19	< 0.016	< 0.011	< 0.011	< 0.010	< 0.0070	< 94	< 64	< 100	< 5.8 UJ	< 21
MW-41	10-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 180	< 54	210	< 5.92	< 4.07
MW-42	25-May-17	< 0.025	< 0.030	< 0.050	< 0.060	0.050 j	< 80	< 220 U	< 50	< 3.0	< 6.1
MW-42	24-May-18	0.23	0.047 j	0.19 j	0.15 j	0.86	< 360	< 110	120 j	--	< 50
MW-42	29-Aug-18	0.12 j	< 0.030	< 0.12	< 0.15	< 0.050	--	--	< 70	--	< 50 U
MW-42	30-Aug-18	0.13 j	< 0.030	0.12 j	< 0.15	0.12 j	< 98	< 66	< 70	--	< 21
MW-42	13-Dec-18	0.067 j	< 0.030	< 0.12	< 0.15	0.16 j	< 100	170	< 100	< 4.3 UJ	--
MW-42	12-Mar-19	0.38 J-	0.054 J-	0.15 J-	0.049 J-	0.33 J-	1,900	5,400 NJ	1,200	340 J-	32 j
MW-42	10-Jun-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	310 j	1,100	503	23.7	< 4.07
MW-43	26-May-17	6.5	3.1	16	2.5	6.7	220 j	5,000	2,800 J+	13 J+	100 J+
MW-43	29-Aug-18	6.8	4.4	18	2.6	7.9	140 j	5,100 NJ	2,200	--	520
MW-43	12-Dec-18	27	14	55	4.3	34	160 j	2,700	3,300 J+	310 J-	--
MW-43 - Dup	12-Dec-18	28	14	54	4.5	36	< 97	710	3,400 J+	25 J-	--

Notes:
< = Compound not detected. Reportable detection limit shown.
-- = not analyzed
µg/L = micrograms per liter
GW SCM = Groundwater Source Control Measure
NS = No Standard for GW SCM Performation Evaluation
Dup = Field Duplicate Sample
Bolded values indicate concentrations above the Reportable Detection Limit.
Shaded values indicate concentrations above the GW SCM Performance Evaluation Criteria.
**= Select analytes resampled 17-18 June.*

Qualifiers - Organics
j = The result is an estimated concentration, detected between the Method Detection Limit and the Reporting Limit.
J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits
NJ = Evidence of the compound at an estimated quantity.
UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.
U = Analyte was analuzed for, but not detected.

Table 8
Groundwater Analytical Data - Semi-volatile Organic Compounds and Metals
Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

Method		SW6020A		SW8270D-SIM						SW8270D-SIM								SW8270D-SIM				Calculated
Analyte		Arsenic	Manganese	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ (ND=0)
Unit		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		2.1	1,925	NS	NS	99	NS	4,000	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	14	530	0.0018	12	NS	400	0.0018
Well	Sample Date																					
MW-02	25-May-18	31	2,700	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-02	17-Dec-18	40	3,300 J+	5.3	1.0	11	6.9	2.8	0.29	0.14	0.12	0.074	0.049 j	0.40	0.012 j	0.85 j	17	0.079	1.9	23	1.5	0.20
MW-03	25-May-17	0.44 j	1.4 j	< 0.0062	< 0.0093	< 0.0021 UJ	< 0.0021	0.0050 j	< 0.021 U	< 0.0031	< 0.0083	< 0.0031	< 0.0093	< 0.0062	< 0.0021	< 0.0021	< 0.0031	< 0.0073	0.020 J-	< 0.021 U	< 0.0041	< 0.021 U
MW-03	18-Dec-18	0.21 j	1.4 J+	< 0.019	< 0.040	< 0.014	< 0.0092	< 0.022	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.010	< 0.051	< 0.017	< 0.014	< 0.032	< 0.032	< 0.034	< 0.016 U
MW-03	18-Mar-19	0.32 j	2.3	< 0.019	< 0.040	< 0.014	0.0096 j	< 0.022	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.010	< 0.051	< 0.017	< 0.014	< 0.032	< 0.032	< 0.034	< 0.016 U
MW-03	11-Jun-19	0.30 j	6.5	0.040 j	0.026 j	< 0.0033	< 0.0048	< 0.0064	< 0.018	< 0.0041	< 0.0050	< 0.010	< 0.011	< 0.0095	< 0.0095	< 0.019	< 0.0061	< 0.0052	< 0.0070	< 0.011	< 0.015	< 0.018
MW-06	25-May-17	1.6	43	< 0.0062	< 0.0093	< 0.0021 UJ	< 0.0021	< 0.0031	< 0.0021	< 0.0031	< 0.0083	< 0.0031	< 0.0093	< 0.0062	< 0.0021	< 0.0021	< 0.0031	< 0.0073	< 0.013 UJ	< 0.0041	< 0.0041	< 0.0093 U
MW-06	18-Dec-18	8.5	460 J+	11	1.1	1.0	0.41	0.20	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.010	0.059 j	2.8	< 0.014	3.0	1.2	0.043 j	< 0.016 U
MW-06	18-Mar-19	5.8	580	16	13	1.5 J-	0.52 J-	0.26 J-	0.014 J-	< 0.011 UJ	< 0.011 UJ	< 0.012 UJ	< 0.012 UJ	< 0.015 UJ	< 0.0096 UJ	< 0.048 UJ	3.0 J-	< 0.014 UJ	3.4 J-	1.3 J-	< 0.032 UJ	0.014
MW-06	11-Jun-19	5.5	392	13.1	9.7	1.0	0.32	0.12	< 0.018	< 0.0041	< 0.0049	< 0.010	< 0.011	< 0.0094	< 0.0094	0.043	2.4	< 0.0051	2.1	1.6	0.052	< 0.018
MW-08	26-May-17	7.8	1,800	3.1	< 0.0094	1.3 J-	0.28	0.051	< 0.0021	< 0.0031	< 0.0084	< 0.0031	< 0.0094	< 0.0063	< 0.0021	0.038	1.3	< 0.0073	0.47 J-	< 0.0042	0.048	< 0.0094 U
MW-08	18-Dec-18	11	810 J+	0.14	< 0.039	0.48	0.083	0.13	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.010	0.059 j	0.71	< 0.014	0.25	< 0.031	0.074 j	< 0.016 U
MW-08	13-Mar-19	6.8	670	0.12	< 0.040	0.98	0.13	0.074 j	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.010	< 0.051	1.3	< 0.014	0.47	< 0.032	0.056 j	< 0.016 U
MW-08	12-Jun-19	1.9	2,830	< 0.0056	0.069	0.31	< 0.0047	< 0.0063	< 0.018	< 0.0041	< 0.0049	< 0.010	< 0.011	< 0.0094	< 0.0094	< 0.019	0.20	< 0.0051	0.38	< 0.011	0.11	< 0.018
MW-11	25-May-18	33	2,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-18	31-May-17	2.0	920	< 0.0062	< 0.0093	0.039	0.023	0.015 j	< 0.0021	< 0.0031	< 0.0082	< 0.0031	< 0.0093	< 0.0062	< 0.0021	< 0.0021	0.023	< 0.0072	0.058	0.012 j	0.013 j	< 0.0093 U
MW-18	24-May-18	0.55 j	110	< 0.020	< 0.031	< 0.020	< 0.020	0.0035 j	0.0034 j	< 0.020	< 0.020	< 0.020	< 0.031	< 0.020	< 0.020	0.0036 j	0.0036 j	< 0.020	< 0.041	0.0051 j	0.0059 j	0.00034
MW-18	4-Sep-18	1.1	710 J+	1.0	0.15 j	0.49	0.16	0.056 j	0.014 j	0.014 j	< 0.011	< 0.012	< 0.012	0.022 j	< 0.010	< 0.050	0.52	< 0.014	0.14	0.13	0.099 j	0.015
MW-18	19-Dec-18	1.2	1,100 J+	< 0.019	< 0.040	0.051 j	< 0.0091	< 0.022	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.010	< 0.051	0.062 j	< 0.014	< 0.031	< 0.031	< 0.033	< 0.016 U
MW-18	13-Mar-19	0.70 j	1,300	0.27	< 0.040	0.28	0.040 j	< 0.023	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.010	< 0.051	0.17	< 0.014	0.14	< 0.032	< 0.034	< 0.016 U
MW-18	12-Jun-19	0.53	540	< 0.0057	< 0.016	< 0.0033	< 0.0048	< 0.0064	< 0.018	< 0.0041	< 0.0050	< 0.010	< 0.011	< 0.0095	< 0.0095	< 0.019	< 0.0061	< 0.0052	0.23	< 0.011	< 0.015	< 0.018
MW-18 - Dup	4-Sep-18	1.1	760 J+	0.84	< 0.040	0.49	0.13	0.080 j	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.010	< 0.051	0.56	< 0.014	0.84	0.26	< 0.033	< 0.016 U
MW-19	31-May-17	0.49 j	31	< 0.0062	< 0.0093	< 0.0021	< 0.0021	< 0.0031	< 0.021 U	< 0.0031	< 0.0083	< 0.0031	< 0.0093	< 0.0062	< 0.0021	< 0.0021	< 0.0031	< 0.0072	< 0.013	< 0.0041	< 0.0041	< 0.021 U
MW-19	18-Dec-18	0.21 j	970 J+	< 0.019	< 0.039	< 0.014	< 0.0091	< 0.022	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.010	< 0.051	< 0.017	< 0.014	< 0.031	< 0.031	< 0.033	< 0.016 U
MW-19	18-Mar-19	0.27 j	1,900	0.044 j	0.042 j	0.015 j	< 0.0089	< 0.022	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.0099	< 0.050	0.019 j	< 0.014	< 0.031	< 0.031	< 0.033	< 0.016 U
MW-19	11-Jun-19	0.27 j	17.5	< 0.0056	< 0.016	< 0.0032	< 0.0047	< 0.0062	< 0.018	< 0.0041	< 0.0049	< 0.0099	< 0.011	< 0.0093	< 0.0093	< 0.018	< 0.0060	< 0.0051	< 0.0069	< 0.011	< 0.015	< 0.018
MW-21	31-May-17	0.80 j	32	< 0.0061	< 0.0092	< 0.0020	< 0.0020	0.0033 j	< 0.0020	< 0.0031	< 0.0082	< 0.0031	< 0.0092	< 0.0061	< 0.0020	< 0.0020	< 0.0031	< 0.0071	< 0.013	< 0.020 U	< 0.0041	< 0.0092 U
MW-21	18-Dec-18	0.41 j	70 J+	< 0.019	< 0.039	< 0.014	< 0.0091	< 0.022	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.010	< 0.051	< 0.017	< 0.014	< 0.031	< 0.031	< 0.033	< 0.016 U
MW-21	18-Mar-19	0.30 j	4.3	< 0.019	< 0.039	< 0.014	< 0.0090	< 0.022	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.010	< 0.050	< 0.017	< 0.014	< 0.031	< 0.031	< 0.033	< 0.016 U
MW-21	11-Jun-19	0.20 j	3.6	< 0.0056	< 0.016	< 0.0033	< 0.0047	< 0.0063	< 0.018	< 0.0041	< 0.0049	< 0.010	< 0.011	< 0.0094	< 0.0094	< 0.019	< 0.0061	< 0.0051	< 0.0069	< 0.011	< 0.015	< 0.018
MW-24A	26-May-17	0.78 j	330	< 0.0061	< 0.0091	< 0.0020 UJ	< 0.0020	< 0.0030	< 0.020 U	< 0.0030	< 0.0081	< 0.0030	< 0.0091	< 0.0061	< 0.0020	< 0.0020	< 0.0030	< 0.0071	0.014 J-	< 0.0041	< 0.0041	< 0.02 U
MW-24A	25-May-18	< 5.0	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-24A	5-Sep-18	0.65 j	540 J+	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-24A	12-Mar-19	0.27 j	2.8	0.024 j	0.057 j	< 0.014	0.0094 j	< 0.022	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.0098	< 0.049	< 0.017	< 0.014	< 0.030	< 0.030	< 0.032	< 0.016 U
MW-24A	10-Jun-19	0.23 j	16.6	< 0.0056	< 0.016	< 0.0033	< 0.0047	< 0.0063	< 0.018	< 0.0041	< 0.0049	< 0.010	< 0.011	< 0.0094	< 0.0094	< 0.019	< 0.0061	< 0.0051	0.010 j	< 0.011	< 0.015	< 0.018
MW-25	26-May-17	0.37 j	< 0.46	< 0.0061	< 0.0091	< 0.0020 UJ	< 0.0020	< 0.0030	< 0.020 U	< 0.0030	< 0.0081	< 0.0030	< 0.0091	< 0.0061	< 0.0020	< 0.0020	< 0.0030	< 0.0071	0.017 J-	< 0.0041	< 0.0041	< 0.02 U
MW-25	20-Dec-18	0.30 j	2.3 J+	< 0.019	< 0.040	< 0.014	< 0.0092	< 0.022	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.010	< 0.051	< 0.017	< 0.014	< 0.032	< 0.032	< 0.034	< 0.016 U
MW-25	18-Mar-19	0.34 j	65	< 0.019	< 0.040	< 0.014	< 0.0092	< 0.022	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.010	< 0.051	< 0.017	< 0.014	< 0.032	< 0.032	< 0.034	< 0.016 U
MW-25	13-Jun-19	0.19 j	2.0	< 0.0056	< 0.016	< 0.0032	< 0.0047	< 0.0062	< 0.018	< 0.0041	< 0.0049	< 0.0099	< 0.011	< 0.0093	< 0.0093	< 0.018	< 0.0060	< 0.0051	< 0.0069	< 0.011	< 0.015	< 0.018
MW-26	26-May-17	0.35 j	0.90 j	< 0.0061	< 0.0091	< 0.0020 UJ	< 0.0020	< 0.0030	< 0.020 U	< 0.0030	< 0.0081	< 0.0030	< 0.0091	< 0.0061	< 0.0020	< 0.0020	< 0.0030	< 0.0071	0.019 J-	< 0.0040	< 0.0040	< 0.02 U
MW-26	24-May-18	25	3,100	0.65 J-	0.21 J-	0.32 J-	0.095 J-	< 0.020 UJ	< 0.020 UJ	< 0.020 UJ	< 0.020 UJ	0.0047 J-	< 0.031 UJ	< 0.020 UJ	< 0.020 UJ	< 0.020 UJ	0.41 J-	< 0.020 UJ	0.66 J-	0.11 J-	< 0.020 UJ	< 0.031 U
MW-26	29-Aug-18	24	2,600 J+	0.61	0.20	0.31	0.10	< 0.022	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.010	< 0.051	0.29	< 0.014	0.69	< 0.032	< 0.034	< 0.016 U
MW-26	14-Dec-18	25	2,900 J+	0.53	0.13 j	0.45	0.077	< 0.022	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.010	< 0.051	0.39	< 0.014	0.61	0.094 j	< 0.034	< 0.016 U
MW-26	14-Mar-19	20	2,800	0.57	0.16 j	0.48	0.098	0.043 j	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.0099	< 0.049	0.49	< 0.014	0.94	0.062 j	< 0.033	< 0.016 U
MW-26	13-Jun-19	12.5	2,850	0.67	0.13	0.63	0.084	< 0.0064	< 0.018	< 0.0041	< 0.0050	< 0.010	< 0.011	< 0.0095	< 0.0095	0.039 j	0.54	< 0.0052	1.2	0.087	< 0.015	< 0.018
MW-27	30-May-17	31	4,700	1.3	0.36	1.2	< 0.0020	< 0.0031	< 0.0020	< 0.0031	< 0.0092	< 0.0031	< 0.0092	< 0.0061	< 0.0020	< 0.0020	1.3	< 0.0071	0.73	1.4	< 0.0041	< 0.0092 U
MW-27	24-May-18	29	4,000	0.94	0.23	0.63	0.28	0.086	< 0.020	< 0.020	< 0.020	< 0.020	< 0.031	< 0.020	< 0.020	< 0.020	0.74	< 0.020	0.75	0.49	< 0.020	< 0.031 U
MW-27	30-Aug-18	1.3	5,300 J+	1.1	0.24	0.54	0.14	0.32	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.010	< 0.051	0.90	< 0.014	0.37	1.8	0.039 j	< 0.016 U
MW-27	17-Dec-18	33	6,400 J+	1.7	0.28	0.71	0.33 j	0.65	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.010	< 0.050	0.94	< 0.014	1.2	0.67	0.049 j	< 0.016 U
MW-27	14-Mar-19	31	5,900	1.6	0.29	1.7	0.39	0.15	< 0.014	< 0.011	< 0.011	< 0.012	< 0.012	< 0.016	< 0.0097	< 0.049	2.2	< 0.014	1.5	0.82	0.041 j	< 0.016 U
MW-27	13-Jun-19	31.8	6,460	2.0	0.27	1.7	0.29	0.12	< 0.017	< 0.0040	< 0.0048	< 0.0097	< 0.010	< 0.0091	< 0.0091	0.054	1.3	< 0.0050	0.95	0.72	0.070	< 0.017

Table 8
Groundwater Analytical Data - Semi-volatile Organic Compounds and Metals
Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

Method		SW6020A		SW8270D-SIM						SW8270D-SIM								SW8270D-SIM				Calculated
Analyte		Arsenic	Manganese	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ (ND=0)
Unit		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		2.1	1,925	NS	NS	99	NS	4,000	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	14	530	0.0018	12	NS	400	0.0018
Well	Sample Date																					
MW-27 - Dup	30-May-17	**32**	**4,800**	**1.3**	**0.33**	**1.2**	*< 0.0021*	**0.63**	*< 0.0021*	*< 0.0031*	*< 0.0083*	*< 0.0031*	*< 0.0094*	*< 0.0062*	*< 0.0021*	*< 0.0021*	**1.6**	*< 0.0073*	**0.71**	**1.3**	*< 0.0042*	*< 0.0094 U*
MW-27 - Dup	17-Dec-18	**34**	**6,500 J+**	**1.5**	**0.18 j**	**0.87 j**	**0.18 j**	**0.14**	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.051*	**1.0**	*< 0.014*	**1.2**	**0.55**	**0.040 j**	*< 0.016 U*
MW-28	1-Jun-17	**0.34 j**	*< 0.46*	*< 0.0061*	*< 0.0092*	*< 0.020 U*	*< 0.0020*	*< 0.0031*	**0.0032 j**	*< 0.0031*	*< 0.0082*	*< 0.0031*	*< 0.0092*	*< 0.0061*	**0.0021 j**	*< 0.020 U*	*< 0.020 U*	*< 0.0072*	*< 0.013*	*< 0.020 U*	*< 0.0041*	**0.0024**
MW-28	13-Dec-18	**0.24 j**	**1.6 J+**	*< 0.019*	*< 0.039*	*< 0.014*	*< 0.0091*	*< 0.022*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.050*	*< 0.017*	*< 0.014*	*< 0.031*	*< 0.031*	*< 0.033*	*< 0.016 U*
MW-28	14-Mar-19	**0.21 j**	**4.7**	**0.028 j**	*< 0.038*	*< 0.014*	*< 0.0088*	*< 0.021*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.0097*	*< 0.049*	*< 0.017*	*< 0.014*	**0.052 j**	*< 0.030*	*< 0.032*	*< 0.016 U*
MW-28*	13-Jun-19	**0.15 j**	**1.6**	*< 0.0056*	*< 0.016*	*< 0.0033*	*< 0.0047*	*< 0.0063*	*< 0.018*	*< 0.010*	*< 0.0049*	*< 0.010*	*< 0.011*	*< 0.0094*	*< 0.0094*	*< 0.019*	*< 0.0061*	*< 0.0051*	*< 0.0069*	*< 0.011*	*< 0.015*	*< 0.018*
MW-29	1-Jun-17	**43**	**3,800**	**0.92 J-**	**0.24**	**1.2**	**0.41**	**0.11**	*< 0.021 U*	*< 0.021 U*	*< 0.0082*	*< 0.021 U*	*< 0.0092*	**0.011 j**	*< 0.021 U*	**0.036**	**1.7**	*< 0.0072*	**0.59 J-**	**1.0**	**0.031**	**0.000011**
MW-29	23-May-18	**41**	**3,500**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-29	5-Sep-18	**41**	**4,000 J+**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-29	12-Dec-18	**37**	**3,100 J+**	**1.1**	**0.30**	**0.89**	**0.30**	**0.11**	**0.060**	**0.021 j**	**0.020 j**	**0.012 j**	*< 0.012*	**0.042 j**	*< 0.010*	**0.19 j**	**1.6**	*< 0.014*	**1.4**	**1.1**	**0.23**	**0.029**
MW-29	14-Mar-19	**42**	**3,400**	**1.1**	**0.27**	**1.4**	**0.56**	**0.42**	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.050*	**1.4**	*< 0.014*	**1.6**	**1.1**	**0.040 j**	*< 0.016 U*
MW-29	12-Jun-19	**17.0**	**2,190**	*< 0.0055*	**0.13**	**0.28**	*< 0.0046*	*< 0.0062*	*< 0.017*	*< 0.0040*	*< 0.0048*	*< 0.0098*	*< 0.010*	*< 0.0092*	*< 0.0092*	*< 0.018*	*< 0.0059*	*< 0.0050*	**6.9**	*< 0.010*	*< 0.015*	*< 0.017*
MW-30	31-May-17	**0.30 j**	**22**	*< 0.0062*	*< 0.0093*	*< 0.0021*	*< 0.0021*	*< 0.0031*	*< 0.0021*	*< 0.0031*	*< 0.0083*	*< 0.0031*	*< 0.0093*	*< 0.0062*	*< 0.0021*	*< 0.0021*	*< 0.0031*	*< 0.0073*	*< 0.013*	*< 0.0042*	*< 0.0042*	*< 0.0093 U*
MW-30	23-May-18	**0.21 j**	**36**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-30	31-Aug-18	**1.3**	**4,400 J+**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-30	12-Dec-18	**1.7**	**3,200 J+**	*< 0.019*	*< 0.039*	*< 0.014*	*< 0.0091*	*< 0.022*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.050*	*< 0.017*	*< 0.014*	*< 0.031*	*< 0.031*	*< 0.033*	*< 0.016 U*
MW-30	13-Mar-19	**0.44 j**	**200**	*< 0.019*	*< 0.038*	*< 0.014*	*< 0.0089*	*< 0.022*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012 UJ*	*< 0.012*	*< 0.016*	*< 0.0098*	*< 0.049*	*< 0.017*	*< 0.014*	*< 0.031*	*< 0.031*	*< 0.032*	*< 0.016 U*
MW-30	17-Jun-19	**0.19 j**	**13.2**	*< 0.0056*	*< 0.016*	*< 0.0032*	*< 0.0047*	*< 0.0063*	*< 0.018*	*< 0.0041*	*< 0.0049*	*< 0.010*	*< 0.011*	*< 0.0093*	*< 0.0093*	*< 0.019*	*< 0.0060*	*< 0.0051*	*< 0.0069*	*< 0.011*	*< 0.015*	*< 0.018*
MW-31	31-May-17	**0.34 j**	**25**	*< 0.0061*	*< 0.0092*	*< 0.0020*	*< 0.0020*	*< 0.0031*	*< 0.0020*	*< 0.0031*	*< 0.0082*	*< 0.0031*	*< 0.0092*	*< 0.0061*	*< 0.0020*	*< 0.0020*	*< 0.0031*	*< 0.0072*	*< 0.013*	*< 0.0041*	*< 0.0041*	*< 0.0092 U*
MW-31	24-May-18	**0.22 j**	**1.8 j**	*< 0.020*	*< 0.030*	*< 0.020*	*< 0.020*	**0.0040 j**	**0.0044 j**	*< 0.020*	*< 0.020*	**0.0057 j**	*< 0.030*	*< 0.020*	**0.0060 j**	**0.0039 j**	**0.0034 j**	*< 0.020*	*< 0.040*	**0.0052 j**	**0.0046 j**	**0.014**
MW-31	4-Sep-18	*< 0.20*	**52 J+**	*< 0.019*	*< 0.039*	*< 0.014*	*< 0.0091*	*< 0.022*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.050*	*< 0.017*	*< 0.014*	*< 0.031*	*< 0.031*	*< 0.033*	*< 0.016 U*
MW-31	19-Dec-18	**0.20 j**	**100 J+**	*< 0.019*	*< 0.039*	*< 0.014*	*< 0.0090*	*< 0.022*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.050*	*< 0.017*	*< 0.014*	*< 0.031*	*< 0.031*	*< 0.033*	*< 0.016 U*
MW-31	13-Mar-19	**0.24 j**	**3.2**	*< 0.019*	*< 0.039*	*< 0.014*	*< 0.0090*	*< 0.022*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.050*	*< 0.017*	*< 0.014*	*< 0.031*	*< 0.031*	*< 0.033*	*< 0.016 U*
MW-31	11-Jun-19	**0.25 j**	**2.7**	*< 0.0056*	*< 0.016*	*< 0.0032*	*< 0.0047*	*< 0.0063*	*< 0.018*	*< 0.0041*	*< 0.0049*	*< 0.010*	*< 0.011*	*< 0.0093*	*< 0.0093*	*< 0.019*	*< 0.0060*	*< 0.0051*	*< 0.0069*	*< 0.011*	*< 0.015*	*< 0.018*
MW-32	31-May-17	**9.0**	**390**	**0.063**	*< 0.0093*	**0.045**	**0.016 j**	*< 0.0031*	*< 0.0021*	*< 0.0031*	*< 0.0083*	*< 0.0031*	*< 0.0093*	*< 0.0062*	*< 0.0021*	*< 0.0021*	**0.032**	*< 0.0072*	**0.11**	**0.050**	*< 0.0041*	*< 0.0093 U*
MW-32	23-May-18	**3.7**	*< 0.46*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-32	31-Aug-18	**2.3**	**2.6 J+**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-32	20-Dec-18	**3.7**	**9.5 J+**	*< 0.019*	*< 0.040*	*< 0.014*	*< 0.0092*	*< 0.023*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.051*	*< 0.017*	*< 0.014*	*< 0.032*	*< 0.032*	*< 0.034*	*< 0.016 U*
MW-32	12-Mar-19	**6.0**	**18**	**0.063 j**	**0.082 j**	**0.13**	**0.016 j**	**0.030 j**	**0.022 j**	**0.020 j**	**0.029 j**	**0.028 j**	**0.014 j**	**0.023 j**	*< 0.0097*	*< 0.049*	**0.052 j**	**0.030 j**	**0.30**	**0.048 j**	**0.052 j**	**0.028**
MW-32	10-Jun-19	**6.1**	**1.9**	*< 0.0057*	*< 0.016*	**0.033 j**	*< 0.0048*	*< 0.0064*	*< 0.018*	*< 0.0041*	*< 0.0050*	*< 0.010*	*< 0.011*	*< 0.0095*	*< 0.0095*	*< 0.019*	*< 0.0061*	*< 0.0052*	**0.055**	*< 0.011*	*< 0.015*	*< 0.018*
MW-33	25-May-17	**1.7**	**3.6**	**0.48**	*< 0.0092*	**0.31 J-**	**0.13**	**0.045**	*< 0.0020*	*< 0.0031*	*< 0.0081*	*< 0.0031*	*< 0.0092*	*< 0.0061*	*< 0.0020*	*< 0.0020*	**0.35**	*< 0.0071*	**0.26 J-**	**0.33**	*< 0.0041*	*< 0.0092 U*
MW-33	24-May-18	**1.2**	**0.64 j**	*< 0.020*	*< 0.030*	*< 0.020*	*< 0.020*	*< 0.020*	*< 0.020*	*< 0.020*	*< 0.020*	*< 0.020*	*< 0.030*	*< 0.020*	*< 0.020*	*< 0.020*	*< 0.020*	*< 0.020*	**0.12**	*< 0.020*	*< 0.020*	*< 0.030 U*
MW-33	4-Sep-18	**0.41 j**	*< 0.46*	*< 0.019*	*< 0.040*	*< 0.014*	*< 0.0092*	*< 0.022*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.051*	*< 0.017*	*< 0.014*	**0.074 j**	*< 0.032*	*< 0.034*	*< 0.016 U*
MW-33	19-Dec-18	--	--	**0.23**	*< 0.040*	*< 0.014*	*< 0.0091*	**0.032 j**	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.051*	**0.092 j**	*< 0.014*	**0.050 j**	**0.14**	*< 0.033*	*< 0.016 U*
MW-33	20-Dec-18	**1.3**	**0.75 J+**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-33	12-Mar-19	**1.6**	**60**	**0.032 j**	*< 0.038*	**0.027 j**	**0.032 j**	**0.028 j**	**0.016 j**	**0.017 j**	**0.026 j**	**0.018 j**	*< 0.012*	**0.018 j**	*< 0.0097*	*< 0.048*	**0.022 j**	**0.023 j**	**0.076 j**	**0.056 j**	**0.034 j**	**0.024**
MW-33	11-Jun-19	**7.0**	**1,680**	**0.049**	**0.018 j**	**0.25**	**0.044**	*< 0.0065*	*< 0.018*	*< 0.0042*	*< 0.0051*	*< 0.010*	*< 0.011*	*< 0.0096*	*< 0.0096*	*< 0.019*	*< 0.0062*	*< 0.0053*	**0.26**	**0.033 j**	*< 0.015*	*< 0.018*
MW-34	26-May-17	**19**	**1,700**	*< 0.0062*	*< 0.0093*	**0.30 J-**	*< 0.0021*	*< 0.0031*	*< 0.0021*	*< 0.0031*	*< 0.0083*	*< 0.0031*	*< 0.0093*	*< 0.0062*	*< 0.0021*	*< 0.0021*	**0.21**	*< 0.0073*	**0.69 J-**	*< 0.0042*	*< 0.0042*	*< 0.0093 U*
MW-34	23-May-18	**25**	**2,500**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-34	19-Dec-18	**35**	**4,000 J+**	**2.6**	**0.22**	**1.6**	*< 0.0091*	*< 0.022*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.051*	**1.5**	*< 0.014*	**1.5**	**1.0**	*< 0.033*	*< 0.016 U*
MW-34	17-Jun-19	**36.2**	**3,220**	*< 0.057*	*< 0.16*	**2.0**	**0.64**	*< 0.064*	*< 0.18*	*< 0.041*	*< 0.050*	*< 0.10*	*< 0.11*	*< 0.095*	*< 0.095*	*< 0.19*	*< 0.061*	*< 0.052*	**2.0**	*< 0.11*	*< 0.15*	*< 0.18*
MW-34 - Dup	23-May-18	**25**	**2,500**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-35	30-May-17	**33**	**3,000**	**1.1**	**0.43**	**1.1**	**0.29**	**0.20**	*< 0.0021*	*< 0.0031*	*< 0.0082*	*< 0.0031*	*< 0.0092*	*< 0.0062*	*< 0.0021*	**0.091**	**1.7**	*< 0.0072*	**0.60**	**1.7**	**0.094**	*< 0.0092 U*
MW-35	23-May-18	**15**	**3,000**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-35	31-Aug-18	**11**	**3,700 J+**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-35	19-Dec-18	**13**	**4,300 J+**	**1.2 J-**	**0.11 J-**	**0.66 J-**	**0.11 J-**	**0.60 J-**	*< 0.014 UJ*	*< 0.011 UJ*	*< 0.011 UJ*	*< 0.012 UJ*	*< 0.012 UJ*	*< 0.016 UJ*	*< 0.010 UJ*	**0.075 J-**	*< 0.017 UJ*	*< 0.014 UJ*	**1.6 J-**	**1.1 J-**	**0.069 J-**	*< 0.016 U*
MW-35	13-Mar-19	**15**	**3,300**	**1.3**	*< 0.038*	**0.43**	**0.14**	**0.096 j**	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.0099*	**0.084 j**	**0.078 j**	*< 0.014*	**0.49**	**0.30**	**0.088 j**	*< 0.016 U*
MW-35	17-Jun-19	**17.1**	**1,540**	**0.063**	**0.063**	**0.38**	**0.075**	**0.14**	**0.033 j**	*< 0.0041*	*< 0.0049*	*< 0.010*	*< 0.011*	*< 0.0093*	*< 0.0093*	**0.13**	**0.12**	*< 0.0051*	**0.47**	**0.052**	**0.13**	**0.0033**
MW-35 - Dup	30-May-17	**34**	**3,000**	**1.2**	**0.35**	**1.1**	**0.51**	*< 0.0031*	*< 0.0021*	*< 0.0031*	*< 0.0083*	*< 0.0031*	*< 0.0093*	*< 0.0062*	*< 0.0021*	**0.11**	**2.0**	*< 0.0072*	**0.65**	**2.2**	**0.12**	*< 0.0093 U*
MW-35 - Dup	31-Aug-18	**11**	**3,600 J+**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-35 - Dup	13-Mar-19	**15**	**3,200**	**1.3**	*< 0.039*	**0.39**	**0.12**	**0.090 j**	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.0099*	**0.083 j**	**0.072 j**	*< 0.014*	**0.48**	**0.29**	**0.084 j**	*< 0.016 U*
MW-35 - Dup	17-Jun-19	**17.6**	**1,440**	**0.18**	**0.064**	**0.32**	**0.091**	**0.15**	**0.022 j**	*< 0.0041*	*< 0.0050*	*< 0.010*	*< 0.011*	*< 0.0094*	*< 0.0094*	**0.12**	**0.13**	*< 0.0051*	**0.54**	**0.089**	**0.13**	**0.0022**
MW-36	30-May-17	**15**	**2,100**	**0.95**	*< 0.0092*	**0.77**	**0.17**	*< 0.0031*	*< 0.0020*	*< 0.0031*	*< 0.0082*	**0.0037 j**	*< 0.0092*	*< 0.0061*	**0.0023 j**	*< 0.0020*	**1.6**	*< 0.0071*	**0.44**	**0.19**	*< 0.0041*	**0.0023**
MW-36	24-May-18	**9.7**	**2,100**	**0.50**	*< 0.031*	**0.44**	**0.25**	*< 0.021*	*< 0.021*	*< 0.021*	*< 0.021*	**0.0098 j**	*< 0.031*	*< 0.021*	*< 0.021*	*< 0.021*	**0.59**	*< 0.021*	**0.69**	*< 0.021*	*< 0.021*	*< 0.031 U*
MW-36	30-Aug-18	**1.1**	**2,500 J+**	**0.77**	**0.11 j**	**0.96**	**0.22**	**0.076 j**	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.051*	**0.95**	*< 0.014*	**0.33**	**0.12**	*< 0.034*	*< 0.016 U*
MW-36	17-Dec-18	**31**	**3,400 J+**	**1.3**	**0.20**	**0.99**	**0.40**	**0.17**	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	**0.079 j**	**1.9**	*< 0.014*	**1.2**	**0.50**	**0.058 j**	*< 0.016 U*
MW-36	14-Mar-19	**9.1**	**2,200**	**1.8**	*< 0.038*	**0.89**	**0.16**	**0.14**	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.0098*	*< 0.049*	**1.3**	*< 0.014*	**1.3**	**0.098**	*< 0.032*	*< 0.016 U*
MW-36	13-Jun-19	**7.2**	**1,760**	**0.11**	**0.099**	**0.20**	*< 0.0047*	*< 0.0062*	**0.030 j**	*< 0.0041*	*< 0.0049*	*< 0.0099*	*< 0.011*	**0.026 j**	*< 0.0093*	*< 0.018*	**0.048**	*< 0.0051*	**4.1**	*< 0.011*	**0.064**	**0.0030**
MW-36 - Dup	30-May-17	**15**	**2,100**	**0.94**	*< 0.0092*	**0.78**	**0.11**	*< 0.0031*	*< 0.0020*	*< 0.0031*	*< 0.0082*	**0.0031 j**	*< 0.0092*	*< 0.0061*	*< 0.0020*	*< 0.0020*	**0.96**	*< 0.0072*	**0.39**	**0.20**	*< 0.0041*	*< 0.0092 U*
MW-36 - Dup	24-May-18	**9.9**	**2,200**	**0.48**	*< 0.031*	**0.46**	**0.053**	*< 0.021*	*< 0.021*	*< 0.021*	*< 0.021*	*< 0.021*	*< 0.031*	*< 0.021*	*< 0.021*	*< 0.021*	**0.58**	*< 0.021*	**0.49**	*< 0.021*	*< 0.021*	*< 0.031 U*
MW-36 - Dup	14-Mar-19	**9.0**	**2,200**	**1.8**	*< 0.038*	**1.0**	**0.19**	**0.13**	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.0098*	*< 0.049*	**1.4**	*< 0.014*	**1.3**	**0.11**	*< 0.032*	*< 0.016 U*
MW-36 - Dup	13-Jun-19	**7.6**	**1,760**	**0.14**	**0.079**	**0.15**	*< 0.0047*	**0.083**	**0.029 j**	*< 0.0041*	**0.023 j**	*< 0.010*	*< 0.011*	**0.027 j**	*< 0.0093*	**0.030 j**	*< 0.0060*	*< 0.0051*	**3.7**	**0.082**	**0.054**	**0.0052**
MW-37	30-May-17	**12**	**1,000**	**0.45**	*< 0.0094*	**0.24**	*< 0.0021*	*< 0.0031*	*< 0.0021*	*< 0.0031*	*< 0.0083*	*< 0.0031*	*< 0.0094*	*< 0.0062*	*< 0.0021*	*< 0.0021*	**0.086**	*< 0.0073*	**0.26**	**0.077**	*< 0.0042*	*< 0.0094 U*
MW-37	25-May-18	**24**	**4,600**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-37	31-Aug-18	**23**	**4,200 J+**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-37	17-Dec-18	**26**	**3,900 J+**	**0.41**	**0.083 j**	**0.34**	**0.14**	**0.029 j**	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.051*	**0.14**	*< 0.014*	**0.70**	**0.049 j**	*< 0.033*	*< 0.016 U*
MW-37	14-Mar-19	**23**	**3,600**	**0.46**	**0.065 j**	**0.34**	**0.051**	*< 0.022*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.0099*	*< 0.049*	**0.12**	*< 0.014*	**0.69**	*< 0.031*	*< 0.033*	*< 0.016 U*
MW-37	12-Jun-19	**23.2**	**3,160**	**0.48**	**0.083**	**0.37**	*< 0.0047*	*< 0.0063*	*< 0.018*	*< 0.0041*	*< 0.0049*	*< 0.010*	*< 0.011*	*< 0.0094*	*< 0.0094*	**0.022 j**	**0.15**	*< 0.0051*	**0.53**	**0.044**	*< 0.015*	*< 0.018*

Table 8
Groundwater Analytical Data - Semi-volatile Organic Compounds and Metals
Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

Method		SW6020A		SW8270D-SIM						SW8270D-SIM								SW8270D-SIM				Calculated
Analyte		Arsenic	Manganese	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ (ND=0)
Unit		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		2.1	1,925	NS	NS	99	NS	4,000	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	14	530	0.0018	12	NS	400	0.0018
Well	Sample Date																					
MW-38	26-May-17	23	2,500	**2.8**	*< 0.0092*	**1.9 J-**	**4.2**	*< 0.0031*	*< 0.0020*	*< 0.0031*	*< 0.0081*	*< 0.0031*	*< 0.0092*	*< 0.0061*	*< 0.0020*	*< 0.0020*	**3.2**	*< 0.0071*	**1.2 J-**	**3.6**	**0.046**	*< 0.0092 U*
MW-38	25-May-18	36	3,200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-38	31-Aug-18	27	2,900 J+	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-38	12-Jun-19	22.7	2,600	**0.41 J-**	**0.91 J-**	*< 0.0032 UJ*	**0.067 J-**	*< 0.0063 UJ*	*< 0.018 UJ*	*< 0.0041 UJ*	*< 0.0049 UJ*	*< 0.010 UJ*	*< 0.011 UJ*	*< 0.0093 UJ*	*< 0.0093 UJ*	*< 0.019 UJ*	*< 0.0060 UJ*	*< 0.0051 UJ*	**13.9 J-**	*< 0.011 UJ*	*< 0.015 UJ*	*< 0.018*
MW-39	26-May-17	30	3,200 J+	4.5 J-	0.14 J-	1.1 J-	0.29	< 0.0031	< 0.021	< 0.031	< 0.082	< 0.031	< 0.093	< 0.062	< 0.021	< 0.021 UJ	1.7 J-	< 0.072	0.64 J-	0.97 J-	< 0.0041	< 0.093 U
MW-39	24-May-18	27	3,000	**6.0**	**0.18**	**0.89**	**0.34**	*< 0.021*	**0.014 j**	*< 0.021*	*< 0.021*	**0.0083 j**	*< 0.031*	**0.011 j**	*< 0.021*	**0.063**	**1.6**	*< 0.021*	**1.2**	**0.73**	**0.079**	**0.014**
MW-39	29-Aug-18	30	2,900 J+	**21**	**0.78 j**	**1.2**	**0.62**	**0.22 j**	*< 0.071*	*< 0.056*	*< 0.056*	*< 0.061*	*< 0.061*	*< 0.081*	*< 0.051*	*< 0.25*	**1.6**	*< 0.071*	**1.7**	**1.3**	*< 0.17*	*< 0.016 U*
MW-39	14-Dec-18	36	4,200 J+	**4.2**	**0.29**	**1.0**	**0.40 j**	*< 0.022*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.051*	**1.6**	*< 0.014*	**1.3**	**1.3**	*< 0.033*	*< 0.016 U*
MW-40	26-May-17	3.0	1,500	*< 0.0061*	*< 0.0092*	*< 0.0020 UJ*	*< 0.0020*	*< 0.0031*	*< 0.020 U*	*< 0.0031*	*< 0.0082*	*< 0.0031*	*< 0.0092*	*< 0.0061*	*< 0.0020*	*< 0.0020*	*< 0.0031*	*< 0.0071*	**0.027 J-**	*< 0.20 U*	*< 0.0041*	*< 0.02 U*
MW-40	25-May-18	5.3	1,700	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-40	5-Sep-18	3.1	1,600 J+	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-40	13-Dec-18	3.7	1,500 J+	*< 0.019*	*< 0.039*	*< 0.014*	*< 0.0090*	*< 0.022*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.050*	*< 0.017*	*< 0.014*	*< 0.031*	*< 0.031*	*< 0.033*	*< 0.016 U*
MW-40	18-Mar-19	4.3	1,400	**0.022 j**	*< 0.038*	*< 0.014*	*< 0.0087*	*< 0.021*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.015*	*< 0.0096*	*< 0.048*	*< 0.016*	*< 0.014*	*< 0.030*	*< 0.030*	*< 0.032*	*< 0.015 U*
MW-40	13-Jun-19	4.6	1,740	*< 0.0056*	*< 0.016*	*< 0.0032*	*< 0.0047*	*< 0.0063*	*< 0.018*	*< 0.0041*	*< 0.0049*	*< 0.010*	*< 0.011*	*< 0.0093*	*< 0.0093*	*< 0.019*	*< 0.0060*	*< 0.0051*	*< 0.0069*	*< 0.011*	*< 0.015*	*< 0.018*
MW-41	25-May-17	3.4	610	*< 0.0062*	*< 0.0093*	*< 0.0021 UJ*	*< 0.0021*	*< 0.0031*	*< 0.021 U*	*< 0.0031*	*< 0.0083*	*< 0.0031*	*< 0.0093*	*< 0.0062*	*< 0.0021*	*< 0.0021*	*< 0.0031*	*< 0.0073*	**0.016 J-**	*< 0.0041*	*< 0.0041*	*< 0.021 U*
MW-41	25-May-18	2.7 j	560	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-41	5-Sep-18	2.2	370 J+	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-41	13-Dec-18	3.0	420 J+	*< 0.019*	*< 0.039*	*< 0.014*	*< 0.0091*	*< 0.022*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.050*	*< 0.017*	*< 0.014*	*< 0.031*	*< 0.031*	*< 0.033*	*< 0.016 U*
MW-41	19-Mar-19	2.2	390	*< 0.018*	*< 0.038*	*< 0.014*	*< 0.0087*	*< 0.021*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.015*	*< 0.0097*	*< 0.048*	*< 0.016*	*< 0.014*	*< 0.030*	*< 0.030*	*< 0.032*	*< 0.015 U*
MW-41	10-Jun-19	1.8	423	*< 0.0057*	*< 0.016*	*< 0.0033*	*< 0.0047*	*< 0.0063*	*< 0.018*	*< 0.0041*	*< 0.0050*	*< 0.010*	*< 0.011*	*< 0.0094*	*< 0.0094*	*< 0.019*	*< 0.0061*	*< 0.0051*	*< 0.0070*	*< 0.011*	*< 0.015*	*< 0.018*
MW-42	25-May-17	5.4	58	*< 0.0062*	*< 0.0093*	*< 0.0021 UJ*	*< 0.0021*	*< 0.0031*	*< 0.021 U*	*< 0.0031*	*< 0.0083*	*< 0.0031*	*< 0.0093*	*< 0.0062*	*< 0.0021*	*< 0.0021*	*< 0.0031*	*< 0.0073*	**0.023 J-**	*< 0.021 U*	*< 0.0041*	*< 0.021 U*
MW-42	24-May-18	1.7	5.5	**0.015 j**	**0.021 j**	*< 0.020*	*< 0.020*	**0.0031 j**	*< 0.020*	*< 0.020*	*< 0.020*	*< 0.020*	*< 0.031*	*< 0.020*	*< 0.020*	*< 0.020*	**0.0052 j**	*< 0.020*	**0.040 j**	**0.0060 j**	*< 0.020*	*< 0.031 U*
MW-42	30-Aug-18	4.1	1.0 J+	*< 0.019*	*< 0.040*	*< 0.014*	*< 0.0092*	*< 0.022*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.051*	*< 0.017*	*< 0.014*	*< 0.032*	*< 0.032*	*< 0.034*	*< 0.081 U*
MW-42	13-Dec-18	3.5	5.6 J+	*< 0.020*	*< 0.042*	*< 0.015*	*< 0.0097*	*< 0.024*	*< 0.015*	*< 0.012*	*< 0.012*	*< 0.013*	*< 0.013*	*< 0.017*	*< 0.011*	*< 0.054*	*< 0.018*	*< 0.015*	*< 0.033*	*< 0.033*	*< 0.035*	*< 0.017 U*
MW-42	12-Mar-19	4.0	48	**0.062 j**	**0.13 j**	*< 0.014*	*< 0.0091*	*< 0.022*	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.050*	**0.023 j**	*< 0.014*	**0.047 j**	**0.042 j**	*< 0.033*	*< 0.016 U*
MW-42	10-Jun-19	4.0	6.2	*< 0.0056*	*< 0.016*	*< 0.0032*	*< 0.0047*	*< 0.0062*	*< 0.017*	*< 0.0040*	*< 0.0049*	*< 0.0099*	*< 0.010*	*< 0.0092*	*< 0.0092*	*< 0.018*	*< 0.0060*	*< 0.0050*	**0.015 j**	*< 0.011*	*< 0.015*	*< 0.017*
MW-43	26-May-17	30	2,900	**5.9**	*< 0.091*	**1.6 J-**	**0.51**	**0.11 j**	*< 0.020*	*< 0.030*	*< 0.081*	*< 0.030*	*< 0.091*	*< 0.060*	*< 0.020*	*< 0.020*	**1.8**	*< 0.071*	**1.6 J-**	**0.82**	*< 0.040*	*< 0.091 U*
MW-43	29-Aug-18	31	3,300 J+	**4.1**	**0.65**	**0.89 j**	**0.44 j**	**0.41**	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.051*	**1.0**	*< 0.014*	**1.1**	**1.1**	*< 0.034*	*< 0.016 U*
MW-43	12-Dec-18	41	3,700 J+	**2.3**	**0.27**	**1.1**	**0.45**	**0.11**	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.051*	**1.7**	*< 0.014*	**1.1**	**0.82**	*< 0.033*	*< 0.016 U*
MW-43 - Dup	12-Dec-18	37	3,400 J+	**2.5**	**0.29**	**0.87**	**0.27**	**0.11**	*< 0.014*	*< 0.011*	*< 0.011*	*< 0.012*	*< 0.012*	*< 0.016*	*< 0.010*	*< 0.051*	**1.4**	*< 0.014*	**1.2**	**0.90**	**0.043 j**	*< 0.016 U*

Notes:
< = Compound not detected. Reportable detection limit shown.
-- = not analyzed
µg/L = micrograms per liter
GW SCM = Groundwater Source Control Measure
NS = No Standard for GW SCM Performation Evaluation
Dup = Field Duplicate Sample
Bolded values indicate concentrations above the Reportable Detection Limit.
Shaded values indicate concentrations above the GW SCM Performance Evaluation Criteria.
*= Select analytes resampled 17-18 June.

Qualifiers - Organics
j = The result is an estimated concentration, detected between the Method Detection Limit and the Reporting Limit.
J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits
NJ = Evidence of the compound at an estimated quantity.
UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.
U = Analyte was analuzed for, but not detected.

Table 9
Groundwater Analytical Data - Water Quality Parameters
Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

Method		SW9056		SM2320B	SM2340C
Analyte		Nitrate as N	Sulfate	Alkalinity, Total as CaCO3	Hardness as CaCO3
Unit		µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		10,000	NS	20,000	NS
Well	Sample Date				
MW-02	25-May-18	--	--	--	--
MW-02	17-Dec-18	*< 20 UJ*	*< 1,200 U*	**230,000**	**200,000**
MW-03	25-May-17	**1,500**	**13,000**	**52,000**	**51,000**
MW-03	18-Dec-18	**140 J-**	**5,000**	**59,000**	**54,000**
MW-03	18-Mar-19	**320**	**9,100**	**54,000**	**70,000**
MW-03	11-Jun-19	**230**	*6,700*	**71,500**	**61,300**
MW-06	25-May-17	**900**	**8,500**	**100,000**	**70,000**
MW-06	18-Dec-18	*< 20 UJ*	**3,000 J+**	**63,000**	**55,000**
MW-06	18-Mar-19	**470**	**8,200**	**80,000**	**60,000**
MW-06	11-Jun-19	**< 18**	*4,800*	**83,100**	**33,200**
MW-08	26-May-17	**95 j**	**14,000**	**130,000**	**130,000**
MW-08	18-Dec-18	*< 20 UJ*	*< 1,200 U*	**91,000**	**80,000**
MW-08	13-Mar-19	*< 20*	**7,700**	**100,000**	**80,000**
MW-08	12-Jun-19	*< 18*	**253,000**	*< 2,000*	**149,000**
MW-11	25-May-18	--	--	--	--
MW-18	31-May-17	*< 20*	**3,700**	**120,000**	**100,000**
MW-18	24-May-18	**150 J-**	**24,000**	**130,000**	**120,000**
MW-18	4-Sep-18	**60 J-**	**5,000**	**89,000**	**1,100,000**
MW-18	19-Dec-18	*< 20 UJ*	**2,900**	**170,000**	**250,000**
MW-18	13-Mar-19	**34 j**	**39,000**	**150,000**	**170,000**
MW-18	12-Jun-19	**59 j**	**24,000**	**105,000**	**96,000**
MW-18 - Dup	4-Sep-18	**39 J-**	**5,200**	**80,000**	**250,000**
MW-19	31-May-17	**700**	**38,000**	**42,000**	**50,000**
MW-19	18-Dec-18	*< 20 UJ*	**2,100 J+**	**120,000**	**100,000**
MW-19	18-Mar-19	**320**	**11,000**	**90,000**	**82,000**
MW-19	11-Jun-19	**1,200**	**10,200**	**81,400**	**71,000**
MW-21	31-May-17	**470**	**4,100**	**29,000**	**27,000**
MW-21	18-Dec-18	**69 J-**	**3,400 J+**	**46,000**	**64,000**
MW-21	18-Mar-19	**210**	**7,400**	**41,000**	**38,000**
MW-21	11-Jun-19	**250**	**3,700**	**37,700**	**26,200**
MW-24A	26-May-17	**240**	**4,100**	**60,000**	**500,000**

Table 9
Groundwater Analytical Data - Water Quality Parameters
Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

Method		SW9056		SM2320B	SM2340C
Analyte		Nitrate as N	Sulfate	Alkalinity, Total as CaCO3	Hardness as CaCO3
Unit		µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		10,000	NS	20,000	NS
Well	Sample Date				
MW-24A	25-May-18	--	--	--	--
MW-24A	5-Sep-18	--	--	--	--
MW-24A	12-Mar-19	--	--	--	--
MW-24A	10-Jun-19	**140**	**1,400 J-**	**58,200**	**46,300**
MW-25	26-May-17	**1,500**	**5,700**	**71,000**	**62,000**
MW-25	20-Dec-18	**R**	**2,300**	**54,000**	**49,000**
MW-25	18-Mar-19	*< 20*	**5,200**	**73,000**	**60,000**
MW-25	13-Jun-19	**180**	**11,100 J-**	**62,600**	**50,100**
MW-26	26-May-17	**1,600**	**6,300**	**110,000**	**95,000**
MW-26	24-May-18	*< 200 UJ*	**650 j**	**260,000**	**200,000**
MW-26	29-Aug-18	**24 J-**	*< 1,200 U*	**260,000**	**1,400,000**
MW-26	14-Dec-18	*< 20 UJ*	**630 j**	**240,000**	**220,000**
MW-26	14-Mar-19	*< 20*	**890 j**	**260,000**	**250,000**
MW-26	13-Jun-19	*< 18*	**1,600 J**	**239,000**	**180,000**
MW-27	30-May-17	--	**350 j**	**320,000**	**300,000**
MW-27	24-May-18	*< 200 UJ*	**680 j**	**240,000**	**200,000**
MW-27	30-Aug-18	**R**	*< 1,200 U*	**340,000**	**320,000**
MW-27	17-Dec-18	*< 20 UJ*	*< 1,200 U*	**330,000**	**310,000**
MW-27	14-Mar-19	*< 20*	**760 j**	**380,000**	**310,000**
MW-27	13-Jun-19	*< 18*	*< 1,200 UJ*	**367,000**	**294,000**
MW-27 - Dup	30-May-17	--	**370 j**	**350,000**	**290,000**
MW-27 - Dup	17-Dec-18	*< 20 UJ*	*< 1,200 U*	**330,000**	**310,000**
MW-28	1-Jun-17	**1,700**	**6,300**	**97,000**	**85,000**
MW-28	13-Dec-18	**910 J-**	**5,000**	**93,000**	**110,000**
MW-28	14-Mar-19	**1,100**	**6,800**	**82,000**	**93,000**
MW-28*	18-Jun-19	**960**	**6,200**	**82,200**	**70,200**
MW-29	1-Jun-17	*< 20*	**370 j**	**330,000**	**260,000**
MW-29	23-May-18	--	--	--	--
MW-29	5-Sep-18	--	--	--	--
MW-29	12-Dec-18	**39 J-**	*< 1,200 U*	**210,000**	**150,000**
MW-29	14-Mar-19	**36 j**	**8,900**	**270,000**	**310,000**
MW-29	12-Jun-19	*< 18*	**4,900**	**146,000**	**108,000**
MW-30	31-May-17	**130 j**	**2,500**	**92,000**	**83,000**
MW-30	23-May-18	--	--	--	--
MW-30	31-Aug-18	--	--	--	--

Table 9
Groundwater Analytical Data - Water Quality Parameters
Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

Method		SW9056		SM2320B	SM2340C
Analyte		Nitrate as N	Sulfate	Alkalinity, Total as CaCO3	Hardness as CaCO3
Unit		µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		10,000	NS	20,000	NS
Well	Sample Date				
MW-30	12-Dec-18	**70 J-**	*< 1,200 U*	**180,000**	**150,000**
MW-30	13-Mar-19	*< 20*	**3,100**	**120,000**	**150,000**
MW-30	17-Jun-19	**56 j**	**25,900 J-**	**109,000**	**113,000**
MW-31	31-May-17	**31 j**	**6,600**	**140,000**	**140,000**
MW-31	24-May-18	*< 200 UJ*	**9,600**	**87,000**	**80,000**
MW-31	4-Sep-18	**55 J-**	**6,200**	**170,000**	**160,000**
MW-31	19-Dec-18	*< 20 UJ*	**4,900**	**150,000**	**160,000**
MW-31	13-Mar-19	**390**	**13,000**	**88,000**	**95,000**
MW-31	11-Jun-19	**34 j**	**9,700 J-**	**60,800**	**54,200**
MW-32	31-May-17	*< 20*	**14,000**	**410,000**	**390,000**
MW-32	23-May-18	--	--	--	--
MW-32	31-Aug-18	--	--	--	--
MW-32	20-Dec-18	*< 20 UJ*	**2,100**	**270,000**	**250,000**
MW-32	12-Mar-19	**22 j**	**2,300**	**290,000**	**1,000,000**
MW-32	10-Jun-19	*< 18*	**6,100 J-**	**139,000**	**87,400**
MW-33	25-May-17	**72 J-**	**250,000**	**590,000**	**520,000**
MW-33	24-May-18	**23 J-**	**800 j**	**890,000**	**620,000**
MW-33	4-Sep-18	**65 J-**	**31,000**	**560,000**	**550,000**
MW-33	20-Dec-18	--	--	--	--
MW-33	21-Dec-18	*< 20 UJ*	**5,100**	**530,000**	**620,000**
MW-33	12-Mar-19	**48 j**	**6,900**	**370,000**	**980,000**
MW-33	11-Jun-19	*< 18*	**6,300**	**221,000**	**164,000**
MW-34	26-May-17	**33 j**	**5,200**	**160,000**	**1,000,000**
MW-34	23-May-18	--	--	--	--
MW-34	19-Dec-18	*< 20 UJ*	**1,600**	**260,000**	**330,000**
MW-34	17-Jun-19	*< 18*	**92,100 J-**	**59,300**	**129,000**
MW-34 - Dup	23-May-18	--	--	--	--
MW-35	30-May-17	--	**420 j**	**310,000**	**240,000**
MW-35	23-May-18	--	--	--	--
MW-35	31-Aug-18	--	--	--	--
MW-35	19-Dec-18	*< 20 UJ*	**950 j**	**260,000**	**210,000**
MW-35	13-Mar-19	*< 20*	**510 j**	**230,000**	**200,000**
MW-35	17-Jun-19	*< 18*	**24,500 J-**	**71,900**	**69,900**
MW-35 - Dup	30-May-17	--	**460 j**	**280,000**	**230,000**
MW-35 - Dup	31-Aug-18	--	--	--	--
MW-35 Dup	13-Mar-19	*< 20*	**660 j**	**230,000**	**180,000**
MW-35 Dup	17-Jun-19	*< 18*	**24,800 J-**	**72,400**	**69,700**
MW-36	30-May-17	--	**520 j**	**180,000**	**130,000**

Table 9
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Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

Method		SW9056		SM2320B	SM2340C
Analyte		Nitrate as N	Sulfate	Alkalinity, Total as CaCO3	Hardness as CaCO3
Unit		µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		10,000	NS	20,000	NS
Well	Sample Date				
MW-36	24-May-18	*< 200 UJ*	**6,000**	**150,000**	**300,000**
MW-36	30-Aug-18	**R**	*< 1,200 U*	**240,000**	**200,000**
MW-36	17-Dec-18	*< 20 UJ*	*< 1,200 U*	**240,000**	**240,000**
MW-36	14-Mar-19	**34 j**	**2,200**	**210,000**	**150,000**
MW-36	13-Jun-19	*< 18*	**19,800 J-**	**96,900**	**92,200**
MW-36 - Dup	30-May-17	--	**520 j**	**200,000**	**150,000**
MW-36 - Dup	24-May-18	*< 200 UJ*	**5,900**	**150,000**	**200,000**
MW-36 Dup	14-Mar-19	**40 j**	**2,000**	**210,000**	**150,000**
MW-36 Dup	13-Jun-19	*< 18*	**19,400 J-**	**97,700**	**90,400**
MW-37	30-May-17	--	**5,400**	**240,000**	**320,000**
MW-37	25-May-18	--	--	--	--
MW-37	31-Aug-18	--	--	--	--
MW-37	17-Dec-18	**46 J-**	*< 1,200 U*	**240,000**	**220,000**
MW-37	14-Mar-19	*< 20*	**1,000 j**	**240,000**	**170,000**
MW-37	12-Jun-19	*< 18*	**1,800**	**205,000**	**159,000**
MW-38	26-May-17	**53 j**	**7,500**	**220,000**	**180,000**
MW-38	25-May-18	--	--	--	--
MW-38	31-Aug-18	--	--	--	--
MW-38	12-Jun-19	*< 18*	**3,600**	**168,000**	**119,000**
MW-39	26-May-17	**50 j**	*< 1,200 U*	**230,000**	**200,000**
MW-39	24-May-18	*< 200 UJ*	**1,300**	**200,000**	**1,000,000**
MW-39	29-Aug-18	**R**	*< 1,200 U*	**270,000**	**210,000**
MW-39	14-Dec-18	*< 20 UJ*	**780 j**	**240,000**	**240,000**
MW-40	26-May-17	**34 j**	*< 1,200 U*	**160,000**	**500,000**
MW-40	25-May-18	--	--	--	--
MW-40	5-Sep-18	--	--	--	--
MW-40	13-Dec-18	*< 20 UJ*	**520 j**	**140,000**	**150,000**
MW-40	18-Mar-19	*< 20*	**760 j**	**130,000**	**140,000**
MW-40	13-Jun-19	*< 18*	*< 1,200 UJ*	**145,000**	**117,000**
MW-41	25-May-17	*< 20*	**6,700**	**87,000**	**100,000**
MW-41	25-May-18	--	--	--	--
MW-41	5-Sep-18	--	--	--	--
MW-41	13-Dec-18	*< 20 UJ*	**2,200**	**74,000**	**130,000**
MW-41	19-Mar-19	**110 j**	**3,300**	**74,000**	**70,000**
MW-41	10-Jun-19	*< 18*	**2,300 J-**	**66,600**	**46,600**
MW-42	25-May-17	**95 j**	*< 2,900 U*	**250,000**	**260,000**
MW-42	24-May-18	**2,700 J-**	**9,800**	**290,000**	**210,000**
MW-42	30-Aug-18	**R**	**4,500 J+**	**120,000**	**100,000**
MW-42	13-Dec-18	--	--	--	--
MW-42	12-Mar-19	**24 j**	**4,200**	**71,000**	**95,000**
MW-42	10-Jun-19	*< 18*	**8,200 J-**	**81,100**	**41,700**
MW-43	26-May-17	**53 j**	*< 1,200 U*	**220,000**	**240,000**
MW-43	29-Aug-18	**R**	*< 1,200 U*	**280,000**	**280,000**

Table 9
Groundwater Analytical Data - Water Quality Parameters
Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

Method		SW9056		SM2320B	SM2340C
Analyte		Nitrate as N	Sulfate	Alkalinity, Total as CaCO3	Hardness as CaCO3
Unit		µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		10,000	NS	20,000	NS
Well	Sample Date				
MW-43	12-Dec-18	**41 J-**	*< 1,200 U*	**240,000**	**190,000**
MW-43 - Dup	12-Dec-18	**47 J-**	*< 1,200 U*	**240,000**	**190,000**

Notes:
< = Compound not detected. Reportable detection limit shown.
-- = not analyzed
µg/L = micrograms per liter
GW SCM = Groundwater Source Control Measure
NS = No Standard for GW SCM Performation Evaluation
Dup = Field Duplicate Sample
Bolded values indicate concentrations above the Reportable Detection Limit.
Shaded values indicate concentrations above the GW SCM Performance Evaluation Criteria.
*= Select analytes resampled 17-18 June.

Qualifiers - Organics
j = The result is an estimated concentration, detected between the Method Detection Limit and the Reporting Limit.
J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits
NJ = Evidence of the compound at an estimated quantity.
UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.
U = Analyte was analuzed for, but not detected.

Quarter 3, 2019 Groundwater Source Control Measure
Performance Monitoring Report (July through September 2019)
Environmental Resources Management, 2019

ERM

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December 19, 2019

Via Electronic Mail

Ms. Erin McDonnell
Oregon Department of Environmental Quality
Northwest Region
700 NE Multnomah St, Suite 600
Portland, OR 97232

Reference: 0499738

Subject: Quarter 3, 2019 Groundwater Source Control Measure Performance Monitoring Report
(July through September 2019)
MMGL / Premier Edible Oils Site

Dear Ms. McDonnell:

ERM-West, Inc. (ERM) is submitting this Quarterly Groundwater Source Control Measure (GW SCM) Performance Monitoring Report (Report) on behalf of Burgard, Series of MMGL LLC (MMGL) to present the Quarter 3, 2019 groundwater monitoring results at the Premier Edible Oils (PEO) site located at 10400 North Burgard Way in Portland, Oregon (the "site") (See Figure 1).

This report has been prepared pursuant to the Voluntary Agreement for Upland Remedial Investigation (RI)/Feasibility Study (FS) and Source Control Measures issued by the Oregon Department of Environmental Quality (ODEQ) and signed 6 March 2001 (ODEQ ECDVC-NWR-01-06) (Voluntary Agreement).

Quarter 3, 2019 (July through September) Monitoring

Quarterly groundwater monitoring included collecting groundwater elevations, groundwater field parameters, laboratory analytical samples, and air sparge remediation observations from the monitoring wells as shown in Figure 2 and summarized in Table 1.

Air Sparge Oxygenation/Biobarrier Monitoring

During the quarter, the air sparge system was operating at 80% of target flow rates. Residual work with system programming has been ongoing.

The air sparge system was shut down between 9 September and 18 September while conducting the monthly water level monitoring and quarterly groundwater monitoring.

Groundwater Elevation Monitoring

The groundwater elevations are manually measured on a monthly basis in 29 groundwater monitoring wells. Transducers are installed in 15 select monitoring wells, as summarized in Table 1. The monitoring wells with transducers are manually gauged approximately monthly for calibration and data downloaded. Groundwater elevations measured manually during each monthly calibration event and quarterly site wide events for July, August, and September 2019 are presented in Tables 2

through 4, respectively. Monthly transducer calibration offsets are presented in Table 5. Interpreted potentiometric surfaces for the water level monitoring events in July, August, and September 2019 are presented in Figures 3 through 5, respectively. Figures 3 through 5 show dashed lines where the groundwater elevations are inferred. The potentiometric surfaces observed in July, August, and September 2019 were consistent with previous monitoring events.

All historical data collected on site since the baseline monitoring event in May 2017 of the GW SCM are presented in Attachment C.

Groundwater at the site generally flows to the west and south west, towards the Willamette River. The influence of the groundwater barrier wall is observed as flattened gradients and some mounding directly upland of the barrier wall. During low groundwater and low river stages periods, such as July through September, the mounding is more pronounced, but is limited to areas immediately adjacent to the barrier wall. This mounding occurs as a response lag as river stage and groundwater levels outside of the wall change seasonally.

Fifteen monitoring wells have pressure transducers installed (see Table 1). The transducers record water levels every hour. The recorded data are downloaded and calibrated on a monthly basis. The transducer data is used to compare water levels in monitoring wells at the upgradient site boundary and upland from and riverward of the barrier wall.

The locations of monitoring wells within each hydrograph cluster are shown in Figure 1 in Attachment A. Groundwater levels at the site are tidally influenced by the water levels in the Willamette River. In accordance with PMP, the transducer data and the Willamette River gage data were filtered using the Serfes averaging method in order to filter out tidal effects. The Serfes averaged hydrographs of select groups of monitoring wells (i.e., clusters) and the Willamette River elevations are presented in Attachment A.

Over this quarter, water levels across the site are generally decreasing. This is likely due to seasonal decrease in rainfall and falling river levels over the quarter. Shallow groundwater elevations inside the barrier wall are generally equal to or lower than shallow levels outside the wall. The average gradient was calculated from the upland shallow wells to the riverward shallow wells using the manual water level measurements from each monthly event. Well pairs used in the calculations were MW-30 to MW-31, MW-30 to MW-18, MW-34 to MW-36, MW-38 to MW-39, MW-29 to MW-43, MW-41 to MW-42A. The average monthly gradient increased from 0.06 ft/ft in July to 0.07 ft/ft in September. The shallow wells inside the barrier wall also have small response lags when water levels changes occur, due to the effects of the barrier wall and hydrogeological conditions that include a thin layer of lower permeability silt at several monitoring well locations.

Deep groundwater elevations are generally consistent and similar on the inside and outside of the barrier. The average gradient was calculated from the upland deep wells to the riverward deep wells using the manual water level measurements from each monthly event, well pairs used in the calculations were MW-32 to MW-33, MW-35 to MW-27, MW-37 to MW-27, MW-37 to MW-26, MW-40 to MW-42. The average monthly gradient decreased from -0.006 ft/ft in July to -0.013 ft/ft in September, indicating a groundwater flow potential from the Willamette River towards the upland monitoring wells. The groundwater elevation response in wells inside barrier is similar to the changes in elevations in outside wells.

The groundwater elevation in shallow wells inside the wall is generally higher than or equal to the elevation in the deep wells inside the wall. This indicates a slight downward gradient, as anticipated due to the effects of the barrier wall, hydrogeological conditions, and air sparging operations resulting in subsequent groundwater mounding. During Q3 2019, there were no periods when the vertical gradient is upward.

Consistent with previous dry season water elevation patterns, there is generally higher groundwater elevations on the east side of the site due to perched water on top of a silt layer that decrease towards the GWBW. The three months of groundwater elevations from Q3 2019 are starting to show increased mounding in the inner southwest corner of the GWBW (especially MW-34) than previous years, likely due to the operation of the air sparging system. This can be seen on the hydrograph for Cluster 1 in Appendix A. The water level of MW-34 and MW-11 are consistently higher throughout Q3 and drop during the September 2019 sampling event when the air sparge system was shut off. It appears that during higher site groundwater levels the air sparge system causes additional mounding of groundwater that then remains trapped above the thin silt layer until air sparging operations are stopped for at least 12 hours to allow the mounded groundwater to dissipate.

MW-07 was included in this quarter's monitoring events but the well was dry and no water level or sample was collected. Biofouling was observed at MW-29 in Q3 thus the water levels at this location are considered approximations and not used in contouring.

Light Non-Aqueous Phase Liquids

Light Non-Aqueous Phase Liquid (LNAPL) observations are intermittent and can vary on a daily basis. The groundwater elevation contour maps presented in Figures 3-5 include LNAPL observations that occurred during the water level monitoring events. The analytical contour maps presented in Figures 6-11 include LNAPL observations that occurred during the groundwater sampling event, which occurred separately from the monthly water level events.

LNAPL was observed in several monitoring wells during the monthly water level measurement events, ranging from 0.00 ft (sheen) to 0.12 ft. LNAPL occurrence is sporadic and typically limited to minor thicknesses. All measurements for July, August, and September water level events are presented in Tables 2, 3, and 4, respectively and well locations are indicated on Figures 3-5. All historical data measurements are presented in Attachment C.

During the September 2019 groundwater monitoring event, LNAPL was observed in three wells detailed in Table 6. Well locations for LNAPL observations during the monitoring event are shown on Figures 6-11. Due to the presence of LNAPL at these three wells, no water quality samples were collected.

Due to minimal observed thickness, LNAPL was not recovered this quarter (Table 7). All historical data measurements and LNALP recovery volumes are presented in Attachment C.

These intermittent LNAPL observations are indicative of LNAPL present as a residual in the formation. The results of the May 2018 LNAPL recovery test and LNAPL removal volumes observed to date indicate that potential LNAPL recovery is limited. Future LNAPL recovery will be performed when recoverable LNAPL is observed during water level monitoring events. The volume of LNAPL recovered during these events is anticipated to be small.

Groundwater Sampling

Groundwater samples are scheduled to be collected quarterly from 29 wells at the site, as summarized in Table 1. For Quarter 3 of 2019, samples were collected on 8 to 18 September 2019. On 18 September, MW-29 was observed to be blocked (i.e., potential biofouling blockage) inside the well and no samples were able to be collected from this location. Due to insufficient volume, a limited set of samples were collected from MW-24A. Additionally, the NWVPH results for samples PEO-MW-24A-201909 and Trip Blank-20190911 and the NWEPH results for samples PEO-MW-06-201909, PEO-MW-19-201909, and Trip Blank-20190911 were determined to be unusable due to the high cooler temperature upon receipt.

Groundwater samples were collected using standard low flow sampling techniques with disposable sampling equipment and a stainless steel submersible pump. All groundwater samples were collected in accordance with the ODEQ approved PMP. Samples were analyzed at Pace Analytical Laboratories in Minneapolis, MN and Fremont Analytical Laboratories in Seattle, WA. Laboratory data and validation reports are included as Attachment B.

Field parameter values measured immediately prior to sample collection are presented in Table 8. Laboratory analytical results are presented in Tables 9 through 11. Figures 6 through 11 summarize the results of the primary site contaminants of concern (i.e., benzene, total petroleum hydrocarbons, C10-C12 aliphatics, arsenic, and manganese). Figures 6 through 11 have dashed lines are used to indicate inferred concentration boundaries.

Benzene results (Figure 6) ranged from non-detect to 44.9 micrograms per liter (µg/L), which are consistent with historical results. Concentrations of benzene in monitoring wells located at the ends of the barrier wall were non-detect or at least an order of magnitude below the performance criteria. This indicates that these contaminants have not migrated laterally from the source area around the ends of the barrier wall.

TPH as diesel (TPH-Dx) results (Figure 7) ranged from non-detect to 182,000 µg/L. The highest TPH-Dx result was observed in well MW-34 (182,000 µg/L) which appears to have LNAPL globules in the sample based on a solubility of approximately 3,900 µg/L for diesel (API, 2000 – Non-Aqueous Phase Liquid (NAPL) Mobility Limits in Soil). Historically, high TPH-Dx concentrations have been observed near the central area of the barrier wall. Consistent to historical observations, a portion of the central wells were not sampled this quarter due to LNAPL observations in this area. The results observed in well MW-06 for TPH-Dx was 1200 µg/L, an increase relative to Q2 2019.

TPH as gasoline (TPH-Gx) results (Figure 8) ranged from non-detect to 7,340 µg/L. The highest TPH-Gx results were observed in MW-34 located inland of the barrier wall. Historically, high TPH-Gx concentrations have been observed near the central area of the barrier wall. Consistent to historical observations, a portion of the central wells were not sampled this quarter due to LNAPL observations in this area. Shallow well concentrations on the ends of the barrier wall were lower than the performance criteria. The results observed in well MW-06 for TPH-Gx was 3,330 µg/L, an increase relative to Q2 2019.

The results for C10-C12 aliphatics are presented in Figure 9. Two methods, NWTPH-EPH and NWTPH-VPH, were used to analyze the concentration of the C10-C12 aliphatic range in the samples. Table 9 presents the results of both methods. Figure 9 also presents the results of both

methods and the concentration contour lines were generated based on the higher of the two method results. The C10-C12 aliphatics concentrations measured with the EPH method ranged from non-detect to 10,500 µg/L at MW-38. The C10-C12 aliphatics concentrations measured with the VPH method ranged from non-detect to 5,190 µg/L at MW-34. Consistent to historical observations, the highest concentrations were observed in monitoring wells located in the center of the barrier wall. Monitoring wells located at the ends of the barrier wall had non-detect concentrations of C10-C12 aliphatics, indicating that these contaminants have not migrated laterally to the ends of the barrier wall. The results observed in well MW-06 for NWVPH was 673 µg/L, and is comparable to historical concentrations observed at MW-06.

Arsenic results are summarized in Figure 10. Concentrations ranged from non-detect to 77.5 µg/L at MW-34, which is an increase relative to historical concentrations. Arsenic concentrations at the remaining monitoring wells were consistent with historical concentrations. The highest concentrations were observed in the area in the center of the barrier wall on the inland side. Concentrations at the ends of the barrier wall were slightly above the performance criteria but are comparable to historical concentrations, therefore providing no indication that arsenic has migrated laterally towards the ends of the barrier wall. The results observed in well MW-06 for arsenic was 8.3 µg/L, consistent with results historically observed at MW-06.

Manganese results are summarized in Figure 11. Concentrations ranged from non-detect to 3,610 µg/L, and are consistent with historical results. The highest concentrations were observed in the center of the barrier wall on both the inland and river sides. Concentrations at the ends of the barrier wall were either below the performance criteria or are comparable to historical results, indicating that manganese has not migrated laterally to the ends of the barrier wall.

Recommendations

Quarterly groundwater monitoring events will continue in accordance with the ODEQ-approved PMP. Groundwater samples will be collected from the 29 monitoring wells on site. LNAPL recovery will be performed when LNAPL is observed in monitoring wells, and recovery is feasible.

Available performance monitoring results will be provided in the Quarterly Monitoring Reports. In addition, an annual report will be submitted to provide summarized results for each year of performance monitoring including a discussion regarding the performance of the air sparge system.

If you have questions or comments pertaining to this progress report, please contact me at (503) 488-5282.

Yours sincerely,

Rita Cooper
Project Manager

Brendan Robinson, PE
Partner in Charge

cc: Tom Graf, GrafCon
Eva DeMaria, USEPA

Figures

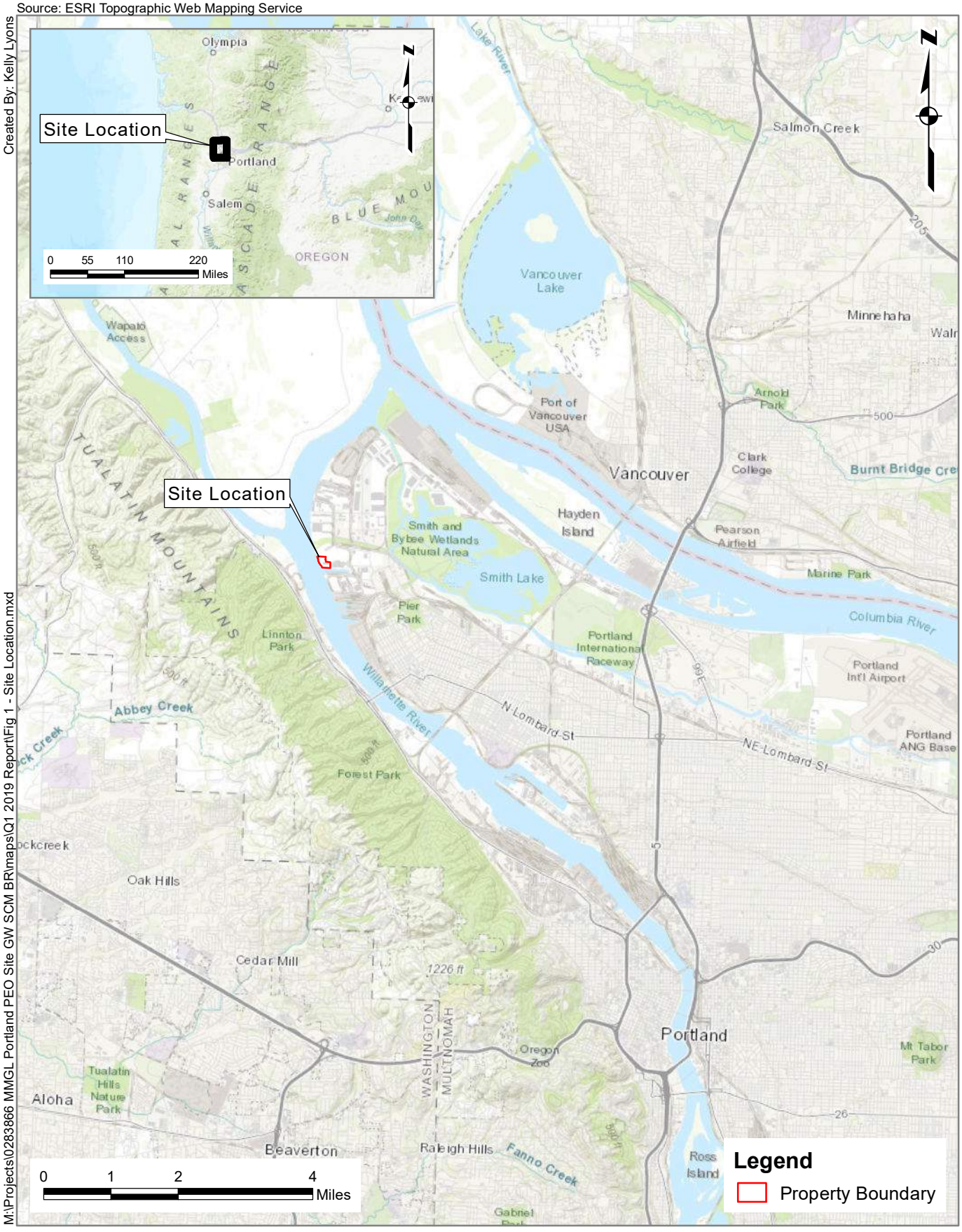

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Figure 1
Site Location
Southern PEO Site
Portland, Oregon

Notes:
Aerial Imagery: City of Portland, Summer 2016.
† = Indicates Performance Monitoring Well.
* = Indicates Compliance Monitoring Well.

Figure 2
Monitoring Well Locations
PEO Site
Portland, Oregon

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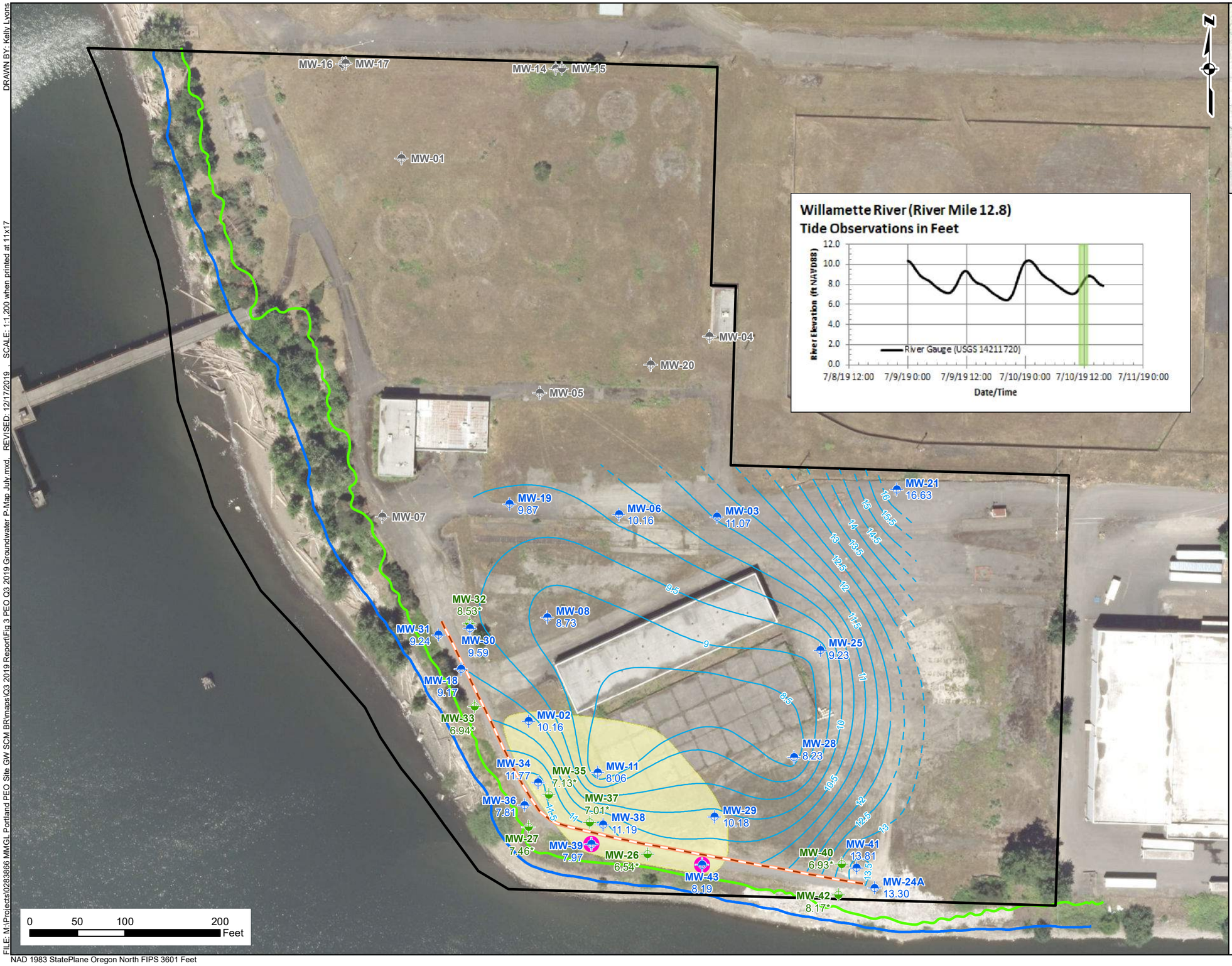
ERM

Source: Esri - World Imagery; NAD 1983 StatePlane Oregon North FIPS 3601 Feet

FILE: M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q1 2019 Report\Fig 2 PEO Q2 2018 MW Locations.mxd, REVISED: 05/10/2019, SCALE: 1:900 when printed at 11x17 DRAWN BY: Kelly Lyons



Notes:
* Value not used for contouring.
Water levels collected 10 July, 2019.
LNAPL extent represents all observed occurances during monitoring since May 2017.
Aerial Imagery: City of Portland, Summer 2017.

ft NAVD88: feet North American Vertical Datum of 1988.
NM: Not measured.

Figure 3
July 2019 Shallow Zone Groundwater Potentiometric Surface
PEO Site
Portland, Oregon

Environmental Resources Management
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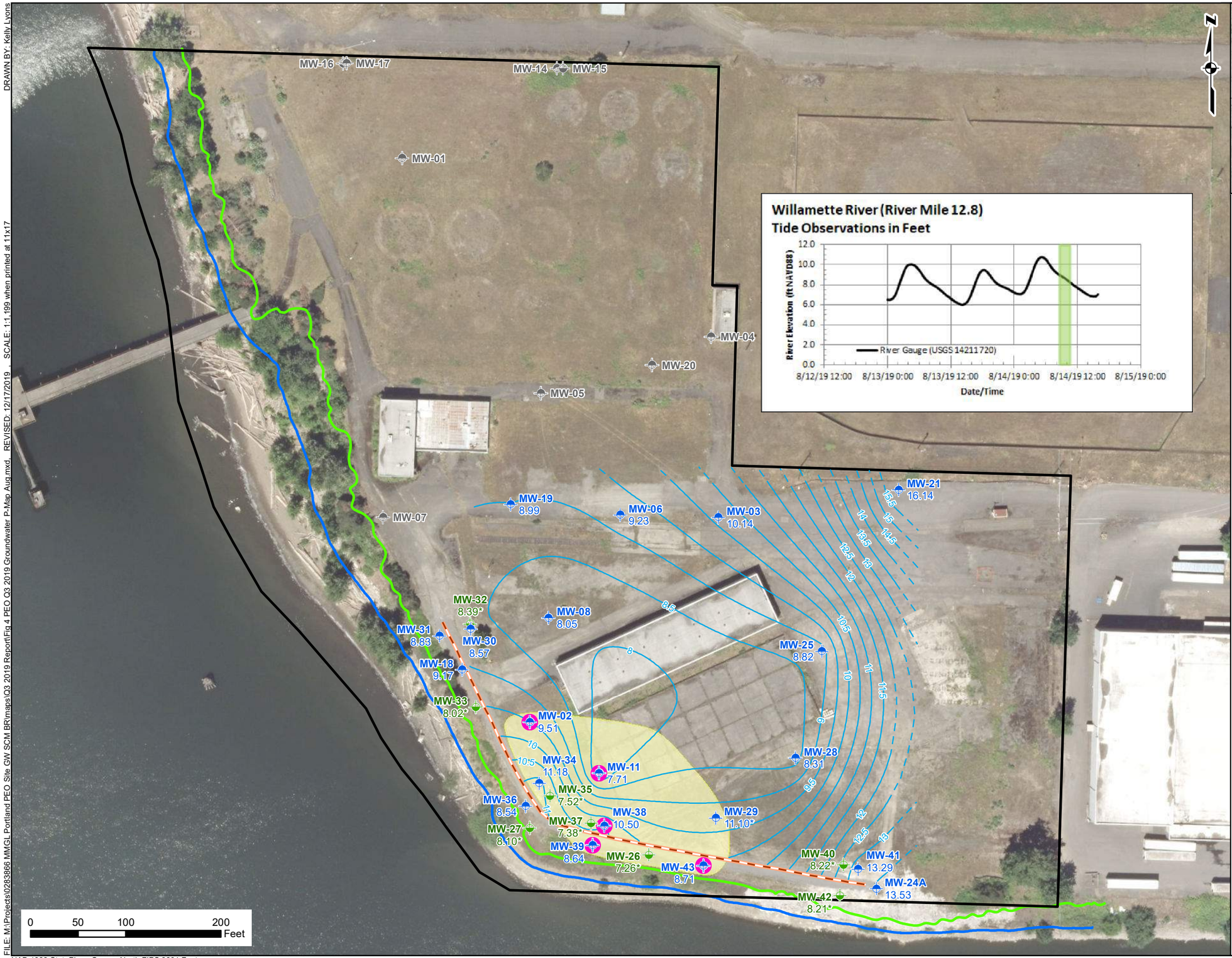
NAD 1983 StatePlane Oregon North FIPS 3601 Feet

FILE: M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q3 2019 Report\Fig 3 PEO Q3 2019 Groundwater P-Map July.mxd, REVISED: 12/17/2019 , SCALE: 1:1,200 when printed at 11x17

DRAWN BY: Kelly Lyons



Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Shallow Monitoring Well NM
- Deep Monitoring Well NM
- LNAPL Observed
- Shallow Zone Groundwater Contours (ft NAVD88) Dashed where Inferred
- Ordinary High Water (20.1 ft)
- Top of Bank
- Barrier Wall
- Property Boundary
- Approximate Maximum LNAPL Extent Observed

Notes:
* Value not used for contouring.
Water levels collected 14 August, 2019.
LNAPL extent represents all observed occurances during monitoring since May 2017.
Aerial Imagery: City of Portland, Summer 2017.

ft NAVD88: feet North American Vertical Datum of 1988.
NM: Not measured.

Figure 4
August 2019 Shallow Zone Groundwater Potentiometric Surface
PEO Site
Portland, Oregon

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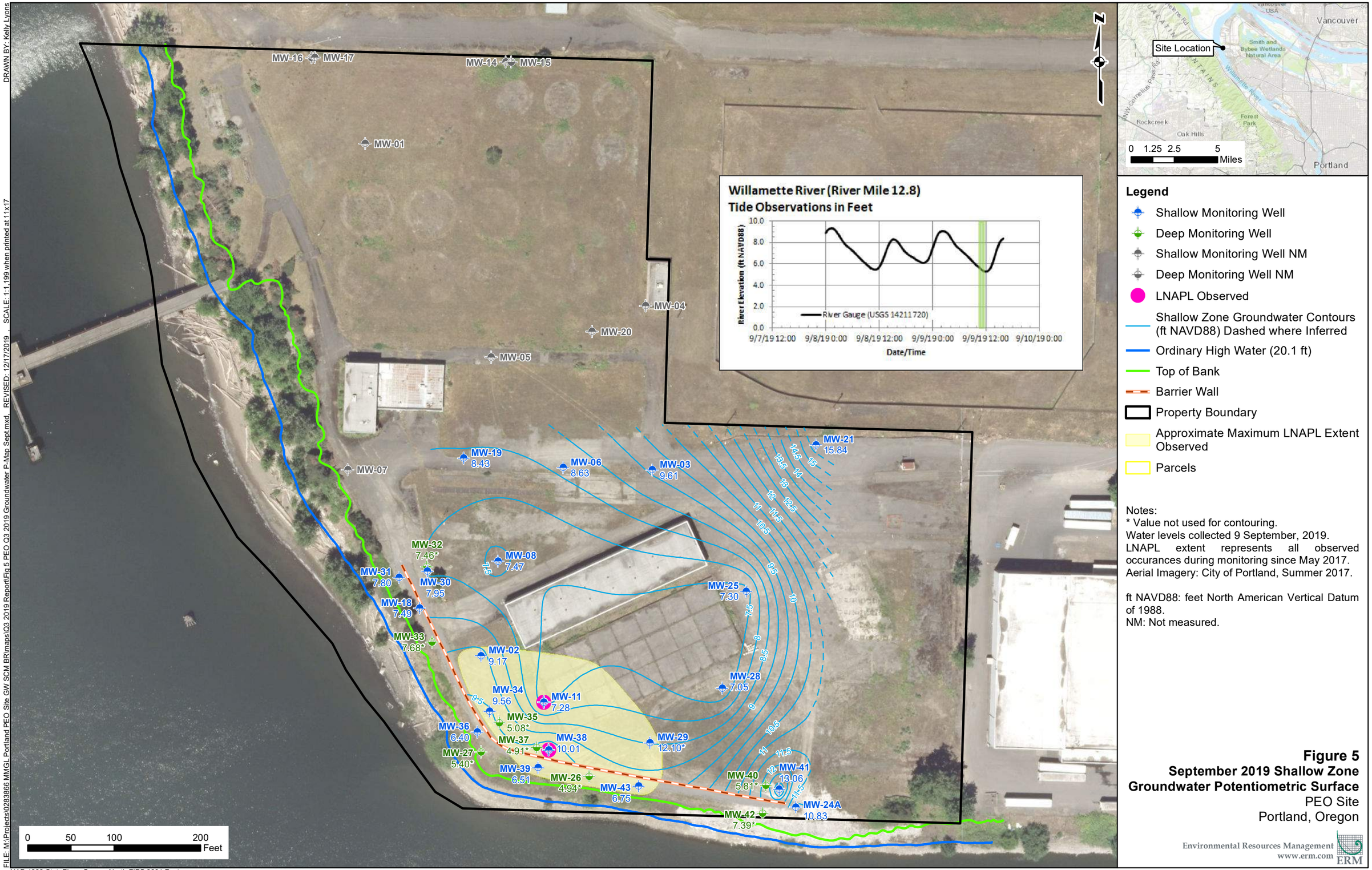
FILE: M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\03 2019 Report\Fig 4 PEO Q3 2019 Groundwater P-Map Aug.mxd, REVISED: 12/17/2019 , SCALE: 1:1,199 when printed at 11x17

NAD 1983 StatePlane Oregon North FIPS 3601 Feet



Notes:
* Value not used for contouring.
Water levels collected 9 September, 2019.
LNAPL extent represents all observed occurances during monitoring since May 2017.
Aerial Imagery: City of Portland, Summer 2017.

ft NAVD88: feet North American Vertical Datum of 1988.
NM: Not measured.

Figure 5
September 2019 Shallow Zone Groundwater Potentiometric Surface
PEO Site
Portland, Oregon

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FILE: M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q3 2019 Report\Fig 5 PEO Q3 2019 Groundwater P-Map Sept.mxd, REVISED: 12/17/2019, SCALE: 1:1,199 when printed at 11x17
NAD 1983 StatePlane Oregon North FIPS 3601 Feet

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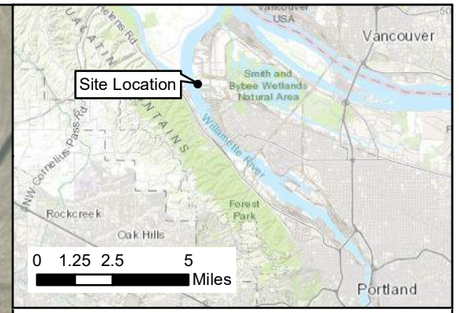
MW-04
MW-20
MW-05
MW-07
MW-19
Benzene: < 0.10
MW-06
Benzene: < 0.10
MW-03
Benzene: < 0.10
MW-21
Benzene: < 0.10
MW-30
Benzene: 0.25 j
MW-32
Benzene: 0.14 j
MW-08
Benzene: 0.49 j
MW-31
Benzene: < 0.10
MW-25
Benzene: < 0.10
MW-18
Benzene: < 0.10
MW-33
Benzene: < 0.10
MW-02*
1-4
MW-28
Benzene: < 0.10
MW-11*
MW-34
Benzene: 0.95 J-
MW-35
Benzene: 0.50 j
MW-36
Benzene: 34.7
MW-37
Benzene: 1.5
MW-38
Benzene: 10.8
MW-29**
MW-27
Benzene: 9.0
MW-39
Benzene: 44.9
MW-26
Benzene: 0.41 j
MW-43*
MW-40
Benzene: < 0.10
MW-41
Benzene: < 0.10
MW-24A
Benzene: < 0.10
MW-42
Benzene: < 0.10

0 37.5 75 150 Feet



Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Not Sampled
- LNAPL Observed - September Groundwater Monitoring Event
- Benzene Isocontour (Dashed where Inferred)
- Ordinary High Water (20.1 ft)
- Top of Bank
- Barrier Wall Alignment
- Property Boundary
- Approximate Maximum LNAPL Extent Observed

Notes:
All results in µg/L (micrograms per liter).
Benzene Performance Criteria = 1.4 µg/L.
j = The result is an estimated concentration, detected between the Method Detection Limit and the Reporting Limit.
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits.
* Not sampled due to presence of LNAPL.
** Not sampled due to well being blocked. See progress report for more details.
Samples collected September 2019.
Aerial Imagery: City of Portland, Summer 2016.
LNAPL extent shown is the extent of all LNAPL occurrences observed during performance monitoring since May 2017.
Shallow screened wells used for iso-concentration contouring.

Figure 6
Benzene
Concentrations in Groundwater
Q3 Performance Monitoring Report
Premier Edible Oils
10400 N Burgard Way
Portland, Oregon

Environmental Resources Management
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FILE: M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q3 2019 Report\Fig 6 PEO Q3 2019 Groundwater_Benzene.mxd, REVISED: 12/06/2019 , SCALE: 1:900 when printed at 11x17

Source: Esri - World Imagery; NAD 1983 StatePlane Oregon North FIPS 3601 Feet

Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Not Sampled
- LNAPL Observed - September Groundwater Monitoring Event
- TPH-Dx Isocontour (Dashed where inferred)
- Ordinary High Water (20.1 ft)
- Top of Bank
- Barrier Wall Alignment
- Property Boundary
- Approximate Maximum LNAPL Extent Observed.

Notes:
All results in µg/L (micrograms per liter).
TPH-D Performance Criteria = 1,000 µg/L.
j = The result is an estimated concentration, detected between the Method Detection Limit and the Reporting Limit.
* Not sampled due to presence of LNAPL.
** Not sampled due to well being blocked. See progress report for more details.
Samples collected 11-18 September, 2019.
Aerial Imagery: City of Portland, Summer 2016.
LNAPL extent shown is the extent of all LNAPL occurrences observed during performance monitoring since May 2017.
Shallow screened wells used for iso-concentration contouring.

Figure 7
TPH-DRO
Concentrations in Groundwater
Q3 Performance Monitoring Report
Premier Edible Oils
10400 N Burgard Way
Portland, Oregon

Environmental Resources Management
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Source: Esri - World Imagery; NAD 1983 StatePlane Oregon North FIPS 3601 Feet

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REVISED: 12/09/2019
FILE: M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q3 2019 Report\Fig 7 PEO Q3 2019 Groundwater TPH-D.mxd

Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Not Sampled
- LNAPL Observed - September Groundwater Monitoring Event
- TPH-Gx Isocontour (Dashed where inferred)
- Ordinary High Water (20.1 ft)
- Top of Bank
- Barrier Wall Alignment
- Property Boundary
- Approximate Maximum LNAPL Extent Observed
- Parcels

Notes:
All results in µg/L (micrograms per liter).
TPH-G Performance Criteria = 1,000 µg/L.
j = The result is an estimated concentration, detected between the Method Detection Limit and the Reporting Limit.
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits.
NJ = Evidence of the compound at an estimated quantity.
* Not sampled due to presence of LNAPL.
** Not sampled due to well being blocked. See progress report for more details.
Samples collected September 2019.
Aerial Imagery: City of Portland, Summer 2016.
LNAPL extent shown is the extent of all LNAPL occurrences observed during performance monitoring since May 2017.
Shallow screened wells used for iso-concentration contouring.

Figure 8
TPH-Gx
Concentrations in Groundwater
Q3 Performance Monitoring Report
Premier Edible Oils
10400 N Burgard Way
Portland, Oregon

Environmental Resources Management
www.erm.com

Source: Esri - World Imagery; NAD 1983 StatePlane Oregon North FIPS 3601 Feet

FILE: M:\Projects\0283966 MMGL Portland PEO Site GW SCM BR\maps\Q3 2019 Report\Fig 8 PEO Q3 2019 Groundwater TPH-G.mxd REVISED: 12/06/2019 SCALE: 1:900 when printed at 11x17 DRAWN BY: Kelly Lyons

DRAWN BY: Kelly Lyons

SCALE: 1:900 when printed at 11x17

REVISED: 12/09/2019

FILE: M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q3 2019 Report\Fig 9 PEO Q3 2019 Groundwater PAHs.mxd

MW-04

MW-20

MW-05

MW-07

MW-19
Aliphatics: R/< 4.07 UJ

MW-06
Aliphatics: R/673 J

260

26

MW-21
Aliphatics: < 5.85 UJ/< 4.07 UJ

MW-03
Aliphatics: < 5.80 UJ/< 4.07 UJ

MW-32
Aliphatics: < 5.94/< 4.07

MW-08
Aliphatics: < 5.88 UJ/< 4.07

MW-31
Aliphatics: < 5.77/< 4.07

MW-30
Aliphatics: < 5.81/< 4.07

MW-25
Aliphatics: < 5.84/< 4.07

MW-18
Aliphatics: < 5.81/< 4.07

MW-33
Aliphatics: 15.7 j/< 4.07

MW-02*

2600

MW-28
Aliphatics: < 5.84/< 4.07

MW-11*

MW-34
Aliphatics: 302 J-/5190 J-

MW-35
Aliphatics: < 5.76/< 4.07

MW-36
Aliphatics: < 5.84/222

MW-37
Aliphatics: < 5.85/69.8

MW-29**

MW-38
Aliphatics: 10500/226

MW-27
Aliphatics: < 5.84/309

MW-40
Aliphatics: < 5.76/< 4.07

MW-41
Aliphatics: < 5.79/< 4.07

MW-39
Aliphatics: < 5.73/216

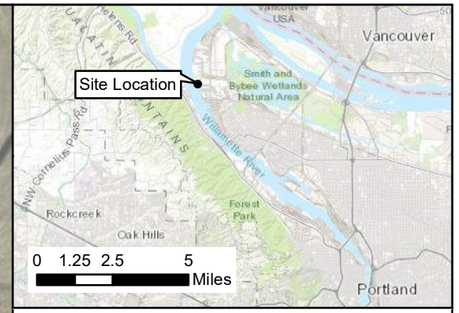
MW-43*

MW-26
Aliphatics: < 5.83/< 4.07

MW-24A
Aliphatics: R

MW-42
Aliphatics: < 5.83/< 4.07

0 37.5 75 150 Feet



Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Not Sampled
- LNAPL Observed - September Groundwater Monitoring Event
- Aliphatics Isocontour (Dashed where Inferrred)
- Ordinary High Water (20.1 ft)
- Top of Bank
- Barrier Wall Alignment
- Property Boundary
- Approximate Maximum LNAPL Extent Observed

Notes:
All results in µg/L (micrograms per liter).
C10-C12 Aliphatics Perfomrance Criteria: 2.6 µg/L.
j = The result is an estimated concentration, detected between the Method Detection Limit and the Reporting Limit.
J = Estimated detected result.
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits.
UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.
R = Sample result is rejected and not used for decision making purposes based on evaluation of quality control data.
33.1 / 41.8: NWEPH / NWVPH.
Concentration contours based on the larger result of the NWEPH or NWVPH analysis method.
* Not sampled due to presence of LNAPL.
** Not sampled due to well being blocked. See progress report for more details.
Samples collected Setpember 2019.
Aerial Imagery: City of Portland, Summer 2016.
LNAPL extent shown is the extent of all LNAPL occurrences observed during performance monitoring since May 2017.
Shallow screened wells used for iso-concentration contouring.

Source: Esri - World Imagery; NAD 1983 StatePlane Oregon North FIPS 3601 Feet

Figure 9
C10-C12 Aliphatics Concentrations in Groundwater
Q3 Performance Monitoring Report
Premier Edible Oils
10400 N Burgard Way
Portland, Oregon

Environmental Resources Management
www.erm.com
ERM

Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Not Sampled
- LNAPL Observed - September Groundwater Monitoring Event
- Arsenic Isocontour (Dashed where Inferred)
- Ordinary High Water (20.1 ft)
- Top of Bank
- Barrier Wall Alignment
- Property Boundary
- Approximate Maximum LNAPL Extent Observed
- Parcels

Notes:
All results in µg/L (micrograms per liter).
As: Arsenic.
Arsenic Performance Criteria = 2.1 µg/L.
j = The result is an estimated concentration, detected between the Method Detection Limit and the Reporting Limit.
* Not sampled due to presence of LNAPL.
** Not sampled due to well being blocked. See progress report for more details.
Samples collected September 2019.
Aerial Imagery: City of Portland, Summer 2016.
LNAPL extent shown is the extent of all LNAPL occurrences observed during performance monitoring since May 2017.
Shallow screened wells used for iso-concentration contouring.

Figure 10
Arsenic
Concentrations in Groundwater
Q3 Performance Monitoring Report
Premier Edible Oils
10400 N Burgard Way
Portland, Oregon

Environmental Resources Management
www.erm.com

Source: Esri - World Imagery; NAD 1983 StatePlane Oregon North FIPS 3601 Feet

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REVISED: 12/09/2019
FILE: M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q3 2019 Report\Fig 10 PEO Q3 2019 Groundwater_Arsenic.mxd

Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Not Sampled
- LNAPL Observed - September Groundwater Monitoring Event
- Manganese Isocontour (Dashed where Inferred)
- Ordinary High Water (20.1 ft)
- Top of Bank
- Barrier Wall Alignment
- Property Boundary
- Approximate Maximum LNAPL Extent Observed
- Parcels

Notes:
All results in µg/L (micrograms per liter).
Mn: Manganese.
Manganese Performance Criteria = 1,925 µg/L.
* Not sampled due to presence of LNAPL.
** Not sampled due to well being blocked. See progress report for more details.
Samples collected September 2019.
Aerial Imagery: City of Portland, Summer 2016.
LNAPL extent shown is the extent of all LNAPL occurrences observed during performance monitoring since May 2017.
Shallow screened wells used for iso-concentration contouring.

Figure 11
Manganese Concentrations in Groundwater
Q3 Performance Monitoring Report
Premier Edible Oils
10400 N Burgard Way
Portland, Oregon

Environmental Resources Management
www.erm.com

Source: Esri - World Imagery; NAD 1983 StatePlane Oregon North FIPS 3601 Feet

DRAWN BY: Kelly Lyons
REVISED: 12/06/2019 , SCALE: 1:900 when printed at 11x17
FILE: M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q3 2019 Report\Fig 11 PEO Q3 2019 Groundwater_Manganese.mxd

Tables

Table 1
Monitoring Well Summary
Premier Edible Oils
Portland, Oregon

Well Identification	Status	Well Depth (ft)	Screen Zone	Screen Interval (ft bgs)		Measuring Point (Top of Casing)	Sitewide Monitoring Point	Water Level Monitoring Point[1]	Transducer Installed	Quarterly Monitoring[2]
				Top	Bottom	ft-NAVD88				
MW-02	Active	26	Shallow	11	26	31.18	X	X		X
MW-03	Active	26	Shallow	11	26	31.67	X	X		X
MW-04	Active	26	Shallow	11	26	31.37				
MW-05	Active	26	Shallow	11	26	31.27				
MW-06	Active	27	Shallow	12	27	31.23	X	X		X
MW-07	Active	27	Shallow	12	27	30.31	X	X		X
MW-08	Active	27	Shallow	12	27	30.93	X	X	X	X
MW-11	Active	27	Shallow	12	27	31.06	X	X	X	X
MW-18	Active	27	Shallow	12	27	30.87	X	X	X	X
MW-19	Active	27	Shallow	12	27	31.7	X	X		X
MW-21	Active	27	Shallow	12	27	31.36	X	X	X	X
MW-24A	Active	27	Shallow	12	27	32.35	X	X		X
MW-25	Active	-	Shallow	-	-	31.78	X	X		X
MW-26	Active	39	Deep	34	39	31.89	X	X		X
MW-27	Active	40	Deep	35	40	31.46	X	X	X	X
MW-28	Active	28	Shallow	13	28	31.26	X	X	X	X
MW-29	Active	30	Shallow	13	28	31.9	X	X		X
MW-30	Active	28	Shallow	13	28	31.05	X	X	X	X
MW-31	Active	28	Shallow	13	28	30.77	X	X		X
MW-32	Active	40	Deep	35	40	31.08	X	X	X	X
MW-33	Active	40	Deep	35	40	30.88	X	X	X	X
MW-34	Active	28	Shallow	13	28	30.72	X	X	X	X
MW-35	Active	40	Deep	35	40	30.83	X	X	X	X
MW-36	Active	30	Shallow	25	30	30.16	X	X	X	X
MW-37	Active	40	Deep	35	40	31.27	X	X		X
MW-38	Active	27	Shallow	13	27	31.54	X	X		X
MW-39	Active	30	Shallow	25	30	31.08	X	X		X
MW-40	Active	40	Deep	35	40	31.71	X	X	X	X
MW-41	Active	27	Shallow	13	27	31.32	X	X	X	X
MW-42	Active	40	Deep	35	40	31.94	X	X	X	X
MW-43	Active	30	Shallow	15	30	31.39	X	X		X

Notes:
– = not applicable
[1] = Manual water level measurment collected monthly
[2] = Groundwater analytical samples
NAVD88 = North America Vertical Datum 1988

Table 2
Groundwater Elevations - July 2019
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point (Top of Casing) ft-NAVD88	Date	Time	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-02	Shallow	31.18	07/10/2019	12:38	21.02	-	ND	-	10.16
MW-03	Shallow	31.67	07/10/2019	11:39	20.30	-	ND	-	11.37
MW-06	Shallow	31.23	07/10/2019	11:41	21.07	-	ND	-	10.16
MW-07	Shallow	30.31	07/10/2019				Dry		
MW-08	Shallow	30.93	07/10/2019	12:43	22.20	-	ND	-	8.73
MW-11	Shallow	31.06	07/10/2019	12:31	23.60	-	ND	-	7.46
MW-18	Shallow	30.87	07/10/2019	11:53	21.70	-	ND	-	9.17
MW-19	Shallow	31.70	07/10/2019	11:43	21.83	-	ND	-	9.87
MW-21	Shallow	31.36	07/10/2019	11:37	14.73	-	ND	-	16.63
MW-24A	Shallow	32.35	07/10/2019	12:11	19.05	-	ND	-	13.30
MW-25	Shallow	31.78	07/10/2019	12:19	22.55	-	ND	-	9.23
MW-26	Deep	31.89	07/10/2019	12:03	25.35	-	ND	-	6.54
MW-27	Deep	31.46	07/10/2019	11:59	24.00	-	ND	-	7.46
MW-28	Shallow	31.26	07/10/2019	12:17	23.03	-	ND	-	8.23
MW-29	Shallow	31.90	07/10/2019	12:21	21.72	-	ND	-	10.18
MW-30	Shallow	31.05	07/10/2019	11:51	21.46	-	ND	-	9.59
MW-31	Shallow	30.77	07/10/2019	11:47	21.53	-	ND	-	9.24
MW-32	Deep	31.08	07/10/2019	11:49	22.55	-	ND	-	8.53
MW-33	Deep	30.88	07/10/2019	11:55	23.94	-	ND	-	6.94
MW-34	Shallow	30.72	07/10/2019	12:36	18.95	-	ND	-	11.77
MW-35	Deep	30.83	07/10/2019	12:34	23.70	-	ND	-	7.13
MW-36	Shallow	30.16	07/10/2019	11:57	22.35	-	ND	-	7.81
MW-37	Deep	31.27	07/10/2019	12:28	24.26	-	ND	-	7.01
MW-38	Shallow	31.54	07/10/2019	12:24	20.35	-	ND	-	11.19
MW-39	Shallow	31.08	07/10/2019	12:01	23.11	23.09	0.02	0.00	7.99
MW-40	Deep	31.71	07/10/2019	12:15	24.78	-	ND	-	6.93
MW-41	Shallow	31.32	07/10/2019	12:13	17.51	-	ND	-	13.81
MW-42	Deep	31.94	07/10/2019	12:09	23.77	-	ND	-	8.17
MW-43	Shallow	31.39	07/10/2019	12:06	23.20	23.19	0.01	0.00	8.20

Notes:
– = not applicable
NAVD88 = North America Vertical Datum 1988
ND = Non-detect
Corrected groundwater water elevation (GWE) calculated as: $GWE_{corr} = GWE + (NAPL_{thickness} * SG)$
Specific Gravity (SG) of light nonaqueous phase liquid (LNAPL) assumed to be 0.8 based on analysis of LNAPL

Table 3
Groundwater Elevations - August 2019
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point (Top of Casing) ft-NAVD88	Date	Time	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-02	Shallow	31.18	08/14/2019	09:57	21.68	21.67	0.01	0.00	9.51
MW-03	Shallow	31.67	08/14/2019	08:40	21.53	-	ND	-	10.14
MW-06	Shallow	31.23	08/14/2019	08:42	22.00	-	ND	-	9.23
MW-07	Shallow	30.31	08/14/2019				Dry		
MW-08	Shallow	30.93	08/14/2019	09:51	22.88	-	ND	-	8.05
MW-11	Shallow	31.06	08/14/2019	10:04	23.45	23.33	0.12	0.02	7.71
MW-18	Shallow	30.87	08/14/2019	08:54	21.70	-	ND	-	9.17
MW-19	Shallow	31.70	08/14/2019	08:45	22.71	-	ND	-	8.99
MW-21	Shallow	31.36	08/14/2019	08:37	15.22	-	ND	-	16.14
MW-24A	Shallow	32.35	08/14/2019	09:20	19.82	-	ND	-	12.53
MW-25	Shallow	31.78	08/14/2019	09:24	22.96	-	ND	-	8.82
MW-26	Deep	31.89	08/14/2019	09:08	24.63	-	ND	-	7.26
MW-27	Deep	31.46	08/14/2019	09:01	23.36	-	ND	-	8.10
MW-28	Shallow	31.26	08/14/2019	09:27	22.95	-	ND	-	8.31
MW-29	Shallow	31.90	08/14/2019	09:32	20.80	-	ND	-	11.10
MW-30	Shallow	31.05	08/14/2019	09:48	22.48	-	ND	-	8.57
MW-31	Shallow	30.77	08/14/2019	08:48	21.94	-	ND	-	8.83
MW-32	Deep	31.08	08/14/2019	09:47	22.69	-	ND	-	8.39
MW-33	Deep	30.88	08/14/2019	08:56	22.86	-	ND	-	8.02
MW-34	Shallow	30.72	08/14/2019	10:01	19.54	-	ND	-	11.18
MW-35	Deep	30.83	08/14/2019	09:54	23.31	-	ND	-	7.52
MW-36	Shallow	30.16	08/14/2019	08:59	21.62	-	ND	-	8.54
MW-37	Deep	31.27	08/14/2019	09:43	23.89	-	ND	-	7.38
MW-38	Shallow	31.54	08/14/2019	09:40	21.06	21.03	0.03	0.00	10.50
MW-39	Shallow	31.08	08/14/2019	09:04	22.44	22.44	Trace	-	8.64
MW-40	Deep	31.71	08/14/2019	09:30	23.49	-	ND	-	8.22
MW-41	Shallow	31.32	08/14/2019	09:29	18.03	-	ND	-	13.29
MW-42	Deep	31.94	08/14/2019	09:17	23.73	-	ND	-	8.21
MW-43	Shallow	31.39	08/14/2019	09:11	22.69	22.68	0.01	0.00	8.71

Notes:
– = not applicable
NAVD88 = North America Vertical Datum 1988
ND = Non-detect
Corrected groundwater water elevation (GWE) calculated as: $GWE_{corr} = GWE + (NAPL_{thickness} * SG)$
Specific Gravity (SG) of light nonaqueous phase liquid (LNAPL) assumed to be 0.8 based on analysis of LNAPL

Table 4
Groundwater Elevations - September 2019
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point (Top of Casing) ft-NAVD88	Date	Time	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-02	Shallow	31.18	09/09/2019	11:41	22.01	-	ND	-	9.17
MW-03	Shallow	31.67	09/09/2019	10:35	22.06	-	ND	-	9.61
MW-06	Shallow	31.23	09/09/2019	10:37	22.60	-	ND	-	8.63
MW-07	Shallow	30.31	09/09/2019	Dry					
MW-08	Shallow	30.93	09/09/2019	11:39	23.46	-	ND	-	7.47
MW-11	Shallow	31.06	09/09/2019	11:48	23.85	23.76	0.09	0.01	7.28
MW-18	Shallow	30.87	09/09/2019	10:44	23.38	-	ND	-	7.49
MW-19	Shallow	31.70	09/09/2019	10:39	23.27	-	ND	-	8.43
MW-21	Shallow	31.36	09/09/2019	10:32	15.52	-	ND	-	15.84
MW-24A	Shallow	32.35	09/09/2019	11:08	21.52	-	ND	-	10.83
MW-25	Shallow	31.78	09/09/2019	10:30	24.48	-	ND	-	7.30
MW-26	Deep	31.89	09/09/2019	10:57	26.95	-	ND	-	4.94
MW-27	Deep	31.46	09/09/2019	10:50	26.06	-	ND	-	5.40
MW-28	Shallow	31.26	09/09/2019	11:15	24.21	-	ND	-	7.05
MW-29	Shallow	31.90	09/09/2019	11:20	19.80	-	ND	-	12.10
MW-30	Shallow	31.05	09/09/2019	11:35	23.10	-	ND	-	7.95
MW-31	Shallow	30.77	09/09/2019	10:42	22.97	-	ND	-	7.80
MW-32	Deep	31.08	09/09/2019	11:32	23.62	-	ND	-	7.46
MW-33	Deep	30.88	09/09/2019	10:46	23.20	-	ND	-	7.68
MW-34	Shallow	30.72	09/09/2019	11:46	21.16	-	ND	-	9.56
MW-35	Deep	30.83	09/09/2019	11:44	25.75	-	ND	-	5.08
MW-36	Shallow	30.16	09/09/2019	10:48	23.76	-	ND	-	6.40
MW-37	Deep	31.27	09/09/2019	11:29	26.36	-	ND	-	4.91
MW-38	Shallow	31.54	09/09/2019	11:25	21.54	21.55	0.01	0.00	10.01
MW-39	Shallow	31.08	09/09/2019	10:53	24.57	-	ND	-	6.51
MW-40	Deep	31.71	09/09/2019	11:12	25.90	-	ND	-	5.81
MW-41	Shallow	31.32	09/09/2019	11:10	18.26	-	ND	-	13.06
MW-42	Deep	31.94	09/09/2019	11:05	24.55	-	ND	-	7.39
MW-43	Shallow	31.39	09/09/2019	11:01	24.63	-	ND	-	6.76

Notes:
– = not applicable
NAVD88 = North America Vertical Datum 1988
ND = Non-detect
Corrected groundwater water elevation (GWE) calculated as: $GWE_{corr} = GWE + (NAPL_{thickness} * SG)$
Specific Gravity (SG) of light nonaqueous phase liquid (LNAPL) assumed to be 0.8 based on analysis of LNAPL

Table 5
Transducer Calibration Offsets
Premier Edible Oils
Portland, Oregon

Calibration Event	Measurement	MW-08	MW-11	MW-18	MW-21	MW-27	MW-28	MW-30	MW-32	MW-33	MW-34	MW-35	MW-36	MW-40	MW-41	MW-42
Transducer Position	TOC Elev Adj. (ft above NAVD88)	30.93	31.06	30.87	31.36	31.46	31.26	31.05	31.08	30.88	30.72	30.83	30.16	31.71	31.32	31.94
	Datalogger depth (ft BTOC)	26.91	27.00	27.00	18.05	39.87	28.12	28.00	38.14	39.31	27.90	39.83	29.92	39.84	27.35	39.04
7/10/2019	DTW measured (ft BTOC)	22.20	23.00	21.70	14.73	24.00	23.03	21.46	22.55	23.94	18.95	23.70	22.35	24.78	15.51	23.77
	DTW calculated (ft BTOC)	22.32	23.49	21.81	14.82	24.09	22.98	21.56	23.03	24.21	19.15	24.20	22.45	24.24	17.71	24.04
	Calibration Offset	0.12	0.49	0.11	0.09	0.09	-0.05	0.10	0.48	0.27	0.20	0.50	0.10	-0.54	2.20	0.27
8/14/2019	DTW measured (ft BTOC)	22.88	23.35	21.70	15.22	23.36	22.95	22.48	22.69	22.86	19.54	23.31	21.62	23.49	16.03	23.73
	DTW calculated (ft BTOC)	22.87	23.64	22.00	15.23	23.48	22.89	22.62	23.13	23.10	19.62	23.49	21.34	23.69	18.22	24.19
	Calibration Offset	-0.01	0.29	0.30	0.01	0.12	-0.06	0.14	0.44	0.24	0.08	0.18	-0.28	0.20	2.19	0.46
9/9/2019	DTW measured (ft BTOC)	23.34	23.76	23.38	15.52	26.06	24.21	23.10	23.62	23.20	21.16	25.75	23.76	25.90	16.26	24.55
	DTW calculated (ft BTOC)	23.43	24.43	23.50	15.58	26.20	24.25	23.31	24.05	23.44	20.81	26.05	23.71	26.23	18.43	24.99
	Calibration Offset	0.09	0.67	0.12	0.06	0.14	0.04	0.21	0.43	0.24	-0.35	0.30	-0.05	0.33	2.17	0.44

Notes:
NAVD88 = North America Vertical Datum 1988
DTW = Depth to Water
BTOC = Below Top of Casing
** = Pressure Transducer stopped recording on 8/15/18 for a period of 30 days. Measurements started again on 9/13/18.*

Table 6
LNAPL Observations during Groundwater Sampling Event
Premier Edible Oils
Portland, Oregon

Well Identification	Screen Zone	Measuring Point ft-NAVD88	Date	Depth to Groundwater feet-btc	Depth to Product feet-btc	Product Thickness feet	Product Volume gal	Groundwater Elevation ft-NAVD88
MW-02	Shallow	31.18	9/13/2019	23.70	23.12	0.58	0.09	7.94
MW-03	Shallow	31.67	9/11/2019	22.15	-	ND	-	9.52
MW-06	Shallow	31.23	9/11/2019	22.87	-	ND	-	8.36
MW-07	Shallow	30.31	9/9/2019	Dry				
MW-08	Shallow	30.93	9/18/2019	22.80	-	ND	-	8.13
MW-11	Shallow	31.06	9/13/2019	23.70	23.66	0.04	0.01	7.39
MW-18	Shallow	30.87	9/12/2019	22.80	-	ND	-	8.07
MW-19	Shallow	31.70	9/11/2019	23.50	-	ND	-	8.20
MW-21	Shallow	31.36	9/11/2019	15.57	-	ND	-	15.79
MW-24A	Shallow	32.35	9/10/2019	23.80	-	ND	-	8.55
MW-25	Shallow	31.78	9/18/2019	23.10	-	ND	-	8.68
MW-26	Deep	31.89	9/13/2019	23.87	-	ND	-	8.02
MW-27	Deep	31.46	9/12/2019	24.70	-	ND	-	6.76
MW-28	Shallow	31.26	9/18/2019	23.22	-	ND	-	8.04
MW-29	Shallow	31.90	9/18/2019	Potentially bio fouled at 20.55 ft bgs.				
MW-30	Shallow	31.05	9/17/2019	22.97	-	ND	-	8.08
MW-31	Shallow	30.77	9/12/2019	22.69	-	ND	-	8.08
MW-32	Deep	31.08	9/10/2019	23.30	-	ND	-	7.78
MW-33	Deep	30.88	9/10/2019	23.52	-	ND	-	7.36
MW-34	Shallow	30.72	9/17/2019	22.42	-	ND	-	8.30
MW-35	Deep	30.83	9/17/2019	22.12	-	ND	-	8.71
MW-36	Shallow	30.16	9/12/2019	22.80	-	ND	-	7.36
MW-37	Deep	31.27	9/13/2019	23.57	-	ND	-	7.70
MW-38	Shallow	31.54	9/13/2019	21.85	-	ND	-	9.69
MW-39	Shallow	31.08	9/12/2019	24.16	-	ND	-	6.92
MW-40	Deep	31.71	9/13/2019	24.34	-	ND	-	7.37
MW-41	Shallow	31.32	9/13/2019	18.39	-	ND	-	12.93
MW-42	Deep	31.94	9/10/2019	24.80	-	ND	-	7.14
MW-43	Shallow	31.39	9/13/2019	23.07	23.06	0.01	0.00	8.33

Notes:
– = not applicable
NAVD88 = North America Vertical Datum 1988
ND = Non-detect
Corrected groundwater water elevation (GWE) calculated as: $GWE_{corr} = GWE + (NAPL_{thickness} * SG)$
Specific Gravity (SG) of light nonaqueous phase liquid (LNAPL) assumed to be 0.8 based on analysis of LNAPL

Table 7
LNAPL Recovery Volumes
Premier Edible Oils
Portland, Oregon

Quarter	Date	MW-02 gal	MW-11 gal	MW-34 gal	MW-38 gal	MW-39 gal	MW-43 gal	Total gal
Q1 2019	3/15/2019	1.0*	0.04	0.06	0.02	0.02	0.03	1.18
Q2 2019	6/13/2019	-	-	-	-	-	-	0.00
Q3 2019	9/18/2019	-	-	-	-	-	-	0.00
Total Recovered		**0.00**	**0.04**	**0.06**	**0.02**	**0.02**	**0.03**	**1.18**

Notes:
– = not applicable
** = approximate value*

Table 8
Groundwater Field Parameters - June 2019
Premier Edible Oils, 10400 N Burgard Way
Portland OR

Monitoring Well	Date	pH	Specific Conductance µS/cm	Temperature °C	ORP mV	Dissolved Oxygen mg/L	Turbidity NTU
MW-02	9/13/2019	Not collected due to presence of LNAPL					
MW-03	9/11/2019	5.83	159	17.26	163.5	1.24	97.3
MW-06	9/11/2019	6.01	161	16.83	-17.2	0.36	2.4
MW-07	9/9/2019	Dry					
MW-08	9/18/2019	6.16	307	20.40	11.9	0.32	5.67
MW-11	9/13/2019	Not collected due to presence of LNAPL					
MW-18	9/12/2019	4.91	146	17.13	167.6	1.50	1.89
MW-19	9/11/2019	6.10	183	17.41	65.5	1.34	20.7
MW-21	9/11/2019	5.92	100	17.18	152.5	1.46	2.97
MW-24A	9/10/2019	Not collected due to insufficient volume to collect parameters					
MW-25	9/18/2019	6.13	125	16.51	72.6	1.53	2.72
MW-26	9/13/2019	5.84	120	18.00	188.6	0.44	10.5
MW-27	9/12/2019	6.19	448	19.68	-67.9	1.36	7.98
MW-28	9/18/2019	6.35	145	17.30	54.6	4.68	1.07
MW-29	9/18/2019	Not collected to potential bio fouling at 20.55 ft bgs					
MW-30	9/17/2019	5.87	328	16.63	-28.2	0.81	33.20
MW-31	9/12/2019	5.61	187	15.57	220.0	2.51	1.06
MW-32	9/10/2019	9.76	188	17.35	137.7	5.13	--
MW-33	9/10/2019	9.34	163	20.26	102.4	0.34	--
MW-34	9/17/2019	6.31	548	26.20	-115.4	0.04	119
MW-35	9/17/2019	6.48	152	24.22	-96.7	0.12	0.03
MW-36	9/12/2019	6.33	516	21.03	-47.1	0.30	3.09
MW-37	9/17/2019	6.63	263	19.60	-31.8	0.19	6.24
MW-38	9/13/2019	5.97	473	23.62	-18.6	0.22	7.32
MW-39	9/12/2019	6.11	614	18.69	-76.1	0.19	17.5
MW-40	9/13/2019	6.30	288	16.93	22.30	0.22	5.22
MW-41	9/13/2019	5.77	130	16.70	111.0	0.70	3.95
MW-42	9/10/2019	11.03	116	17.52	152.4	11.03	--
MW-43	9/13/2019	Not collected due to presence of LNAPL					

Notes:
-- = not analyzed
°C = degrees Celsius
mg/L = milligrams per liter
mV = millivolts
NTU = Nephelometric Turbidity Units
ORP = oxidation reduction potential, measured in millivolts (mV)
pH standard units
µS/cm = microsiemens per centimeter

Table 9
Groundwater Analytical Data - Petroleum Related Compounds
Premier Edible Oils, 10400 N Burgard Way
Portland OR

Method		SW8260C/SW8260C-SIM					NWTPH-Dx, SGT		NWTPH-Gx	NWEPH	NWVPH
Analyte		Benzene	Ethylbenzene	m,p-Xylenes	o-Xylene	Toluene	Motor Oil Range Organics (C24-C36)	TPH Diesel Range Organics	TPH-GRO (Gasoline Range Organics)	C10-C12-Aliphatics	C10-C12-Aliphatics
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		1.4	210	13	13	1,500	NS	1000	1000	2.6	2.6
Well	Sample Date										
MW-03	11-Sep-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 80	120 j	< 38.3	< 5.80 UJ	< 4.07 UJ
MW-06	11-Sep-19	< 0.10	< 0.14	< 0.31	< 0.16	< 1.0 U	< 75	1,200	3,330	R	673 J
MW-08	18-Sep-19	0.49 j	< 0.14	< 0.31	< 0.16	< 0.083	250 j	1,500	314	< 5.88 UJ	< 4.07
MW-18	12-Sep-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 75	2,200	354 NJ	< 5.81	< 4.07
MW-19	11-Sep-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 77	110 j	< 38.3	R	< 4.07 UJ
MW-21	11-Sep-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 77	< 65	< 38.3	< 5.85 UJ	< 4.07 UJ
MW-24A	11-Sep-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	190 j	110 j	< 38.3	--	R
MW-25	18-Sep-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 75	82 j	< 38.3	< 5.84	< 4.07
MW-26	13-Sep-19	0.41 j	< 0.14	0.82 j	0.59 j	0.79 j	< 400 U	350 j	379	< 5.83	< 4.07
MW-27	12-Sep-19	9.0	0.92 j	4.9	1.5	4.2	< 77	1,800	1,530	< 5.84	309
MW-28	18-Sep-19	< 0.10	< 0.14	< 0.31	< 0.16	0.14 j	150 j	150 j	< 38.3	< 5.84	< 4.07
MW-30	17-Sep-19	0.25 j	< 0.14	< 0.31	0.22 j	< 0.083	220 j	3,200	292	< 5.81	< 4.07
MW-31	12-Sep-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 77	< 65	< 38.3	< 5.77	< 4.07
MW-32	10-Sep-19	0.14 j	< 0.14	0.53 j	< 0.16	0.57 j	110 j	380 j	96.8 j	< 5.94	< 4.07
MW-33	10-Sep-19	< 0.10	< 0.14	< 0.31	< 0.16	0.16 j	140 J-	270 j	92.2 j	15.7 j	< 4.07
MW-34	18-Sep-19	0.95 J-	0.27 J-	1.1 J-	1.4 J-	756 J-	11,400	182,000	7,340 J-	302 J-	5,190 J-
MW-35	17-Sep-19	0.50 j	< 0.14	< 0.31	< 0.16	< 1.0 U	80 j	580	209	< 5.73 UJ	< 4.07
MW-35 Dup	17-Sep-19	0.48 j	< 0.14	< 0.31	< 0.16	< 1.0 U	< 77	510	214	< 5.76	< 4.07
MW-36	12-Sep-19	34.7	5.4	32.7	11.7	31.7	88 j	2,900	2,650 NJ	< 5.84	222
MW-36 Dup	12-Sep-19	33.8	5.4	32.3	11.6	31.3	< 80	2,200	2,540	< 5.55 UJ	217
MW-37	17-Sep-19	1.5	0.35 j	1.1 j	1.3	1.4 J+	96 j	340 j	470	< 5.85	69.8
MW-38	13-Sep-19	10.8	1.4	7.5	3.2	6.1	430 J+	15,100	4,270 NJ	10,500	226
MW-39	12-Sep-19	44.9	10.9	43.0	14.4	27.7	160 j	6,800	4,530 NJ	< 5.73	216
MW-40	13-Sep-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 78	< 66	< 38.3	< 5.76	< 4.07
MW-41	13-Sep-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	< 78	< 66	< 38.3	< 5.79	< 4.07
MW-42	10-Sep-19	< 0.10	< 0.14	< 0.31	< 0.16	< 0.083	170 j	240 j	< 38.3	< 5.83	< 4.07

Notes:

< = Compound not detected. Reportable detection limit shown.
-- = not analyzed
µg/L = micrograms per liter
GW SCM = Groundwater Source Control Measure
NS = No Standard for GW SCM Performation Evaluation
Dup = Field Duplicate Sample
Bolded values indicate concentrations above the Reportable Detection Limit.
Shaded values indicate concentrations above the GW SCM Performance Evaluation Criteria.

Qualifiers - Organics
j = The result is an estimated concentration, detected between the Method Detection Limit and the Reporting Limit.
J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits
NJ = Evidence of the compound at an estimated quantity.
UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.
U = Analyte was analuzed for, but not detected.
R = Sample result is rejected and not used for decision making purposes based on evaluation of quality control data.
NWTPH-Dx, SGT analyses performed by PACE.
NWTPH-Gx analyses performed by PACE.
NWVPH analyses performed by Fremont.
NWEPH analyses performed by Fremont.

Table 10
Groundwater Analytical Data - Semi-volatile Organic Compounds and Metals
Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

Method		EPA 6020A		EPA 8270 by SIM				
Analyte		Arsenic	Manganese	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene
Unit		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		2.1	1,925	NS	NS	99	NS	4,000
Well	Sample Date							
MW-03	11-Sep-19	**0.24 j**	**11.2**	*< 0.0035*	*< 0.0062*	*< 0.012*	*< 0.0094*	*< 0.010*
MW-06	11-Sep-19	**8.3**	**435**	**13.0**	**13.8**	**1.7**	**0.50**	**0.23**
MW-08	18-Sep-19	**12.1**	**1,350**	*< 0.0055*	*< 0.0052*	**0.25**	*< 0.0046*	*< 0.0061*
MW-18	12-Sep-19	**0.60**	**553**	**0.32**	*< 0.0051*	**0.47**	*< 0.0045*	*< 0.0060*
MW-19	11-Sep-19	**0.19 j**	**98.8**	**0.053**	**0.056**	*< 0.012*	*< 0.0093*	*< 0.0099*
MW-21	11-Sep-19	**0.40 j**	**55.4**	*< 0.0036*	*< 0.0062*	*< 0.012*	*< 0.0095*	*< 0.010*
MW-25	18-Sep-19	**0.26 j**	**12.0**	*< 0.0055*	*< 0.0052*	*< 0.0032*	*< 0.0046*	*< 0.0061*
MW-26	13-Sep-19	**2.5**	**306**	**0.095**	*< 0.0051*	**0.16**	*< 0.0045*	*< 0.0060*
MW-27	12-Sep-19	**28.7**	**3,330**	**0.96 J-**	*< 0.0052 UJ*	**0.93 J-**	**0.14 J-**	**0.074 J-**
MW-28	18-Sep-19	**0.17 j**	**3.7**	*< 0.0055*	*< 0.0052*	*< 0.0032*	*< 0.0046*	*< 0.0061*
MW-30	17-Sep-19	**2.6**	**3,190**	*< 0.0055*	*< 0.0052*	*< 0.0032*	*< 0.0046*	*< 0.0061*
MW-31	12-Sep-19	**0.15 j**	**12.5**	*< 0.0055*	*< 0.0052*	*< 0.0032*	*< 0.0046*	*< 0.0061*
MW-32	10-Sep-19	**6.1**	**17.5**	*< 0.0035*	*< 0.0061*	*< 0.012*	*< 0.0093*	*< 0.0099*
MW-33	10-Sep-19	**2.7**	**10.4**	**0.041 j**	*< 0.0066*	**0.15**	**0.023 j**	*< 0.011*
MW-34	18-Sep-19	**77.5**	**2,600**	**2.7 J-**	*< 0.0060 UJ*	**1.6 J-**	*< 0.0053 UJ*	*< 0.0071 UJ*
MW-35	17-Sep-19	**17.5**	**621**	**0.10**	*< 0.0051*	**0.19**	**0.053**	**0.13**
MW-35 Dup	17-Sep-19	**17.4**	**610**	**0.11**	*< 0.0051*	**0.19**	**0.051**	**0.13**
MW-36	12-Sep-19	**28.5**	**2,800**	*< 0.0055*	*< 0.0052*	*< 0.0032*	*< 0.0046*	*< 0.0061*
MW-36 Dup	12-Sep-19	**28.9**	**2,900**	*< 0.0054*	*< 0.0051*	**1.1**	*< 0.0045*	*< 0.0060*
MW-37	17-Sep-19	**15.1**	**1,230**	**0.19**	**0.022 j**	**0.20**	**0.016 j**	*< 0.0062*
MW-38	13-Sep-19	**34.2**	**2,160**	**0.93**	*< 0.0051*	**1.1**	*< 0.0045*	*< 0.0060*
MW-39	12-Sep-19	**34.4**	**3,610**	**10.9**	*< 0.0052*	**2.0**	**0.34**	*< 0.0061*
MW-40	13-Sep-19	**3.8**	**1,430**	*< 0.0055*	*< 0.0052*	*< 0.0032*	*< 0.0046*	*< 0.0061*
MW-41	13-Sep-19	**2.6**	**342**	**0.013 j**	*< 0.0052*	*< 0.0032*	*< 0.0046*	*< 0.0061*
MW-42	10-Sep-19	**3.8**	**15.2**	*< 0.0035*	*< 0.0061*	*< 0.012*	*< 0.0092*	*< 0.0098*

Notes:
< = Compound not detected. Reportable detection limit shown.
-- = not analyzed
µg/L = micrograms per liter
GW SCM = Groundwater Source Control Measure
NS = No Standard for GW SCM Performation Evaluation
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Shaded values indicate concentrations above the GW SCM Performance Evaluation Criteria.

Qualifiers - Organics
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J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits
NJ = Evidence of the compound at an estimated quantity.
UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.
U = Analyte was analuzed for, but not detected.
EPA 6020A analyses performed by PACE.
EPA 8270 BY SIM analyses performed by PACE.

Table 10
Groundwater Analytical Data - Semi-volatile O
Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

Method			EPA 827			
Analyte		Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene
Unit		µg/L	µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		0.0018	0.0018	0.0018	0.0018	0.0018
Well	Sample Date					
MW-03	11-Sep-19	< 0.0079	< 0.0055	< 0.0087	< 0.0093	< 0.0064
MW-06	11-Sep-19	< 0.0079	< 0.0055	< 0.0087	< 0.0093	< 0.0064
MW-08	18-Sep-19	< 0.0039	< 0.0040	< 0.013	< 0.0097	< 0.010
MW-18	12-Sep-19	< 0.0038	< 0.0039	< 0.012	< 0.0095	< 0.010
MW-19	11-Sep-19	< 0.0078	< 0.0055	< 0.0086	< 0.0092	< 0.0064
MW-21	11-Sep-19	< 0.0080	< 0.0056	< 0.0087	< 0.0094	< 0.0065
MW-25	18-Sep-19	< 0.0039	< 0.0040	< 0.013	< 0.0097	< 0.010
MW-26	13-Sep-19	< 0.0038	< 0.0039	< 0.012	< 0.0096	< 0.010
MW-27	12-Sep-19	< 0.0039 UJ	< 0.0040 UJ	< 0.013 UJ	< 0.0098 UJ	< 0.010 UJ
MW-28	18-Sep-19	< 0.0039	< 0.0040	< 0.013	< 0.0097	< 0.010
MW-30	17-Sep-19	< 0.0039	< 0.0040	< 0.013	< 0.0097	< 0.010
MW-31	12-Sep-19	< 0.0039	< 0.0040	< 0.013	< 0.0097	< 0.010
MW-32	10-Sep-19	< 0.0078	< 0.0055	< 0.0085	< 0.0092	< 0.0063
MW-33	10-Sep-19	< 0.0084	< 0.0059	< 0.0092	< 0.0099	< 0.0068
MW-34	18-Sep-19	< 0.0045 UJ	**0.090 J-**	**0.087 J-**	**0.056 J-**	< 0.012 UJ
MW-35	17-Sep-19	< 0.0038	< 0.0039	< 0.012	< 0.0096	< 0.010
MW-35 Dup	17-Sep-19	< 0.0038	< 0.0039	< 0.012	< 0.0096	< 0.010
MW-36	12-Sep-19	< 0.0039	< 0.0040	< 0.013	< 0.0097	< 0.010
MW-36 Dup	12-Sep-19	< 0.0038	**0.0048 j**	< 0.012	< 0.0096	< 0.010
MW-37	17-Sep-19	< 0.0039	< 0.0040	< 0.013	< 0.0098	< 0.010
MW-38	13-Sep-19	< 0.0038	< 0.0039	< 0.012	< 0.0096	< 0.010
MW-39	12-Sep-19	**0.021 j**	**0.0095 j**	< 0.013	< 0.0097	< 0.010
MW-40	13-Sep-19	< 0.0039	< 0.0040	< 0.013	< 0.0097	< 0.010
MW-41	13-Sep-19	< 0.0039	< 0.0040	< 0.013	< 0.0097	< 0.010
MW-42	10-Sep-19	< 0.0077	< 0.0054	< 0.0085	< 0.0091	< 0.0063

Notes:
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-- = not analyzed
µg/L = micrograms per liter
GW SCM = Groundwater Source Control Measure
NS = No Standard for GW SCM Performation Evaluation
Dup = Field Duplicate Sample
Bolded values indicate concentrations above the Reportable De
Shaded values indicate concentrations above the GW SCM Perf

Qualifiers - Organics
j = The result is an estimated concentration, detected between th
J+ = The concentration of the sample is considered to be biased
J- = The concentration of the sample is considered to be biased
NJ = Evidence of the compound at an estimated quantity.
UJ = Analyte was analyzed for, but not detected. The detection l
U = Analyte was analuzed for, but not detected.
EPA 6020A analyses performed by PACE.
EPA 8270 BY SIM analyses performed by PACE.

Table 10
Groundwater Analytical Data - Semi-volatile (
Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

		Method 0 by SIM				
	Analyte	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene
	Unit	µg/L	µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		0.0018	0.0018	14	530	0.0018
Well	Sample Date					
MW-03	11-Sep-19	*< 0.010*	*< 0.0084*	*< 0.010*	*< 0.0053*	*< 0.0053*
MW-06	11-Sep-19	*< 0.010*	*< 0.0084*	**0.053**	**3.7**	*< 0.0053*
MW-08	18-Sep-19	*< 0.0091*	*< 0.0091*	**0.055**	**0.21**	*< 0.013*
MW-18	12-Sep-19	*< 0.0089*	*< 0.0089*	*< 0.018*	**0.34**	*< 0.013*
MW-19	11-Sep-19	*< 0.010*	*< 0.0083*	*< 0.0099*	**0.017 j**	*< 0.0053*
MW-21	11-Sep-19	*< 0.010*	*< 0.0085*	*< 0.010*	*< 0.0053*	*< 0.0054*
MW-25	18-Sep-19	*< 0.0091*	*< 0.0091*	*< 0.018*	*< 0.0059*	*< 0.013*
MW-26	13-Sep-19	*< 0.0090*	*< 0.0090*	*< 0.018*	**0.14**	*< 0.013*
MW-27	12-Sep-19	*< 0.0092 UJ*	*< 0.0092 UJ*	**0.022 J-**	**0.75 J-**	*< 0.013 UJ*
MW-28	18-Sep-19	*< 0.0091*	*< 0.0091*	*< 0.018*	*< 0.0059*	*< 0.013*
MW-30	17-Sep-19	*< 0.0091*	*< 0.0091*	*< 0.018*	**0.11**	*< 0.013*
MW-31	12-Sep-19	*< 0.0091*	*< 0.0091*	*< 0.018*	*< 0.0059*	*< 0.013*
MW-32	10-Sep-19	*< 0.010*	*< 0.0083*	*< 0.0099*	*< 0.0052*	*< 0.0053*
MW-33	10-Sep-19	*< 0.011*	*< 0.0089*	*< 0.011*	*< 0.0056*	*< 0.0057*
MW-34	18-Sep-19	**0.16 J-**	*< 0.011 UJ*	*< 0.021 UJ*	**2.2 J-**	**0.038 J-**
MW-35	17-Sep-19	*< 0.0090*	*< 0.0090*	**0.091**	**0.061**	*< 0.013*
MW-35 Dup	17-Sep-19	*< 0.0090*	*< 0.0090*	**0.092**	**0.057**	*< 0.013*
MW-36	12-Sep-19	*< 0.0091*	*< 0.0091*	*< 0.018*	*< 0.0059*	*< 0.013*
MW-36 Dup	12-Sep-19	*< 0.0090*	*< 0.0090*	**0.031 j**	**0.46**	*< 0.013*
MW-37	17-Sep-19	*< 0.0092*	*< 0.0092*	*< 0.018*	**0.057**	*< 0.013*
MW-38	13-Sep-19	*< 0.0090*	*< 0.0090*	*< 0.018*	**1.4**	*< 0.013*
MW-39	12-Sep-19	**0.020 j**	*< 0.0091*	**0.083**	**2.3**	*< 0.013*
MW-40	13-Sep-19	*< 0.0091*	*< 0.0091*	*< 0.018*	*< 0.0059*	*< 0.013*
MW-41	13-Sep-19	*< 0.0091*	*< 0.0091*	*< 0.018*	*< 0.0059*	*< 0.013*
MW-42	10-Sep-19	*< 0.010*	*< 0.0082*	*< 0.0098*	*< 0.0052*	*< 0.0052*

Notes:
< = Compound not detected. Reportable detection limit shown.
-- = not analyzed
µg/L = micrograms per liter
GW SCM = Groundwater Source Control Measure
NS = No Standard for GW SCM Performation Evaluation
Dup = Field Duplicate Sample
Bolded values indicate concentrations above the Reportable De
Shaded values indicate concentrations above the GW SCM Perf

Qualifiers - Organics
j = The result is an estimated concentration, detected between th
J+ = The concentration of the sample is considered to be biased
J- = The concentration of the sample is considered to be biased
NJ = Evidence of the compound at an estimated quantity.
UJ = Analyte was analyzed for, but not detected. The detection l
U = Analyte was analuzed for, but not detected.
EPA 6020A analyses performed by PACE.
EPA 8270 BY SIM analyses performed by PACE.

Table 10
Groundwater Analytical Data - Semi-volatile (
Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

		Method	EPA 8270 by SIM			Calculated
		Analyte	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ (ND=0)
		Unit	µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria			12	NS	400	0.0018
Well	Sample Date					
MW-03	11-Sep-19		< 0.013	< 0.0068	< 0.0064	< 0.010
MW-06	11-Sep-19		**2.4**	**2.3**	**0.057**	< 0.010
MW-08	18-Sep-19		< 0.0067	< 0.010	**0.14**	< 0.013
MW-18	12-Sep-19		**3.0**	< 0.010	**0.025 j**	< 0.013
MW-19	11-Sep-19		< 0.012	**0.021 j**	< 0.0064	< 0.010
MW-21	11-Sep-19		< 0.013	< 0.0068	< 0.0065	< 0.010
MW-25	18-Sep-19		< 0.0067	< 0.010	< 0.015	< 0.013
MW-26	13-Sep-19		**0.076**	< 0.010	< 0.014	< 0.013
MW-27	12-Sep-19		**0.39 J-**	**0.038 J-**	**0.019 J-**	< 0.013
MW-28	18-Sep-19		< 0.0067	< 0.010	< 0.015	< 0.013
MW-30	17-Sep-19		**0.25 J-**	< 0.010	**0.032 j**	< 0.013
MW-31	12-Sep-19		**0.021 j**	< 0.010	< 0.015	< 0.013
MW-32	10-Sep-19		**0.044**	< 0.0067	< 0.0063	< 0.010
MW-33	10-Sep-19		**0.13**	< 0.0072	< 0.0068	< 0.011
MW-34	18-Sep-19		**0.99 J-**	**2.4 J-**	< 0.017 UJ	**0.10**
MW-35	17-Sep-19		**0.11**	< 0.010	**0.088**	< 0.013
MW-35 Dup	17-Sep-19		**0.11**	< 0.010	**0.087**	< 0.013
MW-36	12-Sep-19		**0.83**	< 0.010	**0.031 j**	< 0.013
MW-36 Dup	12-Sep-19		**0.76**	< 0.010	**0.046**	**0.0048**
MW-37	17-Sep-19		**0.14**	< 0.010	< 0.015	< 0.013
MW-38	13-Sep-19		**3.8**	**0.35**	**0.058**	< 0.013
MW-39	12-Sep-19		**0.73**	**1.4**	**0.11**	**0.012**
MW-40	13-Sep-19		< 0.0067	< 0.010	< 0.015	< 0.013
MW-41	13-Sep-19		< 0.0067	< 0.010	< 0.015	< 0.013
MW-42	10-Sep-19		< 0.012	< 0.0066	< 0.0063	< 0.010

Notes:
< = Compound not detected. Reportable detection limit shown.
-- = not analyzed
µg/L = micrograms per liter
GW SCM = Groundwater Source Control Measure
NS = No Standard for GW SCM Performation Evaluation
Dup = Field Duplicate Sample
Bolded values indicate concentrations above the Reportable De
Shaded values indicate concentrations above the GW SCM Perf

Qualifiers - Organics
j = The result is an estimated concentration, detected between th
J+ = The concentration of the sample is considered to be biased
J- = The concentration of the sample is considered to be biased
NJ = Evidence of the compound at an estimated quantity.
UJ = Analyte was analyzed for, but not detected. The detection l
U = Analyte was analuzed for, but not detected.
EPA 6020A analyses performed by PACE.
EPA 8270 BY SIM analyses performed by PACE.

Table 11
Groundwater Analytical Data - Water Quality Parameters
Premier Edible Oils, 10400 N Burgard Way
Portland, Oregon

Method		EPA 353.2	EPA 300.0	SM2320B	SM2340B
Analyte		Nitrate as N	Sulfate	Alkalinity, Total as CaCO3	Hardness as CaCO3
Unit		µg/L	µg/L	µg/L	µg/L
Selected GW SCM Performance Evaluation Criteria		10,000	NS	20,000	NS
Well	Sample Date				
MW-03	11-Sep-19	**36 j**	**3,700**	**82,600**	**68,300**
MW-06	11-Sep-19	*< 18*	*< 280*	**72,500**	**23,200**
MW-08	18-Sep-19	*< 18*	**45,200 J-**	**87,200**	**67,000**
MW-18	12-Sep-19	*< 18*	**55,900 J-**	*< 2,000*	**34,200**
MW-19	11-Sep-19	**200**	**8,200**	**94,900**	**74,100**
MW-21	11-Sep-19	**100**	**2,800**	**51,900**	**39,300**
MW-25	18-Sep-19	**38 j**	**1,600 J-**	**71,100**	**54,100**
MW-26	13-Sep-19	**300**	**26,100 J-**	**35,800**	**38,200**
MW-27	12-Sep-19	*< 18*	**12,700 J-**	**186,000**	**158,000**
MW-28	18-Sep-19	**1,000**	**6,600 J-**	**67,300**	**58,000**
MW-30	17-Sep-19	*< 18*	**42,200 J-**	**118,000**	**125,000**
MW-31	12-Sep-19	**63 j**	**34,900 J-**	**73,800**	**72,100**
MW-32	10-Sep-19	*< 18*	**2,500**	**109,000**	**63,700**
MW-33	10-Sep-19	*< 18*	**7,900**	**164,000**	**203,000**
MW-34	18-Sep-19	*< 18*	**10,900 J-**	**240,000**	**130,000**
MW-35	17-Sep-19	*< 18*	**26,500 J-**	**27,400**	**29,100**
MW-35 Dup	17-Sep-19	*< 18*	**26,000 J-**	**27,600**	**31,100**
MW-36	12-Sep-19	*< 18*	**940 J-**	**221,000**	**166,000**
MW-36 Dup	12-Sep-19	*< 18*	*< 280 UJ*	**222,000**	**163,000**
MW-37	17-Sep-19	*< 18*	**14,400 J-**	**116,000**	**84,600**
MW-38	13-Sep-19	*< 18*	**640 J-**	**131,000**	**114,000**
MW-39	12-Sep-19	*< 18*	*< 280 UJ*	**255,000**	**181,000**
MW-40	13-Sep-19	*< 18*	**54,300 J-**	**91,000**	**109,000**
MW-41	13-Sep-19	*< 18*	**2,300 J-**	**62,500**	**37,800**
MW-42	10-Sep-19	**99 j**	**6,700**	**61,400**	**30,900**

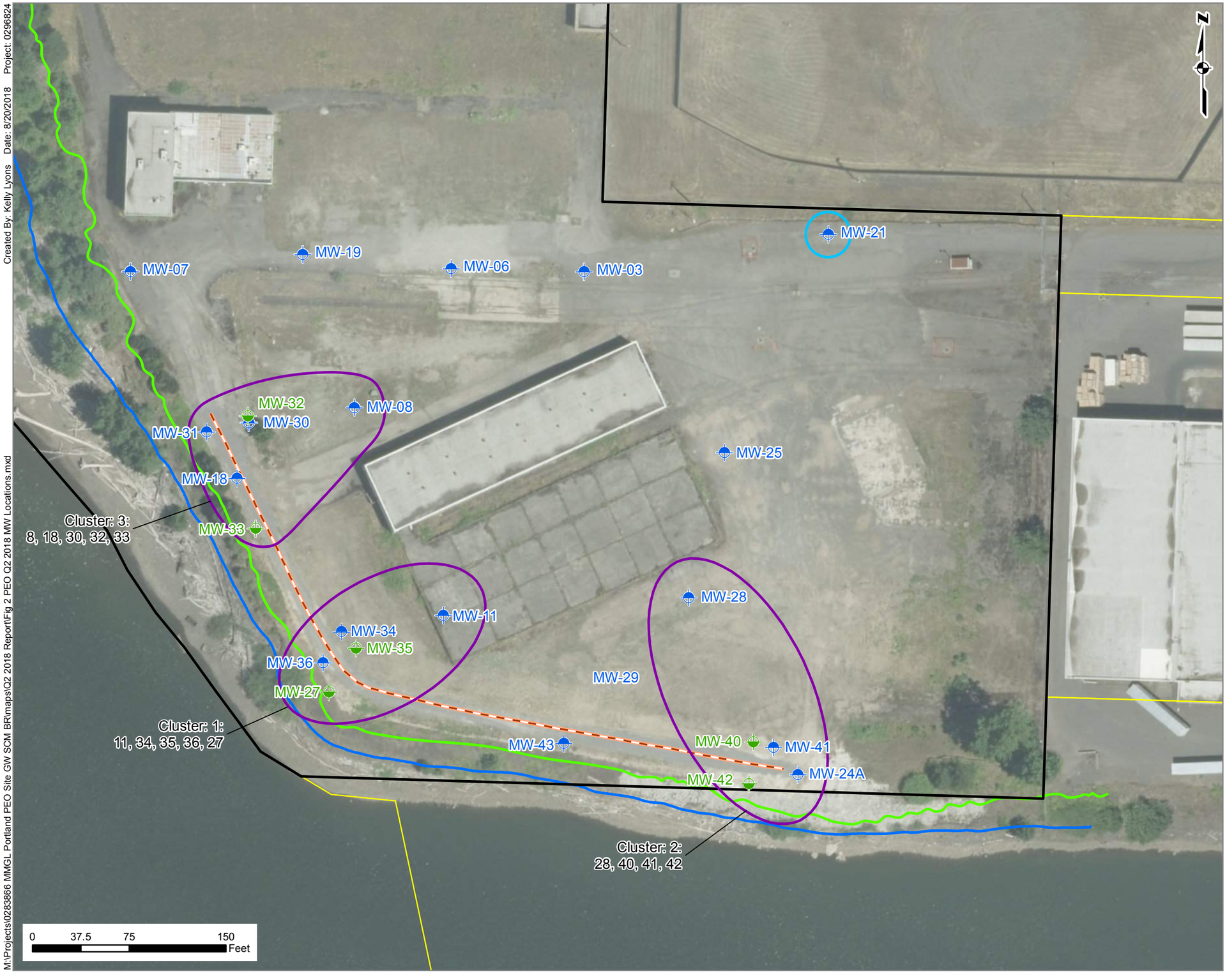
Notes:

< = Compound not detected. Reportable detection limit shown.
-- = not analyzed
µg/L = micrograms per liter
GW SCM = Groundwater Source Control Measure
NS = No Standard for GW SCM Performation Evaluation
Dup = Field Duplicate Sample
Bolded values indicate concentrations above the Reportable Detection Limit.
Shaded values indicate concentrations above the GW SCM Performance Evaluation Criteria.

Qualifiers - Organics
j = The result is an estimated concentration, detected between the Method Detection Limit and the Reporting Limit.
J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits
NJ = Evidence of the compound at an estimated quantity.
UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.
U = Analyte was analuzed for, but not detected.
EPA 300.0 analyses performed by PACE.
EPA 353.2 analyses performed by PACE.
SM2320B analyses performed by PACE.
SM2340B analyses performed by PACE.

Attachment A – Clustered Hydrographs

Project: 0296824
Date: 8/20/2018
Created By: Kelly Lyons
M:\Projects\0283866 MMGL Portland PEO Site GW SCM BR\maps\Q2 2018 Report\Fig 2 PEO Q2 2018 MW Locations.mxd



Legend

- Monitoring Well, Shallow
- Monitoring Well, Deep
- Barrier Wall Alignment
- Top of Bank
- Ordinary High Water (20.1 ft)
- Property Boundary
- Parcels
- Clustered Hydrograph
- Individual Hydrograph

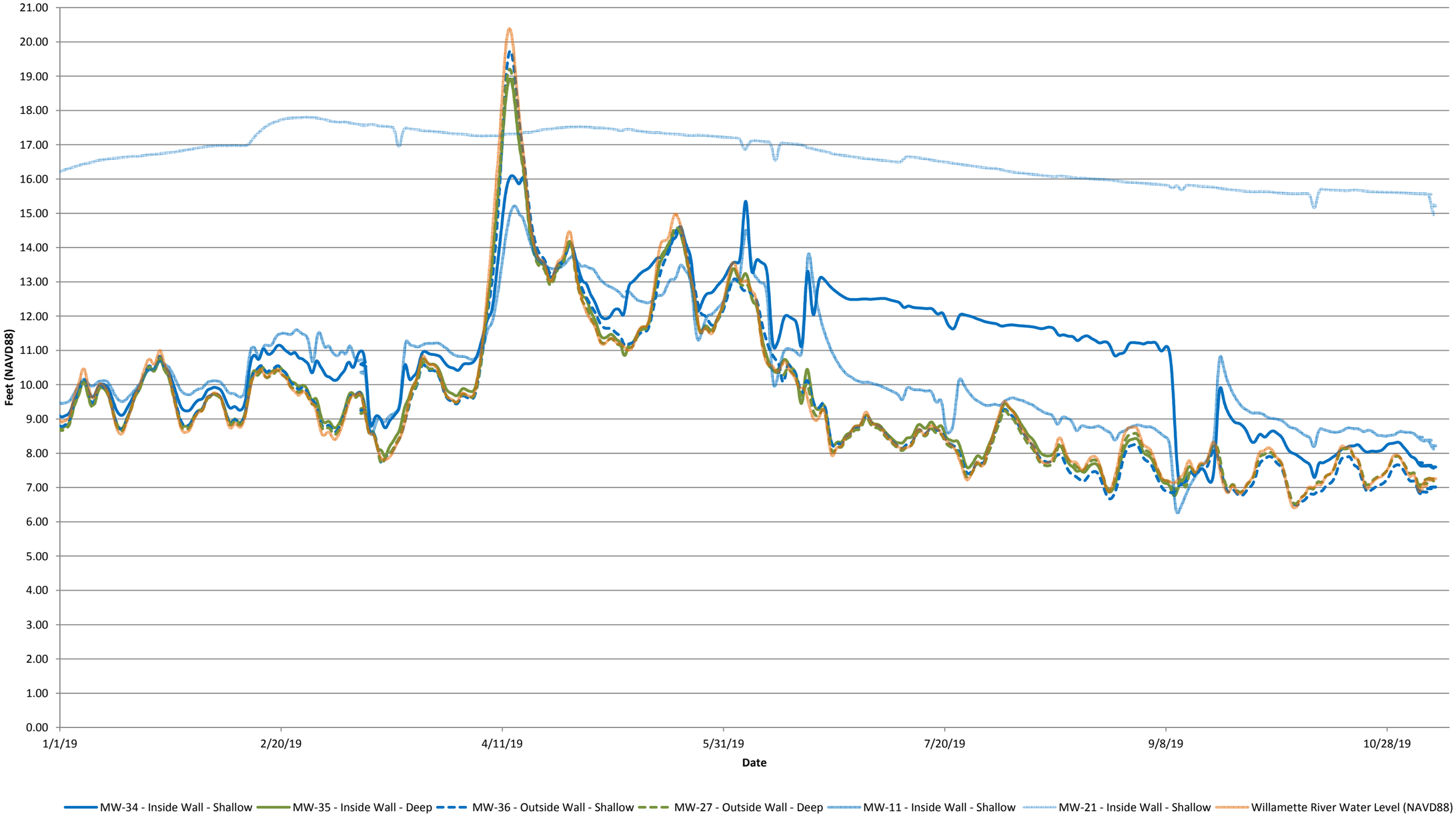
Notes:
Aerial Imagery: City of Portland, Summer 2016.

Figure 1
Monitoring Well Locations
PEO Site
Portland, Oregon

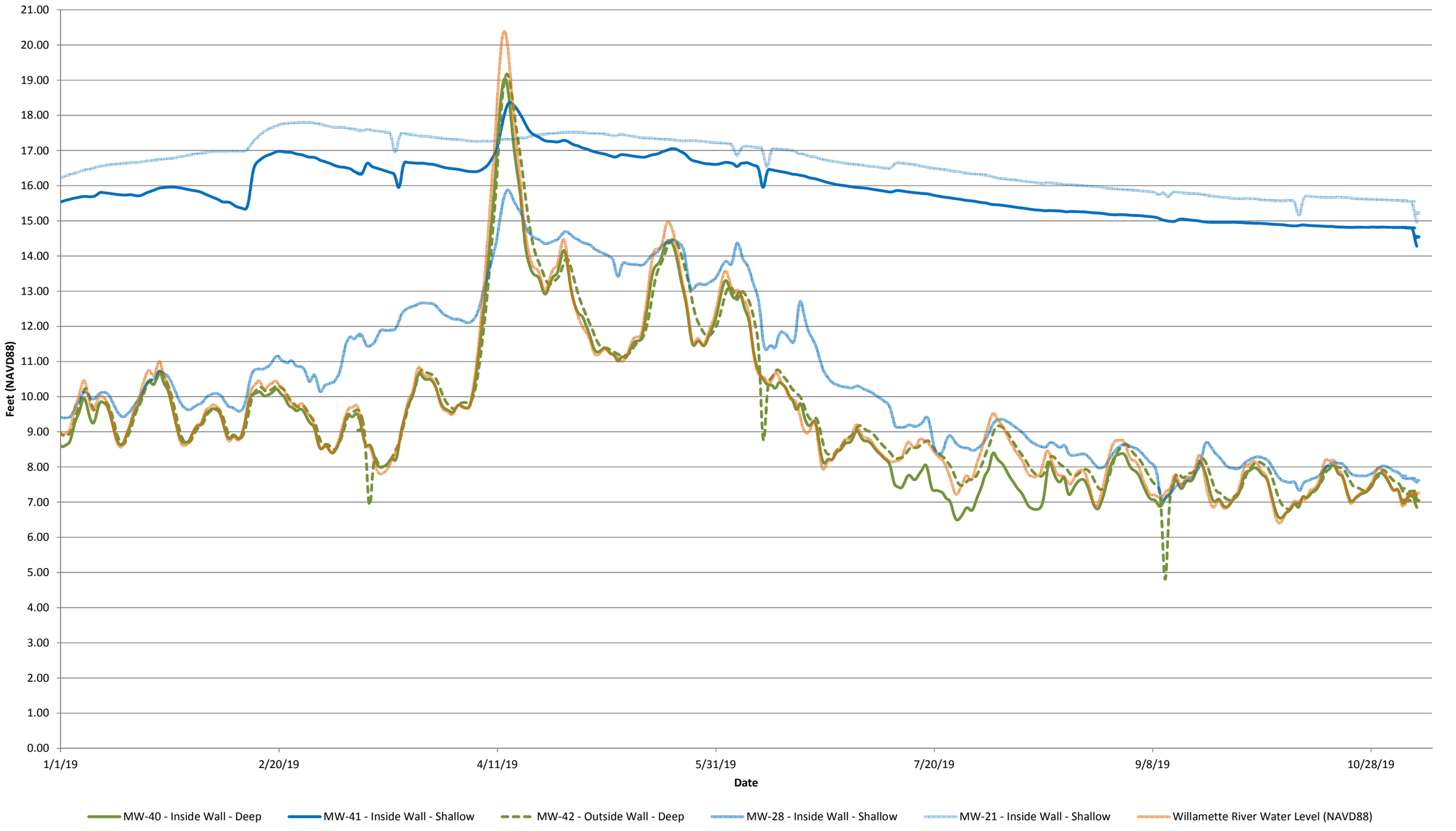
Environmental Resources Management
1001 SW 5th St, Suite 1010
Portland, Oregon 97204

ERM

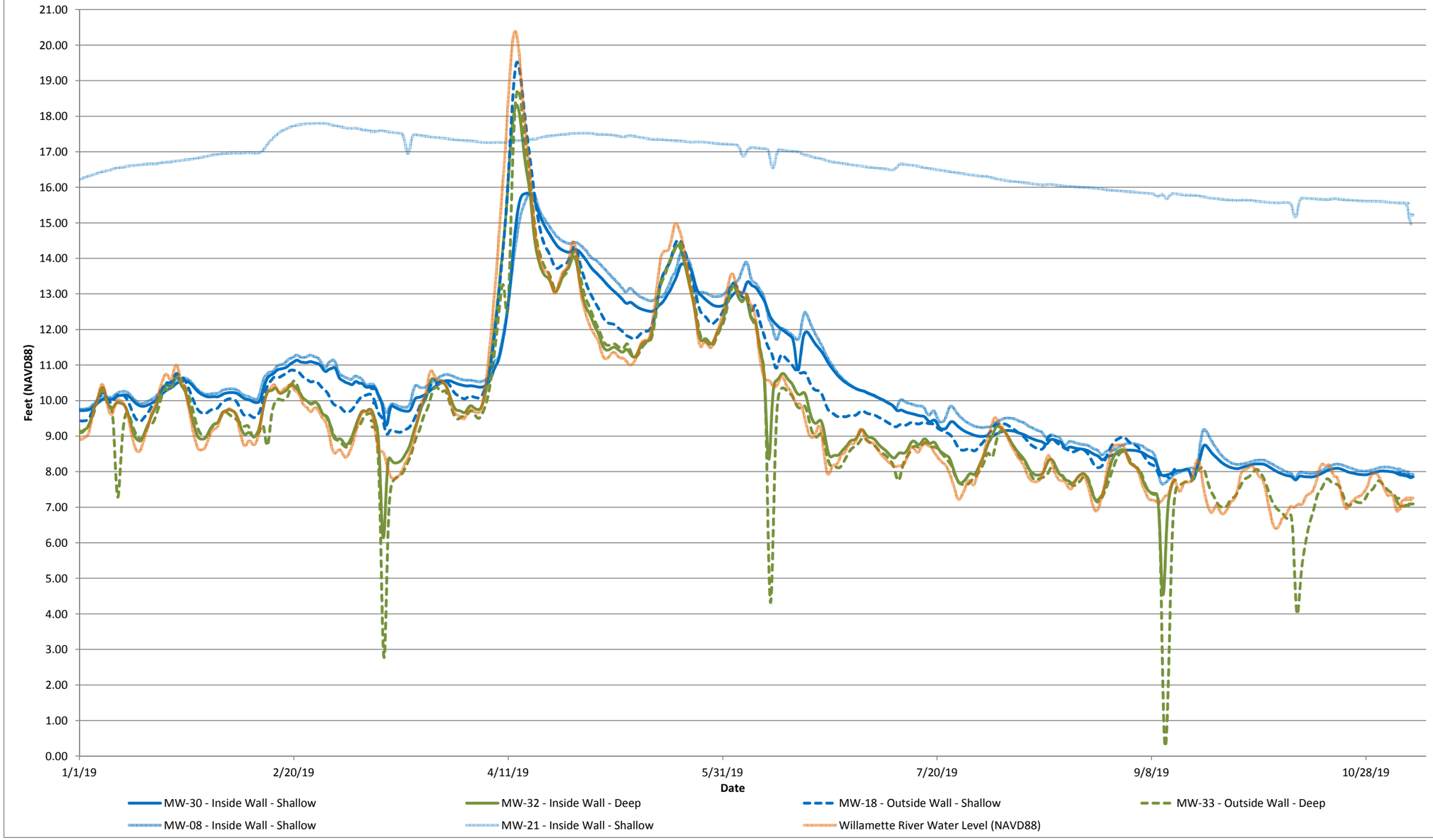
Water Elevations - Cluster 1
MW-34, MW-35, MW-36, & MW-27, MW-11



Water Elevations - Cluster 2
MW-40, MW-41, MW-42, & MW-28



Water Elevations - Cluster 3
MW-18, MW-30, MW-32, MW-33, & MW-08



Attachment B – Analytical Data and Validation

ERM

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Suite 1650
Portland, OR 97204

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Memorandum

To	Rita Cooper
From	Rachel James
Date	25 November 2019
Reference	0499738
Subject	Revised Data Review of PEO Groundwater Sampling, Third Quarter 2019: Pace Analytical Services, LLC Data Packages 10490877, 10491044 (Issued 11/25/19), 10491256, and 10491419 (Issued 11/14/19), 10491887 (Issued 11/15/19), and 10492093 (Issued 11/19/19).

The data quality was assessed and any necessary qualifiers were applied following the *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*, January 2017 and *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review*, January 2017.

REVISION

This memorandum was updated to include the revised Pace data package 10491044. The data package was revised to include results for NWEPH aliphatic hydrocarbon (C10-C12).

CHAIN-OF-CUSTODY DISCREPANCIES

The inter-laboratory chain-of-custody (COC) for report 10490877 indicated NWEPH analysis for sample PEO-MW-33-201909; however, no sample volume was received at the subcontracted laboratory (Fremont Analytical). Fremont Analytical analyzed the sample for NWVPH only.

HOLDING TIME AND PRESERVATION EVALUATION

The sample shipments were received at the laboratory within the method-prescribed temperature preservation requirements of less than 6°C with one exception. The subcontracted cooler sent to Fremont Analytical for lab report 10491044 was in transit for four days and arrived at the laboratory with a temperature of 14.6°C. The laboratory proceeded with the requested NWEPH and NWVPH analyses. A comparison of historical results for NWEPH and NWVPH results for affected samples was done. Current results that were in agreement with historical results were qualified as estimates (J/UJ). Current results that were not in agreement (currently non-detected and historically detected at least once) were rejected (R). The qualified results are summarized in Table 1.

The laboratory noted that 7 of 9 VOA vials for sample PEO-MW-34-201909 had headspace. At least three vials were used for NWTPH-Gx, 8260B, and NWVPH analyses and the laboratory did not note whether vials containing headspace were used. Since it is not possible to tell which vials were used for which analyses and there were not sufficient headspace-free vials for all requested volatiles analyses, the results for NWTPH-Gx, 8260B, and NWVPH were all qualified as estimates with a low bias (J-) as noted in Table 1.

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The samples were prepared and analyzed within the method-prescribed time period from the date of collection. No qualifications were necessary.

BLANK EVALUATION

The method blank results were non-detected for each of the target analytes with two exceptions. Motor Oil Range Silica Gel (SG) and phenanthrene were detected at concentrations less than the reporting limit in method blank samples. Associated sample results within five times the blank concentrations and less than the reporting limits were qualified as non-detect (U) at the reporting limit. Associated sample results within five times the blank concentrations and greater than the reporting limits were qualified as estimates with a high bias (J+).

The trip blank results were non-detected for each of the volatile target analytes with two exceptions. Toluene was detected at concentrations less than the reporting limit in two trip blank samples. Associated sample results within five times the blank concentrations and less than the reporting limits were qualified as non-detect (U) at the reporting limit. Associated sample results within five times the blank concentrations and greater than the reporting limits were qualified as estimates with a high bias (J+).

No trip blank was included with the NWVPH samples subcontracted to Fremont Analytical in lab report 10490887. It is not possible to assess whether the detected NWVPH Aromatic Hydrocarbon (C10-C12) results in samples PEO-MW-32-201909 and PEO-MW-33-201909 were potentially influenced by cross-contamination during shipment, handling, and storage.

The blank detections and associated data are presented in Table 2.

BLANK SPIKE EVALUATION

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries and relative percent differences (RPDs) were within the laboratory's limits of acceptance, with exceptions noted in Table 3. No data were qualified based on RPDs if both the LCS and LCSD recoveries were within laboratory limits. Remaining sample results associated with low LCS/LCSD recoveries were non-detected and were qualified as estimates (UJ).

MATRIX SPIKE EVALUATION

The MS and MSD recoveries and RPDs were within laboratory limits of acceptance with several exceptions. No data were qualified if the outlier was from a non-project sample or if the outlier can be verified by an in-control result. The naphthalene result in MS/MSD parent sample PEO-MW-30-201909 was qualified as an estimate with a low bias (J-) due to low MS/MSD recovery. Additionally, several sulfate results were qualified as estimates with a low bias (J-/UJ) due to low MS/MSD recoveries. The sulfate results in the MS/MSD parent samples and all project samples in the same lab reports as the affected MS/MSDs were qualified. The outliers and associated qualified results can be found in Table 3.

SURROGATE SPIKE EVALUATION

The surrogate recoveries were within acceptable limits with several exceptions. Data were not qualified if the dilution factor was 10 times or greater. Additionally, data were not qualified for surrogates recovered out of acceptance criteria on duplicate, LCS/LCSD, MS/MSD, or blank samples. These samples were instead assessed based upon the recovery of target analytes or a duplicate precision criterion. Remaining sample results associated with low surrogate

recoveries were qualified as estimates with a low bias (J-/UJ). Surrogate spikes outside control limits and associated qualified sample data are provided in Table 4.

CALIBRATION RANGE EXCEEDANCES

The ethylbenzene and m&p-xylene results for a batch MS/MSD sample and the dissolved manganese results for MS/MSD samples prepared from sample PEO-MW-30-201909 exceeded the instrument calibration ranges as noted in Table 5. Since the parent sample results were within the calibration range, no qualifications were applied.

RESULTS LACKING CONFIRMATION

Select sample results were qualified by the laboratory for confirmation issues, as summarized in Table 6. The initial PAH analysis for sample PEO-MW-27-201909 had a low surrogate recovery for p-terphenyl. The laboratory re-extracted the sample outside the holding time and the re-analysis results did not confirm the original. The original results were reported and were qualified J-/UJ as estimates with a low bias due to the low surrogate recovery and the disagreement of results between the original and re-analysis runs. Additionally, the Fremont case narrative for lab report 10492093 stated that, “The analyses yielded different results between the Extractable Pertroleum [sic] Hydrocarbon (EPH) and Volatile Petroleum Hydrocarbon (VPH) analyses for sample PEO-MW-34-201909. An investigation demonstrated that the contents in the VOA vials submitted for VPH, were different than the 1L Amber supplied for the EPH analsysis [sic]. The laboratory attempted to perform a microextraction from the VOA vial for the EPH analysis, however an emulsion formed that prevented the test.” The EPH and VPH results for sample PEO-MW-34-201909 were qualified as estimates with a low bias (J-) due to the differing results and additional low surrogate recovery.

LABORATORY DUPLICATE EVALUATION

The laboratories prepared several project and non-project samples as laboratory duplicates. The RPDs for detected analytes were within the control limits. The acceptable RPDs indicate acceptable laboratory precision.

FIELD DUPLICATE EVALUATION

Two samples collected and submitted had duplicate samples taken in the field. ERM calculated the RPD between the duplicate with detected results. The USEPA has not established control criteria for field duplicate samples; therefore, sample data are not qualified on the basis of field duplicate imprecision. A list of the field duplicate detections and the calculated RPDs is provided in Table 7.

TPH EVALUATION

The laboratory noted early and/or late peaks outside the gasoline range organics (GRO) window for several samples. ERM qualified the affected results as tentatively identified and estimated (NJ), with the exception of the GRO result for sample PEO-MW-34-201909, which was qualified as an estimate with a low bias (J-) due to headspace in the VOA vial. The qualified results are presented in Table 8.

OVERALL ASSESSMENT

The NWVPH results for samples PEO-MW-24A-201909 and Trip Blank-20190911 and the NWEPH results for samples PEO-MW-06-201909, PEO-MW-19-201909, and Trip Blank-20190911 were determined to be unusable due to the high cooler temperature upon receipt.

With exception of the rejected results, all of the data, including qualified data, can be used for decision-making purposes; however, the limitations indicated by the applied qualifiers should be considered when using the data. The quality of the data generated during this investigation is acceptable for the preparation of technically-defensible documents.

Table 1
Samples with Exceeded Preservation Requirements
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Sample ID	Method	Preservation Condition	Limits	ERM Qualifier
10491044	PEO-MW-24A-201909	NWVPH	Cooler temperature = 14.6°C	0 - 6°C	R
	PEO-MW-21-201909	NWEPH NWVPH			UJ
	PEO-MW-03-201909	NWEPH NWVPH			UJ
	PEO-MW-06-201909	NWEPH			R
		NWVPH			J
	PEO-MW-19-201909	NWEPH			R
		NWVPH			UJ
	Trip Blank-20190911	NWEPH NWVPH			R
10492093	PEO-MW-34-201909	NWTPH-Gx 8260B NWVPH	7 of 9 vials with headspace	No headspace	J-

Lab packages reviewed: 10490877, 10491044, 10491256, 10491419, 10491887, and 10492093

Notes:
°C = Degrees Celsius
J- = Detected results are estimated with a low bias
J = Estimated detected result
R = Result is rejected
UJ = Nondetected, estimated report limit

Table 2
Blank and Associated Suspect Sample Detections
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Blank ID	Detected Compound	Reported Blank Concentration	Blank Report Limit	Associated Sample	Associated Sample Result	Associated Sample Report Limit	Units	ERM Qualifier
10491044	Trip Blank-20190911	Toluene	0.20	1.0	PEO-MW-24A-201909	ND	1.0	µg/L	--
					PEO-MW-21-201909	ND	1.0	µg/L	--
					PEO-MW-03-201909	ND	1.0	µg/L	--
					PEO-MW-06-201909	0.28	1.0	µg/L	1.0 U
					PEO-MW-19-201909	ND	1.0	µg/L	--
10491419	Method Blank 3411132	Motor Oil Range SG	0.11	0.40	PEO-MW-26-201909	0.095	0.40	mg/L	0.40 U
					PEO-MW-41-201909	ND	0.40	mg/L	--
					PEO-MW-40-201909	ND	0.40	mg/L	--
					PEO-MW-38-201909	0.43	0.40	mg/L	J+
10491887	Trip Blank-20190917	Toluene	0.13	1.0	PEO-MW-37-201909	1.4	1.0	µg/L	J+
					PEO-MW-35-201909	0.22	1.0	µg/L	1.0 U
					PEO-MW-Z2-201909	0.21	1.0	µg/L	1.0 U
					PEO-MW-30-201909	ND	1.0	µg/L	--
	Method Blank 3412920	Phenanthrene	0.022	0.040	PEO-MW-37-201909	ND	0.040	µg/L	--
					PEO-MW-35-201909	ND	0.039	µg/L	--
					PEO-MW-Z2-201909	ND	0.039	µg/L	--
					PEO-MW-30-201909	ND	0.040	µg/L	--

Lab packages reviewed: 10490877, 10491044, 10491256, 10491419, 10491887, and 10492093

Notes:
mg/L = Milligrams per liter
J+ = Detected results are estimated with a high bias
SG = Silica gel
U = Nondetected
µg/L = Micrograms per liter

Table 3
Spike Recoveries Outside of Acceptable Limits
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Result	Units	ERM Qualifier
LCS/LCSD										
10490877	LCS/LCSD 3405193/3405194	None for qualification	Diesel Fuel Range SG	81/65	50-150	23	20	--	--	--
			Motor Oil Range SG	85/67	50-150	23	20	--	--	--
	LCS/LCSD 25776	See below	EPH Aliphatic Hydrocarbon (C10-C12)	66.3/42.6	70-130	43.6	20	--	--	--
	--	PEO-MW-32-201909		--	--	--	--	ND	µg/L	UJ
	--	PEO-MW-42-201909		--	--	--	--	ND	µg/L	UJ
10491044	LCS/LCSD 3406200/3406201	None for qualification	Diesel Fuel Range SG	62/83	50-150	30	20	--	--	--
			Motor Oil Range SG	63/85	50-150	30	20	--	--	--
MS/MSD										
10490877	Batch MS/MSD	None for qualification	Sulfate	66/66	90-110	0	20	--	--	--
	Batch MS/MSD	None for qualification	Sulfate	90/89	90-110	0	20	--	--	--
10491044	Batch MS/MSD	None for qualification	Alkalinity, Total as CaCO3	70/73	80-120	2	20	--	--	--
	PEO-MW-33-201909 MS/MSD	PEO-MW-33-201909	EPH Aliphatic Hydrocarbon (C10-C12)	151/73.8	70-130	48.7	30	--	--	--
10491256	Batch MS/MSD	None for qualification	Ethylbenzene	340/322	30-150	1	30	--	--	--
	Batch MS/MSD	None for qualification	Alkalinity, Total as CaCO3	45/55	80-120	3	20	--	--	--
10491256 10491419	Batch MS/MSD	None for qualification	EPH Aliphatic Hydrocarbon (C10-C12)	151/73.8	70-130	48.7	30	--	--	--

Table 3
Spike Recoveries Outside of Acceptable Limits
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Result	Units	ERM Qualifier
10491256 10491419	PEO-MW-26-201909 MS/MSD	See below	Sulfate	61/60	90-110	0	20	--	--	--
10491256		PEO-MW-31-201909		--	--	--	--	34.9	mg/L	J-
		PEO-MW-18-201909		--	--	--	--	55.9	mg/L	J-
		PEO-MW-36-201909		--	--	--	--	0.94	mg/L	J-
		PEO-MW-Z1-201909		--	--	--	--	ND	mg/L	UJ
		PEO-MW-27-201909		--	--	--	--	12.7	mg/L	J-
		PEO-MW-39-201909		--	--	--	--	ND	mg/L	UJ
10491419		PEO-MW-26-201909		--	--	--	--	26.1	mg/L	J-
		PEO-MW-41-201909		--	--	--	--	2.3	mg/L	J-
		PEO-MW-40-201909		--	--	--	--	54.3	mg/L	J-
		PEO-MW-38-201909		--	--	--	--	0.64	mg/L	J-
10491419	Batch MS/MSD	None for qualification	Alkalinity, Total as CaCO3	73/72	80-120	0	20	--	--	--
	Batch MS/MSD	None for qualification	Alkalinity, Total as CaCO3	44/73	80-120	1	20	--	--	--
	Batch MS/MSD	None for qualification	Alkalinity, Total as CaCO3	79/87	80-120	0	20	--	--	--
10491887	PEO-MW-30-201909 MS/MSD	None for qualification	Manganese, Dissolved	79/155	75-125	2	20	--	--	--
		PEO-MW-30-201909	1-Methylnaphthalene	141/130	30-125	5	30	ND	µg/L	--
			Naphthalene	6/9	38-125	8	30	0.25	µg/L	J-
		See below	Sulfate	24/34	90-110	3	20	--	--	--
		PEO-MW-37-201909		--	--	--	--	14.4	mg/L	J-
		PEO-MW-35-201909		--	--	--	--	26.5	mg/L	J-
		PEO-MW-Z2-201909		--	--	--	--	26.0	mg/L	J-
		PEO-MW-30-201909		--	--	--	--	42.2	mg/L	J-

Table 3
Spike Recoveries Outside of Acceptable Limits
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Result	Units	ERM Qualifier
10491887 10492093	PEO-MW-30-201909 MS/MSD	None for qualification	Diesel Fuel Range SG	77/209	50-150	43	30	--	--	--
			Motor Oil Range SG	51/78	50-150	36	30	--	--	--
10492093	PEO-MW-34-201909 MS/MSD	None for qualification	Manganese, Dissolved	183/109	75-125	3	20	--	--	--
	PEO-MW-08-201909 MS/MSD	See below	Sulfate	14/24	90-110	3	20	--	--	--
		PEO-MW-08-201909		--	--	--	--	45.2	mg/L	J-
		PEO-MW-34-201909		--	--	--	--	10.9	mg/L	J-
		PEO-MW-28-201909		--	--	--	--	6.6	mg/L	J-
		PEO-MW-25-201909		--	--	--	--	1.6	mg/L	J-
		None for qualification	EPH Aliphatic Hydrocarbon (C10-C12)	76.0/156	70-130	47.1	30	--	--	--

Lab packages reviewed: 10490877, 10491044, 10491256, 10491419, 10491887, and 10492093

Notes:
Batch = Spike sample was prepared using non-client sample
EPH = Extractable Petroleum Hydrocarbons
J- = Estimated detection with low bias
LCS/LCSD = Laboratory control sample/laboratory control sample duplicate
mg/L = Milligrams per liter
MS/MSD - Matrix spike/matrix spike duplicate
ND = Not detected
RPD = Relative percent difference
SG = Silica gel
µg/L = Micrograms per liter
UJ = Nondetected, estimated report limit

Table 4
Surrogate Recovery Results out of Acceptable Limits
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Sample ID	Method	Surrogate	Recovery (%)	Limit (%)	Affected Compound	Dilution Factor	ERM Qualifier
10490877	PEO-MW-33-201909	NWTPH-Dx	n-Triacontane	45	50-150	Motor Oil Range SG	1	J-
	PEO-MW-42-201909	NWEPH	1-Chlorooctadecane	39.9	60-140	EPH Aliphatic Hydrocarbon (C10-C12)	1	UJ
	Batch Lab Duplicate 1909035-001A	NWEPH	1-Chlorooctadecane	45.8	60-140	EPH Aliphatic Hydrocarbon (C10-C12)	NR	--
	Method Blank 25796	NWVPH	1,4-Difluorobenzene	64.8	65-140	VPH Aliphatic Hydrocarbon (C10-C12)	NR	--
10491044	PEO-MW-19-201909	NWEPH	1-Chlorooctadecane	40.9	60-140	EPH Aliphatic Hydrocarbon (C10-C12)	1	UJ
	Lab Duplicate PEO-MW-33-201909	NWEPH	1-Chlorooctadecane	54.6	60-140	None for qualification	NR	--
10491256	PEO-MW-27-201909	8270 SIM	p-Terphenyl-d14	54	62-125	All PAHs	1	J-/UJ
	PEO-MW-Z1-201909	NWEPH	1-Chlorooctadecane	58.1	60-140	EPH Aliphatic Hydrocarbon (C10-C12)	1	UJ
10491256 10491419 10491887	Batch Lab Duplicate 1909226-001A	NWEPH	1-Chlorooctadecane	54.6	60-140	EPH Aliphatic Hydrocarbon (C10-C12)	NR	--
10491887	PEO-MW-35-201909	NWEPH	1-Chlorooctadecane	48.9	60-140	EPH Aliphatic Hydrocarbon (C10-C12)	1	UJ

Table 4
Surrogate Recovery Results out of Acceptable Limits
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Sample ID	Method	Surrogate	Recovery (%)	Limit (%)	Affected Compound	Dilution Factor	ERM Qualifier
10492093	PEO-MW-34-201909	NWTPH-Dx	o-Terphenyl	0	50-150	Diesel Fuel Range SG	20	--
			n-Triacontane	0	50-150	Motor Oil Range SG		
		8270 SIM	2-Fluorobiphenyl	10	47-125	All PAHs	1	J-/UJ
			p-Terphenyl-d14	9	62-125			
	PEO-MW-08-201909	NWEPH	1-Chlorooctadecane	52.4	60-140	EPH Aliphatic Hydrocarbon (C10-C12)	1	UJ
	PEO-MW-34-201909	NWEPH	1-Chlorooctadecane	57.7	60-140	EPH Aliphatic Hydrocarbon (C10-C12)	1	J-
	PEO-MW-08-201909 MSD	NWEPH	1-Chlorooctadecane	160	60-140	EPH Aliphatic Hydrocarbon (C10-C12)	NR	--

Lab packages reviewed: 10490877, 10491044, 10491256, 10491419, 10491887, and 10492093

Notes:
EPH = Extractable Petroleum Hydrocarbons
J- = Detected results are estimated with a low bias
J-/UJ = Detected results are estimated with low bias; nondetected results are estimated at the report limit
LCS = Laboratory control sample
NR = Not reported
SG = Silica gel
UJ = Nondetected, estimated report limit
VPH = Volatile Petroleum Hydrocarbons

Table 5
Calibration Range Exceedances
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Sample ID	Compound	Reported Concentration	Units	ERM Qualifier
10491256	Batch MS/MSD	Ethylbenzene	560/556	µg/L	--
		m&p-Xylene	522/515	µg/L	--
10491887	PEO-MW-30-201909 MS/MSD	Manganese, Dissolved	3270/3340	µg/L	--

Lab packages reviewed: 10490877, 10491044, 10491256, 10491419, 10491887, and 10492093

Notes:
MS/MSD = Matrix spike/matrix spike duplicate
µg/L = Micrograms per liter

Table 6
Results Lacking Confirmation
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Sample ID	Method	Compound	ERM Qualifier
10491256	PEO-MW-27-201909	8270 SIM	All	J-[1]/UJ
10492093	PEO-MW-34-201909	NWEPH	All	J-[1]

Lab packages reviewed: 10490877, 10491044, 10491256, 10491419, 10491887, and 10492093

Notes:

1 = Qualified J- due to additional low surrogate recovery

J = Estimated detected result

J- = Detected results are estimated with a low bias

J-/UJ = Detected results are estimated with a low bias; nondetected results are estimated at the report limit

Table 7
Field Duplicate Results and Calculated Relative Percent Differences
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Primary/Duplicate Sample ID	Compound	Concentration		Report Limit		Units	RPD
			Sample	Duplicate	Sample	Duplicate		
10491256	PEO-MW-36-201909/ PEO-MW-Z1-201909	Diesel Fuel Range SG	2.9	2.2	0.40	0.41	mg/L	27
		Motor Oil Range SG	0.088	ND	0.40	0.41	mg/L	NC
		TPH as Gas	2650	2540	200	200	µg/L	4.2
		Total Hardness, Dissolved	166000	163000	3300	3300	µg/L	1.8
		Arsenic, Dissolved	28.5	28.9	0.50	0.50	µg/L	1.4
		Manganese, Dissolved	2800	2900	10.0	10.0	µg/L	3.5
		Acenaphthene	ND	1.1	0.040	0.039	µg/L	NC
		Benzo(a)pyrene	ND	0.0048	0.040	0.039	µg/L	NC
		Fluoranthene	ND	0.031	0.040	0.039	µg/L	NC
		Fluorene	ND	0.46	0.040	0.039	µg/L	NC
		Naphthalene	0.83	0.76	0.040	0.039	µg/L	8.8
		Pyrene	0.031	0.046	0.040	0.039	µg/L	39
		Benzene	34.7	33.8	1.0	1.0	µg/L	2.6
		Ethylbenzene	5.4	5.4	1.0	1.0	µg/L	0.0
		Toluene	31.7	31.3	1.0	1.0	µg/L	1.3
		m&p-Xylene	32.7	32.3	2.0	2.0	µg/L	1.2
		o-Xylene	11.7	11.6	1.0	1.0	µg/L	0.86
		Alkalinity, Total as CaCO3	221	222	5.0	5.0	mg/L	0.45
		Sulfate	0.94	ND	1.2	1.2	mg/L	NC
		VPH Aliphatic Hydrocarbon (C10-C12)	222	217	4.07	40.7	µg/L	2.3

Table 7
Field Duplicate Results and Calculated Relative Percent Differences
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Primary/Duplicate Sample ID	Compound	Concentration		Report Limit		Units	RPD
			Sample	Duplicate	Sample	Duplicate		
10491887	PEO-MW-35-201909/ PEO-MW-Z2-201909	Diesel Fuel Range SG	0.58	0.51	0.39	0.39	mg/L	13
		Motor Oil Range SG	0.080	ND	0.39	0.39	mg/L	NC
		TPH as Gas	209	214	100	100	µg/L	2.4
		Total Hardness, Dissolved	29100	31100	3300	3300	µg/L	6.6
		Arsenic, Dissolved	17.5	17.4	0.50	0.50	µg/L	0.57
		Manganese, Dissolved	621	610	10.0	10.0	µg/L	1.8
		Acenaphthene	0.19	0.19	0.039	0.039	µg/L	0.0
		Acenaphthylene	0.053	0.051	0.039	0.039	µg/L	3.8
		Anthracene	0.13	0.13	0.039	0.039	µg/L	0.0
		Fluoranthene	0.091	0.092	0.039	0.039	µg/L	1.1
		Fluorene	0.061	0.057	0.039	0.039	µg/L	6.8
		1-Methylnaphthalene	0.10	0.11	0.039	0.039	µg/L	9.5
		Naphthalene	0.11	0.11	0.039	0.039	µg/L	0.0
		Pyrene	0.088	0.087	0.039	0.039	µg/L	1.1
		Benzene	0.50	0.48	1.0	1.0	µg/L	4.1
		Toluene	0.22	0.21	1.0	1.0	µg/L	4.7
		Alkalinity, Total as CaCO3	27.4	27.6	5.0	5.0	mg/L	0.73
		Sulfate	26.5	26.0	1.2	1.2	mg/L	1.9

Lab packages reviewed: 10490877, 10491044, 10491256, 10491419, 10491887, and 10492093

Notes:
EPH = Extractable Petroleum Hydrocarbons
mg/L = Milligrams per liter
ND = Not detected
NC = Not calculated, one result not detected
RPD = Relative percent difference
SG = Silica gel
TPH = Total Petroleum Hydrocarbons
µg/L = Micrograms per liter
VPH = Volatile Petroleum Hydrocarbons

Table 8
Suspect TPH Results
PEO Groundwater Sampling
Third Quarter 2019
Portland, Oregon

Lab Package	Sample ID	Compound	Reported Concentration	Units	Comment	ERM Qualifier
10491256	PEO-MW-18-201909	TPH as Gas	354	µg/L	Late peaks present outside the GRO window.	NJ
	PEO-MW-36-201909		2650	µg/L	Early peaks present outside the GRO window.	NJ
	PEO-MW-36-201909 Lab Duplicate		2670	µg/L		--
	PEO-MW-39-201909		4530	µg/L		NJ
	Batch Lab Duplicate 3410987		2740	µg/L		--
10491419	PEO-MW-38-201909	TPH as Gas	4270	µg/L	Late and early peaks present outside the GRO window.	NJ
	Batch Lab Duplicate 3410006		24600	µg/L	Early peaks present outside the GRO window.	--
10491887	Batch Lab Duplicate 3415417	TPH as Gas	987	µg/L	Early peaks present outside the GRO window.	--
10492093	PEO-MW-34-201909	TPH as Gas	7340	µg/L	Late peaks present outside the GRO window.	J-[1]
	Batch Lab Duplicate 3418939		5740	µg/L		--
	Batch Lab Duplicate 3421042		743	µg/L	Early peaks present outside the GRO window.	--

Lab packages reviewed: 10490877, 10491044, 10491256, 10491419, 10491887, and 10492093

Notes:
1 = Qualified J- due to additional preservation issue
GRO = Gasoline range organics
J- = Detected results are estimated with a low bias
NJ = Tentatively identified and estimated - chromatogram did not resemble the standard hydrocarbon pattern
TPH = Total petroleum hydrocarbons
µg/L = Micrograms per liter

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

November 14, 2019

Joe Casey
ERM Portland
1050 SW 6th Ave
Suite 1650
Portland, OR 97204

RE: Project: 499738-Revised Report
Pace Project No.: 10490877

Dear Joe Casey:
Enclosed are the analytical results for sample(s) received by the laboratory on September 11, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

This report was revised on November 14, 2019 to only report aliphatic results on the subcontract report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Julie Bowser
julie.bowser@pacelabs.com
612-607-6390
Project Manager

Enclosures

cc: Rita Cooper, ERM Portland ERM Global EDD Mailbox, ERM

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CERTIFICATIONS

Project: 499738-Revised Report
Pace Project No.: 10490877

Minnesota Certification IDs

A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Massachusetts DWP Certification #: via MN 027-053-137
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

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SAMPLE SUMMARY

Project: 499738-Revised Report
Pace Project No.: 10490877

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10490877001	**PEO-MW-32-201909**	Water	09/10/19 08:45	09/11/19 08:40
10490877002	**PEO-MW-33-201909**	Water	09/10/19 10:45	09/11/19 08:40
10490877003	**PEO-MW-42-201909**	Water	09/10/19 13:00	09/11/19 08:40
10490877004	**Trip Blank**	Water	09/09/19 07:00	09/11/19 08:40

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SAMPLE ANALYTE COUNT

Project: 499738-Revised Report
Pace Project No.: 10490877

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10490877001	**PEO-MW-32-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	AEZ	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10490877002	**PEO-MW-33-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8260B	AEZ	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10490877003	**PEO-MW-42-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	AEZ	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10490877004	**Trip Blank**	NWTPH-Gx	MJD	2	PASI-M
		EPA 8260B	AEZ	8	PASI-M

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10490877

Sample: PEO-MW-32-201909 **Lab ID: 10490877001** Collected: 09/10/19 08:45 Received: 09/11/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.38J**	mg/L	0.39	1	09/11/19 17:17	09/14/19 13:40	68334-30-5	
Motor Oil Range SG	**0.11J**	mg/L	0.39	1	09/11/19 17:17	09/14/19 13:40	64742-65-0	
Surrogates								
o-Terphenyl (S)	69	%.	50-150	1	09/11/19 17:17	09/14/19 13:40	84-15-1	
n-Triacontane (S)	57	%.	50-150	1	09/11/19 17:17	09/14/19 13:40	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**96.8J**	ug/L	100	1		09/12/19 18:18		
Surrogates								
a,a,a-Trifluorotoluene (S)	69	%.	50-150	1		09/12/19 18:18	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**63700**	ug/L	3300	1	09/16/19 10:50	09/17/19 17:14		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**6.1**	ug/L	0.50	1	09/17/19 04:55	09/17/19 21:46	7440-38-2	
Manganese, Dissolved	**17.5**	ug/L	0.50	1	09/17/19 04:55	09/17/19 21:46	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	83-32-9	
Acenaphthylene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	208-96-8	
Anthracene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	207-08-9	
Chrysene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	53-70-3	
Fluoranthene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	206-44-0	
Fluorene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	91-57-6	
Naphthalene	**0.044**	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	91-20-3	
Phenanthrene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	85-01-8	
Pyrene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:09	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	75	%.	47-125	1	09/11/19 13:05	09/12/19 23:09	321-60-8	
p-Terphenyl-d14 (S)	78	%.	62-125	1	09/11/19 13:05	09/12/19 23:09	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**0.14J**	ug/L	1.0	1		09/16/19 00:17	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/16/19 00:17	100-41-4	
Toluene	**0.57J**	ug/L	1.0	1		09/16/19 00:17	108-88-3	
m&p-Xylene	**0.53J**	ug/L	2.0	1		09/16/19 00:17	179601-23-1	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10490877

Sample: PEO-MW-32-201909 **Lab ID: 10490877001** Collected: 09/10/19 08:45 Received: 09/11/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		09/16/19 00:17	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	100	%.	75-125	1		09/16/19 00:17	17060-07-0	
Toluene-d8 (S)	97	%.	75-125	1		09/16/19 00:17	2037-26-5	
4-Bromofluorobenzene (S)	101	%.	75-125	1		09/16/19 00:17	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**109**	mg/L	5.0	1		09/12/19 13:05		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**2.5**	mg/L	1.2	1		09/11/19 14:37	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		09/11/19 12:41	14797-55-8	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10490877

Sample: PEO-MW-33-201909 **Lab ID: 10490877002** Collected: 09/10/19 10:45 Received: 09/11/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.27J**	mg/L	0.38	1	09/11/19 17:17	09/14/19 14:03	68334-30-5	
Motor Oil Range SG	**0.14J**	mg/L	0.38	1	09/11/19 17:17	09/14/19 14:03	64742-65-0	P2
Surrogates								
o-Terphenyl (S)	71	%.	50-150	1	09/11/19 17:17	09/14/19 14:03	84-15-1	
n-Triacontane (S)	45	%.	50-150	1	09/11/19 17:17	09/14/19 14:03	638-68-6	S0
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**92.2J**	ug/L	100	1		09/12/19 18:35		
Surrogates								
a,a,a-Trifluorotoluene (S)	73	%.	50-150	1		09/12/19 18:35	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**203000**	ug/L	3300	1	09/16/19 10:50	09/17/19 17:17		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**2.7**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:01	7440-38-2	
Manganese, Dissolved	**10.4**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:01	7439-96-5	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		09/16/19 00:33	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/16/19 00:33	100-41-4	
Toluene	**0.16J**	ug/L	1.0	1		09/16/19 00:33	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/16/19 00:33	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		09/16/19 00:33	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	100	%.	75-125	1		09/16/19 00:33	17060-07-0	
Toluene-d8 (S)	98	%.	75-125	1		09/16/19 00:33	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		09/16/19 00:33	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**164**	mg/L	5.0	1		09/12/19 13:14		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**7.9**	mg/L	1.2	1		09/11/19 15:07	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		09/11/19 12:42	14797-55-8	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10490877

Sample: PEO-MW-42-201909 **Lab ID: 10490877003** Collected: 09/10/19 13:00 Received: 09/11/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.24J**	mg/L	0.40	1	09/11/19 17:17	09/14/19 14:15	68334-30-5	
Motor Oil Range SG	**0.17J**	mg/L	0.40	1	09/11/19 17:17	09/14/19 14:15	64742-65-0	
Surrogates								
o-Terphenyl (S)	73	%.	50-150	1	09/11/19 17:17	09/14/19 14:15	84-15-1	
n-Triacontane (S)	69	%.	50-150	1	09/11/19 17:17	09/14/19 14:15	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		09/12/19 18:52		
Surrogates								
a,a,a-Trifluorotoluene (S)	75	%.	50-150	1		09/12/19 18:52	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**30900**	ug/L	3300	1	09/16/19 10:50	09/17/19 17:31		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**3.8**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:04	7440-38-2	
Manganese, Dissolved	**15.2**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:04	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	83-32-9	
Acenaphthylene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	208-96-8	
Anthracene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	207-08-9	
Chrysene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	53-70-3	
Fluoranthene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	206-44-0	
Fluorene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	91-57-6	
Naphthalene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	91-20-3	
Phenanthrene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	85-01-8	
Pyrene	ND	ug/L	0.038	1	09/11/19 13:05	09/12/19 23:31	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	75	%.	47-125	1	09/11/19 13:05	09/12/19 23:31	321-60-8	
p-Terphenyl-d14 (S)	79	%.	62-125	1	09/11/19 13:05	09/12/19 23:31	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		09/16/19 00:50	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/16/19 00:50	100-41-4	
Toluene	ND	ug/L	1.0	1		09/16/19 00:50	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/16/19 00:50	179601-23-1	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10490877

Sample: PEO-MW-42-201909 **Lab ID: 10490877003** Collected: 09/10/19 13:00 Received: 09/11/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		09/16/19 00:50	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	100	%.	75-125	1		09/16/19 00:50	17060-07-0	
Toluene-d8 (S)	98	%.	75-125	1		09/16/19 00:50	2037-26-5	
4-Bromofluorobenzene (S)	101	%.	75-125	1		09/16/19 00:50	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**61.4**	mg/L	5.0	1		09/12/19 13:23		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**6.7**	mg/L	1.2	1		09/11/19 15:22	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	**0.099J**	mg/L	0.10	1		09/11/19 12:43	14797-55-8	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10490877

Sample: Trip Blank **Lab ID: 10490877004** Collected: 09/09/19 07:00 Received: 09/11/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		09/12/19 19:43		
Surrogates								
a,a,a-Trifluorotoluene (S)	74	%.	50-150	1		09/12/19 19:43	98-08-8	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		09/15/19 21:11	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/15/19 21:11	100-41-4	
Toluene	ND	ug/L	1.0	1		09/15/19 21:11	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/15/19 21:11	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		09/15/19 21:11	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	101	%.	75-125	1		09/15/19 21:11	17060-07-0	
Toluene-d8 (S)	98	%.	75-125	1		09/15/19 21:11	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		09/15/19 21:11	460-00-4	

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10490877

QC Batch: 631684 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Water
Associated Lab Samples: 10490877001, 10490877002, 10490877003, 10490877004

METHOD BLANK: 3406018 Matrix: Water
Associated Lab Samples: 10490877001, 10490877002, 10490877003, 10490877004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	09/12/19 13:15	
a,a,a-Trifluorotoluene (S)	%.	79	50-150	09/12/19 13:15	

METHOD BLANK: 3406574 Matrix: Water
Associated Lab Samples: 10490877001, 10490877002, 10490877003, 10490877004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	09/12/19 16:23	
a,a,a-Trifluorotoluene (S)	%.	74	50-150	09/12/19 16:23	

LABORATORY CONTROL SAMPLE & LCSD: 3406019 3406020

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	846	974	85	97	75-125	14	20	
a,a,a-Trifluorotoluene (S)	%.				91	86	50-150			

SAMPLE DUPLICATE: 3406050

Parameter	Units	10490341003 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	<38.3	ND		30	
a,a,a-Trifluorotoluene (S)	%.	72	68			

SAMPLE DUPLICATE: 3406130

Parameter	Units	10490341001 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	<38.3	ND		30	
a,a,a-Trifluorotoluene (S)	%.	74	71			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10490877

QC Batch: 632233 Analysis Method: EPA 6020A
QC Batch Method: EPA 3020 Analysis Description: 6020A Water Dissolved UPD4
Associated Lab Samples: 10490877001, 10490877002, 10490877003

METHOD BLANK: 3409302 Matrix: Water
Associated Lab Samples: 10490877001, 10490877002, 10490877003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	09/17/19 21:40	
Manganese, Dissolved	ug/L	ND	0.50	09/17/19 21:40	

LABORATORY CONTROL SAMPLE: 3409303

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	100	98.7	99	80-120	
Manganese, Dissolved	ug/L	100	99.8	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3409304 3409305

Parameter	Units	10490877001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	6.1	100	100	104	107	98	101	75-125	2	20	
Manganese, Dissolved	ug/L	17.5	100	100	116	118	98	101	75-125	2	20	

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10490877

QC Batch: 632306 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10490877001, 10490877002, 10490877003, 10490877004

METHOD BLANK: 3409628 Matrix: Water
Associated Lab Samples: 10490877001, 10490877002, 10490877003, 10490877004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	09/15/19 19:13	
Ethylbenzene	ug/L	ND	1.0	09/15/19 19:13	
m&p-Xylene	ug/L	ND	2.0	09/15/19 19:13	
o-Xylene	ug/L	ND	1.0	09/15/19 19:13	
Toluene	ug/L	ND	1.0	09/15/19 19:13	
1,2-Dichloroethane-d4 (S)	%.	101	75-125	09/15/19 19:13	
4-Bromofluorobenzene (S)	%.	101	75-125	09/15/19 19:13	
Toluene-d8 (S)	%.	98	75-125	09/15/19 19:13	

LABORATORY CONTROL SAMPLE: 3409629

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.7	103	75-125	
Ethylbenzene	ug/L	20	20.8	104	75-125	
m&p-Xylene	ug/L	40	41.1	103	75-125	
o-Xylene	ug/L	20	21.3	107	75-125	
Toluene	ug/L	20	21.3	106	75-125	
1,2-Dichloroethane-d4 (S)	%.			102	75-125	
4-Bromofluorobenzene (S)	%.			99	75-125	
Toluene-d8 (S)	%.			103	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3409676 3409677

Parameter	Units	10490279001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	19.6	19.9	96	97	30-150	1	30	
Ethylbenzene	ug/L	ND	20	20	19.7	20.1	96	98	30-150	2	30	
m&p-Xylene	ug/L	2.5	40	40	40.5	41.5	95	98	30-150	2	30	
o-Xylene	ug/L	1.4	20	20	21.0	21.5	98	101	30-150	2	30	
Toluene	ug/L	1.8	20	20	21.9	22.0	101	101	30-150	1	30	
1,2-Dichloroethane-d4 (S)	%.						102	102	75-125			
4-Bromofluorobenzene (S)	%.						101	100	75-125			
Toluene-d8 (S)	%.						103	105	75-125			

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REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10490877

QC Batch: 631512 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA Mod. 3510C Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10490877001, 10490877003

METHOD BLANK: 3405143 Matrix: Water
Associated Lab Samples: 10490877001, 10490877003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	ND	0.040	09/12/19 14:20	
2-Methylnaphthalene	ug/L	ND	0.040	09/12/19 14:20	
Acenaphthene	ug/L	ND	0.040	09/12/19 14:20	
Acenaphthylene	ug/L	ND	0.040	09/12/19 14:20	
Anthracene	ug/L	ND	0.040	09/12/19 14:20	
Benzo(a)anthracene	ug/L	ND	0.040	09/12/19 14:20	
Benzo(a)pyrene	ug/L	ND	0.040	09/12/19 14:20	
Benzo(b)fluoranthene	ug/L	ND	0.040	09/12/19 14:20	
Benzo(g,h,i)perylene	ug/L	ND	0.040	09/12/19 14:20	
Benzo(k)fluoranthene	ug/L	ND	0.040	09/12/19 14:20	
Chrysene	ug/L	ND	0.040	09/12/19 14:20	
Dibenz(a,h)anthracene	ug/L	ND	0.040	09/12/19 14:20	
Fluoranthene	ug/L	ND	0.040	09/12/19 14:20	
Fluorene	ug/L	ND	0.040	09/12/19 14:20	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.040	09/12/19 14:20	
Naphthalene	ug/L	ND	0.040	09/12/19 14:20	
Phenanthrene	ug/L	ND	0.040	09/12/19 14:20	
Pyrene	ug/L	ND	0.040	09/12/19 14:20	
2-Fluorobiphenyl (S)	%.	89	47-125	09/12/19 14:20	
p-Terphenyl-d14 (S)	%.	92	62-125	09/12/19 14:20	

LABORATORY CONTROL SAMPLE & LCSD: 3405144 3405145

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1-Methylnaphthalene	ug/L	1	0.83	0.77	83	77	31-125	7	20	
2-Methylnaphthalene	ug/L	1	0.84	0.77	84	77	43-125	8	20	
Acenaphthene	ug/L	1	0.85	0.82	85	82	50-125	3	20	
Acenaphthylene	ug/L	1	0.84	0.82	84	82	46-125	3	20	
Anthracene	ug/L	1	0.86	0.89	86	89	59-125	3	20	
Benzo(a)anthracene	ug/L	1	0.86	0.89	86	89	55-125	3	20	
Benzo(a)pyrene	ug/L	1	0.93	0.90	93	90	66-125	4	20	
Benzo(b)fluoranthene	ug/L	1	0.95	0.94	95	94	64-125	1	20	
Benzo(g,h,i)perylene	ug/L	1	0.91	0.84	91	84	58-125	8	20	
Benzo(k)fluoranthene	ug/L	1	0.87	0.91	87	91	60-125	4	20	
Chrysene	ug/L	1	0.86	0.88	86	88	62-125	3	20	
Dibenz(a,h)anthracene	ug/L	1	0.90	0.81	90	81	51-125	10	20	
Fluoranthene	ug/L	1	0.88	0.92	88	92	64-125	4	20	
Fluorene	ug/L	1	0.86	0.86	86	86	55-125	0	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.91	0.86	91	86	61-125	6	20	
Naphthalene	ug/L	1	0.84	0.78	84	78	48-125	7	20	

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Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10490877

LABORATORY CONTROL SAMPLE & LCSD: 3405144 3405145

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Phenanthrene	ug/L	1	0.87	0.90	87	90	63-125	4	20	
Pyrene	ug/L	1	0.88	0.91	88	91	61-125	3	20	
2-Fluorobiphenyl (S)	%.				80	80	47-125			
p-Terphenyl-d14 (S)	%.				87	91	62-125			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10490877

QC Batch: 631530 Analysis Method: NWTPH-Dx
QC Batch Method: EPA Mod. 3510C Analysis Description: NWTPH-Dx GCS LV SG
Associated Lab Samples: 10490877001, 10490877002, 10490877003

METHOD BLANK: 3405192 Matrix: Water
Associated Lab Samples: 10490877001, 10490877002, 10490877003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Fuel Range SG	mg/L	ND	0.40	09/14/19 13:06	
Motor Oil Range SG	mg/L	ND	0.40	09/14/19 13:06	
n-Triacontane (S)	%.	83	50-150	09/14/19 13:06	
o-Terphenyl (S)	%.	78	50-150	09/14/19 13:06	

LABORATORY CONTROL SAMPLE & LCSD: 3405193 3405194

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Fuel Range SG	mg/L	2	1.6	1.3	81	65	50-150	23	20	R1
Motor Oil Range SG	mg/L	2	1.7	1.3	85	67	50-150	23	20	R1
n-Triacontane (S)	%.				81	62	50-150			
o-Terphenyl (S)	%.				85	68	50-150			

SAMPLE DUPLICATE: 3405195

Parameter	Units	10490877001 Result	Dup Result	RPD	Max RPD	Qualifiers
Diesel Fuel Range SG	mg/L	0.38J	0.38J		30	
Motor Oil Range SG	mg/L	0.11J	0.12J		30	
n-Triacontane (S)	%.	57	57			
o-Terphenyl (S)	%.	69	74			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10490877

QC Batch: 631700 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10490877001, 10490877002, 10490877003

METHOD BLANK: 3406099 Matrix: Water
Associated Lab Samples: 10490877001, 10490877002, 10490877003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	5.0	09/12/19 11:37	

LABORATORY CONTROL SAMPLE & LCSD: 3406100 3406101

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	42.4	42.4	106	106	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3406102 3406103

Parameter	Units	10490977001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	110	40	40	150	148	102	96	80-120	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3406104 3406105

Parameter	Units	10490977006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	297	40	40	344	342	118	114	80-120	1	20	

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10490877

QC Batch: 631488 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10490877001, 10490877002, 10490877003

METHOD BLANK: 3405009 Matrix: Water
Associated Lab Samples: 10490877001, 10490877002, 10490877003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.2	09/11/19 14:06	

LABORATORY CONTROL SAMPLE: 3405010

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	12.5	12.2	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3405011 3405012

Parameter	Units	10490756001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	32.0	12.5	12.5	40.2	40.2	66	66	90-110	0	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3405013 3405014

Parameter	Units	10490756002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	12.2	12.5	12.5	23.5	23.4	90	89	90-110	0	20	M1

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10490877

QC Batch: 631433 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10490877001, 10490877002, 10490877003

METHOD BLANK: 3404813 Matrix: Water
Associated Lab Samples: 10490877001, 10490877002, 10490877003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.10	09/11/19 10:27	FS

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QUALIFIERS

Project: 499738-Revised Report
Pace Project No.: 10490877

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

FS	The sample was filtered in the laboratory prior to analysis.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P2	Re-extraction or re-analysis could not be performed due to insufficient sample amount.
R1	RPD value was outside control limits.
S0	Surrogate recovery outside laboratory control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 499738-Revised Report
Pace Project No.: 10490877

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10490877001	**PEO-MW-32-201909**	EPA Mod. 3510C	631530	NWTPH-Dx	632160
10490877002	**PEO-MW-33-201909**	EPA Mod. 3510C	631530	NWTPH-Dx	632160
10490877003	**PEO-MW-42-201909**	EPA Mod. 3510C	631530	NWTPH-Dx	632160
10490877001	**PEO-MW-32-201909**	NWTPH-Gx	631684		
10490877002	**PEO-MW-33-201909**	NWTPH-Gx	631684		
10490877003	**PEO-MW-42-201909**	NWTPH-Gx	631684		
10490877004	**Trip Blank**	NWTPH-Gx	631684		
10490877001	**PEO-MW-32-201909**	EPA 3010	631920	EPA 6010D	632598
10490877002	**PEO-MW-33-201909**	EPA 3010	631920	EPA 6010D	632598
10490877003	**PEO-MW-42-201909**	EPA 3010	631920	EPA 6010D	632598
10490877001	**PEO-MW-32-201909**	EPA 3020	632233	EPA 6020A	632784
10490877002	**PEO-MW-33-201909**	EPA 3020	632233	EPA 6020A	632784
10490877003	**PEO-MW-42-201909**	EPA 3020	632233	EPA 6020A	632784
10490877001	**PEO-MW-32-201909**	EPA Mod. 3510C	631512	EPA 8270 by SIM	631787
10490877003	**PEO-MW-42-201909**	EPA Mod. 3510C	631512	EPA 8270 by SIM	631787
10490877001	**PEO-MW-32-201909**	EPA 8260B	632306		
10490877002	**PEO-MW-33-201909**	EPA 8260B	632306		
10490877003	**PEO-MW-42-201909**	EPA 8260B	632306		
10490877004	**Trip Blank**	EPA 8260B	632306		
10490877001	**PEO-MW-32-201909**	SM 2320B	631700		
10490877002	**PEO-MW-33-201909**	SM 2320B	631700		
10490877003	**PEO-MW-42-201909**	SM 2320B	631700		
10490877001	**PEO-MW-32-201909**	EPA 300.0	631488		
10490877002	**PEO-MW-33-201909**	EPA 300.0	631488		
10490877003	**PEO-MW-42-201909**	EPA 300.0	631488		
10490877001	**PEO-MW-32-201909**	EPA 353.2	631433		
10490877002	**PEO-MW-33-201909**	EPA 353.2	631433		
10490877003	**PEO-MW-42-201909**	EPA 353.2	631433		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:

Company:	ERM
Address:	1050 SW 6th Ave, Suite 1650
	Portland, OR 97204
Email To:	rita.cooper@erm.com
Phone: 207-329-6320	Fax:
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Rita Cooper
Copy To:	
Purchase Order No.:	
Project Name:	
Project Number:	499738

Section C Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Julie Bowser
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: OR

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: GRO (NWTPH-Gx)	BTEX (SW8260C/SW8260C SIM)	VPH (NWTPH-VPH)	DRO (NWTPH-Dx)	Dissolved Metals (As, Mn) (6020A)	Hardness (SM2340B)	SVOC (EPA 8270 SIM)	EPH (NWTPH-EPH)	Nitrate (EPA 353.2)	Total Alkalinity (SM 2320B)	Sulfate (EPA 300.0)	Nitrate + Nitrite	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	PEO-MW-32-201909	GW	G	9/10/19	8:45				18	x	x	x	x					3	3	3	2	1	X	2	2	1	1	X	1		001
2	PEO-MW-33-201909	GW	G	9/10/19	10:45				15	x	x	x	x					3	3	3	2	1	X	-	-	1	1	X	1		002
3	PEO-MW-42-201909	GW	G	9/10/19	13:00				18	x	x	x	x					3	3	3	2	1	X	2	2	1	1	X	1		003
4	Trip Blank	GW	G	9/10/19	7:00				2				x					2	X	X											004
5																															
6																															
7																															
8																															
9																															
10																															
11																															
12																															

WO# : 10490877

10490877

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Joe Casey/ERM	9/10/19	1500	Pace	9-11-19	840	4.2 / 4.5	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Joe Casey

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 09/10/19

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 23Aug2019 Page 1 of 1
	Document No.: F-MN-L-213-rev.29	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: ERM

Project #: WO#: 10490877

PM: JMT Due Date: 09/18/19

CLIENT: ERM-Oregon

Courier: [X] Fed Ex [ ] UPS [ ] USPS [ ] Client [ ] Pace [ ] SpeeDee [ ] Commercial See Exceptions [ ]

Tracking Number: 4934 3732 8942/8957

Custody Seal on Cooler/Box Present? [X] Yes [ ] No **Seals Intact?** [X] Yes [ ] No **Biological Tissue Frozen?** [ ] Yes [ ] No [X] N/A

Packing Material: [X] Bubble Wrap [X] Bubble Bags [ ] None [ ] Other: _____ **Temp Blank?** [X] Yes [ ] No

Thermometer: [X] T1(0461) [ ] T2(1336) [ ] T3(0459) [ ] T4(0254) [ ] T5(0489) **Type of Ice:** [X] Wet [ ] Blue [ ] None [ ] Dry [ ] Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 4.3, 4.6 °C

Correction Factor: -0.1 **Cooler Temp Corrected w/temp blank:** 4.2, 4.5 °C

Average Corrected Temp (no temp blank only): [ ] See Exceptions [ ] 1 Container °C

USDA Regulated Soil: ([X] N/A, water sample/Other: _____)

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? [ ] Yes [ ] No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? [ ] Yes [ ] No

Date/Initials of Person Examining Contents: ALM 9.11.19

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present and Filled Out?	[X] Yes	[ ] No		1.
Chain of Custody Relinquished?	[X] Yes	[ ] No		2.
Sampler Name and/or Signature on COC?	[X] Yes	[ ] No	[ ] N/A	3.
Samples Arrived within Hold Time?	[X] Yes	[ ] No		4.
Short Hold Time Analysis (<72 hr)?	[X] Yes	[ ] No		5. [ ] Fecal Coliform [ ] HPC [ ] Total Coliform/E coli [ ] BOD/cBOD [ ] Hex Chrome [ ] Turbidity [X] Nitrate [X] Nitrite [ ] Orthophos [ ] Other _____
Rush Turn Around Time Requested?	[ ] Yes	[X] No		6.
Sufficient Volume?	[X] Yes	[ ] No		7.
Correct Containers Used? -Pace Containers Used?	[X] Yes [X] Yes	[ ] No [ ] No		8.
Containers Intact?	[X] Yes	[ ] No		9.
Field Filtered Volume Received for Dissolved Tests?	[X] Yes	[ ] No	[ ] N/A	10. Is sediment visible in the dissolved container? [ ] Yes [X] No
Is sufficient information available to reconcile the samples to the COC? Matrix: [X] Water [ ] Soil [ ] Oil [ ] Other _____	[X] Yes	[ ] No		11. **If no, write ID/ Date/Time on Container Below:** **See Exception** [ ]
All containers needing acid/base preservation have been checked?	[ ] Yes	[ ] No	[ ] N/A	12. Sample # 1-3: 1/1 1-3: 1/1
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	[X] Yes	[ ] No	[ ] N/A	[ ] NaOH [X] HNO_3 [X] H_2SO_4 [ ] Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	[X] Yes	[ ] No	[ ] N/A	Positive for Res. Chlorine? [ ] Yes [ ] No pH Paper Lot# **See Exception** [ ]
				Res. Chlorine: 0-6 Roll: 0-6 Strip 213316BU: 0-14 Strip
Headspace in VOA Vials (greater than 6mm)?	[ ] Yes	[X] No	[ ] N/A	13. **See Exception** [ ]
Trip Blank Present?	[X] Yes	[ ] No	[ ] N/A	14.
Trip Blank Custody Seals Present?	[X] Yes	[ ] No	[ ] N/A	Pace Trip Blank Lot # (if purchased): 070119-3 CYR

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** [ ] Yes [ ] No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: only 2 trip blanks received for 3 VOA anlaysis. GRO and BTEX will be scheduled.

Project Manager Review: Julie Pace **Date:** 9/11/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: ALM

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Pace Analytical Minnesota
Julie Bowser
1700 Elm Street, Ste. 200
Minneapolis, MN 55414

RE: 499738
Work Order Number: 1909172

November 11, 2019

Attention Julie Bowser:

Fremont Analytical, Inc. received 3 sample(s) on 9/12/2019 for the analyses presented in the following report.

Extractable Petroleum Hydrocarbons by NWEPH
Volatile Petroleum Hydrocarbons by NWVPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *11/11/2019*

CLIENT: Pace Analytical Minnesota
Project: 499738
Work Order: 1909172

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1909172-001	PEO-MW-32-201909	09/10/2019 8:45 AM	09/12/2019 9:00 AM
1909172-002	PEO-MW-33-201909	09/10/2019 10:45 AM	09/12/2019 9:00 AM
1909172-003	PEO-MW-42-201909	09/10/2019 1:00 PM	09/12/2019 9:00 AM

Case Narrative

WO#: **1909172**
Date: **11/11/2019**

CLIENT: Pace Analytical Minnesota
Project: 499738

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

11/11/19: Revision 1 includes only Aliphatic results.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1909172**
Date Reported: **11/11/2019**

CLIENT: Pace Analytical Minnesota
Project: 499738

Lab ID: 1909172-001 **Collection Date:** 9/10/2019 8:45:00 AM
Client Sample ID: **PEO-MW-32-201909** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 25776		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.94	*	µg/L	1	10/4/2019 6:39:00 AM
Surr: 1-Chlorooctadecane	71.0	60 - 140		%Rec	1	10/4/2019 6:39:00 AM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25796		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07		µg/L	1	9/13/2019 12:54:46 AM
Surr: 1,4-Difluorobenzene	80.2	65 - 140		%Rec	1	9/13/2019 12:54:46 AM
Surr: Bromofluorobenzene	87.7	65 - 140		%Rec	1	9/13/2019 12:54:46 AM

NOTES:
* - Flagged value is not within established control limits.

Lab ID: 1909172-002 **Collection Date:** 9/10/2019 10:45:00 AM
Client Sample ID: **PEO-MW-33-201909** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25835		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07		µg/L	1	9/17/2019 8:28:43 PM
Surr: 1,4-Difluorobenzene	92.1	65 - 140		%Rec	1	9/17/2019 8:28:43 PM
Surr: Bromofluorobenzene	93.3	65 - 140		%Rec	1	9/17/2019 8:28:43 PM

Analytical Report

Work Order: **1909172**
Date Reported: **11/11/2019**

CLIENT: Pace Analytical Minnesota
Project: 499738

Lab ID: 1909172-003 **Collection Date:** 9/10/2019 1:00:00 PM
Client Sample ID: **PEO-MW-42-201909** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 25776		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.83	*	µg/L	1	10/4/2019 7:23:00 AM
Surr: 1-Chlorooctadecane	39.9	60 - 140	S	%Rec	1	10/4/2019 7:23:00 AM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25796		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07		µg/L	1	9/13/2019 1:36:01 AM
Surr: 1,4-Difluorobenzene	83.8	65 - 140		%Rec	1	9/13/2019 1:36:01 AM
Surr: Bromofluorobenzene	88.2	65 - 140		%Rec	1	9/13/2019 1:36:01 AM

NOTES:
* - Flagged value is not within established control limits.
S - Outlying surrogate recovery(ies) observed.

Work Order: 1909172
CLIENT: Pace Analytical Minnesota
Project: 499738

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **MB-25776** SampType: **MBLK** Units: **µg/L** Prep Date: **9/11/2019** RunNo: **54391**
Client ID: **MBLKW** Batch ID: **25776** Analysis Date: **10/4/2019** SeqNo: **1077799**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	19.9		0	0						*
Surr: 1-Chlorooctadecane	1,580		1,990		79.4	60	140				

NOTES:
* - Flagged value is not within established control limits.

Sample ID: **LCS-25776** SampType: **LCS** Units: **µg/L** Prep Date: **9/11/2019** RunNo: **54391**
Client ID: **LCSW** Batch ID: **25776** Analysis Date: **10/4/2019** SeqNo: **1077797**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	1,650	20.0	2,497	0	66.3	70	130				S
Surr: 1-Chlorooctadecane	1,620		1,998		81.3	60	140				

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Sample ID: **LCSD-25776** SampType: **LCSD** Units: **µg/L** Prep Date: **9/11/2019** RunNo: **54391**
Client ID: **LCSW02** Batch ID: **25776** Analysis Date: **10/4/2019** SeqNo: **1077798**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	1,060	20.0	2,495	0	42.6	70	130	1,654	43.6	20	RS
Surr: 1-Chlorooctadecane	1,200		1,996		60.1	60	140		0		

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.
R - High RPD observed.

Sample ID: **1909035-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **9/11/2019** RunNo: **54391**
Client ID: **BATCH** Batch ID: **25776** Analysis Date: **10/4/2019** SeqNo: **1077796**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	21.9		0	0			0	0	25	*
Surr: 1-Chlorooctadecane	1,000		2,188		45.8	60	140		0		S

Work Order: 1909172
CLIENT: Pace Analytical Minnesota
Project: 499738

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **1909035-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **9/11/2019** RunNo: **54391**
Client ID: **BATCH** Batch ID: **25776** Analysis Date: **10/4/2019** SeqNo: **1077796**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
* - Flagged value is not within established control limits.
S - Outlying surrogate recovery(ies) observed.

Work Order: 1909172
CLIENT: Pace Analytical Minnesota
Project: 499738

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **LCS-25796**	SampType: **LCS**	Units: **µg/L**	Prep Date: **9/12/2019**	RunNo: **53914**
Client ID: **LCSW**	Batch ID: **25796**		Analysis Date: **9/12/2019**	SeqNo: **1067426**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	205	20.0	200.0	0	103	70	130				
Surr: 1,4-Difluorobenzene	37.4		50.00		74.8	65	140				
Surr: Bromofluorobenzene	41.3		50.00		82.5	65	140				

Sample ID: **LCSD-25796**	SampType: **LCSD**	Units: **µg/L**	Prep Date: **9/12/2019**	RunNo: **53914**
Client ID: **LCSW02**	Batch ID: **25796**		Analysis Date: **9/12/2019**	SeqNo: **1067427**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	196	20.0	200.0	0	97.8	70	130	205.3	4.87	20	
Surr: 1,4-Difluorobenzene	38.0		50.00		76.0	65	140		0		
Surr: Bromofluorobenzene	40.8		50.00		81.7	65	140		0		

Sample ID: **MB-25796**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **9/12/2019**	RunNo: **53914**
Client ID: **MBLKW**	Batch ID: **25796**		Analysis Date: **9/12/2019**	SeqNo: **1067428**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	20.0		0	0						
Surr: 1,4-Difluorobenzene	32.4		50.00		64.8	65	140				S
Surr: Bromofluorobenzene	38.9		50.00		77.9	65	140				

NOTES:
S - Outlying surrogate recovery(ies) observed.

Sample ID: **1909172-003BDUP**	SampType: **DUP**	Units: **µg/L**	Prep Date: **9/12/2019**	RunNo: **53914**
Client ID: **PEO-MW-42-201909**	Batch ID: **25796**		Analysis Date: **9/13/2019**	SeqNo: **1067423**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	20.0		0	0			0	0	25	
Surr: 1,4-Difluorobenzene	43.1		50.00		86.2	65	140		0		
Surr: Bromofluorobenzene	45.0		50.00		90.0	65	140		0		

Work Order: 1909172
CLIENT: Pace Analytical Minnesota
Project: 499738

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **LCS-25835**	SampType: **LCS**			Units: **µg/L**		Prep Date: **9/17/2019**		RunNo: **53970**		
Client ID: **LCSW**	Batch ID: **25835**					Analysis Date: **9/17/2019**		SeqNo: **1068684**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	197	20.0	200.0	0	98.6	70	130				
Surr: 1,4-Difluorobenzene	48.3		50.00		96.6	65	140				
Surr: Bromofluorobenzene	44.2		50.00		88.4	65	140				

Sample ID: **LCSD-25835**	SampType: **LCSD**			Units: **µg/L**		Prep Date: **9/17/2019**		RunNo: **53970**		
Client ID: **LCSW02**	Batch ID: **25835**					Analysis Date: **9/17/2019**		SeqNo: **1068685**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	205	20.0	200.0	0	103	70	130	197.3	3.97	20	
Surr: 1,4-Difluorobenzene	47.6		50.00		95.3	65	140		0		
Surr: Bromofluorobenzene	43.7		50.00		87.4	65	140		0		

Sample ID: **MB-25835**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **9/17/2019**		RunNo: **53970**		
Client ID: **MBLKW**	Batch ID: **25835**					Analysis Date: **9/17/2019**		SeqNo: **1068686**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	20.0		0	0						
Surr: 1,4-Difluorobenzene	44.9		50.00		89.9	65	140				
Surr: Bromofluorobenzene	46.3		50.00		92.7	65	140				

Sample ID: **1909228-005ADUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **9/17/2019**		RunNo: **53970**		
Client ID: **BATCH**	Batch ID: **25835**					Analysis Date: **9/17/2019**		SeqNo: **1068679**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	20.0		0	0			0	0	25	
Surr: 1,4-Difluorobenzene	46.4		50.00		92.8	65	140		0		
Surr: Bromofluorobenzene	46.0		50.00		92.0	65	140		0		

Sample Log-In Check List

Client Name:	PACEMINN	Work Order Number:	1909172
Logged by:	Carissa True	Date Received:	9/12/2019 10:26:54 AM

Chain of Custody

1.	Is Chain of Custody complete?	Yes	☑	No ☐	Not Present	☐
2.	How was the sample delivered?	FedEx				

Log In

3.	Coolers are present?	Yes	☑	No ☐	NA	☐
4.	Shipping container/cooler in good condition?	Yes	☑	No ☐		
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes	☑	No ☐	Not Required	☐
6.	Was an attempt made to cool the samples?	Yes	☑	No ☐	NA	☐
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes	☑	No ☐	NA	☐
8.	Sample(s) in proper container(s)?	Yes	☑	No ☐		
9.	Sufficient sample volume for indicated test(s)?	Yes	☑	No ☐		
10.	Are samples properly preserved?	Yes	☑	No ☐		
11.	Was preservative added to bottles?	Yes	☐	No ☑	NA	☐
12.	Is there headspace in the VOA vials?	Yes	☐	No ☑	NA	☐
13.	Did all samples containers arrive in good condition(unbroken)?	Yes	☑	No ☐		
14.	Does paperwork match bottle labels?	Yes	☑	No ☐		
15.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No ☐		
16.	Is it clear what analyses were requested?	Yes	☑	No ☐		
17.	Were all holding times able to be met?	Yes	☑	No ☐		

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes	☑	No ☐	NA	☐

Person Notified:	Julie Bowser	Date:	9/12/2019
By Whom:	Carissa True	Via:	☑ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:	No EPH volume for sample "PEO-MW-33-201909", confirmation of TAT.		
Client Instructions:	Run VPH only on "PEO-MW-33-201909", STD TAT.		

19. Additional remarks:

Carbon ranges C10-12 only, report to the MDL per Julie Bowser.

Item Information

Item #	Temp °C
Cooler 1	0.2
Sample 1	9.6
Temp Blank 1	0.6

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody

PASI Minnesota Laboratory

1909172

Workorder: 10490877 **Workorder Name:** 499738 **Results Requested By:** 9/18/2019

Report / Invoice To	Subcontract To
Julie Bowser Pace Analytical Minnesota 1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone 612-607-6390 Email: julie.bowser@pacelabs.com	Fremont Analytical P.O. 10490877 3600 Fremont Ave N Seattle, WA 98103

State of Sample Origin: OR

					Preserved Containers						Requested Analysis												
Item	Sample ID	Collect Date/Time	Lab ID	Matrix	HCL VG9H	Unpreserved AG1U					NWTPH EPH	NWTPH VPH											LAB USE ONLY
1	PEO-MW-32-201909	9/10/2019 08:45	10490877001	Water	3	2					X	X											
2	PEO-MW-33-201909	9/10/2019 10:45	10490877002	Water	3	2					X	X											
3	PEO-MW-42-201909	9/10/2019 13:00	10490877003	Water	3	2					X	X											
4																							
5																							

Transfers	Released By	Date/Time	Received By	Date/Time
1	[illegible]	9/11/19 1615	[illegible]	9/12/19 0900
2	[illegible]	9/12/19 0900	[illegible]	
3				

Comments

Cooler Temperature on Receipt ____ °C | **Custody Seal** Y or N | **Received on Ice** Y or N | **Samples Intact** Y or N

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

November 25, 2019

Joe Casey
ERM Portland
1050 SW 6th Ave
Suite 1650
Portland, OR 97204

RE: Project: 499738-Revised Report
Pace Project No.: 10491044

Dear Joe Casey:
Enclosed are the analytical results for sample(s) received by the laboratory on September 12, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

This report was revised on November 14, 2019 to only report aliphatic results on the subcontract report.

This report was revised on November 25, 2019 to only report aliphatic results on the EPH subcontract report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Julie Bowser
julie.bowser@pacelabs.com
612-607-6390
Project Manager

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

Enclosures

cc: Rita Cooper, ERM Portland
ERM Global EDD Mailbox, ERM

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 499738-Revised Report
Pace Project No.: 10491044

Pace Analytical Services Minneapolis

A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Massachusetts DWP Certification #: via MN 027-053-137
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 499738-Revised Report
Pace Project No.: 10491044

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10491044001	**PEO-MW-24A-201909**	Water	09/11/19 07:45	09/12/19 08:35
10491044002	**PEO-MW-33-201909B**	Water	09/11/19 08:10	09/12/19 08:35
10491044003	**PEO-MW-21-201909**	Water	09/11/19 09:45	09/12/19 08:35
10491044004	**PEO-MW-03-201909**	Water	09/11/19 10:40	09/12/19 08:35
10491044005	**PEO-MW-06-201909**	Water	09/11/19 12:05	09/12/19 08:35
10491044006	**PEO-MW-19-201909**	Water	09/11/19 13:05	09/12/19 08:35
10491044007	**Trip Blank**	Water	09/11/19 07:00	09/12/19 08:35

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SAMPLE ANALYTE COUNT

Project: 499738-Revised Report
Pace Project No.: 10491044

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10491044001	**PEO-MW-24A-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 8260B	DS2	8	PASI-M
10491044002	**PEO-MW-33-201909B**	EPA 8270 by SIM	CH3	20	PASI-M
10491044003	**PEO-MW-21-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	DS2	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10491044004	**PEO-MW-03-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	DS2	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10491044005	**PEO-MW-06-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	DS2	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10491044006	**PEO-MW-19-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	DS2	8	PASI-M

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SAMPLE ANALYTE COUNT

Project: 499738-Revised Report
Pace Project No.: 10491044

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10491044007	**Trip Blank**	NWTPH-Gx	MJD	2	PASI-M
		EPA 8260B	DS2	8	PASI-M

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491044

Sample: PEO-MW-24A-201909 **Lab ID: 10491044001** Collected: 09/11/19 07:45 Received: 09/12/19 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.11J**	mg/L	0.41	1	09/12/19 13:10	09/14/19 15:12	68334-30-5	
Motor Oil Range SG	**0.19J**	mg/L	0.41	1	09/12/19 13:10	09/14/19 15:12	64742-65-0	
Surrogates								
o-Terphenyl (S)	73	%.	50-150	1	09/12/19 13:10	09/14/19 15:12	84-15-1	
n-Triacontane (S)	75	%.	50-150	1	09/12/19 13:10	09/14/19 15:12	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		09/20/19 10:29		
Surrogates								
a,a,a-Trifluorotoluene (S)	75	%.	50-150	1		09/20/19 10:29	98-08-8	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		09/18/19 13:32	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/18/19 13:32	100-41-4	
Toluene	ND	ug/L	1.0	1		09/18/19 13:32	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/18/19 13:32	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		09/18/19 13:32	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	102	%.	75-125	1		09/18/19 13:32	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1		09/18/19 13:32	2037-26-5	
4-Bromofluorobenzene (S)	104	%.	75-125	1		09/18/19 13:32	460-00-4	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491044

Sample: PEO-MW-33-201909B **Lab ID: 10491044002** Collected: 09/11/19 08:10 Received: 09/12/19 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**0.15**	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	83-32-9	
Acenaphthylene	**0.023J**	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	208-96-8	
Anthracene	ND	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	207-08-9	
Chrysene	ND	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	53-70-3	
Fluoranthene	ND	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	206-44-0	
Fluorene	ND	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	193-39-5	
1-Methylnaphthalene	**0.041J**	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	91-57-6	
Naphthalene	**0.13**	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	91-20-3	
Phenanthrene	ND	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	85-01-8	
Pyrene	ND	ug/L	0.041	1	09/12/19 12:13	09/16/19 11:42	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	65	%.	47-125	1	09/12/19 12:13	09/16/19 11:42	321-60-8	
p-Terphenyl-d14 (S)	67	%.	62-125	1	09/12/19 12:13	09/16/19 11:42	1718-51-0	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491044

Sample: PEO-MW-21-201909 **Lab ID: 10491044003** Collected: 09/11/19 09:45 Received: 09/12/19 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	ND	mg/L	0.39	1	09/12/19 13:10	09/14/19 15:35	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.39	1	09/12/19 13:10	09/14/19 15:35	64742-65-0	
Surrogates								
o-Terphenyl (S)	77	%.	50-150	1	09/12/19 13:10	09/14/19 15:35	84-15-1	
n-Triacontane (S)	86	%.	50-150	1	09/12/19 13:10	09/14/19 15:35	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		09/13/19 17:52		
Surrogates								
a,a,a-Trifluorotoluene (S)	75	%.	50-150	1		09/13/19 17:52	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**39300**	ug/L	3300	1	09/16/19 10:50	09/17/19 17:40		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**0.40J**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:07	7440-38-2	
Manganese, Dissolved	**55.4**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:07	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	83-32-9	
Acenaphthylene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	208-96-8	
Anthracene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	207-08-9	
Chrysene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	53-70-3	
Fluoranthene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	206-44-0	
Fluorene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	91-57-6	
Naphthalene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	91-20-3	
Phenanthrene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	85-01-8	
Pyrene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:02	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	81	%.	47-125	1	09/12/19 12:13	09/13/19 20:02	321-60-8	
p-Terphenyl-d14 (S)	89	%.	62-125	1	09/12/19 12:13	09/13/19 20:02	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		09/18/19 13:49	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/18/19 13:49	100-41-4	
Toluene	ND	ug/L	1.0	1		09/18/19 13:49	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/18/19 13:49	179601-23-1	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491044

Sample: PEO-MW-21-201909 **Lab ID: 10491044003** Collected: 09/11/19 09:45 Received: 09/12/19 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		09/18/19 13:49	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	105	%.	75-125	1		09/18/19 13:49	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1		09/18/19 13:49	2037-26-5	
4-Bromofluorobenzene (S)	104	%.	75-125	1		09/18/19 13:49	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**51.9**	mg/L	5.0	1		09/16/19 09:48		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**2.8**	mg/L	1.2	1		09/13/19 19:40	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	**0.10**	mg/L	0.10	1		09/12/19 14:38	14797-55-8	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491044

Sample: PEO-MW-03-201909 **Lab ID: 10491044004** Collected: 09/11/19 10:40 Received: 09/12/19 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.12J**	mg/L	0.41	1	09/12/19 13:10	09/14/19 15:46	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.41	1	09/12/19 13:10	09/14/19 15:46	64742-65-0	
Surrogates								
o-Terphenyl (S)	83	%.	50-150	1	09/12/19 13:10	09/14/19 15:46	84-15-1	
n-Triacontane (S)	82	%.	50-150	1	09/12/19 13:10	09/14/19 15:46	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		09/13/19 18:09		
Surrogates								
a,a,a-Trifluorotoluene (S)	74	%.	50-150	1		09/13/19 18:09	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**68300**	ug/L	3300	1	09/16/19 10:50	09/17/19 17:43		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**0.24J**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:16	7440-38-2	
Manganese, Dissolved	**11.2**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:16	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	83-32-9	
Acenaphthylene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	208-96-8	
Anthracene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	207-08-9	
Chrysene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	53-70-3	
Fluoranthene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	206-44-0	
Fluorene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	91-57-6	
Naphthalene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	91-20-3	
Phenanthrene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	85-01-8	
Pyrene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:23	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	65	%.	47-125	1	09/12/19 12:13	09/13/19 20:23	321-60-8	
p-Terphenyl-d14 (S)	76	%.	62-125	1	09/12/19 12:13	09/13/19 20:23	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		09/18/19 14:06	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/18/19 14:06	100-41-4	
Toluene	ND	ug/L	1.0	1		09/18/19 14:06	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/18/19 14:06	179601-23-1	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491044

Sample: PEO-MW-03-201909 **Lab ID: 10491044004** Collected: 09/11/19 10:40 Received: 09/12/19 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		09/18/19 14:06	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	104	%.	75-125	1		09/18/19 14:06	17060-07-0	
Toluene-d8 (S)	101	%.	75-125	1		09/18/19 14:06	2037-26-5	
4-Bromofluorobenzene (S)	103	%.	75-125	1		09/18/19 14:06	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**82.6**	mg/L	5.0	1		09/16/19 09:51		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**3.7**	mg/L	1.2	1		09/13/19 19:55	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	**0.036J**	mg/L	0.10	1		09/12/19 14:42	14797-55-8	FS

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491044

Sample: PEO-MW-06-201909 **Lab ID: 10491044005** Collected: 09/11/19 12:05 Received: 09/12/19 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**1.2**	mg/L	0.38	1	09/12/19 13:10	09/14/19 15:58	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.38	1	09/12/19 13:10	09/14/19 15:58	64742-65-0	
Surrogates								
o-Terphenyl (S)	80	%.	50-150	1	09/12/19 13:10	09/14/19 15:58	84-15-1	
n-Triacontane (S)	80	%.	50-150	1	09/12/19 13:10	09/14/19 15:58	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**3330**	ug/L	100	1		09/13/19 18:42		
Surrogates								
a,a,a-Trifluorotoluene (S)	123	%.	50-150	1		09/13/19 18:42	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**23200**	ug/L	3300	1	09/16/19 10:50	09/17/19 17:46		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**8.3**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:19	7440-38-2	
Manganese, Dissolved	**435**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:19	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**1.7**	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:44	83-32-9	
Acenaphthylene	**0.50**	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:44	208-96-8	
Anthracene	**0.23**	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:44	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:44	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:44	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:44	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:44	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:44	207-08-9	
Chrysene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:44	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:44	53-70-3	
Fluoranthene	**0.053**	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:44	206-44-0	
Fluorene	**3.7**	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:44	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:44	193-39-5	
1-Methylnaphthalene	**13.0**	ug/L	0.078	2	09/12/19 12:13	09/19/19 12:02	90-12-0	
2-Methylnaphthalene	**13.8**	ug/L	0.078	2	09/12/19 12:13	09/19/19 12:02	91-57-6	
Naphthalene	**2.4**	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:44	91-20-3	
Phenanthrene	**2.3**	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:44	85-01-8	
Pyrene	**0.057**	ug/L	0.039	1	09/12/19 12:13	09/13/19 20:44	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	72	%.	47-125	1	09/12/19 12:13	09/13/19 20:44	321-60-8	
p-Terphenyl-d14 (S)	80	%.	62-125	1	09/12/19 12:13	09/13/19 20:44	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		09/18/19 14:23	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/18/19 14:23	100-41-4	
Toluene	**0.28J**	ug/L	1.0	1		09/18/19 14:23	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/18/19 14:23	179601-23-1	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491044

Sample: PEO-MW-06-201909 **Lab ID: 10491044005** Collected: 09/11/19 12:05 Received: 09/12/19 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		09/18/19 14:23	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	102	%.	75-125	1		09/18/19 14:23	17060-07-0	
Toluene-d8 (S)	102	%.	75-125	1		09/18/19 14:23	2037-26-5	
4-Bromofluorobenzene (S)	100	%.	75-125	1		09/18/19 14:23	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**72.5**	mg/L	5.0	1		09/16/19 09:55		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	ND	mg/L	1.2	1		09/13/19 20:10	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		09/12/19 14:43	14797-55-8	FS

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491044

Sample: PEO-MW-19-201909 **Lab ID: 10491044006** Collected: 09/11/19 13:05 Received: 09/12/19 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.11J**	mg/L	0.39	1	09/12/19 13:10	09/14/19 16:09	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.39	1	09/12/19 13:10	09/14/19 16:09	64742-65-0	
Surrogates								
o-Terphenyl (S)	82	%.	50-150	1	09/12/19 13:10	09/14/19 16:09	84-15-1	
n-Triacontane (S)	84	%.	50-150	1	09/12/19 13:10	09/14/19 16:09	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		09/13/19 17:35		
Surrogates								
a,a,a-Trifluorotoluene (S)	74	%.	50-150	1		09/13/19 17:35	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**74100**	ug/L	3300	1	09/16/19 10:50	09/17/19 17:49		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**0.19J**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:22	7440-38-2	
Manganese, Dissolved	**98.8**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:22	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	83-32-9	
Acenaphthylene	ND	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	208-96-8	
Anthracene	ND	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	207-08-9	
Chrysene	ND	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	53-70-3	
Fluoranthene	ND	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	206-44-0	
Fluorene	**0.017J**	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	193-39-5	
1-Methylnaphthalene	**0.053**	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	90-12-0	
2-Methylnaphthalene	**0.056**	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	91-57-6	
Naphthalene	ND	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	91-20-3	
Phenanthrene	**0.021J**	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	85-01-8	
Pyrene	ND	ug/L	0.038	1	09/12/19 12:13	09/13/19 21:05	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	66	%.	47-125	1	09/12/19 12:13	09/13/19 21:05	321-60-8	
p-Terphenyl-d14 (S)	70	%.	62-125	1	09/12/19 12:13	09/13/19 21:05	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		09/18/19 11:15	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/18/19 11:15	100-41-4	
Toluene	ND	ug/L	1.0	1		09/18/19 11:15	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/18/19 11:15	179601-23-1	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491044

Sample: PEO-MW-19-201909 **Lab ID: 10491044006** Collected: 09/11/19 13:05 Received: 09/12/19 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		09/18/19 11:15	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	102	%.	75-125	1		09/18/19 11:15	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1		09/18/19 11:15	2037-26-5	
4-Bromofluorobenzene (S)	101	%.	75-125	1		09/18/19 11:15	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**94.9**	mg/L	5.0	1		09/16/19 10:41		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**8.2**	mg/L	1.2	1		09/13/19 20:25	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	**0.20**	mg/L	0.10	1		09/12/19 14:44	14797-55-8	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491044

Sample: Trip Blank **Lab ID: 10491044007** Collected: 09/11/19 07:00 Received: 09/12/19 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		09/13/19 13:22		
Surrogates								
a,a,a-Trifluorotoluene (S)	77	%.	50-150	1		09/13/19 13:22	98-08-8	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		09/18/19 10:41	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/18/19 10:41	100-41-4	
Toluene	**0.20J**	ug/L	1.0	1		09/18/19 10:41	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/18/19 10:41	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		09/18/19 10:41	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	101	%.	75-125	1		09/18/19 10:41	17060-07-0	
Toluene-d8 (S)	102	%.	75-125	1		09/18/19 10:41	2037-26-5	
4-Bromofluorobenzene (S)	106	%.	75-125	1		09/18/19 10:41	460-00-4	

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491044

QC Batch: 631947 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Water
Associated Lab Samples: 10491044003, 10491044004, 10491044005, 10491044006, 10491044007

METHOD BLANK: 3407575 Matrix: Water
Associated Lab Samples: 10491044003, 10491044004, 10491044005, 10491044006, 10491044007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	09/13/19 11:08	
a,a,a-Trifluorotoluene (S)	%.	72	50-150	09/13/19 11:08	

METHOD BLANK: 3407576 Matrix: Water
Associated Lab Samples: 10491044003, 10491044004, 10491044005, 10491044006, 10491044007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	09/13/19 13:56	
a,a,a-Trifluorotoluene (S)	%.	73	50-150	09/13/19 13:56	

LABORATORY CONTROL SAMPLE & LCSD: 3407577 3407578

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L		1030	973				6	20	
a,a,a-Trifluorotoluene (S)	%.				90	88	50-150			

SAMPLE DUPLICATE: 3407598

Parameter	Units	10490984001 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	<38.3	ND		30	
a,a,a-Trifluorotoluene (S)	%.	74	70			

SAMPLE DUPLICATE: 3407599

Parameter	Units	10491145001 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	ND	ND		30	
a,a,a-Trifluorotoluene (S)	%.	77	75			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491044

QC Batch: 633517 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Water
Associated Lab Samples: 10491044001

METHOD BLANK: 3415355 Matrix: Water
Associated Lab Samples: 10491044001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	09/19/19 18:00	
a,a,a-Trifluorotoluene (S)	%.	86	50-150	09/19/19 18:00	

LABORATORY CONTROL SAMPLE & LCSD: 3415356 3415357

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	1060	910	106	91	75-125	15	20	
a,a,a-Trifluorotoluene (S)	%.				96	86	50-150			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3414667 3414668

Parameter	Units	10491887005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
TPH as Gas	ug/L	292	1000	1000	1060	1290	76	100	75-125	20	30	
a,a,a-Trifluorotoluene (S)	%.						60	81	50-150			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491044

QC Batch: 632233 Analysis Method: EPA 6020A
QC Batch Method: EPA 3020 Analysis Description: 6020A Water Dissolved UPD4
Associated Lab Samples: 10491044003, 10491044004, 10491044005, 10491044006

METHOD BLANK: 3409302 Matrix: Water
Associated Lab Samples: 10491044003, 10491044004, 10491044005, 10491044006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	09/17/19 21:40	
Manganese, Dissolved	ug/L	ND	0.50	09/17/19 21:40	

LABORATORY CONTROL SAMPLE: 3409303

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	100	98.7	99	80-120	
Manganese, Dissolved	ug/L	100	99.8	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3409304 3409305

Parameter	Units	10490877001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	6.1	100	100	104	107	98	101	75-125	2	20	
Manganese, Dissolved	ug/L	17.5	100	100	116	118	98	101	75-125	2	20	

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491044

QC Batch: 632846 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10491044001, 10491044003, 10491044004, 10491044005, 10491044006, 10491044007

METHOD BLANK: 3412156 Matrix: Water
Associated Lab Samples: 10491044001, 10491044003, 10491044004, 10491044005, 10491044006, 10491044007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	09/18/19 10:24	
Ethylbenzene	ug/L	ND	1.0	09/18/19 10:24	
m&p-Xylene	ug/L	ND	2.0	09/18/19 10:24	
o-Xylene	ug/L	ND	1.0	09/18/19 10:24	
Toluene	ug/L	ND	1.0	09/18/19 10:24	
1,2-Dichloroethane-d4 (S)	%.	99	75-125	09/18/19 10:24	
4-Bromofluorobenzene (S)	%.	104	75-125	09/18/19 10:24	
Toluene-d8 (S)	%.	102	75-125	09/18/19 10:24	

LABORATORY CONTROL SAMPLE: 3412157

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	19.4	97	75-125	
Ethylbenzene	ug/L	20	20.0	100	75-125	
m&p-Xylene	ug/L	40	39.7	99	75-125	
o-Xylene	ug/L	20	20.4	102	75-125	
Toluene	ug/L	20	19.4	97	75-125	
1,2-Dichloroethane-d4 (S)	%.			97	75-125	
4-Bromofluorobenzene (S)	%.			97	75-125	
Toluene-d8 (S)	%.			101	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3412163 3412164

Parameter	Units	10491044006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	22.6	19.0	113	95	30-150	18	30	
Ethylbenzene	ug/L	ND	20	20	22.8	19.8	114	99	30-150	14	30	
m&p-Xylene	ug/L	ND	40	40	45.2	38.9	113	97	30-150	15	30	
o-Xylene	ug/L	ND	20	20	22.8	19.6	114	98	30-150	15	30	
Toluene	ug/L	ND	20	20	22.2	18.8	111	94	30-150	17	30	
1,2-Dichloroethane-d4 (S)	%.						94	93	75-125			
4-Bromofluorobenzene (S)	%.						97	98	75-125			
Toluene-d8 (S)	%.						100	100	75-125			

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REPORT OF LABORATORY ANALYSIS

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Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491044

QC Batch: 631724 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA Mod. 3510C Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10491044002, 10491044003, 10491044004, 10491044005, 10491044006

METHOD BLANK: 3406186 Matrix: Water
Associated Lab Samples: 10491044002, 10491044003, 10491044004, 10491044005, 10491044006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	ND	0.040	09/13/19 18:38	
2-Methylnaphthalene	ug/L	ND	0.040	09/13/19 18:38	
Acenaphthene	ug/L	ND	0.040	09/13/19 18:38	
Acenaphthylene	ug/L	ND	0.040	09/13/19 18:38	
Anthracene	ug/L	ND	0.040	09/13/19 18:38	
Benzo(a)anthracene	ug/L	ND	0.040	09/13/19 18:38	
Benzo(a)pyrene	ug/L	ND	0.040	09/13/19 18:38	
Benzo(b)fluoranthene	ug/L	ND	0.040	09/13/19 18:38	
Benzo(g,h,i)perylene	ug/L	ND	0.040	09/13/19 18:38	
Benzo(k)fluoranthene	ug/L	ND	0.040	09/13/19 18:38	
Chrysene	ug/L	ND	0.040	09/13/19 18:38	
Dibenz(a,h)anthracene	ug/L	ND	0.040	09/13/19 18:38	
Fluoranthene	ug/L	ND	0.040	09/13/19 18:38	
Fluorene	ug/L	ND	0.040	09/13/19 18:38	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.040	09/13/19 18:38	
Naphthalene	ug/L	ND	0.040	09/13/19 18:38	
Phenanthrene	ug/L	ND	0.040	09/13/19 18:38	
Pyrene	ug/L	ND	0.040	09/13/19 18:38	
2-Fluorobiphenyl (S)	%.	82	47-125	09/13/19 18:38	
p-Terphenyl-d14 (S)	%.	85	62-125	09/13/19 18:38	

LABORATORY CONTROL SAMPLE & LCSD: 3406187 3406188

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1-Methylnaphthalene	ug/L	1	0.79	0.86	79	86	31-125	9	20	
2-Methylnaphthalene	ug/L	1	0.80	0.88	80	88	43-125	9	20	
Acenaphthene	ug/L	1	0.80	0.90	80	90	50-125	12	20	
Acenaphthylene	ug/L	1	0.79	0.88	79	88	46-125	10	20	
Anthracene	ug/L	1	0.79	0.85	79	85	59-125	8	20	
Benzo(a)anthracene	ug/L	1	0.80	0.85	80	85	55-125	6	20	
Benzo(a)pyrene	ug/L	1	0.84	0.90	84	90	66-125	7	20	
Benzo(b)fluoranthene	ug/L	1	0.90	0.87	90	87	64-125	3	20	
Benzo(g,h,i)perylene	ug/L	1	0.83	0.93	83	93	58-125	10	20	
Benzo(k)fluoranthene	ug/L	1	0.83	1.0	83	100	60-125	19	20	
Chrysene	ug/L	1	0.84	0.90	84	90	62-125	7	20	
Dibenz(a,h)anthracene	ug/L	1	0.83	0.89	83	89	51-125	7	20	
Fluoranthene	ug/L	1	0.83	0.88	83	88	64-125	6	20	
Fluorene	ug/L	1	0.81	0.90	81	90	55-125	11	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.84	0.90	84	90	61-125	7	20	
Naphthalene	ug/L	1	0.80	0.89	80	89	48-125	10	20	

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(612)607-1700

QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491044

LABORATORY CONTROL SAMPLE & LCSD: 3406187 3406188

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Phenanthrene	ug/L	1	0.83	0.90	83	90	63-125	8	20	
Pyrene	ug/L	1	0.83	0.90	83	90	61-125	7	20	
2-Fluorobiphenyl (S)	%.				78	87	47-125			
p-Terphenyl-d14 (S)	%.				82	90	62-125			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491044

QC Batch: 631728 Analysis Method: NWTPH-Dx
QC Batch Method: EPA Mod. 3510C Analysis Description: NWTPH-Dx GCS LV SG
Associated Lab Samples: 10491044001, 10491044003, 10491044004, 10491044005, 10491044006

METHOD BLANK: 3406199 Matrix: Water
Associated Lab Samples: 10491044001, 10491044003, 10491044004, 10491044005, 10491044006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Fuel Range SG	mg/L	ND	0.40	09/14/19 14:37	
Motor Oil Range SG	mg/L	ND	0.40	09/14/19 14:37	
n-Triacontane (S)	%.	78	50-150	09/14/19 14:37	
o-Terphenyl (S)	%.	83	50-150	09/14/19 14:37	

LABORATORY CONTROL SAMPLE & LCSD: 3406200 3406201

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Fuel Range SG	mg/L	2	1.2	1.7	62	83	50-150	30	20	R1
Motor Oil Range SG	mg/L	2	1.3	1.7	63	85	50-150	30	20	R1
n-Triacontane (S)	%.				62	87	50-150			
o-Terphenyl (S)	%.				63	87	50-150			

SAMPLE DUPLICATE: 3406202

Parameter	Units	10491044001 Result	Dup Result	RPD	Max RPD	Qualifiers
Diesel Fuel Range SG	mg/L	0.11J	0.11J		30	
Motor Oil Range SG	mg/L	0.19J	0.16J		30	
n-Triacontane (S)	%.	75	82			
o-Terphenyl (S)	%.	73	80			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491044

QC Batch: 632340 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10491044003, 10491044004, 10491044005, 10491044006

METHOD BLANK: 3409706 Matrix: Water
Associated Lab Samples: 10491044003, 10491044004, 10491044005, 10491044006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	5.0	09/16/19 08:32	

LABORATORY CONTROL SAMPLE & LCSD: 3409707 3409708

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	41.2	41.6	103	104	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3409709 3409710

Parameter	Units	10491156001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	32.2	40	40	72.4	73.9	100	104	80-120	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3409730 3409731

Parameter	Units	10491372002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	36.2	40	40	64.2	65.3	70	73	80-120	2	20	M1

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491044

QC Batch: 631933 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10491044003, 10491044004, 10491044005, 10491044006

METHOD BLANK: 3407525 Matrix: Water
Associated Lab Samples: 10491044003, 10491044004, 10491044005, 10491044006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.2	09/13/19 18:06	

LABORATORY CONTROL SAMPLE: 3407526

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	12.5	12.4	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3407527 3407528

Parameter	Units	10489895001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	882	625	625	1490	1480	97	95	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3407529 3407530

Parameter	Units	10491216004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	0.38J	12.5	12.5	12.7	12.6	99	98	90-110	0	20	

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491044

QC Batch: 631804 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10491044003, 10491044004, 10491044005, 10491044006

METHOD BLANK: 3406632 Matrix: Water
Associated Lab Samples: 10491044003, 10491044004, 10491044005, 10491044006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.10	09/12/19 14:45	FS

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QUALIFIERS

Project: 499738-Revised Report
Pace Project No.: 10491044

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

FS	The sample was filtered in the laboratory prior to analysis.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 499738-Revised Report
Pace Project No.: 10491044

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10491044001	**PEO-MW-24A-201909**	EPA Mod. 3510C	631728	NWTPH-Dx	632161
10491044003	**PEO-MW-21-201909**	EPA Mod. 3510C	631728	NWTPH-Dx	632161
10491044004	**PEO-MW-03-201909**	EPA Mod. 3510C	631728	NWTPH-Dx	632161
10491044005	**PEO-MW-06-201909**	EPA Mod. 3510C	631728	NWTPH-Dx	632161
10491044006	**PEO-MW-19-201909**	EPA Mod. 3510C	631728	NWTPH-Dx	632161
10491044001	**PEO-MW-24A-201909**	NWTPH-Gx	633517		
10491044003	**PEO-MW-21-201909**	NWTPH-Gx	631947		
10491044004	**PEO-MW-03-201909**	NWTPH-Gx	631947		
10491044005	**PEO-MW-06-201909**	NWTPH-Gx	631947		
10491044006	**PEO-MW-19-201909**	NWTPH-Gx	631947		
10491044007	**Trip Blank**	NWTPH-Gx	631947		
10491044003	**PEO-MW-21-201909**	EPA 3010	631920	EPA 6010D	632598
10491044004	**PEO-MW-03-201909**	EPA 3010	631920	EPA 6010D	632598
10491044005	**PEO-MW-06-201909**	EPA 3010	631920	EPA 6010D	632598
10491044006	**PEO-MW-19-201909**	EPA 3010	631920	EPA 6010D	632598
10491044003	**PEO-MW-21-201909**	EPA 3020	632233	EPA 6020A	632784
10491044004	**PEO-MW-03-201909**	EPA 3020	632233	EPA 6020A	632784
10491044005	**PEO-MW-06-201909**	EPA 3020	632233	EPA 6020A	632784
10491044006	**PEO-MW-19-201909**	EPA 3020	632233	EPA 6020A	632784
10491044002	**PEO-MW-33-201909B**	EPA Mod. 3510C	631724	EPA 8270 by SIM	632104
10491044003	**PEO-MW-21-201909**	EPA Mod. 3510C	631724	EPA 8270 by SIM	632104
10491044004	**PEO-MW-03-201909**	EPA Mod. 3510C	631724	EPA 8270 by SIM	632104
10491044005	**PEO-MW-06-201909**	EPA Mod. 3510C	631724	EPA 8270 by SIM	632104
10491044006	**PEO-MW-19-201909**	EPA Mod. 3510C	631724	EPA 8270 by SIM	632104
10491044001	**PEO-MW-24A-201909**	EPA 8260B	632846		
10491044003	**PEO-MW-21-201909**	EPA 8260B	632846		
10491044004	**PEO-MW-03-201909**	EPA 8260B	632846		
10491044005	**PEO-MW-06-201909**	EPA 8260B	632846		
10491044006	**PEO-MW-19-201909**	EPA 8260B	632846		
10491044007	**Trip Blank**	EPA 8260B	632846		
10491044003	**PEO-MW-21-201909**	SM 2320B	632340		
10491044004	**PEO-MW-03-201909**	SM 2320B	632340		
10491044005	**PEO-MW-06-201909**	SM 2320B	632340		
10491044006	**PEO-MW-19-201909**	SM 2320B	632340		
10491044003	**PEO-MW-21-201909**	EPA 300.0	631933		
10491044004	**PEO-MW-03-201909**	EPA 300.0	631933		
10491044005	**PEO-MW-06-201909**	EPA 300.0	631933		
10491044006	**PEO-MW-19-201909**	EPA 300.0	631933		
10491044003	**PEO-MW-21-201909**	EPA 353.2	631804		
10491044004	**PEO-MW-03-201909**	EPA 353.2	631804		
10491044005	**PEO-MW-06-201909**	EPA 353.2	631804		
10491044006	**PEO-MW-19-201909**	EPA 353.2	631804		

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CHAIN-OF-CUSTODY / Analytical Rec

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields mu

WO# : 10491044

10491044

Page: of

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	ERM	Report To:	Rita Cooper	Attention:	
Address:	1050 SW 6th Ave, Suite 1650	Copy To:		Company Name:	
	Portland, OR 97204			Address:	
Email To:	rita.cooper@erm.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	207-329-8320 Fax:	Project Name:		Pace Project Manager:	Julie Bowser
Requested Due Date/TAT:	Standard	Project Number:	499738	Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: OR

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / , -)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: GRO (NWTPH-Gx)	BTEX (SW8260C/SW8260C SIM)	VPH (NWTPH-VPH)	DRO (NWTPH-Dx)	Dissolved Metals (As, MN) (6020A)	Hardness (SM2340B)	SVOC (EPA 8270 SIM)	EPH (NWTPH-EPH)	Nitrate (EPA 353.2)	Total Alkalinity (SM 2320B)	Sulfate (EPA 300.0)	Nitrate + Nitrite	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	PEO-MW-24A-201909	GW	G	9/11/19	7:45				11	-	-	-	X	-	-	-	-		3	3	3	2	-	-	-	-	-	-	-		001
2	PEO-MW-33-201909B	GW	G	9/11/19	8:10				4	X	-	-	-	-	-	-	-		-	-	-	-	-	-	X	X	-	-	-		002
3	PEO-MW-21-201909	GW	G	9/11/19	9:45				19	X	X	X	X	-	-	-	-		3	3	3	2	1	X	2	2	1	1	X	1		003
4	PEO-MW-03-201909	GW	G	9/11/19	10:40				19	X	X	X	X	-	-	-	-		3	3	3	2	1	X	2	2	1	1	X	1		004
5	PEO-MW-06-201909	GW	G	9/11/19	12:05				19	X	X	X	X	-	-	-	-		3	3	3	2	1	X	2	2	1	1	X	1		005
6	PEO-MW-19-201909	GW	G	9/11/19	13:05				19	X	X	X	X	-	-	-	-		3	3	3	2	1	X	2	2	1	1	X	1		006
7	Trip Blank	GW	G	9/11/19	7:00				4	-	-	-	X	-	-	-	-		2	2	X	-	-	-	-	-	-	-	-	-		007
8																															
9																															
10																															
11																															
12																															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	J. Casey for ERM	9/11/19	1500	Pace	9-12-19	835	0.4	Y	Y	Y
							1.7			
							0.3			
							2.8			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: J. Casey

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 09/11/19

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 23Aug2019 Page 1 of 1
	Document No.: F-MN-L-213-rev.29	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt **Client Name:** ERM **Project #:** **WO#: 10491044**

PM: JMT **Due Date: 09/19/19**

CLIENT: ERM-Oregon

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☐ Commercial See Exceptions ☐

Tracking Number: 4934 3732 8479 / 8968 / 8990 / 8980

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other: _____ **Temp Blank?** ☑ Yes ☐ No

Thermometer: ☐ T1(0461) ☑ T2(1336) ☐ T3(0459) ☐ T4(0254) ☐ T5(0489) **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 0.4, 1.7, 0.3, 2.8 °C

Correction Factor: true **Cooler Temp Corrected w/temp blank:** 0.4, 1.7, 0.3, 2.8 °C

Average Corrected Temp (no temp blank only): ☐ See Exceptions ☐ 1 Container ____ °C

USDA Regulated Soil: (☑ N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** 9-12-19 AA

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present and Filled Out?	☑ Yes	☐ No		1.
Chain of Custody Relinquished?	☑ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	3.
Samples Arrived within Hold Time?	☑ Yes	☐ No		4.
Short Hold Time Analysis (<72 hr)?	☑ Yes	☐ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☑ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other _____
Rush Turn Around Time Requested?	☐ Yes	☑ No		6.
Sufficient Volume?	☑ Yes	☐ No		7.
Correct Containers Used? -Pace Containers Used?	☑ Yes ☑ Yes	☐ No ☐ No		8.
Containers Intact?	☑ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☑ Yes	☐ No	☐ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC? Matrix: ☑ Water ☐ Soil ☐ Oil ☐ Other _____	☑ Yes	☐ No		11. If no, write ID/ Date/Time on Container Below: See Exception ☐
All containers needing acid/base preservation have been checked?	☑ Yes	☐ No	☐ N/A	12. Sample # 3-6
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	☑ Yes	☐ No	☐ N/A	☐ NaOH ☑ HNO_3 1/1 ☑ H_2SO_4 1/1 ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☑ Yes	☐ No	☐ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No pH Paper Lot# See Exception ☐
				Res. Chlorine: 0-6 Roll 203619 / 0-6 Strip / 0-14 Strip
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☑ No	☐ N/A	13. See Exception ☐
Trip Blank Present?	☑ Yes	☐ No	☐ N/A	14.
Trip Blank Custody Seals Present?	☑ Yes	☐ No	☐ N/A	Pace Trip Blank Lot # (if purchased): 224281

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Julie Pow **Date:** 9/12/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: AA (2)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Pace Analytical Minnesota
Julie Bowser
1700 Elm Street, Ste. 200
Minneapolis, MN 55414

RE: 10491044
Work Order Number: 1909226

November 22, 2019

Attention Julie Bowser:

Fremont Analytical, Inc. received 5 sample(s) on 9/16/2019 for the analyses presented in the following report.

Extractable Petroleum Hydrocarbons by NWEPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *11/22/2019*

CLIENT: Pace Analytical Minnesota
Project: 10491044
Work Order: 1909226

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1909226-001	PEO-MW-33-201909B	09/11/2019 8:10 AM	09/16/2019 10:36 AM
1909226-002	PEO-MW-21-201909	09/11/2019 9:45 AM	09/16/2019 10:36 AM
1909226-003	PEO-MW-03-201909	09/11/2019 10:40 AM	09/16/2019 10:36 AM
1909226-004	PEO-MW-06-201909	09/11/2019 12:05 PM	09/16/2019 10:36 AM
1909226-005	PEO-MW-19-201909	09/11/2019 1:05 PM	09/16/2019 10:36 AM

Case Narrative

WO#: **1909226**

Date: **11/22/2019**

CLIENT: Pace Analytical Minnesota
Project: 10491044

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

11/11/19: Revision 1 includes only Aliphatic results.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1909226**
Date Reported: **11/22/2019**

CLIENT: Pace Analytical Minnesota
Project: 10491044

Lab ID: 1909226-001 **Collection Date:** 9/11/2019 8:10:00 AM
Client Sample ID: **PEO-MW-33-201909B** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 25901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	15.7	5.88	J	µg/L	1	10/4/2019 11:49:00 AM
Surr: 1-Chlorooctadecane	68.8	60 - 140		%Rec	1	10/4/2019 11:49:00 AM

Lab ID: 1909226-002 **Collection Date:** 9/11/2019 9:45:00 AM
Client Sample ID: **PEO-MW-21-201909** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 25901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.85		µg/L	1	10/4/2019 2:48:00 PM
Surr: 1-Chlorooctadecane	70.6	60 - 140		%Rec	1	10/4/2019 2:48:00 PM

Lab ID: 1909226-003 **Collection Date:** 9/11/2019 10:40:00 AM
Client Sample ID: **PEO-MW-03-201909** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 25901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.80		µg/L	1	10/4/2019 3:33:00 PM
Surr: 1-Chlorooctadecane	66.0	60 - 140		%Rec	1	10/4/2019 3:33:00 PM

Analytical Report

Work Order: **1909226**
Date Reported: **11/22/2019**

CLIENT: Pace Analytical Minnesota
Project: 10491044

Lab ID: 1909226-004 **Collection Date:** 9/11/2019 12:05:00 PM
Client Sample ID: **PEO-MW-06-201909** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 25901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.83		µg/L	1	10/4/2019 4:18:00 PM
Surr: 1-Chlorooctadecane	65.6	60 - 140		%Rec	1	10/4/2019 4:18:00 PM

Lab ID: 1909226-005 **Collection Date:** 9/11/2019 1:05:00 PM
Client Sample ID: **PEO-MW-19-201909** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 25901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.83		µg/L	1	10/4/2019 5:03:00 PM
Surr: 1-Chlorooctadecane	40.9	60 - 140	S	%Rec	1	10/4/2019 5:03:00 PM

NOTES:
S - Outlying surrogate recovery(ies) observed.

Work Order: 1909226
CLIENT: Pace Analytical Minnesota
Project: 10491044

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **MB-25901**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **9/23/2019**			RunNo: **54412**		
Client ID: **MBLKW**	Batch ID: **25901**					Analysis Date: **10/4/2019**			SeqNo: **1078289**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	19.7		0	0						
Surr: 1-Chlorooctadecane	1,290		1,969		65.7	60	140				

Sample ID: **LCS-25901**	SampType: **LCS**			Units: **µg/L**		Prep Date: **9/23/2019**			RunNo: **54412**		
Client ID: **LCSW**	Batch ID: **25901**					Analysis Date: **10/4/2019**			SeqNo: **1078288**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	1,830	19.7	2,467	0	74.0	70	130				
Surr: 1-Chlorooctadecane	1,330		1,974		67.3	60	140				

Sample ID: **1909226-001ADUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **9/23/2019**			RunNo: **54412**		
Client ID: **PEO-MW-33-201909B**	Batch ID: **25901**					Analysis Date: **10/4/2019**			SeqNo: **1078287**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	21.5		0	0			15.67	200	25	
Surr: 1-Chlorooctadecane	1,170		2,148		54.6	60	140		0		S

NOTES:
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID: **1909226-001AMS**	SampType: **MS**			Units: **µg/L**		Prep Date: **9/23/2019**			RunNo: **54412**		
Client ID: **PEO-MW-33-201909B**	Batch ID: **25901**					Analysis Date: **10/4/2019**			SeqNo: **1078290**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	3,740	19.8	2,474	15.67	151	70	130				S
Surr: 1-Chlorooctadecane	1,760		1,979		89.0	60	140				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Work Order: 1909226
CLIENT: Pace Analytical Minnesota
Project: 10491044

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **1909226-001AMSD** SampType: **MSD** Units: **µg/L** Prep Date: **9/23/2019** RunNo: **54412**
Client ID: **PEO-MW-33-201909B** Batch ID: **25901** Analysis Date: **10/4/2019** SeqNo: **1078291**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	2,280	24.5	3,061	15.67	73.8	70	130	3,741	48.7	30	R
Surr: 1-Chlorooctadecane	1,820		2,449		74.4	60	140		0		

NOTES:
R - High RPD observed, spike recovery is within range.

Sample Log-In Check List

Client Name:	**PACEMINN**	Work Order Number:	**1909226**
Logged by:	**Brianna Barnes**	Date Received:	**9/16/2019 10:36:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	FedEx		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☑	No ☐	Not Required ☐
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes ☐	No ☑	NA ☐
		Please refer to item information.		
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☑	No ☐	NA ☐
				HCL
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	14.6
Sample	15.3
Temp Blank	16.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody

PASI Minnesota Laboratory

Pace Analytical®
www.pacelabs.com

Workorder: 10491044 **Workorder Name:** 499738 **Results Requested By:** 9/19/2019 1909226

Report / Invoice To	Subcontract To
Julie Bowser Pace Analytical Minnesota 1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone 612-607-6390 Email: julie.bowser@pacelabs.com	Fremont Analytical 3600 Fremont Ave. N Seattle, WA 98103 P.O. 10491044

State of Sample Origin: OR

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Preserved Containers: AG1U	Requested Analysis: NWTPH-EPH C10-C12	LAB USE ONLY
1	PEO-MW-33-201909B	9/11/2019 08:10	10491044002	Water		2	X	
2	PEO-MW-21-201909	9/11/2019 09:45	10491044003	Water		2	X	
3	PEO-MW-03-201909	9/11/2019 10:40	10491044004	Water		2	X	
4	PEO-MW-06-201909	9/11/2019 12:05	10491044005	Water		2	X	
5	PEO-MW-19-201909	9/11/2019 13:05	10491044006	Water		2	X	

Transfers	Released By	Date/Time	Received By	Date/Time
1	[illegible]	9/12/19 [illegible]	[signature]	9/11/19
2				
3				

Comments: Report to MDL

Cooler Temperature on Receipt ____ °C | **Custody Seal** Y or N | **Received on Ice** Y or N | **Samples Intact** Y or N

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Pace Analytical Minnesota
Julie Bowser
1700 Elm Street, Ste. 200
Minneapolis, MN 55414

RE: 10491044
Work Order Number: 1909228

November 11, 2019

Attention Julie Bowser:

Fremont Analytical, Inc. received 6 sample(s) on 9/16/2019 for the analyses presented in the following report.

Volatile Petroleum Hydrocarbons by NWVPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *11/11/2019*

CLIENT: Pace Analytical Minnesota
Project: 10491044
Work Order: 1909228

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1909228-001	PEO-MW-24A-201909	09/11/2019 7:45 AM	09/16/2019 10:36 AM
1909228-002	PEO-MW-21-201909	09/11/2019 9:45 AM	09/16/2019 10:36 AM
1909228-003	PEO-MW-03-201909	09/11/2019 10:40 AM	09/16/2019 10:36 AM
1909228-004	PEO-MW-06-201909	09/11/2019 12:05 PM	09/16/2019 10:36 AM
1909228-005	PEO-MW-19-201909	09/11/2019 1:05 PM	09/16/2019 10:36 AM
1909228-006	Trip Blank	09/11/2019 7:00 AM	09/16/2019 10:36 AM

Case Narrative

WO#: **1909228**

Date: **11/11/2019**

CLIENT: Pace Analytical Minnesota
Project: 10491044

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

11/11/19: Revision 1 includes only Aliphatic results.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1909228**
Date Reported: **11/11/2019**

CLIENT: Pace Analytical Minnesota
Project: 10491044

Lab ID: 1909228-001 **Collection Date:** 9/11/2019 7:45:00 AM
Client Sample ID: **PEO-MW-24A-201909** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25835		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07		µg/L	1	9/17/2019 9:09:48 PM
Surr: 1,4-Difluorobenzene	92.0	65 - 140		%Rec	1	9/17/2019 9:09:48 PM
Surr: Bromofluorobenzene	91.2	65 - 140		%Rec	1	9/17/2019 9:09:48 PM

Lab ID: 1909228-002 **Collection Date:** 9/11/2019 9:45:00 AM
Client Sample ID: **PEO-MW-21-201909** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25835		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07		µg/L	1	9/17/2019 9:51:03 PM
Surr: 1,4-Difluorobenzene	94.3	65 - 140		%Rec	1	9/17/2019 9:51:03 PM
Surr: Bromofluorobenzene	93.8	65 - 140		%Rec	1	9/17/2019 9:51:03 PM

Lab ID: 1909228-003 **Collection Date:** 9/11/2019 10:40:00 AM
Client Sample ID: **PEO-MW-03-201909** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25835		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07		µg/L	1	9/17/2019 10:32:19 PM
Surr: 1,4-Difluorobenzene	95.5	65 - 140		%Rec	1	9/17/2019 10:32:19 PM
Surr: Bromofluorobenzene	94.7	65 - 140		%Rec	1	9/17/2019 10:32:19 PM

Analytical Report

Work Order: **1909228**
Date Reported: **11/11/2019**

CLIENT: Pace Analytical Minnesota
Project: 10491044

Lab ID: 1909228-004 **Collection Date:** 9/11/2019 12:05:00 PM
Client Sample ID: **PEO-MW-06-201909** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25835		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	673	4.07		µg/L	1	9/18/2019 1:17:20 AM
Surr: 1,4-Difluorobenzene	97.6	65 - 140		%Rec	1	9/18/2019 1:17:20 AM
Surr: Bromofluorobenzene	94.6	65 - 140		%Rec	1	9/18/2019 1:17:20 AM

Lab ID: 1909228-005 **Collection Date:** 9/11/2019 1:05:00 PM
Client Sample ID: **PEO-MW-19-201909** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25835		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07		µg/L	1	9/17/2019 11:13:32 PM
Surr: 1,4-Difluorobenzene	94.0	65 - 140		%Rec	1	9/17/2019 11:13:32 PM
Surr: Bromofluorobenzene	94.9	65 - 140		%Rec	1	9/17/2019 11:13:32 PM

Lab ID: 1909228-006 **Collection Date:** 9/11/2019 7:00:00 AM
Client Sample ID: **Trip Blank** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25835		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07		µg/L	1	9/17/2019 7:47:33 PM
Surr: 1,4-Difluorobenzene	92.9	65 - 140		%Rec	1	9/17/2019 7:47:33 PM
Surr: Bromofluorobenzene	95.4	65 - 140		%Rec	1	9/17/2019 7:47:33 PM

Work Order: 1909228
CLIENT: Pace Analytical Minnesota
Project: 10491044

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **LCS-25835**	SampType: **LCS**			Units: **µg/L**		Prep Date: **9/17/2019**		RunNo: **53970**			
Client ID: **LCSW**	Batch ID: **25835**					Analysis Date: **9/17/2019**		SeqNo: **1068684**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	197	20.0	200.0	0	98.6	70	130				
Surr: 1,4-Difluorobenzene	48.3		50.00		96.6	65	140				
Surr: Bromofluorobenzene	44.2		50.00		88.4	65	140				

Sample ID: **LCSD-25835**	SampType: **LCSD**			Units: **µg/L**		Prep Date: **9/17/2019**		RunNo: **53970**			
Client ID: **LCSW02**	Batch ID: **25835**					Analysis Date: **9/17/2019**		SeqNo: **1068685**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	205	20.0	200.0	0	103	70	130	197.3	3.97	20	
Surr: 1,4-Difluorobenzene	47.6		50.00		95.3	65	140		0		
Surr: Bromofluorobenzene	43.7		50.00		87.4	65	140		0		

Sample ID: **MB-25835**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **9/17/2019**		RunNo: **53970**			
Client ID: **MBLKW**	Batch ID: **25835**					Analysis Date: **9/17/2019**		SeqNo: **1068686**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	20.0		0	0						
Surr: 1,4-Difluorobenzene	44.9		50.00		89.9	65	140				
Surr: Bromofluorobenzene	46.3		50.00		92.7	65	140				

Sample ID: **1909228-005ADUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **9/17/2019**		RunNo: **53970**			
Client ID: **PEO-MW-19-201909**	Batch ID: **25835**					Analysis Date: **9/17/2019**		SeqNo: **1068679**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	20.0		0	0			0	0	25	
Surr: 1,4-Difluorobenzene	46.4		50.00		92.8	65	140		0		
Surr: Bromofluorobenzene	46.0		50.00		92.0	65	140		0		

Sample Log-In Check List

Client Name:	PACEMINN	Work Order Number:	1909228
Logged by:	Brianna Barnes	Date Received:	9/16/2019 10:36:00 AM

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	FedEx		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☑	No ☐	Not Required ☐
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes ☐	No ☑	NA ☐
		Please refer to item information.		
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	14.6
Sample	15.3
Temp Blank	16.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody

PASI Minnesota Laboratory

Pace Analytical®
www.pacelabs.com

Workorder: 10491044 **Workorder Name:** 499738 **Results Requested By:** 9/19/2019 1909220

Report / Invoice To	Subcontract To
Julie Bowser Pace Analytical Minnesota 1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone 612-607-6390 Email: julie.bowser@pacelabs.com	Fremont Analytical 3600 Fremont Ave. N Seattle, WA 98103 P.O. 10491044

State of Sample Origin: OR

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HCl VOA H	Requested Analysis: NWTPH-VPH C10-C12	LAB USE ONLY
1	PEO-MW-24A-201909	9/11/2019 07:45	10491044001	Water	3	X	
2	PEO-MW-21-201909	9/11/2019 09:45	10491044003	Water	3	X	
3	PEO-MW-03-201909	9/11/2019 10:40	10491044004	Water	3	X	
4	PEO-MW-06-201909	9/11/2019 12:05	10491044005	Water	3	X	
5	PEO-MW-19-201909	9/11/2019 13:05	10491044006	Water	3	X	
6	Trip Blank	9/11/2019 07:00	10491044007	Water	2	X	

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature] Pace	9/12/19 1505	[signature]	9/16/19
2				
3				

Comments: Report to MDL.

Cooler Temperature on Receipt ____ °C | **Custody Seal** Y or N | **Received on Ice** Y or N | **Samples Intact** Y or N

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

November 14, 2019

Joe Casey
ERM Portland
1050 SW 6th Ave
Suite 1650
Portland, OR 97204

RE: Project: 499738-Revised Report
Pace Project No.: 10491256

Dear Joe Casey:
Enclosed are the analytical results for sample(s) received by the laboratory on September 13, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

This report was revised on November 14, 2019 to only report aliphatic results on the subcontract report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Julie Bowser
julie.bowser@pacelabs.com
612-607-6390
Project Manager

Enclosures

cc: Rita Cooper, ERM Portland ERM Global EDD Mailbox, ERM

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 499738-Revised Report
Pace Project No.: 10491256

Minnesota Certification IDs

A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Massachusetts DWP Certification #: via MN 027-053-137
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

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SAMPLE SUMMARY

Project: 499738-Revised Report
Pace Project No.: 10491256

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10491256001	**PEO-MW-31-201909**	Water	09/12/19 08:10	09/13/19 08:40
10491256002	**PEO-MW-18-201909**	Water	09/12/19 09:20	09/13/19 08:40
10491256003	**PEO-MW-36-201909**	Water	09/12/19 10:40	09/13/19 08:40
10491256004	**PEO-MW-Z1-201909**	Water	09/12/19 10:45	09/13/19 08:40
10491256005	**PEO-MW-27-201909**	Water	09/12/19 12:05	09/13/19 08:40
10491256006	**PEO-MW-39-201909**	Water	09/12/19 13:05	09/13/19 08:40
10491256007	**Trip Blank**	Water	09/12/19 07:00	09/13/19 08:40

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 499738-Revised Report
Pace Project No.: 10491256

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10491256001	**PEO-MW-31-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	ML4	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10491256002	**PEO-MW-18-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	ML4	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10491256003	**PEO-MW-36-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	ML4	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10491256004	**PEO-MW-Z1-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	ML4	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10491256005	**PEO-MW-27-201909**	NWTPH-Dx	JVM	4	PASI-M

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SAMPLE ANALYTE COUNT

Project: 499738-Revised Report
Pace Project No.: 10491256

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	ML4	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10491256006	**PEO-MW-39-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3, SNG	20	PASI-M
		EPA 8260B	ML4	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10491256007	**Trip Blank**	NWTPH-Gx	MJD	2	PASI-M
		EPA 8260B	ML4	8	PASI-M

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491256

Sample: PEO-MW-31-201909 **Lab ID: 10491256001** Collected: 09/12/19 08:10 Received: 09/13/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	ND	mg/L	0.39	1	09/13/19 15:14	09/16/19 13:18	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.39	1	09/13/19 15:14	09/16/19 13:18	64742-65-0	
Surrogates								
o-Terphenyl (S)	84	%.	50-150	1	09/13/19 15:14	09/16/19 13:18	84-15-1	
n-Triacontane (S)	90	%.	50-150	1	09/13/19 15:14	09/16/19 13:18	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		09/17/19 18:36		
Surrogates								
a,a,a-Trifluorotoluene (S)	83	%.	50-150	1		09/17/19 18:36	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**72100**	ug/L	3300	1	09/16/19 10:50	09/17/19 18:04		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**0.15J**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:38	7440-38-2	
Manganese, Dissolved	**12.5**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:38	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	83-32-9	
Acenaphthylene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	208-96-8	
Anthracene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	207-08-9	
Chrysene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	53-70-3	
Fluoranthene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	206-44-0	
Fluorene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	91-57-6	
Naphthalene	**0.021J**	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	91-20-3	
Phenanthrene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	85-01-8	
Pyrene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 15:36	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	56	%.	47-125	1	09/13/19 12:55	09/16/19 15:36	321-60-8	
p-Terphenyl-d14 (S)	73	%.	62-125	1	09/13/19 12:55	09/16/19 15:36	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		09/20/19 15:35	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/20/19 15:35	100-41-4	
Toluene	ND	ug/L	1.0	1		09/20/19 15:35	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/20/19 15:35	179601-23-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491256

Sample: PEO-MW-31-201909 **Lab ID: 10491256001** Collected: 09/12/19 08:10 Received: 09/13/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		09/20/19 15:35	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	98	%.	75-125	1		09/20/19 15:35	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1		09/20/19 15:35	2037-26-5	
4-Bromofluorobenzene (S)	100	%.	75-125	1		09/20/19 15:35	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**73.8**	mg/L	5.0	1		09/20/19 13:04		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**34.9**	mg/L	1.2	1		09/16/19 18:33	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	**0.063J**	mg/L	0.10	1		09/13/19 13:51	14797-55-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491256

Sample: PEO-MW-18-201909 **Lab ID: 10491256002** Collected: 09/12/19 09:20 Received: 09/13/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**2.2**	mg/L	0.38	1	09/13/19 15:14	09/16/19 13:41	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.38	1	09/13/19 15:14	09/16/19 13:41	64742-65-0	
Surrogates								
o-Terphenyl (S)	81	%.	50-150	1	09/13/19 15:14	09/16/19 13:41	84-15-1	
n-Triacontane (S)	87	%.	50-150	1	09/13/19 15:14	09/16/19 13:41	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**354**	ug/L	100	1		09/17/19 19:10		G+
Surrogates								
a,a,a-Trifluorotoluene (S)	76	%.	50-150	1		09/17/19 19:10	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**34200**	ug/L	3300	1	09/16/19 10:50	09/17/19 18:07		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**0.60**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:41	7440-38-2	
Manganese, Dissolved	**553**	ug/L	10.0	20	09/17/19 04:55	09/18/19 12:24	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**0.47**	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	83-32-9	
Acenaphthylene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	208-96-8	
Anthracene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	207-08-9	
Chrysene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	53-70-3	
Fluoranthene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	206-44-0	
Fluorene	**0.34**	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	193-39-5	
1-Methylnaphthalene	**0.32**	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	91-57-6	
Naphthalene	**3.0**	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	91-20-3	
Phenanthrene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	85-01-8	
Pyrene	**0.025J**	ug/L	0.039	1	09/13/19 12:55	09/16/19 15:57	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	64	%.	47-125	1	09/13/19 12:55	09/16/19 15:57	321-60-8	
p-Terphenyl-d14 (S)	86	%.	62-125	1	09/13/19 12:55	09/16/19 15:57	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		09/20/19 16:43	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/20/19 16:43	100-41-4	
Toluene	ND	ug/L	1.0	1		09/20/19 16:43	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/20/19 16:43	179601-23-1	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491256

Sample: PEO-MW-18-201909 **Lab ID: 10491256002** Collected: 09/12/19 09:20 Received: 09/13/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		09/20/19 16:43	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	96	%.	75-125	1		09/20/19 16:43	17060-07-0	
Toluene-d8 (S)	99	%.	75-125	1		09/20/19 16:43	2037-26-5	
4-Bromofluorobenzene (S)	101	%.	75-125	1		09/20/19 16:43	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	ND	mg/L	5.0	1		09/20/19 14:22		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**55.9**	mg/L	1.2	1		09/16/19 18:48	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		09/13/19 13:54	14797-55-8	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491256

Sample: PEO-MW-36-201909 **Lab ID: 10491256003** Collected: 09/12/19 10:40 Received: 09/13/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**2.9**	mg/L	0.40	1	09/13/19 15:14	09/16/19 13:52	68334-30-5	
Motor Oil Range SG	**0.088J**	mg/L	0.40	1	09/13/19 15:14	09/16/19 13:52	64742-65-0	
Surrogates								
o-Terphenyl (S)	88	%.	50-150	1	09/13/19 15:14	09/16/19 13:52	84-15-1	
n-Triacontane (S)	94	%.	50-150	1	09/13/19 15:14	09/16/19 13:52	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**2650**	ug/L	200	2		09/17/19 20:19		G-
Surrogates								
a,a,a-Trifluorotoluene (S)	84	%.	50-150	2		09/17/19 20:19	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**166000**	ug/L	3300	1	09/16/19 10:50	09/17/19 18:16		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**28.5**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:44	7440-38-2	
Manganese, Dissolved	**2800**	ug/L	10.0	20	09/17/19 04:55	09/18/19 12:27	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	83-32-9	
Acenaphthylene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	208-96-8	
Anthracene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	207-08-9	
Chrysene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	53-70-3	
Fluoranthene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	206-44-0	
Fluorene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	91-57-6	
Naphthalene	**0.83**	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	91-20-3	
Phenanthrene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	85-01-8	
Pyrene	**0.031J**	ug/L	0.040	1	09/13/19 12:55	09/16/19 16:18	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	64	%.	47-125	1	09/13/19 12:55	09/16/19 16:18	321-60-8	
p-Terphenyl-d14 (S)	73	%.	62-125	1	09/13/19 12:55	09/16/19 16:18	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**34.7**	ug/L	1.0	1		09/20/19 20:59	71-43-2	
Ethylbenzene	**5.4**	ug/L	1.0	1		09/20/19 20:59	100-41-4	
Toluene	**31.7**	ug/L	1.0	1		09/20/19 20:59	108-88-3	
m&p-Xylene	**32.7**	ug/L	2.0	1		09/20/19 20:59	179601-23-1	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491256

Sample: PEO-MW-36-201909 **Lab ID: 10491256003** Collected: 09/12/19 10:40 Received: 09/13/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	**11.7**	ug/L	1.0	1		09/20/19 20:59	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	97	%.	75-125	1		09/20/19 20:59	17060-07-0	
Toluene-d8 (S)	102	%.	75-125	1		09/20/19 20:59	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		09/20/19 20:59	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**221**	mg/L	5.0	1		09/20/19 13:18		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**0.94J**	mg/L	1.2	1		09/16/19 19:03	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		09/13/19 13:56	14797-55-8	FS

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491256

Sample: PEO-MW-Z1-201909 **Lab ID: 10491256004** Collected: 09/12/19 10:45 Received: 09/13/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**2.2**	mg/L	0.41	1	09/13/19 15:14	09/16/19 14:04	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.41	1	09/13/19 15:14	09/16/19 14:04	64742-65-0	
Surrogates								
o-Terphenyl (S)	78	%.	50-150	1	09/13/19 15:14	09/16/19 14:04	84-15-1	
n-Triacontane (S)	83	%.	50-150	1	09/13/19 15:14	09/16/19 14:04	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**2540**	ug/L	200	2		09/17/19 21:27		G-
Surrogates								
a,a,a-Trifluorotoluene (S)	82	%.	50-150	2		09/17/19 21:27	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**163000**	ug/L	3300	1	09/16/19 10:50	09/17/19 18:18		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**28.9**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:53	7440-38-2	
Manganese, Dissolved	**2900**	ug/L	10.0	20	09/17/19 04:55	09/18/19 12:30	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**1.1**	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	83-32-9	
Acenaphthylene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	208-96-8	
Anthracene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	56-55-3	
Benzo(a)pyrene	**0.0048J**	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	207-08-9	
Chrysene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	53-70-3	
Fluoranthene	**0.031J**	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	206-44-0	
Fluorene	**0.46**	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	91-57-6	
Naphthalene	**0.76**	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	91-20-3	
Phenanthrene	ND	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	85-01-8	
Pyrene	**0.046**	ug/L	0.039	1	09/13/19 12:55	09/16/19 16:40	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	58	%.	47-125	1	09/13/19 12:55	09/16/19 16:40	321-60-8	
p-Terphenyl-d14 (S)	66	%.	62-125	1	09/13/19 12:55	09/16/19 16:40	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**33.8**	ug/L	1.0	1		09/20/19 21:16	71-43-2	
Ethylbenzene	**5.4**	ug/L	1.0	1		09/20/19 21:16	100-41-4	
Toluene	**31.3**	ug/L	1.0	1		09/20/19 21:16	108-88-3	
m&p-Xylene	**32.3**	ug/L	2.0	1		09/20/19 21:16	179601-23-1	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491256

Sample: PEO-MW-Z1-201909 **Lab ID: 10491256004** Collected: 09/12/19 10:45 Received: 09/13/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	**11.6**	ug/L	1.0	1		09/20/19 21:16	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	95	%.	75-125	1		09/20/19 21:16	17060-07-0	
Toluene-d8 (S)	102	%.	75-125	1		09/20/19 21:16	2037-26-5	
4-Bromofluorobenzene (S)	100	%.	75-125	1		09/20/19 21:16	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**222**	mg/L	5.0	1		09/20/19 13:21		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	ND	mg/L	1.2	1		09/16/19 19:18	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		09/13/19 13:57	14797-55-8	FS

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491256

Sample: PEO-MW-27-201909 **Lab ID: 10491256005** Collected: 09/12/19 12:05 Received: 09/13/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**1.8**	mg/L	0.39	1	09/13/19 15:14	09/16/19 14:15	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.39	1	09/13/19 15:14	09/16/19 14:15	64742-65-0	
Surrogates								
o-Terphenyl (S)	87	%.	50-150	1	09/13/19 15:14	09/16/19 14:15	84-15-1	
n-Triacontane (S)	93	%.	50-150	1	09/13/19 15:14	09/16/19 14:15	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**1530**	ug/L	200	2		09/17/19 21:44		G-
Surrogates								
a,a,a-Trifluorotoluene (S)	81	%.	50-150	2		09/17/19 21:44	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**158000**	ug/L	3300	1	09/16/19 10:50	09/17/19 18:21		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**28.7**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:56	7440-38-2	
Manganese, Dissolved	**3330**	ug/L	10.0	20	09/17/19 04:55	09/18/19 12:33	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**0.93**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	83-32-9	
Acenaphthylene	**0.14**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	208-96-8	
Anthracene	**0.074**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	207-08-9	
Chrysene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	53-70-3	
Fluoranthene	**0.022J**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	206-44-0	
Fluorene	**0.75**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	193-39-5	
1-Methylnaphthalene	**0.96**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	91-57-6	
Naphthalene	**0.39**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	91-20-3	
Phenanthrene	**0.038J**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	85-01-8	
Pyrene	**0.019J**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:01	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	49	%.	47-125	1	09/13/19 12:55	09/16/19 17:01	321-60-8	
p-Terphenyl-d14 (S)	54	%.	62-125	1	09/13/19 12:55	09/16/19 17:01	1718-51-0	1M,S0
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**9.0**	ug/L	1.0	1		09/20/19 21:33	71-43-2	
Ethylbenzene	**0.92J**	ug/L	1.0	1		09/20/19 21:33	100-41-4	
Toluene	**4.2**	ug/L	1.0	1		09/20/19 21:33	108-88-3	
m&p-Xylene	**4.9**	ug/L	2.0	1		09/20/19 21:33	179601-23-1	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491256

Sample: PEO-MW-27-201909 **Lab ID: 10491256005** Collected: 09/12/19 12:05 Received: 09/13/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	**1.5**	ug/L	1.0	1		09/20/19 21:33	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	91	%.	75-125	1		09/20/19 21:33	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1		09/20/19 21:33	2037-26-5	
4-Bromofluorobenzene (S)	100	%.	75-125	1		09/20/19 21:33	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**186**	mg/L	5.0	1		09/20/19 13:25		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**12.7**	mg/L	1.2	1		09/16/19 19:33	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		09/13/19 13:58	14797-55-8	FS

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491256

Sample: PEO-MW-39-201909 **Lab ID: 10491256006** Collected: 09/12/19 13:05 Received: 09/13/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**6.8**	mg/L	0.39	1	09/13/19 15:14	09/16/19 14:27	68334-30-5	
Motor Oil Range SG	**0.16J**	mg/L	0.39	1	09/13/19 15:14	09/16/19 14:27	64742-65-0	
Surrogates								
o-Terphenyl (S)	94	%.	50-150	1	09/13/19 15:14	09/16/19 14:27	84-15-1	
n-Triacontane (S)	100	%.	50-150	1	09/13/19 15:14	09/16/19 14:27	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**4530**	ug/L	2500	25		09/17/19 22:01		G-
Surrogates								
a,a,a-Trifluorotoluene (S)	73	%.	50-150	25		09/17/19 22:01	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**181000**	ug/L	3300	1	09/16/19 10:50	09/17/19 18:24		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**34.4**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:59	7440-38-2	
Manganese, Dissolved	**3610**	ug/L	10.0	20	09/17/19 04:55	09/18/19 12:51	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**2.0**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:22	83-32-9	
Acenaphthylene	**0.34**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:22	208-96-8	
Anthracene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:22	120-12-7	
Benzo(a)anthracene	**0.021J**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:22	56-55-3	
Benzo(a)pyrene	**0.0095J**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:22	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:22	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:22	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:22	207-08-9	
Chrysene	**0.020J**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:22	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:22	53-70-3	
Fluoranthene	**0.083**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:22	206-44-0	
Fluorene	**2.3**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:22	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:22	193-39-5	
1-Methylnaphthalene	**10.9**	ug/L	0.079	2	09/13/19 12:55	09/25/19 15:14	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:22	91-57-6	
Naphthalene	**0.73**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:22	91-20-3	
Phenanthrene	**1.4**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:22	85-01-8	
Pyrene	**0.11**	ug/L	0.040	1	09/13/19 12:55	09/16/19 17:22	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	65	%.	47-125	1	09/13/19 12:55	09/16/19 17:22	321-60-8	
p-Terphenyl-d14 (S)	68	%.	62-125	1	09/13/19 12:55	09/16/19 17:22	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**44.9**	ug/L	1.0	1		09/20/19 21:51	71-43-2	
Ethylbenzene	**10.9**	ug/L	1.0	1		09/20/19 21:51	100-41-4	
Toluene	**27.7**	ug/L	1.0	1		09/20/19 21:51	108-88-3	
m&p-Xylene	**43.0**	ug/L	2.0	1		09/20/19 21:51	179601-23-1	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491256

Sample: PEO-MW-39-201909 **Lab ID: 10491256006** Collected: 09/12/19 13:05 Received: 09/13/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	**14.4**	ug/L	1.0	1		09/20/19 21:51	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	97	%.	75-125	1		09/20/19 21:51	17060-07-0	
Toluene-d8 (S)	102	%.	75-125	1		09/20/19 21:51	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125	1		09/20/19 21:51	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**255**	mg/L	5.0	1		09/20/19 13:28		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	ND	mg/L	1.2	1		09/16/19 19:48	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		09/13/19 13:59	14797-55-8	FS

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491256

Sample: Trip Blank **Lab ID: 10491256007** Collected: 09/12/19 07:00 Received: 09/13/19 08:40 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		09/17/19 22:35		
Surrogates								
a,a,a-Trifluorotoluene (S)	77	%.	50-150	1		09/17/19 22:35	98-08-8	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		09/20/19 13:18	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/20/19 13:18	100-41-4	
Toluene	ND	ug/L	1.0	1		09/20/19 13:18	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/20/19 13:18	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		09/20/19 13:18	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	94	%.	75-125	1		09/20/19 13:18	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1		09/20/19 13:18	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	75-125	1		09/20/19 13:18	460-00-4	

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491256

QC Batch: 632637 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Water
Associated Lab Samples: 10491256001, 10491256002, 10491256003, 10491256004, 10491256005, 10491256006, 10491256007

METHOD BLANK: 3410905 Matrix: Water
Associated Lab Samples: 10491256001, 10491256002, 10491256003, 10491256004, 10491256005, 10491256006, 10491256007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	09/17/19 14:52	
a,a,a-Trifluorotoluene (S)	%.	81	50-150	09/17/19 14:52	

METHOD BLANK: 3410906 Matrix: Water
Associated Lab Samples: 10491256001, 10491256002, 10491256003, 10491256004, 10491256005, 10491256006, 10491256007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	09/17/19 20:02	
a,a,a-Trifluorotoluene (S)	%.	79	50-150	09/17/19 20:02	

LABORATORY CONTROL SAMPLE & LCSD: 3410907 3410908

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	947	955	95	96	75-125	1	20	
a,a,a-Trifluorotoluene (S)	%.				95	89	50-150			

SAMPLE DUPLICATE: 3410987

Parameter	Units	10491222005 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	2740	2820	3	30	G-
a,a,a-Trifluorotoluene (S)	%.	85	84			

SAMPLE DUPLICATE: 3410988

Parameter	Units	10491256003 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	2650	2670	1	30	G-
a,a,a-Trifluorotoluene (S)	%.	84	83			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491256

QC Batch: 632233 Analysis Method: EPA 6020A
QC Batch Method: EPA 3020 Analysis Description: 6020A Water Dissolved UPD4
Associated Lab Samples: 10491256001, 10491256002, 10491256003, 10491256004, 10491256005, 10491256006

METHOD BLANK: 3409302 Matrix: Water
Associated Lab Samples: 10491256001, 10491256002, 10491256003, 10491256004, 10491256005, 10491256006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	09/17/19 21:40	
Manganese, Dissolved	ug/L	ND	0.50	09/17/19 21:40	

LABORATORY CONTROL SAMPLE: 3409303

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	100	98.7	99	80-120	
Manganese, Dissolved	ug/L	100	99.8	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3409304 3409305

Parameter	Units	10490877001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	6.1	100	100	104	107	98	101	75-125	2	20	
Manganese, Dissolved	ug/L	17.5	100	100	116	118	98	101	75-125	2	20	

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491256

QC Batch: 633524 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10491256001, 10491256002, 10491256007

METHOD BLANK: 3415427 Matrix: Water
Associated Lab Samples: 10491256001, 10491256002, 10491256007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	09/20/19 12:27	
Ethylbenzene	ug/L	ND	1.0	09/20/19 12:27	
m&p-Xylene	ug/L	ND	2.0	09/20/19 12:27	
o-Xylene	ug/L	ND	1.0	09/20/19 12:27	
Toluene	ug/L	ND	1.0	09/20/19 12:27	
1,2-Dichloroethane-d4 (S)	%.	94	75-125	09/20/19 12:27	
4-Bromofluorobenzene (S)	%.	100	75-125	09/20/19 12:27	
Toluene-d8 (S)	%.	100	75-125	09/20/19 12:27	

LABORATORY CONTROL SAMPLE: 3415428

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	16.9	84	75-125	
Ethylbenzene	ug/L	20	18.3	92	75-125	
m&p-Xylene	ug/L	40	36.3	91	75-125	
o-Xylene	ug/L	20	18.7	93	75-125	
Toluene	ug/L	20	17.6	88	75-125	
1,2-Dichloroethane-d4 (S)	%.			93	75-125	
4-Bromofluorobenzene (S)	%.			96	75-125	
Toluene-d8 (S)	%.			99	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3415425 3415426

Parameter	Units	10490737008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	2.0	20	20	17.8	17.9	79	79	30-150	0	30	
Ethylbenzene	ug/L	492	20	20	560	556	340	322	30-150	1	30	E,M1
m&p-Xylene	ug/L	478	40	40	522	515	110	92	30-150	1	30	E
o-Xylene	ug/L	33.1	20	20	52.6	52.4	98	97	30-150	0	30	
Toluene	ug/L	25.5	20	20	43.5	44.0	90	92	30-150	1	30	
1,2-Dichloroethane-d4 (S)	%.						104	99	75-125			
4-Bromofluorobenzene (S)	%.						101	101	75-125			
Toluene-d8 (S)	%.						101	103	75-125			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491256

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3415945 3415946

Parameter	Units	10491256001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	16.3	17.3	82	87	30-150	6	30	
Ethylbenzene	ug/L	ND	20	20	18.2	19.8	91	99	30-150	9	30	
m&p-Xylene	ug/L	ND	40	40	35.0	38.5	87	96	30-150	10	30	
o-Xylene	ug/L	ND	20	20	18.2	20.1	91	100	30-150	10	30	
Toluene	ug/L	ND	20	20	17.5	18.8	87	94	30-150	7	30	
1,2-Dichloroethane-d4 (S)	%.						93	95	75-125			
4-Bromofluorobenzene (S)	%.						98	99	75-125			
Toluene-d8 (S)	%.						99	100	75-125			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491256

QC Batch: 633674 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10491256003, 10491256004, 10491256005, 10491256006

METHOD BLANK: 3416159 Matrix: Water
Associated Lab Samples: 10491256003, 10491256004, 10491256005, 10491256006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	09/20/19 20:25	
Ethylbenzene	ug/L	ND	1.0	09/20/19 20:25	
m&p-Xylene	ug/L	ND	2.0	09/20/19 20:25	
o-Xylene	ug/L	ND	1.0	09/20/19 20:25	
Toluene	ug/L	ND	1.0	09/20/19 20:25	
1,2-Dichloroethane-d4 (S)	%.	94	75-125	09/20/19 20:25	
4-Bromofluorobenzene (S)	%.	101	75-125	09/20/19 20:25	
Toluene-d8 (S)	%.	99	75-125	09/20/19 20:25	

LABORATORY CONTROL SAMPLE: 3416160

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	18.2	91	75-125	
Ethylbenzene	ug/L	20	18.9	95	75-125	
m&p-Xylene	ug/L	40	37.5	94	75-125	
o-Xylene	ug/L	20	19.4	97	75-125	
Toluene	ug/L	20	18.5	92	75-125	
1,2-Dichloroethane-d4 (S)	%.			93	75-125	
4-Bromofluorobenzene (S)	%.			97	75-125	
Toluene-d8 (S)	%.			98	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3416161 3416162

Parameter	Units	10491887005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	0.25J	20	20	18.6	19.1	92	94	30-150	3	30	
Ethylbenzene	ug/L	ND	20	20	19.6	20.0	98	100	30-150	2	30	
m&p-Xylene	ug/L	ND	40	40	37.6	38.6	94	96	30-150	3	30	
o-Xylene	ug/L	0.22J	20	20	19.8	20.1	98	100	30-150	2	30	
Toluene	ug/L	ND	20	20	18.7	19.0	93	95	30-150	2	30	
1,2-Dichloroethane-d4 (S)	%.						94	95	75-125			
4-Bromofluorobenzene (S)	%.						98	96	75-125			
Toluene-d8 (S)	%.						100	98	75-125			

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REPORT OF LABORATORY ANALYSIS

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(612)607-1700

QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491256

QC Batch: 632019 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA Mod. 3510C Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10491256001, 10491256002, 10491256003, 10491256004, 10491256005, 10491256006

METHOD BLANK: 3407809 Matrix: Water
Associated Lab Samples: 10491256001, 10491256002, 10491256003, 10491256004, 10491256005, 10491256006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	ND	0.040	09/16/19 10:38	
2-Methylnaphthalene	ug/L	ND	0.040	09/16/19 10:38	
Acenaphthene	ug/L	ND	0.040	09/16/19 10:38	
Acenaphthylene	ug/L	ND	0.040	09/16/19 10:38	
Anthracene	ug/L	ND	0.040	09/16/19 10:38	
Benzo(a)anthracene	ug/L	ND	0.040	09/16/19 10:38	
Benzo(a)pyrene	ug/L	ND	0.040	09/16/19 10:38	
Benzo(b)fluoranthene	ug/L	ND	0.040	09/16/19 10:38	
Benzo(g,h,i)perylene	ug/L	ND	0.040	09/16/19 10:38	
Benzo(k)fluoranthene	ug/L	ND	0.040	09/16/19 10:38	
Chrysene	ug/L	ND	0.040	09/16/19 10:38	
Dibenz(a,h)anthracene	ug/L	ND	0.040	09/16/19 10:38	
Fluoranthene	ug/L	ND	0.040	09/16/19 10:38	
Fluorene	ug/L	ND	0.040	09/16/19 10:38	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.040	09/16/19 10:38	
Naphthalene	ug/L	ND	0.040	09/16/19 10:38	
Phenanthrene	ug/L	ND	0.040	09/16/19 10:38	
Pyrene	ug/L	ND	0.040	09/16/19 10:38	
2-Fluorobiphenyl (S)	%.	76	47-125	09/16/19 10:38	
p-Terphenyl-d14 (S)	%.	92	62-125	09/16/19 10:38	

LABORATORY CONTROL SAMPLE & LCSD: 3407810 3407811

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1-Methylnaphthalene	ug/L	1	0.60	0.60	60	60	31-125	1	20	
2-Methylnaphthalene	ug/L	1	0.60	0.62	60	62	43-125	3	20	
Acenaphthene	ug/L	1	0.64	0.67	64	67	50-125	5	20	
Acenaphthylene	ug/L	1	0.65	0.70	65	70	46-125	7	20	
Anthracene	ug/L	1	0.67	0.75	67	75	59-125	12	20	
Benzo(a)anthracene	ug/L	1	0.71	0.79	71	79	55-125	11	20	
Benzo(a)pyrene	ug/L	1	0.76	0.83	76	83	66-125	10	20	
Benzo(b)fluoranthene	ug/L	1	0.79	0.87	79	87	64-125	9	20	
Benzo(g,h,i)perylene	ug/L	1	0.73	0.83	73	83	58-125	13	20	
Benzo(k)fluoranthene	ug/L	1	0.77	0.86	77	86	60-125	11	20	
Chrysene	ug/L	1	0.69	0.83	69	83	62-125	18	20	
Dibenz(a,h)anthracene	ug/L	1	0.75	0.85	75	85	51-125	13	20	
Fluoranthene	ug/L	1	0.70	0.81	70	81	64-125	15	20	
Fluorene	ug/L	1	0.67	0.72	67	72	55-125	7	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.74	0.84	74	84	61-125	12	20	
Naphthalene	ug/L	1	0.61	0.62	61	62	48-125	2	20	

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Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491256

LABORATORY CONTROL SAMPLE & LCSD: 3407810 3407811

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Phenanthrene	ug/L	1	0.68	0.77	68	77	63-125	13	20	
Pyrene	ug/L	1	0.70	0.81	70	81	61-125	15	20	
2-Fluorobiphenyl (S)	%.				60	62	47-125			
p-Terphenyl-d14 (S)	%.				71	81	62-125			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491256

QC Batch: 632021 Analysis Method: NWTPH-Dx
QC Batch Method: EPA Mod. 3510C Analysis Description: NWTPH-Dx GCS LV SG
Associated Lab Samples: 10491256001, 10491256002, 10491256003, 10491256004, 10491256005, 10491256006

METHOD BLANK: 3407815 Matrix: Water
Associated Lab Samples: 10491256001, 10491256002, 10491256003, 10491256004, 10491256005, 10491256006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Fuel Range SG	mg/L	ND	0.40	09/16/19 12:44	
Motor Oil Range SG	mg/L	ND	0.40	09/16/19 12:44	
n-Triacontane (S)	%.	90	50-150	09/16/19 12:44	
o-Terphenyl (S)	%.	80	50-150	09/16/19 12:44	

LABORATORY CONTROL SAMPLE & LCSD: 3407816 3407817

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Fuel Range SG	mg/L	2	1.6	1.6	78	82	50-150	4	20	
Motor Oil Range SG	mg/L	2	1.7	1.8	86	91	50-150	6	20	
n-Triacontane (S)	%.				92	94	50-150			
o-Terphenyl (S)	%.				86	89	50-150			

SAMPLE DUPLICATE: 3407818

Parameter	Units	10491256001 Result	Dup Result	RPD	Max RPD	Qualifiers
Diesel Fuel Range SG	mg/L	ND	ND		30	
Motor Oil Range SG	mg/L	ND	ND		30	
n-Triacontane (S)	%.	90	91			
o-Terphenyl (S)	%.	84	82			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491256

QC Batch: 633472 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10491256001, 10491256002, 10491256003, 10491256004, 10491256005, 10491256006

METHOD BLANK: 3415224 Matrix: Water
Associated Lab Samples: 10491256001, 10491256002, 10491256003, 10491256004, 10491256005, 10491256006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	5.0	09/20/19 12:57	

LABORATORY CONTROL SAMPLE & LCSD: 3415225 3415226

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	40.2	40.6	100	102	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3415227 3415228

Parameter	Units	10490983003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	95.5	40	40	114	117	45	55	80-120	3	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3415229 3415230

Parameter	Units	10491256001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	73.8	40	40	116	116	105	105	80-120	0	20	

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491256

QC Batch: 632384 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10491256001, 10491256002, 10491256003, 10491256004, 10491256005, 10491256006

METHOD BLANK: 3409854 Matrix: Water
Associated Lab Samples: 10491256001, 10491256002, 10491256003, 10491256004, 10491256005, 10491256006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.2	09/16/19 11:38	

LABORATORY CONTROL SAMPLE: 3409855

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	12.5	12.4	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3409856 3409857

Parameter	Units	10491372002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	1290	625	625	1880	1880	95	94	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3409858 3409859

Parameter	Units	10491419002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	26.1	12.5	12.5	33.7	33.6	61	60	90-110	0	20	M1

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491256

QC Batch: 632066 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10491256001, 10491256002, 10491256003, 10491256004, 10491256005, 10491256006

METHOD BLANK: 3408042 Matrix: Water
Associated Lab Samples: 10491256001, 10491256002, 10491256003, 10491256004, 10491256005, 10491256006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.10	09/13/19 14:02	FS

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QUALIFIERS

Project: 499738-Revised Report
Pace Project No.: 10491256

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: 633037

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1M	Reanalysis conducted in excess of EPA method holding time. Results do not confirm original analysis performed in hold time.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
FS	The sample was filtered in the laboratory prior to analysis.
G+	Late peaks present outside the GRO window.
G-	Early peaks present outside the GRO window.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
S0	Surrogate recovery outside laboratory control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 499738-Revised Report
Pace Project No.: 10491256

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10491256001	**PEO-MW-31-201909**	EPA Mod. 3510C	632021	NWTPH-Dx	632470
10491256002	**PEO-MW-18-201909**	EPA Mod. 3510C	632021	NWTPH-Dx	632470
10491256003	**PEO-MW-36-201909**	EPA Mod. 3510C	632021	NWTPH-Dx	632470
10491256004	**PEO-MW-Z1-201909**	EPA Mod. 3510C	632021	NWTPH-Dx	632470
10491256005	**PEO-MW-27-201909**	EPA Mod. 3510C	632021	NWTPH-Dx	632470
10491256006	**PEO-MW-39-201909**	EPA Mod. 3510C	632021	NWTPH-Dx	632470
10491256001	**PEO-MW-31-201909**	NWTPH-Gx	632637		
10491256002	**PEO-MW-18-201909**	NWTPH-Gx	632637		
10491256003	**PEO-MW-36-201909**	NWTPH-Gx	632637		
10491256004	**PEO-MW-Z1-201909**	NWTPH-Gx	632637		
10491256005	**PEO-MW-27-201909**	NWTPH-Gx	632637		
10491256006	**PEO-MW-39-201909**	NWTPH-Gx	632637		
10491256007	**Trip Blank**	NWTPH-Gx	632637		
10491256001	**PEO-MW-31-201909**	EPA 3010	631920	EPA 6010D	632598
10491256002	**PEO-MW-18-201909**	EPA 3010	631920	EPA 6010D	632598
10491256003	**PEO-MW-36-201909**	EPA 3010	631920	EPA 6010D	632598
10491256004	**PEO-MW-Z1-201909**	EPA 3010	631920	EPA 6010D	632598
10491256005	**PEO-MW-27-201909**	EPA 3010	631920	EPA 6010D	632598
10491256006	**PEO-MW-39-201909**	EPA 3010	631920	EPA 6010D	632598
10491256001	**PEO-MW-31-201909**	EPA 3020	632233	EPA 6020A	632784
10491256002	**PEO-MW-18-201909**	EPA 3020	632233	EPA 6020A	632784
10491256003	**PEO-MW-36-201909**	EPA 3020	632233	EPA 6020A	632784
10491256004	**PEO-MW-Z1-201909**	EPA 3020	632233	EPA 6020A	632784
10491256005	**PEO-MW-27-201909**	EPA 3020	632233	EPA 6020A	632784
10491256006	**PEO-MW-39-201909**	EPA 3020	632233	EPA 6020A	632784
10491256001	**PEO-MW-31-201909**	EPA Mod. 3510C	632019	EPA 8270 by SIM	633037
10491256002	**PEO-MW-18-201909**	EPA Mod. 3510C	632019	EPA 8270 by SIM	633037
10491256003	**PEO-MW-36-201909**	EPA Mod. 3510C	632019	EPA 8270 by SIM	633037
10491256004	**PEO-MW-Z1-201909**	EPA Mod. 3510C	632019	EPA 8270 by SIM	633037
10491256005	**PEO-MW-27-201909**	EPA Mod. 3510C	632019	EPA 8270 by SIM	633037
10491256006	**PEO-MW-39-201909**	EPA Mod. 3510C	632019	EPA 8270 by SIM	633037
10491256001	**PEO-MW-31-201909**	EPA 8260B	633524		
10491256002	**PEO-MW-18-201909**	EPA 8260B	633524		
10491256003	**PEO-MW-36-201909**	EPA 8260B	633674		
10491256004	**PEO-MW-Z1-201909**	EPA 8260B	633674		
10491256005	**PEO-MW-27-201909**	EPA 8260B	633674		
10491256006	**PEO-MW-39-201909**	EPA 8260B	633674		
10491256007	**Trip Blank**	EPA 8260B	633524		
10491256001	**PEO-MW-31-201909**	SM 2320B	633472		
10491256002	**PEO-MW-18-201909**	SM 2320B	633472		
10491256003	**PEO-MW-36-201909**	SM 2320B	633472		
10491256004	**PEO-MW-Z1-201909**	SM 2320B	633472		
10491256005	**PEO-MW-27-201909**	SM 2320B	633472		
10491256006	**PEO-MW-39-201909**	SM 2320B	633472		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 499738-Revised Report
Pace Project No.: 10491256

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10491256001	**PEO-MW-31-201909**	EPA 300.0	632384		
10491256002	**PEO-MW-18-201909**	EPA 300.0	632384		
10491256003	**PEO-MW-36-201909**	EPA 300.0	632384		
10491256004	**PEO-MW-Z1-201909**	EPA 300.0	632384		
10491256005	**PEO-MW-27-201909**	EPA 300.0	632384		
10491256006	**PEO-MW-39-201909**	EPA 300.0	632384		
10491256001	**PEO-MW-31-201909**	EPA 353.2	632066		
10491256002	**PEO-MW-18-201909**	EPA 353.2	632066		
10491256003	**PEO-MW-36-201909**	EPA 353.2	632066		
10491256004	**PEO-MW-Z1-201909**	EPA 353.2	632066		
10491256005	**PEO-MW-27-201909**	EPA 353.2	632066		
10491256006	**PEO-MW-39-201909**	EPA 353.2	632066		

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CHAIN-OF-CUSTODY / WO# : 10491256

The Chain-of-Custody is a LEGAL DOCUM

10491256

1 of 1

Section A Required Client Information:

Company:	ERM
Address:	1050 SW 6th Ave, Suite 1650
	Portland, OR 97204
Email To:	rita.cooper@erm.com
Phone: 207-329-6320	Fax:
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Rita Cooper
Copy To:	
Purchase Order No.:	
Project Name:	
Project Number:	499738

Section C Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Julie Bowser
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: OR

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COLLECTED: COMPOSITE START TIME	COLLECTED: COMPOSITE END/GRAB DATE	COLLECTED: COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	GRO (NWTPH-Gx)	BTEX (SW8260C/SW8260C SIM)	VPH (NWTPH-VPH)	DRO (NWTPH-Dx)	Dissolved Metals (As, MN) (6020A)	Hardness (SM2340B)	SVOC (EPA 8270 SIM)	EPH (NWTPH-EPH)	Nitrate (EPA 353.2)	Total Alkalinity (SM 2320B)	Sulfate (EPA 300.0)	Nitrate + Nitrite	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	PEO-MW-31-201909	GW	G	9/12/19	8:10				19	X	X	X	X	-	-	-	-		3	3	3	2	1	X	2	2	1	1	X	1		001
2	PEO-MW-18-201909	GW	G	9/12/19	9:20				19	X	X	X	X	-	-	-	-		3	3	3	2	1	X	2	2	1	1	X	1		002
3	PEO-MW-36-201909	GW	G	9/12/19	10:40				19	X	X	X	X	-	-	-	-		3	3	3	2	1	X	2	2	1	1	X	1		003
4	PEO-MW-Z1-201909	GW	G	9/12/19	10:45				19	X	X	X	X	-	-	-	-		3	3	3	2	1	X	2	2	1	1	X	1		004
5	PEO-MW-27-201909	GW	G	9/12/19	12:05				19	X	X	X	X	-	-	-	-		3	3	3	2	1	X	2	2	1	1	X	1		005
6	PEO-MW-39-201909	GW	G	9/12/19	13:05				19	X	X	X	X	-	-	-	-		3	3	3	2	1	X	2	2	1	1	X	1		006
7	TRIP BLANK	GW	G	9/12/19	7:00				4	-	-	-	X	-	-	-	-		2	2	X	-	-	-	-	-	-	-	-	-		007
8																															
9																															
10																															
11																															
12																															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Joe Casey	9/12/19	1500		9-13-19	840	0.3	Y	Y	Y
							1.7			
							0.2			
							1.1			
							0.4			

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Joe Casey

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 09/12/19

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 23Aug2019 Page 1 of 1
	Document No.: F-MN-L-213-rev.29	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: ERM

Project #: **WO#: 10491256**

PM: JMT **Due Date: 09/20/19**

CLIENT: ERM-Oregon

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☐ Commercial See Exceptions ☐

Tracking Number: 4934 3732 9254/9265/9287/9276/9243

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other: _____ **Temp Blank?** ☑ Yes ☐ No

Thermometer: ☐ T1(0461) ☑ T2(1336) ☐ T3(0459) ☐ T4(0254) ☐ T5(0489) **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 0.3, 1.3, 0.2, 1.1, 0.4 °C

Correction Factor: true **Cooler Temp Corrected w/temp blank:** 0.3, 1.3, 0.2, 1.1, 0.4 °C

Average Corrected Temp (no temp blank only): ☐ See Exceptions ☐ 1 Container _____ °C

USDA Regulated Soil: (☑ N/A, water sample/Other: _____)

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

Date/Initials of Person Examining Contents: 9-13-19 AA

				COMMENTS:
Chain of Custody Present and Filled Out?	☑ Yes	☐ No		1.
Chain of Custody Relinquished?	☑ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	3.
Samples Arrived within Hold Time?	☑ Yes	☐ No		4.
Short Hold Time Analysis (<72 hr)?	☑ Yes	☐ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☑ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other
Rush Turn Around Time Requested?	☐ Yes	☑ No		6.
Sufficient Volume?	☑ Yes	☐ No		7.
Correct Containers Used? -Pace Containers Used?	☑ Yes ☑ Yes	☐ No ☐ No		8.
Containers Intact?	☑ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☑ Yes	☐ No	☐ N/A	10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC? Matrix: ☑ Water ☐ Soil ☐ Oil ☐ Other	☑ Yes	☐ No		11. If no, write ID/ Date/Time on Container Below: See Exception ☐
All containers needing acid/base preservation have been checked?	☑ Yes	☐ No	☐ N/A	12. Sample # 1-6
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	☑ Yes	☐ No	☐ N/A	☐ NaOH ☑ HNO_3 ☑ ☑ H_2SO_4 ☑ ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☑ Yes	☐ No	☐ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No pH Paper Lot# See Exception ☐
				Res. Chlorine: 0-6 Roll 203619 / 0-6 Strip / 0-14 Strip
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☑ No	☐ N/A	13. See Exception ☐
Trip Blank Present?	☑ Yes	☐ No	☐ N/A	14. 223708
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☐ N/A	Pace Trip Blank Lot # (if purchased): 224281

CLIENT NOTIFICATION/RESOLUTION

Person Contacted: _____ Date/Time: _____ **Field Data Required?** ☐ Yes ☐ No

Comments/Resolution: _____

Project Manager Review: Julie Pyle **Date:** 9/13/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: AA (2)

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Pace Analytical Minnesota
Julie Bowser
1700 Elm Street, Ste. 200
Minneapolis, MN 55414

RE: 499738
Work Order Number: 1909275

November 11, 2019

Attention Julie Bowser:

Fremont Analytical, Inc. received 7 sample(s) on 9/17/2019 for the analyses presented in the following report.

Extractable Petroleum Hydrocarbons by NWEPH
Volatile Petroleum Hydrocarbons by NWVPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *11/11/2019*

CLIENT: Pace Analytical Minnesota
Project: 499738
Work Order: 1909275

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1909275-001	PEO-MW-31-201909	09/12/2019 8:10 AM	09/17/2019 3:45 PM
1909275-002	PEO-MW-18-201909	09/12/2019 9:20 AM	09/17/2019 3:45 PM
1909275-003	PEO-MW-36-201909	09/12/2019 10:40 AM	09/17/2019 3:45 PM
1909275-004	PEO-MW-Z1-201909	09/12/2019 10:45 AM	09/17/2019 3:45 PM
1909275-005	PEO-MW-27-201909	09/12/2019 12:05 PM	09/17/2019 3:45 PM
1909275-006	PEO-MW-39-201909	09/12/2019 1:05 PM	09/17/2019 3:45 PM
1909275-007	Trip Blank	09/12/2019 7:00 AM	09/17/2019 3:45 PM

Case Narrative

WO#: **1909275**

Date: **11/11/2019**

CLIENT: Pace Analytical Minnesota
Project: 499738

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

11/11/19: Revision 1 includes only Aliphatic results.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1909275**
Date Reported: **11/11/2019**

Client: Pace Analytical Minnesota
Collection Date: 9/12/2019 8:10:00 AM
Project: 499738
Lab ID: 1909275-001
Matrix: Water
Client Sample ID: **PEO-MW-31-201909**

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 25901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.77		µg/L	1	10/8/2019 7:53:00 PM
Surr: 1-Chlorooctadecane	70.0	60 - 140		%Rec	1	10/8/2019 7:53:00 PM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25885		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07		µg/L	1	9/21/2019 2:52:47 AM
Surr: 1,4-Difluorobenzene	98.1	65 - 140		%Rec	1	9/21/2019 2:52:47 AM
Surr: Bromofluorobenzene	105	65 - 140		%Rec	1	9/21/2019 2:52:47 AM

Analytical Report

Work Order: **1909275**
Date Reported: **11/11/2019**

Client: Pace Analytical Minnesota
Collection Date: 9/12/2019 9:20:00 AM
Project: 499738
Lab ID: 1909275-002
Matrix: Water
Client Sample ID: **PEO-MW-18-201909**

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 25901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.81		µg/L	1	10/8/2019 8:36:00 PM
Surr: 1-Chlorooctadecane	65.9	60 - 140		%Rec	1	10/8/2019 8:36:00 PM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25885		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07		µg/L	1	9/21/2019 3:34:01 AM
Surr: 1,4-Difluorobenzene	98.8	65 - 140		%Rec	1	9/21/2019 3:34:01 AM
Surr: Bromofluorobenzene	108	65 - 140		%Rec	1	9/21/2019 3:34:01 AM

Analytical Report

Work Order: **1909275**
Date Reported: **11/11/2019**

Client: Pace Analytical Minnesota
Collection Date: 9/12/2019 10:40:00 AM
Project: 499738
Lab ID: 1909275-003
Matrix: Water
Client Sample ID: **PEO-MW-36-201909**

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 25901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.84		µg/L	1	10/8/2019 9:20:00 PM
Surr: 1-Chlorooctadecane	80.2	60 - 140		%Rec	1	10/8/2019 9:20:00 PM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25885		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	222	4.07		µg/L	1	9/21/2019 4:15:05 AM
Surr: 1,4-Difluorobenzene	122	65 - 140		%Rec	1	9/21/2019 4:15:05 AM
Surr: Bromofluorobenzene	106	65 - 140		%Rec	1	9/21/2019 4:15:05 AM

Analytical Report

Work Order: **1909275**
Date Reported: **11/11/2019**

Client: Pace Analytical Minnesota
Collection Date: 9/12/2019 10:45:00 AM
Project: 499738
Lab ID: 1909275-004
Matrix: Water
Client Sample ID: **PEO-MW-Z1-201909**

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 25901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.55		µg/L	1	10/8/2019 10:04:00 PM
Surr: 1-Chlorooctadecane	58.1	60 - 140	S	%Rec	1	10/8/2019 10:04:00 PM
NOTES: S - Outlying surrogate recovery(ies) observed.						
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25885		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	217	40.7	D	µg/L	10	9/21/2019 6:18:13 AM
Surr: 1,4-Difluorobenzene	100	65 - 140	D	%Rec	10	9/21/2019 6:18:13 AM
Surr: Bromofluorobenzene	105	65 - 140	D	%Rec	10	9/21/2019 6:18:13 AM

Analytical Report

Work Order: **1909275**
Date Reported: **11/11/2019**

Client: Pace Analytical Minnesota
Collection Date: 9/12/2019 12:05:00 PM
Project: 499738
Lab ID: 1909275-005
Matrix: Water
Client Sample ID: **PEO-MW-27-201909**

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 25901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.84		µg/L	1	10/8/2019 10:47:00 PM
Surr: 1-Chlorooctadecane	62.5	60 - 140		%Rec	1	10/8/2019 10:47:00 PM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25885		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	309	40.7	D	µg/L	10	9/21/2019 11:06:13 AM
Surr: 1,4-Difluorobenzene	97.1	65 - 140	D	%Rec	10	9/21/2019 11:06:13 AM
Surr: Bromofluorobenzene	104	65 - 140	D	%Rec	10	9/21/2019 11:06:13 AM

Analytical Report

Work Order: **1909275**
Date Reported: **11/11/2019**

Client: Pace Analytical Minnesota
Collection Date: 9/12/2019 1:05:00 PM
Project: 499738
Lab ID: 1909275-006
Matrix: Water
Client Sample ID: **PEO-MW-39-201909**

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 25901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.73		µg/L	1	10/8/2019 11:31:00 PM
Surr: 1-Chlorooctadecane	78.0	60 - 140		%Rec	1	10/8/2019 11:31:00 PM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25885		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	216	40.7	D	µg/L	10	9/21/2019 11:47:25 AM
Surr: 1,4-Difluorobenzene	102	65 - 140	D	%Rec	10	9/21/2019 11:47:25 AM
Surr: Bromofluorobenzene	105	65 - 140	D	%Rec	10	9/21/2019 11:47:25 AM

Analytical Report

Work Order: **1909275**
Date Reported: **11/11/2019**

Client: Pace Analytical Minnesota
Collection Date: 9/12/2019 7:00:00 AM
Project: 499738
Lab ID: 1909275-007
Matrix: Water
Client Sample ID: **Trip Blank**

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25885		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07		µg/L	1	9/20/2019 11:27:16 PM
Surr: 1,4-Difluorobenzene	97.3	65 - 140		%Rec	1	9/20/2019 11:27:16 PM
Surr: Bromofluorobenzene	105	65 - 140		%Rec	1	9/20/2019 11:27:16 PM

Work Order: 1909275
CLIENT: Pace Analytical Minnesota
Project: 499738

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **MB-25901**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **9/23/2019**		RunNo: **54412**			
Client ID: **MBLKW**	Batch ID: **25901**					Analysis Date: **10/4/2019**		SeqNo: **1078289**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	19.7		0	0						
Surr: 1-Chlorooctadecane	1,290		1,969		65.7	60	140				

Sample ID: **LCS-25901**	SampType: **LCS**			Units: **µg/L**		Prep Date: **9/23/2019**		RunNo: **54412**			
Client ID: **LCSW**	Batch ID: **25901**					Analysis Date: **10/4/2019**		SeqNo: **1078288**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	1,830	19.7	2,467	0	74.0	70	130				
Surr: 1-Chlorooctadecane	1,330		1,974		67.3	60	140				

Sample ID: **1909226-001ADUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **9/23/2019**		RunNo: **54412**			
Client ID: **BATCH**	Batch ID: **25901**					Analysis Date: **10/4/2019**		SeqNo: **1078287**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	21.5		0	0			15.67	200	25	
Surr: 1-Chlorooctadecane	1,170		2,148		54.6	60	140		0		S

NOTES:
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID: **1909226-001AMS**	SampType: **MS**			Units: **µg/L**		Prep Date: **9/23/2019**		RunNo: **54412**			
Client ID: **BATCH**	Batch ID: **25901**					Analysis Date: **10/4/2019**		SeqNo: **1078290**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	3,740	19.8	2,474	15.67	151	70	130				S
Surr: 1-Chlorooctadecane	1,760		1,979		89.0	60	140				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Work Order: 1909275
CLIENT: Pace Analytical Minnesota
Project: 499738

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **1909226-001AMSD** SampType: **MSD** Units: **µg/L** Prep Date: **9/23/2019** RunNo: **54412**
Client ID: **BATCH** Batch ID: **25901** Analysis Date: **10/4/2019** SeqNo: **1078291**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	2,280	24.5	3,061	15.67	73.8	70	130	3,741	48.7	30	R
Surr: 1-Chlorooctadecane	1,820		2,449		74.4	60	140		0		

NOTES:
R - High RPD observed, spike recovery is within range.

Work Order: 1909275
CLIENT: Pace Analytical Minnesota
Project: 499738

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **LCS-25885**	SampType: **LCS**			Units: **µg/L**		Prep Date: **9/20/2019**		RunNo: **54100**		
Client ID: **LCSW**	Batch ID: **25885**					Analysis Date: **9/20/2019**		SeqNo: **1071495**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	204	20.0	200.0	0	102	70	130				
Surr: 1,4-Difluorobenzene	51.3		50.00		103	65	140				
Surr: Bromofluorobenzene	52.3		50.00		105	65	140				

Sample ID: **MB-25885**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **9/20/2019**		RunNo: **54100**		
Client ID: **MBLKW**	Batch ID: **25885**					Analysis Date: **9/20/2019**		SeqNo: **1071496**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	20.0		0	0						
Surr: 1,4-Difluorobenzene	48.2		50.00		96.3	65	140				
Surr: Bromofluorobenzene	51.3		50.00		103	65	140				

Sample ID: **1909274-005ADUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **9/20/2019**		RunNo: **54100**		
Client ID: **BATCH**	Batch ID: **25885**					Analysis Date: **9/21/2019**		SeqNo: **1071539**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	237	200		0	0			226.4	4.57	25	D
Surr: 1,4-Difluorobenzene	484		500.0		96.8	65	140		0		D
Surr: Bromofluorobenzene	522		500.0		104	65	140		0		D

Sample ID: **1909275-006ADUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **9/20/2019**		RunNo: **54100**		
Client ID: **PEO-MW-39-201909**	Batch ID: **25885**					Analysis Date: **9/21/2019**		SeqNo: **1071483**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	230	200		0	0			215.6	6.25	25	D
Surr: 1,4-Difluorobenzene	509		500.0		102	65	140		0		D
Surr: Bromofluorobenzene	520		500.0		104	65	140		0		D

Work Order: 1909275
CLIENT: Pace Analytical Minnesota
Project: 499738

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **1909319-005AMS**	SampType: **MS**	Units: **µg/L**	Prep Date: **9/20/2019**	RunNo: **54100**
Client ID: **BATCH**	Batch ID: **25885**		Analysis Date: **9/21/2019**	SeqNo: **1071490**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	197	20.0	200.0	0	98.3	70	130				
Surr: 1,4-Difluorobenzene	53.4		50.00		107	65	140				
Surr: Bromofluorobenzene	52.7		50.00		105	65	140				

Sample ID: **1909319-005AMSD**	SampType: **MSD**	Units: **µg/L**	Prep Date: **9/20/2019**	RunNo: **54100**
Client ID: **BATCH**	Batch ID: **25885**		Analysis Date: **9/21/2019**	SeqNo: **1071491**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	201	20.0	200.0	0	100	70	130	196.6	2.07	30	
Surr: 1,4-Difluorobenzene	53.4		50.00		107	65	140		0		
Surr: Bromofluorobenzene	52.2		50.00		104	65	140		0		

Sample Log-In Check List

Client Name:	**PACEMINN**	Work Order Number:	**1909275**
Logged by:	**Clare Griggs**	Date Received:	**9/17/2019 3:45:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	FedEx		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☑	No ☐	Not Required ☐
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☑	NA ☐
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	6.8
Sample	3.4
Temp Blank	2.7

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody

PASI Minnesota Laboratory

1909275

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www.pacelabs.com

Workorder: 10491256 **Workorder Name:** 499738 **Results Requested By:** ~~9/27/2019~~ Std. TAT 9/16/19 JB.

Report / Invoice To	Subcontract To
Julie Bowser Pace Analytical Minnesota 1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone 612-607-6390 Email: julie.bowser@pacelabs.com	Fremont Analytical 3600 Fremont Ave. N Seattle, WA 98103

P.O. 10491256

State of Sample Origin: OR

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HCL V69H	Preserved Containers: Unpreserved AG1U	NWTPH VPH C10-C12	NWTPH EPH C10-C12	LAB USE ONLY
1	PEO-MW-31-201909	9/12/2019 08:10	10491256001	Water	3	2	X	X	
2	PEO-MW-18-201909	9/12/2019 09:20	10491256002	Water	3	2	X	X	
3	PEO-MW-36-201909	9/12/2019 10:40	10491256003	Water	3	2	X	X	
4	PEO-MW-Z1-201909	9/12/2019 10:45	10491256004	Water	3	2	X	X	
5	PEO-MW-27-201909	9/12/2019 12:05	10491256005	Water	3	2	X	X	
6	PEO-MW-39-201909	9/12/2019 13:05	10491256006	Water	3	2	X	X	
7	Trip Blank	9/12/2019 07:00	10491256007	Water	1		X		

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature] / Pace	9/16/19 1425	[signature] 9/17/19 ~~1425~~	9/17/19 1545
2				
3				

Comments

J flag to MDL

Cooler Temperature on Receipt ____ °C | **Custody Seal** Y or N | **Received on Ice** Y or N | **Samples Intact** Y or N

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

November 14, 2019

Joe Casey
ERM Portland
1050 SW 6th Ave
Suite 1650
Portland, OR 97204

RE: Project: 499738-Revised Report
Pace Project No.: 10491419

Dear Joe Casey:
Enclosed are the analytical results for sample(s) received by the laboratory on September 14, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

This report was revised on November 14, 2019 to only report aliphatic results on the subcontract report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Julie Bowser
julie.bowser@pacelabs.com
612-607-6390
Project Manager

Enclosures

cc: Rita Cooper, ERM Portland ERM Global EDD Mailbox, ERM

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 499738-Revised Report
Pace Project No.: 10491419

Minnesota Certification IDs

A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Massachusetts DWP Certification #: via MN 027-053-137
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

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SAMPLE SUMMARY

Project: 499738-Revised Report
Pace Project No.: 10491419

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10491419001	**Trip Blank**	Water	09/13/19 07:00	09/14/19 09:10
10491419002	**PEO-MW-26-201909**	Water	09/13/19 08:25	09/14/19 09:10
10491419003	**PEO-MW-41-201909**	Water	09/13/19 09:30	09/14/19 09:10
10491419004	**PEO-MW-40-201909**	Water	09/13/19 10:35	09/14/19 09:10
10491419005	**PEO-MW-38-201909**	Water	09/13/19 11:40	09/14/19 09:10

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SAMPLE ANALYTE COUNT

Project: 499738-Revised Report
Pace Project No.: 10491419

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10491419001	**Trip Blank**	NWTPH-Gx	MJD	2	PASI-M
		EPA 8260B	DS2	8	PASI-M
10491419002	**PEO-MW-26-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	DS2	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10491419003	**PEO-MW-41-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	DS2	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10491419004	**PEO-MW-40-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	DS2	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10491419005	**PEO-MW-38-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	DS2	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M

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SAMPLE ANALYTE COUNT

Project: 499738-Revised Report
Pace Project No.: 10491419

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 353.2	JFP	1	PASI-M

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491419

Sample: Trip Blank **Lab ID: 10491419001** Collected: 09/13/19 07:00 Received: 09/14/19 09:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		09/16/19 19:41		
Surrogates								
a,a,a-Trifluorotoluene (S)	75	%.	50-150	1		09/16/19 19:41	98-08-8	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		09/18/19 18:56	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/18/19 18:56	100-41-4	
Toluene	ND	ug/L	1.0	1		09/18/19 18:56	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/18/19 18:56	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		09/18/19 18:56	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	102	%.	75-125	1		09/18/19 18:56	17060-07-0	
Toluene-d8 (S)	102	%.	75-125	1		09/18/19 18:56	2037-26-5	
4-Bromofluorobenzene (S)	104	%.	75-125	1		09/18/19 18:56	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491419

Sample: PEO-MW-26-201909 **Lab ID: 10491419002** Collected: 09/13/19 08:25 Received: 09/14/19 09:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.35J**	mg/L	0.40	1	09/17/19 16:40	09/20/19 03:19	68334-30-5	
Motor Oil Range SG	**0.095J**	mg/L	0.40	1	09/17/19 16:40	09/20/19 03:19	64742-65-0	B
Surrogates								
o-Terphenyl (S)	79	%.	50-150	1	09/17/19 16:40	09/20/19 03:19	84-15-1	
n-Triacontane (S)	83	%.	50-150	1	09/17/19 16:40	09/20/19 03:19	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**379**	ug/L	200	2		09/16/19 17:42		
Surrogates								
a,a,a-Trifluorotoluene (S)	84	%.	50-150	2		09/16/19 17:42	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**38200**	ug/L	3300	1	09/16/19 10:50	09/17/19 17:52		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**2.5**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:25	7440-38-2	
Manganese, Dissolved	**306**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:25	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**0.16**	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	83-32-9	
Acenaphthylene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	208-96-8	
Anthracene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	207-08-9	
Chrysene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	53-70-3	
Fluoranthene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	206-44-0	
Fluorene	**0.14**	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	193-39-5	
1-Methylnaphthalene	**0.095**	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	91-57-6	
Naphthalene	**0.076**	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	91-20-3	
Phenanthrene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	85-01-8	
Pyrene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 11:22	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	62	%.	47-125	1	09/19/19 17:25	09/20/19 11:22	321-60-8	
p-Terphenyl-d14 (S)	74	%.	62-125	1	09/19/19 17:25	09/20/19 11:22	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**0.41J**	ug/L	1.0	1		09/18/19 20:22	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/18/19 20:22	100-41-4	
Toluene	**0.79J**	ug/L	1.0	1		09/18/19 20:22	108-88-3	
m&p-Xylene	**0.82J**	ug/L	2.0	1		09/18/19 20:22	179601-23-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491419

Sample: PEO-MW-26-201909 **Lab ID: 10491419002** Collected: 09/13/19 08:25 Received: 09/14/19 09:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	**0.59J**	ug/L	1.0	1		09/18/19 20:22	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	101	%.	75-125	1		09/18/19 20:22	17060-07-0	
Toluene-d8 (S)	102	%.	75-125	1		09/18/19 20:22	2037-26-5	
4-Bromofluorobenzene (S)	103	%.	75-125	1		09/18/19 20:22	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**35.8**	mg/L	5.0	1		09/16/19 12:08		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**26.1**	mg/L	1.2	1		09/16/19 13:47	14808-79-8	M1
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	**0.30**	mg/L	0.10	1		09/14/19 10:22	14797-55-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491419

Sample: PEO-MW-41-201909 **Lab ID: 10491419003** Collected: 09/13/19 09:30 Received: 09/14/19 09:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	ND	mg/L	0.40	1	09/17/19 16:40	09/20/19 03:42	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.40	1	09/17/19 16:40	09/20/19 03:42	64742-65-0	
Surrogates								
o-Terphenyl (S)	87	%.	50-150	1	09/17/19 16:40	09/20/19 03:42	84-15-1	
n-Triacontane (S)	94	%.	50-150	1	09/17/19 16:40	09/20/19 03:42	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		09/16/19 13:59		
Surrogates								
a,a,a-Trifluorotoluene (S)	77	%.	50-150	1		09/16/19 13:59	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**37800**	ug/L	3300	1	09/16/19 10:50	09/17/19 17:55		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**2.6**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:29	7440-38-2	
Manganese, Dissolved	**342**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:29	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	83-32-9	
Acenaphthylene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	208-96-8	
Anthracene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	207-08-9	
Chrysene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	53-70-3	
Fluoranthene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	206-44-0	
Fluorene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	193-39-5	
1-Methylnaphthalene	**0.013J**	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	91-57-6	
Naphthalene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	91-20-3	
Phenanthrene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	85-01-8	
Pyrene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 11:43	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	77	%.	47-125	1	09/19/19 17:25	09/20/19 11:43	321-60-8	
p-Terphenyl-d14 (S)	81	%.	62-125	1	09/19/19 17:25	09/20/19 11:43	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		09/18/19 20:39	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/18/19 20:39	100-41-4	
Toluene	ND	ug/L	1.0	1		09/18/19 20:39	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/18/19 20:39	179601-23-1	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491419

Sample: PEO-MW-41-201909 **Lab ID: 10491419003** Collected: 09/13/19 09:30 Received: 09/14/19 09:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		09/18/19 20:39	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	103	%.	75-125	1		09/18/19 20:39	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1		09/18/19 20:39	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		09/18/19 20:39	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**62.5**	mg/L	5.0	1		09/16/19 12:13		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**2.3**	mg/L	1.2	1		09/16/19 15:31	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		09/14/19 10:28	14797-55-8	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491419

Sample: PEO-MW-40-201909 **Lab ID: 10491419004** Collected: 09/13/19 10:35 Received: 09/14/19 09:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	ND	mg/L	0.40	1	09/17/19 16:40	09/20/19 03:53	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.40	1	09/17/19 16:40	09/20/19 03:53	64742-65-0	
Surrogates								
o-Terphenyl (S)	79	%.	50-150	1	09/17/19 16:40	09/20/19 03:53	84-15-1	
n-Triacontane (S)	82	%.	50-150	1	09/17/19 16:40	09/20/19 03:53	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		09/16/19 14:33		
Surrogates								
a,a,a-Trifluorotoluene (S)	80	%.	50-150	1		09/16/19 14:33	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**109000**	ug/L	3300	1	09/16/19 10:50	09/17/19 17:58		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**3.8**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:32	7440-38-2	
Manganese, Dissolved	**1430**	ug/L	10.0	20	09/17/19 04:55	09/18/19 12:18	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	83-32-9	
Acenaphthylene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	208-96-8	
Anthracene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	207-08-9	
Chrysene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	53-70-3	
Fluoranthene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	206-44-0	
Fluorene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	91-57-6	
Naphthalene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	91-20-3	
Phenanthrene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	85-01-8	
Pyrene	ND	ug/L	0.040	1	09/19/19 17:25	09/20/19 12:04	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	67	%.	47-125	1	09/19/19 17:25	09/20/19 12:04	321-60-8	
p-Terphenyl-d14 (S)	77	%.	62-125	1	09/19/19 17:25	09/20/19 12:04	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		09/18/19 20:56	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/18/19 20:56	100-41-4	
Toluene	ND	ug/L	1.0	1		09/18/19 20:56	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/18/19 20:56	179601-23-1	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491419

Sample: PEO-MW-40-201909 **Lab ID: 10491419004** Collected: 09/13/19 10:35 Received: 09/14/19 09:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		09/18/19 20:56	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	101	%.	75-125	1		09/18/19 20:56	17060-07-0	
Toluene-d8 (S)	101	%.	75-125	1		09/18/19 20:56	2037-26-5	
4-Bromofluorobenzene (S)	101	%.	75-125	1		09/18/19 20:56	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**91.0**	mg/L	5.0	1		09/16/19 13:21		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**54.3**	mg/L	1.2	1		09/16/19 15:46	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		09/14/19 10:31	14797-55-8	FS

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491419

Sample: PEO-MW-38-201909 **Lab ID: 10491419005** Collected: 09/13/19 11:40 Received: 09/14/19 09:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**15.1**	mg/L	0.40	1	09/17/19 16:40	09/20/19 04:05	68334-30-5	
Motor Oil Range SG	**0.43**	mg/L	0.40	1	09/17/19 16:40	09/20/19 04:05	64742-65-0	B
Surrogates								
o-Terphenyl (S)	96	%.	50-150	1	09/17/19 16:40	09/20/19 04:05	84-15-1	
n-Triacontane (S)	92	%.	50-150	1	09/17/19 16:40	09/20/19 04:05	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**4270**	ug/L	200	2		09/16/19 18:33		G+,G-
Surrogates								
a,a,a-Trifluorotoluene (S)	89	%.	50-150	2		09/16/19 18:33	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**114000**	ug/L	3300	1	09/16/19 10:50	09/17/19 18:01		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**34.2**	ug/L	0.50	1	09/17/19 04:55	09/17/19 22:35	7440-38-2	
Manganese, Dissolved	**2160**	ug/L	10.0	20	09/17/19 04:55	09/18/19 12:21	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**1.1**	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	83-32-9	
Acenaphthylene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	208-96-8	
Anthracene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	207-08-9	
Chrysene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	53-70-3	
Fluoranthene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	206-44-0	
Fluorene	**1.4**	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	193-39-5	
1-Methylnaphthalene	**0.93**	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	91-57-6	
Naphthalene	**3.8**	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	91-20-3	
Phenanthrene	**0.35**	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	85-01-8	
Pyrene	**0.058**	ug/L	0.039	1	09/19/19 17:25	09/20/19 12:26	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	58	%.	47-125	1	09/19/19 17:25	09/20/19 12:26	321-60-8	
p-Terphenyl-d14 (S)	72	%.	62-125	1	09/19/19 17:25	09/20/19 12:26	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**10.8**	ug/L	1.0	1		09/18/19 21:13	71-43-2	
Ethylbenzene	**1.4**	ug/L	1.0	1		09/18/19 21:13	100-41-4	
Toluene	**6.1**	ug/L	1.0	1		09/18/19 21:13	108-88-3	
m&p-Xylene	**7.5**	ug/L	2.0	1		09/18/19 21:13	179601-23-1	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491419

Sample: PEO-MW-38-201909 **Lab ID: 10491419005** Collected: 09/13/19 11:40 Received: 09/14/19 09:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	**3.2**	ug/L	1.0	1		09/18/19 21:13	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	102	%.	75-125	1		09/18/19 21:13	17060-07-0	
Toluene-d8 (S)	103	%.	75-125	1		09/18/19 21:13	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	75-125	1		09/18/19 21:13	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**131**	mg/L	5.0	1		09/16/19 13:24		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**0.64J**	mg/L	1.2	1		09/16/19 16:01	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		09/14/19 10:32	14797-55-8	FS

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491419

QC Batch: 632390 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Water
Associated Lab Samples: 10491419001, 10491419002, 10491419003, 10491419004, 10491419005

METHOD BLANK: 3409896 Matrix: Water
Associated Lab Samples: 10491419001, 10491419002, 10491419003, 10491419004, 10491419005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	09/16/19 13:42	
a,a,a-Trifluorotoluene (S)	%.	81	50-150	09/16/19 13:42	

METHOD BLANK: 3409897 Matrix: Water
Associated Lab Samples: 10491419001, 10491419002, 10491419003, 10491419004, 10491419005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	09/16/19 17:24	
a,a,a-Trifluorotoluene (S)	%.	81	50-150	09/16/19 17:24	

LABORATORY CONTROL SAMPLE & LCSD: 3409898 3409899

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	999	852	100	85	75-125	16	20	
a,a,a-Trifluorotoluene (S)	%.				89	83	50-150			

SAMPLE DUPLICATE: 3409985

Parameter	Units	10491419003 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	ND	ND		30	
a,a,a-Trifluorotoluene (S)	%.	77	78			

SAMPLE DUPLICATE: 3410006

Parameter	Units	10491222004 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	24600	25000	2	30	G-
a,a,a-Trifluorotoluene (S)	%.	78	79			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491419

QC Batch: 632233 Analysis Method: EPA 6020A
QC Batch Method: EPA 3020 Analysis Description: 6020A Water Dissolved UPD4
Associated Lab Samples: 10491419002, 10491419003, 10491419004, 10491419005

METHOD BLANK: 3409302 Matrix: Water
Associated Lab Samples: 10491419002, 10491419003, 10491419004, 10491419005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	09/17/19 21:40	
Manganese, Dissolved	ug/L	ND	0.50	09/17/19 21:40	

LABORATORY CONTROL SAMPLE: 3409303

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	100	98.7	99	80-120	
Manganese, Dissolved	ug/L	100	99.8	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3409304 3409305

Parameter	Units	10490877001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	6.1	100	100	104	107	98	101	75-125	2	20	
Manganese, Dissolved	ug/L	17.5	100	100	116	118	98	101	75-125	2	20	

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491419

QC Batch: 633040 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10491419001, 10491419002, 10491419003, 10491419004, 10491419005

METHOD BLANK: 3412994 Matrix: Water
Associated Lab Samples: 10491419001, 10491419002, 10491419003, 10491419004, 10491419005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	09/18/19 17:48	
Ethylbenzene	ug/L	ND	1.0	09/18/19 17:48	
m&p-Xylene	ug/L	ND	2.0	09/18/19 17:48	
o-Xylene	ug/L	ND	1.0	09/18/19 17:48	
Toluene	ug/L	ND	1.0	09/18/19 17:48	
1,2-Dichloroethane-d4 (S)	%.	103	75-125	09/18/19 17:48	
4-Bromofluorobenzene (S)	%.	104	75-125	09/18/19 17:48	
Toluene-d8 (S)	%.	101	75-125	09/18/19 17:48	

LABORATORY CONTROL SAMPLE: 3412995

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	20.3	102	75-125	
Ethylbenzene	ug/L	20	19.9	100	75-125	
m&p-Xylene	ug/L	40	39.4	99	75-125	
o-Xylene	ug/L	20	19.6	98	75-125	
Toluene	ug/L	20	19.7	98	75-125	
1,2-Dichloroethane-d4 (S)	%.			95	75-125	
4-Bromofluorobenzene (S)	%.			98	75-125	
Toluene-d8 (S)	%.			100	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3412996 3412997

Parameter	Units	10491393003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	18.6	18.5	93	93	30-150	0	30	
Ethylbenzene	ug/L	ND	20	20	18.6	18.7	93	94	30-150	1	30	
m&p-Xylene	ug/L	ND	40	40	36.7	37.8	92	94	30-150	3	30	
o-Xylene	ug/L	ND	20	20	18.5	18.8	92	94	30-150	2	30	
Toluene	ug/L	ND	20	20	18.1	18.2	91	91	30-150	0	30	
1,2-Dichloroethane-d4 (S)	%.						94	97	75-125			
4-Bromofluorobenzene (S)	%.						95	96	75-125			
Toluene-d8 (S)	%.						101	100	75-125			

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(612)607-1700

QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491419

QC Batch: 633369 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA Mod. 3510C Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10491419002, 10491419003, 10491419004, 10491419005

METHOD BLANK: 3414583 Matrix: Water
Associated Lab Samples: 10491419002, 10491419003, 10491419004, 10491419005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	ND	0.040	09/20/19 10:18	
2-Methylnaphthalene	ug/L	ND	0.040	09/20/19 10:18	
Acenaphthene	ug/L	ND	0.040	09/20/19 10:18	
Acenaphthylene	ug/L	ND	0.040	09/20/19 10:18	
Anthracene	ug/L	ND	0.040	09/20/19 10:18	
Benzo(a)anthracene	ug/L	ND	0.040	09/20/19 10:18	
Benzo(a)pyrene	ug/L	ND	0.040	09/20/19 10:18	
Benzo(b)fluoranthene	ug/L	ND	0.040	09/20/19 10:18	
Benzo(g,h,i)perylene	ug/L	ND	0.040	09/20/19 10:18	
Benzo(k)fluoranthene	ug/L	ND	0.040	09/20/19 10:18	
Chrysene	ug/L	ND	0.040	09/20/19 10:18	
Dibenz(a,h)anthracene	ug/L	ND	0.040	09/20/19 10:18	
Fluoranthene	ug/L	ND	0.040	09/20/19 10:18	
Fluorene	ug/L	ND	0.040	09/20/19 10:18	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.040	09/20/19 10:18	
Naphthalene	ug/L	ND	0.040	09/20/19 10:18	
Phenanthrene	ug/L	ND	0.040	09/20/19 10:18	
Pyrene	ug/L	ND	0.040	09/20/19 10:18	
2-Fluorobiphenyl (S)	%.	72	47-125	09/20/19 10:18	
p-Terphenyl-d14 (S)	%.	86	62-125	09/20/19 10:18	

LABORATORY CONTROL SAMPLE & LCSD: 3414584 3414585

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1-Methylnaphthalene	ug/L	1	0.67	0.65	67	65	31-125	4	20	
2-Methylnaphthalene	ug/L	1	0.68	0.66	68	66	43-125	3	20	
Acenaphthene	ug/L	1	0.69	0.66	69	66	50-125	4	20	
Acenaphthylene	ug/L	1	0.68	0.66	68	66	46-125	3	20	
Anthracene	ug/L	1	0.83	0.77	83	77	59-125	8	20	
Benzo(a)anthracene	ug/L	1	0.84	0.77	84	77	55-125	8	20	
Benzo(a)pyrene	ug/L	1	0.89	0.80	89	80	66-125	11	20	
Benzo(b)fluoranthene	ug/L	1	0.91	0.85	91	85	64-125	7	20	
Benzo(g,h,i)perylene	ug/L	1	0.90	0.83	90	83	58-125	8	20	
Benzo(k)fluoranthene	ug/L	1	0.88	0.80	88	80	60-125	10	20	
Chrysene	ug/L	1	0.84	0.78	84	78	62-125	8	20	
Dibenz(a,h)anthracene	ug/L	1	0.93	0.85	93	85	51-125	8	20	
Fluoranthene	ug/L	1	0.87	0.80	87	80	64-125	8	20	
Fluorene	ug/L	1	0.74	0.70	74	70	55-125	6	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.91	0.83	91	83	61-125	9	20	
Naphthalene	ug/L	1	0.69	0.67	69	67	48-125	3	20	

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Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491419

LABORATORY CONTROL SAMPLE & LCSD: 3414584 3414585

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Phenanthrene	ug/L	1	0.83	0.77	83	77	63-125	7	20	
Pyrene	ug/L	1	0.83	0.76	83	76	61-125	8	20	
2-Fluorobiphenyl (S)	%.				68	66	47-125			
p-Terphenyl-d14 (S)	%.				87	80	62-125			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491419

QC Batch: 632691 Analysis Method: NWTPH-Dx
QC Batch Method: EPA Mod. 3510C Analysis Description: NWTPH-Dx GCS LV SG
Associated Lab Samples: 10491419002, 10491419003, 10491419004, 10491419005

METHOD BLANK: 3411132 Matrix: Water
Associated Lab Samples: 10491419002, 10491419003, 10491419004, 10491419005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Fuel Range SG	mg/L	ND	0.40	09/20/19 02:45	
Motor Oil Range SG	mg/L	0.11J	0.40	09/20/19 02:45	
n-Triacontane (S)	%.	93	50-150	09/20/19 02:45	
o-Terphenyl (S)	%.	95	50-150	09/20/19 02:45	

LABORATORY CONTROL SAMPLE & LCSD: 3411133 3411134

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Fuel Range SG	mg/L	2	1.9	1.7	95	83	50-150	14	20	
Motor Oil Range SG	mg/L	2	2.0	1.7	98	87	50-150	12	20	
n-Triacontane (S)	%.				92	82	50-150			
o-Terphenyl (S)	%.				97	85	50-150			

SAMPLE DUPLICATE: 3411135

Parameter	Units	10491419002 Result	Dup Result	RPD	Max RPD	Qualifiers
Diesel Fuel Range SG	mg/L	0.35J	0.39J		30	
Motor Oil Range SG	mg/L	0.095J	0.082J		30	
n-Triacontane (S)	%.	83	85			
o-Terphenyl (S)	%.	79	82			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491419

QC Batch: 632345 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10491419002, 10491419003

METHOD BLANK: 3409723 Matrix: Water
Associated Lab Samples: 10491419002, 10491419003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	5.0	09/16/19 09:11	

LABORATORY CONTROL SAMPLE & LCSD: 3409724 3409725

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	41.8	41.9	104	105	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3409726 3409727

Parameter	Units	10490827001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	460	40	40	507	503	118	107	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3409728 3409729

Parameter	Units	10490862002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	246	40	40	275	275	73	72	80-120	0	20	M1

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491419

QC Batch: 632445 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10491419004, 10491419005

METHOD BLANK: 3410056 Matrix: Water
Associated Lab Samples: 10491419004, 10491419005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	5.0	09/16/19 13:09	

LABORATORY CONTROL SAMPLE & LCSD: 3410057 3410058

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	42.0	41.7	105	104	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3410059 3410060

Parameter	Units	10490749001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	873	40	40	891	902	44	73	80-120	1	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3410061 3410063

Parameter	Units	10490749002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	656	40	40	687	690	79	87	80-120	0	20	M1

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491419

QC Batch: 632384 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10491419002, 10491419003, 10491419004, 10491419005

METHOD BLANK: 3409854 Matrix: Water
Associated Lab Samples: 10491419002, 10491419003, 10491419004, 10491419005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.2	09/16/19 11:38	

LABORATORY CONTROL SAMPLE: 3409855

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	12.5	12.4	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3409856 3409857

Parameter	Units	10491372002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	1290	625	625	1880	1880	95	94	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3409858 3409859

Parameter	Units	10491419002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	26.1	12.5	12.5	33.7	33.6	61	60	90-110	0	20	M1

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491419

QC Batch: 632169 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10491419002, 10491419003, 10491419004, 10491419005

METHOD BLANK: 3408912 Matrix: Water
Associated Lab Samples: 10491419002, 10491419003, 10491419004, 10491419005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.10	09/14/19 11:00	FS

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QUALIFIERS

Project: 499738-Revised Report
Pace Project No.: 10491419

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
FS	The sample was filtered in the laboratory prior to analysis.
G+	Late peaks present outside the GRO window.
G-	Early peaks present outside the GRO window.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 499738-Revised Report
Pace Project No.: 10491419

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10491419002	**PEO-MW-26-201909**	EPA Mod. 3510C	632691	NWTPH-Dx	633071
10491419003	**PEO-MW-41-201909**	EPA Mod. 3510C	632691	NWTPH-Dx	633071
10491419004	**PEO-MW-40-201909**	EPA Mod. 3510C	632691	NWTPH-Dx	633071
10491419005	**PEO-MW-38-201909**	EPA Mod. 3510C	632691	NWTPH-Dx	633071
10491419001	**Trip Blank**	NWTPH-Gx	632390		
10491419002	**PEO-MW-26-201909**	NWTPH-Gx	632390		
10491419003	**PEO-MW-41-201909**	NWTPH-Gx	632390		
10491419004	**PEO-MW-40-201909**	NWTPH-Gx	632390		
10491419005	**PEO-MW-38-201909**	NWTPH-Gx	632390		
10491419002	**PEO-MW-26-201909**	EPA 3010	631920	EPA 6010D	632598
10491419003	**PEO-MW-41-201909**	EPA 3010	631920	EPA 6010D	632598
10491419004	**PEO-MW-40-201909**	EPA 3010	631920	EPA 6010D	632598
10491419005	**PEO-MW-38-201909**	EPA 3010	631920	EPA 6010D	632598
10491419002	**PEO-MW-26-201909**	EPA 3020	632233	EPA 6020A	632784
10491419003	**PEO-MW-41-201909**	EPA 3020	632233	EPA 6020A	632784
10491419004	**PEO-MW-40-201909**	EPA 3020	632233	EPA 6020A	632784
10491419005	**PEO-MW-38-201909**	EPA 3020	632233	EPA 6020A	632784
10491419002	**PEO-MW-26-201909**	EPA Mod. 3510C	633369	EPA 8270 by SIM	633544
10491419003	**PEO-MW-41-201909**	EPA Mod. 3510C	633369	EPA 8270 by SIM	633544
10491419004	**PEO-MW-40-201909**	EPA Mod. 3510C	633369	EPA 8270 by SIM	633544
10491419005	**PEO-MW-38-201909**	EPA Mod. 3510C	633369	EPA 8270 by SIM	633544
10491419001	**Trip Blank**	EPA 8260B	633040		
10491419002	**PEO-MW-26-201909**	EPA 8260B	633040		
10491419003	**PEO-MW-41-201909**	EPA 8260B	633040		
10491419004	**PEO-MW-40-201909**	EPA 8260B	633040		
10491419005	**PEO-MW-38-201909**	EPA 8260B	633040		
10491419002	**PEO-MW-26-201909**	SM 2320B	632345		
10491419003	**PEO-MW-41-201909**	SM 2320B	632345		
10491419004	**PEO-MW-40-201909**	SM 2320B	632445		
10491419005	**PEO-MW-38-201909**	SM 2320B	632445		
10491419002	**PEO-MW-26-201909**	EPA 300.0	632384		
10491419003	**PEO-MW-41-201909**	EPA 300.0	632384		
10491419004	**PEO-MW-40-201909**	EPA 300.0	632384		
10491419005	**PEO-MW-38-201909**	EPA 300.0	632384		
10491419002	**PEO-MW-26-201909**	EPA 353.2	632169		
10491419003	**PEO-MW-41-201909**	EPA 353.2	632169		
10491419004	**PEO-MW-40-201909**	EPA 353.2	632169		
10491419005	**PEO-MW-38-201909**	EPA 353.2	632169		

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CHAIN-OF-CUSTODY / WO# : 10491419

The Chain-of-Custody is a LEGAL DOCUM

1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	ERM	Report To:	Rita Cooper	Attention:	
Address:	1050 SW 6th Ave, Suite 1650	Copy To:		Company Name:	
	Portland, OR 97204			Address:	
Email To:	rita.cooper@erm.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	207-329-6320 Fax:	Project Name:		Pace Project Manager:	Julie Bowser
Requested Due Date/TAT:	Standard	Project Number:	499738	Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: OR

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Requested Analysis Filtered (Y/N): Analysis Test	GRO (NWTPH-Gx)	BTEX (SW8260C/SW8260C SIM)	VPH (NWTPH-VPH)	DRO (NWTPH-Dx)	Dissolved Metals (As, MN) (6020A)	Hardness (SM2340B)	SVOC (EPA 8270 SIM)	EPH (NWTPH-EPH)	Nitrate (EPA 353.2)	Total Alkalinity (SM 2320B)	Sulfate (EPA 300.0)	Nitrate + Nitrite	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Trip Blank	GW	G	9/13/19	7:00				4	-	-	-	X	-	-	-	-		2	2	X	-	-	-	-	1	-	-	-		001
2	PEO-MW-26-201909	GW	G	9/13/19	8:25				19	X	X	X	X	-	-	-	-		3	3	3	2	1	X	2	2	1	1	X	1		002
3	PEO-MW-41-201909	GW	G	9/13/19	9:30				19	X	X	X	X	-	-	-	-		3	3	3	2	1	X	2	2	1	1	X	1		003
4	PEO-MW-40-201909	GW	G	9/13/19	10:35				19	X	X	X	X	-	-	-	-		3	3	3	2	1	X	2	2	1	1	X	1		004
5	PEO-MW-38-201909	GW	G	9/13/19	11:40				19	X	X	X	X	-	-	-	-		3	3	3	2	1	X	2	2	1	1	X	1		005
6																															
7																															
8																															
9																															
10																															
11																															
12																															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	J. Casey / Ga / Team	9/13/19	1430	Pace	9/14/19	910	0.3, 0.4, 0.1	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: J. Casey

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 09/13/19

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical	Document Name: **Sample Condition Upon Receipt Form**	Document Revised: 23Aug2019 Page 1 of 1
	Document No.: **F-MN-L-213-rev.29**	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt **Client Name:** ERM **Project #:** **WO#: 10491419**

PM: JMT **Due Date: 09/23/19** **CLIENT: ERM-Oregon**

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☐ Commercial See Exceptions ☑

Tracking Number: _____

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other: _____ **Temp Blank?** ☑ Yes ☐ No

Thermometer: ☐ T1(0461) ☐ T2(1336) ☐ T3(0459) ☑ T4(0254) ☐ T5(0489) **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 0.3, 0.4, 0.1 °C **Average Corrected Temp (no temp blank only):** ☐ See Exceptions _____ °C ☐ 1 Container

Correction Factor: true **Cooler Temp Corrected w/temp blank:** 0.3, 0.4, 0.1 °C

USDA Regulated Soil: (☑ N/A, water sample/Other: _____) **Date/Initials of Person Examining Contents:** RNC 9/16/19

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present and Filled Out?	☑ Yes	☐ No		1.
Chain of Custody Relinquished?	☑ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	3.
Samples Arrived within Hold Time?	☑ Yes	☐ No		4.
Short Hold Time Analysis (<72 hr)?	☑ Yes	☐ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☑ Nitrate ☐ Nitrite ☐ Orthophos ☐ Other _____
Rush Turn Around Time Requested?	☐ Yes	☑ No		6.
Sufficient Volume?	☑ Yes	☐ No		7.
Correct Containers Used? -Pace Containers Used?	☑ Yes ☑ Yes	☐ No ☐ No		8.
Containers Intact?	☑ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☐ Yes	☑ No	☐ N/A	Field filtered metals - JMB 9/16/19 10. Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC? Matrix: ☑ Water ☐ Soil ☐ Oil ☐ Other _____	☑ Yes	☐ No		11. If no, write ID/ Date/Time on Container Below: See Exception ☐
All containers needing acid/base preservation have been checked?	☑ Yes	☐ No	☐ N/A	12. Sample # 2-5: 1/1 1/1 ☐ NaOH ☑ HNO_3 ☑ H_2SO_4 ☐ Zinc Acetate
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	☑ Yes	☐ No	☐ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No pH Paper Lot# See Exception ☐
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☑ Yes	☐ No	☐ N/A	Res. Chlorine: 0-6 Roll 203619 | 0-6 Strip | 0-14 Strip
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☑ No	☐ N/A	13. See Exception ☐
Trip Blank Present?	☑ Yes	☐ No	☐ N/A	14.
Trip Blank Custody Seals Present?	☑ Yes	☐ No	☐ N/A	Pace Trip Blank Lot # (if purchased): 223709

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Julie Pace **Date:** 9/16/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: CH RNC

Pace Analytical	Document Name: SCUR Exception Form – Coolers Above 6°C	Document Revised: 08Apr2019 Page 1 of 1
	Document No.: F-MN-C-298-Rev.02	Issuing Authority: Pace Minnesota Quality Office

During sample triage, this form is to be placed in each cooler that arrives above 6.0 degrees Celsius

SCUR Exceptions: **Workorder #:**

Out of Temp Sample IDs	Container Type	# of Containers

PM Notified? ☐Yes ☐No

If yes, indicate who was contacted/date/time.
If no, indicate reason why.

Multiple Cooler Project? ☐Yes ☐No
If you answered yes, fill out information to the left.

No Temp Blank

Read Temp	Corrected Temp	Average Temp

Tracking Number/Temperature	
4934 3732 9324	0.3
" " 9335	0.4
" " 9313	0.1

Other Issues

Issue Type: Sample ID	Container Type	# of Containers

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition?	Initials
								☐Yes ☐No	
								☐Yes ☐No	
								☐Yes ☐No	
								☐Yes ☐No	

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Pace Analytical Minnesota
Julie Bowser
1700 Elm Street, Ste. 200
Minneapolis, MN 55414

RE: 499738
Work Order Number: 1909274

November 11, 2019

Attention Julie Bowser:

Fremont Analytical, Inc. received 5 sample(s) on 9/17/2019 for the analyses presented in the following report.

Extractable Petroleum Hydrocarbons by NWEPH
Volatile Petroleum Hydrocarbons by NWVPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *11/11/2019*

CLIENT: Pace Analytical Minnesota
Project: 499738
Work Order: 1909274

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1909274-001	Trip Blank	09/13/2019 7:00 AM	09/17/2019 3:45 PM
1909274-002	PEO-MW-26-201909	09/13/2019 8:25 AM	09/17/2019 3:45 PM
1909274-003	PEO-MW-41-201909	09/13/2019 9:30 AM	09/17/2019 3:45 PM
1909274-004	PEO-MW-40-201909	09/13/2019 10:35 AM	09/17/2019 3:45 PM
1909274-005	PEO-MW-38-201909	09/13/2019 11:40 AM	09/17/2019 3:45 PM

Case Narrative

WO#: **1909274**
Date: **11/11/2019**

CLIENT: Pace Analytical Minnesota
Project: 499738

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

11/11/19: Revision 1 includes only Aliphatic results.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1909274**
Date Reported: **11/11/2019**

CLIENT: Pace Analytical Minnesota
Project: 499738

Lab ID: 1909274-001 **Collection Date:** 9/13/2019 7:00:00 AM
Client Sample ID: **Trip Blank** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25885		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07		µg/L	1	9/20/2019 10:46:12 PM
Surr: 1,4-Difluorobenzene	96.6	65 - 140		%Rec	1	9/20/2019 10:46:12 PM
Surr: Bromofluorobenzene	103	65 - 140		%Rec	1	9/20/2019 10:46:12 PM

Lab ID: 1909274-002 **Collection Date:** 9/13/2019 8:25:00 AM
Client Sample ID: **PEO-MW-26-201909** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 25901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.83		µg/L	1	10/4/2019 8:02:00 PM
Surr: 1-Chlorooctadecane	63.3	60 - 140		%Rec	1	10/4/2019 8:02:00 PM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25885		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07		µg/L	1	9/21/2019 12:49:23 AM
Surr: 1,4-Difluorobenzene	96.4	65 - 140		%Rec	1	9/21/2019 12:49:23 AM
Surr: Bromofluorobenzene	103	65 - 140		%Rec	1	9/21/2019 12:49:23 AM

Analytical Report

Work Order: **1909274**
Date Reported: **11/11/2019**

CLIENT: Pace Analytical Minnesota
Project: 499738

Lab ID: 1909274-003 **Collection Date:** 9/13/2019 9:30:00 AM
Client Sample ID: **PEO-MW-41-201909** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 25901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.79		µg/L	1	10/4/2019 8:46:00 PM
Surr: 1-Chlorooctadecane	64.4	60 - 140		%Rec	1	10/4/2019 8:46:00 PM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25885		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07		µg/L	1	9/21/2019 1:30:28 AM
Surr: 1,4-Difluorobenzene	97.3	65 - 140		%Rec	1	9/21/2019 1:30:28 AM
Surr: Bromofluorobenzene	105	65 - 140		%Rec	1	9/21/2019 1:30:28 AM

Lab ID: 1909274-004 **Collection Date:** 9/13/2019 10:35:00 AM
Client Sample ID: **PEO-MW-40-201909** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 25901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	ND	5.76		µg/L	1	10/8/2019 5:41:00 PM
Surr: 1-Chlorooctadecane	65.8	60 - 140		%Rec	1	10/8/2019 5:41:00 PM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25885		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	ND	4.07		µg/L	1	9/21/2019 2:11:35 AM
Surr: 1,4-Difluorobenzene	95.6	65 - 140		%Rec	1	9/21/2019 2:11:35 AM
Surr: Bromofluorobenzene	104	65 - 140		%Rec	1	9/21/2019 2:11:35 AM

Analytical Report

Work Order: **1909274**
Date Reported: **11/11/2019**

CLIENT: Pace Analytical Minnesota
Project: 499738

Lab ID: 1909274-005 **Collection Date:** 9/13/2019 11:40:00 AM
Client Sample ID: **PEO-MW-38-201909** **Matrix:** Water

Analyses	Result	MDL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 25901		Analyst: DW
Aliphatic Hydrocarbon (C10-C12)	10,500	5.88		µg/L	1	10/8/2019 6:25:00 PM
Surr: 1-Chlorooctadecane	63.1	60 - 140		%Rec	1	10/8/2019 6:25:00 PM
Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 25885		Analyst: CR
Aliphatic Hydrocarbon (C10-C12)	226	40.7	D	µg/L	10	9/21/2019 4:56:10 AM
Surr: 1,4-Difluorobenzene	98.6	65 - 140	D	%Rec	10	9/21/2019 4:56:10 AM
Surr: Bromofluorobenzene	107	65 - 140	D	%Rec	10	9/21/2019 4:56:10 AM

Work Order: 1909274
CLIENT: Pace Analytical Minnesota
Project: 499738

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **MB-25901**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **9/23/2019**	RunNo: **54412**
Client ID: **MBLKW**	Batch ID: **25901**		Analysis Date: **10/4/2019**	SeqNo: **1078289**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	19.7		0	0						
Surr: 1-Chlorooctadecane	1,290		1,969		65.7	60	140				

Sample ID: **LCS-25901**	SampType: **LCS**	Units: **µg/L**	Prep Date: **9/23/2019**	RunNo: **54412**
Client ID: **LCSW**	Batch ID: **25901**		Analysis Date: **10/4/2019**	SeqNo: **1078288**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	1,830	19.7	2,467	0	74.0	70	130				
Surr: 1-Chlorooctadecane	1,330		1,974		67.3	60	140				

Sample ID: **1909226-001ADUP**	SampType: **DUP**	Units: **µg/L**	Prep Date: **9/23/2019**	RunNo: **54412**
Client ID: **BATCH**	Batch ID: **25901**		Analysis Date: **10/4/2019**	SeqNo: **1078287**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	21.5		0	0			15.67	200	25	
Surr: 1-Chlorooctadecane	1,170		2,148		54.6	60	140		0		S

NOTES:
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Sample ID: **1909226-001AMS**	SampType: **MS**	Units: **µg/L**	Prep Date: **9/23/2019**	RunNo: **54412**
Client ID: **BATCH**	Batch ID: **25901**		Analysis Date: **10/4/2019**	SeqNo: **1078290**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	3,740	19.8	2,474	15.67	151	70	130				S
Surr: 1-Chlorooctadecane	1,760		1,979		89.0	60	140				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.

Work Order: 1909274
CLIENT: Pace Analytical Minnesota
Project: 499738

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **1909226-001AMSD** SampType: **MSD** Units: **µg/L** Prep Date: **9/23/2019** RunNo: **54412**
Client ID: **BATCH** Batch ID: **25901** Analysis Date: **10/4/2019** SeqNo: **1078291**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	2,280	24.5	3,061	15.67	73.8	70	130	3,741	48.7	30	R
Surr: 1-Chlorooctadecane	1,820		2,449		74.4	60	140		0		

NOTES:
R - High RPD observed, spike recovery is within range.

Work Order: 1909274
CLIENT: Pace Analytical Minnesota
Project: 499738

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **LCS-25885**	SampType: **LCS**			Units: **µg/L**		Prep Date: **9/20/2019**		RunNo: **54100**		
Client ID: **LCSW**	Batch ID: **25885**					Analysis Date: **9/20/2019**		SeqNo: **1071495**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	204	20.0	200.0	0	102	70	130				
Surr: 1,4-Difluorobenzene	51.3		50.00		103	65	140				
Surr: Bromofluorobenzene	52.3		50.00		105	65	140				

Sample ID: **MB-25885**	SampType: **MBLK**			Units: **µg/L**		Prep Date: **9/20/2019**		RunNo: **54100**		
Client ID: **MBLKW**	Batch ID: **25885**					Analysis Date: **9/20/2019**		SeqNo: **1071496**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	20.0		0	0						
Surr: 1,4-Difluorobenzene	48.2		50.00		96.3	65	140				
Surr: Bromofluorobenzene	51.3		50.00		103	65	140				

Sample ID: **1909274-005ADUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **9/20/2019**		RunNo: **54100**		
Client ID: **PEO-MW-38-201909**	Batch ID: **25885**					Analysis Date: **9/21/2019**		SeqNo: **1071539**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	237	200		0	0			226.4	4.57	25	D
Surr: 1,4-Difluorobenzene	484		500.0		96.8	65	140		0		D
Surr: Bromofluorobenzene	522		500.0		104	65	140		0		D

Sample ID: **1909275-006ADUP**	SampType: **DUP**			Units: **µg/L**		Prep Date: **9/20/2019**		RunNo: **54100**		
Client ID: **BATCH**	Batch ID: **25885**					Analysis Date: **9/21/2019**		SeqNo: **1071483**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	230	200		0	0			215.6	6.25	25	D
Surr: 1,4-Difluorobenzene	509		500.0		102	65	140		0		D
Surr: Bromofluorobenzene	520		500.0		104	65	140		0		D

Work Order: 1909274
CLIENT: Pace Analytical Minnesota
Project: 499738

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **1909319-005AMS**	SampType: **MS**			Units: **µg/L**		Prep Date: **9/20/2019**		RunNo: **54100**		
Client ID: **BATCH**	Batch ID: **25885**					Analysis Date: **9/21/2019**		SeqNo: **1071490**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	197	20.0	200.0	0	98.3	70	130				
Surr: 1,4-Difluorobenzene	53.4		50.00		107	65	140				
Surr: Bromofluorobenzene	52.7		50.00		105	65	140				

Sample ID: **1909319-005AMSD**	SampType: **MSD**			Units: **µg/L**		Prep Date: **9/20/2019**		RunNo: **54100**		
Client ID: **BATCH**	Batch ID: **25885**					Analysis Date: **9/21/2019**		SeqNo: **1071491**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	201	20.0	200.0	0	100	70	130	196.6	2.07	30	
Surr: 1,4-Difluorobenzene	53.4		50.00		107	65	140		0		
Surr: Bromofluorobenzene	52.2		50.00		104	65	140		0		

Sample Log-In Check List

Client Name:	**PACEMINN**	Work Order Number:	**1909274**
Logged by:	**Clare Griggs**	Date Received:	**9/17/2019 3:45:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	FedEx		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☑	No ☐	Not Required ☐
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☑	NA ☐
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	3.9
Sample	9.8
Temp Blank	2.7

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody

PASI Minnesota Laboratory

1909274

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Workorder: 10491419 **Workorder Name:** 499738 **Results Requested By:** ~~9/23/2019~~ SN. TAT JB 9/16/19

Report / Invoice To	Subcontract To
Julie Bowser Pace Analytical Minnesota 1700 Elm Street Suite 200 Minneapolis, MN 55414 Phone 612-607-6390 Email: julie.bowser@pacelabs.com	Fremont Analytical P.O. 10491419 3600 Fremont Ave. N Seattle, WA 98103

State of Sample Origin: OR

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HCL VGH	Preserved Containers: Unpreserved AGU	Requested Analysis: NWTPH VPH (C10-C12)	Requested Analysis: NWTPH EPH (C10-C12)	LAB USE ONLY
1	Trip Blank	9/13/2019 07:00	10491419001	Water	1		X		
2	PEO-MW-26-201909	9/13/2019 08:25	10491419002	Water	3	2	X	X	
3	PEO-MW-41-201909	9/13/2019 09:30	10491419003	Water	3	2	X	X	
4	PEO-MW-40-201909	9/13/2019 10:35	10491419004	Water	3	2	X	X	
5	PEO-MW-38-201909	9/13/2019 11:40	10491419005	Water	3	2	X	X	

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature] / Pace	9/16/19 1425		
2				
3				

Comments

J flag to MDL

Cooler Temperature on Receipt _____ °C | **Custody Seal** Y or N | **Received on Ice** Y or N | **Samples Intact** Y or N

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

November 15, 2019

Joe Casey
ERM Portland
1050 SW 6th Ave
Suite 1650
Portland, OR 97204

RE: Project: 499738-Revised Report
Pace Project No.: 10491887

Dear Joe Casey:
Enclosed are the analytical results for sample(s) received by the laboratory on September 18, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

This report was revised on November 15, 2019 to only report aliphatic results on the subcontract report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Julie Bowser
julie.bowser@pacelabs.com
612-607-6390
Project Manager

Enclosures

cc: Rita Cooper, ERM Portland ERM Global EDD Mailbox, ERM

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 499738-Revised Report
Pace Project No.: 10491887

Pace Analytical Services Minneapolis

A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Massachusetts DWP Certification #: via MN 027-053-137
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

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SAMPLE SUMMARY

Project: 499738-Revised Report
Pace Project No.: 10491887

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10491887001	**Trip Blank**	Water	09/17/19 07:00	09/18/19 08:30
10491887002	**PEO-MW-37-201909**	Water	09/17/19 08:25	09/18/19 08:30
10491887003	**PEO-MW-35-201909**	Water	09/17/19 09:25	09/18/19 08:30
10491887004	**PEO-MW-Z2-201909**	Water	09/17/19 09:30	09/18/19 08:30
10491887005	**PEO-MW-30-201909**	Water	09/17/19 12:10	09/18/19 08:30

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SAMPLE ANALYTE COUNT

Project: 499738-Revised Report
Pace Project No.: 10491887

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10491887001	**Trip Blank**	NWTPH-Gx	MJD	2	PASI-M
		EPA 8260B	ML4	8	PASI-M
10491887002	**PEO-MW-37-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	ML4	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10491887003	**PEO-MW-35-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	ML4	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10491887004	**PEO-MW-Z2-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	ML4	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M
		EPA 353.2	JFP	1	PASI-M
10491887005	**PEO-MW-30-201909**	NWTPH-Dx	JVM	4	PASI-M
		NWTPH-Gx	MJD	2	PASI-M
		EPA 6010D	IP	1	PASI-M
		EPA 6020A	BWB	2	PASI-M
		EPA 8270 by SIM	CH3	20	PASI-M
		EPA 8260B	ML4	8	PASI-M
		SM 2320B	KDC	1	PASI-M
		EPA 300.0	KEO	1	PASI-M

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SAMPLE ANALYTE COUNT

Project: 499738-Revised Report
Pace Project No.: 10491887

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 353.2	JFP	1	PASI-M

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491887

Sample: Trip Blank **Lab ID: 10491887001** Collected: 09/17/19 07:00 Received: 09/18/19 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	ND	ug/L	100	1		09/20/19 10:12		
Surrogates								
a,a,a-Trifluorotoluene (S)	73	%.	50-150	1		09/20/19 10:12	98-08-8	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		09/21/19 12:09	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/21/19 12:09	100-41-4	
Toluene	**0.13J**	ug/L	1.0	1		09/21/19 12:09	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/21/19 12:09	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		09/21/19 12:09	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	94	%.	75-125	1		09/21/19 12:09	17060-07-0	
Toluene-d8 (S)	97	%.	75-125	1		09/21/19 12:09	2037-26-5	
4-Bromofluorobenzene (S)	102	%.	75-125	1		09/21/19 12:09	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491887

Sample: PEO-MW-37-201909 **Lab ID: 10491887002** Collected: 09/17/19 08:25 Received: 09/18/19 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.34J**	mg/L	0.39	1	09/19/19 18:37	09/23/19 19:27	68334-30-5	
Motor Oil Range SG	**0.096J**	mg/L	0.39	1	09/19/19 18:37	09/23/19 19:27	64742-65-0	
Surrogates								
o-Terphenyl (S)	60	%.	50-150	1	09/19/19 18:37	09/23/19 19:27	84-15-1	
n-Triacontane (S)	60	%.	50-150	1	09/19/19 18:37	09/23/19 19:27	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**470**	ug/L	200	2		09/20/19 09:21		
Surrogates								
a,a,a-Trifluorotoluene (S)	69	%.	50-150	2		09/20/19 09:21	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**84600**	ug/L	3300	1	09/23/19 04:57	09/23/19 18:12		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**15.1**	ug/L	0.50	1	09/23/19 06:02	09/24/19 14:28	7440-38-2	
Manganese, Dissolved	**1230**	ug/L	10.0	20	09/23/19 06:02	09/24/19 15:08	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**0.20**	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	83-32-9	
Acenaphthylene	**0.016J**	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	208-96-8	
Anthracene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	207-08-9	
Chrysene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	53-70-3	
Fluoranthene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	206-44-0	
Fluorene	**0.057**	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	193-39-5	
1-Methylnaphthalene	**0.19**	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	90-12-0	
2-Methylnaphthalene	**0.022J**	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	91-57-6	
Naphthalene	**0.14**	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	91-20-3	
Phenanthrene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	85-01-8	
Pyrene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 15:13	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	72	%.	47-125	1	09/18/19 15:14	09/19/19 15:13	321-60-8	
p-Terphenyl-d14 (S)	80	%.	62-125	1	09/18/19 15:14	09/19/19 15:13	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**1.5**	ug/L	1.0	1		09/20/19 22:08	71-43-2	
Ethylbenzene	**0.35J**	ug/L	1.0	1		09/20/19 22:08	100-41-4	
Toluene	**1.4**	ug/L	1.0	1		09/20/19 22:08	108-88-3	
m&p-Xylene	**1.1J**	ug/L	2.0	1		09/20/19 22:08	179601-23-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491887

Sample: PEO-MW-37-201909 **Lab ID: 10491887002** Collected: 09/17/19 08:25 Received: 09/18/19 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	**1.3**	ug/L	1.0	1		09/20/19 22:08	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	91	%.	75-125	1		09/20/19 22:08	17060-07-0	
Toluene-d8 (S)	99	%.	75-125	1		09/20/19 22:08	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125	1		09/20/19 22:08	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**116**	mg/L	5.0	1		09/23/19 09:11		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**14.4**	mg/L	1.2	1		09/19/19 04:57	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		09/18/19 16:16	14797-55-8	FS

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491887

Sample: PEO-MW-35-201909 **Lab ID: 10491887003** Collected: 09/17/19 09:25 Received: 09/18/19 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.58**	mg/L	0.39	1	09/19/19 18:37	09/23/19 19:38	68334-30-5	
Motor Oil Range SG	**0.080J**	mg/L	0.39	1	09/19/19 18:37	09/23/19 19:38	64742-65-0	
Surrogates								
o-Terphenyl (S)	58	%.	50-150	1	09/19/19 18:37	09/23/19 19:38	84-15-1	
n-Triacontane (S)	74	%.	50-150	1	09/19/19 18:37	09/23/19 19:38	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**209**	ug/L	100	1		09/21/19 07:37		
Surrogates								
a,a,a-Trifluorotoluene (S)	77	%.	50-150	1		09/21/19 07:37	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**29100**	ug/L	3300	1	09/23/19 04:57	09/23/19 18:15		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**17.5**	ug/L	0.50	1	09/23/19 06:02	09/24/19 14:30	7440-38-2	
Manganese, Dissolved	**621**	ug/L	10.0	20	09/23/19 06:02	09/24/19 15:11	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**0.19**	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	83-32-9	
Acenaphthylene	**0.053**	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	208-96-8	
Anthracene	**0.13**	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	207-08-9	
Chrysene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	53-70-3	
Fluoranthene	**0.091**	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	206-44-0	
Fluorene	**0.061**	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	193-39-5	
1-Methylnaphthalene	**0.10**	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	91-57-6	
Naphthalene	**0.11**	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	91-20-3	
Phenanthrene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	85-01-8	
Pyrene	**0.088**	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:34	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	76	%.	47-125	1	09/18/19 15:14	09/19/19 15:34	321-60-8	
p-Terphenyl-d14 (S)	82	%.	62-125	1	09/18/19 15:14	09/19/19 15:34	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**0.50J**	ug/L	1.0	1		09/20/19 22:25	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/20/19 22:25	100-41-4	
Toluene	**0.22J**	ug/L	1.0	1		09/20/19 22:25	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/20/19 22:25	179601-23-1	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491887

Sample: PEO-MW-35-201909 **Lab ID: 10491887003** Collected: 09/17/19 09:25 Received: 09/18/19 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		09/20/19 22:25	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	91	%.	75-125	1		09/20/19 22:25	17060-07-0	
Toluene-d8 (S)	99	%.	75-125	1		09/20/19 22:25	2037-26-5	
4-Bromofluorobenzene (S)	101	%.	75-125	1		09/20/19 22:25	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**27.4**	mg/L	5.0	1		09/23/19 09:14		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**26.5**	mg/L	1.2	1		09/19/19 07:44	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		09/18/19 16:18	14797-55-8	FS

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491887

Sample: PEO-MW-Z2-201909 **Lab ID: 10491887004** Collected: 09/17/19 09:30 Received: 09/18/19 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**0.51**	mg/L	0.39	1	09/19/19 18:37	09/23/19 19:49	68334-30-5	
Motor Oil Range SG	ND	mg/L	0.39	1	09/19/19 18:37	09/23/19 19:49	64742-65-0	
Surrogates								
o-Terphenyl (S)	54	%.	50-150	1	09/19/19 18:37	09/23/19 19:49	84-15-1	
n-Triacontane (S)	50	%.	50-150	1	09/19/19 18:37	09/23/19 19:49	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**214**	ug/L	100	1		09/21/19 09:36		
Surrogates								
a,a,a-Trifluorotoluene (S)	74	%.	50-150	1		09/21/19 09:36	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**31100**	ug/L	3300	1	09/23/19 04:57	09/23/19 18:18		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**17.4**	ug/L	0.50	1	09/23/19 06:02	09/24/19 14:33	7440-38-2	
Manganese, Dissolved	**610**	ug/L	10.0	20	09/23/19 06:02	09/24/19 15:14	7439-96-5	
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	**0.19**	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	83-32-9	
Acenaphthylene	**0.051**	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	208-96-8	
Anthracene	**0.13**	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	207-08-9	
Chrysene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	53-70-3	
Fluoranthene	**0.092**	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	206-44-0	
Fluorene	**0.057**	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	193-39-5	
1-Methylnaphthalene	**0.11**	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	90-12-0	
2-Methylnaphthalene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	91-57-6	
Naphthalene	**0.11**	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	91-20-3	
Phenanthrene	ND	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	85-01-8	
Pyrene	**0.087**	ug/L	0.039	1	09/18/19 15:14	09/19/19 15:56	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	77	%.	47-125	1	09/18/19 15:14	09/19/19 15:56	321-60-8	
p-Terphenyl-d14 (S)	81	%.	62-125	1	09/18/19 15:14	09/19/19 15:56	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**0.48J**	ug/L	1.0	1		09/20/19 22:42	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/20/19 22:42	100-41-4	
Toluene	**0.21J**	ug/L	1.0	1		09/20/19 22:42	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/20/19 22:42	179601-23-1	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491887

Sample: PEO-MW-Z2-201909 **Lab ID: 10491887004** Collected: 09/17/19 09:30 Received: 09/18/19 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	ND	ug/L	1.0	1		09/20/19 22:42	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	93	%.	75-125	1		09/20/19 22:42	17060-07-0	
Toluene-d8 (S)	99	%.	75-125	1		09/20/19 22:42	2037-26-5	
4-Bromofluorobenzene (S)	100	%.	75-125	1		09/20/19 22:42	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**27.6**	mg/L	5.0	1		09/23/19 09:17		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**26.0**	mg/L	1.2	1		09/19/19 08:00	14808-79-8	
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		09/18/19 16:19	14797-55-8	FS

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491887

Sample: PEO-MW-30-201909 **Lab ID: 10491887005** Collected: 09/17/19 12:10 Received: 09/18/19 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
NWTPH-Dx GCS Silica Gel LV	Analytical Method: NWTPH-Dx Preparation Method: EPA Mod. 3510C							
Diesel Fuel Range SG	**3.2**	mg/L	0.39	1	09/19/19 18:37	09/23/19 20:00	68334-30-5	M1,R1
Motor Oil Range SG	**0.22J**	mg/L	0.39	1	09/19/19 18:37	09/23/19 20:00	64742-65-0	R1
Surrogates								
o-Terphenyl (S)	53	%.	50-150	1	09/19/19 18:37	09/23/19 20:00	84-15-1	
n-Triacontane (S)	50	%.	50-150	1	09/19/19 18:37	09/23/19 20:00	638-68-6	
NWTPH-Gx GCV	Analytical Method: NWTPH-Gx							
TPH as Gas	**292**	ug/L	100	1		09/19/19 18:21		
Surrogates								
a,a,a-Trifluorotoluene (S)	78	%.	50-150	1		09/19/19 18:21	98-08-8	
6010D MET ICP, Dissolved	Analytical Method: EPA 6010D Preparation Method: EPA 3010							
Total Hardness by 2340B, Dissolved	**125000**	ug/L	3300	1	09/23/19 04:57	09/24/19 10:39		
6020A MET ICPMS, Dissolved	Analytical Method: EPA 6020A Preparation Method: EPA 3020							
Arsenic, Dissolved	**2.6**	ug/L	0.50	1	09/23/19 06:02	09/24/19 14:36	7440-38-2	
Manganese, Dissolved	**3190**	ug/L	10.0	20	09/23/19 06:02	09/24/19 15:17	7439-96-5	M1
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA Mod. 3510C							
Acenaphthene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	83-32-9	
Acenaphthylene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	208-96-8	
Anthracene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	207-08-9	
Chrysene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	53-70-3	
Fluoranthene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	206-44-0	
Fluorene	**0.11**	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	193-39-5	
1-Methylnaphthalene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	90-12-0	M1
2-Methylnaphthalene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	91-57-6	
Naphthalene	**0.25**	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	91-20-3	M1
Phenanthrene	ND	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	85-01-8	
Pyrene	**0.032J**	ug/L	0.040	1	09/18/19 15:14	09/19/19 16:17	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	77	%.	47-125	1	09/18/19 15:14	09/19/19 16:17	321-60-8	
p-Terphenyl-d14 (S)	77	%.	62-125	1	09/18/19 15:14	09/19/19 16:17	1718-51-0	
8260B MSV UST	Analytical Method: EPA 8260B							
Benzene	**0.25J**	ug/L	1.0	1		09/20/19 20:42	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		09/20/19 20:42	100-41-4	
Toluene	ND	ug/L	1.0	1		09/20/19 20:42	108-88-3	
m&p-Xylene	ND	ug/L	2.0	1		09/20/19 20:42	179601-23-1	

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ANALYTICAL RESULTS

Project: 499738-Revised Report
Pace Project No.: 10491887

Sample: PEO-MW-30-201909 **Lab ID: 10491887005** Collected: 09/17/19 12:10 Received: 09/18/19 08:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV UST	Analytical Method: EPA 8260B							
o-Xylene	**0.22J**	ug/L	1.0	1		09/20/19 20:42	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	96	%.	75-125	1		09/20/19 20:42	17060-07-0	
Toluene-d8 (S)	100	%.	75-125	1		09/20/19 20:42	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	75-125	1		09/20/19 20:42	460-00-4	
2320B Alkalinity	Analytical Method: SM 2320B							
Alkalinity, Total as CaCO3	**118**	mg/L	5.0	1		09/23/19 09:20		
300.0 IC Anions	Analytical Method: EPA 300.0							
Sulfate	**42.2**	mg/L	1.2	1		09/19/19 08:17	14808-79-8	M1
353.2 Nitrate + Nitrite	Analytical Method: EPA 353.2							
Nitrate as N	ND	mg/L	0.10	1		09/18/19 16:20	14797-55-8	FS

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491887

QC Batch: 633384 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Water
Associated Lab Samples: 10491887003, 10491887004

METHOD BLANK: 3414663 Matrix: Water
Associated Lab Samples: 10491887003, 10491887004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	09/21/19 03:22	
a,a,a-Trifluorotoluene (S)	%.	79	50-150	09/21/19 03:22	

METHOD BLANK: 3414664 Matrix: Water
Associated Lab Samples: 10491887003, 10491887004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	09/21/19 06:29	
a,a,a-Trifluorotoluene (S)	%.	74	50-150	09/21/19 06:29	

LABORATORY CONTROL SAMPLE & LCSD: 3414665 3414666

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	1120	1090	112	109	75-125	3	20	
a,a,a-Trifluorotoluene (S)	%.				87	89	50-150			

SAMPLE DUPLICATE: 3414669

Parameter	Units	10491720001 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	<38.3	ND		30	
a,a,a-Trifluorotoluene (S)	%.	75	73			

SAMPLE DUPLICATE: 3415417

Parameter	Units	10491720007 Result	Dup Result	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	987	1090	10	30	G-
a,a,a-Trifluorotoluene (S)	%.	74	77			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491887

QC Batch: 633517 Analysis Method: NWTPH-Gx
QC Batch Method: NWTPH-Gx Analysis Description: NWTPH-Gx Water
Associated Lab Samples: 10491887001, 10491887002, 10491887005

METHOD BLANK: 3415355 Matrix: Water
Associated Lab Samples: 10491887001, 10491887002, 10491887005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
TPH as Gas	ug/L	ND	100	09/19/19 18:00	
a,a,a-Trifluorotoluene (S)	%.	86	50-150	09/19/19 18:00	

LABORATORY CONTROL SAMPLE & LCSD: 3415356 3415357

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
TPH as Gas	ug/L	1000	1060	910	106	91	75-125	15	20	
a,a,a-Trifluorotoluene (S)	%.				96	86	50-150			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3414667 3414668

Parameter	Units	10491887005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
TPH as Gas	ug/L	292	1000	1000	1060	1290	76	100	75-125	20	30	
a,a,a-Trifluorotoluene (S)	%.						60	81	50-150			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491887

QC Batch: 633142 Analysis Method: EPA 6020A
QC Batch Method: EPA 3020 Analysis Description: 6020A Water Dissolved UPD4
Associated Lab Samples: 10491887002, 10491887003, 10491887004, 10491887005

METHOD BLANK: 3413613 Matrix: Water
Associated Lab Samples: 10491887002, 10491887003, 10491887004, 10491887005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	09/24/19 14:16	
Manganese, Dissolved	ug/L	ND	0.50	09/24/19 14:16	

LABORATORY CONTROL SAMPLE: 3413614

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	100	96.7	97	80-120	
Manganese, Dissolved	ug/L	100	99.9	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3413615 3413616

Parameter	Units	10491887005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	2.6	100	100	98.6	105	96	103	75-125	7	20	
Manganese, Dissolved	ug/L	3190	100	100	3270	3340	79	155	75-125	2	20	E,M1

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491887

QC Batch: 633674 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10491887002, 10491887003, 10491887004, 10491887005

METHOD BLANK: 3416159 Matrix: Water
Associated Lab Samples: 10491887002, 10491887003, 10491887004, 10491887005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	09/20/19 20:25	
Ethylbenzene	ug/L	ND	1.0	09/20/19 20:25	
m&p-Xylene	ug/L	ND	2.0	09/20/19 20:25	
o-Xylene	ug/L	ND	1.0	09/20/19 20:25	
Toluene	ug/L	ND	1.0	09/20/19 20:25	
1,2-Dichloroethane-d4 (S)	%.	94	75-125	09/20/19 20:25	
4-Bromofluorobenzene (S)	%.	101	75-125	09/20/19 20:25	
Toluene-d8 (S)	%.	99	75-125	09/20/19 20:25	

LABORATORY CONTROL SAMPLE: 3416160

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	18.2	91	75-125	
Ethylbenzene	ug/L	20	18.9	95	75-125	
m&p-Xylene	ug/L	40	37.5	94	75-125	
o-Xylene	ug/L	20	19.4	97	75-125	
Toluene	ug/L	20	18.5	92	75-125	
1,2-Dichloroethane-d4 (S)	%.			93	75-125	
4-Bromofluorobenzene (S)	%.			97	75-125	
Toluene-d8 (S)	%.			98	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3416161 3416162

Parameter	Units	10491887005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	0.25J	20	20	18.6	19.1	92	94	30-150	3	30	
Ethylbenzene	ug/L	ND	20	20	19.6	20.0	98	100	30-150	2	30	
m&p-Xylene	ug/L	ND	40	40	37.6	38.6	94	96	30-150	3	30	
o-Xylene	ug/L	0.22J	20	20	19.8	20.1	98	100	30-150	2	30	
Toluene	ug/L	ND	20	20	18.7	19.0	93	95	30-150	2	30	
1,2-Dichloroethane-d4 (S)	%.						94	95	75-125			
4-Bromofluorobenzene (S)	%.						98	96	75-125			
Toluene-d8 (S)	%.						100	98	75-125			

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REPORT OF LABORATORY ANALYSIS

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(612)607-1700

QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491887

QC Batch: 633736 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 10491887001

METHOD BLANK: 3416595 Matrix: Water
Associated Lab Samples: 10491887001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	09/21/19 11:35	
Ethylbenzene	ug/L	ND	1.0	09/21/19 11:35	
m&p-Xylene	ug/L	ND	2.0	09/21/19 11:35	
o-Xylene	ug/L	ND	1.0	09/21/19 11:35	
Toluene	ug/L	ND	1.0	09/21/19 11:35	
1,2-Dichloroethane-d4 (S)	%.	91	75-125	09/21/19 11:35	
4-Bromofluorobenzene (S)	%.	100	75-125	09/21/19 11:35	
Toluene-d8 (S)	%.	99	75-125	09/21/19 11:35	

LABORATORY CONTROL SAMPLE: 3416596

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	16.6	83	75-125	
Ethylbenzene	ug/L	20	18.3	91	75-125	
m&p-Xylene	ug/L	40	34.8	87	75-125	
o-Xylene	ug/L	20	18.4	92	75-125	
Toluene	ug/L	20	17.7	89	75-125	
1,2-Dichloroethane-d4 (S)	%.			94	75-125	
4-Bromofluorobenzene (S)	%.			100	75-125	
Toluene-d8 (S)	%.			100	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3416627 3416628

Parameter	Units	10491145001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	17.3	17.1	86	86	30-150	1	30	
Ethylbenzene	ug/L	ND	20	20	18.6	19.0	93	95	30-150	2	30	
m&p-Xylene	ug/L	ND	40	40	36.2	36.4	90	91	30-150	1	30	
o-Xylene	ug/L	ND	20	20	18.5	19.4	93	97	30-150	5	30	
Toluene	ug/L	ND	20	20	18.2	18.2	91	91	30-150	0	30	
1,2-Dichloroethane-d4 (S)	%.						91	95	75-125			
4-Bromofluorobenzene (S)	%.						100	98	75-125			
Toluene-d8 (S)	%.						100	101	75-125			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491887

QC Batch: 633029 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA Mod. 3510C Analysis Description: 8270 Water PAH by SIM MSSV
Associated Lab Samples: 10491887002, 10491887003, 10491887004, 10491887005

METHOD BLANK: 3412920 Matrix: Water
Associated Lab Samples: 10491887002, 10491887003, 10491887004, 10491887005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1-Methylnaphthalene	ug/L	ND	0.040	09/19/19 10:37	
2-Methylnaphthalene	ug/L	ND	0.040	09/19/19 10:37	
Acenaphthene	ug/L	ND	0.040	09/19/19 10:37	
Acenaphthylene	ug/L	ND	0.040	09/19/19 10:37	
Anthracene	ug/L	ND	0.040	09/19/19 10:37	
Benzo(a)anthracene	ug/L	ND	0.040	09/19/19 10:37	
Benzo(a)pyrene	ug/L	ND	0.040	09/19/19 10:37	
Benzo(b)fluoranthene	ug/L	ND	0.040	09/19/19 10:37	
Benzo(g,h,i)perylene	ug/L	ND	0.040	09/19/19 10:37	
Benzo(k)fluoranthene	ug/L	ND	0.040	09/19/19 10:37	
Chrysene	ug/L	ND	0.040	09/19/19 10:37	
Dibenz(a,h)anthracene	ug/L	ND	0.040	09/19/19 10:37	
Fluoranthene	ug/L	ND	0.040	09/19/19 10:37	
Fluorene	ug/L	ND	0.040	09/19/19 10:37	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.040	09/19/19 10:37	
Naphthalene	ug/L	ND	0.040	09/19/19 10:37	
Phenanthrene	ug/L	0.022J	0.040	09/19/19 10:37	
Pyrene	ug/L	ND	0.040	09/19/19 10:37	
2-Fluorobiphenyl (S)	%.	81	47-125	09/19/19 10:37	
p-Terphenyl-d14 (S)	%.	96	62-125	09/19/19 10:37	

LABORATORY CONTROL SAMPLE: 3412921

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1-Methylnaphthalene	ug/L	1	0.82	82	31-125	
2-Methylnaphthalene	ug/L	1	0.83	83	43-125	
Acenaphthene	ug/L	1	0.84	84	50-125	
Acenaphthylene	ug/L	1	0.87	87	46-125	
Anthracene	ug/L	1	0.91	91	59-125	
Benzo(a)anthracene	ug/L	1	0.87	87	55-125	
Benzo(a)pyrene	ug/L	1	0.91	91	66-125	
Benzo(b)fluoranthene	ug/L	1	0.83	83	64-125	
Benzo(g,h,i)perylene	ug/L	1	0.80	80	58-125	
Benzo(k)fluoranthene	ug/L	1	0.96	96	60-125	
Chrysene	ug/L	1	0.93	93	62-125	
Dibenz(a,h)anthracene	ug/L	1	0.80	80	51-125	
Fluoranthene	ug/L	1	0.94	94	64-125	
Fluorene	ug/L	1	0.92	92	55-125	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.82	82	61-125	
Naphthalene	ug/L	1	0.84	84	48-125	

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491887

LABORATORY CONTROL SAMPLE: 3412921

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenanthrene	ug/L	1	0.92	92	63-125	
Pyrene	ug/L	1	0.88	88	61-125	
2-Fluorobiphenyl (S)	%.			77	47-125	
p-Terphenyl-d14 (S)	%.			88	62-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3412922 3412923

Parameter	Units	10491887005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1-Methylnaphthalene	ug/L	ND	0.95	0.98	1.3	1.3	141	130	30-125	5	30	M1
2-Methylnaphthalene	ug/L	ND	0.95	0.98	1.1	0.91	115	93	42-125	18	30	
Acenaphthene	ug/L	ND	0.95	0.98	1.1	1.1	117	115	46-125	1	30	
Acenaphthylene	ug/L	ND	0.95	0.98	0.84	0.86	89	88	48-125	3	30	
Anthracene	ug/L	ND	0.95	0.98	0.83	0.85	87	86	59-125	2	30	
Benzo(a)anthracene	ug/L	ND	0.95	0.98	0.65	0.68	69	69	56-125	3	30	
Benzo(a)pyrene	ug/L	ND	0.95	0.98	0.73	0.71	76	73	58-125	2	30	
Benzo(b)fluoranthene	ug/L	ND	0.95	0.98	0.62	0.60	65	61	51-125	2	30	
Benzo(g,h,i)perylene	ug/L	ND	0.95	0.98	0.64	0.62	68	64	50-125	3	30	
Benzo(k)fluoranthene	ug/L	ND	0.95	0.98	0.77	0.76	81	78	52-125	1	30	
Chrysene	ug/L	ND	0.95	0.98	0.72	0.72	75	73	58-125	1	30	
Dibenz(a,h)anthracene	ug/L	ND	0.95	0.98	0.66	0.63	69	64	45-125	4	30	
Fluoranthene	ug/L	ND	0.95	0.98	0.80	0.81	84	82	60-125	1	30	
Fluorene	ug/L	0.11	0.95	0.98	0.86	0.89	79	79	47-125	3	30	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.95	0.98	0.65	0.63	69	64	48-125	4	30	
Naphthalene	ug/L	0.25	0.95	0.98	0.31	0.33	6	9	38-125	8	30	M1
Phenanthrene	ug/L	ND	0.95	0.98	0.81	0.82	85	84	60-125	2	30	
Pyrene	ug/L	0.032J	0.95	0.98	0.74	0.76	74	74	62-125	3	30	
2-Fluorobiphenyl (S)	%.						81	79	47-125			
p-Terphenyl-d14 (S)	%.						79	81	62-125			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491887

QC Batch: 633289 Analysis Method: NWTPH-Dx
QC Batch Method: EPA Mod. 3510C Analysis Description: NWTPH-Dx GCS LV SG
Associated Lab Samples: 10491887002, 10491887003, 10491887004, 10491887005

METHOD BLANK: 3414184 Matrix: Water
Associated Lab Samples: 10491887002, 10491887003, 10491887004, 10491887005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Fuel Range SG	mg/L	ND	0.40	09/23/19 19:05	
Motor Oil Range SG	mg/L	ND	0.40	09/23/19 19:05	
n-Triacontane (S)	%.	84	50-150	09/23/19 19:05	
o-Terphenyl (S)	%.	66	50-150	09/23/19 19:05	

LABORATORY CONTROL SAMPLE: 3414185

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Fuel Range SG	mg/L	2	1.3	63	50-150	
Motor Oil Range SG	mg/L	2	1.4	72	50-150	
n-Triacontane (S)	%.			74	50-150	
o-Terphenyl (S)	%.			65	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3414186 3414187

Parameter	Units	10491887005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diesel Fuel Range SG	mg/L	3.2	2	2	4.7	7.3	77	209	50-150	43	30	M1,R1
Motor Oil Range SG	mg/L	0.22J	2	2	1.2	1.7	51	78	50-150	36	30	R1
n-Triacontane (S)	%.						54	68	50-150			
o-Terphenyl (S)	%.						55	76	50-150			

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491887

QC Batch: 633810 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 10491887002, 10491887003, 10491887004, 10491887005

METHOD BLANK: 3416948 Matrix: Water
Associated Lab Samples: 10491887002, 10491887003, 10491887004, 10491887005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	5.0	09/23/19 08:57	

LABORATORY CONTROL SAMPLE & LCSD: 3416949 3416950

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	42.0	42.2	105	106	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3416951 3416952

Parameter	Units	10491887005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	118	40	40	154	157	92	98	80-120	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3416953 3416954

Parameter	Units	10491769002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	80.5	40	40	121	120	101	98	80-120	1	20	

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491887

QC Batch: 633082 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 10491887002, 10491887003, 10491887004, 10491887005

METHOD BLANK: 3413252 Matrix: Water
Associated Lab Samples: 10491887002, 10491887003, 10491887004, 10491887005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.2	09/19/19 06:37	

LABORATORY CONTROL SAMPLE: 3413253

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	12.5	11.7	94	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3413254 3413255

Parameter	Units	10491887005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	42.2	12.5	12.5	45.2	46.4	24	34	90-110	3	20	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3413256 3413257

Parameter	Units	10491870007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	2.8	12.5	12.5	14.4	14.3	92	92	90-110	0	20	

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QUALITY CONTROL DATA

Project: 499738-Revised Report
Pace Project No.: 10491887

QC Batch: 633030 Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 10491887002, 10491887003, 10491887004, 10491887005

METHOD BLANK: 3412924 Matrix: Water
Associated Lab Samples: 10491887002, 10491887003, 10491887004, 10491887005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.10	09/18/19 16:23	FS

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QUALIFIERS

Project: 499738-Revised Report
Pace Project No.: 10491887

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

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TNI - The NELAC Institute.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

E	Analyte concentration exceeded the calibration range. The reported result is estimated.
FS	The sample was filtered in the laboratory prior to analysis.
G-	Early peaks present outside the GRO window.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 499738-Revised Report
Pace Project No.: 10491887

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10491887002	**PEO-MW-37-201909**	EPA Mod. 3510C	633289	NWTPH-Dx	634106
10491887003	**PEO-MW-35-201909**	EPA Mod. 3510C	633289	NWTPH-Dx	634106
10491887004	**PEO-MW-Z2-201909**	EPA Mod. 3510C	633289	NWTPH-Dx	634106
10491887005	**PEO-MW-30-201909**	EPA Mod. 3510C	633289	NWTPH-Dx	634106
10491887001	**Trip Blank**	NWTPH-Gx	633517		
10491887002	**PEO-MW-37-201909**	NWTPH-Gx	633517		
10491887003	**PEO-MW-35-201909**	NWTPH-Gx	633384		
10491887004	**PEO-MW-Z2-201909**	NWTPH-Gx	633384		
10491887005	**PEO-MW-30-201909**	NWTPH-Gx	633517		
10491887002	**PEO-MW-37-201909**	EPA 3010	633135	EPA 6010D	633943
10491887003	**PEO-MW-35-201909**	EPA 3010	633135	EPA 6010D	633943
10491887004	**PEO-MW-Z2-201909**	EPA 3010	633135	EPA 6010D	633943
10491887005	**PEO-MW-30-201909**	EPA 3010	633135	EPA 6010D	633943
10491887002	**PEO-MW-37-201909**	EPA 3020	633142	EPA 6020A	633949
10491887003	**PEO-MW-35-201909**	EPA 3020	633142	EPA 6020A	633949
10491887004	**PEO-MW-Z2-201909**	EPA 3020	633142	EPA 6020A	633949
10491887005	**PEO-MW-30-201909**	EPA 3020	633142	EPA 6020A	633949
10491887002	**PEO-MW-37-201909**	EPA Mod. 3510C	633029	EPA 8270 by SIM	633496
10491887003	**PEO-MW-35-201909**	EPA Mod. 3510C	633029	EPA 8270 by SIM	633496
10491887004	**PEO-MW-Z2-201909**	EPA Mod. 3510C	633029	EPA 8270 by SIM	633496
10491887005	**PEO-MW-30-201909**	EPA Mod. 3510C	633029	EPA 8270 by SIM	633496
10491887001	**Trip Blank**	EPA 8260B	633736		
10491887002	**PEO-MW-37-201909**	EPA 8260B	633674		
10491887003	**PEO-MW-35-201909**	EPA 8260B	633674		
10491887004	**PEO-MW-Z2-201909**	EPA 8260B	633674		
10491887005	**PEO-MW-30-201909**	EPA 8260B	633674		
10491887002	**PEO-MW-37-201909**	SM 2320B	633810		
10491887003	**PEO-MW-35-201909**	SM 2320B	633810		
10491887004	**PEO-MW-Z2-201909**	SM 2320B	633810		
10491887005	**PEO-MW-30-201909**	SM 2320B	633810		
10491887002	**PEO-MW-37-201909**	EPA 300.0	633082		
10491887003	**PEO-MW-35-201909**	EPA 300.0	633082		
10491887004	**PEO-MW-Z2-201909**	EPA 300.0	633082		
10491887005	**PEO-MW-30-201909**	EPA 300.0	633082		
10491887002	**PEO-MW-37-201909**	EPA 353.2	633030		
10491887003	**PEO-MW-35-201909**	EPA 353.2	633030		
10491887004	**PEO-MW-Z2-201909**	EPA 353.2	633030		
10491887005	**PEO-MW-30-201909**	EPA 353.2	633030		

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Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / WO# : 10491887

The Chain-of-Custody is a LEGAL DOCUME

10491887

Page: 1 of 1

Section A Required Client Information:

Company:	ERM
Address:	1050 SW 6th Ave, Suite 1650
	Portland, OR 97204
Email To:	rita.cooper@erm.com
Phone:	207-329-6320
Fax:	
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	Rita Cooper
Copy To:	
Purchase Order No.:	
Project Name:	
Project Number:	499738

Section C Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Julie Bowser
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: OR

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	GRO (NWTPH-Gx)	BTEX (SW8260C/SW8260C SIM)	VPH (NWTPH-VPH)	DRO (NWTPH-Dx)	Dissolved Metals (As, MN) (8020A)	Hardness (SM2340B)	SVOC (EPA 8270 SIM)	EPH (NWTPH-EPH)	Nitrate (EPA 353.2)	Total Alkalinity (SM 2320B)	Sulfate (EPA 300.0)	Nitrate + Nitrite	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Trip Blank	GW	G	9/17/19	7:00				4	-	-	-	X	-	-	-	-		2	2	X	-	-	-	-	-	-	-	-	-		w1
2	PEO-MW-37-201909	GW	G	9/17/19	8:25				19	X	X	X	X	-	-	-	-		3	3	3	2	1	X	2	2	1	1	X	1		w2
3	PEO-MW-35-201909	GW	G	9/17/19	9:25				19	X	X	X	X	-	-	-	-		3	3	3	2	1	X	2	2	1	1	X	1		w3
4	PEO-MW-Z2-201909	GW	G	9/17/19	9:30				19	X	X	X	X	-	-	-	-		3	3	3	2	1	X	2	2	1	1	X	1		w4
5	PEO-MW-30-201909	GW	G	9/17/19	12:10				57	X	X	X	X	-	-	-	-		9	9	9	6	3	X	6	6	3	3	X	3		ax MS/MSD
6																																
7																																
8																																
9																																
10																																
11																																
12																																

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[signature] / ERM	9/17/19	1500	[signature] PACE	9-18-19	830	1.6 0.4 0.3 0.0 0.7	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Joe [signature]

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 09/17/19

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-Feb-2007

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 23Aug2019 Page 1 of 1
	Document No.: F-MN-L-213-rev.29	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: ERM

Project #: WO#: 10491887

PM: JMT Due Date: 09/25/19

CLIENT: ERM-Oregon

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☐ Commercial See Exceptions ☑

Tracking Number:

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No **Biological Tissue Frozen?** ☐ Yes ☐ No ☒ N/A

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other: **Temp Blank?** ☑ Yes ☐ No

Thermometer: ☐ T1(0461) ☑ T2(1336) ☐ T3(0459) ☐ T4(0254) ☐ T5(0489) **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Note: Each West Virginia Sample must have temp taken (no temp blanks)

Temp should be above freezing to 6°C **Cooler Temp Read w/temp blank:** 1.6, 0.9, 0.3, 0.0, 0.7 °C

Correction Factor: true **Cooler Temp Corrected w/temp blank:** 1.6, 0.9, 0.3, 0.0, 0.7 °C

Average Corrected Temp (no temp blank only): ☑ See Exceptions ____ °C ☐ 1 Container

USDA Regulated Soil: (☑ N/A, water sample/Other:)

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No

Date/Initials of Person Examining Contents: RNC 9-18-19

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present and Filled Out?	☑ Yes	☐ No		1.
Chain of Custody Relinquished?	☑ Yes	☐ No		2.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	3.
Samples Arrived within Hold Time?	☑ Yes	☐ No		4.
Short Hold Time Analysis (<72 hr)?	☑ Yes	☐ No		5. ☐ Fecal Coliform ☐ HPC ☐ Total Coliform/E coli ☐ BOD/cBOD ☐ Hex Chrome ☐ Turbidity ☐ Nitrate ☑ Nitrite ☐ Orthophos ☐ Other
Rush Turn Around Time Requested?	☐ Yes	☑ No		6.
Sufficient Volume?	☑ Yes	☐ No		7.
Correct Containers Used?	☑ Yes	☐ No		8.
-Pace Containers Used?	☑ Yes	☐ No		
Containers Intact?	☑ Yes	☐ No		9.
Field Filtered Volume Received for Dissolved Tests?	☑ Yes	☐ No	☑ N/A	10. Field filtered metals - JMB 9/18/19 Is sediment visible in the dissolved container? ☐ Yes ☐ No
Is sufficient information available to reconcile the samples to the COC?	☑ Yes	☐ No		11. **If no, write ID/ Date/Time on Container Below:** **See Exception** ☐
Matrix: ☑ Water ☐ Soil ☐ Oil ☐ Other				
All containers needing acid/base preservation have been checked?	☑ Yes	☐ No	☐ N/A	12. Sample # 2-4: V1 2-4: V1 5: 3/3 5: 3/3
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	☑ Yes	☐ No	☐ N/A	☐ NaOH ☑ HNO_3 ☑ H_2SO_4 ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☑ Yes	☐ No	☐ N/A	Positive for Res. Chlorine? ☐ Yes ☐ No pH Paper Lot# **See Exception** ☐
				Res. Chlorine: 0-6 Roll 203619 / 0-6 Strip / 0-14 Strip
Headspace in VOA Vials (greater than 6mm)?	☐ Yes	☑ No	☐ N/A	13. **See Exception** ☐
Trip Blank Present?	☑ Yes	☐ No	☐ N/A	14. Pace Trip Blank Lot # (if purchased): 224/281
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☐ N/A	

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: Julie Ryan **Date:** 9/18/19

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers).

Labeled by: CEG (2)

Pace Analytical	Document Name: SCUR Exception Form – Coolers Above 6°C	Document Revised: 08Apr2019 Page 1 of 1
	Document No.: F-MN-C-298-Rev.02	Issuing Authority: Pace Minnesota Quality Office

During sample triage, this form is to be placed in each cooler that arrives above 6.0 degrees Celsius

SCUR Exceptions: **Workorder #:**

Out of Temp Sample IDs	Container Type	# of Containers

PM Notified? ☐Yes ☐No

If yes, indicate who was contacted/date/time.
If no, indicate reason why.

Multiple Cooler Project? ☐Yes ☐No
If you answered yes, fill out information to the left.

No Temp Blank

Read Temp	Corrected Temp	Average Temp

Tracking Number/Temperature	
4934 3732 9015	1.6
4934 3732 9026	0.9
4934 3732 9037	0.3
4934 3732 9004	0.0
4934 3732 9048	0.7

Other Issues

Issue Type: Sample ID	Container Type	# of Containers

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preserv.	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance after addition?	Initials
								☐Yes ☐No	
								☐Yes ☐No	
								☐Yes ☐No	
								☐Yes ☐No	

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Pace Analytical Minnesota
Julie Bowser
1700 Elm Street, Ste. 200
Minneapolis, MN 55414

RE: 499738
Work Order Number: 1909319

November 14, 2019

Attention Julie Bowser:

Fremont Analytical, Inc. received 5 sample(s) on 9/19/2019 for the analyses presented in the following report.

Extractable Petroleum Hydrocarbons by NWEPH
Volatile Petroleum Hydrocarbons by NWVPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *11/14/2019*

CLIENT: Pace Analytical Minnesota
Project: 499738
Work Order: 1909319

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1909319-001	Trip Blank	09/17/2019 7:00 AM	09/19/2019 11:29 AM
1909319-002	PEO-MW-37-201909	09/17/2019 8:25 AM	09/19/2019 11:29 AM
1909319-003	PEO-MW-35-201909	09/17/2019 9:25 AM	09/19/2019 11:29 AM
1909319-004	PEO-MW-Z2-201909	09/17/2019 9:30 AM	09/19/2019 11:29 AM
1909319-005	PEO-MW-30-201909	09/17/2019 12:10 PM	09/19/2019 11:29 AM