2018 THIRD QUARTERLY GROUNDWATER MONITORING REPORT

Former Hygrade Polishing and Plating Company
22-07 41st Avenue
Long Island City, NY 11101
BCP Site No. C241148

January 21, 2019

Prepared for:

Stalingrad Ventures, LLC
100 Field Street
West Babylon, NY 11704

Prepared by:

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January 21, 2019

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New York State Department of Environmental Conservation
Division of Environmental Remediation
1 Hunter's Point Plaza
47-40 21st Street
Long Island City, NY 11101-5407

Attn: Wendi Zheng

Re**:** **2018 Third Quarterly Groundwater Monitoring Report**
Former Hygrade Polishing and Plating Co.
22-07 41st Avenue
Long Island City, NY 11101
BCP Site No.: C241148

Dear Ms. Zheng:

Amec Environment & Engineering, PC is pleased to present this quarterly monitoring report for the third round of quarterly groundwater sampling at the above-referenced facility. The sampling occurred in October 2018.The following report details the field activities and results associated with this event.

If you have any questions, please do not hesitate to call our Office.

Respectfully,

Amec Environment & Engineering, PC

Jazmin Logan
Project Geologist

Eric A. Weinstock
Principal Scientist

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

LIST OF ACRONYMS AND ABBREVIATIONS

Amec	Amec Environment & Engineering, PC
BCP	Brownfield Cleanup Program
BMW	Basement Monitoring Well
Cis 1,2-DCE	Cis 1,2-Dichloroethene
COC	Contaminants of Concern
DHC	Dehalococcoides
ft^2	square feet
Hygrade	Hygrade Polishing and Plating
IRM	Interim Remedial measure
NYS	New York State
NYCDEP	New York City Department of Environmental Protection
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
MW	Monitoring Well
PCB	Polychlorinated Biphenyls
PCE	Perchloroethene (a.k.a. Tetrachloroethene)
PFAS	Per and Polyfluoroalkyl Substances
SVOCs	Semi Volatile Organic Compound
TAL	Target Analyte List
TCE	Trichloroethene
TOGS	Technical & Operational Guidance Series
VOCs	Volatile Organic Compound

1.0 INTRODUCTION

Amec Environment & Engineering, PC (Amec) prepared this Quarterly Groundwater Monitoring Report on behalf of Stalingrad Ventures, LLC for the former Hygrade Polishing and Plating (Hygrade) property located in at 22-07 41st Avenue, Long Island City, NY (the Site). The site location is shown on Figure 1. This monitoring program was completed in accordance with an Interim Remedial Measures (IRM) Work Plan dated May 17, 2017 (Ref. 1) and approved by the New York State Department of Environmental Conservation (NYSDEC).

1.1 SITE DESCRIPTION

The Site currently encompasses a 100 foot by 25 foot property developed with a four-story office building and basement level that covers the entirety of the lot. The NYC Tax Map designates the Site as Queens County; Block: 409; Lot: 6. The neighborhood surrounding the subject property consists of a highly urbanized area of Long Island City with adjacent properties consisting of commercial and industrial land use.

1.2 BACKGROUND

The subject property was first developed with the current building circa 1920s. In 1962, Hygrade purchased the subject property to operate their metal polishing and electroplating facility. The operations consisted of plating finishes performed at the former Hygrade facility included chromium, brass (copper & zinc), nickel, and zinc. This process involved gathering parts placed in baskets or hung on racks. The parts would then be dipped in various baths containing alkaline, plating solutions, stripping solutions, and rinses. As a result of these processes, wastewater was generated. The wastewater was treated onsite using a wastewater treatment unit. The treated wastewater was then discharged to the New York City municipal sewer system.

Plating and polishing operations ceased around March 2013 when Stalingrad Ventures, LLC (the current owner) purchased the property. Upon purchase of the subject property, the current owner performed a cleanup of the Hygrade facility under a New York City Department of Environmental Protection (NYCDEP) Commissioner's Order that had been issued to the former owner.

Stalingrad Ventures, LLC continued cleaning up and restoring the building after the NYCDEP Commissioner's Order was satisfied. This included removing the concrete surfacing from the walls, washing and resurfacing the floors, removal of approximately 581 tons of soil from the

basement and replacing it with sand. In 2015, Stalingrad Ventures, LLC entered into a Brownfield Cleanup Agreement for the site.

A Remedial Investigation completed under this program revealed that elevated levels of chlorinated Volatile Organic Compounds (VOCs) and metals were present in the groundwater beneath the building and isolated to the shallow water table. Furthermore, previous investigations (by Amec and others) identified the northerly portion of the Site (in the area of wells of BMW-1 and BMW-2) as containing the highest concentration of metal contaminants and the southerly portion of the Site (in the area of wells of BMW-3 and BMW-4) as containing the highest concentration of VOCs contaminants. The remedial investigation established that the groundwater contamination decreased significantly in off-site groundwater wells collected on the northeast corner of 22nd Street and 41st Avenue.

In December 2017, as part of the NYSDEC-approved IRM, Amec treated the groundwater beneath the basement floor using in-situ injections. The injections consisted of two different bio-remediation products. In the northerly portion of the Site, where the metals were prevalent, Peroxychem Metafix® was applied as part of the injection program. In the southerly portion of the Site, where the VOCs were prevalent, Peroxychem EHC® was applied as part of the injection program. Details of the injection program are described in the IRM Construction Completion Report which is currently in preparation. As part of the injection program, wells BMW-1 through BMW-4 were abandoned to prevent any short circuiting of the injection products. These wells were re-installed after the completion of the injection program.

In April 2018, Amec completed the first Quarterly Groundwater Monitoring program at the Site. The laboratory analytical results collected from this first round of monitoring indicated that the December 2017 bio-remediation program was very effective in addressing the VOCs and Metal contamination at the subject property. The concentrations of both VOCs and Metals in the groundwater displayed a significant decrease since the products were injected.

1.3 CONTAMINANTS OF CONCERNS

The contaminants of concern (COCs) in the groundwater below the Site are the VOCs which are identified as tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2 dichloroethene (cis 1,2-DCE), and vinyl chloride. With respect to metals, the COCs at the Site are identified as Cadmium,

Chromium, and to a lesser degree, Nickel. More recently, Per and Polyfluoroalkyl Substances (PFAS) compounds have also become a COC.

2.0 FIELD PROCEDURES

An Amec field crew mobilized to the Site on October 24 and 25, 2018 to complete this quarterly groundwater sampling event. The groundwater monitoring wells were sampled using low-flow sampling procedures. A Geotech™ brand peristaltic pump was used to evacuate the water from the wells. New high density polyethylene (HDPE) tubing was used for the collection of each sample. The wells were purged at a rate of 100 and 500 ml per minute. Temperature, specific conductance, pH, dissolved oxygen, turbidity and redox were recorded as the well was pumped. These readings were logged on field forms and are included in Appendix A. The purged water was contained in 5-gallon plastic pails and staged in the basement pending disposal. Water level indicators were decontaminated with Alconox and laboratory-issued contaminant and PFAS-free certified water after use at each monitoring well location. All other downhole equipment/material were designated for each monitoring well location.

Groundwater samples collected from the on-site basement wells include BMW-1. BMW-2, BMW-3, and BMW-4. Groundwater collected from the downgradient off-site wells include MW-5, MW-6S, and MW-6D. Lastly, a groundwater sample was collected from the upgradient monitoring well MW-E. A sample location map depicting the locations of the groundwater monitoring wells is included in Figure 2.

3.0 LABORATORY ANALYTICAL DATA

Amec subcontracted analytical laboratory, Alpha Analytical of Westborough, MA (an ELAP-certified laboratory) for analysis of Volatile Organic Compounds (VOCs), TAL Metals (both dissolved and total) and PFAS (1,4 dioxane was included in a previous round of sampling and was not detected in the samples). All groundwater samples remained in a cooler with ice until delivered to the laboratory.

The laboratory analytical results were tabulated and compared to the NYSDEC Technical Operational TOGS Ambient Water Quality Standards (NY TOGS standard) (if applicable). The following sections summarizes the results.

3.1 VOLATILE ORGANIC COMPOUNDS

Basement Sample Locations – The laboratory report indicates that the site-related VOCs contaminants are still present in the basement at low concentrations, similar concentration to recent quarterly sampling events conducted in 2018 (i.e after the December 2017 injection program). Using EPA method 8260C, PCE, TCE, cis 1,2-DCE and vinyl chloride were detected in the water samples collected from the four basement monitoring wells. However, the detections of PCE and TCE in all four wells were below NY TOGS groundwater standards. The detections of cis 1,2-DCE and Vinyl Chloride were detected above the NY TOGS standards in the basement monitoring wells. The following summarizes the concentrations of VOC contaminants for the basement monitoring wells.

- PCE was detected in water samples collected from wells BMW-1, BMW-2, and BMW-4 at concentrations below the NY TOGS standard of 5 ug/l. It was not detected in well BMW-3, the well that initially had the highest concentration of this compound. For comparison, the groundwater from basement monitoring well BMW-3 had a concentration of 20,700 ug/l of PCE on March 27, 2014 and on October 24, 2018 had a value of non-detect.

- TCE was detected in water samples collected from all four basement wells at concentrations below the NY TOGS standard. For comparison, the groundwater from well BMW-3 had a concentration of 2,600 ug/l of TCE on February 19, 2014 and on October 24, 2018 had a value of 0.63 ug/l.

- Cis 1,2-DCE was detected in water samples collected from all four basement monitoring wells with exceedances above the NY TOGS standard of 5 ug/l in the water samples collected at BMW-1, BMW-2, and BMW-3. For comparison, the groundwater from well BMW-3 had a cis 1,2-DCE concentration of 4,150 ug/l on February 19, 2014 and on October 24, 2018 had a value of 18 ug/l.

- Vinyl Chloride was detected in water samples collected from all four basement monitoring wells with exceedances above the NY TOGS standard of 2 ug/l in the water samples collected at BMW-3 and BMW-4 at concentrations of 26 ug/l and 4.7 ug/l; respectively. For comparison, the groundwater from well BMW-3 had a concentration of 1,070 ug/l of VC of VC on February 19, 2014 and on October 24, 2018 had a value of 26 ug/l.

Sidewalk Sample Locations – The site-related VOCs contaminants, PCE, 1,2-DCE, and VC were detected in the water samples from the downgradient monitoring wells located in the sidewalk at low concentrations and below the NY TOG Standards in wells MW-5 and MW-6D. TCE was detected in the water samples from the downgradient monitoring wells located in the sidewalk at low concentrations and below the NY TOG Standards in wells MW-6S and MW-6D. TCE was detected above the NYTOGS Standards of 5 ug/l in the water sample collected from MW-5 at a concentration of 5.5. ug/l. The VOCs PCE, TCE, and cis 1.2-DCE, were detected at concentrations exceeding the NY TOGS Standard for the sample collected from well MW-6S. Well MW-6S is a water table well located directly downgradient of basement monitoring well BMW-3, the well that has historically displayed the highest levels of VOC contamination. In addition, the VOC, acrylonitrile was detected at in the water sample from well MW-6S above the NY TOGS Standards.

The laboratory results for VOCS are tabulated on Table 1.

3.2 TAL METALS

Basement Sample Locations – The laboratory data indicates site-related metal contaminants are still present in the basement at similar concentrations to the recent quarterly sampling events conducted in 2018 (i.e after the December 2017 injection program). Cadmium was only detected in excess of the NY TOGS standard of 5 ug/l in the water sample collected from well BMW-1. Nickel was detected in excess of the NY TOGS standard of 100 ug/l in the water samples collected from BMW-1, BMW-2, and BMW-3. Chromium was not detected in excess of the NY TOGS of 50 ug/l in any of the water samples collected from the basement monitoring wells. For comparison, the groundwater from well BMW-2 had a Chromium concentration of 4,120 ug/l on March 27, 2014 and on October 24, 2018 had a value of 2.17 ug/l.

The naturally occurring metals iron, magnesium, manganese, and sodium were detected at concentrations in excess of the NY TOGS standards in the water samples collected from the basement monitoring wells. This is typical in urban areas like Queens.

Sidewalk Sample Locations – The same naturally occurring metals detected above NY TOGS standards in the water samples collected from the basement monitoring wells – iron, magnesium, manganese and sodium -- were also detected in the wells located in the sidewalk. The site-related metal contaminants, cadmium, chromium and nickel, were not detected above

the NY TOGS standards in the samples collected from the downgradient and upgradient sidewalk wells.

The laboratory results for TAL metals are tabulated on Table 2.

3.3 PFAS

As of the date of this report, there are no applicable New York State standard in which to compare PFAS levels to. In May 2016, the United States Environmental Protection Agency (EPA) established drinking water health advisory of 0.07 ppb for the combined concentrations of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) and 400 ppb for Perfluorobutane Sulfonate (PFBS). The concertation of the combined value of PFOA and PFOS exceeded the EPA health advisory (HA) in water samples collected from all monitoring well locations including the upgradient well. The greatest concentrations were detected below the building in samples collected from basement monitoring wells BMW-1, BMW-2 and BMW-3, the wells that had historically displayed the highest VOC detections. None of the groundwater results exceed the EPA drinking water advisory for PFBS.

The laboratory results for PFAS are tabulated on Table 3.

3.4 BACTERIAL ANALYSIS

A water sample was collected from BMW-3 for the bacterial analysis of Dehalococcoides (DHC) and the associated functional genes (BVC, TCR, and VCR), bacteria that have been shown to degrade chlorinated solvents. The sample was submitted to Microbial Insights, Inc. of Knoxville, Tennessee. The aforementioned bacteria have the capability to reduce the concentration of various chlorinated VOCs such as PCE, TCE, and vinyl chloride through bacterial consumption. The laboratory report indicated that the DHC and the corresponding functional genes were detected. DHC was detected at a level of 7.99×10^{-3} cells/mL. The corresponding functional genes were detected at concentrations between 1.30×10^{-3} cells/mL and 1.95×10^{-3} cells/mL. These reading indicate that the CVOC reducing bacteria remain present and active at this site.

4.0 DISCUSSION

<u>VOCs and TAL Metals:</u>

Tables 4 and 5 summarizes the concentration of site-related contaminants from previous groundwater investigations (by Amec and others) performed at the subject property. Figures 3 and 4 illustrates the concentration of site related VOCs and Metals over time for each well location. Overall, the site-related VOCs and metals display a steadily decrease compared to quarterly groundwater monitoring rounds completed after the December 2017 injection program.

PFAS

The groundwater beneath the site was first collected for PFAS analysis during the previous sampling event in April 2018. The laboratory analytical data revealed presence of PFAS above the EPA drinking water advisory. PFAS levels were highest underneath the basement and decreases in the direction of the downgradient wells. Based on the results from the April 2018 sampling event, the underlying groundwater will continue to be monitored for PFAS. As shown on Table 6, the laboratory analytical results for the sampling conducted in October 2018 display similar concentrations to those seen in the previous sampling event. Figure 5 illustrates the concentration of site related PFAS over time for each basement well location.

Bacteria Analysis

The laboratory analytical results from this sampling event showed that dechlorinating bacteria is present in the groundwater. The water sample collected from BMW-3 in November 2016, detected DHC and BVC at 0.3 cells/mL (TCR and VCR were non-detect). Subsequently, the water sample collected from BMW-3 during the April 2018 sampling event indicated that DHC and the associated functional were not detected at a detection level of 5.0×10^{-1} cell/mL. It is believed that the aquifer around this well were disturbed when the well was replaced during the EHC injection program. Since that time, the bacterial appear to be thriving.

Direction of Ground Water Flow

Based on the elevation of the groundwater measured in the upgradient and downgradient monitoring wells, the direction of groundwater flow is to the west. The water level in the basement is lower than the surrounding wells. This is either due to the silt formation under the basement or to localized sump pump operation. The measured water table elevation are included on Table 7. A site-specific water table map is indicated on Figure 6.

5.0 CONCLUSION

Laboratory analytical results collected during this quarterly round of monitoring display similar concentrations of VOCs and metals to those detected in the previous sampling event conducted in July 2018. Overall, the site-related VOCs and metals display a steadily decrease compared to quarterly groundwater monitoring rounds completed after the December 2017 injection program. Continued monitoring is recommend to confirm that these constituents continue to decrease in concentration over time.

PFAS constituents were detected at similar concentration to those detected during the previous sampling event conducted in July 2018. These detections exceed the EPA's health advisory for drinking water supplies. This area of Queens is serviced by reservoirs located in upstate New York and the basement is sealed with a new 8-inch thick concrete slab. Therefore, there are no current receptors affected by the presence of PFAS. At the request of the NYSDEC, an Alternatives Analysis for PFAS remediation is being performed.

REFERENCES

1. Amec (October 2018) 2018 Second Quarterly Groundwater Monitoring Report, Former Hygrade Polishing and Plating Co., 22-07 41st Avenue, Long Island City, NY 11101

2. Amec (June 2018) 2018 First Quarterly Groundwater Monitoring Report, Former Hygrade Polishing and Plating Co., 22-07 41st Avenue, Long Island City, NY 11101

3. Amec (May 2017) Interim Remedial Measure Plan, Former Hygrade Polishing and Plating Co., 22-07 41st Avenue, Long Island City, NY 11101

4. CA RICH (June 2016) Remedial Investigation Work Plan, Former Hygrade Polishing and Plating Site, 22-07 41st Avenue, Long Island City, NY BCP Site No.: C241148.

5. Julian Soren (February 1978) Subsurface Geology and Paleogeography of Queens County, Long Island, NY USGS Water-Resources Investigation 77-34, Open-File Report.

6. NYSDEC (June 1998) Technical Operational TOGS Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations

7. US EPA (May 2016) Drinking Water Health Advisory for Perfluorooctane Sulfonate (PFOS)

FIGURES

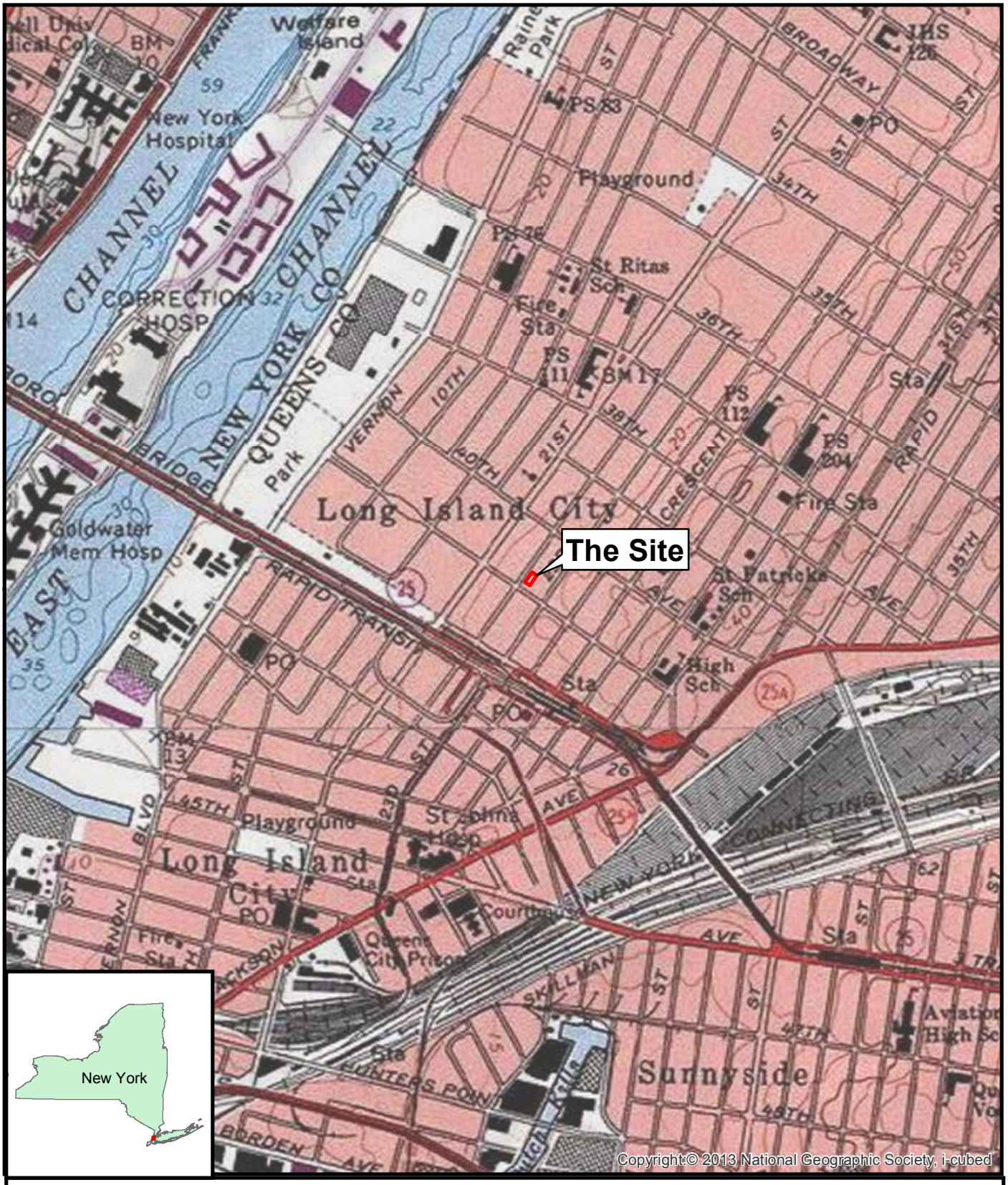


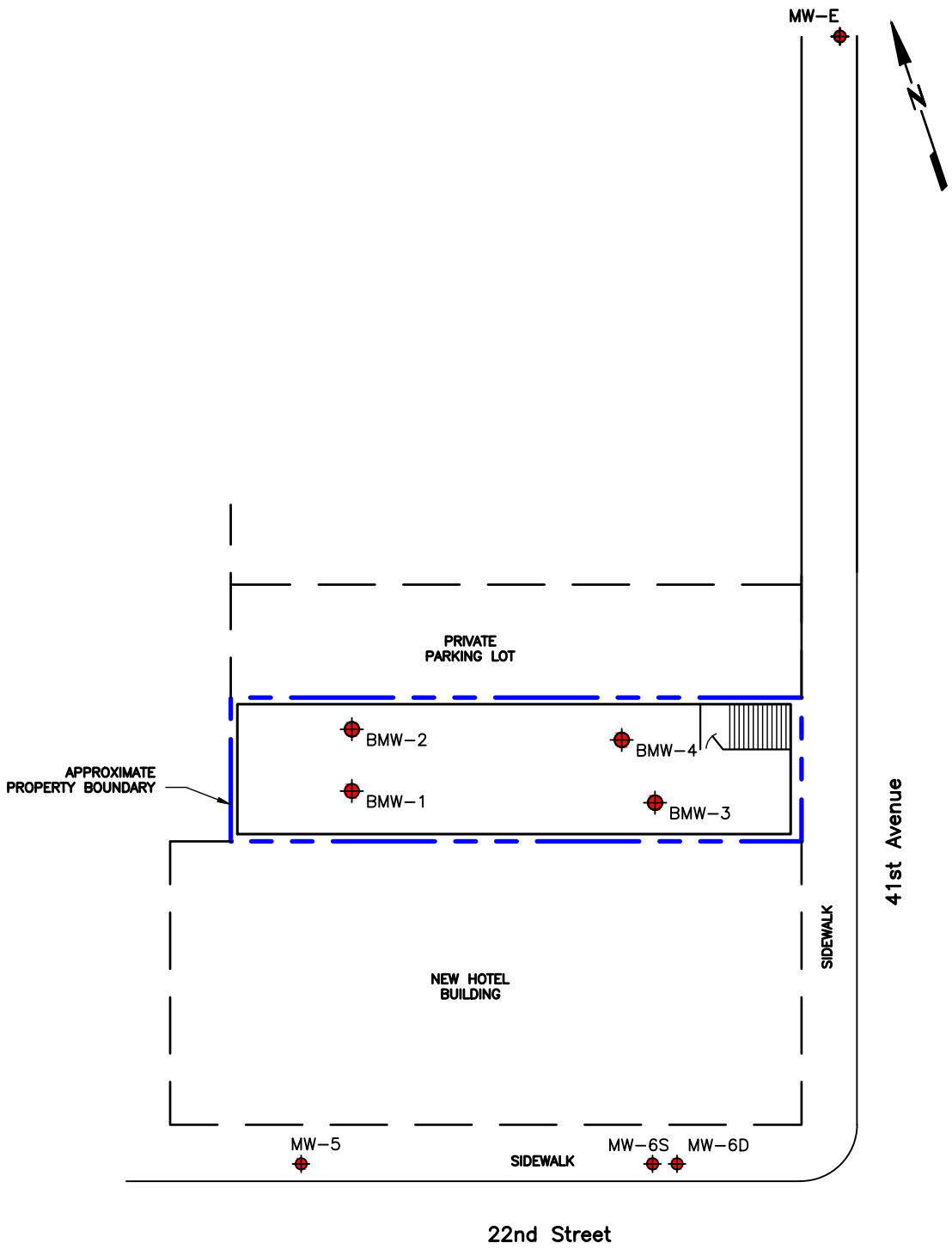
Figure 1
Site Location Map

22-07 41st Avenue
Long Island City, New York

N

0 500 1,000
Feet

Prepared/Date: JCL 12/05/16	Checked/Date: EAW 12/05/16



LEGEND

MONITORING WELL

MW-5 WELL ID

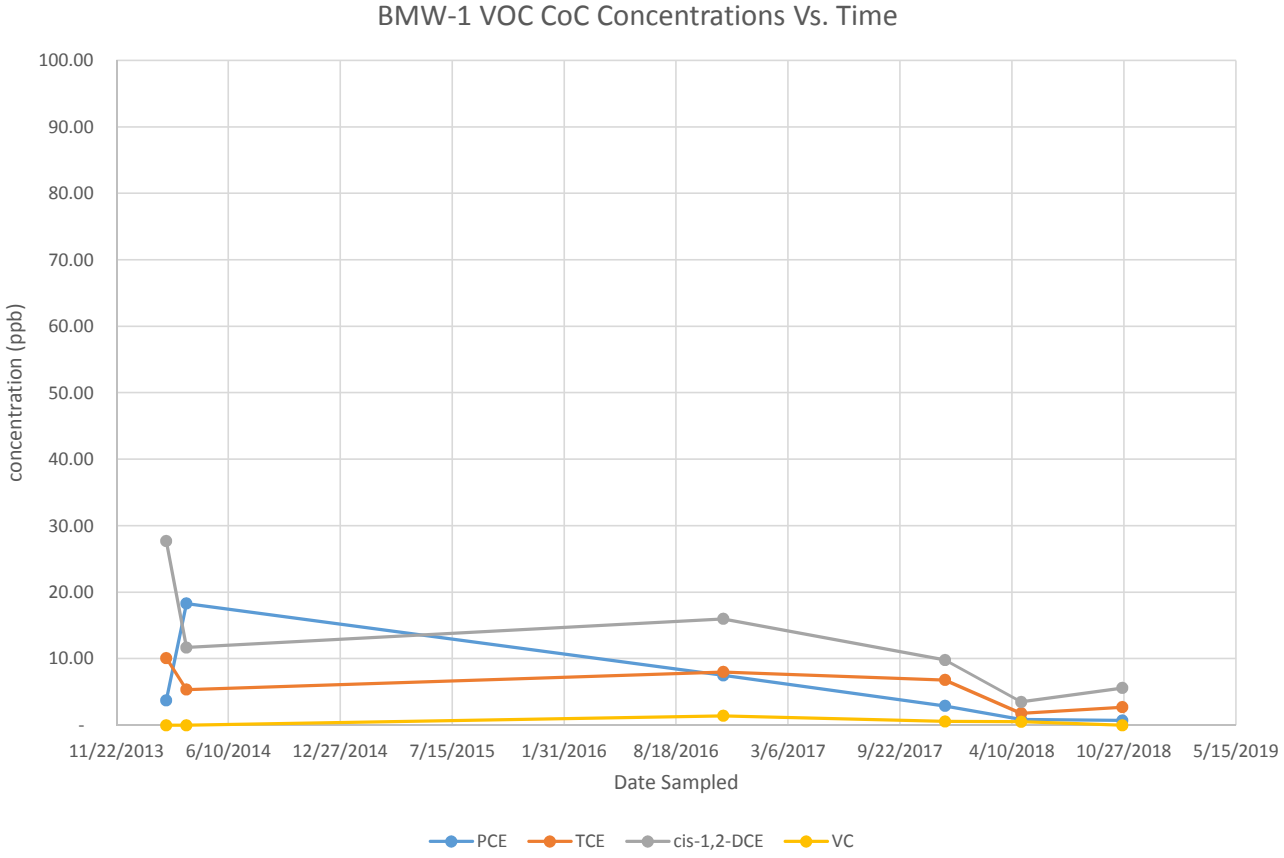
0 10 20 40

SCALE IN FEET

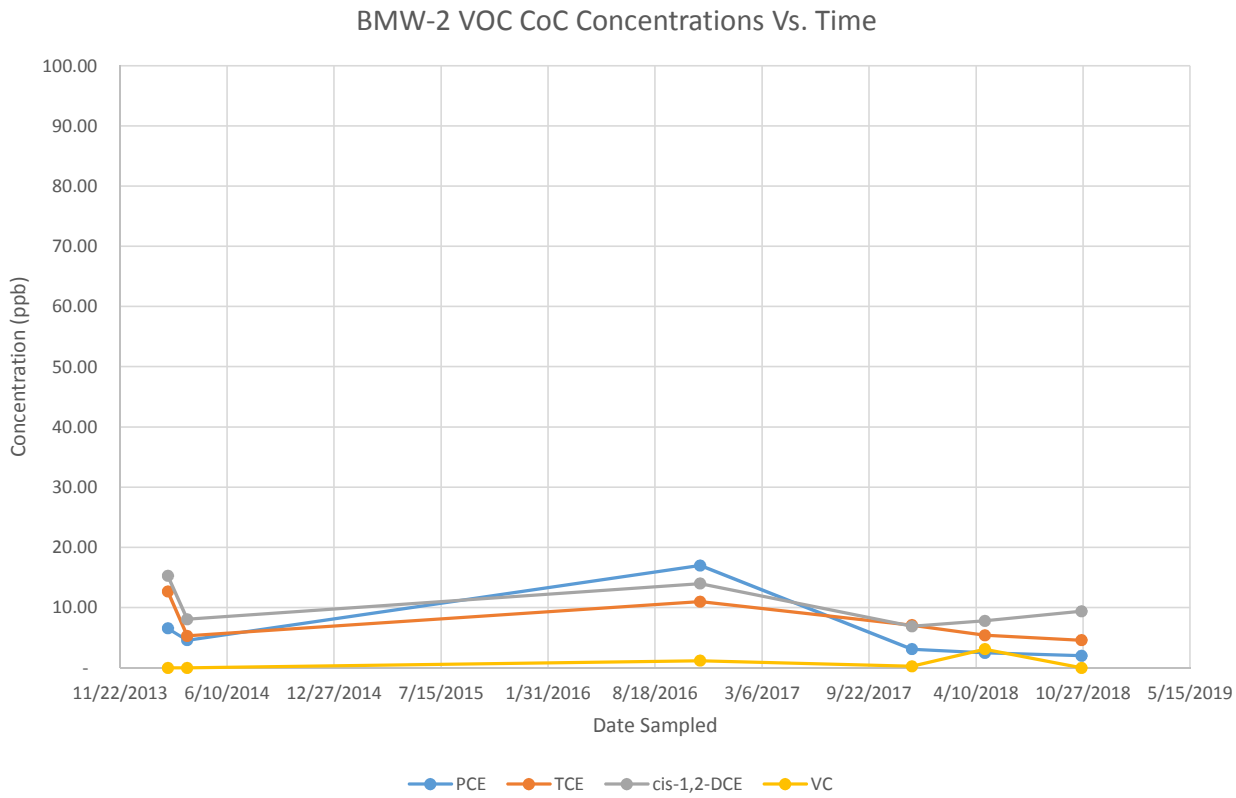
Prepared/Date: BJH 05/21/2018
Checked/Date: EAW 05/21/2018

Former Hygrade Plating 22-07 41st Ave Long Island City, NY	Amec E & E, PC 214-25 42nd Avenue, Suite 3R Bayside, New York 11361 (347) 836-4343	Groundwater Monitoring Well Locations Map Project 3612-162-331 Figure 2

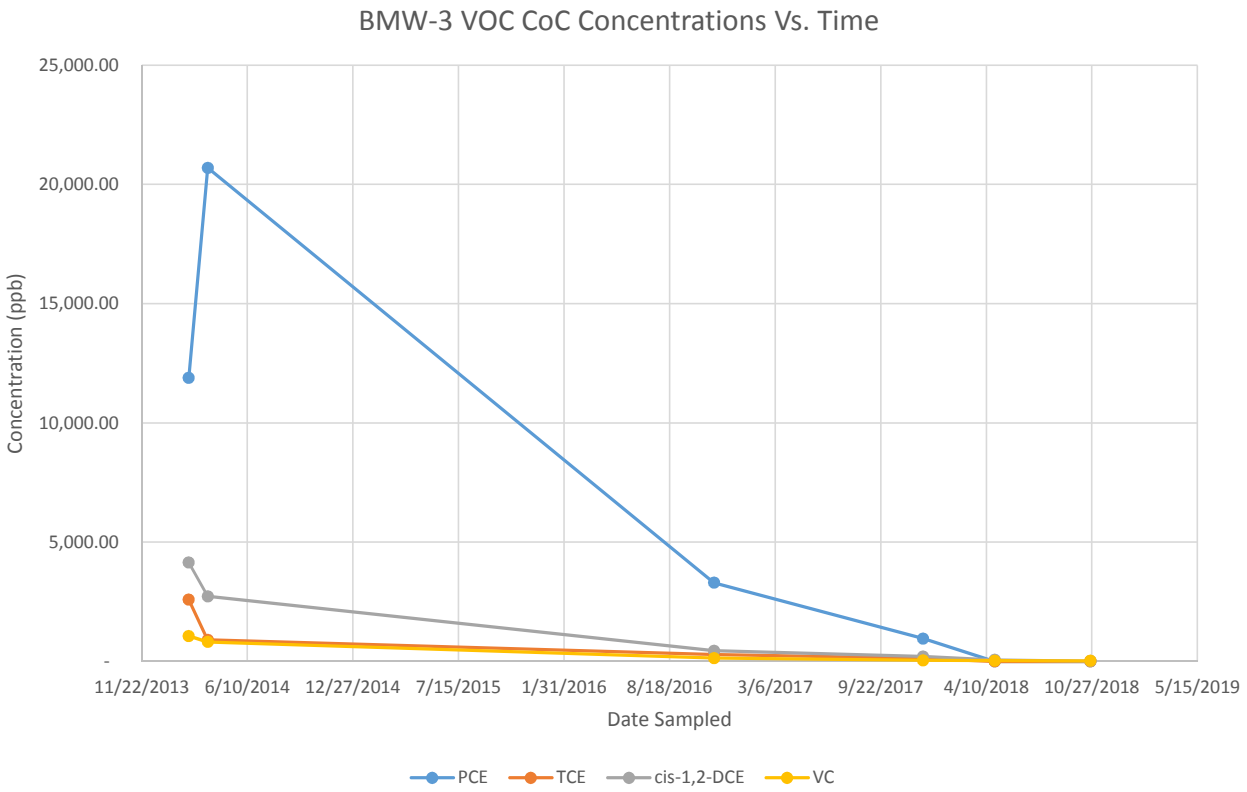
Former Hygrade Plating, Long Island City, NY - Figure 3A



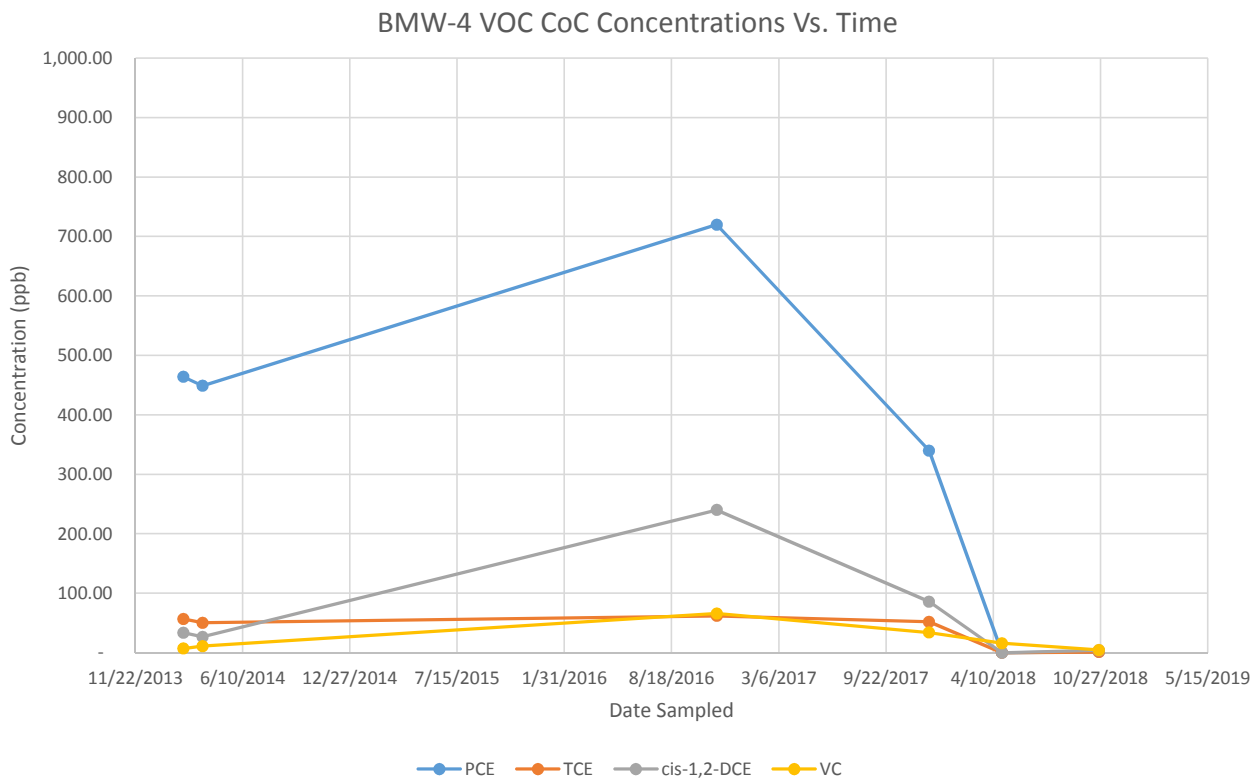
Former Hygrade Plating, Long Island City, NY - Figure 3B



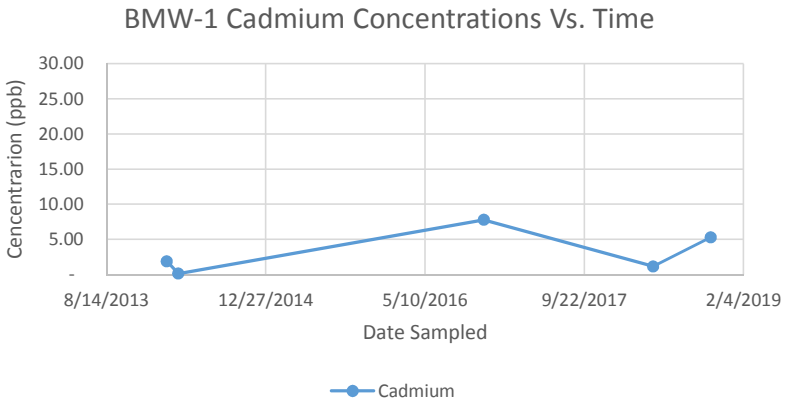
Former Hygrade Plating, Long Island City, NY - Figure 3C

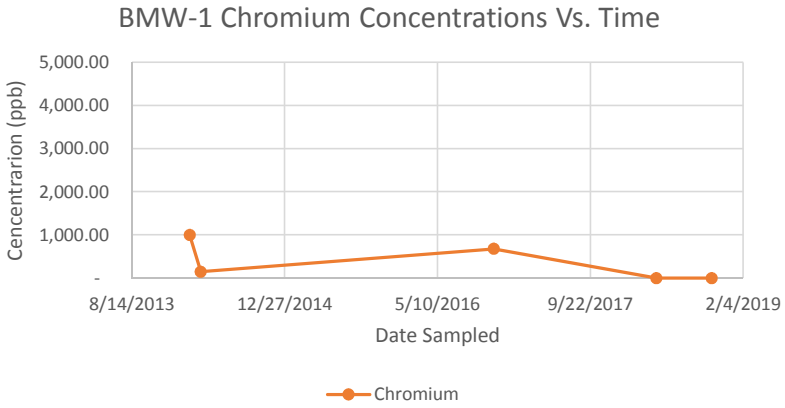


Former Hygrade Plating, Long Island City, NY - Figure 3D



Former Hygrade Plating, Long Island City, NY - Figure 4A





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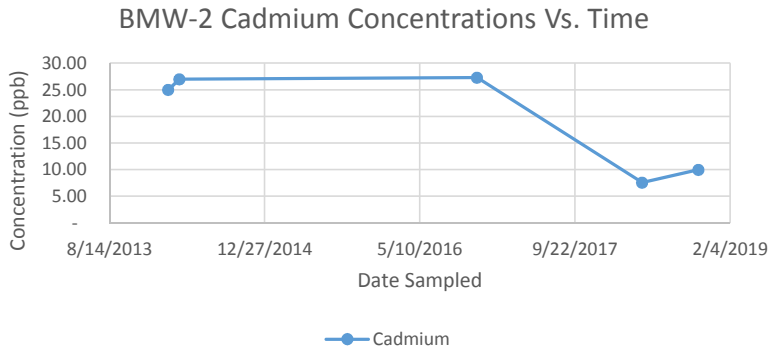
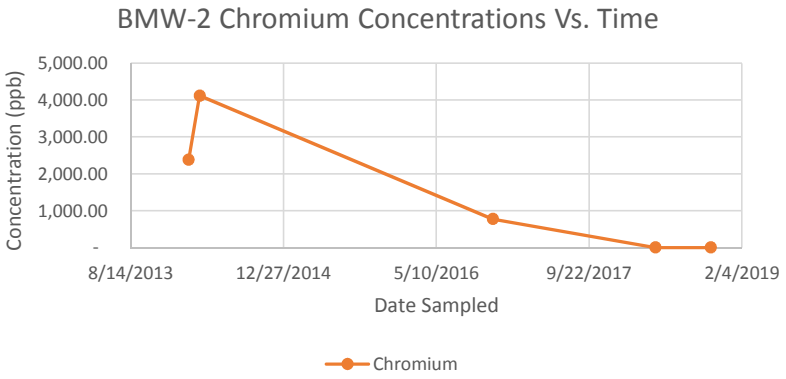
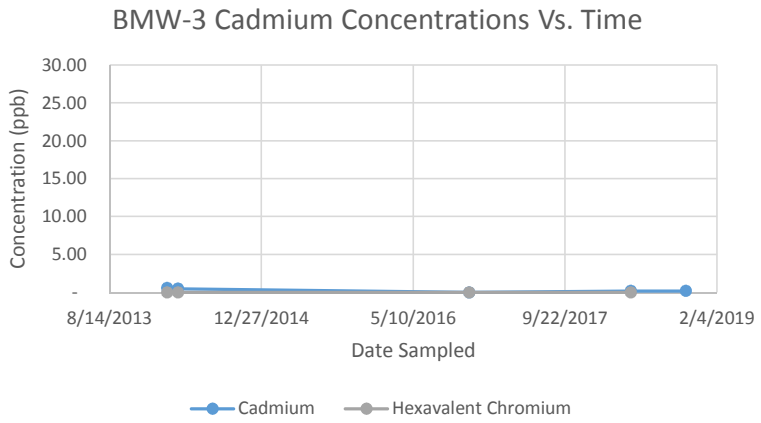
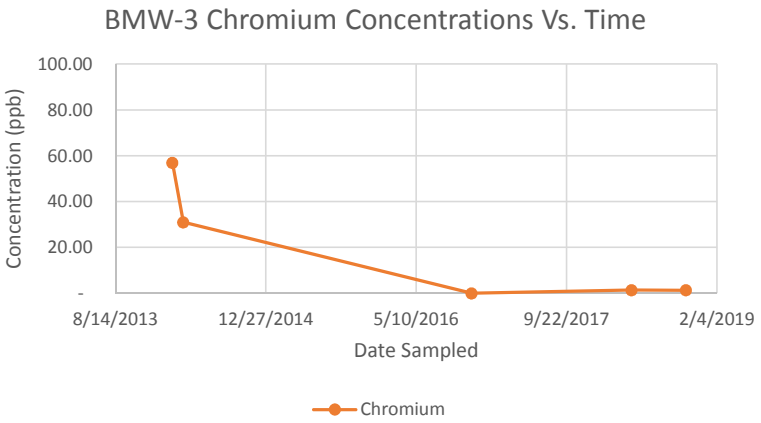


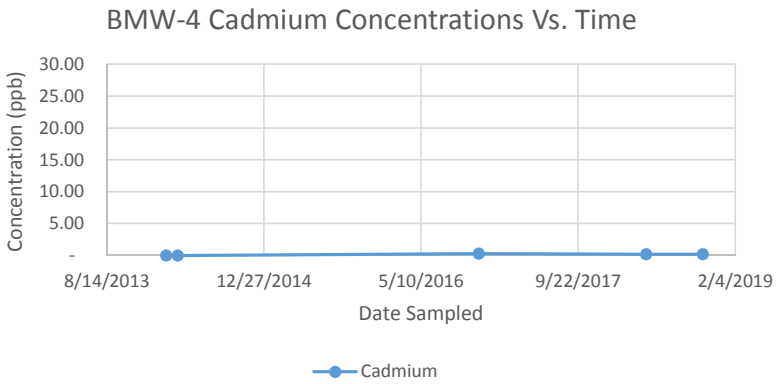


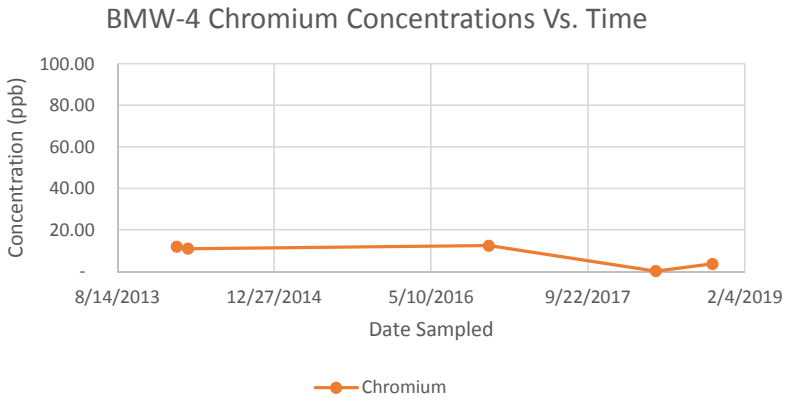
Former Hygrade Plating, Long Island City, NY - Figure 4C



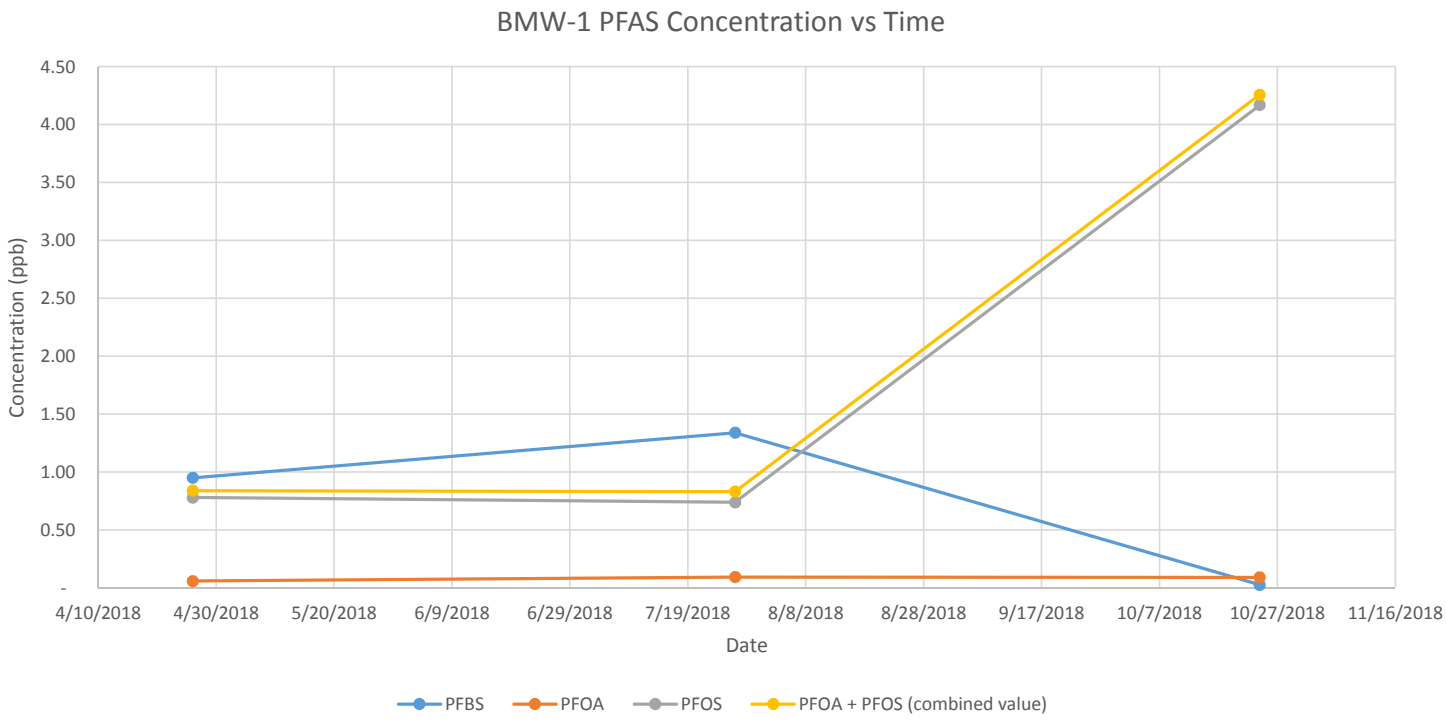


Former Hygrade Plating, Long Island City, NY - Figure 4D

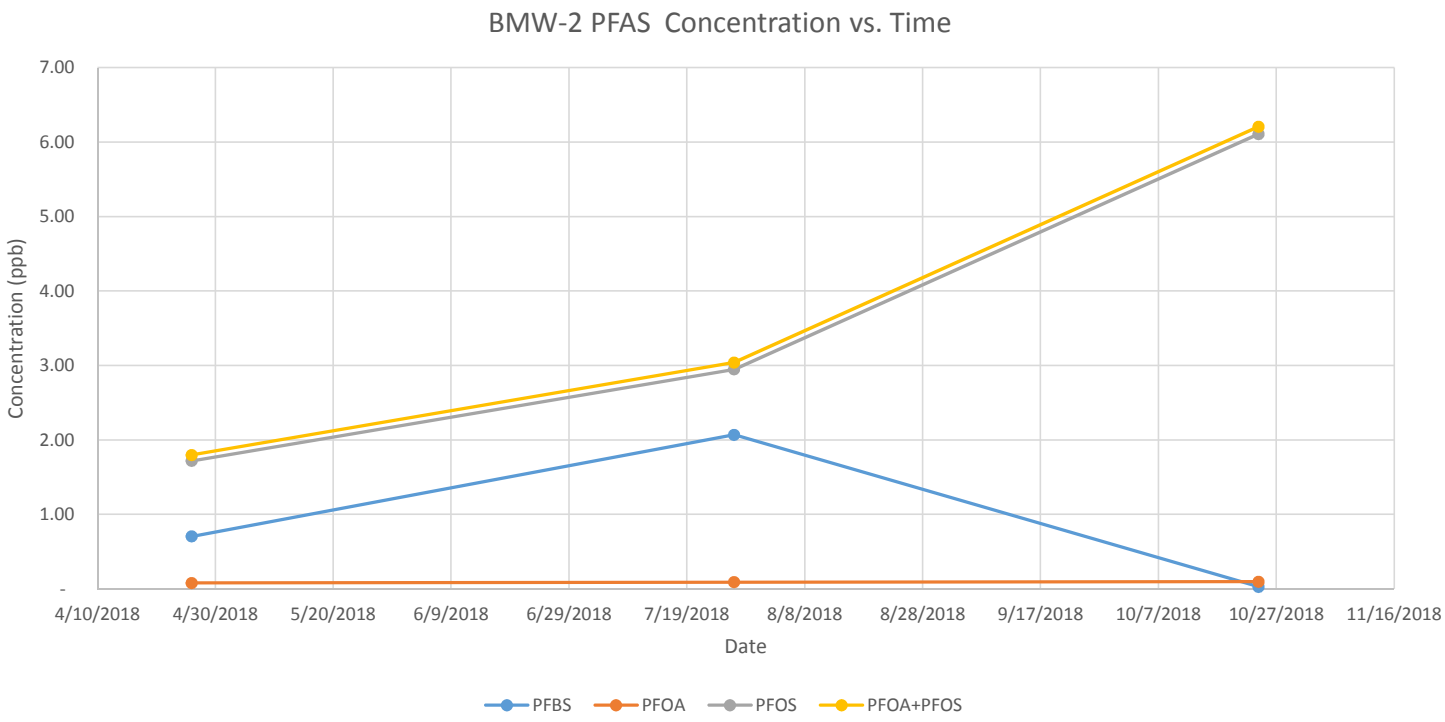




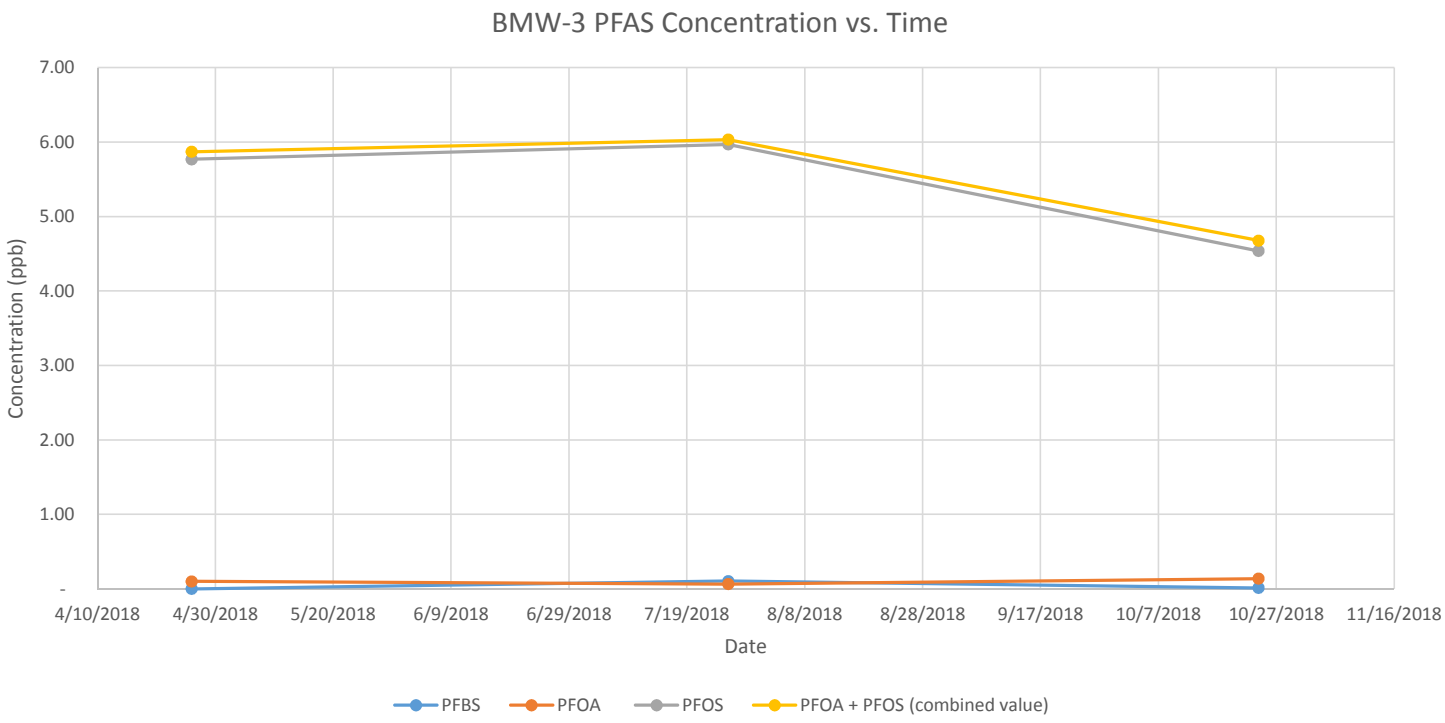
Former Hygrade Plating, Long Island City, NY - Figure 5A



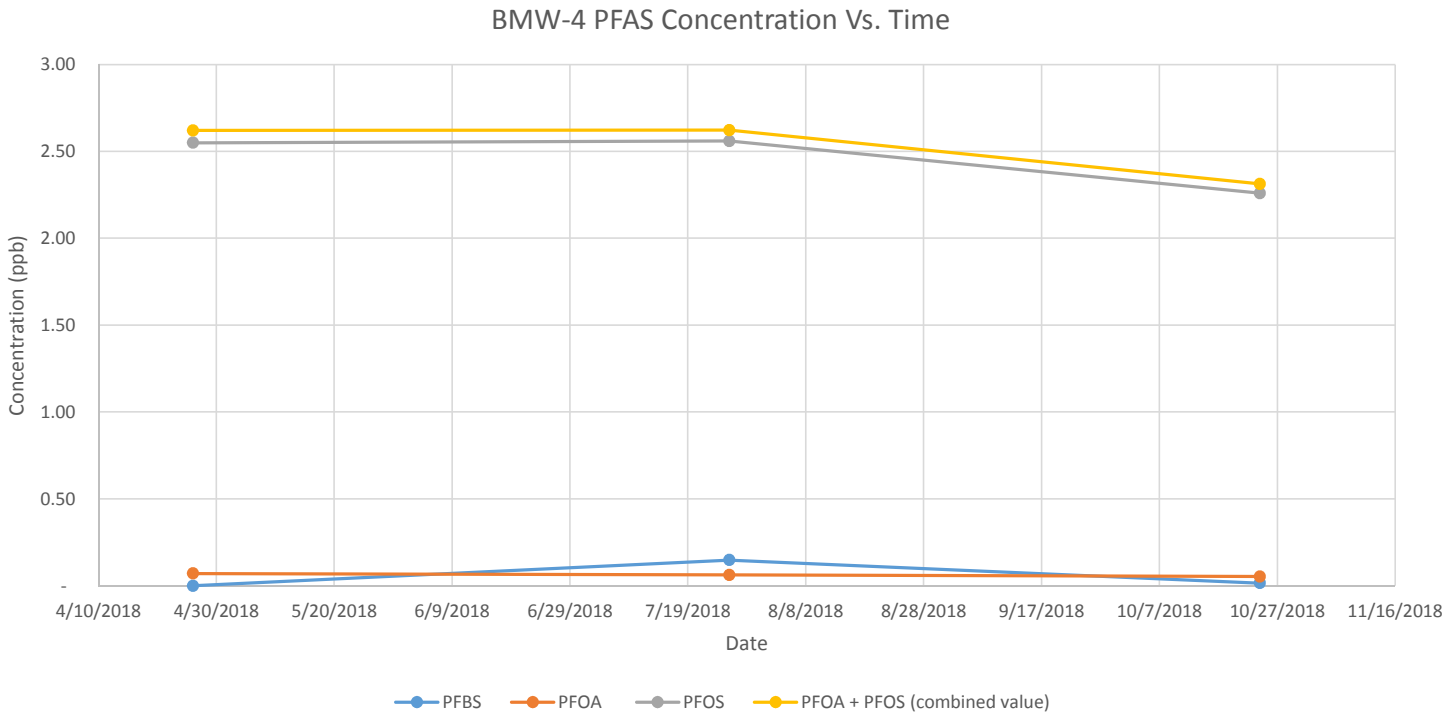
Former Hygrade Plating, Long Island City, NY – Figure 5B



Former Hygrade Plating, Long Island City, NY – Figure 5C



Former Hygrade Plating, Long Island City, NY – Figure 5D



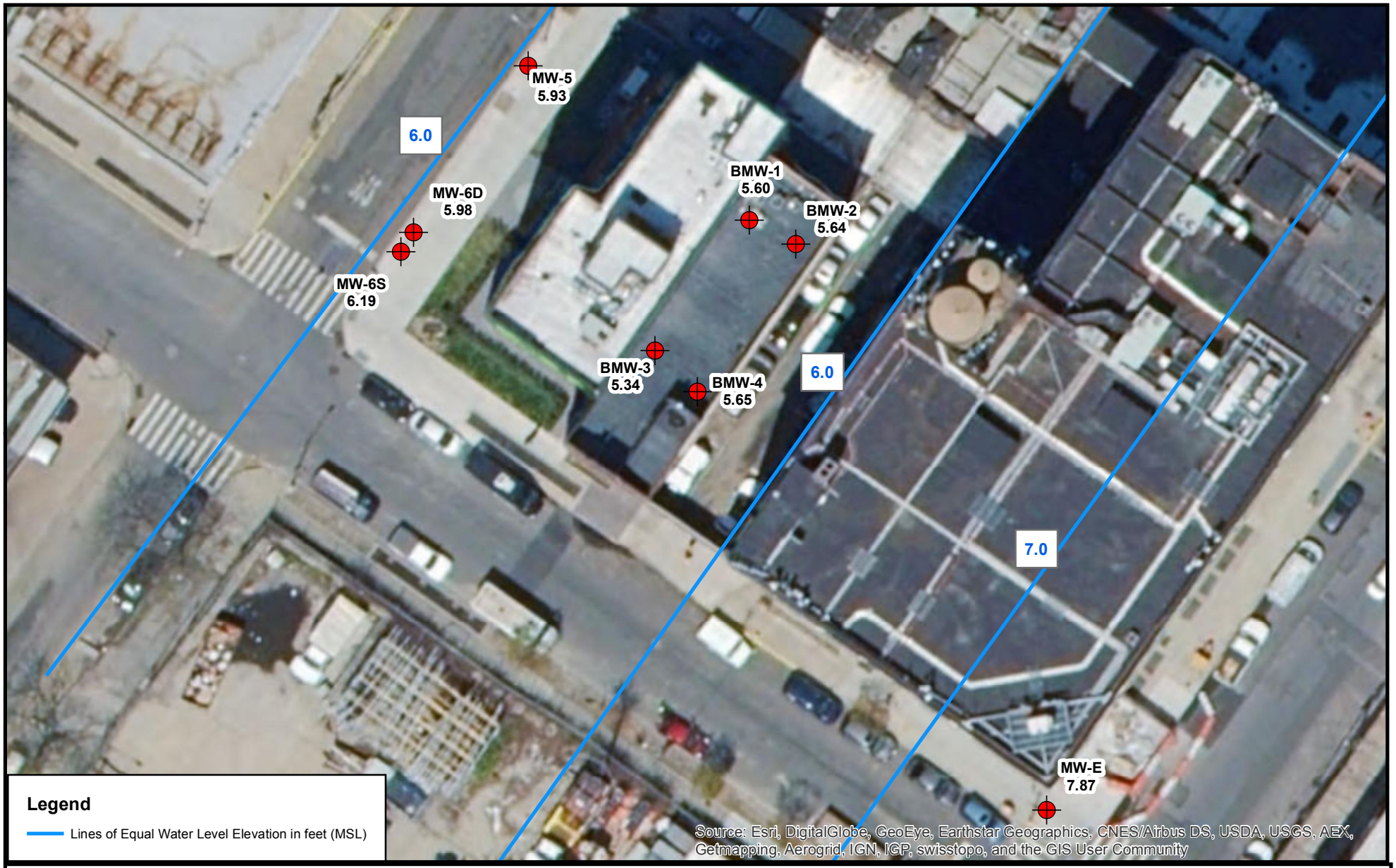


Figure 6
Site-Specific Water Table Map

22-07 41st Avenue
Long Island City, New York

Prepared By: JCL 01/31/19	Checked By: EAW 01/31/19

N

0 15 30 Feet

TABLES

TABLE 1: GROUNDWATER VOCs ANALYTICAL RESULTS
22-07 41st Avenue, Long Island City, NY

SAMPLE ID:		BMW-1		BMW-2		BMW-3		BMW-4		MW-5		MW-6S		MW-6D		MW-E		DUPLICATE	
COLLECTION DATE:		10/24/2018		10/24/2018		10/24/2018		10/24/2018		10/24/2018		10/25/2018		10/24/2018		10/25/2018		10/24/2018	
LOCATION:		BASEMENT		BASEMENT		BASEMENT		BASEMENT		22ND STREET		22ND STREET		22ND STREET		41ST AVENUE		BASEMENT	
DEPTH (ft):		1-6		2.5-7.5		3.5-8.5		3.5-8.5		8-18		8-18		26-31		8-18		3.5-8.5	
SAMPLE MATRIX:		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
ANALYTE (ppb)	**NY-AWQS**	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual
Volatile Organics by GC/MS-8260																			
Methylene chloride	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
1,1-Dichloroethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
Chloroform	7	2.5	U	2.5	U	2.5	U	2.5	U	**1.1**	J	10	U	2.5	U	2.5	U	2.5	U
Carbon tetrachloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	2	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	1	1	U	1	U	1	U	1	U	1	U	4	U	1	U	1	U	1	U
Dibromochloromethane	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	2	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	1	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	6	U	1.5	U	1.5	U	1.5	U
Tetrachloroethene	5	**0.72**		**2**		0.5	U	**1.8**		**0.84**		**34**		**0.92**		0.5	U	**2.1**	
Chlorobenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
Trichlorofluoromethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
1,2-Dichloroethane	0.6	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	2	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
Bromodichloromethane	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	2	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	2	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	2	U	0.5	U	0.5	U	0.5	U
1,3-Dichloropropene, Total	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	2	U	0.5	U	0.5	U	0.5	U
1,1-Dichloropropene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
Bromoform	50	2	U	2	U	2	U	2	U	2	U	8	U	2	U	2	U	2	U
1,1,2,2-Tetrachloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	2	U	0.5	U	0.5	U	0.5	U
Benzene	1	0.5	U	0.5	U	**7.1**		**2.4**		0.5	U	2	U	0.5	U	0.5	U	**2.3**	
Toluene	5	2.5	U	2.5	U	**1.1**	J	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
Ethylbenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
Chloromethane	NS	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
Bromomethane	5	2.5	UJ	2.5	UJ	2.5	UJ	2.5	UJ	2.5	U	10	U	2.5	UJ	2.5	U	2.5	U
Vinyl chloride	2	**0.28**	J	**0.43**	J	**26**		**4.7**		1	U	4	U	**0.11**	J	1	U	**3**	
Chloroethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
1,1-Dichloroethene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	2	U	0.5	U	0.5	U	0.5	U
trans-1,2-Dichloroethene	5	2.5	U	2.5	U	**2.4**	J	**2.6**		2.5	U	10	U	2.5	U	2.5	U	**3**	
Trichloroethene	5	**2.7**		**4.6**		**0.63**		**1.1**		**5.5**		**14**		**1.4**		0.5	U	**1.4**	
1,2-Dichlorobenzene	3	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
1,3-Dichlorobenzene	3	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
1,4-Dichlorobenzene	3	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
Methyl tert butyl ether	10	2.5	U	2.5	U	2.5	U	**2.4**	J	2.5	U	**760**		2.5	U	2.5	U	**2.7**	
p/m-Xylene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
o-Xylene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
Xylenes, Total	NS	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
cis-1,2-Dichloroethene	5	**5.6**		**9.4**		**18**		**4.2**		2.5	U	**32**		2.5	U	2.5	U	**4.6**	
1,2-Dichloroethene, Total	NS	**5.6**		**9.4**		20	J	**6.8**		2.5	U	**32**		2.5	U	2.5	U	**7.6**	

Notes:

ppb	parts per billions
Bold	Analyte detected for sample
NS	No Standard
J	indicates estimated value; concentration is below the reporting limit but above the minimum detection limit
NY-AWQS	New York Ambient Water Quality Standards
*	Duplicate was collected with the BMW-4 sample

Prepared By: JCL | Checked By: EAW

TABLE 1: GROUNDWATER VOCs ANALYTICAL RESULTS
22-07 41st Avenue, Long Island City, NY

SAMPLE ID:		BMW-1		BMW-2		BMW-3		BMW-4		MW-5		MW-6S		MW-6D		MW-E		DUPLICATE*	
COLLECTION DATE:		10/24/2018		10/24/2018		10/24/2018		10/24/2018		10/24/2018		10/25/2018		10/24/2018		10/25/2018		10/24/2018	
LOCATION:		BASEMENT		BASEMENT		BASEMENT		BASEMENT		22ND STREET		22ND STREET		22ND STREET		41ST AVENUE		BASEMENT	
DEPTH (ft):		1-6		2.5-7.5		3.5-8.5		3.5-8.5		8-18		8-18		26-31		8-18		3.5-8.5	
SAMPLE MATRIX:		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
ANALYTE (ppb)	**NY-AWQS**	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual
Volatile Organics by GC/MS-8260																			
Dibromomethane	5	5	U	5	U	5	U	5	U	5	U	20	U	5	U	5	U	5	U
1,2,3-Trichloropropane	0.04	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
Acrylonitrile	5	5	U	5	U	5	U	5	U	5	U	20	U	5	U	5	U	5	U
Styrene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
Dichlorodifluoromethane	5	5	U	5	U	5	U	5	U	5	U	20	U	5	U	5	U	5	U
Acetone	50	5	U	5	U	**36**		5	U	5	U	20	U	5	U	5	U	5	U
Carbon disulfide	60	5	U	5	U	5	U	5	U	5	U	20	U	5	U	5	U	5	U
2-Butanone	50	5	U	5	U	**16**		5	U	5	U	20	U	5	U	5	U	5	U
Vinyl acetate	NS	5	U	5	U	5	U	5	U	5	U	20	U	5	UJ	5	U	5	U
4-Methyl-2-pentanone	NS	5	U	5	U	5	U	5	U	5	U	20	U	5	U	5	U	5	U
2-Hexanone	50	5	U	5	U	5	U	5	U	5	U	20	U	5	U	5	U	5	U
Bromochloromethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
2,2-Dichloropropane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	UJ	2.5	U	2.5	U
1,2-Dibromoethane	0.0006	2	U	2	U	2	U	2	U	2	U	8	U	2	U	2	U	2	U
1,3-Dichloropropane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
1,1,1,2-Tetrachloroethane	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
Bromobenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
n-Butylbenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	UJ	2.5	U	2.5	U
sec-Butylbenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
tert-Butylbenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
o-Chlorotoluene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
p-Chlorotoluene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
1,2-Dibromo-3-chloropropane	0.04	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	UJ	2.5	U	2.5	U
Hexachlorobutadiene	0.5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	UJ	2.5	U	2.5	U
Isopropylbenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	UJ	2.5	U	2.5	U
p-Isopropyltoluene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
Naphthalene	10	2.5	UJ	2.5	UJ	2.5	UJ	2.5	UJ	2.5	U	10	U	2.5	UJ	2.5	U	2.5	U
n-Propylbenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
1,2,3-Trichlorobenzene	5	2.5	UJ	2.5	UJ	2.5	UJ	2.5	UJ	2.5	U	10	U	2.5	UJ	2.5	U	2.5	U
1,2,4-Trichlorobenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	UJ	2.5	U	2.5	U
1,3,5-Trimethylbenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
1,2,4-Trimethylbenzene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
1,4-Dioxane	0.035	250	U	250	U	250	U	250	U	250	U	1000	U	250	U	250	U	250	U
p-Diethylbenzene	NS	2	U	2	U	2	U	2	U	2	U	8	U	2	U	2	U	2	U
p-Ethyltoluene	NS	2	U	2	U	2	U	2	U	2	U	8	U	2	U	2	U	2	U
1,2,4,5-Tetramethylbenzene	5	2	U	2	U	2	U	2	U	2	U	8	U	2	U	2	U	2	U
Ethyl ether	NS	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U
trans-1,4-Dichloro-2-butene	5	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	10	U	2.5	U	2.5	U	2.5	U

Notes:

ppb	parts per billions
Bold	Analyte detected for sample
NS	No Standard
J	indicates estimated value; concentration is below the reporting limit but above the minimum detection limit
NY-AWQS	New York Ambient Water Quality Standards
*	Duplicate was collected with the BMW-4-0418 sample

Prepared By: JCL | Checked By: EAW

TABLE 2: GROUNDWATER METALS ANALYTICAL RESULTS
22-07 41st Avenue, Long Island City, NY

SAMPLE ID:		BMW-1		BMW-2		BMW-3		BMW-4		MW-5		MW-6S		MW-6D		MW-E		DUPLICATE*	
COLLECTION DATE:		10/24/2018		10/24/2018		10/24/2018		10/24/2018		10/24/2018		10/25/2018		10/24/2018		10/25/2018		10/24/2018	
LOCATION:		BASEMENT		BASEMENT		BASEMENT		BASEMENT		22ND STREET		22ND STREET		22ND STREET		41ST AVENUE		BASEMENT	
DEPTH (ft):		1-6		2.5-7.5		3.5-8.5		3.5-8.5		8-18		8-18		26-31		8-18		3.5-8.5	
SAMPLE MATRIX:		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
ANALYTE (ppb)	**NY-AWQS**	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual
Dissolved Metals																			
Aluminum, Dissolved	NS	**4.49**	J	**6.51**	J	10	U	**677**	J	**4.59**	J	**12.6**		10	U	10	U	10	UJ
Antimony, Dissolved	3	4	U	4	U	4	U	4	U	4	U	4	U	4	U	4	U	4	U
Arsenic, Dissolved	25	**0.66**		**0.85**		**4.01**		**9.61**		**0.25**	J	**1.06**		**0.42**	J	**1.41**		**10.73**	
Barium, Dissolved	1000	**110.6**		**97.7**		**205.8**		**120.5**		**90.24**		**82.45**		**133.4**		**58.92**		**115.8**	
Beryllium, Dissolved	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Cadmium, Dissolved	5	**5.33**		**10**		0.2	U	0.2	U	0.2	U	0.2	U	**0.15**	J	0.2	U	0.2	U
Calcium, Dissolved	NS	**246000**		**242000**		**268000**		**229000**		**211000**		**320000**		**255000**		**61900**		**219000**	
Chromium, Dissolved	50	**1.18**	J	**2.17**		**1.33**		**3.67**	J	**3.36**		1	U	1	U	1	U	**0.35**	J
Cobalt, Dissolved	NS	**9.4**		**14.04**		**8.78**		**12.26**		**0.52**		**3.28**		**0.44**	J	**0.17**	J	**11.06**	
Copper, Dissolved	200	**2.9**	J+	**3.61**		1	U	1	U	**1.47**	J+	**0.38**	J+	**2.96**	J+	**1.02**	J+	1	U
Iron, Dissolved	300	**73.1**		**41.1**	J	**1400**		**13000**	J	**44.7**	J	**242**		**26.9**	J	50	U	**10200**	J
Lead, Dissolved	25	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Magnesium, Dissolved	35000	**37300**		**51100**		**54400**	J	**33900**		**12900**		**133000**		**19600**		**9820**		**30300**	
Manganese, Dissolved	300	**9573**		**9751**		**2727**		**3441**	J	**35.65**		**4142**		**299.4**		**138.5**		**3239**	
Mercury, Dissolved	0.7	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Nickel, Dissolved	100	**104.5**		**184.8**		**382.2**		**58.27**		**2.32**		**37.3**		**2.25**		2	U	**55.91**	
Potassium, Dissolved	NS	**29400**		**30000**		**36300**		**35600**		**25900**		**16100**		**27800**		**18200**		**33500**	
Selenium, Dissolved	10	5	U	5	U	5	U	5	U	**6.21**		5	U	**5.25**		5	U	5	U
Silver, Dissolved	50	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Sodium, Dissolved	20000	**286000**		**276000**		**278000**		**181000**		**85800**		**183000**		**108000**		**124000**		**174000**	
Thallium, Dissolved	0.5	**0.73**		**0.43**	J	0.5	U	0.5	U	0.5	U	0.5	U	**0.26**	J	0.5	U	0.5	U
Vanadium, Dissolved	NS	5	U	5	U	5	U	**3.71**	J	5	U	5	U	**3.51**	J	5	U	5	U
Zinc, Dissolved	2000	10	U	10	U	10	U	**8.78**	J	10	U	10	U	10	U	10	U	10	U

Notes:

ppb	parts per billions
Bold	Analyte detected for sample
NS	No Standard
J	indicates estimated value; concentration is below the reporting limit but above the minimum detection limit
J+	indicates estimated value and potentially biased high; concentration is below the reporting limit but above the minimum detection limit
NY-AWQS	New York Ambient Water Quality Standards
*	Duplicate was collected with the BMW-4 sample

Prepared By: JCL | Checked By: EAW

TABLE 2: GROUNDWATER METALS ANALYTICAL RESULTS
22-07 41st Avenue, Long Island City, NY

SAMPLE ID:		BMW-1		BMW-2		BMW-3		BMW-4		MW-5		MW-6S		MW-6D		MW-E		DUPLICATE	
COLLECTION DATE:		10/24/2018		10/24/2018		10/24/2018		10/24/2018		10/24/2018		10/25/2018		10/24/2018		10/25/2018		10/24/2018	
LOCATION:		BASEMENT		BASEMENT		BASEMENT		BASEMENT		22ND STREET		22ND STREET		22ND STREET		41ST AVENUE		BASEMENT	
DEPTH (ft):		1-6		2.5-7.5		3.5-8.5		3.5-8.5		8-18		8-18		26-31		8-18		3.5-8.5	
SAMPLE MATRIX:		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
ANALYTE (ppb)	**NY-AWQS**	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual
Total Metals																			
Aluminum, Total	NS	**4.98**	J	**31**		**71.3**		**9.11**	J	**63.7**		**25.1**		**11.2**		**3810**		**12**	UJ
Antimony, Total	3	4	U	4	U	4	U	4	U	4	U	4	U	4	U	4	U	4	U
Arsenic, Total	25	**1.08**		**1.21**		**18.61**		**41.8**		**0.32**	J	**1.13**		**0.56**		**15.01**		**44.1**	
Barium, Total	1000	**104.3**		**95.15**		**253.1**		**154**		**90.43**		**92.33**		**130**		**208.1**		**159.1**	
Beryllium, Total	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	**0.56**		0.5	U
Cadmium, Total	5	**5.1**		**8.96**		0.2	U	0.2	U	0.2	U	0.2	U	**0.15**	J	**0.26**		0.2	U
Calcium, Total	NS	**249000**		**254000**		**273000**		**233000**		**232000**		**337000**		**272000**		**91100**		**236000**	
Chromium, Total	50	**0.67**	J	**2.54**		**3.02**		**0.2**	J	**6.07**		1	U	1	U	**12.04**		**0.26**	J
Cobalt, Total	NS	**8.94**		**13.26**		**7.5**		**10.58**		**0.73**		**3.26**		**0.5**		**9.75**		**10.58**	
Copper, Total	200	**3.64**		**4.14**		**1.29**		**0.7**	J	**1.73**		**0.78**	J	**3**		**32.71**		**1.03**	J
Iron, Total	300	**422**	J+	**1600**		**22300**		**30700**		**210**	J+	**697**		50	U	**16000**		**30600**	
Lead, Total	25	**0.42**	J	1	U	1	U	1	U	**1.1**		**0.44**	J	1	U	**17.36**		1	U
Magnesium, Total	35000	**35600**		**46300**		**46000**	J	**33100**		**14300**		**132000**		**20800**		**20800**		**32500**	
Manganese, Total	300	**9086**		**9770**		**2378**		**2922**	J	**40.94**		**3687**		**308.6**		**2329**		**2922**	
Mercury, Total	0.7	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Nickel, Total	100	**106.5**		**186**		**383.5**		**58.22**		**2**		**35.61**		**2.17**		**13.66**		**55.43**	
Potassium, Total	NS	**29500**		**31400**		**35200**		**36000**		**28600**		**17000**		**29000**		**21000**		**36300**	
Selenium, Total	10	5	U	5	U	5	U	5	U	**6.87**		5	U	**5.65**		**5.58**		5	U
Silver, Total	50	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Sodium, Total	20000	**265000**		**267000**		**252000**		**178000**		**91700**		**174000**		**108000**		**122000**		**175000**	
Thallium, Total	0.5	**0.73**		**0.44**	J	0.5	U	0.5	U	0.5	U	0.5	U	**0.3**	J	0.5	U	0.5	U
Vanadium, Total	NS	5	U	5	U	**1.82**	J	5	U	5	U	5	U	**3.89**	J	**18.34**		5	U
Zinc, Total	2000	**3.75**	J	10	U	10	U	10	U	10	U	10	U	10	U	**55.5**		10	U

Notes:

ppb	parts per billions
Bold	Analyte detected for sample
NS	No Standard
J	indicates estimated value; concentration is below the reporting limit but above the minimum detection limit
J+	indicates estimated value and potentially biased high; concentration is below the reporting limit but above the minimum detection limit
NY-AWQS	New York Ambient Water Quality Standards
*	Duplicate was collected with the BMW-4-0418 sample

Prepared By: JCL | Checked By: EAW

TABLE 3: GROUNDWATER PFAS ANALYTICAL RESULTS
22-07 41st Avenue, Long Island City, NY

SAMPLE ID:		BMW-1		BMW-2		BMW-3		BMW-4		MW-5		MW-6S		MW-6D		MW-E		DUPLICATE***	
COLLECTION DATE:		10/24/2018		10/24/2018		10/24/2018		10/24/2018		10/24/2018		10/25/2018		10/24/2018		10/25/2018		10/24/2018	
LOCATION:		BASEMENT		BASEMENT		BASEMENT		BASEMENT		22ND STREET		22ND STREET		22ND STREET		41ST AVENUE		BASEMENT	
DEPTH (ft):		1-6		2.5-7.5		3.5-8.5		3.5-8.5		8-18		8-18		26-31		8-18		3.5-8.5	
SAMPLE MATRIX:		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
ANALYTE (ug/L)	**EPA**	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual	Conc	Qual
Perfluorinated Alkyl Acids by Isotope Dilution																			
Perfluorobutanoic Acid (PFBA)	NSG	**0.0259**		**0.0282**		**0.0138**		**0.0154**		**0.0116**		**0.0132**		**0.00992**		**0.0254**		**0.0151**	
Perfluoropentanoic Acid (PFPeA)	NSG	**0.0257**		**0.0262**		**0.0302**		**0.0405**		**0.0195**		**0.0116**		**0.0115**		**0.0504**		**0.0404**	
Perfluorobutanesulfonic Acid (PFBS)	400	**2.16**	**	**2.9**	**	**0.255**		**0.111**		**0.018**		**0.0243**		**0.0206**		**0.00883**		**0.108**	
Perfluorohexanoic Acid (PFHxA)	NSG	**0.0272**		**0.0286**		**0.0487**		**0.0835**		**0.0133**		**0.00904**		**0.0114**		**0.062**		**0.083**	
Perfluoroheptanoic Acid (PFHpA)	NSG	**0.0188**		**0.0189**		**0.0218**		**0.0203**		**0.00786**		**0.00696**		**0.00739**		**0.0147**		**0.0205**	
Perfluorohexanesulfonic Acid (PFHxS)	NSG	**0.297**		**0.589**	**	**0.362**		**0.0607**		**0.00307**		**0.0271**		**0.00307**		**0.00184**	J	**0.0597**	
Perfluorooctanoic Acid (PFOA)*	0.070	**0.09**		**0.0983**		**0.138**		**0.0535**		**0.031**		**0.0652**		**0.0276**		**0.0578**		**0.0538**	
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	NSG	0.00183	U	**0.00337**		**0.0179**	J	0.00225	U	0.00245	U	0.00185	U	0.0018	U	**0.0054**		0.00229	U
Perfluoroheptanesulfonic Acid (PFHpS)	NSG	**0.191**		**0.234**		**0.219**		**0.037**		**0.000907**	J	**0.0128**		**0.00102**	J	0.00189	U	**0.0375**	
Perfluorononanoic Acid (PFNA)	NSG	**0.00387**		**0.00244**		**0.00267**		**0.00247**		**0.00107**	J	**0.00234**		**0.00212**		**0.000625**	J	**0.00251**	
Perfluorooctanesulfonic Acid (PFOS)*	0.070	**4.17**	**	**6.11**	**	**4.54**	**	**2.26**	**	**0.122**		**0.728**	**	**0.0744**		**0.0126**		**2.25**	**
Perfluorodecanoic Acid (PFDA)	NSG	**0.00294**		**0.0023**		0.00208	U	**0.000739**	J	0.00178	U	0.00185	U	**0.000856**	J	**0.000746**	J	**0.00072**	J
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	NSG	0.00179	U	0.00185	U	0.00208	U	0.00225	U	0.00178	U	0.00185	U	0.0018	U	0.00189	U	0.00229	U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	NSG	**0.000394**	J	0.00185	U	0.00208	U	0.00225	U	0.00178	U	0.00185	U	0.0018	U	0.00189	U	**0.00033**	J
Perfluoroundecanoic Acid (PFUnA)	NSG	0.00179	U	0.00185	U	0.00208	U	0.00225	U	0.00178	U	0.00185	U	0.0018	U	0.00189	U	0.00229	U
Perfluorodecanesulfonic Acid (PFDS)	NSG	0.00179	U	0.00185	U	0.00208	U	0.00225	U	0.00178	U	0.00185	U	0.0018	U	0.00189	U	0.00229	U
Perfluorooctanesulfonamide (FOSA)	NSG	0.00179	U	0.00185	U	0.00208	U	0.00225	U	0.00178	U	0.00185	U	0.0018	U	0.00189	U	0.00229	U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	NSG	**0.000509**	J	**0.000418**	J	0.00208	U	0.00225	U	0.00178	U	0.00185	U	0.0018	U	0.00189	U	0.00229	U
Perfluorododecanoic Acid (PFDoA)	NSG	0.00179	U	0.00185	U	0.00208	U	0.00225	U	0.00178	U	0.00185	U	0.0018	U	0.00189	U	0.00229	U
Perfluorotridecanoic Acid (PFTrDA)	NSG	0.00179	U	0.00185	U	0.00208	U	0.00225	U	0.00178	U	0.00185	U	0.0018	U	0.00189	U	0.00229	U
Perfluorotetradecanoic Acid (PFTA)	NSG	0.00179	U	0.00185	U	0.00208	U	0.00225	U	0.00178	U	0.00185	U	0.0018	U	0.00189	U	0.00229	U
PFOA + PFOS (combined value)	0.070	**4.26**		**6.2083**		**4.678**		**2.3135**		**0.153**		**0.7932**		**0.102**		**0.070**		**2.3038**	

Notes:

Bold	Analyte detected for sample
E	Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
NSG	No Standard Given
J	indicates estimated value; concentration is below the reporting limit but above the minimum detection limit
EPA	EPA drinking water guideline, May 2016
*	Guideline value for combined concentrations of PFOS and PFOA
**	Due to analyte exceedance above laboratory instrument, the tabulated value is from second laboratory run after a 1 to 10 dilution factor
***	Duplicate was collected with the BMW-4 sample

Prepared By: JCL | Checked By: EAW

TABLE 4: PREVIOUS INVESTIGATION RESULTS FOR CONTAMINANTS OF CONCERN - VOCs
22-07 41ST AVENUE, LONG ISLAND CITY, NY

Former Hygrade Plating GW Results in ug/l

VOCs in ug/l

BMW-1								
Date:	2/19/2014	3/27/2014	11/10/2016	12/11/2017	4/26/2018	7/27/2018	10/24/2018	NY-AWQS
PCE	3.74	18.30	7.50	2.90	0.86	0.7	0.72	5.00
TCE	10.10	5.37	8.00	6.80	1.80	2.2	2.7	5.00
c-1,2-DCE	27.70	11.70	16.00	9.80	3.50	4.5	5.6	5.00
VC	ND	ND	1.40	0.56	0.51 J	0.22 J	0.28J	2.00

BMW-2								
Date:	2/19/2014	3/27/2014	11/10/2016	12/11/2017	4/26/2018	7/27/2018	10/24/2018	NY-AWQS
PCE	6.56	4.59	17.00	3.10	2.50	1.6	2.0	5.00
TCE	12.70	5.30	11.00	7.10	5.40	3.7	4.6	5.00
c-1,2-DCE	15.30	8.07	14.00	6.90	7.80	4.3	9.4	5.00
VC	ND	ND	1.20	0.26	3.10	0.3 J	0.43J	2.00

BMW-3								
Date:	2/19/2014	3/27/2014	11/10/2016	12/11/2017	4/26/2018	7/26/2018	10/24/2018	NY-AWQS
PCE	11,900.00	20,700.00	3,300.00	960.00	ND	ND	ND	5.00
TCE	2,600.00	910.00	290.00	130.00	ND	5.5	0.63	5.00
c-1,2-DCE	4,150.00	2,730.00	450.00	210.00	71.00	180	18	5.00
VC	1,070.00	818.00	140.00	46.00	34.00	47	26	2.00

BMW-4								
Date:	2/19/2014	3/27/2014	11/10/2016	12/11/2017	4/26/2018	7/26/2018	10/24/2018	NY-AWQS
PCE	464.00	449.00	720.00	340.00	ND	2.2	1.8	5.00
TCE	56.90	50.50	62.00	52.00	2.4 J	2.7	1.1	5.00
c-1,2-DCE	33.70	26.70	240.00	86.00	12 J	6.3	4.2	5.00
VC	6.96	11.20	66.00	34.00	16.00	3.1	4.7	2.00

MW-5					
Date:	5/4/2017	4/27/2018	7/26/2018	10/24/2018	NY-AWQS
PCE	0.53	0.57	0.57	0.84	5.00
TCE	2.70	3.40	4.6	5.5	5.00
c-1,2-DCE	ND	ND	ND	ND	5.00
VC	ND	ND	ND	ND	2.00

MW-6S					
Date:	5/4/2017	4/27/2018	7/26/2018	10/25/2018	NY-AWQS
PCE	0.46	37	13	34	5.00
TCE	0.75	10	6.4	14	5.00
c-1,2-DCE	ND	23	33	32	5.00
VC	ND	ND	1.2 J	ND	2.00

MW-6D					
Date:	5/4/2017	4/27/2018	7/26/2018	10/24/2018	NY-AWQS
PCE	43	0.58	0.49 J	0.92	5.00
TCE	13	1.1	1.1	1.4	5.00
c-1,2-DCE	ND	ND	ND	ND	5.00
VC	ND	ND	0.08 J	0.11J	2.00

MW-E					
Date:	5/4/2017	4/27/2018	7/26/2018	10/25/2018	NY-AWQS
PCE	0.31	ND	ND	ND	5.00
TCE	ND	ND	ND	0.5	5.00
c-1,2-DCE	ND	ND	ND	ND	5.00
VC	ND	ND	ND	ND	2.00

TABLE 5: PREVIOUS INVESTIGATION RESULTS FOR CONTAMINANTS OF CONCERN - METALS
22-07 41ST AVENUE, LONG ISLAND CITY, NY

Former Hygrade Plating GW Results in ug/l

Dissolved Metals in ug/l

BMW-1							
Date:	2/19/2014	3/27/2014	11/10/2016	4/26/2018	7/27/2028	10/24/2018	NY-AWQS
Cadmium	1.90	0.15	7.80	1.17	3.19	5.33	5.00
Chromium	1,000.00	150.00	679.60	1.10	0.95 J	1.18	50.00
Hex Chromium	240.00	190.00	593.00				50.00

BMW-2							
Date:	2/19/2014	3/27/2014	11/10/2016	4/26/2018	7/27/2018	10/24/2018	NY-AWQS
Cadmium	25.00	27.00	27.30	7.60	11.61	10	5.00
Chromium	2,380.00	4,120.00	775.10	2.03	1.85	2.17	50.00
Hex Chromium	2,410.00	2,630.00	81.00				50.00

BMW-3							
Date:	2/19/2014	3/27/2014	11/10/2016	4/26/2018	7/26/2018	10/24/2018	NY-AWQS
Cadmium	0.60	0.50	ND	0.20	ND	0.2	5.00
Chromium	57.00	31.00	ND	1.40	1.38	1.33	50.00
Hex Chromium	ND	ND	ND				50.00

BMW-4							
Date:	2/19/2014	3/27/2014	11/10/2016	4/26/2018	7/26/2018	10/24/2018	NY-AWQS
Cadmium	ND	ND	0.30	0.2	ND	0.2	5.00
Chromium	12.00	11.00	12.50	0.23	0.72 J	3.67	50.00
Hex Chromium	ND	ND	16.00				50.00

MW-5					
Date:	5/4/2017	4/27/2018	7/27/2018	10/24/2018	NY-AWQS
Cadmium	0.11	ND	0.1 J	0.2	5.00
Chromium	ND	7.08	5.67	3.36	50.00
Hex Chromium	ND	NA			50.00

MW-6S					
Date:	5/4/2017	4/27/2018	7/27/2018	10/25/2018	NY-AWQS
Cadmium	0.16	ND	ND	0.2	5.00
Chromium	ND	0.24	0.18 J	1	50.00
Hex Chromium	ND	NA			50.00

MW-6D					
Date:	5/4/2017	4/27/2018	7/27/2018	10/24/2018	NY-AWQS
Cadmium	ND	0.09	0.11 J	0.15	5.00
Chromium	ND	2.24	0.71 J	1	50.00
Hex Chromium	ND	NA			50.00

MW-E					
Date:	5/4/2017	4/27/2018	7/27/2018	10/25/2018	NY-AWQS
Cadmium	ND	ND	ND	0.2	5.00
Chromium	ND	0.43	1.07	1	50.00
Hex Chromium	ND	NA			50.00

TABLE 6: PREVIOUS INVESTIGATION RESULTS FOR CONTAMINANTS OF CONCERN - PFAS
22-07 41ST AVENUE, LONG ISLAND CITY, NY

Former Hygrade Plating GW Results in ug/l

VOCs in ug/l

BMW-1				
Date:	4/26/2018	7/27/2018	10/24/2018	EPA
PFBS	0.95**	1.34**	0.0259	400
PFOA	0.0591	0.0926	0.09	0.070
PFOS	0.78**	0.739**	4.17	0.070
PFOA + PFOS (combined value)	0.8391	0.8316	4.26	0.070

BMW-2				
Date:	4/26/2018	7/27/2018	10/24/2018	EPA
PFBS	0.706**	2.07	0.0282	400
PFOA	0.0797	0.0914	0.0983	0.070
PFOS	1.72**	2.95**	6.11	0.070
PFOA + PFOS (combined value)	1.7997	3.0414	6.208	0.070

BMW-3				
Date:	4/26/2018	7/26/2018	10/24/2018	EPA
PFBS	0.111 J	0.106	0.0138	400
PFOA	0.102	0.0643	0.138	0.070
PFOS	5.77**	5.97**	4.54	0.070
PFOA + PFOS (combined value)	5.872	6.0343	4.678	0.070

BMW-4				
Date:	4/26/2018	7/26/2018	10/24/2018	EPA
PFBS	0.248 J	0.148	0.0154	400
PFOA	0.0712	0.0627	0.0535	0.070
PFOS	2.55**	2.56**	2.26	0.070
PFOA + PFOS (combined value)	2.6212	2.6227	2.314	0.070

MW-5				
Date:	4/27/2018	7/26/2018	10/24/2018	EPA
PFBS	0.0119	0.0214	0.0116	400
PFOA	0.0182	0.0305	0.031	0.070
PFOS	0.0656	0.112	0.122	0.070
PFOA + PFOS (combined value)	0.0838	0.1425	0.153	0.070

MW-6S				
Date:	4/27/2018	7/26/2018	10/25/2018	EPA
PFBS	0.0225	0.0227	0.0132	400
PFOA	0.0487	0.614	0.0652	0.070
PFOS	0.479	0.541**	0.789	0.070
PFOA + PFOS (combined value)	0.5277	1.155	0.854	0.070

MW-6D				
Date:	4/27/2018	7/26/2018	10/24/2018	EPA
PFBS	0.0138	0.0275	0.00992	400
PFOA	0.0174	0.0246	0.0276	0.070
PFOS	0.0644	0.0608	0.0744	0.070
PFOA + PFOS (combined value)	0.0818	0.0854	0.102	0.070

MW-E				
Date:	4/27/2018	7/26/2018	10/25/2018	EPA
PFBS	0.00714	0.0111	0.0254	400
PFOA	0.0292	0.0641	0.0578	0.070
PFOS	0.00526	0.00921	0.0126	0.070
PFOA + PFOS (combined value)	0.03446	0.07331	0.070	0.070

** Due to analyte exceedance above laboratory instrument, the tabulated value is from second laboratory run after a 1 to 10 dilution factor

TABLE 7: ELEVATIONS OF MONITORING WELLS AND WATER TABLE
FORMER HYGRADE
LONG ISLAND CITY, NEW YORK

Well ID Number	Elevation of Top of Casing (ft. MSL)	Depth to Water (ft.) in October 2018	Water Table Elevation (ft. MSL)	Depth to Top of Screen Interval (ft.)	Depth to Bottom of Screen Interval (ft.)	Elevation of Top of Screen (ft. MSL)	Elevation of Bottom of Screen Interval (ft. MSL)
MW-E	16.21	8.34	7.87	5	15	11.2	1.2
BMW-1	7.52	1.92	5.60	1	6	6.5	1.5
BMW-2	7.57	1.93	5.64	2.5	7.5	5.1	0.1
BMW-3	7.42	2.08	5.34	3.5	8.5	3.9	-1.1
BMW-4	7.40	1.75	5.65	4.6	9.6	2.8	-2.2
MW-5	14.50	8.57	5.93	8	18	6.5	-3.5
MW-6S	14.09	7.90	6.19	8.5	18.5	5.6	-4.4
MW-6D	14.18	8.20	5.98	26.5	31.5	-12.3	-17.3

APPENDIX A – FIELD FORMS

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Hygrade Plating	LOCATION ID	BMW-1	DATE	10/24/18
PROJECT NUMBER	3612162331	START TIME	1200	END TIME	1310
SAMPLE ID	BMW-1-102018	SAMPLE TIME	1300	SITE NAME/NUMBER	Former Hygrade Plating
				PAGE	1 OF 1

WELL DIAMETER (INCHES): [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES): [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP): [ ] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED			✓
COLLAR	✓		

INITIAL DTW (BMP)	1.92 FT	FINAL DTW (BMP)	2.05 FT	PROT. CASING STICKUP (AGS)	NA FT	TOC/TOR DIFFERENCE	0.4 FT
WELL DEPTH (BMP)	8.4 FT	SCREEN LENGTH	5 FT	PID AMBIENT AIR	— PPM	REFILL TIMER SETTING	NA SEC
WATER COLUMN	6.48 FT	DRAWDOWN VOLUME (initial DTW- final DTW X well diam. squared X 0.041)	0.02 GAL	PID WELL MOUTH	— PPM	DISCHARGE TIMER SETTING	NA SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	1.06 GAL	TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL)	2.32 GAL	DRAWDOWN/ TOTAL PURGED		PRESSURE TO PUMP	NA PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1219	BEGIN PURGING									
1230	2.04	200	19.06	2.454	6.79	0.57	3.16	-53.1		
1235	2.05	200	19.05	2.448	6.77	0.41	3.27	-50.1		
1240	2.05	200	19.05	2.439	6.78	0.38	1.97	-49.3		
1245	2.05	200	19.04	2.429	6.77	0.29	1.22	-50.9		
1250	2.05	200	19.03	2.425	6.78	0.27	0.61	-52.9		
1300	Collect		Sample							

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

19	2.43	6.8	0.3	0.61	-53	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP: [X] PERISTALTIC [ ] SUBMERSIBLE [ ] BLADDER [ ] WATTERA [ ] OTHER [ ] OTHER

DECON FLUIDS USED: [ ] LIQUINOX [ ] DEIONIZED WATER [ ] POTABLE WATER [ ] NITRIC ACID [ ] HEXANE [ ] METHANOL [X] OTHER Micronox

TUBING/PUMP/BLADDER MATERIALS: [ ] SILICON TUBING [ ] TEFLON TUBING [ ] TEFLON LINED TUBING [X] HDPE TUBING [ ] LDPE TUBING [ ] OTHER [ ] OTHER

[ ] S. STEEL PUMP MATERIAL [ ] PVC PUMP MATERIAL [ ] GEOPROBE SCREEN [ ] TEFLON BLADDER [ ] OTHER [ ] OTHER [ ] OTHER

EQUIPMENT USED: [X] WL METER Heron [ ] PID [X] WQ METER YSI 556 [X] TURB. METER HACH 2100Q [X] PUMP GEOPUMP [ ] OTHER [ ] FILTERS NO. ___ TYPE ___

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
[ ]	VOCs	8260C	NA	HCL + 4 DEG C	3 x 40 ml		—	BMW-1-2018
[✓]	Total Metals	6020	NA	HNO3 + 4 DEG C	1 X 250 ml		—	
[✓]	Dissolved Metals	6020	NO	4 DEG C	1 X 250 ml		—	
[✓]	PFAS	537	NA	Trizma + 4DEG C	2 X 250 ml		—	
[ ]								
[ ]								
[ ]								

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [X] NO [ ]

NO-PURGE METHOD UTILIZED: YES [ ] NO [ ]

NUMBER OF GALLONS GENERATED: 2.25

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signature: Jazmin Logan Print Name: J. Logan

Checked By: Date:

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Hygrade Plating
PROJECT NUMBER	3612162331
SAMPLE ID	BMW-2-1018
SAMPLE TIME	12:45
LOCATION ID	BMW-2
DATE	10/24/18
START TIME	1205
END TIME	12:45
SITE NAME/NUMBER	Former Hygrade Plating
PAGE	1 OF 1

WELL DIAMETER (INCHES): [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES): [ ] 1/8 [ ] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP): [ ] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP	X		
CASING	X		
LOCKED		X	
COLLAR	X		

INITIAL DTW (BMP)	1.93 FT	FINAL DTW (BMP)	2.05 FT	PROT. CASING STICKUP (AGS)	FT	TOC/TOR DIFFERENCE	FT
WELL DEPTH (BMP)	8 FT	SCREEN LENGTH	5 FT	PID AMBIENT AIR	PPM	REFILL TIMER SETTING	SEC
WATER COLUMN	6.07 FT	DRAWDOWN VOLUME (initial DTW- final DTW X well diam. squared X 0.041)	0.02 GAL	PID WELL MOUTH	PPM	DISCHARGE TIMER SETTING	SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	0.99 GAL	TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL)	3.12 GAL	DRAWDOWN/ TOTAL PURGED		PRESSURE TO PUMP	PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1205	BEGIN PURGING									
1210	2.02	300	19.17	2.543	7.22	0.43	31.4	2.7		
1215	2.05	300	19.10	2.536	7.04	0.27	37.4	8.5		
1220	2.03	300	19.08	2.571	7.00	0.33	28.0	8.8		
1225	2.04	300	19.08	2.595	6.98	0.34	18.9	0.2		
1230	2.03	300	19.08	2.607	6.97	0.34	15.3	-1.2		
1235	2.03	300	19.08	2.631	6.97	0.40	10.1	-4.6		
1240	2.05	300	19.07	2.646	6.98	0.43	7.73	-4.0		
1245	2.05	300	19.07	2.651	6.98	0.42	6.32	-4.1		sample

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

19	2.65	7.0	0.4	6.3	-4.1	

TEMP: nearest degree (ex. 10.1 = 10)
COND: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] WATTERA
- [ ] OTHER
- [ ] OTHER

DECON FLUIDS USED
- [ ] LIQUINOX
- [X] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [X] OTHER Alcohol

TUBING/PUMP/BLADDER MATERIALS
- [X] SILICON TUBING
- [ ] TEFLON TUBING
- [ ] TEFLON LINED TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER
- [ ] OTHER
- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] TEFLON BLADDER
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [X] WL METER
- [ ] PID
- [X] WQ METER
- [X] TURB. METER
- [ ] PUMP
- [ ] OTHER
- [ ] FILTERS NO. ___ TYPE

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
[X]	VOCs	8260C	NA	HCL + 4 DEG C	3 x 40 ml	X		BMW-2-1018
[X]	Total Metals	6020	NA	HNO3 + 4 DEG C	1 X 250 ml	X		BMW-2-1018
[X]	Dissolved Metals	6020	NO	4 DEG C	1 X 250 ml	X		BMW-2-1018
[X]	PFAS	537	NA	Trizma + 4DEG C	2 X 250 ml	X		BMW-2-1018

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [X] NO [ ]

NO-PURGE METHOD UTILIZED: YES [ ] NO [ ]

NUMBER OF GALLONS GENERATED: 3.12

If yes, purged approximately 1 standing volume prior to sampling or _____ mL for this sample location.

SKETCH/NOTES

Sampler Signature: [signature] Print Name: Ben Hess

Checked By: Date: 10/24/18

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Hygrade Plating
PROJECT NUMBER	3612162331
SAMPLE ID	BMW-3-1018
SAMPLE TIME	13:20
LOCATION ID	BMW-3
DATE	10/24/18
START TIME	11:10
END TIME	13:20
SITE NAME/NUMBER	Former Hygrade Plating
PAGE	1 OF 1

WELL DIAMETER (INCHES): [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES): [ ] 1/8 [ ] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP): [ ] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

INITIAL DTW (BMP)	2.08 FT	FINAL DTW (BMP)	8.70 FT	PROT. CASING STICKUP (AGS)	\ FT	TOC/TOR DIFFERENCE	FT
WELL DEPTH (BMP)	8.9 FT	SCREEN LENGTH	5 FT	PID AMBIENT AIR	\ PPM	REFILL TIMER SETTING	\ SEC
WATER COLUMN	6.82 FT	DRAWDOWN VOLUME (initial DTW- final DTW X well diam. squared X 0.041)	1.08 GAL	PID WELL MOUTH	\ PPM	DISCHARGE TIMER SETTING	\ SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	0.11 GAL	TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL)	1.46 GAL	DRAWDOWN/ TOTAL PURGED		PRESSURE TO PUMP	\ PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
11:10	BEGIN PURGING									
11:13	3.40	200	18.77	3.030	6.71	3.00	48.6	-59.6		septic odor
11:18	3.88	250	18.99	3.279	6.83	0.47	45.5	-96.3		septic odor
11:23	4.98	200	19.45	3.328	6.85	0.31	48.4	-104.8		septic odor
11:28	5.94	250	19.57	3.353	6.86	0.48	49.7	-119.0		septic odor
11:33	7.62	250	19.65	3.397	6.89	0.45	69.2	-110.3		septic odor
11:38	8.70									well ran dry
13:20										well recharged, sample

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

TEMP: nearest degree (ex. 10.1 = 10)
COND: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP: [X] PERISTALTIC [ ] SUBMERSIBLE [ ] BLADDER [ ] _____ [ ] WATTERA [ ] OTHER _____ [ ] OTHER _____

DECON FLUIDS USED: [ ] LIQUINOX [X] DEIONIZED WATER [ ] POTABLE WATER [ ] NITRIC ACID [ ] HEXANE [ ] METHANOL [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS: [ ] SILICON TUBING [ ] TEFLON TUBING [ ] TEFLON LINED TUBING [X] HDPE TUBING [ ] LDPE TUBING [ ] OTHER _____ [ ] OTHER _____

[ ] S. STEEL PUMP MATERIAL [ ] PVC PUMP MATERIAL [ ] GEOPROBE SCREEN [ ] TEFLON BLADDER [ ] OTHER _____ [ ] OTHER _____ [ ] OTHER _____

EQUIPMENT USED: [X] WL METER _____ [ ] PID _____ [X] WQ METER _____ [X] TURB. METER _____ [ ] PUMP _____ [ ] OTHER _____ [ ] FILTERS NO. ____ TYPE _____

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	VOCs	8260C	NA	HCL + 4 DEG C	3 x 40 ml	X		BMW-3-1018
X	Total Metals	6020	NA	HNO3 + 4 DEG C	1 X 250 ml	X		
X	Dissolved Metals	6020	NO	4 DEG C	1 X 250 ml	X		
X	PFAS	537	NA	Trizma + 4DEG C	3 X 250 ml	X		
X	DHC		NA			X		

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [X] NO [ ]

NO-PURGE METHOD UTILIZED: YES [ ] NO [ ]

NUMBER OF GALLONS GENERATED: 1.46

If yes, purged approximately 1 standing volume prior to sampling or _____ mL for this sample location.

SKETCH/NOTES

Sampler Signature: [signature] Print Name: Ben Hess

Checked By: Date: 10/24

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Hygrade Plating	LOCATION ID	MW-5
PROJECT NUMBER	3612162331	DATE	10/24/18
SAMPLE ID	MW5-1018	START TIME	9:52
SAMPLE TIME	1033	END TIME	10:33
SITE NAME/NUMBER	Former Hygrade Plating	PAGE	1 OF 1

WELL DIAMETER (INCHES): ☐ 1 ☒ 2 ☐ 4 ☐ 6 ☐ 8 ☐ OTHER

TUBING ID (INCHES): ☐ 1/8 ☐ 1/4 ☐ 3/8 ☐ 1/2 ☐ 5/8 ☐ OTHER

MEASUREMENT POINT (MP): ☐ TOP OF RISER (TOR) ☒ TOP OF CASING (TOC) ☐ OTHER

WELL INTEGRITY	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

INITIAL DTW (BMP)	8.57 FT	FINAL DTW (BMP)	8.70 FT	PROT. CASING STICKUP (AGS)	0.3 FT	TOC/TOR DIFFERENCE	0.15 FT
WELL DEPTH (BMP)	18.5 FT	SCREEN LENGTH	10 FT	PID AMBIENT AIR	\ PPM	REFILL TIMER SETTING	\ SEC
WATER COLUMN	10.07 FT	DRAWDOWN VOLUME (initial DTW- final DTW X well diam. squared X 0.041)	0.0232 GAL	PID WELL MOUTH	\ PPM	DISCHARGE TIMER SETTING	\ SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	~~2.13~~ 1.65 GAL	TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL)	2.13 GAL	DRAWDOWN/ TOTAL PURGED	0.01	PRESSURE TO PUMP	\ PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
9:52	BEGIN PURGING									
9:57	8.83	250	19.08	1.520	6.73	1.20	16.8	201.4		
10:02	8.79	225	18.44	1.511	6.65	1.97	12.6	198.5		
10:07	8.69	200	18.13	1.502	6.65	1.70	9.29	191.9		
10:12	8.70	200	18.09	1.501	6.65	1.14	9.80	189.3		
10:17	8.69	200	19.20	1.498	6.65	1.04	9.67	184.9		
10:22	8.68	200	18.10	1.501	6.65	1.03	7.68	181.5		
10:27	8.69	200	18.14	1.503	6.65	1.04	6.95	181.3		
10:33	8.70	200	18.09	1.505	6.65	1.02	6.86	180.8		sample

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

	18	1.51	6.7	1.0	6.9	180

TEMP: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- ☒ PERISTALTIC
- ☐ SUBMERSIBLE
- ☐ BLADDER
- ☐ WATTERA
- ☐ OTHER
- ☐ OTHER

DECON FLUIDS USED
- ☐ LIQUINOX
- ☒ DEIONIZED WATER
- ☐ POTABLE WATER
- ☐ NITRIC ACID
- ☐ HEXANE
- ☐ METHANOL
- ☐ OTHER

TUBING/PUMP/BLADDER MATERIALS
- ☐ SILICON TUBING
- ☐ TEFLON TUBING
- ☐ TEFLON LINED TUBING
- ☒ HDPE TUBING
- ☐ LDPE TUBING
- ☐ OTHER
- ☐ OTHER
- ☐ S. STEEL PUMP MATERIAL
- ☐ PVC PUMP MATERIAL
- ☐ GEOPROBE SCREEN
- ☐ TEFLON BLADDER
- ☐ OTHER
- ☐ OTHER

EQUIPMENT USED
- ☒ WL METER
- ☐ PID
- ☒ WQ METER
- ☒ TURB. METER
- ☐ PUMP
- ☐ OTHER
- ☐ FILTERS NO. ___ TYPE ___

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
☒	VOCs	8260C	NA	HCL + 4 DEG C	3 x 40 ml	☒		MW-5-1018
☒	Total Metals	6020	NA	HNO3 + 4 DEG C	1 X 250 ml	☒		
☒	Dissolved Metals	6020	NO	4 DEG C	1 X 250 ml	☒		
☒	PFAS	537	NA	Trizma + 4DEG C	2 X 250 ml	☒		

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: ☐ YES ☐ NO — NUMBER OF GALLONS GENERATED: ___

NO-PURGE METHOD UTILIZED: ☐ YES ☐ NO — If yes, purged approximately 1 standing volume prior to sampling or ___ mL for this sample location.

SKETCH/NOTES

Sampler Signature: [signature] Print Name: Ben Hess

Checked By: Date: 10/24/18

amec

214-25 42nd Avenue, Bayside, NY 11361

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Hygrade Plating	**LOCATION ID**	BMW-4
PROJECT NUMBER	3612162331	**DATE**	10/24/18
SAMPLE ID	BMW-4-102018	**START TIME**	1100
SAMPLE TIME	1155	**END TIME**	1200
		SITE NAME/NUMBER	Former Hygrade Plating
		PAGE	1 OF 1

WELL DIAMETER (INCHES): [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES): [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP): [ ] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED			✓
COLLAR	✓		

INITIAL DTW (BMP)	1.75 FT	**FINAL DTW (BMP)**	2.80 FT	**PROT. CASING STICKUP (AGS)**	NA FT	**TOC/TOR DIFFERENCE**	0.5 FT
WELL DEPTH (BMP)	8.5 FT	**SCREEN LENGTH**	5 FT	**PID AMBIENT AIR**	— PPM	**REFILL TIMER SETTING**	NA SEC
WATER COLUMN	6.75 FT	**DRAWDOWN VOLUME** (initial DTW- final DTW X well diam. squared X 0.041)	0.112 GAL	**PID WELL MOUTH**	— PPM	**DISCHARGE TIMER SETTING**	NA SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	1.107 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	3.51 GAL	**DRAWDOWN/ TOTAL PURGED**		**PRESSURE TO PUMP**	NA PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1110	BEGIN PURGING									
1120	300 ↔ 2.70		19.64	2.200	6.66	0.59	7.29	-52.8		
1125	2.75	300	19.68	2.263	6.64	0.34	7.08	-63.9		
1130	2.80	300	19.69	2.238	6.58	0.27	1.86	-91.0		
1135	2.80	300	19.70	2.197	6.56	0.27	1.08	-95.7		
1140	2.80	300	19.70	2.162	6.53	0.22	0.87	-97.6		
1145	2.80	300	19.70	2.145	6.56	0.20	0.84	-96.6		
1155	Collect Sample									

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

20	2.15	6.6	0.2	0.84	-97	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] WATTERA
- [ ] OTHER
- [ ] OTHER

DECON FLUIDS USED
- [ ] LIQUINOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [X] OTHER Alconox

TUBING/PUMP/BLADDER MATERIALS
- [ ] SILICON TUBING
- [ ] TEFLON TUBING
- [ ] TEFLON LINED TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER
- [ ] OTHER

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] TEFLON BLADDER
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [X] WL METER Heron
- [ ] PID
- [X] WQ METER YSI 556
- [X] TURB. METER HACH 2100Q
- [X] PUMP Geopump
- [ ] OTHER
- [ ] FILTERS NO. ___ TYPE ___

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
[X]	VOCs	8260C	NA	HCL + 4 DEG C	3 x 40 ml		Duplicate	BMW-4-102018
[X]	Total Metals	6020	NA	HNO3 + 4 DEG C	1 X 250 ml		↓	
[X]	Dissolved Metals	6020	NO	4 DEG C	1 X 250 ml			
[X]	PFAS	537	NA	Trizma + 4DEG C	3 X 250 ml			
[ ]								
[ ]								
[ ]								

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓] NO [ ]

NO-PURGE METHOD UTILIZED: YES [ ] NO [ ]

NUMBER OF GALLONS GENERATED: 3.7

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Purge water initially black-color but then clears up

Odor from purgewater

Sampler Signature: Jazmin Logan Print Name: J. Logan

Checked By: Date:

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Hygrade Plating
PROJECT NUMBER	3612162331
SAMPLE ID	MW-6S-102018
SAMPLE TIME	1040
LOCATION ID	MW-6S
DATE	10/25/18
START TIME	0950
END TIME	
SITE NAME/NUMBER	Former Hygrade Plating
PAGE	1 OF 1

WELL DIAMETER (INCHES): [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES): [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP): [ ] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED	✓		✓
COLLAR			

INITIAL DTW (BMP)	7.90 FT	FINAL DTW (BMP)	15.10 FT	PROT. CASING STICKUP (AGS)	NA FT	TOC/TOR DIFFERENCE	0.45 FT
WELL DEPTH (BMP)	18 FT	SCREEN LENGTH	10 FT	PID AMBIENT AIR	— PPM	REFILL TIMER SETTING	NA SEC
WATER COLUMN	10 FT	DRAWDOWN VOLUME (initial DTW- final DTW X well diam. squared X 0.041)	1.8 GAL	PID WELL MOUTH	— PPM	DISCHARGE TIMER SETTING	NA SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	1.7 GAL	TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL)	1.35 GAL	DRAWDOWN/ TOTAL PURGED		PRESSURE TO PUMP	NA PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
1002	BEGIN PURGING									
1010	11.45	200	16.54	2.748	6.99	0.97	53.6	24.8		
1015	12.85	200	16.51	2.767	7.01	0.46	18.6	2.5		0.676 purged
1020	13.75	175	16.31	2.757	7.02	0.41	15.1	-5.6		
1025	14.55	175	16.37	2.739	7.03	0.30	10.6	-12.8		
1030	15.10	175	16.45	2.789	7.03	0.22	7.98	-14.1		
1030	Turn pump off to let well recharge									
1040	Beg in sample collection									
	(> 13.00)									

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

16	2.79	7.0	0.2	7.98	-14	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] _____
- [ ] WATTERA
- [ ] OTHER
- [ ] OTHER

DECON FLUIDS USED
- [ ] LIQUINOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [X] OTHER Alconox

TUBING/PUMP/BLADDER MATERIALS

[ ] SILICON TUBING	[ ] S. STEEL PUMP MATERIAL
[ ] TEFLON TUBING	[ ] PVC PUMP MATERIAL
[ ] TEFLON LINED TUBING	[ ] GEOPROBE SCREEN
[X] HDPE TUBING	[ ] TEFLON BLADDER
[ ] LDPE TUBING	[ ] OTHER _____
[ ] OTHER _____	[ ] OTHER _____
[ ] OTHER _____	[ ] OTHER _____

EQUIPMENT USED
- [X] WL METER Heron
- [ ] PID
- [X] WQ METER YSI 556
- [X] TURB. METER HACH 2100Q
- [X] PUMP Geopump
- [ ] OTHER
- [ ] FILTERS NO. _____ TYPE _____

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
[X]	VOCs	8260C	NA	HCL + 4 DEG C	3 x 40 ml			MW-6S-102018
[X]	Total Metals	6020	NA	HNO3 + 4 DEG C	1 X 250 ml			
[X]	Dissolved Metals	6020	NO	4 DEG C	1 X 250 ml			
[X]	PFAS	537	NA	Trizma + 4DEG C	3 X 250 ml			
[ ]								
[ ]								
[ ]								

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [X] NO [ ]

NO-PURGE METHOD UTILIZED: YES [ ] NO [ ]

NUMBER OF GALLONS GENERATED: 1.35

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signature: Jennifer Logan Print Name: J. Logan

Checked By: Date:

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Hygrade Plating
PROJECT NUMBER	3612162331
SAMPLE ID	MW-6D-102018
SAMPLE TIME	1020
LOCATION ID	MW-6D
DATE	10/24/18
START TIME	0920
END TIME	1040
SITE NAME/NUMBER	Former Hygrade Plating
PAGE	1 OF 1

WELL DIAMETER (INCHES): [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES): [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP): [ ] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED			✓
COLLAR	✓		

INITIAL DTW (BMP)	8.20 FT	FINAL DTW (BMP)	8.30 FT	PROT. CASING STICKUP (AGS)	NA FT	TOC/TOR DIFFERENCE	0.4 FT
WELL DEPTH (BMP)	32 FT	SCREEN LENGTH	10 FT	PID AMBIENT AIR	/ PPM	REFILL TIMER SETTING	NA SEC
WATER COLUMN	23.8 FT	DRAWDOWN VOLUME (initial DTW- final DTW X well diam. squared X 0.041)	0.02 GAL	PID WELL MOUTH	/ PPM	DISCHARGE TIMER SETTING	NA SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	3.9 GAL	TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL)	3.6 GAL	DRAWDOWN/ TOTAL PURGED		PRESSURE TO PUMP	NA PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
0934	BEGIN PURGING									
0945	8.30	300	19.26	1.560	6.63	0.62	1.14	93.6		
0950	8.30	300	19.35	1.567	6.69	0.32	0.80	82.7		
0955	8.30	300	19.36	1.573	6.71	0.24	0.90	74.0		
1000	8.30	300	19.40	1.591	6.73	0.22	0.75	65.2		
1005	8.30	300	19.39	1.599	6.72	0.25	0.73	62.0		
1010	8.30	300	19.39	1.601	6.72	0.19	0.58	57.8		
1020	Collect sample									

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

19	1.60	6.7	0.2	0.58	58	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [✓] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] _____
- [ ] WATTERA
- [ ] OTHER _____
- [ ] OTHER _____

DECON FLUIDS USED
- [ ] LIQUINOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [✓] OTHER Alconox

TUBING/PUMP/BLADDER MATERIALS
- [✓] SILICON TUBING
- [ ] TEFLON TUBING
- [✓] TEFLON LINED TUBING
- [ ] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER _____
- [ ] OTHER _____

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] TEFLON BLADDER
- [ ] OTHER _____
- [ ] OTHER _____
- [ ] OTHER _____

EQUIPMENT USED
- [✓] WL METER Heron
- [ ] PID _____
- [✓] WQ METER YSI 556
- [✓] TURB. METER HACH
- [✓] PUMP Geopump
- [ ] OTHER _____
- [ ] FILTERS NO. ____ TYPE _____

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
[✓]	VOCs	8260C	NA	HCL + 4 DEG C	3 x 40 ml	yes	MS/MSD	MW-6D-102018
[ ]	Total Metals	6020	NA	HNO3 + 4 DEG C	1 X 250 ml		MS/MSD	
[✓]	Dissolved Metals	6020	NO	4 DEG C	1 X 250 ml		MS/MSD	
[✓]	PFAS	537	NA	Trizma + 4DEG C	2 X 250 ml		MS/MSD	
[ ]								
[ ]								
[ ]								

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [✓] NO [ ]

NO-PURGE METHOD UTILIZED: YES [ ] NO [ ]

NUMBER OF GALLONS GENERATED: 4

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signature: Jazmin Logan Print Name: Jazmin Logan

Checked By: Date:

amec
214-25 42nd Avenue, Bayside, NY 11361

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Hygrade Plating
PROJECT NUMBER	3612162331
SAMPLE ID	MW-E-102018
SAMPLE TIME	1105
LOCATION ID	MW-E
DATE	10/25/2018
START TIME	0900
END TIME	
SITE NAME/NUMBER	Former Hygrade Plating
PAGE	1 OF 1

WELL DIAMETER (INCHES): [X] 1 [ ] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES): [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP): [ ] TOP OF RISER (TOR) [ ] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP	✓		
CASING	✓		
LOCKED			✓
COLLAR	✓		

INITIAL DTW (BMP)	9.10 FT	FINAL DTW (BMP)	FT	PROT. CASING STICKUP (AGS)	NA FT	TOC/TOR DIFFERENCE	0.2 FT
WELL DEPTH (BMP)	15 FT	SCREEN LENGTH	unknown FT	PID AMBIENT AIR	— PPM	REFILL TIMER SETTING	NA SEC
WATER COLUMN	5.9 FT	DRAWDOWN VOLUME (initial DTW- final DTW X well diam. squared X 0.041)	GAL	PID WELL MOUTH	— PPM	DISCHARGE TIMER SETTING	NA SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	0.24 GAL	TOTAL VOL. PURGED (mL per minute X total minutes X 0.00026 gal/mL)	GAL	DRAWDOWN/ TOTAL PURGED		PRESSURE TO PUMP	NA PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
0928	BEGIN PURGING									
0933	11.95	200mL	20.13	0.855	6.76	4.41	+++	157.6		Overrange
0936	12.50		20.13	0.856	6.85	5.77	+++	157.1		
0939	13.55		19.43	0.857	7.01	7.13	+++	155.6		
0940	Turn off pump									
1100	9.05									

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

19	0.857	7.0	7.1	+++	156	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP: [X] PERISTALTIC [ ] SUBMERSIBLE [ ] BLADDER [ ] _____ [ ] WATTERA [ ] OTHER [ ] OTHER

DECON FLUIDS USED: [ ] LIQUINOX [ ] DEIONIZED WATER [ ] POTABLE WATER [ ] NITRIC ACID [ ] HEXANE [ ] METHANOL [X] OTHER Alconox

TUBING/PUMP/BLADDER MATERIALS: [ ] SILICON TUBING [ ] TEFLON TUBING [ ] TEFLON LINED TUBING [X] HDPE TUBING [ ] LDPE TUBING [ ] OTHER [ ] OTHER

[ ] S. STEEL PUMP MATERIAL [ ] PVC PUMP MATERIAL [ ] GEOPROBE SCREEN [ ] TEFLON BLADDER [ ] OTHER [ ] OTHER [ ] OTHER

EQUIPMENT USED: [X] WL METER Heron [ ] PID [X] WQ METER YSI 556 [X] TURB. METER HACH 2100Q [X] PUMP Geopump [ ] OTHER [ ] FILTERS NO. ____ TYPE ____

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	VOCs	8260C	NA	HCL + 4 DEG C	3 x 40 ml	Y		MW-E-102018
X	Total Metals	6020	NA	HNO3 + 4 DEG C	1 X 250 ml	Y		
X	Dissolved Metals	6020	NO	4 DEG C	1 X 250 ml	Y		
X	PFAS	537	NA	Trizma + 4DEG C	3 X 250 ml	Y		

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [X] NO [ ]

NO-PURGE METHOD UTILIZED: YES [ ] NO [ ]

NUMBER OF GALLONS GENERATED: _____

If yes, purged approximately 1 standing volume prior to sampling or _____ mL for this sample location.

SKETCH/NOTES

Sampler Signature: Jazmi Logan Print Name: Logan

Checked By: Date:

amec
214-25 42nd Avenue, Bayside, NY 11361

FIELD INSTRUMENTATION CALIBRATION RECORD

PROJECT NAME: Former Hygrade Plating
PROJECT NUMBER: 3612162331
PROJECT LOCATION: Long Island City, NY
WEATHER CONDITIONS (AM):
WEATHER CONDITIONS (PM):

TASK NO: 4 DATE: 10/ /2018
AMEC CREW:
SAMPLER NAME:
SAMPLER SIGNATURE:
CHECKED BY: DATE:

MULTI-PARAMETER WATER QUALITY METER

METER TYPE YSI
MODEL NO. MPS 556
UNIT ID NO. 7619

AM CALIBRATION Start Time 0820 /End Time 0840

POST CALIBRATION CHECK Start Time 1200 /End Time

	Units	Standard Value	Meter Value	*Acceptance Criteria (AM)	Standard Value	Meter Value	*Acceptance Criteria (PM)
pH (4)	SU	4.0	3.99	+/- 0.1 pH Units			
pH (7)	SU	7.0	7.0	+/- 0.1 pH Units	7.0	7.02	+/- 0.3 pH Units
pH (10)	SU	10.0	10.03	+/- 0.1 pH Units			
Redox	+/- mV	240	240.0	+/- 10 mV	240	240	+/- 10 mV
Conductivity	mS/cm	1.413	1.413	+/- 0.5 % of standard	1.413	1.413	+/- 5% of standard
DO (saturated)	%	100		+/- 2% of standard			
DO (saturated)	mg/L[1] (see Chart 1)			+/- 0.5 mg/L			+/- 0.5 mg/L of standard
DO (<0.1)	mg/L	<0.1		< 0.5 mg/L			
Temperature	°C		15.72			15.66	
Baro. Press.	mmHg		764.5			764.5	

TURBIDITY METER

METER TYPE Hach
MODEL NO. 2100Q
UNIT ID NO. 13611

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
10 Standard	NTU	10	10	10		+/- 0.3 NTU of stan.
20 Standard	NTU	20	20	20		+/- 5% of standard
100 Standard	NTU	100	99.6	100		+/- 5% of standard
800 Standard	NTU	800	803	800		+/- 5% of standard

PHOTOIONIZATION DETECTOR

METER TYPE
MODEL NO.
UNIT ID NO.

Background	ppmv	<0.1		<0.1		within 5 ppmv of BG
Span Gas	ppmv	100		100		+/- 10% of standard

O_2-LEL 4 GAS METER

METER TYPE
MODEL NO.
UNIT ID NO.

Methane	%	50		50		+/- 10% of standard
O_2	%	20.9		20.9		+/- 10% of standard
H_2S	ppmv	25		25		+/- 10% of standard
CO	ppmv	50		50		+/- 10% of standard

OTHER METER

METER TYPE
MODEL NO.
UNIT ID NO.

See Notes Below for Additional Information

☐ Equipment calibrated within the Acceptance Criteria specified for each of the parameters listed above.
☐ Equipment (not) calibrated within the Acceptance Criteria specified for each of the parameters listed above**.

MATERIALS RECORD

Deionized Water Source: Laboratory
Lot#/Date Produced:
Trip Blank Source: Laboratory
Sample Preservatives Source: Laboratory
Disposable Filter Type: NA
Calibration Fluids / Standard Source:
- DO Calibration Fluid (<0.1 mg/L) NA
- Other
- Other
- Other

	Cal. Standard Lot Number	Exp. Date
pH (4)	7618537	09-30-2019
pH (7)	8GB3386	02-29-2020
pH (10)	7GL670	12-31-2019
ORP	2062	10-31-2019
Conductivity	7GL100	12-31-2019
10 Turb. Stan.	A8219	11-2019
20 Turb. Stan.	A8222	11-2019
100 Turb. Stan.	A8221	11-2019
800 Turb. Stan.	A8225	11-2019
PID Span Gas	NA	NA
O_2-LEL Span Gas	NA	NA
Other	NA	NA

NOTES:

* = Unless otherwise noted, calibration procedures and acceptance criteria are in general accordance with USEPA Region 1 SOPs for Field Instrument Calibration (EQASOP-FieldCalibrat) and Low Stress Purging and Sampling (EQASOP-GW001), each dated 1/19/2010. Additonal acceptance criteria obtained from instrument specific manufacturer recommendations.
** = If meter reading is not within acceptance criteria, clean/replace probe and re-calibrate, or use calibrated back-up meter if available. If project requirements necessitate use of the instrument, clearly document any deviations from acceptance criteria on all data sheets and log book entries.
1 = DO Saturated standard value is calculated based on Oxygen Solubility at Indicated Pressure Chart from the USEPA Region 1 SOP for Field Instrument Calibration (EQASOP-FieldCalibrat), dated 1/19/2010.

amec

FIELD INSTRUMENT CALIBRATION RECORD

APPENDIX B –
CERTIFIED LABORATORY ANALYTICAL REPORTS AND DATA USABILITY SUMMARY REPORTS

DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

1.0 INTRODUCTION

Groundwater samples were collected at the Former Hygrade site in October 2018 and submitted to Alpha Analytical Laboratories located in Mansfield, Massachusetts, and Westborough, Massachusetts, for analysis. Samples were analyzed by the following methods:

- Volatile Organic Compounds (VOCs) by USEPA Method 8260C
- Per- and Polyfluorinated Alkyl Substances (PFAS) by USEPA Method 537(M)
- Total and Dissolved Metals by USEPA Methods 6020B/7470A

Results were reported in the following sample delivery group (SDG):

- L1843594

A Data Usability Summary Report (DUSR) review was completed based on the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation guidance (NYSDEC, 2010). Sample event information included in this DUSR is presented in the following tables:

- Table 1 – Summary of Samples and Analytical Methods
- Table 2 – Summary of Analytical Results
- Table 3 – Qualification Action Summary

Laboratory deliverables included:

- Category B deliverables as defined in the NYSDEC Analytical Services Protocols (NYSDEC, 2005).

The DUSR review included the following evaluations. A table of the project control limits for VOCs and metals is presented in Attachment A. Control limits specified by the laboratory and Method 537 were used for PFAS review. DUSR review checklists and applicable laboratory QC summary forms are included in Attachment B to document QC outliers associated with qualification actions.

- Lab Report Narrative Review
- Data Package Completeness and COC records (Table 1 verification)
- Sample Preservation and Holding Times
- Instrument Calibration (report narrative/lab-qualifier evaluation)
- QC Blanks
- Laboratory Control Samples (LCS)
- Matrix Spike/Matrix Spike Duplicates (MS/MSD)
- Surrogate Spikes (if applicable)
- Internal Standards (if applicable)

- Field Duplicates
- Target Analyte Identification and Quantitation
- Raw Data (chromatograms), Calculation Checks and Transcription Verifications
- Reporting Limits
- Electronic Data Qualification and Verification

Data qualification actions were based on general procedures identified in USEPA validation guidelines (USEPA, 2012; USEPA, 2014). The following laboratory or data review qualifiers are used in the final data presentation:

U = target analyte is not detected above the reported detection limit
J = concentration is estimated
J+ = concentration is estimated and potentially biased high

Results are interpreted to be usable as reported by the laboratory unless discussed in the following sections.

2.0 EXECUTIVE SUMMARY

Based on the DUSR review the majority of sample results are interpreted to be usable as reported by the laboratory. Results for a subset of samples were qualified due to blank contamination, internal standard recoveries, LCS recoveries, MS/MSD recoveries, field duplicate results, and/or dissolved metals concentrations that exceeded total concentrations by more than 10 percent.

3.0 DATA QUALIFICATION ACTIONS AND OBSERVATIONS

VOCs

Low level acetone concentrations in a subset of samples were qualified non-detect (U) based on contamination in the trip blank and equipment blank. Qualified results are summarized in Table 3 with reason code BL2.

Reporting limits for bromomethane, naphthalene, and 1,2,3-trichlorobenzene in a subset of samples were qualified estimated (UJ) based on low LCS and/or LCSD recoveries. Qualified results are included in Table 3 with reason code LCS-L.

The following sample was analyzed at a four-fold dilution due to concentrations of target analytes. Reporting limits for non-detect analytes are elevated (4X):

MW-6S-102018

An MS/MSD was performed using sample MW-6D-102018. MS/MSD relative percent differences (RPDs) were within control limits for all VOCs, and percent recoveries were within control limits for all VOCs except the following:

bromomethane
vinyl acetate
2,2-dichloropropane
n-butylbenzene

1,2-dibromo-3-chloropropane
hexachlorobutadiene
naphthalene
1,2,3-trichlorobenzene
1,2,4-trichlorobenzene

These VOCs were not detected in MW-6D-102018 and reportling limits were qualified estimated (UJ). Qualified results are summarized in Table 3 with reason code MS-L.

A field duplicate (DUP-102018) was collected at location BMW-4. Results matched well for all VOCs.

PFAS

Low concentration detections of 6:2 fluorotelomer sulfonate in a subset of samples were qualified non-detect (U) based on contamination in the associated laboratory method blank and equipment blank. Qualified results are summarized in Table 3 with reason codes BL1 and BL2.

The detection of 6:2 fluorotelomer sulfonate in PFAS sample BMW-3-102018 was qualified estimated (J) based on recovery of the associated extracted internal standard greater than the 50-150 control limits specified by the laboratory. The qualified result is included in Table 3 with reason code IS-H.

An MS/MSD was performed for sample MW-6D-102018. MS/MSD percent recoveries and relative percent differences (RPDs) were within control limits for PFAS compounds.

A field duplicate (DUP-102018) was collected at location BMW-4. Results matched well for all PFAS compounds.

Metals

Detections of total and dissolved antimony and total silver were qualified non-detect (U) in a subset samples based on detections in the method blanks and/or equipment blank. The detection of total antimony in sample MW-6D-102018 was less than the reporting limit but greater than the method blank concentration and was accepted as reported by the laboratory (J). Qualified results are summarized in Table 3 with reason code BL1 and/or BL2.

Detections of total iron and/or dissolved copper in a subset of samples were qualified non-detect (U) or estimated (J+) based on detection in the field blank. Qualified results are included in Table 3 with reason code BL2.

An MS/MSD was performed for sample MW-6D-102018. MS/MSD percent recoveries and RPDs were within control limits for all total and dissolved metals.

A field duplicate (DUP-102018) was collected at location BMW-4. Results matched well for all total and dissolved metals except:

aluminum – total and dissolved
chromium – dissolved

copper – total
iron – dissolved

Positive and non-detect results for total and dissolved aluminum in BMW-4-102018 and DUP-102018 were qualified estimated (J/UJ). Detections of total copper and dissolved chromium and iron were qualified estimated (J) in BMW-4-102018. Qualified results are included in Table 3 with reason code FD.

Results for total and dissolved aluminum, chromium, magnesium, and manganese in a subset of samples were qualified estimated (J) based on dissolved concentrations that exceeded the total concentrations by more than 10 percent. Qualified results are summarized in Table 3 with reason code TD.

Reference:

New York State Department of Environmental Conservation (NYSDEC), 2005. "Analytical Services Protocols"; July 2005.

New York State Department of Environmental Conservation (NYSDEC), 2010. "Technical Guidance for Site Investigation and Remediation-Appendix 2B"; DER-10; Division of Environmental Remediation; May 2010.

USEPA, 2012. "ICP-AES Data Validation"; USEPA Region II; SOP # HW-2a, Revision 15; Hazardous Waste Support Section; December 2012.

USEPA, 2014. "Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B"; USEPA Region II; SOP # HW-24, Revision 4; Hazardous Waste Support Section; September 2014.

Data Validator: Julie Ricardi

Julie Ricardi

December 28, 2018

Reviewed by: Chris Ricardi, NRCC-EAC

Chris Ricardi

January 14, 2019

TABLE 1 - SUMMARY OF SAMPLES AND ANALYTICAL METHODS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

						Method	8260C	537(M)	6020B	6020B	7470A	7470A
						Class	VOC	PFAS	Metals	Metals	Mercury	Mercury
						Fraction	T	T	T	D	T	D
SDG	**Location**	**Field Sample ID**	**Sample Date**	**Media**	**Lab Sample ID**	**QC Code**						
L1843594	BMW-1	BMW-1-102018	10/24/2018	GW	L1843594-01	FS	76	21	22	22	1	1
L1843594	BMW-2	BMW-2-102018	10/24/2018	GW	L1843594-02	FS	76	21	22	22	1	1
L1843594	BMW-3	BMW-3-102018	10/24/2018	GW	L1843594-03	FS	76	21	22	22	1	1
L1843594	BMW-4	BMW-4-102018	10/24/2018	GW	L1843594-04	FS	76	21	22	22	1	1
L1843594	BMW-4	DUP-102018	10/24/2018	GW	L1843594-09	FD	76	21	22	22	1	1
L1843594	MW-5	MW-5-102018	10/24/2018	GW	L1843594-05	FS	76	21	22	22	1	1
L1843594	MW-6D	MW-6D-102018	10/24/2018	GW	L1843594-07	FS	76	21	22	22	1	1
L1843594	MW-6S	MW-6S-102018	10/25/2018	GW	L1843594-06	FS	76	21	22	22	1	1
L1843594	MW-E	MW-E-102018	10/25/2018	GW	L1843594-08	FS	76	21	22	22	1	1
L1843594	QC	EB-102018	10/24/2018	BW	L1843594-10	EB	76	21	22	22	1	1
L1843594	QC	TB-102018	10/23/2018	BW	L1843594-11	TB	76					

GW = groundwater
FS = field sample
FD = field duplicate
FB = field blank
TB = trip blank

VOC = volatile organic compound
PFAS = per- /polyfluorinated alkyl substance
T = total
D = dissolved
Number = number of analytes reported

Prepared by: WCG
Checked by: JAR 12/17/18

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594		L1843594	
			Location:	BMW-1		BMW-2		BMW-3		BMW-4	
			Date Collected:	10/24/18		10/24/18		10/24/18		10/24/18	
			Sample ID:	BMW-1-102018		BMW-2-102018		BMW-3-102018		BMW-4-102018	
			Type:	FS		FS		FS		FS	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
8260C	N	UG/L	1,1,1,2-Tetrachloroethane	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,1,1-Trichloroethane	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,1,2,2-Tetrachloroethane	0.5	U	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	1,1,2-Trichloroethane	1.5	U	1.5	U	1.5	U	1.5	U
8260C	N	UG/L	1,1-Dichloroethane	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,1-Dichloroethene	0.5	U	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	1,1-Dichloropropene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,2,3-Trichlorobenzene	2.5	UJ	2.5	UJ	2.5	UJ	2.5	UJ
8260C	N	UG/L	1,2,3-Trichloropropane	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,2,4-Trichlorobenzene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,2,4-Trimethylbenzene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,2-Dibromo-3-chloropropane	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,2-Dibromoethane	2	U	2	U	2	U	2	U
8260C	N	UG/L	1,2-Dichlorobenzene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,2-Dichloroethane	0.5	U	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	1,2-Dichloroethene (total)	5.6		9.4		20	J	6.8	
8260C	N	UG/L	1,2-Dichloropropane	1	U	1	U	1	U	1	U
8260C	N	UG/L	1,3,5-Trimethylbenzene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,3-Dichlorobenzene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,3-Dichloropropane	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,3-Dichloropropene (total)	0.5	U	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	1,4-Dichlorobenzene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,4-Dioxane	250	U	250	U	250	U	250	U
8260C	N	UG/L	2,2-Dichloropropane	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	2-Butanone	5	U	5	U	16		5	U
8260C	N	UG/L	2-Chlorotoluene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	2-Hexanone	5	U	5	U	5	U	5	U
8260C	N	UG/L	4-Chlorotoluene	2.5	U	2.5	U	2.5	U	2.5	U

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594		L1843594	
			Location:	BMW-1		BMW-2		BMW-3		BMW-4	
			Date Collected:	10/24/18		10/24/18		10/24/18		10/24/18	
			Sample ID:	BMW-1-102018		BMW-2-102018		BMW-3-102018		BMW-4-102018	
			Type:	FS		FS		FS		FS	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
8260C	N	UG/L	4-Ethyltoluene	2	U	2	U	2	U	2	U
8260C	N	UG/L	4-iso-Propyltoluene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	4-Methyl-2-pentanone	5	U	5	U	5	U	5	U
8260C	N	UG/L	Acetone	5	U	5	U	36		5	U
8260C	N	UG/L	Acrylonitrile	5	U	5	U	5	U	5	U
8260C	N	UG/L	Benzene	0.5	U	0.5	U	7.1		2.4	
8260C	N	UG/L	Benzene, 1,2,4,5-tetramethyl	2	U	2	U	2	U	2	U
8260C	N	UG/L	Bromobenzene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Bromochloromethane	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Bromodichloromethane	0.5	U	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	Bromoform	2	U	2	U	2	U	2	U
8260C	N	UG/L	Bromomethane	2.5	UJ	2.5	UJ	2.5	UJ	2.5	UJ
8260C	N	UG/L	Carbon disulfide	5	U	5	U	5	U	5	U
8260C	N	UG/L	Carbon tetrachloride	0.5	U	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	Chlorobenzene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Chloroethane	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Chloroform	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Chloromethane	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Cis-1,2-Dichloroethene	5.6		9.4		18		4.2	
8260C	N	UG/L	Cis-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	Dibromochloromethane	0.5	U	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	Dibromomethane	5	U	5	U	5	U	5	U
8260C	N	UG/L	Dichlorodifluoromethane	5	U	5	U	5	U	5	U
8260C	N	UG/L	Diethyl ether	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Ethylbenzene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Hexachlorobutadiene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Isopropylbenzene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Methyl Tertbutyl Ether	2.5	U	2.5	U	2.5	U	2.4	J

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594		L1843594	
			Location:	BMW-1		BMW-2		BMW-3		BMW-4	
			Date Collected:	10/24/18		10/24/18		10/24/18		10/24/18	
			Sample ID:	BMW-1-102018		BMW-2-102018		BMW-3-102018		BMW-4-102018	
			Type:	FS		FS		FS		FS	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
8260C	N	UG/L	Methylene chloride	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	n-Butylbenzene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Naphthalene	2.5	UJ	2.5	UJ	2.5	UJ	2.5	UJ
8260C	N	UG/L	p-Diethylbenzene	2	U	2	U	2	U	2	U
8260C	N	UG/L	Propylbenzene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	sec-Butylbenzene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Styrene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	tert-Butylbenzene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Tetrachloroethene	0.72		2		0.5	U	1.8	
8260C	N	UG/L	Toluene	2.5	U	2.5	U	1.1	J	2.5	U
8260C	N	UG/L	trans-1,2-Dichloroethene	2.5	U	2.5	U	2.4	J	2.6	
8260C	N	UG/L	trans-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	trans-1,4-Dichloro-2-butene	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Trichloroethene	2.7		4.6		0.63		1.1	
8260C	N	UG/L	Trichlorofluoromethane	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Vinyl acetate	5	U	5	U	5	U	5	U
8260C	N	UG/L	Vinyl chloride	0.28	J	0.43	J	26		4.7	
8260C	N	UG/L	Xylene, o	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Xylenes (m&p)	2.5	U	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Xylenes, Total	2.5	U	2.5	U	2.5	U	2.5	U
6020B	D	MG/L	Aluminum	0.00449	J	0.00651	J	0.01	U	0.677	J
6020B	D	MG/L	Antimony	0.004	U	0.004	U	0.004	U	0.004	U
6020B	D	MG/L	Arsenic	0.00066		0.00085		0.00401		0.00961	
6020B	D	MG/L	Barium	0.1106		0.0977		0.2058		0.1205	
6020B	D	MG/L	Beryllium	0.0005	U	0.0005	U	0.0005	U	0.0005	U
6020B	D	MG/L	Cadmium	0.00533		0.01		0.0002	U	0.0002	U
6020B	D	MG/L	Calcium	246		242		268		229	
6020B	D	MG/L	Chromium	0.00118	J	0.00217		0.00133		0.00367	J

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594		L1843594	
			Location:	BMW-1		BMW-2		BMW-3		BMW-4	
			Date Collected:	10/24/18		10/24/18		10/24/18		10/24/18	
			Sample ID:	BMW-1-102018		BMW-2-102018		BMW-3-102018		BMW-4-102018	
			Type:	FS		FS		FS		FS	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
6020B	D	MG/L	Cobalt	0.0094		0.01404		0.00878		0.01226	
6020B	D	MG/L	Copper	0.0029	J+	0.00361		0.001	U	0.001	U
6020B	D	MG/L	Iron	0.0731		0.0411	J	1.4		13	J
6020B	D	MG/L	Lead	0.001	U	0.001	U	0.001	U	0.001	U
6020B	D	MG/L	Magnesium	37.3		51.1		54.4	J	33.9	
6020B	D	MG/L	Manganese	9.573		9.751		2.727		3.441	J
6020B	D	MG/L	Nickel	0.1045		0.1848		0.3822		0.05827	
6020B	D	MG/L	Potassium	29.4		30		36.3		35.6	
6020B	D	MG/L	Selenium	0.005	U	0.005	U	0.005	U	0.005	U
6020B	D	MG/L	Silver	0.0004	U	0.0004	U	0.0004	U	0.0004	U
6020B	D	MG/L	Sodium	286		276		278		181	
6020B	D	MG/L	Thallium	0.00073		0.00043	J	0.0005	U	0.0005	U
6020B	D	MG/L	Vanadium	0.005	U	0.005	U	0.005	U	0.00371	J
6020B	D	MG/L	Zinc	0.01	U	0.01	U	0.01	U	0.00878	J
7470A	D	MG/L	Mercury	0.0002	U	0.0002	U	0.0002	U	0.0002	U
6020B	T	MG/L	Aluminum	0.00498	J	0.031		0.0713		0.00911	J
6020B	T	MG/L	Antimony	0.004	U	0.004	U	0.004	U	0.004	U
6020B	T	MG/L	Arsenic	0.00108		0.00121		0.01861		0.0418	
6020B	T	MG/L	Barium	0.1043		0.09515		0.2531		0.154	
6020B	T	MG/L	Beryllium	0.0005	U	0.0005	U	0.0005	U	0.0005	U
6020B	T	MG/L	Cadmium	0.0051		0.00896		0.0002	U	0.0002	U
6020B	T	MG/L	Calcium	249		254		273		233	
6020B	T	MG/L	Chromium	0.00067	J	0.00254		0.00302		0.0002	J
6020B	T	MG/L	Cobalt	0.00894		0.01326		0.0075		0.01058	
6020B	T	MG/L	Copper	0.00364		0.00414		0.00129		0.0007	J
6020B	T	MG/L	Iron	0.422	J+	1.6		22.3		30.7	
6020B	T	MG/L	Lead	0.00042	J	0.001	U	0.001	U	0.001	U
6020B	T	MG/L	Magnesium	35.6		46.3		46	J	33.1	

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594		L1843594	
			Location:	BMW-1		BMW-2		BMW-3		BMW-4	
			Date Collected:	10/24/18		10/24/18		10/24/18		10/24/18	
			Sample ID:	BMW-1-102018		BMW-2-102018		BMW-3-102018		BMW-4-102018	
			Type:	FS		FS		FS		FS	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
6020B	T	MG/L	Manganese	9.086		9.77		2.378		2.922	J
6020B	T	MG/L	Nickel	0.1065		0.186		0.3835		0.05822	
6020B	T	MG/L	Potassium	29.5		31.4		35.2		36	
6020B	T	MG/L	Selenium	0.005	U	0.005	U	0.005	U	0.005	U
6020B	T	MG/L	Silver	0.0004	U	0.0004	U	0.0004	U	0.0004	U
6020B	T	MG/L	Sodium	265		267		252		178	
6020B	T	MG/L	Thallium	0.00073		0.00044	J	0.0005	U	0.0005	U
6020B	T	MG/L	Vanadium	0.005	U	0.005	U	0.00182	J	0.005	U
6020B	T	MG/L	Zinc	0.00375	J	0.01	U	0.01	U	0.01	U
7470A	T	MG/L	Mercury	0.0002	U	0.0002	U	0.0002	U	0.0002	U

Notes:
U = undetected
J = estimated value
J+ = estimated and potentially biased high
FS = field sample
FD = field duplicate
N, T = total
D = Dissolved

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594		L1843594	
			Location:	BMW-4		MW-5		MW-6D		MW-6S	
			Date Collected:	10/24/18		10/24/18		10/24/18		10/25/18	
			Sample ID:	DUP-102018		MW-5-102018		MW-6D-102018		MW-6S-102018	
			Type:	FD		FS		FS		FS	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
8260C	N	UG/L	1,1,1,2-Tetrachloroethane	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	1,1,1-Trichloroethane	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	1,1,2,2-Tetrachloroethane	0.5	U	0.5	U	0.5	U	2	U
8260C	N	UG/L	1,1,2-Trichloroethane	1.5	U	1.5	U	1.5	U	6	U
8260C	N	UG/L	1,1-Dichloroethane	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	1,1-Dichloroethene	0.5	U	0.5	U	0.5	U	2	U
8260C	N	UG/L	1,1-Dichloropropene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	1,2,3-Trichlorobenzene	2.5	U	2.5	U	2.5	UJ	10	U
8260C	N	UG/L	1,2,3-Trichloropropane	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	1,2,4-Trichlorobenzene	2.5	U	2.5	U	2.5	UJ	10	U
8260C	N	UG/L	1,2,4-Trimethylbenzene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	1,2-Dibromo-3-chloropropane	2.5	U	2.5	U	2.5	UJ	10	U
8260C	N	UG/L	1,2-Dibromoethane	2	U	2	U	2	U	8	U
8260C	N	UG/L	1,2-Dichlorobenzene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	1,2-Dichloroethane	0.5	U	0.5	U	0.5	U	2	U
8260C	N	UG/L	1,2-Dichloroethene (total)	7.6		2.5	U	2.5	U	32	
8260C	N	UG/L	1,2-Dichloropropane	1	U	1	U	1	U	4	U
8260C	N	UG/L	1,3,5-Trimethylbenzene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	1,3-Dichlorobenzene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	1,3-Dichloropropane	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	1,3-Dichloropropene (total)	0.5	U	0.5	U	0.5	U	2	U
8260C	N	UG/L	1,4-Dichlorobenzene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	1,4-Dioxane	250	U	250	U	250	U	1000	U
8260C	N	UG/L	2,2-Dichloropropane	2.5	U	2.5	U	2.5	UJ	10	U
8260C	N	UG/L	2-Butanone	5	U	5	U	5	U	20	U
8260C	N	UG/L	2-Chlorotoluene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	2-Hexanone	5	U	5	U	5	U	20	U
8260C	N	UG/L	4-Chlorotoluene	2.5	U	2.5	U	2.5	U	10	U

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594		L1843594	
			Location:	BMW-4		MW-5		MW-6D		MW-6S	
			Date Collected:	10/24/18		10/24/18		10/24/18		10/25/18	
			Sample ID:	DUP-102018		MW-5-102018		MW-6D-102018		MW-6S-102018	
			Type:	FD		FS		FS		FS	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
8260C	N	UG/L	4-Ethyltoluene	2	U	2	U	2	U	8	U
8260C	N	UG/L	4-iso-Propyltoluene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	4-Methyl-2-pentanone	5	U	5	U	5	U	20	U
8260C	N	UG/L	Acetone	5	U	5	U	5	U	20	U
8260C	N	UG/L	Acrylonitrile	5	U	5	U	5	U	20	U
8260C	N	UG/L	Benzene	2.3		0.5	U	0.5	U	2	U
8260C	N	UG/L	Benzene, 1,2,4,5-tetramethyl	2	U	2	U	2	U	8	U
8260C	N	UG/L	Bromobenzene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	Bromochloromethane	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	Bromodichloromethane	0.5	U	0.5	U	0.5	U	2	U
8260C	N	UG/L	Bromoform	2	U	2	U	2	U	8	U
8260C	N	UG/L	Bromomethane	2.5	U	2.5	U	2.5	UJ	10	U
8260C	N	UG/L	Carbon disulfide	5	U	5	U	5	U	20	U
8260C	N	UG/L	Carbon tetrachloride	0.5	U	0.5	U	0.5	U	2	U
8260C	N	UG/L	Chlorobenzene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	Chloroethane	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	Chloroform	2.5	U	1.1	J	2.5	U	10	U
8260C	N	UG/L	Chloromethane	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	Cis-1,2-Dichloroethene	4.6		2.5	U	2.5	U	32	
8260C	N	UG/L	Cis-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	2	U
8260C	N	UG/L	Dibromochloromethane	0.5	U	0.5	U	0.5	U	2	U
8260C	N	UG/L	Dibromomethane	5	U	5	U	5	U	20	U
8260C	N	UG/L	Dichlorodifluoromethane	5	U	5	U	5	U	20	U
8260C	N	UG/L	Diethyl ether	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	Ethylbenzene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	Hexachlorobutadiene	2.5	U	2.5	U	2.5	UJ	10	U
8260C	N	UG/L	Isopropylbenzene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	Methyl Tertbutyl Ether	2.7		2.5	U	2.5	U	760	

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594		L1843594	
			Location:	BMW-4		MW-5		MW-6D		MW-6S	
			Date Collected:	10/24/18		10/24/18		10/24/18		10/25/18	
			Sample ID:	DUP-102018		MW-5-102018		MW-6D-102018		MW-6S-102018	
			Type:	FD		FS		FS		FS	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
8260C	N	UG/L	Methylene chloride	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	n-Butylbenzene	2.5	U	2.5	U	2.5	UJ	10	U
8260C	N	UG/L	Naphthalene	2.5	U	2.5	U	2.5	UJ	10	U
8260C	N	UG/L	p-Diethylbenzene	2	U	2	U	2	U	8	U
8260C	N	UG/L	Propylbenzene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	sec-Butylbenzene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	Styrene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	tert-Butylbenzene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	Tetrachloroethene	2.1		0.84		0.92		34	
8260C	N	UG/L	Toluene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	trans-1,2-Dichloroethene	3		2.5	U	2.5	U	10	U
8260C	N	UG/L	trans-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U	2	U
8260C	N	UG/L	trans-1,4-Dichloro-2-butene	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	Trichloroethene	1.4		5.5		1.4		14	
8260C	N	UG/L	Trichlorofluoromethane	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	Vinyl acetate	5	U	5	U	5	UJ	20	U
8260C	N	UG/L	Vinyl chloride	3		1	U	0.11	J	4	U
8260C	N	UG/L	Xylene, o	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	Xylenes (m&p)	2.5	U	2.5	U	2.5	U	10	U
8260C	N	UG/L	Xylenes, Total	2.5	U	2.5	U	2.5	U	10	U
6020B	D	MG/L	Aluminum	0.01	UJ	0.00459	J	0.01	U	0.0126	
6020B	D	MG/L	Antimony	0.004	U	0.004	U	0.004	U	0.004	U
6020B	D	MG/L	Arsenic	0.01073		0.00025	J	0.00042	J	0.00106	
6020B	D	MG/L	Barium	0.1158		0.09024		0.1334		0.08245	
6020B	D	MG/L	Beryllium	0.0005	U	0.0005	U	0.0005	U	0.0005	U
6020B	D	MG/L	Cadmium	0.0002	U	0.0002	U	0.00015	J	0.0002	U
6020B	D	MG/L	Calcium	219		211		255		320	
6020B	D	MG/L	Chromium	0.00035	J	0.00336		0.001	U	0.001	U

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594		L1843594	
			Location:	BMW-4		MW-5		MW-6D		MW-6S	
			Date Collected:	10/24/18		10/24/18		10/24/18		10/25/18	
			Sample ID:	DUP-102018		MW-5-102018		MW-6D-102018		MW-6S-102018	
			Type:	FD		FS		FS		FS	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
6020B	D	MG/L	Cobalt	0.01106		0.00052		0.00044	J	0.00328	
6020B	D	MG/L	Copper	0.001	U	0.00147	J+	0.00296	J+	0.001	U
6020B	D	MG/L	Iron	10.2	J	0.0447	J	0.0269	J	0.242	
6020B	D	MG/L	Lead	0.001	U	0.001	U	0.001	U	0.001	U
6020B	D	MG/L	Magnesium	30.3		12.9		19.6		133	
6020B	D	MG/L	Manganese	3.239		0.03565		0.2994		4.142	
6020B	D	MG/L	Nickel	0.05591		0.00232		0.00225		0.0373	
6020B	D	MG/L	Potassium	33.5		25.9		27.8		16.1	
6020B	D	MG/L	Selenium	0.005	U	0.00621		0.00525		0.005	U
6020B	D	MG/L	Silver	0.0004	U	0.0004	U	0.0004	U	0.0004	U
6020B	D	MG/L	Sodium	174		85.8		108		183	
6020B	D	MG/L	Thallium	0.0005	U	0.0005	U	0.00026	J	0.0005	U
6020B	D	MG/L	Vanadium	0.005	U	0.005	U	0.00351	J	0.005	U
6020B	D	MG/L	Zinc	0.01	U	0.01	U	0.01	U	0.01	U
7470A	D	MG/L	Mercury	0.0002	U	0.0002	U	0.0002	U	0.0002	U
6020B	T	MG/L	Aluminum	0.012	J	0.0637		0.0112		0.0251	
6020B	T	MG/L	Antimony	0.004	U	0.004	U	0.00377	J	0.004	U
6020B	T	MG/L	Arsenic	0.0441		0.00032	J	0.00056		0.00113	
6020B	T	MG/L	Barium	0.1591		0.09043		0.13		0.09233	
6020B	T	MG/L	Beryllium	0.0005	U	0.0005	U	0.0005	U	0.0005	U
6020B	T	MG/L	Cadmium	0.0002	U	0.0002	U	0.00015	J	0.0002	U
6020B	T	MG/L	Calcium	236		232		272		337	
6020B	T	MG/L	Chromium	0.00026	J	0.00607		0.001	U	0.001	U
6020B	T	MG/L	Cobalt	0.01058		0.00073		0.0005		0.00326	
6020B	T	MG/L	Copper	0.00103	J	0.00173		0.003		0.00078	J
6020B	T	MG/L	Iron	30.6		0.21	J+	0.05	U	0.697	
6020B	T	MG/L	Lead	0.001	U	0.0011		0.001	U	0.00044	J
6020B	T	MG/L	Magnesium	32.5		14.3		20.8		132	

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594		L1843594	
			Location:	BMW-4		MW-5		MW-6D		MW-6S	
			Date Collected:	10/24/18		10/24/18		10/24/18		10/25/18	
			Sample ID:	DUP-102018		MW-5-102018		MW-6D-102018		MW-6S-102018	
			Type:	FD		FS		FS		FS	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
6020B	T	MG/L	Manganese	2.922		0.04094		0.3086		3.687	
6020B	T	MG/L	Nickel	0.05543		0.002		0.00217		0.03561	
6020B	T	MG/L	Potassium	36.3		28.6		29		17	
6020B	T	MG/L	Selenium	0.005	U	0.00687		0.00565		0.005	U
6020B	T	MG/L	Silver	0.0004	U	0.0004	U	0.0004	U	0.0004	U
6020B	T	MG/L	Sodium	175		91.7		108		174	
6020B	T	MG/L	Thallium	0.0005	U	0.0005	U	0.0003	J	0.0005	U
6020B	T	MG/L	Vanadium	0.005	U	0.005	U	0.00389	J	0.005	U
6020B	T	MG/L	Zinc	0.01	U	0.01	U	0.01	U	0.01	U
7470A	T	MG/L	Mercury	0.0002	U	0.0002	U	0.0002	U	0.0002	U

Notes:
U = undetected
J = estimated value
J+ = estimated and potentially biased high
FS = field sample
FD = field duplicate
N, T = total
D = Dissolved

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594	
			Location:	MW-E		QC		QC	
			Date Collected:	10/25/18		10/23/18		10/24/18	
			Sample ID:	MW-E-102018		TB-102018		EB-102018	
			Type:	FS		TB		EB	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
8260C	N	UG/L	1,1,1,2-Tetrachloroethane	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,1,1-Trichloroethane	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,1,2,2-Tetrachloroethane	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	1,1,2-Trichloroethane	1.5	U	1.5	U	1.5	U
8260C	N	UG/L	1,1-Dichloroethane	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,1-Dichloroethene	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	1,1-Dichloropropene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,2,3-Trichlorobenzene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,2,3-Trichloropropane	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,2,4-Trichlorobenzene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,2,4-Trimethylbenzene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,2-Dibromo-3-chloropropane	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,2-Dibromoethane	2	U	2	U	2	U
8260C	N	UG/L	1,2-Dichlorobenzene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,2-Dichloroethane	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	1,2-Dichloroethene (total)	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,2-Dichloropropane	1	U	1	U	1	U
8260C	N	UG/L	1,3,5-Trimethylbenzene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,3-Dichlorobenzene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,3-Dichloropropane	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,3-Dichloropropene (total)	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	1,4-Dichlorobenzene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	1,4-Dioxane	250	U	250	U	250	U
8260C	N	UG/L	2,2-Dichloropropane	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	2-Butanone	5	U	5	U	5	U
8260C	N	UG/L	2-Chlorotoluene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	2-Hexanone	5	U	5	U	5	U
8260C	N	UG/L	4-Chlorotoluene	2.5	U	2.5	U	2.5	U

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594	
			Location:	MW-E		QC		QC	
			Date Collected:	10/25/18		10/23/18		10/24/18	
			Sample ID:	MW-E-102018		TB-102018		EB-102018	
			Type:	FS		TB		EB	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
8260C	N	UG/L	4-Ethyltoluene	2	U	2	U	2	U
8260C	N	UG/L	4-iso-Propyltoluene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	4-Methyl-2-pentanone	5	U	5	U	5	U
8260C	N	UG/L	Acetone	5	U	2.5	J	2.5	J
8260C	N	UG/L	Acrylonitrile	5	U	5	U	5	U
8260C	N	UG/L	Benzene	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	Benzene, 1,2,4,5-tetramethyl	2	U	2	U	2	U
8260C	N	UG/L	Bromobenzene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Bromochloromethane	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Bromodichloromethane	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	Bromoform	2	U	2	U	2	U
8260C	N	UG/L	Bromomethane	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Carbon disulfide	5	U	5	U	5	U
8260C	N	UG/L	Carbon tetrachloride	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	Chlorobenzene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Chloroethane	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Chloroform	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Chloromethane	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Cis-1,2-Dichloroethene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Cis-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	Dibromochloromethane	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	Dibromomethane	5	U	5	U	5	U
8260C	N	UG/L	Dichlorodifluoromethane	5	U	5	U	5	U
8260C	N	UG/L	Diethyl ether	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Ethylbenzene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Hexachlorobutadiene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Isopropylbenzene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Methyl Tertbutyl Ether	2.5	U	2.5	U	2.5	U

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DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594	
			Location:	MW-E		QC		QC	
			Date Collected:	10/25/18		10/23/18		10/24/18	
			Sample ID:	MW-E-102018		TB-102018		EB-102018	
			Type:	FS		TB		EB	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
8260C	N	UG/L	Methylene chloride	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	n-Butylbenzene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Naphthalene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	p-Diethylbenzene	2	U	2	U	2	U
8260C	N	UG/L	Propylbenzene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	sec-Butylbenzene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Styrene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	tert-Butylbenzene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Tetrachloroethene	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	Toluene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	trans-1,2-Dichloroethene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	trans-1,3-Dichloropropene	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	trans-1,4-Dichloro-2-butene	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Trichloroethene	0.5	U	0.5	U	0.5	U
8260C	N	UG/L	Trichlorofluoromethane	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Vinyl acetate	5	U	5	U	5	U
8260C	N	UG/L	Vinyl chloride	1	U	1	U	1	U
8260C	N	UG/L	Xylene, o	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Xylenes (m&p)	2.5	U	2.5	U	2.5	U
8260C	N	UG/L	Xylenes, Total	2.5	U	2.5	U	2.5	U
6020B	D	MG/L	Aluminum	0.01	U			0.01	U
6020B	D	MG/L	Antimony	0.004	U			0.00049	J
6020B	D	MG/L	Arsenic	0.00141				0.0005	U
6020B	D	MG/L	Barium	0.05892				0.0005	U
6020B	D	MG/L	Beryllium	0.0005	U			0.0005	U
6020B	D	MG/L	Cadmium	0.0002	U			0.0002	U
6020B	D	MG/L	Calcium	61.9				0.1	U
6020B	D	MG/L	Chromium	0.001	U			0.001	U

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594	
			Location:	MW-E		QC		QC	
			Date Collected:	10/25/18		10/23/18		10/24/18	
			Sample ID:	MW-E-102018		TB-102018		EB-102018	
			Type:	FS		TB		EB	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
6020B	D	MG/L	Cobalt	0.00017	J			0.0005	U
6020B	D	MG/L	Copper	0.00102	J+			0.00059	J
6020B	D	MG/L	Iron	0.05	U			0.05	U
6020B	D	MG/L	Lead	0.001	U			0.001	U
6020B	D	MG/L	Magnesium	9.82				0.07	U
6020B	D	MG/L	Manganese	0.1385				0.001	U
6020B	D	MG/L	Nickel	0.002	U			0.002	U
6020B	D	MG/L	Potassium	18.2				0.1	U
6020B	D	MG/L	Selenium	0.005	U			0.005	U
6020B	D	MG/L	Silver	0.0004	U			0.0004	U
6020B	D	MG/L	Sodium	124				0.108	
6020B	D	MG/L	Thallium	0.0005	U			0.0005	U
6020B	D	MG/L	Vanadium	0.005	U			0.005	U
6020B	D	MG/L	Zinc	0.01	U			0.01	U
7470A	D	MG/L	Mercury	0.0002	U			0.0002	U
6020B	T	MG/L	Aluminum	3.81				0.01	U
6020B	T	MG/L	Antimony	0.004	U			0.004	U
6020B	T	MG/L	Arsenic	0.01501				0.0005	U
6020B	T	MG/L	Barium	0.2081				0.00065	
6020B	T	MG/L	Beryllium	0.00056				0.0005	U
6020B	T	MG/L	Cadmium	0.00026				0.0002	U
6020B	T	MG/L	Calcium	91.1				0.078	J
6020B	T	MG/L	Chromium	0.01204				0.001	U
6020B	T	MG/L	Cobalt	0.00975				0.0005	U
6020B	T	MG/L	Copper	0.03271				0.001	U
6020B	T	MG/L	Iron	16				0.119	
6020B	T	MG/L	Lead	0.01736				0.001	U
6020B	T	MG/L	Magnesium	20.8				0.07	U

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594	
			Location:	MW-E		QC		QC	
			Date Collected:	10/25/18		10/23/18		10/24/18	
			Sample ID:	MW-E-102018		TB-102018		EB-102018	
			Type:	FS		TB		EB	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
6020B	T	MG/L	Manganese	2.329				0.00047	J
6020B	T	MG/L	Nickel	0.01366				0.002	U
6020B	T	MG/L	Potassium	21				0.1	U
6020B	T	MG/L	Selenium	0.00558				0.005	U
6020B	T	MG/L	Silver	0.0004	U			0.0004	U
6020B	T	MG/L	Sodium	122				0.056	J
6020B	T	MG/L	Thallium	0.0005	U			0.0005	U
6020B	T	MG/L	Vanadium	0.01834				0.005	U
6020B	T	MG/L	Zinc	0.0555				0.01	U
7470A	T	MG/L	Mercury	0.0002	U			0.0002	U

Notes:
U = undetected
J = estimated value
J+ = estimated and potentially biased high
FS = field sample
FD = field duplicate
N, T = total
D = Dissolved

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594	
			Location:	BMW-1		BMW-2		BMW-3	
			Date Collected:	10/24/18		10/24/18		10/24/18	
			Sample ID:	BMW-1-102018		BMW-2-102018		BMW-3-102018	
			Type:	FS		FS		FS	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
537(M)	N	NG/L	6:2 fluorotelomer sulfonate	1.83	U	3.37		17.9	J
537(M)	N	NG/L	8:2 Fluorotelomer sulfonate	1.79	U	1.85	U	2.08	U
537(M)	N	NG/L	N-ethyl perfluorooctanesulfonamidoacetic acid	0.509	J	0.418	J	2.08	U
537(M)	N	NG/L	N-methyl perfluorooctanesulfonamidoacetic acid	0.394	J	1.85	U	2.08	U
537(M)	N	NG/L	Perfluorobutanesulfonic acid	2160		2900		255	
537(M)	N	NG/L	Perfluorobutanoic acid	25.9		28.2		13.8	
537(M)	N	NG/L	Perfluorodecanesulfonic acid	1.79	U	1.85	U	2.08	U
537(M)	N	NG/L	Perfluorodecanoic acid	2.94		2.3		2.08	U
537(M)	N	NG/L	Perfluorododecanoic acid	1.79	U	1.85	U	2.08	U
537(M)	N	NG/L	Perfluoroheptanesulfonic acid	191		234		219	
537(M)	N	NG/L	Perfluoroheptanoic acid	18.8		18.9		21.8	
537(M)	N	NG/L	Perfluorohexane sulfonic acid	297		589		362	
537(M)	N	NG/L	Perfluorohexanoic acid	27.2		28.6		48.7	
537(M)	N	NG/L	Perfluorononanoic acid	3.87		2.44		2.67	
537(M)	N	NG/L	Perfluorooctane sulfonamide	1.79	U	1.85	U	2.08	U
537(M)	N	NG/L	Perfluorooctanesulfonic acid	4170		6110		4540	
537(M)	N	NG/L	Perfluorooctanoic acid	90		98.3		138	
537(M)	N	NG/L	Perfluoropentanoic acid	25.7		26.2		30.2	
537(M)	N	NG/L	Perfluorotetradecanoic acid	1.79	U	1.85	U	2.08	U
537(M)	N	NG/L	Perfluorotridecanoic acid	1.79	U	1.85	U	2.08	U
537(M)	N	NG/L	Perfluoroundecanoic acid	1.79	U	1.85	U	2.08	U

Notes:
U = undetected
J = estimated value
FS = field sample
FD = field duplicate
N = total

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594	
			Location:	BMW-4		BMW-4		MW-5	
			Date Collected:	10/24/18		10/24/18		10/24/18	
			Sample ID:	BMW-4-102018		DUP-102018		MW-5-102018	
			Type:	FS		FD		FS	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
537(M)	N	NG/L	6:2 fluorotelomer sulfonate	2.25	U	2.29	U	2.45	U
537(M)	N	NG/L	8:2 Fluorotelomer sulfonate	2.25	U	2.29	U	1.78	U
537(M)	N	NG/L	N-ethyl perfluorooctanesulfonamidoacetic acid	2.25	U	2.29	U	1.78	U
537(M)	N	NG/L	N-methyl perfluorooctanesulfonamidoacetic acid	2.25	U	0.33	J	1.78	U
537(M)	N	NG/L	Perfluorobutanesulfonic acid	111		108		18	
537(M)	N	NG/L	Perfluorobutanoic acid	15.4		15.1		11.6	
537(M)	N	NG/L	Perfluorodecanesulfonic acid	2.25	U	2.29	U	1.78	U
537(M)	N	NG/L	Perfluorodecanoic acid	0.739	J	0.72	J	1.78	U
537(M)	N	NG/L	Perfluorododecanoic acid	2.25	U	2.29	U	1.78	U
537(M)	N	NG/L	Perfluoroheptanesulfonic acid	37		37.5		0.907	J
537(M)	N	NG/L	Perfluoroheptanoic acid	20.3		20.5		7.86	
537(M)	N	NG/L	Perfluorohexane sulfonic acid	60.7		59.7		3.07	
537(M)	N	NG/L	Perfluorohexanoic acid	83.5		83		13.3	
537(M)	N	NG/L	Perfluorononanoic acid	2.47		2.51		1.07	J
537(M)	N	NG/L	Perfluorooctane sulfonamide	2.25	U	2.29	U	1.78	U
537(M)	N	NG/L	Perfluorooctanesulfonic acid	2260		2250		122	
537(M)	N	NG/L	Perfluorooctanoic acid	53.5		53.8		31	
537(M)	N	NG/L	Perfluoropentanoic acid	40.5		40.4		19.5	
537(M)	N	NG/L	Perfluorotetradecanoic acid	2.25	U	2.29	U	1.78	U
537(M)	N	NG/L	Perfluorotridecanoic acid	2.25	U	2.29	U	1.78	U
537(M)	N	NG/L	Perfluoroundecanoic acid	2.25	U	2.29	U	1.78	U

Notes:
U = undetected
J = estimated value
FS = field sample
FD = field duplicate
N = total

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594		L1843594		L1843594	
			Location:	MW-6D		MW-6S		MW-E	
			Date Collected:	10/24/18		10/25/18		10/25/18	
			Sample ID:	MW-6D-102018		MW-6S-102018		MW-E-102018	
			Type:	FS		FS		FS	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier	Final Result	Final Qualifier	Final Result	Final Qualifier
537(M)	N	NG/L	6:2 fluorotelomer sulfonate	1.8	U	1.85	U	5.4	
537(M)	N	NG/L	8:2 Fluorotelomer sulfonate	1.8	U	1.85	U	1.89	U
537(M)	N	NG/L	N-ethyl perfluorooctanesulfonamidoacetic acid	1.8	U	1.85	U	1.89	U
537(M)	N	NG/L	N-methyl perfluorooctanesulfonamidoacetic acid	1.8	U	1.85	U	1.89	U
537(M)	N	NG/L	Perfluorobutanesulfonic acid	20.6		24.3		8.83	
537(M)	N	NG/L	Perfluorobutanoic acid	9.92		13.2		25.4	
537(M)	N	NG/L	Perfluorodecanesulfonic acid	1.8	U	1.85	U	1.89	U
537(M)	N	NG/L	Perfluorodecanoic acid	0.856	J	1.85	U	0.746	J
537(M)	N	NG/L	Perfluorododecanoic acid	1.8	U	1.85	U	1.89	U
537(M)	N	NG/L	Perfluoroheptanesulfonic acid	1.02	J	12.8		1.89	U
537(M)	N	NG/L	Perfluoroheptanoic acid	7.39		6.96		14.7	
537(M)	N	NG/L	Perfluorohexane sulfonic acid	3.07		27.1		1.84	J
537(M)	N	NG/L	Perfluorohexanoic acid	11.4		9.04		62	
537(M)	N	NG/L	Perfluorononanoic acid	2.12		2.34		0.625	J
537(M)	N	NG/L	Perfluorooctane sulfonamide	1.8	U	1.85	U	1.89	U
537(M)	N	NG/L	Perfluorooctanesulfonic acid	74.4		728		12.6	
537(M)	N	NG/L	Perfluorooctanoic acid	27.6		65.2		57.8	
537(M)	N	NG/L	Perfluoropentanoic acid	11.5		11.6		50.4	
537(M)	N	NG/L	Perfluorotetradecanoic acid	1.8	U	1.85	U	1.89	U
537(M)	N	NG/L	Perfluorotridecanoic acid	1.8	U	1.85	U	1.89	U
537(M)	N	NG/L	Perfluoroundecanoic acid	1.8	U	1.85	U	1.89	U

Notes:
U = undetected
J = estimated value
FS = field sample
FD = field duplicate
N = total

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

			SDG:	L1843594	
			Location:	QC	
			Date Collected:	10/24/18	
			Sample ID:	EB-102018	
			Type:	EB	
Method	Fraction	Unit	Parameter	Final Result	Final Qualifier
537(M)	N	NG/L	6:2 fluorotelomer sulfonate	0.428	J
537(M)	N	NG/L	8:2 Fluorotelomer sulfonate	1.8	U
537(M)	N	NG/L	N-ethyl perfluorooctanesulfonamidoacetic acid	1.8	U
537(M)	N	NG/L	N-methyl perfluorooctanesulfonamidoacetic acid	1.8	U
537(M)	N	NG/L	Perfluorobutanesulfonic acid	1.8	U
537(M)	N	NG/L	Perfluorobutanoic acid	1.8	U
537(M)	N	NG/L	Perfluorodecanesulfonic acid	1.8	U
537(M)	N	NG/L	Perfluorodecanoic acid	1.8	U
537(M)	N	NG/L	Perfluorododecanoic acid	1.8	U
537(M)	N	NG/L	Perfluoroheptanesulfonic acid	1.8	U
537(M)	N	NG/L	Perfluoroheptanoic acid	1.8	U
537(M)	N	NG/L	Perfluorohexane sulfonic acid	1.8	U
537(M)	N	NG/L	Perfluorohexanoic acid	1.8	U
537(M)	N	NG/L	Perfluorononanoic acid	1.8	U
537(M)	N	NG/L	Perfluorooctane sulfonamide	1.8	U
537(M)	N	NG/L	Perfluorooctanesulfonic acid	1.8	U
537(M)	N	NG/L	Perfluorooctanoic acid	1.8	U
537(M)	N	NG/L	Perfluoropentanoic acid	1.8	U
537(M)	N	NG/L	Perfluorotetradecanoic acid	1.8	U
537(M)	N	NG/L	Perfluorotridecanoic acid	1.8	U
537(M)	N	NG/L	Perfluoroundecanoic acid	1.8	U

Notes:
U = undetected
J = estimated value
FS = field sample
FD = field duplicate
N = total

TABLE 3 - SUMMARY OF QUALIFICATION ACTIONS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

SDG	Analysis Method	Lab Sample Id	Field Sample Date	Field Sample Id	Fraction	Param Name	Lab Result Text	Lab Qual	Final Result	Final Qual	Val Reason Code	Result Uom
L1843594	8260C	L1843594-01	10/24/2018	BMW-1-102018	N	1,2,3-Trichlorobenzene	2.5	U	2.5	UJ	LCS-L	UG/L
L1843594	537(M)	L1843594-01	10/24/2018	BMW-1-102018	N	6:2 fluorotelomer sulfonate	1.83		1.83	U	BL1, BL2	NG/L
L1843594	8260C	L1843594-01	10/24/2018	BMW-1-102018	N	Acetone	2	J	5	U	BL2	UG/L
L1843594	6020B	L1843594-01	10/24/2018	BMW-1-102018	D	Antimony	0.00104	J	0.004	U	BL2	MG/L
L1843594	6020B	L1843594-01	10/24/2018	BMW-1-102018	T	Antimony	0.00092	J	0.004	U	BL1	MG/L
L1843594	8260C	L1843594-01	10/24/2018	BMW-1-102018	N	Bromomethane	2.5	U	2.5	UJ	LCS-L	UG/L
L1843594	6020B	L1843594-01	10/24/2018	BMW-1-102018	T	Chromium	0.00067	J	0.00067	J	TD	MG/L
L1843594	6020B	L1843594-01	10/24/2018	BMW-1-102018	D	Chromium	0.00118		0.00118	J	TD	MG/L
L1843594	6020B	L1843594-01	10/24/2018	BMW-1-102018	D	Copper	0.0029		0.0029	J+	BL2	MG/L
L1843594	6020B	L1843594-01	10/24/2018	BMW-1-102018	T	Iron	0.422		0.422	J+	BL2	MG/L
L1843594	8260C	L1843594-01	10/24/2018	BMW-1-102018	N	Naphthalene	2.5	U	2.5	UJ	LCS-L	UG/L
L1843594	8260C	L1843594-02	10/24/2018	BMW-2-102018	N	1,2,3-Trichlorobenzene	2.5	U	2.5	UJ	LCS-L	UG/L
L1843594	6020B	L1843594-02	10/24/2018	BMW-2-102018	T	Antimony	0.00048	J	0.004	U	BL1	MG/L
L1843594	6020B	L1843594-02	10/24/2018	BMW-2-102018	D	Antimony	0.00055	J	0.004	U	BL2	MG/L
L1843594	8260C	L1843594-02	10/24/2018	BMW-2-102018	N	Bromomethane	2.5	U	2.5	UJ	LCS-L	UG/L
L1843594	8260C	L1843594-02	10/24/2018	BMW-2-102018	N	Naphthalene	2.5	U	2.5	UJ	LCS-L	UG/L
L1843594	8260C	L1843594-03	10/24/2018	BMW-3-102018	N	1,2,3-Trichlorobenzene	2.5	U	2.5	UJ	LCS-L	UG/L
L1843594	537(M)	L1843594-03	10/24/2018	BMW-3-102018	N	6:2 fluorotelomer sulfonate	17.9		17.9	J	IS-H	NG/L
L1843594	6020B	L1843594-03	10/24/2018	BMW-3-102018	D	Antimony	0.00043	J	0.004	U	BL2	MG/L
L1843594	6020B	L1843594-03	10/24/2018	BMW-3-102018	T	Antimony	0.00119	J	0.004	U	BL1	MG/L
L1843594	8260C	L1843594-03	10/24/2018	BMW-3-102018	N	Bromomethane	2.5	U	2.5	UJ	LCS-L	UG/L
L1843594	6020B	L1843594-03	10/24/2018	BMW-3-102018	T	Magnesium	46		46	J	TD	MG/L
L1843594	6020B	L1843594-03	10/24/2018	BMW-3-102018	D	Magnesium	54.4		54.4	J	TD	MG/L
L1843594	8260C	L1843594-03	10/24/2018	BMW-3-102018	N	Naphthalene	2.5	U	2.5	UJ	LCS-L	UG/L
L1843594	8260C	L1843594-04	10/24/2018	BMW-4-102018	N	1,2,3-Trichlorobenzene	2.5	U	2.5	UJ	LCS-L	UG/L
L1843594	537(M)	L1843594-04	10/24/2018	BMW-4-102018	N	6:2 fluorotelomer sulfonate	1.99	J	2.25	U	BL1, BL2	NG/L
L1843594	6020B	L1843594-04	10/24/2018	BMW-4-102018	T	Aluminum	0.00911	J	0.00911	J	FD, TD	MG/L
L1843594	6020B	L1843594-04	10/24/2018	BMW-4-102018	D	Aluminum	0.677		0.677	J	FD, TD	MG/L
L1843594	6020B	L1843594-04	10/24/2018	BMW-4-102018	T	Antimony	0.00062	J	0.004	U	BL1	MG/L
L1843594	8260C	L1843594-04	10/24/2018	BMW-4-102018	N	Bromomethane	2.5	U	2.5	UJ	LCS-L	UG/L
L1843594	6020B	L1843594-04	10/24/2018	BMW-4-102018	D	Chromium	0.00367		0.00367	J	FD	MG/L
L1843594	6020B	L1843594-04	10/24/2018	BMW-4-102018	T	Copper	0.0007	J	0.0007	J	FD	MG/L

ANALYTICAL REPORT

Lab Number:	L1843594
Client:	Wood Env & Infrastructure Solutions, Inc 214-25 42nd Avenue Suite 3R Bayside, NY 11361
ATTN:	Eric Weinstock
Phone:	(347) 836-4445
Project Name:	FORMER HYGRADE
Project Number:	3612162331
Report Date:	11/11/18

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1843594-01	BMW-1-102018	WATER	LONG ISLAND CITY, NY	10/24/18 13:00	10/25/18
L1843594-02	BMW-2-102018	WATER	LONG ISLAND CITY, NY	10/24/18 12:45	10/25/18
L1843594-03	BMW-3-102018	WATER	LONG ISLAND CITY, NY	10/24/18 13:20	10/25/18
L1843594-04	BMW-4-102018	WATER	LONG ISLAND CITY, NY	10/24/18 11:55	10/25/18
L1843594-05	MW-5-102018	WATER	LONG ISLAND CITY, NY	10/24/18 10:33	10/25/18
L1843594-06	MW-6S-102018	WATER	LONG ISLAND CITY, NY	10/25/18 10:40	10/25/18
L1843594-07	MW-6D-102018	WATER	LONG ISLAND CITY, NY	10/24/18 10:20	10/25/18
L1843594-08	MW-E-102018	WATER	LONG ISLAND CITY, NY	10/25/18 11:05	10/25/18
L1843594-09	DUP-102018	WATER	LONG ISLAND CITY, NY	10/24/18 11:55	10/25/18
L1843594-10	EB-102018	WATER	LONG ISLAND CITY, NY	10/24/18 13:30	10/25/18
L1843594-11	TB-102018	TRIP BLANK (AQUEOUS)	LONG ISLAND CITY, NY	10/23/18 00:00	10/25/18

Project Name: FORMER HYGRADE
Project Number: 3612162331

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Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	FORMER HYGRADE	**Lab Number:**	L1843594
Project Number:	3612162331	**Report Date:**	11/11/18

Case Narrative (continued)

Report Submission

November 11, 2018: This final report includes the results of all requested analyses.

November 05, 2018: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Perfluorinated Alkyl Acids by Isotope Dilution

The WG1174239-4 continuing calibration standard, associated with L1843594-01 through -06 and -09, as well as the associated QC, had the response for 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) (140.6%) above the acceptance criteria for the method. The associated samples were non-detect for this target compound; therefore, no further action was taken.

Dissolved Metals

The WG1174403-3/-4 MS/MSD recoveries for calcium (140%/270%) and sodium (0%/0%), performed on L1843594-07, do not apply because the sample concentrations are greater than four times the spike amounts added.

Total Metals

The WG1174499-3/-4 MS/MSD recoveries for calcium (0%/30%) and sodium (0%/20%), performed on L1843594-07, do not apply because the sample concentrations are greater than four times the spike amounts added.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Kelly Stenstrom

Title: Technical Director/Representative Date: 11/11/18

ORGANICS

VOLATILES

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-01
Client ID: BMW-1-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 13:00
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 11/02/18 16:25
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	0.72		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.28	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-01 Date Collected: 10/24/18 13:00

Client ID: BMW-1-102018 Date Received: 10/25/18

Sample Location: LONG ISLAND CITY, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	2.7		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	5.6		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	5.6		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	2.0	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-01
Client ID: BMW-1-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 13:00
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	91		70-130

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-02
Client ID: BMW-2-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 12:45
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 11/02/18 16:54
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	2.0		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.43	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-02 Date Collected: 10/24/18 12:45

Client ID: BMW-2-102018 Date Received: 10/25/18

Sample Location: LONG ISLAND CITY, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	4.6		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	9.4		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	9.4		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-02
Client ID: BMW-2-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 12:45
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	91		70-130

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-03
Client ID: BMW-3-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 13:20
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 11/02/18 17:22
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	7.1		ug/l	0.50	0.16	1
Toluene	1.1	J	ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	26		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	2.4	J	ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-03 Date Collected: 10/24/18 13:20

Client ID: BMW-3-102018 Date Received: 10/25/18

Sample Location: LONG ISLAND CITY, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	0.63		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	18		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	20	J	ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	36		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	16		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-03
Client ID: BMW-3-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 13:20
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	91		70-130

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-04
Client ID: BMW-4-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 11:55
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 11/02/18 17:51
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	1.8		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	2.4		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	4.7		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	2.6		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-04 Date Collected: 10/24/18 11:55

Client ID: BMW-4-102018 Date Received: 10/25/18

Sample Location: LONG ISLAND CITY, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	1.1		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	2.4	J	ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	4.2		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	6.8		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-04
Client ID: BMW-4-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 11:55
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	91		70-130

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-05
Client ID: MW-5-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 10:33
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 11/02/18 13:42
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	1.1	J	ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	0.84		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-05 Date Collected: 10/24/18 10:33

Client ID: MW-5-102018 Date Received: 10/25/18

Sample Location: LONG ISLAND CITY, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	5.5		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	2.4	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-05 Date Collected: 10/24/18 10:33

Client ID: MW-5-102018 Date Received: 10/25/18

Sample Location: LONG ISLAND CITY, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	109		70-130

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-06 D
Client ID: MW-6S-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/25/18 10:40
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 11/02/18 14:05
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	10	2.8	4
1,1-Dichloroethane	ND		ug/l	10	2.8	4
Chloroform	ND		ug/l	10	2.8	4
Carbon tetrachloride	ND		ug/l	2.0	0.54	4
1,2-Dichloropropane	ND		ug/l	4.0	0.55	4
Dibromochloromethane	ND		ug/l	2.0	0.60	4
1,1,2-Trichloroethane	ND		ug/l	6.0	2.0	4
Tetrachloroethene	34		ug/l	2.0	0.72	4
Chlorobenzene	ND		ug/l	10	2.8	4
Trichlorofluoromethane	ND		ug/l	10	2.8	4
1,2-Dichloroethane	ND		ug/l	2.0	0.53	4
1,1,1-Trichloroethane	ND		ug/l	10	2.8	4
Bromodichloromethane	ND		ug/l	2.0	0.77	4
trans-1,3-Dichloropropene	ND		ug/l	2.0	0.66	4
cis-1,3-Dichloropropene	ND		ug/l	2.0	0.58	4
1,3-Dichloropropene, Total	ND		ug/l	2.0	0.58	4
1,1-Dichloropropene	ND		ug/l	10	2.8	4
Bromoform	ND		ug/l	8.0	2.6	4
1,1,2,2-Tetrachloroethane	ND		ug/l	2.0	0.67	4
Benzene	ND		ug/l	2.0	0.64	4
Toluene	ND		ug/l	10	2.8	4
Ethylbenzene	ND		ug/l	10	2.8	4
Chloromethane	ND		ug/l	10	2.8	4
Bromomethane	ND		ug/l	10	2.8	4
Vinyl chloride	ND		ug/l	4.0	0.28	4
Chloroethane	ND		ug/l	10	2.8	4
1,1-Dichloroethene	ND		ug/l	2.0	0.68	4
trans-1,2-Dichloroethene	ND		ug/l	10	2.8	4

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-06 D
Client ID: MW-6S-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/25/18 10:40
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	14		ug/l	2.0	0.70	4
1,2-Dichlorobenzene	ND		ug/l	10	2.8	4
1,3-Dichlorobenzene	ND		ug/l	10	2.8	4
1,4-Dichlorobenzene	ND		ug/l	10	2.8	4
Methyl tert butyl ether	760		ug/l	10	2.8	4
p/m-Xylene	ND		ug/l	10	2.8	4
o-Xylene	ND		ug/l	10	2.8	4
Xylenes, Total	ND		ug/l	10	2.8	4
cis-1,2-Dichloroethene	32		ug/l	10	2.8	4
1,2-Dichloroethene, Total	32		ug/l	10	2.8	4
Dibromomethane	ND		ug/l	20	4.0	4
1,2,3-Trichloropropane	ND		ug/l	10	2.8	4
Acrylonitrile	ND		ug/l	20	6.0	4
Styrene	ND		ug/l	10	2.8	4
Dichlorodifluoromethane	ND		ug/l	20	4.0	4
Acetone	ND		ug/l	20	5.8	4
Carbon disulfide	ND		ug/l	20	4.0	4
2-Butanone	ND		ug/l	20	7.8	4
Vinyl acetate	ND		ug/l	20	4.0	4
4-Methyl-2-pentanone	ND		ug/l	20	4.0	4
2-Hexanone	ND		ug/l	20	4.0	4
Bromochloromethane	ND		ug/l	10	2.8	4
2,2-Dichloropropane	ND		ug/l	10	2.8	4
1,2-Dibromoethane	ND		ug/l	8.0	2.6	4
1,3-Dichloropropane	ND		ug/l	10	2.8	4
1,1,1,2-Tetrachloroethane	ND		ug/l	10	2.8	4
Bromobenzene	ND		ug/l	10	2.8	4
n-Butylbenzene	ND		ug/l	10	2.8	4
sec-Butylbenzene	ND		ug/l	10	2.8	4
tert-Butylbenzene	ND		ug/l	10	2.8	4
o-Chlorotoluene	ND		ug/l	10	2.8	4
p-Chlorotoluene	ND		ug/l	10	2.8	4
1,2-Dibromo-3-chloropropane	ND		ug/l	10	2.8	4
Hexachlorobutadiene	ND		ug/l	10	2.8	4
Isopropylbenzene	ND		ug/l	10	2.8	4
p-Isopropyltoluene	ND		ug/l	10	2.8	4
Naphthalene	ND		ug/l	10	2.8	4

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-06 D Date Collected: 10/25/18 10:40

Client ID: MW-6S-102018 Date Received: 10/25/18

Sample Location: LONG ISLAND CITY, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	10	2.8	4
1,2,3-Trichlorobenzene	ND		ug/l	10	2.8	4
1,2,4-Trichlorobenzene	ND		ug/l	10	2.8	4
1,3,5-Trimethylbenzene	ND		ug/l	10	2.8	4
1,2,4-Trimethylbenzene	ND		ug/l	10	2.8	4
1,4-Dioxane	ND		ug/l	1000	240	4
p-Diethylbenzene	ND		ug/l	8.0	2.8	4
p-Ethyltoluene	ND		ug/l	8.0	2.8	4
1,2,4,5-Tetramethylbenzene	ND		ug/l	8.0	2.2	4
Ethyl ether	ND		ug/l	10	2.8	4
trans-1,4-Dichloro-2-butene	ND		ug/l	10	2.8	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	110		70-130

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-07
Client ID: MW-6D-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 10:20
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 11/02/18 18:19
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	0.92		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	0.11	J	ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-07 Date Collected: 10/24/18 10:20

Client ID: MW-6D-102018 Date Received: 10/25/18

Sample Location: LONG ISLAND CITY, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	1.4		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	1.5	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-07 Date Collected: 10/24/18 10:20

Client ID: MW-6D-102018 Date Received: 10/25/18

Sample Location: LONG ISLAND CITY, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	91		70-130

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-08
Client ID: MW-E-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/25/18 11:05
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 11/02/18 14:27
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-08 Date Collected: 10/25/18 11:05

Client ID: MW-E-102018 Date Received: 10/25/18

Sample Location: LONG ISLAND CITY, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	2.4	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-08 Date Collected: 10/25/18 11:05

Client ID: MW-E-102018 Date Received: 10/25/18

Sample Location: LONG ISLAND CITY, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	107		70-130

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-09
Client ID: DUP-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 11:55
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 11/02/18 14:50
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	2.1		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	2.3		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	3.0		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	3.0		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-09 Date Collected: 10/24/18 11:55

Client ID: DUP-102018 Date Received: 10/25/18

Sample Location: LONG ISLAND CITY, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	1.4		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	2.7		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	4.6		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	7.6		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-09
Client ID: DUP-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 11:55
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	111		70-130

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-10
Client ID: EB-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 13:30
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 11/02/18 15:13
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-10 Date Collected: 10/24/18 13:30

Client ID: EB-102018 Date Received: 10/25/18

Sample Location: LONG ISLAND CITY, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	2.5	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-10
Client ID: EB-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 13:30
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	108		70-130

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-11
Client ID: TB-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/23/18 00:00
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Trip Blank (Aqueous)
Analytical Method: 1,8260C
Analytical Date: 11/02/18 15:35
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-11 Date Collected: 10/23/18 00:00

Client ID: TB-102018 Date Received: 10/25/18

Sample Location: LONG ISLAND CITY, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	2.5	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-11 Date Collected: 10/23/18 00:00

Client ID: TB-102018 Date Received: 10/25/18

Sample Location: LONG ISLAND CITY, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	109		70-130

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 11/02/18 10:19
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 05-06,08-11 Batch: WG1175401-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 11/02/18 10:19
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 05-06,08-11 Batch: WG1175401-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Acrylonitrile	ND		ug/l	5.0	1.5
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 11/02/18 10:19
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 05-06,08-11 Batch: WG1175401-5					
o-Chlorotoluene	ND		ug/l	2.5	0.70
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.
p-Diethylbenzene	ND		ug/l	2.0	0.70
p-Ethyltoluene	ND		ug/l	2.0	0.70
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54
Ethyl ether	ND		ug/l	2.5	0.70
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	106		70-130

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 11/02/18 10:40
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-04,07 Batch: WG1175499-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 11/02/18 10:40
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-04,07 Batch: WG1175499-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Acrylonitrile	ND		ug/l	5.0	1.5
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 11/02/18 10:40
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-04,07 Batch: WG1175499-5					
o-Chlorotoluene	ND		ug/l	2.5	0.70
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.
p-Diethylbenzene	ND		ug/l	2.0	0.70
p-Ethyltoluene	ND		ug/l	2.0	0.70
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54
Ethyl ether	ND		ug/l	2.5	0.70
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	87		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 05-06,08-11 Batch: WG1175401-3 WG1175401-4								
Methylene chloride	90		88		70-130	2		20
1,1-Dichloroethane	91		89		70-130	2		20
Chloroform	100		100		70-130	0		20
Carbon tetrachloride	130		120		63-132	8		20
1,2-Dichloropropane	82		80		70-130	2		20
Dibromochloromethane	110		110		63-130	0		20
1,1,2-Trichloroethane	89		86		70-130	3		20
Tetrachloroethene	110		100		70-130	10		20
Chlorobenzene	100		99		75-130	1		20
Trichlorofluoromethane	120		110		62-150	9		20
1,2-Dichloroethane	110		110		70-130	0		20
1,1,1-Trichloroethane	120		120		67-130	0		20
Bromodichloromethane	100		100		67-130	0		20
trans-1,3-Dichloropropene	98		93		70-130	5		20
cis-1,3-Dichloropropene	93		90		70-130	3		20
1,1-Dichloropropene	95		94		70-130	1		20
Bromoform	120		110		54-136	9		20
1,1,2,2-Tetrachloroethane	90		86		67-130	5		20
Benzene	90		87		70-130	3		20
Toluene	96		92		70-130	4		20
Ethylbenzene	100		93		70-130	7		20
Chloromethane	91		88		64-130	3		20
Bromomethane	110		100		39-139	10		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 05-06,08-11 Batch: WG1175401-3 WG1175401-4								
Vinyl chloride	74		72		55-140	3		20
Chloroethane	100		97		55-138	3		20
1,1-Dichloroethene	110		110		61-145	0		20
trans-1,2-Dichloroethene	100		100		70-130	0		20
Trichloroethene	110		100		70-130	10		20
1,2-Dichlorobenzene	110		100		70-130	10		20
1,3-Dichlorobenzene	110		110		70-130	0		20
1,4-Dichlorobenzene	110		100		70-130	10		20
Methyl tert butyl ether	100		96		63-130	4		20
p/m-Xylene	100		90		70-130	11		20
o-Xylene	95		95		70-130	0		20
cis-1,2-Dichloroethene	100		100		70-130	0		20
Dibromomethane	100		100		70-130	0		20
1,2,3-Trichloropropane	95		91		64-130	4		20
Acrylonitrile	84		87		70-130	4		20
Styrene	100		95		70-130	5		20
Dichlorodifluoromethane	100		97		36-147	3		20
Acetone	110		93		58-148	17		20
Carbon disulfide	92		92		51-130	0		20
2-Butanone	96		87		63-138	10		20
Vinyl acetate	87		87		70-130	0		20
4-Methyl-2-pentanone	85		83		59-130	2		20
2-Hexanone	84		80		57-130	5		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 05-06,08-11 Batch: WG1175401-3 WG1175401-4								
Bromochloromethane	110		110		70-130	0		20
2,2-Dichloropropane	100		100		63-133	0		20
1,2-Dibromoethane	100		98		70-130	2		20
1,3-Dichloropropane	93		87		70-130	7		20
1,1,1,2-Tetrachloroethane	110		110		64-130	0		20
Bromobenzene	110		100		70-130	10		20
n-Butylbenzene	100		98		53-136	2		20
sec-Butylbenzene	100		96		70-130	4		20
tert-Butylbenzene	93		86		70-130	8		20
o-Chlorotoluene	100		96		70-130	4		20
p-Chlorotoluene	100		98		70-130	2		20
1,2-Dibromo-3-chloropropane	100		100		41-144	0		20
Hexachlorobutadiene	130		120		63-130	8		20
Isopropylbenzene	99		93		70-130	6		20
p-Isopropyltoluene	110		100		70-130	10		20
Naphthalene	100		96		70-130	4		20
n-Propylbenzene	100		94		69-130	6		20
1,2,3-Trichlorobenzene	120		110		70-130	9		20
1,2,4-Trichlorobenzene	120		110		70-130	9		20
1,3,5-Trimethylbenzene	100		93		64-130	7		20
1,2,4-Trimethylbenzene	100		95		70-130	5		20
1,4-Dioxane	160		158		56-162	1		20
p-Diethylbenzene	110		97		70-130	13		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 05-06,08-11 Batch: WG1175401-3 WG1175401-4								
p-Ethyltoluene	100		93		70-130	7		20
1,2,4,5-Tetramethylbenzene	100		96		70-130	4		20
Ethyl ether	92		95		59-134	3		20
trans-1,4-Dichloro-2-butene	99		90		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		110		70-130
Toluene-d8	97		94		70-130
4-Bromofluorobenzene	95		96		70-130
Dibromofluoromethane	109		111		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,07 Batch: WG1175499-3 WG1175499-4								
Methylene chloride	83		80		70-130	4		20
1,1-Dichloroethane	98		96		70-130	2		20
Chloroform	82		80		70-130	2		20
Carbon tetrachloride	83		81		63-132	2		20
1,2-Dichloropropane	100		100		70-130	0		20
Dibromochloromethane	87		83		63-130	5		20
1,1,2-Trichloroethane	92		88		70-130	4		20
Tetrachloroethene	92		90		70-130	2		20
Chlorobenzene	92		90		75-130	2		20
Trichlorofluoromethane	82		79		62-150	4		20
1,2-Dichloroethane	88		84		70-130	5		20
1,1,1-Trichloroethane	85		83		67-130	2		20
Bromodichloromethane	81		79		67-130	3		20
trans-1,3-Dichloropropene	83		80		70-130	4		20
cis-1,3-Dichloropropene	82		80		70-130	2		20
1,1-Dichloropropene	87		85		70-130	2		20
Bromoform	80		75		54-136	6		20
1,1,2,2-Tetrachloroethane	92		86		67-130	7		20
Benzene	89		87		70-130	2		20
Toluene	93		91		70-130	2		20
Ethylbenzene	94		92		70-130	2		20
Chloromethane	110		110		64-130	0		20
Bromomethane	53		52		39-139	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,07 Batch: WG1175499-3 WG1175499-4								
Vinyl chloride	120		110		55-140	9		20
Chloroethane	96		94		55-138	2		20
1,1-Dichloroethene	84		83		61-145	1		20
trans-1,2-Dichloroethene	84		82		70-130	2		20
Trichloroethene	86		84		70-130	2		20
1,2-Dichlorobenzene	94		92		70-130	2		20
1,3-Dichlorobenzene	94		94		70-130	0		20
1,4-Dichlorobenzene	93		92		70-130	1		20
Methyl tert butyl ether	83		78		63-130	6		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	100		95		70-130	5		20
cis-1,2-Dichloroethene	83		82		70-130	1		20
Dibromomethane	84		79		70-130	6		20
1,2,3-Trichloropropane	96		92		64-130	4		20
Acrylonitrile	120		110		70-130	9		20
Styrene	90		90		70-130	0		20
Dichlorodifluoromethane	94		90		36-147	4		20
Acetone	110		100		58-148	10		20
Carbon disulfide	84		82		51-130	2		20
2-Butanone	95		86		63-138	10		20
Vinyl acetate	79		71		70-130	11		20
4-Methyl-2-pentanone	120		110		59-130	9		20
2-Hexanone	98		89		57-130	10		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,07 Batch: WG1175499-3 WG1175499-4								
Bromochloromethane	90		86		70-130	5		20
2,2-Dichloropropane	80		78		63-133	3		20
1,2-Dibromoethane	92		85		70-130	8		20
1,3-Dichloropropane	92		88		70-130	4		20
1,1,1,2-Tetrachloroethane	89		87		64-130	2		20
Bromobenzene	91		89		70-130	2		20
n-Butylbenzene	100		100		53-136	0		20
sec-Butylbenzene	100		100		70-130	0		20
tert-Butylbenzene	100		100		70-130	0		20
o-Chlorotoluene	98		98		70-130	0		20
p-Chlorotoluene	97		98		70-130	1		20
1,2-Dibromo-3-chloropropane	78		72		41-144	8		20
Hexachlorobutadiene	92		91		63-130	1		20
Isopropylbenzene	100		100		70-130	0		20
p-Isopropyltoluene	100		100		70-130	0		20
Naphthalene	76		**69**	Q	70-130	10		20
n-Propylbenzene	100		100		69-130	0		20
1,2,3-Trichlorobenzene	70		**65**	Q	70-130	7		20
1,2,4-Trichlorobenzene	81		77		70-130	5		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
1,4-Dioxane	138		120		56-162	14		20
p-Diethylbenzene	100		100		70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,07 Batch: WG1175499-3 WG1175499-4								
p-Ethyltoluene	100		100		70-130	0		20
1,2,4,5-Tetramethylbenzene	96		96		70-130	0		20
Ethyl ether	85		80		59-134	6		20
trans-1,4-Dichloro-2-butene	110		100		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		95		70-130
Toluene-d8	104		104		70-130
4-Bromofluorobenzene	100		101		70-130
Dibromofluoromethane	93		92		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,07 QC Batch ID: WG1175499-6 WG1175499-7 QC Sample: L1843594-07 Client ID: MW-6D-102018												
Methylene chloride	ND	10	8.0	80		9.0	90		70-130	12		20
1,1-Dichloroethane	ND	10	9.3	93		10	100		70-130	7		20
Chloroform	ND	10	8.4	84		9.3	93		70-130	10		20
Carbon tetrachloride	ND	10	7.7	77		7.2	72		63-132	7		20
1,2-Dichloropropane	ND	10	9.8	98		11	110		70-130	12		20
Dibromochloromethane	ND	10	8.0	80		8.9	89		63-130	11		20
1,1,2-Trichloroethane	ND	10	8.6	86		9.5	95		70-130	10		20
Tetrachloroethene	0.92	10	9.1	82		8.4	75		70-130	8		20
Chlorobenzene	ND	10	8.4	84		8.3	83		75-130	1		20
Trichlorofluoromethane	ND	10	7.5	75		7.5	75		62-150	0		20
1,2-Dichloroethane	ND	10	8.2	82		9.0	90		70-130	9		20
1,1,1-Trichloroethane	ND	10	8.2	82		8.4	84		67-130	2		20
Bromodichloromethane	ND	10	7.7	77		8.4	84		67-130	9		20
trans-1,3-Dichloropropene	ND	10	7.3	73		8.0	80		70-130	9		20
cis-1,3-Dichloropropene	ND	10	7.5	75		8.0	80		70-130	6		20
1,1-Dichloropropene	ND	10	7.9	79		7.6	76		70-130	4		20
Bromoform	ND	10	7.2	72		7.9	79		54-136	9		20
1,1,2,2-Tetrachloroethane	ND	10	8.4	84		9.0	90		67-130	7		20
Benzene	ND	10	8.5	85		9.0	90		70-130	6		20
Toluene	ND	10	8.4	84		8.4	84		70-130	0		20
Ethylbenzene	ND	10	8.2	82		7.7	77		70-130	6		20
Chloromethane	ND	10	10	100		12	120		64-130	18		20
Bromomethane	ND	10	3.2	**32**	Q	4.5	45		39-139	**34**	Q	20

Matrix Spike Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,07 QC Batch ID: WG1175499-6 WG1175499-7 QC Sample: L1843594-07 Client ID: MW-6D-102018												
Vinyl chloride	0.11J	10	11	110		12	120		55-140	9		20
Chloroethane	ND	10	9.4	94		10	100		55-138	6		20
1,1-Dichloroethene	ND	10	8.1	81		8.5	85		61-145	5		20
trans-1,2-Dichloroethene	ND	10	8.0	80		8.5	85		70-130	6		20
Trichloroethene	1.4	10	9.3	79		9.3	79		70-130	0		20
1,2-Dichlorobenzene	ND	10	8.4	84		8.0	80		70-130	5		20
1,3-Dichlorobenzene	ND	10	8.4	84		7.7	77		70-130	9		20
1,4-Dichlorobenzene	ND	10	8.2	82		7.5	75		70-130	9		20
Methyl tert butyl ether	ND	10	7.7	77		8.8	88		63-130	13		20
p/m-Xylene	ND	20	17	85		16	80		70-130	6		20
o-Xylene	ND	20	18	90		17	85		70-130	6		20
cis-1,2-Dichloroethene	ND	10	8.3	83		9.4	94		70-130	12		20
Dibromomethane	ND	10	7.8	78		8.6	86		70-130	10		20
1,2,3-Trichloropropane	ND	10	7.8	78		9.2	92		64-130	16		20
Acrylonitrile	ND	10	10	100		12	120		70-130	18		20
Styrene	ND	20	16	80		16	80		70-130	0		20
Dichlorodifluoromethane	ND	10	8.3	83		8.0	80		36-147	4		20
Acetone	1.5J	10	12	120		11	110		58-148	9		20
Carbon disulfide	ND	10	7.8	78		8.0	80		51-130	3		20
2-Butanone	ND	10	7.7	77		8.9	89		63-138	14		20
Vinyl acetate	ND	10	6.8	**68**	Q	7.5	75		70-130	10		20
4-Methyl-2-pentanone	ND	10	11	110		12	120		59-130	9		20
2-Hexanone	ND	10	7.8	78		8.8	88		57-130	12		20

Matrix Spike Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,07 QC Batch ID: WG1175499-6 WG1175499-7 QC Sample: L1843594-07 Client ID: MW-6D-102018												
Bromochloromethane	ND	10	8.6	86		9.7	97		70-130	12		20
2,2-Dichloropropane	ND	10	6.4	64		7.0	70		63-133	9		20
1,2-Dibromoethane	ND	10	8.4	84		9.1	91		70-130	8		20
1,3-Dichloropropane	ND	10	8.4	84		9.4	94		70-130	11		20
1,1,1,2-Tetrachloroethane	ND	10	8.3	83		8.6	86		64-130	4		20
Bromobenzene	ND	10	8.2	82		8.0	80		70-130	2		20
n-Butylbenzene	ND	10	8.2	82		6.9	69		53-136	17		20
sec-Butylbenzene	ND	10	8.8	88		7.3	73		70-130	19		20
tert-Butylbenzene	ND	10	8.6	86		7.4	74		70-130	15		20
o-Chlorotoluene	ND	10	8.4	84		7.7	77		70-130	9		20
p-Chlorotoluene	ND	10	8.4	84		7.5	75		70-130	11		20
1,2-Dibromo-3-chloropropane	ND	10	6.5	65		7.5	75		41-144	14		20
Hexachlorobutadiene	ND	10	7.0	70		5.8	**58**	Q	63-130	19		20
Isopropylbenzene	ND	10	8.7	87		7.6	76		70-130	13		20
p-Isopropyltoluene	ND	10	8.6	86		7.3	73		70-130	16		20
Naphthalene	ND	10	6.3	**63**	Q	6.2	**62**	Q	70-130	2		20
n-Propylbenzene	ND	10	8.5	85		7.3	73		69-130	15		20
1,2,3-Trichlorobenzene	ND	10	5.8	**58**	Q	5.3	**53**	Q	70-130	9		20
1,2,4-Trichlorobenzene	ND	10	6.9	**69**	Q	6.1	**61**	Q	70-130	12		20
1,3,5-Trimethylbenzene	ND	10	8.7	87		7.6	76		64-130	13		20
1,2,4-Trimethylbenzene	ND	10	8.7	87		7.9	79		70-130	10		20
1,4-Dioxane	ND	500	480	96		650	130		56-162	**30**	Q	20
p-Diethylbenzene	ND	10	8.7	87		7.3	73		70-130	18		20

Matrix Spike Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,07 QC Batch ID: WG1175499-6 WG1175499-7 QC Sample: L1843594-07 Client ID: MW-6D-102018												
p-Ethyltoluene	ND	10	9.0	90		7.8	78		70-130	14		20
1,2,4,5-Tetramethylbenzene	ND	10	8.2	82		7.4	74		70-130	10		20
Ethyl ether	ND	10	8.2	82		9.1	91		59-134	10		20
trans-1,4-Dichloro-2-butene	ND	10	9.0	90		10	100		70-130	11		20

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		93		70-130
4-Bromofluorobenzene	98		98		70-130
Dibromofluoromethane	93		93		70-130
Toluene-d8	102		103		70-130

SEMIVOLATILES

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-01
Client ID: BMW-1-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 13:00
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 10/31/18 19:24
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/26/18 14:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	25.9		ng/l	1.79	0.334	1
Perfluoropentanoic Acid (PFPeA)	25.7		ng/l	1.79	0.416	1
Perfluorobutanesulfonic Acid (PFBS)	2320	E	ng/l	1.79	0.340	1
Perfluorohexanoic Acid (PFHxA)	27.2		ng/l	1.79	0.441	1
Perfluoroheptanoic Acid (PFHpA)	18.8		ng/l	1.79	0.333	1
Perfluorohexanesulfonic Acid (PFHxS)	297		ng/l	1.79	0.391	1
Perfluorooctanoic Acid (PFOA)	90.0		ng/l	1.79	0.412	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	1.83		ng/l	1.79	0.174	1
Perfluoroheptanesulfonic Acid (PFHpS)	191		ng/l	1.79	0.466	1
Perfluorononanoic Acid (PFNA)	3.87		ng/l	1.79	0.391	1
Perfluorooctanesulfonic Acid (PFOS)	4190	E	ng/l	1.79	0.502	1
Perfluorodecanoic Acid (PFDA)	2.94		ng/l	1.79	0.556	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.79	0.260	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.394	J	ng/l	1.79	0.224	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.79	0.380	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.79	0.346	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.79	0.498	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	0.509	J	ng/l	1.79	0.334	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.79	0.530	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.79	0.281	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.79	0.885	1

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-01
Client ID: BMW-1-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 13:00
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	88		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	89		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	71		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	65		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	78		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	112		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	86		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	182		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	83		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	90		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	85		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**198**	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	68		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	82		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	43		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	71		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	67		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	56		33-143

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-01 RE
Client ID: BMW-1-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 13:00
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 11/08/18 14:18
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 11/02/18 09:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	2160		ng/l	50.0	9.50	1
Perfluorooctanesulfonic Acid (PFOS)	4170		ng/l	50.0	14.0	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	112		31-159
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	117		42-146

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-02
Client ID: BMW-2-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 12:45
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 10/31/18 19:41
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/26/18 14:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	28.2		ng/l	1.85	0.346	1
Perfluoropentanoic Acid (PFPeA)	26.2		ng/l	1.85	0.430	1
Perfluorobutanesulfonic Acid (PFBS)	3080	E	ng/l	1.85	0.352	1
Perfluorohexanoic Acid (PFHxA)	28.6		ng/l	1.85	0.456	1
Perfluoroheptanoic Acid (PFHpA)	18.9		ng/l	1.85	0.344	1
Perfluorohexanesulfonic Acid (PFHxS)	623	E	ng/l	1.85	0.404	1
Perfluorooctanoic Acid (PFOA)	98.3		ng/l	1.85	0.426	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	3.37		ng/l	1.85	0.180	1
Perfluoroheptanesulfonic Acid (PFHpS)	234		ng/l	1.85	0.481	1
Perfluorononanoic Acid (PFNA)	2.44		ng/l	1.85	0.404	1
Perfluorooctanesulfonic Acid (PFOS)	7480	E	ng/l	1.85	0.518	1
Perfluorodecanoic Acid (PFDA)	2.30		ng/l	1.85	0.574	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.85	0.269	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.85	0.232	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.85	0.392	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.85	0.357	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.85	0.515	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	0.418	J	ng/l	1.85	0.345	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.85	0.548	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.85	0.291	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.85	0.915	1

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-02
Client ID: BMW-2-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 12:45
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	89		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	90		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	88		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	65		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	80		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	151		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	86		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	242		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	77		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	89		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	78		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**235**	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	74		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	79		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	44		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	73		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	69		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	59		33-143

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-02 RE
Client ID: BMW-2-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 12:45
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 11/08/18 14:34
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 11/02/18 09:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	2900		ng/l	100	19.0	1
Perfluorohexanesulfonic Acid (PFHxS)	589		ng/l	100	21.8	1
Perfluorooctanesulfonic Acid (PFOS)	6110		ng/l	100	28.0	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	104		31-159
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	140		47-153
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	115		42-146

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-03
Client ID: BMW-3-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 13:20
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 10/31/18 19:57
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/26/18 14:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	13.8		ng/l	2.08	0.389	1
Perfluoropentanoic Acid (PFPeA)	30.2		ng/l	2.08	0.483	1
Perfluorobutanesulfonic Acid (PFBS)	255		ng/l	2.08	0.396	1
Perfluorohexanoic Acid (PFHxA)	48.7		ng/l	2.08	0.512	1
Perfluoroheptanoic Acid (PFHpA)	21.8		ng/l	2.08	0.388	1
Perfluorohexanesulfonic Acid (PFHxS)	362		ng/l	2.08	0.454	1
Perfluorooctanoic Acid (PFOA)	138		ng/l	2.08	0.479	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	17.9		ng/l	2.08	0.202	1
Perfluoroheptanesulfonic Acid (PFHpS)	219		ng/l	2.08	0.542	1
Perfluorononanoic Acid (PFNA)	2.67		ng/l	2.08	0.454	1
Perfluorooctanesulfonic Acid (PFOS)	4450	E	ng/l	2.08	0.583	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.08	0.646	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.08	0.303	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.08	0.261	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.08	0.442	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.08	0.402	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.08	0.579	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.08	0.388	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.08	0.617	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.08	0.327	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.08	1.03	1

Project Name: FORMER HYGRADE
Lab Number: L1843594
Project Number: 3612162331
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-03
Client ID: BMW-3-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 13:20
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	96		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	71		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	114		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	64		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	67		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	133		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	93		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	**470**	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	109		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	96		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	83		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**433**	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	98		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	92		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	37		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	83		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	82		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	73		33-143

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-03 RE
Client ID: BMW-3-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 13:20
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 11/08/18 14:51
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 11/02/18 09:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorooctanesulfonic Acid (PFOS)	4540		ng/l	40.0	11.2	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	113		42-146

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-04
Client ID: BMW-4-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 11:55
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 10/31/18 20:14
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/26/18 14:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	15.4		ng/l	2.25	0.420	1
Perfluoropentanoic Acid (PFPeA)	40.5		ng/l	2.25	0.522	1
Perfluorobutanesulfonic Acid (PFBS)	111		ng/l	2.25	0.428	1
Perfluorohexanoic Acid (PFHxA)	83.5		ng/l	2.25	0.554	1
Perfluoroheptanoic Acid (PFHpA)	20.3		ng/l	2.25	0.419	1
Perfluorohexanesulfonic Acid (PFHxS)	60.7		ng/l	2.25	0.491	1
Perfluorooctanoic Acid (PFOA)	53.5		ng/l	2.25	0.518	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	1.99	J	ng/l	2.25	0.218	1
Perfluoroheptanesulfonic Acid (PFHpS)	37.0		ng/l	2.25	0.586	1
Perfluorononanoic Acid (PFNA)	2.47		ng/l	2.25	0.491	1
Perfluorooctanesulfonic Acid (PFOS)	2270	E	ng/l	2.25	0.631	1
Perfluorodecanoic Acid (PFDA)	0.739	J	ng/l	2.25	0.698	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.25	0.327	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.25	0.282	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.25	0.477	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.25	0.435	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.25	0.626	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.25	0.420	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.25	0.667	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.25	0.354	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.25	1.11	1

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-04
Client ID: BMW-4-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 11:55
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	85		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	91		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	99		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	64		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	75		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	114		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	83		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	**292**	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	79		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	76		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	71		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	150		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	61		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	68		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	40		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	66		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	61		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	61		33-143

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-04 RE
Client ID: BMW-4-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 11:55
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 11/08/18 15:08
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 11/02/18 09:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorooctanesulfonic Acid (PFOS)	2260		ng/l	10.0	2.80	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	111		42-146

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-05
Client ID: MW-5-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 10:33
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 10/31/18 20:30
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/26/18 14:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	11.6		ng/l	1.78	0.332	1
Perfluoropentanoic Acid (PFPeA)	19.5		ng/l	1.78	0.413	1
Perfluorobutanesulfonic Acid (PFBS)	18.0		ng/l	1.78	0.338	1
Perfluorohexanoic Acid (PFHxA)	13.3		ng/l	1.78	0.438	1
Perfluoroheptanoic Acid (PFHpA)	7.86		ng/l	1.78	0.331	1
Perfluorohexanesulfonic Acid (PFHxS)	3.07		ng/l	1.78	0.388	1
Perfluorooctanoic Acid (PFOA)	31.0		ng/l	1.78	0.409	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	2.45		ng/l	1.78	0.172	1
Perfluoroheptanesulfonic Acid (PFHpS)	0.907	J	ng/l	1.78	0.463	1
Perfluorononanoic Acid (PFNA)	1.07	J	ng/l	1.78	0.388	1
Perfluorooctanesulfonic Acid (PFOS)	122		ng/l	1.78	0.498	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.78	0.552	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.78	0.259	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.78	0.223	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.78	0.377	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.78	0.343	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.78	0.495	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.78	0.332	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.78	0.527	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.78	0.279	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.78	0.879	1

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-05
Client ID: MW-5-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 10:33
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	110		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	111		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	112		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	83		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	100		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	131		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	113		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	**370**	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	116		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	119		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	109		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**228**	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	82		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	105		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	50		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	81		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	89		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	77		33-143

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-06
Client ID: MW-6S-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/25/18 10:40
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 10/31/18 20:47
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/26/18 14:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	13.2		ng/l	1.85	0.346	1
Perfluoropentanoic Acid (PFPeA)	11.6		ng/l	1.85	0.430	1
Perfluorobutanesulfonic Acid (PFBS)	24.3		ng/l	1.85	0.352	1
Perfluorohexanoic Acid (PFHxA)	9.04		ng/l	1.85	0.456	1
Perfluoroheptanoic Acid (PFHpA)	6.96		ng/l	1.85	0.344	1
Perfluorohexanesulfonic Acid (PFHxS)	27.1		ng/l	1.85	0.404	1
Perfluorooctanoic Acid (PFOA)	65.2		ng/l	1.85	0.426	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	1.67	J	ng/l	1.85	0.180	1
Perfluoroheptanesulfonic Acid (PFHpS)	12.8		ng/l	1.85	0.481	1
Perfluorononanoic Acid (PFNA)	2.34		ng/l	1.85	0.404	1
Perfluorooctanesulfonic Acid (PFOS)	789	E	ng/l	1.85	0.518	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.85	0.574	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.85	0.269	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.85	0.232	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.85	0.392	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.85	0.357	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.85	0.515	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.85	0.345	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.85	0.548	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.85	0.291	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.85	0.915	1

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-06
Client ID: MW-6S-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/25/18 10:40
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	105		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	98		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	99		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	74		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	95		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	123		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	104		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	**347**	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	107		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	109		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	100		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**240**	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	93		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	104		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	57		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	99		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	88		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	76		33-143

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-06 RE
Client ID: MW-6S-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/25/18 10:40
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 11/08/18 15:24
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 11/02/18 09:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorooctanesulfonic Acid (PFOS)	728		ng/l	10.0	2.80	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	121		42-146

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-07
Client ID: MW-6D-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 10:20
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 10/31/18 21:03
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/26/18 14:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	9.92		ng/l	1.80	0.337	1
Perfluoropentanoic Acid (PFPeA)	11.5		ng/l	1.80	0.419	1
Perfluorobutanesulfonic Acid (PFBS)	20.6		ng/l	1.80	0.343	1
Perfluorohexanoic Acid (PFHxA)	11.4		ng/l	1.80	0.444	1
Perfluoroheptanoic Acid (PFHpA)	7.39		ng/l	1.80	0.336	1
Perfluorohexanesulfonic Acid (PFHxS)	3.07		ng/l	1.80	0.394	1
Perfluorooctanoic Acid (PFOA)	27.6		ng/l	1.80	0.415	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.729	J	ng/l	1.80	0.175	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.02	J	ng/l	1.80	0.469	1
Perfluorononanoic Acid (PFNA)	2.12		ng/l	1.80	0.394	1
Perfluorooctanesulfonic Acid (PFOS)	74.4		ng/l	1.80	0.505	1
Perfluorodecanoic Acid (PFDA)	0.856	J	ng/l	1.80	0.560	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.80	0.262	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.80	0.226	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.80	0.383	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.80	0.348	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.80	0.502	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.80	0.336	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.80	0.534	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.80	0.283	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.80	0.892	1

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-07 Date Collected: 10/24/18 10:20

Client ID: MW-6D-102018 Date Received: 10/25/18

Sample Location: LONG ISLAND CITY, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	101		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	110		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	101		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	82		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	93		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	117		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	102		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	**249**	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	99		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	108		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	97		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	149		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	71		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	97		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	51		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	75		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	81		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	74		33-143

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-08
Client ID: MW-E-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/25/18 11:05
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 10/31/18 21:53
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/26/18 14:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	25.4		ng/l	1.89	0.353	1
Perfluoropentanoic Acid (PFPeA)	50.4		ng/l	1.89	0.439	1
Perfluorobutanesulfonic Acid (PFBS)	8.83		ng/l	1.89	0.360	1
Perfluorohexanoic Acid (PFHxA)	62.0		ng/l	1.89	0.466	1
Perfluoroheptanoic Acid (PFHpA)	14.7		ng/l	1.89	0.352	1
Perfluorohexanesulfonic Acid (PFHxS)	1.84	J	ng/l	1.89	0.413	1
Perfluorooctanoic Acid (PFOA)	57.8		ng/l	1.89	0.436	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	5.40		ng/l	1.89	0.184	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.89	0.492	1
Perfluorononanoic Acid (PFNA)	0.625	J	ng/l	1.89	0.413	1
Perfluorooctanesulfonic Acid (PFOS)	12.6		ng/l	1.89	0.530	1
Perfluorodecanoic Acid (PFDA)	0.746	J	ng/l	1.89	0.587	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.89	0.275	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.89	0.237	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.89	0.402	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.89	0.366	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.89	0.526	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.89	0.353	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.89	0.561	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.89	0.297	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.89	0.936	1

Project Name: FORMER HYGRADE
Lab Number: L1843594
Project Number: 3612162331
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-08
Client ID: MW-E-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/25/18 11:05
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	105		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	154		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	123		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	95		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	107		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	136		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	105		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	157		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	108		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	129		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	103		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	107		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	80		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	109		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	37		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	80		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	98		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	91		33-143

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-09
Client ID: DUP-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 11:55
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 10/31/18 22:10
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/26/18 14:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	15.1		ng/l	2.29	0.428	1
Perfluoropentanoic Acid (PFPeA)	40.4		ng/l	2.29	0.532	1
Perfluorobutanesulfonic Acid (PFBS)	108		ng/l	2.29	0.436	1
Perfluorohexanoic Acid (PFHxA)	83.0		ng/l	2.29	0.564	1
Perfluoroheptanoic Acid (PFHpA)	20.5		ng/l	2.29	0.427	1
Perfluorohexanesulfonic Acid (PFHxS)	59.7		ng/l	2.29	0.500	1
Perfluorooctanoic Acid (PFOA)	53.8		ng/l	2.29	0.528	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	1.38	J	ng/l	2.29	0.222	1
Perfluoroheptanesulfonic Acid (PFHpS)	37.5		ng/l	2.29	0.596	1
Perfluorononanoic Acid (PFNA)	2.51		ng/l	2.29	0.500	1
Perfluorooctanesulfonic Acid (PFOS)	2320	E	ng/l	2.29	0.642	1
Perfluorodecanoic Acid (PFDA)	0.720	J	ng/l	2.29	0.711	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.29	0.333	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.330	J	ng/l	2.29	0.287	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.29	0.486	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.29	0.443	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.29	0.638	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.29	0.428	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.29	0.679	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.29	0.360	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.29	1.13	1

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-09
Client ID: DUP-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 11:55
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	102		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	115		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	129		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	77		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	91		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	150		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	104		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	**357**	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	102		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	102		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	89		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**200**	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	70		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	85		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	52		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	75		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	72		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	71		33-143

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-09 RE
Client ID: DUP-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 11:55
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 11/08/18 15:41
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 11/02/18 09:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorooctanesulfonic Acid (PFOS)	2250		ng/l	10.0	2.80	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	109		42-146

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-10
Client ID: EB-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 13:30
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 10/31/18 16:55
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/26/18 14:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.80	0.336	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.80	0.417	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.80	0.342	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.80	0.442	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.80	0.334	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.80	0.392	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.80	0.414	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.428	J	ng/l	1.80	0.174	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.80	0.468	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.80	0.392	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.80	0.504	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.80	0.558	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.80	0.262	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.80	0.225	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.80	0.381	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.80	0.347	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.80	0.500	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.80	0.335	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.80	0.532	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.80	0.282	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.80	0.888	1

Project Name: FORMER HYGRADE
Lab Number: L1843594
Project Number: 3612162331
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-10
Client ID: EB-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 13:30
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	107		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	124		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	108		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	105		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	104		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	111		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	105		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	94		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	104		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	106		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	105		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	97		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	98		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	113		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	30		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	95		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	101		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	99		33-143

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 122,537(M)
Analytical Date: 10/31/18 15:49
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/26/18 14:20

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-10 Batch: WG1172794-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.373
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.464
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.380
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.492
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.372
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.436
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.460
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.668	J	ng/l	2.00	0.194
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.520
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.436
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.560
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.620
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	0.291
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.250
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.424
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.386
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.556
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.373
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.592
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.314
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.988

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 122,537(M)
Analytical Date: 10/31/18 15:49
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/26/18 14:20

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-10 Batch: WG1172794-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	106		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	125		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	114		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	107		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	107		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	118		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	109		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	102		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	107		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	116		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	103		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	99		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	93		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	112		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	59		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	93		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	104		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	97		33-143

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 122,537(M)
Analytical Date: 11/08/18 13:28
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 11/02/18 09:16

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-04,06,09 Batch: WG1175174-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.373
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.464
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.380
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.492
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.372
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.436
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.460
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	0.194
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.520
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.436
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.560
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.620
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	0.291
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.250
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.424
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.386
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.556
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.373
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.592
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.314
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.988

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 122,537(M)
Analytical Date: 11/08/18 13:28
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 11/02/18 09:16

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-04,06,09 Batch: WG1175174-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	126		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	116		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	111		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	113		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	123		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	147		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	126		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	108		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	117		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	124		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	116		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	113		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	106		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	127		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	25		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	94		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	104		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	100		33-143

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-10 Batch: WG1172794-2 WG1172794-3								
Perfluorobutanoic Acid (PFBA)	104		104		67-148	0		30
Perfluoropentanoic Acid (PFPeA)	104		105		63-161	1		30
Perfluorobutanesulfonic Acid (PFBS)	108		106		65-157	2		30
Perfluorohexanoic Acid (PFHxA)	107		108		69-168	1		30
Perfluoroheptanoic Acid (PFHpA)	98		98		58-159	0		30
Perfluorohexanesulfonic Acid (PFHxS)	98		99		69-177	1		30
Perfluorooctanoic Acid (PFOA)	102		100		63-159	2		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	114		116		49-187	2		30
Perfluoroheptanesulfonic Acid (PFHpS)	101		103		61-179	2		30
Perfluorononanoic Acid (PFNA)	103		101		68-171	2		30
Perfluorooctanesulfonic Acid (PFOS)	87		85		52-151	2		30
Perfluorodecanoic Acid (PFDA)	112		112		63-171	0		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	113		117		56-173	3		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	99		101		60-166	2		30
Perfluoroundecanoic Acid (PFUnA)	97		98		60-153	1		30
Perfluorodecanesulfonic Acid (PFDS)	80		83		38-156	4		30
Perfluorooctanesulfonamide (FOSA)	92		94		46-170	2		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	101		104		45-170	3		30
Perfluorododecanoic Acid (PFDoA)	103		101		67-153	2		30
Perfluorotridecanoic Acid (PFTrDA)	99		104		48-158	5		30
Perfluorotetradecanoic Acid (PFTA)	109		116		59-182	6		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-10 Batch: WG1172794-2 WG1172794-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	93		100		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	109		119		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	96		109		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	93		98		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	92		100		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	99		113		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	89		99		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	95		103		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	91		100		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	96		107		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	88		97		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	87		94		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	79		92		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	95		107		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	51		51		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	82		93		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	88		96		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	89		92		33-143

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-04,06,09 Batch: WG1175174-2 WG1175174-3								
Perfluorobutanoic Acid (PFBA)	101		103		67-148	2		30
Perfluoropentanoic Acid (PFPeA)	102		105		63-161	3		30
Perfluorobutanesulfonic Acid (PFBS)	116		117		65-157	1		30
Perfluorohexanoic Acid (PFHxA)	106		108		69-168	2		30
Perfluoroheptanoic Acid (PFHpA)	95		97		58-159	2		30
Perfluorohexanesulfonic Acid (PFHxS)	97		100		69-177	3		30
Perfluorooctanoic Acid (PFOA)	96		100		63-159	4		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	102		108		49-187	6		30
Perfluoroheptanesulfonic Acid (PFHpS)	102		107		61-179	5		30
Perfluorononanoic Acid (PFNA)	102		102		68-171	0		30
Perfluorooctanesulfonic Acid (PFOS)	85		87		52-151	2		30
Perfluorodecanoic Acid (PFDA)	104		109		63-171	5		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	100		85		56-173	16		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	100		104		60-166	4		30
Perfluoroundecanoic Acid (PFUnA)	96		103		60-153	7		30
Perfluorodecanesulfonic Acid (PFDS)	110		120		38-156	9		30
Perfluorooctanesulfonamide (FOSA)	95		97		46-170	2		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	82		88		45-170	7		30
Perfluorododecanoic Acid (PFDoA)	98		107		67-153	9		30
Perfluorotridecanoic Acid (PFTrDA)	108		118		48-158	9		30
Perfluorotetradecanoic Acid (PFTA)	111		110		59-182	1		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-04,06,09 Batch: WG1175174-2 WG1175174-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	123		126		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	112		113		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	110		114		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	107		114		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	117		125		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	142		139		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	119		123		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	116		115		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	112		118		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	121		120		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	115		112		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	109		131		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	105		97		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	124		120		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	23		27		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	104		96		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	110		100		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	101		103		33-143

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-10 QC Batch ID: WG1172794-6 WG1172794-7 QC Sample: L1843594-07 Client ID: MW-6D-102018												
Perfluorobutanoic Acid (PFBA)	9.92	35.3	47.1	105		48.2	104		67-148	2		30
Perfluoropentanoic Acid (PFPeA)	11.5	35.3	48.0	103		50.5	106		63-161	5		30
Perfluorobutanesulfonic Acid (PFBS)	20.6	35.3	58.7	108		60.2	107		65-157	3		30
Perfluorohexanoic Acid (PFHxA)	11.4	35.3	49.3	107		51.6	109		69-168	5		30
Perfluoroheptanoic Acid (PFHpA)	7.39	35.3	42.5	99		44.5	101		58-159	5		30
Perfluorohexanesulfonic Acid (PFHxS)	3.07	35.3	39.6	103		40.6	102		69-177	2		30
Perfluorooctanoic Acid (PFOA)	27.6	35.3	62.7	99		66.5	105		63-159	6		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.729J	35.3	37.6	106		43.4	118		49-187	14		30
Perfluoroheptanesulfonic Acid (PFHpS)	1.02J	35.3	37.9	107		37.1	101		61-179	2		30
Perfluorononanoic Acid (PFNA)	2.12	35.3	39.8	107		41.4	106		68-171	4		30
Perfluorooctanesulfonic Acid (PFOS)	74.4	35.3	105	87		100	69		52-151	5		30
Perfluorodecanoic Acid (PFDA)	0.856J	35.3	41.0	116		41.7	113		63-171	2		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	35.3	42.6	121		49.8	135		56-173	16		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	35.3	35.4	100		35.6	96		60-166	1		30
Perfluoroundecanoic Acid (PFUnA)	ND	35.3	34.6	98		35.7	97		60-153	3		30
Perfluorodecanesulfonic Acid (PFDS)	ND	35.3	24.4	69		27.4	74		38-156	12		30
Perfluorooctanesulfonamide (FOSA)	ND	35.3	33.6	95		34.6	94		46-170	3		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	35.3	33.9	96		37.5	102		45-170	10		30
Perfluorododecanoic Acid (PFDoA)	ND	35.3	34.8	98		37.0	100		67-153	6		30
Perfluorotridecanoic Acid (PFTrDA)	ND	35.3	34.0	96		35.8	97		48-158	5		30
Perfluorotetradecanoic Acid (PFTA)	ND	35.3	38.8	110		41.6	113		59-182	7		30

Matrix Spike Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-10 QC Batch ID: WG1172794-6 WG1172794-7 QC Sample: L1843594-07 Client ID: MW-6D-102018												

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	144		136		7-170
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	**264**	Q	237		1-244
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	74		76		23-146
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	70		79		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	97		101		40-144
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	100		101		38-144
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	90		93		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	101		103		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	123		124		47-153
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	78		84		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	73		77		33-143
Perfluoro[13C4]Butanoic Acid (MPFBA)	107		107		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	118		118		16-173
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	36		36		1-87
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	110		119		42-146
Perfluoro[13C8]Octanoic Acid (M8PFOA)	109		108		36-149
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	109		108		34-146
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	104		110		31-159

METALS

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-01
Client ID: BMW-1-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 13:00
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00498	J	mg/l	0.0100	0.00327	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Antimony, Total	0.00092	J	mg/l	0.00400	0.00042	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Arsenic, Total	0.00108		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Barium, Total	0.1043		mg/l	0.00050	0.00017	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Cadmium, Total	0.00510		mg/l	0.00020	0.00005	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Calcium, Total	249.		mg/l	0.100	0.0394	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Chromium, Total	0.00067	J	mg/l	0.00100	0.00017	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Cobalt, Total	0.00894		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Copper, Total	0.00364		mg/l	0.00100	0.00038	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Iron, Total	0.422		mg/l	0.0500	0.0191	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Lead, Total	0.00042	J	mg/l	0.00100	0.00034	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Magnesium, Total	35.6		mg/l	0.0700	0.0242	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Manganese, Total	9.086		mg/l	0.00100	0.00044	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	10/26/18 16:39	10/29/18 16:19	EPA 7470A	1,7470A	MG
Nickel, Total	0.1065		mg/l	0.00200	0.00055	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Potassium, Total	29.5		mg/l	0.100	0.0309	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Sodium, Total	265.		mg/l	0.100	0.0293	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Thallium, Total	0.00073		mg/l	0.00050	0.00014	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Zinc, Total	0.00375	J	mg/l	0.01000	0.00341	1	10/31/18 18:06	11/01/18 15:32	EPA 3005A	1,6020B	AM
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	0.00449	J	mg/l	0.0100	0.00327	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Antimony, Dissolved	0.00104	J	mg/l	0.00400	0.00042	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Arsenic, Dissolved	0.00066		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Barium, Dissolved	0.1106		mg/l	0.00050	0.00017	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-01
Client ID: BMW-1-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 13:00
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Cadmium, Dissolved	0.00533		mg/l	0.00020	0.00005	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Calcium, Dissolved	246.		mg/l	0.100	0.0394	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Chromium, Dissolved	0.00118		mg/l	0.00100	0.00017	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Cobalt, Dissolved	0.00940		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Copper, Dissolved	0.00290		mg/l	0.00100	0.00038	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Iron, Dissolved	0.0731		mg/l	0.0500	0.0191	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Lead, Dissolved	ND		mg/l	0.00100	0.00034	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Magnesium, Dissolved	37.3		mg/l	0.0700	0.0242	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Manganese, Dissolved	9.573		mg/l	0.00100	0.00044	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	10/30/18 12:30	10/30/18 16:59	EPA 7470A	1,7470A	MG
Nickel, Dissolved	0.1045		mg/l	0.00200	0.00055	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Potassium, Dissolved	29.4		mg/l	0.100	0.0309	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Selenium, Dissolved	ND		mg/l	0.00500	0.00173	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Sodium, Dissolved	286.		mg/l	0.100	0.0293	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Thallium, Dissolved	0.00073		mg/l	0.00050	0.00014	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Vanadium, Dissolved	ND		mg/l	0.00500	0.00157	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM
Zinc, Dissolved	ND		mg/l	0.01000	0.00341	1	11/01/18 11:00	11/01/18 17:25	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-02
Client ID: BMW-2-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 12:45
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0310		mg/l	0.0100	0.00327	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Antimony, Total	0.00048	J	mg/l	0.00400	0.00042	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Arsenic, Total	0.00121		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Barium, Total	0.09515		mg/l	0.00050	0.00017	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Cadmium, Total	0.00896		mg/l	0.00020	0.00005	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Calcium, Total	254.		mg/l	0.100	0.0394	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Chromium, Total	0.00254		mg/l	0.00100	0.00017	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Cobalt, Total	0.01326		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Copper, Total	0.00414		mg/l	0.00100	0.00038	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Iron, Total	1.60		mg/l	0.0500	0.0191	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Lead, Total	ND		mg/l	0.00100	0.00034	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Magnesium, Total	46.3		mg/l	0.0700	0.0242	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Manganese, Total	9.770		mg/l	0.00100	0.00044	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	10/26/18 16:39	10/29/18 16:21	EPA 7470A	1,7470A	MG
Nickel, Total	0.1860		mg/l	0.00200	0.00055	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Potassium, Total	31.4		mg/l	0.100	0.0309	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Sodium, Total	267.		mg/l	0.100	0.0293	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Thallium, Total	0.00044	J	mg/l	0.00050	0.00014	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	10/31/18 18:06	11/01/18 15:36	EPA 3005A	1,6020B	AM
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	0.00651	J	mg/l	0.0100	0.00327	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Antimony, Dissolved	0.00055	J	mg/l	0.00400	0.00042	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Arsenic, Dissolved	0.00085		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Barium, Dissolved	0.09770		mg/l	0.00050	0.00017	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-02
Client ID: BMW-2-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 12:45
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Cadmium, Dissolved	0.01000		mg/l	0.00020	0.00005	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Calcium, Dissolved	242.		mg/l	0.100	0.0394	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Chromium, Dissolved	0.00217		mg/l	0.00100	0.00017	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Cobalt, Dissolved	0.01404		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Copper, Dissolved	0.00361		mg/l	0.00100	0.00038	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Iron, Dissolved	0.0411	J	mg/l	0.0500	0.0191	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Lead, Dissolved	ND		mg/l	0.00100	0.00034	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Magnesium, Dissolved	51.1		mg/l	0.0700	0.0242	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Manganese, Dissolved	9.751		mg/l	0.00100	0.00044	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	10/30/18 12:30	10/30/18 17:00	EPA 7470A	1,7470A	MG
Nickel, Dissolved	0.1848		mg/l	0.00200	0.00055	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Potassium, Dissolved	30.0		mg/l	0.100	0.0309	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Selenium, Dissolved	ND		mg/l	0.00500	0.00173	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Sodium, Dissolved	276.		mg/l	0.100	0.0293	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Thallium, Dissolved	0.00043	J	mg/l	0.00050	0.00014	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Vanadium, Dissolved	ND		mg/l	0.00500	0.00157	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM
Zinc, Dissolved	ND		mg/l	0.01000	0.00341	1	11/01/18 11:00	11/01/18 17:30	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-03
Client ID: BMW-3-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 13:20
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0713		mg/l	0.0100	0.00327	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Antimony, Total	0.00119	J	mg/l	0.00400	0.00042	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Arsenic, Total	0.01861		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Barium, Total	0.2531		mg/l	0.00050	0.00017	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Calcium, Total	273.		mg/l	0.100	0.0394	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Chromium, Total	0.00302		mg/l	0.00100	0.00017	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Cobalt, Total	0.00750		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Copper, Total	0.00129		mg/l	0.00100	0.00038	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Iron, Total	22.3		mg/l	0.0500	0.0191	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Lead, Total	ND		mg/l	0.00100	0.00034	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Magnesium, Total	46.0		mg/l	0.0700	0.0242	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Manganese, Total	2.378		mg/l	0.00100	0.00044	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	10/26/18 16:39	10/29/18 16:22	EPA 7470A	1,7470A	MG
Nickel, Total	0.3835		mg/l	0.00200	0.00055	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Potassium, Total	35.2		mg/l	0.100	0.0309	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Sodium, Total	252.		mg/l	0.100	0.0293	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Thallium, Total	ND		mg/l	0.00050	0.00014	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Vanadium, Total	0.00182	J	mg/l	0.00500	0.00157	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	10/31/18 18:06	11/01/18 16:05	EPA 3005A	1,6020B	AM
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Antimony, Dissolved	0.00043	J	mg/l	0.00400	0.00042	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Arsenic, Dissolved	0.00401		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Barium, Dissolved	0.2058		mg/l	0.00050	0.00017	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-03
Client ID: BMW-3-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 13:20
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Cadmium, Dissolved	ND		mg/l	0.00020	0.00005	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Calcium, Dissolved	268.		mg/l	0.100	0.0394	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Chromium, Dissolved	0.00133		mg/l	0.00100	0.00017	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Cobalt, Dissolved	0.00878		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Copper, Dissolved	ND		mg/l	0.00100	0.00038	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Iron, Dissolved	1.40		mg/l	0.0500	0.0191	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Lead, Dissolved	ND		mg/l	0.00100	0.00034	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Magnesium, Dissolved	54.4		mg/l	0.0700	0.0242	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Manganese, Dissolved	2.727		mg/l	0.00100	0.00044	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	10/30/18 12:30	10/30/18 17:02	EPA 7470A	1,7470A	MG
Nickel, Dissolved	0.3822		mg/l	0.00200	0.00055	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Potassium, Dissolved	36.3		mg/l	0.100	0.0309	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Selenium, Dissolved	ND		mg/l	0.00500	0.00173	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Sodium, Dissolved	278.		mg/l	0.100	0.0293	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Thallium, Dissolved	ND		mg/l	0.00050	0.00014	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Vanadium, Dissolved	ND		mg/l	0.00500	0.00157	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM
Zinc, Dissolved	ND		mg/l	0.01000	0.00341	1	11/01/18 11:00	11/01/18 18:02	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-04
Client ID: BMW-4-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 11:55
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00911	J	mg/l	0.0100	0.00327	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Antimony, Total	0.00062	J	mg/l	0.00400	0.00042	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Arsenic, Total	0.04180		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Barium, Total	0.1540		mg/l	0.00050	0.00017	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Calcium, Total	233.		mg/l	0.100	0.0394	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Chromium, Total	0.00020	J	mg/l	0.00100	0.00017	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Cobalt, Total	0.01058		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Copper, Total	0.00070	J	mg/l	0.00100	0.00038	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Iron, Total	30.7		mg/l	0.0500	0.0191	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Lead, Total	ND		mg/l	0.00100	0.00034	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Magnesium, Total	33.1		mg/l	0.0700	0.0242	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Manganese, Total	2.922		mg/l	0.00100	0.00044	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	10/26/18 16:39	10/29/18 16:24	EPA 7470A	1,7470A	MG
Nickel, Total	0.05822		mg/l	0.00200	0.00055	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Potassium, Total	36.0		mg/l	0.100	0.0309	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Sodium, Total	178.		mg/l	0.100	0.0293	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Thallium, Total	ND		mg/l	0.00050	0.00014	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	10/31/18 18:06	11/01/18 16:09	EPA 3005A	1,6020B	AM
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	0.677		mg/l	0.0100	0.00327	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Antimony, Dissolved	ND		mg/l	0.00400	0.00042	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Arsenic, Dissolved	0.00961		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Barium, Dissolved	0.1205		mg/l	0.00050	0.00017	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-04
Client ID: BMW-4-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 11:55
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Cadmium, Dissolved	ND		mg/l	0.00020	0.00005	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Calcium, Dissolved	229.		mg/l	0.100	0.0394	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Chromium, Dissolved	0.00367		mg/l	0.00100	0.00017	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Cobalt, Dissolved	0.01226		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Copper, Dissolved	ND		mg/l	0.00100	0.00038	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Iron, Dissolved	13.0		mg/l	0.0500	0.0191	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Lead, Dissolved	ND		mg/l	0.00100	0.00034	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Magnesium, Dissolved	33.9		mg/l	0.0700	0.0242	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Manganese, Dissolved	3.441		mg/l	0.00100	0.00044	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	10/30/18 12:30	10/30/18 17:07	EPA 7470A	1,7470A	MG
Nickel, Dissolved	0.05827		mg/l	0.00200	0.00055	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Potassium, Dissolved	35.6		mg/l	0.100	0.0309	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Selenium, Dissolved	ND		mg/l	0.00500	0.00173	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Sodium, Dissolved	181.		mg/l	0.100	0.0293	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Thallium, Dissolved	ND		mg/l	0.00050	0.00014	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Vanadium, Dissolved	0.00371	J	mg/l	0.00500	0.00157	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM
Zinc, Dissolved	0.00878	J	mg/l	0.01000	0.00341	1	11/01/18 11:00	11/01/18 18:06	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-05
Client ID: MW-5-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 10:33
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0637		mg/l	0.0100	0.00327	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Antimony, Total	0.00095	J	mg/l	0.00400	0.00042	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Arsenic, Total	0.00032	J	mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Barium, Total	0.09043		mg/l	0.00050	0.00017	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Calcium, Total	232.		mg/l	0.100	0.0394	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Chromium, Total	0.00607		mg/l	0.00100	0.00017	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Cobalt, Total	0.00073		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Copper, Total	0.00173		mg/l	0.00100	0.00038	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Iron, Total	0.210		mg/l	0.0500	0.0191	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Lead, Total	0.00110		mg/l	0.00100	0.00034	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Magnesium, Total	14.3		mg/l	0.0700	0.0242	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Manganese, Total	0.04094		mg/l	0.00100	0.00044	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	10/26/18 16:39	10/29/18 16:26	EPA 7470A	1,7470A	MG
Nickel, Total	0.00200		mg/l	0.00200	0.00055	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Potassium, Total	28.6		mg/l	0.100	0.0309	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Selenium, Total	0.00687		mg/l	0.00500	0.00173	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Sodium, Total	91.7		mg/l	0.100	0.0293	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Thallium, Total	ND		mg/l	0.00050	0.00014	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	10/31/18 18:06	11/01/18 16:14	EPA 3005A	1,6020B	AM
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	0.00459	J	mg/l	0.0100	0.00327	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Antimony, Dissolved	0.00085	J	mg/l	0.00400	0.00042	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Arsenic, Dissolved	0.00025	J	mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Barium, Dissolved	0.09024		mg/l	0.00050	0.00017	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Lab Number: L1843594
Project Number: 3612162331
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-05
Client ID: MW-5-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 10:33
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Cadmium, Dissolved	ND		mg/l	0.00020	0.00005	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Calcium, Dissolved	211.		mg/l	0.100	0.0394	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Chromium, Dissolved	0.00336		mg/l	0.00100	0.00017	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Cobalt, Dissolved	0.00052		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Copper, Dissolved	0.00147		mg/l	0.00100	0.00038	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Iron, Dissolved	0.0447	J	mg/l	0.0500	0.0191	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Lead, Dissolved	ND		mg/l	0.00100	0.00034	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Magnesium, Dissolved	12.9		mg/l	0.0700	0.0242	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Manganese, Dissolved	0.03565		mg/l	0.00100	0.00044	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	10/30/18 12:30	10/30/18 17:09	EPA 7470A	1,7470A	MG
Nickel, Dissolved	0.00232		mg/l	0.00200	0.00055	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Potassium, Dissolved	25.9		mg/l	0.100	0.0309	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Selenium, Dissolved	0.00621		mg/l	0.00500	0.00173	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Sodium, Dissolved	85.8		mg/l	0.100	0.0293	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Thallium, Dissolved	ND		mg/l	0.00050	0.00014	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Vanadium, Dissolved	ND		mg/l	0.00500	0.00157	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM
Zinc, Dissolved	ND		mg/l	0.01000	0.00341	1	11/01/18 11:00	11/01/18 18:11	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-06
Client ID: MW-6S-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/25/18 10:40
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0251		mg/l	0.0100	0.00327	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Antimony, Total	ND		mg/l	0.00400	0.00042	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Arsenic, Total	0.00113		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Barium, Total	0.09233		mg/l	0.00050	0.00017	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Calcium, Total	337.		mg/l	0.100	0.0394	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Chromium, Total	ND		mg/l	0.00100	0.00017	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Cobalt, Total	0.00326		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Copper, Total	0.00078	J	mg/l	0.00100	0.00038	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Iron, Total	0.697		mg/l	0.0500	0.0191	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Lead, Total	0.00044	J	mg/l	0.00100	0.00034	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Magnesium, Total	132.		mg/l	0.0700	0.0242	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Manganese, Total	3.687		mg/l	0.00100	0.00044	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	10/26/18 16:39	10/29/18 16:31	EPA 7470A	1,7470A	MG
Nickel, Total	0.03561		mg/l	0.00200	0.00055	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Potassium, Total	17.0		mg/l	0.100	0.0309	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Sodium, Total	174.		mg/l	0.100	0.0293	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Thallium, Total	ND		mg/l	0.00050	0.00014	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	10/31/18 18:06	11/01/18 16:18	EPA 3005A	1,6020B	AM
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	0.0126		mg/l	0.0100	0.00327	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Antimony, Dissolved	ND		mg/l	0.00400	0.00042	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Arsenic, Dissolved	0.00106		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Barium, Dissolved	0.08245		mg/l	0.00050	0.00017	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-06
Client ID: MW-6S-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/25/18 10:40
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Cadmium, Dissolved	ND		mg/l	0.00020	0.00005	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Calcium, Dissolved	320.		mg/l	0.100	0.0394	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Chromium, Dissolved	ND		mg/l	0.00100	0.00017	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Cobalt, Dissolved	0.00328		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Copper, Dissolved	0.00038	J	mg/l	0.00100	0.00038	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Iron, Dissolved	0.242		mg/l	0.0500	0.0191	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Lead, Dissolved	ND		mg/l	0.00100	0.00034	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Magnesium, Dissolved	133.		mg/l	0.0700	0.0242	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Manganese, Dissolved	4.142		mg/l	0.00100	0.00044	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	10/30/18 12:30	10/30/18 17:11	EPA 7470A	1,7470A	MG
Nickel, Dissolved	0.03730		mg/l	0.00200	0.00055	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Potassium, Dissolved	16.1		mg/l	0.100	0.0309	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Selenium, Dissolved	ND		mg/l	0.00500	0.00173	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Sodium, Dissolved	183.		mg/l	0.100	0.0293	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Thallium, Dissolved	ND		mg/l	0.00050	0.00014	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Vanadium, Dissolved	ND		mg/l	0.00500	0.00157	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM
Zinc, Dissolved	ND		mg/l	0.01000	0.00341	1	11/01/18 11:00	11/01/18 18:15	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-07
Client ID: MW-6D-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 10:20
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0112		mg/l	0.0100	0.00327	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Antimony, Total	0.00377	J	mg/l	0.00400	0.00042	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Arsenic, Total	0.00056		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Barium, Total	0.1300		mg/l	0.00050	0.00017	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Cadmium, Total	0.00015	J	mg/l	0.00020	0.00005	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Calcium, Total	272.		mg/l	0.100	0.0394	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Chromium, Total	ND		mg/l	0.00100	0.00017	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Cobalt, Total	0.00050		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Copper, Total	0.00300		mg/l	0.00100	0.00038	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Iron, Total	0.0321	J	mg/l	0.0500	0.0191	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Lead, Total	ND		mg/l	0.00100	0.00034	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Magnesium, Total	20.8		mg/l	0.0700	0.0242	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Manganese, Total	0.3086		mg/l	0.00100	0.00044	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	10/26/18 16:39	10/29/18 16:14	EPA 7470A	1,7470A	MG
Nickel, Total	0.00217		mg/l	0.00200	0.00055	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Potassium, Total	29.0		mg/l	0.100	0.0309	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Selenium, Total	0.00565		mg/l	0.00500	0.00173	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Silver, Total	0.00035	J	mg/l	0.00040	0.00016	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Sodium, Total	108.		mg/l	0.100	0.0293	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Thallium, Total	0.00030	J	mg/l	0.00050	0.00014	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Vanadium, Total	0.00389	J	mg/l	0.00500	0.00157	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	10/31/18 18:06	11/01/18 15:12	EPA 3005A	1,6020B	AM
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Antimony, Dissolved	0.00231	J	mg/l	0.00400	0.00042	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Arsenic, Dissolved	0.00042	J	mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Barium, Dissolved	0.1334		mg/l	0.00050	0.00017	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Lab Number: L1843594
Project Number: 3612162331
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-07
Client ID: MW-6D-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 10:20
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Cadmium, Dissolved	0.00015	J	mg/l	0.00020	0.00005	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Calcium, Dissolved	255.		mg/l	0.100	0.0394	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Chromium, Dissolved	ND		mg/l	0.00100	0.00017	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Cobalt, Dissolved	0.00044	J	mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Copper, Dissolved	0.00296		mg/l	0.00100	0.00038	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Iron, Dissolved	0.0269	J	mg/l	0.0500	0.0191	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Lead, Dissolved	ND		mg/l	0.00100	0.00034	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Magnesium, Dissolved	19.6		mg/l	0.0700	0.0242	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Manganese, Dissolved	0.2994		mg/l	0.00100	0.00044	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	10/30/18 12:30	10/30/18 16:54	EPA 7470A	1,7470A	MG
Nickel, Dissolved	0.00225		mg/l	0.00200	0.00055	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Potassium, Dissolved	27.8		mg/l	0.100	0.0309	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Selenium, Dissolved	0.00525		mg/l	0.00500	0.00173	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Sodium, Dissolved	108.		mg/l	0.100	0.0293	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Thallium, Dissolved	0.00026	J	mg/l	0.00050	0.00014	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Vanadium, Dissolved	0.00351	J	mg/l	0.00500	0.00157	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM
Zinc, Dissolved	ND		mg/l	0.01000	0.00341	1	11/01/18 11:00	11/01/18 17:02	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-08
Client ID: MW-E-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/25/18 11:05
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	3.81		mg/l	0.0100	0.00327	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Antimony, Total	0.00058	J	mg/l	0.00400	0.00042	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Arsenic, Total	0.01501		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Barium, Total	0.2081		mg/l	0.00050	0.00017	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Beryllium, Total	0.00056		mg/l	0.00050	0.00010	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Cadmium, Total	0.00026		mg/l	0.00020	0.00005	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Calcium, Total	91.1		mg/l	0.100	0.0394	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Chromium, Total	0.01204		mg/l	0.00100	0.00017	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Cobalt, Total	0.00975		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Copper, Total	0.03271		mg/l	0.00100	0.00038	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Iron, Total	16.0		mg/l	0.0500	0.0191	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Lead, Total	0.01736		mg/l	0.00100	0.00034	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Magnesium, Total	20.8		mg/l	0.0700	0.0242	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Manganese, Total	2.329		mg/l	0.00100	0.00044	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	10/26/18 16:39	10/29/18 16:33	EPA 7470A	1,7470A	MG
Nickel, Total	0.01366		mg/l	0.00200	0.00055	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Potassium, Total	21.0		mg/l	0.100	0.0309	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Selenium, Total	0.00558		mg/l	0.00500	0.00173	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Sodium, Total	122.		mg/l	0.100	0.0293	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Thallium, Total	ND		mg/l	0.00050	0.00014	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Vanadium, Total	0.01834		mg/l	0.00500	0.00157	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Zinc, Total	0.05550		mg/l	0.01000	0.00341	1	10/31/18 18:06	11/01/18 16:22	EPA 3005A	1,6020B	AM
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Antimony, Dissolved	0.00068	J	mg/l	0.00400	0.00042	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Arsenic, Dissolved	0.00141		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Barium, Dissolved	0.05892		mg/l	0.00050	0.00017	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-08
Client ID: MW-E-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/25/18 11:05
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Cadmium, Dissolved	ND		mg/l	0.00020	0.00005	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Calcium, Dissolved	61.9		mg/l	0.100	0.0394	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Chromium, Dissolved	ND		mg/l	0.00100	0.00017	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Cobalt, Dissolved	0.00017	J	mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Copper, Dissolved	0.00102		mg/l	0.00100	0.00038	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Iron, Dissolved	ND		mg/l	0.0500	0.0191	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Lead, Dissolved	ND		mg/l	0.00100	0.00034	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Magnesium, Dissolved	9.82		mg/l	0.0700	0.0242	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Manganese, Dissolved	0.1385		mg/l	0.00100	0.00044	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	10/30/18 12:30	10/30/18 17:13	EPA 7470A	1,7470A	MG
Nickel, Dissolved	ND		mg/l	0.00200	0.00055	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Potassium, Dissolved	18.2		mg/l	0.100	0.0309	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Selenium, Dissolved	ND		mg/l	0.00500	0.00173	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Sodium, Dissolved	124.		mg/l	0.100	0.0293	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Thallium, Dissolved	ND		mg/l	0.00050	0.00014	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Vanadium, Dissolved	ND		mg/l	0.00500	0.00157	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM
Zinc, Dissolved	ND		mg/l	0.01000	0.00341	1	11/01/18 11:00	11/01/18 18:20	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-09
Client ID: DUP-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 11:55
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0120		mg/l	0.0100	0.00327	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Antimony, Total	ND		mg/l	0.00400	0.00042	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Arsenic, Total	0.04410		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Barium, Total	0.1591		mg/l	0.00050	0.00017	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Calcium, Total	236.		mg/l	0.100	0.0394	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Chromium, Total	0.00026	J	mg/l	0.00100	0.00017	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Cobalt, Total	0.01058		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Copper, Total	0.00103		mg/l	0.00100	0.00038	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Iron, Total	30.6		mg/l	0.0500	0.0191	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Lead, Total	ND		mg/l	0.00100	0.00034	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Magnesium, Total	32.5		mg/l	0.0700	0.0242	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Manganese, Total	2.922		mg/l	0.00100	0.00044	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	10/26/18 16:39	10/29/18 16:34	EPA 7470A	1,7470A	MG
Nickel, Total	0.05543		mg/l	0.00200	0.00055	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Potassium, Total	36.3		mg/l	0.100	0.0309	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Sodium, Total	175.		mg/l	0.100	0.0293	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Thallium, Total	ND		mg/l	0.00050	0.00014	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	10/31/18 18:06	11/01/18 16:26	EPA 3005A	1,6020B	AM
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Antimony, Dissolved	ND		mg/l	0.00400	0.00042	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Arsenic, Dissolved	0.01073		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Barium, Dissolved	0.1158		mg/l	0.00050	0.00017	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-09
Client ID: DUP-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 11:55
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Cadmium, Dissolved	ND		mg/l	0.00020	0.00005	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Calcium, Dissolved	219.		mg/l	0.100	0.0394	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Chromium, Dissolved	0.00035	J	mg/l	0.00100	0.00017	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Cobalt, Dissolved	0.01106		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Copper, Dissolved	ND		mg/l	0.00100	0.00038	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Iron, Dissolved	10.2		mg/l	0.0500	0.0191	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Lead, Dissolved	ND		mg/l	0.00100	0.00034	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Magnesium, Dissolved	30.3		mg/l	0.0700	0.0242	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Manganese, Dissolved	3.239		mg/l	0.00100	0.00044	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	10/30/18 12:30	10/30/18 17:14	EPA 7470A	1,7470A	MG
Nickel, Dissolved	0.05591		mg/l	0.00200	0.00055	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Potassium, Dissolved	33.5		mg/l	0.100	0.0309	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Selenium, Dissolved	ND		mg/l	0.00500	0.00173	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Sodium, Dissolved	174.		mg/l	0.100	0.0293	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Thallium, Dissolved	ND		mg/l	0.00050	0.00014	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Vanadium, Dissolved	ND		mg/l	0.00500	0.00157	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM
Zinc, Dissolved	ND		mg/l	0.01000	0.00341	1	11/01/18 11:00	11/01/18 18:25	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-10
Client ID: EB-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 13:30
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Antimony, Total	ND		mg/l	0.00400	0.00042	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Barium, Total	0.00065		mg/l	0.00050	0.00017	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Calcium, Total	0.0780	J	mg/l	0.100	0.0394	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Chromium, Total	ND		mg/l	0.00100	0.00017	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Copper, Total	ND		mg/l	0.00100	0.00038	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Iron, Total	0.119		mg/l	0.0500	0.0191	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Lead, Total	ND		mg/l	0.00100	0.00034	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Magnesium, Total	ND		mg/l	0.0700	0.0242	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Manganese, Total	0.00047	J	mg/l	0.00100	0.00044	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	10/26/18 16:39	10/29/18 16:36	EPA 7470A	1,7470A	MG
Nickel, Total	ND		mg/l	0.00200	0.00055	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Potassium, Total	ND		mg/l	0.100	0.0309	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Sodium, Total	0.0560	J	mg/l	0.100	0.0293	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Thallium, Total	ND		mg/l	0.00050	0.00014	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Antimony, Dissolved	0.00049	J	mg/l	0.00400	0.00042	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Arsenic, Dissolved	ND		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Barium, Dissolved	ND		mg/l	0.00050	0.00017	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-10
Client ID: EB-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 13:30
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Cadmium, Dissolved	ND		mg/l	0.00020	0.00005	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Calcium, Dissolved	ND		mg/l	0.100	0.0394	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Chromium, Dissolved	ND		mg/l	0.00100	0.00017	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Cobalt, Dissolved	ND		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Copper, Dissolved	0.00059	J	mg/l	0.00100	0.00038	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Iron, Dissolved	ND		mg/l	0.0500	0.0191	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Lead, Dissolved	ND		mg/l	0.00100	0.00034	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Magnesium, Dissolved	ND		mg/l	0.0700	0.0242	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Manganese, Dissolved	ND		mg/l	0.00100	0.00044	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	10/30/18 12:30	10/30/18 17:16	EPA 7470A	1,7470A	MG
Nickel, Dissolved	ND		mg/l	0.00200	0.00055	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Potassium, Dissolved	ND		mg/l	0.100	0.0309	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Selenium, Dissolved	ND		mg/l	0.00500	0.00173	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Sodium, Dissolved	0.108		mg/l	0.100	0.0293	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Thallium, Dissolved	ND		mg/l	0.00050	0.00014	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Vanadium, Dissolved	ND		mg/l	0.00500	0.00157	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Zinc, Dissolved	ND		mg/l	0.01000	0.00341	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-10 Batch: WG1172823-1										
Mercury, Total	ND		mg/l	0.00020	0.00006	1	10/26/18 16:39	10/29/18 16:10	1,7470A	MG

Prep Information

Digestion Method: EPA 7470A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01-10 Batch: WG1173870-1										
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	10/30/18 12:30	10/30/18 16:50	1,7470A	MG

Prep Information

Digestion Method: EPA 7470A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01-10 Batch: WG1174403-1										
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Antimony, Dissolved	ND		mg/l	0.00400	0.00042	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Arsenic, Dissolved	ND		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Barium, Dissolved	ND		mg/l	0.00050	0.00017	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Cadmium, Dissolved	ND		mg/l	0.00020	0.00005	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Calcium, Dissolved	ND		mg/l	0.100	0.0394	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Chromium, Dissolved	ND		mg/l	0.00100	0.00017	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Cobalt, Dissolved	ND		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Copper, Dissolved	ND		mg/l	0.00100	0.00038	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Iron, Dissolved	ND		mg/l	0.0500	0.0191	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Lead, Dissolved	ND		mg/l	0.00100	0.00034	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Magnesium, Dissolved	ND		mg/l	0.0700	0.0242	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Manganese, Dissolved	ND		mg/l	0.00100	0.00044	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Nickel, Dissolved	ND		mg/l	0.00200	0.00055	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Potassium, Dissolved	ND		mg/l	0.100	0.0309	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

Method Blank Analysis
Batch Quality Control

Selenium, Dissolved	ND		mg/l	0.00500	0.00173	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Sodium, Dissolved	0.0457	J	mg/l	0.100	0.0293	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Thallium, Dissolved	ND		mg/l	0.00050	0.00014	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Vanadium, Dissolved	ND		mg/l	0.00500	0.00157	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Zinc, Dissolved	ND		mg/l	0.01000	0.00341	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-10 Batch: WG1174499-1										
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Antimony, Total	0.00071	J	mg/l	0.00400	0.00042	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Barium, Total	ND		mg/l	0.00050	0.00017	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Calcium, Total	ND		mg/l	0.100	0.0394	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Chromium, Total	ND		mg/l	0.00100	0.00017	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Copper, Total	ND		mg/l	0.00100	0.00038	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Iron, Total	ND		mg/l	0.0500	0.0191	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Lead, Total	ND		mg/l	0.00100	0.00034	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Magnesium, Total	ND		mg/l	0.0700	0.0242	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Manganese, Total	ND		mg/l	0.00100	0.00044	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Nickel, Total	ND		mg/l	0.00200	0.00055	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Potassium, Total	ND		mg/l	0.100	0.0309	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Silver, Total	0.00020	J	mg/l	0.00040	0.00016	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Sodium, Total	0.0294	J	mg/l	0.100	0.0293	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Thallium, Total	ND		mg/l	0.00050	0.00014	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10 Batch: WG1172823-2								
Mercury, Total	86		-		80-120	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 01-10 Batch: WG1173870-2								
Mercury, Dissolved	97		-		80-120	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-10 Batch: WG1174403-2					
Aluminum, Dissolved	100	-	80-120	-	
Antimony, Dissolved	94	-	80-120	-	
Arsenic, Dissolved	102	-	80-120	-	
Barium, Dissolved	99	-	80-120	-	
Beryllium, Dissolved	103	-	80-120	-	
Cadmium, Dissolved	111	-	80-120	-	
Calcium, Dissolved	99	-	80-120	-	
Chromium, Dissolved	96	-	80-120	-	
Cobalt, Dissolved	99	-	80-120	-	
Copper, Dissolved	99	-	80-120	-	
Iron, Dissolved	105	-	80-120	-	
Lead, Dissolved	106	-	80-120	-	
Magnesium, Dissolved	104	-	80-120	-	
Manganese, Dissolved	97	-	80-120	-	
Nickel, Dissolved	100	-	80-120	-	
Potassium, Dissolved	97	-	80-120	-	
Selenium, Dissolved	111	-	80-120	-	
Silver, Dissolved	100	-	80-120	-	
Sodium, Dissolved	105	-	80-120	-	
Thallium, Dissolved	102	-	80-120	-	
Vanadium, Dissolved	98	-	80-120	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-10 Batch: WG1174403-2					
Zinc, Dissolved	107	-	80-120	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10 Batch: WG1174499-2					
Aluminum, Total	103	-	80-120	-	
Antimony, Total	95	-	80-120	-	
Arsenic, Total	105	-	80-120	-	
Barium, Total	108	-	80-120	-	
Beryllium, Total	104	-	80-120	-	
Cadmium, Total	112	-	80-120	-	
Calcium, Total	107	-	80-120	-	
Chromium, Total	101	-	80-120	-	
Cobalt, Total	106	-	80-120	-	
Copper, Total	102	-	80-120	-	
Iron, Total	111	-	80-120	-	
Lead, Total	107	-	80-120	-	
Magnesium, Total	107	-	80-120	-	
Manganese, Total	101	-	80-120	-	
Nickel, Total	107	-	80-120	-	
Potassium, Total	104	-	80-120	-	
Selenium, Total	109	-	80-120	-	
Silver, Total	110	-	80-120	-	
Sodium, Total	107	-	80-120	-	
Thallium, Total	115	-	80-120	-	
Vanadium, Total	104	-	80-120	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10 Batch: WG1174499-2					
Zinc, Total	106	-	80-120	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10 QC Batch ID: WG1172823-3 WG1172823-4 QC Sample: L1843594-07 Client ID: MW-6D-102018												
Mercury, Total	ND	0.005	0.00425	85		0.00409	82		75-125	4		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01-10 QC Batch ID: WG1173870-3 WG1173870-4 QC Sample: L1843594-07 Client ID: MW-6D-102018												
Mercury, Dissolved	ND	0.005	0.00468	94		0.00470	94		75-125	0		20

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery		Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-10 QC Batch ID: WG1174403-3 WG1174403-4 QC Sample: L1843594-07 Client ID: MW-6D-102018											
Aluminum, Dissolved	ND	2	1.95	98		2.00	100		75-125	3	20
Antimony, Dissolved	0.00231J	0.5	0.5249	105		0.5311	106		75-125	1	20
Arsenic, Dissolved	0.00042J	0.12	0.1267	106		0.1315	110		75-125	4	20
Barium, Dissolved	0.1334	2	2.193	103		2.191	103		75-125	0	20
Beryllium, Dissolved	ND	0.05	0.05183	104		0.05236	105		75-125	1	20
Cadmium, Dissolved	0.00015J	0.051	0.05725	112		0.05758	113		75-125	1	20
Calcium, Dissolved	255.	10	269	**140**	Q	282	**270**	Q	75-125	5	20
Chromium, Dissolved	ND	0.2	0.1900	95		0.1992	100		75-125	5	20
Cobalt, Dissolved	0.00044J	0.5	0.4874	97		0.5001	100		75-125	3	20
Copper, Dissolved	0.00296	0.25	0.2506	99		0.2568	102		75-125	2	20
Iron, Dissolved	0.0269J	1	1.01	101		1.06	106		75-125	5	20
Lead, Dissolved	ND	0.51	0.5570	109		0.5580	109		75-125	0	20
Magnesium, Dissolved	19.6	10	30.9	113		31.3	117		75-125	1	20
Manganese, Dissolved	0.2994	0.5	0.7813	96		0.8199	104		75-125	5	20
Nickel, Dissolved	0.00225	0.5	0.4905	98		0.5138	102		75-125	5	20
Potassium, Dissolved	27.8	10	37.0	92		39.0	112		75-125	5	20
Selenium, Dissolved	0.00525	0.12	0.138	111		0.142	114		75-125	3	20
Silver, Dissolved	ND	0.05	0.05189	104		0.05201	104		75-125	0	20
Sodium, Dissolved	108.	10	104	**0**	Q	108	**0**	Q	75-125	4	20
Thallium, Dissolved	0.00026J	0.12	0.1254	104		0.1284	107		75-125	2	20
Vanadium, Dissolved	0.00351J	0.5	0.4812	96		0.5114	102		75-125	6	20

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-10 QC Batch ID: WG1174403-3 WG1174403-4 QC Sample: L1843594-07 Client ID: MW-6D-102018									
Zinc, Dissolved	ND	0.5	0.5207	104	0.5342	107	75-125	3	20

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery		Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10 102018	QC Batch ID: WG1174499-3					WG1174499-4	QC Sample: L1843594-07		Client ID: MW-6D-		
Aluminum, Total	0.0112	2	1.94	96		1.95	97		75-125	1	20
Antimony, Total	0.00377J	0.5	0.5447	109		0.5965	119		75-125	9	20
Arsenic, Total	0.00056	0.12	0.1318	109		0.1313	109		75-125	0	20
Barium, Total	0.1300	2	2.221	104		2.280	108		75-125	3	20
Beryllium, Total	ND	0.05	0.05017	100		0.05054	101		75-125	1	20
Cadmium, Total	0.00015J	0.051	0.05844	114		0.06083	119		75-125	4	20
Calcium, Total	272.	10	268	**0**	Q	275	**30**	Q	75-125	3	20
Chromium, Total	ND	0.2	0.1982	99		0.2037	102		75-125	3	20
Cobalt, Total	0.00050	0.5	0.5236	105		0.5333	106		75-125	2	20
Copper, Total	0.00300	0.25	0.2596	103		0.2590	102		75-125	0	20
Iron, Total	0.0321J	1	1.06	106		1.20	120		75-125	12	20
Lead, Total	ND	0.51	0.5922	116		0.6028	118		75-125	2	20
Magnesium, Total	20.8	10	31.3	105		32.3	115		75-125	3	20
Manganese, Total	0.3086	0.5	0.8084	100		0.8207	102		75-125	2	20
Nickel, Total	0.00217	0.5	0.5396	107		0.5275	105		75-125	2	20
Potassium, Total	29.0	10	37.6	86		38.0	90		75-125	1	20
Selenium, Total	0.00565	0.12	0.138	110		0.132	105		75-125	4	20
Silver, Total	0.00035J	0.05	0.05406	108		0.05916	118		75-125	9	20
Sodium, Total	108.	10	105	**0**	Q	110	**20**	Q	75-125	5	20
Thallium, Total	0.00030J	0.12	0.1367	114		0.1407	117		75-125	3	20
Vanadium, Total	0.00389J	0.5	0.5150	103		0.5331	107		75-125	3	20

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10 102018	QC Batch ID: WG1174499-3				WG1174499-4		QC Sample: L1843594-07	Client ID: MW-6D-	
Zinc, Total	ND	0.5	0.5457	109	0.5578	112	75-125	2	20

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1843594-01A	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-01B	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-01C	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-01D	Plastic 250ml HNO3 preserved	A	<2	<2	3.9	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1843594-01E	Plastic 250ml unpreserved	A	7	7	3.9	Y	Absent		-
L1843594-01F	Plastic 250ml unpreserved	A	NA		3.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-01G	Plastic 250ml unpreserved	A	NA		3.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-01S	Plastic 250ml HNO3 preserved Filtrates	A	NA		3.9	Y	Absent		CU-6020S(180),K-6020S(180),SE-6020S(180),V-6020S(180),MN-6020S(180),BE-6020S(180),CO-6020S(180),MG-6020S(180),ZN-6020S(180),CA-6020S(180),CR-6020S(180),FE-6020S(180),BA-6020S(180),NA-6020S(180),NI-6020S(180),PB-6020S(180),TL-6020S(180),AG-6020S(180),AS-6020S(180),SB-6020S(180),AL-6020S(180),CD-6020S(180),HG-S(28)
L1843594-02A	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-02B	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-02C	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)

*Values in parentheses indicate holding time in days

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1843594-02D	Plastic 250ml HNO3 preserved	B	<2	<2	2.2	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1843594-02E	Plastic 250ml unpreserved	B	7	7	2.2	Y	Absent		-
L1843594-02F	Plastic 250ml unpreserved	B	NA		2.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-02G	Plastic 250ml unpreserved	B	NA		2.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-02S	Plastic 250ml HNO3 preserved Filtrates	B	NA		2.2	Y	Absent		CU-6020S(180),K-6020S(180),SE-6020S(180),V-6020S(180),MN-6020S(180),BE-6020S(180),CO-6020S(180),MG-6020S(180),ZN-6020S(180),CA-6020S(180),CR-6020S(180),FE-6020S(180),BA-6020S(180),NA-6020S(180),NI-6020S(180),PB-6020S(180),TL-6020S(180),AG-6020S(180),AS-6020S(180),SB-6020S(180),AL-6020S(180),CD-6020S(180),HG-S(28)
L1843594-03A	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-03B	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-03C	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-03D	Plastic 250ml HNO3 preserved	A	<2	<2	3.9	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1843594-03E	Plastic 250ml unpreserved	A	7	7	3.9	Y	Absent		-
L1843594-03F	Plastic 250ml unpreserved	A	NA		3.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-03G	Plastic 250ml unpreserved	A	NA		3.9	Y	Absent		A2-NY-537-ISOTOPE(14)

*Values in parentheses indicate holding time in days

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1843594-03S	Plastic 250ml HNO3 preserved Filtrates	A	NA		3.9	Y	Absent		CU-6020S(180),K-6020S(180),SE-6020S(180),V-6020S(180),MN-6020S(180),BE-6020S(180),CO-6020S(180),MG-6020S(180),ZN-6020S(180),CA-6020S(180),CR-6020S(180),FE-6020S(180),BA-6020S(180),NA-6020S(180),NI-6020S(180),PB-6020S(180),TL-6020S(180),AG-6020S(180),AS-6020S(180),SB-6020S(180),AL-6020S(180),CD-6020S(180),HG-S(28)
L1843594-04A	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-04B	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-04C	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-04D	Plastic 250ml HNO3 preserved	A	<2	<2	3.9	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1843594-04E	Plastic 250ml unpreserved	A	7	7	3.9	Y	Absent		-
L1843594-04F	Plastic 250ml unpreserved	A	NA		3.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-04G	Plastic 250ml unpreserved	A	NA		3.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-04S	Plastic 250ml HNO3 preserved Filtrates	A	NA		3.9	Y	Absent		CU-6020S(180),K-6020S(180),SE-6020S(180),V-6020S(180),MN-6020S(180),BE-6020S(180),CO-6020S(180),MG-6020S(180),ZN-6020S(180),CA-6020S(180),CR-6020S(180),FE-6020S(180),BA-6020S(180),NA-6020S(180),NI-6020S(180),PB-6020S(180),TL-6020S(180),AG-6020S(180),AS-6020S(180),SB-6020S(180),AL-6020S(180),CD-6020S(180),HG-S(28)
L1843594-05A	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-05B	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-05C	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)

*Values in parentheses indicate holding time in days

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1843594-05D	Plastic 250ml HNO3 preserved	A	<2	<2	3.9	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1843594-05E	Plastic 250ml unpreserved	A	7	7	3.9	Y	Absent		-
L1843594-05F	Plastic 250ml unpreserved	A	NA		3.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-05G	Plastic 250ml unpreserved	A	NA		3.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-05S	Plastic 250ml HNO3 preserved Filtrates	A	NA		3.9	Y	Absent		CU-6020S(180),K-6020S(180),SE-6020S(180),V-6020S(180),MN-6020S(180),BE-6020S(180),CO-6020S(180),MG-6020S(180),ZN-6020S(180),CA-6020S(180),CR-6020S(180),FE-6020S(180),BA-6020S(180),NA-6020S(180),NI-6020S(180),PB-6020S(180),TL-6020S(180),AG-6020S(180),AS-6020S(180),SB-6020S(180),AL-6020S(180),CD-6020S(180),HG-S(28)
L1843594-06A	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-06B	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-06C	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-06D	Plastic 250ml HNO3 preserved	B	<2	<2	2.2	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1843594-06E	Plastic 250ml unpreserved	B	7	7	2.2	Y	Absent		-
L1843594-06F	Plastic 250ml unpreserved	B	NA		2.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-06G	Plastic 250ml unpreserved	B	NA		2.2	Y	Absent		A2-NY-537-ISOTOPE(14)

*Values in parentheses indicate holding time in days

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1843594-06S	Plastic 250ml HNO3 preserved Filtrates	B	NA		2.2	Y	Absent		CU-6020S(180),K-6020S(180),SE-6020S(180),V-6020S(180),MN-6020S(180),BE-6020S(180),CO-6020S(180),MG-6020S(180),ZN-6020S(180),CA-6020S(180),CR-6020S(180),FE-6020S(180),BA-6020S(180),NA-6020S(180),NI-6020S(180),PB-6020S(180),TL-6020S(180),AG-6020S(180),AS-6020S(180),SB-6020S(180),AL-6020S(180),CD-6020S(180),HG-S(28)
L1843594-07A	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-07A1	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-07A2	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-07B	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-07B1	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-07B2	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-07C	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-07C1	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-07C2	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-07D	Plastic 250ml HNO3 preserved	B	<2	<2	2.2	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1843594-07D1	Plastic 250ml HNO3 preserved	A	<2	<2	3.9	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)

*Values in parentheses indicate holding time in days

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1843594-07D2	Plastic 250ml HNO3 preserved	A	<2	<2	3.9	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1843594-07E	Plastic 250ml unpreserved	B	7	7	2.2	Y	Absent		-
L1843594-07E1	Plastic 250ml unpreserved	A	7	7	3.9	Y	Absent		-
L1843594-07E2	Plastic 250ml unpreserved	A	7	7	3.9	Y	Absent		-
L1843594-07F	Plastic 250ml unpreserved	B	NA		2.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-07F1	Plastic 250ml unpreserved	A	NA		3.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-07F2	Plastic 250ml unpreserved	A	NA		3.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-07G	Plastic 250ml unpreserved	B	NA		2.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-07G1	Plastic 250ml unpreserved	A	NA		3.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-07G2	Plastic 250ml unpreserved	A	NA		3.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-07S	Plastic 250ml HNO3 preserved Filtrates	B	NA		2.2	Y	Absent		CU-6020S(180),K-6020S(180),SE-6020S(180),V-6020S(180),MN-6020S(180),BE-6020S(180),CO-6020S(180),MG-6020S(180),ZN-6020S(180),CA-6020S(180),CR-6020S(180),FE-6020S(180),BA-6020S(180),NA-6020S(180),NI-6020S(180),PB-6020S(180),TL-6020S(180),AG-6020S(180),AS-6020S(180),SB-6020S(180),AL-6020S(180),CD-6020S(180),HG-S(28)
L1843594-07S1	Plastic 250ml HNO3 preserved Filtrates	A	NA		3.9	Y	Absent		CU-6020S(180),K-6020S(180),SE-6020S(180),V-6020S(180),MN-6020S(180),BE-6020S(180),CO-6020S(180),MG-6020S(180),ZN-6020S(180),CA-6020S(180),CR-6020S(180),FE-6020S(180),BA-6020S(180),NA-6020S(180),NI-6020S(180),PB-6020S(180),TL-6020S(180),AG-6020S(180),AS-6020S(180),SB-6020S(180),AL-6020S(180),CD-6020S(180),HG-S(28)

*Values in parentheses indicate holding time in days

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1843594-07S2	Plastic 250ml HNO3 preserved Filtrates	A	NA		3.9	Y	Absent		CU-6020S(180),K-6020S(180),SE-6020S(180),V-6020S(180),MN-6020S(180),BE-6020S(180),CO-6020S(180),MG-6020S(180),ZN-6020S(180),CA-6020S(180),CR-6020S(180),FE-6020S(180),BA-6020S(180),NA-6020S(180),NI-6020S(180),PB-6020S(180),TL-6020S(180),AG-6020S(180),AS-6020S(180),SB-6020S(180),AL-6020S(180),CD-6020S(180),HG-S(28)
L1843594-08A	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-08B	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-08C	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-08D	Plastic 250ml HNO3 preserved	A	<2	<2	3.9	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1843594-08E	Plastic 250ml unpreserved	A	7	7	3.9	Y	Absent		-
L1843594-08F	Plastic 250ml unpreserved	A	NA		3.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-08G	Plastic 250ml unpreserved	A	NA		3.9	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-08S	Plastic 250ml HNO3 preserved Filtrates	A	NA		3.9	Y	Absent		CU-6020S(180),K-6020S(180),SE-6020S(180),V-6020S(180),MN-6020S(180),BE-6020S(180),CO-6020S(180),MG-6020S(180),ZN-6020S(180),CA-6020S(180),CR-6020S(180),FE-6020S(180),BA-6020S(180),NA-6020S(180),NI-6020S(180),PB-6020S(180),TL-6020S(180),AG-6020S(180),AS-6020S(180),SB-6020S(180),AL-6020S(180),CD-6020S(180),HG-S(28)
L1843594-09A	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-09B	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-09C	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)

*Values in parentheses indicate holding time in days

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1843594-09D	Plastic 250ml HNO3 preserved	B	<2	<2	2.2	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1843594-09E	Plastic 250ml unpreserved	B	7	7	2.2	Y	Absent		-
L1843594-09F	Plastic 250ml unpreserved	B	NA		2.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-09G	Plastic 250ml unpreserved	B	NA		2.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-09S	Plastic 250ml HNO3 preserved Filtrates	B	NA		2.2	Y	Absent		CU-6020S(180),K-6020S(180),SE-6020S(180),V-6020S(180),MN-6020S(180),BE-6020S(180),CO-6020S(180),MG-6020S(180),ZN-6020S(180),CA-6020S(180),CR-6020S(180),FE-6020S(180),BA-6020S(180),NA-6020S(180),NI-6020S(180),PB-6020S(180),TL-6020S(180),AG-6020S(180),AS-6020S(180),SB-6020S(180),AL-6020S(180),CD-6020S(180),HG-S(28)
L1843594-10A	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-10B	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-10C	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-10D	Plastic 250ml HNO3 preserved	B	<2	<2	2.2	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1843594-10E	Plastic 250ml unpreserved	B	7	7	2.2	Y	Absent		-
L1843594-10F	Plastic 250ml unpreserved	B	NA		2.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L1843594-10G	Plastic 250ml unpreserved	B	NA		2.2	Y	Absent		A2-NY-537-ISOTOPE(14)

*Values in parentheses indicate holding time in days

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1843594-10S	Plastic 250ml HNO3 preserved Filtrates	A	NA		3.9	Y	Absent		CU-6020S(180),K-6020S(180),SE-6020S(180),V-6020S(180),MN-6020S(180),BE-6020S(180),CO-6020S(180),MG-6020S(180),ZN-6020S(180),CA-6020S(180),CR-6020S(180),FE-6020S(180),BA-6020S(180),NA-6020S(180),NI-6020S(180),PB-6020S(180),TL-6020S(180),AG-6020S(180),AS-6020S(180),SB-6020S(180),AL-6020S(180),CD-6020S(180),HG-S(28)
L1843594-11A	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)
L1843594-11B	Vial HCl preserved	A	NA		3.9	Y	Absent		NYTCL-8260(14)

*Values in parentheses indicate holding time in days

Project Name:	FORMER HYGRADE	**Lab Number:**	L1843594
Project Number:	3612162331	**Report Date:**	11/11/18

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Report Format: DU Report with 'J' Qualifiers

Project Name:	FORMER HYGRADE	**Lab Number:**	L1843594
Project Number:	3612162331	**Report Date:**	11/11/18

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	FORMER HYGRADE	**Lab Number:**	L1843594
Project Number:	3612162331	**Report Date:**	11/11/18

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

122 Determination of Selected Perfluorintated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). EPA Method 537, EPA/600/R-08/092. Version 1.1, September 2009.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

NEW YORK CHAIN OF CUSTODY

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 2

Date Rec'd in Lab: 10/26/18

ALPHA Job #: L1843594

Client Information
Client: Amec E&E, PC
Address: 214-25 42nd Avenue
Bayside, NY 11361
Phone: (347) 836-4445
Fax:
Email: eric.weinstock@woodplc.com

Project Information
Project Name: Former Hygrade
Project Location: Long Island City, NY
Project #: 3612162331
(Use Project name as Project #) ☐
Project Manager: Eric Weinstock
ALPHAQuote #: Q5256_R1

Turn-Around Time
Standard ☐ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☑ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☑ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☑ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:
MS/MSD corresponds to MW-6D-102018

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☑ Lab to do Dissolved Metals
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs 8260C	Total Metals 6020	Dissolved Metals 6020	PFAS 537	Sample Specific Comments	Total Bottle
43594-01	BMW-1-102018	10/24/18	1300	water	JL	X	X	X	X		7
02	BMW-2-102018	10/24/18	1245	water	BH	X	X	X	X		7
03	BMW-3-102018	10/24/18	1320	water	BH	X	X	X	X		7
04	BMW-4-102018	10/24/18	1155	water	JL	X	X	X	X		7
05	MW-5-102018	10/24/18	1033	water	BH	X	X	X	X		7
06	MW-6S-102018	10/25/18	1040	water	JL	X	X	X	X		7
07	MW-6D-102018	10/24/18	1020	water	JL	X	X	X	X		7
08	MW-E-102018	10/25/18	1105	water	JL	X	X	X	X		7
09	DUP-102018	10/24/18	1155	water	JL	X	X	X	X		7
10	EB-102018	10/24/18	1330	water	JL	X	X	X	X		7
	Container Type					V	P	P	P		
	Preservative					B	C	A	ENZMS		

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Jazmin Vargas	10/25/18 1209	AAL	10/25/18 1209
Paul Magella	10/25/18 1849	Paul Magella	10/25/18 2020
Paul Magella	10/26/18 0125		10/26/18 0125

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 01-25 (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 2 of 2

Date Rec'd in Lab: 10/26/18

ALPHA Job #: L1843594

Client Information
Client: Amec E&E, PC
Address: 214-25 42nd Avenue
Bayside, NY 11361
Phone: (347) 836-4445
Fax:
Email: eric.weinstock@woodplc.com

Project Information
Project Name: Former Hygrade
Project Location: Long Island City, NY
Project #: 3612162331
(Use Project name as Project #) ☐
Project Manager: Eric Weinstock
ALPHAQuote #: Q5256_R1

Turn-Around Time
Standard ☐ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☑ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☑ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☑ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

Sample Filtration
☐ Done
☒ Lab to do (Dissolved Metals)
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs 8260C	Total Metals 6020	Dissolved Metals 6020	PFAS 537	Sample Specific Comments	Total Bottles
43594 – 07	MS- 102018	10/24/18	1020	water	JL	X	X	X	X		7
07	MSD- 102018	10/24/18	1020	water	JL	X	X	X	X		7
11	TB- 102018	10/23/18		water		X					2

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type	V	P	P	P				
Preservative	B	C	A	NONE				

Relinquished By:	Date/Time	Received By:	Date/Time
	10/25/18 1204	AAL	10/25/18 1209
	10/25/18 1825	Paul Mazzella	10/25/18 2015
Paul Mazzella	10/26/18 0125		10/26/18 0125

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 01-25 (rev. 30-Sept-2013)

TABLE 3 - SUMMARY OF QUALIFICATION ACTIONS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

SDG	Analysis Method	Lab Sample Id	Field Sample Date	Field Sample Id	Fraction	Param Name	Lab Result Text	Lab Qual	Final Result	Final Qual	Val Reason Code	Result Uom
L1843594	6020B	L1843594-04	10/24/2018	BMW-4-102018	D	Iron	13		13	J	FD	MG/L
L1843594	6020B	L1843594-04	10/24/2018	BMW-4-102018	T	Manganese	2.922		2.922	J	TD	MG/L
L1843594	6020B	L1843594-04	10/24/2018	BMW-4-102018	D	Manganese	3.441		3.441	J	TD	MG/L
L1843594	8260C	L1843594-04	10/24/2018	BMW-4-102018	N	Naphthalene	2.5	U	2.5	UJ	LCS-L	UG/L
L1843594	537(M)	L1843594-09	10/24/2018	DUP-102018	N	6:2 fluorotelomer sulfonate	1.38	J	2.29	U	BL1, BL2	NG/L
L1843594	6020B	L1843594-09	10/24/2018	DUP-102018	D	Aluminum	0.01	U	0.01	UJ	FD	MG/L
L1843594	6020B	L1843594-09	10/24/2018	DUP-102018	T	Aluminum	0.012		0.012	J	FD	MG/L
L1843594	6020B	L1843594-09	10/24/2018	DUP-102018	D	Chromium	0.00035	J	0.00035	J	FD	MG/L
L1843594	6020B	L1843594-09	10/24/2018	DUP-102018	T	Copper	0.00103		0.00103	J	FD	MG/L
L1843594	6020B	L1843594-09	10/24/2018	DUP-102018	D	Iron	10.2		10.2	J	FD	MG/L
L1843594	537(M)	L1843594-05	10/24/2018	MW-5-102018	N	6:2 fluorotelomer sulfonate	2.45		2.45	U	BL1, BL2	NG/L
L1843594	8260C	L1843594-05	10/24/2018	MW-5-102018	N	Acetone	2.4	J	5	U	BL2	UG/L
L1843594	6020B	L1843594-05	10/24/2018	MW-5-102018	D	Antimony	0.00085	J	0.004	U	BL2	MG/L
L1843594	6020B	L1843594-05	10/24/2018	MW-5-102018	T	Antimony	0.00095	J	0.004	U	BL1	MG/L
L1843594	6020B	L1843594-05	10/24/2018	MW-5-102018	D	Copper	0.00147		0.00147	J+	BL2	MG/L
L1843594	6020B	L1843594-05	10/24/2018	MW-5-102018	T	Iron	0.21		0.21	J+	BL2	MG/L
L1843594	8260C	L1843594-07	10/24/2018	MW-6D-102018	N	1,2,3-Trichlorobenzene	2.5	U	2.5	UJ	LCS-L, MS-L	UG/L
L1843594	8260C	L1843594-07	10/24/2018	MW-6D-102018	N	1,2,4-Trichlorobenzene	2.5	U	2.5	UJ	MS-L	UG/L
L1843594	8260C	L1843594-07	10/24/2018	MW-6D-102018	N	1,2-Dibromo-3-chloropropane	2.5	U	2.5	UJ	MS-L	UG/L
L1843594	8260C	L1843594-07	10/24/2018	MW-6D-102018	N	2,2-Dichloropropane	2.5	U	2.5	UJ	MS-L	UG/L
L1843594	537(M)	L1843594-07	10/24/2018	MW-6D-102018	N	6:2 fluorotelomer sulfonate	0.729	J	1.8	U	BL1, BL2	NG/L
L1843594	8260C	L1843594-07	10/24/2018	MW-6D-102018	N	Acetone	1.5	J	5	U	BL2	UG/L
L1843594	6020B	L1843594-07	10/24/2018	MW-6D-102018	D	Antimony	0.00231	J	0.004	U	BL2	MG/L
L1843594	6020B	L1843594-07	10/24/2018	MW-6D-102018	T	Antimony	0.00377	J	0.00377	J	BL1	MG/L
L1843594	8260C	L1843594-07	10/24/2018	MW-6D-102018	N	Bromomethane	2.5	U	2.5	UJ	LCS-L, MS-L	UG/L
L1843594	6020B	L1843594-07	10/24/2018	MW-6D-102018	D	Copper	0.00296		0.00296	J+	BL2	MG/L
L1843594	8260C	L1843594-07	10/24/2018	MW-6D-102018	N	Hexachlorobutadiene	2.5	U	2.5	UJ	MS-L	UG/L
L1843594	6020B	L1843594-07	10/24/2018	MW-6D-102018	T	Iron	0.0321	J	0.05	U	BL2	MG/L
L1843594	8260C	L1843594-07	10/24/2018	MW-6D-102018	N	n-Butylbenzene	2.5	U	2.5	UJ	MS-L	UG/L
L1843594	8260C	L1843594-07	10/24/2018	MW-6D-102018	N	Naphthalene	2.5	U	2.5	UJ	LCS-L, MS-L	UG/L
L1843594	6020B	L1843594-07	10/24/2018	MW-6D-102018	T	Silver	0.00035	J	0.0004	U	BL1	MG/L
L1843594	8260C	L1843594-07	10/24/2018	MW-6D-102018	N	Vinyl acetate	5	U	5	UJ	MS-L	UG/L

TABLE 3 - SUMMARY OF QUALIFICATION ACTIONS
DATA USABILITY SUMMARY REPORT
OCTOBER 2018 GROUNDWATER SAMPLING EVENT
FORMER HYGRADE POLISHING AND PLATING COMPANY
LONG ISLAND CITY, NEW YORK

SDG	Analysis Method	Lab Sample Id	Field Sample Date	Field Sample Id	Fraction	Param Name	Lab Result Text	Lab Qual	Final Result	Final Qual	Val Reason Code	Result Uom
L1843594	537(M)	L1843594-06	10/25/2018	MW-6S-102018	N	6:2 fluorotelomer sulfonate	1.67	J	1.85	U	BL1, BL2	NG/L
L1843594	6020B	L1843594-06	10/25/2018	MW-6S-102018	D	Copper	0.00038	J	0.001	U	BL2	MG/L
L1843594	8260C	L1843594-08	10/25/2018	MW-E-102018	N	Acetone	2.4	J	5	U	BL2	UG/L
L1843594	6020B	L1843594-08	10/25/2018	MW-E-102018	T	Antimony	0.00058	J	0.004	U	BL1	MG/L
L1843594	6020B	L1843594-08	10/25/2018	MW-E-102018	D	Antimony	0.00068	J	0.004	U	BL2	MG/L
L1843594	6020B	L1843594-08	10/25/2018	MW-E-102018	D	Copper	0.00102		0.00102	J+	BL2	MG/L

Notes:
U = undetected
J = estimated value
J+ = estimated and potentially biased high
FD = field duplicate precision not met
BL1 = method blank contamination
BL2 = field or trip blank contamination
TD = dissolved concentration exceeds total concentration by more than 10 percent
IS-H = internal standard recovery high
LCS-L = LCS recovery low
MS-L = matrix spike recovery low
N, T = total
D = dissolved

ATTACHMENT A
SUMMARY OF VALIDATION QC LIMITS FOR SURROGATES, SPIKES, AND DUPLICATES
BASED ON THE REGION 2 VALIDATION GUIDELINES

PARAMETER	QC TEST	ANALYTE	WATER (%R)	Water (RPD)
Volatiles	Surrogate	All Surrogate Compounds	80 - 120	
	LCS	All Target Compounds	70 - 130	
	MS/MSD	All Target Compounds	70 - 130	20
	Field Duplicate	All Target Compounds		50
Per- and Polyfluorinated Alkyl Substances (PFAS)	Surrogate	All Surrogate Compounds	Lab Limits	
	LCS	All Target Compounds	Lab Limits	
	MS/MSD	All Target Compounds	Lab Limits	Lab Limits
	Field Duplicate	All Target Compounds		50
Inorganics-Metals	LCS	All Target Analytes	80 - 120	
	MS/MSD	All Target Analytes	75 -125	20
	Lab Duplicate	All Target Analytes		20
	Field Duplicate	All Target Analytes		20

Notes:
LCS - Laboratory Control Sample
MS/MSD - Matrix spike/ Matrix Spike Duplicate
RPD = Relative percent difference
%R = percent recovery
QC Limits are based on USEPA Region II Data Validation Guidelines and Project QA/QC Objectives

ATTACHMENT B

VOCs

NYSDEC DUSR PROJECT CHEMIST REVIEW RECORD
Project: Hygrade Oct. 2018 GW
Method: 8260C
Laboratory: Alpha Analytical (Westborough) **SDG(s):** L1843594
Date: 12/17/18
Reviewer: Julie Ricardi

Review Level [X] NYSDEC DUSR USEPA Region II Guideline

1. ☑ **Case Narrative Review and COC/Data Package Completeness** COMMENTS
   Were problems noted? No
   Are Field Sample IDs and Locations assigned correctly? (YES) NO (circle one)
   Were all the samples on the COC analyzed for the requested analyses? (YES) NO (circle one)

2. ☑ **Holding time and Sample Collection**
   All samples were analyzed within the 14 day holding time. (YES) NO (circle one)

3. ☑ **QC Blanks**
   Are method blanks free of contamination? (YES) NO (circle one)

   Are Trip blanks free of contamination? YES (NO) (circle one)
   TB-102018: See attached for acetone (qual)
   Are Rinse blanks free of contamination? YES (NO) NA (circle one)
   EB-102018: See attached for acetone (qual)

4. ☑ **Instrument Tuning – Data Package Narrative Review**
   Did the laboratory narrative identify any results that were not within method criteria? YES (NO) (circle one)
   If yes, use professional judgment to evaluate data and qualify results if needed

5. ☑ **Instrument Calibration – Data Package Narrative Review**
   Did the laboratory narrative identify compounds that were not within criteria in the initial and/or continuing calibration standards? YES (NO) (circle one)

   Initial Calibration %RSD = 20% **(30% for 1,1-DCE, chloroform, 1,2-DCP, toluene, ethylbenzene, VC)**
   Initial Avg RRF and Continuing RRF should be ≥ 0.05 and 0.10 for Chloromethane, 1,1-Dichloroethane, Bromoform and 0.30 for Chlorobenzene and 1,1,2,2-Tetrachloroethane

   Continuing Calibration %D = 20%

   Did the laboratory qualify results based on initial or continuing calibration exceedances? YES (NO)
   If yes to above, use professional judgment to evaluate data and qualify results if needed

6. ☑ **Internal Standards – Data Package Narrative Review**
   (Area Limits = -50% to +100%, RTs within 30 seconds of daily CCAL standard (or ICAL mid-point if samples follow ICAL)
   Did the laboratory narrative identify any sample internal standards that were not within criteria? YES (NO) (circle one)

   Did the laboratory qualify results based on internal standard exceedances? YES (NO)
   If yes to above, use professional judgment to evaluate data and qualify results if needed

7. ☑ **Surrogate Recovery** - Region II limits (water 80-120%, soil 70-130%)

   Were all results within Region II limits? (YES) NO (circle one)

8. ☑ **Matrix Spike** - Region II limits (water and soil 70-130%, water RPD 20, soil RPD 35)
   MW-6D
   Were MS/MSDs submitted/analyzed? (YES) NO

   Were all results within the Region II limits? YES (NO) NA (circle one)
   See attached for (qual)

9. ☑ **Duplicates** - Region II Limits (water RPD 50, soil RPD 100)

BMW-4 / DUP : OK

Were Field Duplicates submitted/analyzed? (YES) NO

Were all results within Region II limits? (soil RPD<100, water RPD<50) (YES) NO NA

10. ☑ **Laboratory Control Sample Results** - Region II (Water and soil 70-130%)

Were all results were within Region II control limits? YES (NO) (circle one)

See attached for (qual)

11. ☑ **Raw Data Review and Calculation Checks**

See attached

12. ☑ **Electronic Data Review and Edits**

Does the EDD match the Form Is? (YES) NO (circle one)

13. ☑ **Tables and TIC Review**

Table 1 (Samples and Analytical Methods)
Table 2 (Analytical Results)
Table 3 (Qualification Actions)
Were all tables produced and reviewed? (YES) NO (circle one)

Table 4 (TICs) Did lab report TICs? YES (NO) (circle one)

Elevated RLs for:

MW-6S-102018 (4X)

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Alpha Sample ID	Client ID		Matrix	Sample Location	Collection Date/Time	Receive Date
L1843594-01	BMW-1-102018		WATER	LONG ISLAND CITY, NY	10/24/18 13:00	10/25/18
L1843594-02	BMW-2-102018		WATER	LONG ISLAND CITY, NY	10/24/18 12:45	10/25/18
L1843594-03	BMW-3-102018		WATER	LONG ISLAND CITY, NY	10/24/18 13:20	10/25/18
L1843594-04	BMW-4-102018		WATER	LONG ISLAND CITY, NY	10/24/18 11:55	10/25/18
L1843594-05	MW-5-102018		WATER	LONG ISLAND CITY, NY	10/24/18 10:33	10/25/18
L1843594-06	MW-6S-102018		WATER	LONG ISLAND CITY, NY	10/25/18 10:40	10/25/18
L1843594-07	MW-6D-102018	MS|MSD	WATER	LONG ISLAND CITY, NY	10/24/18 10:20	10/25/18
L1843594-08	MW-E-102018		WATER	LONG ISLAND CITY, NY	10/25/18 11:05	10/25/18
L1843594-09	DUP-102018		WATER	LONG ISLAND CITY, NY	10/24/18 11:55	10/25/18
L1843594-10	EB-102018		WATER	LONG ISLAND CITY, NY	10/24/18 13:30	10/25/18
L1843594-11	TB-102018		TRIP BLANK (AQUEOUS)	LONG ISLAND CITY, NY	10/23/18 00:00	10/25/18

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-10
Client ID: EB-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 13:30
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	(M) subject	2.5 J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

12/17/18

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-11
Client ID: TB-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/23/18 00:00
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone (U subsct)	2.5	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone (12/17/18)	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

70 - 130

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 05-06,08-11 Batch: WG1175401-3 WG1175401-4								
Bromochloromethane	110		110		70-130	0		20
2,2-Dichloropropane	100		100		63-133	0		20
1,2-Dibromoethane	100		98		70-130	2		20
1,3-Dichloropropane	93		87		70-130	7		20
1,1,1,2-Tetrachloroethane	110		110		64-130	0		20
Bromobenzene	110		100		70-130	10		20
n-Butylbenzene	100		98		53-136	2		20
sec-Butylbenzene	100		96		70-130	4		20
tert-Butylbenzene	93		86		70-130	8		20
o-Chlorotoluene	100		96		70-130	4		20
p-Chlorotoluene	100		98		70-130	2		20
1,2-Dibromo-3-chloropropane	100		100		41-144	0		20
Hexachlorobutadiene	130		120		63-130	8		20
Isopropylbenzene	99		93		70-130	6		20
p-Isopropyltoluene	110		100		70-130	10		20
Naphthalene	100		96		70-130	4		20
n-Propylbenzene	100		94		69-130	6		20
1,2,3-Trichlorobenzene	120		110		70-130	9		20
1,2,4-Trichlorobenzene	120		110		70-130	9		20
1,3,5-Trimethylbenzene	100		93		64-130	7		20
1,2,4-Trimethylbenzene	100		95		70-130	5		20
1,4-Dioxane J+ (ND)	160		158		56-162	1		20
p-Diethylbenzene	110		97		70-130	13		20

2 11/12/18

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

70-130

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,07 Batch: WG1175499-3 WG1175499-4								
Methylene chloride	83		80		70-130	4		20
1,1-Dichloroethane	98		96		70-130	2		20
Chloroform	82		80		70-130	2		20
Carbon tetrachloride	83		81		63-132	2		20
1,2-Dichloropropane	100		100		70-130	0		20
Dibromochloromethane	87		83		63-130	5		20
1,1,2-Trichloroethane	92		88		70-130	4		20
Tetrachloroethene	92		90		70-130	2		20
Chlorobenzene	92		90		75-130	2		20
Trichlorofluoromethane	82		79		62-150	4		20
1,2-Dichloroethane	88		84		70-130	5		20
1,1,1-Trichloroethane	85		83		67-130	2		20
Bromodichloromethane	81		79		67-130	3		20
trans-1,3-Dichloropropene	83		80		70-130	4		20
cis-1,3-Dichloropropene	82		80		70-130	2		20
1,1-Dichloropropene	87		85		70-130	2		20
Bromoform	80		75		54-136	6		20
1,1,2,2-Tetrachloroethane	92		86		67-130	7		20
Benzene	89		87		70-130	2		20
Toluene	93		91		70-130	2		20
Ethylbenzene	94		92		70-130	2		20
Chloromethane	110		110		64-130	0		20
Bromomethane J/(4J) -1,2,3,4,7	53		52		39-139	2		20

11/12/18

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

70 - 130

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,07 Batch: WG1175499-3 WG1175499-4								
Bromochloromethane	90		86		70-130	5		20
2,2-Dichloropropane	80		78		63-133	3		20
1,2-Dibromoethane	92		85		70-130	8		20
1,3-Dichloropropane	92		88		70-130	4		20
1,1,1,2-Tetrachloroethane	89		87		64-130	2		20
Bromobenzene	91		89		70-130	2		20
n-Butylbenzene	100		100		53-136	0		20
sec-Butylbenzene	100		100		70-130	0		20
tert-Butylbenzene	100		100		70-130	0		20
o-Chlorotoluene	98		98		70-130	0		20
p-Chlorotoluene	97		98		70-130	1		20
1,2-Dibromo-3-chloropropane	78		72		41-144	8		20
Hexachlorobutadiene	92		91		63-130	1		20
Isopropylbenzene	100		100		70-130	0		20
p-Isopropyltoluene	100		100		70-130	0		20
Naphthalene J1(4J) -1,2,3,4,7	76		69	Q	70-130	10		20
n-Propylbenzene	100		100		69-130	0		20
1,2,3-Trichlorobenzene J1(4J) -1,2,3,4,7	70		65	Q	70-130	7		20
1,2,4-Trichlorobenzene	81		77		70-130	5		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
1,4-Dioxane J+ (ND)	138		120		56-162	14		20
p-Diethylbenzene	100		100		70-130	0		20

Matrix Spike Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

70-130

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,07 QC Batch ID: WG1175499-6 WG1175499-7 QC Sample: L1843594-07 Client ID: MW-6D-102018												
Methylene chloride	ND	10	8.0	80		9.0	90		70-130	12		20
1,1-Dichloroethane	ND	10	9.3	93		10	100		70-130	7		20
Chloroform	ND	10	8.4	84		9.3	93		70-130	10		20
Carbon tetrachloride	ND	10	7.7	77		7.2	72		63-132	7		20
1,2-Dichloropropane	ND	10	9.8	98		11	110		70-130	12		20
Dibromochloromethane	ND	10	8.0	80		8.9	89		63-130	11		20
1,1,2-Trichloroethane	ND	10	8.6	86		9.5	95		70-130	10		20
Tetrachloroethene	0.92	10	9.1	82		8.4	75		70-130	8		20
Chlorobenzene	ND	10	8.4	84		8.3	83		75-130	1		20
Trichlorofluoromethane	ND	10	7.5	75		7.5	75		62-150	0		20
1,2-Dichloroethane	ND	10	8.2	82		9.0	90		70-130	9		20
1,1,1-Trichloroethane	ND	10	8.2	82		8.4	84		67-130	2		20
Bromodichloromethane	ND	10	7.7	77		8.4	84		67-130	9		20
trans-1,3-Dichloropropene	ND	10	7.3	73		8.0	80		70-130	9		20
cis-1,3-Dichloropropene	ND	10	7.5	75		8.0	80		70-130	6		20
1,1-Dichloropropene	ND	10	7.9	79		7.6	76		70-130	4		20
Bromoform	ND	10	7.2	72		7.9	79		54-136	9		20
1,1,2,2-Tetrachloroethane	ND	10	8.4	84		9.0	90		67-130	7		20
Benzene	ND	10	8.5	85		9.0	90		70-130	6		20
Toluene	ND	10	8.4	84		8.4	84		70-130	0		20
Ethylbenzene	ND	10	8.2	82		7.7	77		70-130	6		20
Chloromethane	ND	10	10	100		12	120		64-130	18		20
Bromomethane J (4J)	ND	10	3.2	32	Q	4.5	45		39-139	34	Q	20

12/17/18

Matrix Spike Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

70-130

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,07 QC Batch ID: WG1175499-6 WG1175499-7 QC Sample: L1843594-07 Client ID: MW-6D-102018												
Vinyl chloride	0.11J	10	11	110		12	120		55-140	9		20
Chloroethane	ND	10	9.4	94		10	100		55-138	6		20
1,1-Dichloroethene	ND	10	8.1	81		8.5	85		61-145	5		20
trans-1,2-Dichloroethene	ND	10	8.0	80		8.5	85		70-130	6		20
Trichloroethene	1.4	10	9.3	79		9.3	79		70-130	0		20
1,2-Dichlorobenzene	ND	10	8.4	84		8.0	80		70-130	5		20
1,3-Dichlorobenzene	ND	10	8.4	84		7.7	77		70-130	9		20
1,4-Dichlorobenzene	ND	10	8.2	82		7.5	75		70-130	9		20
Methyl tert butyl ether	ND	10	7.7	77		8.8	88		63-130	13		20
p/m-Xylene	ND	20	17	85		16	80		70-130	6		20
o-Xylene	ND	20	18	90		17	85		70-130	6		20
cis-1,2-Dichloroethene	ND	10	8.3	83		9.4	94		70-130	12		20
Dibromomethane	ND	10	7.8	78		8.6	86		70-130	10		20
1,2,3-Trichloropropane	ND	10	7.8	78		9.2	92		64-130	16		20
Acrylonitrile	ND	10	10	100		12	120		70-130	18		20
Styrene	ND	20	16	80		16	80		70-130	0		20
Dichlorodifluoromethane	ND	10	8.3	83		8.0	80		36-147	4		20
Acetone	1.5J	10	12	120		11	110		58-148	9		20
Carbon disulfide	ND	10	7.8	78		8.0	80		51-130	3		20
2-Butanone	ND	10	7.7	77		8.9	89		63-138	14		20
Vinyl acetate J (4J)	ND	10	6.8	(68)	Q	7.5	75		70-130	10		20
4-Methyl-2-pentanone	ND	10	11	110		12	120		59-130	9		20
2-Hexanone	ND	10	7.8	78		8.8	88		57-130	12		20

12/17/18

Matrix Spike Analysis

Batch Quality Control

Project Name: FORMER HYGRADE

Project Number: 3612162331

Lab Number: L1843594

Report Date: 11/11/18

70-130

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,07 QC Batch ID: WG1175499-6 WG1175499-7 QC Sample: L1843594-07 Client ID: MW-6D-102018												
Bromochloromethane	ND	10	8.6	86		9.7	97		70-130	12		20
2,2-Dichloropropane J/UJ	ND	10	6.4	64		7.0	70		63-133	9		20
1,2-Dibromoethane	ND	10	8.4	84		9.1	91		70-130	8		20
1,3-Dichloropropane	ND	10	8.4	84		9.4	94		70-130	11		20
1,1,1,2-Tetrachloroethane	ND	10	8.3	83		8.6	86		64-130	4		20
Bromobenzene	ND	10	8.2	82		8.0	80		70-130	2		20
n-Butylbenzene J/UJ	ND	10	8.2	82		6.9	69		53-136	17		20
sec-Butylbenzene	ND	10	8.8	88		7.3	73		70-130	19		20
tert-Butylbenzene	ND	10	8.6	86		7.4	74		70-130	15		20
o-Chlorotoluene	ND	10	8.4	84		7.7	77		70-130	9		20
p-Chlorotoluene	ND	10	8.4	84		7.5	75		70-130	11		20
1,2-Dibromo-3-chloropropane J/UJ	ND	10	6.5	65		7.5	75		41-144	14		20
Hexachlorobutadiene J/UJ	ND	10	7.0	70		5.8	58	Q	63-130	19		20
Isopropylbenzene	ND	10	8.7	87		7.6	76		70-130	13		20
p-Isopropyltoluene	ND	10	8.6	86		7.3	73		70-130	16		20
Naphthalene J/UJ	ND	10	6.3	63	Q	6.2	62	Q	70-130	2		20
n-Propylbenzene	ND	10	8.5	85		7.3	73		69-130	15		20
1,2,3-Trichlorobenzene J/UJ	ND	10	5.8	58	Q	5.3	53	Q	70-130	9		20
1,2,4-Trichlorobenzene J/UJ	ND	10	6.9	69	Q	6.1	61	Q	70-130	12		20
1,3,5-Trimethylbenzene	ND	10	8.7	87		7.6	76		64-130	13		20
1,2,4-Trimethylbenzene	ND	10	8.7	87		7.9	79		70-130	10		20
1,4-Dioxane	ND	500	480	96		650	130		56-162	30	Q	20
p-Diethylbenzene	ND	10	8.7	87		7.3	73		70-130	18		20

11/12/18

lab_sample	analysis_m	param_name	final_result	final_qualif	RPD	FD QUAL	result_uon	detection_	SQL_text
L1843594-(	8260C	1,2-Dichloroethene (total)	6.8		11.1	OK; NONE	UG/L	0.70	2.5
L1843594-(	8260C	Benzene	2.4		4.3	OK; NONE	UG/L	0.16	0.50
L1843594-(	8260C	Cis-1,2-Dichloroethene	4.2		9.1	OK; NONE	UG/L	0.70	2.5
L1843594-(	8260C	Methyl Tertbutyl Ether	2.4	J	11.8	OK; NONE	UG/L	0.70	2.5
L1843594-(	8260C	Tetrachloroethene	1.8		15.4	OK; NONE	UG/L	0.18	0.50
L1843594-(	8260C	trans-1,2-Dichloroethene	2.6		14.3	OK; NONE	UG/L	0.70	2.5
L1843594-(	8260C	Trichloroethene	1.1		24.0	OK; NONE	UG/L	0.18	0.50
L1843594-(	8260C	Vinyl chloride	4.7		44.2	OK; NONE	UG/L	0.07	1.0
L1843594-(	8260C	1,2-Dichloroethene (total)	7.6				UG/L	0.70	2.5
L1843594-(	8260C	Benzene	2.3				UG/L	0.16	0.50
L1843594-(	8260C	Cis-1,2-Dichloroethene	4.6				UG/L	0.70	2.5
L1843594-(	8260C	Methyl Tertbutyl Ether	2.7				UG/L	0.70	2.5
L1843594-(	8260C	Tetrachloroethene	2.1				UG/L	0.18	0.50
L1843594-(	8260C	trans-1,2-Dichloroethene	3.0				UG/L	0.70	2.5
L1843594-(	8260C	Trichloroethene	1.4				UG/L	0.18	0.50
L1843594-(	8260C	Vinyl chloride	3.0				UG/L	0.07	1.0

Sample Calc

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA101\2018\181102A\
Data File : V01181102A21.D
Acq On : 2 Nov 2018 5:51 pm
Operator : VOA101:MKS
Sample : 11843594-04,31,10,10,,a VC

Conc = $\frac{33620}{284438} \times \frac{10}{.252} = 4.69$ ug/L

Misc : WG1175499,ICAL14863
ALS Vial : 21 Sample Multiplier: 1

OK
JR 1/2/19

Quant Time: Nov 02 20:18:18 2018
Quant Method : I:\VOLATILES\VOA101\2018\181102A\V101_180706N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jul 09 15:30:38 2018
Response via : Initial Calibration

CCAL FILE(s) : 1 - I:\VOLATILES\VOA101\2018\181102A\V01181102A02.D
Sub List : 8260-NYTCL - Megamix plus Diox

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorobenzene	5.795	96	284438	10.000 ug/L	0.00
Standard Area 1 = 300118			Recovery =	94.78%	
59) Chlorobenzene-d5	9.588	117	214413	10.000 ug/L	0.00
Standard Area 1 = 222597			Recovery =	96.32%	
79) 1,4-Dichlorobenzene-d4	12.523	152	107252	10.000 ug/L	0.00
Standard Area 1 = 111439			Recovery =	96.24%	
System Monitoring Compounds					
36) Dibromofluoromethane	4.955	113	67097	9.076 ug/L	0.00
Spiked Amount 10.000	Range 70 - 130		Recovery =	90.76%	
43) 1,2-Dichloroethane-d4	5.501	65	75156	9.691 ug/L	0.00
Spiked Amount 10.000	Range 70 - 130		Recovery =	96.91%	
60) Toluene-d8	7.596	98	280756	10.158 ug/L	0.00
Spiked Amount 10.000	Range 70 - 130		Recovery =	101.58%	
83) 4-Bromofluorobenzene	11.197	95	99933	9.471 ug/L	0.00
Spiked Amount 10.000	Range 70 - 130		Recovery =	94.71%	
Target Compounds					Qvalue
2) Dichlorodifluoromethane	0.000		0	N.D.	
3) Chloromethane	1.665	50	332	N.D.	
4) Vinyl chloride	1.714	62	33620	✓ 4.696 ug/L	95
5) Bromomethane	0.000		0	N.D.	
6) Chloroethane	2.107	64	59	N.D.	
7) Trichlorofluoromethane	0.000		0	N.D.	
8) Ethyl ether	0.000		0	N.D.	
10) 1,1-Dichloroethene	2.696	96	105	N.D.	
11) Carbon disulfide	2.724	76	994	N.D.	
15) Methylene chloride	0.000		0	N.D.	
17) Acetone	3.302	43	1615	0.766 ug/L #	67
18) trans-1,2-Dichloroethene	3.389	96	18958	2.622 ug/L	89
20) Methyl tert-butyl ether	3.477	73	35089	2.428 ug/L	92
23) 1,1-Dichloroethane	0.000		0	N.D.	
25) Acrylonitrile	0.000		0	N.D.	
27) Vinyl acetate	0.000		0	N.D.	
28) cis-1,2-Dichloroethene	4.502	96	32741	4.173 ug/L	89
29) 2,2-Dichloropropane	0.000		0	N.D.	
30) Bromochloromethane	0.000		0	N.D.	

Response Factor Report VOA 101

Method Path : I:\VOLATILES\VOA101\2018\180707\
Method File : V101_180706N_8260.m
Title : VOLATILES BY GC/MS
Last Update : Mon Jul 09 15:30:38 2018
Response Via : Initial Calibration

Calibration Files
L11 =V01180706N03.D L1 =V01180706N05.D L2 =V01180706N07.D L3 =V01180706N08.D L4 =V01180706N09.D
L6 =V01180706N10.D L8 =V01180706N11.D L10 =V01180706N12.D

		Compound	L11	L1	L2	L3	L4	L6	L8	L10	Avg	%RSD
1)	I	Fluorobenzene	----------ISTD----------									
2)	TP	Dichlorodifluo...		0.210	0.171	0.228	0.204	0.210	0.212	0.213	0.207	8.35
3)	TP	Chloromethane		0.379	0.303	0.292	0.263	0.267	0.261	0.258	0.289	15.00
4)	TC	Vinyl chloride	0.262	0.276	0.234	0.271	0.240	0.246	0.243	0.242	0.252	6.22
5)	TP	Bromomethane		0.155	0.124	0.118	0.117	0.132	0.141	0.148	0.134	11.23
6)	TP	Chloroethane		0.188	0.157	0.158	0.142	0.148	0.149	0.122	0.152	13.10
7)	TP	Trichlorofluor...		0.390	0.313	0.417	0.371	0.382	0.381	0.375	0.375	8.37
8)	TP	Ethyl ether		0.126	0.107	0.111	0.103	0.106	0.100	0.100	0.108	8.35
10)	TC	1,1-Dichloroet...		0.271	0.212	0.236	0.213	0.218	0.216	0.210	0.225	9.81
11)	TP	Carbon disulfide		0.714	0.575	0.626	0.569	0.579	0.574	0.546	0.598	9.49
12)	TP	Freon-113		0.232	0.184	0.257	0.229	0.237	0.236	0.226	0.229	9.72
13)	TP	Iodomethane		0.263	0.266	0.304	0.305	0.317	0.306	0.295	0.294	7.14
14)	TP	Acrolein		0.030	0.020	0.025	0.024	0.025	0.023	0.024	0.024#	11.69
15)	TP	Methylene chlo...		0.311	0.256	0.238	0.220	0.227	0.219	0.219	0.241	13.82
16)	TP	Isopropyl alcohol		0.010	0.008	0.005	0.005	0.005	0.005	0.005	*L	0.9975
17)	TP	Acetone		0.093	0.054	0.031	0.031	0.032	0.030	0.031	*L	0.9986
18)	TP	trans-1,2-Dich...		0.326	0.257	0.253	0.232	0.240	0.237	0.233	0.254	13.09
19)	TP	Methyl acetate		0.092	0.074	0.089	0.085	0.091	0.084	0.082	0.085#	7.06
20)	TP	Methyl tert-bu...		0.612	0.494	0.514	0.485	0.502	0.473	0.477	0.508	9.41
21)	TP	tert-Butyl alc...			0.010	0.010	0.009	0.009	0.009	0.009	0.009#	6.67
22)	TP	Diisopropyl ether		0.935	0.771	0.763	0.714	0.737	0.706	0.691	0.760	10.87
23)	TP	1,1-Dichloroet...		0.553	0.470	0.473	0.439	0.454	0.444	0.438	0.467	8.69
24)	TP	Halothane		0.203	0.170	0.198	0.179	0.188	0.187	0.185	0.187	5.82
25)	TP	Acrylonitrile			0.034	0.044	0.042	0.045	0.042	0.043	0.041#	9.22
26)	TP	Ethyl tert-but...		0.792	0.676	0.684	0.639	0.670	0.634	0.627	0.674	8.35
27)	TP	Vinyl acetate			0.403	0.476	0.459	0.484	0.450	0.443	0.453	6.35
28)	TP	cis-1,2-Dichlo...		0.370	0.283	0.266	0.249	0.259	0.253	0.251	0.276	15.69
29)	TP	2,2-Dichloropr...		0.435	0.359	0.399	0.363	0.377	0.371	0.369	0.382	7.00
30)	TP	Bromochloromet...		0.130	0.111	0.113	0.106	0.106	0.098	0.091	0.108	11.33
31)	TP	Cyclohexane		0.436	0.350	0.479	0.421	0.442	0.437	0.418	0.426	9.16
32)	TC	Chloroform		0.523	0.447	0.434	0.406	0.425	0.412	0.407	0.436	9.43

1/2/19

TAL C&L

Calc Check

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA101\2018\180707\
Data File : V01180706N08.D
Acq On : 7 Jul 2018 4:26 am
Operator : VOA101:KD
Sample : I8260STDL3
Misc : WG1133823
ALS Vial : 8 Sample Multiplier: 1

$RRF_{Vc} = \frac{106095}{391728} \times \frac{10}{10} = 0.2708$

OK

Quant Time: Jul 09 15:14:58 2018
Quant Method : I:\VOLATILES\VOA101\2018\180707\V101_180706N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Sun Jul 08 13:32:59 2018
Response via : Initial Calibration

JR 11/2/18

CCAL FILE(s) : 1 - I:\VOLATILES\VOA101\2018\180707\V01180706N08.D
Sub List : 8260-CurveAlc - All compounds listed

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Fluorobenzene	5.801	96	391728	10.000 ug/L	0.00
Standard Area 1 = 391728			Recovery = 100.00%		
59) Chlorobenzene-d5	9.588	117	300027	10.000 ug/L	0.00
Standard Area 1 = 300027			Recovery = 100.00%		
79) 1,4-Dichlorobenzene-d4	12.523	152	155918	10.000 ug/L	0.00
Standard Area 1 = 155918			Recovery = 100.00%		
System Monitoring Compounds					
36) Dibromofluoromethane	4.955	113	102222	10.000 ug/L	0.00
Spiked Amount 10.000	Range 70 - 130		Recovery = 100.00%		
43) 1,2-Dichloroethane-d4	5.501	65	105198	10.000 ug/L	0.00
Spiked Amount 10.000	Range 70 - 130		Recovery = 100.00%		
60) Toluene-d8	7.596	98	384751	10.000 ug/L	0.00
Spiked Amount 10.000	Range 70 - 130		Recovery = 100.00%		
83) 4-Bromofluorobenzene	11.197	95	150317	10.000 ug/L	0.00
Spiked Amount 10.000	Range 70 - 130		Recovery = 100.00%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.474	85	89305	10.000 ug/L	100
3) Chloromethane	1.643	50	114375	10.000 ug/L	100
4) Vinyl chloride	1.709	62	106095	10.000 ug/L	100
5) Bromomethane	1.992	94	46233	10.000 ug/L	100
6) Chloroethane	2.101	64	61908	10.000 ug/L	100
7) Trichlorofluoromethane	2.232	101	163183	10.000 ug/L	100
8) Ethyl ether	2.511	74	43340	10.000 ug/L	100
10) 1,1-Dichloroethene	2.696	96	92292	10.000 ug/L	100
11) Carbon disulfide	2.724	76	245126	10.000 ug/L	100
12) Freon-113	2.729	101	100803	10.000 ug/L	100
13) Iodomethane	2.827	142	118902	10.000 ug/L	100
14) Acrolein	3.007	56	9860	10.000 ug/L	100
15) Methylene chloride	3.231	84	93336	10.000 ug/L	100
16) Isopropyl alcohol	3.160	45	9707	50.000 ug/L	100
17) Acetone	3.275	43	12196	10.000 ug/L	100
18) trans-1,2-Dichloroethene	3.384	96	99278	10.000 ug/L	100
19) Methyl acetate	3.389	43	35050	10.000 ug/L	100
20) Methyl tert-butyl ether	3.476	73	201332	10.000 ug/L	100
21) tert-Butyl alcohol	3.564	59	19335	50.000 ug/L	100
22) Diisopropyl ether	3.831	45	299084	10.000 ug/L	100
23) 1,1-Dichloroethane	3.968	63	185169	10.000 ug/L	100

Calc Check

Evaluate Continuing Calibration Report

Data Path : I:\VOLATILES\VOA101\2018\181102A\
Data File : V01181102A02.D
Acq On : 2 Nov 2018 8:21 am
Operator : VOA101:PD
Sample : WG1175499-2
Misc : WG1175499,ICAL14863
ALS Vial : 2 Sample Multiplier: 1

JR 1/2/19

Quant Time: Nov 02 08:42:20 2018
Quant Method : I:\VOLATILES\VOA101\2018\181102A\V101_180706N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jul 09 15:30:38 2018
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	1.000	1.000	0.0	77	0.00
2	TP	Dichlorodifluoromethane	0.207	0.194	6.3	65	0.00
3	TP	Chloromethane	0.289	0.323	-11.8	85	0.01
4	TC	Vinyl chloride	0.252 ✓	0.291	-15.5 ✓	82	0.00
5	TP	Bromomethane	0.134	0.070#	47.8#	46#	0.00
6	TP	Chloroethane	0.152	0.145	4.6	70	0.00
7	TP	Trichlorofluoromethane	0.375	0.307	18.1	56	0.00
8	TP	Ethyl ether	0.108	0.091	15.7	63	0.00
10	TC	1,1-Dichloroethene	0.225	0.189	16.0	62	0.00
11	TP	Carbon disulfide	0.598	0.501	16.2	61	0.00
12	TP	Freon-113	0.229	0.202	11.8	60	0.00
14	TP	Acrolein	0.024	0.018#	25.0#	55	0.01
15	TP	Methylene chloride	0.241	0.201	16.6	65	0.00
17	TP	Acetone	* 10.000	10.746	-7.5	89	0.01
18	TP	trans-1,2-Dichloroethene	0.254	0.212	16.5	64	0.00
19	TP	Methyl acetate	0.085	0.100#	-17.6	86	0.00
20	TP	Methyl tert-butyl ether	0.508	0.423	16.7	63	0.00
21	TP	tert-Butyl alcohol	0.00945	0.01263#	-33.7#	98	0.01
22	TP	Diisopropyl ether	0.760	0.868	-14.2	87	0.00
23	TP	1,1-Dichloroethane	0.467	0.457	2.1	74	0.00
24	TP	Halothane	0.187	0.165	11.8	64	0.00
25	TP	Acrylonitrile	0.041	0.048#	-17.1	84	0.00
26	TP	Ethyl tert-butyl ether	0.674	0.712	-5.6	80	0.00
27	TP	Vinyl acetate	0.453	0.359	20.8#	58	0.00
28	TP	cis-1,2-Dichloroethene	0.276	0.229	17.0	66	0.00
29	TP	2,2-Dichloropropane	0.382	0.304	20.4#	58	0.00
30	TP	Bromochloromethane	0.108	0.097	10.2	66	0.00
31	TP	Cyclohexane	0.426	0.530	-24.4#	85	0.00
32	TC	Chloroform	0.436	0.357	18.1	63	0.00
33	TP	Ethyl acetate	0.138	0.139	-0.7	77	0.00
34	TP	Carbon tetrachloride	0.354	0.295	16.7	61	0.00
35	TP	Tetrahydrofuran	0.047	0.051	-8.5	80	0.00
36	S	Dibromofluoromethane	0.260	0.241	7.3	71	0.00
37	TP	1,1,1-Trichloroethane	0.399	0.338	15.3	62	0.00
39	TP	2-Butanone	* 10.000	9.483	5.2	75	0.00
40	TP	1,1-Dichloropropene	0.354	0.307	13.3	62	0.00
41	TP	Benzene	1.003	0.895	10.8	68	0.00
42	TP	tert-Amyl methyl ether	0.578	0.493	14.7	65	0.00
43	S	1,2-Dichloroethane-d4	0.273	0.263	3.7	75	0.00

PFAS

NYSDEC DUSR PROJECT CHEMIST REVIEW RECORD
Project: Hygrade Oct. 2018 GW
Method: 537 Modified
Laboratory: Alpha Analytical (Mansfield) **SDG(s):** L1843594
Date: 12/17/18
Reviewer: Julia Ricardi

Review Level [X] NYSDEC DUSR USEPA Region II Guideline

1. ☑ **Case Narrative Review and Data Package Completeness** COMMENTS
   Were problems noted? No impact; see attached
   Were all the samples on the COC analyzed for the requested analyses? (YES) NO (circle one)
   Are Field Sample IDs and Locations assigned correctly? (YES) NO (circle one)

2. ☑ **Holding time and Sample Collection**
   Water: 14 days from collection to extraction; 28 days from extraction to analysis
   Hold time met for all samples? (YES) NO (circle one)

3. ☑ **QC Blanks**
   Are method blanks free of contamination? YES (NO) (circle one) See attached for (quals) 6:2FTS
   Are rinse blanks free of contamination? YES (NO) NA (circle one) EB-102018: See attached for (quals) 6:2FTS
   Are field reagent blanks free of contamination? YES NO (NA) (circle one)

4. ☑ **Instrument Tuning – Data Package Narrative Review**
   Did the laboratory narrative identify any results that were not within method criteria? YES (NO) (circle one)
   If yes, use professional judgment to evaluate data and qualify results if needed

5. ☑ **Internal Standards – Data Package Narrative Review**
   (Area Limits = -50% to +100%, RTs within 30 seconds of daily CCAL standard (or ICAL mid-point if samples follow ICAL))
   Did the laboratory narrative identify any sample internal standards that were not within criteria? YES (NO) (circle one) See surrogates below

   Did the laboratory qualify results based on internal standard exceedances? YES (NO)
   If yes to above, use professional judgment to evaluate data and qualify results if needed

6. ☑ **Instrument Calibration – Data Package Narrative Review**
   Did the laboratory narrative identify compounds that were not within criteria in the initial and/or continuing calibration standards? (YES) NO (circle one) No impact on sample results ∴ no qualifiers needed
   Initial Calibration %RSD = 15%, Continuing Calibration %D = 20%

   Did the laboratory qualify results based on initial or continuing calibration exceedances? YES (NO)
   If yes to above, use professional judgment to evaluate data and qualify results if needed

7. ☑ **Surrogate Recovery** (lab limits)
   Were all results within limits? YES (NO) (circle one)
   Were any recoveries < 10%? (use professional judgment)
   M2-8:2FTS has high recoveries in subset of samples;

8. ☑ **Matrix Spike** (lab limits) M2-6:2 FTS has high recoveries in subset
   Were MS/MSDs submitted/analyzed? (YES) NO of samples; no action for ND
   MW-60
   Were all results within limits? (YES) NO NA (circle one) results; qualify detections for 6:2 estimated (J). [IS-H]
   (all 8:2 results are ND ∴ no qual)
   -3 only; else ND or IS OK

9. ☑ **Duplicates** (RPD limits = water 50)
Were Field Duplicates submitted/analyzed? (YES) NO BMW-4/DUP: All OK

Were RPDs within criteria? (YES) NO NA (circle one)

10. ☑ **Laboratory Control Sample Results** (lab limits)
Were all results within limits? (YES) NO (circle one)

11. ☑ **Raw Data Review and Calculation Checks**

See attached

12. ☑ **Electronic Data Review and Edits**
Does the EDD match the Form Is? (YES) NO (circle one)

13. ☑ **Tables**

Table 1 (Samples and Analytical Methods)
Table 2 (Analytical Results)
Table 3 (Qualification Actions)
Were all tables produced and reviewed? (YES) NO (circle one)

Project Name:	FORMER HYGRADE	**Lab Number:**	L1843594
Project Number:	3612162331	**Report Date:**	11/11/18

Case Narrative (continued)

Report Submission

November 11, 2018: This final report includes the results of all requested analyses.

November 05, 2018: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Perfluorinated Alkyl Acids by Isotope Dilution

The WG1174239-4 continuing calibration standard, associated with L1843594-01 through -06 and -09, as well as the associated QC, had the response for 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) (140.6%) above the acceptance criteria for the method. The associated samples were non-detect for this target compound; therefore, no further action was taken. OK; no impact

JM 12/17/18

Dissolved Metals

The WG1174403-3/-4 MS/MSD recoveries for calcium (140%/270%) and sodium (0%/0%), performed on L1843594-07, do not apply because the sample concentrations are greater than four times the spike amounts added.

Total Metals

The WG1174499-3/-4 MS/MSD recoveries for calcium (0%/30%) and sodium (0%/20%), performed on L1843594-07, do not apply because the sample concentrations are greater than four times the spike amounts added.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 11/11/18

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 122,537(M)
Analytical Date: 10/31/18 15:49
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/26/18 14:20

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-10 Batch: WG1172794-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.373
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.464
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.380
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.492
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.372
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.436
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.460
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.668	J	ng/l	2.00	0.194
Perfluoroheptanesulfonic Acid (PFHpS)	ND (U)		ng/l	2.00	0.520
Perfluorononanoic Acid (PFNA)	ND Subset		ng/l	2.00	0.436
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.560
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.620
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	0.291
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.250
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.424
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.386
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.556
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.373
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.592
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.314
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.988

J 12/17/18

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 122,537(M)
Analytical Date: 11/08/18 13:28
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 11/02/18 09:16

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-04,06,09 Batch: WG1175174-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.373
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.464
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.380
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.492
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.372
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.436
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.460
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	0.194
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.520
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.436
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.560
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.620
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	0.291
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.250
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.424
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.386
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.556
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.373
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.592
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.314
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.988

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-10
Client ID: EB-102018
Sample Location: LONG ISLAND CITY, NY

Date Collected: 10/24/18 13:30
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 10/31/18 16:55
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 10/26/18 14:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.80	0.336	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.80	0.417	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.80	0.342	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.80	0.442	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.80	0.334	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.80	0.392	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.80	0.414	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.428	J	ng/l	1.80	0.174	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.80	0.468	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.80	0.392	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.80	0.504	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.80	0.558	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.80	0.262	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.80	0.225	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.80	0.381	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.80	0.347	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.80	0.500	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.80	0.335	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.80	0.532	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.80	0.282	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.80	0.888	1

Matrix Spike Analysis

Batch Quality Control

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-10 QC Batch ID: WG1172794-6 WG1172794-7 QC Sample: L1843594-07 Client ID: MW-6D-102018												
Perfluorobutanoic Acid (PFBA)	9.92	35.3	47.1	105		48.2	104		67-148	2		30
Perfluoropentanoic Acid (PFPeA)	11.5	35.3	48.0	103		50.5	106		63-161	5		30
Perfluorobutanesulfonic Acid (PFBS)	20.6	35.3	58.7	108		60.2	107		65-157	3		30
Perfluorohexanoic Acid (PFHxA)	11.4	35.3	49.3	107		51.6	109		69-168	5		30
Perfluoroheptanoic Acid (PFHpA)	7.39	35.3	42.5	99		44.5	101		58-159	5		30
Perfluorohexanesulfonic Acid (PFHxS)	3.07	35.3	39.6	103		40.6	102		69-177	2		30
Perfluorooctanoic Acid (PFOA)	27.6	35.3	62.7	99		66.5	105		63-159	6		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.729J	35.3	37.6	106		43.4	118		49-187	14		30
Perfluoroheptanesulfonic Acid (PFHpS)	1.02J	35.3	37.9	107		37.1	101		61-179	2		30
Perfluorononanoic Acid (PFNA)	2.12	35.3	39.8	107		41.4	106		68-171	4		30
Perfluorooctanesulfonic Acid (PFOS)	74.4	35.3	105	87		100	69		52-151	5		30
Perfluorodecanoic Acid (PFDA)	0.856J	35.3	41.0	116		41.7	113		63-171	2		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	35.3	42.6	121		49.8	135		56-173	16		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	35.3	35.4	100		35.6	96		60-166	1		30
Perfluoroundecanoic Acid (PFUnA)	ND	35.3	34.6	98		35.7	97		60-153	3		30
Perfluorodecanesulfonic Acid (PFDS)	ND	35.3	24.4	69		27.4	74		38-156	12		30
Perfluorooctanesulfonamide (FOSA)	ND	35.3	33.6	95		34.6	94		46-170	3		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	35.3	33.9	96		37.5	102		45-170	10		30
Perfluorododecanoic Acid (PFDoA)	ND	35.3	34.8	98		37.0	100		67-153	6		30
Perfluorotridecanoic Acid (PFTrDA)	ND	35.3	34.0	96		35.8	97		48-158	5		30
Perfluorotetradecanoic Acid (PFTA)	ND	35.3	38.8	110		41.6	113		59-182	7		30

All OK
12/12/18

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-10 QC Batch ID: WG1172794-6 WG1172794-7 QC Sample: L1843594-07
Client ID: MW-6D-102018

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	144		136		7-170
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	264	Q	237 ✓		1-244
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	74	assoc target cmpd forces OVC in MS/MSD	76		23-146
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	70		79		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	97		101		40-144
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	100		101		38-144
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	90		93		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	101		103		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	123		124		47-153
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	78		84		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	73		77		33-143
Perfluoro[13C4]Butanoic Acid (MPFBA)	107		107		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	118		118		16-173
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	36		36		1-87
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	110		119		42-146
Perfluoro[13C8]Octanoic Acid (M8PFOA)	109		108		36-149
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	109		108		34-146
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	104		110		31-159

jr 12/17/18

pha Analytical Inc.
ataset: C:\MassLynx\Data\2018\181031_537ISO.PRO\Data\wg1174239C.qld
ast Altered: Thursday, November 01, 2018 09:57:52 Eastern Daylight Time
rinted: Thursday, November 01, 2018 09:58:45 Eastern Daylight Time

Sample Calc

ethod: C:\MassLynx\Data\2018\181031_537ISO.PRO\MethDB\537ISO_181026_Q.mdb 26 Oct 2018 16:36:50
alibration: C:\MassLynx\Data\2018\181031_537ISO.PRO\CurveDB\102618_ICAL.cdb 26 Oct 2018 16:51:30

Conc PFOA = 137104 / 117341 × 10 / .984066 = 11.873 ng/mL × 1.0mL / .222L = 53.5 ng/L OK

): L1843594-04
ame: I0161
ate: 31-Oct-2018
me: 20:14:24
escription: WG1174239,WG1172794,ICAL15173
strument: XEVO-TQSmicro#QEB0050
ser: LCMS02:AJ
let Method Name: C:\MassLynx\Data\2018\181031_537ISO.PRO\ACQUDB\LCMS_537_ISO_B
une Method Name: C:\MassLynx\Data\2018\181031_537ISO.PRO\ACQUDB\181009_TUNE.IPR
S Method Name: C:\MassLynx\Data\2018\181031_537ISO.PRO\ACQUDB\537ISO28_M.EXP

gn 1/2/19

Name	CAS	RT	Trace	Area	M Flag	Conc (ng/mL)	Ion Ratio	Ratio Flag	%Rec
PFBA	375-22-4	2.13	212.926 > 169.111	15548		3.426		na	
M3PFBA	INT STD	2.13	215.926 > 172.122	67914		9.458		na	94.6
MPFBA	INT STD	2.13	216.926 > 172.137	53776		8.536		na	85.4
PFPeA	2706-90-3	5.00	262.926 > 219.002	49617		8.990		na	
M5PFPEA	INT STD	5.00	267.989 > 223.081	54838		9.114		na	91.1
PFBS	375-73-5	5.65	298.989 > 80.295	30822		24.656		na	
M3PFBS	INT STD	5.65	301.989 > 80.254	13743		9.170		na	91.7
4:2FTS	757124-72-4		326.926 > 306.957			ND		YES	
M2-4:2FTS	INT STD	6.82	329.117 > 309.079	17147		29.838		na	298.4
PFHxA	307-24-4	6.91	312.989 > 269.028	147326		18.538	16.91	NO	
M5PFHxA	INT STD	6.90	317.989 > 273.045	83665		6.384		na	63.8
PFPeS	2706-91-4	7.22	348.926 > 80.251	2728		1.711	1.90	NO	
PFHpA	375-85-9	8.19	362.926 > 319.014	55213		4.503	5.10	NO	
M4PFHpA	INT STD	8.20	366.926 > 321.979	131189		7.458		na	74.6
br-PFHxS	355-46-4	8.12	398.926 > 80.295	2273		1.502	0.14	YES	
L-PFHxS	355-46-4	8.35	398.926 > 80.295	16492		11.975		YES	
PFHxS	355-46-4		398.926 > 80.295	18765		13.477		na	
M3PFHxS	INT STD	8.35	401.926 > 80.317	10429		10.800		na	108.0
br-PFOA	335-67-1	8.93	412.989 > 368.9	11918		1.032	1.85	NO	
L-PFOA	335-67-1	9.15	412.989 > 368.9	125186		10.841	8.64	YES	
M2PFOA	INT STD	9.15	415.032 > 369.968	172933		16.060		na	160.6
PFOA	335-67-1		412.989 > 368.9	137104		11.873		na	
M8PFOA	INT STD	9.15	420.989 > 375.979	117341		8.328		na	83.3
6:2FTS	27619-97-2	9.10	426.989 > 406.921	420		0.441	1.00	NO	
M2-6:2FTS	INT STD	9.11	428.989 > 408.917	10212		27.752		na	277.5
PFHpS	375-92-8	9.24	448.926 > 80.257	3973		8.212	0.76	NO	
PFNA	375-95-1	9.91	462.989 > 418.931	4960		0.548	4.11	NO	
M9PFNA	INT STD	9.91	472.053 > 426.947	108395		7.892		na	78.9
br-PFOS	1763-23-1	9.70	498.989 > 80.294	249680		192.953	3.84	YES	
L-PFOS	1763-23-1	9.96	498.989 > 80.294	283751		311.330	1.57	YES	
PFOS	1763-23-1		498.989 > 80.294	533431		504.283		na	
M4PFOS	INT STD	9.96	503.032 > 80.306	14432		9.881		na	98.8
M8PFOS	INT STD	9.96	507.053 > 80.294	9393		7.245		na	72.4
PFDA	335-76-2	10.54	513.053 > 468.906	1366		0.164		YES	
M2PFDA	INT STD	10.54	515.053 > 469.934	153893		17.363		na	173.6
M6PFDA	INT STD	10.54	519.053 > 473.931	97484		7.073		na	70.7
8:2FTS	39108-34-4		526.989 > 506.946			ND		na	
M2-8:2FTS	INT STD	10.53	529.053 > 508.945	3905		14.359		na	143.6
PFNS	68259-12-1	10.58	548.989 > 80.249	13		0.010	0.18	YES	

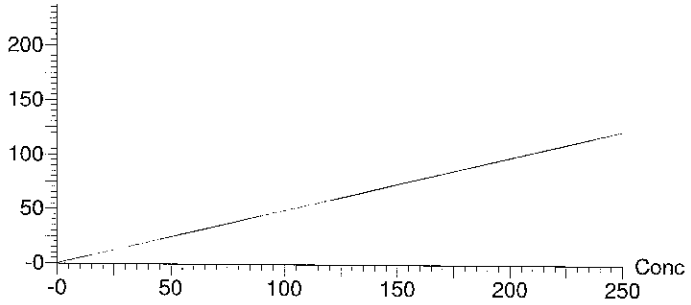
ha Analytical Inc.
taset: C:\MassLynx\Data\2018\181026_537ISO.PRO\Data\WG11727690_ICAL.qld
st Altered: Friday, October 26, 2018 17:05:41 Eastern Daylight Time
nted: Friday, October 26, 2018 17:13:34 Eastern Daylight Time

mpound name: PFOA

LCMS 02

Name	ID	Acq.Date	Acq.Time	RT	IS Area	Area	ng/mL	%Rec	RRF	1º S/N	2º S/N	(b/a)
I0005	IA2-537STD0.5	26-Oct-18	13:50:21		88114.195	4157.858	0.480	✓				
I0006	IA2-537STD1.0	26-Oct-18	14:06:54		95699.305	8619.848	0.915					
I0007	IA2-537STD5.0	26-Oct-18	14:23:25		93055.438	45339.066	4.951					
I0008	IA2-537STD010	26-Oct-18	14:39:56		92448.156	95252.805	10.470					
I0009	IA2-537STD050	26-Oct-18	14:56:35		87505.164	434672.844	50.478					
I0010	IA2-537STD125	26-Oct-18	15:13:06		84767.734	1133828.875	135.923					
I0011	IA2-537STD150	26-Oct-18	15:29:40		82487.352	1199257.125	147.741					
I0012	IA2-537STD250	26-Oct-18	15:46:14		77722.156	1839754.500	240.542					

mpound name: PFOA
efficient of Determination: 0.000000
libration curve: 0.492033 * x X 2 per lab (no branched std, only linear std; see email 1/2/19)
sponse type: Internal Std (Ref 23), Area * (IS Conc. / IS Area)
rve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None



ICAL Check
JM
1/2/19

pha Analytical Inc.

Sample calc

ataset: C:\MassLynx\Data\2018\181108_537ISO.PRO\Data\wg1177310B.qld
ast Altered: Friday, November 09, 2018 06:40:27 Eastern Standard Time
inted: Friday, November 09, 2018 06:41:15 Eastern Standard Time

LCMS 01

ethod: C:\MassLynx\Data\2018\181108_537ISO.PRO\MethDB\537ISO_Q_181101.mdb 08 Nov 2018 14:21:22
alibration: C:\MassLynx\Data\2018\181108_537ISO.PRO\CurveDB\181101_537ISO_ICAL.cdb 01 Nov 2018 19:29:35

: I1843594-04RE
ame: I12067
ate: 08-Nov-2018
me: 15:08:05
escription: WG1177310,WG1175174,ICAL15200
strument: XEVO-TQSmicro#QEA0276
ser: LCMS01:AJ
let Method Name: C:\MassLynx\Data\2018\181108_537ISO.PRO\ACQUDB\LCMS_537_ISO_MeOH
ne Method Name: C:\MassLynx\Data\2018\181108_537ISO.PRO\ACQUDB\181101_TUNE.IPR
S Method Name: C:\MassLynx\Data\2018\181108_537ISO.PRO\ACQUDB\537ISO28_M_SPAN.EXP

Conc PFOS = $\frac{130733}{9658} \times \frac{10}{1.25506} = 107.85 \frac{ng}{mL} \times \frac{1.0\ mL}{1.05\ L} = 2157 \frac{ng}{L}$

$\Delta = 4.8\%$

OK

9/14/18

Name	CAS	RT	Trace	Area	M Flag	Conc (ng/mL)	Ion Ratio	Ratio Flag	%Rec
PFBA	375-22-4	2.15	212.926 > 169.111	3422		0.731		na	
M3PFBA	INT STD	2.15	215.926 > 172.122	48150		5.202		na	52.0
MPFBA	INT STD	2.15	216.926 > 172.137	53535		11.705		na	117.1
PFPeA	2706-90-3	5.13	262.926 > 219.002	13241		1.917		na	
M5PFPEA	INT STD	5.13	267.989 > 223.081	73304		12.420		na	124.2
PFBS	375-73-5	5.81	298.989 > 80.295	6814		5.650		na	
M3PFBS	INT STD	5.81	301.989 > 80.254	13605		11.176		na	111.8
4:2FTS	757124-72-4		326.926 > 306.957			ND		na	
M2-4:2FTS	INT STD	6.99	329.117 > 309.079	11159		14.777		na	147.8
PFHxA	307-24-4	7.07	312.989 > 269.028	34138		3.854	20.13	NO	
M5PFHxA	INT STD	7.07	317.989 > 273.045	91269		10.182		na	101.8
PFPeS	2706-91-4	7.39	348.926 > 80.251	554		0.322	1.76	NO	
PFHpA	375-85-9	8.34	362.926 > 319.014	11840		0.977	5.39	NO	
M4PFHpA	INT STD	8.35	366.926 > 321.979	123105		11.679		na	116.8
br-PFHxS	355-46-4	8.27	398.926 > 80.295	519		0.321	1.87	NO	
L-PFHxS	355-46-4	8.51	398.926 > 80.295	4016		2.868	1.27	NO	
PFHxS	355-46-4		398.926 > 80.295	4535		3.189		na	
M3PFHxS	INT STD	8.51	401.926 > 80.317	9930		14.685		na	146.8
br-PFOA	335-67-1	9.07	412.989 > 368.9	2970		0.265	2.07	YES	
L-PFOA	335-67-1	9.29	412.989 > 368.9	28418		2.538	9.31	NO	
M2PFOA	INT STD	9.29	415.032 > 369.968	124430		6.590		na	65.9
PFOA	335-67-1		412.989 > 368.9	31388		2.803		na	
M8PFOA	INT STD	9.29	420.989 > 375.979	114769		11.437		na	114.4
6:2FTS	27619-97-2	9.25	426.989 > 406.921	100		0.137		na	
M2-6:2FTS	INT STD	9.25	428.989 > 408.917	7235		11.541		na	115.4
PFHpS	375-92-8	9.38	448.926 > 80.257	947		1.584	0.81	NO	
PFNA	375-95-1	10.04	462.989 > 418.931	1243		0.146		na	
M9PFNA	INT STD	10.04	472.053 > 426.947	102100		10.201		na	102.0
br-PFOS	1763-23-1	9.84	498.989 > 80.294	57458		40.592	3.88	YES	
L-PFOS	1763-23-1	10.09	498.989 > 80.294	73275		72.641	1.67	YES	
PFOS	1763-23-1		498.989 > 80.294	130733		113.233		na	
M4PFOS	INT STD	10.09	503.032 > 80.306	9766		6.029		na	60.3
M8PFOS	INT STD	10.09	507.053 > 80.294	9658		10.605		na	106.0
PFDA	335-76-2		513.053 > 468.906			ND		na	
M2PFDA	INT STD	10.67	515.053 > 469.934	98219		6.607		na	66.1
M6PFDA	INT STD	10.67	519.053 > 473.931	80151		9.038		na	90.4
8:2FTS	39108-34-4		526.989 > 506.946			ND		na	
M2-8:2FTS	INT STD	10.65	529.053 > 508.945	4056		11.018		na	110.2
PFNS	68259-12-1		548.989 > 80.249			ND		na	

Initial Calibration Summary
Form 6

Client	: Wood Env & Infrastructure Solutions	**Lab Number**	: L1843594
Project Name	: FORMER HYGRADE	**Project Number**	: 3612162331
Instrument ID	: LCMS01	**Ical Ref**	: ICAL15200
Calibration dates	: 11/01/18 16:45 11/01/18 18:58		

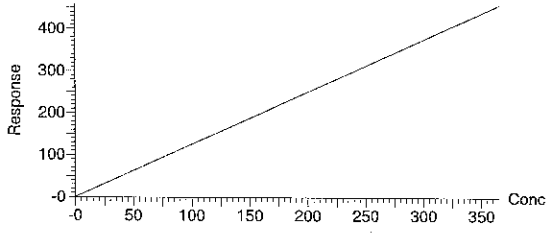
Quantify Compound Summary Report **MassLynx MassLynx V4.1 SCN 945**

Alpha Analytical Inc.
Dataset: C:\MassLynx\Data\2018\181101_537ISO.PRO\Data\wg1174914_ICAL.qld
Last Altered: Thursday, November 01, 2018 20:29:35 Eastern Daylight Time
Printed: Thursday, November 01, 2018 20:31:39 Eastern Daylight Time

Compound name: PFOS

	Name	ID	Acq.Date	Acq.Time	RT	IS Area	Area	ng/mL	%Rec	RRF	1° S/N	2° S/N	(b/a)
1	I11877	IA2-537STD0.5	01-Nov-18	16:45:35		16856.475	884.567	0.461					
2	I11878	IA2-537STD5.0	01-Nov-18	17:02:14		16622.402	8038.071	4.309					
3	I11879	IA2-537STD1.0	01-Nov-18	17:18:53		16554.051	1476.970	0.788					
4	I11880	IA2-537STD10.0	01-Nov-18	17:35:32		18682.965	19489.020	9.295					
5	I11881	IA2-537STD50.0	01-Nov-18	17:52:03		15504.794	79908.513	45.897					
6	I11882	IA2-537STD125	01-Nov-18	18:08:34		14243.069	193603.988	120.115					
7	I11883	IA2-537STD150	01-Nov-18	18:25:12		13637.239	221421.781	142.990					
8	I11884	IA2-537STD250	01-Nov-18	18:41:43		13388.882	344692.906	225.841					
9	I11885	IA2-537STD500	01-Nov-18	18:58:17		10308.399	584891.422	492.133					

Compound name: PFOS
Coefficient of Determination: 0.000000
Calibration curve: 1.25506 * x = RRF for PFOS
Response type: Internal Std (Ref 33), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None



ICAL check

its in (ng/mL)

Initial Calibration Summary
Form 6

Client	: Wood Env & Infrastructure Solutions	**Lab Number**	: L1843594
Project Name	: FORMER HYGRADE	**Project Number**	: 3612162331
Instrument ID	: LCMS01	**Ical Ref**	: ICAL15200
Calibration dates	: 11/01/18 16:45 11/01/18 18:58		

Quantify Compound Summary Report **MassLynx MassLynx V4.1 SCN 945**

Alpha Analytical Inc.
Dataset: C:\MassLynx\Data\2018\181101_537ISO.PRO\Data\wg1174914_ICAL.qld
Last Altered: Thursday, November 01, 2018 20:29:35 Eastern Daylight Time
Printed: Thursday, November 01, 2018 20:31:39 Eastern Daylight Time

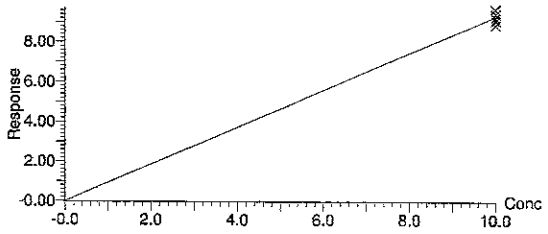
Compound name: M8PFOS

	Name	ID	Acq.Date	Acq.Time	RT	IS Area	Area	Conc (ng...	%Rec	RRF	1° S/N	2° S/N	(b/a)
1	I11877	IA2-537STD0.5	01-Nov-18	16:45:35	10.0...	18917.949	16856.475	9.555	95.5	0.891	2010		1.09
2	I11878	IA2-537STD5.0	01-Nov-18	17:02:14	10.0...	17192.434	16622.402	10.368	103.7	0.967	511		0.98
3	I11879	IA2-537STD1.0	01-Nov-18	17:18:53	10.0...	17070.037	16554.051	10.399	104.0	0.970	599		1.08
4	I11880	IA2-537STD10.0	01-Nov-18	17:35:32	10.0...	20248.705	18682.965	9.894	98.9	0.923	404429		1.06
5	I11881	IA2-537STD60.0	01-Nov-18	17:52:03	10.0...	17033.469	15504.794	9.761	97.6	0.910	639		1.00
6	I11882	IA2-537STD125	01-Nov-18	18:08:34	10.0...	15101.478	14243.069	10.114	101.1	0.943	657		1.11
7	I11883	IA2-537STD150	01-Nov-18	18:25:12	10.0...	14936.428	13637.239	9.791	97.9	0.913	487		1.06
8	I11884	IA2-537STD250	01-Nov-18	18:41:43	10.0...	14405.832	13388.882	9.966	99.7	0.929	322		1.04
9	I11885	IA2-537STD500	01-Nov-18	18:58:17	10.0...	10889.615	10308.399	10.151	101.5	0.947	600		1.18

Compound name: M8PFOS = EIS for PFOS
Response Factor: 0.932532
RRF SD: 0.0264151, % Relative SD: 2.83262
Response type: Internal Std (Ref 32), Area * (IS Conc. / IS Area)
Curve type: RF

Conc = 10.

JL
1/2/19



Final Concentration Units in (ng/mL)

Ricardi, Julie A

From: Nadine Yakes <nyakes@alphalab.com>
Sent: Wednesday, January 02, 2019 5:26 PM
To: Ricardi, Julie A
Cc: Ricardi, Christian S.
Subject: Re: Hygrade Oct 2018 GW -- SDG L1843594 PFAS Calcs

Hi again - please see the lab's response below:

The calibration factor for PFOA is incorrect.

Because there is no branched standard for PFOA, the calibration factor for both is the linear isomer (.975628).
The value in the PFOA (page 2053) is not correct because of the lack of the branched standard. LCMS01 — calc is for LCMS02, p. 2112 (.492033 x 2)
For PFOS, you do not need to correct for the salt. In order to make this work in our LIMS and the raw data, the EIS for analytes like PFOS are not salt corrected. Thus if you look in the calibration table on page 2064, the concentration is defaulted to 10, unlike the native which is adjusted (page 2061). L-PFOS at 10 is really 7.6.

Feel free to let us know if this is not clear or if you need further clarification.

Nadine

On Wed, Jan 2, 2019 at 5:04 PM Ricardi, Julie A <julie.ricardi@woodplc.com> wrote:

Haha! Thanks to notes from last time I asked for guidance (June) most of it is making sense this time!

I'll eagerly await the lab's input ☺ --thanks, Julie

Julie Ricardi

Senior Environmental Scientist

Environment & Infrastructure Solutions

511 Congress Street; Portland, ME 04101
Direct: (207) 828-3608

Mobile: (207) 240-2898
www.woodplc.com

Ricardi, Julie A

From:	Ricardi, Julie A
Sent:	Wednesday, January 02, 2019 4:34 PM
To:	'Nadine Yakes'
Cc:	Ricardi, Christian S.
Subject:	Hygrade Oct 2018 GW -- SDG L1843594 PFAS Calcs

Hi Nadine,

I'm doing manual calculation checks on L1843594-04 for the following target analytes:

PFOA (initial run -4)
PFOS (diluted run -4RE)

I can calculate the final results using the quant report on column concentrations ("Conc (ng/mL)"; however, I am missing something in starting with the raw area counts through the quant report values. Here's an example:

PFOA (from page 1370 of the L1843594_ddp.pdf):

Conc (ng/mL) = Area PFOA/Area M8PFOA * TV M8PFOA/CalCurveRF

=137104/117341 * 10/0.492033 = 23.74686 (exactly twice the quant report value of 11.873 ng/mL)

Likewise for PFOS (from page 1865 of the data package):

Conc (ng/mL) = Area PFOS/Area M8PFOS * Calc'd TV M8PFOS/CalCurveRF

=130733/9658 * 9.55/1.25506 = 103.15 (quant report has 113.233 ng/mL)

Note the TV for M8PFOS was manually calculated as the lab previously described for analytes that don't have a nominal concentration in the standard because they're derived from salts.

Can you ask the lab to check my calculations and logic for both of the compounds above and let me know what is causing my calculations to be off from the quant report values?

Thanks very much,
Julie

Julie Ricardi
Senior Environmental Scientist
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Direct: (207) 828-3608
Mobile: (207) 240-2898
www.woodplc.com

wood.

METALS

NYSDEC DUSR PROJECT CHEMIST REVIEW RECORD
Project: Hygrade Oct. 2018 GW
Method(s): 6020B / 7470A (T, D)
Laboratory: Alpha Analytical (Mansfield) **SDG(s):** L1843594
Date: 12/17/18
Reviewer: Julie Ricardi

Review Level [X] NYSDEC DUSR USEPA Region II Guideline

1. ☑ **Case Narrative Review and Data Package Completeness** COMMENTS
   Were problems noted? No impact; OK
   Were all the samples on the COC analyzed for the requested analyses? (YES) NO (circle one)

   Are Field Sample IDs and Locations assigned correctly? (YES) NO (circle one)
2. ☑ **Holding time and Sample Collection**
   Were all samples were all prepped and analyzed with the holding time (6 month) (YES) NO
3. ☑ **QC Blanks**
   Are method blanks clean? YES (NO) (circle one) See attached for (quals)

   Are Initial and continuing calibration blanks clean? YES NA NO (circle one)
4. ☑ **Instrument Calibration – Data Package Narrative Review** EB-102018: See attached for (quals)
   Did the laboratory narrative identify any results that were not within criteria in the initial and/or continuing calibration standards? YES (NO) (circle one)

   Initial calibration criteria based on method guidance and continuing calibration standards recovery 90-110% (80-120% Hg)

   Did the laboratory qualify results based on initial or continuing calibration exceedances? YES (NO)
   If yes to above, use professional judgment to evaluate data and qualify results if needed
5. ☑ **Laboratory Control Sample Results**
   Were all results were within 80-120% limits? (YES) NO (circle one)
6. ☑ **Matrix Spike**
   Were MS/MSDs submitted/analyzed? (YES) NO MW-6D

   Were all results were within 75-125% limits? (YES) NO NA (circle one) except for nitrate conc > 4x spike; OK
7. ☑ **Duplicates**
   Were Field Duplicates submitted/analyzed? (YES) NO BMW-4 / DUP-102018: See attached for (quals)

   Aqueous RPD within limit? (20%) YES (NO) NA (circle one)
   Soil RPD within limit? (35%) YES NO (NA) (circle one)
   Lab Dup RPD <20% for water, 35% for soil values > 5X the CRQL (or ± CRQL) YES NO (NA)
8. ☑ Were both **Total and Dissolved** metals reported? (YES) NO NA (circle one)
   If the dissolved concentration is > 20% of the total concentration then estimate (J) both results using professional judgment Subset of T & D results qualified (J) due to D > 110% of T result
9. ☑ **Percent solids** < 50% for any soil/sediment sample? YES NO (NA) (circle one)
   If yes, estimate all results using professional judgment

Cr
Mg
Al
Mn
~~Na~~

12/20/18

10. ☑ **Raw Data Review and Calculation Checks**

See attached

11. ☑ **Electronic Data Review and Edits**

Does the EDD match the Form Is? (YES) NO (circle one)

12. ☑ **DUSR Tables Review**

Table 1 (Samples and Analytical Methods)
Table 2 (Analytical Results)
Table 3 (Qualification Actions)

Were all tables produced and reviewed? (YES) NO (circle one)

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Case Narrative (continued)

Report Submission

November 11, 2018: This final report includes the results of all requested analyses.

November 05, 2018: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Perfluorinated Alkyl Acids by Isotope Dilution

The WG1174239-4 continuing calibration standard, associated with L1843594-01 through -06 and -09, as well as the associated QC, had the response for 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) (140.6%) above the acceptance criteria for the method. The associated samples were non-detect for this target compound; therefore, no further action was taken.

Dissolved Metals

The WG1174403-3/-4 MS/MSD recoveries for calcium (140%/270%) and sodium (0%/0%), performed on L1843594-07, do not apply because the sample concentrations are greater than four times the spike amounts added.

OK

Total Metals

The WG1174499-3/-4 MS/MSD recoveries for calcium (0%/30%) and sodium (0%/20%), performed on L1843594-07, do not apply because the sample concentrations are greater than four times the spike amounts added.

OK

12/17/18

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative

Date: 11/11/18

Project Name: FORMER HYGRADE **Lab Number:** L1843594

Project Number: 3612162331 **Report Date:** 11/11/18

Method Blank Analysis
Batch Quality Control

Applies to 1-10

Selenium, Dissolved	ND		mg/l	0.00500	0.00173	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Sodium, Dissolved	> 0.0457	J	mg/l	0.100	0.0293	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Thallium, Dissolved	ND		mg/l	0.00050	0.00014	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Vanadium, Dissolved	ND		mg/l	0.00500	0.00157	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM
Zinc, Dissolved	ND		mg/l	0.01000	0.00341	1	11/01/18 11:00	11/01/18 16:53	1,6020B	AM

All else ND

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-10 Batch: WG1174499-1										
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Antimony, Total	0.00071	J	mg/l	0.00400	0.00042	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Barium, Total	ND		mg/l	0.00050	0.00017	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Calcium, Total	ND		mg/l	0.100	0.0394	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Chromium, Total	ND		mg/l	0.00100	0.00017	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Copper, Total	ND		mg/l	0.00100	0.00038	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Iron, Total	ND		mg/l	0.0500	0.0191	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Lead, Total	ND		mg/l	0.00100	0.00034	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Magnesium, Total	ND		mg/l	0.0700	0.0242	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Manganese, Total	ND		mg/l	0.00100	0.00044	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Nickel, Total	ND		mg/l	0.00200	0.00055	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Potassium, Total	ND		mg/l	0.100	0.0309	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Silver, Total	0.00020	J	mg/l	0.00040	0.00016	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Sodium, Total	> 0.0294	J	mg/l	0.100	0.0293	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Thallium, Total	ND		mg/l	0.00050	0.00014	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	10/31/18 18:06	11/01/18 15:03	1,6020B	AM

U, J -07 result < RL but > blank conc. i leave as (J) qual; (*) all other hits (U) qualid (*)(J)as reported by lab -07 U else ND

11/17/18

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-10
Client ID: EB-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 13:30
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Antimony, Total	ND		mg/l	0.00400	0.00042	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Barium, Total	0.00065		mg/l	0.00050	0.00017	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Calcium, Total	0.0780	J	mg/l	0.100	0.0394	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Chromium, Total	ND		mg/l	0.00100	0.00017	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Copper, Total	ND		mg/l	0.00100	0.00038	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Iron, Total	0.119		mg/l	0.0500	0.0191	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Lead, Total	ND		mg/l	0.00100	0.00034	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Magnesium, Total	ND		mg/l	0.0700	0.0242	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Manganese, Total	0.00047	J	mg/l	0.00100	0.00044	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	10/26/18 16:39	10/29/18 16:36	EPA 7470A	1,7470A	MG
Nickel, Total	ND		mg/l	0.00200	0.00055	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Potassium, Total	ND		mg/l	0.100	0.0309	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Silver, Total	ND		mg/l	0.00040	0.00016	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Sodium, Total	0.0560	J	mg/l	0.100	0.0293	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Thallium, Total	ND		mg/l	0.00050	0.00014	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	10/31/18 18:06	11/01/18 16:30	EPA 3005A	1,6020B	AM
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Antimony, Dissolved	0.00049	J	mg/l	0.00400	0.00042	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Arsenic, Dissolved	ND		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Barium, Dissolved	ND		mg/l	0.00050	0.00017	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Beryllium, Dissolved	ND		mg/l	0.00050	0.00010	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM

Project Name: FORMER HYGRADE
Project Number: 3612162331
Lab Number: L1843594
Report Date: 11/11/18

SAMPLE RESULTS

Lab ID: L1843594-10
Client ID: EB-102018
Sample Location: LONG ISLAND CITY, NY
Date Collected: 10/24/18 13:30
Date Received: 10/25/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Cadmium, Dissolved	ND		mg/l	0.00020	0.00005	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Calcium, Dissolved	ND		mg/l	0.100	0.0394	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Chromium, Dissolved	ND		mg/l	0.00100	0.00017	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Cobalt, Dissolved	ND		mg/l	0.00050	0.00016	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Copper, Dissolved	0.00059	J	mg/l	0.00100	0.00038	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Iron, Dissolved	ND		mg/l	0.0500	0.0191	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Lead, Dissolved	ND		mg/l	0.00100	0.00034	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Magnesium, Dissolved	ND		mg/l	0.0700	0.0242	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Manganese, Dissolved	ND		mg/l	0.00100	0.00044	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Mercury, Dissolved	ND		mg/l	0.00020	0.00006	1	10/30/18 12:30	10/30/18 17:16	EPA 7470A	1,7470A	MG
Nickel, Dissolved	ND		mg/l	0.00200	0.00055	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Potassium, Dissolved	ND		mg/l	0.100	0.0309	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Selenium, Dissolved	ND		mg/l	0.00500	0.00173	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Silver, Dissolved	ND		mg/l	0.00040	0.00016	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Sodium, Dissolved	0.108		mg/l	0.100	0.0293	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Thallium, Dissolved	ND		mg/l	0.00050	0.00014	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Vanadium, Dissolved	ND		mg/l	0.00500	0.00157	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM
Zinc, Dissolved	ND		mg/l	0.01000	0.00341	1	11/01/18 11:00	11/01/18 16:39	EPA 3005A	1,6020B	AM

12/17/18

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery		Recovery Limits	RPD	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-10 QC Batch ID: WG1174403-3 WG1174403-4 QC Sample: L1843594-07 Client ID: MW-6D-102018											
Aluminum, Dissolved	ND	2	1.95	98		2.00	100		75-125	3	20
Antimony, Dissolved	0.00231J	0.5	0.5249	105		0.5311	106		75-125	1	20
Arsenic, Dissolved	0.00042J	0.12	0.1267	106		0.1315	110		75-125	4	20
Barium, Dissolved	0.1334	2	2.193	103		2.191	103		75-125	0	20
Beryllium, Dissolved	ND	0.05	0.05183	104		0.05236	105		75-125	1	20
Cadmium, Dissolved	0.00015J	0.051	0.05725	112		0.05758	113		75-125	1	20
Calcium, Dissolved	255.	10	269	OK 140	Q	282	OK 270	Q	75-125	5	20
Chromium, Dissolved	ND	0.2	0.1900	95		0.1992	100		75-125	5	20
Cobalt, Dissolved	0.00044J	0.5	0.4874	97		0.5001	100		75-125	3	20
Copper, Dissolved	0.00296	0.25	0.2506	99		0.2568	102		75-125	2	20
Iron, Dissolved	0.0269J	1	1.01	101		1.06	106		75-125	5	20
Lead, Dissolved	ND	0.51	0.5570	109		0.5580	109		75-125	0	20
Magnesium, Dissolved	19.6	10	30.9	113		31.3	117		75-125	1	20
Manganese, Dissolved	0.2994	0.5	0.7813	96		0.8199	104		75-125	5	20
Nickel, Dissolved	0.00225	0.5	0.4905	98		0.5138	102		75-125	5	20
Potassium, Dissolved	27.8	10	37.0	92		39.0	112		75-125	5	20
Selenium, Dissolved	0.00525	0.12	0.138	111		0.142	114		75-125	3	20
Silver, Dissolved	ND	0.05	0.05189	104		0.05201	104		75-125	0	20
Sodium, Dissolved	108.	10	104	OK 0	Q	108	OK 0	Q	75-125	4	20
Thallium, Dissolved	0.00026J	0.12	0.1254	104		0.1284	107		75-125	2	20
Vanadium, Dissolved	0.00351J	0.5	0.4812	96		0.5114	102		75-125	6	20

JM 11/13/18

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER HYGRADE
Project Number: 3612162331

Lab Number: L1843594
Report Date: 11/11/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery		Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10 102018	QC Batch ID: WG1174499-3					WG1174499-4	QC Sample: L1843594-07			Client ID: MW-6D-	
Aluminum, Total	0.0112	2	1.94	96		1.95	97		75-125	1	20
Antimony, Total	0.00377J	0.5	0.5447	109		0.5965	119		75-125	9	20
Arsenic, Total	0.00056	0.12	0.1318	109		0.1313	109		75-125	0	20
Barium, Total	0.1300	2	2.221	104		2.280	108		75-125	3	20
Beryllium, Total	ND	0.05	0.05017	100		0.05054	101		75-125	1	20
Cadmium, Total	0.00015J	0.051	0.05844	114		0.06083	119		75-125	4	20
Calcium, Total	272.	10	268	OK	0 Q	275	OK	30 Q	75-125	3	20
Chromium, Total	ND	0.2	0.1982	99		0.2037	102		75-125	3	20
Cobalt, Total	0.00050	0.5	0.5236	105		0.5333	106		75-125	2	20
Copper, Total	0.00300	0.25	0.2596	103		0.2590	102		75-125	0	20
Iron, Total	0.0321J	1	1.06	106		1.20	120		75-125	12	20
Lead, Total	ND	0.51	0.5922	116		0.6028	118		75-125	2	20
Magnesium, Total	20.8	10	31.3	105		32.3	115		75-125	3	20
Manganese, Total	0.3086	0.5	0.8084	100		0.8207	102		75-125	2	20
Nickel, Total	0.00217	0.5	0.5396	107		0.5275	105		75-125	2	20
Potassium, Total	29.0	10	37.6	86		38.0	90		75-125	1	20
Selenium, Total	0.00565	0.12	0.138	110		0.132	105		75-125	4	20
Silver, Total	0.00035J	0.05	0.05406	108		0.05916	118		75-125	9	20
Sodium, Total	108.	10	105	OK	0 Q	110	OK	20 Q	75-125	5	20
Thallium, Total	0.00030J	0.12	0.1367	114		0.1407	117		75-125	3	20
Vanadium, Total	0.00389J	0.5	0.5150	103		0.5331	107		75-125	3	20

12/11/18

loc_name	field_sample_id	qc_cc	lab_sample_id	analysis_m	param_name	final_result	final_qualif	Val_Reasor	result_uom	detection_	SQL_text	dilution_fa	fraction	RPD	FD QUAL
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Aluminum	0.677			MG/L	0.00327	0.0100	1	D	194.2	J/UJ
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Aluminum	0.00911	J		MG/L	0.00327	0.0100	1	T	27.4	J/UJ
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Antimony	0.00400	U		MG/L	0.00042	0.00400	1	D	0.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Antimony	0.00400	U	BL1	MG/L	0.00042	0.00400	1	T	0.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Arsenic	0.00961			MG/L	0.00016	0.00050	1	D	11.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Arsenic	0.04180			MG/L	0.00016	0.00050	1	T	5.4	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Barium	0.1205			MG/L	0.00017	0.00050	1	D	4.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Barium	0.1540			MG/L	0.00017	0.00050	1	T	3.3	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Beryllium	0.00050	U		MG/L	0.00010	0.00050	1	D	0.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Beryllium	0.00050	U		MG/L	0.00010	0.00050	1	T	0.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Cadmium	0.00020	U		MG/L	0.00005	0.00020	1	D	0.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Cadmium	0.00020	U		MG/L	0.00005	0.00020	1	T	0.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Calcium	229.			MG/L	0.0394	0.100	1	D	4.5	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Calcium	233.			MG/L	0.0394	0.100	1	T	1.3	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Chromium	0.00367			MG/L	0.00017	0.00100	1	D	165.2	J
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Chromium	0.00020	J		MG/L	0.00017	0.00100	1	T	26.1	OK; <RL
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Cobalt	0.01226			MG/L	0.00016	0.00050	1	D	10.3	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Cobalt	0.01058			MG/L	0.00016	0.00050	1	T	0.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Copper	0.00100	U		MG/L	0.00038	0.00100	1	D	0.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Copper	0.00070	J		MG/L	0.00038	0.00100	1	T	38.2	J
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Iron	13.0			MG/L	0.0191	0.0500	1	D	24.1	J
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Iron	30.7			MG/L	0.0191	0.0500	1	T	0.3	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Lead	0.00100	U		MG/L	0.00034	0.00100	1	D	0.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Lead	0.00100	U		MG/L	0.00034	0.00100	1	T	0.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Magnesium	33.9			MG/L	0.0242	0.0700	1	D	11.2	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Magnesium	33.1			MG/L	0.0242	0.0700	1	T	1.8	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Manganese	3.441			MG/L	0.00044	0.00100	1	D	6.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Manganese	2.922			MG/L	0.00044	0.00100	1	T	0.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Nickel	0.05827			MG/L	0.00055	0.00200	1	D	4.1	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Nickel	0.05822			MG/L	0.00055	0.00200	1	T	4.9	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Potassium	35.6			MG/L	0.0309	0.100	1	D	6.1	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Potassium	36.0			MG/L	0.0309	0.100	1	T	0.8	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Selenium	0.00500	U		MG/L	0.00173	0.00500	1	D	0.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Selenium	0.00500	U		MG/L	0.00173	0.00500	1	T	0.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Silver	0.00040	U		MG/L	0.00016	0.00040	1	D	0.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Silver	0.00040	U		MG/L	0.00016	0.00040	1	T	0.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Sodium	181.			MG/L	0.0293	0.100	1	D	3.9	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Sodium	178.			MG/L	0.0293	0.100	1	T	1.7	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Thallium	0.00050	U		MG/L	0.00014	0.00050	1	D	0.0	

loc_name	field_sample_id	qc_cc	lab_sample_id	analysis_m	param_name	final_result	final_qualif	Val_Reasor	result_uom	detection_	SQL_text	dilution_fa	fraction	RPD	FD QUAL
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Thallium	0.00050	U		MG/L	0.00014	0.00050	1	T	0.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Vanadium	0.00371	J		MG/L	0.00157	0.00500	1	D	29.6	OK; <RL
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Vanadium	0.00500	U		MG/L	0.00157	0.00500	1	T	0.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Zinc	0.00878	J		MG/L	0.00341	0.01000	1	D	13.0	
BMW-4	BMW-4-102018	FS	L1843594-04	6020B	Zinc	0.01000	U		MG/L	0.00341	0.01000	1	T	0.0	
BMW-4	DUP-102018	FD	L1843594-09	6020B	Aluminum	0.0100	U		MG/L	0.00327	0.0100	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Aluminum	0.0120			MG/L	0.00327	0.0100	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Antimony	0.00400	U		MG/L	0.00042	0.00400	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Antimony	0.00400	U		MG/L	0.00042	0.00400	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Arsenic	0.01073			MG/L	0.00016	0.00050	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Arsenic	0.04410			MG/L	0.00016	0.00050	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Barium	0.1158			MG/L	0.00017	0.00050	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Barium	0.1591			MG/L	0.00017	0.00050	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Beryllium	0.00050	U		MG/L	0.00010	0.00050	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Beryllium	0.00050	U		MG/L	0.00010	0.00050	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Cadmium	0.00020	U		MG/L	0.00005	0.00020	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Cadmium	0.00020	U		MG/L	0.00005	0.00020	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Calcium	219.			MG/L	0.0394	0.100	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Calcium	236.			MG/L	0.0394	0.100	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Chromium	0.00035	J		MG/L	0.00017	0.00100	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Chromium	0.00026	J		MG/L	0.00017	0.00100	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Cobalt	0.01106			MG/L	0.00016	0.00050	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Cobalt	0.01058			MG/L	0.00016	0.00050	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Copper	0.00100	U		MG/L	0.00038	0.00100	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Copper	0.00103			MG/L	0.00038	0.00100	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Iron	10.2			MG/L	0.0191	0.0500	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Iron	30.6			MG/L	0.0191	0.0500	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Lead	0.00100	U		MG/L	0.00034	0.00100	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Lead	0.00100	U		MG/L	0.00034	0.00100	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Magnesium	30.3			MG/L	0.0242	0.0700	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Magnesium	32.5			MG/L	0.0242	0.0700	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Manganese	3.239			MG/L	0.00044	0.00100	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Manganese	2.922			MG/L	0.00044	0.00100	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Nickel	0.05591			MG/L	0.00055	0.00200	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Nickel	0.05543			MG/L	0.00055	0.00200	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Potassium	33.5			MG/L	0.0309	0.100	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Potassium	36.3			MG/L	0.0309	0.100	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Selenium	0.00500	U		MG/L	0.00173	0.00500	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Selenium	0.00500	U		MG/L	0.00173	0.00500	1	T		

loc_name	field_sample_id	qc_cc	lab_sample_id	analysis_m	param_name	final_result	final_qualif	Val_Reasor	result_uom	detection_	SQL_text	dilution_fa	fraction	RPD	FD QUAL
BMW-4	DUP-102018	FD	L1843594-09	6020B	Silver	0.00040	U		MG/L	0.00016	0.00040	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Silver	0.00040	U		MG/L	0.00016	0.00040	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Sodium	174.			MG/L	0.0293	0.100	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Sodium	175.			MG/L	0.0293	0.100	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Thallium	0.00050	U		MG/L	0.00014	0.00050	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Thallium	0.00050	U		MG/L	0.00014	0.00050	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Vanadium	0.00500	U		MG/L	0.00157	0.00500	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Vanadium	0.00500	U		MG/L	0.00157	0.00500	1	T		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Zinc	0.01000	U		MG/L	0.00341	0.01000	1	D		
BMW-4	DUP-102018	FD	L1843594-09	6020B	Zinc	0.01000	U		MG/L	0.00341	0.01000	1	T		

Alpha ICPMSQ2 Full

11/2/2018 6:53:08 AM

Analysis index: 75
Analysis label: L1843594-01 6020TL
Analysis started at: 11/1/2018 3:32:35 PM
User name: ALPHALAB\metals-instrument
Rack: 1
Vial: 58

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	11B (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)
Concentration average	118.370 %	124.984 %	0.015 ppb	6,095.032 ppb	264,951.397 ppb	35,620.641 ppb	4.983 ppb	29,504.116 ppb	248,877.408 ppb
Concentration per Run 1	117.866 %	126.467 %	0.006 ppb	6,116.677 ppb	253,223.478 ppb	34,091.801 ppb	5.582 ppb	28,565.008 ppb	243,360.153 ppb
Concentration per Run 2	118.615 %	122.713 %	0.006 ppb	6,027.670 ppb	275,780.166 ppb	37,071.565 ppb	5.350 ppb	30,389.938 ppb	255,664.649 ppb
Concentration per Run 3	118.628 %	125.772 %	0.032 ppb	6,140.750 ppb	265,850.548 ppb	35,698.556 ppb	4.097 ppb	29,557.402 ppb	247,607.422 ppb
Concentration RSD	0.4 %	1.6 %	102.0 %	1.0 %	4.3 %	4.2 %	15.5 %	3.1 %	2.5 %

Category	45Sc (STD AGD)	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)
Concentration average	173.194 %	390.961 ppb	0.618 ppb	0.671 ppb	9,085.516 ppb	421.859 ppb	8.949 ppb	106.498 ppb	3.645 ppb
Concentration per Run 1	174.275 %	388.584 ppb	0.525 ppb	0.654 ppb	8,901.774 ppb	420.493 ppb	8.777 ppb	105.278 ppb	3.530 ppb
Concentration per Run 2	175.073 %	398.015 ppb	0.629 ppb	0.577 ppb	9,114.963 ppb	399.546 ppb	8.924 ppb	107.856 ppb	3.650 ppb
Concentration per Run 3	170.234 %	386.286 ppb	0.698 ppb	0.782 ppb	9,239.811 ppb	445.538 ppb	9.147 ppb	106.360 ppb	3.754 ppb
Concentration RSD	1.5 %	1.6 %	14.1 %	15.4 %	1.9 %	5.5 %	2.1 %	1.2 %	3.1 %

Category	66Zn (KED AGD)	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)
Concentration average	3.750 ppb	106.924 %	1.084 ppb	1.150 ppb	1,194.314 ppb	8.548 ppb	104.265 %	0.044 ppb	5.107 ppb
Concentration per Run 1	3.682 ppb	104.852 %	1.187 ppb	0.973 ppb	1,156.907 ppb	8.452 ppb	105.797 %	0.042 ppb	4.902 ppb
Concentration per Run 2	3.808 ppb	105.317 %	1.082 ppb	1.172 ppb	1,176.196 ppb	8.313 ppb	103.650 %	0.036 ppb	5.256 ppb
Concentration per Run 3	3.760 ppb	110.604 %	0.984 ppb	1.304 ppb	1,249.838 ppb	8.879 ppb	103.347 %	0.052 ppb	5.164 ppb
Concentration RSD	1.7 %	3.0 %	9.4 %	14.5 %	4.1 %	3.4 %	1.3 %	18.9 %	3.6 %

Category	115In (KED AGD)	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)
Concentration average	118.659 %	7.706 ppb	0.922 ppb	104.265 ppb	110.799 %	100.288 %	0.520 ppb	0.733 ppb	0.422 ppb
Concentration per Run 1	120.450 %	6.940 ppb	0.839 ppb	99.407 ppb	111.771 %	99.902 %	0.434 ppb	0.692 ppb	0.362 ppb
Concentration per Run 2	114.760 %	8.036 ppb	0.959 ppb	104.859 ppb	109.090 %	99.509 %	0.547 ppb	0.762 ppb	0.429 ppb
Concentration per Run 3	120.766 %	8.141 ppb	0.966 ppb	108.529 ppb	111.536 %	101.452 %	0.580 ppb	0.745 ppb	0.474 ppb
Concentration RSD	2.8 %	8.6 %	7.7 %	4.4 %	1.3 %	1.0 %	14.8 %	5.0 %	13.4 %

Category	209Bi (KED AGD)
Concentration average	102.157 %
Concentration per Run 1	104.028 %
Concentration per Run 2	100.006 %
Concentration per Run 3	102.437 %
Concentration RSD	2.0 %

11/2/18

Sample Calc

Alpha ICPMSQ2 Full

11/2/2018 6:53:08 AM

Analysis index: 76 Analysis started at: 11/1/2018 3:36:43 PM Rack: 1
Analysis label: L1843594-02 6020TL User name: ALPHALAB\metals-instrument Vial: 59

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	11B (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)
Concentration average	121.242 %	127.788 %	0.011 ppb	6,901.954 ppb	267,087.706 ppb	46,286.180 ppb	31.037 ppb	31,423.577 ppb	254,573.339 ppb
Concentration per Run 1	121.315 %	126.745 %	0.009 ppb	6,898.451 ppb	259,285.252 ppb	44,949.733 ppb	29.462 ppb	30,389.671 ppb	247,258.643 ppb
Concentration per Run 2	122.297 %	127.927 %	0.011 ppb	6,938.574 ppb	273,430.761 ppb	47,475.279 ppb	31.884 ppb	31,933.493 ppb	259,837.785 ppb
Concentration per Run 3	120.113 %	128.692 %	0.013 ppb	6,868.839 ppb	268,547.106 ppb	46,433.528 ppb	31.766 ppb	31,947.566 ppb	256,623.589 ppb
Concentration RSD	0.9 %	0.8 %	18.0 %	0.5 %	2.7 %	2.7 %	4.4 %	2.8 %	2.6 %

Category	45Sc (STD AGD)	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)
Concentration average	177.696 %	403.906 ppb	0.635 ppb	2.543 ppb	9,770.092 ppb	1,601.540 ppb	13.259 ppb	186.034 ppb	4.149 ppb
Concentration per Run 1	174.371 %	395.931 ppb	0.648 ppb	2.450 ppb	9,507.418 ppb	1,537.454 ppb	13.031 ppb	182.869 ppb	3.991 ppb
Concentration per Run 2	180.919 %	408.134 ppb	0.571 ppb	2.653 ppb	10,023.714 ppb	1,657.483 ppb	13.709 ppb	188.823 ppb	4.104 ppb
Concentration per Run 3	177.798 %	407.653 ppb	0.686 ppb	2.527 ppb	9,779.144 ppb	1,609.683 ppb	13.037 ppb	186.410 ppb	4.354 ppb
Concentration RSD	1.8 %	1.7 %	9.2 %	4.0 %	2.6 %	3.8 %	2.9 %	1.6 %	4.5 %

Category	66Zn (KED AGD)	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)
Concentration average	2.594 ppb	114.226 %	1.210 ppb	1.372 ppb	1,183.067 ppb	7.493 ppb	109.648 %	0.016 ppb	8.963 ppb
Concentration per Run 1	2.714 ppb	112.543 %	1.189 ppb	1.366 ppb	1,134.553 ppb	7.394 ppb	107.832 %	0.007 ppb	8.779 ppb
Concentration per Run 2	2.411 ppb	114.720 %	1.270 ppb	1.563 ppb	1,215.560 ppb	8.347 ppb	110.990 %	0.024 ppb	9.028 ppb
Concentration per Run 3	2.657 ppb	115.415 %	1.171 ppb	1.188 ppb	1,199.089 ppb	6.737 ppb	110.121 %	0.016 ppb	9.082 ppb
Concentration RSD	6.2 %	1.3 %	4.3 %	13.7 %	3.6 %	10.8 %	1.5 %	56.0 %	1.8 %

Category	115In (KED AGD)	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)
Concentration average	126.134 %	5.654 ppb	0.488 ppb	95.154 ppb	115.039 %	104.182 %	0.302 ppb	0.447 ppb	0.248 ppb
Concentration per Run 1	124.047 %	4.788 ppb	0.396 ppb	90.867 ppb	113.111 %	102.059 %	0.255 ppb	0.398 ppb	0.223 ppb
Concentration per Run 2	126.284 %	5.584 ppb	0.552 ppb	99.491 ppb	115.259 %	105.193 %	0.332 ppb	0.487 ppb	0.250 ppb
Concentration per Run 3	128.072 %	6.588 ppb	0.518 ppb	95.104 ppb	116.746 %	105.294 %	0.318 ppb	0.457 ppb	0.270 ppb
Concentration RSD	1.6 %	16.0 %	16.8 %	4.5 %	1.6 %	1.8 %	13.6 %	10.1 %	9.5 %

Category	209Bi (KED AGD)
Concentration average	103.713 %
Concentration per Run 1	103.140 %
Concentration per Run 2	102.597 %
Concentration per Run 3	105.404 %
Concentration RSD	1.4 %

11/2/18

Sample Calc