Pace Analytical Services, LLC
400 West Bethany Drive - Suite 190
Allen, TX 75013
(972)727-1123

January 02, 2019

Evan Wortman
Environmental Restoration, LLC
4870 Newport St.
Commerce City, CO 80022

RE: Project: FI Doyle Salvage
Pace Project No.: 75100227

Dear Evan Wortman:
Enclosed are the analytical results for sample(s) received by the laboratory on December 17, 2018. 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.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Amy Bryant
amy.bryant@pacelabs.com
(972)727-1123
Project Manager

Enclosures

cc: Don Edgington, Environmental Restoration, LLC

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CERTIFICATIONS

Project:	FI Doyle Salvage
Pace Project No.:	75100227

Dallas Certification IDs:

400 West Bethany Dr Suite 190, Allen, TX 75013
Florida Certification #: E871118
EPA# TX00074
Texas Certification #: T104704232-18-26
Kansas Certification #: E-10388
Arkansas Certification #: 88-0647
Oklahoma Certification #: 8727
Louisiana Certification #: 30686
Iowa Certification #: 408

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SAMPLE SUMMARY

Project: FI Doyle Salvage
Pace Project No.: 75100227

Lab ID	Sample ID	Matrix	Date Collected	Date Received
75100227001	**FIDoyle-Organic Liquids**	Non Aqueous	12/17/18 11:15	12/17/18 12:25

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SAMPLE ANALYTE COUNT

Project: FI Doyle Salvage
Pace Project No.: 75100227

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
75100227001	**FIDoyle-Organic Liquids**	EPA 8082	DAT	8	PASI-D
		EPA 6010	SAM1	22	PASI-D
		EPA 7471	NCC	1	PASI-D
		EPA 8270	XLY	69	PASI-D
		EPA 1010	LVH	1	PASI-D

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ANALYTICAL RESULTS

Project: FI Doyle Salvage
Pace Project No.: 75100227

Sample: FIDoyle-Organic Liquids **Lab ID: 75100227001** Collected: 12/17/18 11:15 Received: 12/17/18 12:25 Matrix: Non Aqueous Liquid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB	Analytical Method: EPA 8082 Preparation Method: EPA 3580							
PCB-1016 (Aroclor 1016)	ND	mg/kg	0.50	5	12/24/18 19:45	12/27/18 16:10	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	mg/kg	0.50	5	12/24/18 19:45	12/27/18 16:10	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	mg/kg	0.50	5	12/24/18 19:45	12/27/18 16:10	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	mg/kg	0.50	5	12/24/18 19:45	12/27/18 16:10	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	mg/kg	0.50	5	12/24/18 19:45	12/27/18 16:10	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	mg/kg	0.50	5	12/24/18 19:45	12/27/18 16:10	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	mg/kg	0.50	5	12/24/18 19:45	12/27/18 16:10	11096-82-5	
Surrogates								
Decachlorobiphenyl (S)	68	%.	10-148	5	12/24/18 19:45	12/27/18 16:10	2051-24-3	
6010 Metals, Total	Analytical Method: EPA 6010 Preparation Method: EPA 3050							
Aluminum	ND	mg/kg	487	1	12/19/18 09:08	12/19/18 17:42	7429-90-5	
Antimony	ND	mg/kg	0.97	1	12/19/18 09:08	12/19/18 17:42	7440-36-0	
Arsenic	ND	mg/kg	0.97	1	12/19/18 09:08	12/19/18 17:42	7440-38-2	
Barium	**9.1**	mg/kg	1.9	2	12/19/18 09:08	12/19/18 16:20	7440-39-3	
Beryllium	ND	mg/kg	0.049	1	12/19/18 09:08	12/19/18 17:42	7440-41-7	
Cadmium	ND	mg/kg	0.49	1	12/19/18 09:08	12/19/18 17:42	7440-43-9	
Calcium	ND	mg/kg	974	2	12/19/18 09:08	12/19/18 16:20	7440-70-2	
Chromium	ND	mg/kg	0.24	1	12/19/18 09:08	12/19/18 17:42	7440-47-3	
Cobalt	ND	mg/kg	0.49	1	12/19/18 09:08	12/19/18 17:42	7440-48-4	
Copper	**5.9**	mg/kg	1.5	2	12/19/18 09:08	12/19/18 16:20	7440-50-8	
Iron	**109**	mg/kg	97.4	2	12/19/18 09:08	12/19/18 16:20	7439-89-6	
Lead	**2.2**	mg/kg	0.97	2	12/19/18 09:08	12/19/18 16:20	7439-92-1	
Magnesium	ND	mg/kg	487	1	12/19/18 09:08	12/19/18 17:42	7439-95-4	
Manganese	ND	mg/kg	4.9	1	12/19/18 09:08	12/19/18 17:42	7439-96-5	
Nickel	ND	mg/kg	0.49	1	12/19/18 09:08	12/19/18 17:42	7440-02-0	
Potassium	ND	mg/kg	487	1	12/19/18 09:08	12/19/18 17:42	7440-09-7	
Selenium	ND	mg/kg	0.97	1	12/19/18 09:08	12/19/18 17:42	7782-49-2	
Silver	ND	mg/kg	0.19	1	12/19/18 09:08	12/19/18 17:42	7440-22-4	
Sodium	ND	mg/kg	487	1	12/19/18 09:08	12/19/18 17:42	7440-23-5	N2
Thallium	ND	mg/kg	0.78	1	12/19/18 09:08	12/19/18 17:42	7440-28-0	
Vanadium	ND	mg/kg	0.49	1	12/19/18 09:08	12/19/18 17:42	7440-62-2	
Zinc	**168**	mg/kg	9.7	2	12/19/18 09:08	12/19/18 16:20	7440-66-6	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471							
Mercury	ND	mg/kg	0.0065	1	12/19/18 14:50	12/20/18 17:28	7439-97-6	
8270 MSSV Oil	Analytical Method: EPA 8270 Preparation Method: EPA 3580							
Acenaphthene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	83-32-9	
Acenaphthylene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	208-96-8	
Acetophenone	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	98-86-2	
Anthracene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	120-12-7	
Atrazine	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 17:25	1912-24-9	N2
Benzo(a)anthracene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	56-55-3	
Benzo(a)pyrene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	50-32-8	

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ANALYTICAL RESULTS

Project: FI Doyle Salvage
Pace Project No.: 75100227

Sample: FIDoyle-Organic Liquids **Lab ID: 75100227001** Collected: 12/17/18 11:15 Received: 12/17/18 12:25 Matrix: Non Aqueous Liquid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Oil	Analytical Method: EPA 8270 Preparation Method: EPA 3580							
Benzo(b)fluoranthene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	207-08-9	
Biphenyl (Diphenyl)	**39600**	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	92-52-4	
4-Bromophenylphenyl ether	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	101-55-3	
Butylbenzylphthalate	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	85-68-7	
Carbazole	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	59-50-7	
4-Chloroaniline	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	108-60-1	
2-Chloronaphthalene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	91-58-7	
2-Chlorophenol	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	7005-72-3	
Chrysene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	53-70-3	
Dibenzofuran	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	132-64-9	
3,3'-Dichlorobenzidine	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	120-83-2	
Diethylphthalate	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	105-67-9	
Dimethylphthalate	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	131-11-3	
Di-n-butylphthalate	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	606-20-2	
Di-n-octylphthalate	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	117-81-7	
Fluoranthene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	206-44-0	
Fluorene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	87-68-3	
Hexachlorobenzene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	118-74-1	
Hexachlorocyclopentadiene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	77-47-4	
Hexachloroethane	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	193-39-5	
Isophorone	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	78-59-1	
2-Methylnaphthalene	**175000**	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33		
Naphthalene	**112000**	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	91-20-3	
2-Nitroaniline	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	88-74-4	
3-Nitroaniline	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	99-09-2	
4-Nitroaniline	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	100-01-6	

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ANALYTICAL RESULTS

Project: FI Doyle Salvage
Pace Project No.: 75100227

Sample: FIDoyle-Organic Liquids **Lab ID: 75100227001** Collected: 12/17/18 11:15 Received: 12/17/18 12:25 Matrix: Non Aqueous Liquid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Oil	Analytical Method: EPA 8270 Preparation Method: EPA 3580							
Nitrobenzene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	98-95-3	
2-Nitrophenol	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	88-75-5	
4-Nitrophenol	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	100-02-7	
N-Nitroso-di-n-propylamine	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	86-30-6	
Pentachlorophenol	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	87-86-5	
Phenanthrene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	85-01-8	
Phenol	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	108-95-2	
Pyrene	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	129-00-0	
2,4,5-Trichlorophenol	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	95-95-4	
2,4,6-Trichlorophenol	ND	ug/kg	2860	1	12/21/18 12:00	12/31/18 11:33	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	116	%.	40-140	1	12/21/18 12:00	12/31/18 11:33	4165-60-0	
2-Fluorobiphenyl (S)	116	%.	40-140	1	12/21/18 12:00	12/31/18 11:33	321-60-8	
p-Terphenyl-d14 (S)	89	%.	40-140	1	12/21/18 12:00	12/31/18 11:33	1718-51-0	
Phenol-d6 (S)	109	%.	40-140	1	12/21/18 12:00	12/31/18 11:33	13127-88-3	
2-Fluorophenol (S)	114	%.	40-140	1	12/21/18 12:00	12/31/18 11:33	367-12-4	
2,4,6-Tribromophenol (S)	152	%.	40-140	1	12/21/18 12:00	12/31/18 11:33	118-79-6	S0
1010 Flashpoint,Closed Cup	Analytical Method: EPA 1010							
Flashpoint	**>158**	deg F	32.9	1		12/18/18 14:09		

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QUALITY CONTROL DATA

Project: FI Doyle Salvage
Pace Project No.: 75100227

QC Batch: 109613 | Analysis Method: EPA 7471
QC Batch Method: EPA 7471 | Analysis Description: 7471 Mercury
Associated Lab Samples: 75100227001

METHOD BLANK: 493532 | Matrix: Solid
Associated Lab Samples: 75100227001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	ND	0.0070	12/20/18 16:59	

LABORATORY CONTROL SAMPLE: 493533

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	0.05	0.054	108	84-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 493534 493535

Parameter	Units	75100253001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	0.013	0.059	0.058	0.069	0.069	96	97	80-120	1	20	

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: FI Doyle Salvage
Pace Project No.: 75100227

QC Batch: 109534 | Analysis Method: EPA 6010
QC Batch Method: EPA 3050 | Analysis Description: 6010 MET
Associated Lab Samples: 75100227001

METHOD BLANK: 493206 | Matrix: Solid
Associated Lab Samples: 75100227001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	mg/kg	ND	150	12/19/18 12:41	
Antimony	mg/kg	ND	1.0	12/19/18 12:41	
Arsenic	mg/kg	ND	1.0	12/19/18 12:41	
Barium	mg/kg	ND	1.0	12/19/18 12:41	
Beryllium	mg/kg	ND	0.050	12/19/18 12:41	
Cadmium	mg/kg	ND	0.50	12/19/18 12:41	
Calcium	mg/kg	ND	150	12/19/18 12:41	
Chromium	mg/kg	ND	0.50	12/19/18 12:41	
Cobalt	mg/kg	ND	0.50	12/19/18 12:41	
Copper	mg/kg	ND	0.75	12/19/18 12:41	
Iron	mg/kg	ND	50.0	12/19/18 12:41	
Lead	mg/kg	ND	0.50	12/19/18 12:41	
Magnesium	mg/kg	ND	150	12/19/18 12:41	
Manganese	mg/kg	ND	5.0	12/19/18 12:41	
Nickel	mg/kg	ND	0.50	12/19/18 12:41	
Potassium	mg/kg	ND	150	12/19/18 12:41	
Selenium	mg/kg	ND	1.0	12/19/18 12:41	
Silver	mg/kg	ND	0.20	12/19/18 12:41	
Sodium	mg/kg	ND	150	12/19/18 12:41	N2
Thallium	mg/kg	ND	0.80	12/19/18 12:41	
Vanadium	mg/kg	ND	0.50	12/19/18 12:41	
Zinc	mg/kg	ND	5.0	12/19/18 12:41	

LABORATORY CONTROL SAMPLE: 493207

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	mg/kg	500	500	100	78-117	
Antimony	mg/kg	50	44.9	90	77-113	
Arsenic	mg/kg	50	43.2	86	75-109	
Barium	mg/kg	50	47.1	94	80-116	
Beryllium	mg/kg	50	52.6	105	76-122	
Cadmium	mg/kg	50	45.3	91	77-111	
Calcium	mg/kg	500	516	103	78-122	
Chromium	mg/kg	50	49.9	100	81-121	
Cobalt	mg/kg	50	48.1	96	80-120	
Copper	mg/kg	50	48.2	96	78-117	
Iron	mg/kg	500	510	102	78-121	
Lead	mg/kg	50	46.8	94	76-116	
Magnesium	mg/kg	500	519	104	76-113	
Manganese	mg/kg	50	50.8	102	83-118	

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: FI Doyle Salvage
Pace Project No.: 75100227

LABORATORY CONTROL SAMPLE: 493207

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nickel	mg/kg	50	47.9	96	79-115	
Potassium	mg/kg	500	478	96	78-113	
Selenium	mg/kg	50	43.2	86	77-112	
Silver	mg/kg	25	23.4	94	78-109	
Sodium	mg/kg	500	487	97	79-118	N2
Thallium	mg/kg	50	46.1	92	75-112	
Vanadium	mg/kg	50	49.8	100	75-119	
Zinc	mg/kg	50	50.3	101	81-117	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 493208 493209

Parameter	Units	75100253001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	mg/kg	13300	608	608	18800	19700	905	1040	10-200	4	20	M1
Antimony	mg/kg	ND	60.8	60.8	9.9	9.6	16	16	10-120	3	20	
Arsenic	mg/kg	3.5	60.8	60.8	46.6	48.6	71	74	29-128	4	20	
Barium	mg/kg	86.6	60.8	60.8	131	138	73	85	10-200	6	20	
Beryllium	mg/kg	0.60	60.8	60.8	50.7	51.5	82	84	53-123	2	20	
Cadmium	mg/kg	0.25J	60.8	60.8	41.1	42.0	67	69	37-120	2	20	
Calcium	mg/kg	40100	608	608	37500	43500	-418	561	10-200	15	20	M1
Chromium	mg/kg	9.4	60.8	60.8	59.4	61.5	82	86	38-137	4	20	
Cobalt	mg/kg	4.2	60.8	60.8	47.8	49.0	72	74	56-119	2	20	
Copper	mg/kg	9.3	60.8	60.8	56.6	58.3	78	81	47-130	3	20	
Iron	mg/kg	10100	608	608	12400	12900	384	466	10-200	4	20	M1
Lead	mg/kg	7.3	60.8	60.8	49.9	51.1	70	72	17-138	2	20	
Magnesium	mg/kg	4310	608	608	5600	5800	212	246	10-200	4	20	M1
Manganese	mg/kg	233	60.8	60.8	299	304	109	117	10-200	2	20	
Nickel	mg/kg	10.6	60.8	60.8	55.0	56.7	73	76	40-123	3	20	
Potassium	mg/kg	4350	608	608	5890	6060	252	281	10-200	3	20	M1
Selenium	mg/kg	ND	60.8	60.8	37.4	38.2	62	63	29-112	2	20	
Silver	mg/kg	ND	30.4	30.4	22.9	23.5	75	77	35-129	2	20	
Sodium	mg/kg	454	608	608	883	906	71	74	32-146	3	20	N2
Thallium	mg/kg	ND	60.8	60.8	32.8	32.9	54	54	25-128	1	20	
Vanadium	mg/kg	14.9	60.8	60.8	66.3	69.9	85	90	53-132	5	20	
Zinc	mg/kg	37.9	60.8	60.8	90.6	91.0	87	87	10-177	0	20	

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(972)727-1123

QUALITY CONTROL DATA

Project: FI Doyle Salvage
Pace Project No.: 75100227

QC Batch: 109832 | Analysis Method: EPA 8082
QC Batch Method: EPA 3580 | Analysis Description: 8082 GCS PCB Oil
Associated Lab Samples: 75100227001

METHOD BLANK: 494537 | Matrix: Non Aqueous Liquid
Associated Lab Samples: 75100227001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	mg/kg	ND	0.10	12/27/18 13:28	
PCB-1221 (Aroclor 1221)	mg/kg	ND	0.10	12/27/18 13:28	
PCB-1232 (Aroclor 1232)	mg/kg	ND	0.10	12/27/18 13:28	
PCB-1242 (Aroclor 1242)	mg/kg	ND	0.10	12/27/18 13:28	
PCB-1248 (Aroclor 1248)	mg/kg	ND	0.10	12/27/18 13:28	
PCB-1254 (Aroclor 1254)	mg/kg	ND	0.10	12/27/18 13:28	
PCB-1260 (Aroclor 1260)	mg/kg	ND	0.10	12/27/18 13:28	
Decachlorobiphenyl (S)	%.	76	10-148	12/27/18 13:28	

LABORATORY CONTROL SAMPLE: 494538

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	mg/kg	20	13.9	70	65-154	
PCB-1260 (Aroclor 1260)	mg/kg	20	14.6	73	64-151	
Decachlorobiphenyl (S)	%.			64	10-148	

MATRIX SPIKE SAMPLE: 494539

Parameter	Units	75100549001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	mg/kg	ND	20	12.8	64	65-154	M1
PCB-1260 (Aroclor 1260)	mg/kg	ND	20	8.5	42	64-151	M1
Decachlorobiphenyl (S)	%.				48	10-148	

SAMPLE DUPLICATE: 494540

Parameter	Units	75100549001 Result	Dup Result	RPD	Max RPD	Qualifiers
PCB-1016 (Aroclor 1016)	mg/kg	ND	ND		20	
PCB-1221 (Aroclor 1221)	mg/kg	ND	ND		20	
PCB-1232 (Aroclor 1232)	mg/kg	ND	ND		20	
PCB-1242 (Aroclor 1242)	mg/kg	ND	ND		20	
PCB-1248 (Aroclor 1248)	mg/kg	ND	ND		20	
PCB-1254 (Aroclor 1254)	mg/kg	ND	ND		20	
PCB-1260 (Aroclor 1260)	mg/kg	ND	ND		20	
Decachlorobiphenyl (S)	%.	52	51	1		

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QUALITY CONTROL DATA

Project: FI Doyle Salvage
Pace Project No.: 75100227

QC Batch: 109753 | Analysis Method: EPA 8270
QC Batch Method: EPA 3580 | Analysis Description: 8270 Oil MSSV
Associated Lab Samples: 75100227001

METHOD BLANK: 494228 | Matrix: Non Aqueous Liquid
Associated Lab Samples: 75100227001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,4,5-Trichlorophenol	ug/kg	ND	3000	12/31/18 10:24	
2,4,6-Trichlorophenol	ug/kg	ND	3000	12/31/18 10:24	
2,4-Dichlorophenol	ug/kg	ND	3000	12/31/18 10:24	
2,4-Dimethylphenol	ug/kg	ND	3000	12/31/18 10:24	
2,4-Dinitrophenol	ug/kg	ND	3000	12/31/18 10:24	
2,4-Dinitrotoluene	ug/kg	ND	3000	12/31/18 10:24	
2,6-Dinitrotoluene	ug/kg	ND	3000	12/31/18 10:24	
2-Chloronaphthalene	ug/kg	ND	3000	12/31/18 10:24	
2-Chlorophenol	ug/kg	ND	3000	12/31/18 10:24	
2-Methylnaphthalene	ug/kg	ND	3000	12/31/18 10:24	
2-Methylphenol(o-Cresol)	ug/kg	ND	3000	12/31/18 10:24	
2-Nitroaniline	ug/kg	ND	3000	12/31/18 10:24	
2-Nitrophenol	ug/kg	ND	3000	12/31/18 10:24	
3&4-Methylphenol(m&p Cresol)	ug/kg	ND	3000	12/31/18 10:24	
3,3'-Dichlorobenzidine	ug/kg	ND	3000	12/31/18 10:24	
3-Nitroaniline	ug/kg	ND	3000	12/31/18 10:24	
4,6-Dinitro-2-methylphenol	ug/kg	ND	3000	12/31/18 10:24	
4-Bromophenylphenyl ether	ug/kg	ND	3000	12/31/18 10:24	
4-Chloro-3-methylphenol	ug/kg	ND	3000	12/31/18 10:24	
4-Chloroaniline	ug/kg	ND	3000	12/31/18 10:24	
4-Chlorophenylphenyl ether	ug/kg	ND	3000	12/31/18 10:24	
4-Nitroaniline	ug/kg	ND	3000	12/31/18 10:24	
4-Nitrophenol	ug/kg	ND	3000	12/31/18 10:24	
Acenaphthene	ug/kg	ND	3000	12/31/18 10:24	
Acenaphthylene	ug/kg	ND	3000	12/31/18 10:24	
Acetophenone	ug/kg	ND	3000	12/31/18 10:24	
Anthracene	ug/kg	ND	3000	12/31/18 10:24	
Atrazine	ug/kg	ND	3000	12/31/18 16:02	N2
Benzo(a)anthracene	ug/kg	ND	3000	12/31/18 10:24	
Benzo(a)pyrene	ug/kg	ND	3000	12/31/18 10:24	
Benzo(b)fluoranthene	ug/kg	ND	3000	12/31/18 10:24	
Benzo(g,h,i)perylene	ug/kg	ND	3000	12/31/18 10:24	
Benzo(k)fluoranthene	ug/kg	ND	3000	12/31/18 10:24	
Biphenyl (Diphenyl)	ug/kg	ND	3000	12/31/18 10:24	
bis(2-Chloroethoxy)methane	ug/kg	ND	3000	12/31/18 10:24	
bis(2-Chloroethyl) ether	ug/kg	ND	3000	12/31/18 10:24	
bis(2-Chloroisopropyl) ether	ug/kg	ND	3000	12/31/18 10:24	
bis(2-Ethylhexyl)phthalate	ug/kg	ND	3000	12/31/18 10:24	
Butylbenzylphthalate	ug/kg	ND	3000	12/31/18 10:24	
Carbazole	ug/kg	ND	3000	12/31/18 10:24	
Chrysene	ug/kg	ND	3000	12/31/18 10:24	

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QUALITY CONTROL DATA

Project: FI Doyle Salvage
Pace Project No.: 75100227

METHOD BLANK: 494228 Matrix: Non Aqueous Liquid
Associated Lab Samples: 75100227001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Di-n-butylphthalate	ug/kg	ND	3000	12/31/18 10:24	
Di-n-octylphthalate	ug/kg	ND	3000	12/31/18 10:24	
Dibenz(a,h)anthracene	ug/kg	ND	3000	12/31/18 10:24	
Dibenzofuran	ug/kg	ND	3000	12/31/18 10:24	
Diethylphthalate	ug/kg	ND	3000	12/31/18 10:24	
Dimethylphthalate	ug/kg	ND	3000	12/31/18 10:24	
Fluoranthene	ug/kg	ND	3000	12/31/18 10:24	
Fluorene	ug/kg	ND	3000	12/31/18 10:24	
Hexachloro-1,3-butadiene	ug/kg	ND	3000	12/31/18 10:24	
Hexachlorobenzene	ug/kg	ND	3000	12/31/18 10:24	
Hexachlorocyclopentadiene	ug/kg	ND	3000	12/31/18 10:24	
Hexachloroethane	ug/kg	ND	3000	12/31/18 10:24	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	3000	12/31/18 10:24	
Isophorone	ug/kg	ND	3000	12/31/18 10:24	
N-Nitroso-di-n-propylamine	ug/kg	ND	3000	12/31/18 10:24	
N-Nitrosodiphenylamine	ug/kg	ND	3000	12/31/18 10:24	
Naphthalene	ug/kg	ND	3000	12/31/18 10:24	
Nitrobenzene	ug/kg	ND	3000	12/31/18 10:24	
Pentachlorophenol	ug/kg	ND	3000	12/31/18 10:24	
Phenanthrene	ug/kg	ND	3000	12/31/18 10:24	
Phenol	ug/kg	ND	3000	12/31/18 10:24	
Pyrene	ug/kg	ND	3000	12/31/18 10:24	
2,4,6-Tribromophenol (S)	%.	109	40-140	12/31/18 10:24	
2-Fluorobiphenyl (S)	%.	123	40-140	12/31/18 10:24	
2-Fluorophenol (S)	%.	105	40-140	12/31/18 10:24	
Nitrobenzene-d5 (S)	%.	103	40-140	12/31/18 10:24	
p-Terphenyl-d14 (S)	%.	96	40-140	12/31/18 10:24	
Phenol-d6 (S)	%.	111	40-140	12/31/18 10:24	

LABORATORY CONTROL SAMPLE: 494229

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4,5-Trichlorophenol	ug/kg	50000	53900	108	40-140	
2,4,6-Trichlorophenol	ug/kg	50000	59000	118	40-140	
2,4-Dichlorophenol	ug/kg	50000	56200	112	40-140	
2,4-Dimethylphenol	ug/kg	50000	54200	108	40-140	
2,4-Dinitrophenol	ug/kg	50000	34300	69	10-140	
2,4-Dinitrotoluene	ug/kg	50000	56700	113	40-140	
2,6-Dinitrotoluene	ug/kg	50000	56600	113	40-140	
2-Chloronaphthalene	ug/kg	50000	60800	122	40-140	
2-Chlorophenol	ug/kg	50000	57300	115	10-140	
2-Methylnaphthalene	ug/kg	50000	59000	118	40-140	
2-Methylphenol(o-Cresol)	ug/kg	50000	55700	111	10-140	
2-Nitroaniline	ug/kg	50000	67600	135	40-140	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: FI Doyle Salvage
Pace Project No.: 75100227

LABORATORY CONTROL SAMPLE: 494229

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2-Nitrophenol	ug/kg	50000	64300	129	40-140	
3&4-Methylphenol(m&p Cresol)	ug/kg	50000	50700	101	10-140	
3,3'-Dichlorobenzidine	ug/kg	100000	102000	102	10-140	
3-Nitroaniline	ug/kg	50000	51000	102	40-140	
4,6-Dinitro-2-methylphenol	ug/kg	50000	52600	105	40-140	
4-Bromophenylphenyl ether	ug/kg	50000	64200	128	40-140	
4-Chloro-3-methylphenol	ug/kg	50000	52800	106	40-140	
4-Chloroaniline	ug/kg	50000	41500	83	40-140	
4-Chlorophenylphenyl ether	ug/kg	50000	54400	109	40-140	
4-Nitroaniline	ug/kg	50000	44900	90	40-140	
4-Nitrophenol	ug/kg	50000	54000	108	10-140	
Acenaphthene	ug/kg	50000	58300	117	40-140	
Acenaphthylene	ug/kg	50000	62600	125	40-140	
Acetophenone	ug/kg	50000	62300	125	40-140	
Anthracene	ug/kg	50000	57600	115	40-140	
Atrazine	ug/kg	50000	55600	111	40-140	N2
Benzo(a)anthracene	ug/kg	50000	55900	112	40-140	
Benzo(a)pyrene	ug/kg	50000	56100	112	40-140	
Benzo(b)fluoranthene	ug/kg	50000	53300	107	40-140	
Benzo(g,h,i)perylene	ug/kg	50000	55500	111	40-140	
Benzo(k)fluoranthene	ug/kg	50000	53700	107	40-140	
Biphenyl (Diphenyl)	ug/kg	50000	62200	124	40-140	
bis(2-Chloroethoxy)methane	ug/kg	50000	53800	108	40-140	
bis(2-Chloroethyl) ether	ug/kg	50000	54100	108	40-140	
bis(2-Chloroisopropyl) ether	ug/kg	50000	51300	103	10-140	
bis(2-Ethylhexyl)phthalate	ug/kg	50000	65800	132	40-140	
Butylbenzylphthalate	ug/kg	50000	58400	117	40-140	
Carbazole	ug/kg	50000	55500	111	40-140	
Chrysene	ug/kg	50000	54600	109	40-140	
Di-n-butylphthalate	ug/kg	50000	59100	118	40-140	
Di-n-octylphthalate	ug/kg	50000	63700	127	40-140	
Dibenz(a,h)anthracene	ug/kg	50000	55600	111	40-140	
Dibenzofuran	ug/kg	50000	56400	113	40-140	
Diethylphthalate	ug/kg	50000	68900	138	40-140	
Dimethylphthalate	ug/kg	50000	57700	115	40-140	
Fluoranthene	ug/kg	50000	52100	104	40-140	
Fluorene	ug/kg	50000	54900	110	40-140	
Hexachloro-1,3-butadiene	ug/kg	50000	63800	128	40-140	
Hexachlorobenzene	ug/kg	50000	67900	136	40-140	
Hexachlorocyclopentadiene	ug/kg	50000	60200	120	10-140	
Hexachloroethane	ug/kg	50000	56900	114	40-140	
Indeno(1,2,3-cd)pyrene	ug/kg	50000	56300	113	40-140	
Isophorone	ug/kg	50000	60800	122	40-140	
N-Nitroso-di-n-propylamine	ug/kg	50000	59800	120	40-140	
N-Nitrosodiphenylamine	ug/kg	50000	50000	100	40-140	
Naphthalene	ug/kg	50000	57100	114	40-140	
Nitrobenzene	ug/kg	50000	57100	114	40-140	

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QUALITY CONTROL DATA

Project: FI Doyle Salvage
Pace Project No.: 75100227

LABORATORY CONTROL SAMPLE: 494229

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Pentachlorophenol	ug/kg	50000	22500	45	10-140	
Phenanthrene	ug/kg	50000	57000	114	40-140	
Phenol	ug/kg	50000	53600	107	10-140	
Pyrene	ug/kg	50000	50400	101	40-140	
2,4,6-Tribromophenol (S)	%.			129	40-140	
2-Fluorobiphenyl (S)	%.			132	40-140	
2-Fluorophenol (S)	%.			109	40-140	
Nitrobenzene-d5 (S)	%.			110	40-140	
p-Terphenyl-d14 (S)	%.			99	40-140	
Phenol-d6 (S)	%.			112	40-140	

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QUALITY CONTROL DATA

Project: FI Doyle Salvage
Pace Project No.: 75100227

QC Batch: 109484 | Analysis Method: EPA 1010
QC Batch Method: EPA 1010 | Analysis Description: 1010 Flash Point, Closed Cup
Associated Lab Samples: 75100227001

METHOD BLANK: 492931 | Matrix: Water
Associated Lab Samples: 75100227001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Flashpoint	deg F	>158	32.9	12/18/18 10:14	

LABORATORY CONTROL SAMPLE: 492932

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Flashpoint	deg F		81.38			

SAMPLE DUPLICATE: 492933

Parameter	Units	75100061002 Result	Dup Result	RPD	Max RPD	Qualifiers
Flashpoint	deg F	>158	>158			

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QUALIFIERS

Project: FI Doyle Salvage
Pace Project No.: 75100227

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-D	Pace Analytical Services - Dallas

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
N2	The lab does not hold NELAC/TNI accreditation for this parameter.
S0	Surrogate recovery outside laboratory control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: FI Doyle Salvage
Pace Project No.: 75100227

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
75100227001	**FIDoyle-Organic Liquids**	EPA 3580	109832	EPA 8082	109922
75100227001	**FIDoyle-Organic Liquids**	EPA 3050	109534	EPA 6010	109602
75100227001	**FIDoyle-Organic Liquids**	EPA 7471	109613	EPA 7471	109678
75100227001	**FIDoyle-Organic Liquids**	EPA 3580	109753	EPA 8270	110038
75100227001	**FIDoyle-Organic Liquids**	EPA 1010	109484		

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Pace Analytical	Document Name: Sample Condition Upon Receipt	Document Revised: 2/28/18 Page 1 of 1
	Document No.: F-DAL-C-001-rev.08	Issuing Authority: Pace Dallas Quality Office

Sample Condition Upon Receipt

☑ Dallas ☐ Ft Worth

WO#: 75100227

75100227

Client Name: Environmental Restoration Project Work order:

Courier: FedEX ☐ UPS ☐ USPS ☐ Client ☑ LSO ☐ PACE ☐ Other: _____

Tracking #: _____

Custody Seal on Cooler/Box: Yes ☐ No ☑ **Seals Intact:** Yes ☐ No ☐ NA ☑

Packing Material: Bubble Wrap ☑ Bubble Bags ☑ Foam ☐ None ☐ Other ☐

Thermometer Used: TR-11 Type of Ice: Wet ☐ Blue ☑ None ☐ Sample Received on ice, cooling process has begun ☑

Cooler Temp °C: 14.7 (Recorded) +0.8 (Correction Factor) 15.5 (Actual) ☐ (Thermal preservation not required)

Temp should be above freezing to 6°C

Chain of Custody Present	Yes ☑ No ☐	1
Chain of Custody filled out	Yes ☑ No ☐	2
Chain of Custody relinquished	Yes ☑ No ☐	3
Sampler name & signature on COC	Yes ☑ No ☐	4
Sample received within HT	Yes ☑ No ☐	5
Short HT analyses (<72 hrs)	Yes ☑ No ☐	6
Rush TAT requested	Yes ☑ No ☐	7
Sufficient Volume received	Yes ☑ No ☐	8
Correct Container used Pace Container used	Yes ☑ No ☐ Yes ☑ No ☐	9
Container Intact	Yes ☑ No ☐	10
Unpreserved 5035A soil frozen within 48 hrs	Yes ☐ No ☐ NA ☑	11
Filtered volume received for Dissolved tests	Yes ☐ No ☐ NA ☑	12
Sample labels match COC Include date/time/ID/analyses Matrix: ~~W~~ OL JW 12/17/18	Yes ☑ No ☐	13
All containers needing preservation have been checked All found to be in Compliance with EPA recommendation (includes residual chlorine checks) **Exception**: VOA, coliform, O&G	Yes ☐ No ☐ NA ☑ Yes ☐ No ☐ NA ☑ Yes ☐ No ☑	14a. pH Strip Lot #: _____ Original pH: pH<2 ☐ pH>9 ☐ pH>12 ☐ Neutral ☐ Lot# of Iodine strip: _____ Lot# of Lead Acetate strip: _____
Do containers require preservation at the lab	Yes ☐ No ☑	14b. Preservation: Lot# and adjusted pH: pH<2 ☐ pH>9 ☐ pH>12 ☐
Are soil samples (volatiles) received in Bulk ☐ Terracore ☐ EnCore ☐ NA ☑		15.
Trip Blank present Trip Blank Custody Seals Intact Pace Trip Blank Lot# (if purchased):	Yes ☐ No ☐ NA ☑ Yes ☐ No ☐ NA ☑	16.
Headspace in VOA (>6mm)	Yes ☐ No ☐ NA ☑	17.
Project sampled in USDA Regulated Area:	Yes ☑ No ☐	18. List State TX

Triage Person: JW Date: 12/17/18 **Login Person:** JW Date: 12/17/18 **Labeling Person:** JW Date: 12/17/18

Client Notification/Resolution/Comments:

Person Contacted: _____ Date: _____

Comments/Resolution: _____

Project Manager Review: ADTS

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Pace Analytical

Page : 1 Of 1

Section A — Required Client Information:

Company: Environmental Restoration
Address: 1234
Allen, TX 75013
Email: APBoyc@ERLLC.COM
Phone: 636-227-7477 Fax:
Requested Due Date: ~~1/02/19~~ 12/27/19 DE

Section B — Required Project Information:

Report To: Evan Wortman
Copy To: DON EDDINGTON D.EDDINGTON@ERLLC.COM
Purchase Order #: F6-308
Project Name: F.J. DOYLE SALVAGE
Project #: ——

Section C — Invoice Information:

Attention: APBoyc@ERLLC.COM
Company Name: ENVIRONMENTAL RESTORATION LLC
Address: 1666 FABICK DRIVE - ST LOUIS, MO 63026
Pace Quote:
Pace Project Manager: amy.bryant@pacelabs.com,
Pace Profile #: 7113

Regulatory Agency
State / Location

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	PCB, sVOCs, Metals	VOCs	FLASH POINT	Residual Chlorine (Y/N)	
1	FJDoyle-Organic Liquids	P	C	12/7/18	10:55	12/7/18	11:15	52°	3										✓	✓	✓	N	-001
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

Matrix codes: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
TAL metals and TCL organics	Don Eddington	12/7/18	12:25	Jennifer Wagner / Pace	12/7/18	12:25	5.5	Y	N	X

WO#: 75100227
PM: ADB Due Date: 12/24/18
CLIENT: Env Restorat

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: DON W EDDINGTON
SIGNATURE of SAMPLER: Don W Eddington
DATE Signed: 12/17/18

TEMP in C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ANALYTICAL REPORT

December 27, 2018

Pace Analytical - Allen, TX

Sample Delivery Group:	L1054727
Samples Received:	12/19/2018
Project Number:	75100227
Description:	Fl Doyle Salvage
Report To:	Amy Bryant 400 W. Bethany Drive Suite 190 Allen, TX 75013

Entire Report Reviewed By:

Nancy F. McLain

Nancy McLain
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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FIDOYLE-ORGANIC LIQUIDS L1054727-01 Solid

Collected by	Collected date/time	Received date/time
	12/17/18 11:15	12/19/18 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1215970	40	12/20/18 08:49	12/27/18 06:13	DWR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1216295	400	12/20/18 08:49	12/27/18 11:55	ACG

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Nancy F. McLain

Nancy McLain
Project Manager

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	U	J4 J5	0.548	1.00	40	12/27/2018 06:13	WG1215970
Benzene	7.70		0.0160	0.0400	40	12/27/2018 06:13	WG1215970
Bromochloromethane	U		0.0452	0.200	40	12/27/2018 06:13	WG1215970
Bromodichloromethane	U		0.0315	0.100	40	12/27/2018 06:13	WG1215970
Bromoform	U		0.239	1.00	40	12/27/2018 06:13	WG1215970
Bromomethane	U		0.148	0.500	40	12/27/2018 06:13	WG1215970
Carbon disulfide	U	J3	0.162	0.500	40	12/27/2018 06:13	WG1215970
Carbon tetrachloride	U	J3	0.0432	0.200	40	12/27/2018 06:13	WG1215970
Chlorobenzene	0.181		0.0229	0.100	40	12/27/2018 06:13	WG1215970
Chlorodibromomethane	U		0.0180	0.100	40	12/27/2018 06:13	WG1215970
Chloroethane	U		0.0432	0.200	40	12/27/2018 06:13	WG1215970
Chloroform	U		0.0166	0.100	40	12/27/2018 06:13	WG1215970
Chloromethane	U	J4	0.0556	0.500	40	12/27/2018 06:13	WG1215970
Cyclohexane	2.84		0.0203	0.100	40	12/27/2018 06:13	WG1215970
1,2-Dibromo-3-Chloropropane	U		0.204	1.00	40	12/27/2018 06:13	WG1215970
1,2-Dibromoethane	U		0.0210	0.100	40	12/27/2018 06:13	WG1215970
Dichlorodifluoromethane	U	J3	0.0327	0.100	40	12/27/2018 06:13	WG1215970
1,1-Dichloroethane	U		0.0230	0.100	40	12/27/2018 06:13	WG1215970
1,2-Dichloroethane	U		0.0190	0.100	40	12/27/2018 06:13	WG1215970
1,2-Dichlorobenzene	U		0.0580	0.200	40	12/27/2018 06:13	WG1215970
1,3-Dichlorobenzene	U		0.0680	0.200	40	12/27/2018 06:13	WG1215970
1,4-Dichlorobenzene	U		0.0788	0.200	40	12/27/2018 06:13	WG1215970
1,1-Dichloroethene	U	J3	0.0200	0.100	40	12/27/2018 06:13	WG1215970
cis-1,2-Dichloroethene	U		0.0276	0.100	40	12/27/2018 06:13	WG1215970
trans-1,2-Dichloroethene	U		0.0572	0.200	40	12/27/2018 06:13	WG1215970
1,2-Dichloropropane	U		0.0508	0.200	40	12/27/2018 06:13	WG1215970
cis-1,3-Dichloropropene	U		0.0271	0.100	40	12/27/2018 06:13	WG1215970
trans-1,3-Dichloropropene	U		0.0612	0.200	40	12/27/2018 06:13	WG1215970
Ethylbenzene	63.4	V	0.0212	0.100	40	12/27/2018 06:13	WG1215970
2-Hexanone	U	J5	0.400	1.00	40	12/27/2018 06:13	WG1215970
Isopropylbenzene	14.1		0.0345	0.100	40	12/27/2018 06:13	WG1215970
2-Butanone (MEK)	U	J5	0.500	1.00	40	12/27/2018 06:13	WG1215970
Methyl Acetate	U		0.0840	0.200	40	12/27/2018 06:13	WG1215970
Methyl Cyclohexane	U	J5	0.0412	0.200	40	12/27/2018 06:13	WG1215970
Methylene Chloride	U		0.266	1.00	40	12/27/2018 06:13	WG1215970
4-Methyl-2-pentanone (MIBK)	U	J5	0.400	1.00	40	12/27/2018 06:13	WG1215970
Methyl tert-butyl ether	U		0.0118	0.0400	40	12/27/2018 06:13	WG1215970
Styrene	U		0.109	0.500	40	12/27/2018 06:13	WG1215970
1,1,2,2-Tetrachloroethane	U	J5	0.0156	0.100	40	12/27/2018 06:13	WG1215970
Tetrachloroethene	U		0.0280	0.100	40	12/27/2018 06:13	WG1215970
Toluene	169		0.500	2.00	400	12/27/2018 11:55	WG1216295
1,2,3-Trichlorobenzene	U		0.0250	0.100	40	12/27/2018 06:13	WG1215970
1,2,4-Trichlorobenzene	U		0.193	0.500	40	12/27/2018 06:13	WG1215970
1,1,1-Trichloroethane	U		0.0110	0.100	40	12/27/2018 06:13	WG1215970
1,1,2-Trichloroethane	2.82		0.0353	0.100	40	12/27/2018 06:13	WG1215970
Trichloroethene	U		0.0160	0.0400	40	12/27/2018 06:13	WG1215970
Trichlorofluoromethane	U	J3	0.0200	0.100	40	12/27/2018 06:13	WG1215970
1,1,2-Trichlorotrifluoroethane	U	J3	0.0270	0.100	40	12/27/2018 06:13	WG1215970
Vinyl chloride	U		0.0273	0.100	40	12/27/2018 06:13	WG1215970
Xylenes, Total	354		1.91	2.60	400	12/27/2018 11:55	WG1216295
(S) Toluene-d8	*115*			*75.0-131*		*12/27/2018 06:13*	WG1215970
(S) Toluene-d8	*114*			*75.0-131*		*12/27/2018 11:55*	WG1216295
(S) Dibromofluoromethane	*114*			*65.0-129*		*12/27/2018 06:13*	WG1215970
(S) Dibromofluoromethane	*110*			*65.0-129*		*12/27/2018 11:55*	WG1216295
(S) a,a,a-Trifluorotoluene	*103*			*80.0-120*		*12/27/2018 06:13*	WG1215970
(S) a,a,a-Trifluorotoluene	*105*			*80.0-120*		*12/27/2018 11:55*	WG1216295

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) 4-Bromofluorobenzene	*128*			*67.0-138*		*12/27/2018 06:13*	WG1215970
(S) 4-Bromofluorobenzene	*124*			*67.0-138*		*12/27/2018 11:55*	WG1216295

Method Blank (MB)

(MB) R3371466-2 12/26/18 23:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0137	0.0250
Benzene	U		0.000400	0.00100
Bromodichloromethane	U		0.000788	0.00250
Bromochloromethane	U		0.00113	0.00500
Bromoform	U		0.00598	0.0250
Bromomethane	U		0.00370	0.0125
Carbon disulfide	U		0.00406	0.0125
Carbon tetrachloride	U		0.00108	0.00500
Chlorobenzene	U		0.000573	0.00250
Chlorodibromomethane	U		0.000450	0.00250
Chloroethane	U		0.00108	0.00500
Chloroform	U		0.000415	0.00250
Chloromethane	U		0.00139	0.0125
Cyclohexane	U		0.000508	0.00250
1,2-Dibromo-3-Chloropropane	U		0.00510	0.0250
1,2-Dibromoethane	U		0.000525	0.00250
1,2-Dichlorobenzene	U		0.00145	0.00500
1,3-Dichlorobenzene	U		0.00170	0.00500
1,4-Dichlorobenzene	U		0.00197	0.00500
Dichlorodifluoromethane	U		0.000818	0.00250
1,1-Dichloroethane	U		0.000575	0.00250
1,2-Dichloroethane	U		0.000475	0.00250
1,1-Dichloroethene	U		0.000500	0.00250
cis-1,2-Dichloroethene	U		0.000690	0.00250
trans-1,2-Dichloroethene	U		0.00143	0.00500
1,2-Dichloropropane	U		0.00127	0.00500
cis-1,3-Dichloropropene	U		0.000678	0.00250
trans-1,3-Dichloropropene	U		0.00153	0.00500
Ethylbenzene	U		0.000530	0.00250
2-Hexanone	U		0.0100	0.0250
Isopropylbenzene	U		0.000863	0.00250
2-Butanone (MEK)	U		0.0125	0.0250
Methyl Acetate	U		0.00210	0.00500
Methyl Cyclohexane	U		0.00103	0.00500
Methylene Chloride	0.0151	J	0.00664	0.0250
4-Methyl-2-pentanone (MIBK)	U		0.0100	0.0250
Methyl tert-butyl ether	U		0.000295	0.00100
Styrene	U		0.00273	0.0125
1,1,2,2-Tetrachloroethane	U		0.000390	0.00250
Tetrachloroethene	U		0.000700	0.00250

Method Blank (MB)

(MB) R3371466-2 12/26/18 23:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
1,1,2-Trichlorotrifluoroethane	U		0.000675	0.00250
1,2,3-Trichlorobenzene	U		0.000625	0.00250
1,2,4-Trichlorobenzene	U		0.00482	0.0125
1,1,1-Trichloroethane	U		0.000275	0.00250
1,1,2-Trichloroethane	U		0.000883	0.00250
Trichloroethene	U		0.000400	0.00100
Trichlorofluoromethane	U		0.000500	0.00250
Vinyl chloride	U		0.000683	0.00250
(S) Toluene-d8	*116*			*75.0-131*
(S) Dibromofluoromethane	*100*			*65.0-129*
(S) a,a,a-Trifluorotoluene	*104*			*80.0-120*
(S) 4-Bromofluorobenzene	*121*			*67.0-138*

Laboratory Control Sample (LCS)

(LCS) R3371466-1 12/26/18 22:14

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acetone	0.625	1.18	189	10.0-160	J4
Benzene	0.125	0.133	107	70.0-123	
Bromodichloromethane	0.125	0.108	86.2	73.0-121	
Bromochloromethane	0.125	0.121	96.5	77.0-128	
Bromoform	0.125	0.117	93.4	64.0-132	
Bromomethane	0.125	0.0983	78.6	56.0-147	
Carbon disulfide	0.125	0.124	99.0	56.0-133	
Carbon tetrachloride	0.125	0.110	88.3	66.0-128	
Chlorobenzene	0.125	0.117	93.8	76.0-128	
Chlorodibromomethane	0.125	0.114	91.5	74.0-127	
Chloroethane	0.125	0.118	94.3	61.0-134	
Chloroform	0.125	0.118	94.7	72.0-123	
Chloromethane	0.125	0.175	140	51.0-138	J4
Cyclohexane	0.125	0.119	95.2	70.0-130	
1,2-Dibromo-3-Chloropropane	0.125	0.115	92.2	59.0-130	
1,2-Dibromoethane	0.125	0.121	96.9	74.0-128	
1,2-Dichlorobenzene	0.125	0.114	90.8	76.0-124	
1,3-Dichlorobenzene	0.125	0.114	91.5	76.0-125	
1,4-Dichlorobenzene	0.125	0.110	87.9	77.0-121	
Dichlorodifluoromethane	0.125	0.145	116	43.0-156	
1,1-Dichloroethane	0.125	0.133	106	70.0-127	

Laboratory Control Sample (LCS)

(LCS) R3371466-1 12/26/18 22:14

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,2-Dichloroethane	0.125	0.134	107	65.0-131	
1,1-Dichloroethene	0.125	0.134	107	65.0-131	
cis-1,2-Dichloroethene	0.125	0.133	107	73.0-125	
trans-1,2-Dichloroethene	0.125	0.119	95.1	71.0-125	
1,2-Dichloropropane	0.125	0.148	118	74.0-125	
cis-1,3-Dichloropropene	0.125	0.117	93.8	76.0-127	
trans-1,3-Dichloropropene	0.125	0.117	93.9	73.0-127	
Ethylbenzene	0.125	0.114	90.9	74.0-126	
2-Hexanone	0.625	0.819	131	54.0-147	
Isopropylbenzene	0.125	0.113	90.7	72.0-127	
2-Butanone (MEK)	0.625	0.937	150	30.0-160	
Methyl Acetate	0.625	0.812	130	43.0-158	
Methyl Cyclohexane	0.125	0.107	85.9	67.0-129	
Methylene Chloride	0.125	0.123	98.4	68.0-123	
4-Methyl-2-pentanone (MIBK)	0.625	0.862	138	56.0-143	
Methyl tert-butyl ether	0.125	0.119	95.2	66.0-132	
Styrene	0.125	0.116	92.4	72.0-127	
1,1,2,2-Tetrachloroethane	0.125	0.115	91.7	68.0-128	
Tetrachloroethene	0.125	0.112	89.4	70.0-136	
1,1,2-Trichlorotrifluoroethane	0.125	0.137	110	61.0-139	
1,2,3-Trichlorobenzene	0.125	0.105	83.8	59.0-139	
1,2,4-Trichlorobenzene	0.125	0.103	82.6	62.0-137	
1,1,1-Trichloroethane	0.125	0.117	93.7	69.0-126	
1,1,2-Trichloroethane	0.125	0.114	90.9	78.0-123	
Trichloroethene	0.125	0.121	96.6	76.0-126	
Trichlorofluoromethane	0.125	0.107	85.4	61.0-142	
Vinyl chloride	0.125	0.135	108	63.0-134	
(S) Toluene-d8		*113*	*75.0-131*		
(S) Dibromofluoromethane		*111*	*65.0-129*		
(S) a,a,a-Trifluorotoluene		*109*	*80.0-120*		
(S) 4-Bromofluorobenzene		*116*	*67.0-138*		

L1054727-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1054727-01 12/27/18 06:13 • (MS) R3371466-3 12/27/18 07:10 • (MSD) R3371466-4 12/27/18 07:28

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acetone	0.625	U	64.1	50.8	256	203	40	10.0-160	J5	J5	23.1	40
Benzene	0.125	7.70	12.9	14.3	104	133	40	10.0-149			10.7	37

L1054727-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1054727-01 12/27/18 06:13 • (MS) R3371466-3 12/27/18 07:10 • (MSD) R3371466-4 12/27/18 07:28

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bromodichloromethane	0.125	U	4.10	5.95	82.1	119	40	10.0-143			36.8	37
Bromochloromethane	0.125	U	4.46	4.76	89.3	95.3	40	10.0-155			6.53	33
Bromoform	0.125	U	4.89	5.11	97.9	102	40	10.0-146			4.22	36
Bromomethane	0.125	U	2.27	3.21	45.4	64.2	40	10.0-149			34.2	38
Carbon disulfide	0.125	U	1.57	2.36	31.5	47.2	40	10.0-145		J3	40.0	39
Carbon tetrachloride	0.125	U	3.21	4.82	64.1	96.3	40	10.0-145		J3	40.2	37
Chlorobenzene	0.125	0.181	4.37	5.22	83.7	101	40	10.0-152			17.9	39
Chlorodibromomethane	0.125	U	4.72	5.13	94.5	103	40	10.0-146			8.31	37
Chloroethane	0.125	U	2.98	4.05	59.6	80.9	40	10.0-146			30.3	40
Chloroform	0.125	U	4.40	5.53	88.0	111	40	10.0-146			22.8	37
Chloromethane	0.125	U	4.50	6.47	90.0	129	40	10.0-159			36.0	37
Cyclohexane	0.125	2.84	5.89	7.31	60.9	89.2	40	10.0-157			21.5	32
1,2-Dibromo-3-Chloropropane	0.125	U	5.48	5.09	110	102	40	10.0-151			7.30	39
1,2-Dibromoethane	0.125	U	4.93	4.88	98.6	97.5	40	10.0-148			1.16	34
1,2-Dichlorobenzene	0.125	U	4.42	4.90	88.5	98.0	40	10.0-155			10.2	37
1,3-Dichlorobenzene	0.125	U	4.15	4.64	83.0	92.7	40	10.0-153			11.1	38
1,4-Dichlorobenzene	0.125	U	4.01	4.72	80.3	94.4	40	10.0-151			16.1	38
Dichlorodifluoromethane	0.125	U	2.84	4.34	56.7	86.8	40	10.0-160		J3	41.9	35
1,1-Dichloroethane	0.125	U	4.43	6.04	88.7	121	40	10.0-147			30.7	37
1,2-Dichloroethane	0.125	U	5.19	5.48	104	110	40	10.0-148			5.47	35
1,1-Dichloroethene	0.125	U	3.23	4.90	64.7	98.0	40	10.0-155		J3	40.9	37
cis-1,2-Dichloroethene	0.125	U	4.47	5.58	89.4	112	40	10.0-149			22.1	37
trans-1,2-Dichloroethene	0.125	U	2.93	4.17	58.7	83.4	40	10.0-150			34.8	37
1,2-Dichloropropane	0.125	U	5.35	6.45	107	129	40	10.0-148			18.6	37
cis-1,3-Dichloropropene	0.125	U	4.23	4.98	84.6	99.6	40	10.0-151			16.2	37
trans-1,3-Dichloropropene	0.125	U	4.68	4.76	93.5	95.2	40	10.0-148			1.83	37
Ethylbenzene	0.125	63.4	74.5	77.5	223	283	40	10.0-160	V	V	3.93	38
2-Hexanone	0.625	U	42.2	37.9	169	151	40	10.0-160	J5		10.9	36
Isopropylbenzene	0.125	14.1	18.0	21.1	77.1	140	40	10.0-155			16.1	38
2-Butanone (MEK)	0.625	U	47.0	43.5	188	174	40	10.0-160	J5	J5	7.64	40
Methyl Acetate	0.625	U	38.1	32.7	152	131	40	10.0-160			15.1	40
Methyl Cyclohexane	0.125	U	21.0	22.6	419	453	40	10.0-160	J5	J5	7.68	33
Methylene Chloride	0.125	U	3.87	4.69	77.5	93.8	40	10.0-141			19.0	37
4-Methyl-2-pentanone (MIBK)	0.625	U	52.1	46.9	208	187	40	10.0-160	J5	J5	10.5	35
Methyl tert-butyl ether	0.125	U	5.15	5.23	103	105	40	11.0-147			1.58	35
Styrene	0.125	U	4.01	5.57	80.1	111	40	10.0-160			32.7	40
1,1,2,2-Tetrachloroethane	0.125	U	10.5	10.2	210	205	40	10.0-160	J5	J5	2.62	35
Tetrachloroethene	0.125	U	3.07	4.28	61.5	85.5	40	10.0-156			32.8	39
1,1,2-Trichlorotrifluoroethane	0.125	U	3.85	5.58	76.9	112	40	10.0-160		J3	36.9	36
1,2,3-Trichlorobenzene	0.125	U	4.43	6.47	88.6	129	40	10.0-160			37.4	40

L1054727-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1054727-01 12/27/18 06:13 • (MS) R3371466-3 12/27/18 07:10 • (MSD) R3371466-4 12/27/18 07:28

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,2,4-Trichlorobenzene	0.125	U	4.80	6.38	95.9	128	40	10.0-160			28.4	40
1,1,1-Trichloroethane	0.125	U	3.60	4.98	72.0	99.7	40	10.0-144			32.3	35
1,1,2-Trichloroethane	0.125	2.82	7.25	7.93	88.5	102	40	10.0-160			8.96	35
Trichloroethene	0.125	U	3.48	4.58	69.6	91.6	40	10.0-156			27.3	38
Trichlorofluoromethane	0.125	U	2.91	4.38	58.2	87.5	40	10.0-160		J3	40.2	40
Vinyl chloride	0.125	U	2.97	4.23	59.4	84.6	40	10.0-160			35.0	37
(S) Toluene-d8					*112*	*115*		*75.0-131*				
(S) Dibromofluoromethane					*113*	*116*		*65.0-129*				
(S) a,a,a-Trifluorotoluene					*103*	*104*		*80.0-120*				
(S) 4-Bromofluorobenzene					*125*	*135*		*67.0-138*				

Method Blank (MB)

(MB) R3371589-2 12/27/18 10:24

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*118*			*75.0-131*
(S) Dibromofluoromethane	*99.9*			*65.0-129*
(S) a,a,a-Trifluorotoluene	*105*			*80.0-120*
(S) 4-Bromofluorobenzene	*119*			*67.0-138*

Laboratory Control Sample (LCS)

(LCS) R3371589-1 12/27/18 09:28

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Toluene	0.125	0.117	93.5	75.0-121	
Xylenes, Total	0.375	0.363	96.8	72.0-127	
(S) Toluene-d8			*112*	*75.0-131*	
(S) Dibromofluoromethane			*112*	*65.0-129*	
(S) a,a,a-Trifluorotoluene			*106*	*80.0-120*	
(S) 4-Bromofluorobenzene			*123*	*67.0-138*	

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

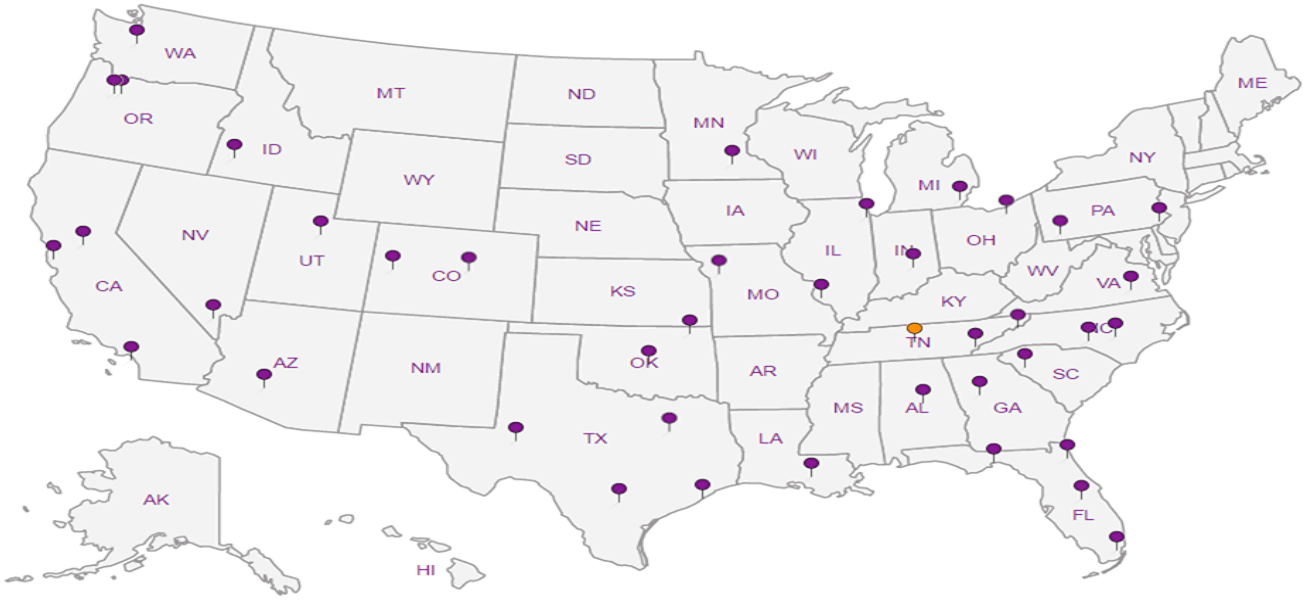
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Chain of Custody

F223

Pace Analytical®
www.pacelabs.com

Workorder: 75100227 Workorder Name: FI Doyle Salvage Results Requested By: 12/27/2018

Report / Invoice To

Amy Bryant
Pace Analytical Dallas
400 West Bethany Drive
Suite 190
Allen, TX 75013
Phone (972)727-1123
Email: amy.bryant@pacelabs.com

Subcontract To

Pace National

P.O._____

State of Sample Origin:

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Requested Analysis: 8260 TCL	LAB USE ONLY
1	FIDoyle-Organic Liquids	12/17/2018 11:15	75100227001	Non		X	L1654727-01
2							
3							
4							
5							

Transfers	Released By	Date/Time	Received By	Date/Time
1	7/19/Pace	12-18-18 17:00	Fed Ex	12-18-18 17:00
2	Fed Ex			12/19/18 9:15
3				

Comments: See attached for list.

Cooler Temperature on Receipt 5.3 °C 10.4 / 5.7 Custody Seal Y or (N) Received on Ice (Y) or N Samples Intact (Y) or N

T-C = 1G

RAD SCREEN: <0.5 mR/hr

4713 1141 7061

L1054727

Target Compound List (TCL)

Volatiles

Dichlorodifluoromethane	1,1-Dichloroethane	4-Methyl-2-pentanone
Chloromethane	cis-1,2-Dichloroethene	Toluene
Vinyl Chloride	2-Butanone	trans-1,3-Dichloropropene
Bromomethane	Chloroform	1, 1,2-Trichloroethane
Chloroethane	1,1,1-Trichloroethane	Tetrachloroethene
Trichlorofluoromethane	Cyclohexane	2-Hexanone
1,1-Dichloroethene	Carbon Tetrachloride	Dibromochloromethane
1,1,2-Trichloro-1,2,2-trifluoroethane	Benzene	1,2-Dibromoethane
Acetone	1,2-Dichloroethane	Chlorobenzene
Carbon Disulfide	Trichloroethene	Ethylbenzene
Methyl Acetate	Methylcyclohexane	Xylenes (total)
Methylene Chloride	1,2-Dichloropropane	Styrene
trans-1,2-Dichloroethene	Bromodichloromethane	Bro mo form
Methyl tert-Butyl Ether	cis-1,3-Dichloropropene	Isopropylbenzene
1,1,2,2-Tetrachloroethane	1,3-Dichlorobenzene	1,4-Dichlorobenzene
1,2-Dichlorobenzene	1,2-Dibromo-3-chloropropane	1,2,4-Trichlorobenzene

TargetCompound List (TCL)

Semivolatiles

Benzaldehyde	Hexachlorocyclopentadiene	Hexachlorobenzene
Phenol	2,4,6-Trichlorophenol	Atrazine
bis-(2-Chloroethyl) ether	2,4,5-Trichlorophenol	Pentachlorophenol
2-Chlorophenol	1,1 '-Biphenyl	Phenanthrene
2-Methylphenol	2-Chloronaphthalene	Anthracene
2,2'-oxybis (1-Chloropropane) *	2-Nitroaniline	Carbazole
Acetophenone	Dimethylphthalate	Di-n-butylphthalate
4-Methylphenol	2,6-Dinitrotoluene	Fluoranthene
N-Nitroso-di-n-propylamine	Acenaphthylene	Pyrene
Hexachloroethane	3-Nitroaniline	Butylbenzylphthalate
Nitrobenzene	Acenaphthene	3,3 '-Dichlorobenzidine
Isophorone	2,4-Dinitrophenol	Benzo(a)anthracene
2-Nitrophenol	4-Nitrophenol	Chrysene
2,4-Dimethylphenol	Dibenzofuran	bis(Z-Ethylhexyl) phthalate
bis (2-Chloroethoxy) methane	2,4-Dinitrotoluene	Di-n-octylphthalate
2,4-Dichlorophenol	Diethylphthalate	Benzo(b)fluoranthene
Naphthalene	Fluorene	Benzo(k)fluoranthene
4-Chloroaniline	4-Chlorophenyl-phenylether	Benzo(a)pyrene
Hexachlorobutadiene	4-Nitroaniline	Indeno(1,2,3-cd)pyrene
Caprolactam	4,6-Dinitro-2-methylphenol	Dibenzo(a,h)anthracene
4-Chloro-3-methylphenol	N-Nitrosodiphenylamine	Benzo(g,h,i)perylene
2-Methylnaphthalene	4-Bromophenyl-phenylether	

*2,2'-Oxybis(1-chloropropane) and bis(2-Chloroisopropyl) ether are the same

Highlighted compounds are not currently reportable - 10/22/17 LCRU

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client:	PACEATX	SDG#	L1054727
Cooler Received/Opened On: 12/19/18		Temperature:	5.7
Received By: Patrick Nshizirunugu			
Signature:			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			