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January 31, 2020

Mr. Payson Long, Project Manager
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7013

Subject: **2019 Annual Site Activities Report**
Primoshield Incorporated Site, Site No. 633027
MACTEC Engineering & Geology, P.C., Project No. 3612122251

Dear Mr. Long:

MACTEC Engineering and Geology, P.C., (MACTEC), under contract to the New York State Department of Environmental Conservation (NYSDEC) is submitting this letter report describing the 2019 site management (SM) activities and observations at the Primoshield Incorporated Site (Site), NYSDEC Site # 633027, located in Utica, New York. This report presents the following:

- Site History
- 2019 Scope of Work
- Institutional Controls / Engineering Controls (IC/ECs)
- Groundwater Collection System Inspections and Operation, Monitoring, and Maintenance (OM&M) Activities
- Long-Term (15 month) Monitoring
- Recommendations for calendar year 2020.

Site History

The Primoshield site, which has a Classification Code of 4 (SM), is a former metal electroplating facility located at 1212 St. Vincent Street (Figure 1). The Site, approximately 2.4 acres in size and bordered by

Conkling Avenue on the northwest and St. Vincent Street on the southeast, is comprised of four parcels. The City of Utica owns two parcels totaling approximately 0.82 acres; the two parcels are enclosed by a chain link fence. The fenced portion of the Site, designated as 1223 Conkling Avenue (tax map parcel number 41) and as 1212 St. Vincent Street (tax map parcel number 33), is in a mixed commercial/residential area (Figure 2). The remaining parcels correspond to the DePaul cinder and gravel parking lot located to the south of the Site.

The Site's Record of Decision (NYSDEC, 1995) requires a groundwater treatment system to remediate contaminated groundwater by carbon filtration; in response to the requirement, treated effluent had been discharged to the Publicly Owned Treatment Works (POTW). The remedial system was initially installed for treatment of trichloroethene, 1,1,1-trichloroethane, 1,1-dichloroethane, and chromium in groundwater. Since 2001, however, reported influent concentrations have been below discharge permit levels and therefore carbon filtration treatment is no longer warranted. Currently, water is gravity fed to a collection sump and then pumped and discharged directly to the POTW.

2019 Scope of Work

SM activities conducted in 2019 include: long term groundwater monitoring and monitoring system inspection, semi-annual discharge monitoring, and spring and fall site inspections in accordance with the Site Management Plan (SMP) (MACTEC, 2017). These requirements are summarized in Table 1. Monitoring well repairs were completed as an additional OM&M activity in 2019.

Institutional Controls/ Engineering Controls

Because contaminated groundwater and soil are present at the site, institutional controls/engineering controls (ICs/ ECs) are required to protect human health and the environment. EC systems at the Site include a groundwater collection system (GWCS), site access controls, and groundwater monitoring wells.

Requirements/restrictions (ICs) imposed pursuant to the SMP include:

- access to the site for operation of the GWCS
- prohibition of groundwater extraction for any purpose except for treatment at the GWCS
- prohibition of animal production for human consumption

- prohibition of vegetable gardens onsite unless planted in gardens where soil achieves residential use Soil Clean-up Objectives
- Site use is limited to industrial uses only
- Site owner(s) must follow the requirements of the SMP
- excavation on the property is prohibited without written permission from the NYSDEC.

The IC/ECs are in place and observations pertaining to them during 2019 are summarized in the following section.

Site Inspections and OM&M Activities

Spring and Fall Inspections

The onsite inspections conducted at the Site on June 17 and on October 26, 2019 are discussed in the Spring and Fall 2019 Inspection Reports (MACTEC, 2019b; MACTEC, 2019c). Site conditions in 2019 were consistent with observations made in recent years. Previously observed deficient conditions at the northernmost cleanout (Trench 2, Cleanout 5) and at monitoring wells P-107S, P-107D, P-106S and P-106D were repaired during the spring 2019 inspection.

During the June and October 2019 inspections, the groundwater collection system was observed to be in the "auto" position upon arrival at the Site. The system was pumping intermittently in response to a float switch in the collection manhole. The inspector switched the system to "hand" mode to perform discharge sampling. The manhole was observed to be in good condition during both inspections.

Spring and Fall 2019 Inspection Findings:

- The fence-posts supporting the St Vincent Street gate are starting to tilt, but the gate is fully functional
- The top rail of fence is unattached along the north-central Site area where the fence changes in height
- Loose and/or damaged barb wire was observed in two areas of the fencing
- Vegetation is encroaching on the perimeter fence in several locations.

Semiannual Discharge Monitoring

Samples of the treatment system effluent were collected from the discharge sampling port inside the onsite treatment building during each of the semiannual Site inspections.

Samples were submitted to the ALS environmental laboratory of Rochester, NY (ALS) for the following analyses:

- volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) method 624
- metals (cadmium, chromium, copper, nickel, lead, and zinc) by USEPA method 200.7
- cyanide by USEPA method 9012B
- pH by method 4500.

Field data records, laboratory reports of analysis, and chain of custody records are included with the respective 2019 Site inspection reports (MACTEC 2019b; MACTEC, 2019c). Results are presented in the following table demonstrating that concentrations remain below the POTW discharge criteria.

Semiannual Discharge Analytical Results June and October 2019

POLLUTANT/PARAMETER	POTW Limit	June Results	October Results
Totalizer Reading (gallons [gal])	NA	5,132,155	5,476,870
Total Flow, gal/day	NA	3,417**	2,631**
pH	5.0-12.5	7.13	7.11
Cadmium, mg/L	1	0.005 U	0.005 U
Chromium, mg/L	5	0.01 U	0.01 U
Copper, mg/L	3	0.02 U	0.02 U
Lead, mg/L	5	0.05 U	0.05 U
Nickel, mg/L	2	0.04 U	0.04 U
Zinc, mg/L	4	0.02 U	0.02 U
Cyanide, mg/L	3	0.01 U	0.01 U
Total VOCs, mg/L	2.0*	**0.0208**	**0.0177**

mg/L = milligrams per liter.
*Total VOCs is the sum of detected VOCs.
Bold results indicate the parameter was detected.
NA = Not applicable to the POTW limit
U = not detected; value represents the sample quantitation limit.
** = Average flow based on totalizer reading and days between measurements.

Maintenance Activities

General maintenance activities conducted during each inspection included to the maximum extent possible clearing of woody vegetation infringing along the fence.

The following maintenance repairs were performed in June as per the recommendations in the 2018 Annual Site Activities Report (MACTEC, 2019a):

- The northernmost cleanout (Trench 2, Cleanout 5) was repaired by trimming the cleanout piping to accommodate settlement of the protective road box.
- Loose/cracked concrete around the protective casings of monitoring wells P-107S, P-107D, P-106S and P-106D was repaired.

Long Term Monitoring

Groundwater Elevation Monitoring

Groundwater elevations were measured in June and October 2019 and compared to historical groundwater elevations (Table 2). Water levels measured were similar to historical measurements and reflected typical seasonal variation for the region.

Long Term Monitoring Sampling and Analysis

Samples were collected from seven monitoring wells during the long term monitoring (LTM) event in June 2019 in accordance with the sampling and analysis plan summarized in Table 3. The samples were collected using low flow procedures; field data records are provided in Attachment 1. Samples were submitted to ALS for VOCs, pH and metals analysis. The Category A data validation review conducted for the LTM analytical data reis provided as Attachment 2; results were deemed to be usable. Results for contaminants detected in one or more samples are summarized in Table 4.

Concentrations of trichloroethene and nickel in shallow groundwater collected from monitoring well P-107S exceeded Class GA standards (Figure 3). Trend plots (i.e., concentration vs time plots) were prepared for Site contaminants of concern detected in monitoring wells for the period beginning December 2011 and ending June 2019 (Attachment 3). The 2019 LTM results and trends were consistent with previous sampling events.

Analytical results from sampling conducted from 2015 to 2019 at GW-01 are provided in Table 5. These data show the groundwater collection system is effective in reducing Site-related contaminant concentrations migrating from the Site to less than the GA standard.

The next LTM event is scheduled for September 2020.

Conclusions and Recommendations

Semiannual discharge samples were collected as part of the spring and fall Site inspections and results indicate detectable levels of total VOCs; however, results were below the POTW allowable discharge limits of the permit. Inspections and discharge monitoring are recommended to continue on a semi-annual basis. The fence inspections show deterioration; however, the fence is generally in the same condition as observed in previous inspections, and is serviceable.

Based on observations during the inspections conducted in 2019, there has not been a change in property use, and the Site is in compliance with the ICs.

Recommended maintenance activities for 2020 are as follows:

- Evaluate the system discharge lines to determine if jetting is necessary
- Remove small trees observed along the fence perimeter at the roots to prevent further damage.
- Remove vegetation impinging on the perimeter fences during semi-annual inspections.
- Post a sign near the system on/off panel for notification procedures in the event the system needs to be shut down for any reason in the future.

Recommended maintenance activities will be coordinated with the spring 2020 inspection.

Please feel free to contact us if you have any questions at 207-775-5401.

Sincerely,

MACTEC Engineering & Geology, P.C.

Jean Firth, PG
Project Manager

Mark Stelmack, PE
Associate Engineer

Enclosures (11)

Figure 1:	Site Location
Figure 2:	Site Features
Figure 3:	Exceedances of Class GA Groundwater Standards, March 2018
Table 1:	Site Management Requirements
Table 2:	Summary of Groundwater Measurements
Table 3:	Sampling and Analysis Plan
Table 4:	Long Term Monitoring Summary of Compounds Detected – June 2019
Table 5:	Summary of Compounds Detected at GW-01 2015 to 2019
Attachment 1:	Field Data Records – June 2019 LTM
Attachment 2:	Category A Data Validation Report
Attachment 3:	Groundwater Concentration Trend Plots

cc: File

REFERENCES

MACTEC Engineering and Consulting, P.C. (MACTEC), 2017. Site Management Plan Revision 1, Primoshield, Incorporated Site No.: 633027. March 2017.

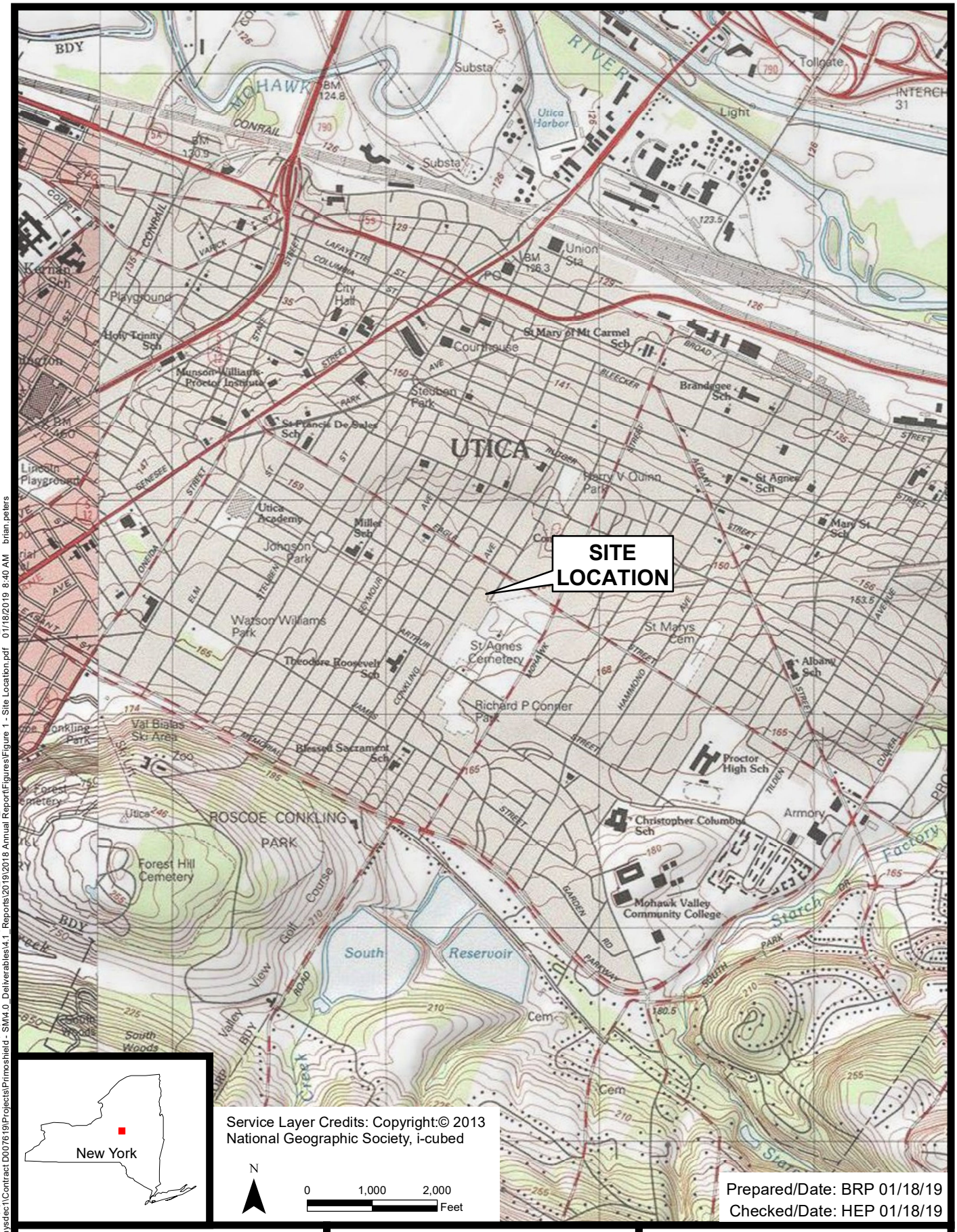
MACTEC, 2019a. 2018 Annual Site Activities Report, Primoshield Incorporated Site, No. 633027. January 2019.

MACTEC, 2019b. Spring 2019 Site Inspection Report, Primoshield Incorporated Site, No. 633027. August 2019.

MACTEC, 2019c. Fall 2019 Site Inspection Report, Primoshield Incorporated Site, No. 633027. November 2019.

New York State Department of Environmental Conservation (NYSDEC), 1995. Record of Decision, Primoshield Plating Site, Site Number 633027, City of Utica, Oneida County, New York, March 1995.

FIGURES



NYSDEC Site # 633027
PRIMOSHIELD INC.
UTICA, NEW YORK

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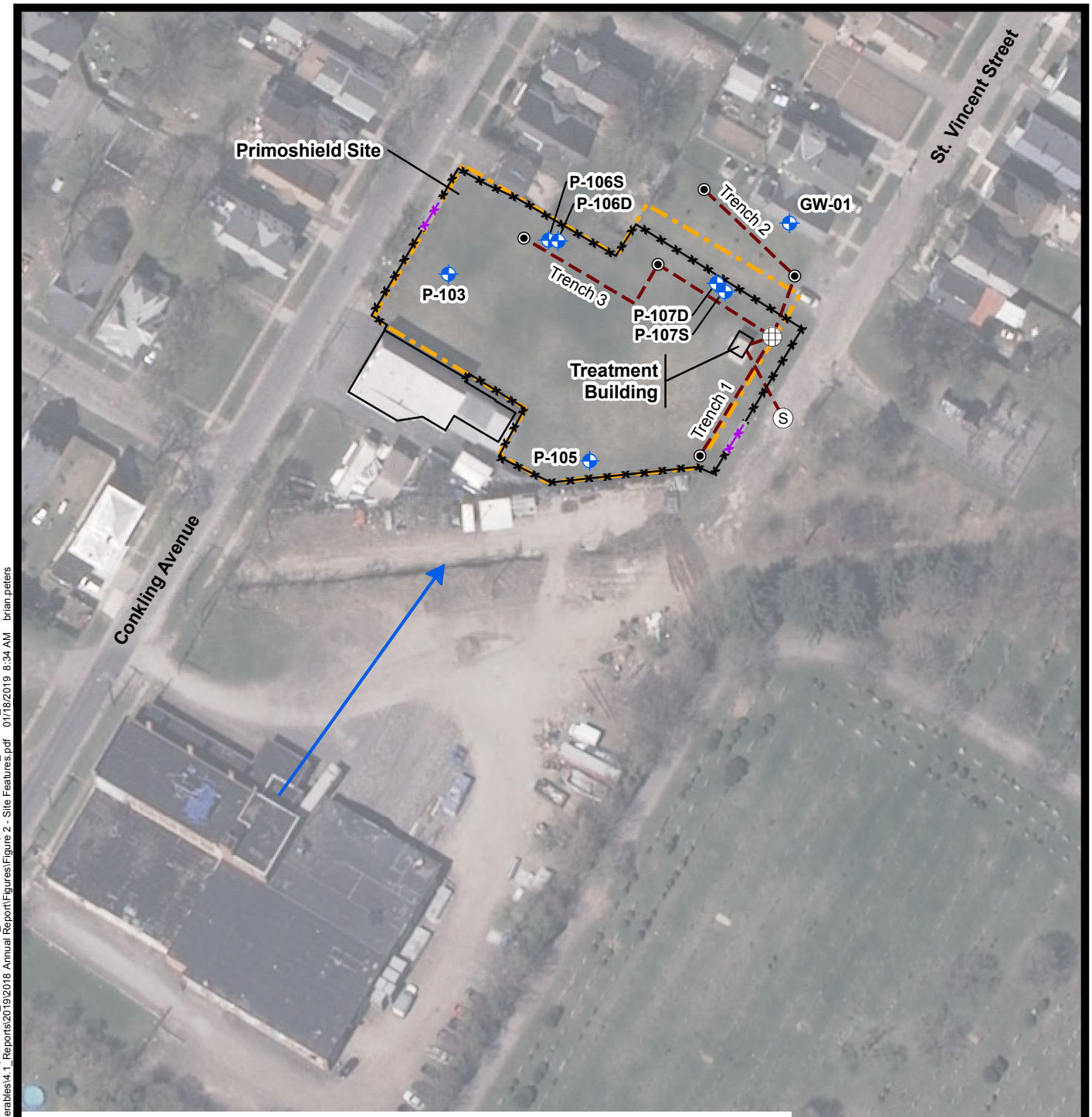
SITE LOCATION

Project 3612122251 Figure 1



Legend

- Cleanout Access Point
- 4-foot diameter manhole
- Discharge to sanitary sewer
- Groundwater Monitoring Well
- Perimeter Fence
- Perimeter Fence Gate
- Approximate GW flow direction
- Underground collection trench
- Site Boundary

N

0 50 100 Feet

Oneida County color digital orthoimagery (2008) from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

Prepared/Date: BRP 01/18/19
Checked/Date: JMF 01/18/19

NYSDEC Site # 633027
PRIMOSHIELD INC.
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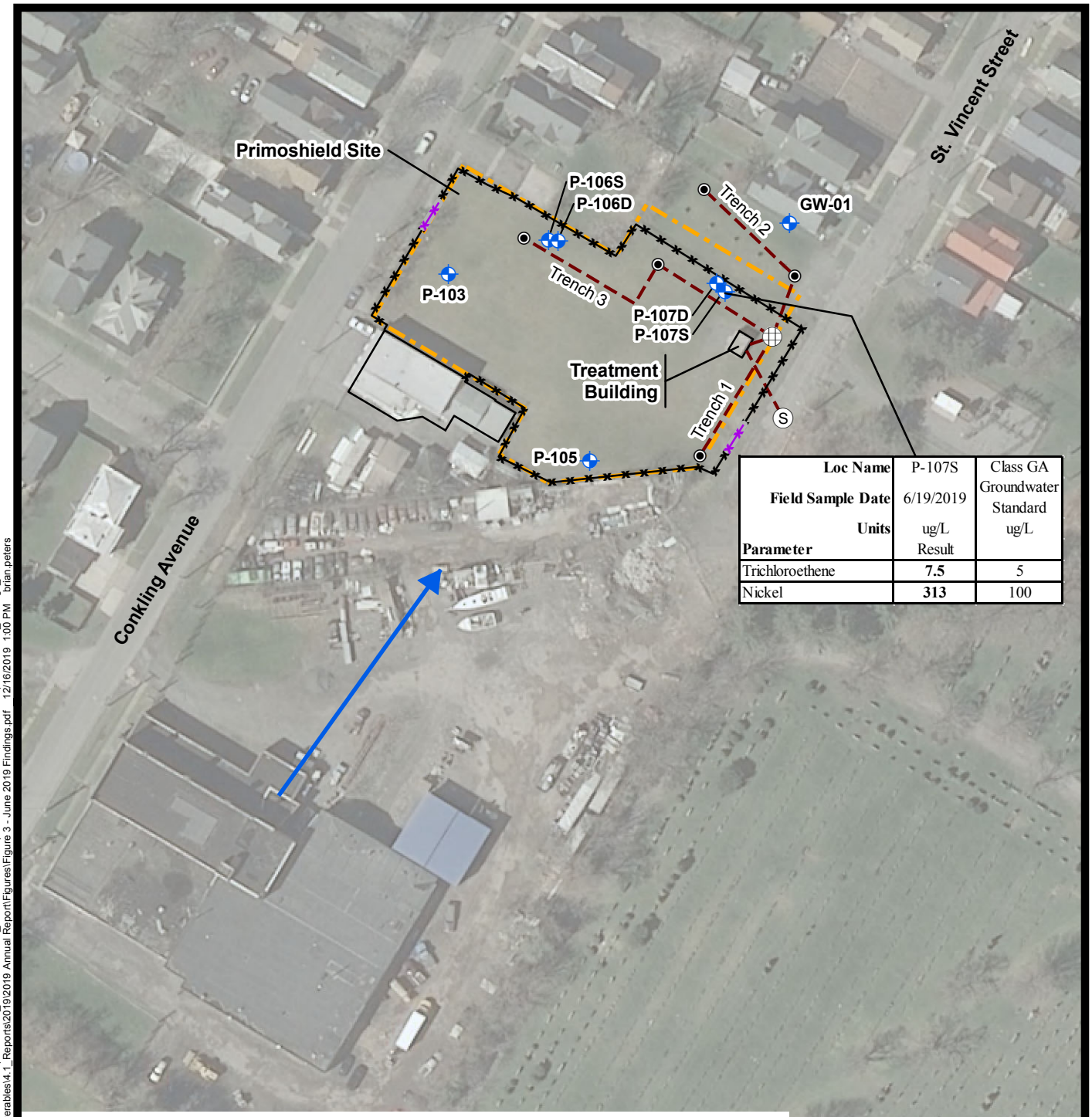
SITE FEATURES

Project 3612122251 Figure 2



Loc Name	P-107S	Class GA Groundwater Standard
Field Sample Date	6/19/2019	
Units	ug/L	ug/L
Parameter	Result	
Trichloroethene	**7.5**	5
Nickel	**313**	100

Legend

- Cleanout Access Point
- 4-foot diameter manhole
- Discharge to Sanitary Sewer
- Groundwater Monitoring Well
- Perimeter Fence
- Perimeter Fence Gate
- Approximate GW flow direction
- Underground collection trench
- Site Boundary

N

0 50 100 Feet

Oneida County color digital orthoimagery (2013) from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

Prepared/Date: BRP 12/16/19
Checked/Date: SC 12/16/19

NYSDEC Site # 633027
PRIMOSHIELD INC.
UTICA, NEW YORK

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Exceedances of Class GA Groundwater Standards, June 2019
Project 3612122251 Figure 3

Document: P:\Projects\nysdec1\Contracts D004434 and D004444\projects\Primoshield, Incorporated\4.0_Deliverables\4.5_Databases\GIS\MapDocuments\Periodic Review Report\Jun2019_Findings_8.5x11P.mxd
PDF: P:\Projects\nysdec1\Contract D007619\Projects\Primoshield - SMI\4.0_Deliverables\4.1_Reports\2019\2019 Annual Report\Figures\Figure 3 - June 2019 Findings.pdf 12/16/2019 1:00 PM brian.peters

TABLES

Table 1: Site Management Requirements
(Inspection and Long Term Monitoring)

Component	Action	Required Frequency
TREATMENT SYSTEM		
Treatment System	Inspection	Semi-annually in spring and summer
Effluent	Grab sample	Semi-annually in spring and summer
ENVIRONMENTAL MONITORING		
Groundwater Monitoring Program		
7 monitoring locations	Low flow sampling	Every 15 months (June 2019)
Groundwater Monitoring System	Inspection	Every 15 months (June 2019)

Table 2: Summary of Groundwater Measurements

Well ID	Ground Elevation (feet msl)	Estimated Measurement Point Elevation (feet msl)	Stickup on Casing (feet)	TOC to TOR (feet)	Depth to BOW (feet TOR)	12/20/2011 Water Level (feet TOR)	12/20/2011 Water Elevation (feet msl)	12/11/2012 Water Level (feet TOR)	12/11/2012 Water Elevation (feet msl)	3/27/2013 Water Level (feet TOR)	3/27/2013 Water Elevation (feet msl)	6/23/2014 Water Level (feet TOR)	6/23/2014 Water Elevation (feet msl)
P-103	521.8	524.3	2.8	0.34	18.1	7.04	517.22	6.74	517.52	6.77	517.49	7.07	517.19
P-105	522.7	525.1	2.9	0.48	18.2	4.75	520.37	3.85	521.27	4.35	520.77	4.57	520.55
P-106-S	521.1	524.8	4.0	0.27	18.5	7.38	517.45	5.81	519.02	6.62	518.21	7.92	516.91
P-106-D	520.8	524.3	3.9	0.39	77.6	28.81	495.50	29.11	495.20	28.73	495.58	28.97	495.34
P-107-S	519.4	522.1	2.9	0.21	17.2	6.43	515.66	4.89	517.20	6.43	515.66	8.11	513.98
P-107-D	519.3	522.0	3.2	0.50	77.7	29.28	492.72	29.57	492.43	29.13	492.87	29.45	492.55
GW-01	517*	517.0	0	0.41	17.5	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1) Ground Elevation from monitoring well logs included in Monitoring Plan for Primoshield Plating January 2004.
2) Measurement Point Elevation calculated using the ground elevation and field measurements of casing stickup and the distance from the top of riser to the top of casing; therefore, the wa
3) NM = Not measured
4) NA = Not applicable
5) msl = Mean sea level
6) TOC = Top of casing
7) TOR = Top of riser
8) Ground surface and well measurement point elevations for GW-01 are estimated.
*- estimated based on site survey.

Table 2: Summary of Groundwater Measurements

Well ID	Ground Elevation (feet msl)	Estimated Measurement Point Elevation (feet msl)	Stickup on Casing (feet)	TOC to TOR (feet)	Depth to BOW (feet TOR)	9/8/2015 Water Level (feet TOR)	9/8/2015 Water Elevation (feet msl)	12/19/2016 Water Level (feet TOR)	12/19/2016 Water Elevation (feet msl)	10/23/2017 Water Level (feet TOR)	10/23/2017 Water Elevation (feet msl)	3/26/2018 Water Level (feet TOR)	3/26/2018 Water Elevation (feet msl)
P-103	521.8	524.3	2.8	0.34	18.1	8.47	515.79	6.7	517.56	8.65	515.61	5.96	518.30
P-105	522.7	525.1	2.9	0.48	18.2	5.3	519.82	4.21	520.91	4.97	520.15	3.98	521.14
P-106-S	521.1	524.8	4.0	0.27	18.5	9.98	514.85	6.36	518.47	9.87	514.96	5.78	519.05
P-106-D	520.8	524.3	3.9	0.39	77.6	29.16	495.15	29.54	494.77	29.15	495.16	29.15	495.16
P-107-S	519.4	522.1	2.9	0.21	17.2	10.17	511.92	6.06	516.03	10.19	511.90	6.13	515.96
P-107-D	519.3	522.0	3.2	0.50	77.7	29.56	492.44	30.04	491.96	29.56	492.44	29.65	492.35
GW-01	517*	517.0	0	0.41	17.5	NA	NA	4.56	512.44	5.39	511.61	3.76	513.24

Notes:
1) Ground Elevation from monitoring well logs included in Monitoring Plan
2) Measurement Point Elevation calculated using the ground elevation and fi ter elevations are approximate
3) NM = Not measured
4) NA = Not applicable
5) msl = Mean sea level
6) TOC = Top of casing
7) TOR = Top of riser
8) Ground surface and well measurement point elevations for GW-01 are esti
*- estimated based on site survey.

Table 2: Summary of Groundwater Measurements

Well ID	Ground Elevation (feet msl)	Estimated Measurement Point Elevation (feet msl)	Stickup on Casing (feet)	TOC to TOR (feet)	Depth to BOW (feet TOR)	11/28/2018 Water Level (feet TOR)	11/28/2018 Water Elevation (feet msl)	6/17/2019 Water Level (feet TOR)	6/17/2019 Water Elevation (feet msl)	10/26/2019 Water Level (feet TOR)	10/26/2019 Water Elevation (feet msl)
P-103	521.8	524.3	2.8	0.34	18.1	5.95	518.31	6.70	517.56	6.58	517.68
P-105	522.7	525.1	2.9	0.48	18.2	3.81	521.31	4.14	520.98	4.55	520.57
P-106-S	521.1	524.8	4.0	0.27	18.5	5.00	519.83	7.81	517.02	6.87	517.96
P-106-D	520.8	524.3	3.9	0.39	77.6	28.11	496.20	28.63	495.68	29.17	495.14
P-107-S	519.4	522.1	2.9	0.21	17.2	4.39	517.70	8.47	513.62	6.84	515.25
P-107-D	519.3	522.0	3.2	0.50	77.7	28.57	493.43	29.10	492.90	29.53	492.47
GW-01	517*	517.0	0	0.41	17.5	NM	NM	5.56	511.44	5.46	511.54

Notes:
1) Ground Elevation from monitoring well logs included in Monitoring Plan
2) Measurement Point Elevation calculated using the ground elevation and fi
3) NM = Not measured
4) NA = Not applicable
5) msl = Mean sea level
6) TOC = Top of casing
7) TOR = Top of riser
8) Ground surface and well measurement point elevations for GW-01 are esti
*- estimated based on site survey.

Table 3: Sampling and Analysis Plan

Performance Monitoring - Semi-Annual		
Sample Locations	**pH (SM 4500-H+) Metals (200.7)* Cyanide (9012B)**	**VOC (624)**
Effluent	X	X
Monitoring Wells - 15 Month**		
Sample Locations	**Metals (6010B)**	**VOC (8260B)**
P-103	X	X
P-105	X	X
P-106S	X	X
P-106D	X	X
P-107S	X	X
P-107D	X	X
GW-01	X	X

Notes:
*- Cadmium, chromium, copper, lead, nickel and zinc.
An 'X' marked in a column indicates the analysis to be performed for that sample location.
VOCs = Volatile Organic Compounds

**-Samples collected in June 2019; next groundwater monitoring event is September 2020.

Table 4: Long Term Monitoring Summary of Compounds Detected - June 2019

			Location Name	GW-01		P-103		P-105		P-106D		P-106S		P-107D		P-107S	
			Sample Date	6/19/2019		6/18/2019		6/18/2019		6/18/2019		6/18/2019		6/18/2019		6/19/2019	
			Sample ID	633027-GW01		633027-P103		633027-P105		633027-P106D		633027-P106S		633027-P107D		633027-P107S	
			Qc Code	FS		FS		FS		FS		FS		FS		FS	
Parameter	**GA**	**GV**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Volatile Organic Compounds SW8260C																	
1,1,1-Trichloroethane	NS	NS	µg/L	1	U	**4.6**		1	U	1	U	**0.64**	J	1	U	**1.4**	
1,1-Dichloroethane	NS	NS	µg/L	1	U	**0.59**	J	1	U	1	U	1	U	1	U	**1.2**	
Trichloroethene	5	NS	µg/L	1	U	**2.1**		1	U	1	U	**0.7**	J	1	U	**7.5**	
Metals (Total) SW6010C																	
Cadmium	5	NS	µg/L	5	U	5	U	5	U	5	U	5	U	5	U	**3.7**	J
Chromium	50	NS	µg/L	10	U	10	U	10	U	10	U	10	U	10	U	**1.1**	J
Nickel	100	NS	µg/L	9.2	J	40	U	40	U	40	U	40	U	40	U	**313**	
Zinc	NS	2,000	µg/L	20	U	20	U	20	U	20	U	20	U	20	U	**14.5**	J

Notes:
Only compounds detected shown
GA = NYS Class GA groundwater quality standard Part 703
GV = NYS Guidance Value
Shaded = Result exceeds GA or GV standard
Bold = contaminant detected
J = result estimated
U = not detected
NS= No standard
µg/L = micrograms per liter
FS = field sample

Table 5: Summary of Compounds Detected at GW-01 2015 to 2019

				Location Name	GW-01		GW-01		GW-01		GW-01		GW-01		GW-01		GW-01		GW-01	
				Sample Date	9/10/2015		5/4/2016		6/28/2016		7/20/2016		9/13/2016		12/20/2016		3/27/2018		6/19/2019	
				Sample ID	633027GW01		633027GW01		GW-01		GW-01		GW-01		633027GW01		633027 - GW01		633027-GW01	
				Qc Code	FS		FS		FS		FS		FS		FS		FS		FS	
Parameter	**HA**	**GA**	**GV**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Volatile Organic Compounds SW8260C																				
1,1,1-Trichloroethane	NS	5	NS	µg/L	1	UJ	**1.4**		**0.36**	J	**0.49**	J	**0.38**	J	**1.4**		**0.5**	J	1	U
1,1-Dichloroethane	NS	5	NS	µg/L	1	UJ	**0.63**	J	1	U	1	U	1	U	**0.36**	J	1	U	1	U
Acetone	NS	NS	50	µg/L	**2.6**	J	5	U	10	U	10	U	**4.3**	J	10	U	5	U	6.8	U
Chloromethane	NS	5	NS	µg/L	1	UJ	1	U	1	U	1	U	**0.32**	J	1	U	1	U	1	U

Notes:

Only compounds detected shown
HA = EPA 2016 Revised Health Advisory
GA = NYS Class GA groundwater quality standard Part 703
GV = NYS Guidance Value
Bold = contaminant detected
J = result estimated
U = not detected
µg/L = micrograms per liter
FS = field sample

ATTACHMENT 1

FIELD DATA RECORDS – JUNE 2019 LTM

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

JOB NUMBER: 3612122251-04.****

PROJECT: NYSDEC Primoshield Inc.
FIELD SAMPLE NUMBER: 633027 - GW01
SITE ID: GW-01
SITE TYPE: WELL
DATE: 06 18 19
ACTIVITY: START 1030 END 0810 0609P SAMPLE TIME: 0808

WATER LEVEL / PUMP SETTINGS

INITIAL DEPTH TO WATER: 5.56 FT
FINAL DEPTH TO WATER: purged dry. FT
DRAWDOWN VOLUME: — GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
TOTAL VOL. PURGED: 1.5 GAL
(purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

MEASUREMENT POINT
[✓] TOP OF WELL RISER
[ ] TOP OF PROTECTIVE CASING

WELL DEPTH (TOR): 17.4 FT
SCREEN LENGTH: 10 FT
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: —

PROTECTIVE CASING STICKUP (FROM GROUND): NA FT
PID AMBIENT AIR: — PPM
PID WELL MOUTH: — PPM
PRESSURE TO PUMP: — PSI
REFILL SETTING: —

CASING / WELL DIFFER.: 6.41 FT
WELL DIAM.: 1 IN
DISCHARGE SETTING: —

WELL INTERGRITY:

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

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCT. (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10	REDOX (mv) (+/- 10 mv)	COMMENTS
1045	5.56	400	purge and	well dry, wait	for	recharge			
			collect	sample.					
1100	—	—	well	purged dry wait	for	recharge.			
0807	9.32	—	well	recharged	collect	samples.			
0806	—	—	12.42	0.744	8.38	2.18	750		sample turb
									filter metals due
									to high turb.

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
[✓] GEOPUMP (peristaltic)
[ ] QED BLADDER

TYPE OF TUBING
[✓] LOW DENSITY POLYETHYLENE
[ ] OTHER

TYPE OF PUMP MATERIAL
[ ] STAINLESS STEEL
[ ] OTHER

TYPE OF BLADDER MATERIAL
[ ] TEFLON
[ ] OTHER

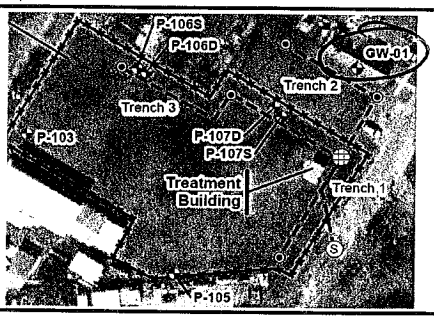
ANALYTICAL PARAMETERS

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[✓] VOC	8260B	HCl to pH <2	3 ~~2~~ x 40ml	[✓]
[✓] TAL METALS (Cd, Cr, Cu, Pb, Ni, Zn)	6010B/7470A/7141A	HNO3 to pH <2	1 ~~500~~ ml poly	[✓]
[✓] TAL METALS (Dissolved)	6010B/7470A/7141A	HNO3 to pH <2	500 ml poly	[✓] Field Filtered
[ ] _____				[ ]
[ ] _____				[ ]

NOTES: turb high → > 50 NTU, filter sample for dissolved metals

SIGNATURE: _____

LOCATION SKETCH



Checked SL 6-19-19

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

JOB NUMBER: 3612122251-04.****

PROJECT: NYSDEC Primoshield Inc.
FIELD SAMPLE NUMBER: 633027-P103
SITE ID: P-103
SITE TYPE: WELL
DATE: 6-18-19
ACTIVITY: START 1410 END 1515
SAMPLE TIME: 1503

WATER LEVEL / PUMP SETTINGS

INITIAL DEPTH TO WATER: 6.66 FT
FINAL DEPTH TO WATER: 8.06 FT
DRAWDOWN VOLUME: 0.224 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
TOTAL VOL. PURGED: 1.32 GAL
(purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

MEASUREMENT POINT
[x] TOP OF WELL RISER
[ ] TOP OF PROTECTIVE CASING

WELL DEPTH (TOR): 18.05 FT
SCREEN LENGTH: 10 FT
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.17

PROTECTIVE CASING STICKUP (FROM GROUND): 2.84 FT
PID AMBIENT AIR: — PPM
PID WELL MOUTH: — PPM
PRESSURE TO PUMP: — PSI
REFILL SETTING: —

CASING / WELL DIFFER.: 0.32 FT
WELL DIAM.: 2" IN
DISCHARGE SETTING: —

WELL INTERGRITY:

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

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCT. (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10	REDOX (mv) (+/- 10 mv)	COMMENTS
1417	SC Start purge →								
1422	6.29	110	16.57	0.631	6.77	0.85	2.55	53.0	
1427	7.34	110	16.57	0.635	6.79	0.93	1.03	40.8	
1432	7.42	↓	16.75	0.634	6.79	1.13	1.16	26.0	
1437	7.59		16.52	0.639	6.81	1.35	0.82	13.5	
1442	7.68		16.50	0.641	6.83	1.49	0.88	12.0	
1447	7.80		16.51	0.641	6.83	1.95	0.56	3.4	
1452	7.89		16.40	0.645	6.84	2.22	0.44	-1.7	
1457	7.98		16.13	0.648	6.85	2.38	~~1.33~~ 0.69	-11.3	turbidity = 0.69, vial was wet
1502	8.07		16.25	0.648	6.84	2.40	0.45	-5.4	
1503	well stable samples collected — SC								

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
[x] GEOPUMP (peristaltic)
[ ] QED BLADDER

TYPE OF TUBING
[ ] LOW DENSITY POLYETHYLENE
[x] OTHER Silastic

TYPE OF PUMP MATERIAL
[ ] STAINLESS STEEL
[x] OTHER HDPE / LDPE

TYPE OF BLADDER MATERIAL
[ ] TEFLON
[ ] OTHER NA

ANALYTICAL PARAMETERS

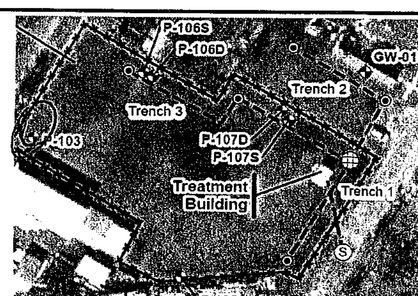
	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] VOC	8260B	HCl to pH <2	3 ~~2~~ x 40ml	[x]
[x] TAL METALS (Cd, Cr, Cu, Pb, Ni, Zn)	6010B/7470A/7141A	HNO3 to pH <2	125 ~~500~~ ml poly	[x]
[ ] TAL METALS (Dissolved)	6010B/7470A/7141A	HNO3 to pH <2	500 ml poly	[ ] Field Filtered
[ ] ______	______	______	______	[ ]
[ ] ______	______	______	______	[ ]

SC

NOTES:

SIGNATURE: [signature]

LOCATION SKETCH



FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

JOB NUMBER: 3612122251-04.****

PROJECT	NYSDEC Primoshield Inc.	FIELD SAMPLE NUMBER	633027-P105
SITE ID	P-105	SITE TYPE	WELL
ACTIVITY	START 1529 END 1637	SAMPLE TIME	1624

DATE: ~~8~~ 6-18-19 SC

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT
- [x] TOP OF WELL RISER
- [ ] TOP OF PROTECTIVE CASING

INITIAL DEPTH TO WATER: 4.02 FT

FINAL DEPTH TO WATER: 7.35 FT

DRAWDOWN VOLUME: 0.533 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})

TOTAL VOL. PURGED: 1.33 GAL
(purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

WELL DEPTH (TOR): 18.17 FT

SCREEN LENGTH: 10 FT

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.4

PROTECTIVE CASING STICKUP (FROM GROUND): 2.84 FT

PID AMBIENT AIR: — PPM

PID WELL MOUTH: — PPM

PRESSURE TO PUMP: — PSI

REFILL SETTING: —

CASING / WELL DIFFER.: 0.32 FT

WELL DIAM.: 2 IN

WELL INTERGRITY:

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

DISCHARGE SETTING: —

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCT. (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10	REDOX (mv) (+/- 10 mv)	COMMENTS
1535	start	Purging							SC
1540	5.85	100	14.65	0.812	7.21	0.90	3.89	83.4	
1545	6.26	100	14.56	0.812	7.20	0.80	2.64	82.9	
1550	6.64	100	14.28	0.804	7.19	0.99	2.71	82.9	
1555	6.93	↓	14.01	0.803	7.19	0.95	1.88	83.3	
1600	7.18		14.12	0.804	7.19	0.99	1.06	83.5	
1605	7.39		13.80	0.805	7.20	1.00	0.64	83.2	
1610	7.55		13.83	0.803	7.20	0.99	0.51	83.2	
1615	7.64		13.76	0.804	7.21	1.10	0.~~38~~44	83.1	misread SC
1620	7.70		13.54	0.805	7.21	1.16	0.47	82.9	
1625	7.78	↓	13.49	0.806	7.21	1.16	0.58	82.5	
1624	samples collected								

SC 6-18-19

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [x] GEOPUMP (peristaltic)
- [ ] QED BLADDER

TYPE OF TUBING
- [ ] LOW DENSITY POLYETHYLENE
- [x] OTHER silastic

TYPE OF PUMP MATERIAL
- [ ] STAINLESS STEEL
- [x] OTHER HDPE / LDPE

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER NA

ANALYTICAL PARAMETERS

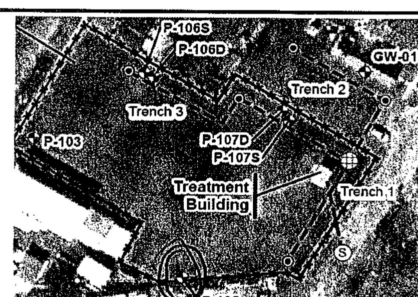
	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] VOC	8260B	HCl to pH <2	~~2~~ 3 x 40ml	[x]
[x] TAL METALS (Cd, Cr, Cu, Pb, Ni, Zn)	6010B/7470A/7141A	HNO3 to pH <2	~~500~~ 125 ml poly	[x]
[ ] TAL METALS (Dissolved)	6010B/7470A/7141A	HNO3 to pH <2	500 ml poly	[ ] Field Filtered
[ ]				[ ]
[ ]				[ ]

SC

NOTES:

SIGNATURE: [signature]

LOCATION SKETCH



FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

JOB NUMBER: 3612122251-04.****

PROJECT: NYSDEC Primoshield Inc.
FIELD SAMPLE NUMBER: 633027-P106S
SITE ID: MW - P-106S
SITE TYPE: WELL
DATE: 061819
ACTIVITY: START 1100 END 1300
SAMPLE TIME: 1241

WATER LEVEL / PUMP SETTINGS

MEASUREMENT POINT: [X] TOP OF WELL RISER [ ] TOP OF PROTECTIVE CASING

INITIAL DEPTH TO WATER	7.67 FT	WELL DEPTH (TOR)	18.4 FT	PROTECTIVE CASING STICKUP (FROM GROUND)	3.98 FT
FINAL DEPTH TO WATER	10.04 FT	SCREEN LENGTH	10 FT	CASING / WELL DIFFER.	.29 FT
DRAWDOWN VOLUME	0.4 GAL	PID AMBIENT AIR	0.0 PPM	WELL DIAM.	2 IN
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})		PID WELL MOUTH	0.2 PPM		
TOTAL VOL. PURGED	1.7 GAL	RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED	0.24	PRESSURE TO PUMP	— PSI
(purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)				REFILL SETTING	—

WELL INTERGRITY:

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

DISCHARGE SETTING: —

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCT. (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10	REDOX (mv) (+/- 10 mv)	COMMENTS
1135	Start purge								
1145	8.19	100	15.16	0.582	6.27	8.70	2.49	125.9	
1150	8.35	100	15.17	0.578	6.37	5.07	1.98	115.7	
1155	8.54	100	15.39	0.580	6.49	4.80	1.39	101.7	
1200	8.76	100	14.94	0.576	6.52	4.67	1.33	92.2	
1205	8.92	100	14.98	0.577	6.52	4.67	1.59	88.7	
1210	9.06	100	14.99	0.574	6.54	4.67	1.45	84.4	
1215	9.23	100	14.94	0.573	6.55	4.72	1.07	81.6	
1220	9.50	100	14.83	0.576	6.59	4.64	1.06	78.1	
1225	9.60	100	15.15	0.575	6.60	4.59	1.07	77.4	
1230	9.84	100	14.87	0.583	6.64	4.46	0.97	74.0	
1235	10.00	100	15.02	0.586	6.65	4.37	1.25	72.7	
1240	10.04	100	15.01	0.587	6.66	4.32	1.02	71.8	
1241	well	stable,	collect	samples					

EQUIPMENT DOCUMENTATION

TYPE OF PUMP: [X] GEOPUMP (peristaltic) [ ] QED BLADDER

TYPE OF TUBING + HDPE: [X] LOW DENSITY POLYETHYLENE [ ] OTHER

TYPE OF PUMP MATERIAL: [ ] STAINLESS STEEL [ ] OTHER

TYPE OF BLADDER MATERIAL: [ ] TEFLON [ ] OTHER

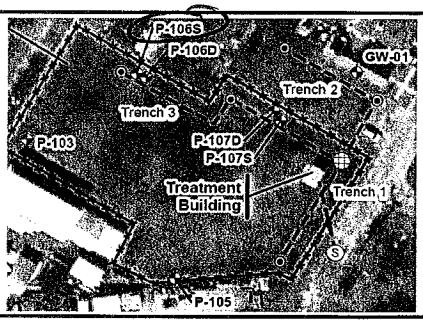
ANALYTICAL PARAMETERS

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] VOC	8260B	HCl to pH <2	3 x 40ml	[X]
[X] TAL METALS (Cd, Cr, Cu, Pb, Ni, Zn)	6010B/7470A/7141A	HNO3 to pH <2	125 500 ml poly	[X]
[ ] TAL METALS (Dissolved)	6010B/7470A/7141A	HNO3 to pH <2	500 ml poly	[ ] Field Filtered
[ ] _____				[ ]
[ ] _____				[ ]

NOTES:

SIGNATURE:

LOCATION SKETCH



FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

JOB NUMBER: 3612122251-04.****

page 1 of 2

PROJECT: NYSDEC Primoshield Inc.
FIELD SAMPLE NUMBER: 633027-P106D
SITE ID: P-106D
SITE TYPE: WELL
DATE: 6-18-19
ACTIVITY: START 1120 END 1325
SAMPLE TIME: 1321

WATER LEVEL / PUMP SETTINGS

INITIAL DEPTH TO WATER: 28.48 FT
MEASUREMENT POINT: [X] TOP OF WELL RISER [ ] TOP OF PROTECTIVE CASING
PROTECTIVE CASING STICKUP (FROM GROUND): 3.79 FT
CASING / WELL DIFFER.: 0.40 FT
FINAL DEPTH TO WATER: 30.65 FT
WELL DEPTH (TOR): 77.41 FT
PID AMBIENT AIR: — PPM
WELL DIAM.: 2" IN
DRAWDOWN VOLUME: 0.347 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
SCREEN LENGTH: 10 FT
PID WELL MOUTH: — PPM
TOTAL VOL. PURGED: 3.04 GAL
(purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.114
PRESSURE TO PUMP: 17 PSI
REFILL SETTING: 13
DISCHARGE SETTING: 7

WELL INTERGRITY:

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

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCT. (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10	REDOX (mv) (+/- 10 mv)	COMMENTS
1122	Start	Purge							
1135	30.28	150	13.51	0.377	10.15	9.08	128	43.4	
1140	31.12	↓	13.31	0.372	10.13	8.10	67.6	36.9	
1145	31.80	200	13.39	0.370	10.11	7.43	88.3	33.5	Reduced pump throttle to 20
1150	32.24	150	13.71	0.352	10.01	3.65	226	5.7	
1155	32.39	150	13.96	0.336	9.83	3.87	243	-28.9	Reduced pump throttle to 10
1200	32.26	<100	14.15	0.328	9.63	3.97	219	-59.1	increased pump throttle to 17
1205	31.67	100	15.73	0.330	9.51	5.06	197	-75.2	
1210	31.41	100	15.92	0.336	9.45	4.88	178	-80.6	
1215	31.21	│	16.04	0.351	9.33	4.65	133	-84.8	
1220	31.04	│	16.08	0.377	9.09	4.40	105	-88.7	
1225	31.00	│	16.24	0.395	8.95	4.27	89.7	-93.7	
1230	30.86	│	16.25	0.407	8.90	4.02	73.5	-89.4	
1235	30.81	│	16.22	0.424	8.79	3.89	59.4	-87.8	
1240	30.81	│	16.32	0.432	8.77	3.57	54.7	-93.2	
1245	30.80	│	16.43	0.443	8.72	3.33	44.8	-94.0	
1250	30.76	│	16.74	0.454	8.69	3.61	36.4	-93.0	
1255	30.75	│	16.97	0.462	8.63	2.80	31.2	-93.5	
1300	30.75	│	17.05	0.473	8.57	2.62	25.5	-86.4	
1305	30.70	│	17.07	0.474	8.55	2.59	22.7	-83.9	
1310	30.70	↓	17.21	0.481	8.54	2.26	18.6	-84.3	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [ ] GEOPUMP (peristaltic)
- [x] QED BLADDER

TYPE OF TUBING
- [x] LOW DENSITY POLYETHYLENE
- [ ] OTHER ________

TYPE OF PUMP MATERIAL
- [x] STAINLESS STEEL
- [ ] OTHER ________

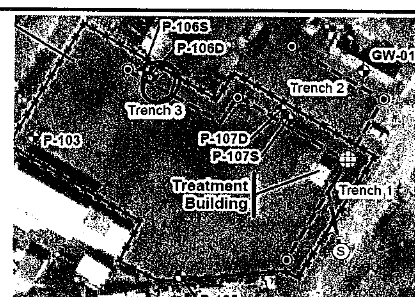
TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [x] OTHER Poly

ANALYTICAL PARAMETERS

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[x] VOC	8260B	HCl to pH <2	3 ~~2~~ x 40ml	[x]
[x] TAL METALS (Cd, Cr, Cu, Pb, Ni, Zn)	6010B/7470A/7141A	HNO3 to pH <2	125 ~~500~~ ml poly	[x]
[ ] TAL METALS (Dissolved)	6010B/7470A/7141A	HNO3 to pH <2	500 ml poly	[ ] Field Filtered
[ ]				[ ]
[ ]				[ ]

NOTES:

LOCATION SKETCH



SIGNATURE: [signature]

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FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

JOB NUMBER 3612122251-04.**** page 2 of 2

PROJECT NYSDEC Primoshield Inc.

FIELD SAMPLE NUMBER 033027-P106D

SITE ID see page 1 P-106D

SITE TYPE WELL / CC

DATE 6-18-19

ACTIVITY START END

SAMPLE TIME

WATER LEVEL / PUMP SETTINGS

INITIAL DEPTH TO WATER ____ FT

FINAL DEPTH TO WATER ____ FT

DRAWDOWN VOLUME ____ GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})

TOTAL VOL. PURGED ____ GAL
(purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

MEASUREMENT POINT
- ☐ TOP OF WELL RISER
- ☐ TOP OF PROTECTIVE CASING

WELL DEPTH (TOR) ____ FT

SCREEN LENGTH ____ FT

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED ____

PROTECTIVE CASING STICKUP (FROM GROUND) ____ FT

PID AMBIENT AIR ____ PPM

PID WELL MOUTH ____ PPM

PRESSURE TO PUMP ____ PSI

REFILL SETTING ____

CASING / WELL DIFFER. ____ FT

WELL DIAM. ____ IN

WELL INTERGRITY:

	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

DISCHARGE SETTING ____

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCT. (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10	REDOX (mv) (+/- 10 mv)	COMMENTS
1315	30.70	100	17.24	0.481	8.55	2.19	18.0	-88.0	
1320	30.69	100	17.20	0.485	8.53	2.04	15.8	-92.8	

see page 1

SC 6-18-19

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- ☐ GEOPUMP (peristaltic)
- ☐ QED BLADDER

TYPE OF TUBING
- ☐ LOW DENSITY POLYETHYLENE
- ☐ OTHER ____

TYPE OF PUMP MATERIAL
- ☐ STAINLESS STEEL
- ☐ OTHER ____

TYPE OF BLADDER MATERIAL
- ☐ TEFLON
- ☐ OTHER ____

ANALYTICAL PARAMETERS

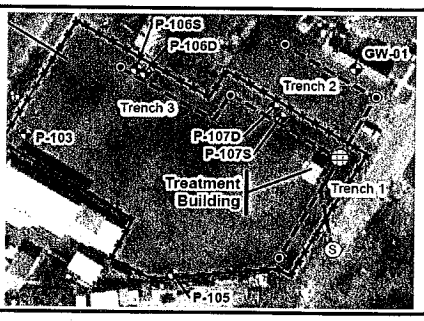
	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC	8260B	HCl to pH <2	3 ~~2~~ x 40ml	☑
☑ TAL METALS (Cd, Cr, Cu, Pb, Ni, Zn)	6010B/7470A/7141A	HNO3 to pH <2	125 ~~500 ml~~ poly	☑
☐ TAL METALS (Dissolved)	6010B/7470A/7141A	HNO3 to pH <2	500 ml poly	☐ Field Filtered
☐ ____	____	____	____	☐
☐ ____	____	____	____	☐

NOTES:

(N) Two hour purge limit; slight trends in sp. cond.; pH; DO

SIGNATURE: ____

LOCATION SKETCH



checked ATH 06/19/19

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

JOB NUMBER: 3612122251-04.****

PROJECT: NYSDEC Primoshield Inc.

FIELD SAMPLE NUMBER: 623027-P1075

SITE ID: 3 P-1075

SITE TYPE: WELL

DATE: 06/18/19

ACTIVITY: START 0830 END 0900 06/19/19

SAMPLE TIME: 0745

WATER LEVEL / PUMP SETTINGS

INITIAL DEPTH TO WATER: 8.33 FT

FINAL DEPTH TO WATER: Purged dry FT

DRAWDOWN VOLUME: NA GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})

TOTAL VOL. PURGED: 3 GAL
(purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

MEASUREMENT POINT
- [X] TOP OF WELL RISER
- [ ] TOP OF PROTECTIVE CASING

WELL DEPTH (TOR): 17.1 FT

SCREEN LENGTH: 10 FT

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: NA

PROTECTIVE CASING STICKUP (FROM GROUND): 3.15 FT

PID AMBIENT AIR: 0.0 PPM

PID WELL MOUTH: 0.7 PPM

PRESSURE TO PUMP: — PSI

REFILL SETTING: —

CASING / WELL DIFFER.: 0.22 FT

WELL DIAM.: 2 IN

WELL INTERGRITY:

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

DISCHARGE SETTING: —

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCT. (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10	REDOX (mv) (+/- 10 mv)	COMMENTS
0835	8.33	400	Purge well dry, wait for recharge to collect Sample						
0855	—		well purged Dry.						
0744	8.41	—	well recharged, collect Sample.						
0745	Samples collected.								
0750	—	—	13.12	0.667	9.41	5.75	33.7		

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] GEOPUMP (peristaltic)
- [ ] QED BLADDER

TYPE OF TUBING
- [X] LOW DENSITY POLYETHYLENE
- [ ] OTHER _____

TYPE OF PUMP MATERIAL
- [ ] STAINLESS STEEL
- [ ] OTHER _____

TYPE OF BLADDER MATERIAL
- [ ] TEFLON
- [ ] OTHER _____

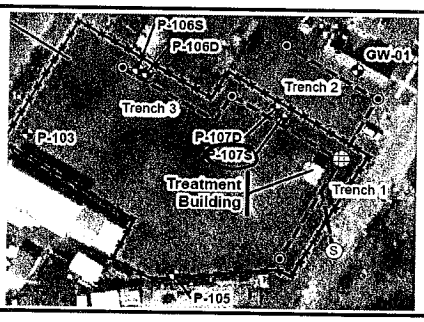
ANALYTICAL PARAMETERS

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
[X] VOC	8260B	HCl to pH <2	3 x 40ml	[X]
[X] TAL METALS (Cd, Cr, Cu, Pb, Ni, Zn)	6010B/7470A/7141A	HNO3 to pH <2	125 ml poly	[X]
[ ] TAL METALS (Dissolved)	6010B/7470A/7141A	HNO3 to pH <2	500 ml poly	[ ] Field Filtered
[ ] _____				[ ]
[ ] _____				[ ]

NOTES:

SIGNATURE:

LOCATION SKETCH



Checked SL 6-19-19

6/14/2019

FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING

JOB NUMBER: 3612122251-04.****

PROJECT: NYSDEC Primoshield Inc.
FIELD SAMPLE NUMBER: 623027-P107D
SITE ID: P-107D
SITE TYPE: WELL
DATE: 6-18-19
ACTIVITY: START 800 15 SC END
SAMPLE TIME: 1016

WATER LEVEL / PUMP SETTINGS

INITIAL DEPTH TO WATER: 29.02 FT
FINAL DEPTH TO WATER: 29.72 FT
DRAWDOWN VOLUME: 0.117 GAL
(initial - final x 0.16 {2-inch} or x 0.65 {4-inch})
TOTAL VOL. PURGED: 2.73 GAL
(purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter)

MEASUREMENT POINT
☒ TOP OF WELL RISER
☐ TOP OF PROTECTIVE CASING

WELL DEPTH (TOR): 77.90 FT
SCREEN LENGTH: 10 Ft FT
RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.04

PROTECTIVE CASING STICKUP (FROM GROUND): 3.14 FT
PID AMBIENT AIR: 0.0 PPM
PID WELL MOUTH: 0.2 PPM
PRESSURE TO PUMP: 27 PSI
REFILL SETTING: 16 sec.

CASING / WELL DIFFER.: 0.48 FT
WELL DIAM.: 2 IN

WELL INTERGRITY:

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

DISCHARGE SETTING: 4 sec.

PURGE DATA

TIME	DEPTH TO WATER (ft)	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCT. (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10	REDOX (mv) (+/- 10 mv)	COMMENTS
8[illegible]20	29.23	100	13.93	0.600	10.46	10.07	33.7	221.0	
825	29.41		13.29	0.493	10.36	8.70	87.5	227.5	
830	29.47		13.05	0.429	10.11	7.31	162.0	236.0	
835	29.50		12.92	0.396	9.89	5.34	319.0	211.5	
840	29.45		12.80	0.379	9.67	3.52	751.0	200.6	
845	29.56		12.76	0.435	8.97	2.55	*	194.7	* over range
850	29.56		12.78	0.472	8.70	1.87	*	181.1	* over range
855	29.56		12.79	0.511	8.48	1.42	864	165.1	
900	29.56		12.82	0.522	8.39	1.00	640	151.5	
905	29.56		12.84	0.520	8.33	0.64	454	136.2	
910	29.58		12.87	0.521	8.27	0.49	342	125.1	
915	29.58		12.91	0.518	8.24	0.46	264	115.0	
920	29.60		12.93	0.519	8.20	0.47	211	106.5	
925	29.60		12.98	0.516	8.19	0.45	178	99.4	
930	29.60		13.00	0.518	8.18	0.45	152	92.5	
935	29.63	↓	13.40	0.521	8.17	0.43	127	86.3	
NO readings		940-955 SC							
955 1000	29.70	100	13.23	0.520	8.13	0.43	101	52.8	
1005	29.70	↓	13.34	0.520	8.16	0.39	85.0	44.0	
1010	29.70		13.29	0.524	8.15	0.36	84.5	38.4	
1015	29.72		13.36	0.529	8.13	0.30	74.4	31.9	

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
☐ GEOPUMP (peristaltic)
☑ QED BLADDER

TYPE OF TUBING
☑ LOW DENSITY POLYETHYLENE
☐ OTHER _____

TYPE OF PUMP MATERIAL
☑ STAINLESS STEEL
☐ OTHER _____

TYPE OF BLADDER MATERIAL
☐ TEFLON
☑ OTHER Poly

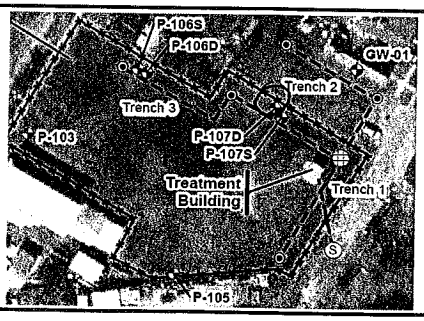
ANALYTICAL PARAMETERS

	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
☑ VOC SC	8260B	HCl to pH <2 SC	3 ~~2~~ x 40ml	☑ SC
☑ ~~TAL~~ METALS (Cd, Cr, Cu, Pb, Ni, Zn)	6010B/7470A/7141A	HNO3 to pH <2 ~~125~~ ~~500~~ ml poly		☑ ~~Field Filtered~~
☑ TAL METALS (Dissolved)	6010B/7470A/7141A	HNO3 to pH <2 125 ~~500~~ ml poly		☑ ~~Field Filtered~~
☐ _____				☐
☐ _____				☐

NOTES: purge started at 8:15am
- Two hour purge limit ; slight trends in pH, redox
- Filter metals sample due to turbidity >50 NTU

SIGNATURE: [signature]

LOCATION SKETCH



FIELD INSTRUMENTATION CALIBRATION RECORD

PROJECT NAME: Primoshield
PROJECT NUMBER: 3612122251
PROJECT LOCATION: Utica, NY
WEATHER CONDITIONS (AM): SUNX 80°F
WEATHER CONDITIONS (PM): SUNX 80°F
TASK NO: 04 DATE: 06/17/19
MACTEC CREW:
SAMPLER NAME: Alex Howe
SAMPLER SIGNATURE:
CHECKED BY: SE DATE: 6-19-19

MULTI-PARAMETER WATER QUALITY METER

METER TYPE YSI
MODEL NO. 556
UNIT ID NO. MOIS-09

AM CALIBRATION Start Time 1400 /End Time 1430

POST CALIBRATION CHECK Start Time 1605 /End Time 1630

	Units	Standard Value	Meter Value	*Acceptance Criteria (AM)	Standard Value	Meter Value	*Acceptance Criteria (PM)
pH (4)	SU	4.0	4.0	+/- 0.1 pH Units			
pH (7)	SU	7.0	7.0	+/- 0.1 pH Units	7.0	7.01	+/- 0.3 pH Units
pH (10)	SU	10.0	—	+/- 0.1 pH Units			
Redox	+/- mV	240	240	+/- 10 mV	240	236.9	+/- 10 mV
Conductivity	mS/cm	1.413	1.413	+/- 0.5 % of standard	1.413	1.416	+/- 5% of standard
DO (saturated)	%	100	99 %	+/- 2% of standard			
DO (saturated)	mg/L [1 (see Chart 1)]	7.84	7.83	+/- 0.2 mg/L	7.98	7.89	+/- 0.5 mg/L of standard
DO (<0.1)	mg/L	<0.1	—	< 0.5 mg/L			
Temperature	°C		27.41			26.1	
Baro. Press.	mmHg		751.4			752	

TURBIDITY METER

METER TYPE HACH
MODEL NO.
UNIT ID NO.

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
10 Standard	NTU	10	10.2	10	10.1	+/- 5% of standard
20 Standard	NTU	20	19.9	20	19.8	+/- 5% of standard
100 Standard	NTU	100	102	100	104	+/- 5% of standard
800 Standard	NTU	800	788	800	794	+/- 5% of standard

PHOTOIONIZATION DETECTOR

METER TYPE NA
MODEL NO. NA
UNIT ID NO. NA

Background	ppmv	<0.1	0.0	<0.1	0.0	within 5 ppmv of BG
Span Gas	ppmv	100	100	100	98.7	+/- 10% of standard

O_2-LEL 4 GAS METER

METER TYPE NA
MODEL NO. NA
UNIT ID NO. NA

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:
Lot#/Date Produced:
Trip Blank Source:
Sample Preservatives Source:
Disposable Filter Type: 0.45 um cellulose
Calibration Fluids / Standard Source:
- DO Calibration Fluid (<0.1 mg/L)
- Other
- Other
- Other

	Cal. Standard Lot Number	Exp. Date
pH (4)	8GC342	3/21
pH (7)	8GF167	7/21
pH (10)		
ORP	3086	6/23
Conductivity	8GK305	11/19
10 Turb. Stan.	A8232	11-19
20 Turb. Stan.	A8234	12-19
100 Turb. Stan.	A8236	11-19
800 Turb. Stan.	A8236	11-19
PID Span Gas		
O_2-LEL Span Gas		
Other		

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.

FIELD INSTRUMENTATION CALIBRATION RECORD

PROJECT NAME: Primoshield
PROJECT NUMBER: 3612122251
PROJECT LOCATION: Utica, NY
WEATHER CONDITIONS (AM): Overcast 60°F
WEATHER CONDITIONS (PM): Sunny 79°F
TASK NO: 04 DATE: 06/18/19
MACTEC CREW:
SAMPLER NAME: Alex Howe
SAMPLER SIGNATURE:
CHECKED BY: MW DATE: 6/21/19

MULTI-PARAMETER WATER QUALITY METER
METER TYPE YSI
MODEL NO. 556
UNIT ID NO. MPS-09

AM CALIBRATION Start Time 0700 /End Time NA

POST CALIBRATION CHECK Start Time 1645 /End Time 1710

	Units	Standard Value	Meter Value	*Acceptance Criteria (AM)	Standard Value	Meter Value	*Acceptance Criteria (PM)
pH (4)	SU	4.0	4.0	+/- 0.1 pH Units			
pH (7)	SU	7.0	7.0	+/- 0.1 pH Units	7.0	7.17	+/- 0.3 pH Units
pH (10)	SU	10.0	— (a)	+/- 0.1 pH Units			
Redox	+/- mV	240		+/- 10 mV	240	233.1	+/- 10 mV
Conductivity	mS/cm	1.413	1.413	+/- 0.5 % of standard	1.413	1.416	+/- 5% of standard
DO (saturated)	%	100	98.6	+/- 2% of standard			
DO (saturated)	mg/L[1] (see Chart 1)	8.59	8.59	+/- 0.2 mg/L	7.98	6.90	+/- 0.5 mg/L of standard
DO (<0.1)	mg/L	<0.1		< 0.5 mg/L			
Temperature	°C		22.31			25.63	
Baro. Press.	mmHg		750.5			748.6	

TURBIDITY METER
METER TYPE HACH
MODEL NO. 2100Q
UNIT ID NO. M024-37

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
10 Standard	NTU	10	9.62	10	10.4	+/- 5% of standard
20 Standard	NTU	20	20.0	20	20.8	+/- 5% of standard
100 Standard	NTU	100	104	100	104	+/- 5% of standard
800 Standard	NTU	800	803	800	795	+/- 5% of standard

PHOTOIONIZATION DETECTOR
METER TYPE ~~NA~~ MiniRae
MODEL NO. ~~NA~~ 2000
UNIT ID NO. ~~NA~~ M100-60

Background	ppmv	<0.1	0.0	<0.1	0.0	within 5 ppmv of BG
Span Gas	ppmv	100	100	100	94.5	+/- 10% of standard

O_2-LEL 4 GAS METER
METER TYPE NA
MODEL NO. NA
UNIT ID NO. NA

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	~~150~~ 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:
Lot#/Date Produced:
Trip Blank Source:
Sample Preservatives Source:
Disposable Filter Type: 0.45 um cellulose
Calibration Fluids / Standard Source:
- DO Calibration Fluid (<0.1 mg/L)
- Other
- Other
- Other

	Cal. Standard Lot Number	Exp. Date
pH (4)	BGC342	3-21
pH (7)	BGK167	7-21
pH (10)		
ORP	3086	6-23
Conductivity	BGK308	11-19
10 Turb. Stan.	A8232	11-19
20 Turb. Stan.	A9239	11-19
100 Turb. Stan.	A9238	12-19
800 Turb. Stan.	A8246	11-19
PID Span Gas		
O_2-LEL Span Gas		
Other		

NOTES:
- PM DO fail → readings maybe biased ~~high~~ low
- no morning Redox cal → pm check within acceptance criteria

* = 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. Additional 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.

Checked SL 6-19-19

FIELD INSTRUMENTATION CALIBRATION RECORD

PROJECT NAME:	Primoshield	TASK NO:	04 DATE: 6-18-19
PROJECT NUMBER:	3612122251	MACTEC CREW:	SC/Atm SC
PROJECT LOCATION:	Utica, NY	SAMPLER NAME:	Shawna Coplin
WEATHER CONDITIONS (AM):	overcast, 60°F	SAMPLER SIGNATURE:	[signature]
WEATHER CONDITIONS (PM):		CHECKED BY:	NV DATE: 6/21/19

MULTI-PARAMETER WATER QUALITY METER

METER TYPE YSI
MODEL NO. 556
UNIT ID NO. M015-13

AM CALIBRATION Start Time 7:13 /End Time 7:15
POST CALIBRATION CHECK Start Time 1650 /End Time 1655

	Units	Standard Value	Meter Value	*Acceptance Criteria (AM)	Standard Value	Meter Value	*Acceptance Criteria (PM)
pH (4)	SU	4.0	4.00	+/- 0.1 pH Units			
pH (7)	SU	7.0	7.00	+/- 0.1 pH Units	7.0	6.94	+/- 0.3 pH Units
pH (10)	SU	10.0	N/A	+/- 0.1 pH Units			
Redox	+/- mV	240	240.2	+/- 10 mV	240	232.4	+/- 10 mV
Conductivity	mS/cm	1.413	1.413	+/- 0.5 % of standard	1.413	1.428	+/- 5% of standard
DO (saturated)	%	100	98.3	+/- 2% of standard			
DO (saturated)	mg/L[1] (see Chart 1)	8.59	8.59	+/- 0.2 mg/L	7.19	7.65	+/- 0.5 mg/L of standard
DO (<0.1)	mg/L	<0.1	SC 9	< 0.5 mg/L			
Temperature	°C		22.41			28.20	
Baro. Press.	mmHg		747.4			744.6	

TURBIDITY METER

METER TYPE HACH
MODEL NO. 2100Q
UNIT ID NO. M024-34

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
10 Standard	NTU	10	9.98	10	10.1	+/- 5% of standard
20 Standard	NTU	20	19.8	20	20.3	+/- 5% of standard
100 Standard	NTU	100	99.2	100	99.6	+/- 5% of standard
800 Standard	NTU	800	790	800	778	+/- 5% of standard

PHOTOIONIZATION DETECTOR

METER TYPE NA
MODEL NO. NA
UNIT ID NO. NA

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
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 NA
MODEL NO. NA
UNIT ID NO. NA

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
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:
Lot#/Date Produced:
Trip Blank Source:
Sample Preservatives Source:
Disposable Filter Type: 0.45 um cellulose
Calibration Fluids / Standard Source:
- DO Calibration Fluid (<0.1 mg/L)
- Other
- Other
- Other

	Cal. Standard Lot Number	Exp. Date
pH (4)	8GC347	3/21
pH (7)	8GK167	1/21
pH (10)	NA	NA
ORP	3086	6/23
Conductivity	8GK308	11/19
10 Turb. Stan.	M024-34/A8232	NOV-19
20 Turb. Stan.	A8239 SC	DEC-19
100 Turb. Stan.	A8236	NOV-19
800 Turb. Stan.	A8236	NOV-19
PID Span Gas		
O_2-LEL Span Gas		
Other		

NOTES: - DO cal check barely within acceptance criteria → slightly biased high

* = 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.

MACTEC
511 Congress Street, Portland Maine 04101

FIELD INSTRUMENT CALIBRATION RECORD

FIELD INSTRUMENTATION CALIBRATION RECORD

PROJECT NAME: Primoshield
PROJECT NUMBER: 3612122251
PROJECT LOCATION: Utica, NY
WEATHER CONDITIONS (AM): Sunny / Partly Cloudy, 65°F
WEATHER CONDITIONS (PM):
TASK NO: 04 DATE: 6-19-19 SC
MACTEC CREW: SC + AH
SAMPLER NAME: Shannon Clayton
SAMPLER SIGNATURE:
CHECKED BY: NV DATE: 6/21/19

MULTI-PARAMETER WATER QUALITY METER

METER TYPE YSI
MODEL NO. EXO
UNIT ID NO. M015-09

AM CALIBRATION Start Time 0715am / End Time 0734

POST CALIBRATION CHECK Start Time 0847 / End Time 0854

	Units	Standard Value	Meter Value	*Acceptance Criteria (AM)	Standard Value	Meter Value	*Acceptance Criteria (PM)
pH (4)	SU	4.0	4.0	+/- 0.1 pH Units			
pH (7)	SU	7.0	7.0	+/- 0.1 pH Units	7.0	7.19	+/- 0.3 pH Units
pH (10)	SU	10.0	NA	+/- 0.1 pH Units			
Redox	+/- mV	240	240.0	+/- 10 mV	240	236.4	+/- 10 mV
Conductivity	mS/cm	1.413	1.413	+/- 0.5 % of standard	1.413	1.355	+/- 5% of standard
DO (saturated)	%	100		+/- 2% of standard			
DO (saturated)	mg/L[1] (see Chart 1)	8.43	8.42	+/- 0.2 mg/L	7.57	6.26	+/- 0.5 mg/L of standard
DO (<0.1)	mg/L	<0.1		< 0.5 mg/L			
Temperature	°C		22.69			28.7	
Baro. Press.	mmHg		747.7			748.3	

TURBIDITY METER

METER TYPE HACH
MODEL NO. 2100Q
UNIT ID NO. 150300029349 SC
M024-19

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
10 Standard	NTU	10	10.1	10	10.4	+/- 5% of standard
20 Standard	NTU	20	20.1	20	20.1	+/- 5% of standard
100 Standard	NTU	100	99.8	100	99.6	+/- 5% of standard
800 Standard	NTU	800	782	800	777	+/- 5% of standard

PHOTOIONIZATION DETECTOR

METER TYPE NA
MODEL NO. NA
UNIT ID NO. NA

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 NA
MODEL NO. NA
UNIT ID NO. NA

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

SC ☑ 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:
Lot#/Date Produced:
Trip Blank Source:
Sample Preservatives Source:
Disposable Filter Type: 0.45 um cellulose
Calibration Fluids / Standard Source:
- DO Calibration Fluid (<0.1 mg/L)
- Other
- Other
- Other

	Cal. Standard Lot Number	Exp. Date
pH (4)	8620547	3/21
pH (7)	8620167	1/21
pH (10)	NA	NA
ORP	3086	6/23
Conductivity	8620308	11/19
10 Turb. Stan.	A8232	NOV-19
20 Turb. Stan.	A8239	12-19
100 Turb. Stan.	A8236	NOV-19
800 Turb. Stan.	A8236	NOV-19
PID Span Gas		
O_2-LEL Span Gas		
Other		

NOTES: DO fail post cal. check SC 6-19-19
- readings potentially biased low

* = 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.

ATTACHMENT 2

CATEGORY A DATA VALIDATION REPORT

CATEGORY A REVIEW
JUNE 2019 GROUNDWATER SAMPLING PROGRAM
PRIMOSHIELD INCORPORATED SITE
UTICA, NEW YORK

1.0 INTRODUCTION

Groundwater samples were collected in June 2019 at the Primoshield Incorporated Site in Utica, New York, and shipped to ALS Environmental in Rochester, New York for analysis. Analyses for volatile organic compounds (VOCs) and metals were performed by ALS. Samples were analyzed by one or more of the following methods:

- Volatile Organic Compounds (VOCs) by USEPA Method 8260C
- Metals (select list) by USEPA Method 6010C

Results were reported in the following sample delivery groups (SDGs):

- R1905823

Sample data included in this chemistry review is presented in the following tables:

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

A summary of table notes applicable to Tables 1, 2, and 3 is presented just before Table 1.

Laboratory deliverables included:

- Category B deliverable as defined in the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocols (NYSDEC, 2005)

The Category A review included the following evaluations. Data review checklists are provided as Attachment A.

- Lab Report Narrative Review
- Data Package Completeness and COC records (Table 1 verification)
- Sample Preservation and Holding Times
- QC Blanks
- Matrix Spike and Matrix Spike Duplicate (MS/MSD) Evaluation
- Reporting Limits
- Electronic Data Qualification and Verification

The following laboratory data qualifiers or data review qualifiers are used in the final data presentation:

U = target analyte is not detected at or above the reporting limit

J = concentration is estimated

2.0 POTENTIAL DATA LIMITATIONS

Based on the Category A Review conducted the data meets the data quality objectives; however, the following potential limitations were identified:

- Results for acetone were qualified non-detect (U) based on contamination in the trip blank.
- Results for chloromethane were qualified non-detect (U) based on contamination in the associated method blank and/or the trip blank
- Reporting limits for bromomethane were qualified estimated (UJ) in a subset of samples based on a low LCS recovery.
- The reporting limit for bromomethane in sample 633027-P103 was qualified estimated (UJ) based on low matrix spike recovery.

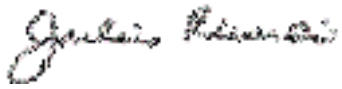
Reference:

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

Data Validator: Shawna Couplin

Date: 8/06/2019

Reviewed by: Julie Ricardi



Date: 8/12/19

Table Notes:

Sample Type (QC Code)

FS – field sample

FD – field duplicate

TB – trip blank

EB – equipment blank

FB – field blank

Matrix

GW – ground water

BW – blank water

TW – tap water

SV – soil vapor

SED - sediment

Units

mg/L – milligrams per liter

µg/L – micrograms per liter

mg/kg – milligrams per kilogram

µg/kg – micrograms per kilogram

µg/m^3 – micrograms per cubic meter

Qualifiers

U – not detected above quantitation limit

J – estimated quantity

J+ - estimated quantity, biased high

J- - estimated quantity, biased low

R – data unusable

Fraction

T – total

D – dissolved

N – normal

Qualification Reason Codes

BL1 – method blank qualifier

BL2 – field or trip blank qualifier

CCV – continuing calibration verification recovery outside limits

CCV%D – continuing calibration verification percent difference exceeds goal

CCVRRF – continuing calibration relative response factor low

CI – chromatographic interference present

DCPD – dual column percent difference exceeds limit

E – result exceeds calibration range

FD – field duplicate precision goal exceeded

FP – false positive interference

HT – holding time for prep or analysis exceeded

HTG – holding time for prep or analysis grossly exceeded

ICV – initial calibration verification recovery outside limit

ICVRRF – initial calibration verification relative response factor low

ICVRSD – initial calibration verification % relative standard deviation exceeds goal

ISH – internal standard response greater than limit

ISL – internal standard response less than limit

LCSH – laboratory control sample recovery high

LCSL – laboratory control sample recovery low

LCSRPD – laboratory control sample/duplicate relative % difference precision goal exceeded

LD – lab duplicate precision goal exceeded

MSH – matrix spike and/or MS duplicate recovery high

MSL – matrix spike and/or MS duplicate recovery low

MSRPD – matrix spike/duplicate relative % difference precision goal exceeded

N – analyte identification is not certain

PEM – performance evaluation mixture exceeds limit

PM – sample percent moisture exceeds EPA guideline

SD – serial dilution result exceeds percent difference limit

SP – sample preservation/collection does not meet method requirement

SSH – surrogate recovery high

SSL – surrogate recovery low

TD – dissolved concentration exceeds total

TABLE 1 - SUMMARY OF SAMPLES AND ANALYTICAL METHODS
CATEGORY A REVIEW
JUNE 2019 GROUNDWATER SAMPLING PROGRAM
PRIMOSHIELD INCORPORATED SITE
UTICA, NEW YORK

						Method Class	Metals	VOCs
						Analysis Method	SW6010C	SW8260C
SDG	**Location**	**Sample ID**	**Sample Date**	**Media**	**Lab Sample ID**	**Qc Code**	Param_Count	Param_Count
R1905823	GW-01	633027-GW01	6/19/2019	GW	R1905823-007	FS	6	35
R1905823	P-103	633027-P103	6/18/2019	GW	R1905823-004	FS	6	35
R1905823	P-105	633027-P105	6/18/2019	GW	R1905823-005	FS	6	35
R1905823	P-106D	633027-P106D	6/18/2019	GW	R1905823-003	FS	6	35
R1905823	P-106S	633027-P106S	6/18/2019	GW	R1905823-002	FS	6	35
R1905823	P-107D	633027-P107D	6/18/2019	GW	R1905823-001	FS	6	35
R1905823	P-107S	633027-P107S	6/19/2019	GW	R1905823-006	FS	6	35
R1905823	QC	Trip Blank	6/18/2019	BW	R1905823-008	TB		35

Prepared by: BCG 8/05/19
Checked by: JAR 8/06/19

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
CATEGORY A REVIEW
JUNE 2019 GROUNDWATER SAMPLING PROGRAM
PRIMOSHIELD INCORPORATED SITE
UTICA, NEW YORK

			SDG	R1905823		R1905823		R1905823	
			Location	GW-01		P-103		P-105	
			Sample Date	6/19/2019		6/18/2019		6/18/2019	
			Sample ID	633027-GW01		633027-P103		633027-P105	
			Qc Code	FS		FS		FS	
Method	**Class**	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8260C	VOCs	1,1,1-Trichloroethane	UG/L	1	U	4.6		1	U
SW8260C	VOCs	1,1,2,2-Tetrachloroethane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	1,1,2-Trichloroethane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	1,1-Dichloroethane	UG/L	1	U	0.59	J	1	U
SW8260C	VOCs	1,1-Dichloroethene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	1,2-Dichloroethane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	1,2-Dichloropropane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	2-Butanone	UG/L	5	U	5	U	5	U
SW8260C	VOCs	2-Hexanone	UG/L	5	U	5	U	5	U
SW8260C	VOCs	4-Methyl-2-pentanone	UG/L	5	U	5	U	5	U
SW8260C	VOCs	Acetone	UG/L	6.8	U	14	U	16	U
SW8260C	VOCs	Benzene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Bromodichloromethane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Bromoform	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Bromomethane	UG/L	1	UJ	1	UJ	1	U
SW8260C	VOCs	Carbon disulfide	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Carbon tetrachloride	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Chlorobenzene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Chloroethane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Chloroform	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Chloromethane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	cis-1,2-Dichloroethene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	cis-1,3-Dichloropropene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Dibromochloromethane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Ethylbenzene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Methylene chloride	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Styrene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Tetrachloroethene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Toluene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	trans-1,2-Dichloroethene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	trans-1,3-Dichloropropene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Trichloroethene	UG/L	1	U	2.1		1	U
SW8260C	VOCs	Vinyl chloride	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Xylene, o	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Xylenes (m&p)	UG/L	2	U	2	U	2	U
SW6010C	Metals	Cadmium	UG/L	5	U	5	U	5	U
SW6010C	Metals	Chromium	UG/L	10	U	10	U	10	U
SW6010C	Metals	Copper	UG/L	20	U	20	U	20	U
SW6010C	Metals	Lead	UG/L	50	U	50	U	50	U
SW6010C	Metals	Nickel	UG/L	9.2	J	40	U	40	U
SW6010C	Metals	Zinc	UG/L	20	U	20	U	20	U

B = Blank contamination lab qualifier

Prepared by: BCG 8/06/19
Checked by: JAR 8/07/19

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
CATEGORY A REVIEW
JUNE 2019 GROUNDWATER SAMPLING PROGRAM
PRIMOSHIELD INCORPORATED SITE
UTICA, NEW YORK

			SDG	R1905823		R1905823		R1905823	
			Location	P-106D		P-106S		P-107D	
			Sample Date	6/18/2019		6/18/2019		6/18/2019	
			Sample ID	633027-P106D		633027-P106S		633027-P107D	
			Qc Code	FS		FS		FS	
Method	**Class**	**Parameter**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier
SW8260C	VOCs	1,1,1-Trichloroethane	UG/L	1	U	0.64	J	1	U
SW8260C	VOCs	1,1,2,2-Tetrachloroethane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	1,1,2-Trichloroethane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	1,1-Dichloroethane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	1,1-Dichloroethene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	1,2-Dichloroethane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	1,2-Dichloropropane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	2-Butanone	UG/L	5	U	5	U	5	U
SW8260C	VOCs	2-Hexanone	UG/L	5	U	5	U	5	U
SW8260C	VOCs	4-Methyl-2-pentanone	UG/L	5	U	5	U	5	U
SW8260C	VOCs	Acetone	UG/L	9.5	U	19	U	9.6	U
SW8260C	VOCs	Benzene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Bromodichloromethane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Bromoform	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Bromomethane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Carbon disulfide	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Carbon tetrachloride	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Chlorobenzene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Chloroethane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Chloroform	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Chloromethane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	cis-1,2-Dichloroethene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	cis-1,3-Dichloropropene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Dibromochloromethane	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Ethylbenzene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Methylene chloride	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Styrene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Tetrachloroethene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Toluene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	trans-1,2-Dichloroethene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	trans-1,3-Dichloropropene	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Trichloroethene	UG/L	1	U	0.7	J	1	U
SW8260C	VOCs	Vinyl chloride	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Xylene, o	UG/L	1	U	1	U	1	U
SW8260C	VOCs	Xylenes (m&p)	UG/L	2	U	2	U	2	U
SW6010C	Metals	Cadmium	UG/L	5	U	5	U	5	U
SW6010C	Metals	Chromium	UG/L	10	U	10	U	10	U
SW6010C	Metals	Copper	UG/L	20	U	20	U	20	U
SW6010C	Metals	Lead	UG/L	50	U	50	U	50	U
SW6010C	Metals	Nickel	UG/L	40	U	40	U	40	U
SW6010C	Metals	Zinc	UG/L	20	U	20	U	20	U

B = Blank contamination lab qualifier

Prepared by: BCG 8/06/19
Checked by: JAR 8/07/19

TABLE 2 - SUMMARY OF ANALYTICAL RESULTS
CATEGORY A REVIEW
JUNE 2019 GROUNDWATER SAMPLING PROGRAM
PRIMOSHIELD INCORPORATED SITE
UTICA, NEW YORK

			SDG	R1905823		R1905823	
			Location	P-107S		QC	
			Sample Date	6/19/2019		6/18/2019	
			Sample ID	633027-P107S		Trip Blank	
			Qc Code	FS		TB	
Method	Class	Parameter	Units	Result	Qualifier	Result	Qualifier
SW8260C	VOCs	1,1,1-Trichloroethane	UG/L	1.4		1	U
SW8260C	VOCs	1,1,2,2-Tetrachloroethane	UG/L	1	U	1	U
SW8260C	VOCs	1,1,2-Trichloroethane	UG/L	1	U	1	U
SW8260C	VOCs	1,1-Dichloroethane	UG/L	1.2		1	U
SW8260C	VOCs	1,1-Dichloroethene	UG/L	1	U	1	U
SW8260C	VOCs	1,2-Dichloroethane	UG/L	1	U	1	U
SW8260C	VOCs	1,2-Dichloropropane	UG/L	1	U	1	U
SW8260C	VOCs	2-Butanone	UG/L	5	U	5	U
SW8260C	VOCs	2-Hexanone	UG/L	5	U	5	U
SW8260C	VOCs	4-Methyl-2-pentanone	UG/L	5	U	5	U
SW8260C	VOCs	Acetone	UG/L	6.1	U	34	
SW8260C	VOCs	Benzene	UG/L	1	U	1	U
SW8260C	VOCs	Bromodichloromethane	UG/L	1	U	1	U
SW8260C	VOCs	Bromoform	UG/L	1	U	1	U
SW8260C	VOCs	Bromomethane	UG/L	1	UJ	1	U
SW8260C	VOCs	Carbon disulfide	UG/L	1	U	1	U
SW8260C	VOCs	Carbon tetrachloride	UG/L	1	U	1	U
SW8260C	VOCs	Chlorobenzene	UG/L	1	U	1	U
SW8260C	VOCs	Chloroethane	UG/L	1	U	1	U
SW8260C	VOCs	Chloroform	UG/L	1	U	1	U
SW8260C	VOCs	Chloromethane	UG/L	1	U	0.42	BJ
SW8260C	VOCs	cis-1,2-Dichloroethene	UG/L	1	U	1	U
SW8260C	VOCs	cis-1,3-Dichloropropene	UG/L	1	U	1	U
SW8260C	VOCs	Dibromochloromethane	UG/L	1	U	1	U
SW8260C	VOCs	Ethylbenzene	UG/L	1	U	1	U
SW8260C	VOCs	Methylene chloride	UG/L	1	U	1	U
SW8260C	VOCs	Styrene	UG/L	1	U	1	U
SW8260C	VOCs	Tetrachloroethene	UG/L	1	U	1	U
SW8260C	VOCs	Toluene	UG/L	1	U	1	U
SW8260C	VOCs	trans-1,2-Dichloroethene	UG/L	1	U	1	U
SW8260C	VOCs	trans-1,3-Dichloropropene	UG/L	1	U	1	U
SW8260C	VOCs	Trichloroethene	UG/L	7.5		1	U
SW8260C	VOCs	Vinyl chloride	UG/L	1	U	1	U
SW8260C	VOCs	Xylene, o	UG/L	1	U	1	U
SW8260C	VOCs	Xylenes (m&p)	UG/L	2	U	2	U
SW6010C	Metals	Cadmium	UG/L	3.7	J		
SW6010C	Metals	Chromium	UG/L	1.1	J		
SW6010C	Metals	Copper	UG/L	20	U		
SW6010C	Metals	Lead	UG/L	50	U		
SW6010C	Metals	Nickel	UG/L	313			
SW6010C	Metals	Zinc	UG/L	14.5	J		

B = Blank contamination lab qualifier

Prepared by: BCG 8/06/19
Checked by: JAR 8/07/19

TABLE 3 - SUMMARY OF QUALIFICATION ACTIONS
CATEGORY A REVIEW
JUNE 2019 GROUNDWATER SAMPLING PROGRAM
PRIMOSHIELD INCORPORATED SITE
UTICA, NEW YORK

SDG	Analysis Method	Lab Sample ID	Field Sample ID	Parameter Name	Lab Result	Lab Qualifier	Validated Result	Validation Qualifier	Val Reason Code	Result Units
R1905823	SW8260C	R1905823-007	633027-GW01	Acetone	6.8		6.8	U	BL2	UG/L
R1905823	SW8260C	R1905823-007	633027-GW01	Bromomethane	1	U	1	UJ	LCSL	UG/L
R1905823	SW8260C	R1905823-007	633027-GW01	Chloromethane	0.54	J	1	U	BL2	UG/L
R1905823	SW8260C	R1905823-004	633027-P103	Acetone	14		14	U	BL2	UG/L
R1905823	SW8260C	R1905823-004	633027-P103	Bromomethane	1	U	1	UJ	MSL	UG/L
R1905823	SW8260C	R1905823-004	633027-P103	Chloromethane	0.37	BJ	1	U	BL1, BL2	UG/L
R1905823	SW8260C	R1905823-005	633027-P105	Acetone	16		16	U	BL2	UG/L
R1905823	SW8260C	R1905823-005	633027-P105	Chloromethane	0.74	BJ	1	U	BL1, BL2	UG/L
R1905823	SW8260C	R1905823-003	633027-P106D	Acetone	9.5		9.5	U	BL2	UG/L
R1905823	SW8260C	R1905823-003	633027-P106D	Chloromethane	0.33	BJ	1	U	BL1, BL2	UG/L
R1905823	SW8260C	R1905823-002	633027-P106S	Acetone	19		19	U	BL2	UG/L
R1905823	SW8260C	R1905823-002	633027-P106S	Chloromethane	0.62	BJ	1	U	BL1, BL2	UG/L
R1905823	SW8260C	R1905823-001	633027-P107D	Acetone	9.6		9.6	U	BL2	UG/L
R1905823	SW8260C	R1905823-001	633027-P107D	Chloromethane	0.64	BJ	1	U	BL1, BL2	UG/L
R1905823	SW8260C	R1905823-006	633027-P107S	Acetone	6.1		6.1	U	BL2	UG/L
R1905823	SW8260C	R1905823-006	633027-P107S	Bromomethane	1	U	1	UJ	LCSL	UG/L
R1905823	SW8260C	R1905823-006	633027-P107S	Chloromethane	0.53	J	1	U	BL2	UG/L

ATTACHMENT A

VOCs

PROJECT CATEGORY A REVIEW RECORD
Project: PrimoShield LTM
Method : SW-846 8260BC
Laboratory: ALS
Date: 7-25-19
Reviewer: SC
Review Level [X] CATEGORY A

SDG(s): R1905823

1. [✓] Case **Narrative Review and COC/Data Package Completeness** COMMENTS: NO
   Were problems noted?
   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**
   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) - see attch'd for Quals
   Are Trip blanks free of contamination? YES (NO) (circle one) MB R1906647-04 see attch'd for Quals
   Are Rinse blanks free of contamination? YES NO (NA) (circle one)

4. [✓] **Matrix Spike** - Region II limits (water and soil 70-130%, water RPD 20, soil RPD 35)
   Were MS/MSDs submitted/analyzed? (YES) NO
   Were all results within the Region II limits? YES (NO) NA (circle one) - see attch'd for Quals
   [✓] LCS/LCSD 70% - 130% Y (N) see attch'd.

5. [✓] **Field Duplicates** - Region II Limits (water RPD 50, soil RPD 100)
   Were Field Duplicates submitted/analyzed? YES (NO)
   Were all results within Region II Limits? YES NO (NA) (circle one)

6. [✓] **Reporting Limits:** Were samples analyzed at a dilution? YES (NO) (circle one)

7. [✓] **Electronic Data Review and Edits**
   Does the EDD match the Form Is? (YES) NO (circle one)

8. [✓] **Table 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)

[✓] Surrogate results 80 - 120% (Y) N

Analytical Report

Client:	Wood E&IS - Portland ME	**Service Request:**	R1905823
Project:	NYSDEC Primoshield/3612122251.03	**Date Collected:**	06/18/19
Sample Matrix:	Water	**Date Received:**	06/21/19 09:35
Sample Name:	Trip Blank	**Units:**	ug/L
Lab Code:	R1905823-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	1.0 U	1.0	0.21	1	06/24/19 23:52	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	0.20	1	06/24/19 23:52	
1,1,2-Trichloroethane	1.0 U	1.0	0.20	1	06/24/19 23:52	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	0.20	1	06/24/19 23:52	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	0.25	1	06/24/19 23:52	
1,2-Dichloroethane	1.0 U	1.0	0.20	1	06/24/19 23:52	
1,2-Dichloropropane	1.0 U	1.0	0.20	1	06/24/19 23:52	
2-Butanone (MEK)	5.0 U	5.0	0.78	1	06/24/19 23:52	
2-Hexanone	5.0 U	5.0	0.20	1	06/24/19 23:52	
4-Methyl-2-pentanone	5.0 U	5.0	0.20	1	06/24/19 23:52	
Acetone (U) Subset sc 8/16/19	**34**	5.0	2.1	1	06/24/19 23:52	
Benzene	1.0 U	1.0	0.20	1	06/24/19 23:52	
Bromodichloromethane	1.0 U	1.0	0.22	1	06/24/19 23:52	
Bromoform	1.0 U	1.0	0.25	1	06/24/19 23:52	
Bromomethane	1.0 U	1.0	0.70	1	06/24/19 23:52	
Carbon Disulfide	1.0 U	1.0	0.25	1	06/24/19 23:52	
Carbon Tetrachloride	1.0 U	1.0	0.34	1	06/24/19 23:52	
Chlorobenzene	1.0 U	1.0	0.20	1	06/24/19 23:52	
Chloroethane	1.0 U	1.0	0.23	1	06/24/19 23:52	
Chloroform	1.0 U	1.0	0.24	1	06/24/19 23:52	
Chloromethane (U) Subset	**0.42 BJ**	1.0	0.28	1	06/24/19 23:52	
Dibromochloromethane	1.0 U	1.0	0.20	1	06/24/19 23:52	
Dichloromethane	1.0 U	1.0	0.36	1	06/24/19 23:52	
Ethylbenzene	1.0 U	1.0	0.20	1	06/24/19 23:52	
Styrene	1.0 U	1.0	0.20	1	06/24/19 23:52	
Tetrachloroethene (PCE)	1.0 U	1.0	0.21	1	06/24/19 23:52	
Toluene	1.0 U	1.0	0.20	1	06/24/19 23:52	
Trichloroethene (TCE)	1.0 U	1.0	0.20	1	06/24/19 23:52	
Vinyl Chloride	1.0 U	1.0	0.20	1	06/24/19 23:52	
cis-1,2-Dichloroethene	1.0 U	1.0	0.23	1	06/24/19 23:52	
cis-1,3-Dichloropropene	1.0 U	1.0	0.20	1	06/24/19 23:52	
m,p-Xylenes	2.0 U	2.0	0.20	1	06/24/19 23:52	
o-Xylene	1.0 U	1.0	0.20	1	06/24/19 23:52	
trans-1,2-Dichloroethene	1.0 U	1.0	0.20	1	06/24/19 23:52	
trans-1,3-Dichloropropene	1.0 U	1.0	0.23	1	06/24/19 23:52	

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QA/QC Report

Client:	Wood E&IS - Portland ME	**Service Request:**	R1905823
Project:	NYSDEC Primoshield/3612122251.03	**Date Analyzed:**	06/24/19 23:31
Sample Matrix:	Water	**Date Extracted:**	

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-10
Lab Code:	RQ1906647-04	**File ID:**	I:\ACQUDATA\msvoa10\data\062419\E2208.D\
Analysis Method:	8260C	**Analysis Lot:**	640605
Prep Method:	EPA 5030C		

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1906647-03	I:\ACQUDATA\msvoa10\data\062419\E2205.D\	06/24/19 22:25
Trip Blank	R1905823-008	I:\ACQUDATA\msvoa10\data\062419\E2209.D\	06/24/19 23:52
633027-P107D	R1905823-001	I:\ACQUDATA\msvoa10\data\062419\E2210.D\	06/25/19 00:14
633027-P106S	R1905823-002	I:\ACQUDATA\msvoa10\data\062419\E2211.D\	06/25/19 00:36
633027-P106D	R1905823-003	I:\ACQUDATA\msvoa10\data\062419\E2212.D\	06/25/19 00:58
633027-P103	R1905823-004	I:\ACQUDATA\msvoa10\data\062419\E2213.D\	06/25/19 01:20
633027-P105	R1905823-005	I:\ACQUDATA\msvoa10\data\062419\E2214.D\	06/25/19 01:41
633027-P103MS	RQ1906647-05	I:\ACQUDATA\msvoa10\data\062419\E2230.D\	06/25/19 07:33
633027-P103DMS	RQ1906647-06	I:\ACQUDATA\msvoa10\data\062419\E2231.D\	06/25/19 07:54

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Analytical Report

Client:	Wood E&IS - Portland ME	**Service Request:**	R1905823
Project:	NYSDEC Primoshield/3612122251.03	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ1906647-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Non Detect

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	1.0 U	1.0	0.21	1	06/24/19 23:31	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	0.20	1	06/24/19 23:31	
1,1,2-Trichloroethane	1.0 U	1.0	0.20	1	06/24/19 23:31	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	0.20	1	06/24/19 23:31	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	0.25	1	06/24/19 23:31	
1,2-Dichloroethane	1.0 U	1.0	0.20	1	06/24/19 23:31	
1,2-Dichloropropane	1.0 U	1.0	0.20	1	06/24/19 23:31	
2-Butanone (MEK)	5.0 U	5.0	0.78	1	06/24/19 23:31	
2-Hexanone	5.0 U	5.0	0.20	1	06/24/19 23:31	
4-Methyl-2-pentanone	5.0 U	5.0	0.20	1	06/24/19 23:31	
Acetone	5.0 U	5.0	2.1	1	06/24/19 23:31	
Benzene	1.0 U	1.0	0.20	1	06/24/19 23:31	
Bromodichloromethane	1.0 U	1.0	0.22	1	06/24/19 23:31	
Bromoform	1.0 U	1.0	0.25	1	06/24/19 23:31	
Bromomethane	1.0 U	1.0	0.70	1	06/24/19 23:31	
Carbon Disulfide (ND) SC 8/16/19	0.27 J	1.0	0.25	1	06/24/19 23:31	
Carbon Tetrachloride	1.0 U	1.0	0.34	1	06/24/19 23:31	
Chlorobenzene	1.0 U	1.0	0.20	1	06/24/19 23:31	
Chloroethane	1.0 U	1.0	0.23	1	06/24/19 23:31	
Chloroform	1.0 U	1.0	0.24	1	06/24/19 23:31	
Chloromethane (V) subset	0.38 J	1.0	0.28	1	06/24/19 23:31	
Dibromochloromethane	1.0 U	1.0	0.20	1	06/24/19 23:31	
Dichloromethane	1.0 U	1.0	0.36	1	06/24/19 23:31	
Ethylbenzene	1.0 U	1.0	0.20	1	06/24/19 23:31	
Styrene	1.0 U	1.0	0.20	1	06/24/19 23:31	
Tetrachloroethene (PCE)	1.0 U	1.0	0.21	1	06/24/19 23:31	
Toluene	1.0 U	1.0	0.20	1	06/24/19 23:31	
Trichloroethene (TCE)	1.0 U	1.0	0.20	1	06/24/19 23:31	
Vinyl Chloride	1.0 U	1.0	0.20	1	06/24/19 23:31	
cis-1,2-Dichloroethene	1.0 U	1.0	0.23	1	06/24/19 23:31	
cis-1,3-Dichloropropene	1.0 U	1.0	0.20	1	06/24/19 23:31	
m,p-Xylenes	2.0 U	2.0	0.20	1	06/24/19 23:31	
o-Xylene	1.0 U	1.0	0.20	1	06/24/19 23:31	
trans-1,2-Dichloroethene	1.0 U	1.0	0.20	1	06/24/19 23:31	
trans-1,3-Dichloropropene	1.0 U	1.0	0.23	1	06/24/19 23:31	

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QA/QC Report

Client:	Wood E&IS - Portland ME	**Service Request:**	R1905823
Project:	NYSDEC Primoshield/3612122251.03	**Date Collected:**	06/18/19
Sample Matrix:	Water	**Date Received:**	06/21/19
		Date Analyzed:	06/25/19
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name:	633027-P103	**Units:**	ug/L
Lab Code:	R1905823-004	**Basis:**	NA
Analysis Method:	8260C		
Prep Method:	EPA 5030C		

		Matrix Spike RQ1906647-05			Duplicate Matrix Spike RQ1906647-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	4.6	57.7	50.0	106	54.8	50.0	100	74-127	5	30
1,1,2,2-Tetrachloroethane	1.0 U	52.4	50.0	105	52.3	50.0	105	72-122	<1	30
1,1,2-Trichloroethane	1.0 U	47.4	50.0	95	45.9	50.0	92	82-121	3	30
1,1-Dichloroethane (1,1-DCA)	0.59 J	56.2	50.0	111	54.1	50.0	107	74-132	4	30
1,1-Dichloroethene (1,1-DCE)	1.0 U	56.5	50.0	113	52.1	50.0	104	71-118	8	30
1,2-Dichloroethane	1.0 U	50.9	50.0	102	49.4	50.0	99	68-130	3	30
1,2-Dichloropropane	1.0 U	51.1	50.0	102	51.5	50.0	103	79-124	<1	30
2-Butanone (MEK)	5.0 U	57.9	50.0	116	55.8	50.0	112	61-137	4	30
2-Hexanone	5.0 U	53.8	50.0	108	53.7	50.0	107	56-132	<1	30
4-Methyl-2-pentanone	5.0 U	54.2	50.0	108	53.3	50.0	107	60-141	2	30
Acetone	14	79.8	50.0	132	77.0	50.0	126	35-183	3	30
Benzene	1.0 U	50.5	50.0	101	48.7	50.0	97	76-129	4	30
Bromodichloromethane	1.0 U	48.3	50.0	97	47.5	50.0	95	78-133	2	30
Bromoform	1.0 U	50.2	50.0	100	48.4	50.0	97	58-133	4	30
Bromomethane	1.0 U	27.6	50.0	55	26.2	50.0	52	10-184	5	30
Carbon Disulfide	1.0 U	51.0	50.0	102	49.0	50.0	98	59-140	4	30
Carbon Tetrachloride	1.0 U	51.6	50.0	103	50.0	50.0	100	65-135	3	30
Chlorobenzene	1.0 U	48.2	50.0	96	47.8	50.0	96	76-125	<1	30
Chloroethane	1.0 U	49.5	50.0	99	48.5	50.0	97	48-146	2	30
Chloroform	1.0 U	50.6	50.0	101	47.6	50.0	95	75-130	6	30
Chloromethane	0.37 BJ	46.7	50.0	93	42.5	50.0	84	55-160	9	30
Dibromochloromethane	1.0 U	46.4	50.0	93	47.7	50.0	95	72-128	3	30
Dichloromethane	1.0 U	50.2	50.0	100	49.7	50.0	99	73-122	1	30
Ethylbenzene	1.0 U	50.6	50.0	101	48.8	50.0	98	72-134	4	30
Styrene	1.0 U	51.1	50.0	102	49.4	50.0	99	74-136	4	30
Tetrachloroethene (PCE)	1.0 U	45.0	50.0	90	46.1	50.0	92	72-125	2	30
Toluene	1.0 U	49.6	50.0	99	47.5	50.0	95	79-119	4	30
Trichloroethene (TCE)	2.1	48.0	50.0	92	45.2	50.0	86	74-122	6	30
Vinyl Chloride	1.0 U	52.7	50.0	105	48.6	50.0	97	74-159	8	30
cis-1,2-Dichloroethene	1.0 U	50.4	50.0	101	47.7	50.0	95	77-127	6	30
cis-1,3-Dichloropropene	1.0 U	50.5	50.0	101	50.4	50.0	101	52-134	<1	30
m,p-Xylenes	2.0 U	102	100	102	99.2	100	99	80-126	3	30
o-Xylene	1.0 U	49.9	50.0	100	49.1	50.0	98	79-123	2	30
trans-1,2-Dichloroethene	1.0 U	55.3	50.0	111	52.6	50.0	105	73-118	5	30
trans-1,3-Dichloropropene	1.0 U	56.0	50.0	112	54.9	50.0	110	71-133	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client: Wood E&IS - Portland ME
Project: NYSDEC Primoshield/3612122251.03
Sample Matrix: Water

Service Request: R1905823
Date Analyzed: 06/25/19

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Units:ug/L
Basis:NA

Lab Control Sample
RQ1906545-03

70-130%

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	8260C	18.5	20.0	93	75-125
1,1,2,2-Tetrachloroethane	8260C	18.7	20.0	93	78-126
1,1,2-Trichloroethane	8260C	17.0	20.0	85	82-121
1,1-Dichloroethane (1,1-DCA)	8260C	19.0	20.0	95	80-124
1,1-Dichloroethene (1,1-DCE)	8260C	19.7	20.0	98	71-118
1,2-Dichloroethane	8260C	19.2	20.0	96	71-127
1,2-Dichloropropane	8260C	19.5	20.0	98	80-119
2-Butanone (MEK)	8260C	18.4	20.0	92	61-137
2-Hexanone	8260C	15.8	20.0	79	63-124
4-Methyl-2-pentanone	8260C	17.4	20.0	87	66-124
Acetone	8260C	25.7	20.0	129	40-161
Benzene	8260C	18.3	20.0	91	79-119
Bromodichloromethane	8260C	18.5	20.0	92	81-123
Bromoform	8260C	17.4	20.0	87	65-146
Bromomethane (LCSL) SC 8/16/19	8260C	12.2	20.0	61	42-166
Carbon Disulfide	8260C	18.9	20.0	94	66-128
Carbon Tetrachloride	8260C	18.7	20.0	93	70-127
Chlorobenzene	8260C	18.0	20.0	90	80-121
Chloroethane	8260C	16.9	20.0	84	62-131
Chloroform	8260C	18.2	20.0	91	79-120
Chloromethane	8260C	15.1	20.0	75	65-135
Dibromochloromethane	8260C	17.1	20.0	86	72-128
Dichloromethane	8260C	19.3	20.0	96	73-122
Ethylbenzene	8260C	18.3	20.0	91	76-120
Styrene	8260C	18.4	20.0	92	80-124
Tetrachloroethene (PCE)	8260C	17.3	20.0	87	72-125
Toluene	8260C	18.0	20.0	90	79-119
Trichloroethene (TCE)	8260C	17.3	20.0	86	74-122
Vinyl Chloride	8260C	18.1	20.0	90	74-159
cis-1,2-Dichloroethene	8260C	18.6	20.0	93	80-121
cis-1,3-Dichloropropene	8260C	19.7	20.0	98	77-122
m,p-Xylenes	8260C	36.3	40.0	91	80-126
o-Xylene	8260C	18.2	20.0	91	79-123

Printed 7/15/2019 9:39:04 AM

Superset Reference:19-0000513616 rev 00

NO Quals

METALS

NYSDEC CATEGORY A REVIEW RECORD
Project: Primoshield LTM
Method : 6010C
Laboratory and SDG(s): ALS R1905823
Date: 7-25-19
Reviewer: SC

Review Level [X] CATEGORY A

1. [✓] **Case Narrative Review and Data Package Completeness** COMMENTS
   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 prepared and analyzed with the holding time (6 months)? (YES) NO

3. [✓] **QC Blanks** (method Blank)
   Are method blanks free of contamination? (YES) NO (circle one) NO Quals

   Are Rinse blanks free of contamination? YES NO (NA) (circle one)

4. [✓] **Matrix Spike**
   Were MS/MSDs submitted/analyzed? YES (NO)

   Were all results were within 75-125% limits? YES NO (NA) (circle one)
   LCS 80-120% (Y) N NO Quals

5. [✓] **Field Duplicates**
   Were Field Duplicates submitted/analyzed? YES (NO)

   Aqueous RPD within limit? (20) YES NO (NA) (circle one)
   Soil RPD within limit? (35) YES NO (NA) (circle one)

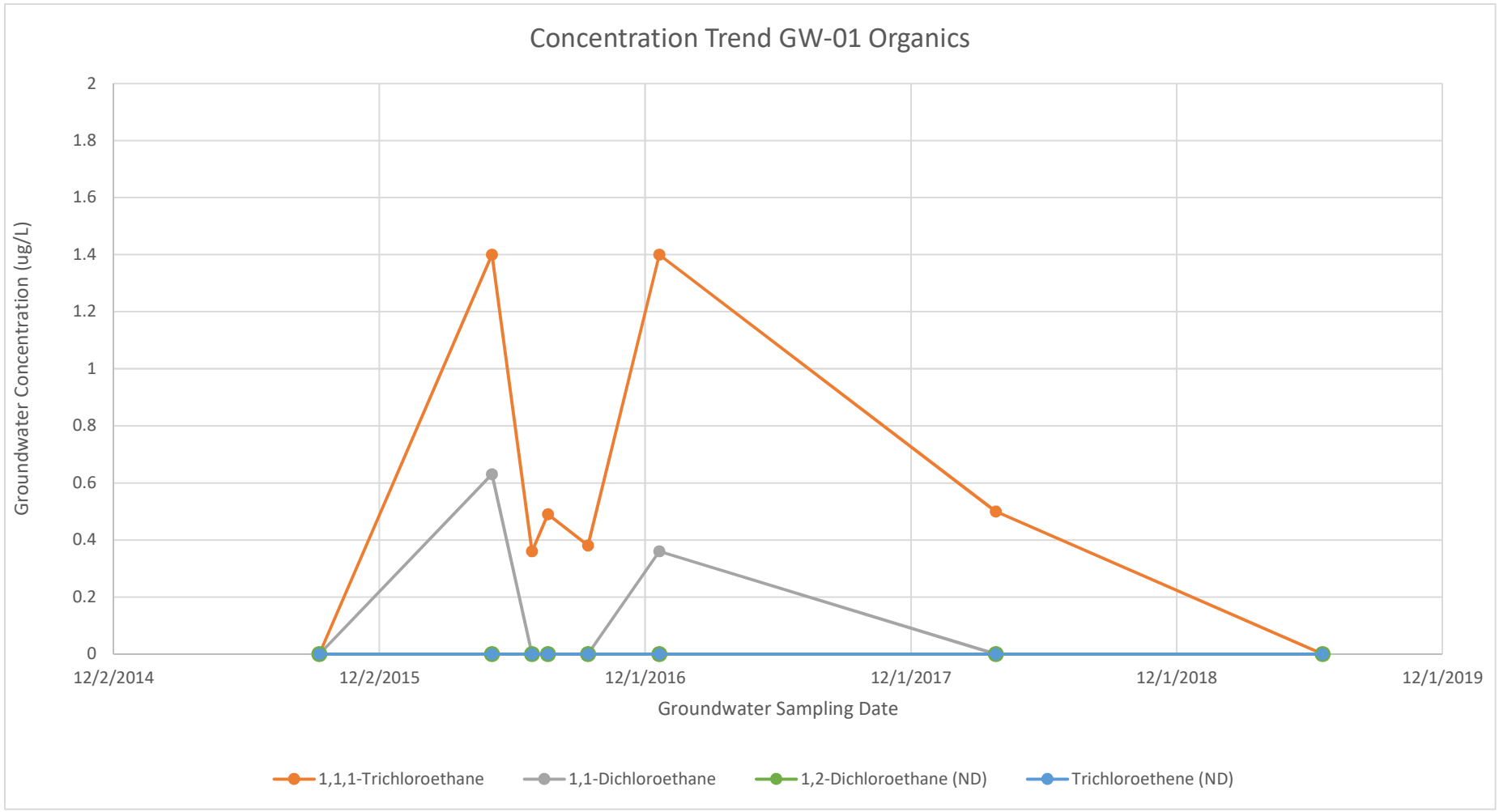
6. [✓] **Reporting Limits:** Were samples analyzed at a dilution? YES (NO) (circle one)

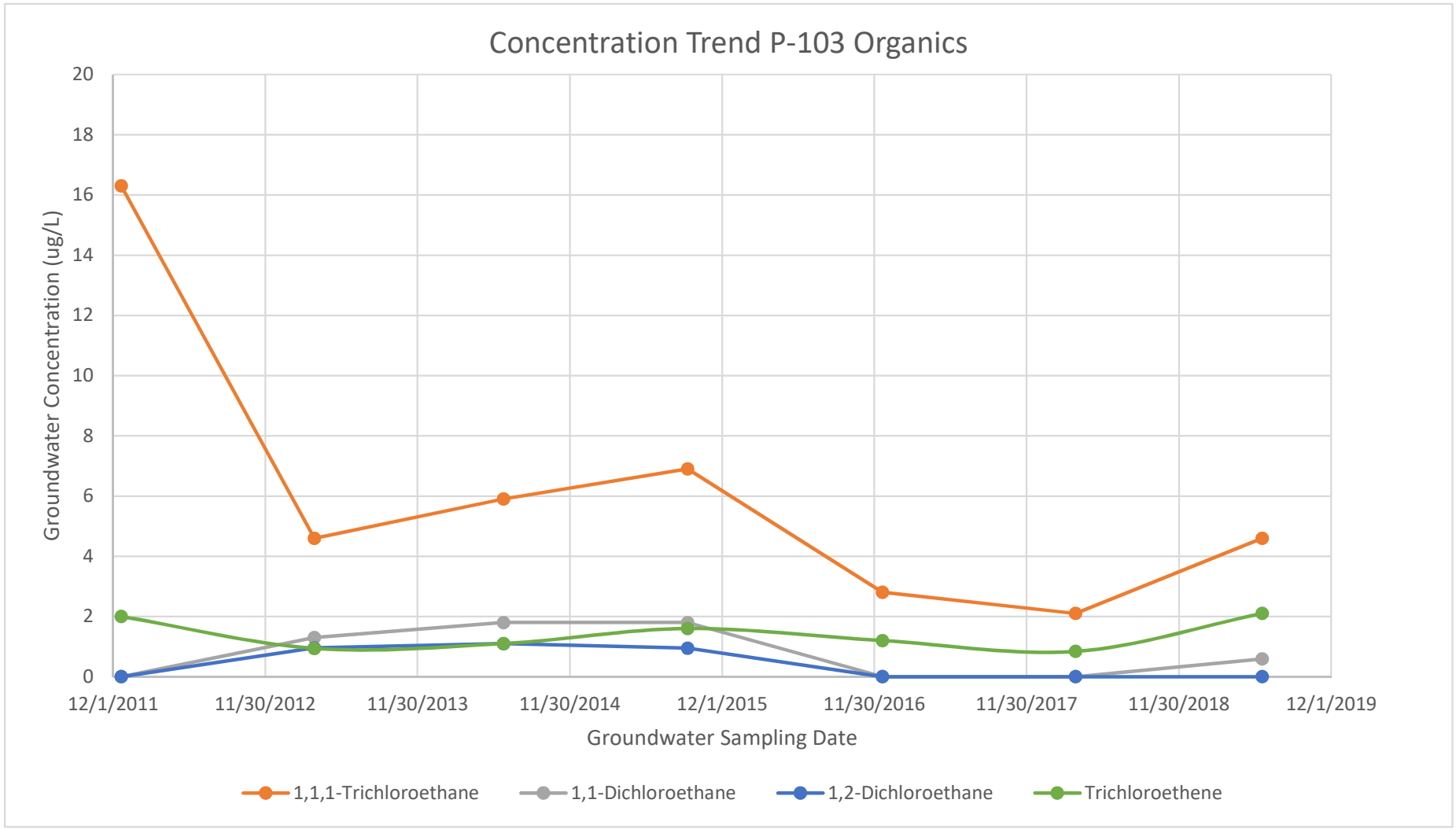
7. [✓] **Electronic Data Review and Edits:** Does the EDD match the Form Is? (YES) NO (circle one)

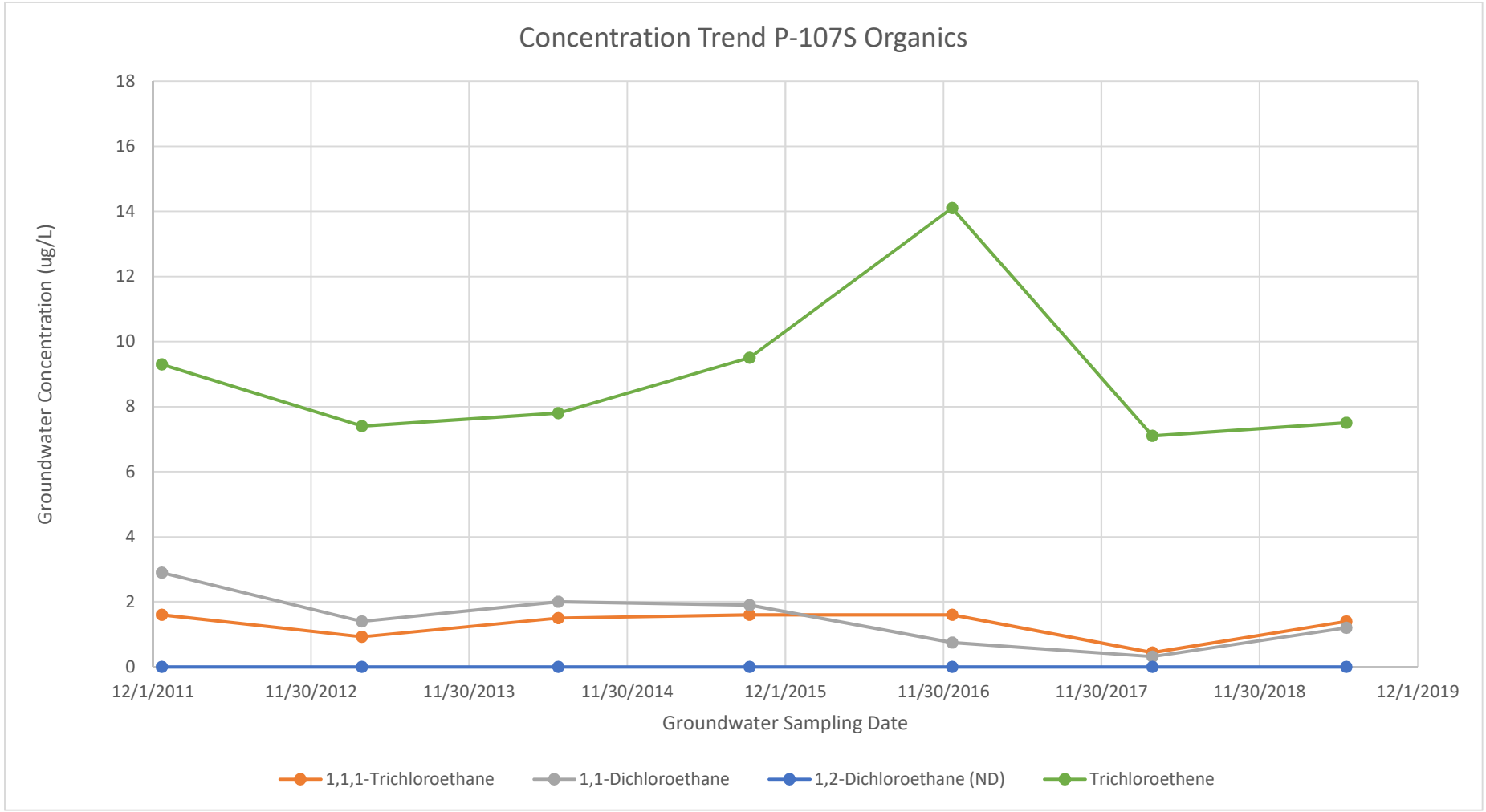
8. [✓] **Table Review**:
   Table 1 (Samples and Analytical Methods)
   Table 2 (Analytical Results)
   Table 3 (Qualification Actions)
   Were all tables produced and reviewed? (YES) NO (circle one)

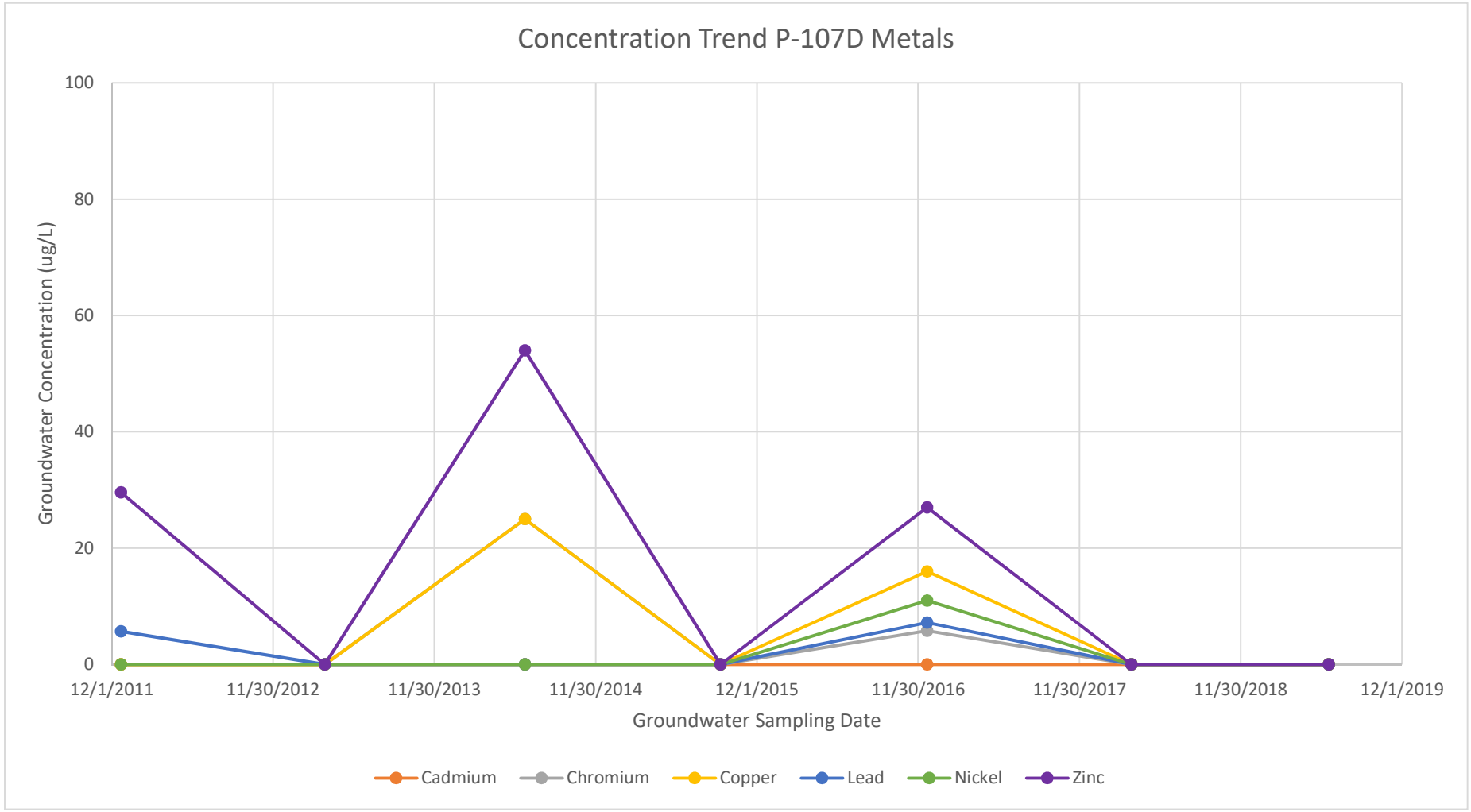
ATTACHMENT 3

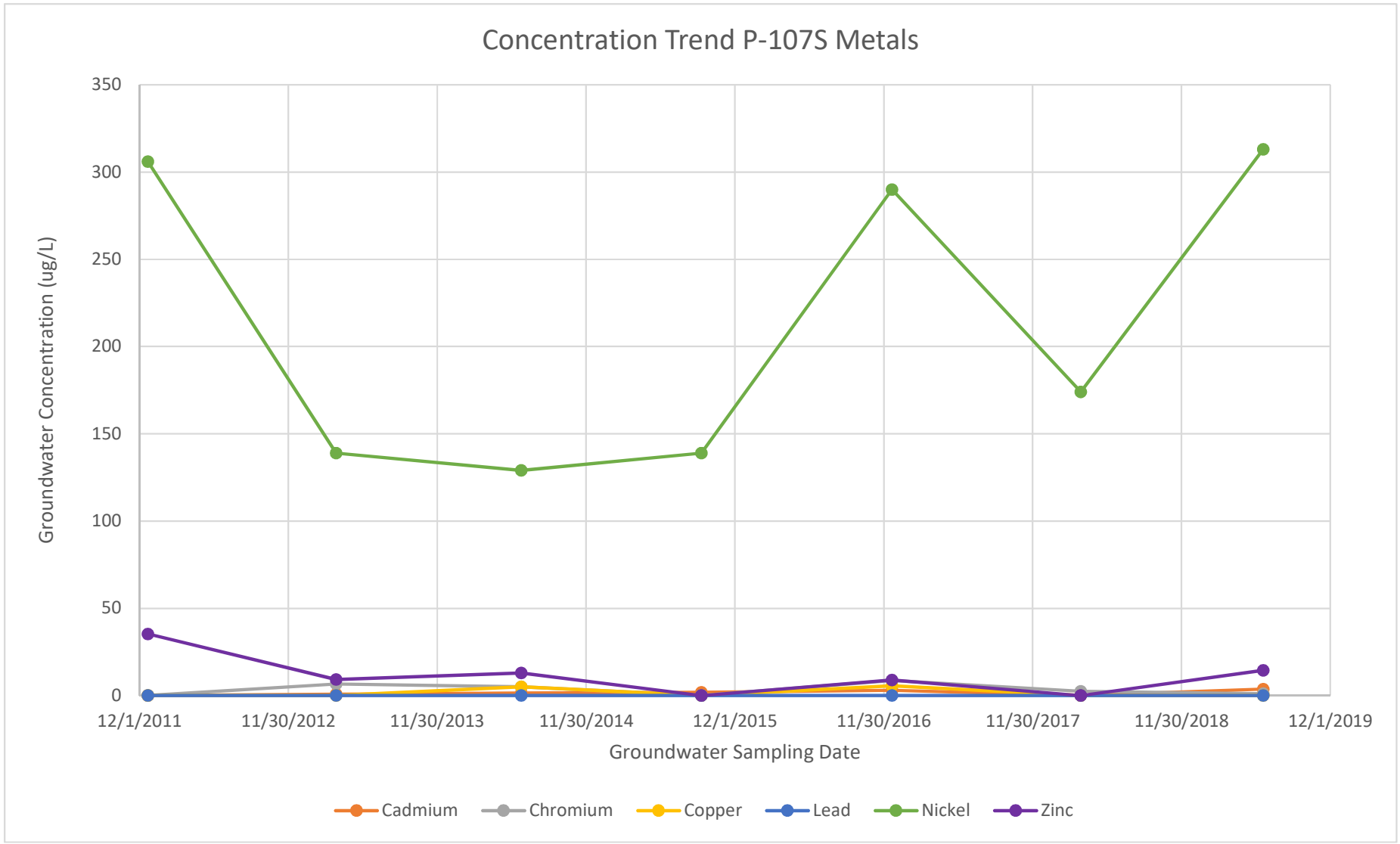
GROUNDWATER CONCENTRATION TREND PLOTS

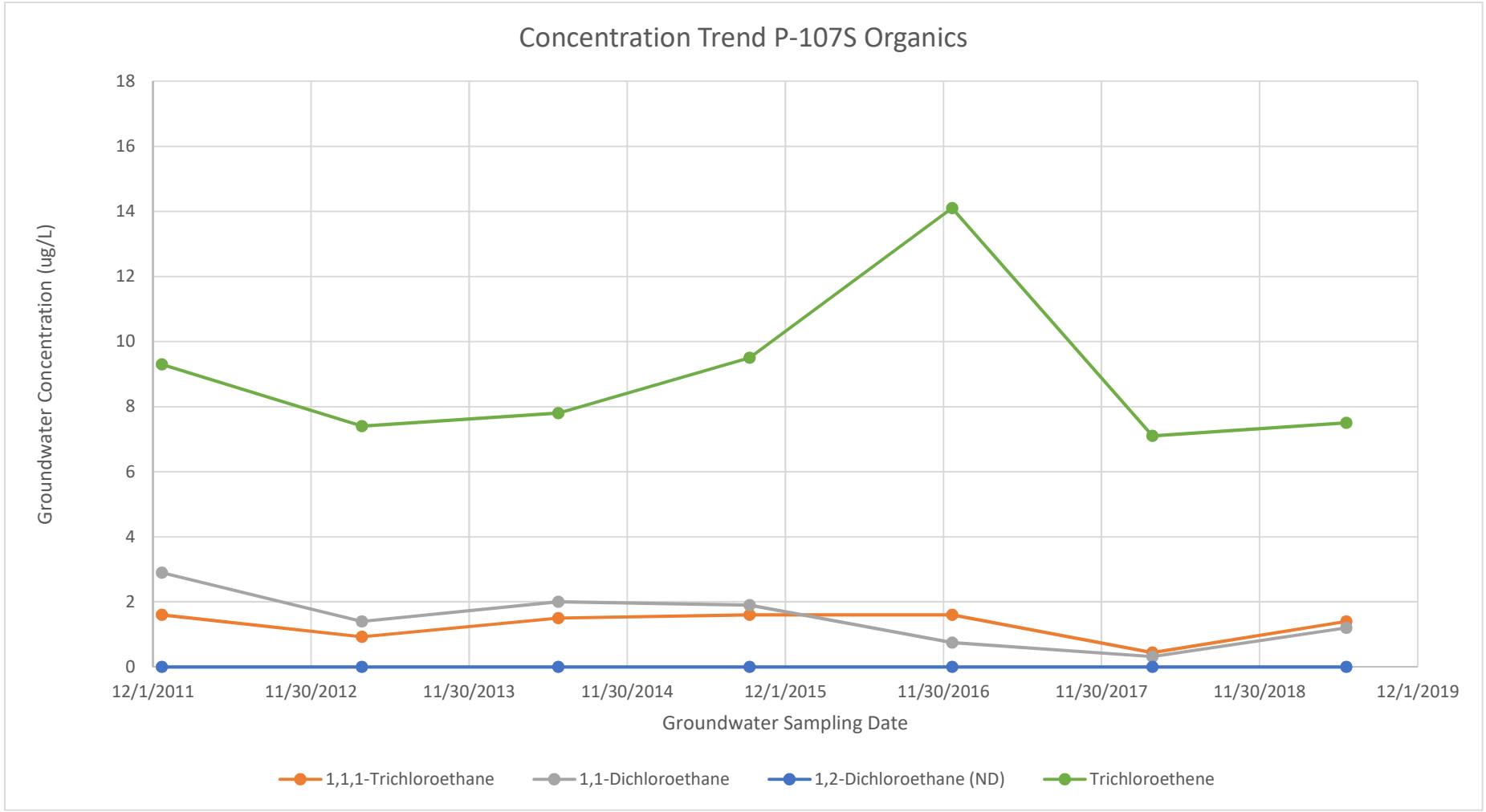

Concentration Trend GW-01 Organics
Groundwater Concentration (ug/L)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
12/2/2014
12/2/2015
12/1/2016
12/1/2017
12/1/2018
12/1/2019
Groundwater Sampling Date
1,1,1-Trichloroethane
1,1-Dichloroethane
1,2-Dichloroethane (ND)
Trichloroethene (ND)


Concentration Trend P-103 Organics
Groundwater Concentration (ug/L)
20
18
16
14
12
10
8
6
4
2
0
12/1/2011
11/30/2012
11/30/2013
11/30/2014
12/1/2015
11/30/2016
11/30/2017
11/30/2018
12/1/2019
Groundwater Sampling Date
1,1,1-Trichloroethane
1,1-Dichloroethane
1,2-Dichloroethane
Trichloroethene


Concentration Trend P-107S Organics
Groundwater Concentration (ug/L)
18
16
14
12
10
8
6
4
2
0
12/1/2011
11/30/2012
11/30/2013
11/30/2014
12/1/2015
11/30/2016
11/30/2017
11/30/2018
12/1/2019
Groundwater Sampling Date
1,1,1-Trichloroethane
1,1-Dichloroethane
1,2-Dichloroethane (ND)
Trichloroethene


Concentration Trend P-107D Metals
Groundwater Concentration (ug/L)
100
80
60
40
20
0
12/1/2011
11/30/2012
11/30/2013
11/30/2014
12/1/2015
11/30/2016
11/30/2017
11/30/2018
12/1/2019
Groundwater Sampling Date
Cadmium
Chromium
Copper
Lead
Nickel
Zinc


Concentration Trend P-107S Metals
Groundwater Concentration (ug/L)
350
300
250
200
150
100
50
0
12/1/2011
11/30/2012
11/30/2013
11/30/2014
12/1/2015
11/30/2016
11/30/2017
11/30/2018
12/1/2019
Groundwater Sampling Date
Cadmium
Chromium
Copper
Lead
Nickel
Zinc


Concentration Trend P-107S Organics
Groundwater Concentration (ug/L)
18
16
14
12
10
8
6
4
2
0
12/1/2011
11/30/2012
11/30/2013
11/30/2014
12/1/2015
11/30/2016
11/30/2017
11/30/2018
12/1/2019
Groundwater Sampling Date
1,1,1-Trichloroethane
1,1-Dichloroethane
1,2-Dichloroethane (ND)
Trichloroethene