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December 21, 2018

Mr. Girish Desai
New York State Department of Environmental Conservation
Division of Environmental Remediation
Building 40 – SUNY, Stony Brook
Stony Brook, New York 11790-2356

Re: Groundwater Sampling Results
Operable Units No. 1 and No. 2
Former Columbia Cement Company Facility
Freeport, New York
Site ID No. 130052

Dear Mr. Desai:

The purpose of this letter is to present to the New York State Department of Environmental Conservation (NYSDEC) the results of groundwater sampling conducted in August and September 2018 at Operable Unit Operable Units No. 1 (OU-1) and No. 2 (OU-2) of the former Columbia Cement Company site (site ID No. 130052) in Freeport, New York, (Site; Figure 1). AECOM (formerly URS) has conducted these activities on behalf of Burmah Castrol Holdings, Inc., a BP affiliated company (BP).

OU-1 (Figure 2) has undergone several rounds of investigation and remediation. In March 2009, NYSDEC issued a Record of Decision (ROD) for OU-1. In the OU-1 ROD, in-situ chemical oxidation (ISCO) was selected to remediate source area soil and groundwater, aerobic bioremediation to treat downgradient groundwater and a sub-slab depressurization system (SSDS) was selected to address vapor intrusion in the Site building. Several rounds of ISCO injections have been conducted in the OU-1 spill area and downgradient Site boundary (loading dock area). The most recent injections took place in October and November 2016. Post-injection sampling was performed through February 2017. A Remedial Action Report for the 2016 injections was submitted to NYSDEC in March 2017.

In March 2016, AECOM submitted a Revised Feasibility Study (FS) Report for OU-2 to NYSDEC. In the Revised FS Report, No Further Action with Groundwater Monitoring (NFA-GW) was recommended as the remedy to manage groundwater impacts in OU-2 resulting from releases at OU-1. In November 2016, NYSDEC published a Proposed Remedial Action Plan (PRAP) for OU-2, naming NFA-GW as the proposed remedy for OU-2. NYSDEC issued a ROD for OU-2 that was published on March 16, 2017, in which NFA-GW was selected as the OU-2 remedy. In March 2016, one additional monitoring well (MW-17-27S) was installed in

OU-2 and 13 wells were sampled. In May 2017, two additional wells (MW-17-28S and MW-17-29D) were installed in OU-2 to replace MW-07-16S and MW-07-17D which were inaccessible.

The Site is underlain by the Upper Glacial deposits, which consists of a sand unit, as well as fill material related to the former use of the area as a municipal landfill, and tidal march deposits (peat). These units extend to a depth of approximately 35 feet. From approximately 35 to 50 feet below grade (fbg), is a gray clay which acts as a lower confining layer. Beneath the clay is the Magothy Aquifer. Well MW-00-11A is a double-cased well screened from 51 to 61 fbg in the Magothy aquifer. No Site-related VOCs have been detected in MW-00-11A to date, suggesting the lower clay prevents vertical migration of contaminants from the Upper Glacial deposits to the Magothy aquifer.

Groundwater flow at the Site is generally east to west, toward Freeport Creek. Close to Freeport Creek, groundwater flow is influenced by tidal fluctuations in the creak, resulting in cyclical flow reversals adjacent to the creek. Freeport is also along the southern shore of Long Island and subject to salt water encroachment. For these reasons, the water table (Upper Glacial) aquifer at the Site is not utilized for water supply. The Village of Freeport obtains its water supply from 11 supply wells drilled into the Magothy Aquifer, ranging from 550 to 750 fbg. The wells are at multiple locations in Freeport, the well field closest to the Site being at Lakeview Avenue and Jessie Street, which is located approximately 1.3 miles north (side-gradient) from the Site. Thus, the groundwater constituents do not represent a risk to, nor do they have the potential to impact public water supply.

GROUNDWATER SAMPLING

Between August 6 and September 9, 2018, AECOM collected groundwater samples from 30 monitoring wells and injection points in OU-1 and from 15 monitoring wells in OU-2. All groundwater samples were analyzed for Target Compound List (TCL) Volatile Organic Compounds (VOCs) by USEPA Method 8260C. A summary of the sampling program is presented in Table 1. Samples were collected using low-flow methods and were submitted to Eurofins – Lancaster Laboratories (New York Certification # 10670). Wells were purged and sampled using a peristaltic pump with high density polyethylene (HDPE) and silicon tubing. In addition, readings for temperature, pH, conductivity, dissolved oxygen, and redox potential were taken during purging of the wells.

In addition to the samples collected from the monitoring wells, field duplicate samples, field blanks and trip blanks were analyzed for quality control purposes. The field duplicate is a second sample collected from a selected well at the same time as the “parent” sample and submitted to the laboratory “blind” for analysis. The field blank (rinsate) was prepared by passing distilled water (opened in the field) through disposable polyethylene sample tubing and into laboratory-provided sample containers. Field blanks provide an additional check of possible sources of contamination from ambient air and sampling equipment. A trip blank, which accompanied the

cooler to the Site and back to the laboratory, also was analyzed for TCL VOCs for quality control purposes.

For clarity of presentation, the sample results are presented and discussed in three groupings: the OU-1 spill area; the OU-1 Site perimeter (including the loading dock area); and OU-2. The laboratory data packages are presented on CD in Appendix A, and the data validation report is presented as Appendix B.

Regulatory Criteria

The groundwater sampling results are presented in Tables 2 through 4. VOC results are compared to the NYSDEC Class GA Water Quality Standards (GWQS).

Data Quality Review

The laboratory data packages were subject to quality assurance/quality control (QA/QC) review and data usability summary reports (DUSRs) were prepared. The DUSRs are presented in Appendix B. The only VOC were detected at laboratory detection limits in the field blanks submitted with the samples were trace levels of acetone and methylene, which are common laboratory artifacts, indicating that sampling equipment and methods did not introduce contaminants into the samples. Likewise, no VOCs were detected in either of the trip blanks submitted. If QA/QC issues were identified, the results were qualified as estimated; detections are qualified with a "J" and non-detections are qualified with a "UJ." The primary findings of the QA/QC review were:

Samples collected August 6 and 8, 2018 (Laboratory Report # 1974489)

- The temperature of the sample cooler upon receipt at the laboratory outside the 4° C (±2° C) requirement so all of the sample results were qualified as estimated "J" and "UJ".
- The percent difference (%D>20) between initial and continuing calibration for several VOCs was high for several samples. The non-detect results were qualified as estimated "UJ."
- Detections below the Reporting Limit are considered estimated and were flagged "J".
- Field and laboratory duplicate samples yielded acceptable accuracy.

Samples collected September 5 through 6, 2018 (Laboratory Report # 1984865)

- Due to field blank contamination, the acetone concentrations in MW-05-14S was qualified as estimated "J" and the acetone concentrations in MW-09-18S and MW-09-24S were negated.

The field duplicate of sample MW-09-19D was within acceptable control limits, with the exception of the 1,4-dichlorobenzene and isopropylbenzene. The results for these two samples were qualified as estimated "J".

Samples collected on September 9, 2018 (Laboratory Report # 1985821)

- The percent difference between initial and initial continuing calibration response factors for several compounds was high (%D>20). Results were qualified as estimated "J" and "UJ".

Overall the data is quality is acceptable with the qualifications stated above. Further details are presented in the DUSRs in Appendix B.

RESULTS

OU-1 Spill Area

Volatile Organic Compounds

The groundwater VOC sampling results for the OU-1 spill area are presented in Table 2 and shown on Figure 3. The primary compounds detected in the spill area are 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethane (1,1-DCA) and chloroethane. Historical reports indicate that 1,1,1-TCA was spilled in the source area in 1988. The compounds 1,1-DCA and chloroethane are degradation products resulting from the attenuation of 1,1,1-TCA.

Two monitoring wells and 17 injection points were sampled in the OU-1 spill area. 1,1,1-TCA was detected in eight of 19 samples at concentrations exceeding the GWQS of 5.0 µg/l. The 1,1,1-TCA exceedances in the spill area ranged from 12 micrograms per liter (µg/l) to 360 µg/l. 1,1-DCA was detected in 13 of 19 samples in the spill area at concentrations ranging from 6.0 µg/l to 280 µg/l. Chloroethane was detected in 17 of 19 samples at concentrations ranging from 3.0 µg/l to 460 µg/l.

The spill area wells were most recently sampled in September 2017, and prior to that in December 2016 and February 2017 as part of performance monitoring for the 2016 ISCO injections. Graphs of VOC concentrations over time are presented in Appendix C. Graphs are presented in both linear and semi-lag format so that changes at low concentrations can be observed. The graphs show that at most locations, VOC concentrations have remained stable or continued to decrease since the post-ISCO sampling and no significant rebound of concentrations has occurred. Although concentrations of VOC compounds in some wells have shown an increase over September 2017 results, the results are generally within the range of fluctuations previously observed.

Field Measurements

Field measurements made at the conclusion of well purging are presented in Table 2. The purge logs are presented in Appendix D. In spill area groundwater, pH generally ranged from 6.5 to

7.5. The pH in well MW-1D-97 was 9.19, which may be a lingering result of the alkaline activator used during the 2016 ISCO injections. The pH in MW-1D-97 in September 2017 was 10.24. Most samples had dissolved oxygen (DO) measurements less than 1.0 milligram per liter (mg/l) and redox potential measurements less than 0.0 millivolts (mV), several less than -100 mV. These measurements indicate anaerobic, reducing conditions which should promote the continued anaerobic degradation of the residual chlorinated VOCs present in groundwater.

OU-1 Site Perimeter

The OU-1 Site perimeter wells sampled in September 2018 include wells MW-98-8S and MW-98-8D, located east of the spill area; wells MW-97-4S and MW-00-12D and MW-97-6S, located in the driveway along the southern boundary of OU-1; loading dock area wells MW-97-1S, MW-98-9D, OW-3 and OW-4; and wells MW-97-2S and MW-98-10D, located at the northwest corner of OU-1. Groundwater sampling results are presented in Table 3 and Figure 4.

Volatile Organic Compounds

No VOCs were detected in wells MW-98-8S or MW-98-8D at levels exceeding the GWQS. Chloroethane (0.60 µg/l) and 1,1-DCA (5.0 µg/l) were detected in MW-98-8S; and chloroethane (2.0 µg/l) was detected in MW-98-8D at levels equal to or below their respective GWQS. Along the southern site boundary, chloroethane was detected in wells MW-97-4S, MW-00-12D and MW-97-6S at 49 µg/l, 56 µg/l and 30 µg/l, which exceeds the GWQS of 5 µg/l. In addition, 1,1-DCA was detected in MW-00-12D at 57 µg/l which exceeds the GWQS of 5 ug/l. As shown on Figure 4, these concentrations are significantly lower than historical high concentrations in these wells, suggesting that the ISCO injections in the source area have, along with natural attenuation, improved downgradient water quality.

The only GWQS exceedances detected in the loading dock area were chloroethane in MW-98-9D at 150 µg/l and chlorobenzene at 15µg/l in OW-4. The chloroethane detection in MW-98-9D represents an increase from the 15 µg/l detected in 2017, but it is still well below the historical high of 3,000 µg/l. As stated previously, chloroethane is a daughter product of 1,1,1-TCA and 1,1-DCA attenuation. The source of chlorobenzene is not known. In the northwest corner of OU-1, chlorobenzene was detected in MW-97-2S at 9.0 µg/l, exceeding the GWQS of 5 µg/l. No spill-related compounds were detected in MW-97-2S or MW-98-10D.

Field Measurements

Field measurements made at the conclusion of well purging are presented in Table 3. Site perimeter pH values were all between 6.56 and 7.27, except MW-97-1S, which had a pH of 8.15. The cause of this basic pH is not known since pH measurements in this well are typically between 6.0 and 7.0, even following the sodium hydroxide–activated ISCO application in 2016. Although the VOC concentrations in the perimeter wells are lower than in the spill area, the DO values are all at or close to 0.0 mg/l and the ORP in all wells on the west and south side of the site were generally negative. The reducing conditions in these wells is likely a result of the fill material and/or tidal marsh deposits in the subsurface, but should still promote anaerobic

attenuation of chlorinated VOCs in groundwater. Again, MW-97-1S was an outlier, with a DO of 6.68 mg/l and ORP of 120 mV. As with the pH measurement, the cause of these readings is not known.

OU-2

Volatile Organic Compounds

The OU-2 groundwater VOC sampling results are presented in Table 4 and shown on Figure 5. Samples were collected from 15 OU-2 monitoring wells. Chloroethane was detected in wells MW-09-19D (16 µg/l), MW-09-21D (60 µg/l) and MW-09-25D (14 µg/l) at concentrations exceeding the GWQS of 5 µg/l. Chlorobenzene was detected in wells MW-09-19D (6.0 µg/l), MW-09-21D (6.0 µg/l) and MW-09-26D (9.0 µg/l) at concentrations exceeding the GWQS of 5.0 µg/l. Well MW-17-27S had detections of methylene chloride (26 µg/l), tetrachloroethene (17 µg/l), 1,1,1-TCA (12 µg/l) and trichloroethene (11 µg/l) at concentrations exceeding their respective GWQS. These detections are unexpected since these compounds have not been detected at laboratory detection limits in the three previous sampling events completed since MW-17-27S was installed in May 2017. With the exception of methylene chloride, these compounds have not been detected in any OU-2 wells to date. If similar levels of these compounds are detected in March 2019, the origin of these impacts should be investigated. No other VOCs were detected at levels over their respective GWQS. The source of the chlorobenzene impacts is unknown.

Field Measurements

Field measurements made at the conclusion of well purging are presented in Table 4. OU-2 pH values were all between 5.9 and 7.0, except for MW-05-15D which was 4.29. The pH in this well has ranged from 4.91 in March 2017 to 3.74 in March 2018. The reason for this acidic pH is not known. The conductivity measurements in wells MW-09-25D and MW-17-29D were 21.1 millisiemens per centimeter (mS/cm) and 65.7 mS/cm, respectively, which is much higher than other wells sampled. Elevated conductivity has been measured in these wells previously. Both wells are located adjacent to Freeport Creek. Other wells along Freeport Creek have exhibited high conductivity values in the past, possibly as a result of groundwater-surface water mixing. DO measurements in OU-2 wells are somewhat higher than in OU-1 wells but the redox potential in most wells was negative. The field measurements in some OU-2 wells are likely due, at least in part, to groundwater interaction with Freeport Creek surface water. Most OU-2 wells had low DO (<1.0 mg/l) and ORP (<100 mV) values. However, in addition to its low pH (4.29), MW-05-15D also had anomalously high DO (6.6 mg/l) and ORP (109 mV).

CONCLUSIONS AND RECOMMENDATIONS

Groundwater samples were collected from 45 monitoring wells in OU-1 and OU-2 in August and September 2018. From the results of this sampling event, the following conclusions can be drawn:

- In the OU-1 spill area groundwater VOC concentrations have decreased up to 99% from pre-ISCO concentrations. Although some compounds are still present at concentrations exceeding the GWQS the data trends provided in the Appendix C graphs show a general trend of decreasing concentrations over time.

- The data shows that natural attenuation of 1,1,1-TCA to daughter products 1,1-DCA and further to chloroethane, and presumably to ethane, continues in the spill area. The low DO measurements and negative ORP measurements indicate conditions conducive to continued anaerobic attenuation of the chlorinated VOCs in the spill area.

- Almost 2 years after the 2016 ISCO injections, no significant rebound was observed in the spill area and VOC concentrations generally continued to remain stable or decrease, suggesting that the ISCO injections have been effective at reducing the source of dissolved VOCs. Although some VOC concentrations in some wells showed an increase over September 2017 values, these results were generally within the range of fluctuations observed in the past.

- Groundwater VOC concentrations at the OU-1 Site perimeter wells are generally below pre-ISCO concentrations, suggesting the potential for offsite impacts is low. This is supported by the low concentrations of dissolved VOCs in samples from OU-2 monitoring wells.

- The OU-2 groundwater VOC data shows that concentrations of site-related VOCs are non-detect to very low throughout OU-2. Detected concentrations are near or below their respective GWQS. 1,1,1-TCA, PCE, TCE and methylene chloride were detected in MW-17-27S above the GWQS. These compounds had not previously been detected at laboratory detection levels in MW-17-27S. All OU-2 properties receive water from Freeport Water, whose supply wells are located over a mile from the Site and are over 500 feet deep in a different aquifer.

- OU-1 and OU-2 shallow groundwater is encountered in the Upper Glacial deposits, which includes former municipal landfill deposits. Groundwater in this area is also subject to salt water intrusion from nearby tidal creeks and has high levels of dissolved solids. For these reasons shallow groundwater in the area is not utilized for potable or non-potable purposes. The Upper Glacial deposits are separated from the Magothy aquifer by a lower confining clay unit approximately 15 feet thick which prevents migration of groundwater impacts to the Magothy.

Recommendations

On behalf of Burmah Castrol Holdings, Inc., AECOM presents the following recommendations for the Columbia Cement Company site:

1. A significant decrease in groundwater VOC concentrations due to the ISCO injections has been seen at the Site. However, the magnitude of the decreases has diminished with each successive round of injections. When last sampled in February 2017, concentrations of VOCs in the spill area soil remained at concentrations above the NYSDEC Protection of Groundwater Soil Cleanup Criteria. AECOM is evaluating alternatives to address residual soil and groundwater impacts in the spill area. AECOM will present a proposal to address these impacts to NYSDEC in January 2019.

2. Groundwater monitoring in OU-2 should continue on a semi-annual basis, as described in the OU-2 ROD. However, the monitoring network should be reduced. Well MW-03-13S is approximately 400 feet south (side-gradient) of the spill area. No site-related VOCs have been detected in MW-03-13S since 2011. MW-03-13S should be removed from the OU-2 monitoring network.

3. The detections of 1,1,1-TCA, PCE and TCE in MW-17-27 were not anticipated based on existing data. If similar levels of these compounds are detected in March 2019, the origin of these impacts should be investigated.

Summary

In August and September 2018, 45 monitoring wells were sampled at OU-1 and OU-2 of the former Columbia Cement Company Site. OU-1 VOC concentrations have been reduced significantly as a result of the multiple ISCO injections and have not rebounded. Minimal exceedences of the GWQS were detected in OU-2. The OU-2 monitoring wells will be sampled again in March 2019.

If you have any comments or questions, please contact me at (973) 883-8696 or by email at mark.becker@aecom.com.

Very truly yours,

AECOM

Mark T. Becker, P.G.
Senior Geologist

MTB/mtb

cc: Scarlett McLaughlin, NYSDOH

Attachments:

Table 1	Groundwater Sampling Program
Table 2	Summary of Groundwater Analytical Data, September 2017 – Spill Area
Table 3	Summary of Groundwater Analytical Data, September 2017 – Site Perimeter
Table 4	Summary of Groundwater Analytical Data, September 2017 – OU-2
Figure 1	Site Location Map
Figure 2	Site Plan
Figure 3	Groundwater VOC Sampling Results –Spill Area
Figure 4	Groundwater VOC Sampling Results –Site Perimeter
Figure 5	Groundwater VOC Sampling Results –OU-2
Appendix A	Laboratory Data Packages
Appendix B	Data Validation Report
Appendix C	Groundwater VOC Concentration Trend Graphs

TABLES

TABLE 1
SAMPLING PROGRAM - AUGUST- SEPTEMBER 2018
COLUMBIA CEMENT SITE
FREEPORT, NEW YORK

AREA	WELL ID	PARAMETERS	SAMPLING
		VOCs	DATE
SPILL AREA	MW-1S	X	8/6/2018
	MW-1D-97	X	8/7/2018
	IP1-1I	X	8/6/2018
	IP1-1D	X	8/6/2018
	IP1-4S	X	8/7/2018
	IP1-4I	X	8/7/2018
	IP1-4D	X	8/7/2018
	IP1-7I	X	8/7/2018
	IP1-8S	X	8/6/2018
	IP1-8I	X	8/6/2018
	IP1-8D	X	8/6/2018
	IP2-7	X	8/7/2018
	IP2-8	X	8/7/2018
	IP2-9	X	8/6/2018
	IP3-2	X	8/6/2018
	IP3-3	X	8/6/2018
	IP3-6	X	8/6/2018
	IP4-3	X	8/7/2018
	IP4-6	X	8/7/2018
Sub-Total		19	
LOADING DOCK	MW-97-1S	X	9/9/2018
	MW-98-9D	X	9/9/2018
	OW-3	X	9/9/2018
	OW-4	X	9/9/2018
Sub-Total		4	
SITE PERIMETER	MW-97-2S	X	9/9/2018
	MW-98-10D	X	9/9/2018
	MW-97-6S	X	8/8/2018
	MW-97-4S	X	8/8/2018
	MW-00-12D	X	8/8/2018
	MW-98-8S	X	8/8/2018
	MW-98-8D	X	8/8/2018
Sub-Total		7	
OU-2	MW-03-13S	X	9/6/2018
	MW-05-14S	X	9/5/2018
	MW-05-15D	X	9/5/2018
	MW-09-18S	X	9/5/2018
	MW-09-19D	X	9/5/2018
	MW-09-20S	X	9/6/2018
	MW-09-21D	X	9/6/2018
	MW-09-22S	X	9/6/2018
	MW-09-23D	X	9/6/2018
	MW-09-24S	X	9/5/2018
	MW-09-25D	X	9/5/2018
	MW-09-26D	X	9/5/2018
	MW-17-27S	X	9/5/2018
	MW-09-28S	X	9/6/2018
	MW-09-29D	X	9/6/2018
Sub-Total		15	
TOTAL		45	

TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL DATA
AUGUST 2018 - SPILL AREA
COLUMBIA CEMENT SITE
FREEPORT, NEW YORK

SAMPLE ID LAB SAMPLE ID SAMPLE DATE UNITS	NYSDEC CLASS GA WATER QUAL. STD. µg/l	MW-1S 9744296 8/6/2018 µg/l	MW-1D-97 9744312 8/7/2018 µg/l	DUP080718 9744313 8/7/2018 µg/l	IP1-1I 9744304 8/6/2018 µg/l	IP1-1D 9744305 8/6/2018 µg/l	IP1-4S 9744307 8/7/2018 µg/l
Volatile Organic Compounds							
Acetone	50	6.0 UJ	11 J	15 J	6.0 UJ	6.0 UJ	0.70 J
Benzene	1	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
Bromodichloromethane	5	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
Bromoform	5	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
Bromomethane	5	0.50 UJ	3.0 UJ	3.0 UJ	0.50 UJ	0.50 UJ	0.30 UJ
2-Butanone	50	3.0 UJ	3.0 UJ	3.0 UJ	3.0 UJ	3.0 UJ	0.30 UJ
Carbon Disulfide	NE	1.0 UJ	7.0 J	7.0 J	1.0 UJ	1.0 UJ	0.20 UJ
Carbon Tetrachloride	5	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
Chlorobenzene	5	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
Chloroethane	5	**130 J**	4.0 J	3.0 J	**250 J**	**25 J**	**10 J**
Chloroform	7	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
Chloromethane	5	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
Cyclohexane	NE	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	0.20 UJ
1,2-Dibromo-3-chloropropane	NE	2.0 UJ	3.0 UJ	3.0 UJ	2.0 UJ	2.0 UJ	0.30 UJ
Dibromochloromethane	5	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
1,2-Dibromoethane	NE	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
1,2-Dichlorobenzene	0.6	1.0 UJ	2.0 UJ	2.0 UJ	1.0 UJ	1.0 UJ	0.20 UJ
1,3-Dichlorobenzene	NE	1.0 UJ	2.0 UJ	2.0 UJ	1.0 UJ	1.0 UJ	0.20 UJ
1,4-Dichlorobenzene	NE	1.0 UJ	2.0 UJ	2.0 UJ	1.0 UJ	1.0 UJ	0.20 UJ
Dichlorodifluoromethane	NE	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
1,1-Dichloroethane	5	**18 J**	**9.0 J**	**9.0 J**	**40 J**	2.0 J	**17 J**
1,2-Dichloroethane	0.6	0.50 UJ	3.0 UJ	3.0 UJ	0.50 UJ	0.50 UJ	0.30 UJ
1,1-Dichloroethene	5	0.60 J	2.0 UJ	2.0 UJ	1.0 J	0.50 UJ	0.80 J
cis-1,2-Dichloroethene	NE	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
trans-1,2-Dichloroethene	NE	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
1,2-Dichloropropane	1	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
cis-1,3-Dichloropropene	0.4	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
trans-1,3-Dichloropropene	0.4	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
Ethylbenzene	5	0.50 UJ	4.0 UJ	4.0 UJ	0.50 UJ	0.50 UJ	0.40 UJ
Freon 113		2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	0.20 UJ
2-Hexanone	50	3.0 UJ	3.0 UJ	3.0 UJ	3.0 UJ	3.0 UJ	0.30 UJ
Isopropylbenzene	NE	1.0 UJ	2.0 UJ	2.0 UJ	1.0 UJ	1.0 UJ	0.20 UJ
Methyl Acetate	NE	1.0 UJ	2.0 UJ	2.0 UJ	1.0 UJ	1.0 UJ	0.20 UJ
Methyl Tertiary Butyl Ether	NE	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
4-Methyl-2-pentanone	NE	3.0 UJ	5.0 UJ	5.0 UJ	3.0 UJ	3.0 UJ	0.50 UJ
Methylcyclohexane	NE	1.0 UJ	2.0 UJ	2.0 UJ	1.0 J	1.0 UJ	0.20 UJ
Methylene Chloride	5	0.50 UJ	3.0 UJ	3.0 UJ	0.60 J	0.50 UJ	0.30 UJ
Styrene	5	1.0 UJ	2.0 UJ	2.0 UJ	1.0 UJ	1.0 UJ	0.20 UJ
1,1,2,2-Tetrachloroethane	5	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
Tetrachloroethene	5	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
Toluene	5	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
1,2,4-Trichlorobenzene	NE	1.0 UJ	3.0 UJ	3.0 UJ	1.0 UJ	1.0 UJ	0.30 UJ
1,1,1-Trichloroethane	5	0.60 J	3.0 UJ	3.0 UJ	**25 J**	0.50 UJ	**14 J**
1,1,2-Trichloroethane	1	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
Trichloroethene	5	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 J
Trichlorofluoromethane	NE	0.50 UJ	2.0 UJ	2.0 UJ	0.50 UJ	0.50 UJ	0.20 UJ
Vinyl Chloride	2	0.50 UJ	2.0 UJ	2.0 UJ	0.70 J	0.50 UJ	0.20 UJ
Xylene (Total)	5	0.50 UJ	10 UJ	10 UJ	0.50 UJ	0.50 UJ	1.0 UJ
Total Target VOCs	NE	19.2	31	34	318.7	27	42.5
FIELD MEASUREMENTS							
pH (s.u.)	NE	6.94	9.19	NA	6.97	7.37	6.59
Conductivity (mS/cm)	NE	0.630	8.210	NA	0.260	0.360	0.152
Dissolved Oxygen (mg/l)	NE	0.00	0.00	NA	0.00	3.95	0.05
Temperature (°C)	NE	20.18	18.01	NA	22.12	17.75	2.82
Redox Potential (mV)	NE	-102.0	-386.0	NA	-121.0	-123.0	-50.0

TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL DATA
AUGUST 2018 - SPILL AREA
COLUMBIA CEMENT SITE
FREEPORT, NEW YORK

SAMPLE ID LAB SAMPLE ID SAMPLE DATE UNITS	NYSDEC CLASS GA WATER QUAL. STD. µg/l	IP1-4I 9744306 8/7/2018 µg/l	IP1-4D 9744308 8/7/2018 µg/l	IP1-7I 9744309 8/7/2018 µg/l	IP1-8S 9744303 8/6/2018 µg/l	IP1-8I 9744302 8/6/2018 µg/l	IP1-8D 9744301 8/6/2018 µg/l
Volatile Organic Compounds							
Acetone	50	0.70 UJ	0.70 UJ	0.70 UJ	6.0 UJ	6.0 UJ	6.0 UJ
Benzene	1	0.70 J	0.30 J	0.30 J	0.50 UJ	0.50 UJ	0.50 UJ
Bromodichloromethane	5	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Bromoform	5	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Bromomethane	5	0.30 UJ	0.30 UJ	0.30 UJ	0.50 UJ	0.50 UJ	0.50 UJ
2-Butanone	50	0.30 UJ	0.30 UJ	0.30 UJ	3.0 UJ	3.0 UJ	3.0 UJ
Carbon Disulfide	NE	0.20 J	0.20 UJ	0.20 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Carbon Tetrachloride	5	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Chlorobenzene	5	0.20 J	0.20 UJ	0.20 UJ	0.50 UJ	0.5 UJ	0.50 UJ
Chloroethane	5	**700 J**	**380 J**	**460 J**	**150 J**	**190 J**	**940 J**
Chloroform	7	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Chloromethane	5	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Cyclohexane	NE	0.30 J	0.20 UJ	0.30 J	2.0 UJ	2.0 UJ	2.0 UJ
1,2-Dibromo-3-chloropropane	NE	0.30 UJ	0.30 UJ	0.30 UJ	2.0 UJ	2.0 UJ	2.0 UJ
Dibromochloromethane	5	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
1,2-Dibromoethane	NE	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
1,2-Dichlorobenzene	0.6	0.20 UJ	0.20 UJ	0.20 UJ	1.0 UJ	1.0 UJ	1.0 UJ
1,3-Dichlorobenzene	NE	0.20 UJ	0.20 UJ	0.20 UJ	1.0 UJ	1.0 UJ	1.0 UJ
1,4-Dichlorobenzene	NE	0.90 J	0.60 J	0.50 J	1.0 UJ	1.0 UJ	1.0 UJ
Dichlorodifluoromethane	NE	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
1,1-Dichloroethane	5	0.50 J	**74 J**	**78 J**	**52 J**	2.0 J	**90 J**
1,2-Dichloroethane	0.6	0.30 UJ	0.30 UJ	0.30 UJ	0.50 UJ	0.50 UJ	0.50 UJ
1,1-Dichloroethene	5	0.50 J	**8.0 J**	**8.0 J**	0.90 J	0.50 UJ	1.0 J
cis-1,2-Dichloroethene	NE	0.40 J	0.30 J	0.30 J	0.50 UJ	0.50 UJ	1.0 J
trans-1,2-Dichloroethene	NE	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
1,2-Dichloropropane	1	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
cis-1,3-Dichloropropene	0.4	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
trans-1,3-Dichloropropene	0.4	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Ethylbenzene	5	0.40 UJ	0.40 UJ	0.40 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Freon 113		0.20 UJ	0.20 UJ	0.20 UJ	2.0 UJ	2.0 UJ	2.0 UJ
2-Hexanone	50	0.30 UJ	0.30 UJ	0.30 UJ	3.0 UJ	3.0 UJ	3.0 UJ
Isopropylbenzene	NE	0.20 UJ	0.20 UJ	0.20 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Methyl Acetate	NE	0.20 UJ	0.20 UJ	0.20 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Methyl Tertiary Butyl Ether	NE	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
4-Methyl-2-pentanone	NE	0.50 UJ	0.50 UJ	0.50 UJ	3.0 UJ	3.0 UJ	3.0 UJ
Methylcyclohexane	NE	1.0 J	1.0 J	1.0 J	1.0 UJ	1.0 UJ	2.0 J
Methylene Chloride	5	0.50 J	0.30 UJ	0.30 UJ	0.70 J	0.50 UJ	0.90 J
Styrene	5	0.20 UJ	0.20 UJ	0.20 UJ	1.0 UJ	1.0 UJ	1.0 UJ
1,1,2,2-Tetrachloroethane	5	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Tetrachloroethene	5	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Toluene	5	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
1,2,4-Trichlorobenzene	NE	0.30 UJ	0.30 UJ	0.30 UJ	1.0 UJ	1.0 UJ	1.0 UJ
1,1,1-Trichloroethane	5	0.30 UJ	**160 J**	**160 J**	**28 J**	0.50 UJ	**12 J**
1,1,2-Trichloroethane	1	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Trichloroethene	5	0.20 UJ	0.20 J	0.30 J	0.50 UJ	0.50 UJ	0.60 J
Trichlorofluoromethane	NE	0.20 UJ	0.20 UJ	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Vinyl Chloride	2	1.0 J	0.80 J	0.80 J	0.80 J	0.70 J	**3.0 J**
Xylene (Total)	5	1.0 UJ	1.0 UJ	1.0 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Total Target VOCs	NE	706.2	625.2	709.5	232	192	1,050.5
FIELD MEASUREMENTS							
pH (s.u.)	NE	6.73	7.01	6.98	6.75	6.79	6.63
Conductivity (mS/cm)	NE	0.490	0.360	0.377	0.090	0.310	0.250
Dissolved Oxygen (mg/l)	NE	0.32	0.00	0.00	0.00	0.00	0.00
Temperature (°C)	NE	16.10	20.44	19.63	25.06	20.04	20.77
Redox Potential (mV)	NE	-108.0	-103.0	-89.0	-22.0	-76.0	-80.0

TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL DATA
AUGUST 2018 - SPILL AREA
COLUMBIA CEMENT SITE
FREEPORT, NEW YORK

SAMPLE ID LAB SAMPLE ID SAMPLE DATE UNITS	NYSDEC CLASS GA WATER QUAL. STD. µg/l	IP2-7 9744314 8/7/2018 µg/l	IP2-8 9744300 8/6/2018 µg/l	IP2-9 9744295 8/6/2018 µg/l	IP3-2 9744299 8/6/2018 µg/l	IP3-3 9744298 8/6/2018 µg/l	IP3-6 9744297 8/6/2018 µg/l
Volatile Organic Compounds							
Acetone	50	3.0 J	6.0 UJ	6.0 UJ	6.0 UJ	6.0 UJ	6.0 UJ
Benzene	1	0.20 UJ	0.50 UJ	0.50 UJ	0.80 J	0.50 UJ	0.70 J
Bromodichloromethane	5	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Bromoform	5	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Bromomethane	5	0.30 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
2-Butanone	50	0.30 UJ	3.0 UJ	3.0 UJ	3.0 UJ	3.0 UJ	3.0 UJ
Carbon Disulfide	NE	0.20 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Carbon Tetrachloride	5	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Chlorobenzene	5	0.20 J	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Chloroethane	5	**6.0 J**	**34 J**	3.0 J	**400 J**	**63 J**	**180 J**
Chloroform	7	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Chloromethane	5	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Cyclohexane	NE	0.20 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ
1,2-Dibromo-3-chloropropane	NE	0.30 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ
Dibromochloromethane	5	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
1,2-Dibromoethane	NE	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
1,2-Dichlorobenzene	0.6	0.20 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
1,3-Dichlorobenzene	NE	0.20 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
1,4-Dichlorobenzene	NE	0.20 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Dichlorodifluoromethane	NE	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
1,1-Dichloroethane	5	**6.0 J**	**28 J**	0.90 J	**130 J**	5.0 J	**280 J**
1,2-Dichloroethane	0.6	0.30 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
1,1-Dichloroethene	5	0.20 UJ	0.50 UJ	0.50 UJ	2.0 J	0.80 J	**13 J**
cis-1,2-Dichloroethene	NE	0.80 J	0.80 J	0.50 UJ	0.80 J	0.50 UJ	0.50 UJ
trans-1,2-Dichloroethene	NE	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
1,2-Dichloropropane	1	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
cis-1,3-Dichloropropene	0.4	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
trans-1,3-Dichloropropene	0.4	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Ethylbenzene	5	0.40 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Freon 113		0.20 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ
2-Hexanone	50	0.30 UJ	3.0 UJ	3.0 UJ	3.0 UJ	3.0 UJ	3.0 UJ
Isopropylbenzene	NE	0.20 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Methyl Acetate	NE	0.20 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Methyl Tertiary Butyl Ether	NE	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
4-Methyl-2-pentanone	NE	0.50 UJ	3.0 UJ	3.0 UJ	3.0 UJ	3.0 UJ	3.0 UJ
Methylcyclohexane	NE	0.20 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Methylene Chloride	5	0.30 UJ	0.5 UJ	0.50 UJ	0.9 J	0.50 UJ	0.50 UJ
Styrene	5	0.20 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
1,1,2,2-Tetrachloroethane	5	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Tetrachloroethene	5	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Toluene	5	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
1,2,4-Trichlorobenzene	NE	0.30 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
1,1,1-Trichloroethane	5	1.0 J	0.5 UJ	0.50 UJ	**36 J**	5.0 J	**360 J**
1,1,2-Trichloroethane	1	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Trichloroethene	5	0.40 J	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.60 J
Trichlorofluoromethane	NE	0.20 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Vinyl Chloride	2	0.20 J	0.50 UJ	0.50 UJ	2.0 J	0.50 UJ	2.0 J
Xylene (Total)	5	1.0 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Total Target VOCs	NE	17.6	62.8	3.90	572.5	73.8	836.3
FIELD MEASUREMENTS							
pH (s.u.)	NE	7.16	6.99	7.08	6.97	6.74	6.53
Conductivity (mS/cm)	NE	1.090	1.490	1.480	1.210	891.000	1.430
Dissolved Oxygen (mg/l)	NE	5.58	0.00	0.00	0.00	0.00	0.95
Temperature (°C)	NE	24.32	21.80	23.04	19.03	16.72	21.56
Redox Potential (mV)	NE	-138.0	-108.0	-125.0	-167.0	-132.0	-135.0

TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL DATA
AUGUST 2018 - SPILL AREA
COLUMBIA CEMENT SITE
FREEPORT, NEW YORK

SAMPLE ID LAB SAMPLE ID SAMPLE DATE UNITS	NYSDEC CLASS GA WATER QUAL. STD. µg/l	IP4-3 9744311 8/7/2018 µg/l	IP4-6 9744310 8/7/2018 µg/l	FB080618 9744321 8/6/2018 µg/l	FB080818 9744322 8/8/2018 µg/l	TB080818 9744323 8/8/2018 µg/l
Volatile Organic Compounds						
Acetone	50	18 J	1.0 J	6.0 UJ	0.7 UJ	6.0 UJ
Benzene	1	2.0 UJ	0.70 J	0.50 UJ	0.20 UJ	0.50 UJ
Bromodichloromethane	5	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
Bromoform	5	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
Bromomethane	5	3.0 UJ	0.30 UJ	0.50 UJ	0.30 UJ	0.50 UJ
2-Butanone	50	3.0 UJ	0.30 UJ	3.0 UJ	0.3 UJ	3.0 UJ
Carbon Disulfide	NE	2.0 J	0.20 UJ	1.0 UJ	0.2 UJ	1.0 UJ
Carbon Tetrachloride	5	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
Chlorobenzene	5	**26** J	0.60 J	0.50 UJ	0.20 UJ	0.50 UJ
Chloroethane	5	**64 J**	**190 J**	0.50 UJ	0.2 UJ	0.5 UJ
Chloroform	7	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
Chloromethane	5	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
Cyclohexane	NE	2.0 UJ	0.30 J	2.0 UJ	0.2 UJ	2.0 UJ
1,2-Dibromo-3-chloropropane	NE	3.0 UJ	0.30 UJ	2.0 UJ	0.3 UJ	2.0 UJ
Dibromochloromethane	5	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
1,2-Dibromoethane	NE	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
1,2-Dichlorobenzene	0.6	2.0 UJ	0.20 UJ	1.0 UJ	0.2 UJ	1.0 UJ
1,3-Dichlorobenzene	NE	2.0 UJ	0.20 UJ	1.0 UJ	0.2 UJ	1.0 UJ
1,4-Dichlorobenzene	NE	8.0 J	2.0 J	1.0 UJ	0.2 UJ	1.0 UJ
Dichlorodifluoromethane	NE	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
1,1-Dichloroethane	5	2.0 UJ	0.40 J	0.50 UJ	0.20 UJ	0.50 UJ
1,2-Dichloroethane	0.6	3.0 UJ	0.30 UJ	0.50 UJ	0.30 UJ	0.50 UJ
1,1-Dichloroethene	5	2.0 UJ	0.30 J	0.50 UJ	0.20 UJ	0.50 UJ
cis-1,2-Dichloroethene	NE	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
trans-1,2-Dichloroethene	NE	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
1,2-Dichloropropane	1	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
cis-1,3-Dichloropropene	0.4	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
trans-1,3-Dichloropropene	0.4	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
Ethylbenzene	5	4.0 UJ	0.40 UJ	0.50 UJ	0.40 UJ	0.50 UJ
Freon 113		2.0 UJ	0.20 UJ	2.0 UJ	0.2 UJ	2.0 UJ
2-Hexanone	50	3.0 UJ	0.30 UJ	3.0 UJ	0.3 UJ	3.0 UJ
Isopropylbenzene	NE	2.0 UJ	0.20 UJ	1.0 UJ	0.2 UJ	1.0 UJ
Methyl Acetate	NE	2.0 UJ	0.20 UJ	1.0 UJ	0.2 UJ	1.0 UJ
Methyl Tertiary Butyl Ether	NE	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
4-Methyl-2-pentanone	NE	5.0 UJ	0.50 UJ	3.0 UJ	0.5 UJ	3.0 UJ
Methylcyclohexane	NE	2.0 UJ	0.70 J	1.0 UJ	0.2 UJ	1.0 UJ
Methylene Chloride	5	3.0 UJ	0.30 UJ	0.50 UJ	0.30 UJ	0.50 UJ
Styrene	5	2.0 UJ	0.20 UJ	1.0 UJ	0.2 UJ	1.0 UJ
1,1,2,2-Tetrachloroethane	5	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
Tetrachloroethene	5	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
Toluene	5	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
1,2,4-Trichlorobenzene	NE	3.0 UJ	0.30 UJ	1.0 UJ	0.3 UJ	1.0 UJ
1,1,1-Trichloroethane	5	3.0 UJ	0.30 UJ	0.50 UJ	0.30 UJ	0.50 UJ
1,1,2-Trichloroethane	1	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
Trichloroethene	5	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
Trichlorofluoromethane	NE	2.0 UJ	0.20 UJ	0.50 UJ	0.20 UJ	0.50 UJ
Vinyl Chloride	2	2.0 UJ	0.80 J	0.50 UJ	0.20 UJ	0.50 UJ
Xylene (Total)	5	10 UJ	1.0 UJ	0.50 UJ	1.00 UJ	0.50 UJ
Total Target VOCs	NE	116.00	196.10	ND	ND	ND
FIELD MEASUREMENTS						
pH (s.u.)	NE	7.88	7.08	NA	NA	NA
Conductivity (mS/cm)	NE	3.940	1.010	NA	NA	NA
Dissolved Oxygen (mg/l)	NE	0.00	0.00	NA	NA	NA
Temperature (°C)	NE	17.73	19.37	NA	NA	NA
Redox Potential (mV)	NE	-360.0	-140.0	NA	NA	NA

TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL DATA
AUGUST 2018 - SPILL AREA
COLUMBIA CEMENT SITE
FREEPORT, NEW YORK

NOTES:

U - Indicates compound was analyzed for but not detected
J - Indicates an estimated value due to limitations identified during the Quality Assurance (QA) review.
B - This flag is used when the analyte is found in the associated blank as well as in the sample.
E - This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis and therefore, are regarded as estimated values.
D - This flag identifies all compounds identified in an analysis at a secondary dilution factor.
NS - Not sampled
ND - Not Detected
NE - No existing Groundwater Quality Standard
Total VOCs - This row presents the sum total concentration level of target compound list (TCL) volatile organic compounds (VOCs) reported in the sample.
Total VOC TICs - This row presents the sum total estimated concentration of non-target tentatively identified compounds.
100 (Bold) - Concentration exceeds NYSDEC Class GA Groundwater Quality Standard.

TABLE 3
SUMMARY OF GROUNDWATER ANALYTICAL DATA
SEPTEMBER 2018 - SITE PERIMETER
COLUMBIA CEMENT SITE
FREEPORT, NEW YORK

SAMPLE ID LAB SAMPLE ID SAMPLE DATE UNITS	NYSDEC CLASS GA WATER QUAL. STD. µg/l	MW-98-8S 9744317 8/8/2018 µg/l	MW-98-8D 9744315 8/8/2018 µg/l	MW-97-4S 9744318 8/8/2018 µg/l	MW-97-6S 9744319 8/8/2018 µg/l	MW-00-12D 9744316 8/8/2018 µg/l	MW-97-1S 9796628 9/9/2018 µg/l
Volatile Organic Compounds							
Acetone	50	0.70 UJ	0.70 UJ	0.70 UJ	0.70 UJ	7.0 U	8.0 J
Benzene	1	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
Bromodichloromethane	5	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
Bromoform	5	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
Bromomethane	5	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ	3.0 U	0.30 UJ
2-Butanone	50	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ	3.0 U	0.30 UJ
Carbon Disulfide	NE	4.0 J	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
Carbon Tetrachloride	5	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 UJ
Chlorobenzene	5	0.50 J	0.20 J	0.20 UJ	2.0 J	2.0 U	0.20 U
Chloroethane	5	0.60 J	2.0 J	**49 J**	**30 J**	**56**	0.20 U
Chloroform	7	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
Chloromethane	5	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
Cyclohexane	NE	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
1,2-Dibromo-3-chloropropane	NE	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ	3.0 U	0.30 U
Dibromochloromethane	5	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
1,2-Dibromoethane	NE	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
1,2-Dichlorobenzene	0.6	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
1,3-Dichlorobenzene	NE	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
1,4-Dichlorobenzene	NE	0.70 J	0.20 J	0.30 J	1.0 J	2.0 U	0.20 U
Dichlorodifluoromethane	NE	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
1,1-Dichloroethane	5	5.0 J	0.20 UJ	0.20 UJ	0.20 UJ	**57**	0.20 U
1,2-Dichloroethane	0.6	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ	3.0 U	0.30 U
1,1-Dichloroethene	5	0.50 J	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
cis-1,2-Dichloroethene	NE	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
trans-1,2-Dichloroethene	NE	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
1,2-Dichloropropane	1	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
cis-1,3-Dichloropropene	0.4	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
trans-1,3-Dichloropropene	0.4	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
Ethylbenzene	5	0.40 UJ	0.40 UJ	0.40 UJ	0.40 UJ	4.0 U	0.40 U
Freon 113		0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
2-Hexanone	50	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ	3.0 U	0.30 UJ
Isopropylbenzene	NE	0.20 UJ	0.20 UJ	0.20 UJ	0.50 J	2.0 U	0.20 U
Methyl Acetate	NE	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
Methyl Tertiary Butyl Ether	NE	0.50 J	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
4-Methyl-2-pentanone	NE	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	5.0 U	0.50 U
Methylcyclohexane	NE	0.20 UJ	0.20 UJ	0.20 UJ	0.30 J	2.0 U	0.20 U
Methylene Chloride	5	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ	3.0 U	0.30 U
Styrene	5	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
1,1,2,2-Tetrachloroethane	5	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
Tetrachloroethene	5	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
Toluene	5	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	5.0 J	0.20 U
1,2,4-Trichlorobenzene	NE	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ	3.0 U	0.30 U
1,1,1-Trichloroethane	5	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ	3.0 U	0.30 U
1,1,2-Trichloroethane	1	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
Trichloroethene	5	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
Trichlorofluoromethane	NE	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 UJ
Vinyl Chloride	2	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	2.0 U	0.20 U
Xylene (Total)	5	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	10.0 U	1.00 U
Total Target VOCs	NE	11.8	2.4	49.3	33.8	11.8	8.0 J
FIELD MEASUREMENTS							
pH (s.u.)	NE	6.95	6.77	7.01	6.96	7.11	8.15
Conductivity (mS/cm)	NE	1.480	4.290	1.150	1.450	2.610	0.051
Dissolved Oxygen (mg/l)	NE	0.62	1.52	0.00	0.00	6.09	6.68
Temperature (°C)	NE	17.96	18.33	16.72	21.10	17.95	17.76
Redox Potential (mV)	NE	-97.0	-74.0	-100.0	-83.0	-142.0	120.0

TABLE 3
SUMMARY OF GROUNDWATER ANALYTICAL DATA
SEPTEMBER 2018 - SITE PERIMETER
COLUMBIA CEMENT SITE
FREEPORT, NEW YORK

SAMPLE ID LAB SAMPLE ID SAMPLE DATE UNITS	NYSDEC CLASS GA WATER QUAL. STD. µg/l	MW-98-9D 9796629 9/9/2018 µg/l	OW-3 9796630 9/9/2018 µg/l	OW-4 9796631 9/9/2018 µg/l	MW-97-2S 9796632 9/9/2018 µg/l	MW-98-10D 9796633 9/9/2018 µg/l	DUP090918 9796634 9/9/2018 µg/l
Volatile Organic Compounds							
Acetone	50	0.70 U	0.90 J	0.70 U	0.70 U	0.70 U	2.0 J
Benzene	1	0.30 J	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Bromodichloromethane	5	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Bromoform	5	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Bromomethane	5	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ
2-Butanone	50	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ
Carbon Disulfide	NE	6.0	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Carbon Tetrachloride	5	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ
Chlorobenzene	5	4.0	4.0	**15**	**9.0**	4.0	4.0
Chloroethane	5	**150**	0.20 U	2.0	0.20 U	0.20 U	0.20 U
Chloroform	7	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Chloromethane	5	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Cyclohexane	NE	0.20 J	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
1,2-Dibromo-3-chloropropane	NE	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U
Dibromochloromethane	5	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
1,2-Dibromoethane	NE	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
1,2-Dichlorobenzene	0.6	0.20 J	0.20 U	0.20 J	0.20 J	0.20 J	0.20 U
1,3-Dichlorobenzene	NE	2.0 J	1.0 J	0.20 U	3.0 J	2.0 J	1.0 J
1,4-Dichlorobenzene	NE	0.20 U	1.0 J	3.0 J	3.0 J	2.0 J	1.0 J
Dichlorodifluoromethane	NE	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
1,1-Dichloroethane	5	0.50 J	0.20 U	2.0	0.20 U	0.20 U	0.20 U
1,2-Dichloroethane	0.6	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U
1,1-Dichloroethene	5	0.30 J	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
cis-1,2-Dichloroethene	NE	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
trans-1,2-Dichloroethene	NE	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
1,2-Dichloropropane	1	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
cis-1,3-Dichloropropene	0.4	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
trans-1,3-Dichloropropene	0.4	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Ethylbenzene	5	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
Freon 113		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
2-Hexanone	50	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ	0.30 UJ
Isopropylbenzene	NE	0.40 J	0.20 U	0.20 J	1.0 J	0.20 J	0.20 U
Methyl Acetate	NE	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Methyl Tertiary Butyl Ether	NE	0.20 U	0.20 U	0.50 J	2.0	7.0	0.20 U
4-Methyl-2-pentanone	NE	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Methylcyclohexane	NE	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Methylene Chloride	5	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U
Styrene	5	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
1,1,2,2-Tetrachloroethane	5	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Tetrachloroethene	5	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Toluene	5	0.20 U	0.20 U	0.20 U	0.20 J	0.20 U	0.20 U
1,2,4-Trichlorobenzene	NE	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U
1,1,1-Trichloroethane	5	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U
1,1,2-Trichloroethane	1	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Trichloroethene	5	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Trichlorofluoromethane	NE	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ
Vinyl Chloride	2	0.20 U	0.20 U	0.40 J	0.20 U	0.20 U	0.20 U
Xylene (Total)	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Target VOCs	NE	164	6.9	23.3	18.4	15.4	8.0
FIELD MEASUREMENTS							
pH (s.u.)	NE	6.56	7.27	6.88	6.80	6.91	NA
Conductivity (mS/cm)	NE	4.700	9.070	4.090	1.780	1.990	NA
Dissolved Oxygen (mg/l)	NE	0.00	0.00	0.00	0.00	0.00	NA
Temperature (°C)	NE	17.16	18.18	17.70	18.61	18.06	NA
Redox Potential (mV)	NE	-59.0	-119.0	-80.0	-74.0	-64.0	NA

TABLE 3
SUMMARY OF GROUNDWATER ANALYTICAL DATA
SEPTEMBER 2018 - SITE PERIMETER
COLUMBIA CEMENT SITE
FREEPORT, NEW YORK

SAMPLE ID LAB SAMPLE ID SAMPLE DATE UNITS	NYSDEC CLASS GA WATER QUAL. STD. µg/l	FB090918 9796635 9/9/2018 µg/l		TB090918 9796636 9/9/2018 µg/l	
Volatile Organic Compounds					
Acetone	50	0.90	J	0.70	U
Benzene	1	0.20	U	0.20	U
Bromodichloromethane	5	0.20	U	0.20	U
Bromoform	5	0.20	U	0.20	U
Bromomethane	5	0.30	UJ	0.30	UJ
2-Butanone	50	0.30	UJ	0.30	UJ
Carbon Disulfide	NE	0.20	U	0.20	U
Carbon Tetrachloride	5	0.20	UJ	0.20	UJ
Chlorobenzene	5	0.20	U	0.20	U
Chloroethane	5	0.20	U	0.20	U
Chloroform	7	0.20	U	0.20	U
Chloromethane	5	0.20	U	0.20	U
Cyclohexane	NE	0.20	U	0.20	U
1,2-Dibromo-3-chloropropane	NE	0.30	U	0.30	U
Dibromochloromethane	5	0.20	U	0.20	U
1,2-Dibromoethane	NE	0.20	U	0.20	U
1,2-Dichlorobenzene	0.6	0.20	U	0.20	U
1,3-Dichlorobenzene	NE	0.20	U	0.20	U
1,4-Dichlorobenzene	NE	0.20	U	0.20	U
Dichlorodifluoromethane	NE	0.20	U	0.20	U
1,1-Dichloroethane	5	0.20	U	0.20	U
1,2-Dichloroethane	0.6	0.30	U	0.30	U
1,1-Dichloroethene	5	0.20	U	0.20	U
cis-1,2-Dichloroethene	NE	0.20	U	0.20	U
trans-1,2-Dichloroethene	NE	0.20	U	0.20	U
1,2-Dichloropropane	1	0.20	U	0.20	U
cis-1,3-Dichloropropene	0.4	0.20	U	0.20	U
trans-1,3-Dichloropropene	0.4	0.20	U	0.20	U
Ethylbenzene	5	0.40	U	0.40	U
Freon 113		0.20	U	0.20	U
2-Hexanone	50	0.30	UJ	0.30	UJ
Isopropylbenzene	NE	0.20	U	0.20	U
Methyl Acetate	NE	0.20	U	0.20	U
Methyl Tertiary Butyl Ether	NE	0.20	U	0.20	U
4-Methyl-2-pentanone	NE	0.50	U	0.50	U
Methylcyclohexane	NE	0.20	U	0.20	U
Methylene Chloride	5	0.30	U	0.30	U
Styrene	5	0.20	U	0.20	U
1,1,2,2-Tetrachloroethane	5	0.20	U	0.20	U
Tetrachloroethene	5	0.20	U	0.20	U
Toluene	5	0.20	U	0.20	U
1,2,4-Trichlorobenzene	NE	0.30	U	0.30	U
1,1,1-Trichloroethane	5	0.30	U	0.30	U
1,1,2-Trichloroethane	1	0.20	U	0.20	U
Trichloroethene	5	0.20	U	0.20	U
Trichlorofluoromethane	NE	0.20	UJ	0.20	UJ
Vinyl Chloride	2	0.20	U	0.20	U
Xylene (Total)	5	1.0	U	1.0	U
Total Target VOCs	NE	0.9	J	ND	
FIELD MEASUREMENTS					
pH (s.u.)	NE	NA		NA	
Conductivity (mS/cm)	NE	NA		NA	
Dissolved Oxygen (mg/l)	NE	NA		NA	
Temperature (°C)	NE	NA		NA	
Redox Potential (mV)	NE	NA		NA	

TABLE 3
SUMMARY OF GROUNDWATER ANALYTICAL DATA
SEPTEMBER 2018 - SITE PERIMETER
COLUMBIA CEMENT SITE
FREEPORT, NEW YORK

NOTES:

U - Indicates compound was analyzed for but not detected
J - Indicates an estimated value due to limitations identified during the Quality Assurance (QA) review.
B - This flag is used when the analyte is found in the associated blank as well as in the sample.
E - This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis and therefore, are regarded as estimated values.
D - This flag identifies all compounds identified in an analysis at a secondary dilution factor.
NS - Not sampled
ND - Not Detected
NE - No existing Groundwater Quality Standard
Total VOCs - This row presents the sum total concentration level of target compound list (TCL) volatile organic compounds (VOCs) reported in the sample.
Total VOC TICs - This row presents the sum total estimated concentration of non-target tentatively identified compounds.
100 (Bold) - Concentration exceeds NYSDEC Class GA Groundwater Quality Standard.

TABLE 4
SUMMARY OF GROUNDWATER ANALYTICAL DATA
SEPTEMBER 2018 - OPERABLE UNIT No. 2
COLUMBIA CEMENT SITE
FREEPORT, NEW YORK

SAMPLE ID	NYSDEC	MW-03-13S	MW-05-14S	MW-05-15D	MW-09-18S	MW-09-19D	DUP090518
LAB SAMPLE ID	CLASS GA	9792611	9792598	9792597	9792600	9792599	9792604
SAMPLE DATE	WATER QUAL. STD.	9/6/2018	9/5/2018	9/5/2018	9/5/2018	9/5/2018	9/5/2018
UNITS	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Volatile Organic Compounds							
Acetone	50	4.0 U	5.0 J	0.7 U	3.0 J	7.0 U	0.70 U
Benzene	1	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
Bromodichloromethane	5	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
Bromoform	5	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
Bromomethane	5	2.0 U	0.30 U	0.30 U	0.30 U	3.0 U	0.30 U
2-Butanone	50	2.0 U	1.0 J	0.30 U	0.30 U	3.0 U	0.30 U
Carbon Disulfide	NE	1.0 U	0.20 U	12	0.20 U	2.0 U	0.20 U
Carbon Tetrachloride	5	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
Chlorobenzene	5	1.0 U	4.0	1.0	3.0	**6.0 J**	**6.0**
Chloroethane	5	1.0 U	5.0	1.0	1.0	**16**	**20**
Chloroform	7	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
Chloromethane	5	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
Cyclohexane	NE	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
1,2-Dibromo-3-chloropropane	NE	2.0 U	0.30 U	0.30 U	0.30 U	3.0 U	0.30 U
Dibromochloromethane	5	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
1,2-Dibromoethane	NE	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
1,2-Dichlorobenzene	0.6	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
1,3-Dichlorobenzene	NE	1.0 U	0.50 J	0.20 U	0.20 U	2.0 U	0.20 U
1,4-Dichlorobenzene	NE	1.0 U	0.50 J	0.20 J	1.0 J	2.0 U	2.0 J
Dichlorodifluoromethane	NE	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
1,1-Dichloroethane	5	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
1,2-Dichloroethane	0.6	2.0 U	0.30 U	0.30 U	0.30 U	3.0 U	0.30 U
1,1-Dichloroethene	5	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
cis-1,2-Dichloroethene	NE	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
trans-1,2-Dichloroethene	NE	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
1,2-Dichloropropane	1	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
cis-1,3-Dichloropropene	0.4	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
trans-1,3-Dichloropropene	0.4	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
Ethylbenzene	5	2.0 U	0.40 U	0.40 U	0.40 U	4.0 U	0.40 U
Freon 113		1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
2-Hexanone	50	2.0 U	0.30 U	0.30 U	0.30 U	3.0 U	0.30 U
Isopropylbenzene	NE	1.0 U	0.20 J	0.20 U	0.20 U	2.0 U	0.20 J
Methyl Acetate	NE	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
Methyl Tertiary Butyl Ether	NE	1.0 J	0.20 U	0.20 U	2.00	6.0 J	6.0
4-Methyl-2-pentanone	NE	3.0 U	0.50 U	0.50 U	0.50 U	5.0 U	0.50 U
Methylcyclohexane	NE	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
Methylene Chloride	5	2.0 U	0.30 U	0.30 U	0.30 U	3.0 U	0.30 U
Styrene	5	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
1,1,2,2-Tetrachloroethane	5	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
Tetrachloroethene	5	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
Toluene	5	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
1,2,4-Trichlorobenzene	NE	2.0 U	0.30 U	0.30 U	0.30 U	3.0 U	0.30 U
1,1,1-Trichloroethane	5	2.0 U	0.30 U	0.30 U	0.30 U	3.0 U	0.30 U
1,1,2-Trichloroethane	1	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
Trichloroethene	5	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
Trichlorofluoromethane	NE	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
Vinyl Chloride	2	1.0 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U
Xylene (Total)	5	5.0 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U
Total Target VOCs	NE	ND	16	14	10	28	34.2
FIELD MEASUREMENTS							
pH (s.u.)	NE	6.95	6.38	4.29	6.70	6.88	NA
Conductivity (mS/cm)	NE	2.360	4.230	9.300	2.770	4.050	NA
Dissolved Oxygen (mg/l)	NE	0.01	0.00	6.60	0.00	0.01	NA
Temperature (°C)	NE	21.30	22.30	18.92	21.96	17.71	NA
Redox Potential (mV)	NE	-121.0	-107.0	109.0	-61.0	-133.0	NA

TABLE 4
SUMMARY OF GROUNDWATER ANALYTICAL DATA
SEPTEMBER 2018 - OPERABLE UNIT No. 2
COLUMBIA CEMENT SITE
FREEPORT, NEW YORK

SAMPLE ID LAB SAMPLE ID SAMPLE DATE UNITS	NYSDEC CLASS GA WATER QUAL. STD. µg/l	MW-09-20S 9792609 9/6/2018 µg/l	MW-09-21D 9792610 9/6/2018 µg/l	MW-09-22S 9792608 9/6/2018 µg/l	MW-09-23D 9792607 9/6/2018 µg/l	MW-09-24S 9792601 9/5/2018 µg/l	MW-09-25D 9792602 9/5/2018 µg/l
Volatile Organic Compounds							
Acetone	50	7.0 U	4.0 U	7.0 U	0.70 U	2.0 J	0.70 U
Benzene	1	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
Bromodichloromethane	5	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
Bromoform	5	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
Bromomethane	5	3.0 U	2.0 U	3.0 U	0.30 U	0.30 U	0.30 U
2-Butanone	50	3.0 U	2.0 U	3.0 U	0.30 U	0.30 U	0.30 U
Carbon Disulfide	NE	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
Carbon Tetrachloride	5	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
Chlorobenzene	5	2.0 U	**6.0**	2.0 U	4.0	3.0	3.0
Chloroethane	5	2.0 U	1.0 U	2.0 U	1.0	0.2 U	**14**
Chloroform	7	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
Chloromethane	5	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
Cyclohexane	NE	2.0 U	1.0 U	2.0 U	0.30 J	0.20 U	0.20 U
1,2-Dibromo-3-chloropropane	NE	3.0 U	2.0 U	3.0 U	0.30 U	0.30 U	0.30 U
Dibromochloromethane	5	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
1,2-Dibromoethane	NE	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
1,2-Dichlorobenzene	0.6	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
1,3-Dichlorobenzene	NE	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
1,4-Dichlorobenzene	NE	2.0 U	1.0 J	2.0 U	1.0 J	2.0 J	1.0 J
Dichlorodifluoromethane	NE	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
1,1-Dichloroethane	5	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
1,2-Dichloroethane	0.6	3.0 U	2.0 U	3.0 U	0.30 U	0.30 U	0.30 U
1,1-Dichloroethene	5	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
cis-1,2-Dichloroethene	NE	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
trans-1,2-Dichloroethene	NE	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
1,2-Dichloropropane	1	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
cis-1,3-Dichloropropene	0.4	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
trans-1,3-Dichloropropene	0.4	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
Ethylbenzene	5	4.0 U	2.0 U	4.0 U	0.40 U	0.40 U	0.40 U
Freon 113		2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
2-Hexanone	50	3.0 U	2.0 U	3.0 U	0.30 U	0.30 U	0.30 U
Isopropylbenzene	NE	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
Methyl Acetate	NE	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
Methyl Tertiary Butyl Ether	NE	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	3.0
4-Methyl-2-pentanone	NE	5.0 U	3.0 U	5.0 U	0.50 U	0.50 U	0.50 U
Methylcyclohexane	NE	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
Methylene Chloride	5	3.0 U	2.0 U	3.0 U	0.30 U	0.30 U	0.30 U
Styrene	5	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
1,1,2,2-Tetrachloroethane	5	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
Tetrachloroethene	5	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
Toluene	5	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
1,2,4-Trichlorobenzene	NE	3.0 U	2.0 U	3.0 U	0.30 U	0.30 U	0.30 U
1,1,1-Trichloroethane	5	3.0 U	2.0 U	3.0 U	0.30 U	0.30 U	0.30 U
1,1,2-Trichloroethane	1	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
Trichloroethene	5	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
Trichlorofluoromethane	NE	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
Vinyl Chloride	2	2.0 U	1.0 U	2.0 U	0.20 U	0.20 U	0.20 U
Xylene (Total)	5	10 U	5.0 U	10 U	1.0 U	1.0 U	1.0 U
Total Target VOCs	NE	ND	7.0	ND	6.3	7.0	21.0
FIELD MEASUREMENTS							
pH (s.u.)	NE	6.70	6.68	6.52	6.71	6.64	6.76
Conductivity (mS/cm)	NE	1.930	1.650	2.640	6.140	2.030	21.100
Dissolved Oxygen (mg/l)	NE	3.01	0.00	0.00	0.17	0.00	0.05
Temperature (°C)	NE	20.60	19.02	17.90	18.66	17.95	18.34
Redox Potential (mV)	NE	-119.0	-95.0	-235.0	-81.0	-30.0	-73.0

TABLE 4
SUMMARY OF GROUNDWATER ANALYTICAL DATA
SEPTEMBER 2018 - OPERABLE UNIT No. 2
COLUMBIA CEMENT SITE
FREEPORT, NEW YORK

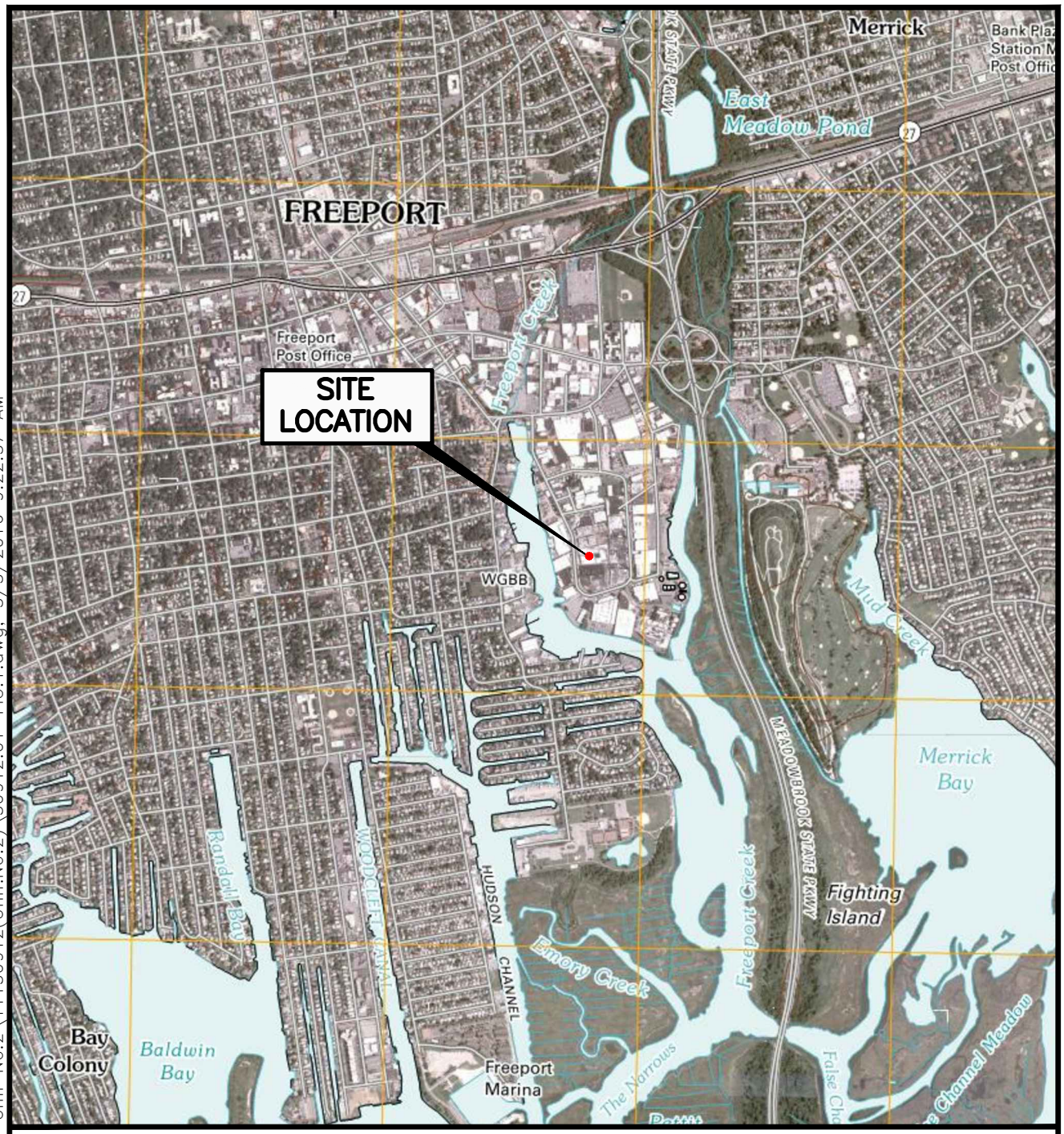
SAMPLE ID	NYSDEC	MW-09-26D	MW-17-27S	MW-17-28S	MW-17-29D	FB090518
LAB SAMPLE ID	CLASS GA	9792595	9792596	9792605	9792606	9792603
SAMPLE DATE	WATER	9/5/2018	9/5/2018	9/6/2018	9/6/2018	9/5/2018
	QUAL. STD.					
UNITS	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
Volatile Organic Compounds						
Acetone	50	4.0 U	7.0 U	7.0 U	0.70 U	1.0 J
Benzene	1	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
Bromodichloromethane	5	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
Bromoform	5	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
Bromomethane	5	2.0 U	3.0 U	3.0 U	0.30 U	0.30 U
2-Butanone	50	2.0 U	3.0 U	3.0 U	0.30 U	0.30 U
Carbon Disulfide	NE	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
Carbon Tetrachloride	5	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
Chlorobenzene	5	**9.0**	2.0 U	5.0 J	0.20 U	0.20 U
Chloroethane	5	5.0	2.0 U	2.0 U	0.20 U	0.20 U
Chloroform	7	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
Chloromethane	5	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
Cyclohexane	NE	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
1,2-Dibromo-3-chloropropane	NE	2.0 U	3.0 U	3.0 U	0.30 U	0.30 U
Dibromochloromethane	5	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
1,2-Dibromoethane	NE	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
1,2-Dichlorobenzene	0.6	1.0 U	2.0 J	2.0 U	0.20 U	0.20 U
1,3-Dichlorobenzene	NE	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
1,4-Dichlorobenzene	NE	2.0 J	2.0 U	3.0 J	0.20 U	0.20 U
Dichlorodifluoromethane	NE	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
1,1-Dichloroethane	5	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
1,2-Dichloroethane	0.6	2.0 U	3.0 J	3.0 U	0.30 U	0.30 U
1,1-Dichloroethene	5	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
cis-1,2-Dichloroethene	NE	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
trans-1,2-Dichloroethene	NE	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
1,2-Dichloropropane	1	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
cis-1,3-Dichloropropene	0.4	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
trans-1,3-Dichloropropene	0.4	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
Ethylbenzene	5	2.0 U	4.0 U	4.0 U	0.40 U	0.40 U
Freon 113		1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
2-Hexanone	50	2.0 U	3.0 U	3.0 U	0.30 U	0.30 U
Isopropylbenzene	NE	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
Methyl Acetate	NE	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
Methyl Tertiary Butyl Ether	NE	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
4-Methyl-2-pentanone	NE	3.0 U	5.0 U	5.0 U	0.50 U	0.50 U
Methylcyclohexane	NE	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
Methylene Chloride	5	2.0 U	**26**	3.0 U	0.30 U	2.0
Styrene	5	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
1,1,2,2-Tetrachloroethane	5	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
Tetrachloroethene	5	1.0 U	**17**	2.0 U	0.20 U	0.20 U
Toluene	5	1.0 U	4.0 J	2.0 U	0.20 U	0.20 U
1,2,4-Trichlorobenzene	NE	2.0 U	3.0 U	3.0 U	0.30 U	0.30 U
1,1,1-Trichloroethane	5	2.0 U	**12**	3.0 U	0.30 U	0.30 U
1,1,2-Trichloroethane	1	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
Trichloroethene	5	1.0 U	**11**	2.0 U	0.20 U	0.20 U
Trichlorofluoromethane	NE	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
Vinyl Chloride	2	1.0 U	2.0 U	2.0 U	0.20 U	0.20 U
Xylene (Total)	5	5.0 U	10 U	10 U	1.0 U	1.0 U
Total Target VOCs	NE	16.0	75.0	8.0	ND	3.0
FIELD MEASUREMENTS						
pH (s.u.)	NE	6.63	5.93	6.59	6.77	NA
Conductivity (mS/cm)	NE	2.600	0.800	4.000	67.500	NA
Dissolved Oxygen (mg/l)	NE	0.50	0.00	6.27	0.00	NA
Temperature (°C)	NE	18.70	19.36	17.00	15.83	NA
Redox Potential (mV)	NE	-117.0	-56.0	-100.0	-216.0	NA

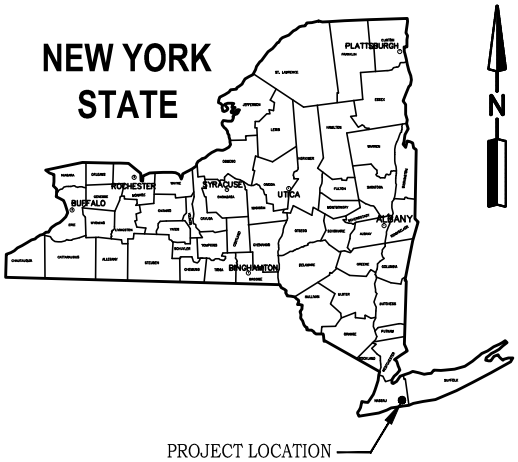
TABLE 4
SUMMARY OF GROUNDWATER ANALYTICAL DATA
SEPTEMBER 2018 - OPERABLE UNIT No. 2
COLUMBIA CEMENT SITE
FREEPORT, NEW YORK

NOTES:

U - Indicates compound was analyzed for but not detected
J - Indicates an estimated value due to limitations identified during the Quality Assurance (QA) review.
B - This flag is used when the analyte is found in the associated blank as well as in the sample.
E - This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis and therefore, are regarded as estimated values.
D - This flag identifies all compounds identified in an analysis at a secondary dilution factor.
NS - Not sampled
ND - Not Detected
NE - No existing Groundwater Quality Standard
Total VOCs - This row presents the sum total concentration level of target compound list (TCL) volatile organic compounds (VOCs) reported in the sample.
Total VOC TICs - This row presents the sum total estimated concentration of non-target tentatively identified compounds.
100 (Bold) - Concentration exceeds NYSDEC Class GA Groundwater Quality Standard.

FIGURES





N

0 2000 4000

SCALE IN FEET

REFERENCE:
U.S.G.S. 7.5 MINUTE QUADRANGLE:
FREEPORT, NY (2010)

SITE LOCATION MAP
FORMER COLUMBIA CEMENT COMPANY, INC.
SITE NO. 130052
159 HANSE AVENUE
FREEPORT, NEW YORK

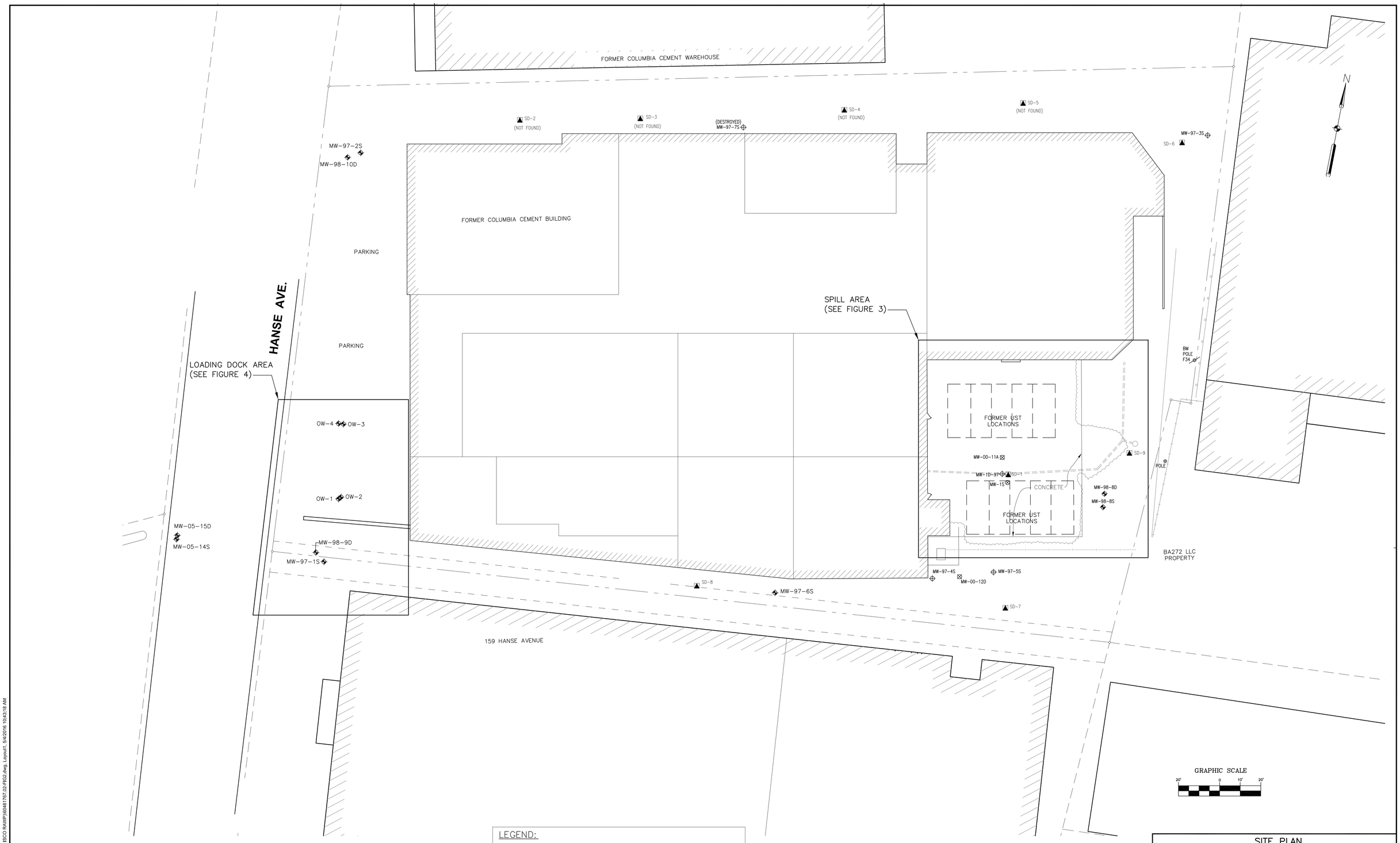
AECOM
1255 Broad Street
Clifton, New Jersey 07013
PHONE: (973) 883-8500
FAX: (973) 883-8501

DATE: 01/23/15

JOB: 11130912

FIGURE 1

K:\Cadd\Columbia Cement\Columbia Cement-Unit No.2\11130912(Unit.No.2)\30912.01-FIG.1.dwg, 5/5/2016 9:22:57 AM



LEGEND:

MW-1S	⊗	1988 MONITORING WELL LOCATION
MW-97-5S	⊕	1997 MONITORING WELL LOCATION
MW-98-9D	◆	1998 MONITORING WELL LOCATION
MW-00-11A	⊠	2000 MONITORING WELL LOCATION
MW-05-15D	▣	2005 OFFSITE MONITORING WELL LOCATION
SD-1	▲	STORM DRAIN LOCATION

NOTE:
BASE MAP PROVIDED BY DELAWARE ENGINEERING, P.C.

SITE PLAN
OPERABLE UNIT NO. 1
FORMER COLUMBIA CEMENT COMPANY, INC.
FREEPORT, NEW YORK

AECOM
CLIFTON, NEW JERSEY

DR. BY	ET	SCALE	AS SHOWN	DWG. NO. 60481767.02-FIG2	PROJ. NO. 60481767
CK'D. BY	AP	DATE	MAY, 2016	FIG. NO.	2

K:\Cadd\Columbia Cement\60481767\2016 ISCO RAWP\60481767.02-FIG2.dwg, Layout1, 5/4/2016 10:43:18 AM

IP1-1D (19 - 24 ft)

SAMPLE DATE	10/13/2009	12/16/2009	10/7/2011	12/13/2011	1/10/2012	2/15/2012	4/16/2013	1/13/2014	2/20/2014	12/8/2016	2/8/2017	9/18/2017	8/6/2018
1,1,1-TCA	**1,000** D	**530**	2.1 U	**1,600**	**590**	**390**	2.1 U	**500** D	**670**	2.5 U	2.5 U	0.50 U	0.50 U
1,1-DCA	**970** D	**1,900**	**190**	**360**	**280**	**460**	1.7 U	**160**	**170**	**42**	**37**	2.2	2.0
1,1-DCE	**58** D	**28** J	2.5 U	25 U	13 U	13 U	1.2 U	2.5 U	10 U	2.5 U	2.5 U	0.50 U	0.50 U
Chloroethane	**320** D	**280**	**2,900** JD	**650**	**210**	**120**	**85**	**240** D	**290**	**61**	**38**	**23**	**25**
Toluene	**940** D	**320**	1.6 U	16 U	8 U	8 U	8 U	**170**	1.6 U	6.4 U	2.5 U	2.5 U	0.50 U
Vinyl Chloride	3.8 UD	7.6 U	**8.5** J	23 U	12 U	12 U	12 U	2.3 U	**2.5** J	9.2 U	2.5 U	2.5 U	0.50 U

IP1-1I (7 - 12 ft)

SAMPLE DATE	10/6/2011	12/13/2011	1/10/2012	2/15/2012	4/16/2013	1/13/2014	2/19/2014	4/22/2014	10/07/2015	12/8/2016	2/2/2017	9/18/2017	8/6/2018
1,1,1-TCA	**78**	**5,400**	**3,000** D	**3,800**	**470**	**860**	**530**	**360**	**16**	**56**	**6.8**	**26**	**25**
1,1-DCA	**1,000** D	**500**	**960**	**1,400**	**1,600**	**160**	**130**	**89**	**51**	**98**	**15**	**27**	**40**
Chloroethane	**7,900** JD	**260** J	**330**	**270**	**930**	**85** J	**150**	**78**	**480** J	**130**	**11** J	**290**	**250**
Methylene Chloride	3.8 J	52 U	**13** J	26 U	13 U	6.5 U	6.5 U	6.5 U	2.2 U	2.0 U	2.0 U	0.50 U	0.60 J
Vinyl Chloride	**29**	92 U	23 U	46 U	23 U	12 U	12 U	12 U	4.5 U	0.77	0.50 U	0.97 J	0.70 J

IP1-1S (7 - 12 ft)

SAMPLE DATE	10/13/2009	12/16/2009	10/7/2011	12/12/2011	1/10/2012	2/15/2012	4/17/2013	1/13/2014	2/20/2014	4/23/2014	10/09/2015	12/9/2016	2/7/2017
1,1,1-TCA	**34,000** D	**22,000**	**1,600** D	**2,100** J	**2,600**	**2,200**	**520**	**370**	**38**	**290** D	**40**	**44**	0.50 U
1,1-DCA	**8,200** D	**3,200**	**4,400** D	**270** J	**500**	**440**	**660**	**17** J	1.9 J	**52**	**65**	**23**	0.50 U
1,1-DCE	**620** D	**270** J	**14**	50 U	50 U	50 U	13 U	5 U	2.5 U	3.4 J	3.8 J	0.52 J	0.50 U
Chloroethane	**690** D	500 U	**12,000** JD	**200** J	**190** J	**170** J	**37** J	**5.3** J	2.5 U	**21**	**620** J	**21**	0.50 U
Methylene Chloride	**170** D	92 U	**13**	26 UJ	26 U	26 U	**7.9** J	2.6 U	1.3 U	**5.4** J	4.4 U	2.0 U	2.0 U

IP1-4I (13 - 18 ft)

SAMPLE DATE	8/7/2018
1,1,1-TCA	0.30 U
1,1-DCA	0.50 U
Chloroethane	**700**

IP1-4S (7 - 12 ft)

SAMPLE DATE	8/7/2018
1,1,1-TCA	**14**
1,1-DCA	**17**
Chloroethane	**10**

IP1-4D (19 - 24 ft)

SAMPLE DATE	10/13/2009	12/16/2009	10/6/2011	12/14/2011	1/10/2012	2/15/2012	4/17/2013	1/13/2014	2/20/2014	4/23/2014	10/09/2015	12/9/2016	2/7/2017	9/19/2017	8/7/2018
1,1,1-TCA	**1,500** D	**530**	**54**	**1,500**	**820**	**430**	**71**	**600**	**670** D	**490**	**15**	**93**	**170**	**37**	**160**
1,1-DCA	**3,600** D	**1,600**	**150**	**290**	**350**	**350**	**260**	**170**	**140**	**140**	**48**	**130**	**160**	**48**	**74**
Chloroethane	**580** D	**390**	**2,000** JD	**390**	**240**	**200**	**410**	**140**	**81**	**120**	**1,300** J	**130** J	**210**	**330**	**380**
Vinyl Chloride	**4.8** JD	7.6 U	**4.5** J	23 U	12 U	9.2 U	9.2 U	9.2 U	9.2 U	18 U	7.2 U	2.5 U	0.66 J	1.1	0.80 J

IP1-7I (13 - 18 ft)

SAMPLE DATE	10/13/2009	12/16/2009	10/6/2011	12/13/2011	1/10/2012	2/15/2012	4/16/2013	1/14/2014	2/19/2014	4/23/2014	10/07/2015	12/8/1997	2/8/2017	9/18/2017	8/7/2018
1,1,1-TCA	**2,500** D	**800**	**230** JD	**1,900** D	**1,200** D	**750**	**730**	**860**	**650**	**630**	**19**	**150**	**190**	**46**	**160**
1,1-DCA	**4,100** D	**1,900**	**810** D	**320**	**390**	**490**	**890**	**140**	**160**	**140**	**79**	**160**	**230**	**56**	**78**
1,1-DCE	**80** D	**24** J	2.5 U	**15** J	10 U	13 U	20 U	20 U	20 U	20 U	2.3 U	1.7	2.7	**8.0**	
Chloroethane	**530** D	**270**	**5,400** JD	**450**	**300**	**230**	**340**	**96**	**120**	**130**	**630** J	**180**	**220** J	**370** J	**460**
Methylene Chloride	**30** JD	4.6 U	2 J	**11** J	**8.1** J	6.5 U	4.7 U	10 U	10 U	10 U	3.5 U	2.0 U	2.0 U	0.50 U	0.30 U
Vinyl Chloride	**4.8** JD	7.6 U	**14**	9.2 U	9.2 U	12 U	18 U	18 U	18 U	18 U	7.2 U	0.50 U	0.82 J	1.1	0.80 J

MW-1D-97 (25 - 35 ft)

SAMPLE DATE	7/16/2009	10/15/2009	12/21/2009	3/3/2010	10/4/2011	12/13/2011	1/10/2012	2/15/2012	4/18/2013	1/15/2014	2/19/2014	4/22/2014	10/08/2015	12/8/2016	2/8/2017	9/18/2017	8/7/2018
1,1,1-TCA	**8.8** J	**7,400** D	**6,900** D	**7,800**	**57**	**1,900** D	**2,700** D	**2,400** D	**250**	**55** J	**300**	**380**	9.2 U	120 U	**60**	2.5 U	3.0 U
1,1-DCA	3.9 J	**4,800** D	**5,000** D	**6,000**	**2,100** D	**640**	**860**	**1,000**	**1,600**	**110**	**130**	**120**	**220**	**91**	**120**	**17**	**9.0** J
1,1-DCE	0.44 U	**760** D	**510**	**360** J	4 J	**250**	**200**	**200**	25 U	25 U	25 U	25 U	**6.6** J	10 U	10 U	2.5 U	2.0 U
Chloroethane	**690** D	**880** D	**650**	**350** J	**6,400** JD	**620**	**750**	**680**	**340**	**86** J	**140**	**190**	**12** J	**110**	**79** J	**26** J	**4.0** J
Acetone	0.64 U	3.2 UD	**130** J	32 U	4.4 J	**550**	**210**	**200**	19 U	**600** J	**340**	**430**	30 U	**180** J	**160** J	30 U	11 J
2-Butanone (MEK)	1.7 J	**180** D	**100** J	120 U	1.5 U	**87**	**57** J	40 J	15 U	41 J	23 J	29 J	13 U	60 U	60 U	15 U	3.0 U
Methylene Chloride	0.46 U	**250** D	**150** J	**52** J	**5.9** J	**87**	**63** J	**47** J	**19** J	13 U	13 U	13 U	4.4 U	40 U	40 U	2.5 U	3.0 U

IP3-2 (10 - 15 ft)

SAMPLE DATE	10/5/2011	12/13/2011	1/10/2012	2/16/2012	4/18/2013	1/13/2014	2/20/2014	4/23/2014	10/08/2015	12/8/2016	2/8/2017	9/18/2017	8/6/2018
1,1,1-TCA	2.1 U	**260**	**300**	**170**	**6.9** J	**490** D	**360**	**340**	3.3 U	25 U	**34** J	5.0 U	**36**
1,1-DCA	**160** D	**830**	**1,100**	**500**	**36**	**510** D	**240**	**390**	**68**	**700**	**440**	**64**	**130**
1,1-DCE	**6.8** J	25 U	25 U	10 U	2.5 U	**6.2** J	10 U	10 U	1.2 U	25 U	25 U	5.0 U	2.0
Chloroethane	**89** JD	**1,300**	**1,100**	**250**	**19**	**160**	**110**	**220**	**86** J	**290** J	**460**	**490**	**400**
Methylene Chloride	1.3 U	13 U	13 U	5.2 U	1.3 U	**5.9** J	5.2 U	5.2 U	1.8 U	100 U	25 U	5.0 U	0.90 J
Vinyl chloride	**2.6** J	23 UJ	23 U	9.2 U	2.3 U	**2.7** J	9.2 U	9.2 U	3.6 U	25 U	25 U	5.0 U	2.0

IP3-6 (10 - 15 ft)

SAMPLE DATE	10/5/2011	12/13/2011	1/10/2012	2/16/2012	4/18/2013	1/13/2014	2/20/2014	4/23/2014	10/08/2015	12/9/2016	2/8/2017	8/6/2018
1,1,1-TCA	2.1 U	**1,900** D	**78**	**120**	**63**	**57**	**110**	**69**	**5.1**	**11**	5.0 U	**360**
1,1-DCA	**15**	**110**	**120**	**140** J	**210** D	**73**	**71**	**80**	**75**	**89**	**38**	**280**
Chloroethane	**140** J	**120**	**110**	**220** JD	**110**	**49**	**48**	**57**	**73** J	**66**	**50**	**180**

IP3-3 (10 - 15 ft)

SAMPLE DATE	8/6/2018
1,1,1-TCA	5.0
1,1-DCA	5.0
1,1-DCE	0.80 J
Chloroethane	**63** J

MW-1S (10 - 20 ft)

SAMPLE DATE	7/16/2009	10/15/2009	12/21/2009	3/3/2010	10/4/2011	12/13/2011	1/9/2012	2/16/2012	4/18/2013	1/15/2014	2/20/2014	4/22/2014	10/09/2015	12/8/2016	2/7/2017	9/18/2017	8/6/2018
1,1,1-TCA	**9,800** D	**240** D	**1,000**	**290**	2.1 U	**97**	**43**	**39**	**11**	**100**	**76**	**8.3** J	3.7	2.9	**19**	0.50 U	0.60 J
1,1-DCA	**2,000** D	**570** D	**440**	**140**	**62**	**28**	**17**	**20**	**17**	**10**	**19**	3.6 J	4.1	**13**	**24**	1.4	**18**
1,1-DCE	**130**	**6** JD	**5.5** J	**6.7** J	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.49 J	0.50 U	0.50 U	0.50 U	0.60 J
1,2-DCA	**1.2** J	4.2 UD	8.3 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.21 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	**3,900** D	**66** D	**71** J	**25**	**310** JD	**5.1** J	**6.2** J	4.3 J	3.7 J	**5.5** J	**10**	2.5 U	**60** J	**11** J	**12**	**6.5**	**130**

IP2-7 (10 - 15 ft)

SAMPLE DATE	10/14/2009	12/21/2009	10/7/2011	12/12/2011	1/9/2012	2/16/2012	4/17/2013	1/14/2014	2/20/2014	4/22/2014	10/08/2015	12/8/2016	2/7/2017	8/7/2018
1,1,1-TCA	**360** D	**160**	3.3 J	**140** J	**200** D	**180**	**12**	**31**	**44**	**15**	**6.7**	1.9	**7.1**	1.0
1,1-DCA	**150** D	**61**	**18**	**140** J	**290** D	**270**	**40**	**57**	**40**	**25**	4.0	**6.0**	9.9	**6.0**
1,1-DCE	**5.6** JD	1.7 J	2.5 U	2.5 UJ	3.5 J	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U	0.29 U	0.50 U	0.50 U	0.80 J
Chloroethane	**72** D	**9.6** J	**57** J	**22** J	**47**	**22**	**6.9** J	**11** J	3.9 J	3.8 J	**20** J	2.7	**29**	**6.0**

IP2-9 (10 - 15 ft)

SAMPLE DATE	8/6/2017
1,1,1-TCA	0.50 U
1,1-DCA	0.90 J
1,1-DCE	0.50 U
Chloroethane	3.0

IP2-8 (10 - 15 ft)

SAMPLE DATE	10/14/2009	12/21/2009	10/6/2011	12/12/2011	1/9/2012	2/16/2012	4/17/2013	1/14/2014	2/20/2014	4/22/2014	10/07/2015	12/8/2016	2/8/2017	9/18/2017	8/6/2018
1,1,1-TCA	**4,600** D	**2100**	4 J	**2,300** JD	**1,800**	**1,100**	**13**	**630** D	**210**	**340**	3.8	0.87 J	**15**	**7.0**	0.50 U
1,1-DCA	**730** D	**290**	**14**	**410** JD	**300**	**230**	**46**	**140**	42 J	**100**	**21**	**5.5**	**150**	**25**	**28**
1,1-DCE	**76** JD	**15** J	2.5 U	**24** J	25 U	25 UJ	25 U	**5.1** J	13 U	25 U	0.29 U	0.50 U	0.93 J	0.67 J	0.50 J
Chloroethane	**290** JD	**150** J	**6.8** J	**800** D	**84** J	**31** J	**7.8** J	**130** J	**50**	**57** J	**25** J	**5.5**	**140** J	**30**	**34**

IP2-5 (15 - 20 ft)

SAMPLE DATE	10/14/2009	12/21/2009	10/7/2011	12/12/2011	1/9/2012	2/16/2012	4/17/2013	1/14/2014	2/19/2014	4/22/2014	10/07/2015	12/8/2016	2/7/2017	9/18/2017
1,1,1-TCA	**190** D	**11** J	2.1 U	**36** J	**37**	**22** J	**140**	**78**	**14** J	4.2 U	1.9 J	**470**	**5.7**	**5.6**
1,1-DCA	**420** D	**370**	**28**	**65** J	**76**	**64**	**190** D	**75**	**94**	**74**	**80**	**450**	**17**	**100**
1,1-DCE	**5.1** JD	2.4 J	2.5 U	13 UJ	2.5 U	13 U	2.5 U	5.0 U	5.0 U	5.0 U	1.4 J	**8.0**	0.56 J	2.3
Chloroethane	**490** D	**260**	**1,400** JD	**100** J	**68** J	**140** J	**120**	**62** J	**78**	**140**	**220** D	**110**	**73**	**190**

MW-00-12D (25 - 35 ft)

SAMPLE DATE	9/14/2010	9/14/2010	4/18/2013	4/25/2014	9/19/2017	9/14/2010
1,1,1- TCA	**120**	**310**	4.2 U	**28**	2.9 J	3.0 U
1,1-DCA	**1,600** E	**2,900**	**140**	**150**	**45**	**57**
1,1-DCE	**71**	**53**	5.0 U	5.0 U	2.5 U	2.0 U
Chloroethane	**330E**	**180**	**250**	**260**	**170**	**56**
Methylene Chloride	**6.4** J	4.4	2.6 U	2.6 U	2.5 U	3.0 U
Toluene	1.6 U	**5.4**	3.2 U	3.2 U	2.5 U	5.0
Vinyl Chloride	2.3 U	**2.8**	4.6 U	4.6 U	2.5 U	2.0 U

MW-97-4S (15 - 25 ft)

SAMPLE DATE	9/13/2010	10/4/2011	4/18/2013	4/24/2014	9/19/2017	9/13/2010
1,1,1-TCA	8.4 U	2.1 U	8.4 U	2.1 U	0.50 U	0.20 U
1,1-DCA	**110**	**17**	**78**	1.7 J	0.50 U	0.20 U
Chloroethane	**380**	**350** D	**50**	**36**	**33**	**49**

IP4-6 (13 - 18 ft)

SAMPLE DATE	12/22/2009	10/21/2011	12/14/2011	1/10/2012	2/16/2012	4/15/2013	1/13/2014	2/19/2014	4/23/2014	10/07/2015	12/8/2016	2/8/2017	9/20/2017	8/7/2018
1,1,1-TCA	2.6 U	9 J	**33** J	**25** J	8.4 U	2.1 U	**61**	**37**	**13**	0.82 U	**24**	**150**	**27**	0.30 U
1,1-DCA	**52**	**8.8** J	**33** J	**38** J	**25** J	3.2 J	**22**	**28**	**17**	**59**	**76**	**200**	**45**	0.40 J
Chloroethane	**320**	**65**	**79** D	**60**	**120** J	**19**	**9.3** J	**35**	**39**	**760** D	**66**	**220**	**320**	**190**

IP4-3 (19 - 23 ft)

SAMPLE DATE	12/22/2009	10/21/2011	12/14/2011	1/10/2012	2/16/2012	4/16/2013	1/13/2014	2/19/2014	4/23/2014	8/7/2018
1,1,1-TCA	**12**	8.4 U	8.4 U	8.4 U	8.4 U	2.1 U	2.1 U	2.1 U	2.1 U	2.0 U
1,1-DCA	**90**	6.8 U	**26** J	**15** J	**12** J	1.7 U	1.7 U	1.7 U	1.7 U	2.0 U
Chloroethane	**46**	10 U	**29** J	**16** J	10 UJ	2.5 U	2.5 U	2.5 U	2.5 U	**54**
Chlorobenzene	**27**	6.4 U	**23** J	6.4 U	**27** J	**11**	**15**	**13**	**13**	**26**

IP1-4S (7 - 12 ft)

SAMPLE DATE	8/6/2018
1,1,1-TCA	**28**
1,1-DCA	**52**
Chloroethane	**150**

IP1-8I (13 - 18)

SAMPLE DATE	4/17/2013	1/14/2014	2/20/2014	4/23/2014	10/07/2015	12/9/2016	2/7/2017	9/18/2017	8/6/2018
1,1,1-TCA	**650**	**980**	**1400**	**620**	**12** J	**35** J	**57**	0.50 U	0.50 U
1,1-DCA	**1,800**	**170**	**180**	**130**	**68** J	**91** J	**140**	0.50 U	2.0
1,1-DCE	25 U	20 U	20 U	20 U	2.3 U	0.89 J	0.86 J	0.50 U	0.50 U
Chloroethane	**110**	**58** J	**65** J	**68** J	**570** J	**150** J	**100**	**230**	**190**
Benzene	16 U	13 U	13 U	13 U	3.3 U	0.50 U	0.50 U	0.50 U	0.50 U

IP1-8D (19 - 24 ft)

SAMPLE DATE	4/17/2013	1/14/2014	2/20/2014	4/23/2014	10/07/2015	12/9/2016	2/7/2017	9/18/2017	8/6/2018
1,1,1-TCA	**170**	**360**	**930** D	**650**	**24**	**57**	**130**	**9.3**	**12**
1,1-DCA	**1,800**	**67**	**160**	**130**	**100**	**330**	**620**	**19**	**90**
1,1-DCE	25 U	10 U	10 U	13 U	1.5 U	2.0 U	2.9	1.5	1.0
Chloroethane	**420**	**27** J	**46**	**66**	**780** D	**630** D	**570** D	**360**	**940**
Vinyl Chloride	8.2 U	9.2 U	9.2 U	12 U	4.5 U	**3.2**	**2.1**	1.6	**3.0**

IP1-12S (9 - 14 ft)

SAMPLE DATE	4/16/2013	1/13/2014	2/19/2014	4/23/2014
1,1,1-TCA	4.2 U	4.2 U	4.2 U	4.2 U
1,1-DCA	**11** J	**55**	**41**	**59**
Chloroethane	5 U	**17** J	**9.2** J	**27**

MW-98-8D (25 - 35 ft)

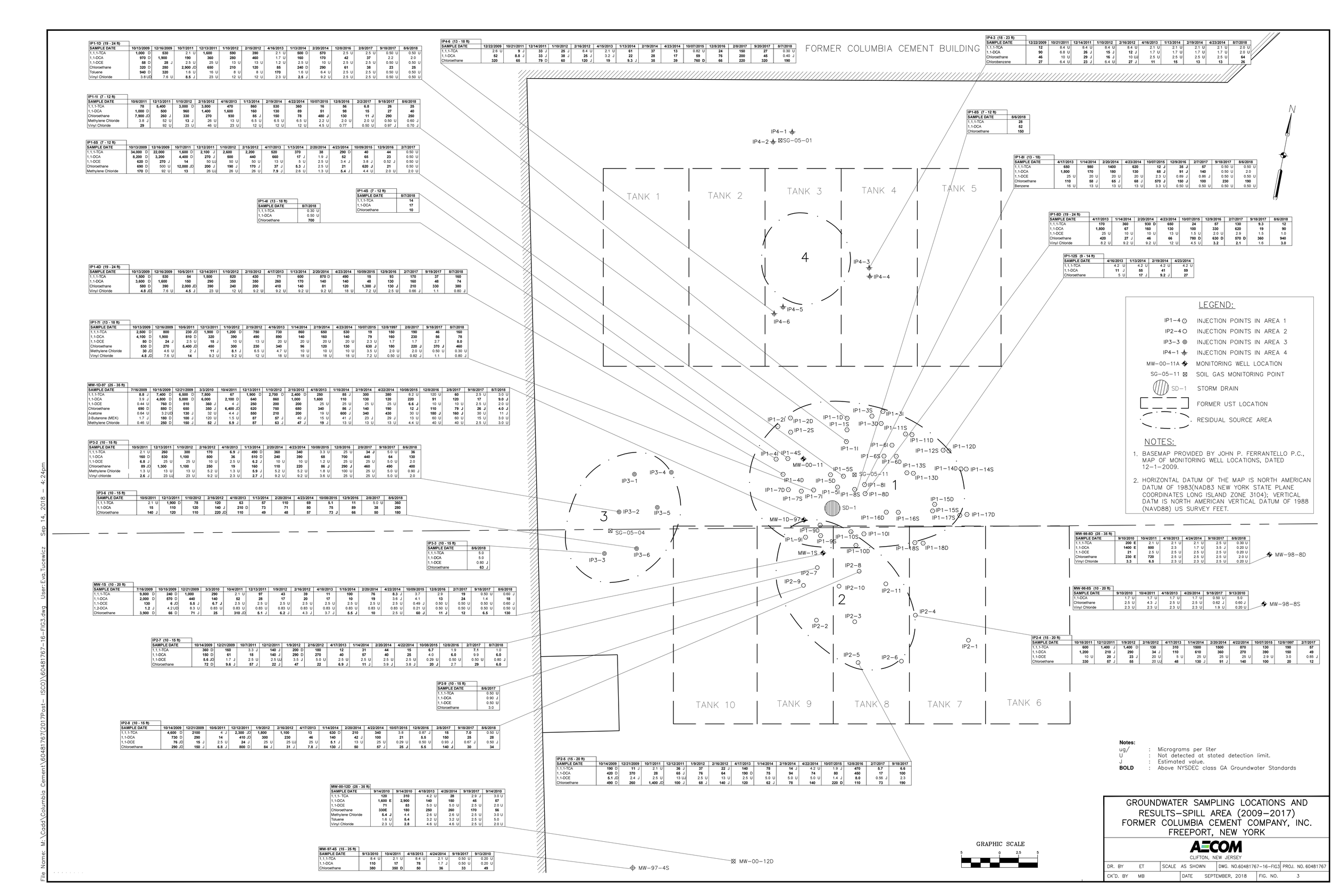
SAMPLE DATE	9/10/2010	10/4/2011	4/18/2013	4/24/2014	9/18/2017	8/6/2018
1,1,1-TCA	**200** E	2.1 U	2.1 U	2.1 U	2.5 U	0.30 U
1,1-DCA	**1400** E	**500**	2.3	1.7 U	3.5 J	0.20 U
1,1-DCE	**21**	2.5 U	2.5 U	2.5 U	2.5 U	0.20 U
Chloroethane	**230** E	**720**	2.5 U	2.5 U	2.5 U	2.0 U
Vinyl Chloride	**3.3**	**6.5**	2.3 U	2.3 U	2.5 U	0.20 U

MW-98-8S (10 - 20 ft)

SAMPLE DATE	9/10/2010	10/4/2011	4/18/2013	4/25/2014	9/18/2017	9/13/2010
1,1-DCA	1.7 U	1.7 U	1.7 U	1.7 U	0.50 U	5.0
Chloroethane	2.5 U	4.3 J	2.5 U	2.5 U	0.62 J	0.60 J
Vinyl Chloride	2.3 U	2.3 U	2.3 U	2.3 U	1.9 U	0.20 U

IP2-4 (15 - 20 ft)

SAMPLE DATE	10/18/2011	12/12/2011	1/9/2012	2/16/2012	4/17/2013	1/14/2014	2/20/2014	4/22/2014	10/07/2015	12/8/1997	2/7/2017
1,1,1-TCA	**600**	**1,400** J	**1,400** D	**130**	**310**	**1500**	**1500**	**870**	**130**	**190**	**57**
1,1-DCA	**1,200**	**210** J	**290**	**34** J	**110**	**610**	**360**	**270**	**390**	**150**	**49**
1,1-DCE	10 U	**20** J	**23** J	20 UJ	5 U	25 U	25 U	25 U	2.9 U	3.0	0.85 J
Chloroethane	**330**	**57** J	**55**	20 UJ	**48**	**130** J	**91** J	**140**	**100**	**20**	**12**



LEGEND:

- IP1–4 ⊙ INJECTION POINTS IN AREA 1
- IP2–4 ⊙ INJECTION POINTS IN AREA 2
- IP3–3 ◎ INJECTION POINTS IN AREA 3
- IP4–1 ⏃ INJECTION POINTS IN AREA 4
- MW–00–11A ◈ MONITORING WELL LOCATION
- SG–05–11 ⊠ SOIL GAS MONITORING POINT
- SD–1 STORM DRAIN
- FORMER UST LOCATION
- RESIDUAL SOURCE AREA

NOTES:

1. BASEMAP PROVIDED BY JOHN P. FERRANTELLO P.C., MAP OF MONITORING WELL LOCATIONS, DATED 12–1–2009.
2. HORIZONTAL DATUM OF THE MAP IS NORTH AMERICAN DATUM OF 1983(NAD83 NEW YORK STATE PLANE COORDINATES LONG ISLAND ZONE 3104); VERTICAL DATM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) US SURVEY FEET.

Notes:

ug/ : Micrograms per liter
U : Not detected at stated detection limit.
J : Estimated value.
BOLD : Above NYSDEC class GA Groundwater Standards

GRAPHIC SCALE

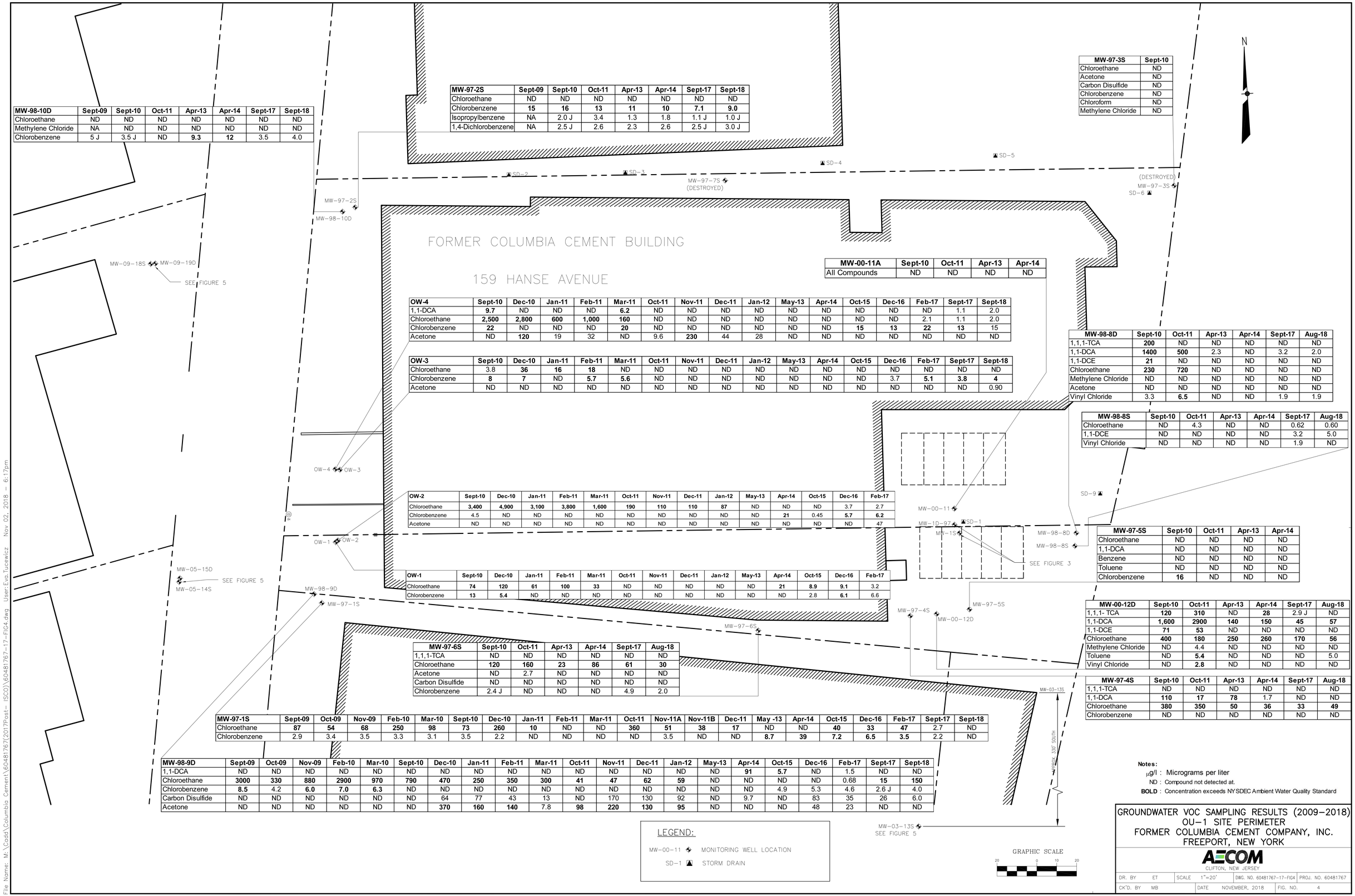
5 0 2.5 5

GROUNDWATER SAMPLING LOCATIONS AND RESULTS–SPILL AREA (2009–2017)
FORMER COLUMBIA CEMENT COMPANY, INC.
FREEPORT, NEW YORK

AECOM
CLIFTON, NEW JERSEY

DR. BY	ET	SCALE AS SHOWN	DWG. NO.60481767–16–FIG3	PROJ. NO. 60481767
CK'D. BY	MB	DATE SEPTEMBER, 2018	FIG. NO. 3	

File Name: M:\Cad\Columbia Cement\60481767(2017Post– ISCO)\60481767–16–FIG3.dwg User:Eva.Tucewicz Sep 14, 2018 – 4:24pm



MW-98-10D	Sept-09	Sept-10	Oct-11	Apr-13	Apr-14	Sept-17	Sept-18
Chloroethane	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	NA	ND	ND	ND	ND	ND	ND
Chlorobenzene	5 J	3.5 J	ND	**9.3**	**12**	3.5	4.0

MW-97-2S	Sept-09	Sept-10	Oct-11	Apr-13	Apr-14	Sept-17	Sept-18
Chloroethane	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	**15**	**16**	**13**	**11**	**10**	**7.1**	**9.0**
Isopropylbenzene	NA	2.0 J	3.4	1.3	1.8	1.1 J	1.0 J
1,4-Dichlorobenzene	NA	2.5 J	2.6	2.3	2.6	2.5 J	3.0 J

MW-97-3S	Sept-10
Chloroethane	ND
Acetone	ND
Carbon Disulfide	ND
Chlorobenzene	ND
Chloroform	ND
Methylene Chloride	ND

MW-00-11A	Sept-10	Oct-11	Apr-13	Apr-14
All Compounds	ND	ND	ND	ND

OW-4	Sept-10	Dec-10	Jan-11	Feb-11	Mar-11	Oct-11	Nov-11	Dec-11	Jan-12	May-13	Apr-14	Oct-15	Dec-16	Feb-17	Sept-17	Sept-18
1,1-DCA	**9.7**	ND	ND	ND	**6.2**	ND	ND	ND	ND	ND	ND	ND	ND	2.1	1.1	2.0
Chloroethane	**2,500**	**2,800**	**600**	**1,000**	**160**	ND	ND	ND	ND	ND	ND	ND	ND	2.1	1.1	2.0
Chlorobenzene	**22**	ND	ND	ND	**20**	ND	ND	ND	ND	ND	ND	**15**	**13**	**22**	**13**	15
Acetone	ND	**120**	19	32	ND	9.6	**230**	44	28	ND	ND	ND	ND	ND	ND	ND

OW-3	Sept-10	Dec-10	Jan-11	Feb-11	Mar-11	Oct-11	Nov-11	Dec-11	Jan-12	May-13	Apr-14	Oct-15	Dec-16	Feb-17	Sept-17	Sept-18
Chloroethane	3.8	**36**	**16**	**18**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	**8**	**7**	ND	**5.7**	**5.6**	ND	ND	ND	ND	ND	ND	ND	3.7	**5.1**	**3.8**	**4**
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.90

OW-2	Sept-10	Dec-10	Jan-11	Feb-11	Mar-11	Oct-11	Nov-11	Dec-11	Jan-12	May-13	Apr-14	Oct-15	Dec-16	Feb-17
Chloroethane	**3,400**	**4,900**	**3,100**	**3,800**	**1,600**	**190**	**110**	**110**	**87**	ND	ND	ND	3.7	2.7
Chlorobenzene	4.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**21**	0.45	**5.7**	**6.2**
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	47

OW-1	Sept-10	Dec-10	Jan-11	Feb-11	Mar-11	Oct-11	Nov-11	Dec-11	Jan-12	May-13	Apr-14	Oct-15	Dec-16	Feb-17
Chloroethane	**74**	**120**	**61**	**100**	**33**	ND	ND	ND	ND	ND	**21**	**8.9**	**9.1**	3.2
Chlorobenzene	**13**	**5.4**	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.8	**6.1**	6.6

MW-97-6S	Sept-10	Oct-11	Apr-13	Apr-14	Sept-17	Aug-18
1,1,1-TCA	ND	ND	ND	ND	ND	ND
Chloroethane	**120**	**160**	**23**	**86**	**61**	**30**
Acetone	ND	2.7	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	ND
Chlorobenzene	2.4 J	ND	ND	ND	4.9	2.0

MW-97-1S	Sept-09	Oct-09	Nov-09	Feb-10	Mar-10	Sept-10	Dec-10	Jan-11	Feb-11	Mar-11	Oct-11	Nov-11A	Nov-11B	Dec-11	May -13	Apr-14	Oct-15	Dec-16	Feb-17	Sept-17	Sept-18
Chloroethane	**87**	**54**	**68**	**250**	**98**	**73**	**260**	**10**	ND	ND	**360**	**51**	**38**	**17**	ND	ND	**40**	**33**	**47**	2.7	ND
Chlorobenzene	2.9	3.4	3.5	3.3	3.1	3.5	2.2	ND	ND	ND	ND	3.5	ND	ND	**8.7**	**39**	**7.2**	**6.5**	**3.5**	2.2	ND

MW-98-9D	Sept-09	Oct-09	Nov-09	Feb-10	Mar-10	Sept-10	Dec-10	Jan-11	Feb-11	Mar-11	Oct-11	Nov-11	Dec-11	Jan-12	May-13	Apr-14	Oct-15	Dec-16	Feb-17	Sept-17	Sept-18
1,1-DCA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**91**	**5.7**	ND	1.5	ND	ND
Chloroethane	**3000**	**330**	**880**	**2900**	**970**	**790**	**470**	**250**	**350**	**300**	**41**	**47**	**62**	**59**	ND	ND	ND	ND	0.68	**15**	**150**
Chlorobenzene	**8.5**	4.2	**6.0**	**7.0**	**6.3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.9	5.3	4.6	2.6 J	4.0
Carbon Disulfide	ND	ND	ND	ND	ND	ND	64	77	43	13	ND	170	130	92	ND	9.7	ND	83	35	26	6.0
Acetone	ND	ND	ND	ND	ND	ND	**370**	**160**	**140**	7.8	**98**	**220**	**130**	**95**	ND	ND	ND	48	23	ND	ND

MW-98-8D	Sept-10	Oct-11	Apr-13	Apr-14	Sept-17	Aug-18
1,1,1-TCA	**200**	ND	ND	ND	ND	ND
1,1-DCA	**1400**	**500**	2.3	ND	3.2	2.0
1,1-DCE	**21**	ND	ND	ND	ND	ND
Chloroethane	**230**	**720**	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND
Vinyl Chloride	3.3	**6.5**	ND	ND	1.9	1.9

MW-98-8S	Sept-10	Oct-11	Apr-13	Apr-14	Sept-17	Aug-18
Chloroethane	ND	4.3	ND	ND	0.62	0.60
1,1-DCE	ND	ND	ND	ND	3.2	5.0
Vinyl Chloride	ND	ND	ND	ND	1.9	ND

MW-97-5S	Sept-10	Oct-11	Apr-13	Apr-14
Chloroethane	ND	ND	ND	ND
1,1-DCA	ND	ND	ND	ND
Benzene	ND	ND	ND	ND
Toluene	ND	ND	ND	ND
Chlorobenzene	**16**	ND	ND	ND

MW-00-12D	Sept-10	Oct-11	Apr-13	Apr-14	Sept-17	Aug-18
1,1,1- TCA	**120**	**310**	ND	**28**	2.9 J	ND
1,1-DCA	**1,600**	**2900**	**140**	**150**	**45**	**57**
1,1-DCE	**71**	**53**	ND	ND	ND	ND
Chloroethane	**400**	**180**	**250**	**260**	**170**	**56**
Methylene Chloride	ND	4.4	ND	ND	ND	ND
Toluene	ND	**5.4**	ND	ND	ND	5.0
Vinyl Chloride	ND	**2.8**	ND	ND	ND	ND

MW-97-4S	Sept-10	Oct-11	Apr-13	Apr-14	Sept-17	Aug-18
1,1,1-TCA	ND	ND	ND	ND	ND	ND
1,1-DCA	**110**	**17**	**78**	1.7	ND	ND
Chloroethane	**380**	**350**	**50**	**36**	**33**	**49**
Chlorobenzene	ND	ND	ND	ND	ND	ND

Notes:

µg/l : Micrograms per liter

ND : Compound not detected at.

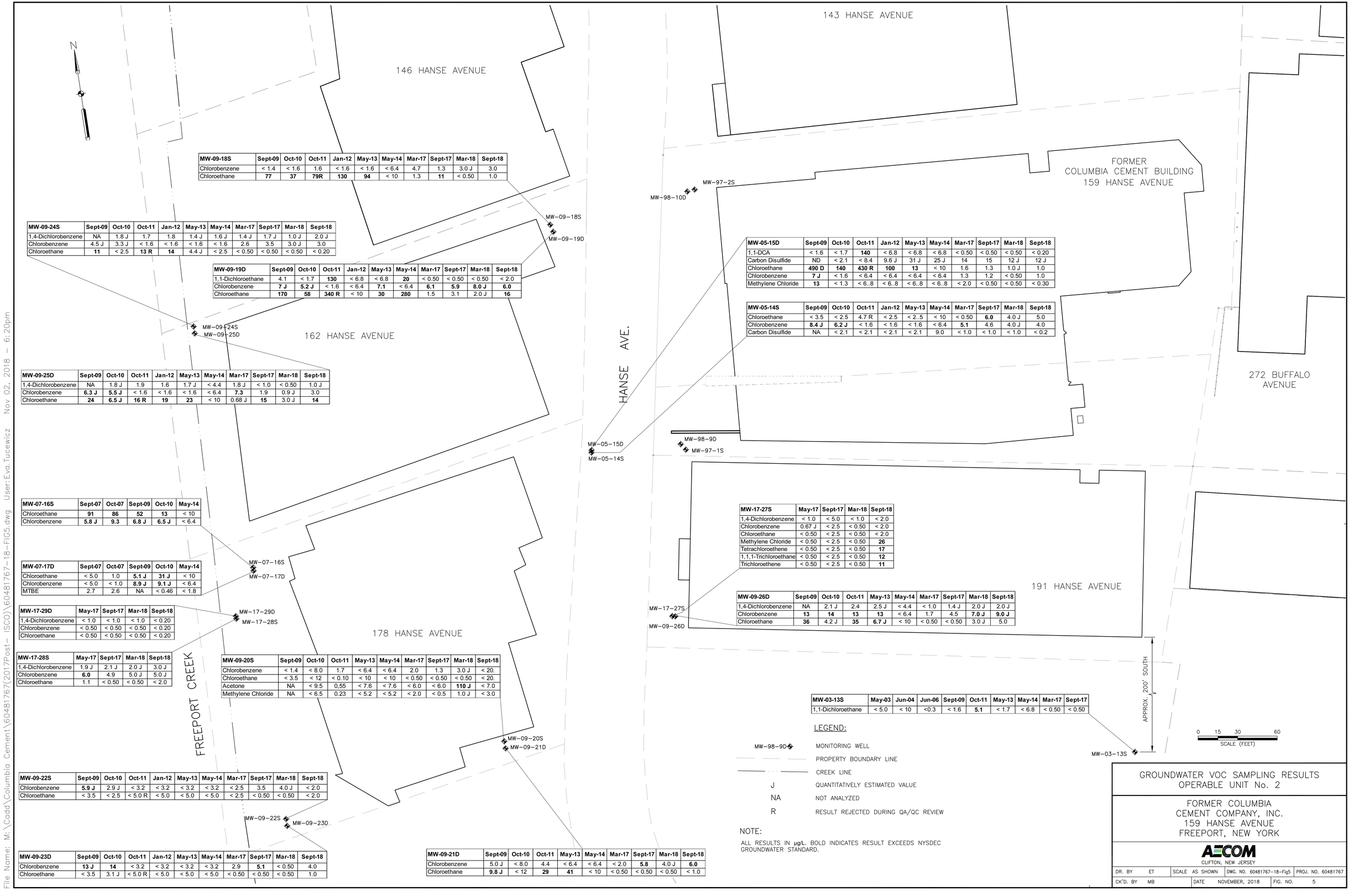
BOLD : Concentration exceeds NYSDEC Ambient Water Quality Standard

GROUNDWATER VOC SAMPLING RESULTS (2009–2018)
OU–1 SITE PERIMETER
FORMER COLUMBIA CEMENT COMPANY, INC.
FREEPORT, NEW YORK

AECOM
CLIFTON, NEW JERSEY

DR. BY	ET	SCALE	1"=20'	DWG. NO. 60481767-17-FIG4	PROJ. NO. 60481767
CK'D. BY	MB	DATE	NOVEMBER, 2018	FIG. NO.	4

File Name: M:\Codd\Columbia Cement\60481767(2017Post- ISCO)\60481767-17-FIG4.dwg User:Eva.Tucewicz Nov 02, 2018 - 6:17pm



MW-09-18S	Sept-09	Oct-10	Oct-11	Jan-12	May-13	May-14	Mar-17	Sept-17	Mar-18	Sept-18
Chlorobenzene	< 1.4	< 1.6	1.6	< 1.6	< 1.6	< 6.4	4.7	1.3	3.0 J	3.0
Chloroethane	**77**	**37**	**79R**	**130**	**94**	< 10	1.3	**11**	< 0.50	1.0

MW-09-24S	Sept-09	Oct-10	Oct-11	Jan-12	May-13	May-14	Mar-17	Sept-17	Mar-18	Sept-18
1,4-Dichlorobenzene	NA	1.8 J	1.7	1.8	1.4 J	1.6 J	1.4 J	1.7 J	1.0 J	2.0 J
Chlorobenzene	4.5 J	3.3 J	< 1.6	< 1.6	< 1.6	< 1.6	2.6	3.5	3.0 J	3.0
Chloroethane	**11**	< 2.5	**13 R**	**14**	4.4 J	< 2.5	< 0.50	< 0.50	< 0.50	< 0.20

MW-09-19D	Sept-09	Oct-10	Oct-11	Jan-12	May-13	May-14	Mar-17	Sept-17	Mar-18	Sept-18
1,1-Dichloroethane	4.1	< 1.7	**130**	< 6.8	< 6.8	**20**	< 0.50	< 0.50	< 0.50	< 2.0
Chlorobenzene	**7 J**	**5.2 J**	< 1.6	< 6.4	**7.1**	< 6.4	**6.1**	**5.9**	**8.0 J**	**6.0**
Chloroethane	**170**	**58**	**340 R**	< 10	**30**	**280**	1.5	3.1	2.0 J	**16**

MW-09-25D	Sept-09	Oct-10	Oct-11	Jan-12	May-13	May-14	Mar-17	Sept-17	Mar-18	Sept-18
1,4-Dichlorobenzene	NA	1.8 J	1.9	1.6	1.7 J	< 4.4	1.8 J	< 1.0	< 0.50	1.0 J
Chlorobenzene	**6.3 J**	**5.5 J**	< 1.6	< 1.6	< 1.6	< 6.4	**7.3**	1.9	0.9 J	3.0
Chloroethane	**24**	**6.5 J**	**16 R**	**19**	**23**	< 10	0.68 J	**15**	3.0 J	**14**

MW-07-16S	Sept-07	Oct-07	Sept-09	Oct-10	May-14
Chloroethane	**91**	**86**	**52**	**13**	< 10
Chlorobenzene	**5.8 J**	**9.3**	**6.8 J**	**6.5 J**	< 6.4

MW-07-17D	Sept-07	Oct-07	Sept-09	Oct-10	May-14
Chloroethane	< 5.0	1.0	**5.1 J**	**31 J**	< 10
Chlorobenzene	< 5.0	< 1.0	**8.9 J**	**9.1 J**	< 6.4
MTBE	2.7	2.6	NA	< 0.46	< 1.8

MW-17-29D	May-17	Sept-17	Mar-18	Sept-18
1,4-Dichlorobenzene	< 1.0	< 1.0	< 1.0	< 0.20
Chlorobenzene	< 0.50	< 0.50	< 0.50	< 0.20
Chloroethane	< 0.50	< 0.50	< 0.50	< 0.20

MW-17-28S	May-17	Sept-17	Mar-18	Sept-18
1,4-Dichlorobenzene	1.9 J	2.1 J	2.0 J	3.0 J
Chlorobenzene	**6.0**	4.9	5.0 J	5.0 J
Chloroethane	1.1	< 0.50	< 0.50	< 2.0

MW-09-20S	Sept-09	Oct-10	Oct-11	May-13	May-14	Mar-17	Sept-17	Mar-18	Sept-18
Chlorobenzene	< 1.4	< 8.0	1.7	< 6.4	< 6.4	2.0	1.3	3.0 J	< 20.
Chloroethane	< 3.5	< 12	< 0.10	< 10	< 10	< 0.50	< 0.50	< 0.50	< 20.
Acetone	NA	< 9.5	0,55	< 7.6	< 7.6	< 6.0	< 6.0	**110 J**	< 7.0
Methylene Chloride	NA	< 6.5	0.23	< 5.2	< 5.2	< 2.0	< 0.5	1.0 J	< 3.0

MW-09-22S	Sept-09	Oct-10	Oct-11	Jan-12	May-13	May-14	Mar-17	Sept-17	Mar-18	Sept-18
Chlorobenzene	**5.9 J**	2.9 J	< 3.2	< 3.2	< 3.2	< 3.2	< 2.5	3.5	4.0 J	< 2.0
Chloroethane	< 3.5	< 2.5	< 5.0 R	< 5.0	< 5.0	< 5.0	< 2.5	< 0.50	< 0.50	< 2.0

MW-09-23D	Sept-09	Oct-10	Oct-11	Jan-12	May-13	May-14	Mar-17	Sept-17	Mar-18	Sept-18
Chlorobenzene	**13 J**	**14**	< 3.2	< 3.2	< 3.2	< 3.2	2.9	**5.1**	< 0.50	4.0
Chloroethane	< 3.5	3.1 J	< 5.0 R	< 5.0	< 5.0	< 5.0	< 0.50	< 0.50	< 0.50	1.0

MW-09-21D	Sept-09	Oct-10	Oct-11	May-13	May-14	Mar-17	Sept-17	Mar-18	Sept-18
Chlorobenzene	5.0 J	< 8.0	4.4	< 6.4	< 6.4	< 2.0	**5.8**	4.0 J	**6.0**
Chloroethane	**9.8 J**	< 12	**29**	**41**	< 10	< 0.50	< 0.50	< 0.50	< 1.0

MW-05-15D	Sept-09	Oct-10	Oct-11	Jan-12	May-13	May-14	Mar-17	Sept-17	Mar-18	Sept-18
1,1-DCA	< 1.6	< 1.7	**140**	< 6.8	< 6.8	< 6.8	< 0.50	< 0.50	< 0.50	< 0.20
Carbon Disulfide	ND	< 2.1	< 8.4	9.6 J	31 J	25 J	14	15	12 J	12 J
Chloroethane	**490 D**	**140**	**430 R**	**100**	**13**	< 10	1.6	1.3	1.0 J	1.0
Chlorobenzene	**7 J**	< 1.6	< 6.4	< 6.4	< 6.4	< 6.4	1.3	1.2	< 0.50	1.0
Methylene Chloride	**13**	< 1.3	< 6..8	< 6..8	< 6..8	< 6..8	< 2.0	< 0.50	< 0.50	< 0.30

MW-05-14S	Sept-09	Oct-10	Oct-11	Jan-12	May-13	May-14	Mar-17	Sept-17	Mar-18	Sept-18
Chloroethane	< 3.5	< 2.5	4.7 R	< 2.5	< 2..5	< 10	< 0.50	**6.0**	4.0 J	5.0
Chlorobenzene	**8.4 J**	**6.2 J**	< 1.6	< 1.6	< 1.6	< 6.4	**5.1**	4.6	4.0 J	4.0
Carbon Disulfide	NA	< 2.1	< 2.1	< 2.1	< 2.1	9.0	< 1.0	< 1.0	< 1.0	< 0.2

MW-17-27S	May-17	Sept-17	Mar-18	Sept-18
1,4-Dichlorobenzene	< 1.0	< 5.0	< 1.0	< 2.0
Chlorobenzene	0.67 J	< 2.5	< 0.50	< 2.0
Chloroethane	< 0.50	< 2.5	< 0.50	< 2.0
Methylene Chloride	< 0.50	< 2.5	< 0.50	**26**
Tetrachloroethene	< 0.50	< 2.5	< 0.50	**17**
1,1,1-Trichloroethane	< 0.50	< 2.5	< 0.50	**12**
Trichloroethene	< 0.50	< 2.5	< 0.50	**11**

MW-09-26D	Sept-09	Oct-10	Oct-11	May-13	May-14	Mar-17	Sept-17	Mar-18	Sept-18
1,4-Dichlorobenzene	NA	2.1 J	2.4	2.5 J	< 4.4	< 1.0	1.4 J	2.0 J	2.0 J
Chlorobenzene	**13**	**14**	**13**	**13**	< 6.4	1.7	4.5	**7.0 J**	**9.0 J**
Chloroethane	**36**	4.2 J	**35**	**6.7 J**	< 10	< 0.50	< 0.50	3.0 J	5.0

MW-03-13S	May-03	Jun-04	Jun-06	Sept-09	Oct-11	May-13	May-14	Mar-17	Sept-17
1,1-Dichloroethane	< 5.0	< 10	<0.3	< 1.6	**5.1**	< 1.7	< 6.8	< 0.50	< 0.50

LEGEND:

MW-98-9D	MONITORING WELL
	PROPERTY BOUNDARY LINE
	CREEK LINE
J	QUANTITATIVELY ESTIMATED VALUE
NA	NOT ANALYZED
R	RESULT REJECTED DURING QA/QC REVIEW

NOTE:

ALL RESULTS IN µg/L. BOLD INDICATES RESULT EXCEEDS NYSDEC GROUNDWATER STANDARD.

GROUNDWATER VOC SAMPLING RESULTS OPERABLE UNIT No. 2

FORMER COLUMBIA CEMENT COMPANY, INC.
159 HANSE AVENUE
FREEPORT, NEW YORK

AECOM
CLIFTON, NEW JERSEY

DR. BY ET	SCALE AS SHOWN	DWG. NO. 60481767-18-Fig5	PROJ. NO. 60481767
CK'D. BY MB	DATE NOVEMBER, 2018	FIG. NO. 5	

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APPENDIX A
LABORATORY DATA PACKAGES (ON CD)

APPENDIX B
DATA VALIDATION REPORTS

DATA VALIDATION REVIEW
PROJECT: COLUMBIA CEMENT, FREEPORT, LONG ISLAND, NY
DATE SAMPLES COLLECTED: AUGUST 6 THROUGH 8, 2018
JOB NO.: 60481767

LAB REPORT NO. 9744295-9744323

1.0 INTRODUCTION

This Data Validation Review has been performed in accordance with the requirements specified in the standard operating procedures for the validation of USEPA Low/Medium Volatile Data Validation, SOP No. HW-33, Revision 3, dated March 2013. The quality assurance review requirements are applied such that specifications of the methods take precedence over the specifications of the USEPA Region II data review guidelines in those instances where the specifications differ.

The objective of the review was to assess data usability and compliance with New York State Department of Environmental Conservation (NYSDEC) ASP Category B deliverable requirements. The Data Validation Review provides an interpretation of data usability based on the reported quality control parameters. A total of 24 water samples, 2 field duplicate samples, 1 trip blank sample and 2 field blank sample were collected by AECOM, Clifton, New Jersey, office personnel and submitted to Eurofins Lancaster Laboratories Environmental (NYSDEC Certification No. 10670). Section 2.0 of this report summarizes the samples included in this review and the analyses performed. The groundwater samples were analyzed following USEPA CLP and Standard Methodologies. The laboratory analytical data set contained herein was prepared in accordance with NYSDEC ASP Category B Data Deliverable Format (Exhibit B).

The organic data quality review is based on the following parameters:

* Hold Times
* Blank Contamination
* GC/MS Performance Check (Tuning) Summaries
  System Monitoring Compound (Surrogate) Recoveries
* Internal Standard Area Performance
  Initial and Continuing Calibration Results
  Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Summaries
* Target Compound Identification and Quantitation

*All criteria were met for this parameter

This report was prepared to provide a critical review of the laboratory analysis and reported chemical results. Overall, the data quality is acceptable. The results of the Data Validation Review are presented in Section 3.0. Data qualifiers, when applicable, are placed next to the results so that the data user can assess the qualitative and/or quantitative reliability of the reported result.

2.0 SAMPLES INCLUDED IN REVIEW

Lab Report No. 9744295-9744323

Sample ID	Lab ID	Date Collected	Test Requested
IP2-9	9744295	8/6/18	VOA
MW-1S	9744296	8/6/18	VOA
IP3-6	9744297	8/6/18	VOA
IP3-3	9744298	8/6/18	VOA
IP3-2	9744299	8/6/18	VOA
IP2-8	9744300	8/6/18	VOA
IP1-8D	9744301	8/6/18	VOA
IP1-8I	9744302	8/6/18	VOA
IP1-8S	9744303	8/6/18	VOA
IP1-1I	9744304	8/6/18	VOA
IP1-1D	9744305	8/6/18	VOA
IP1-4I	9744306	8/7/18	VOA
IP1-4S	9744307	8/7/18	VOA
IP1-4D	9744308	8/7/18	VOA
IP1-7I	9744309	8/7/18	VOA
IP4-6	9744310	8/7/18	VOA
IP4-3	9744311	8/7/18	VOA
MW-1D-97	9744312	8/7/18	VOA
DUP070818	9744313	8/7/18	VOA
IP2-7	9744314	8/7/18	VOA
MW-98-8D	9744315	8/8/18	VOA
MW-00-12D	9744316	8/8/18	VOA
MW-98-8S	9744317	8/8/18	VOA
MW-97-4S	9744318	8/8/18	VOA
MW-97-6S	9744319	8/8/18	VOA
DUP080818	9744320	8/8/18	VOA
FB080618	9744321	8/6/18	VOA
FB080818	9744322	8/8/18	VOA
Trip Blank	9744323	8/6/18	VOA

Legend:

VOA = Analyzed following USEPA SW846 8260C.

3.0 RESULTS

3.1 GENERAL COMMENTS

With regard to the data package deliverables, most of the NYSDEC ASP Category B Data Deliverable format requirements were met, with the exception of the following correctable deficiencies. Please note that these deficiencies, for the most part, do not impact data usability.

- The laboratory did not include the internal chain-of-custody (COC) as required under NYSDEC ASP Category B Data Deliverable format requirements.

3.2 ORGANIC QUALIFIERS

Hold Times: Technical hold times were assessed by comparing the sample dates with that of the preparation dates and/or analysis dates.

- All samples were analyzed within the required hold time for all analyses.

- Sample IP4-3 had a pH of 7 at analysis. The results for this sample are qualified as estimated "J" and "UJ".

- The laboratory cooler receipt temperature associated with the reviewed project samples fell outside the 4°C (±2° C) requirement. The samples are qualified as estimated values "J" and "UJ".

Blank Contamination: Laboratory method blanks are clean liquid and/or solid matrix samples prepared by the analytical laboratory and analyzed in the same manner as the investigative samples. Water laboratory method blanks are used to identify whether investigative samples have been contaminated during sample preparation, sample analysis or from a previous sample (instrument carry-over).

Field-blanks consist of deionized water poured over or through decontaminated sampling equipment and collected into the sample bottles. Field-blanks measure contamination potentially caused by inadequate decontamination of sampling equipment. Trip-blanks are carbon-free deionized water samples that accompany volatile investigative samples during each stage of shipment, storage and analysis. The trip-blanks are used to assess the potential for artificial introduction of volatile compounds into the investigative samples during the transportation and sample handling processes.

- No contaminants were identified in the laboratory method/trip/field blanks associated with the groundwater samples received and reviewed. No qualifier is required.

GC/MS Performance Check (Tuning) Summary: Gas chromatograph/mass spectrometer (GC/MS) instrument tuning and performance checks are performed to ensure the instrument's ability to provide appropriate mass-resolution, identification, and sensitivity.

- The bromofluorobenzene (BFB) tuning compound mass-ion abundance criteria for the volatile organic compound analyses were reported within control limits. No qualifier is required.

System Monitoring Compound (Surrogate) Recoveries: System monitoring compounds (surrogates) are those compounds, which are not expected to be detected in the investigative samples but which are chemically similar to the analytes of interest. Surrogate compound percent recoveries are used to assess extraction efficiencies, possible matrix effects, and overall analytical accuracy.

- Sample IP3-6 reported one volatile surrogate recovery outside acceptable QC limits, bias high. The detected volatile results with the exception of 1,1,1-trichloroethane

and 1,1-dichloroethane are qualified estimated "J". These two compounds were reported from the dilution which had acceptable surrogate recoveries.

- The other TCL VOA surrogate recoveries fell within control limits for the project samples received and reviewed. No qualifier is required.

Internal Standards Area Performance: Internal standards are analytes of interest, which are added to the investigative samples prior to analysis to ensure that GC/MS sensitivity and responses remain stable. Internal standards are reported with the volatile analysis.

- The volatile internal standard area counts and retention times fell within control limits for the project samples received and reviewed for TCL VOA analyses. No qualifier is required.

Initial and Continuing Calibration Results: Control limits for initial and continuing instrument calibrations are established to ensure that the instrument is capable of producing accurate quantitative data at the beginning and throughout each of the analyses.

- Due to the high percent difference (%D>20) between the initial and continuing calibration response factors of the VOA compounds listed, the non-detected results reported for dichlorodifluoromethane, trichlorofluoromethane, methyl acetate, 2-butanone and 1,1,2,2-tetrachloroethane are qualified estimated "UJ". The affected samples are:

MW-98-8S	MW-97-6S	MW-97-4S
DUP080818	FB080818	

- Due to the high percent difference (%D>20) between the initial and continuing calibration response factors of the VOA compounds listed, the non-detected results reported for acetone and cyclohexane are qualified estimated "UJ". The affected samples are:

MW-98-8D	MW-00-12D

- Due to the high percent difference (%D>20) between the initial and continuing calibration response factors of the VOA compound listed, the non-detected results reported for carbon tetrachloride are qualified estimated "UJ". The affected samples are:

IP2-9	MW-1S	IP3-6	IP3-3
IP3-2	IP2-8	IP1-8D	

- Due to the high percent difference (%D>20) between the initial and continuing calibration response factors of the VOA compound listed, the non-detected results reported for dichlorodifluoromethane are qualified estimated "UJ". The affected samples are:

IP1-4I	IP1-4S	IP1-4D	IP1-7I	IP2-7
IP4-6	IP4-3	MW-1D-97	DUP070818	

- All other TCL VOA target compound initial and continuing calibration response factors, percent relative standard deviations (%RSD), and percent differences (%D) associated with the reviewed project samples fell within acceptable control limits. No qualifier is required.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Summaries: Matrix spikes are samples spiked with known concentrations of analytes of interest. The MS/MSD percent recoveries and duplicate results are used to assess extraction efficiencies, possible matrix effects, and overall analytical accuracy and precision.

Blank spikes (BS) are blank samples fortified (spiked) with known concentrations of analytes of interest. The blank spike percent recoveries results are used to assess extraction efficiencies, and overall analytical accuracy and precision.

Field duplicate samples are taken and analyzed as an indication of overall precision. These analyses measure both field and laboratory precision. Therefore, results may have more variability than laboratory duplicates, which measure only laboratory performance.

- The LCS sample associated with samples MW-98-8D and MW-00-12D reported cyclohexane outside acceptable QC limits, bias high. Since this compound was non-detected in these two samples, no qualifier is required.

- The other VOA MS/MSD and LCS results (recoveries and Relative Percent Difference or RPD) associated with the reviewed project samples fell within control limits, providing a positive indication of the overall accuracy and precision associated with these analyses. No qualifier is required.

- Sample DUP070818 was collected as a field sample of MW-1D-97. The results fell within acceptable control limits providing a positive indication of the overall accuracy and precision associated with the VOA analyses with the exception of acetone. The detected acetone results reported for these two samples are qualified "J".

- Sample DUP080818 was collected as a field sample of MW-97-6S. The results fell within acceptable control limits providing a positive indication of the overall accuracy and precision associated with the VOA analyses with the exception of methylcyclohexane and 1,2-dichlorobenzene. The detected and non-detected methylcyclohexane and 1,2-dichlorobenzene results reported for these two samples are qualified "J" and "UJ".

Target Compound Identification Quantitation: The laboratory calculations are verified and compound identifications are reviewed and assessed by the data reviewer.

- The GC and GC/MS raw data (quantitation reports, chromatograms and GC/MS mass-spectra) were provided for review. No laboratory calculation errors were noted for the reviewed project samples. No further action is required from the laboratory.

- Samples IP3-2, IP1-8D, IP1-4I, IP1-4D and IP1-7I for VOA were analyzed at a further dilution of 1:10 for chloroethane since it exceeded the calibration range. The results on the Form 1 are a hybrid of both dilutions. No qualifier is required.

- Sample IP3-6 for VOA was analyzed at a further dilution of 1:10 for 1,1-dichloroethane and 1,1,1-trichloroethane since they exceeded the calibration range. The results on the Form 1 are a hybrid of both dilutions. No qualifier is required.

- Samples MW-1D-97, DUP070818 and MW-00-12D was analyzed at a 1:10 dilution due to foaming in the sample. No qualifier is required.

Additional Comments

- As per the requirements, values calculated below the Reporting Limit (RL) should be considered estimated and are flagged (J) on the summary table.

4.0 CONCLUSIONS

Overall, the data quality is acceptable. The Data Validation Review has identified aspects of the analytical data that require qualification. Data qualifiers, when applicable, are placed next to the results so that the data user can assess the qualitative and/or quantitative reliability of the reported results. Except where noted, the laboratory analytical data contained herein are deemed usable and in compliance with the NYSDEC ASP B Data Deliverable Format requirements. To confidently use any of the data within the data set, the data user should understand the limitations and qualifications presented.

DATA VALIDATION REVIEW
PROJECT: COLUMBIA CEMENT, FREEPORT, LONG ISLAND, NY
DATE SAMPLES COLLECTED: SEPTEMBER 5 THROUGH 6, 2018
JOB NO.: 60481767

LAB REPORT NO. 9792595-9792611

1.0 INTRODUCTION

This Data Validation Review has been performed in accordance with the requirements specified in the standard operating procedures for the validation of USEPA Low/Medium Volatile Data Validation, SOP No. HW-33, Revision 3, dated March 2013. The quality assurance review requirements are applied such that specifications of the methods take precedence over the specifications of the USEPA Region II data review guidelines in those instances where the specifications differ.

The objective of the review was to assess data usability and compliance with New York State Department of Environmental Conservation (NYSDEC) ASP Category B deliverable requirements. The Data Validation Review provides an interpretation of data usability based on the reported quality control parameters. A total of 15 water samples, 1 field duplicate samples and 1 field blank sample were collected by AECOM, Clifton, New Jersey, office personnel and submitted to Eurofins Lancaster Laboratories Environmental (NYSDEC Certification No. 10670). Section 2.0 of this report summarizes the samples included in this review and the analyses performed. The groundwater samples were analyzed following USEPA CLP and Standard Methodologies. The laboratory analytical data set contained herein was prepared in accordance with NYSDEC ASP Category B Data Deliverable Format (Exhibit B).

The organic data quality review is based on the following parameters:

* Hold Times
  Blank Contamination
* GC/MS Performance Check (Tuning) Summaries
* System Monitoring Compound (Surrogate) Recoveries
* Internal Standard Area Performance
* Initial and Continuing Calibration Results
  Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Summaries
* Target Compound Identification and Quantitation

*All criteria were met for this parameter

This report was prepared to provide a critical review of the laboratory analysis and reported chemical results. Overall, the data quality is acceptable. The results of the Data Validation Review are presented in Section 3.0. Data qualifiers, when applicable, are placed next to the results so that the data user can assess the qualitative and/or quantitative reliability of the reported result.

2.0 SAMPLES INCLUDED IN REVIEW

Lab Report No. 9792595-9792611

Sample ID	Lab ID	Date Collected	Test Requested
MW-09-26D	9792595	9/5/18	VOA
MW-17-27S	9792596	9/5/18	VOA
MW-05-15D	9792597	9/5/18	VOA
MW-05-14S	9792598	9/5/18	VOA
MW-09-19D	9792599	9/5/18	VOA
MW-09-18S	9792600	9/5/18	VOA
MW-09-24S	9792601	9/5/18	VOA
MW-09-25D	9792602	9/5/18	VOA
FB090518	9792603	9/5/18	VOA
DUP090518	9792604	9/5/18	VOA
MW-17-28S	9792605	9/6/18	VOA
MW-17-29D	9792606	9/6/18	VOA
MW-09-23D	9792607	9/6/18	VOA
MW-09-22S	9792608	9/6/18	VOA
MW-09-20S	9792609	9/6/18	VOA
MW-09-21D	9792610	9/6/18	VOA
MW-03-13S	9792611	9/6/18	VOA

Legend:

VOA = Analyzed following USEPA SW846 8260C.

3.0 RESULTS

3.1 GENERAL COMMENTS

With regard to the data package deliverables, most of the NYSDEC ASP Category B Data Deliverable format requirements were met, with the exception of the following correctable deficiencies. Please note that these deficiencies, for the most part, do not impact data usability.

- The laboratory did not include the internal chain-of-custody (COC) as required under NYSDEC ASP Category B Data Deliverable format requirements.

3.2 ORGANIC QUALIFIERS

Hold Times: Technical hold times were assessed by comparing the sample dates with that of the preparation dates and/or analysis dates.

- All samples were analyzed within the required hold time for all analyses.

Blank Contamination: Laboratory method blanks are clean liquid and/or solid matrix samples prepared by the analytical laboratory and analyzed in the same manner as the investigative samples. Water laboratory method blanks are used to identify whether

investigative samples have been contaminated during sample preparation, sample analysis or from a previous sample (instrument carry-over).

Field-blanks consist of deionized water poured over or through decontaminated sampling equipment and collected into the sample bottles. Field-blanks measure contamination potentially caused by inadequate decontamination of sampling equipment. Trip-blanks are carbon-free deionized water samples that accompany volatile investigative samples during each stage of shipment, storage and analysis. The trip-blanks are used to assess the potential for artificial introduction of volatile compounds into the investigative samples during the transportation and sample handling processes.

- The acetone concentration reported for sample MW-05-14S is qualified estimated "J" due to field blank contamination.

- The acetone concentration reported for samples MW-09-18S and MW-09-24S are negated due to field blank contamination.

- No other contaminants were identified in the laboratory method/trip/field blanks associated with the groundwater samples received and reviewed. No qualifier is required.

GC/MS Performance Check (Tuning) Summary: Gas chromatograph/mass spectrometer (GC/MS) instrument tuning and performance checks are performed to ensure the instrument's ability to provide appropriate mass-resolution, identification, and sensitivity.

- The bromofluorobenzene (BFB) tuning compound mass-ion abundance criteria for the volatile organic compound analyses were reported within control limits. No qualifier is required.

System Monitoring Compound (Surrogate) Recoveries: System monitoring compounds (surrogates) are those compounds, which are not expected to be detected in the investigative samples but which are chemically similar to the analytes of interest. Surrogate compound percent recoveries are used to assess extraction efficiencies, possible matrix effects, and overall analytical accuracy.

- The TCL VOA surrogate recoveries fell within control limits for the project samples received and reviewed. No qualifier is required.

Internal Standards Area Performance: Internal standards are analytes of interest, which are added to the investigative samples prior to analysis to ensure that GC/MS sensitivity and responses remain stable. Internal standards are reported with the volatile analysis.

- The volatile internal standard area counts and retention times fell within control limits for the project samples received and reviewed for TCL VOA analyses. No qualifier is required.

Initial and Continuing Calibration Results: Control limits for initial and continuing instrument calibrations are established to ensure that the instrument is capable of producing accurate quantitative data at the beginning and throughout each of the analyses.

- All TCL VOA target compound initial and continuing calibration response factors, percent relative standard deviations (%RSD), and percent differences (%D) associated with the reviewed project samples fell within acceptable control limits. No qualifier is required.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Summaries: Matrix spikes are samples spiked with known concentrations of analytes of interest. The MS/MSD percent recoveries and duplicate results are used to assess extraction efficiencies, possible matrix effects, and overall analytical accuracy and precision.

Blank spikes (BS) are blank samples fortified (spiked) with known concentrations of analytes of interest. The blank spike percent recoveries results are used to assess extraction efficiencies, and overall analytical accuracy and precision.

Field duplicate samples are taken and analyzed as an indication of overall precision. These analyses measure both field and laboratory precision. Therefore, results may have more variability than laboratory duplicates, which measure only laboratory performance.

- The VOA LCS/LCSD results (recoveries and Relative Percent Difference or RPD) associated with the reviewed project samples fell within control limits, providing a positive indication of the overall accuracy and precision associated with these analyses. No qualifier is required.

- Sample DUP090518 was collected as a field sample of MW-09-19D. The results fell within acceptable control limits providing a positive indication of the overall accuracy and precision associated with the VOA analyses with the exception of 1,4-dichlorobenzene and isopropylbenzene. The detected and non-detected results for these two compounds in these two samples are qualifies estimated “J” and “UJ”.

Target Compound Identification Quantitation: The laboratory calculations are verified and compound identifications are reviewed and assessed by the data reviewer.

- Samples MW-09-26D, MW-09-21D and MW-03-13S for VOA were analyzed at a 1:5 dilution due to foaming in the samples. No qualifier is required.

- Samples MW-17-27S, MW-09-19D, MW-17-28S, MW-09-20S and MW-09-22S for VOA were analyzed at a 1:10 dilution due to foaming in the samples. No qualifier is required.

- The GC and GC/MS raw data (quantitation reports, chromatograms and GC/MS mass-spectra) were provided for review. No laboratory calculation errors were noted for the reviewed project samples. No further action is required from the laboratory.

Additional Comments

- As per the requirements, values calculated below the Reporting Limit (RL) should be considered estimated and are flagged (J) on the summary table.

4.0 CONCLUSIONS

Overall, the data quality is acceptable. The Data Validation Review has identified aspects of the analytical data that require qualification. Data qualifiers, when applicable, are placed next to the results so that the data user can assess the qualitative and/or quantitative reliability of the reported results. Except where noted, the laboratory analytical data contained herein are deemed usable and in compliance with the NYSDEC ASP B Data Deliverable Format requirements. To confidently use any of the data within the data set, the data user should understand the limitations and qualifications presented.

DATA VALIDATION REVIEW
PROJECT: COLUMBIA CEMENT, FREEPORT, LONG ISLAND, NY
DATE SAMPLES COLLECTED: SEPTEMBER 9, 2018
JOB NO.: 60481767

LAB REPORT NO. 9796628-9796636

1.0 INTRODUCTION

This Data Validation Review has been performed in accordance with the requirements specified in the standard operating procedures for the validation of USEPA Low/Medium Volatile Data Validation, SOP No. HW-33, Revision 3, dated March 2013. The quality assurance review requirements are applied such that specifications of the methods take precedence over the specifications of the USEPA Region II data review guidelines in those instances where the specifications differ.

The objective of the review was to assess data usability and compliance with New York State Department of Environmental Conservation (NYSDEC) ASP Category B deliverable requirements. The Data Validation Review provides an interpretation of data usability based on the reported quality control parameters. A total of six water samples, one field duplicate samples, one field blank sample and one trip blank sample were collected by AECOM, Clifton, New Jersey, office personnel and submitted to Eurofins Lancaster Laboratories Environmental (NYSDEC Certification No. 10670). Section 2.0 of this report summarizes the samples included in this review and the analyses performed. The groundwater samples were analyzed following USEPA CLP and Standard Methodologies. The laboratory analytical data set contained herein was prepared in accordance with NYSDEC ASP Category B Data Deliverable Format (Exhibit B).

The organic data quality review is based on the following parameters:

* Hold Times
  Blank Contamination
* GC/MS Performance Check (Tuning) Summaries
* System Monitoring Compound (Surrogate) Recoveries
* Internal Standard Area Performance
  Initial and Continuing Calibration Results
* Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Summaries
* Target Compound Identification and Quantitation

*All criteria were met for this parameter

This report was prepared to provide a critical review of the laboratory analysis and reported chemical results. Overall, the data quality is acceptable. The results of the Data Validation Review are presented in Section 3.0. Data qualifiers, when applicable, are placed next to the results so that the data user can assess the qualitative and/or quantitative reliability of the reported result.

2.0 SAMPLES INCLUDED IN REVIEW

Lab Report No. 9796628-9796636

Sample ID	Lab ID	Date Collected	Test Requested
MW-97-1S	9796628	9/9/18	VOA
MW-98-9D	9796629	9/9/18	VOA
OW-3	9796630	9/9/18	VOA
OW-4	9796631	9/9/18	VOA
MW-97-2S	9796632	9/9/18	VOA
MW-98-10D	9796633	9/9/18	VOA
DUP090918	9796634	9/9/18	VOA
FB090918	9796635	9/9/18	VOA
TB090918	9796636	9/9/18	VOA

Legend:

VOA = Analyzed following USEPA SW846 8260C.

3.0 RESULTS

3.1 GENERAL COMMENTS

With regard to the data package deliverables, most of the NYSDEC ASP Category B Data Deliverable format requirements were met, with the exception of the following correctable deficiencies. Please note that these deficiencies, for the most part, do not impact data usability.

- The laboratory did not include the internal chain-of-custody (COC) as required under NYSDEC ASP Category B Data Deliverable format requirements.

3.2 ORGANIC QUALIFIERS

Hold Times: Technical hold times were assessed by comparing the sample dates with that of the preparation dates and/or analysis dates.

- All samples were analyzed within the required hold time for all analyses.

- The laboratory cooler receipt temperature associated with the reviewed project fell within the 4°C ($\pm$2° C) requirement. No qualifier is required.

Blank Contamination: Laboratory method blanks are clean liquid and/or solid matrix samples prepared by the analytical laboratory and analyzed in the same manner as the investigative samples. Water laboratory method blanks are used to identify whether investigative samples have been contaminated during sample preparation, sample analysis or from a previous sample (instrument carry-over).

Field-blanks consist of deionized water poured over or through decontaminated sampling equipment and collected into the sample bottles. Field-blanks measure contamination potentially caused by inadequate decontamination of sampling equipment. Trip-blanks are carbon-free deionized water samples that accompany volatile investigative samples during each stage of shipment, storage and analysis. The trip-blanks are used to assess the potential for artificial introduction of volatile compounds into the investigative samples during the transportation and sample handling processes.

- The acetone concentration reported for sample MW-97-1S is qualified estimated "J" due to field blank contamination.

- The acetone concentration reported for samples OW-3 and DUP090918 are negated due to field blank contamination.

- No other contaminants were identified in the laboratory method/trip/field blanks associated with the groundwater samples received and reviewed. No qualifier is required.

GC/MS Performance Check (Tuning) Summary: Gas chromatograph/mass spectrometer (GC/MS) instrument tuning and performance checks are performed to ensure the instrument's ability to provide appropriate mass-resolution, identification, and sensitivity.

- The bromofluorobenzene (BFB) tuning compound mass-ion abundance criteria for the volatile organic compound analyses were reported within control limits. No qualifier is required.

System Monitoring Compound (Surrogate) Recoveries: System monitoring compounds (surrogates) are those compounds, which are not expected to be detected in the investigative samples but which are chemically similar to the analytes of interest. Surrogate compound percent recoveries are used to assess extraction efficiencies, possible matrix effects, and overall analytical accuracy.

- The TCL VOA surrogate recoveries fell within control limits for the project samples received and reviewed. No qualifier is required.

Internal Standards Area Performance: Internal standards are analytes of interest, which are added to the investigative samples prior to analysis to ensure that GC/MS sensitivity and responses remain stable. Internal standards are reported with the volatile analysis.

- The volatile internal standard area counts and retention times fell within control limits for the project samples received and reviewed for TCL VOA analyses. No qualifier is required.

Initial and Continuing Calibration Results: Control limits for initial and continuing instrument calibrations are established to ensure that the instrument is capable of producing accurate quantitative data at the beginning and throughout each of the analyses.

- Due to the high percent difference (%D>20) between the initial and continuing calibration response factors of the VOA compounds bromomethane, trichlorofluoromethane, 2-butanone, carbon tetrachloride and 2-hexanone, the non-detected results reported for these compounds are qualified estimated "UJ" in all the samples.

- All other TCL VOA target compound initial and continuing calibration response factors, percent relative standard deviations (%RSD), and percent differences (%D) associated with the reviewed project samples fell within acceptable control limits. No qualifier is required.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Summaries: Matrix spikes are samples spiked with known concentrations of analytes of interest. The MS/MSD percent recoveries and duplicate results are used to assess extraction efficiencies, possible matrix effects, and overall analytical accuracy and precision.

Blank spikes (BS) are blank samples fortified (spiked) with known concentrations of analytes of interest. The blank spike percent recoveries results are used to assess extraction efficiencies, and overall analytical accuracy and precision.

Field duplicate samples are taken and analyzed as an indication of overall precision. These analyses measure both field and laboratory precision. Therefore, results may have more variability than laboratory duplicates, which measure only laboratory performance.

- The VOA LCS results (recoveries and Relative Percent Difference or RPD) associated with the reviewed project samples fell within control limits, providing a positive indication of the overall accuracy and precision associated with these analyses. No qualifier is required.

- Sample DUP090918 was collected as a field sample of OW-3. The results fell within acceptable control limits providing a positive indication of the overall accuracy and precision associated with the VOA analyses. No qualifier is required.

Target Compound Identification Quantitation: The laboratory calculations are verified and compound identifications are reviewed and assessed by the data reviewer.

- The GC and GC/MS raw data (quantitation reports, chromatograms and GC/MS mass-spectra) were provided for review. No laboratory calculation errors were noted for the reviewed project samples. No further action is required from the laboratory.

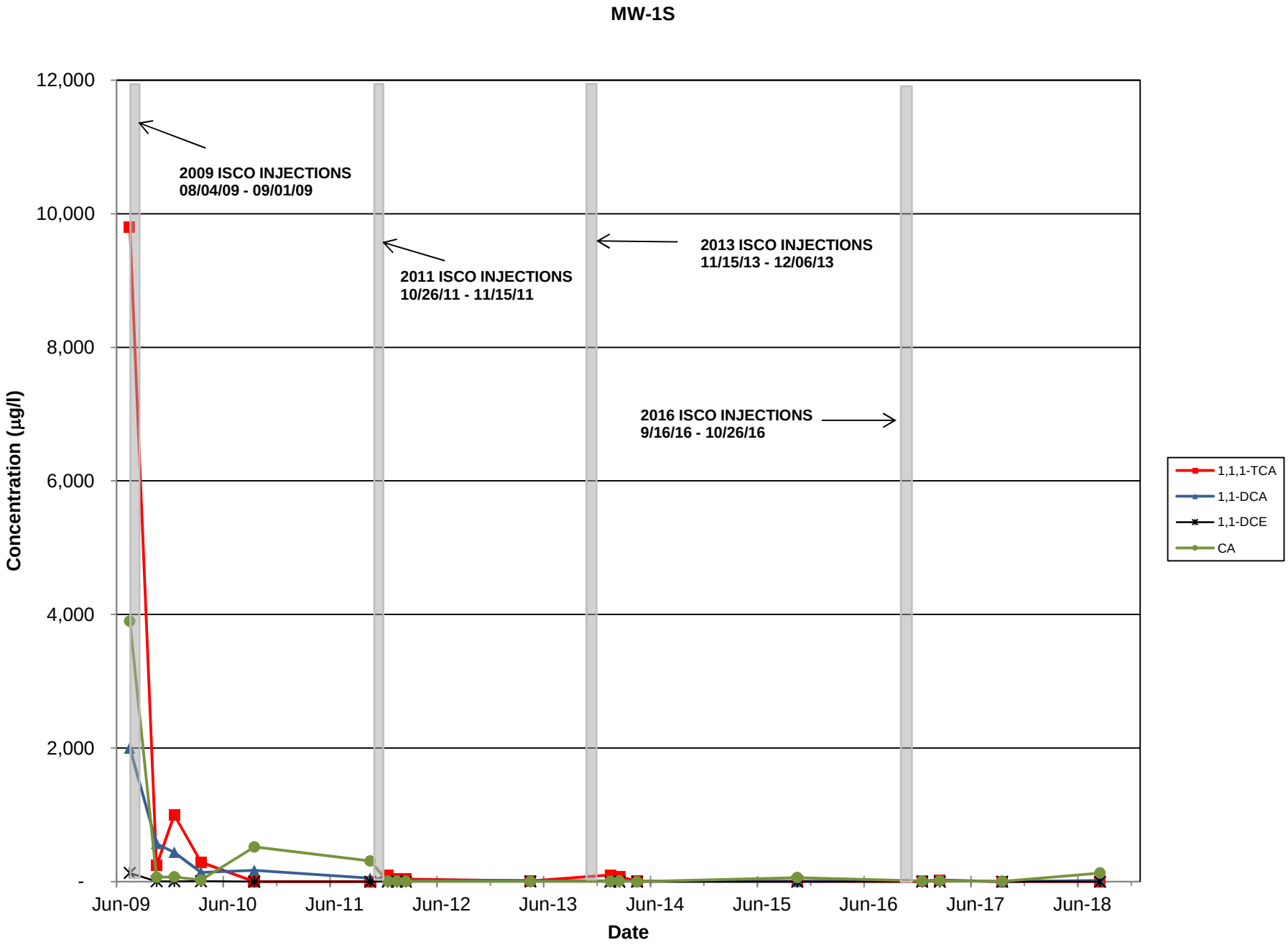
Additional Comments

- As per the requirements, values calculated below the Reporting Limit (RL) should be considered estimated and are flagged (J) on the summary table.

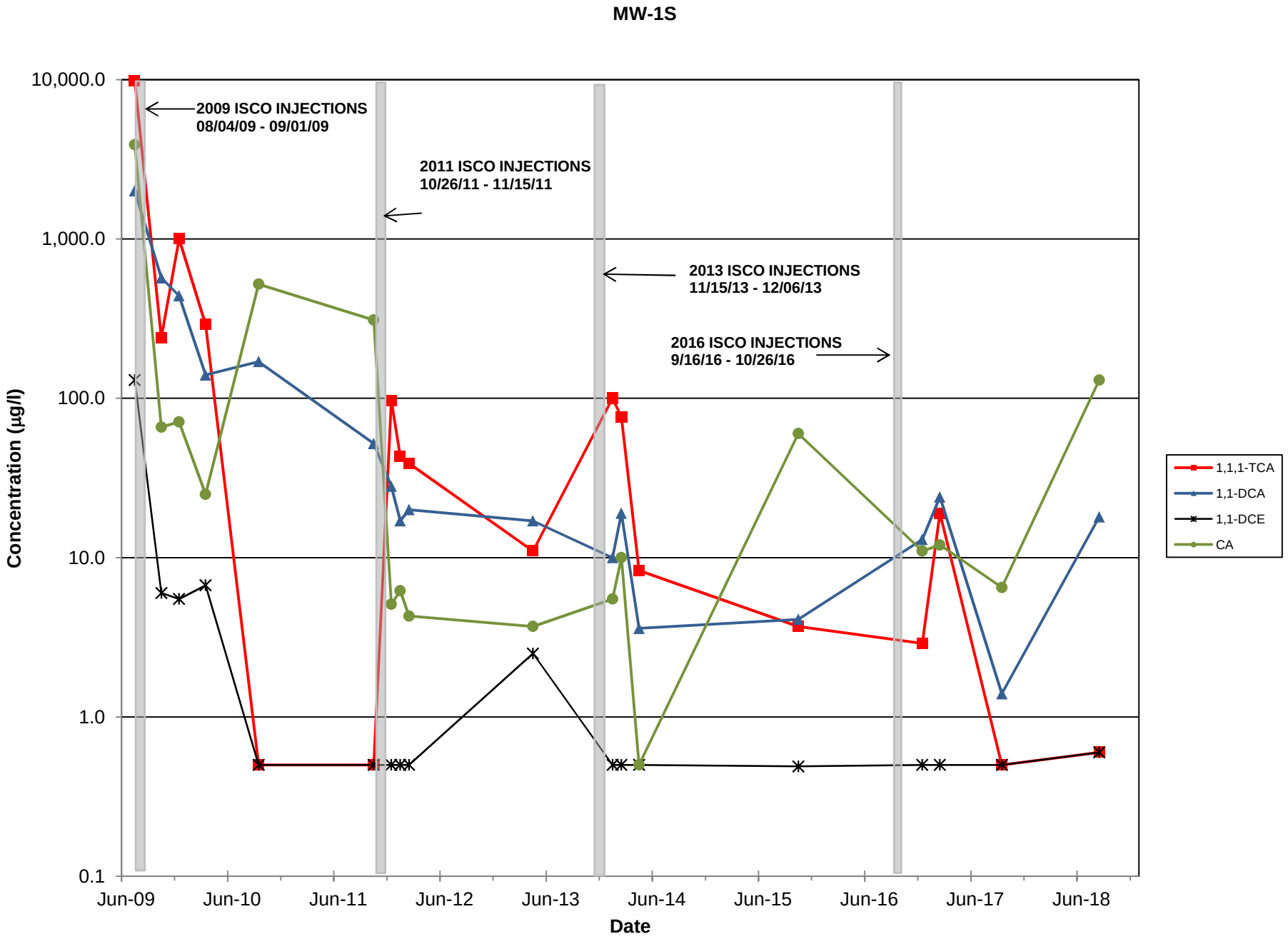
4.0 CONCLUSIONS

Overall, the data quality is acceptable. The Data Validation Review has identified aspects of the analytical data that require qualification. Data qualifiers, when applicable, are placed next to the results so that the data user can assess the qualitative and/or quantitative reliability of the reported results. Except where noted, the laboratory analytical data contained herein are deemed usable and in compliance with the NYSDEC ASP B Data Deliverable Format requirements. To confidently use any of the data within the data set, the data user should understand the limitations and qualifications presented.

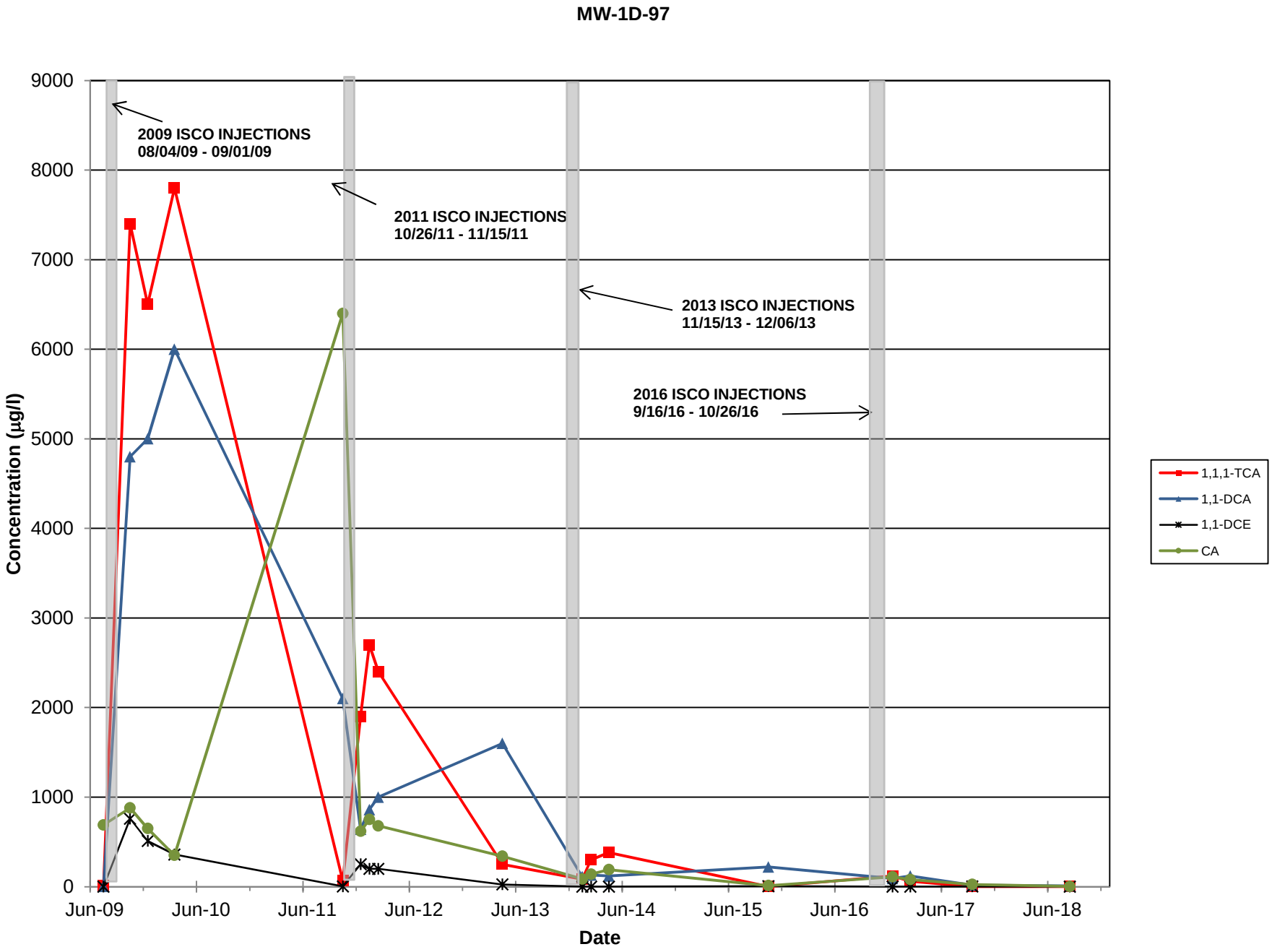
APPENDIX C
GROUNDWATER VOC CONCENTRATION TREND GRAPHS



VOC CONCENTRATIONS IN WELL MW-1S
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



VOC CONCENTRATIONS IN WELL MW-1S (LOG SCALE)
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



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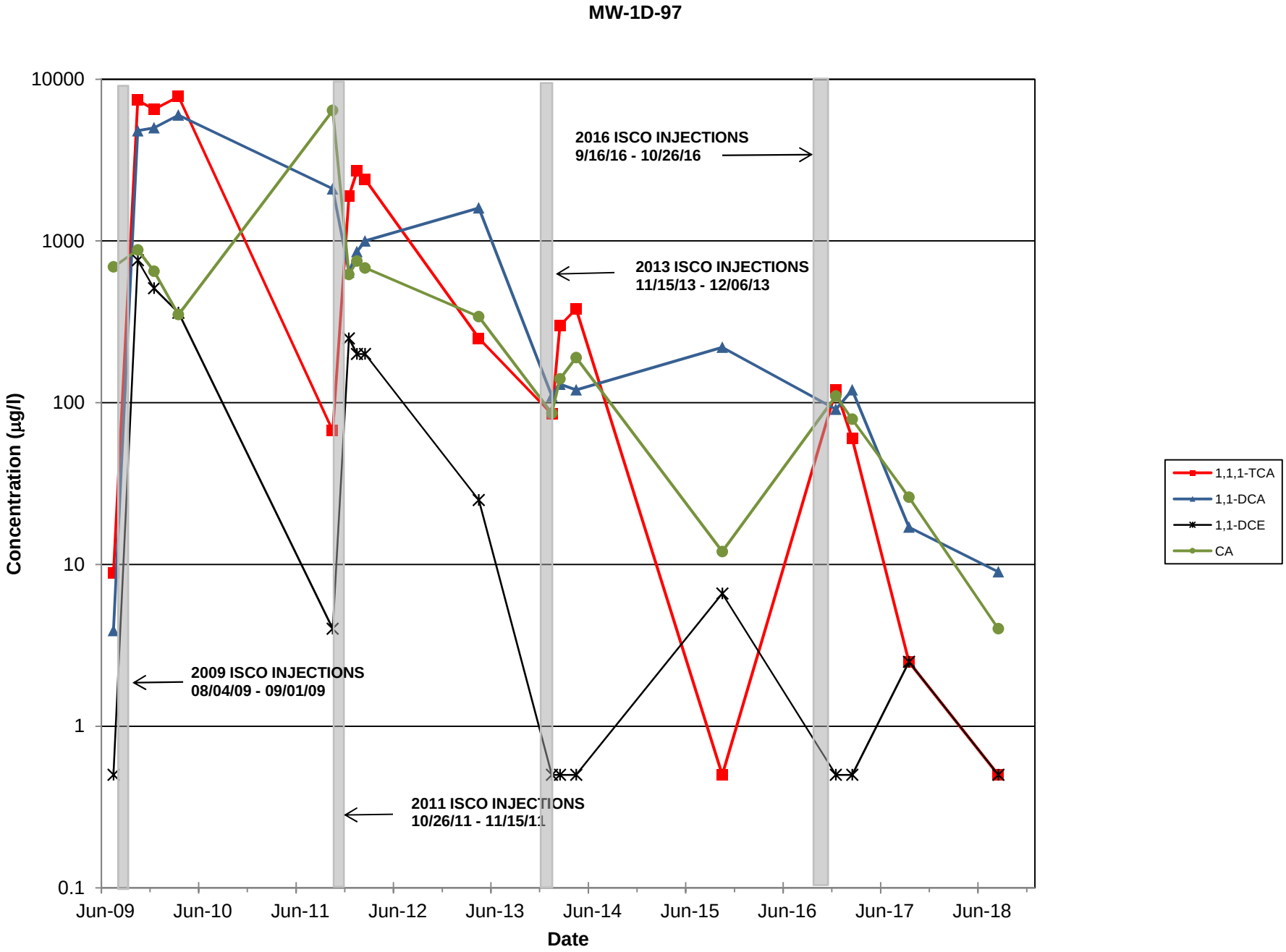
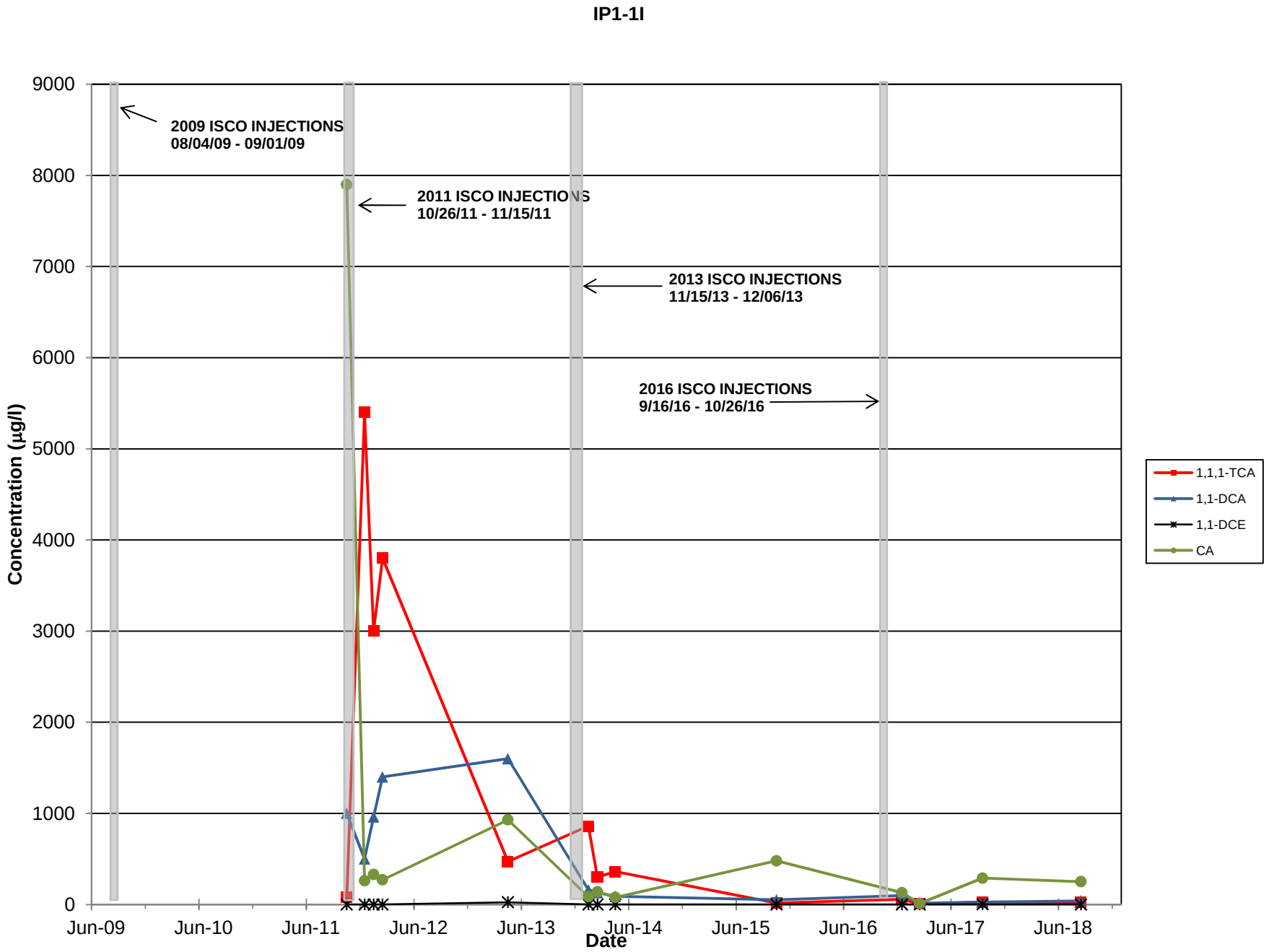
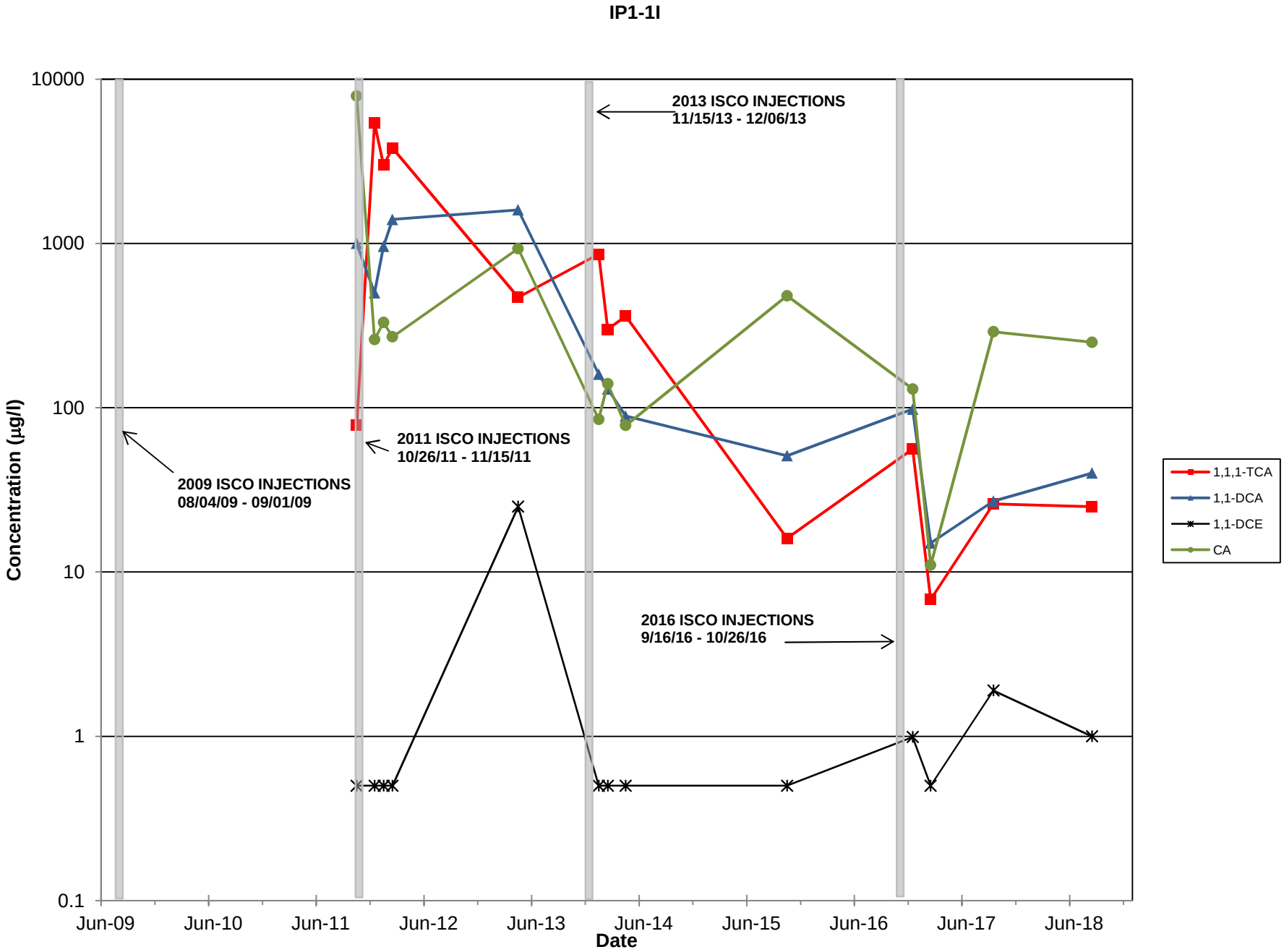
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



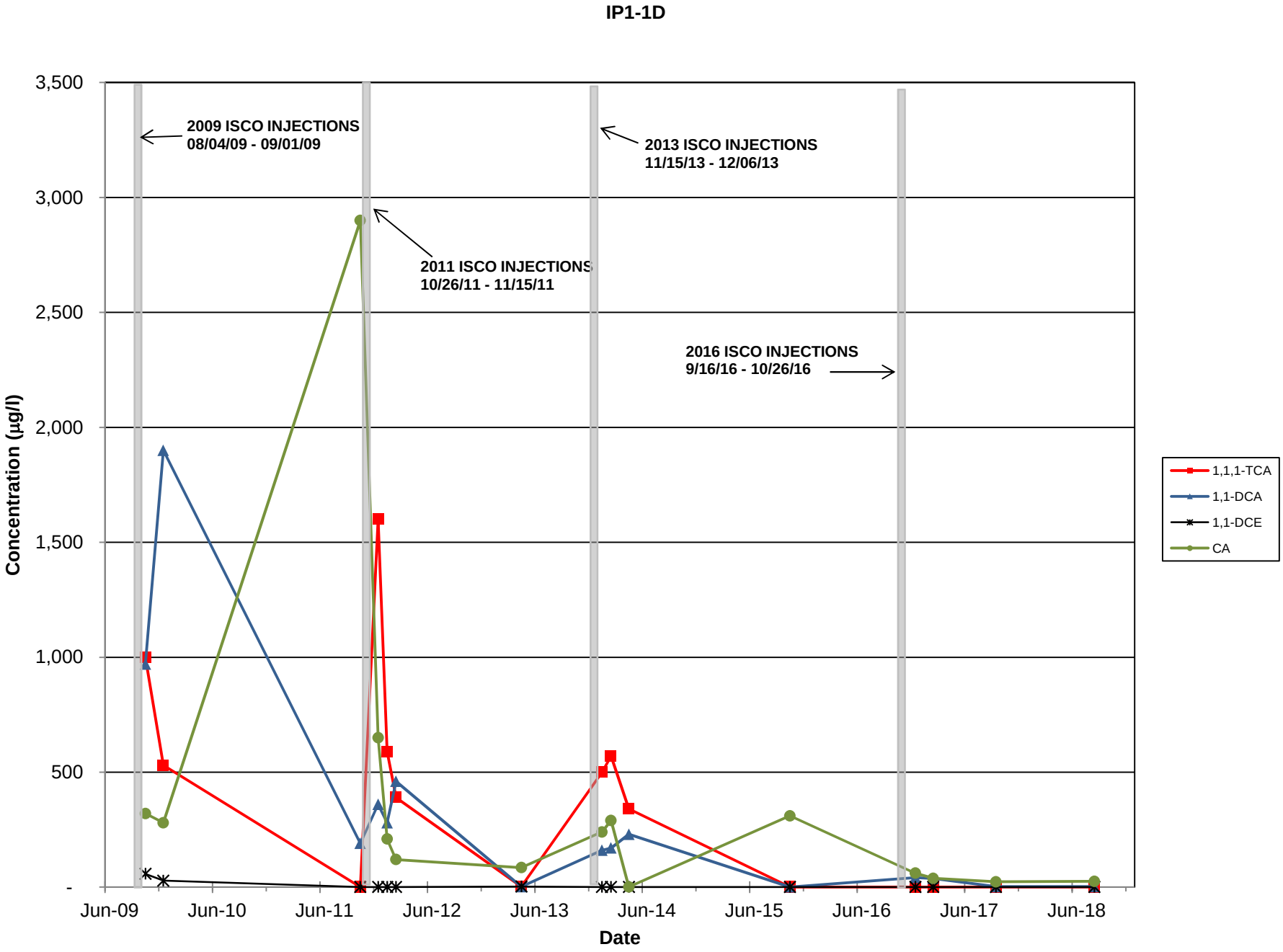
VOC CONCENTRATIONS IN WELL MW-1D-97 (LOG SCALE)
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



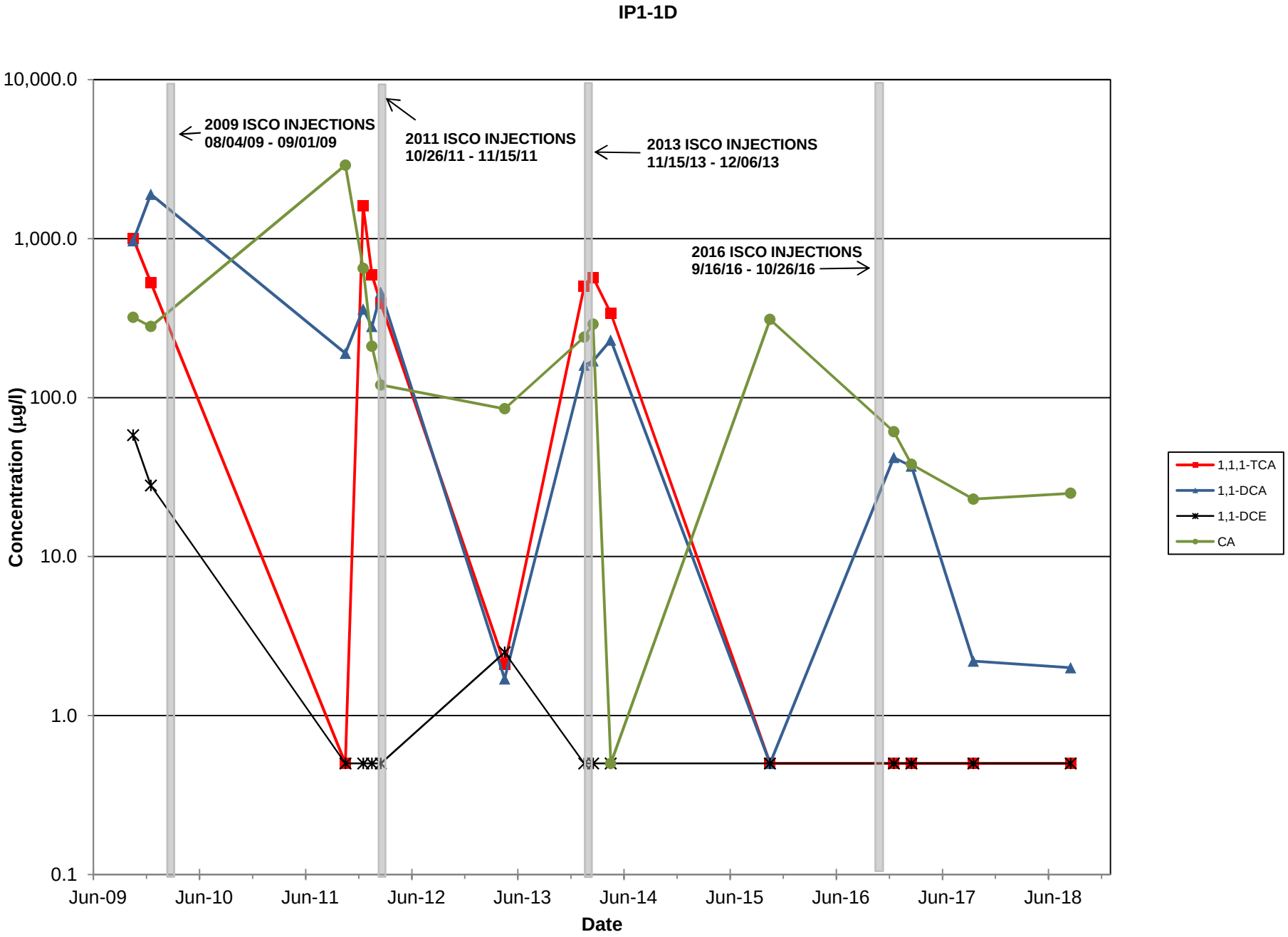
VOC CONCENTRATIONS IN WELL IP1-1I
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



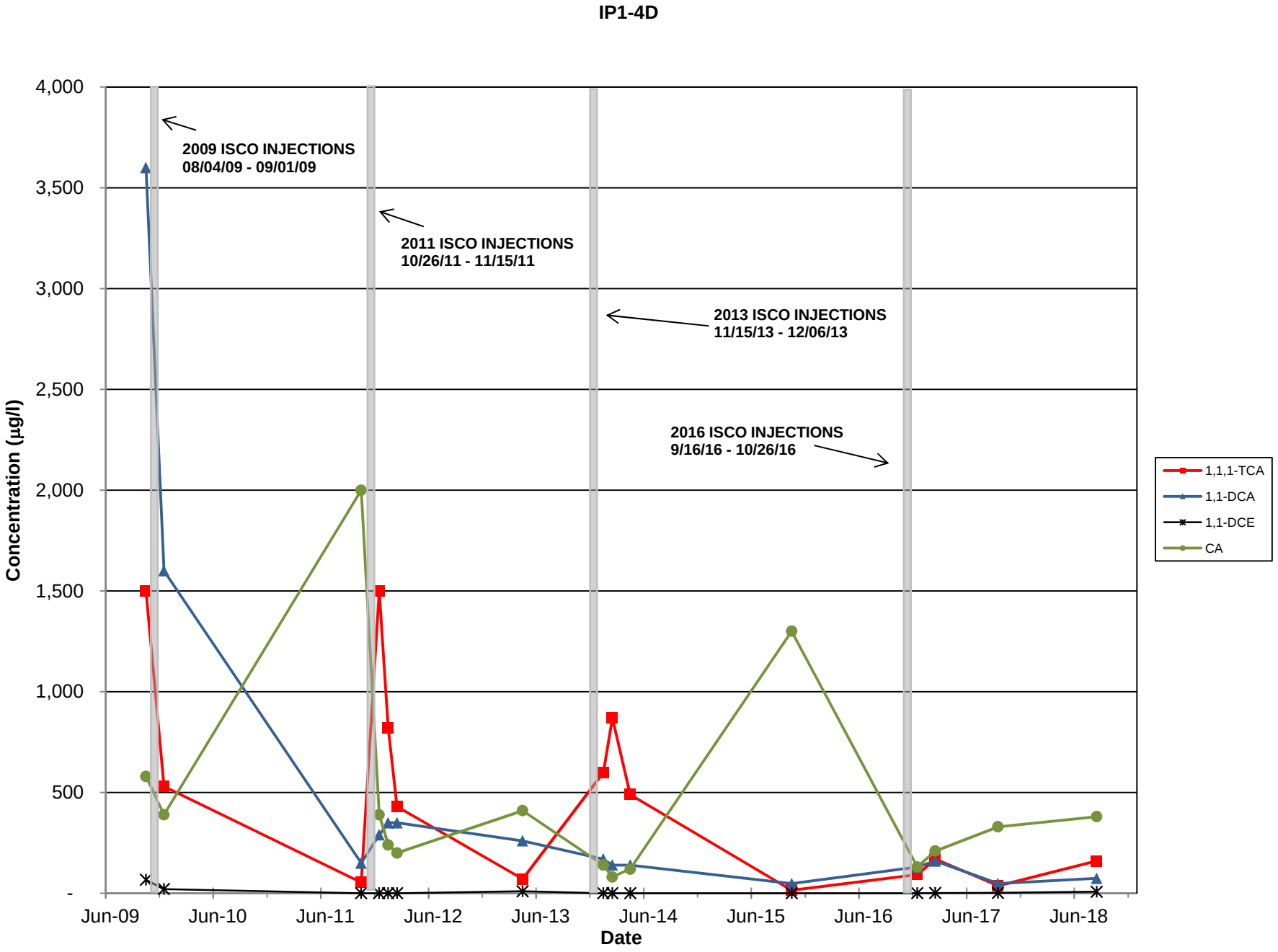
VOC CONCENTRATIONS IN WELL IP1-1I (LOG SCALE)
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



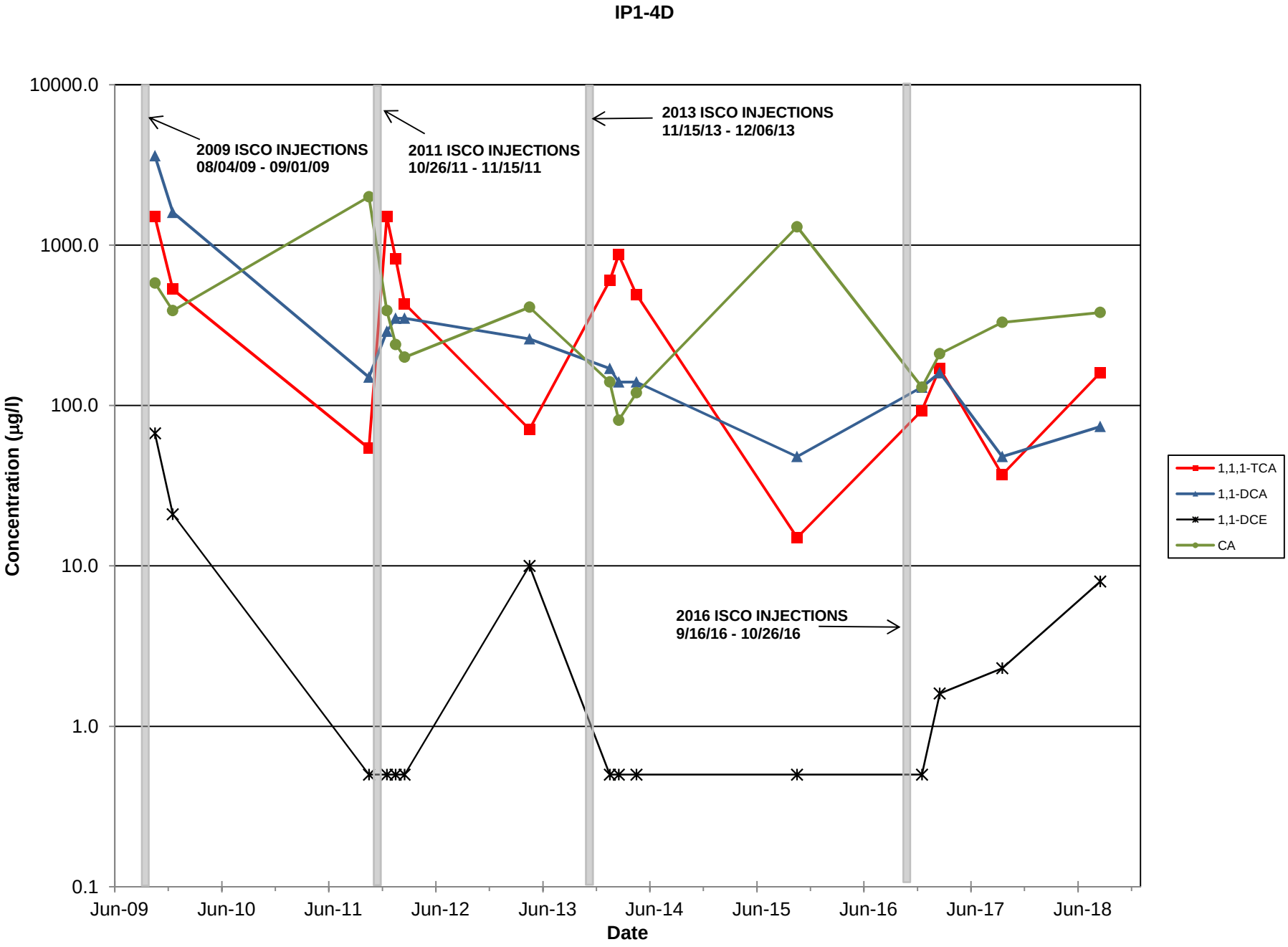
VOC CONCENTRATIONS IN WELL IP1-1D
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



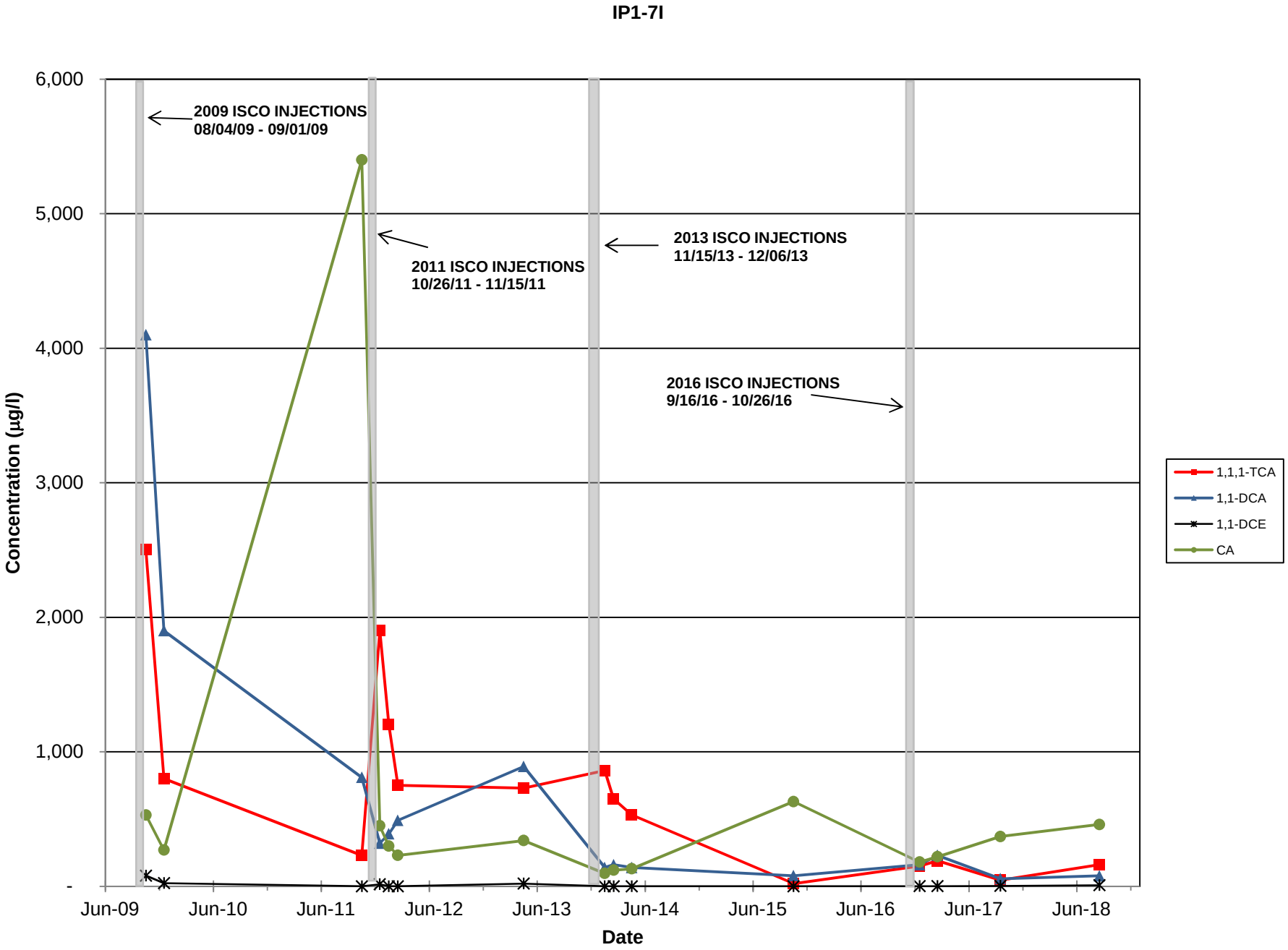
VOC CONCENTRATIONS IN WELL IP1-1D (LOG SCALE)
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



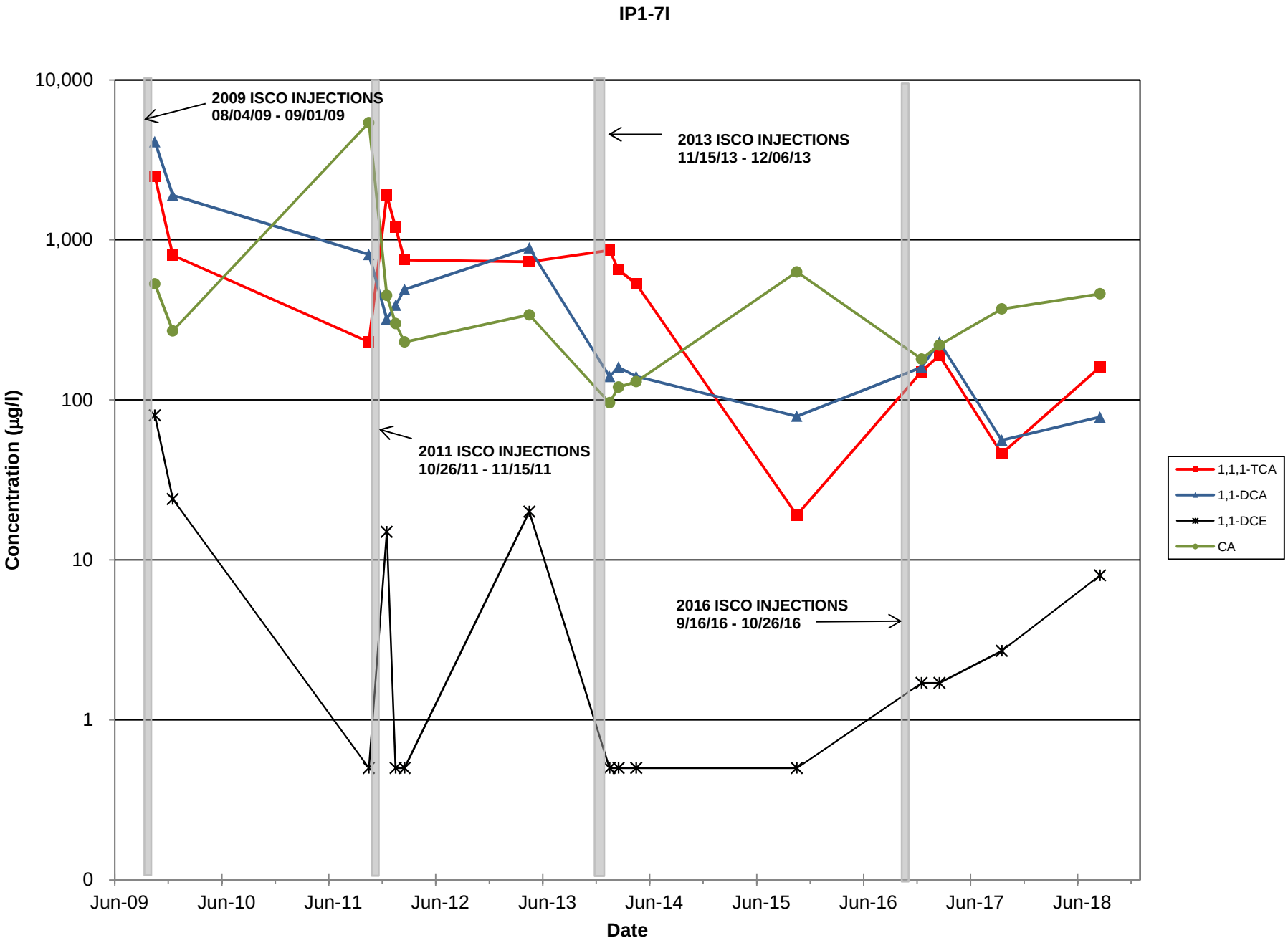
VOC CONCENTRATIONS IN WELL IP1-4D
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



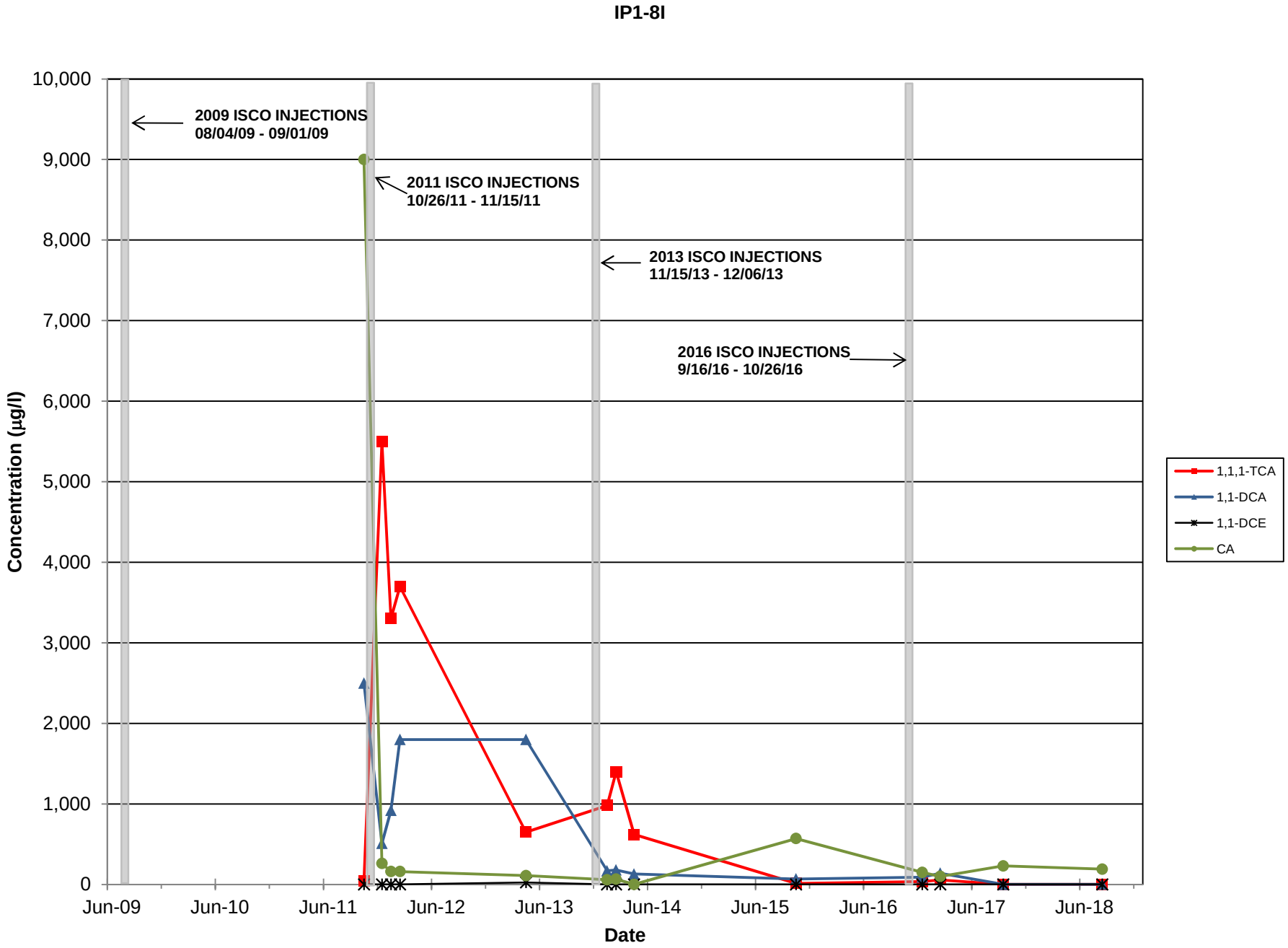
VOC CONCENTRATIONS IN WELL IP1-4D (LOG SCALE)
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



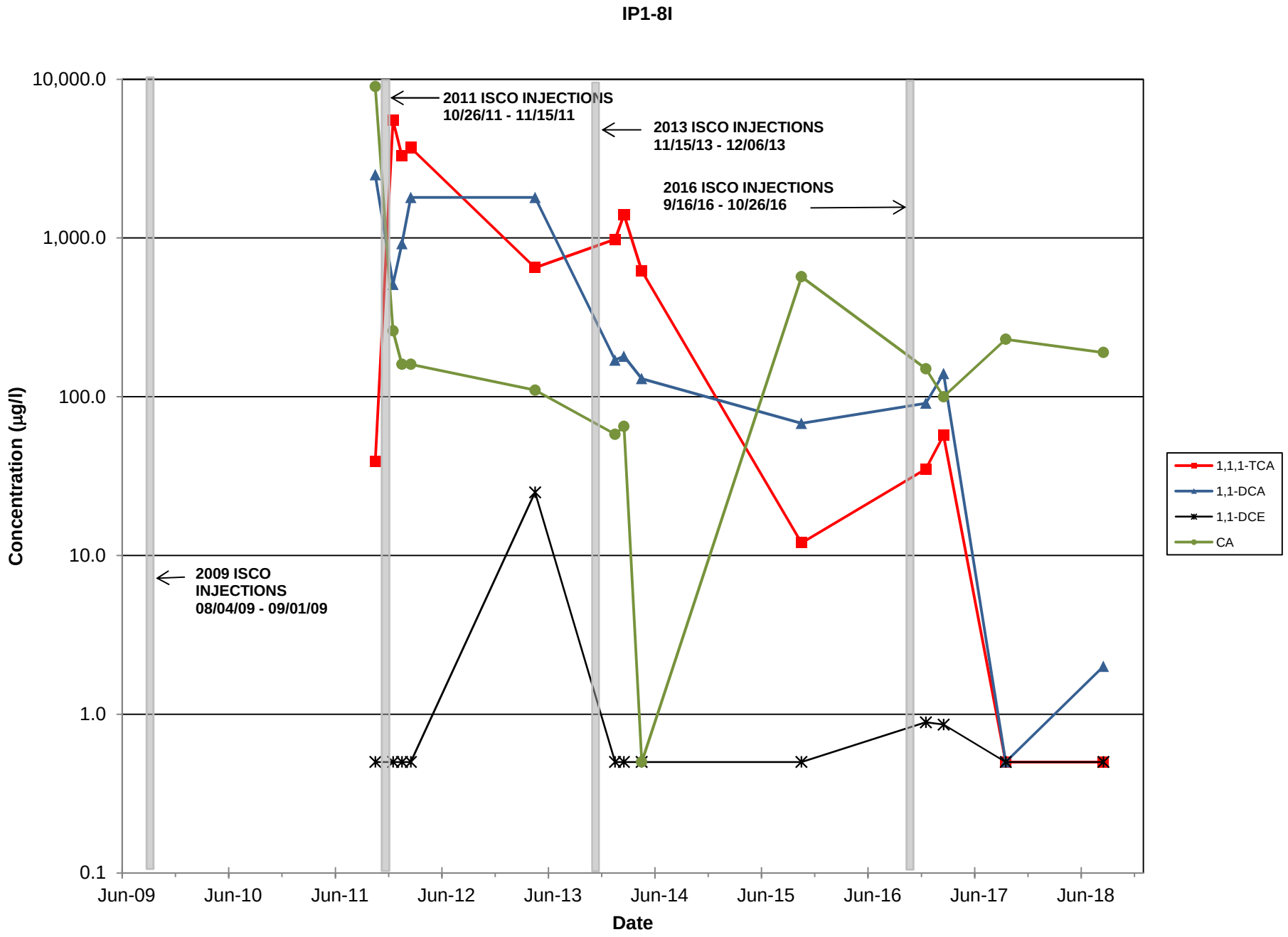
VOC CONCENTRATIONS IN WELL IP1-7I
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



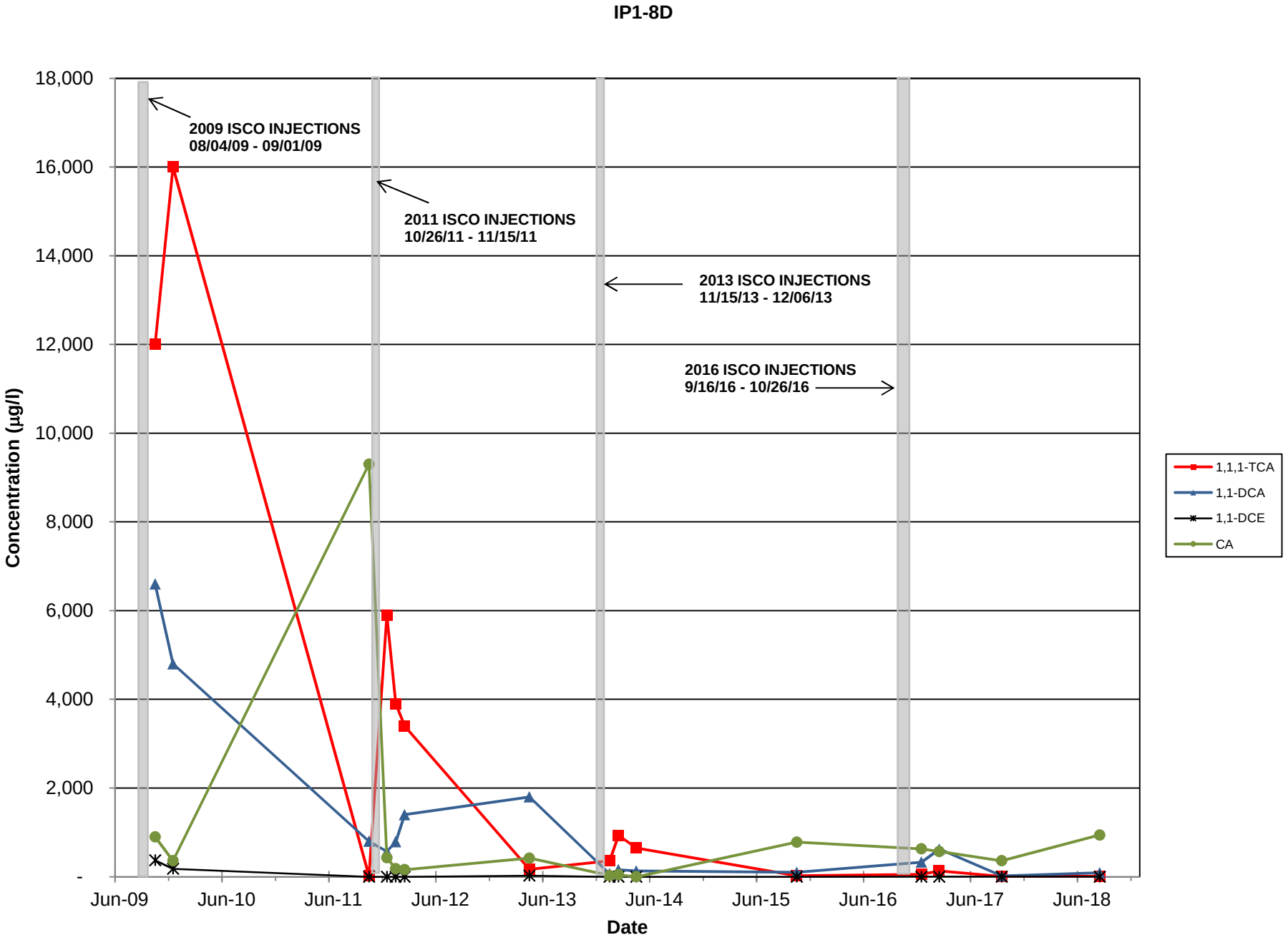
VOC CONCENTRATIONS IN WELL IP1-7I (LOG SCALE)
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



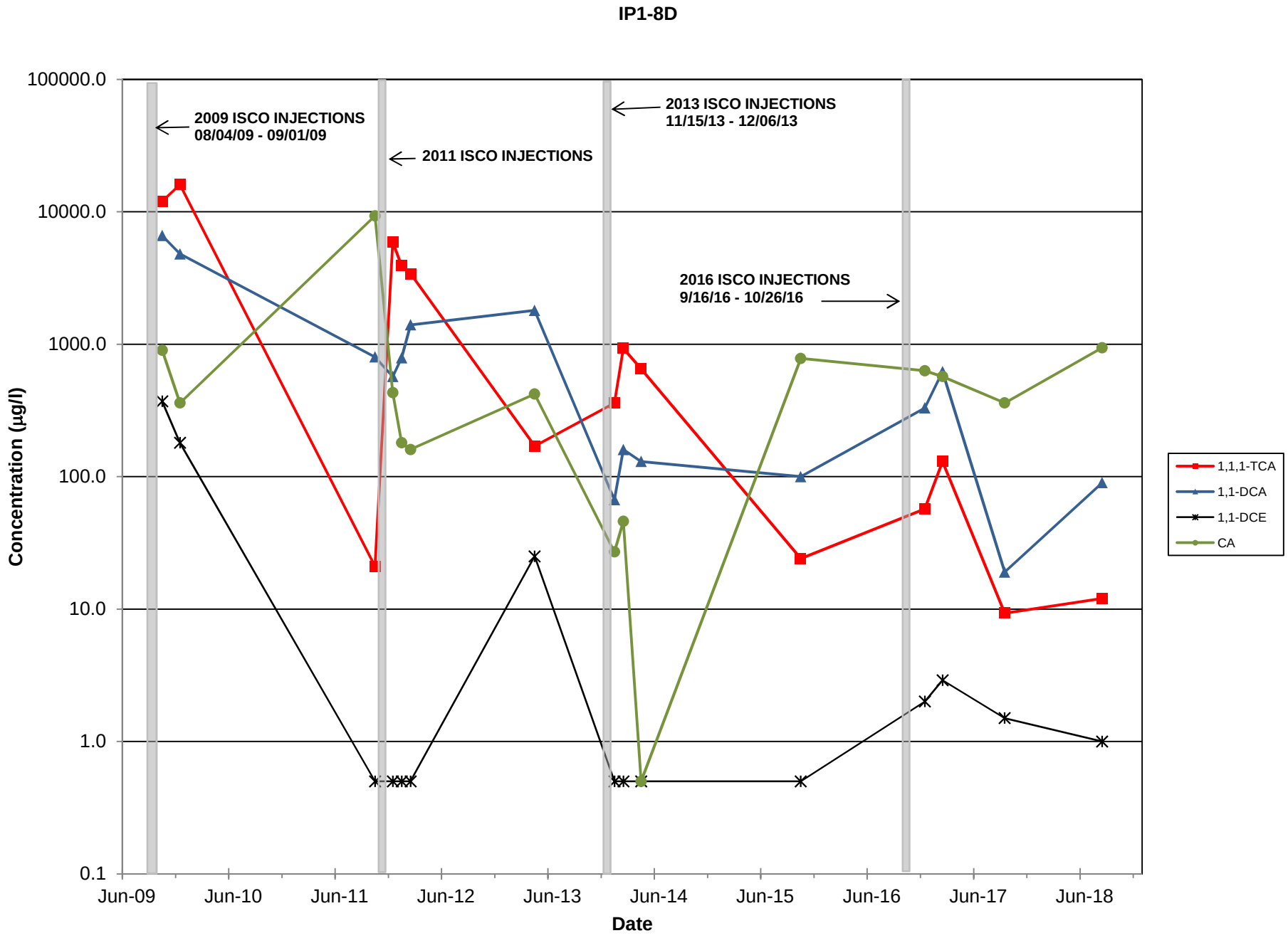
VOC CONCENTRATIONS IN WELL IP1-8I
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



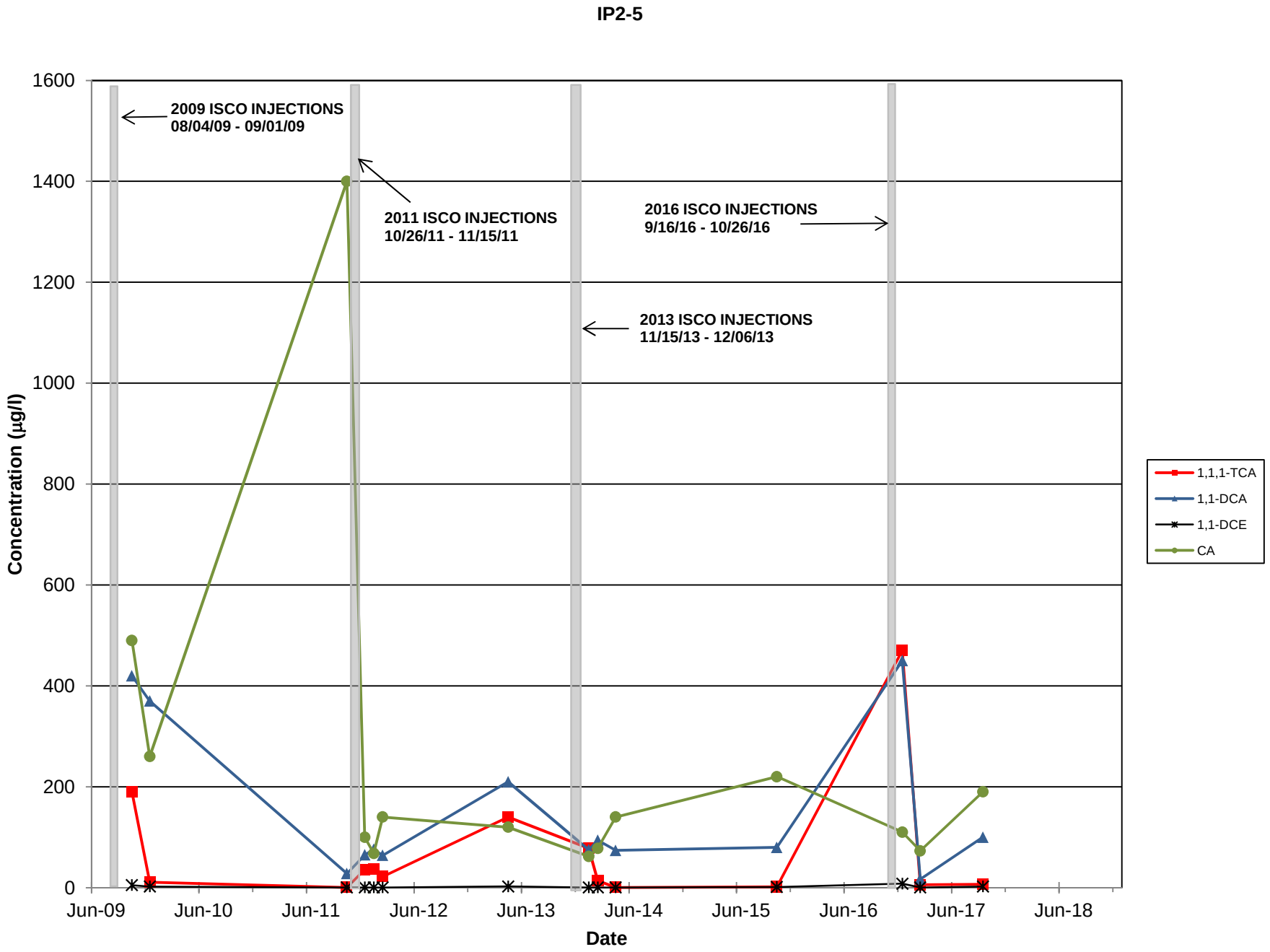
VOC CONCENTRATIONS IN WELL IP1-8I (LOG SCALE)
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



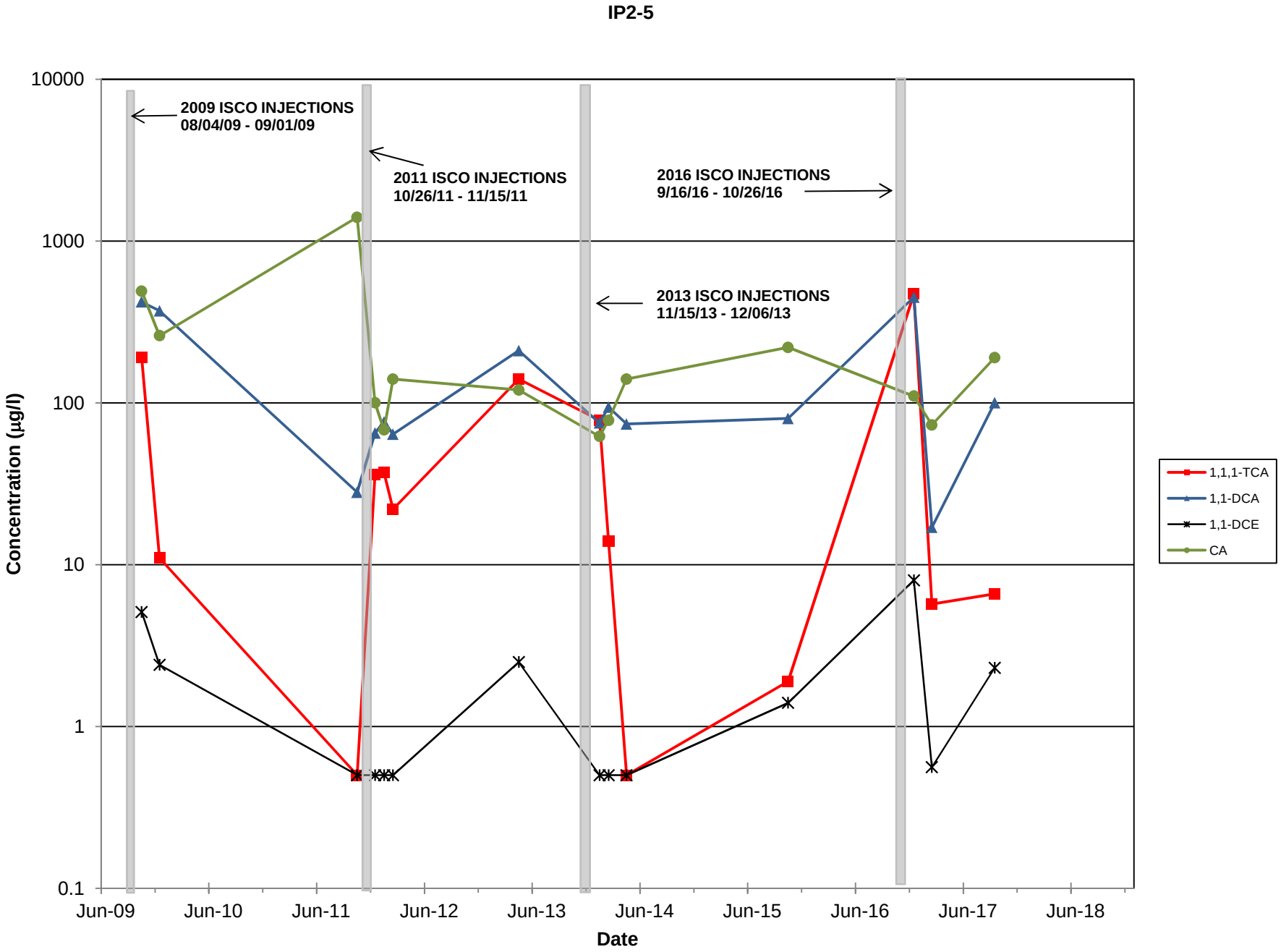
VOC CONCENTRATIONS IN WELL IP1-8D
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



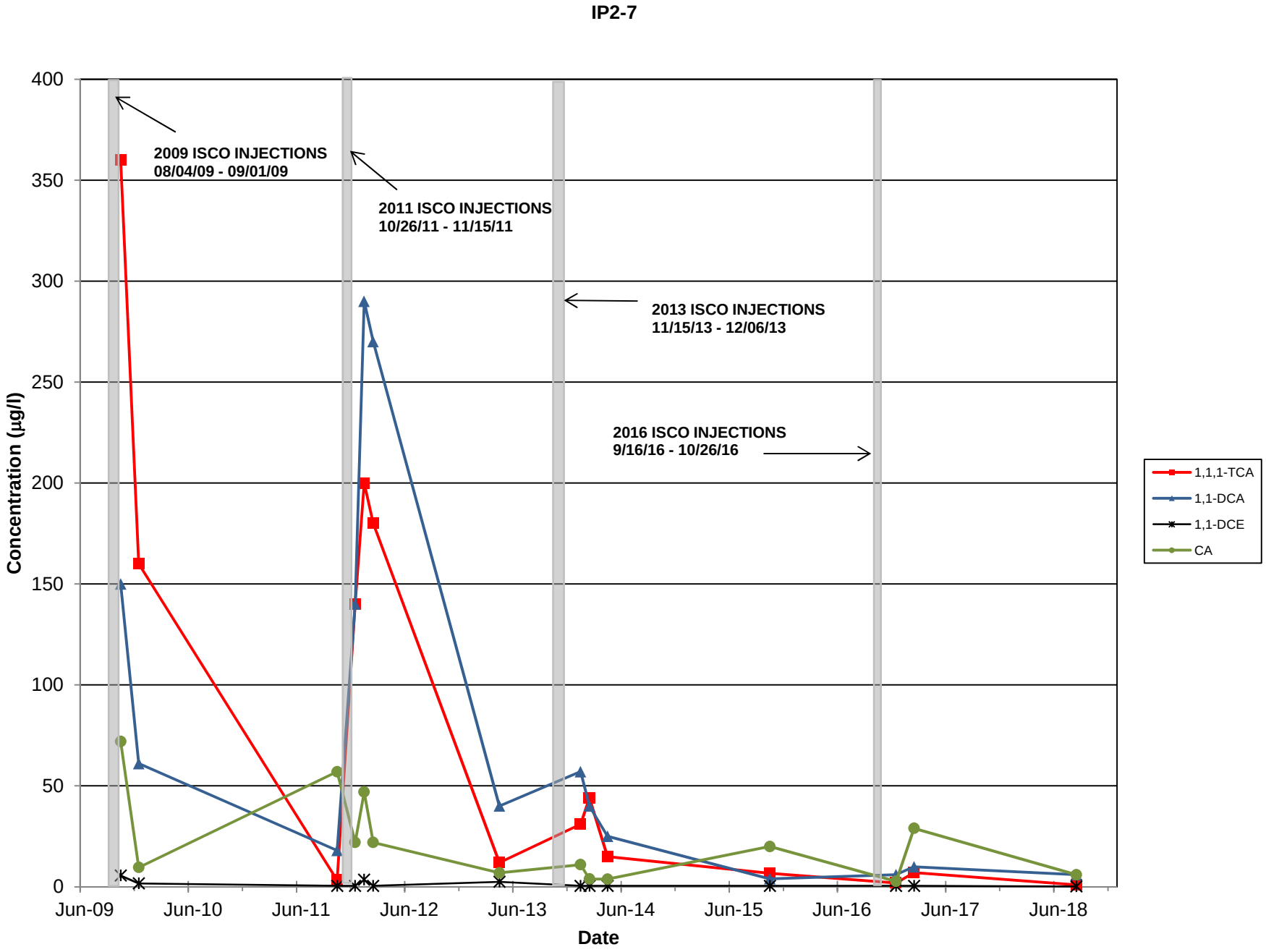
VOC CONCENTRATIONS IN WELL IP1-8D (LOG SCALE)
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



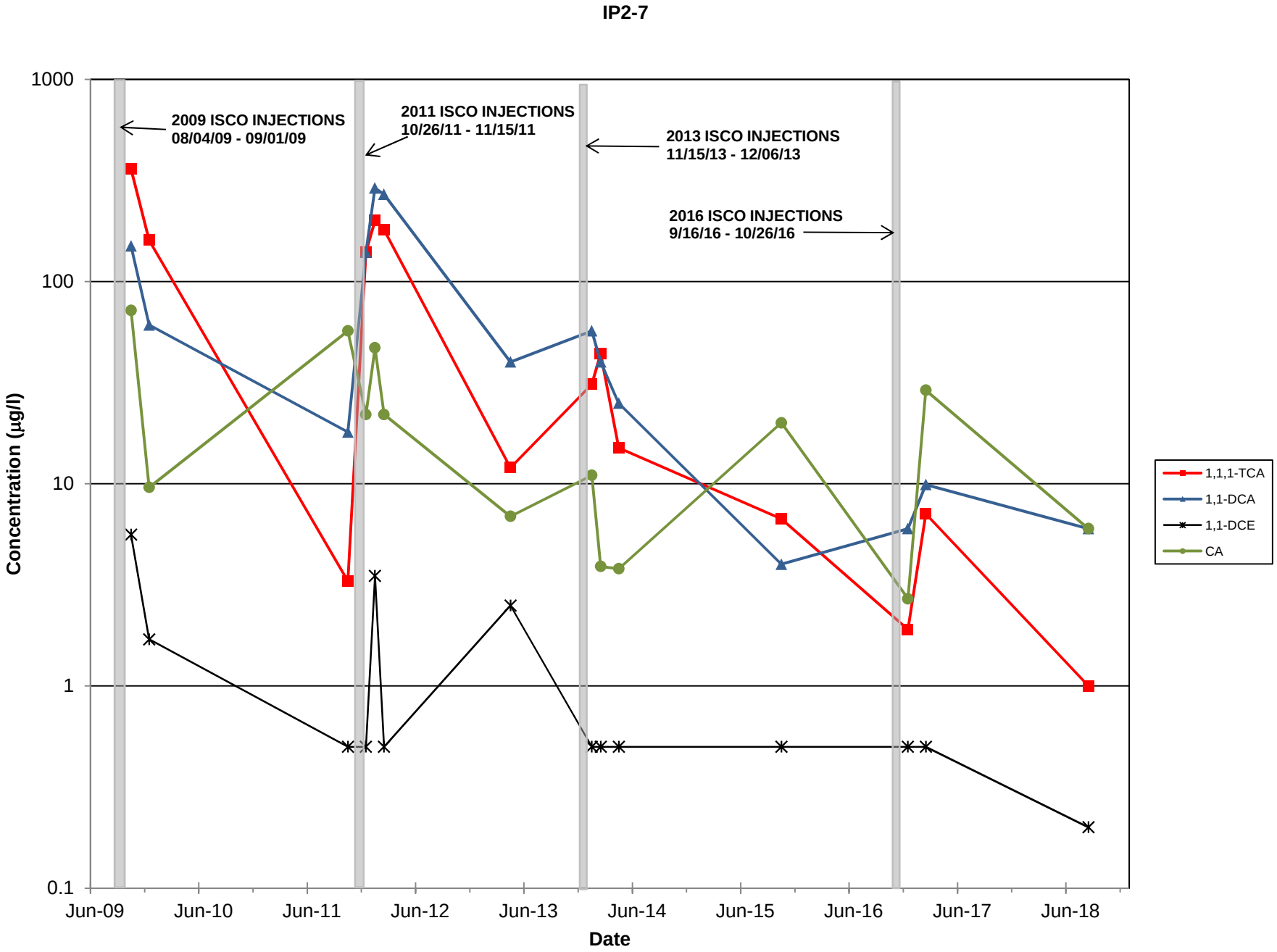
VOC CONCENTRATIONS IN WELL IP2-5
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



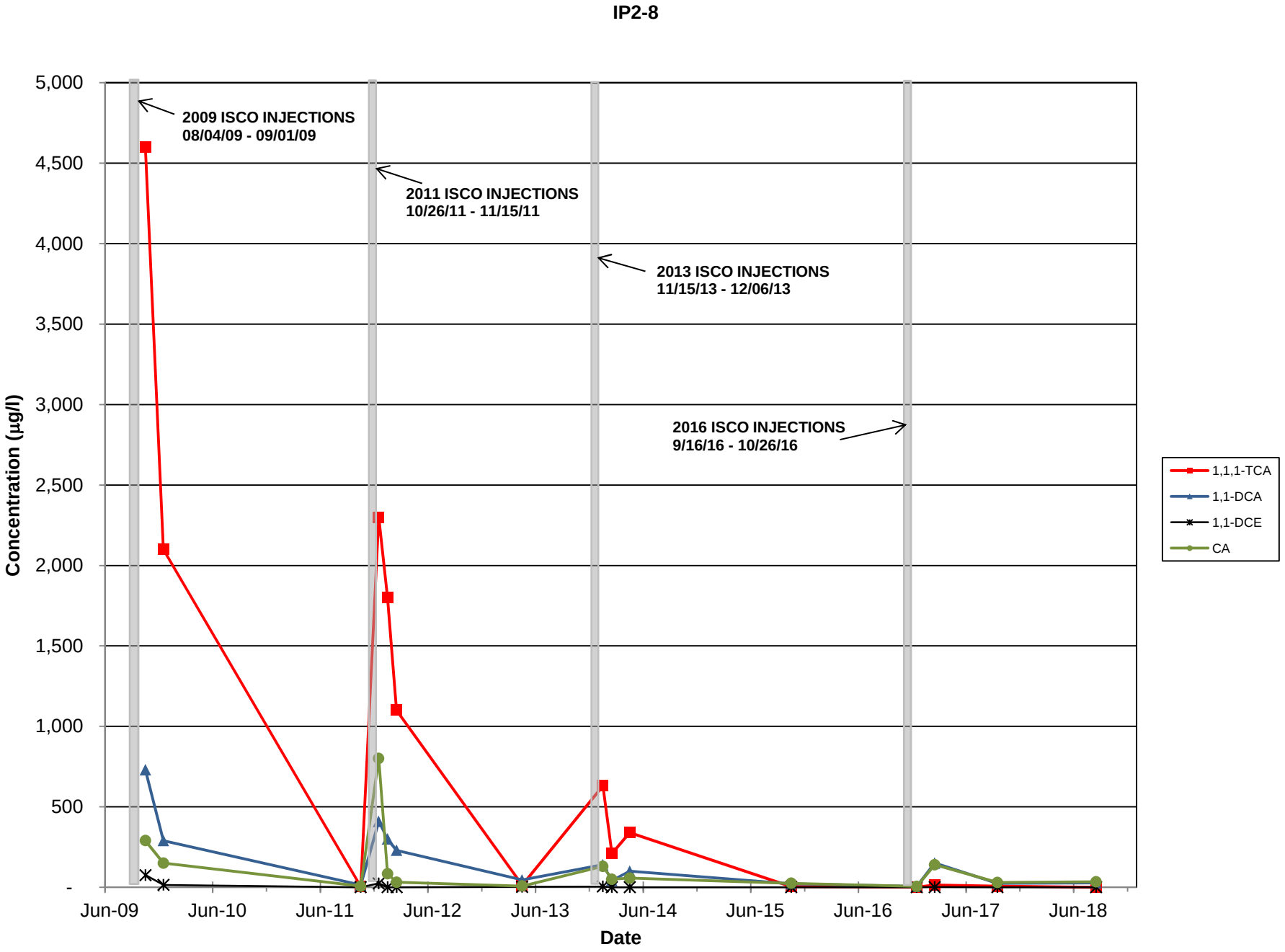
VOC CONCENTRATIONS IN WELL IP2-5 (LOGSCALE)
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



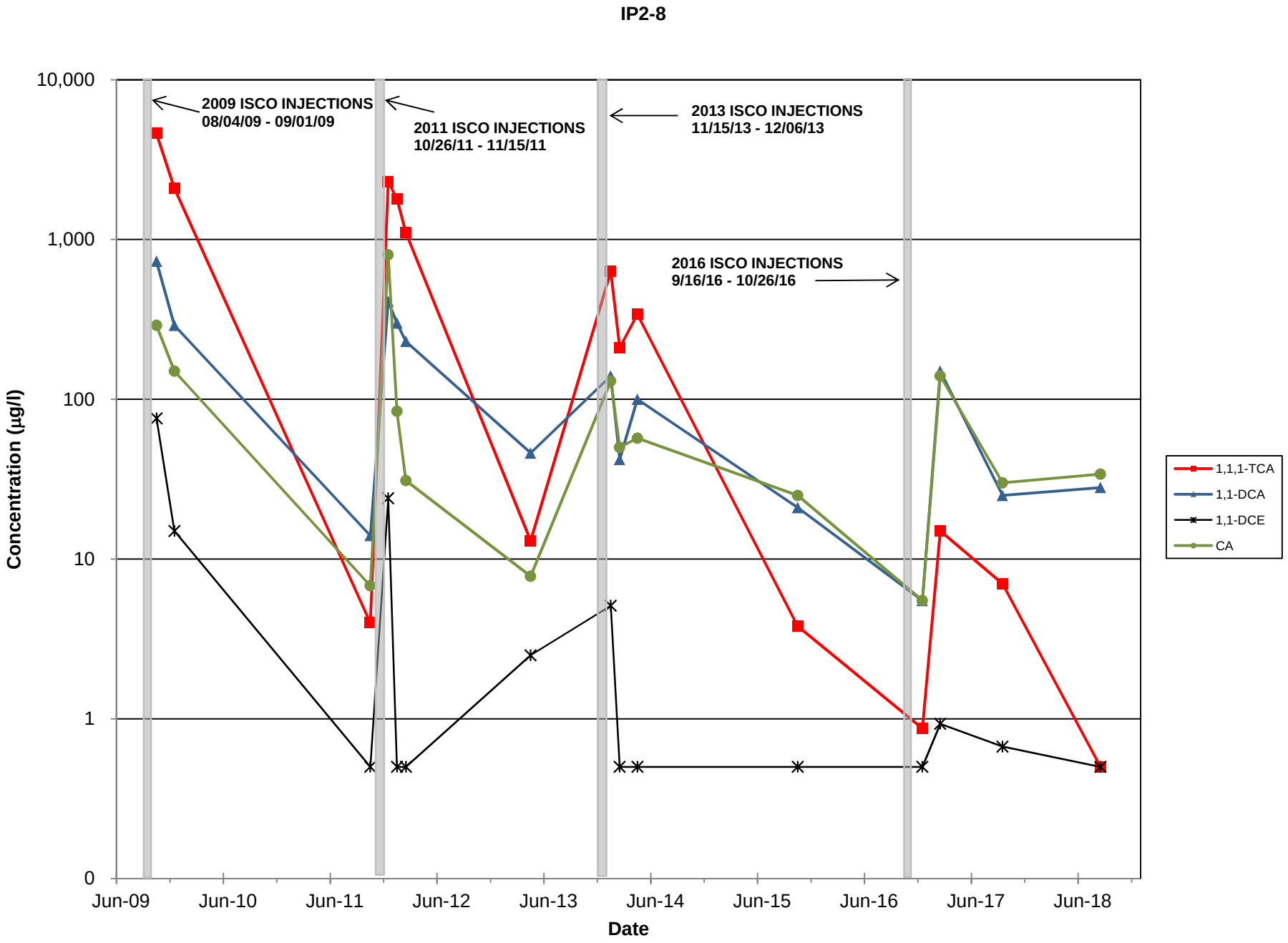
VOC CONCENTRATIONS IN WELL IP2-7
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



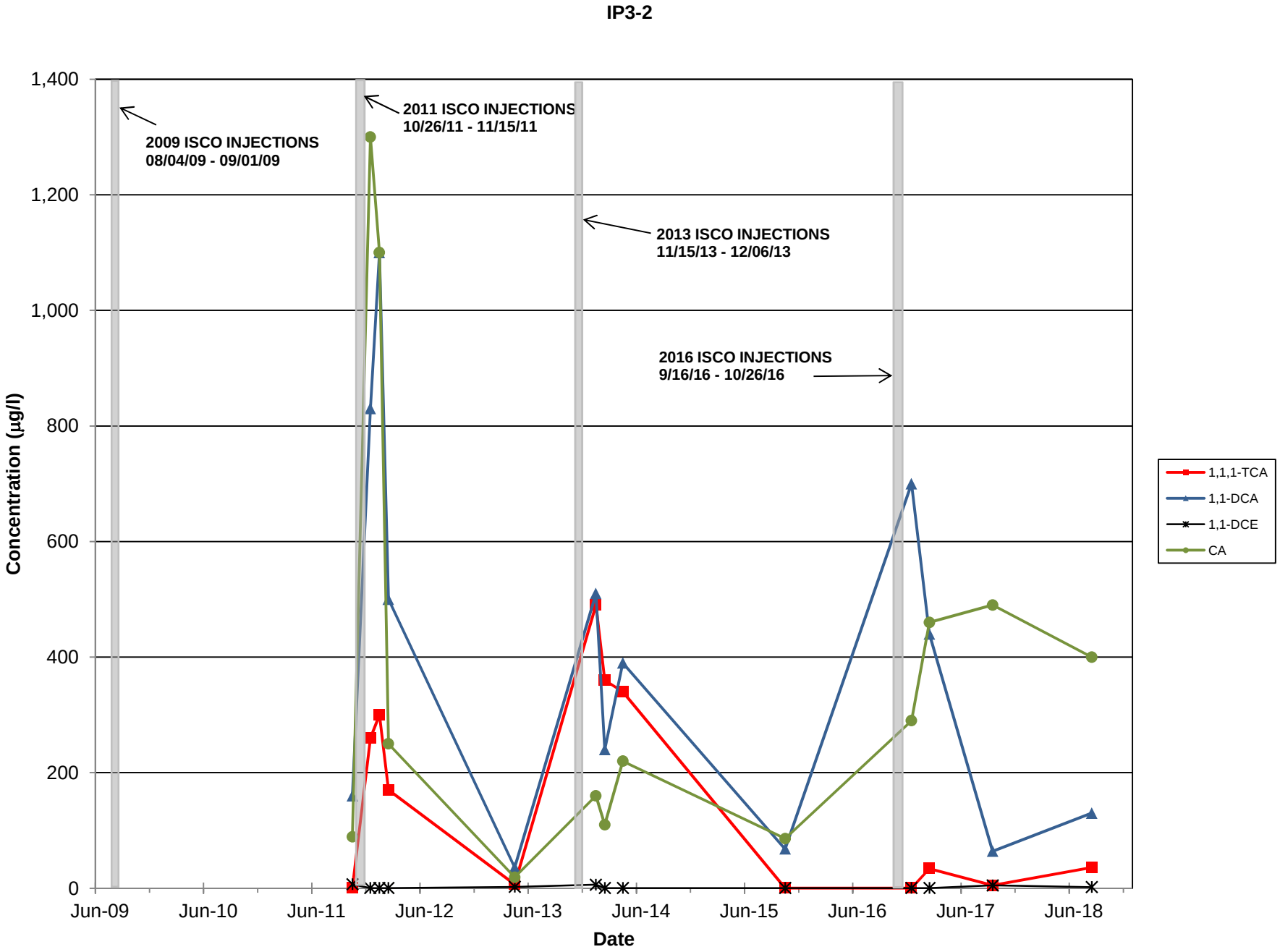
VOC CONCENTRATIONS IN WELL IP2-7 (LOG SCALE)
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



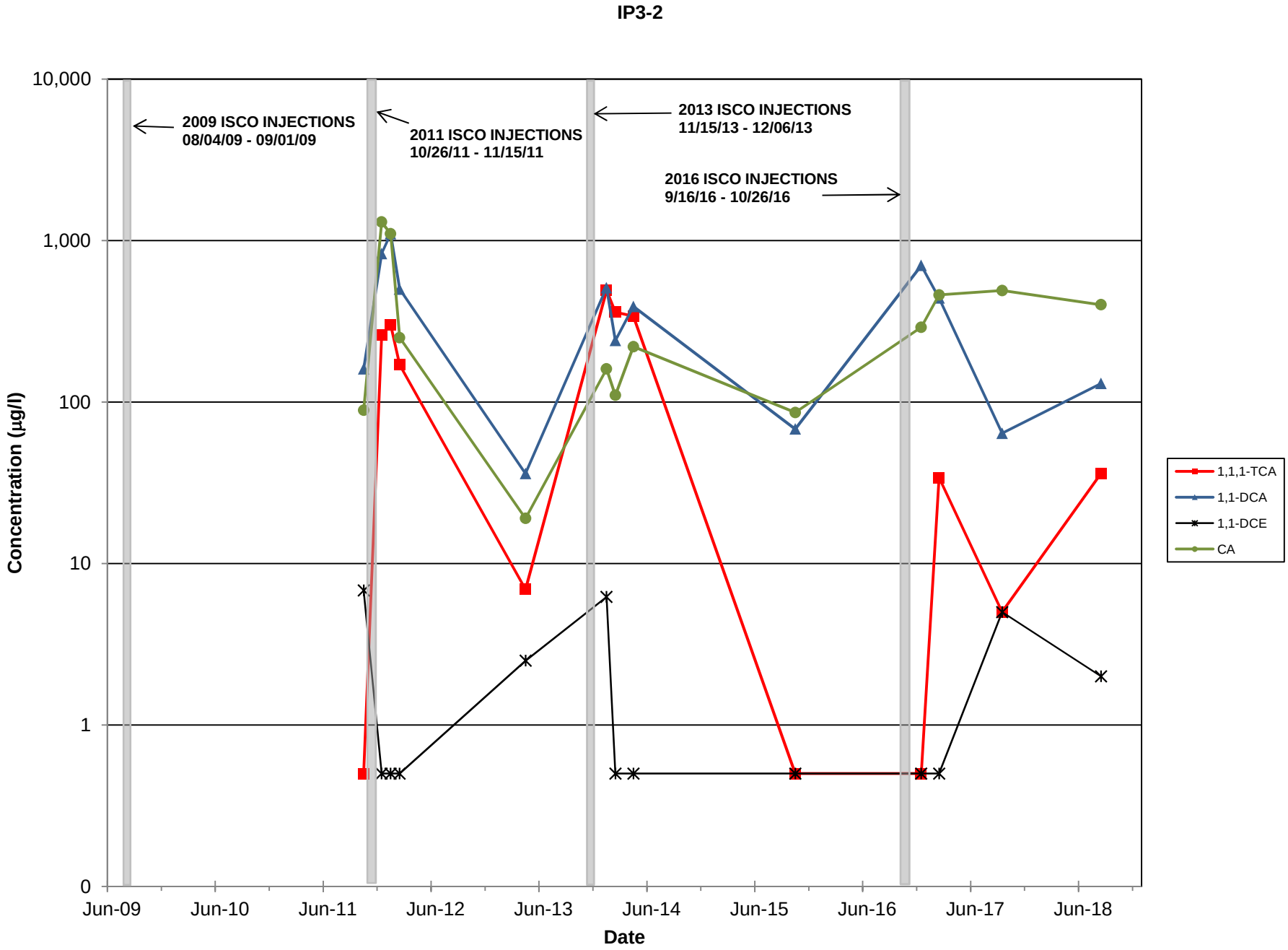
VOC CONCENTRATIONS IN WELL IP2-8
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



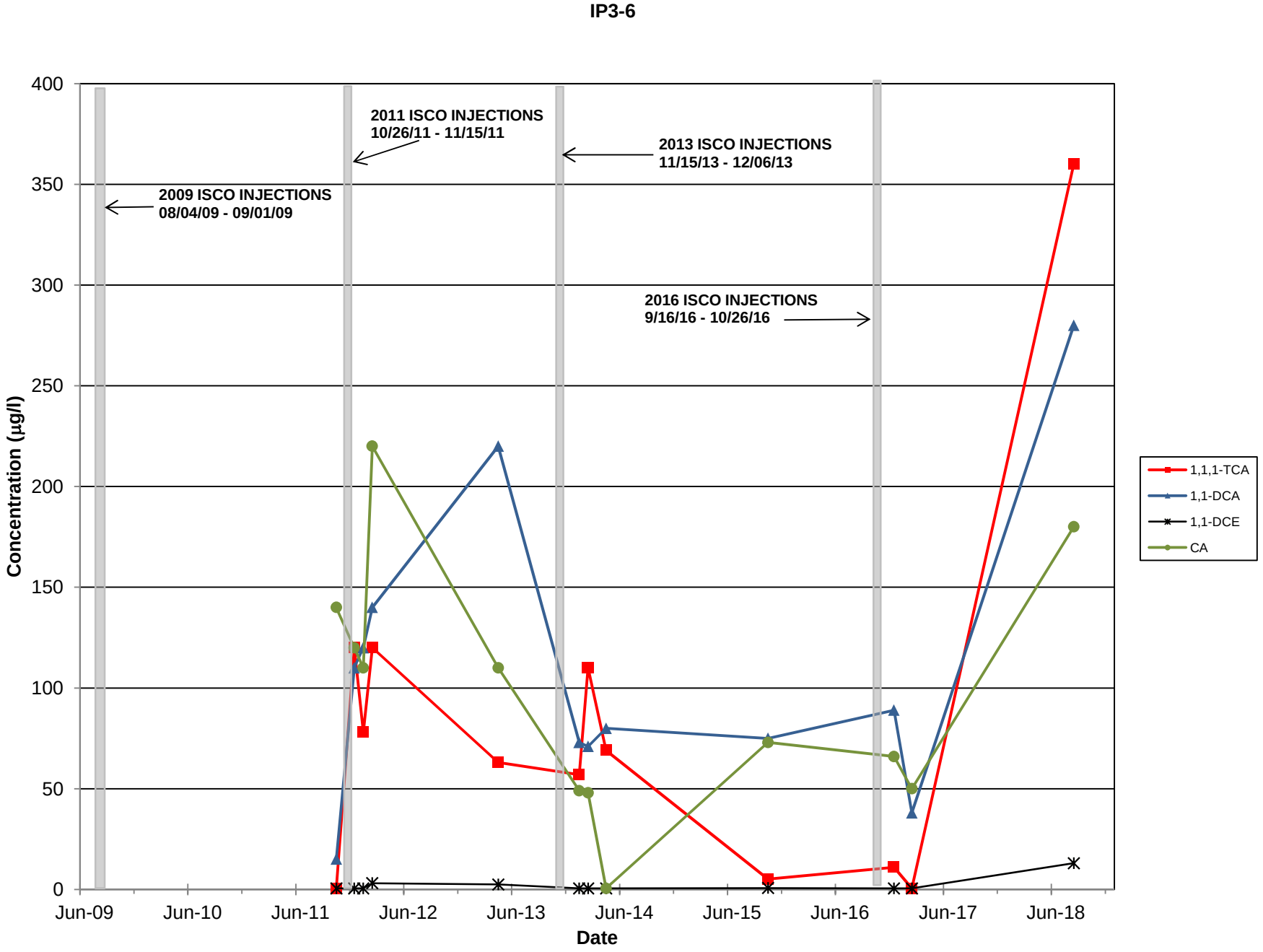
VOC CONCENTRATIONS IN WELL IP2-8 (LOG SCALE)
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



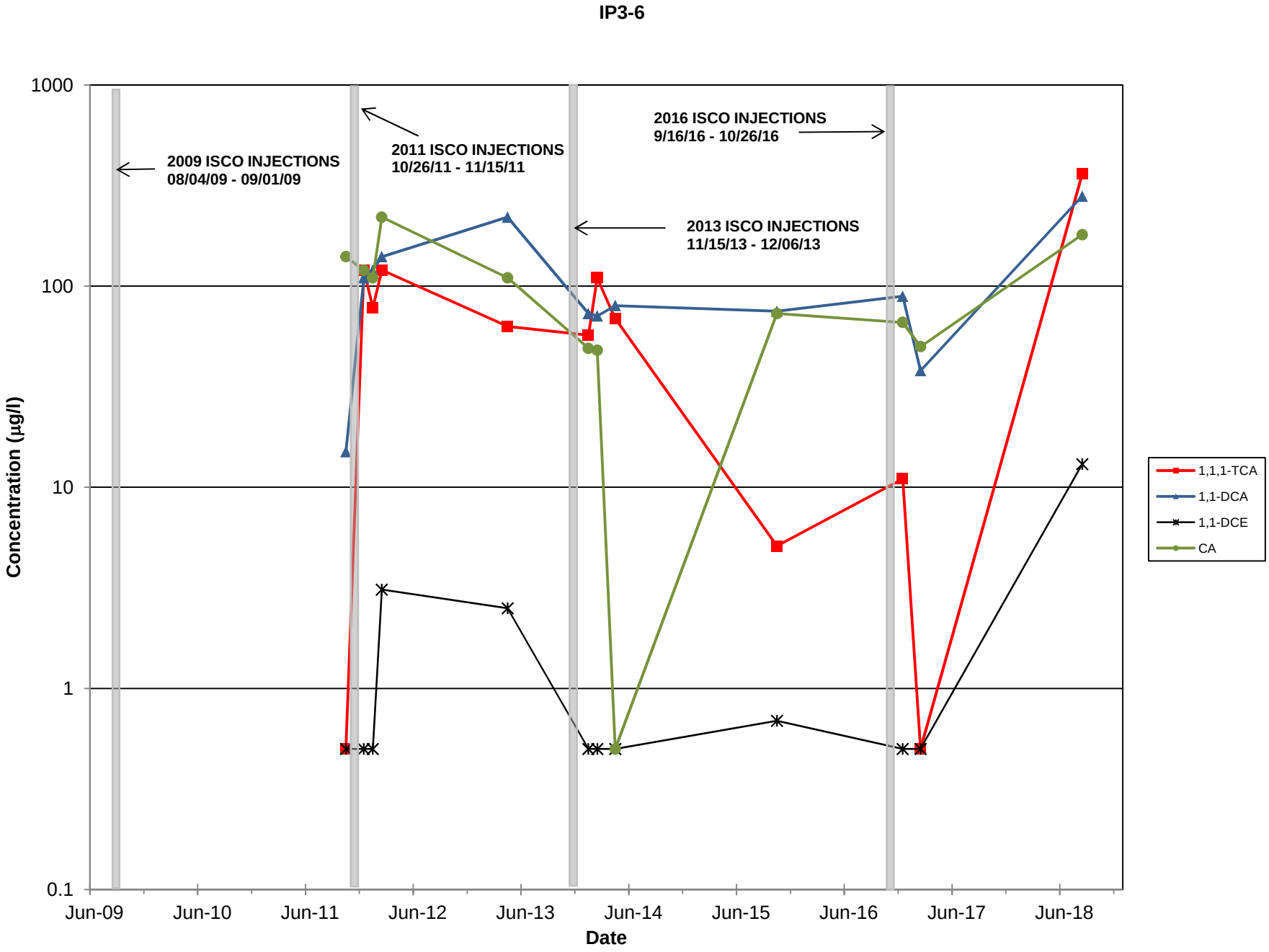
VOC CONCENTRATIONS IN WELL IP3-2
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



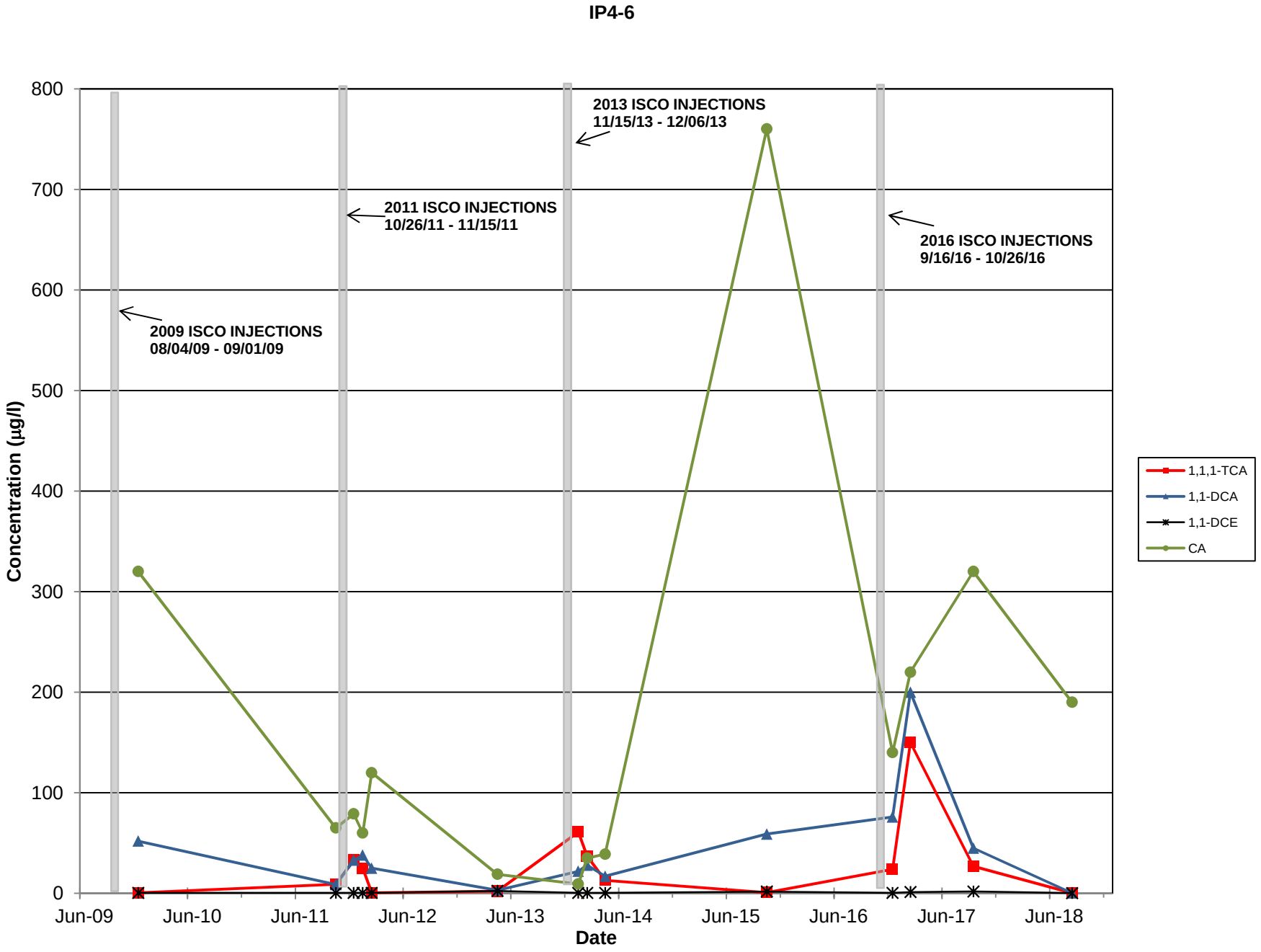
VOC CONCENTRATIONS IN WELL IP3-2 (LOG SCALE)
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



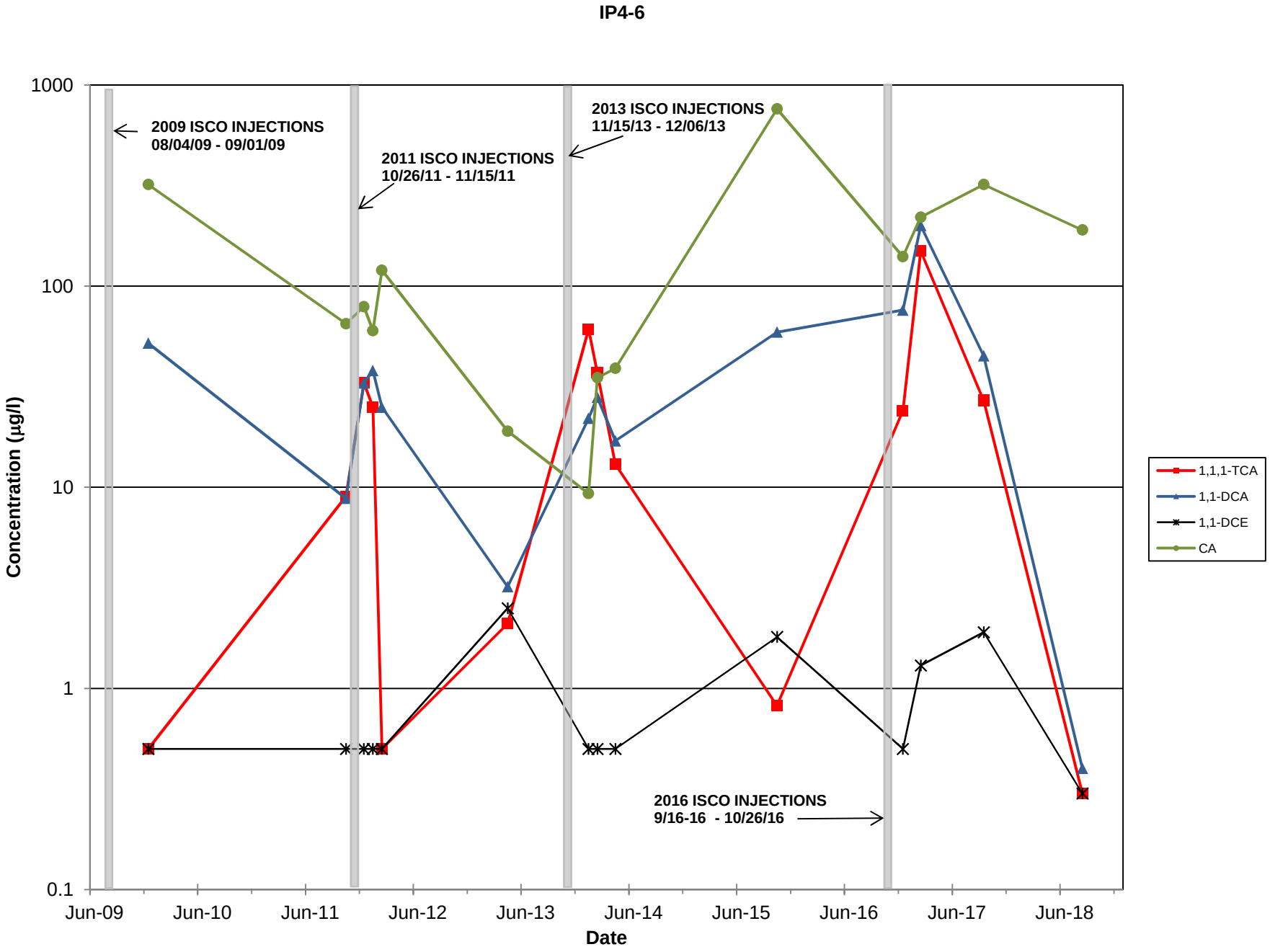
VOC CONCENTRATIONS IN WELL IP3-6
FORMER COLUMBIA COMPANTY FACILITY
FREEPORT, NEW YORK



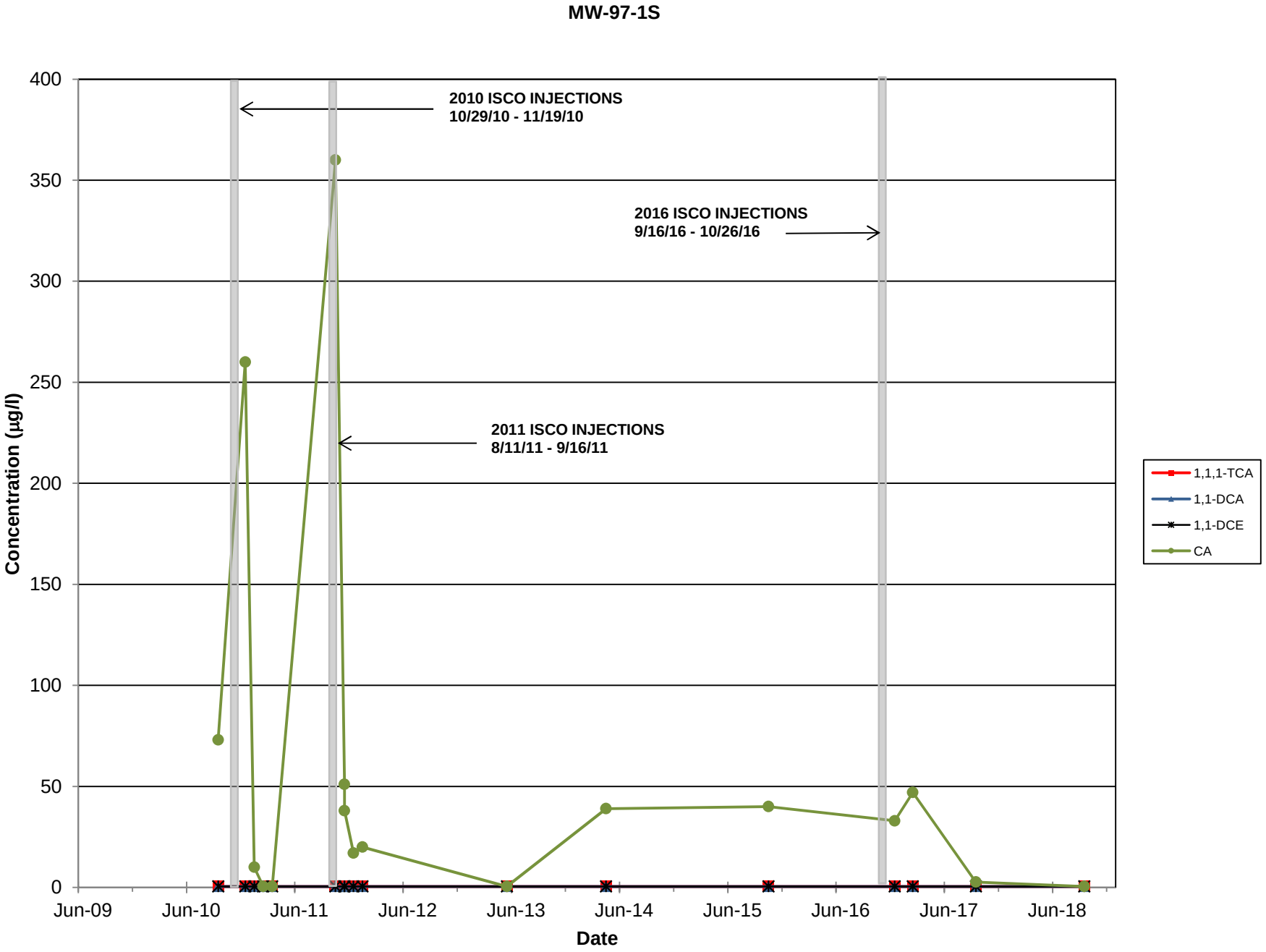
VOC CONCENTRATIONS IN WELL IP3-6 (LOG SCALE)
FORMER COLUMBIA COMPANTY FACILITY
FREEPORT, NEW YORK



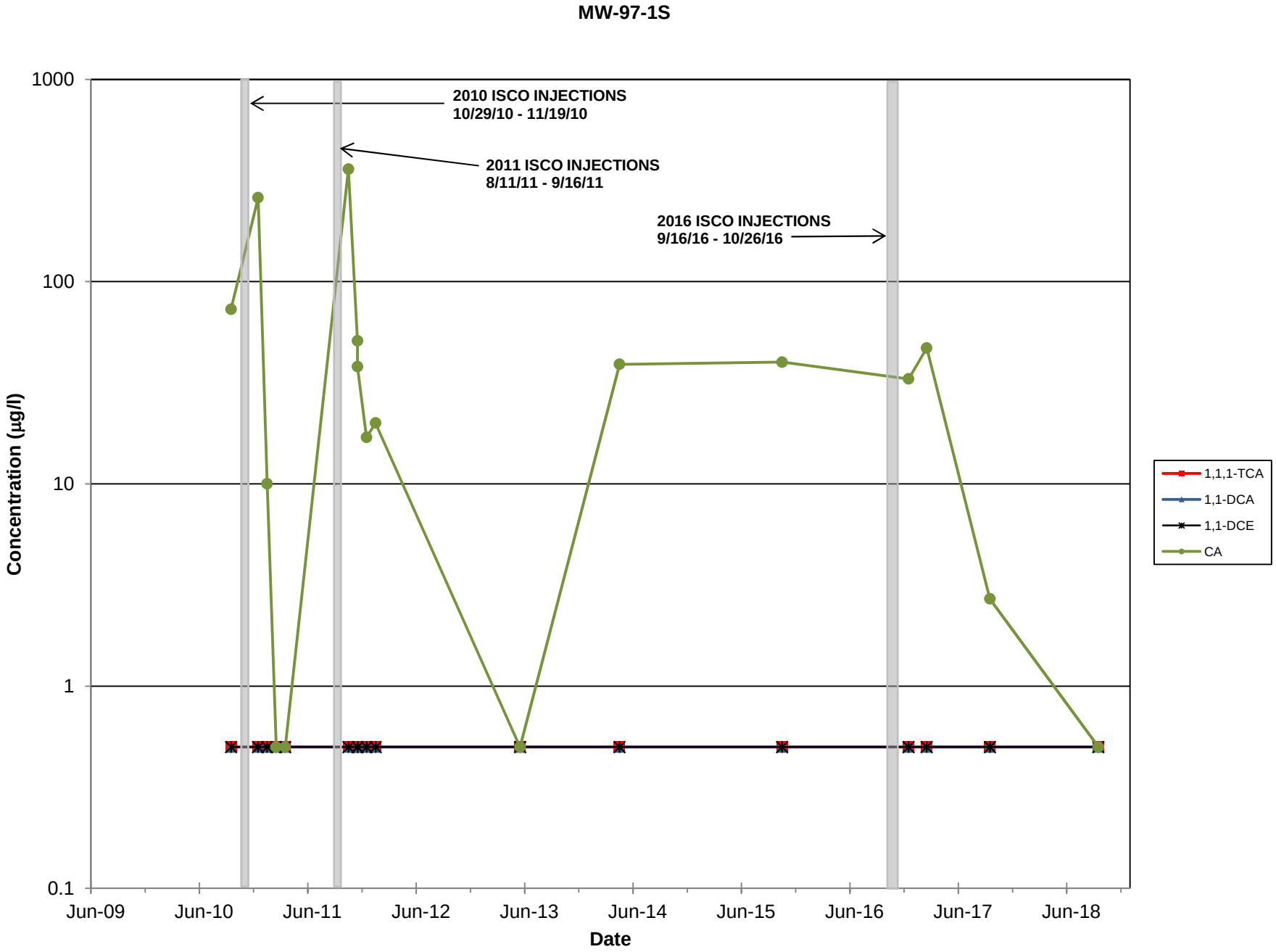
VOC CONCENTRATIONS IN WELL IP4-6
FORMER COLUMBIA COMPANTY FACILITY
FREEPORT, NEW YORK



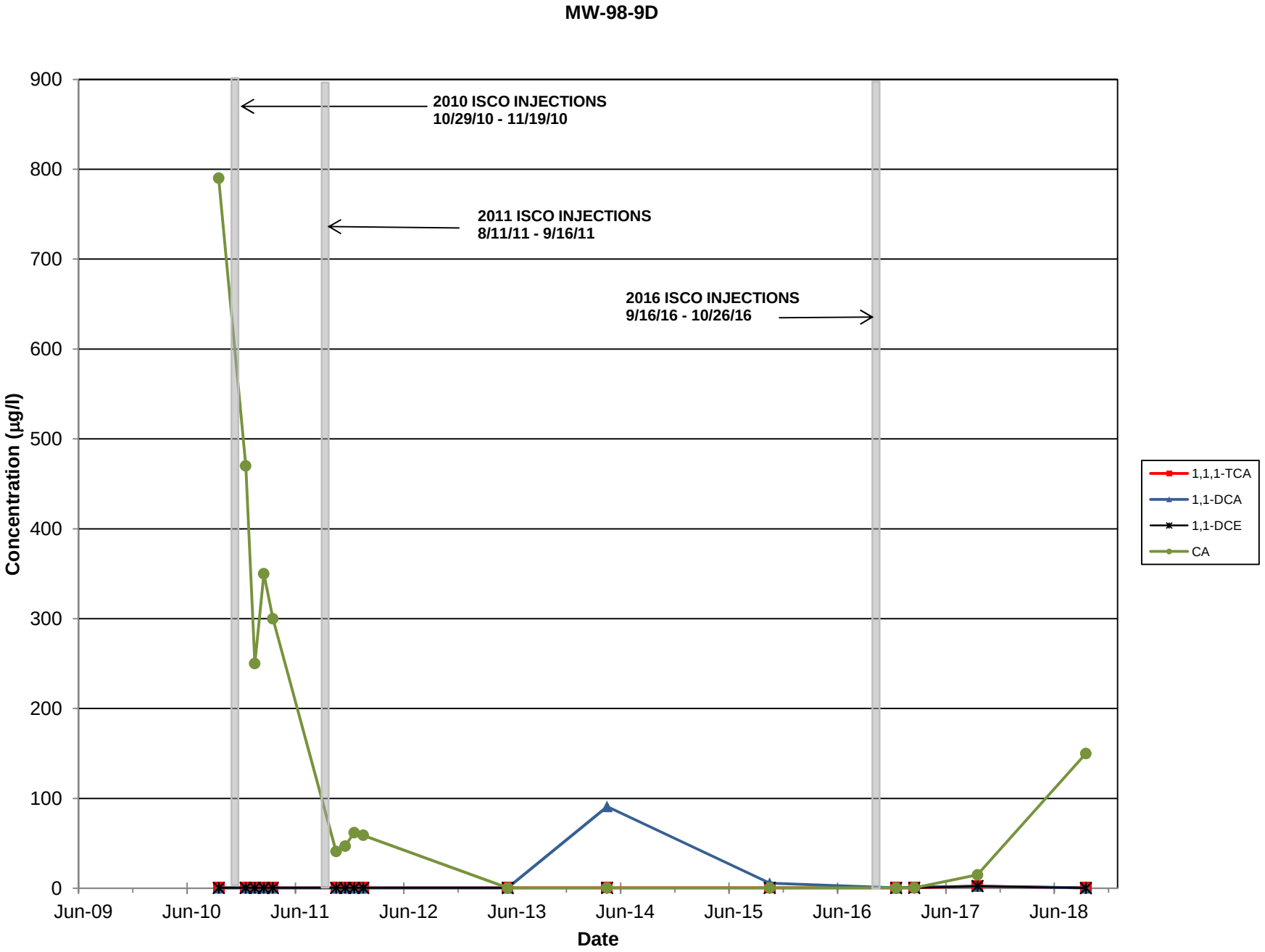
VOC CONCENTRATIONS IN WELL IP4-6 (LOG SCALE)
FORMER COLUMBIA COMPANTY FACILITY
FREEPORT, NEW YORK



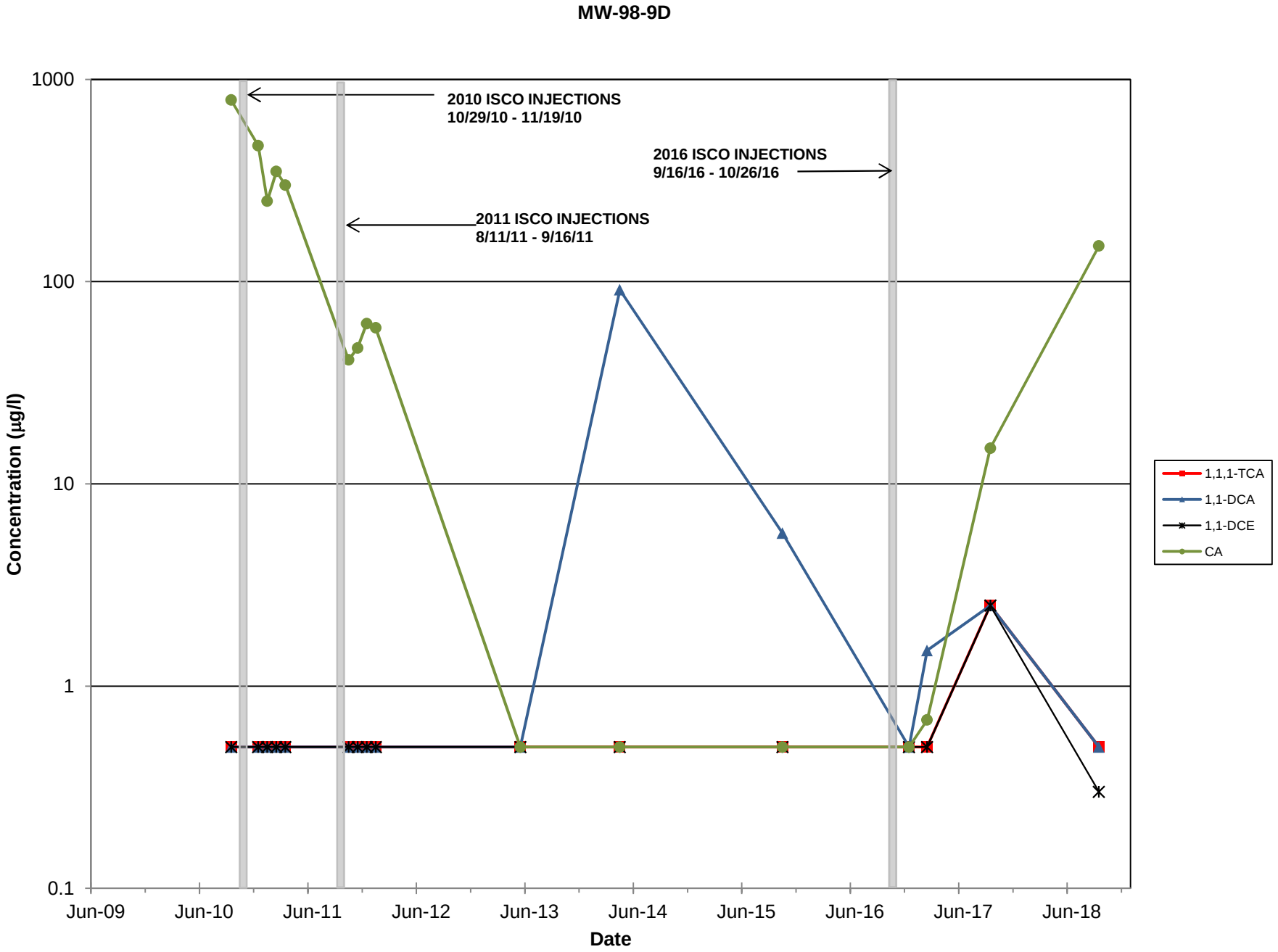
VOC CONCENTRATIONS IN WELLMW-97-1S
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



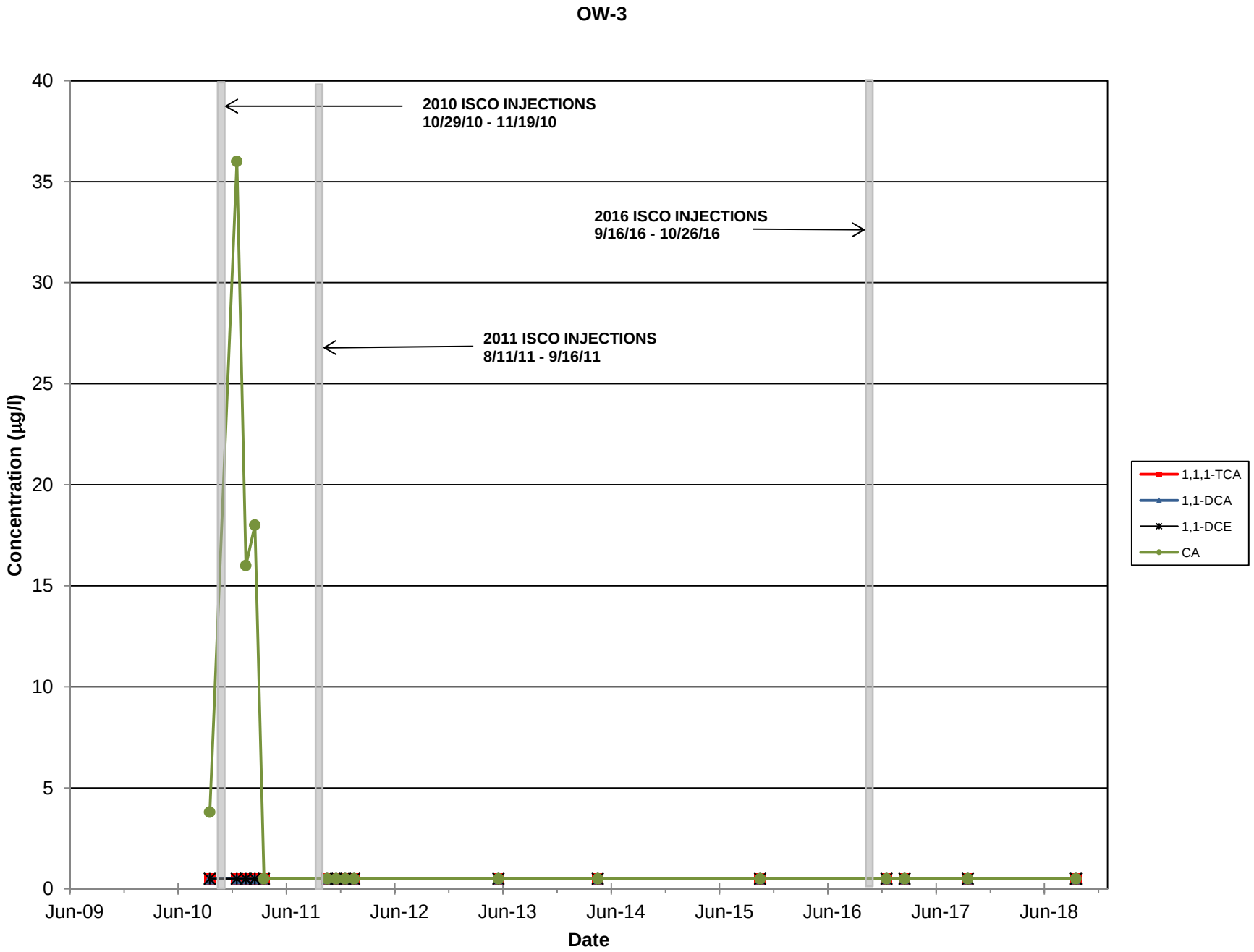
VOC CONCENTRATIONS IN WELL MW-97-1S (LOG SCALE)
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



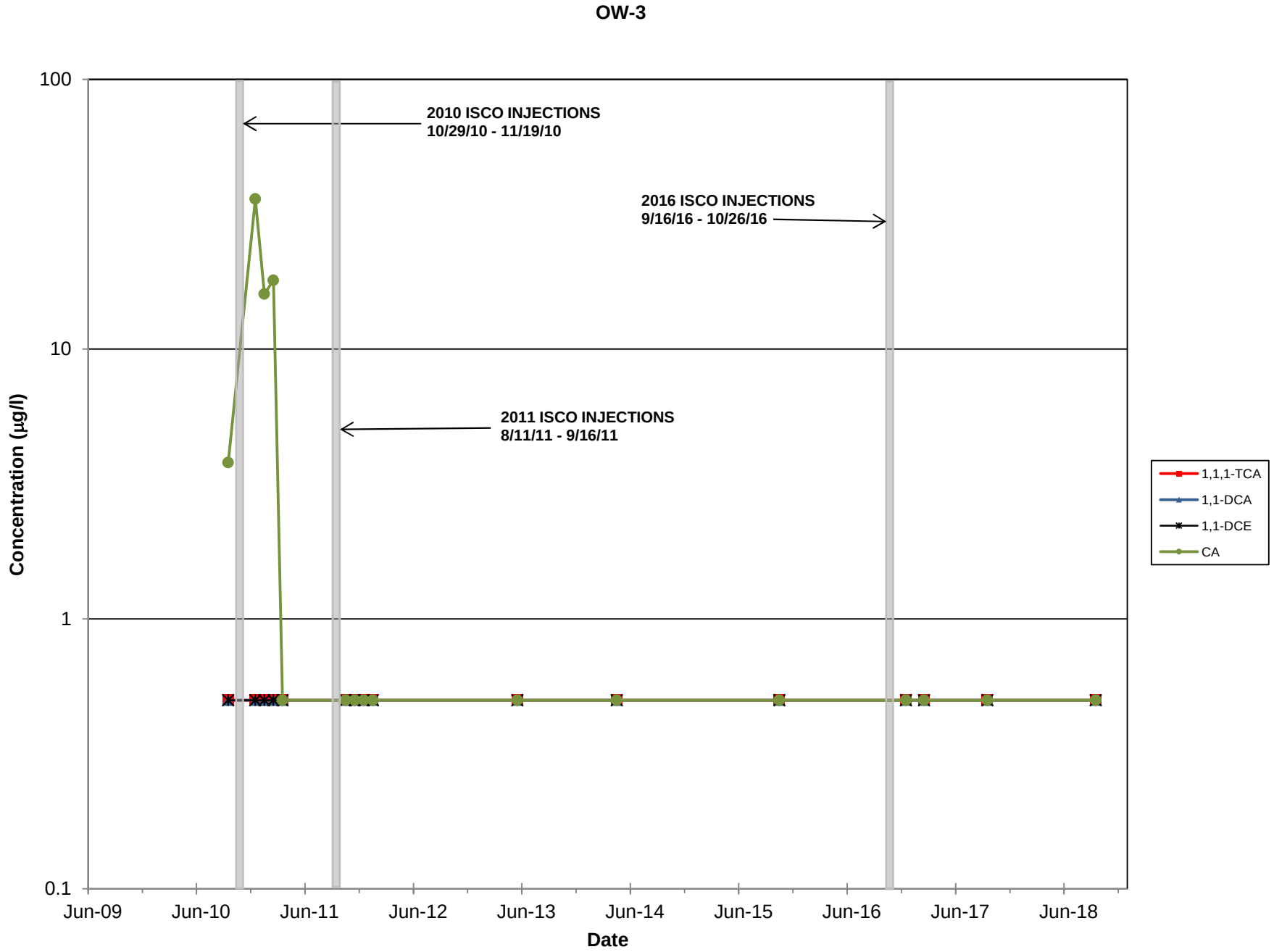
VOC CONCENTRATIONS IN WELL MW-98-9D
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



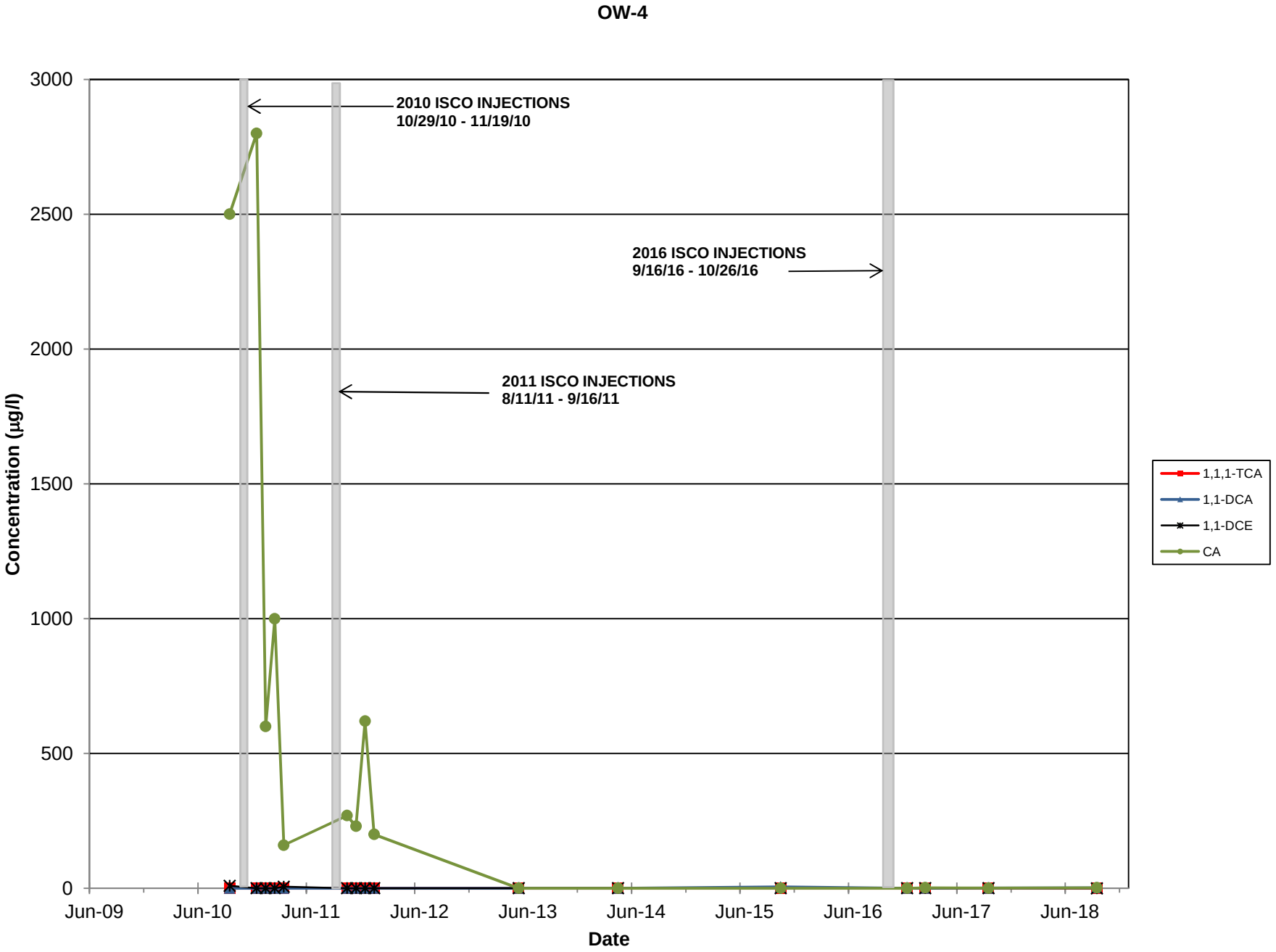
VOC CONCENTRATIONS IN WELL MW-98-9D (LOG SCALE)
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



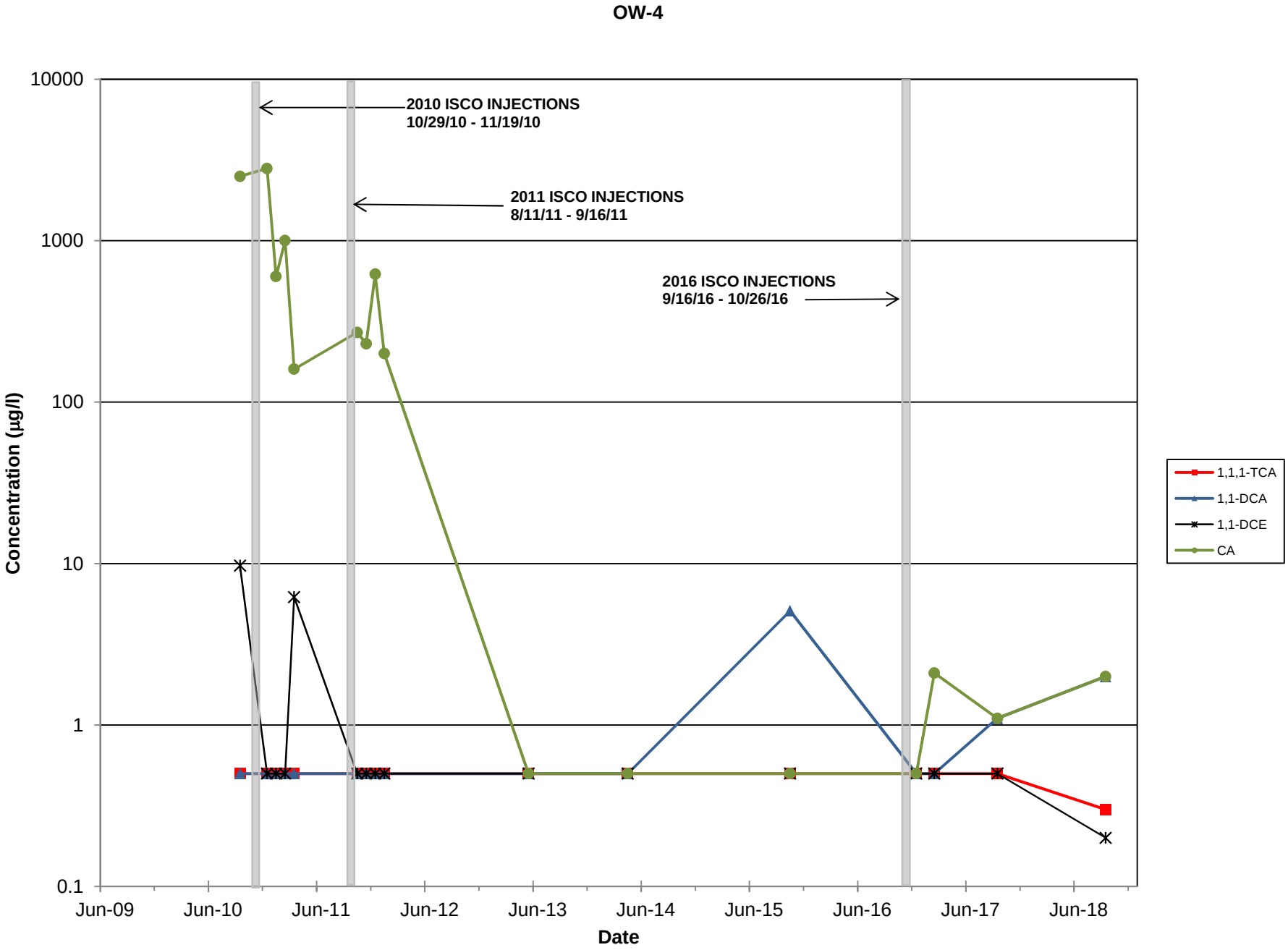
VOC CONCENTRATIONS IN WELL OW-3
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



VOC CONCENTRATIONS IN WELL OW-3 (LOG SCALE)
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



VOC CONCENTRATIONS IN WELL OW-4
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK



VOC CONCENTRATIONS IN WELL OW-4 (LOG SCALE)
FORMER COLUMBIA COMPANY FACILITY
FREEPORT, NEW YORK