



February 28, 2020

Dana Bayuk
Project Manager
NW Region Cleanup & Site Assessment Section
Oregon Department of Environmental Quality
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Portland, Oregon 97232
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RE: NW Natural Source Control Groundwater Treatment Facility Residual Lab Data Package, Third and Fourth Quarters 2019 – Soft Copy Lab Package Submittal

Dear Dana:

Enclosed please find the NW Natural Source Control Groundwater Treatment Facility Residual Data Package for the third and fourth quarters of 2019. This residual data package includes filter cake, bag filter and monthly process control data from Siltronic pre-treatment plant influent and effluent, NW Natural pre-treatment plant influent and effluent, and the main Groundwater Treatment plant influent, as requested by DEQ.

Filter cake and bag filter data include total petroleum hydrocarbons (diesel-range, residual-range petroleum hydrocarbons [NWTPH-DX] and gasoline-range petroleum hydrocarbons [NWTPH-Gx]), volatile organic compounds (VOCs; halogenated and non-halogenated), total cyanide, SVOCs, metals, and percent dry weight. This data is reported and compared to 20x TCLP concentrations consistent with USEPA guidance.¹ The monthly process control data includes VOCs, cyanide, polyaromatic hydrocarbons (PAHs), copper, iron, and total suspended solids.

This semi-annual residual package is consistent with DEQ feedback received on April 25, 2016.

Sincerely,

A handwritten signature in blue ink, appearing to read 'William S. Byrd', is written over a light blue horizontal line.

William Byrd
Groundwater Treatment Plant Superintendent

¹ A minor laboratory deviation from USEPA's TCLP guidance is notated with a qualifier on the attached bag filter report.

Sevenson Environment Services

Cc:

Robert Wyatt – NW Natural

Patty Dost, Rachel Melissa, Sarah Riddle– Pearl Legal Group

Ben Hung – Coalition Environmental

Mike Crystal, Joseph Burke – SES

Terry Driscoll – ADA

Ryan Barth, John Edwards, Kendra Skellenger, Jen Mott – Anchor QEA

Rob Ede – Hahn and Associates

Dan Hafley - ODEQ

Enclosures:

Table 1 – Jul 2019 to Dec 2019 Filter Cake Residual Lab Analyses

Table 2 – Jul 2019 to Dec 2019 Bag Filter Residual Lab Analyses

Table 3A, 3B, 3C, 3D, 3E, and 3F –Jul 2019 to Dec 2019 Process Control Monthly Sampling Charted Lab Results

CD:

Jul 2019 to Dec 2019 Filter Cake Lab Results

Jul2019 to Dec 2019 Bag Filter Lab Results

Jul 2019 to Dec 2019 Monthly Process Labs Results

Table 1 - 2019 (Jul-Dec) Filter Cake Residuals Charted Lab Results

Drop #	1118	1148	1159	1168	1189	1210	1219	1246
Sample ID	FC-071119-1118	FC-081819-1148	FC-090319-1159	FC-091419-1168	FC-101019-1189	FC-110419-1210	FC-111319-1219	FC-121419-1246
LAB ID	A9G0355-01	A9H0588-01	A9I0092-01	A9J0442-01	A9J0394-01	A9K0046-01	A9K0403-01	A9L0638-01
EPA TCLP Level (20 x) in ug/kg	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier
Diesel (ug/kg dry)	680000	F-13, F-15	177000	F-13, F-15	107000	F-13	265000	F-13, F-15
Oil (ug/kg dry)	1090000	F-03, F-16	237000	F-03, F-16	402000	F-03	762000	F-03, F-16
Gasoline Range Organics (ug/kg dry)	420000	F-13	122000		94900	F-13	88000	F-13
VOC (ug/kg)								
Acetone	<6290		<3080		<3190		<3170	
Benzene	10,000 (500 µg/L)	<62.9	<30.8		<31.9		<31.7	
Bromobenzene		<157	<77.0		<79.8		<79.2	
Bromochloromethane		<314	<154		<160		<158	
Bromodichloromethane		<314	<154		<160		<158	
Bromoform		<629	<308		<319		<317	
Bromomethane		<6290	<3080		<3190		<3170	
2-Butanone (MEK)	4,000,000 (200,000 µg/L)	<3140	<1540		<1600		<1580	
n-Butylbenzene		<314	<154		<160		<158	
sec-Butylbenzene		<314	<154		<160		<158	
tert-Butylbenzene		<314	<154		<160		<158	
Carbon tetrachloride	10,000 (500 µg/L)	<314	<308		<160		<158	
Chlorobenzene	2,000,000 (100,000 µg/L)	<157	<77.0		<79.8		<79.2	
Chloroethane		<6290	<1540		<1600		<1580	
Chloroform	120,000 (6,000 µg/L)	<314	<154		<160		<158	
Chloromethane		<1570	<770		<798		<792	
2-Chlorotoluene		<314	<154		<160		<158	
4-Chlorotoluene		<314	<154		<160		<158	
Dibromochloromethane		<629	<308		<319		<317	
1,2-Dibromo-3-chloropropane		<1570	<770		<798		<792	
1,2-Dibromoethane (EDB)		<314	<154		<160		<158	
Dibromomethane		<314	<154		<160		<158	
1,2-Dichlorobenzene		<157	<77.0		<79.8		<79.2	
1,3-Dichlorobenzene		<157	<77.0		<79.8		<79.2	
1,4-Dichlorobenzene	150,000 (7,500 µg/L)	<157	<77.0		<79.8		<79.2	
Dichlorodifluoromethane		<629	<308		<319		<317	
1,1-Dichloroethane		<157	<77.0		<79.8		<79.2	
1,2-Dichloroethane (EDC)	10,000 (500 µg/L)	<157	<77.0		<79.8		<79.2	
1,1-Dichloroethene	14,000 (700 µg/L)	<157	<77.0		<79.8		<79.2	
cis-1,2-Dichloroethene		<157	<77.0		<79.8		<79.2	
trans-1,2-Dichloroethene		<157	<77.0		<79.8		<79.2	
1,2-Dichloropropane		<157	<308		<79.8		<79.2	
1,3-Dichloropropane		<314	<154		<160		<158	
2,2-Dichloropropane		<314	<154		<160		<158	
1,1-Dichloropropene		<314	<154		<160		<158	
cis-1,3-Dichloropropene		<314	<154		<160		<158	
trans-1,3-Dichloropropene		<629	<154		<160		<158	
Ethylbenzene		<157	<77.0		<79.8		<79.2	
Hexachlorobutadiene	10,000 (500 µg/L)	<629	<308		<319		<317	
2-Hexanone		<3140	<1540		<1600		<1580	
Isopropylbenzene		<314	<154		<160		<158	
4-Isopropyltoluene		<314	<154		<160		<158	
Methylene chloride		<1570	<770		<798		<792	
4-Methyl-2-pentanone (MIBK)		<3140	<1540		<1600		<1580	
Methyl tert-butyl ether (MTBE)		<314	<154		<160		<158	
Naphthalene		984	J		<319		<317	
n-Propylbenzene		<157	<77.0		<79.8		<79.2	
Stryrene		<314	<154		<160		<158	
1,1,1,2-Tetrachloroethane		<157	<77.0		<79.8		<79.2	
1,1,2,2-Tetrachloroethane		<314	<154		<160		<158	
Tetrachloroethene (PCE)	14,000 (700 µg/L)	<157	<77.0		<79.8		<79.2	
Toluene		<314	<154		<160		<158	

Table 1 - 2019 (Jul-Dec) Filter Cake Residuals Charted Lab Results

1,2,3-Trichlorobenzene		<1570		<770		<798		<792		<1230		<2230		<1010		<891	
1,2,4-Trichlorobenzene		<1570		<770		<798		<792		<1230		<2230		<1010		<891	
1,1,1-Trichloroethane		<157		<77.0		<79.8		<79.2		<123		<223		<101		<89.1	
1,1,2-Trichloroethane		<157		<77.0		<79.8		<79.2		<123		<223		<101		<89.1	
Trichloroethene (TCE)	10,000 (500 µg/L)	<157		<77.0		<79.8		<79.2		<123		<223		<101		<89.1	
Trichlorofluoromethane		<1260		<308		<319		<317		<493		<891		<402		<357	
1,2,3-Trichloropropane		<314		<154		<160		<158		<246		<446		<201		<178	
1,2,4-Trimethylbenzene		<314		<154		<160		<158		<246		<446		<201		<178	
1,3,5-Trimethylbenzene		<314		<154		<160		<158		<246		<446		<201		<178	
Vinyl chloride	4,000 (200 µg/L)	<157		<77.0		<79.8		<79.2		<123		<223		<101		<89.1	
m,p-Xylene		<314		<154		<160		<158		<246		<446		<201		<178	
o-Xylene		<157		<77.0		<79.8		<79.2		<123		<223		<101		<89.1	
TCLP Volatile Organic Compounds (ug/L)																	
Benzene	10,000 (500µg/L)	<6.25		<6.25		<6.25		<6.25		<6.25		<6.25		<6.25		<6.25	
2-Butanone (MEK)	4,000,000 (200,000 µg/L)	<250		<250		<250		<250		<250		<250		<250		<250	
Carbon tetrachloride	10,000 (500 µg/L)	<25.0		<25.0		<25.0		<25.0		<25.0		<25.0		<25.0		<25.0	
Chlorobenzene	2,000,000 (100,000 µg/L)	<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5	
Chloroform	120,000 (6,000 µg/L)	<25.0		<25.0		<25.0		<25.0		<25.0		<25.0		<25.0		<25.0	
1,4-Dichlorobenzene	150,000 (7,500 µg/L)	<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5	
1,2-Dichloroethane (EDC)	10,000 (500 µg/L)	<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5	
1,1-Dichloroethene	14,000 (700 µg/L)	<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5	
Hexachlorobutadiene	10,000 (500 µg/L)																
Tetrachloroethene (PCE)	14,000 (700 µg/L)	<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5	
Trichloroethene (TCE)	10,000 (500 µg/L)	<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5	
Vinyl chloride	4,000 (200 µg/L)	<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5	
Total Cyanide (ug/kg dry)		5400		5190		10300		8160		8620		9250		7750		5940	
SVOC (ug/kg dry)																	
Acenaphthene		4220		1510	Q-42	<194		753		1410		1170		348	J	372	J
Acenaphthylene		1200	J	509	J, Q-42	233	Q-42, J	594		523		643		418	J	439	J
Anthracene		11000		4300	Q-42	749		3830		4010		3810		2250		1830	
Benz(a)anthracene		10400		4570	Q-42	1510		4740		4640		4320		3230		3050	
Benzo(a)pyrene		12200		4870	Q-42	1720		5770		5300		5070		3560		3700	
Benzo(b)fluoranthene		11100		4630	Q-42	1530		5140		4580		4220		3210		3170	
Benzo(k)fluoranthene		3570	M-05	1920	M-05, Q-42	560	J	1820	M-05	1780	M-05	1730	M-05	1280	M-05	1360	M-05
Benzo(g,h,i)perylene		8180		4420	Q-42	1310		4480		3630		3620		2590		1970	
Chrysene		13500		6240	Q-42	1910		6190		5500		5390		4080		3610	
Dibenz(a,h)anthracene		1030	J	502	J, Q-42	<194	Q-42	579		435		480		311	J	265	J
Fluoranthene		34700		14500	Q-42	4790		15200		14400		13000		10200		8470	
Fluorene		4020		1470	Q-42	<194		1090		1350		1300		456		428	
Indeno(1,2,3-cd)pyrene		7710		4090	Q-42	1230		3910		3140		2820		2180		1990	
1-Methylnaphthalene		<1230		<965		<390		<394		<404		<475		<489		<426	
2-Methylnaphthalene		<1230		<965		<390		<394		<404		<475		<489		<426	
Naphthalene		2690	Q-42	<965		<390		<394		<404		<475		<489		<426	
Phenanthrene		39100		17100	Q-42	1920		13100		13800		12700		5910		5130	
Pyrene		41200		18100	Q-42	5700		18300		17100		15400		12200		10100	
Carbazole		<921		<723		<292		<295		<303		<356		<366		<319	
Dibenzofuran		<612		<481		<194		<196		<201		<236		<243		<212	
4-Chloro-3-methylphenol		<6120		<4810		<1940		<1960		<2010		<2360		<2430		<2120	
2-Chlorophenol		<3070		<2410		<974		<985		<1010		<1190		<1220		<1060	
2,4-Dichlorophenol		<3070		<2410		<974		<985		<1010		<1190		<1220		<1060	
2,4-Dimethylphenol		<3070		<2410		<974		<985		<1010		<1190		<1220		<1060	
2,4-Dinitrophenol		<15300		<12000		<4860		<4920		<5040		<5920		<6090		<5310	
4,6-Dinitro-2-methylphenol		<15300		<12000		<4860		<4920		<5040		<5920		<6090		<5310	
2-Methylphenol		<1530		<1200		<486		<492		<504		<592		<609		<531	
3+4-Methylphenol(s)		<1530		<1200		<486		<492		<504		<592		<609		<531	
2-Nitrophenol		<6120		<4810		<1940		<1960		<2010		<2360		<2430		<2120	
4-Nitrophenol		<6120		<4810		<1940		<1960		<2010		<2360		<2430		<2120	
Pentachlorophenol(PCP)		<6120		<4810		<1940		<1960		<2010		<2360		<2430		<2120	
Phenol		<1230		<965		<390		<394		<404		<475		<489		<426	
2,3,4,6-Tetrachlorophenol		<3070		<2410		<974		<985		<1010		<1190		<1220		<1060	

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2,3,5,6-Tetrachlorophenol	<3070	<2410		<974		<985		<1010		<1190		<1220		<1060		
2,4,5-Trichlorophenol	<3070	<2410		<974		<985		<1010		<1190		<1220		<1060		
2,4,6-Trichlorophenol	<3070	<2410		<974		<985		<1010		<1190		<1220		<1060		
Bis(2-ethylhexyl)phthalate	<9210	<7230		<2920		<2950		<3030		<3560		<3660		<3190		
Butyl benzyl phtalate	<6120	<4810		<1940		<1960		<2010		<2360		<2430		<2120		
Diethylphthalate	<6120	<4810		<1940		<1960		<2010		<2360		<2430		<2120		
Dimethylphthalate	<6120	<4810		<1940		<1960		<2010		<2360		<2430		<2120		
Di-n-butylphthalate	<6120	<4810		<1940		<1960		<2010		<2360		<2430		<2120		
Di-n-octyl phthalate	<6120	<4810		<1940		<1960		<2010		<2360		<2430		<2120		
N-Nitrosodimethylamine	<1530	<1200		<486		<492		<504		<592		<609		<531		
N-Nitroso-di-n-propylamine	<1530	<1200		<486		<492		<504		<592		<609		<531		
N-Nitrosodiphenylamine	<1530	<1200		<486		<492		<504		<592		<609		<531		
Bis(2-Chloroethoxy) methane	<1530	<1200		<486		<492		<504		<592		<609		<531		
Bis(2-Chloroethyl) ether	<1530	<1200		<486		<492		<504		<592		<609		<531		
2,2'-Oxybis (1-Chloropropane)	<1530	<1200		<486		<492		<504		<592		<609		<531		
Hexachlorobenzene	<612	<481		<194		<196		<201		<236		<243		<212		
Hexachlorobutadiene	<1530	<1200		<486		<492		<504		<592		<609		<531		
Hexachlorocyclopentadiene	<3070	<2410		<974		<985		<1010		<1190		<1220		<1060		
Hexachloroethane	<1530	<1200		<486		<492		<504		<592		<609		<531		
2-Chloronaphthalene	<612	<481		<194		<196		<201		<236		<243		<212		
1,2-Dichlorobenzene	<1530	<1200		<486		<492		<504		<592		<609		<531		
1,3-Dichlorobenzene	<1530	<1200		<486		<492		<504		<592		<609		<531		
1,4-Dichlorobenzene	<1530	<1200		<486		<492		<504		<592		<609		<531		
1,2,4-Trichlorobenzene	<1530	<1200		<486		<492		<504		<592		<609		<531		
4-Bromophenyl phenyl ether	<1530	<1200		<486		<492		<504		<592		<609		<531		
4-Chlorophenyl phenyl ether	<1530	<1200		<486		<492		<504		<592		<609		<531		
Aniline	<3070	<2410		<974		<985		<1010		<1190		<1220		<1060		
4-Chloroaniline	<1530	<1200		<486		<492		<504		<592		<609		<531		
2-Nitroaniline	<12300	<9650		<3900		<3940		<4040		<4750		<4890		<4260		
3-Nitroaniline	<12300	<9650		<3900		<3940		<4040		<4750		<4890		<4260		
4-Nitroaniline	<12300	<9650		<3900		<3940		<4040		<4750		<4890		<4260		
Nitrobenzene	<6120	<4810		<1940		<1960		<2010		<2360		<2430		<2120		
2,4-Dinitrotoluene	<6120	<4810		<1940		<1960		<2010		<2360		<2430		<2120		
2,6-Dinitrotoluene	<6120	<4810		<1940		<1960		<2010		<2360		<2430		<2120		
Benzoic acid	<76900	<60300		<24400		<24700		<25300		<29700		<30600		<26600		
Benzyl alcohol	<3070	<2410		<974		<985		<1010		<1190		<1220		<1060		
Isophorone	<1530	<1200		<486		<492		<504		<592		<609		<531		
Azobenzene (1,2-DPH)	<1530	<1200		<486		<492		<504		<592		<609		<531		
Bis(2-Ethylhexyl)adipate	<15300	<12000		<4860		<4920		<5040		<5920		<6090		<5310		
3,3'-Dichlorobenzidine	<6120	Q-52	<9650	Q-52	<3900	Q-52	<3940	Q-52	<4040	Q-52	<4750	Q-52	<4890	Q-52	<4260	Q-52
1,2-Dinitrobenzene	<15300	<12000		<4860		<4920		<5040		<5920		<6090		<5310		
1,3-Dinitrobenzene	<15300	<12000		<4860		<4920		<5040		<5920		<6090		<5310		
1,4-Dinitrobenzene	<15300	<12000		<4860		<4920		<5040		<5920		<6090		<5310		
Pyridine	<3070	<2410		<974		<985		<1010		<1190		<1220		<1060		
Total Metals (ug/kg dry)																
Arsenic	100,000 (5,000 µg/L)	9680		8160		7180		8710		7990		8340		7540		8150
Barium	2,000,000 (100,000 µg/L)	197000		206000		191000		210000		203000		218000		193000		206000
Cadmium	20,000 (1,000 µg/L)	<519		<394		<405		<411		<411		<503		<490		<404
Chromium	100,000 (5,000 µg/L)	<2590		2110	J	<2020		<2060		<2050		<2520		<2450		<2020
Lead	100,000 (5,000 µg/L)	<519		1890		<405		<411		787	J	<503		<490		<404
Mercury	4,000 (200 µg/L)	<207		<158		<162		<164		<164		<201		<196		<162
Selenium	20,000 (1,000 µg/L)	<2590	Q-41	<1970		<2020		<2060		<2050		<2520		<2450		<2020
Silver	100,000 (5,000 µg/L)	<519		<394		<405		<411		<411		<503		<490		<404
TCLP Metals (ug/L)																
Arsenic		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<100*
Barium		<2500		<2500		<2500		<2500		<2500		<2500		<2500		<5000*
Cadmium		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<100*
Chromium		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<100*
Lead		<25.0		<25.0		<25.0		<25.0		<25.0		<25.0		<25.0		<50.0*
Mercury		<3.50		<3.50		<3.50		<3.50		<3.50		<3.50		<3.50		<7.00*

Table 1 - 2019 (Jul-Dec) Filter Cake Residuals Charted Lab Results

Selenium		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<100*
Silver		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<100*
Percent Dry Weight																
%Solids		20.5		27.1		26.7		26.5		26.3		21.4		21.6		24.2

F-03 = The result for this hydrocarbon range is elevated due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported.

F-13 = The chromatographic pattern does not resemble the fuel standard used for quantitation

F-15 = Results for diesel are estimated due to overlap from the reported oil result.

F-16 = Results for oil are estimated due to overlap from the reported diesel result.

J = Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.

M-05 = Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.

Q-41 = Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.

Q-42 = Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits.

Q-52 = Due to erratic or low blank spike recoveries, results for this analyte are considered Estimated Values.

* = Reported as as Reporting Limits, not Detection Limits

Table 2 - 2019 (Jul - Dec) Bag Filter Residuals Charted Lab Results

Collection #	102		103		104		105		106		107		108		109		110		
Sample ID	BF-071119-102		BF-080119-103		BF-081319-104		BF-082819-105		BF-091419-106		BF-100919-107		BF-110419-108		BF-112219-109		BF-121119-110		
LAB ID	A9G0358-01		A9H0061-01		A9H0444-01		A9I0093-01		A9I0446-01		A9I0393-01		A9K0045-01		A9L0064-01		A9L0370-01		
	EPA TCLP Level (20 x) In ug/kg (Actual TCLP Level In µg/L)																		
	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier	
Diesel (ug/kg)	90100000	F-13, F-15	78100000	F-13, F-15, Q-42	37200000	F-13, F-15	36600000	F-13	17000000	F-13, F-15	26900000	F-13, F-15, Q-42	49500000	F-13, F-15	35000000	F-13, F-15	36500000	F-13, F-15	
Oil (ug/kg)	57600000	F-16	43900000	F-16	31600000	F-16	29200000	F-16	19500000	F-16	18500000	F-16, Q-42	36400000	F-16	22400000	F-16	44800000	F-16	
Gasoline Range Organics (ug/kg)	1000000	F-13	478000	F-13	21300000	F-13	20400000	F-13	140000	F-13	69100000	F-13	25200000	F-13	118000000	F-13	21800000	F-13	
VOC (ug/kg)																			
Acetone		<11500		<11500		<63100		<17700		<10900		<24500		<24800		<58600		<18900	
Benzene	10,000 (500µg/L)	164	J	<115		<631		<177		<109		<245		<248		<586		<189	
Bromobenzene		<289		<287		<1580		<443		<274		<612		<619		<14700		<472	
Bromochloromethane		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
Bromodichloromethane		3310		1400		<3160		<886		<547		23700		<1240		3690	J	1460	J
Bromoform		<2310		<1150		<63100		<17700		<10900		<48900		<24800		<58600		<18900	
Bromomethane		<11500		<11500		<63100		<17700		<10900		<24500		<24800		<58600		<18900	
2-Butanone (MEK)		<5770		<5750		<31600		<88600		<5470		<12200		<12400		<29300		<9430	
n-Butylbenzene		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
sec-Butylbenzene		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
tert-Butylbenzene		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
Carbon tetrachloride	10,000 (500µg/L)	<577		<575		<63100		<886		<547		<1220		<1240		<2930		<943	
Chlorobenzene	2,000,000 (100,000µg/L)	<289		<287		<1580		<443		<274		<612		<619		<14700		<472	
Chloroethane		<11500		<11500		<31600		<88600		<5470		<24500		<12400		<29300		<9430	
Chloroform	120,000 (6,000µg/L)	16700		21800		14600		5420		657	J	46800		<1240		40400		4920	
Chloromethane		<2890		<2870		<15800		<4430		<2740		<6120		<6190		<14700		<4720	
2-Chlorotoluene		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
4-Chlorotoluene		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
Dibromochloromethane		<1150		<1150		<63100		<17700		<10900		11400		<24800		<58600		<18900	
1,2-Dibromo-3-chloropropane		<2890		<2870		<15800		<4430		<2740		<6120		<6190		<14700		<4720	
1,2-Dibromoethane (EDB)		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
Dibromomethane		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
1,2-Dichlorobenzene		<289		<287		<1580		<443		<274		<612		<619		<14700		<472	
1,3-Dichlorobenzene		<289		<287		<1580		<443		<274		<612		<619		<14700		<472	
1,4-Dichlorobenzene	150,000 (7,500µg/L)	<289		<287		<1580		<443		<274		<612		<619		<14700		<472	
Dichlorodifluoromethane		<1150		<1150		<12600		<17700		<10900		<24500		<24800		<58600		<18900	
1,1-Dichloroethane		<289		<287		<1580		<443		<274		<612		<619		<14700		<472	
1,2-Dichloroethane (EDC)	10,000 (500µg/L)	<289		<287		<1580		<443		<274		<612		<619		<14700		<472	
1,1-Dichloroethene	14,000 (700µg/L)	<289		<287		<1580		<443		<274		<612		<619		<14700		<472	
cis-1,2-Dichloroethene		<289		<287		<1580		<443		<274		<612		<619		<14700		<472	
trans-1,2-Dichloroethene		<289		<287		<1580		<443		<274		<612		<619		<14700		<472	
1,2-Dichloropropane		<289		<287		<63100		<443		<274		<612		<24800		<58600		<472	
1,3-Dichloropropane		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
2,2-Dichloropropane		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
1,1-Dichloropropene		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
cis-1,3-Dichloropropene		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
trans-1,3-Dichloropropene		<1150		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
Ethylbenzene		1590		891		<1580		606	J	<274		1260		<619		<14700		<472	
Hexachlorobutadiene	10,000 (500µg/L)	<1150		<1150		<63100		<17700		<10900		<24500		<24800		<58600		<18900	
2-Hexanone		<5770		<5750		<31600		<88600		<5470		<12200		<12400		<29300		<9430	
Isopropylbenzene		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
4-Isopropyltoluene		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
Methylene chloride		<5770		<2870		<15800		<4430		<2740		<6120		<6190		<14700		<4720	
4-Methyl-2-pentanone (MIBK)		<5770		<5750		<31600		<88600		<5470		<12200		<12400		<29300		<9430	
Methyl tert-butyl ether (MTBE)		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
Naphthalene		95300		31100		63100		49900		<10900		2770	J	21200		616000		2720	J
n-Propylbenzene		<289		<287		<1580		<443		<274		<612		<619		<14700		<472	
Styrene		<577		<1150		<3160		<886		<547		<1220		<1240		<2930		<943	
1,1,1,2-Tetrachloroethane		<289		<287		<1580		<443		<274		<612		<619		<14700		<472	
1,1,2,2-Tetrachloroethane		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
Tetrachloroethene (PCE)	14,000 (700µg/L)	<289		<287		<1580		<443		<274		<612		<619		<14700		<472	
Toluene		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
1,2,3-Trichlorobenzene		<2890		<2870		<15800		<4430		<2740		<6120		<6190		<14700		<4720	
1,2,4-Trichlorobenzene		<2890		<2870		<15800		<4430		<2740		<6120		<6190		<14700		<4720	
1,1,1-Trichloroethane		<289		<287		<1580		<443		<274		<612		<619		<14700		<472	
1,1,2-Trichloroethane		<289		<287		<1580		<443		<274		<612		<619		<14700		<472	
Trichloroethene (TCE)	10,000 (500µg/L)	<289		<287		<1580		<443		<274		<612		<619		<14700		<472	
Trichlorofluoromethane		<2310		<2300		<63100		<17700		<10900		<24500		<24800		<58600		<18900	
1,2,3-Trichloropropane		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
1,2,4-Trimethylbenzene		1170		922	J	<3160		<886		<547		1670	J	<1240		4740	J	<943	
1,3,5-Trimethylbenzene		<577		<575		<3160		<886		<547		<1220		<1240		<2930		<943	
Vinyl chloride	4,000 (200µg/L)	<289		<287		<1580		<443		<274		<612		<619		<14700		<472	
m,p-Xylene																			

Table 2 - 2019 (Jul - Dec) Bag Filter Residuals Charted Lab Results

TCLP Volatile Organic Compounds (ug/L)														
Benzene	10,000 (500ug/L)	<6.25		<6.25		<6.25		<6.25		<6.25		<6.25		<6.25
2-Butanone (MEK)		<2.50		<2.50		<2.50		<2.50		<2.50		<2.50		<2.50
Carbon tetrachloride	10,000 (500ug/L)	<25.0		<25.0		<25.0		<25.0		<25.0		<25.0		<25.0
Chlorobenzene	2,000,000 (100,000ug/L)	<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5
Chloroform	120,000 (6,000ug/L)	43.0	J	<25.0		<50.0		<25.0		77.8		<25.0		<50.0
1,4-Dichlorobenzene	150,000 (7,500ug/L)	<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5
1,2-Dichloroethane (EDC)	10,000 (500ug/L)	<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5
1,1-Dichloroethene	14,000 (700ug/L)	<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5
Tetrachloroethene (PCE)	14,000 (700ug/L)	<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5
Trichloroethene (TCE)	10,000 (500ug/L)	<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5
Vinyl chloride	4,000 (200ug/L)	<12.5		<12.5		<12.5		<12.5		<12.5		<12.5		<12.5
Total Cyanide (ug/kg)		8960		31500		27400		37200		6010		8830		NR
18200				6740										
SVOC (ug/kg/dry)														
Acenaphthene		9310		5590	Q-42	55000		73700		<609		<1370		5880
Acenaphthylene		<4290		<674		<4570		<4790		1020	J	1340	J, Q-42	<254
Anthracene		<4290		<674		<4570		11300		1590		1180	Q-42, J	1590
Benz(a)anthracene		<16000	R-02	<674		10900		11900		5370		4410	Q-42	463
Benzo(a)pyrene		<6450		<1010		<6870		6620	J	6990		5390	Q-42	446
Benzo(b)fluoranthene		8470	J	1690	J, Q-42	16200		25400		6910		8260	Q-42	588
Benzo(k)fluoranthene		<6450		<1010		6900	J, Q-42	8750	M-05	1980	M-05	2740	M-05	238
Benzo(g,h,i)perylene		<4290		<674		8770	J	11700		6120		5190	Q-42	355
Chrysene		<22600	R-02	5260	Q-42	43100		43800		7780		7680	Q-42	1130
Dibenz(a,h)anthracene		<4290		<674		<4570		<2390		794	J	715	Q-42, J	<127
Fluoranthene		92400		57100	Q-42	276000		270000		17300		9830	Q-42	8700
Fluorene		239000		43900	Q-42	82000		82000		3320		13800	Q-42	3790
Indeno(1,2,3-cd)pyrene		<4290		<674		8460	J	11900		5410		4040	Q-42	289
1-Methylnaphthalene		<86100		17200	Q-42	21900		44400		<1220		<1370		4740
2-Methylnaphthalene		<86100		8100	Q-42	<9180		35200		<1220		<1370		4530
Naphthalene		178000		13400	Q-42	<9180		40800		<1220		<1370		9240
Phenanthrene		393000		128000	Q-42	441000		401000		13500		6540	Q-42	16900
Pyrene		6370	J	2680	Q-42	110000		146000		16800		8780	Q-42	5210
Carbazole		100000		11600	Q-42	38600		35500		2110		21700	Q-42	1340
Dibenzofuran		32000		6620	Q-42	11500		12700		<609		3640	Q-42	588
4-Chloro-3-methylphenol		<429000		<6740		<45700		<23900		<6090		<13700		<1270
2-Chlorophenol		<215000		<3380		<22900		<12000		<3050		<3430		<634
2,4-Dichlorophenol		<215000		<3380		<22900		<12000		<3050		<3430		<634
2,4-Dimethylphenol		<215000		<3380		<22900		<12000		<3050		<3430		<634
2,4-Dinitrophenol		<107000		<16900		<114000		<59800		<15200		<17100		<3170
4,6-Dinitro-2-methylphenol	4,000,000 (200,000ug/L)	<107000		<16900		<114000		<59800		<15200		<17100		<3170
2-Methylphenol	4,000,000 (200,000ug/L)	<107000		<16900		<114000		<59800		<15200		<17100		<3170
3+4-Methylphenol(s)		<107000		<16900		<114000		<59800		<15200		<17100		<3170
2-Nitrophenol		<429000		<14200	R-02	<45700		<70900	R-02	<6090		<16000	R-02	<2950
4-Nitrophenol	2,000,000 (100,000ug/L)	<42900		<6740		<45700		<47900		<6090		<6840		<2540
Pentachlorophenol(PCP)		<42900		<6740		<45700		<23900		<6090		<6840		<1270
Phenol		<86100		<1350		<9180		<4790		<1220		<1370		<254
2,3,4,6-Tetrachlorophenol		<21500		<3380		<22900		<12000		<3050		<3430		<634
2,3,5,6-Tetrachlorophenol	8,000,000 (400,000ug/L)	<21500		<3380		<22900		<12000		<3050		<3430		<634
2,4,5-Trichlorophenol	40,000 (2,000ug/L)	<42900		<6740		<22900		<23900		<3050		<8750	R-02	<634
2,4,6-Trichlorophenol		<21500		<3380		<22900		<23900		<3050		<6840		<1270
Bis(2-ethylhexyl)phthalate		<64500		<10100		<68700		<35900		<9160		<10300		<1900
Butyl benzyl phthalate		<42900		<6740		<45700		<23900		<6090		<6840		<1270
Diet hylphthalate		<42900		<6740		<45700		<23900		<6090		<6840		<1270
Dimethylphthalate		<42900		<6740		<45700		<23900		<6090		<6840		<1270
Di-n-butylphthalate		<42900		<6740		<45700		<23900		<6090		<6840		<1270
Di-n-octyl phthalate		<42900		<6740		<45700		<23900		<6090		<6840		<1270
N-Nitrosodimethylamine		<107000		<16900		<114000		<59800		<15200		<17100		<3170
N-Nitroso-di-n-propylamine		<107000		<16900	R-02	<22900		<23300	R-02	<15200		<9780	R-02	<856
N-Nitrosodiphenylamine		<107000		<16900		<114000		<59800		<15200		<17100		<3170
Bis(2-Chloroethoxy) methane		<107000		<16900		<114000		<59800		<15200		<17100		<3170
Bis(2-Chloroethyl) ether		<107000		<16900		<114000		<59800		<15200		<17100		<3170
Bis(2-Chloroisopropyl) ether	2,600 (130ug/L)	<107000		<16900		<114000		<59800		<15200		<17100		<3170
Hexachlorobenzene	10,000 (500ug/L)	<4290		<674		<4570		<2390		<609		<684		<127
Hexachlorobutadiene		<107000		<16900		<114000		<59800		<15200		<17100		<3170
Hexachlorocyclopentadiene	60,000 (3,000ug/L)	<21500		<3380		<22900		<12000		<3050		<3430		<634
Hexachloroethane		<107000		<16900		<114000		<59800		<15200		<17100		<3170
2-Chloronaphthalene		<4290		<674		<4570		<2390		<609		<684		<127
1,2-Dichlorobenzene		<107000		<16900		<114000		<59800		<15200		<17100		<3170
1,3-Dichlorobenzene	150,000 (7,500ug/L)	<107000		<16900		<114000		<59800		<15200		<17100		<3170
1,4-Dichlorobenzene		<107000		<16900		<114000		<59800		<15200		<17100		<3170
1,2,4-Trichlorobenzene		<107000		<16900		<114000		<59800		<15200		<17100		<3170
4-Bromophenyl phenyl ether		<107000		<16900		<114000		<59800		<15200		<17100		<3170

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4-Chlorophenyl phenyl ether		<10700		<1690		<11400		<5980		<1520		<1710		<317		<2440		<1920	
Aniline		<215000		<3380		<22900		<12000		<3050		<3430		<634		<4890		<3840	
4-Chloroaniline		<107000		<3380		<22900		<15300	R-02	<1520		<5400	R-02	<856	R-02	<14700	R-02	<1920	
2-Nitroaniline		<86100		<13500		<91800		<47900		<12200		<13700		<2540		<19600		<15400	
3-Nitroaniline		<86100		<13500		<91800		<47900		<12200		<13700		<2540		<19600		<15400	
4-Nitroaniline	40,000 (2,000µg/L)	<86100		<13500		<91800		<47900		<12200		<13700		<2540		<19600		<15400	
Nitrobenzene	2,600 (130µg/L)	<429000		<6740		<45700		<23900		<6090		<6840		<1270		<9750		<7660	
2,4-Dinitrotoluene		<42900		<13500		<45700		<23900		<6090		<6840		<1270		<9750		<7660	
2,6-Dinitrotoluene		<42900		<6740		<45700		<47900		<6090		<6840		<1270		<19600		<7660	
Benzoic acid		<5380000		<84600		<574000		<300000		<76500		<85900		<15900		<306000		<96200	
Benzyl alcohol		<215000		<3380		<22900		<12000		<3050		<3430		<634		<4890		<3840	
Isophorone	144000	J	<34000	R-02	<89400	R-02	<160000	R-02	2930	J	<28300	R-02	<6850	R-02	<145000	R-02	<4610	R-02	
Azobenzene (1,2-DPH)		<10700		<1690		<11400		<5980		<1520		<1710		<317		<2440		<1920	
Bis(2-Ethylhexyl)adipate		<107000		<16900		<114000		<59800		<15200		<17100		<3170		<24400		<19200	
3,3'-Dichlorobenzidine		<42900	Q-52	<13500	Q-52	<91800		<47900	Q-52	<12200	Q-52	<13700	Q-52	<2540	Q-52	<19600	Q-52	<15400	Q-52
1,2-Dinitrobenzene		<107000		<16900		<114000		<59800		<15200		<17100		<3170		<24400		<19200	
1,3-Dinitrobenzene		<107000		<16900		<114000		<59800		<15200		<17100		<3170		<24400		<19200	
1,4-Dinitrobenzene		<107000		<16900		<114000		<59800		<15200		<17100		<3170		<24400		<19200	
Pyridine	100,000 (5,000µg/L)	<215000		<3380		<22900		<12000		<3050		<3430		<634		<4890		<3840	
Total Metals (ug/kg)																			
Arsenic	100,000 (5,000µg/L)	83800		78600		82700		46200		13600		34400		1070		54300		29300	
Barium	2,000,000 (100,000µg/L)	114000		166000		181000		149000		229000		221000		9160		191000		274000	
Cadmium	20,000 (1,000µg/L)	<1210		<1310		<2500		<2030		<1270		<1360		<101		<1990		<1470	
Chromium	100,000 (5,000µg/L)	142000		169000		261000		292000		23200	Q-17	131000		6290		153000		8130	J
Lead	100,000 (5,000µg/L)	13800		56500		57600		64200		<1270	Q-17	57600		1540		45800		2810	J
Mercury	4,000 (200µg/L)	850	J	674	J	<998		<814		<508		<543		<40.6		<797		<589	
Selenium	20,000 (1,000µg/L)	<6050	Q-41	<6540		<12500		<10200		<6340		<6790		<507		<9960		<7360	
Silver	100,000 (5,000µg/L)	<1210		<1310		<2500		<2030		<1270		<1360		<101		<1990		<1470	
TCLP Total Metals (ug/kg)																			
Arsenic		<50.0		<100*				<50.0		<50.0		<100*		<50.0		<50.0		<50.0	
Barium		<2500		<2500		<2500		<2500		<2500		<2500		<2500		<2500		<2500	
Cadmium		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0	
Chromium		588		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0	
Lead		<25.0		<25.0		<25.0		<25.0		<25.0		<25.0		<25.0		<25.0		<25.0	
Mercury		3.52	J	<3.50		<3.50		<3.50		<3.50		<3.50		<3.50		<3.50		<3.50	
Selenium		<50.0	Q-41	<100		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0	
Silver		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0		<50.0	
%Solids		7.98		7.75		4.26		5.32		8.47		7.63		NR		5.26		6.91	

Qualifiers

J - Estimated Result. Result is detected below the lowest point of the calibration curve, but above the specified MDL.

F-13 = The chromatographic pattern does not resemble the fuel standard used for quantitation

F-15 = Results for diesel are estimated due to overlap from the reported oil result.

F-16 = Results for oil are estimated due to overlap from the reported diesel result.

M-05 = Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.

NR = Not Reported, due to lack of sufficient amount of sample.

Q-17 = RPD between original and duplicate sample is outside of established control limits.

Q-41 = Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.

Q-42 = Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)

Q-52 = Due to erratic or low blank spike recoveries, results for this analyte are considered Estimated Values.

* = Reported as Reporting Limits, not Detection Limits

Table 3A - Jul 2019 Monthly Process Control Sampling Charted Lab Results

Location	Silttronic Influent (SI)		Silttronic Effluent (SE)		NW Natural Influent		NW Natural Effluent		Treatment Plant	
Sample ID	SI-071019-56		SE-071019-56		NWI-071019-56		NWE-071019-56		TPI-071019-56	
Laboratory ID	A9G0239-01		A9G0239-02		A9G0239-03		A9G0239-04		A9G0239-05	
	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier
VOC (ug/L)										
Acetone	<50.0		<10.0		<50.0		<10.0		<10.0	
Benzene	238		42.3		456		100		100	
Bromobenzene	<1.25		<0.250		<1.25		<0.250		<0.250	
Bromochloromethane	<2.50		<0.500		<2.50		<0.500		<0.500	
Bromodichloromethane	<2.50		<0.500		<2.50		<0.500		<0.500	
Bromoform	<10.0		<2.00		<10.0		<2.00		<2.00	
Bromomethane	<25.0		<5.00		<25.0		<5.00		<5.00	
2-Butanone (MEK)	<25.0		<5.00		<25.0		<5.00		<5.00	
n-Butylbenzene	<2.50		<0.500		<2.50		<0.500		<0.500	
sec-Butylbenzene	<2.50		<0.500		<2.50		<0.500		<0.500	
tert-Butylbenzene	<2.50		<0.500		<2.50		<0.500		<0.500	
Carbon tetrachloride	<2.50		<0.500		<2.50		<0.500		<0.500	
Chlorobenzene	2.70		0.900		<1.25		<0.250		<0.250	
Chloroethane	<25.0		<5.00		<25.0		<5.00		<5.00	
Chloroform	<2.50		<0.500		<2.50		<0.500		<0.500	
Chloromethane	<12.5		<2.50		<12.5		<2.50		<2.50	
2-Chlorotoluene	<2.50		<0.500		<2.50		<0.500		<0.500	
4-Chlorotoluene	<2.50		<0.500		<2.50		<0.500		<0.500	
Dibromochloromethane	<2.50		<0.500		<2.50		<0.500		<0.500	
1,2-Dibromo-3-chloropropane	<12.5		<2.50		<12.5		<2.50		<2.50	
1,2-Dibromoethane (EDB)	<1.25		<0.250		<1.25		<0.250		<0.250	
Dibromomethane	<2.50		<0.500		<2.50		<0.500		<0.500	
1,2-Dichlorobenzene	2.70		1.12		<1.25		<0.250		<0.250	
1,3-Dichlorobenzene	<1.25		<0.250		<1.25		<0.250		<0.250	
1,4-Dichlorobenzene	<1.25		0.250	J	<1.25		<0.250		<0.250	
Dichlorodifluoromethane	<2.50		<0.500		<2.50		<0.500		<0.500	
1,1-Dichloroethane	<1.00		<0.200		<1.00		<0.200		<0.200	
1,2-Dichloroethane (EDC)	<1.00		<0.200		<1.00		<0.200		<0.200	
1,1-Dichloroethene	<1.00		<0.200		<1.00		<0.200		<0.200	
cis-1,2-Dichloroethene	7.60		1.56		<1.00		<0.200		<0.200	
trans-1,2-Dichloroethene	<1.00		<0.200		<1.00		<0.200		<0.200	
1,2-Dichloropropane	<1.25		<0.250		<1.25		<0.250		<0.250	
1,3-Dichloropropane	<2.50		<0.500		<2.50		<0.500		<0.500	
2,2-Dichloropropane	<2.50		<0.500		<2.50		<0.500		<0.500	
1,1-Dichloropropene	<2.50		<0.500		<2.50		<0.500		<0.500	
cis-1,3-Dichloropropene	<2.50		<0.500		<2.50		<0.500		<0.500	
trans-1,3-Dichloropropene	<2.50		<0.500		<2.50		<0.500		<0.500	
Ethylbenzene	220		42.2		33.0		7.45		7.54	
Hexachlorobutadiene	<12.5		<2.50		<12.5		<2.50		<2.50	
2-Hexanone	<25.0		<5.00		<25.0		<5.00		<5.00	
Isopropylbenzene	9.50		1.24		<2.50		<0.500		<0.500	
4-Isopropyltoluene	<2.50		<0.500		<2.50		<0.500		<0.500	
Methylene chloride	<15.0		<3.00		<15.0		<3.00		<3.00	
4-Methyl-2-pentanone (MIBK)	<25.0		<5.00		<25.0		<5.00		<5.00	
Methyl tert-butyl ether (MTBE)	<2.50		1.64		<2.50		<0.500		<0.500	
n-Propylbenzene	2.90		0.410	J	<1.25		<0.250		<0.250	
Stryrene	<2.50		<0.500		<2.50		<0.500		<0.500	
1,1,1,2-Tetrachloroethane	<1.00		<0.200		<1.00		<0.200		<0.200	
1,1,2,2-Tetrachloroethane	<1.25		<0.250		<1.25		<0.250		<0.250	
Tetrachloroethene (PCE)	<1.00		<0.200		<1.00		<0.200		<0.200	
Toluene	7.25		1.75		3.55		1.10		1.04	
1,2,3-Trichlorobenzene	<5.00		<1.00		<5.00		<1.00		<1.00	
1,2,4-Trichlorobenzene	<5.00		<1.00		<5.00		<1.00		<1.00	
1,1,1-Trichloroethane	<1.00		<0.200		<1.00		<0.200		<0.200	
1,1,2-Trichloroethane	<1.25		<0.250		<1.25		<0.250		<0.250	
Trichloroethene (TCE)	<1.00		<0.200		<1.00		<0.200		<0.200	
Trichlorofluoromethane	<5.00		<1.00		<5.00		<1.00		<1.00	
1,2,3-Trichloropropane	<2.50		<0.500		<2.50		<0.500		<0.500	

Table 3A - Jul 2019 Monthly Process Control Sampling Charted Lab Results

1,2,4-Trimethylbenzene	62.4		17.6		5.75		1.22		1.14	
1,3,5-Trimethylbenzene	17.2		4.01		<2.50		<0.500		<0.500	
Vinyl chloride	11.8		0.520		<1.00		<0.200		<0.200	
m,p-Xylene	137		32.0		12.6		2.97		2.95	
o-Xylene	88.2		26.8		8.50		2.31		2.21	
Cyanide										
Total Cyanide-(Final Target Range)	126		112		204		173		171	
SVOC (ug/L)										
Acenaphthene	2350		254		4200		<2.00		7.04	
Acenaphthylene	122		24.9	J	628		<2.00		9.14	
Anthracene	1210		96.4		2520		<2.00		17.0	
Benz(a)anthracene	555		58.6		1600		<2.00		12.7	
Benzo(a)pyrene	512		51.2		1770		<2.00		13.0	
Benzo(b)fluoranthene	480	M-05	51.5	M-05	1600	M-05	<2.00		12.9	M-05
Benzo(k)fluoranthene	169	M-05	<20.2		446	M-05	<2.00		3.83	M-05
Benzo(g,h,i)perylene	377		35.9	J	1310		<2.00		9.28	
Chrysene	654		66.5		1920		<2.00		17.2	
Dibenz(a,h)anthracene	48.0	J	<20.2		162		<2.00		1.43	J
Dibenzofuran	190		22.6	J	374		<2.00		4.06	
Fluoranthene	2030		185		5750		3.60	J	49.9	
Fluorene	1150		134		2440		2.45	J	31.9	
Indeno(1,2,3-cd)pyrene	350		37.8	J	1130		<2.00		8.91	
1-Methylnaphthalene	1980		280		3350		8.79		46.5	
2-Methylnaphthalene	3230		258		5620		9.07		34.1	
Naphthalene	17100		2000		6930		148		180	
Phenanthrene	5260		541		13500		8.77		119	
Pyrene	2370		209		7440		3.04	J	50.3	
Total Metals (ug/L)										
Copper	<0.500		0.586	J	<0.500		<0.500		0.794	J
Iron	37200		36600		82500		74300		75600	
HEM (Oil and Grease)										
HEM (Oil and Grease)	37800		<5050		<4810		<5000		<5000	
Total Suspended Solids (ug/L)										
Total Suspended Solids (ug/L)									652000	

Notes

J = Estimated Result. Result detected <MDL and >MRL.

M-05= Estimated results. Peak separation for structural isomers is insufficient for accurate quantification

Table 3B - Aug 2019 Monthly Process Control Sampling Charted Lab Results

Location	Siltronic Influent (SI)		Siltronic Effluent (SE)		NW Natural Influent		NW Natural Effluent		Treatment Plant	
Sample ID	SI-080719-57		SE-080719-57		NWI-080719-57		NWE-080719-57		TPI-080719-57	
Laboratory ID	A9H0171-01		A9H0171-02		A9H0171-03		A9H0171-04		A9H0171-05	
	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier
VOC (ug/L)										
Acetone	<50.0		<10.0		<50.0		<10.0		<10.0	
Benzene	127		27.6		566		119		67.4	
Bromobenzene	<1.25		<0.250		<1.25		<0.250		<0.250	
Bromochloromethane	<2.50		<0.500		<2.50		<0.500		<0.500	
Bromodichloromethane	<2.50		<0.500		<2.50		<0.500		<0.500	
Bromoform	<2.50		<0.500		<2.50		<0.500		<0.500	
Bromomethane	<25.0		<5.00		<25.0		<5.00		<5.00	
2-Butanone (MEK)	<25.0		<5.00		<25.0		<5.00		<5.00	
n-Butylbenzene	<2.50		<0.500		<2.50		<0.500		<0.500	
sec-Butylbenzene	<2.50		<0.500		<2.50		<0.500		<0.500	
tert-Butylbenzene	<2.50		<0.500		<2.50		<0.500		<0.500	
Carbon tetrachloride	<2.50		<0.500		<2.50		<0.500		<0.500	
Chlorobenzene	2.14	J	0.550		<1.25		<0.250		<0.250	
Chloroethane	<25.0		<5.00		<25.0		<5.00		<5.00	
Chloroform	<2.50		<0.500		5.16		0.540	J	<0.500	
Chloromethane	<12.5		<2.50		<12.5		<2.50		<2.50	
2-Chlorotoluene	<2.50		<0.500		<2.50		<0.500		<0.500	
4-Chlorotoluene	<2.50		<0.500		<2.50		<0.500		<0.500	
Dibromochloromethane	<2.50		<0.500		<2.50		<0.500		<0.500	
1,2-Dibromo-3-chloropropane	<12.5		<2.50		<12.5		<2.50		<2.50	
1,2-Dibromoethane (EDB)	<1.25		<0.250		<1.25		<0.250		<0.250	
Dibromomethane	<2.50		<0.500		<2.50		<0.500		<0.500	
1,2-Dichlorobenzene	2.69		0.948		<1.25		<0.250		<0.250	
1,3-Dichlorobenzene	<1.25		<0.250		<1.25		<0.250		<0.250	
1,4-Dichlorobenzene	<1.25		<0.250		<1.25		<0.250		<0.250	
Dichlorodifluoromethane	<2.50		<0.500		<2.50		<0.500		<0.500	
1,1-Dichloroethane	<1.00		<0.200		<1.00		<0.200		<0.200	
1,2-Dichloroethane (EDC)	<1.00		<0.200		<1.00		<0.200		<0.200	
1,1-Dichloroethene	<1.00		<0.200		<1.00		<0.200		<0.200	
cis-1,2-Dichloroethene	6.99		1.61		<1.00		<0.200		0.405	
trans-1,2-Dichloroethene	<1.00		<0.200		<1.00		<0.200		<0.200	
1,2-Dichloropropane	<1.25		<0.250		<1.25		<0.250		<0.250	
1,3-Dichloropropane	<2.50		<0.500		<2.50		<0.500		<0.500	
2,2-Dichloropropane	<2.50		<0.500		<2.50		<0.500		<0.500	
1,1-Dichloropropene	<2.50		<0.500		<2.50		<0.500		<0.500	
cis-1,3-Dichloropropene	<2.50		<0.500		<2.50		<0.500		<0.500	
trans-1,3-Dichloropropene	<2.50		<0.500		<2.50		<0.500		<0.500	
Ethylbenzene	127		23.3		44.1		7.95		9.62	
Hexachlorobutadiene	<12.5		<2.50		<12.5		<2.50		<2.50	
2-Hexanone	<25.0		<5.00		<25.0		<5.00		<5.00	
Isopropylbenzene	5.62		0.866	J	<2.50		<0.500		<0.500	
4-Isopropyltoluene	<2.50		<0.500		<2.50		<0.500		<0.500	
Methylene chloride	<7.50		<1.50		<7.50		<1.50		<1.50	
4-Methyl-2-pentanone (MIBK)	<25.0		<5.00		<25.0		<5.00		<5.00	
Methyl tert-butyl ether (MTBE)	<2.50		1.90		<2.50		<0.500		0.653	J
n-Propylbenzene	1.82	J	0.277	J	<1.25		<0.250		<0.250	
Stryrene	<2.50		<0.500		<2.50		<0.500		<0.500	
1,1,1,2-Tetrachloroethane	<1.00		<0.200		<1.00		<0.200		<0.200	
1,1,2,2-Tetrachloroethane	<1.25		<0.250		<1.25		<0.250		<0.250	
Tetrachloroethene (PCE)	<1.00		<0.200		<1.00		<0.200		<0.200	
Toluene	4.66		0.882		6.11		1.09		0.805	
1,2,3-Trichlorobenzene	<5.00		<1.00		<5.00		<1.00		<1.00	
1,2,4-Trichlorobenzene	<5.00		<1.00		<5.00		<1.00		<1.00	
1,1,1-Trichloroethane	<1.00		<0.200		<1.00		<0.200		<0.200	
1,1,2-Trichloroethane	<1.25		<0.250		<1.25		<0.250		<0.250	
Trichloroethene (TCE)	<1.00		<0.200		<1.00		<0.200		<0.200	
Trichlorofluoromethane	<5.00		<1.00		<5.00		<1.00		<1.00	
1,2,3-Trichloropropane	<2.50		<0.500		<2.50		<0.500		<0.500	

Table 3B - Aug 2019 Monthly Process Control Sampling Charted Lab Results

1,2,4-Trimethylbenzene	36.8		9.48		8.82		1.61		2.68	
1,3,5-Trimethylbenzene	9.90		2.19		<2.50		<0.500		0.882	J
Vinyl chloride	9.60		0.581		<1.00		<0.200		<0.200	
m,p-Xylene	80.9		15.5		19.6		3.41		5.34	
o-Xylene	48.8		13.1		12.0		2.85		4.44	
Cyanide										
Total Cyanide-(Final Target Range)	179		187		167		163		174	
SVOC (ug/L)										
Acenaphthene	150		133		115		6.68		30.7	
Acenaphthylene	<42.6		<18.9		<42.1		<1.01		2.63	
Anthracene	<42.6		40.7		70.8	J	<1.01		5.24	
Benz(a)anthracene	<42.6		32.4	J	57.7	J	<1.01		<1.08	
Benzo(a)pyrene	<42.6		27.5	J	48.8	J	<1.01		<1.08	
Benzo(b)fluoranthene	<42.6		27.7	J	45.9	J	<1.01		<1.08	
Benzo(k)fluoranthene	<42.6		<18.9		<42.1		<1.01		<1.08	
Benzo(g,h,i)perylene	<42.6		21.5	J	<42.1		<1.01		<1.08	
Chrysene	<42.6		35.2	J	53.9	J	<1.01		<1.08	
Dibenz(a,h)anthracene	<42.6		<18.9		<42.1		<1.01		<1.08	
Dibenzofuran	<42.6		<18.9		<42.1		1.42	J	2.29	
Fluoranthene	<42.6		96.2		141		<1.01		5.12	
Fluorene	49.0	J	69.0		62.3	J	2.48		13.1	
Indeno(1,2,3-cd)pyrene	<42.6		21.7	J	<42.1		<1.01		<1.08	
1-Methylnaphthalene	242		142		100	J	10.1		24.5	
2-Methylnaphthalene	341		107		128	J	11.7		4.15	J
Naphthalene	4760		458		686		147		<2.15	
Phenanthrene	130		266		343		5.27		29.6	
Pyrene	<42.6		101		169		<1.01		5.10	
Total Metals (ug/L)										
Copper	<0.500		<0.500		<0.500		<0.500		<0.500	
Iron	35500		36100		72500	Q-42	75200		59900	
HEM (Oil and Grease)										
HEM (Oil and Grease)	<4810		<4720		<4850		<4850		<4720	
Total Suspended Solids (ug/L)										
Total Suspended Solids (ug/L)									433000	

Notes

J = Estimated Result. Result detected <MDL and >MRL.

Q-42 = Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits.

Table 3C - Sep 2019 Monthly Process Control Sampling Charted Lab Results

Location	Siltronic Influent (SI)		Siltronic Effluent (SE)		NW Natural Influent		NW Natural Effluent		Treatment Plant	
Sample ID	SI-090419-58		SE-090419-58		NWI-090419-58		NWE-090419-58		TPI-090419-58	
Laboratory ID	A910079-01		A910079-02		A910079-03		A910079-04		A910079-05	
	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier
VOC (ug/L)										
Acetone	<50.0		<20.0		<50.0		<10.0		<10.0	
Benzene	203		27.2		330		72.2		56.4	
Bromobenzene	<1.25		<0.500		<1.25		<0.250		<0.250	
Bromochloromethane	<2.50		<1.00		<2.50		<0.500		<0.500	
Bromodichloromethane	<2.50		<1.00		<2.50		<0.500		<0.500	
Bromoform	<2.50		<1.00		<2.50		<0.500		<0.500	
Bromomethane	<25.0		<10.0		<25.0		<5.00		<5.00	
2-Butanone (MEK)	<25.0		<10.0		<25.0		<5.00		<5.00	
n-Butylbenzene	<2.50		<1.00		<2.50		<0.500		<0.500	
sec-Butylbenzene	<2.50		<1.00		<2.50		<0.500		<0.500	
tert-Butylbenzene	<2.50		<1.00		<2.50		<0.500		<0.500	
Carbon tetrachloride	<2.50		<1.00		<2.50		<0.500		<0.500	
Chlorobenzene	3.15		0.700	J	<1.25		<0.250		<0.250	
Chloroethane	<25.0		<10.0		<25.0		<5.00		<5.00	
Chloroform	<2.50		<1.00		<2.50		<0.500		<0.500	
Chloromethane	<12.5		<5.00		<12.5		<2.50		<2.50	
2-Chlorotoluene	<2.50		<1.00		<2.50		<0.500		<0.500	
4-Chlorotoluene	<2.50		<1.00		<2.50		<0.500		<0.500	
Dibromochloromethane	<2.50		<1.00		<2.50		<0.500		<0.500	
1,2-Dibromo-3-chloropropane	<12.5		<5.00		<12.5		<2.50		<2.50	
1,2-Dibromoethane (EDB)	<1.25		<0.500		<1.25		<0.250		<0.250	
Dibromomethane	<2.50		<1.00		<2.50		<0.500		<0.500	
1,2-Dichlorobenzene	2.90		1.11		<1.25		<0.250		<0.250	
1,3-Dichlorobenzene	<1.25		<0.500		<1.25		<0.250		<0.250	
1,4-Dichlorobenzene	<1.25		<0.500		<1.25		<0.250		<0.250	
Dichlorodifluoromethane	<2.50		<1.00		<2.50		<0.500		<0.500	
1,1-Dichloroethane	<1.00		<0.400		<1.00		<0.200		<0.200	
1,2-Dichloroethane (EDC)	<1.00		<0.400		<1.00		<0.200		<0.200	
1,1-Dichloroethene	<1.00		<0.400		<1.00		<0.200		<0.200	
cis-1,2-Dichloroethene	7.55		1.48		<1.00		<0.200		0.390	J
trans-1,2-Dichloroethene	<1.00		<0.400		<1.00		<0.200		<0.200	
1,2-Dichloropropane	<1.25		<0.500		<1.25		<0.250		<0.250	
1,3-Dichloropropane	<2.50		<1.00		<2.50		<0.500		<0.500	
2,2-Dichloropropane	<2.50		<1.00		<2.50		<0.500		<0.500	
1,1-Dichloropropene	<2.50		<1.00		<2.50		<0.500		<0.500	
cis-1,3-Dichloropropene	<2.50		<1.00		<2.50		<0.500		<0.500	
trans-1,3-Dichloropropene	<2.50		<1.00		<2.50		<0.500		<0.500	
Ethylbenzene	237		27.8		23.2		4.86		8.51	
Hexachlorobutadiene	<12.5		<5.00		<12.5		<2.50		<2.50	
2-Hexanone	<25.0		<10.0		<25.0		<5.00		<5.00	
Isopropylbenzene	9.45		<1.00		<2.50		<0.500		<0.500	
4-Isopropyltoluene	<2.50		<1.00		<2.50		<0.500		<0.500	
Methylene chloride	<25.0		<5.00		<12.5		<2.50		<5.00	
4-Methyl-2-pentanone (MIBK)	<25.0		<10.0		<25.0		<5.00		<5.00	
Methyl tert-butyl ether (MTBE)	2.65	J	1.34	J	<2.50		<0.500		<0.500	
n-Propylbenzene	3.10		<0.500		<1.25		<0.250		<0.250	
Stryrene	<2.50		<1.00		<2.50		<0.500		<0.500	
1,1,1,2-Tetrachloroethane	<1.00		<0.400		<1.00		<0.200		<0.200	
1,1,2,2-Tetrachloroethane	<1.25		<0.500		<1.25		<0.250		<0.250	
Tetrachloroethene (PCE)	<1.00		<0.400		<1.00		<0.200		<0.200	
Toluene	8.90		1.14		3.43		0.802		0.700	
1,2,3-Trichlorobenzene	<5.00		<2.00		<5.00		<1.00		<1.00	
1,2,4-Trichlorobenzene	<5.00		<2.00		<5.00		<1.00		<1.00	
1,1,1-Trichloroethane	<1.00		<0.400		<1.00		<0.200		<0.200	
1,1,2-Trichloroethane	<1.25		<0.500		<1.25		<0.250		<0.250	
Trichloroethene (TCE)	<1.00		<0.400		<1.00		<0.200		<0.200	
Trichlorofluoromethane	<5.00		<2.00		<5.00		<1.00		<1.00	
1,2,3-Trichloropropane	<2.50		<1.00		<2.50		<0.500		<0.500	

Table 3C - Sep 2019 Monthly Process Control Sampling Charted Lab Results

1,2,4-Trimethylbenzene	68.9		9.17		3.48	J	0.647	J	1.79	
1,3,5-Trimethylbenzene	21.2		2.41		<2.50		<0.500		0.720	J
Vinyl chloride	12.7		0.626	J	<1.00		<0.200		<0.200	
m,p-Xylene	166		19.3		8.78		1.98		4.45	
o-Xylene	93.8		14.2		5.00		1.60		3.40	
Cyanide										
Total Cyanide-(Final Target Range)	151		169		146		142		147	
SVOC (ug/L)										
Acenaphthene	773		54.4		8.55		<1.03		<1.87	
Acenaphthylene	<41.2		7.49	J	<2.06		<1.03		4.80	
Anthracene	351		20.2		3.06	J	<1.03		6.20	
Benzo(a)anthracene	132		11.7		2.06	J	<1.03		4.23	
Benzo(a)pyrene	130		9.91		<2.06		<1.03		4.04	
Benzo(b)fluoranthene	108	M-05	8.90	M-05	<2.06		<1.03		3.49	J
Benzo(k)fluoranthene	54.4	J	<4.40		<2.06		<1.03		<1.87	
Benzo(g,h,i)perylene	90.8		6.93	J	<2.06		<1.03		2.70	J
Chrysene	170		13.4		<2.06		<1.03		5.67	
Dibenz(a,h)anthracene	<41.2		<4.40		<2.06		<1.03		<1.87	
Dibenzofuran	54.2	J	5.00	J	<2.06		1.75	J	2.29	J
Fluoranthene	480		40.8		4.66		2.71		18.2	
Fluorene	307		32.0		2.91	J	4.38		12.5	
Indeno(1,2,3-cd)pyrene	91.5		7.15	J	<2.06		<1.03		2.77	J
1-Methylnaphthalene	810		90.2		10.8		11.2		27.2	
2-Methylnaphthalene	1170		82.8		12.9		13.0		12.9	
Naphthalene	9550		695		180		167		26.1	
Phenanthrene	1360		116		12.8		14.5		41.8	
Pyrene	545		41.4		5.56		<1.03		14.1	
Total Metals (ug/L)										
Copper	<2.50	R-04	<2.50	R-04	<2.50	R-04	<2.50	R-04	<2.50	R-04
Iron	36000		36000		90600		82100		65300	
HEM (Oil and Grease)										
HEM (Oil and Grease)	6770		<5260		<5560		<5210		<4720	
Total Suspended Solids (ug/L)										
Total Suspended Solids (ug/L)									488000	

Notes

J = Estimated Result. Result detected <MDL and >MRL.

M-05 = Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.

R-04 = Reporting levels elevated due to dilution necessary for analysis.

Table 3D - Oct 2019 Monthly Process Control Sampling Charted Lab Results

Location	Siltronic Influent (SI)		Siltronic Effluent (SE)		NW Natural Influent		NW Natural Effluent		Treatment Plant	
Sample ID	SI-100719-59		SE-100719-59		NWI-100719-59		NWE-100719-59		TPI-100719-59	
Laboratory ID	A9J0216-01		A9J0216-02		A9J0216-03		A9J0216-04		A9J0216-05	
	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier
VOC (ug/L)										
Acetone	<200		<50.0		<50.0		<20.0		<20.0	
Benzene	130		32.6		405		75.5		46.0	
Bromobenzene	<5.00		<1.25		<1.25		<0.500		<0.500	
Bromochloromethane	<10.0		<2.50		<2.50		<1.00		<1.00	
Bromodichloromethane	<10.0		<2.50		<2.50		<1.00		<1.00	
Bromoform	<10.0		<2.50		<2.50		<1.00		<1.00	
Bromomethane	<100		<25.0		<25.0		<10.0		<10.0	
2-Butanone (MEK)	<100		<25.0		<25.0		<10.0		<10.0	
n-Butylbenzene	<10.0		<2.50		<2.50		<1.00		<1.00	
sec-Butylbenzene	<10.0		<2.50		<2.50		<1.00		<1.00	
tert-Butylbenzene	<10.0		<2.50		<2.50		<1.00		<1.00	
Carbon tetrachloride	<10.0		<2.50		<2.50		<1.00		<1.00	
Chlorobenzene	<5.00		<1.25		<1.25		<0.500		<0.500	
Chloroethane	<100		<25.0		<25.0		<10.0		<10.0	
Chloroform	<10.0		<2.50		<2.50		<1.00		<1.00	
Chloromethane	<50.0		<12.5		<12.5		<5.00		<5.00	
2-Chlorotoluene	<10.0		<2.50		<2.50		<1.00		<1.00	
4-Chlorotoluene	<10.0		<2.50		<2.50		<1.00		<1.00	
Dibromochloromethane	<10.0		<2.50		<2.50		<1.00		<1.00	
1,2-Dibromo-3-chloropropane	<50.0		<12.5		<12.5		<5.00		<5.00	
1,2-Dibromoethane (EDB)	<5.00		<1.25		<1.25		<0.500		<0.500	
Dibromomethane	<10.0		<2.50		<2.50		<1.00		<1.00	
1,2-Dichlorobenzene	<5.00		<1.25		<1.25		<0.500		<0.500	
1,3-Dichlorobenzene	<5.00		<1.25		<1.25		<0.500		<0.500	
1,4-Dichlorobenzene	<5.00		<1.25		<1.25		<0.500		<0.500	
Dichlorodifluoromethane	<10.0		<2.50		<2.50		<1.00		<1.00	
1,1-Dichloroethane	<4.00		<1.00		<1.00		<0.400		<0.400	
1,2-Dichloroethane (EDC)	<4.00		<1.00		<1.00		<0.400		<0.400	
1,1-Dichloroethene	<4.00		<1.00		<1.00		<0.400		<0.400	
cis-1,2-Dichloroethene	7.70	J	2.36		<1.00		<0.400		0.666	J
trans-1,2-Dichloroethene	<4.00		<1.00		<1.00		<0.400		<0.400	
1,2-Dichloropropane	<5.00		<1.25		<1.25		<0.500		<0.500	
1,3-Dichloropropane	<10.0		<2.50		<2.50		<1.00		<1.00	
2,2-Dichloropropane	<10.0		<2.50		<2.50		<1.00		<1.00	
1,1-Dichloropropene	<10.0		<2.50		<2.50		<1.00		<1.00	
cis-1,3-Dichloropropene	<10.0		<2.50		<2.50		<1.00		<1.00	
trans-1,3-Dichloropropene	<10.0		<2.50		<2.50		<1.00		<1.00	
Ethylbenzene	139		26.5		31.9		4.93		8.78	
Hexachlorobutadiene	<50.0		<12.5		<12.5		<5.00		<5.00	
2-Hexanone	<100		<25.0		<25.0		<10.0		<10.0	
Isopropylbenzene	<10.0		<2.50		<2.50		<1.00		<1.00	
4-Isopropyltoluene	<10.0		<2.50		<2.50		<1.00		<1.00	
Methylene chloride	<50.0		<12.5		<12.5		<5.00		<5.00	
4-Methyl-2-pentanone (MIBK)	<100		<25.0		<25.0		<10.0		<10.0	
Methyl tert-butyl ether (MTBE)	<10.0		<2.50		<2.50		<1.00		<1.00	
n-Propylbenzene	<5.00		<1.25		<1.25		<0.500		<0.500	
Stryrene	<10.0		<2.50		<2.50		<1.00		<1.00	
1,1,1,2-Tetrachloroethane	<4.00		<1.00		<1.00		<0.400		<0.400	
1,1,1,2,2-Tetrachloroethane	<5.00		<1.25		<1.25		<0.500		<0.500	
Tetrachloroethene (PCE)	<4.00		<1.00		<1.00		<0.400		<0.400	
Toluene	6.42	J	1.36	Q-42, J	5.00		0.900	J	0.788	J
1,2,3-Trichlorobenzene	<20.0		<5.00		<5.00		<2.00		<2.00	
1,2,4-Trichlorobenzene	<20.0		<5.00		<5.00		<2.00		<2.00	
1,1,1-Trichloroethane	<4.00		<1.00		<1.00		<0.400		<0.400	
1,1,2-Trichloroethane	<5.00		<1.25		<1.25		<0.500		<0.500	
Trichloroethene (TCE)	<8.00		<2.00		<1.00		<0.800		<0.800	
Trichlorofluoromethane	<20.0		<5.00		<5.00		<2.00		<2.00	
1,2,3-Trichloropropane	<10.0		<2.50		<2.50		<1.00		<1.00	

Table 3D - Oct 2019 Monthly Process Control Sampling Charted Lab Results

1,2,4-Trimethylbenzene	34.1		7.88		3.94	J	<1.00		2.44	
1,3,5-Trimethylbenzene	10.8	J	<2.50		<2.50		<1.00		<1.00	
Vinyl chloride	16.4		1.52	J	<1.00		<0.400		0.452	J
m,p-Xylene	81.1		16.6		11.7		1.91	J	4.72	
o-Xylene	45.1		11.2		6.39		1.74		3.58	
Cyanide										
Total Cyanide-(Final Target Range)	204		216		166		163		182	
SVOC (ug/L)										
Acenaphthene	69.4	J	84.8		16.9		6.79		22.3	
Acenaphthylene	<37.7		<4.12		<2.15		<0.980		2.56	J
Anthracene	<37.7		9.81		2.75	J	8.35		<2.06	
Benz(a)anthracene	<37.7		<4.12		2.64	J	<0.980		<2.06	
Benzo(a)pyrene	<37.7		<4.12		<2.15		<0.980		<2.06	
Benzo(b)fluoranthene	<37.7		<4.12		<2.15		<0.980		<2.06	
Benzo(k)fluoranthene	<37.7		<4.12		<2.15		<0.980		<2.06	
Benzo(g,h,i)perylene	<37.7		<4.12		<2.15		<0.980		<2.06	
Chrysene	<37.7		<4.12		<2.15		<0.980		<2.06	
Dibenz(a,h)anthracene	<37.7		<4.12		<2.15		<0.980		<2.06	
Dibenzofuran	<37.7		6.07	J	3.29	J	1.21	J	<2.06	
Fluoranthene	<37.7		9.32		7.30		1.76	J	3.54	J
Fluorene	<37.7		29.3		6.52		2.84		8.18	
Indeno(1,2,3-cd)pyrene	<37.7		<4.12		<2.15		<0.980		<2.06	
1-Methylnaphthalene	122	J	114		23.3		9.11		25.3	
2-Methylnaphthalene	173		150		34.8		10.0		23.7	
Naphthalene	2710		1890		479		140		236	
Phenanthrene	48.5	J	67.2		17.9		8.86		20.3	
Pyrene	<37.7		10.1		6.48		1.63	J	3.64	J
Total Metals (ug/L)										
Copper	<0.500		<2.50	R-04	<2.50	R-04	<2.50	R-04	<2.50	R-04
Iron	34000		33100		80400		78100		63200	
HEM (Oil and Grease)										
HEM (Oil and Grease)	<4950		<5000		<5000		<4810		<5100	
Total Suspended Solids (ug/L)										
Total Suspended Solids (ug/L)									458000	

Notes

J = Estimated Result. Result detected <MDL and >MRL.

R-04 = Reporting levels elevated due to dilution necessary for analysis.

Q-42 = Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits.

Table 3E - Nov 2019 Monthly Process Control Sampling Charted Lab Results

Location	Siltronic Influent (SI)		Siltronic Effluent (SE)		NW Natural Influent		NW Natural Effluent		Treatment Plant	
Sample ID	SI-110619-60		SE-110619-60		NWI-110619-60		NWE-110619-60		TPI-110619-60	
Laboratory ID	A9K0136-01		A9K0136-02		A9K0136-03		A9K0136-04		A9K0136-05	
	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier
VOC (ug/L)										
Acetone	<200		<50.0		<20.0		<10.0		<10.0	
Benzene	412		64.2		274		87.0		68.1	
Bromobenzene	<5.00		<1.25		<0.500		<0.250		<0.250	
Bromochloromethane	<10.0		<2.50		<1.00		<0.500		<0.500	
Bromodichloromethane	<10.0		<2.50		<1.00		<0.500		<0.500	
Bromoform	<10.0		<2.50		<1.00		<0.500		<0.500	
Bromomethane	<100		<25.0		<10.0		<5.00		<5.00	
2-Butanone (MEK)	<100		<25.0		<10.0		<5.00		<5.00	
n-Butylbenzene	<10.0		<2.50		<1.00		<0.500		<0.500	
sec-Butylbenzene	<10.0		<2.50		<1.00		<0.500		<0.500	
tert-Butylbenzene	<10.0		<2.50		<1.00		<0.500		<0.500	
Carbon tetrachloride	<10.0		<2.50		<1.00		<0.500		<0.500	
Chlorobenzene	<5.00		<1.25		<0.500		<0.250		<0.250	
Chloroethane	<100		<25.0		<10.0		<5.00		<5.00	
Chloroform	<10.0		<2.50		<1.00		<0.500		<0.500	
Chloromethane	<50.0		<12.5		<5.00		<2.50		<2.50	
2-Chlorotoluene	<10.0		<2.50		<1.00		<0.500		<0.500	
4-Chlorotoluene	<10.0		<2.50		<1.00		<0.500		<0.500	
Dibromochloromethane	<10.0		<2.50		<1.00		<0.500		<0.500	
1,2-Dibromo-3-chloropropane	<50.0		<12.5		<5.00		<2.50		<2.50	
1,2-Dibromoethane (EDB)	<5.00		<1.25		<0.500		<0.250		<0.250	
Dibromomethane	<10.0		<2.50		<1.00		<0.500		<0.500	
1,2-Dichlorobenzene	<5.00		<1.25		<0.500		<0.250		<0.250	
1,3-Dichlorobenzene	<5.00		<1.25		<0.500		<0.250		<0.250	
1,4-Dichlorobenzene	<5.00		<1.25		<0.500		<0.250		<0.250	
Dichlorodifluoromethane	<10.0		<2.50		<1.00		<0.500		<0.500	
1,1-Dichloroethane	<4.00		<1.00		<0.400		<0.200		<0.200	
1,2-Dichloroethane (EDC)	<4.00		<1.00		<0.400		<0.200		<0.200	
1,1-Dichloroethene	<4.00		<1.00		<0.400		<0.200		<0.200	
cis-1,2-Dichloroethene	5.40	J	1.32	J	<0.400		<0.200		0.456	
trans-1,2-Dichloroethene	<4.00		<1.00		<0.400		<0.200		<0.200	
1,2-Dichloropropane	<5.00		<1.25		<0.500		<0.250		<0.250	
1,3-Dichloropropane	<10.0		<2.50		<1.00		<0.500		<0.500	
2,2-Dichloropropane	<10.0		<2.50		<1.00		<0.500		<0.500	
1,1-Dichloropropene	<10.0		<2.50		<1.00		<0.500		<0.500	
cis-1,3-Dichloropropene	<10.0		<2.50		<1.00		<0.500		<0.500	
trans-1,3-Dichloropropene	<10.0		<2.50		<1.00		<0.500		<0.500	
Ethylbenzene	183		26.2		19.0		4.93		10.6	
Hexachlorobutadiene	<50.0		<12.5		<5.00		<2.50		<2.50	
2-Hexanone	<100		<25.0		<10.0		<5.00		<5.00	
Isopropylbenzene	<10.0		<2.50		<1.00		<0.500		<0.500	
4-Isopropyltoluene	<10.0		<2.50		<1.00		<0.500		<0.500	
Methylene chloride	<50.0		<12.5		<5.00		<2.50		<2.50	
4-Methyl-2-pentanone (MIBK)	<100		<25.0		<10.0		<5.00		<5.00	
Methyl tert-butyl ether (MTBE)	<10.0		<2.50		<1.00		<0.500		<0.500	
n-Propylbenzene	<5.00		<1.25		<0.500		<0.250		<0.250	
Stryrene	<10.0		<2.50		<1.00		<0.500		<0.500	
1,1,1,2-Tetrachloroethane	<4.00		<1.00		<0.400		<0.200		<0.200	
1,1,2,2-Tetrachloroethane	<5.00		<1.25		<0.500		<0.250		<0.250	
Tetrachloroethene (PCE)	<4.00		<1.00		<0.400		<0.200		<0.200	
Toluene	11.0		1.75	J	2.60		0.878		1.00	
1,2,3-Trichlorobenzene	<20.0		<5.00		<2.00		<1.00		<1.00	
1,2,4-Trichlorobenzene	<20.0		<5.00		<2.00		<1.00		<1.00	
1,1,1-Trichloroethane	<4.00		<1.00		<0.400		<0.200		<0.200	
1,1,2-Trichloroethane	<5.00		<1.25		<0.500		<0.250		<0.250	
Trichloroethene (TCE)	<4.00		<1.00		<0.400		<0.200		<0.200	
Trichlorofluoromethane	<20.0		<5.00		<2.00		<1.00		<1.00	
1,2,3-Trichloropropane	<10.0		<2.50		<1.00		<0.500		<0.500	

Table 3E - Nov 2019 Monthly Process Control Sampling Charted Lab Results

1,2,4-Trimethylbenzene	42.8		8.54		2.95		0.802	J	2.80	
1,3,5-Trimethylbenzene	11.7	J	<2.50		<1.00		<0.500		0.848	J
Vinyl chloride	8.16		0.553		<0.400		<0.200		<0.200	
m,p-Xylene	98.4		15.1		7.11		1.89		5.39	
o-Xylene	63.8		12.5		4.60		1.73		4.68	
Cyanide										
Total Cyanide-(Final Target Range)	190		185		156		168		173	
SVOC (ug/L)										
Acenaphthene	109		103		9.69		8.83		31.2	
Acenaphthylene	<10.4		<4.30		<2.25		<1.15		<2.17	
Anthracene	20.9		16.1		<2.25		<1.15		4.78	
Benzo(a)anthracene	10.5	J	<4.30		<2.25		<1.15		<2.17	
Benzo(a)pyrene	<10.4		<4.30		<2.25		<1.15		<2.17	
Benzo(b)fluoranthene	<10.4		<4.30		<2.25		<1.15		<2.17	
Benzo(k)fluoranthene	<10.4		<4.30		<2.25		<1.15		<2.17	
Benzo(g,h,i)perylene	<10.4		<4.30		<2.25		<1.15		<2.17	
Chrysene	<10.4		<4.30		<2.25		<1.15		<2.17	
Dibenz(a,h)anthracene	<10.4		<4.30		<2.25		<1.15		<2.17	
Dibenzofuran	<10.4		6.86	J	<2.25		1.58	J	2.42	J
Fluoranthene	23.5		10.1		<2.25		2.47		5.32	
Fluorene	33.5		35.3		2.74	J	3.55		11.3	
Indeno(1,2,3-cd)pyrene	<10.4		<4.30		<2.25		<1.15		<2.17	
1-Methylnaphthalene	179		123		13.7		11.2		30.2	
2-Methylnaphthalene	253		139		18.5		12.1		25.2	
Naphthalene	4250		1520		301		187		195	
Phenanthrene	95.5		83.0		6.75		12.9		29.1	
Pyrene	27.0		10.5		<2.25		2.56		5.50	
Total Metals (ug/L)										
Copper	<0.500		<2.50	R-04	<0.500		<2.50	R-04	<2.50	R-04
Iron	36000		36200		85700		82400		69400	
HEM (Oil and Grease)										
HEM (Oil and Grease)	<5150		<4950	PRES	<5100		<4900		<4670	
Total Suspended Solids (ug/L)										
Total Suspended Solids (ug/L)									519000	

Notes

J = Estimated Result. Result detected <MDL and >MRL.

PRES = Sample pH was greater than 2 upon receipt. Additional acid was added to bring pH below 2.

R-04 = Reporting levels elevated due to dilution necessary for analysis.

Table 3F - Dec 2019 Monthly Process Control Sampling Charted Lab Results

Location	Silttronic Influent (SI)		Silttronic Effluent (SE)		NW Natural Influent		NW Natural Effluent		Treatment Plant	
Sample ID	SI-121819-61		SE-121819-61		NWI-121819-61		NWE-121819-61		TPI-121819-61	
Laboratory ID	A9L0749-01		A9L0749-02		A9L0749-03		A9L0749-04		A9L0749-05	
	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier	Results	Qualifier
VOC (ug/L)										
Acetone	<50.0		<20.0		<10.0		<10.0		<10.0	
Benzene	27.9		31.2		245		41.3		33.5	
Bromobenzene	<1.25		<0.500		<0.250		<0.250		<0.250	
Bromochloromethane	<2.50		<1.00		<0.500		<0.500		<0.500	
Bromodichloromethane	<2.50		<1.00		<0.500		<0.500		<0.500	
Bromoform	<2.50		<1.00		<0.500		<0.500		<0.500	
Bromomethane	<25.0		<10.0		<5.00		<5.00		<5.00	
2-Butanone (MEK)	<25.0		<10.0		<5.00		<5.00		<5.00	
n-Butylbenzene	<2.50		<1.00		<0.500		<0.500		<0.500	
sec-Butylbenzene	<2.50		<1.00		<0.500		<0.500		<0.500	
tert-Butylbenzene	<2.50		<1.00		<0.500		<0.500		<0.500	
Carbon tetrachloride	<2.50		<1.00		<0.500		<0.500		<0.500	
Chlorobenzene	<1.25		0.740	J	<0.250		<0.250		<0.250	
Chloroethane	<25.0		<10.0		<5.00		<5.00		<5.00	
Chloroform	<2.50		<1.00		<0.500		<0.500		<0.500	
Chloromethane	<25.0		<10.0		<2.50		<5.00		<5.00	
2-Chlorotoluene	<2.50		<1.00		<0.500		<0.500		<0.500	
4-Chlorotoluene	<2.50		<1.00		<0.500		<0.500		<0.500	
Dibromochloromethane	<2.50		<1.00		<0.500		<0.500		<0.500	
1,2-Dibromo-3-chloropropane	<12.5		<5.00		<2.50		<2.50		<2.50	
1,2-Dibromoethane (EDB)	<1.25		<0.500		<0.250		<0.250		<0.250	
Dibromomethane	<2.50		<1.00		<0.500		<0.500		<0.500	
1,2-Dichlorobenzene	1.30	J	1.32		<0.250		<0.250		0.360	J
1,3-Dichlorobenzene	<1.25		<0.500		<0.250		<0.250		<0.250	
1,4-Dichlorobenzene	<1.25		<0.500		<0.250		<0.250		<0.250	
Dichlorodifluoromethane	<2.50		<1.00		<0.500		<0.500		<0.500	
1,1-Dichloroethane	<1.00		<0.400		<0.200		<0.200		<0.200	
1,2-Dichloroethane (EDC)	<1.00		<0.400		<0.200		<0.200		<0.200	
1,1-Dichloroethene	<1.00		<0.400		<0.200		<0.200		<0.200	
cis-1,2-Dichloroethene	3.55		1.88		<0.200		<0.200		0.580	
trans-1,2-Dichloroethene	<1.00		<0.400		<0.200		<0.200		<0.200	
1,2-Dichloropropane	<1.25		<0.500		<0.250		<0.250		<0.250	
1,3-Dichloropropane	<2.50		<1.00		<0.500		<0.500		<0.500	
2,2-Dichloropropane	<2.50		<1.00		<0.500		<0.500		<0.500	
1,1-Dichloropropene	<2.50		<1.00		<0.500		<0.500		<0.500	
cis-1,3-Dichloropropene	<2.50		<1.00		<0.500		<0.500		<0.500	
trans-1,3-Dichloropropene	<2.50		<1.00		<0.500		<0.500		<0.500	
Ethylbenzene	23.9		28.3		31.0		2.90		9.26	
Hexachlorobutadiene	<12.5		<5.00		<2.50		<2.50		<2.50	
2-Hexanone	<25.0		<10.0		<5.00		<5.00		<5.00	
Isopropylbenzene	<2.50		<1.00		1.18		<0.500		<0.500	
4-Isopropyltoluene	<2.50		<1.00		<0.500		<0.500		<0.500	
Methylene chloride	<7.50		<3.00		<5.00		<1.50		<1.50	
4-Methyl-2-pentanone (MIBK)	<25.0		<10.0		<5.00		<5.00		<5.00	
Methyl tert-butyl ether (MTBE)	<2.50		2.30		<0.500		<0.500		0.740	J
n-Propylbenzene	<1.25		<0.500		0.340	J	<0.250		<0.250	
Stryrene	<2.50		<1.00		<0.500		<0.500		<0.500	
1,1,1,2-Tetrachloroethane	<1.00		<0.400		<0.200		<0.200		<0.200	
1,1,2,2-Tetrachloroethane	<1.25		<0.500		<0.250		<0.250		<0.250	
Tetrachloroethene (PCE)	<1.00		<0.400		<0.200		<0.200		<0.200	
Toluene	<1.25		1.28		4.54		0.580		0.700	
1,2,3-Trichlorobenzene	<5.00		<2.00		<1.00		<1.00		<1.00	
1,2,4-Trichlorobenzene	<5.00		<2.00		<1.00		<1.00		<1.00	
1,1,1-Trichloroethane	<1.00		<0.400		<0.200		<0.200		<0.200	
1,1,2-Trichloroethane	<1.25		<0.500		<0.250		<0.250		<0.250	
Trichloroethene (TCE)	<1.00		<0.400		<0.200		<0.200		<0.200	
Trichlorofluoromethane	<5.00		<2.00		<1.00		<1.00		<1.00	
1,2,3-Trichloropropane	<2.50		<1.00		<0.500		<0.500		<0.500	

Table 3F - Dec 2019 Monthly Process Control Sampling Charted Lab Results

1,2,4-Trimethylbenzene	5.75		8.82		4.54		<0.500		2.21	
1,3,5-Trimethylbenzene	<2.50		2.42		1.26		<0.500		0.770	J
Vinyl chloride	7.90		0.720	J	<0.200		<0.200		<0.200	
m,p-Xylene	14.2		21.2		13.5		1.17		6.02	
o-Xylene	8.05		16.2		8.32		1.01		4.56	
Cyanide										
Total Cyanide-(Final Target Range)	184		190		178		174		160	
SVOC (ug/L)										
Acenaphthene	170		84.8		9.01		6.38		24.2	
Acenaphthylene	<12.2		<4.44		<2.13		<1.23		<2.11	
Anthracene	17.9	J	12.9		<2.13		<1.23		<2.11	
Benzo(a)anthracene	<12.2		<4.44		<2.13		<1.23		<2.11	
Benzo(a)pyrene	<12.2		<4.44		<2.13		<1.23		<2.11	
Benzo(b)fluoranthene	<12.2		<4.44		<2.13		<1.23		<2.11	
Benzo(k)fluoranthene	<12.2		<4.44		<2.13		<1.23		<2.11	
Benzo(g,h,i)perylene	<12.2		<4.44		<2.13		<1.23		<2.11	
Chrysene	<12.2		<4.44		<2.13		<1.23		<2.11	
Dibenz(a,h)anthracene	<12.2		<4.44		<2.13		<1.23		<2.11	
Dibenzofuran	<12.2		5.46	J	<2.13		1.37	J	<2.11	
Fluoranthene	12.3	J	9.69		<2.13		2.12	J	5.14	
Fluorene	56.9		32.4		3.00	J	3.07		9.82	
Indeno(1,2,3-cd)pyrene	<12.2		<4.44		<2.13		<1.23		<2.11	
1-Methylnaphthalene	261		97.5		12.1		9.18		22.7	
2-Methylnaphthalene	399		93.3		16.3		8.62		14.2	
Naphthalene	5160		767		227		112		69.8	
Phenanthrene	110		69.7		6.35		9.29		24.7	
Pyrene	12.8	J	9.91		<2.13		1.43	J	4.79	
Total Metals (ug/L)										
Copper	<2.50	R-04	<2.50	R-04	<2.50	R-04	<2.50	R-04	<2.50	R-04
Iron	32000		30400		79900		74600		61900	
HEM (Oil and Grease)										
HEM (Oil and Grease)	5700		<4810		<5000		<5430		<4720	PRES
Total Suspended Solids (ug/L)										
Total Suspended Solids (ug/L)									520000	

Notes

J = Estimated Result. Result detected <MDL and >MRL.

PRES = Sample pH was greater than 2 upon receipt. Additional acid was added to bring pH below 2.

R-04 = Reporting levels elevated due to dilution necessary for analysis.