DEPARTMENT OF THE ARMY
WASHINGTON AQUEDUCT
U.S. ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT
5900 MACARTHUR BOULEVARD, N.W.
WASHINGTON, D.C. 20016-2514

9 June 2017

Plant Operations Branch

Ms. Karen Crumlish, Branch Chief
Drinking Water Branch (3WP21)
Water Protection Division
U.S. EPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Enclosed are the Washington Aqueduct's water quality data for the month of May 2017.

If you require any additional information, please contact Mr. Mel Tesema at (202) 764-2701.

Sincerely,

Thomas P. Jacobus
General Manager

Enclosure: Washington Aqueduct Water Quality Data

U.S. Army Corps of Engineers
Washington Aqueduct
5900 MacArthur Blvd., NW
Washington, DC 20016-2514

May 2017

Water Quality Data

Washington Aqueduct Laboratory Analytical Data

01 May 2017 To: 31May 2017

Parameter	Raw Water			Dalecarlia Finished			McMillan Finished		
	MAX	MIN	AVG	MAX	MIN	AVG	MAX	MIN	AVG
Alkalinity as $CaCO_3$	80	50	65	75	49	62	64	43	52
Ammonia, Total	0.05	ND	ND	0.77	0.56	0.69	0.80	0.63	0.71
Calcium	36	26	31	38	29	34	33	27	30
Conductivity	288	205	242	317	249	289	328	250	283
Fluoride	ND	ND	ND	0.70	0.62	0.67	0.75	0.59	0.68
Magnesium	6	4	5	6	4	5	6	4	5
Temperature (^oF)	71	57	64	71	60	66	69	63	66
Total Hardness as $CaCO_3$	113	82	97	118	88	104	107	84	96

ND= Non-detect or < Reporting Limit (< 0.05 mg/L for Total Ammonia and < 0.1 mg/L for Fluoride)

Parameter	Date	EPA Limit	Reporting Limit	Raw Water	Dalecarlia Finished	McMillan Finished
Dissolved Solids	5/17/17			134	166	162
Suspended Solids	5/17/17			41	< 1	1
Total Solids	5/17/17			175	166	163
Bromide	5/3/17		0.04	ND	ND	ND
Chloride	5/3/17		2	19	21	31
Nitrate as N	5/3/17	10	0.2	0.9	0.8	1.1
Nitrite as N	5/3/17	1	0.02	ND	ND	ND
Orthophosphate as PO_4	5/3/17		0.3	ND	See plant orthophosphate page	
Perchlorate	5/3/17		0.05	0.16	0.21	0.27
Sulfate	5/3/17		5	24	39	41

ND= Non-detect or < Reporting Limit

All results are in mg/L except perchlorate. Perchlorate results are in ug/L.

Sodium

Date Collected	Dalecarlia Finished (mg/L)	McMillan Finished (mg/L)
5/2/2017	15.7	20.9
5/9/2017	15.3	16.2

Washington Aqueduct Laboratory Analytical Data

01 May 2017 To: 31May 2017

Summary for TOC

	5/1/17*	5/8/17	5/15/17*	5/22/17	5/29/17
Raw Water Alkalinity	68	50	57	72	68
Raw Water Intake TOC	2.66	5.61	3.59	2.44	3.88
% Required Removal	25.0	45.0	35.0	25.0	25.0
#12 Dalecarlia Settled TOC	1.73	2.35	2.02	1.69	2.28
#15 Dalecarlia Filtered TOC	1.66	2.26	1.91	1.62	2.13
% Dalecarlia Removal	37.6	59.7	46.8	33.6	45.1
Removal Ratio	1.50	1.33	1.34	1.34	1.80
F McMillan Settled TOC	1.88	2.13	1.89	1.90	2.08
G McMillan Filtered TOC	1.60	2.05	1.67	1.73	1.91
% McMillan Removal	39.8	63.5	53.5	29.1	50.8
Removal Ratio	1.59	1.41	1.53	1.16	2.03

All results are in mg/L unless otherwise noted

* Raw water TOC is a weighted average of Great Falls and Little Falls.

5/1/17 TOC: GF 2.55 mg/L (40.0% flow); LF 2.73 mg/L (60.0% flow)

* Raw water TOC is a weighted average of Great Falls and Little Falls.

5/15/17 TOC: GF 3.59 mg/L (94.8% flow); LF 3.67 mg/L (5.2% flow)

TOC removals are calculated as follows:

Dalecarlia removals are based on samples collected 2 days after Great Falls sample collection.

McMillan removals are based on samples collected 7 days after Great Falls sample collection.

TOC Removal Compliance Calculations. Compliance is achieved when RAA removal ratio ≥ 1

2017 Dalecarlia Month	Removal Ratio	Quarterly Avg. Ratio	RAA Ratio
January	1.28		
February	1.30		
March	0.96	1.18	1.35
April	1.38		
May	1.46		
June			
July			
August			
September			
October			
November			
December			

2017 McMillan Month	Removal Ratio	Quarterly Avg. Ratio	RAA Ratio
January	0.37		
February	1.05		
March	1.31	0.91	1.30
April	1.40		
May	1.55		
June			
July			
August			
September			
October			
November			
December			

Washington Aqueduct Laboratory Analytical Data
01 May 2017 To: 31May 2017

Haloacetic Acids Summary by Method EPA 552.2

Sample Location	Dalecarlia Finished	McMillan Finished
Sample Date	5/17/2017	5/17/2017
Analysis Date	5/30/2017	5/30/2014
Units	ug/L	ug/L
Dibromoacetic Acid	ND	ND
Dichloroacetic Acid	11.6	12.1
Monobromoacetic Acid	ND	ND
Monochloroacetic Acid	2.6	2.2
Trichloracetic Acid	11.7	13.5
Total HAA (5)	26	28
Bromochloroacetic Acid**	2.7	2.6

**Bromochloroacetic acid is unregulated and is included for informational purposes only.

2017 Washington Aqueduct Yearly Haloacetic Acids Data (ug/L)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	LRA*
Dalecarlia Finished		15			26								25
McMillan Finished		14			28								25

* Location Annual Running Average

Washington Aqueduct Laboratory Analytical Data

01 May 2017 To: 31May 2017

Trihalomethane Data by EPA Method 524.2

Sample Location	Dalecarlia Finished	McMillan Finished
Sample Date	5/17/2017	5/17/2017
Analysis Date	5/18/2017	5/18/2017
Units	ug/L	ug/L
Chloroform	18.6	24.5
Bromodichloromethane	8.6	8.7
Chlorodibromomethane	1.5	1.5
Bromoform	ND	ND
Total THMs	29	35

Reporting limit is 0.5 ug/L

2017 Washington Aqueduct Yearly Trihalomethane Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	LRA*
Dalecarlia Finished	19	19	34	39	29								41
McMillan Finished	18	20	21	36	35								42

*LRA = Annual Location Running Average

Washington Aqueduct Laboratory Analytical Data
01 May 2017 To: 31May 2017

Volatile Organic Compounds (VOCs) Data by EPA Method 524.2

Sample Location	Reporting Limit	Dalecarlia Finished	McMillan Finished
Sample Date		5/17/2017	5/17/2017
Analysis Date		5/18/2017	5/18/2017
Units	ug/L	ug/L	ug/L
Benzene	0.5	ND	ND
Bromobenzene	0.5	ND	ND
Bromochloromethane	0.5	ND	ND
Bromodichloromethane	0.5	8.6	8.7
Bromoform	0.5	ND	ND
tert-Butylbenzene	0.5	ND	ND
sec-Butylbenzene	0.5	ND	ND
n-Butylbenzene	0.5	ND	ND
Carbon tetrachloride	0.5	ND	ND
Chlorobenzene	0.5	ND	ND
Chloroethane	2	ND	ND
Chloroform	0.5	18.6	24.5
Chloromethane	0.5	ND	ND
2-Chlorotoluene	0.5	ND	ND
4-Chlorotoluene	0.5	ND	ND
1,2-DiBr-3-Clpropane (DBCP)	0.5	ND	ND
Dibromochloromethane	0.5	1.5	1.5
1,2-Dibromoethane (EDB)	0.5	ND	ND
Dibromomethane	0.5	ND	ND
1,3-Dichlorobenzene	0.5	ND	ND
1,4-Dichlorobenzene	0.5	ND	ND
1,2-Dichlorobenzene	0.5	ND	ND
Dichlorodifluoromethane	0.5	ND	ND
1,1-Dichloroethane	0.5	ND	ND
1,2-Dichloroethane	0.5	ND	ND
trans-1,2-Dichloroethylene	0.5	ND	ND
cis-1,2-Dichloroethylene	0.5	ND	ND
1,1-Dichloroethylene	0.5	ND	ND
1,3-Dichloropropane	0.5	ND	ND
2,2-Dichloropropane	0.5	ND	ND
1,2-Dichloropropane	0.5	ND	ND
trans-1,3-Dichloropropene	0.5	ND	ND
cis-1,3-Dichloropropen	0.5	ND	ND
1,1-Dichloropropene	0.5	ND	ND
Ethylbenzene	0.5	ND	ND
Hexachlorobutadiene	0.5	ND	ND
Isopropylbenzene	0.5	ND	ND
p-Isopropyltoluene	0.5	ND	ND
Naphthalene	0.5	ND	ND
n-Propylbenzene	0.5	ND	ND
Styrene	0.5	ND	ND
1,1,1,2-Tetrachloroethane	0.5	ND	ND
1,1,2,2-Tetrachloroethane	0.5	ND	ND
Tetrachloroethylene	0.5	ND	ND
Toluene	0.5	ND	ND
1,2,3-Trichlorobenzene	0.5	ND	ND
1,2,4-Trichlorobenzene	0.5	ND	ND

Washington Aqueduct Laboratory Analytical Data
01 May 2017 To: 31May 2017

Volatile Organic Compounds (VOCs) Data by EPA Method 524.2 continued

Sample Location	Reporting Limit	Dalecarlia Finished	McMillan Finished
Sample Date		5/17/2017	5/17/2017
Analysis Date		5/18/2017	5/18/2017
Units	ug/L	ug/L	ug/L
1,1,1-Trichloroethane	0.5	ND	ND
1,1,2-Trichloroethane	0.5	ND	ND
Trichloroethylene	0.5	ND	ND
Trichlorofluoromethane	0.5	ND	ND
1,2,3-Trichloropropane	0.5	ND	ND
1,2,4-Trimethylbenzene	0.5	ND	ND
1,3,5-Trimethylbenzene	0.5	ND	ND
Vinyl chloride	0.5	ND	ND
m & p-Xylene	0.5	ND	ND
o-Xylene	0.5	ND	ND
Total THMs	0.5	29	35
Methylene Chloride	0.5	ND	ND

ND= Non-detect or < Reporting Limit
NA = Not Available

Washington Aqueduct Laboratory Analytical Data

01 May 2017 To: 31May 2017

Summary for Metals Analysis by Method EPA 200.8

Parameter (all results are in mg/L)	EPA Limit	Reporting Limit	Raw	Dalecarlia Finished	McMillan Finished
Aluminum		0.01	0.438	0.021	0.037
Antimony	0.006	0.0002	ND	ND	ND
Arsenic	0.01	0.0002	ND	0.0002	ND
Barium	2	0.0002	0.042	0.035	0.034
Beryllium	0.004	0.0002	ND	ND	ND
Cadmium	0.005	0.0002	ND	ND	ND
Chromium	0.1	0.0005	ND	ND	ND
Copper		0.0002	0.005	0.0008	0.006
Lead		0.0002	0.001	ND	ND
Lithium		0.0002	0.003	0.002	0.002
Manganese		0.0002	0.08	0.0005	ND
Mercury	0.002	0.0002	no data	ND	ND
Nickel		0.0005	0.002	0.0009	0.0008
Selenium	0.05	0.001	ND	ND	ND
Silver		0.01	ND	ND	ND
Strontium		0.0002	0.122	0.138	0.137
Thallium	0.002	0.0005	ND	ND	ND
Uranium	0.03	0.0002	ND	ND	ND
Zinc		0.0005	0.005	0.0006	ND

ND = Non-detect or < Reporting Limit

US Army Corps of Engineers

Washington Aqueduct Laboratory

Lab Certification Number: DC00005

Source Water E.coli and Turbidity Report

Washington Aqueduct
PWS ID: DC0000001
Facility ID: 00001, 00002

Report Date: 6/7/2017
Report Number: TC- 1705075

Collection Date: 5/9/2017 Sampler: MM Received Date and Time: 5/9/2017 11:50:00 PM Received By: e2waomm

Sample Number	Location	Collection Time	Type	Parameter	Method	Result		Analysis Date	Analyst
1705075-001	GF - Great Falls Flowing stream/river	10:50	Raw						
				Turbidity	SM 2130B	55	NTU	5/9/2017	LGallimore
				Total Coliform	Colilert	24196	mpn/100ml	5/9/2017	Lneal
				E. coli	Colilert	579.4	mpn/100ml	5/9/2017	Lneal

Sample Number	Location	Collection Time	Type	Parameter	Method	Result		Analysis Date	Analyst
1705075-002	LF - Little Falls Flowing stream/river	8:57	Raw						
				Turbidity	SM 2130B	90	NTU	5/9/2017	LGallimore
				Total Coliform	Colilert	>2419.6	mpn/100ml	5/9/2017	Lneal
				E. coli	Colilert	770.1	mpn/100ml	5/9/2017	Lneal

Reviewed By: Robert P. Hoffa

Robert P. Hoffa, Laboratory Manager

6/7/2017
Date

5900 MacArthur Blvd. NW, Washington DC 20016 Phone (202) 764-0449 Fax (202) 764-2401

State Hygienic Laboratory

The University of Iowa

Accession Number	511255
Date Sample Finalized	2017-05-19 07:46
Date Received	2017-05-10 07:00
Sample Source	Non-Drinking Water
Project	
Date Collected	2017-05-09 13:36
Collection Site	potomac river
Collection Address	
	WASHINGTON DC,
Sample Description	filter
Client Reference	us army corps eng
Collector	moore markethia
Phone	202/587-9136

ROBERT P HOFFA-LAB SUPERVISOR
WASHINGTON AQUEDUCT LABORATORY
5900 MACARTHUR BLVD NW
WASHINGTON, DC 20016-2516

Note: Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.

PWS Id	DC0000001	Stop Time	13:36
Facility Name	WASHINGTON AQUEDUCT	Start Time	13:21
Facility Id	00001, 00002	Flow Rate	0.7
Sample Type	Field	Volume Collected	10.75
Sample Category	General	Number of Filters	1
Sample Collection Point Id	GREAT FALLS	Purchase Order	63117029

Results of Analyses

Giardia & Cryptosporidium Processing, EPA 1623.1

Units	/L	Analyzed In	Coralville
Date Analyzed	2017-05-11 09:04	Date Verified	2017-05-18 15:48
Analyst	KFO, CAL	Verifier	NH

Analyte	Result	Unit
Calculated Cryptosporidium Oocysts	0.279	/L
Calculated Giardia Cysts	0.140	/L
Observed Cryptosporidium Oocysts	2	/{sample}
Observed Giardia Cysts	1	/{sample}
Percent Filtered Volume Analyzed	67	%
Volume Assayed	7.2	Liters
Packed Pellet Volume	3.0	mL
Number of Extra Slides	3	
Resuspended Concentrate Volume	60	mL
Resuspended Concentrate Processed	40	mL

Description of Units used within this report

/L = Number per Liter

Susie Y. Dai, Ph.D.
Wade K. Aldous, Ph.D. (D)ABMM
Associate Directors
http://www.shl.uiowa.edu

University of Iowa Research Park
2490 Crosspark Road
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712/337-3669 ext. 6 Fax: 712/337-0227

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2220 S. Ankeny Blvd
Ankeny, IA 50023
515/725-1600 Fax: 515/725-1642

State Hygienic Laboratory

The University of Iowa

Accession Number | 511255

The result(s) of this report relate only to the items analyzed. This report shall not be reproduced except in full without the written approval of the laboratory.

Iowa Environmental Laboratory IDs are: Ankeny #397, Iowa City/Coralville #027, Lakeside #393.

If you have any questions, please call Client Services at 800/421-IOWA (4692) or 319/335-4500. Thank you.

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State Hygienic Laboratory

The University of Iowa

Accession Number	511256
Date Sample Finalized	2017-05-19 07:46
Date Received	2017-05-10 07:00
Sample Source	Non-Drinking Water
Project	
Date Collected	2017-05-09 14:09
Collection Site	potomac river
Collection Address	
	WASHINGTON DC,
Sample Description	filter
Client Reference	us army corps eng
Collector	moore markethia
Phone	202/587-9136

ROBERT P HOFFA-LAB SUPERVISOR
WASHINGTON AQUEDUCT LABORATORY
5900 MACARTHUR BLVD NW
WASHINGTON, DC 20016-2516

Note: Upon arrival, sample met container and preservation requirements for the analysis requested. Please review carefully your sample results for additional analyte comments or method exceptions.

PWS Id	DC0000001	Stop Time	14:09
Facility Name	WASHINGTON AQUEDUCT	Start Time	13:53
Facility Id	00001, 00002	Flow Rate	0.67
Sample Type	Field	Volume Collected	10.75
Sample Category	General	Number of Filters	1
Sample Collection Point Id	LITTLE FALLS	Purchase Order	63117029

Results of Analyses

Giardia & Cryptosporidium Processing, EPA 1623.1

Units	/L	Analyzed In	Coralville
Date Analyzed	2017-05-11 09:04	Date Verified	2017-05-18 15:56
Analyst	KFO, CAL	Verifier	NH

Analyte	Result	Unit
Calculated Cryptosporidium Oocysts	0.093	/L
Calculated Giardia Cysts	1.02	/L
Observed Cryptosporidium Oocysts	1	/{sample}
Observed Giardia Cysts	11	/{sample}
Percent Filtered Volume Analyzed	100	%
Volume Assayed	10.75	Liters
Packed Pellet Volume	2.0	mL
Number of Extra Slides	3	

Description of Units used within this report

/L = Number per Liter

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If you have any questions, please call Client Services at 800/421-IOWA (4692) or 319/335-4500. Thank you.

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eurofins | Eaton Analytical

Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory Hits

Report: 641972
Project: QUARTERLY
Group: Quarterly 2017

U.S. Army Corps of Engineers
Mike Chicoine
Washington Aqueduct
5900 MacArthur Blvd. NW
Washington, DC 20016

Samples Received on:
04/20/2017 1119

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL
	201703010005	**18**				
04/28/2017 19:21	Bromodichloromethane		10		ug/L	0.5
04/28/2017 19:21	Chlorodibromomethane		2.7		ug/L	0.5
04/28/2017 19:21	Chloroform (Trichloromethane)		20		ug/L	0.5
04/28/2017 19:21	Total THM		33	80	ug/L	0.5
	201703010008	**J**				
04/28/2017 19:43	Bromodichloromethane		8.9		ug/L	0.5
04/28/2017 19:43	Chlorodibromomethane		1.9		ug/L	0.5
04/28/2017 19:43	Chloroform (Trichloromethane)		22		ug/L	0.5
05/02/2017 23:07	N-Nitrosodibutylamine (NDBA)		2.7		ng/L	2
04/28/2017 19:43	Total THM		33	80	ug/L	0.5

SUMMARY OF POSITIVE DATA ONLY

eurofins | Eaton Analytical

Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory Data

Report: 641972
Project: QUARTERLY
Group: Quarterly 2017

U.S. Army Corps of Engineers
Mike Chicoine
Washington Aqueduct
5900 MacArthur Blvd. NW
Washington, DC 20016

Samples Received on:
04/20/2017 1119

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
18 (201703010005)						**Sampled on 04/18/2017 1008**			
		EPA 505 - Organochlorine Pesticides/PCBs							
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	Alachlor (Alanex)	ND	ug/L	0.1	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	Aldrin	ND	ug/L	0.01	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	Chlordane	ND	ug/L	0.1	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	Dieldrin	ND	ug/L	0.01	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	Endrin	ND	ug/L	0.01	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	Heptachlor	ND	ug/L	0.01	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	Heptachlor Epoxide	ND	ug/L	0.01	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	Lindane (gamma-BHC)	ND	ug/L	0.01	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	Methoxychlor	ND	ug/L	0.05	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	PCB 1016 Aroclor	ND	ug/L	0.08	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	PCB 1221 Aroclor	ND	ug/L	0.1	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	PCB 1232 Aroclor	ND	ug/L	0.1	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	PCB 1242 Aroclor	ND	ug/L	0.1	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	PCB 1248 Aroclor	ND	ug/L	0.1	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	PCB 1254 Aroclor	ND	ug/L	0.1	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	PCB 1260 Aroclor	ND	ug/L	0.1	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	Total PCBs	ND	ug/L	0.1	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	Toxaphene	ND	ug/L	0.5	1
04/21/17	04/21/17 21:58	988660	989381	(EPA 505)	Tetrachlorometaxylene	106	%		1
		EPA 515.4 - Chlorophenoxy Herbicides							
04/25/17	04/27/17 06:52	988891	990711	(EPA 515.4)	2,4,5-T	ND	ug/L	0.2	1
04/25/17	04/27/17 06:52	988891	990711	(EPA 515.4)	2,4,5-TP (Silvex)	ND	ug/L	0.2	1
04/25/17	04/27/17 06:52	988891	990711	(EPA 515.4)	2,4-D	ND	ug/L	0.1	1
04/25/17	04/27/17 06:52	988891	990711	(EPA 515.4)	2,4-DB	ND	ug/L	2	1
04/25/17	04/27/17 06:52	988891	990711	(EPA 515.4)	3,5-Dichlorobenzoic acid	ND	ug/L	0.5	1
04/25/17	04/27/17 06:52	988891	990711	(EPA 515.4)	Acifluorfen	ND	ug/L	0.2	1
04/25/17	04/27/17 06:52	988891	990711	(EPA 515.4)	Bentazon	ND	ug/L	0.5	1
04/25/17	04/27/17 06:52	988891	990711	(EPA 515.4)	Dalapon	ND	ug/L	1	1
04/25/17	04/27/17 06:52	988891	990711	(EPA 515.4)	Dicamba	ND	ug/L	0.1	1
04/25/17	04/27/17 06:52	988891	990711	(EPA 515.4)	Dichlorprop	ND	ug/L	0.5	1
04/25/17	04/27/17 06:52	988891	990711	(EPA 515.4)	Dinoseb	ND	ug/L	0.2	1
04/25/17	04/27/17 06:52	988891	990711	(EPA 515.4)	Pentachlorophenol	ND	ug/L	0.04	1
04/25/17	04/27/17 06:52	988891	990711	(EPA 515.4)	Picloram	ND	ug/L	0.1	1
04/25/17	04/27/17 06:52	988891	990711	(EPA 515.4)	Tot DCPA Mono&Diacid Degradate	ND	ug/L	0.1	1
04/25/17	04/27/17 06:52	988891	990711	(EPA 515.4)	2,4-Dichlorophenyl acetic acid	95	%		1

Rounding on totals after summation.
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Laboratory Data

Report: 641972
Project: QUARTERLY
Group: Quarterly 2017

U.S. Army Corps of Engineers
Mike Chicoine
Washington Aqueduct
5900 MacArthur Blvd. NW
Washington, DC 20016

Samples Received on:
04/20/2017 1119

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
04/25/17	04/27/17 06:52	988891	990711	(EPA 515.4)	4,4-Dibromooctafluorobiphenyl	95	%		1
		EPA 551.1 - EDB/DBCP/HAN by EPA 551.1							
04/26/17	04/27/17 18:05	989661	990439	(EPA 551.1)	Dibromochloropropane (DBCP)	ND (Q2)	ug/L	0.01	1
04/26/17	04/27/17 18:05	989661	990439	(EPA 551.1)	Ethylene Dibromide (EDB)	ND (Q2)	ug/L	0.01	1
04/26/17	04/27/17 18:05	989661	990439	(EPA 551.1)	1,2-Dibromopropane	108 (Q2)	%		1
		EPA 525.2 - Semivolatiles by GCMS							
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	2,4-DDD	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	2,4-DDE	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	2,4-DDT	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	2,4-Dinitrotoluene	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	2,6-Dinitrotoluene	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	4,4-DDD	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	4,4-DDE	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	4,4-DDT	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Acenaphthene	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Acenaphthylene	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Acetochlor	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Alachlor	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Aldrin	ND (L4)	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Alpha-BHC	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	alpha-Chlordane	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Anthracene	ND (M2)	ug/L	0.02	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Atrazine	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Benz(a)Anthracene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Benzo(a)pyrene	ND	ug/L	0.02	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Benzo(b)Fluoranthene	ND	ug/L	0.02	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Benzo(g,h,i)Perylene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Benzo(k)Fluoranthene	ND	ug/L	0.02	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Beta-BHC	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Bromacil	ND	ug/L	0.2	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Butachlor	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Butylbenzylphthalate	ND	ug/L	0.5	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Caffeine by method 525mod	ND (R7)	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Chlorobenzilate	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Chloroneb	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Chlorothalonil(Draconil,Bravo)	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Chlorpyrifos (Dursban)	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Chrysene	ND	ug/L	0.02	1

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Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Delta-BHC	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Di-(2-Ethylhexyl)adipate	ND	ug/L	0.6	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Di(2-Ethylhexyl)phthalate	ND	ug/L	0.6	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Diazinon (Qualitative)	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Dibenz(a,h)Anthracene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Dichlorvos (DDVP)	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Dieldrin	ND	ug/L	0.2	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Diethylphthalate	ND	ug/L	0.5	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Dimethoate	ND (R7)	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Dimethylphthalate	ND	ug/L	0.5	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Di-n-Butylphthalate	ND	ug/L	1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Di-N-octylphthalate	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Endosulfan I (Alpha)	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Endosulfan II (Beta)	ND (LE)	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Endosulfan Sulfate	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Endrin	ND	ug/L	0.2	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Endrin Aldehyde	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	EPTC	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Fluoranthene	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Fluorene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	gamma-Chlordane	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Heptachlor	ND	ug/L	0.03	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Heptachlor Epoxide (isomer B)	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Hexachlorobenzene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Hexachlorocyclopentadiene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Indeno(1,2,3,c,d)Pyrene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Isophorone	ND	ug/L	0.5	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Lindane	ND	ug/L	0.04	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Malathion	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Methoxychlor	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Metolachlor	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Metribuzin	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Molinate	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Naphthalene	ND	ug/L	0.3	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Parathion	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Pendimethalin	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Pentachlorophenol	ND	ug/L	1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Permethrin (mixed isomers)	ND	ug/L	0.1	1

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Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Phenanthrene	ND	ug/L	0.04	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Propachlor	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Pyrene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Simazine	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Terbacil	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Terbuthylazine	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Thiobencarb (ELAP)	ND	ug/L	0.2	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	trans-Nonachlor	ND	ug/L	0.05	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Trifluralin	ND	ug/L	0.1	1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	1,3-Dimethyl-2-nitrobenzene	102	%		1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Acenaphthene-d10	66	%		1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Chrysene-d12	64	%		1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Perylene-d12	80	%		1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Phenanthrene-d10	66	%		1
04/28/17	05/03/17 14:02	990463	992136	(EPA 525.2)	Triphenylphosphate	107	%		1
		EPA 548.1 - Endothall							
04/21/17	04/25/17 12:01	988671	989541	(EPA 548.1)	Endothall	ND	ug/L	5	1
		EPA 521 - Nitrosamines by GCMS							
04/28/17	05/02/17 22:22	990294	991695	(EPA 521)	N-Nitrosodibutylamine (NDBA)	ND	ng/L	2	1
04/28/17	05/02/17 22:22	990294	991695	(EPA 521)	N-Nitrosodiethylamine (NDEA)	ND	ng/L	2	1
04/28/17	05/02/17 22:22	990294	991695	(EPA 521)	N-Nitroso-dimethylamine (NDMA)	ND	ng/L	2	1
04/28/17	05/02/17 22:22	990294	991695	(EPA 521)	N-Nitrosodi-n-propylamine (NDPA)	ND	ng/L	2	1
04/28/17	05/02/17 22:22	990294	991695	(EPA 521)	N-Nitrosomethylethylamine (NMEA)	ND	ng/L	2	1
04/28/17	05/02/17 22:22	990294	991695	(EPA 521)	N-Nitrosopyrollidine (NPYR)	ND	ng/L	2	1
04/28/17	05/02/17 22:22	990294	991695	(EPA 521)	NDMA-D6	101	%		1
		EPA 1613B - 2,3,7,8-TCDD_Dioxin							
04/25/17	05/04/17 21:12	989336	992614	(EPA 1613B)	2,3,7,8-TCDD	ND	pg/L	5	1
04/25/17	05/04/17 21:12	989336	992614	(EPA 1613B)	C12-2,3,7,8-TCDD	81	%		1
		EPA 547 - Glyphosate							
	04/26/17 14:10		989888	(EPA 547)	Glyphosate	ND	ug/L	6	1
		EPA 531.2 - Aldicarbs							
	05/01/17 23:32		991152	(EPA 531.2)	3-Hydroxycarbofuran	ND	ug/L	0.5	1
	05/01/17 23:32		991152	(EPA 531.2)	Aldicarb (Temik)	ND	ug/L	0.5	1
	05/01/17 23:32		991152	(EPA 531.2)	Aldicarb sulfone	ND	ug/L	0.5	1
	05/01/17 23:32		991152	(EPA 531.2)	Aldicarb sulfoxide	ND	ug/L	0.5	1
	05/01/17 23:32		991152	(EPA 531.2)	Baygon	ND	ug/L	0.5	1
	05/01/17 23:32		991152	(EPA 531.2)	Carbaryl	ND	ug/L	0.5	1
	05/01/17 23:32		991152	(EPA 531.2)	Carbofuran (Furadan)	ND	ug/L	0.5	1

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	05/01/17 23:32		991152	(EPA 531.2)	Methiocarb	ND	ug/L	0.5	1
	05/01/17 23:32		991152	(EPA 531.2)	Methomyl	ND	ug/L	0.5	1
	05/01/17 23:32		991152	(EPA 531.2)	Oxamyl (Vydate)	ND	ug/L	0.5	1
	05/01/17 23:32		991152	(EPA 531.2)	4-Bromo-3,5-dimethylphenyl-N-methylc arbamate	116	%		1
		EPA 549.2 - Diquat and Paraquat							
04/24/17	04/25/17 13:57	988291	989594	(EPA 549.2)	Diquat	ND	ug/L	0.4	1
04/24/17	04/25/17 13:57	988291	989594	(EPA 549.2)	Paraquat	ND	ug/L	2	1
		EPA 335.4 - Cyanide by manual distillation							
04/24/17	04/24/17 19:06	989133	989458	(EPA 335.4)	Cyanide by manual distillation	ND	mg/L	0.005	1
		EPA 524.2 - Volatile Organics by GCMS							
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	1,1,1,2-Tetrachloroethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	1,1,1-Trichloroethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	1,1,2,2-Tetrachloroethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	1,1,2-Trichloroethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	1,1-Dichloroethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	1,1-Dichloroethylene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	1,1-Dichloropropene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	1,2,3-Trichlorobenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	1,2,3-Trichloropropane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	1,2,4-Trichlorobenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	1,2,4-Trimethylbenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	1,2-Dichloroethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	1,2-Dichloropropane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	1,3,5-Trimethylbenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	1,3-Dichloropropane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	2,2-Dichloropropane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	2-Butanone (MEK)	ND	ug/L	5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Benzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Bromobenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Bromochloromethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Bromodichloromethane	10	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Bromoethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Bromoform	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Bromomethane (Methyl Bromide)	ND (VC,LK)	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Carbon disulfide	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Carbon Tetrachloride	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Chlorobenzene	ND	ug/L	0.5	1

Rounding on totals after summation.
(c) - indicates calculated results

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Laboratory Data

Report: 641972
Project: QUARTERLY
Group: Quarterly 2017

U.S. Army Corps of Engineers
Mike Chicoine
Washington Aqueduct
5900 MacArthur Blvd. NW
Washington, DC 20016

Samples Received on:
04/20/2017 1119

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Chlorodibromomethane	2.7	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Chloroethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Chloroform (Trichloromethane)	20	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Chloromethane(Methyl Chloride)	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	cis-1,2-Dichloroethylene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	cis-1,3-Dichloropropene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Dibromomethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Dichlorodifluoromethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Dichloromethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Di-isopropyl ether	ND	ug/L	3	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Ethyl benzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Hexachlorobutadiene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Isopropylbenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	m,p-Xylenes	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	m-Dichlorobenzene (1,3-DCB)	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Methyl Tert-butyl ether (MTBE)	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Naphthalene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	n-Butylbenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	n-Propylbenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	o-Chlorotoluene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	o-Dichlorobenzene (1,2-DCB)	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	o-Xylene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	p-Chlorotoluene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	p-Dichlorobenzene (1,4-DCB)	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	p-Isopropyltoluene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	sec-Butylbenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Styrene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	tert-amyl Methyl Ether	ND	ug/L	3	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	tert-Butyl Ethyl Ether	ND	ug/L	3	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	tert-Butylbenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Tetrachloroethylene (PCE)	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Toluene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Total 1,3-Dichloropropene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Total THM	33	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Total xylenes	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	trans-1,2-Dichloroethylene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	trans-1,3-Dichloropropene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Trichloroethylene (TCE)	ND	ug/L	0.5	1

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04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Trichlorofluoromethane	ND (VC,LK)	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Trichlorotrifluoroethane(Freon 113)	ND	ug/L	0.5	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Vinyl chloride (VC)	ND (LE)	ug/L	0.3	1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	1,2-Dichloroethane-d4	99	%		1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	4-Bromofluorobenzene	117	%		1
04/28/17	04/28/17 19:21	990821	990823	(EPA 524.2)	Toluene-d8	88	%		1

GF (201703010006) **Sampled on 04/18/2017 0903**

EPA 515.4 - Chlorophenoxy Herbicides

04/25/17	04/27/17 07:22	988891	990711	(EPA 515.4)	2,4,5-T	ND	ug/L	0.2	1
04/25/17	04/27/17 07:22	988891	990711	(EPA 515.4)	2,4,5-TP (Silvex)	ND	ug/L	0.2	1
04/25/17	04/27/17 07:22	988891	990711	(EPA 515.4)	2,4-D	ND	ug/L	0.1	1
04/25/17	04/27/17 07:22	988891	990711	(EPA 515.4)	2,4-DB	ND	ug/L	2	1
04/25/17	04/27/17 07:22	988891	990711	(EPA 515.4)	3,5-Dichlorobenzoic acid	ND	ug/L	0.5	1
04/25/17	04/27/17 07:22	988891	990711	(EPA 515.4)	Acifluorfen	ND	ug/L	0.2	1
04/25/17	04/27/17 07:22	988891	990711	(EPA 515.4)	Bentazon	ND	ug/L	0.5	1
04/25/17	04/27/17 07:22	988891	990711	(EPA 515.4)	Dalapon	ND	ug/L	1	1
04/25/17	04/27/17 07:22	988891	990711	(EPA 515.4)	Dicamba	ND	ug/L	0.1	1
04/25/17	04/27/17 07:22	988891	990711	(EPA 515.4)	Dichlorprop	ND	ug/L	0.5	1
04/25/17	04/27/17 07:22	988891	990711	(EPA 515.4)	Dinoseb	ND	ug/L	0.2	1
04/25/17	04/27/17 07:22	988891	990711	(EPA 515.4)	Pentachlorophenol	ND	ug/L	0.04	1
04/25/17	04/27/17 07:22	988891	990711	(EPA 515.4)	Picloram	ND	ug/L	0.1	1
04/25/17	04/27/17 07:22	988891	990711	(EPA 515.4)	Tot DCPA Mono&Diacid Degradate	ND	ug/L	0.1	1
04/25/17	04/27/17 07:22	988891	990711	(EPA 515.4)	2,4-Dichlorophenyl acetic acid	104	%		1
04/25/17	04/27/17 07:22	988891	990711	(EPA 515.4)	4,4-Dibromooctafluorobiphenyl	94	%		1

EPA 525.2 - Semivolatiles by GCMS

04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	2,4-DDD	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	2,4-DDE	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	2,4-DDT	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	2,4-Dinitrotoluene	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	2,6-Dinitrotoluene	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	4,4-DDD	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	4,4-DDE	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	4,4-DDT	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Acenaphthene	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Acenaphthylene	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Acetochlor	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Alachlor	ND	ug/L	0.05	1

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Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Aldrin	ND (L4)	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Alpha-BHC	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	alpha-Chlordane	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Anthracene	ND	ug/L	0.02	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Atrazine	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Benz(a)Anthracene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Benzo(a)pyrene	ND	ug/L	0.02	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Benzo(b)Fluoranthene	ND	ug/L	0.02	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Benzo(g,h,i)Perylene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Benzo(k)Fluoranthene	ND	ug/L	0.02	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Beta-BHC	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Bromacil	ND	ug/L	0.2	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Butachlor	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Butylbenzylphthalate	ND	ug/L	0.5	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Caffeine by method 525mod	ND (R7)	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Chlorobenzilate	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Chloroneb	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Chlorothalonil(Draconil,Bravo)	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Chlorpyrifos (Dursban)	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Chrysene	ND	ug/L	0.02	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Delta-BHC	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Di-(2-Ethylhexyl)adipate	ND	ug/L	0.6	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Di(2-Ethylhexyl)phthalate	ND	ug/L	0.6	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Diazinon (Qualitative)	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Dibenz(a,h)Anthracene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Dichlorvos (DDVP)	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Dieldrin	ND	ug/L	0.2	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Diethylphthalate	ND	ug/L	0.5	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Dimethoate	ND (R7)	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Dimethylphthalate	ND	ug/L	0.5	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Di-n-Butylphthalate	ND	ug/L	1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Di-N-octylphthalate	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Endosulfan I (Alpha)	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Endosulfan II (Beta)	ND (LE)	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Endosulfan Sulfate	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Endrin	ND	ug/L	0.2	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Endrin Aldehyde	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	EPTC	ND	ug/L	0.1	1

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04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Fluoranthene	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Fluorene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	gamma-Chlordane	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Heptachlor	ND	ug/L	0.03	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Heptachlor Epoxide (isomer B)	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Hexachlorobenzene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Hexachlorocyclopentadiene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Indeno(1,2,3,c,d)Pyrene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Isophorone	ND	ug/L	0.5	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Lindane	ND	ug/L	0.04	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Malathion	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Methoxychlor	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Metolachlor	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Metribuzin	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Molinate	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Naphthalene	ND	ug/L	0.3	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Parathion	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Pendimethalin	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Pentachlorophenol	ND	ug/L	1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Permethrin (mixed isomers)	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Phenanthrene	ND	ug/L	0.04	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Propachlor	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Pyrene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Simazine	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Terbacil	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Terbuthylazine	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Thiobencarb (ELAP)	ND	ug/L	0.2	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	trans-Nonachlor	ND	ug/L	0.05	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Trifluralin	ND	ug/L	0.1	1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	1,3-Dimethyl-2-nitrobenzene	99	%		1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Acenaphthene-d10	89	%		1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Chrysene-d12	91	%		1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Perylene-d12	86	%		1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Phenanthrene-d10	95	%		1
04/28/17	05/03/17 14:26	990463	992136	(EPA 525.2)	Triphenylphosphate	104	%		1

TRAVEL BLANK - HOLD (201703010007) **Sampled on 04/18/2017 0800**

EPA 551.1 - EDB/DBCP/HAN by EPA 551.1

Rounding on totals after summation.
(c) - indicates calculated results

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Laboratory Data

Report: 641972
Project: QUARTERLY
Group: Quarterly 2017

U.S. Army Corps of Engineers
Mike Chicoine
Washington Aqueduct
5900 MacArthur Blvd. NW
Washington, DC 20016

Samples Received on:
04/20/2017 1119

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
04/26/17	04/27/17 18:05	989661	990439	(EPA 551.1)	Dibromochloropropane (DBCP)	NA	ug/L	0.01	1
04/26/17	04/27/17 18:05	989661	990439	(EPA 551.1)	Ethylene Dibromide (EDB)	NA	ug/L	0.01	1
04/26/17	04/27/17 18:05	989661	990439	(EPA 551.1)	1,2-Dibromopropane	NA	%		1
		EPA 524.2 - Volatile Organics by GCMS							
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	1,1,1,2-Tetrachloroethane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	1,1,1-Trichloroethane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	1,1,2,2-Tetrachloroethane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	1,1,2-Trichloroethane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	1,1-Dichloroethane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	1,1-Dichloroethylene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	1,1-Dichloropropene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	1,2,3-Trichlorobenzene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	1,2,3-Trichloropropane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	1,2,4-Trichlorobenzene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	1,2,4-Trimethylbenzene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	1,2-Dichloroethane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	1,2-Dichloropropane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	1,3,5-Trimethylbenzene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	1,3-Dichloropropane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	2,2-Dichloropropane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	2-Butanone (MEK)	NA	ug/L	5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	4-Methyl-2-Pentanone (MIBK)	NA	ug/L	5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Benzene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Bromobenzene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Bromochloromethane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Bromodichloromethane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Bromoethane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Bromoform	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Bromomethane (Methyl Bromide)	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Carbon disulfide	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Carbon Tetrachloride	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Chlorobenzene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Chlorodibromomethane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Chloroethane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Chloroform (Trichloromethane)	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Chloromethane(Methyl Chloride)	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	cis-1,2-Dichloroethylene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	cis-1,3-Dichloropropene	NA	ug/L	0.5	1

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U.S. Army Corps of Engineers
Mike Chicoine
Washington Aqueduct
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Samples Received on:
04/20/2017 1119

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Dibromomethane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Dichlorodifluoromethane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Dichloromethane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Di-isopropyl ether	NA	ug/L	3	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Ethyl benzene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Hexachlorobutadiene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Isopropylbenzene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	m,p-Xylenes	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	m-Dichlorobenzene (1,3-DCB)	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Methyl Tert-butyl ether (MTBE)	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Naphthalene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	n-Butylbenzene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	n-Propylbenzene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	o-Chlorotoluene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	o-Dichlorobenzene (1,2-DCB)	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	o-Xylene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	p-Chlorotoluene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	p-Dichlorobenzene (1,4-DCB)	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	p-Isopropyltoluene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	sec-Butylbenzene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Styrene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	tert-amyl Methyl Ether	NA	ug/L	3	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	tert-Butyl Ethyl Ether	NA	ug/L	3	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	tert-Butylbenzene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Tetrachloroethylene (PCE)	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Toluene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Total 1,3-Dichloropropene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Total THM	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Total xylenes	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	trans-1,2-Dichloroethylene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	trans-1,3-Dichloropropene	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Trichloroethylene (TCE)	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Trichlorofluoromethane	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Trichlorotrifluoroethane(Freon 113)	NA	ug/L	0.5	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Vinyl chloride (VC)	NA	ug/L	0.3	1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	1,2-Dichloroethane-d4	NA	%		1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	4-Bromofluorobenzene	NA	%		1
04/28/17	04/28/17 19:44	990821	990823	(EPA 524.2)	Toluene-d8	NA	%		1

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U.S. Army Corps of Engineers
Mike Chicoine
Washington Aqueduct
5900 MacArthur Blvd. NW
Washington, DC 20016

Samples Received on:
04/20/2017 1119

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
J (201703010008)							**Sampled on 04/18/2017 1355**		
		EPA 505 - Organochlorine Pesticides/PCBs							
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	Alachlor (Alanex)	ND	ug/L	0.1	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	Aldrin	ND	ug/L	0.01	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	Chlordane	ND	ug/L	0.1	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	Dieldrin	ND	ug/L	0.01	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	Endrin	ND	ug/L	0.01	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	Heptachlor	ND	ug/L	0.01	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	Heptachlor Epoxide	ND	ug/L	0.01	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	Lindane (gamma-BHC)	ND	ug/L	0.01	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	Methoxychlor	ND	ug/L	0.05	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	PCB 1016 Aroclor	ND	ug/L	0.08	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	PCB 1221 Aroclor	ND	ug/L	0.1	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	PCB 1232 Aroclor	ND	ug/L	0.1	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	PCB 1242 Aroclor	ND	ug/L	0.1	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	PCB 1248 Aroclor	ND	ug/L	0.1	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	PCB 1254 Aroclor	ND	ug/L	0.1	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	PCB 1260 Aroclor	ND	ug/L	0.1	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	Total PCBs	ND	ug/L	0.1	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	Toxaphene	ND	ug/L	0.5	1
04/21/17	04/21/17 22:20	988660	989381	(EPA 505)	Tetrachlorometaxylene	107	%		1
		EPA 515.4 - Chlorophenoxy Herbicides							
04/25/17	04/27/17 07:51	988891	990711	(EPA 515.4)	2,4,5-T	ND	ug/L	0.2	1
04/25/17	04/27/17 07:51	988891	990711	(EPA 515.4)	2,4,5-TP (Silvex)	ND	ug/L	0.2	1
04/25/17	04/27/17 07:51	988891	990711	(EPA 515.4)	2,4-D	ND	ug/L	0.1	1
04/25/17	04/27/17 07:51	988891	990711	(EPA 515.4)	2,4-DB	ND	ug/L	2	1
04/25/17	04/27/17 07:51	988891	990711	(EPA 515.4)	3,5-Dichlorobenzoic acid	ND	ug/L	0.5	1
04/25/17	04/27/17 07:51	988891	990711	(EPA 515.4)	Acifluorfen	ND	ug/L	0.2	1
04/25/17	04/27/17 07:51	988891	990711	(EPA 515.4)	Bentazon	ND	ug/L	0.5	1
04/25/17	04/27/17 07:51	988891	990711	(EPA 515.4)	Dalapon	ND	ug/L	1	1
04/25/17	04/27/17 07:51	988891	990711	(EPA 515.4)	Dicamba	ND	ug/L	0.1	1
04/25/17	04/27/17 07:51	988891	990711	(EPA 515.4)	Dichlorprop	ND	ug/L	0.5	1
04/25/17	04/27/17 07:51	988891	990711	(EPA 515.4)	Dinoseb	ND	ug/L	0.2	1
04/25/17	04/27/17 07:51	988891	990711	(EPA 515.4)	Pentachlorophenol	ND	ug/L	0.04	1
04/25/17	04/27/17 07:51	988891	990711	(EPA 515.4)	Picloram	ND	ug/L	0.1	1
04/25/17	04/27/17 07:51	988891	990711	(EPA 515.4)	Tot DCPA Mono&Diacid Degradate	ND	ug/L	0.1	1
04/25/17	04/27/17 07:51	988891	990711	(EPA 515.4)	2,4-Dichlorophenyl acetic acid	94	%		1

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04/25/17	04/27/17 07:51	988891	990711	(EPA 515.4)	4,4-Dibromooctafluorobiphenyl	98	%		1
		EPA 551.1 - EDB/DBCP/HAN by EPA 551.1							
04/26/17	04/27/17 18:47	989661	990439	(EPA 551.1)	Dibromochloropropane (DBCP)	ND	ug/L	0.01	1
04/26/17	04/27/17 18:47	989661	990439	(EPA 551.1)	Ethylene Dibromide (EDB)	ND	ug/L	0.01	1
04/26/17	04/27/17 18:47	989661	990439	(EPA 551.1)	1,2-Dibromopropane	109	%		1
		EPA 525.2 - Semivolatiles by GCMS							
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	2,4-DDD	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	2,4-DDE	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	2,4-DDT	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	2,4-Dinitrotoluene	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	2,6-Dinitrotoluene	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	4,4-DDD	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	4,4-DDE	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	4,4-DDT	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Acenaphthene	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Acenaphthylene	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Acetochlor	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Alachlor	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Aldrin	ND (L4)	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Alpha-BHC	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	alpha-Chlordane	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Anthracene	ND	ug/L	0.02	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Atrazine	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Benz(a)Anthracene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Benzo(a)pyrene	ND	ug/L	0.02	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Benzo(b)Fluoranthene	ND	ug/L	0.02	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Benzo(g,h,i)Perylene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Benzo(k)Fluoranthene	ND	ug/L	0.02	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Beta-BHC	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Bromacil	ND	ug/L	0.2	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Butachlor	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Butylbenzylphthalate	ND	ug/L	0.5	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Caffeine by method 525mod	ND (R7)	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Chlorobenzilate	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Chloroneb	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Chlorothalonil(Draconil,Bravo)	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Chlorpyrifos (Dursban)	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Chrysene	ND	ug/L	0.02	1

Rounding on totals after summation.
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Laboratory Data

Report: 641972
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Group: Quarterly 2017

U.S. Army Corps of Engineers
Mike Chicoine
Washington Aqueduct
5900 MacArthur Blvd. NW
Washington, DC 20016

Samples Received on:
04/20/2017 1119

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Delta-BHC	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Di-(2-Ethylhexyl)adipate	ND	ug/L	0.6	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Di(2-Ethylhexyl)phthalate	ND	ug/L	0.6	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Diazinon (Qualitative)	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Dibenz(a,h)Anthracene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Dichlorvos (DDVP)	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Dieldrin	ND	ug/L	0.2	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Diethylphthalate	ND	ug/L	0.5	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Dimethoate	ND (R7)	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Dimethylphthalate	ND	ug/L	0.5	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Di-n-Butylphthalate	ND	ug/L	1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Di-N-octylphthalate	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Endosulfan I (Alpha)	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Endosulfan II (Beta)	ND (LE)	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Endosulfan Sulfate	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Endrin	ND	ug/L	0.2	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Endrin Aldehyde	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	EPTC	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Fluoranthene	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Fluorene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	gamma-Chlordane	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Heptachlor	ND	ug/L	0.03	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Heptachlor Epoxide (isomer B)	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Hexachlorobenzene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Hexachlorocyclopentadiene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Indeno(1,2,3,c,d)Pyrene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Isophorone	ND	ug/L	0.5	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Lindane	ND	ug/L	0.04	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Malathion	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Methoxychlor	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Metolachlor	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Metribuzin	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Molinate	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Naphthalene	ND	ug/L	0.3	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Parathion	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Pendimethalin	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Pentachlorophenol	ND	ug/L	1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Permethrin (mixed isomers)	ND	ug/L	0.1	1

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Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Phenanthrene	ND	ug/L	0.04	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Propachlor	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Pyrene	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Simazine	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Terbacil	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Terbuthylazine	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Thiobencarb (ELAP)	ND	ug/L	0.2	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	trans-Nonachlor	ND	ug/L	0.05	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Trifluralin	ND	ug/L	0.1	1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	1,3-Dimethyl-2-nitrobenzene	100	%		1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Acenaphthene-d10	90	%		1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Chrysene-d12	99	%		1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Perylene-d12	84	%		1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Phenanthrene-d10	95	%		1
04/28/17	05/03/17 14:50	990463	992136	(EPA 525.2)	Triphenylphosphate	110	%		1
		EPA 548.1 - Endothall							
04/21/17	04/25/17 12:13	988671	989541	(EPA 548.1)	Endothall	ND	ug/L	5	1
		EPA 521 - Nitrosamines by GCMS							
04/28/17	05/02/17 23:07	990294	991695	(EPA 521)	N-Nitrosodibutylamine (NDBA)	2.7	ng/L	2	1
04/28/17	05/02/17 23:07	990294	991695	(EPA 521)	N-Nitrosodiethylamine (NDEA)	ND	ng/L	2	1
04/28/17	05/02/17 23:07	990294	991695	(EPA 521)	N-Nitroso-dimethylamine (NDMA)	ND	ng/L	2	1
04/28/17	05/02/17 23:07	990294	991695	(EPA 521)	N-Nitrosodi-n-propylamine (NDPA)	ND	ng/L	2	1
04/28/17	05/02/17 23:07	990294	991695	(EPA 521)	N-Nitrosomethylethylamine (NMEA)	ND	ng/L	2	1
04/28/17	05/02/17 23:07	990294	991695	(EPA 521)	N-Nitrosopyrollidine (NPYR)	ND	ng/L	2	1
04/28/17	05/02/17 23:07	990294	991695	(EPA 521)	NDMA-D6	119	%		1
		EPA 1613B - 2,3,7,8-TCDD_Dioxin							
04/25/17	05/04/17 21:47	989336	992614	(EPA 1613B)	2,3,7,8-TCDD	ND	pg/L	5	1
04/25/17	05/04/17 21:47	989336	992614	(EPA 1613B)	C12-2,3,7,8-TCDD	62	%		1
		EPA 547 - Glyphosate							
	04/26/17 14:23		989888	(EPA 547)	Glyphosate	ND	ug/L	6	1
		EPA 531.2 - Aldicarbs							
	05/02/17 00:12		991152	(EPA 531.2)	3-Hydroxycarbofuran	ND	ug/L	0.5	1
	05/02/17 00:12		991152	(EPA 531.2)	Aldicarb (Temik)	ND	ug/L	0.5	1
	05/02/17 00:12		991152	(EPA 531.2)	Aldicarb sulfone	ND	ug/L	0.5	1
	05/02/17 00:12		991152	(EPA 531.2)	Aldicarb sulfoxide	ND	ug/L	0.5	1
	05/02/17 00:12		991152	(EPA 531.2)	Baygon	ND	ug/L	0.5	1
	05/02/17 00:12		991152	(EPA 531.2)	Carbaryl	ND	ug/L	0.5	1
	05/02/17 00:12		991152	(EPA 531.2)	Carbofuran (Furadan)	ND	ug/L	0.5	1

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	05/02/17 00:12		991152	(EPA 531.2)	Methiocarb	ND	ug/L	0.5	1
	05/02/17 00:12		991152	(EPA 531.2)	Methomyl	ND	ug/L	0.5	1
	05/02/17 00:12		991152	(EPA 531.2)	Oxamyl (Vydate)	ND	ug/L	0.5	1
	05/02/17 00:12		991152	(EPA 531.2)	4-Bromo-3,5-dimethylphenyl-N-methylc arbamate	117	%		1
		EPA 549.2 - Diquat and Paraquat							
04/24/17	04/25/17 14:09	988291	989594	(EPA 549.2)	Diquat	ND	ug/L	0.4	1
04/24/17	04/25/17 14:09	988291	989594	(EPA 549.2)	Paraquat	ND	ug/L	2	1
		EPA 335.4 - Cyanide by manual distillation							
04/24/17	04/24/17 19:08	989133	989458	(EPA 335.4)	Cyanide by manual distillation	ND	mg/L	0.005	1
		EPA 524.2 - Volatile Organics by GCMS							
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	1,1,1,2-Tetrachloroethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	1,1,1-Trichloroethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	1,1,2,2-Tetrachloroethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	1,1,2-Trichloroethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	1,1-Dichloroethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	1,1-Dichloroethylene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	1,1-Dichloropropene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	1,2,3-Trichlorobenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	1,2,3-Trichloropropane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	1,2,4-Trichlorobenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	1,2,4-Trimethylbenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	1,2-Dichloroethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	1,2-Dichloropropane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	1,3,5-Trimethylbenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	1,3-Dichloropropane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	2,2-Dichloropropane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	2-Butanone (MEK)	ND	ug/L	5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Benzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Bromobenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Bromochloromethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Bromodichloromethane	8.9	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Bromoethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Bromoform	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Bromomethane (Methyl Bromide)	ND (VC,LK)	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Carbon disulfide	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Carbon Tetrachloride	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Chlorobenzene	ND	ug/L	0.5	1

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04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Chlorodibromomethane	1.9	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Chloroethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Chloroform (Trichloromethane)	22	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Chloromethane(Methyl Chloride)	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	cis-1,2-Dichloroethylene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	cis-1,3-Dichloropropene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Dibromomethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Dichlorodifluoromethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Dichloromethane	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Di-isopropyl ether	ND	ug/L	3	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Ethyl benzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Hexachlorobutadiene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Isopropylbenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	m,p-Xylenes	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	m-Dichlorobenzene (1,3-DCB)	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Methyl Tert-butyl ether (MTBE)	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Naphthalene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	n-Butylbenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	n-Propylbenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	o-Chlorotoluene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	o-Dichlorobenzene (1,2-DCB)	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	o-Xylene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	p-Chlorotoluene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	p-Dichlorobenzene (1,4-DCB)	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	p-Isopropyltoluene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	sec-Butylbenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Styrene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	tert-amyl Methyl Ether	ND	ug/L	3	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	tert-Butyl Ethyl Ether	ND	ug/L	3	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	tert-Butylbenzene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Tetrachloroethylene (PCE)	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Toluene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Total 1,3-Dichloropropene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Total THM	33	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Total xylenes	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	trans-1,2-Dichloroethylene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	trans-1,3-Dichloropropene	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Trichloroethylene (TCE)	ND	ug/L	0.5	1

Rounding on totals after summation.
(c) - indicates calculated results

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Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory Data

Report: 641972
Project: QUARTERLY
Group: Quarterly 2017

U.S. Army Corps of Engineers
Mike Chicoine
Washington Aqueduct
5900 MacArthur Blvd. NW
Washington, DC 20016

Samples Received on:
04/20/2017 1119

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Trichlorofluoromethane	ND (VC,LK)	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Trichlorotrifluoroethane(Freon 113)	ND	ug/L	0.5	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Vinyl chloride (VC)	ND (LE)	ug/L	0.3	1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	1,2-Dichloroethane-d4	103	%		1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	4-Bromofluorobenzene	120	%		1
04/28/17	04/28/17 19:43	990821	990823	(EPA 524.2)	Toluene-d8	89	%		1

Rounding on totals after summation.
(c) - indicates calculated results

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Tel: (626) 386-1100
Fax: (626) 386-1101
1 800 566 LABS (1 800 566 5227)

Laboratory Comments

Report: 641972
Project: QUARTERLY
Group: Quarterly 2017

U.S. Army Corps of Engineers
Mike Chicoine
Washington Aqueduct
5900 MacArthur Blvd. NW
Washington, DC 20016

Flags Legend:

L4 - The associated blank spike recovery was below method acceptance limits.

LE - MRL Check recovery was above laboratory acceptance limits.

LK - The associated blank spike recovery was above method acceptance limits. This target analyte was not detected in the sample.

M2 - Matrix spike recovery was low; the associated blank spike recovery was acceptable.

Q2 - Sample received with head space.

R7 - LFB/LFBD RPD exceeded the laboratory acceptance limit. Recovery met acceptance criteria.

VC - CCV is high biased, ND data are reportable as per TNI V1M4 1.7.2.e).i.

The Comments Report may be blank if there are no comments for this report.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

May 11, 2017

Michael Chicoine
USACE - Washington Aqueduct
5900 MacArthur Blvd, NW
Washington, DC 20016

RE: Project: RAD
Pace Project No.: 30216583

Dear Michael Chicoine:
Enclosed are the analytical results for sample(s) received by the laboratory on April 20, 2017. 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.

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

Sincerely,

Robbin Robl
robbin.robl@pacelabs.com
(724)850-5613
Project Manager

Enclosures

cc: Robert Hoffa, USACE - Washington Aqueduct

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CERTIFICATIONS

Project: RAD
Pace Project No.: 30216583

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Wyoming Certification: FL NELAC Reciprocity
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

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SAMPLE ANALYTE COUNT

Project: RAD
Pace Project No.: 30216583

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30216583001	**18**	EPA 200.7	BTS	1	PASI-O
		EPA 900.0	NEG	2	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JJY	1	PASI-PA
		EPA 905.0	JC2	1	PASI-PA
		EPA 906.0	WRR	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
30216583002	**J**	EPA 200.7	BTS	1	PASI-O
		EPA 900.0	NEG	2	PASI-PA
		EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JJY	1	PASI-PA
		EPA 905.0	JC2	1	PASI-PA
		EPA 906.0	WRR	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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PROJECT NARRATIVE

Project: RAD
Pace Project No.: 30216583

Method: **EPA 200.7**
Description: 200.7 MET ICP, DW No Prep
Client: USACE Washington Aqueduct
Date: May 11, 2017

General Information:
2 samples were analyzed for EPA 200.7. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RAD
Pace Project No.: 30216583

Method: **EPA 900.0**
Description: 900.0 Gross Alpha/Beta
Client: USACE Washington Aqueduct
Date: May 11, 2017

General Information:
2 samples were analyzed for EPA 900.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RAD
Pace Project No.: 30216583

Method: **EPA 903.1**
Description: 903.1 Radium 226
Client: USACE Washington Aqueduct
Date: May 11, 2017

General Information:
2 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RAD
Pace Project No.: 30216583

Method: **EPA 904.0**
Description: 904.0 Radium 228
Client: USACE Washington Aqueduct
Date: May 11, 2017

General Information:
2 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RAD
Pace Project No.: 30216583

Method: **EPA 905.0**
Description: 905.0 Strontium 89/90
Client: USACE Washington Aqueduct
Date: May 11, 2017

General Information:
2 samples were analyzed for EPA 905.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RAD
Pace Project No.: 30216583

Method: **EPA 906.0**
Description: 906.0 Tritium
Client: USACE Washington Aqueduct
Date: May 11, 2017

General Information:
2 samples were analyzed for EPA 906.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RAD
Pace Project No.: 30216583

Method: **Total Radium Calculation**
Description: Total Radium 228+226
Client: USACE Washington Aqueduct
Date: May 11, 2017

General Information:
2 samples were analyzed for Total Radium Calculation. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: RAD
Pace Project No.: 30216583

Sample: 18 **Lab ID: 30216583001** Collected: 04/18/17 12:15 Received: 04/20/17 07:50 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP, DW No Prep	Analytical Method: EPA 200.7							
Potassium	**2160**	ug/L	1000	1		04/29/17 10:53	7440-09-7	

Sample: J **Lab ID: 30216583002** Collected: 04/18/17 13:34 Received: 04/20/17 07:50 Matrix: Drinking Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP, DW No Prep	Analytical Method: EPA 200.7							
Potassium	**2260**	ug/L	1000	1		04/29/17 10:57	7440-09-7	

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QUALITY CONTROL DATA

Project: RAD
Pace Project No.: 30216583

QC Batch: 365572 | Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 | Analysis Description: 200.7 MET No Prep Drinking Water
Associated Lab Samples: 30216583001, 30216583002

METHOD BLANK: 1971979 | Matrix: Water
Associated Lab Samples: 30216583001, 30216583002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Potassium	ug/L	ND	1000	04/29/17 04:23	

LABORATORY CONTROL SAMPLE: 1971980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Potassium	ug/L	12500	11800	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1971981 1971982

Parameter	Units	35307986018 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Potassium	ug/L	1190	12500	12500	14200	14300	104	105	70-130	1	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1971983 1971984

Parameter	Units	35307736001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Potassium	ug/L	500U	12500	12500	13600	12800	107	100	70-130	6	

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: RAD
Pace Project No.: 30216583

Sample: 18 **Lab ID: 30216583001** Collected: 04/18/17 12:15 Received: 04/20/17 07:50 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	**0.381 ± 0.928 (2.26) C:NA T:NA**	pCi/L	05/08/17 22:07	12587-46-1	
Gross Beta	EPA 900.0	**1.15 ± 0.893 (1.82) C:NA T:NA**	pCi/L	05/08/17 22:07	12587-47-2	
Radium-226	EPA 903.1	**0.203 ± 0.397 (0.727) C:NA T:91%**	pCi/L	05/03/17 12:04	13982-63-3	
Radium-228	EPA 904.0	**0.212 ± 0.358 (0.786) C:79% T:81%**	pCi/L	05/03/17 11:47	15262-20-1	
Strontium-90	EPA 905.0	**0.264 ± 0.353 (0.763) C:90% T:NA**	pCi/L	05/03/17 08:45	10098-97-2	
Tritium	EPA 906.0	**-35.5 ± 144 (258) C:NA T:NA**	pCi/L	05/05/17 11:40	10028-17-8	
Total Radium	Total Radium Calculation	**0.415 ± 0.755 (1.51)**	pCi/L	05/10/17 08:37	7440-14-4	

Sample: J **Lab ID: 30216583002** Collected: 04/18/17 13:34 Received: 04/20/17 07:50 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	**0.596 ± 1.11 (2.54) C:NA T:NA**	pCi/L	05/10/17 07:46	12587-46-1	
Gross Beta	EPA 900.0	**-0.126 ± 0.768 (1.93) C:NA T:NA**	pCi/L	05/10/17 07:46	12587-47-2	
Radium-226	EPA 903.1	**0.714 ± 0.555 (0.780) C:NA T:88%**	pCi/L	05/03/17 12:36	13982-63-3	
Radium-228	EPA 904.0	**0.129 ± 0.336 (0.752) C:78% T:82%**	pCi/L	05/03/17 11:47	15262-20-1	
Strontium-90	EPA 905.0	**0.0140 ± 0.305 (0.707) C:89% T:NA**	pCi/L	05/03/17 08:45	10098-97-2	
Tritium	EPA 906.0	**8.87 ± 146 (258) C:NA T:NA**	pCi/L	05/05/17 12:41	10028-17-8	
Total Radium	Total Radium Calculation	**0.843 ± 0.891 (1.53)**	pCi/L	05/10/17 08:37	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: RAD
Pace Project No.: 30216583

QC Batch: 256528 | Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 | Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30216583001, 30216583002

METHOD BLANK: 1263567 | Matrix: Water
Associated Lab Samples: 30216583001, 30216583002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.363 (0.787) C:NA T:91%	pCi/L	05/03/17 11:45	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: RAD
Pace Project No.: 30216583

QC Batch: 256531 | Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 | Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30216583001, 30216583002

METHOD BLANK: 1263570 | Matrix: Water
Associated Lab Samples: 30216583001, 30216583002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.274 ± 0.317 (0.665) C:80% T:84%	pCi/L	05/03/17 11:17	

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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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: RAD
Pace Project No.: 30216583

QC Batch: 256960 | Analysis Method: EPA 900.0
QC Batch Method: EPA 900.0 | Analysis Description: 900.0 Gross Alpha/Beta
Associated Lab Samples: 30216583001

METHOD BLANK: 1266033 | Matrix: Water
Associated Lab Samples: 30216583001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	0.266 ± 0.817 (1.98) C:NA T:NA	pCi/L	05/09/17 10:05	
Gross Beta	0.366 ± 0.810 (1.85) C:NA T:NA	pCi/L	05/09/17 10:05	

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(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: RAD
Pace Project No.: 30216583

QC Batch: 256961 | Analysis Method: EPA 900.0
QC Batch Method: EPA 900.0 | Analysis Description: 900.0 Gross Alpha/Beta
Associated Lab Samples: 30216583002

METHOD BLANK: 1266034 | Matrix: Water
Associated Lab Samples: 30216583002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	0.365 ± 0.544 (1.15) C:NA T:NA	pCi/L	05/10/17 07:33	
Gross Beta	0.486 ± 0.850 (1.91) C:NA T:NA	pCi/L	05/10/17 07:33	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: RAD
Pace Project No.: 30216583

QC Batch: 257251 | Analysis Method: EPA 906.0
QC Batch Method: EPA 906.0 | Analysis Description: 906.0 Tritium
Associated Lab Samples: 30216583001, 30216583002

METHOD BLANK: 1267024 | Matrix: Water
Associated Lab Samples: 30216583001, 30216583002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Tritium	-8.61 ± 141 (251) C:NA T:NA	pCi/L	05/05/17 09:38	

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Greensburg, PA 15601
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QUALITY CONTROL - RADIOCHEMISTRY

Project: RAD
Pace Project No.: 30216583

QC Batch: 256624 | Analysis Method: EPA 905.0
QC Batch Method: EPA 905.0 | Analysis Description: 905.0 Strontium 89/90
Associated Lab Samples: 30216583001, 30216583002

METHOD BLANK: 1263889 | Matrix: Water
Associated Lab Samples: 30216583001, 30216583002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Strontium-90	0.00500 ± 0.124 (0.287) C:89% T:NA	pCi/L	05/03/17 08:45	

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Greensburg, PA 15601
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QUALIFIERS

Project: RAD
Pace Project No.: 30216583

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.

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.

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.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-O	Pace Analytical Services - Ormond Beach
PASI-PA	Pace Analytical Services - Greensburg

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RAD
Pace Project No.: 30216583

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30216583001	**18**	EPA 200.7	365572		
30216583002	**J**	EPA 200.7	365572		
30216583001	**18**	EPA 900.0	256960		
30216583002	**J**	EPA 900.0	256961		
30216583001	**18**	EPA 903.1	256528		
30216583002	**J**	EPA 903.1	256528		
30216583001	**18**	EPA 904.0	256531		
30216583002	**J**	EPA 904.0	256531		
30216583001	**18**	EPA 905.0	256624		
30216583002	**J**	EPA 905.0	256624		
30216583001	**18**	EPA 906.0	257251		
30216583002	**J**	EPA 906.0	257251		
30216583001	**18**	Total Radium Calculation	257975		
30216583002	**J**	Total Radium Calculation	257975		

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www.pacelabs.com

WO#: 30216583

30216583

t Document
mpleted accurately.

Page: of

2118631

Section A
Required Client Information:

Company: Washington Aqueduct (WAD)
Address: 5900 MacArthur Blvd NW
Washington, DC 20016
Email To: michael.l.chicoine@usace.army.mil
Phone: 202-587-9137 Fax:
Requested Due Date/TAT: 3 week STANDARD

Section B
Required Project Information:

Report To: Michael Chicone
Copy To: Robert Hoffa
Purchase Order No.: 63217058
Project Name:
Project Number:

Invoice Information:

Attention: Marchello Fields / Michael Chicoine
Company Name: Washington Aqueduct (WAD) Washington DC
Address: 5900 MacArthur Blvd NW 20016
Pace Quote Reference: 20170322JRH-1
Pace Project Manager: Robbin Robl
Pace Profile #:

REGULATORY AGENCY
☐ NPDES ☐ GROUND WATER ☑ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: DC

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	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): 900.0 (Gross Alpha, Beta)	903.1 (Radium-226)*	904.0 (Radium-228)*	905.0 (Strontium-90)	906.0 (Tritium)	200.7 (Total Potassium)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	18	DW	G			4.18.17	1215		5	1		4						X	X	X	X	X	X	Y	
2	J	DW	G			4.18.17	1334		5	1		4						X	X	X	X	X	X	Y	
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*Report Radium-226 + 228 individually AND as combined Radium	Laura Bell / WAD	4.19.17	0930	Karen Hill	4/20/17	0750	2.6	Y	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Laura Gallimore
SIGNATURE of SAMPLER: Laura Bell
DATE Signed (MM/DD/YY): 4.18.17

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-Q-020rev.07, 15-May-2007

KEH

Sample Condition Upon Receipt Pittsburgh

30216583

Pace Analytical

Client Name: Washington Aqueduct Project # _____

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 8099 9725 3679

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Thermometer Used 6 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 2.6 °C Correction Factor: 0.0 °C Final Temp: 2.6 °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: KH 4/20/17

Comments:	Yes	No	N/A		
Chain of Custody Present:	✓			1.	
Chain of Custody Filled Out:	✓			2.	
Chain of Custody Relinquished:	✓			3.	
Sampler Name & Signature on COC:	✓			4.	
Sample Labels match COC: -Includes date/time/ID Matrix: Wt	✓			5.	
Samples Arrived within Hold Time:	✓			6.	
Short Hold Time Analysis (<72hr remaining):		✓		7.	
Rush Turn Around Time Requested:		✓		8.	
Sufficient Volume:	✓			9.	
Correct Containers Used: -Pace Containers Used:	✓ ✓			10.	
Containers Intact:	✓			11.	
Orthophosphate field filtered			N/A	12.	
Organic Samples checked for dechlorination:			✓	13.	
Filtered volume received for Dissolved tests			✓	14.	
All containers have been checked for preservation. All containers needing preservation are found to be in compliance with EPA recommendation.	✓ ✓			15.	
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed KH	Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):			✓	16.	
Trip Blank Present: Trip Blank Custody Seals Present		✓	✓	17.	
Rad Aqueous Samples Screened > 0.5 mrem/hr		✓		Initial when completed: KH	Date: 4/20/17

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: Split one of the Rad bottles (1L) into a 250 chem for each sample

☐ **A check in this box indicates that additional information has been stored in ereports.**

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)

***PM review** is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

WO# : 35308213

35308213

Chain of Custody

Pace Analytical®
www.pacelabs.com

Workorder: 30216583 **Workorder Name:** RAD **Owner Received Date:** 4/20/2017 **Results Requested By:** 5/11/2017

Report To

Robbin Robl
Pace Analytical Pittsburgh
1638 Roseytown Road
Suites 2,3,4
Greensburg, PA 15601
Phone (724)850-5613

Subcontract To

Pace Analytical Ormond Beach
8 East Tower Circle
Ormond Beach, FL 32174
Phone (386)672-5668

Requested Analysis

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HNO3						T. Potassium by 200.7												LAB USE ONLY
1	18	PS	4/18/2017 12:15	30216583001	Drinking	1						X												
2	J	PS	4/18/2017 13:34	30216583002	Drinking	1						X												
3																								
4																								
5																								

Transfers	Released By	Date/Time	Received By	Date/Time
1	RBig Pace	4/24/17 1600	Cedric Alexander	4/25/17 1015
2				
3				

Comments

Cooler Temperature on Receipt 0.5 °C **Custody Seal** Y or (N) **Received on Ice** (Y) or N **Samples Intact** (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

Pace Analytical Florida Laboratory	Document Name: Sample Condition Upon Receipt Form Document No.: F-FL-C-007 rev. 11	Document Revised: February 6, 2017 Issuing Authority: Pace Florida Quality Office

WO#: 35308213

PM: VEG Due Date: 05/04/17

CLIENT: PACPIT

SCUR)

Project #

Project Manager:

Client:

Date and Initials of person:

Examining contents: _____

Label: _____

Deliver: NMS

pH: _____

Thermometer Used: T284 Date: 4/25/17 Time: 1015 Initials: NMS

Cooler #1 Temp.°C 0.5 (Visual) 0.0 (Correction Factor) 0.5 (Actual) ☐ Samples on ice, cooling process has begun

Cooler #2 Temp.°C _____ (Visual) _____ (Correction Factor) _____ (Actual) ☐ Samples on ice, cooling process has begun

Cooler #3 Temp.°C _____ (Visual) _____ (Correction Factor) _____ (Actual) ☐ Samples on ice, cooling process has begun

Cooler #4 Temp.°C _____ (Visual) _____ (Correction Factor) _____ (Actual) ☐ Samples on ice, cooling process has begun

Cooler #5 Temp.°C _____ (Visual) _____ (Correction Factor) _____ (Actual) ☐ Samples on ice, cooling process has begun

Cooler #6 Temp.°C _____ (Visual) _____ (Correction Factor) _____ (Actual) ☐ Samples on ice, cooling process has begun

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other _____

Shipping Method: ☐ First Overnight ☐ Priority Overnight ☑ Standard Overnight ☐ Ground ☐ Other _____

Billing: ☐ Recipient ☑ Sender ☐ Third Party ☐ Unknown

Tracking # 7060 2534 5900

Custody Seal on Cooler/Box Present: ☐ Yes ☑ No **Seals intact:** ☑ Yes ☑ No CJA 4/25/17 **Ice:** (Wet) Blue None

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

Samples shorted to lab (If Yes, complete) Shorted Date: _____ Shorted Time: _____ Qty: _____

		Comments:
Chain of Custody Present	☑ Yes ☐ No ☐ N/A	
Chain of Custody Filled Out	☑ Yes ☐ No ☐ N/A	
Relinquished Signature & Sampler Name COC	☑ Yes ☐ No ☐ N/A	
Samples Arrived within Hold Time	☑ Yes ☐ No ☐ N/A	
Rush TAT requested on COC	☐ Yes ☐ No ☑ N/A	
Sufficient Volume	☑ Yes ☐ No ☐ N/A	
Correct Containers Used	☑ Yes ☐ No ☐ N/A	
Containers Intact	☑ Yes ☐ No ☐ N/A	
Sample Labels match COC (sample IDs & date/time of collection)	☑ Yes ☐ No ☐ N/A	
All containers needing acid/base preservation have been checked. All Containers needing preservation are found to be in compliance with EPA recommendation: Exceptions: VOA, Coliform, TOC, O&G, Carbamates	☑ Yes ☐ No ☐ N/A ☑ Yes ☐ No ☐ N/A	Preservation Information: Preservative: _____ Lot #/Trace #: _____ Date: _____ Time: _____ Initials: _____
Headspace in VOA Vials? (>6mm):	☐ Yes ☐ No ☑ N/A	
Trip Blank Present:	☐ Yes ☐ No ☑ N/A	

Client Notification/ Resolution:

Person Contacted: _____ Date/Time _____

Comments/ Resolution (use back for additional comments): _____

Project Manager Review: Date:

Washington Aqueduct Daily Orthophosphate Data
01 May, 2017 To: 31 May, 2017

Date	Dalecarlia PO4 Dose mg/L	18 PO4 Residual mg/L	McMillan PO4 Dose mg/L	J PO4 Residual mg/L
05/01/17	2.80	2.34	2.45	2.30
05/02/17	2.80	2.37	2.45	2.31
05/03/17	2.80	2.39	2.45	2.26
05/04/17	2.80	2.38	2.45	2.34
05/05/17	2.80	2.47	2.45	2.36
05/06/17	2.80	2.30	2.45	2.30
05/07/17	2.80	2.28	2.45	2.31
05/08/17	2.79	2.39	2.45	2.33
05/09/17	2.78	2.32	2.45	2.31
05/10/17	2.78	2.38	2.45	2.31
05/11/17	2.78	2.15	2.45	2.31
05/12/17	2.78	2.33	2.45	2.37
05/13/17	2.78	2.27	2.45	2.37
05/14/17	2.78	2.29	2.45	2.34
05/15/17	2.78	2.32	2.45	2.33
05/16/17	2.78	2.32	2.45	2.36
05/17/17	2.78	2.40	2.45	2.32
05/18/17	2.77	2.40	2.45	2.33
05/19/17	2.76	2.30	2.45	2.31
05/20/17	2.76	2.37	2.45	2.30
05/21/17	2.76	2.27	2.45	2.30
05/22/17	2.76	2.29	2.45	2.37
05/23/17	2.76	2.39	2.42	2.43
05/24/17	2.76	2.40	2.40	2.35
05/25/17	2.76	2.32	2.40	2.83
05/26/17	2.76	2.36	2.40	2.29
05/27/17	2.76	no data*	2.40	no data*
05/28/17	2.76	2.42	2.40	2.40
05/29/17	2.76	2.39	2.40	2.39
05/30/17	2.76	2.48	2.40	2.39
05/31/17	2.76	2.39	2.40	2.33
Average	2.78	2.35	2.44	2.35
Maximum	2.80	2.48	2.45	2.83
Minimum	2.76	2.15	2.40	2.26

Finished water residuals (entry point to distribution system) are from daily grab samples analyzed for total orthophosphate by Washington Aqueduct Laboratory.

no data* = sample analyzed outside of holding time due to holiday.

Washington Aqueduct Daily Turbidity, pH and Chlorine Data

01 May, 2017 To: 31 May, 2017

Date	#1 Avg. Turbidity	#15 Avg. Turbidity	#15 Max. Turbidity	#18 Avg. Turbidity	G Avg. Turbidity	G Max. Turbidity	J Avg. Turbidity	#18 Avg. pH	J Avg. pH	#18 Avg. Cl2	J Avg. Cl2
05/01/17	9	0.04	0.04	0.14	0.03	0.03	0.06	7.70	7.69	3.67	3.80
05/02/17	9	0.04	0.04	0.14	0.03	0.04	0.06	7.70	7.74	3.63	3.76
05/03/17	8	0.04	0.04	0.06	0.04	0.04	0.06	7.73	7.77	3.76	3.72
05/04/17	9	0.04	0.04	0.08	0.04	0.04	0.06	7.74	7.73	3.76	3.80
05/05/17	8	0.04	0.04	0.12	0.04	0.04	0.06	7.73	7.75	3.65	3.79
05/06/17	22	0.04	0.04	0.13	0.04	0.04	0.06	7.76	7.75	3.72	3.82
05/07/17	34	0.04	0.04	0.11	0.04	0.04	0.06	7.73	7.73	3.72	3.78
05/08/17	50	0.05	0.06	0.13	0.04	0.04	0.06	7.69	7.72	3.76	3.80
05/09/17	41	0.05	0.05	0.14	0.04	0.04	0.06	7.66	7.72	3.76	3.83
05/10/17	24	0.04	0.04	0.14	0.04	0.04	0.06	7.65	7.64	3.74	3.70
05/11/17	20	0.04	0.04	0.13	0.03	0.04	0.06	7.67	7.69	3.64	3.81
05/12/17	14	0.03	0.03	0.12	0.03	0.03	0.05	7.71	7.64	3.67	3.81
05/13/17	15	0.03	0.04	0.11	0.03	0.03	0.04	7.71	7.68	3.74	3.85
05/14/17	16	0.03	0.03	0.10	0.02	0.03	0.04	7.72	7.69	3.75	3.79
05/15/17	18	0.03	0.04	0.12	0.02	0.03	0.04	7.70	7.74	3.70	3.80
05/16/17	18	0.04	0.04	0.12	0.02	0.02	0.04	7.72	7.73	3.69	3.77
05/17/17	18	0.03	0.04	0.11	0.02	0.02	0.04	7.65	7.65	3.69	3.78
05/18/17	17	0.04	0.04	0.14	0.02	0.02	0.04	7.66	7.68	3.48	3.75
05/19/17	12	0.03	0.03	0.13	0.02	0.02	0.03	7.66	7.72	3.75	3.86
05/20/17	10	0.03	0.04	0.15	0.02	0.02	0.03	7.66	7.71	3.63	3.70
05/21/17	15	0.04	0.04	0.11	0.02	0.02	0.04	7.67	7.76	3.33	3.65
05/22/17	10	0.04	0.04	0.13	0.02	0.02	0.03	7.72	7.72	3.73	3.78
05/23/17	8	0.04	0.04	0.16	0.02	0.02	0.03	7.71	7.69	3.71	3.76
05/24/17	6	0.04	0.04	0.21	0.02	0.02	0.04	7.72	7.70	3.77	3.71
05/25/17	7	0.03	0.04	0.14	0.03	0.06	0.05	7.70	7.71	3.59	3.75
05/26/17	5	0.03	0.04	0.16	0.02	0.03	0.04	7.77	7.73	3.64	3.80
05/27/17	16	0.04	0.04	0.17	0.02	0.03	0.04	7.73	7.71	3.52	3.71
05/28/17	21	0.04	0.04	0.15	0.03	0.03	0.04	7.72	7.71	3.64	3.79
05/29/17	14	0.04	0.04	0.15	0.03	0.03	0.05	7.68	7.69	3.70	3.80
05/30/17	12	0.04	0.04	0.17	0.03	0.03	0.05	7.64	7.69	3.66	3.79
05/31/17	11	0.04	0.04	0.15	0.02	0.03	0.05	7.68	7.66	3.63	3.78
Average	16	0.04	0.04	0.13	0.03	0.03	0.05	7.70	7.71	3.67	3.78
Maximum	50	0.05	0.06	0.21	0.04	0.06	0.06	7.77	7.77	3.77	3.86
Minimum	5	0.03	0.03	0.06	0.02	0.02	0.03	7.64	7.64	3.33	3.65

Data are from on-line analyzers except for pH. pH data are from grab samples analyzed a minumum of every 4 hours.

1=Raw water, 15= Dalecarlia Filtered, 18= Dalecarlia Finished, G=McMillan Filtered, J=McMillan Finished

Units: Turbidity (NTU), Cl2 - Chlorine Residual (mg/L)

Average turbidity is calculated from the hourly turbidity readings for each day.

Maximum turbidity is the maximum of the hourly turbidimeter readings for each day.

Optimal Corrosion Control Treatment

Point-of-Entry pH Requirements

Month	Required pH	Dalecarlia Days Out of Range	McMillan Days Out of Range	Total # of Days with Excursions
Jan-17	7.7 ± 0.3	0	0	0
Feb-17	7.7 ± 0.3	0	0	0
Mar-17	7.7 ± 0.3	0	0	0
Apr-17	7.7 ± 0.3	0	0	0
May-17	7.7 ± 0.3	0	0	0
Jun-17	7.7 ± 0.3			
Compliance Period Totals				

Month	Required pH	Dalecarlia Days Out of Range	McMillan Days Out of Range	Total # of Days with Excursions
Jul-17	7.7 ± 0.3			
Aug-17	7.7 ± 0.3			
Sep-17	7.7 ± 0.3			
Oct-17	7.7 ± 0.3			
Nov-17	7.7 ± 0.3			
Dec-17	7.7 ± 0.3			
Compliance Period Totals				

Point-of-Entry Orthophosphate Requirements

Month	Required orthophosphate	Dalecarlia Days Out of Range	McMillan Days Out of Range	Total # of Days with Excursions
Jan-17	0.5 - 5.0 mg/L	0	0	0
Feb-17	0.5 - 5.0 mg/L	0	0	0
Mar-17	0.5 - 5.0 mg/L	0	0	0
Apr-17	0.5 - 5.0 mg/L	0	0	0
May-17	0.5 - 5.0 mg/L	0	0	0
Jun-17	0.5 - 5.0 mg/L			
Compliance Period Totals				

Month	Required orthophosphate	Dalecarlia Days Out of Range	McMillan Days Out of Range	Total # of Days with Excursions
Jul-17	0.5 - 5.0 mg/L			
Aug-17	0.5 - 5.0 mg/L			
Sep-17	0.5 - 5.0 mg/L			
Oct-17	0.5 - 5.0 mg/L			
Nov-17	0.5 - 5.0 mg/L			
Dec-17	0.5 - 5.0 mg/L			
Compliance Period Totals				

Treatment Techniques for Acrylamide and Epichlorohydrin

Washington Aqueduct certifies that when acrylamide and/or epichlorohydrin are used in drinking water treatment, the combination (or product) of dose and monomer level does not exceed the levels specified in 40 CFR 141.111.

Monthly Report to Primacy Agency for Compliance Determination - Filtered Systems

01 May 2017 To: 31May 2017

System/Treatment Plant: Washington Aqueduct - Dalecarlia
Type of Filtration: Conventional Treatment
Turbidity Limit: 0.3 NTU
PWSID: DC0000001

Combined Filter Effluent (CFE) Turbidity Performance Criteria:

A.Combined filter effluent monitoring has been conducted in accordance with the IESWTR except as noted:

No Exceptions

B. Minimum number of CFE turbidity measurements required for compliance (6 per day x no. days in operation):	186
Number of Hours in Month	744
Number of Hours in Month that WTP is Off Line	0
Total number of CFE turbidity measurements used for compliance:	744
Total number of CFE turbidity measurements that are less than or equal to 0.3 NTU:	744
Percentage of turbidity measurements meeting the specified limits:	100

C. Record the date and turbidity value for any CFE turbidity measurement exceeding 1 NTU:

Date	Turbidity, NTU

Individual Filter Effluent (IFE) Turbidity Performance Criteria

A. Individual filter effluent monitoring has been conducted in accordance with the IESWTR except as noted:

No Exceptions

B. Report the date, filter number, and turbidity value for any measurement exceeding 0.5 NTU for two consecutive 15 minute measurements after the first four hours after backwash:

Filter No.	Date	Time	Turbidity, NTU

C. Report the date, filter number, and turbidity value for any measurement exceeding 1.0 NTU for two consecutive 15 minute measurements:

Filter No.	Date	Time	Turbidity, NTU

D. Report the date of any failure to collect grab samples if continuous turbidity monitoring equipment is out of service more than 4 hours

E. Report the date of any failure to resume continuous turbidity monitoring more than 5 days after equipment failure

Additional Voluntary Information

Date	*Time*	*Duration*

Dalecarlia 95th Percentile Combined Filter Effluent Turbidity = 0.05 NTU

Dalecarlia Maximum Individual Filter Effluent Turbidity

Filter	Jan-17	Feb-17	Mar-17	Apr-17	May-17
1	0.04	0.10	0.06	0.04	0.03
2	0.08	0.07	0.09	0.08	0.06
3	0.06	0.06	0.06	0.05	0.05
4	0.06	0.05	0.06	0.05	0.05
5	0.09	0.06	0.06	0.05	0.06
6	0.06	0.06	0.07	0.07	0.06
7	0.05	0.05	0.07	0.05	0.04
8	0.06	0.06	0.09	0.06	0.06
9	0.06	0.05	0.08	0.06	0.05
10	O/S	0.06	0.05	0.06	0.05
11	0.04	0.05	0.06	0.05	0.05
12	0.06	0.05	0.06	0.06	0.05
13	0.06	0.06	0.07	0.06	0.06
14	0.07	0.04	0.07	0.05	0.06
15	0.06	0.05	0.06	0.05	0.04
16	0.09	0.07	0.08	0.08	0.06
17	0.06	0.04	0.06	0.06	0.05
18	0.06	0.06	0.07	0.08	0.08
19	0.04	0.05	0.04	0.04	0.05
20	0.06	0.07	0.05	0.05	0.06
21	0.06	0.06	0.05	0.05	0.03
22	0.08	0.06	0.08	0.06	0.06
23	0.05	0.05	0.06	0.07	0.05
24	0.06	0.05	0.06	0.05	0.05
25	0.05	0.05	0.04	0.05	0.04
26	0.05	0.05	0.05	0.07	0.06
27	0.08	0.05	0.10	0.09	0.06
28	0.07	0.05	0.06	0.10	0.06
29	0.06	0.04	0.05	0.06	0.06
30	0.05	0.05	0.08	0.07	0.07
31	0.05	0.05	0.04	0.06	0.04
32	0.04	0.03	0.03	0.09	0.06
33	O/S	O/S	O/S	O/S	O/S
34	0.05	0.05	0.05	0.09	0.05
35	0.08	0.04	0.09	0.07	0.06
36	0.06	0.07	0.08	0.06	0.06

O/S indicates filter out of service

Note: This information is used for operational process control and is not for compliance determinations.

Monthly Report to Primacy Agency for Compliance Determination - Filtered Systems
01 May 2017 To: 31May 2017

System/Treatment Plant: Washington Aqueduct - Dalecarlia
Type of Filtration: Conventional Treatment
PWSID: DC0000001

Disinfection Performance Criteria

A. Point-of-Entry Minimum Disinfectant Residual Criteria

Date	Residual (mg/L)	Date	Residual (mg/L)	Date	Residual (mg/L)
5/1/17	3.48	5/12/17	3.60	5/23/17	3.64
5/2/17	3.57	5/13/17	3.72	5/24/17	3.67
5/3/17	3.71	5/14/17	3.67	5/25/17	3.42
5/4/17	3.62	5/15/17	3.61	5/26/17	3.54
5/5/17	3.50	5/16/17	3.65	5/27/17	3.40
5/6/17	3.58	5/17/17	3.64	5/28/17	3.50
5/7/17	3.63	5/18/17	3.14	5/29/17	3.62
5/8/17	3.71	5/19/17	3.60	5/30/17	3.55
5/9/17	3.66	5/20/17	3.52	5/31/17	3.58
5/10/17	3.68	5/21/17	3.11		
5/11/17	3.58	5/22/17	3.51		

Days the Residual was < 0.2 mg/L: None

Date	Duration of Low Residual	Date Reported to Primacy Agency

Monthly Report to Primacy Agency for Compliance Determination - Filtered Systems
01 May 2017 To: 31May 2017

System/Treatment Plant: Washington Aqueduct - McMillan
Type of Filtration: Conventional Treatment
Turbidity Limit: 0.3 NTU
PWSID: DC0000001

Combined Filter Effluent (CFE) Turbidity Performance Criteria:
A.Combined filter effluent monitoring has been conducted in accordance with the IESWTR except as noted:
No Exceptions

B. Minimum number of CFE turbidity measurements required for compliance (6 per day x no. days in operation):	186
Number of Hours in Month	744
Number of Hours in Month that WTP is Off Line	0
Total number of CFE turbidity measurements used for compliance:	744
Total number of CFE turbidity measurements that are less than or equal to 0.3 NTU:	744
Percentage of turbidity measurements meeting the specified limits:	100

C. Record the date and turbidity value for any CFE turbidity measurement exceeding 1 NTU:

Date	Turbidity, NTU

Individual Filter Effluent (IFE) Turbidity Performance Criteria
A. Individual filter effluent monitoring has been conducted in accordance with the IESWTR except as noted:
No Exceptions

B. Report the date, filter number, and turbidity value for any measurement exceeding 0.5 NTU for two consecutive 15 minute measurements after the first four hours after backwash:

C. Report the date, filter number, and turbidity value for any measurement exceeding 1.0 NTU for two consecutive 15 minute measurements:

D. Report the date of any failure to collect grab samples if continuous turbidity monitoring equipment is out of service more than 4 hours

E. Report the date of any failure to resume continuous turbidity monitoring more than 5 days after equipment failure

Additional Voluntary Information

Date	*Time*	*Duration*

Monthly Report to Primacy Agency for Compliance Determination - Filtered Systems
01 May 2017 To: 31May 2017

System/Treatment Plant: Washington Aqueduct - McMillan
Type of Filtration: Conventional Treatment
PWSID: DC0000001

Disinfection Performance Criteria

A. Point-of-Entry Minimum Disinfectant Residual Criteria

Date	Residual (mg/L)	Date	Residual (mg/L)	Date	Residual (mg/L)
5/1/17	3.47	5/12/17	3.74	5/23/17	3.71
5/2/17	3.71	5/13/17	3.82	5/24/17	3.66
5/3/17	3.68	5/14/17	3.73	5/25/17	3.60
5/4/17	3.74	5/15/17	3.78	5/26/17	3.69
5/5/17	3.75	5/16/17	3.73	5/27/17	3.64
5/6/17	3.61	5/17/17	3.75	5/28/17	3.75
5/7/17	3.58	5/18/17	3.69	5/29/17	3.78
5/8/17	3.52	5/19/17	3.78	5/30/17	3.75
5/9/17	3.75	5/20/17	3.62	5/31/17	3.72
5/10/17	3.65	5/21/17	3.60		
5/11/17	3.76	5/22/17	3.73		

Days the Residual was < 0.2 mg/L: None

Date	Duration of Low Residual	Date Reported to Primacy Agency

Washington Aqueduct
McMillan Water Treatment Plant

Summary of Routine Monthly Monitoring Tests Results for May 2017

Optimization Assessment Software (OAS) Results

Settled Water Turbidity:

The settled water turbidity goal was met for the month. Therefore, a requirement for Tier-2 monitoring was not triggered.

Individual Filter Turbidity:

The individual filter turbidity optimization goal was met for all filters. Therefore, a requirement for Tier-2 monitoring was not triggered.

Monthly Tier-1 Sample Test Results

The midnight Tier I sample was not collected 5/9/2017 due to construction taking place at the East Shaft Pumping Station. Power to the pumping station is shut off daily due to contractor work in the area. In addition the sample collection area was not safely accessible due to the storage of construction material. Tier I sampling was collected the following day after coordination with the contractor working in East Shaft Pumping Station. The results of the Tier-1 monitoring samples collected on May 10th are attached. There is a slight increase in manganese from Sample Point E to Sample Point F (0.01). The aluminum and copper both decreased from Sample Point E to Sample Point F. Therefore the backwash location is not a cause of the slight manganese increase and a requirement for Tier-2 monitoring was not triggered.

McMillan Filter Backwash Rule
Tier-1 Monitoring Report

Collection Date:	5/10/2017					
	Location E	Location F	Location G	1st Low Rate Backwash	2nd Low Rate Back Wash	High Rate Backwash
Collect Time	0:00	6:00	6:30	9:30	9:50	9:40
pH	7.07	7.44	7.54			
TOC (mg/L)	2.28	1.94	1.73	8.37	2.52	5.14
Turbidity (NTU)	0.65	0.50	0.04	15	0.80	6.8
Aluminum (mg/L)	0.261	0.170	0.050	15.4	2.02	6.13
Copper (mg/L)	0.073	0.021	0.009	0.567	0.033	0.217
Manganese (mg/L)	0.029	0.037	ND	1.85	0.105	0.932

	Location E	Location F	Location G
Collect Time	8:00	14:00	14:30
pH	7.00	7.52	7.57
TOC (mg/L)	2.35	1.96	1.78
Turbidity (NTU)	1.2	0.55	0.04
Aluminum (mg/L)	0.266	0.179	0.046
Copper (mg/L)	0.077	0.022	0.009
Manganese (mg/L)	0.027	0.038	ND

	Location E	Location F	Location G
Collect Time	16:00	22:00	22:30
pH	6.81	7.47	7.48
TOC (mg/L)	2.47	2.01	1.74
Turbidity (NTU)	1.1	0.70	0.03
Aluminum (mg/L)	0.248	0.181	0.050
Copper (mg/L)	0.060	0.027	0.009
Manganese (mg/L)	0.026	0.037	ND

Washington Aqueduct

McMillan Water Treatment Plant

95th Percentile of Monthly Turbidity Data*

Filter -->	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	Combined
May-17	**0.046**	**0.038**	**0.038**	**0.037**	**0.044**	**0.042**	**0.045**	**0.041**	**0.037**	**0.030**	**0.045**	**0.040**	**0.042**
Apr-17	0.036	0.032	0.030	0.031	0.032	0.036	0.043	0.030	0.027	0.023	0.038	0.032	0.034
Mar-17	0.037	0.040	0.033	0.034	0.032	0.035	0.036	0.035	0.032	0.043	0.037	0.032	0.027
Feb-17	0.031	0.046	0.029	0.028	0.029	0.032	0.024	0.026	0.029	0.029	0.025	0.028	0.017
Jan-17	0.032	0.037	0.020	0.023	0.028	0.033	0.022	0.025	0.029	0.019	0.023	0.025	0.015
Dec-16	0.032	0.033		0.030	0.038	0.037	0.032	0.032	0.039	0.027	0.027	0.033	0.030
Nov-16	0.028	0.028	0.028	0.028	0.030	0.024	0.033	0.029	0.032	0.033	0.024	0.030	0.029
Oct-16	0.039	0.044	0.038	0.041	0.034	0.035	0.050	0.049	0.045	0.034	0.033	0.043	0.041
Sep-16	0.032	0.038	0.036	0.038	0.038	0.036	0.047	0.042	0.034	0.037	0.038	0.036	0.037
Aug-16	0.055	0.054	0.058	0.056	0.054	0.052	0.065	0.059	0.058	0.038	0.052	0.043	0.046
Jul-16	0.040	0.058	0.054	0.061	0.059	0.056	0.069	0.064	0.061	0.052	0.061	0.051	0.048
Jun-16	0.033	0.052	0.048	0.048	0.049	0.049	0.063	0.048	0.048	0.045	0.050	0.042	0.045
May-16		0.030	0.023	0.025	0.031	0.031	0.035	0.031	0.019	0.019	0.026	0.019	0.027
Apr-16	0.018	0.028	0.023	0.027	0.030	0.034	0.025	0.028	0.015	0.024	0.023	0.016	0.026

** Above 95th Percentile numbers were computed using all 15 minute turbidity data of the month.*
*** Filter #1 back in service June 16th, 2016.*
*** Filter #3 back in service January 23rd, 2017.*

Plant Name	**Washington Aqueduct - McMillan WTP**
PWS #	
Max. settled water turbidity goal	**2.0**
Filtered water turbidity optimization goal	**0.10**
Filtered water turbidity regulation	**0.30**

Click on this Button to **CLEAR** the Database

Instruction to users: Input plant name and turbidity goals above. Input start date and turbidity data below. The database will hold 366 days of data. The turbidity data entry cells will turn yellow if the value exceeds the process goal. Following data input, develop the reports by clicking the UPDATE button.

Click on this Button to **UPDATE** the Reports

Data Entry Area

	Raw	Sed 1	Sed 2	Sed 3	Sed 4	Filter 1	Filter 2	Filter 3	Filter 4	Filter 5	Filter 6	Filter 7	Filter 8	Filter 9	Filter 10	Filter 11	Filter 12	Combined
1/1/2017	3				0.29	0.02	0.03		0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.01
1/2/2017	3				0.21	0.04	0.01		0.02	0.03	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.01
1/3/2017	4				0.22	0.02	0.01		0.02	0.03	0.04	0.03	0.03	0.02	0.01	0.02	0.02	0.01
1/4/2017	5				0.24	0.02	0.03		0.02	0.02	0.02	0.02	0.03	0.05	0.01	0.02	0.03	0.01
1/5/2017	22				0.27	0.07	0.01		0.02	0.02	0.04	0.02	0.02	0.04	0.02	0.03	0.02	0.01
1/6/2017	24				0.24	0.06	0.01		0.03	0.06	0.07	0.02	0.03	0.02	0.02	0.03	0.02	0.02
1/7/2017	24				0.24	0.02	0.02		0.04	0.02	0.02	0.03	0.03	0.04	0.01	0.02	0.03	0.01
1/8/2017	22				0.32	0.03	0.06		0.02	0.02	0.03	0.02	0.02	0.05	0.02	0.02	0.03	0.02
1/9/2017	20				0.32	0.03	0.02		0.03	0.08	0.06	0.02	0.04	0.02	0.02	0.05	0.02	0.02
1/10/2017	13				0.36	0.03	0.02		0.02	0.02	0.02	0.04	0.04	0.04	0.02	0.02	0.04	0.01
1/11/2017	10				0.33	0.06	0.05		0.03	0.04	0.05	0.02	0.02	0.04	0.02	0.03	0.02	0.02
1/12/2017	10				0.37	0.02	0.02		0.03	0.04	0.05	0.04	0.05	0.03	0.03	0.03	0.03	0.02
1/13/2017	7				0.41	0.04	0.04		0.02	0.04	0.05	0.03	0.02	0.08	0.02	0.02	0.04	0.02
1/14/2017	6				0.36	0.02	0.02		0.06	0.07	0.06	0.03	0.04	0.04	0.03	0.04	0.04	0.02
1/15/2017	6				0.32	0.08	0.04		0.02	0.06	0.06	0.03	0.02	0.09	0.02	0.02	0.04	0.02
1/16/2017	4				0.34	0.02	0.02		0.04	0.06	0.06	0.02	0.03	0.02	0.02	0.04	0.02	0.02
1/17/2017	9				0.31	0.03	0.02		0.02	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.01
1/18/2017	4				0.51	0.02	0.03		0.02	0.04	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.01
1/19/2017	5				0.35	0.03	0.02		0.03	0.02	0.02	0.03	0.03	0.02	0.02	0.03	0.03	0.01
1/20/2017	6				0.54	0.03	0.03		0.02	0.02	0.03	0.02	0.02	0.02	0.01	0.02	0.03	0.01
1/21/2017	6				0.37	0.02	0.02		0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.01
1/22/2017	6				0.30	0.03	0.02		0.02	0.02	0.02	0.03	0.02	0.02	0.01	0.02	0.02	0.01
1/23/2017	5				0.32	0.03	0.04	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.01
1/24/2017	10				0.30	0.02	0.03	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.03	0.03	0.02	0.01
1/25/2017	149				0.27	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.01	0.02	0.02	0.01
1/26/2017	134				0.30	0.02	0.04	0.04	0.02	0.06	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
1/27/2017	115				0.36	0.02	0.04	0.02	0.03	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.01
1/28/2017	110				0.26	0.03	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.04	0.02	0.02	0.03	0.01
1/29/2017	31				0.33	0.02	0.04	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.01
1/30/2017	16				0.43	0.02	0.04	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.01
1/31/2017	25				0.38	0.02	0.05	0.03	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.03
2/1/2017	20				0.39	0.02	0.04	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.03	0.02	0.03	0.01
2/2/2017	10				0.49	0.04	0.09	0.05	0.02	0.02	0.06	0.02	0.02	0.04	0.02	0.02	0.03	0.02
2/3/2017	10				0.55	0.04	0.06	0.03	0.03	0.03	0.08	0.03	0.10	0.05	0.03	0.03	0.06	0.02
2/4/2017	7				0.46	0.11	0.09	0.07	0.03	0.05	0.10	0.03	0.11	0.12	0.05	0.03	0.07	0.03
2/5/2017	12				0.93	0.02	0.03	0.04	0.03	0.04	0.02	0.03	0.04	0.03	0.02	0.03	0.02	0.02
2/6/2017	5				0.38	0.03	0.05	0.04	0.02	0.04	0.04	0.02	0.02	0.03	0.02	0.02	0.04	0.02
2/7/2017	6				0.41	0.02	0.05	0.03	0.03	0.05	0.03	0.02	0.03	0.02	0.02	0.03	0.02	0.01
2/8/2017	11				0.40	0.03	0.05	0.04	0.02	0.02	0.04	0.02	0.02	0.03	0.01	0.02	0.02	0.01
2/9/2017	8				0.81	0.02	0.05	0.05	0.02	0.02	0.03	0.03	0.03	0.02	0.01	0.02	0.02	0.02

2/10/2017	8				0.75	0.03	0.05	0.06	0.02	0.03	0.06	0.02	0.02	0.04	0.02	0.02	0.02	0.02
2/11/2017	8				0.54	0.04	0.06	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.03	0.03	0.02
2/12/2017	5				0.43	0.06	0.05	0.03	0.03	0.02	0.03	0.03	0.03	0.04	0.04	0.03	0.03	0.02
2/13/2017	6				0.95	0.04	0.05	0.02	0.05	0.03	0.04	0.02	0.03	0.03	0.05	0.02	0.03	0.02
2/14/2017	8				0.41	0.06	0.05	0.03	0.03	0.03	0.03	0.05	0.03	0.03	0.03	0.03	0.03	0.02
2/15/2017	14				0.39	0.03	0.04	0.02	0.03	0.03	0.03	0.02	0.02	0.02	0.03	0.03	0.03	0.02
2/16/2017	14				0.40	0.05	0.03	0.03	0.02	0.03	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.01
2/17/2017	13				0.32	0.03	0.03	0.02	0.03	0.03	0.04	0.02	0.02	0.02	0.04	0.02	0.03	0.02
2/18/2017	13				0.29	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.01
2/19/2017	8				0.32	0.03	0.03	0.02	0.03	0.02	0.03	0.02	0.02	0.02	0.03	0.02	0.02	0.01
2/20/2017	7				0.28	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.04	0.03	0.02	0.03	0.02	0.01
2/21/2017	8				0.31	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02
2/22/2017	6				0.30	0.02	0.04	0.02	0.02	0.03	0.03	0.02	0.03	0.02	0.06	0.03	0.02	0.02
2/23/2017	7				0.40	0.04	0.04	0.02	0.03	0.02	0.03	0.02	0.02	0.02	0.02	0.05	0.05	0.02
2/24/2017	6				0.29	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02
2/25/2017	4				0.26	0.02	0.04	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.03	0.03	0.02	0.02
2/26/2017	4				0.32	0.02	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.04	0.02
2/27/2017	3				0.36	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.02	0.02
2/28/2017	3				0.28	0.05	0.04	0.03	0.02	0.03	0.02	0.03	0.03	0.05	0.03	0.03	0.03	0.02
3/1/2017	2				0.33	0.05	0.04	0.03	0.03	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03
3/2/2017	5				0.43	0.04	0.04	0.03	0.03	0.04	0.03	0.03	0.04	0.03	0.04	0.06	0.03	0.02
3/3/2017	6				0.38	0.05	0.05	0.04	0.03	0.03	0.04	0.03	0.04	0.05	0.04	0.04	0.03	0.03
3/4/2017	6				0.32	0.04	0.04	0.03	0.04	0.03	0.04	0.03	0.03	0.03	0.05	0.03	0.03	0.03
3/5/2017	6				0.36	0.04	0.09	0.03	0.04	0.03	0.04	0.03	0.03	0.03	0.05	0.07	0.03	0.03
3/6/2017	5				0.35	0.03	0.04	0.03	0.03	0.02	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.02
3/7/2017	5																	
3/8/2017	7																	
3/9/2017	7																	
3/10/2017	6				0.45	0.06	0.04	0.05	0.05	0.05	0.05	0.04	0.03	0.06	0.04	0.10	0.05	0.04
3/11/2017	6				0.41	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.06	0.05	0.05	0.03
3/12/2017	4				0.38	0.03	0.05	0.04	0.03	0.03	0.03	0.05	0.04	0.04	0.05	0.04	0.03	0.03
3/13/2017	3				0.34	0.04	0.04	0.04	0.03	0.03	0.04	0.03	0.03	0.03	0.06	0.05	0.03	0.03
3/14/2017	3				0.32	0.03	0.06	0.03	0.03	0.03	0.03	0.04	0.06	0.03	0.07	0.03	0.03	0.02
3/15/2017	3				0.34	0.08	0.04	0.04	0.03	0.03	0.04	0.03	0.03	0.04	0.02	0.04	0.03	0.02
3/16/2017	6				0.33	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.04	0.03	0.02
3/17/2017	5				0.26	0.03	0.04	0.02	0.03	0.02	0.03	0.03	0.02	0.03	0.02	0.03	0.02	0.02
3/18/2017	5				0.27	0.03	0.03	0.03	0.02	0.02	0.04	0.02	0.02	0.03	0.02	0.04	0.03	0.02
3/19/2017	4				0.26	0.03	0.03	0.02	0.03	0.02	0.03	0.02	0.02	0.02	0.02	0.03	0.03	0.02
3/20/2017	16				0.35	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.01	0.03	0.02	0.02
3/21/2017	44				0.24	0.03	0.03	0.02	0.02	0.02	0.04	0.02	0.02	0.02	0.02	0.03	0.02	0.02
3/22/2017	29				0.62	0.02	0.02	0.02	0.02	0.02	0.02	0.09	0.03	0.02	0.02	0.03	0.03	0.03
3/23/2017	20				0.24	0.02	0.02	0.02	0.02	0.02	0.03	0.04	0.01	0.02	0.02	0.03	0.07	0.03
3/24/2017	18				0.29	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.03	0.03
3/25/2017	11				0.33		0.03	0.02	0.02	0.02	0.02	0.04	0.02	0.02	0.02	0.02	0.02	0.03
3/26/2017	7				0.33		0.02	0.03	0.02	0.02	0.03	0.04	0.02	0.02	0.01	0.03	0.03	0.03
3/27/2017	7				0.33	0.08	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.02	0.02	0.03	0.02	0.03
3/28/2017	7				0.32	0.05	0.03	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.02	0.02	0.02	0.03
3/29/2017	9				0.34	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.01	0.02	0.02	0.03	0.03	0.03
3/30/2017	10				0.30	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.03
3/31/2017	27				0.24	0.03	0.03	0.02	0.02	0.02	0.03	0.03	0.01	0.03	0.01	0.03	0.02	0.03
4/1/2017	119				0.28	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.02	0.02	0.02	0.03	0.03	0.03
4/2/2017	96				0.32	0.03	0.03	0.02	0.03	0.02	0.02	0.05	0.02	0.03	0.02	0.03	0.03	0.03
4/3/2017	65				0.29	0.03	0.03	0.03	0.03	0.02	0.02	0.05	0.02	0.03	0.02	0.05	0.03	0.03
4/4/2017	25				0.36	0.02	0.03	0.02	0.03	0.05	0.03	0.06	0.02	0.02	0.02	0.04	0.03	0.03

4/5/2017	25				0.36	0.04	0.04	0.03	0.03	0.02	0.03	0.06	0.02	0.03	0.02	0.03	0.03	0.04
4/6/2017	28				0.44	0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.02	0.02	0.02	0.03	0.03	0.03
4/7/2017	73				0.38	0.04	0.04	0.02	0.04	0.03	0.03	0.05	0.05	0.02	0.03	0.03	0.03	0.04
4/8/2017	118				0.36	0.03	0.03	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.03	0.04
4/9/2017	118				0.40	0.03	0.03	0.03	0.03	0.05	0.04	0.06	0.03	0.02	0.02	0.03	0.03	0.04
4/10/2017	43				0.35	0.03	0.03	0.02	0.03	0.03	0.03	0.04	0.02	0.03	0.02	0.03	0.03	0.03
4/11/2017	27				0.42	0.02	0.03	0.02	0.02	0.02	0.03	0.03	0.02	0.02	0.02	0.03	0.02	0.03
4/12/2017	23				0.34	0.03	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.03	0.02	0.03
4/13/2017	15				0.37	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.05	0.02	0.02	0.02	0.03
4/14/2017	12				0.34	0.03	0.02	0.02	0.03	0.02	0.03	0.02	0.02	0.05	0.02	0.03	0.03	0.03
4/15/2017	12				0.32	0.02	0.03	0.02	0.03	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.03	0.03
4/16/2017	10				0.32	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.03	0.02	0.03
4/17/2017	9				0.35	0.02	0.02	0.02	0.03	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.03	0.03
4/18/2017	4				0.28	0.03	0.03	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.03
4/19/2017	7				0.34	0.02	0.03	0.03	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.03	0.02	0.03
4/20/2017	7				0.36	0.02	0.03	0.02	0.03	0.02	0.03	0.03	0.02	0.02	0.02	0.03	0.03	0.03
4/21/2017	7				0.29	0.03	0.03	0.03	0.02	0.02	0.02	0.03	0.03	0.02	0.02	0.03	0.02	0.03
4/22/2017	5				0.28	0.02	0.02	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.03	0.03	0.03
4/23/2017	6				0.31	0.03	0.03	0.03	0.03	0.03	0.03	0.06	0.03	0.02	0.03	0.03	0.03	0.03
4/24/2017	10				0.36	0.03	0.03	0.04	0.03	0.03	0.04	0.03	0.03	0.03	0.02	0.05	0.03	0.04
4/25/2017	16				0.34	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03
4/26/2017	9				0.36	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.04
4/27/2017	9				0.40	0.04	0.04	0.03	0.03	0.04	0.05	0.04	0.03	0.03	0.02	0.05	0.04	0.04
4/28/2017	30				0.47	0.06	0.03	0.03	0.04	0.04	0.04	0.05	0.04	0.03	0.03	0.04	0.04	0.04
4/29/2017	46				0.46	0.05	0.04	0.05	0.04	0.03	0.03	0.03	0.03	0.03	0.02	0.05	0.03	0.04
4/30/2017	20				0.49	0.04	0.03	0.04	0.04	0.04	0.04	0.05	0.03	0.03	0.03	0.04	0.04	0.04
5/1/2017	27				0.45	0.05	0.04	0.03	0.04	0.03	0.03	0.05	0.04	0.03	0.03	0.04	0.03	0.04
5/2/2017	21				0.43	0.05	0.04	0.04	0.03	0.03	0.05	0.03	0.03	0.04	0.02	0.07	0.03	0.04
5/3/2017	18				0.35	0.04	0.04	0.04	0.05	0.05	0.04	0.06	0.05	0.03	0.03	0.05	0.04	0.04
5/4/2017	23				0.38	0.06	0.04	0.05	0.04	0.04	0.05	0.05	0.04	0.03	0.03	0.05	0.04	0.04
5/5/2017	23				0.43	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.04	0.03	0.05	0.05	0.04
5/6/2017	48				0.39	0.05	0.05	0.05	0.04	0.05	0.05	0.05	0.04	0.05	0.04	0.05	0.04	0.05
5/7/2017	85				0.40	0.04	0.03	0.04	0.04	0.05	0.05	0.06	0.05	0.05	0.03	0.04	0.06	0.05
5/8/2017	146				0.40	0.05	0.05	0.05	0.03	0.04	0.05	0.06	0.05	0.04	0.04	0.06	0.04	0.05
5/9/2017	89				0.43	0.06	0.04	0.05	0.04	0.05	0.05	0.07	0.05	0.05	0.03	0.05	0.04	0.05
5/10/2017	43				0.62	0.07	0.05	0.08	0.04	0.05	0.04	0.06	0.05	0.04	0.03	0.06	0.04	0.05
5/11/2017	24				0.62	0.05	0.03	0.05	0.04	0.04	0.04	0.05	0.03	0.06	0.02	0.05	0.04	0.04
5/12/2017	26				0.57	0.04	0.03	0.03	0.03	0.03	0.03	0.05	0.03	0.03	0.03	0.04	0.03	0.04
5/13/2017	25				0.59	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.04	0.03	0.03
5/14/2017	26				0.54	0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.02	0.03	0.02	0.04	0.02	0.03
5/15/2017	27				0.56	0.03	0.02	0.02	0.05	0.02	0.03	0.02	0.03	0.02	0.02	0.03	0.03	0.03
5/16/2017	42				0.45	0.03	0.04	0.03	0.02	0.02	0.03	0.02	0.02	0.03	0.02	0.03	0.03	0.03
5/17/2017	23				0.36	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.03	0.02	0.03
5/18/2017	24				0.36	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02
5/19/2017	24				0.33	0.02	0.02	0.01	0.02	0.03	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.03
5/20/2017	74				0.35	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.03	0.02	0.02
5/21/2017	74				0.40	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02
5/22/2017	12				0.31	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.04	0.02	0.02
5/23/2017	10				0.32	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.01	0.03	0.03	0.03
5/24/2017	10				0.35	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.03	0.03	0.03
5/25/2017	10				0.43	0.03		0.03	0.05	0.03	0.04	0.03	0.03	0.02	0.02	0.03	0.03	0.06
5/26/2017	29				0.38	0.03		0.03	0.03	0.02	0.03	0.03	0.03	0.02	0.02	0.03	0.03	0.03
5/27/2017	88				0.36	0.03		0.03	0.07	0.02	0.03	0.03	0.02	0.02	0.02	0.04	0.04	0.03
5/28/2017	85				0.38	0.02	0.07	0.03	0.03	0.02	0.04	0.03	0.03	0.03	0.02	0.03	0.03	0.03

5/29/2017	43				0.36		0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.02	0.02	0.04	0.03	0.03
5/30/2017	41				0.46		0.04	0.03	0.03	0.02	0.03	0.03	0.03	0.02	0.02	0.03	0.03	0.03
5/31/2017	41				0.45		0.03	0.03	0.03	0.02	0.05	0.04	0.03	0.02	0.02	0.05	0.03	0.03
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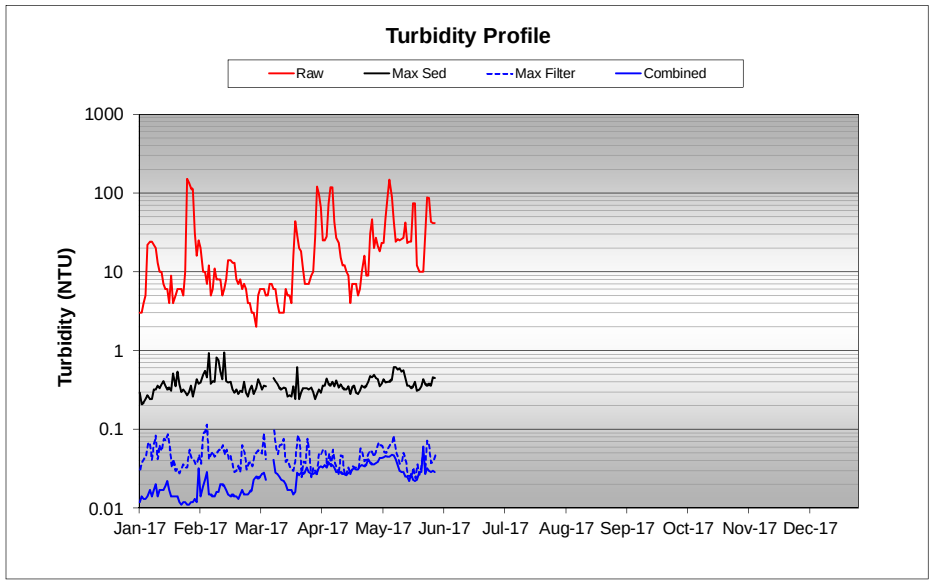
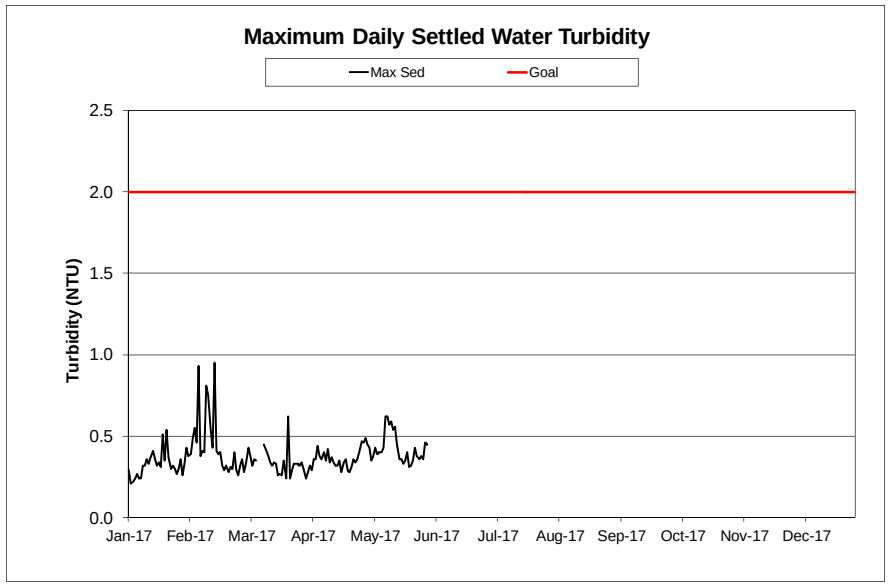
7/21/2017																		





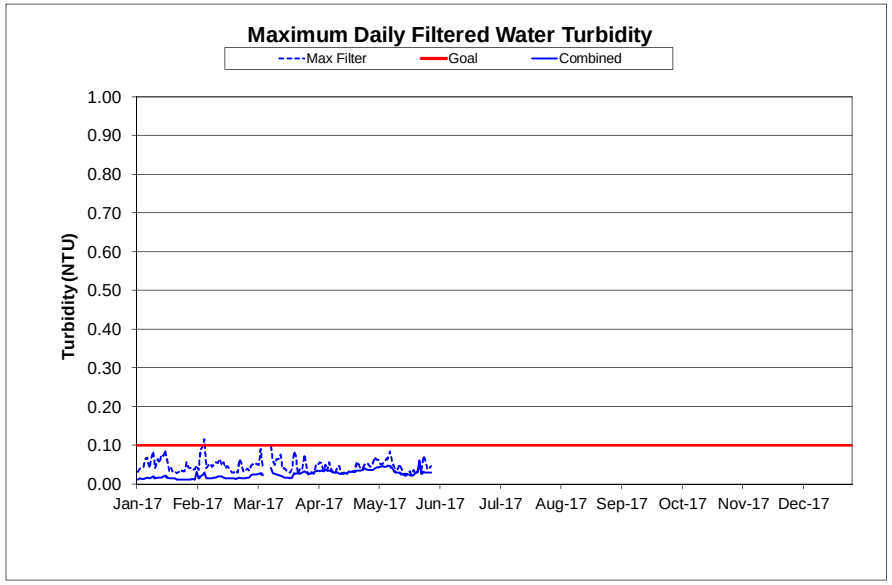
ANNUAL DATA	Avg	Min	Max	RSQ	95%	Opt. Goal	Reg.
	NTU	NTU	NTU		NTU	%Values	%Values
Raw Turbidity	24.0	2.0	149.0	n/a	103.0	n/a	n/a
Max. Settled Turbidity	0.4	0.2	1.0	0.00	0.6	100.0	n/a
Max. Filtered Turbidity	0.05	0.02	0.12	0.06	0.08	99.3	n/a
Combined Filtered Turbidity	0.02	0.01	0.06	0.03	0.04	100.0	100.0

RSQ = Correlation Coefficient for two selected data sets

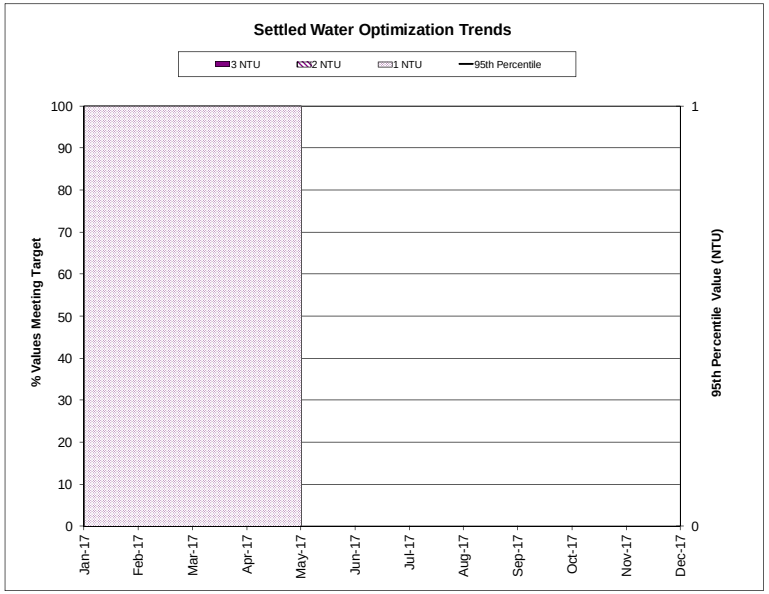
95% = 95th Percentile value for data set

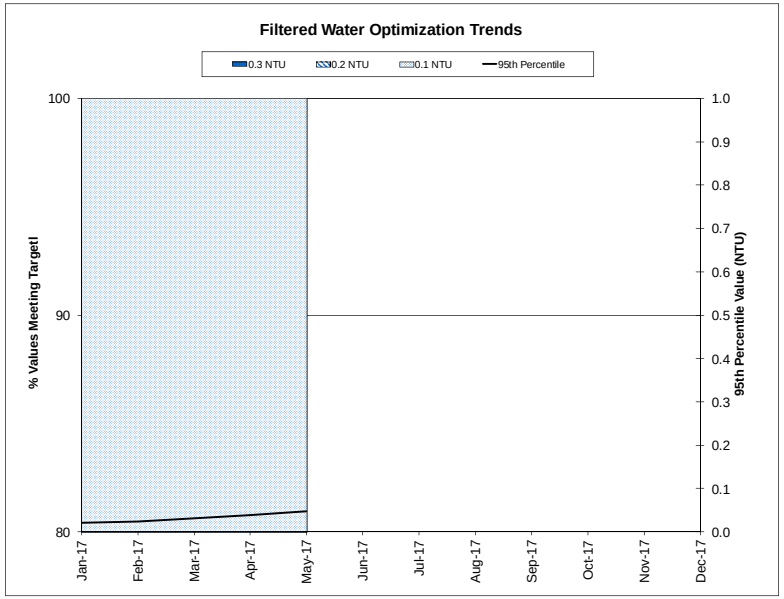
Opt. Goal = % of values in data set that are less than or equal to the selected optimization turbidity goal

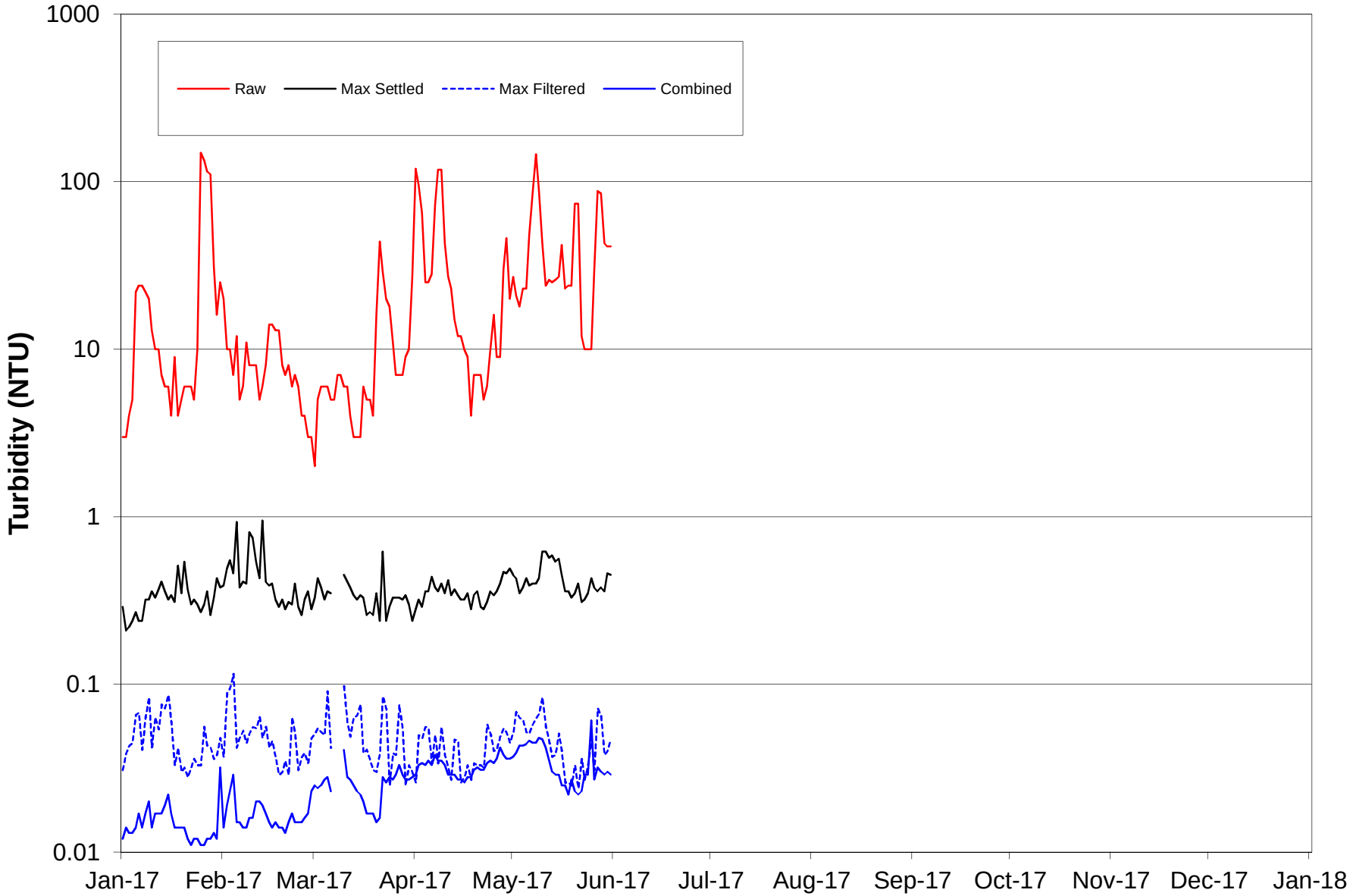
Reg. = % of values in data set that are less than or equal to the regulated turbidity requirement

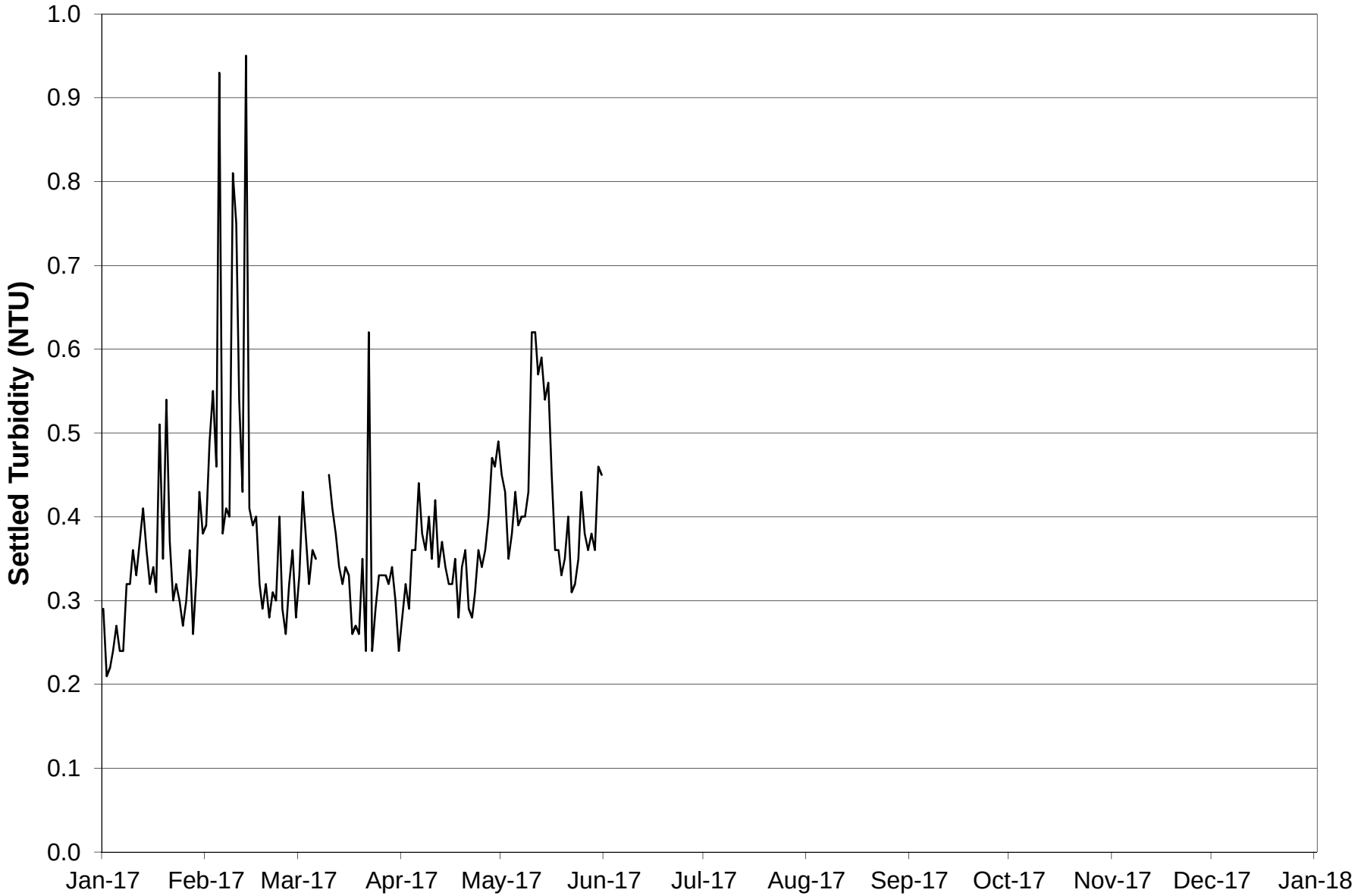


	Settled Water Turbidity							Filtered Water Turbidity															
	95th Percentile Values (NTU)				% Values Meeting Goal			95th Percentile Values (NTU)													% Values Meeting Goal		
	Sed 1	Sed 2	Sed 3	Sed 4	3 NTU	2 NTU	1 NTU	Filter 1	Filter 2	Filter 3	Filter 4	Filter 5	Filter 6	Filter 7	Filter 8	Filter 9	Filter 10	Filter 11	Filter 12	Combined	0.3	0.2	0.1
Jan-17				0.47	100.00	100.00	100.0	0.07	0.05	0.04	0.04	0.07	0.06	0.04	0.04	0.06	0.03	0.04	0.04	0.02	100.00	100.00	100.0
Feb-17				0.89	100.00	100.00	100.0	0.06	0.08	0.06	0.03	0.04	0.07	0.03	0.07	0.05	0.05	0.03	0.06	0.02	100.00	100.00	100.0
Mar-17				0.44	100.00	100.00	100.0	0.07	0.05	0.04	0.04	0.04	0.04	0.05	0.04	0.05	0.06	0.06	0.05	0.03	100.00	100.00	100.0
Apr-17				0.47	100.00	100.00	100.0	0.04	0.04	0.04	0.04	0.04	0.04	0.06	0.04	0.04	0.03	0.05	0.04	0.04	100.00	100.00	100.0
May-17				0.61	100.00	100.00	100.0	0.06	0.05	0.05	0.05	0.05	0.05	0.06	0.05	0.05	0.04	0.06	0.05	0.05	100.00	100.00	100.0
Jun-17					#N/A	#N/A	#N/A														#N/A	#N/A	#N/A
Jul-17					#N/A	#N/A	#N/A														#N/A	#N/A	#N/A
Aug-17					#N/A	#N/A	#N/A														#N/A	#N/A	#N/A
Sep-17					#N/A	#N/A	#N/A														#N/A	#N/A	#N/A
Oct-17					#N/A	#N/A	#N/A														#N/A	#N/A	#N/A
Nov-17					#N/A	#N/A	#N/A														#N/A	#N/A	#N/A
Dec-17					#N/A	#N/A	#N/A														#N/A	#N/A	#N/A
Yr. 95%				0.58				0.06	0.05	0.05	0.04	0.05	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.04			
Yr. Goal				100.0%				99.3%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.3%	99.3%	100.0%	100.0%	100.0%	100.0%			

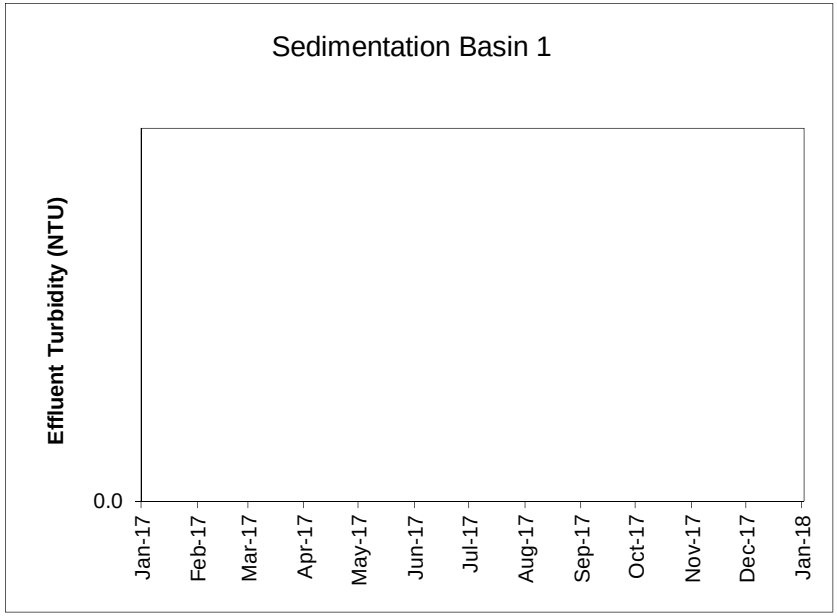


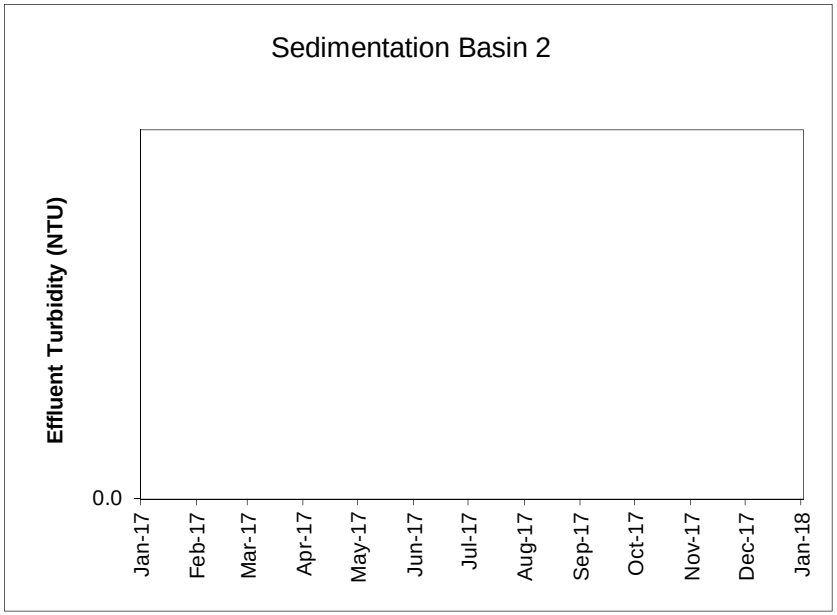


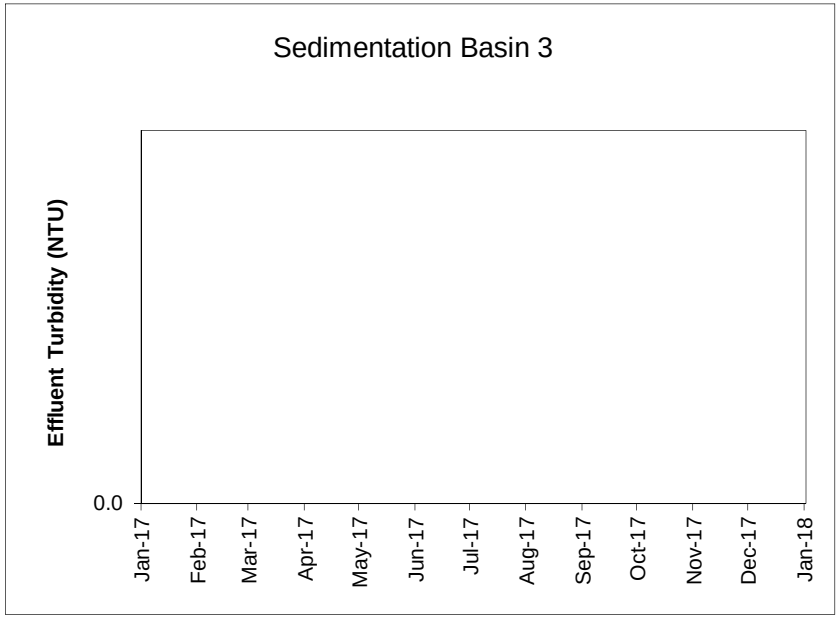

Raw
Max Settled
Max Filtered
Combined
Turbidity (NTU)
1000
100
10
1
0.1
0.01
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17
Oct-17
Nov-17
Dec-17
Jan-18

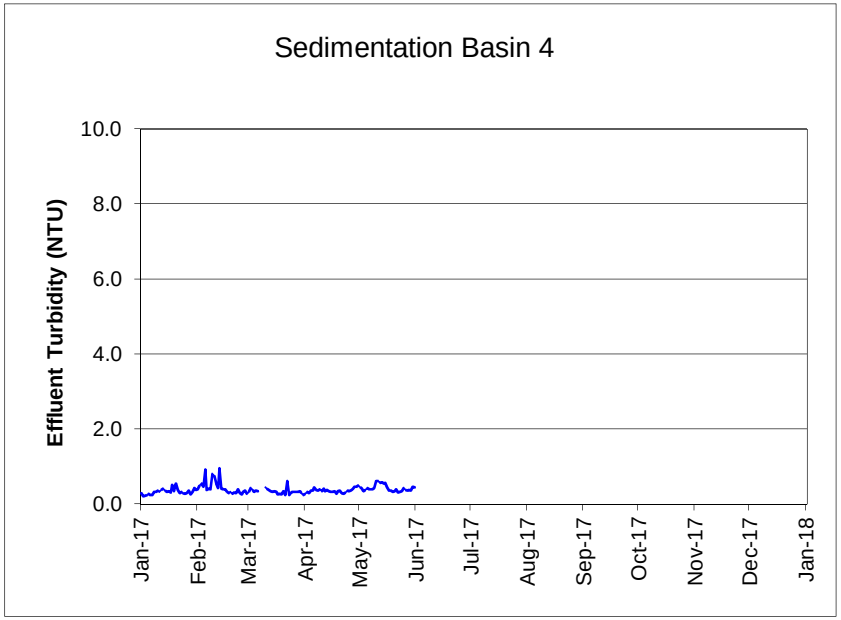

Settled Turbidity (NTU)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17
Oct-17
Nov-17
Dec-17
Jan-18

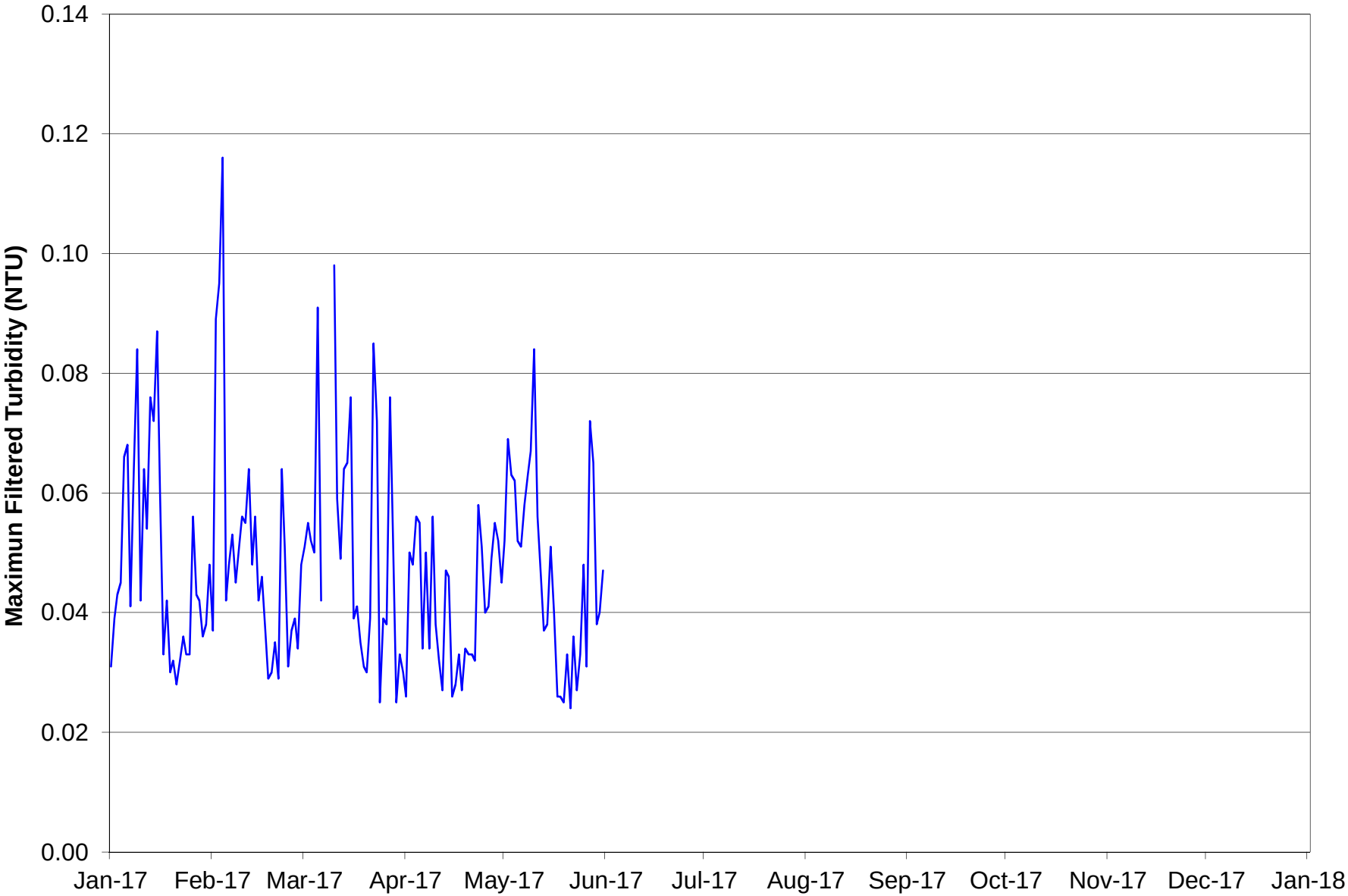
Sedimentation Performance Summary



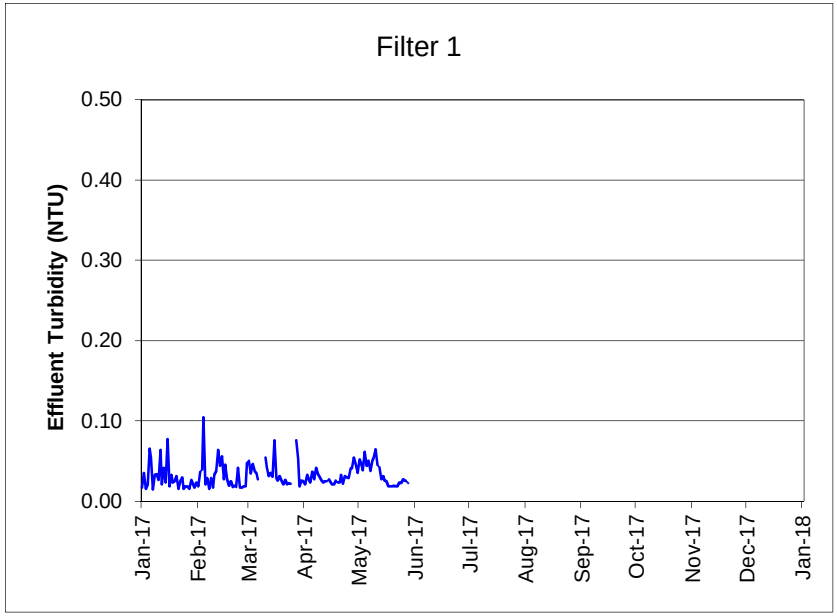


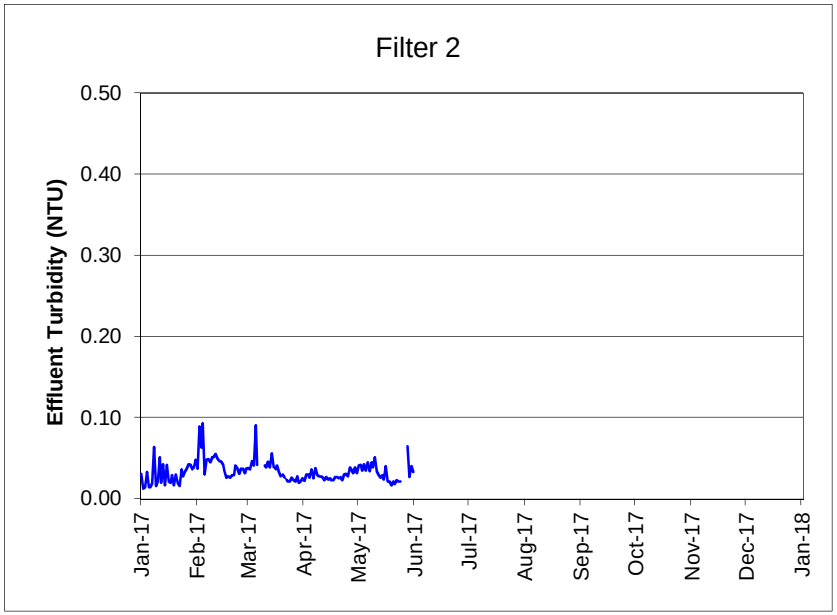


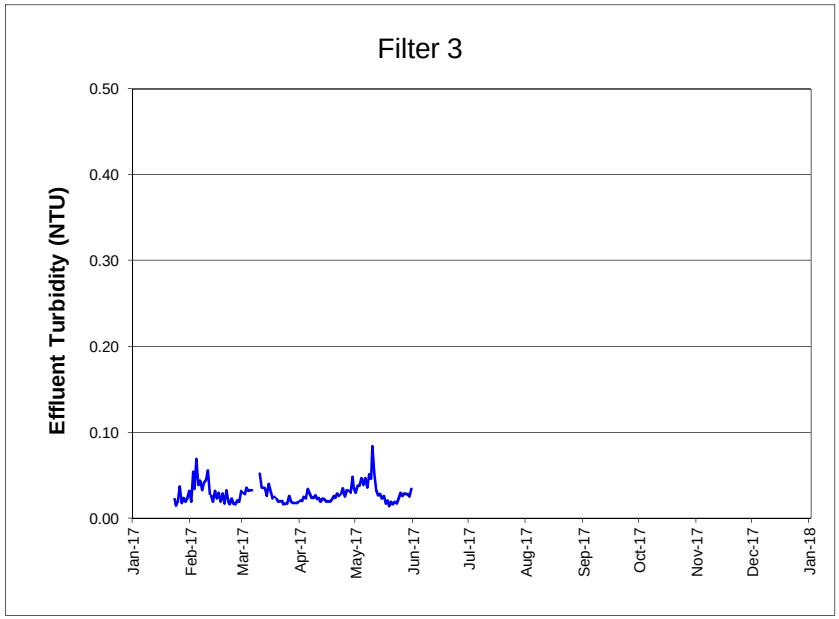


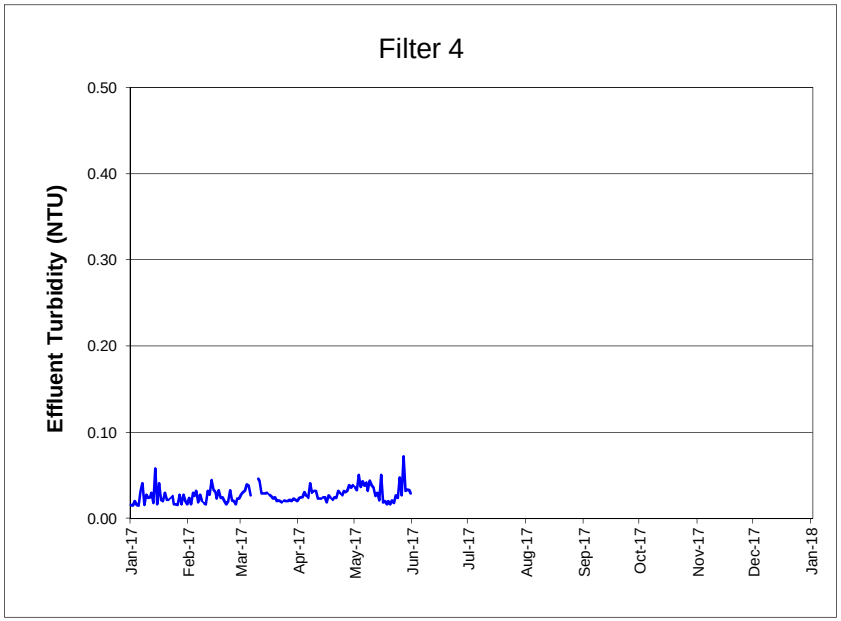

Maximun Filtered Turbidity (NTU)
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
Jan-17
Feb-17
Mar-17
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17
Oct-17
Nov-17
Dec-17
Jan-18

Filtration Performance Summary (Filters 1 - 4)

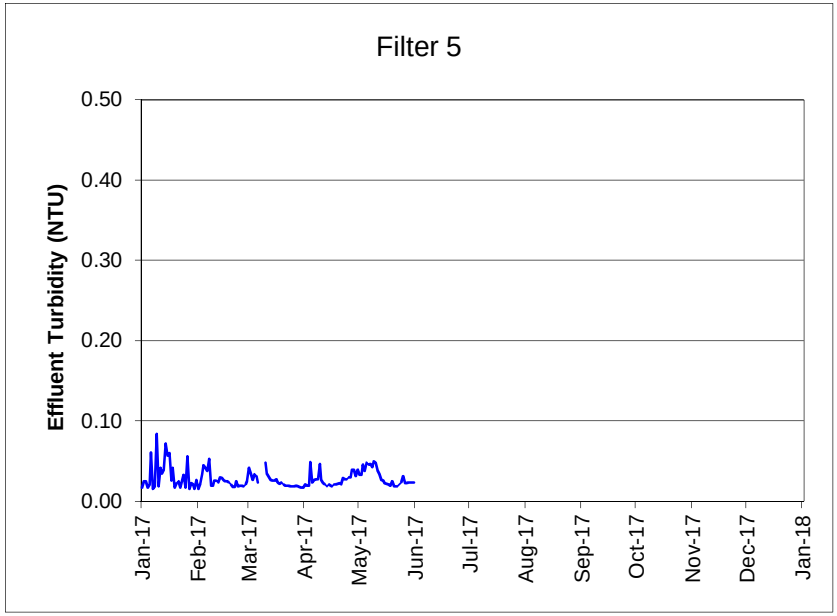


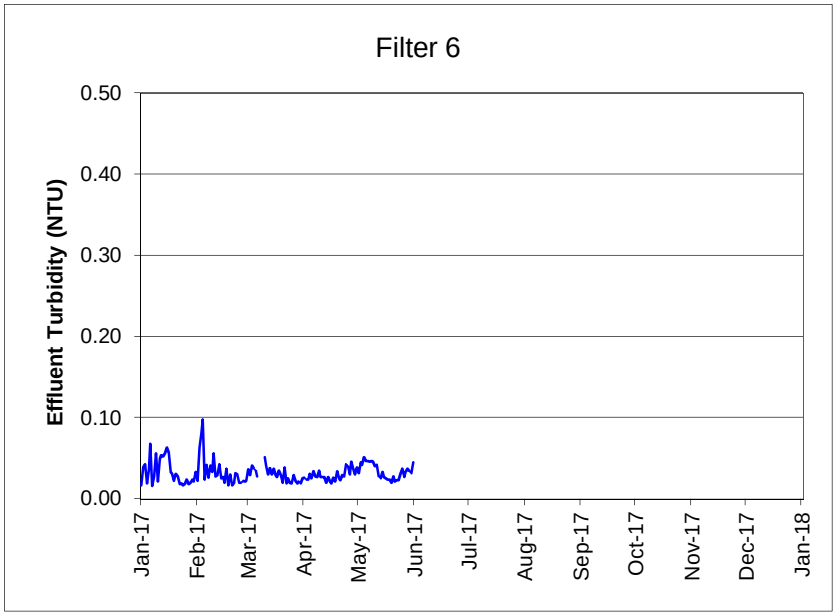


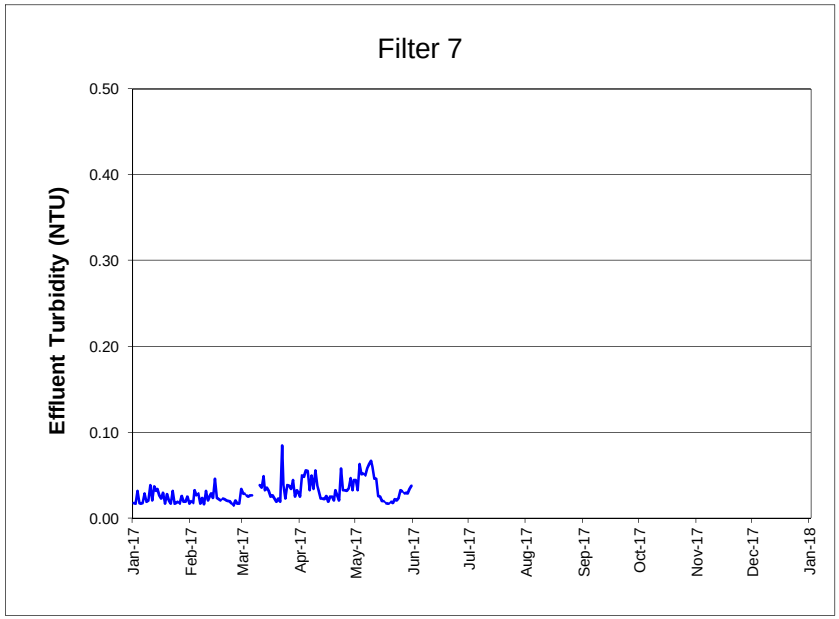


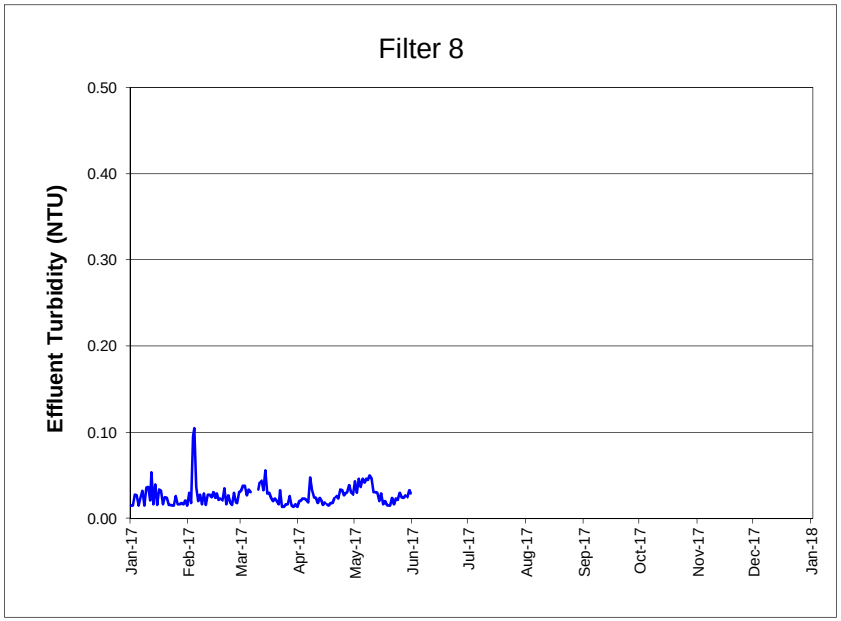


Filtration Performance Summary (Filters 5 - 8)

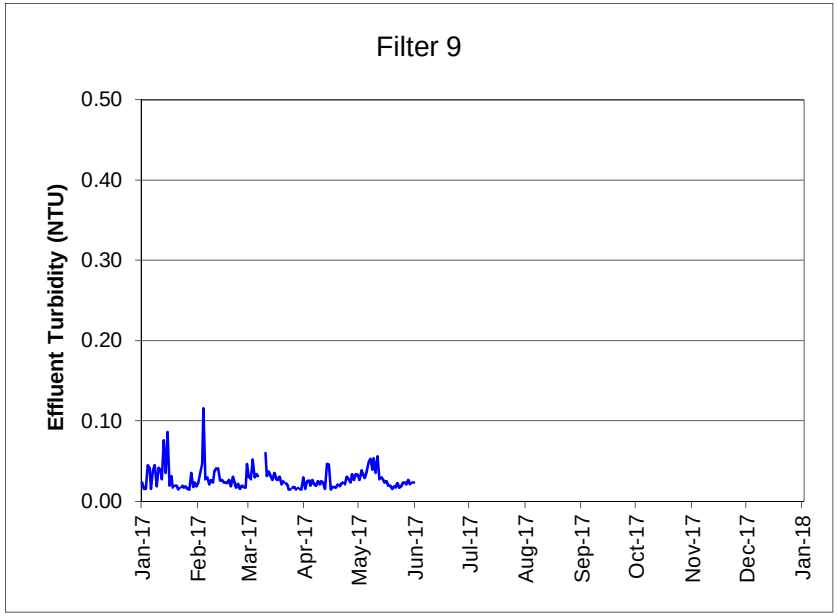


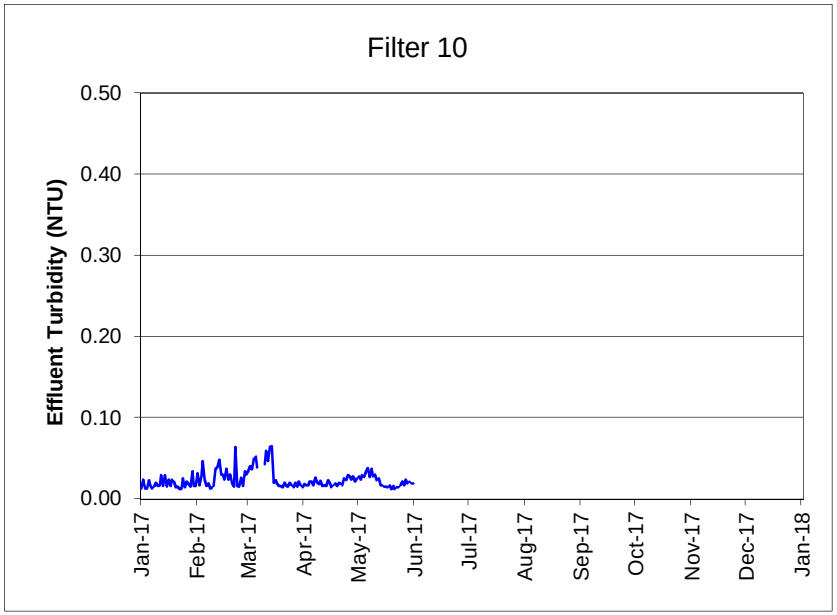


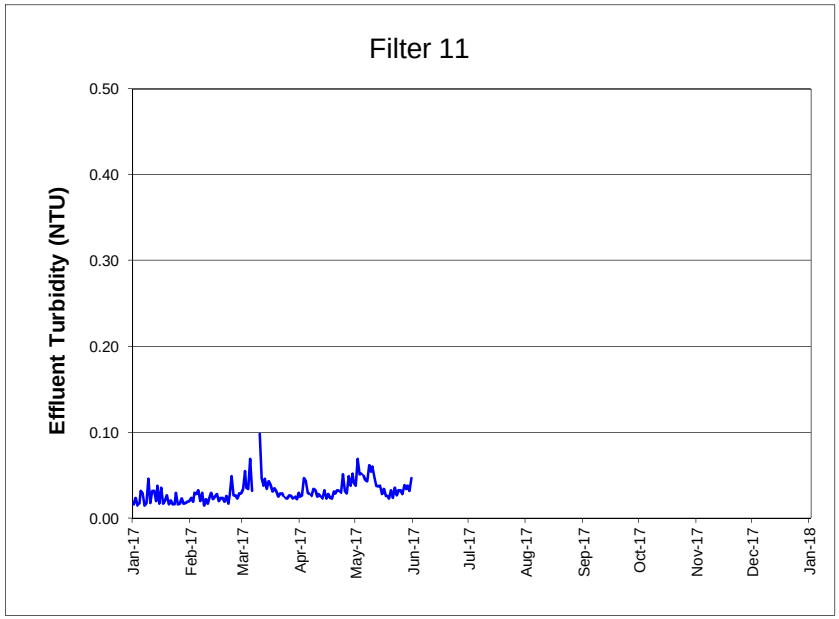


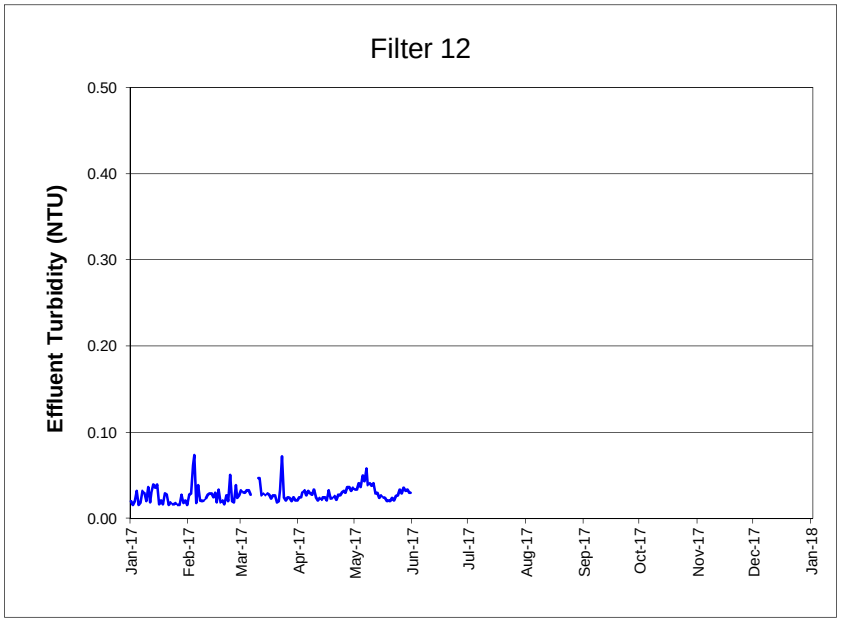


Filtration Performance Summary (Filters 9 - 12)









	Settled Water				Combined Filtered Water			
	95th %	% Values Meeting Goal			95th %	% Values Meeting Goal		
Month/Yr	Sed 1	3 NTU	2 NTU	1 NTU		0.3 NTU	0.2 NTU	0.1 NTU
Jan-17		100.0	100.0	100.0	0.02	100.0	100.0	100.0
Feb-17		100.0	100.0	100.0	0.02	100.0	100.0	100.0
Mar-17		100.0	100.0	100.0	0.03	100.0	100.0	100.0
Apr-17		100.0	100.0	100.0	0.04	100.0	100.0	100.0
May-17		100.0	100.0	100.0	0.05	100.0	100.0	100.0
Jun-17		#N/A	#N/A	#N/A		#N/A	#N/A	#N/A
Jul-17		#N/A	#N/A	#N/A		#N/A	#N/A	#N/A
Aug-17		#N/A	#N/A	#N/A		#N/A	#N/A	#N/A
Sep-17		#N/A	#N/A	#N/A		#N/A	#N/A	#N/A
Oct-17		#N/A	#N/A	#N/A		#N/A	#N/A	#N/A
Nov-17		#N/A	#N/A	#N/A		#N/A	#N/A	#N/A
Dec-17		#N/A	#N/A	#N/A		#N/A	#N/A	#N/A

The area in blue can be copied to the long-term trend spreadsheet (LT_trend.xls) to develop up to three years of performance trends.