

Mr. Todd Caffoe Regional Hazardous Waste Remediation Engineer New York State Department of Environmental Conservation 6274 Avon-Lima Road Avon, New York 14414-9519

Subject: Periodic Review Report for 2019 Crosman Corporation Site East Bloomfield, New York

Dear Mr. Caffoe:

On behalf of Crosman Corporation and New Coleman Holdings, Inc. (collectively, Crosman), Arcadis of New York, Inc. has prepared the attached Periodic Review Report for 2019 (PRR) in accordance with the pending Site Management Plan and draft Declaration of Covenants and Restrictions for the Crosman site located in East Bloomfield, New York.

The PRR documents the remedial activities completed at the Crosman site during 2019 and follows the form of Crosman's previously submitted PRRs.

If you have any questions, please contact me at 585.662.4022.

Sincerely,

Arcadis of New York, Inc.

Hopener

William B. Popham Senior Vice President

Copies:

Justin Deming, New York State Department of Health Timothy S. Martin, Esq., New Coleman Holdings, Inc. Benedict Moshier, New Coleman Holdings, Inc. Thomas F. Walsh, Esq., Barclay Damon, LLP Gina Thomas, Crosman Corporation Aaron D. Richardson, Arcadis of New York, Inc. Arcadis of New York, Inc. 295 Woodcliff Drive Third Floor Suite 301 Fairport New York 14450 Tel 585 385 0090 Fax 585 385 4198 www.arcadis.com

Date: March 26, 2020

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Our ref: 30005202



PERIODIC REVIEW REPORT FOR 2019

Crosman C0orporation Site East Bloomfield, New York

Prepared for:

Crosman Corporation and New Coleman Holdings, Inc.

March 2020

2 of 1102

PERIODIC REVIEW REPORT FOR 2019

Crosman Corporation Site East Bloomfield, New York

Prepared for:

Crosman Corporation and New Coleman Holdings, Inc.

Prepared by: Arcadis of New York, Inc. 295 Woodcliff Drive Third Floor Suite 301 Fairport New York 14450 Tel 585 385 0090 Fax 585 385 4198

Our Ref.: 30005202

Date: March 2020

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CERTIFICATION

For each Institutional or Engineering Control identified for the Crosman Corporation Site in East Bloomfield, New York (Site), I certify that all of the following statements are true:

- The inspections of the Site to confirm the effectiveness of the Institutional and Engineering Controls required by the remedial program was performed under my direction.
- The Institutional and Engineering Controls employed at the Site are unchanged from the date the controls were put in place, or last approved by the New York State Department of Environmental Conservation (Department).
- Nothing has occurred that would impair the ability of the control to protect the public health and environment.
- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control.
- Access to the Site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control.
- Use of the Site is compliant with the draft Declaration of Covenants and Restrictions.
- The engineering control systems are performing as designed and are effective.
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices.
- The information presented in this Periodic Review Report is accurate and complete.

I certify that all information and statements in this certification form are true. I, Joseph Molina III, P.E., of Arcadis of New York, Inc., am certifying as Crosman Corporation's Designated Site Representative.

JOSEPH MOLINA III, P.E.

pseph Molina III

DATE: MARCH 26, 2020

1 INTRODUCTION/BACKGROUND

On behalf of Crosman Corporation and New Coleman Holdings, Inc. (collectively, Crosman), Arcadis of New York, Inc. (Arcadis) has prepared this Periodic Review Report (PRR) for 2019 to summarize the remedial activities conducted at the Crosman Corporation Site located in East Bloomfield, New York (Site) during 2019. Previous regulatory documents, including the 1993 Administrative Order on Consent (New York State Department of Environmental Conservation [NYSDEC] 1993), 1997 Record of Decision (NYSDEC 1997), and 1998 Administrative Order on Consent (NYSDEC 1998), as well as separate requests for a vapor intrusion investigation (NYSDEC 2012) and a sub-slab depressurization system (SSDS) (NYSDEC 2014), have required site activities, including the past installation and former operation of a groundwater pump and treatment system, the past installation and former operation of a soil vapor extraction (SVE) system, groundwater monitoring, and installation and operation of an SSDS at the Site. Termination of the groundwater pump and treat system (which operated from 1995 to 1999) and the SVE system (which operated in the east side source area from 1998 to 2001) were previously approved by the NYSDEC. Activities conducted in 2019 include semi-annual groundwater monitoring and continued operation of the SSDS, which are described herein. In addition, Crosman has continued the operation of pumping well PW-1 as part of its manufacturing activities.

2 INSTITUTIONAL CONTROLS

The Institutional Controls (ICs) established for the Site will be embodied in the Declaration of Covenants and Restrictions (Deed Restriction), the form and content of which is currently subject to the Department's review. The draft Deed Restriction packet was submitted to the Department's attorney for review and approval on March 19, 2019. As drafted, the Deed Restriction includes restrictions on the usage of the property to commercial and industrial uses; compliance with the Site Management Plan (SMP), the form and content of which is subject to the Department's review; and conducting routine inspections of ICs and Engineering Controls (ECs).

2.1 Property Usage

The Site continued to be used for industrial purposes in 2019.

2.2 Deed Restriction

The draft Deed Restriction includes a metes and bounds (as measured) survey prepared by Fisher Associates, P.E., L.S. on November 27, 2018, from notes of an instrument completed in October 2018 and certified on January 14, 2019 (survey). Once approved by the Department's attorneys, signed by Crosman, and recorded, the final Deed Restriction will be formally submitted with the submission of a draft SMP for the Department's review, comment, and approval.

2.3 Inspections of Engineering Controls

As further described in Section 3, ECs at the Site include operation of the SSDS and maintenance of the concrete floor serving as a cover system over remaining soil contamination at the two locations identified on the survey. This includes the western side of the building as "Area 1 Affected by SSDS Engineering Control" and the eastern side of the building as "Area 2 Affected by SSDS Engineering Control". All ECs remained in effect during 2019. The SSDS was inspected on a monthly basis, as documented on the inspection forms included in Appendix A. The concrete cover system was inspected as part of the annual site-wide inspection on August 21, 2019, as documented on the Site Inspection Form included in Appendix B.

3 ENGINEERING CONTROLS

In accordance with the Department's requests and/or requirements, continued operation of the SSDS, as well as maintenance of the concrete floor cover system, were the ECs at the Site for 2019.

3.1 Sub-Slab Depressurization System

As detailed in the Construction Completion Report (CCR; Arcadis 2017), the SSDS was installed and operational at the Site starting in July 2016.

3.1.1 System Operation

During 2019, the only downtime experienced by the system was limited to relatively short periods related to routine operation and maintenance activities, and short periods where the system was down due to power outages. The system has been operational more than 96% of the time for 2019, and other than power outages, no issues that potentially could cause extended downtime were identified.

The treatment portion of the SSDS consists of four 1,000-pound granular-activated carbon (GAC) units and is designed with the ability to pull extracted soil vapor through each GAC unit in series. The vapors being pulled through the system are monitored on a monthly basis at sample points between each GAC unit to monitor for breakthrough. After initially operating with all four GAC units online, the lead GAC unit (GAC #1) was taken offline on February 22, 2017 after breakthrough was observed at the sample point between GAC #1 and GAC #2. The system operated with three GAC units in series for 2018. The second GAC unit (GAC #2) was taken offline on January 31, 2019 after breakthrough was observed at the sample point between GAC #2 and GAC #3. The system operated with two GAC units in series for the remainder of 2019. When and if breakthrough is observed at the sample point between GAC #3 and GAC #4, GAC #3 will be taken offline and the system valves will be set to have extracted vapor flow through GAC #4. At that time, the GAC within the vessels for GAC #1, GAC #2, and GAC #3 will be set to direct extracted soil vapor through GAC #4 then GAC #1 then discharged. GAC #2 and GAC #3 will remain offline to serve as backups and will be placed back in service once breakthrough is observed after GAC #4.

3.1.2 System Effectiveness

During 2019, monitoring of the SSDS was conducted on monthly basis at a minimum. Monthly monitoring was performed to document the effectiveness of the system and included recording sub-slab vacuum pressures and collecting and analyzing soil vapor samples collected throughout the system.

3.1.2.1 Sub-Slab Vacuum Monitoring

Arcadis recorded instantaneous sub-slab differential pressure readings, on a monthly basis, from the area surrounding the two sub-slab depressurization sump points. With the system operating, instantaneous sub-slab differential pressures were measured using micromanometers capable of measuring to the nearest 0.001 inch of water column at vacuum monitoring points (VMPs) installed by Arcadis. Figure 1

shows the VMP locations. Table 1 summarizes the results and shows that vacuum is being observed throughout the target depressurization area, except for a few months when pressure was recorded at VMP-10 and VMP-6.

In regard to VMP-10, as noted in the 2018 PRR (Arcadis 2018), equipment using compressed carbon dioxide with buried lines is located in the area of VMP-10 and was again operational at times in 2019, including when the pressure readings were recorded. Furthermore, what appears to be a former trench was observed near VMP-10, between the VMP and extraction point SDS-2. The former trench measures 12 inches wide by approximately 190 feet long and was approximately 6 to 12 inches deep before being filled with concrete (see location on Figure 1). VMP-10 is the only VMP located on the opposite side of the former trench from SDS-2. It is likely that the floor slab associated with this trench is thicker than the surrounding floor slab, which may be impeding air flow in the sub-slab environment, thereby limiting vacuum influence at VMP-10. While investigating potential causes of the readings at VMP-10, a pair of side-by-side trenches were observed on the western side of SDS-2, near to VMP-12. One former trench measured 12 inches wide by approximately 120 feet long and was approximately 6 to 12 inches deep before being filled with concrete. The second former trench measures 4 inches wide by 120 feet long and is 8 inches deep. This trench has been abandoned (i.e., no longer in service) but has not been filled with concrete. While vacuum readings at VMP-12 have been consistently negative, they have been lower than expected, suggesting that, similar to VMP-10, VMP-12, they may be influenced by the thicker concrete of the former trenches. However, there is another point (VMP-7) located farther from SDS-2 that continues to provide data confirming that vacuum influence is observed. The former trenches near VMP-12 are also shown on Figure 1.

Regarding VMP-6, as indicated in the design, the design radius of influence at SDS-1 was 40 feet, and VMP-6 is located 60 feet from SDS-1. Readings taken during the SSDS startup indicated that the radius of influence extended beyond the 40-foot design, and some VMP readings taken since startup at VMP-6 do indicate influence at this point on occasion. During investigation of potential causes for the pressure readings recorded in 2019, readings were collected with the system shut off, and it was observed that while the system is reducing the differential pressure at VMP-6, there is a positive differential pressure as background at this location. This background positive differential pressure could be due to many factors and appears to vary over time. So while Arcadis continues to believe that there is influence at this location, it is a relatively small influence, and depending on the variable background environment, the influence of SDS-1 may not always be enough to overcome the background pressure, which results in the positive readings that are occasionally observed at this location.

Based on the above, in early March 2020, Arcadis relocated VMP-6 and VMP-10 and abandoned VMP-12. VMP-6 was relocated to a point closer to SDS-1 (approximately 45 feet) to give a more consistent indication of the vacuum influence. Due to the location of equipment and active walkways, VMP-10 was relocated to a point on the same side of the former trench as SDS-2 but is now approximately 10 feet closer to SDS-2. The current location of VMP-10 is approximately 45 feet from SDS-2 and approximately 3 feet from the former trench. The new location of both VMPs, as well as the former trenches, are presented on Figure 1. Initial differential pressure readings of -0.022 inches of water column at each of the two new locations indicate that vacuum influence is being observed at both locations. The former locations of VMP-6, VMP-10, and VMP-12 were abandoned in place by filling the access holes with hydraulic cement. Arcadis also conducted 24-hour monitoring on a quarterly basis. Each quarter, micromanometers equipped with datalogging capabilities were set up at three VMPs. The micromanometers recorded the differential pressure every 5 minutes over a 24-hour period. The pressure readings (provided in Appendix C) show a steady vacuum is being applied at each location monitored throughout the 24-hour period, except VMP-6 and VMP-10.

3.1.2.2 System Vapor Sampling

During each monthly monitoring event, Arcadis collected soil vapor samples from the influent (both individual SSDS points and the combined influent) and effluent of the SSDS, with the system operating. Grab samples were collected using laboratory-provided 1-liter Summa canisters. The Summa canisters were submitted to TestAmerica Laboratories in Burlington, Vermont and analyzed for volatile organic compounds (VOCs) using United States Environmental Protection Agency Method TO-15. Table 2 summarizes the results and shows that chlorinated VOCs, primarily trichloroethene (TCE), continues to be effectively removed through the SSDS.

Following the NYSDEC Division of Air Resources- (DAR-) 1 Guidance, system parameters (e.g., flow rate, stack height) and the concentration of VOCs observed in the system effluent were used to calculate potential annual and short-term impacts. The calculated impacts were compared against the Annual Guidance Concentration (AGC) and Short-Term Guidance Concentration (SGC) provided in the DAR-1 Guidance for each VOC. As originally presented in the CCR (Arcadis 2017) and presented in Table 3, using the maximum detected concentration for each VOC, effluent from the SSDS is well below both the AGC and SGC for all VOCs detected.

During 2019, the concentration of VOCs observed in the combined influent showed monthly fluctuations but showed a generally stable to decreasing trend over the course of the year. As evidenced by the calculations presented in Table 4, TCE mass continues to be effectively removed by the SSDS. The SSDS removed 5.9 kilograms of TCE in 2019 and a total 192.4 kilograms since it became operational.

The System Monitoring Log; Performance Monitoring Log; and Monthly Operation, Maintenance, and Monitoring Checklist completed each month for the SSDS are included in Appendix A, and the laboratory analytical reports for each sampling event are included in Appendix D.

3.2 Operation of Pumping Well PW-1

Although not presently an EC for the Site, pumping well PW-1 continues to be operated to supply noncontact cooling water to Crosman's manufacturing processes. PW-1 has been demonstrated to maintain hydraulic control over the Site, even during periods of extended downtime, thereby containing the plume of groundwater contamination at the Site. Manufacturing operations at the Site continue to utilize the water generated by PW-1 for non-contact cooling water in its manufacturing processes.

During 2019, there were no extended periods of downtime. Groundwater elevation contours were recorded during the two groundwater monitoring events (April and October 2019), with each event continuing to show a depression around pumping well PW-1, providing continuing evidence that the long-term history of pumping at this location continues to influence groundwater dynamics at the Site. The current and continued planned operation of PW-1 at the Site continues to provide control of the groundwater plume for the foreseeable future.

Because pumping well PW-1 could be added as an EC, should Crosman ever permanently discontinue its use for manufacturing operations, it will continue to be monitored as part of the long-term groundwater monitoring for the Site, and this PRR and future PRRs will include a report on its continued operation and effectiveness in providing control of the groundwater plume.

3.3 Concrete Cover System

As discussed in the SMP, the concrete floor serves as a cover system over remaining soil contamination identified at the western end of the building and around the SSDS extraction point on the eastern side of the facility. The concrete comprising the cover system is identified on the survey on the western side of the building as "Area 1 Affected by SSDS Engineering Control" and on the eastern side of the building as "Area 2 Affected by SSDS Engineering Control". During the annual site-wide inspection conducted on August 21, 2019, the concrete floor cover system in this area was inspected and found to be acceptable. The Site Inspection Form is included as Appendix B.

4 ADDITIONAL SITE REPORTING

4.1 Groundwater Sampling

Groundwater sampling was conducted semi-annually in 2019, with sampling events conducted on April 23, 2019 and October 31, 2019. As documented in the Semiannual Groundwater Monitoring and Reporting letter reports (Arcadis 2019a, 2019b), the results of both sampling events showed that monitoring wells located at the perimeter of the Site continue to show that the plume is not migrating offsite. Results of the 2019 groundwater sampling events, as well as the results of previous groundwater sampling events, are provided in Table 5 and on Figure 2, with the complete reports (including laboratory data) and sampling forms for each event are included in Appendix E.

4.2 State Pollutant Discharge Elimination System Monitoring and Reporting

The Crosman facility continued to perform monthly State Pollutant Discharge Elimination System (SPDES) monitoring of Outfall Number 001. In accordance with the SPDES permit (#NY-0103039), monthly sampling included collecting a sample from the outfall and analyzing for VOCs, temperature, and pH. SPDES samples collected in 2019 were below the method detection limit of 2 parts per billion TCE, and therefore, were well below the discharge limits of 10 parts per billion TCE, as well as below 90 degrees Fahrenheit (temperature) and within the pH range of 6.0 to 9.0 standard units. Copies of the Discharge Monitoring Reports for 2019 are included in Appendix F.

5 SUMMARY AND RECOMMENDATIONS

Monitoring (and sampling) of the SSDS conducted in 2019 shows that TCE concentrations in sub-slab soil vapor continue to be effectively removed and treated through the SSDS. Sampling of groundwater at the Site in 2019 showed minor fluctuations at certain wells but continued to show an overall stable to decreasing historical trend in contaminant concentrations, with monitoring at the site perimeter continuing to show that the contaminant plume is not migrating offsite.

The inspections conducted and sample results collected during 2019 show that the ICs and ECs in place for the Site are in compliance with and effectively meeting the remedial action objectives established for the Site. It is recommended that the ICs and ECs in place during 2019 be maintained for 2020.

6 REFERENCES

- Arcadis. 2017. Construction Completion Report. Crosman Corporation. January 27.
- Arcadis. 2018. Periodic Review Report for 2019. Crosman Corporation. March 14.
- Arcadis. 2019a. Semiannual Groundwater Monitoring Report. Crosman Corporation. July 15.
- Arcadis. 2019b. Semiannual Groundwater Monitoring Report. Crosman Corporation. December 11.
- NYSDEC. 1993. Administration Order on Consent. Index # B8-0404-92-04. October 1993.
- NYSDEC. 1997. Record of Decision. March 25, 1997.
- NYSDEC. 1998. Administration Order on Consent. Index # B8-0404-92-04. October 1993.
- NYSDEC. 2012. Comment Letter to Soil Vapor Intrusion Evaluation. November 28.
- NYSDEC. 2014. Comment Letter to West-side Soil Boring Assessment September 2014 and Draft Onsite Soil Vapor Intrusion Assessment Results March 2014. October 22.

TABLES



Table 1Sub-Slab Vacuum MonitoringPeriodic Review ReportCrosman CorporationEast Bloomfield, New York



						Sub-Slab	Different	ial Pressu	re (in.wc)				
Date	Time			SDS-	I Area					SDS-2	2 Area		
		VMP-1	VMP-2	VMP-3	VMP-4	VMP-5	VMP-6	VMP-7	VMP-8	VMP-9	VMP-10	VMP-11	VMP-12
1/31/2019	9:00	-6.730	-0.027	-6.230	-0.002	-0.030	-0.019	-0.034	-0.020	-0.042	0.816 **	-0.176	-0.013
2/21/2019	8:00	-8.028	-0.029	-6.590	NA	-0.025	0.020	-0.026	-0.015	-0.051	0.000 **	-0.183	-0.012
3/19/2019	10:00	-9.240	-0.038	-0.640	-0.002	-0.030	-0.020	-0.033	-0.015	-0.054	0.000 **	-0.200	-0.014
4/23/2019	11:00	-8.413	-0.031	-0.701	-0.001	-0.028	0.026 *	-0.007	-0.013	-0.055	0.001 **	-0.147	-0.007
5/29/2019	7:30	-8.347	-0.043	-0.746	-0.002	-0.003	0.025 *	-0.006	-0.011	-0.046	-0.002	-0.113	-0.002
6/24/2019	9:30	-6.485	-0.035	-0.465	-0.002	-0.043	0.002 *	-0.013	-0.011	-0.055	0.000	-0.136	-0.004
7/31/2019	8:30	-9.023	-0.038	-0.572	-0.003	-0.037	-0.019	-0.027	-0.013	-0.075	-0.017	-0.196	-0.012
8/21/2019	8:00	-9.001	-0.044	-0.584	-0.004	-0.039	-0.002	-0.014	-0.016	-0.063	-0.009	-0.178	-0.007
9/25/2019	8:00	-9.320	-0.037	-0.620	-0.002	-0.043	-0.011	-0.020	-0.015	-0.061	-0.003	-0.158	-0.006
10/31/2019	10:30	-10.176	-0.037	-0.007	-0.002	-0.040	-0.026	-0.003	-0.013	-0.045	-0.002	-0.114	-0.002
11/19/2019	8:30	-9.833	-0.030	-0.031	-0.002	-0.043	-0.004	-0.011	-0.014	-0.035	-0.001	-0.121	-0.005
12/17/2019	10:00	-8.635	-0.031	-0.127	-0.002	-0.042	-0.003	-0.007	-0.012	-0.030	0.000	-0.014	-0.002

Notes:

* = free air flow through building, may have interfered with readings

** = compressed air equipment, with buried air lines, operating in the area

in.wc = inches of water column

SDS = sub-slab depressurization sump

VMP = vacuum monitoring point

NA = no data collected; sample point was inaccessible

Sample ID	SDS-1												
Location						SDS-1	I Influent						
Sample Collection Date	1/31/2019	2/21/2019	3/19/2019	4/23/2019	5/28/2019	6/24/2019	7/31/2019	8/21/2019	9/25/2019	10/31/2019	11/19/2019	12/17/2019	
Analyte	Result	Result	Result	Result	Result	Result							
Vinyl chloride	9.3 U	9.1 U *	8.9 U	18 U	13 U	30 U	16 U	28 U	20 U	7 U	39 U	6 U *	
1,1-Dichloroethene	14 U	14 U	14 U	28 U	20 U	21 U	11 U	20 U	14 U	4.9 U	27 U	4.1 U	
Acetone	1200 U	1200 U	1200 U	2400 U	1700 U	1800 U	950 U	1700 U	1200 U	420 U	2300 U	360 U	
Methylene Chloride	180 U	180 U *	170 U	350 U	250 U	260 U	140 U	250 U	170 U	61 U	340 U	52 U	
trans-1,2-Dichloroethene	82 U	81 U	79 U	160 U	110 U	120 U	63 U	110 U	79 U	28 U	150 U	24 U	
1,1-Dichloroethane	84 U	82 U	81 U	160 U	120 U	120 U	16 J	110 U	81 U	28 U	160 U	24 U	
cis-1,2-Dichloroethene	14 U	14 U	14 U	28 U	20 U	30 U	16 U	28 U	20 U	7.6	39 U	5.9 U	
1,2-Dichloroethene, Total	160 U	160 U	160 U	320 U	230 U	240 U	130 U	220 U	160 U	56 U	310 U	47 U	
1,1,1-Trichloroethane	110 U	110 U	110 U	220 U	160 U	160 U	1700	150 U	110 U	38 U	210 U	33 U	
Carbon tetrachloride	23 U	22 U	22 U	44 U	32 U	33 U	18 U	31 U	22 U	7.7 U	43 U	6.6 U	
Benzene	66 U	65 U	64 U	130 U	92 U	96 U	51 U	91 U	64 U	22 U	120 U	19 U	
Trichloroethene	17,000	18,000	20000	17000	14000	17000	21000 D	18000	34000 D	21000 D	14000	18000 D	
Toluene	78 U	77 U	75 U	150 U	110 U	110 U	60 U	110 U	75 U	26 U	150 U	23 U	
Tetrachloroethene	140 U	140 U	140 U	270 U	200 U	200 U	110 U	190 U	140 U	47 U	260 U	41 U	
Chlorobenzene	96 U	94 U	92 U	180 U	130 U	140 U	74 U	130 U	92 U	32 U	180 U	28 U	
m,p-Xylene	230 U	220 U	220 U	430 U	310 U	330 U	170 U	310 U	220 U	76 U	420 U	65 U	
Xylene, o-	90 U	88 U	87 U	170 U	130 U	130 U	69 U	120 U	87 U	30 U	170 U	26 U	
Bromoform	220 U	210 U	210 U	410 U	300 U *	310 U	170 U	290 U	210 U	72 U	400 U	62 U	
1,1,2,2-Tetrachloroethane	140 U	140 U	140 U	270 U	200 U	210 U	110 U	190 U	140 U	48 U	270 U	41 U	
Total VOCs	17,000	18,000	20,000	17,000	14,000	17,000	22,716	18,000	34,000	21,008	14,000	18,000	

Sample ID		SDS-2 SDS-2 influent													
Location						SDS-2	2 Influent								
Sample Collection Date	1/31/2019	2/21/2019	3/19/2019	4/23/2019	5/28/2019	6/24/2019	7/31/2019	8/21/2019	9/25/2019	10/31/2019	11/19/2019	12/17/2019			
Analyte	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result			
Vinyl chloride	7.8 U	8.8 U *	6.2 U	14 U	10 U	26 U		20 U	16 U	3.4 U	30 U	3.6 U *			
1,1-Dichloroethene	12 U	14 U	9.6 U	22 U	16 U	18 U		14 U *	11 U	2.4 U	21 U	2.5 U			
Acetone	1000 U	1200 U	820 U	1900 U	1300 U	1500 U		1200 U	940 U	200 U	1800 U	210 U			
Methylene Chloride	150 U	170 U *	120 U	280 U	190 U	220 U		170 U	140 U	30 U	260 U	31 U			
trans-1,2-Dichloroethene	69 U	78 U	55 U	130 U	89 U	100 U		80 U	63 U	13 U	120 U	14 U			
1,1-Dichloroethane	70 U	80 U	56 U	130 U	91 U	100 U		82 U	64 U	14 U	120 U	15 U			
cis-1,2-Dichloroethene	540	890	340	320	430	420		390	970	240	330	240			
1,2-Dichloroethene, Total	560	870	340	320	440	440		390	950	240	330	240			
1,1,1-Trichloroethane	95 U	110 U	75 U	170 U	120 U	140 U		110 U	86 U	19 U	160 U	20 U			
Carbon tetrachloride	19 U	22 U	15 U	35 U	25 U	28 U	NS (6)	22 U	17 U	3.7 U	33 U	4 U			
Benzene	56 U	63 U	44 U	100 U	72 U	82 U		64 U	50 U	11 U	96 U	4.5 J			
Trichloroethene	15,000	20000	13000	15000	11000	13000		14000	36000 D	7800 D	11000	5600 D			
Toluene	66 U	74 U	52 U	120 U	84 U	97 U		76 U	59 U	6.9 J	110 U	14 U			
Tetrachloroethene	120 U	20 J	19 J	220 U	150 U	170 U		140 U	30 J	10 J	200 U	10 J			
Chlorobenzene	80 U	91 U	64 U	150 U	100 U	120 U		93 U	73 U	16 U	140 U	17 U			
m,p-Xylene	190 U	210 U	150 U	350 U	240 U	280 U		220 U	170 U	37 U	330 U	39 U			
Xylene, o-	76 U	86 U	60 U	140 U	97 U	110 U		87 U	69 U	15 U	130 U	16 U			
Bromoform	180 U	200 U	140 U	330 U	230 U *	270 U	[210 U	160 U	35 U	310 U	37 U			
1,1,2,2-Tetrachloroethane	120 U	140 U	95 U	220 U	150 U	180 U		140 U	110 U	23 U	210 U	25 U			
Total VOCs	15,560	20,890	13,359	15,320	11,440	13,440	0	14,390	36,980	8,057	11,330	5,855			



Sample ID	Pre-VPGAC-101												
Location						Combin	ed Influent						
Sample Collection Date	1/31/2019	2/21/2019	3/19/2019	4/23/2019	5/28/2019	6/24/2019	7/31/2019	8/21/2019	9/25/2019	10/31/2019	11/19/2019	12/17/2019	
Analyte	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	
Vinyl chloride	7.6 U	11 U *	13 U	18 U	12 U	34 U	12 U	22 U	38 U	4.6 U	20 U	4.9 U	
1,1-Dichloroethene	12 U	17 U	20 U	28 U	18 U	24 U	8.3 U	15 U *	27 U	3.2 U	14 U	3.4 U	
Acetone	1000 U	1400 U	1700 U	2400 U	1500 U	2000 U	710 U	1300 U	2300 U	270 U	1200 U	290 U	
Methylene Chloride	150 U	210 U *	250 U	350 U	230 U	300 U	100 U	190 U	340 U	40 U	170 U	43 U	
trans-1,2-Dichloroethene	67 U	95 U	110 U	160 U	100 U	130 U	48 U	89 U	150 U	18 U	79 U	19 U	
1,1-Dichloroethane	68 U	97 U	120 U	160 U	110 U	140 U	49 U	90 U	160 U	19 U	81 U	20 U	
cis-1,2-Dichloroethene	340	620	310	200	250	330	310	310	620	180	230	220	
1,2-Dichloroethene, Total	340	630	310	210 J	250	330	310	310	630	180	230	220	
1,1,1-Trichloroethane	92 U	130 U	160 U	220 U	140 U	190 U	56 J	120 U	210 U	25 U	110 U	27 U	
Carbon tetrachloride	19 U	26 U	32 U	44 U	29 U	37 U	9.9 J	25 U	42 U	5.1 U	22 U	5.4 U	
Benzene	54 U	77 U	93 U	130 U	83 U	110 U	38 U	71 U	120 U	15 U	64 U	16 U	
Trichloroethene	14,000	20000	20000	15000	11000	16000	18000 D	17000	32000	8700 D	15000	11000 D	
Toluene	64 U	90 U	110 U	150 U	98 U	130 U	18 J	84 U	150 U	7.5 J	75 U	18 U	
Tetrachloroethene	110 U	160 U	200 U	270 U	180 U	230 U	26 J	150 U	260 U	11 J	140 U	14 J	
Chlorobenzene	78 U	110 U	130 U	180 U	120 U	160 U	55 U	100 U	180 U	21 U	92 U	23 U	
m,p-Xylene	180 U	260 U	310 U	430 U	280 U	370 U	130 U	240 U	420 U	50 U	220 U	53 U	
Xylene, o-	73 U	100 U	130 U	170 U	110 U	150 U	52 U	97 U	170 U	20 U	87 U	21 U	
Bromoform	170 U	250 U	300 U	410 U	270 U *	350 U	120 U	230 U	400 U	48 U	210 U	51 U	
1,1,2,2-Tetrachloroethane	120 U	160 U	200 U	270 U	180 U	230 U	82 U	150 U	260 U	32 U	140 U	34 U	
Total VOCs	14,340	20,630	20,310	15,210	11,250	16,330	18,420	17,310	32,630	8,899	15,230	11,234	

Sample ID		Pre-VPGAC-102 Between VPGAC 101 and 102												
Location					Be	tween VPG	GAC 101 an	d 102						
Sample Collection Date	1/31/2019	2/21/2019	3/19/2019	4/23/2019	5/28/2019	6/24/2019	7/31/2019	8/21/2019	9/25/2019	10/31/2019	11/19/2019	12/17/2019		
Analyte	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result		
Vinyl chloride														
1,1-Dichloroethene														
Acetone														
Methylene Chloride														
trans-1,2-Dichloroethene														
1,1-Dichloroethane														
cis-1,2-Dichloroethene														
1,2-Dichloroethene, Total														
1,1,1-Trichloroethane														
Carbon tetrachloride	NS (4)	NS (4)	NS (4)	NS (4)	NS (4)	NS ⁽⁴⁾	NS ⁽⁴⁾	NS (4)	NS (4)	NS ⁽⁴⁾	NS (4)	NS (4)		
Benzene														
Trichloroethene														
Toluene														
Tetrachloroethene														
Chlorobenzene														
m,p-Xylene														
Xylene, o-														
Bromoform														
1,1,2,2-Tetrachloroethane														
Total VOCs	-	-	-	-	-	-	-	-	-	-	-	-		



Sample ID						Pre-VF	PGAC-103					
Location					Be	tween VPC	GAC 102 an	d 103				
Sample Collection Date	1/31/2019	2/21/2019	3/19/2019	4/23/2019	5/28/2019	6/24/2019	7/31/2019	8/21/2019	9/25/2019	10/31/2019	11/19/2019	12/17/2019
Analyte	Result	Result	Result	Result	Result	Result						
Vinyl chloride												
1,1-Dichloroethene]											
Acetone	1											
Methylene Chloride												
trans-1,2-Dichloroethene]											
1,1-Dichloroethane												
cis-1,2-Dichloroethene]											
1,2-Dichloroethene, Total	1											
1,1,1-Trichloroethane	1											
Carbon tetrachloride	NS (4)	NS ⁽⁴⁾	NS (4)	NS (4)	NS (4)	NS (4)	NS (4)					
Benzene	1											
Trichloroethene	1											
Toluene]											
Tetrachloroethene	1											
Chlorobenzene												
m,p-Xylene]											
Xylene, o-]											
Bromoform]											
1,1,2,2-Tetrachloroethane]											
Total VOCs	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID						Pre-VF	PGAC-104					
Location					Be	tween VPG	GAC 103 an	d 104				
Sample Collection Date	1/31/2019	2/21/2019	3/19/2019	4/23/2019	5/28/2019	6/24/2019	7/31/2019	8/21/2019	9/25/2019	10/31/2019	11/19/2019	12/17/2019
Analyte	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Vinyl chloride			0.89 U			2 U			2 U	2 U		2 U *
1,1-Dichloroethene	1		1.4 U]		4.2	[3.8	1.4 U		1.4 U
Acetone			120 U			120 U			120 U	120 U		120 U
Methylene Chloride			17 U			8.9 J			17 U	17 U		17 U
trans-1,2-Dichloroethene			7.9 U]		3.1 J			11	8.1		6.3 J
1,1-Dichloroethane			8.1 U			8.1 U			8.1 U	8.1 U		8.1 U
cis-1,2-Dichloroethene			17			280			920	710		730
1,2-Dichloroethene, Total			17]		280			920	720		720
1,1,1-Trichloroethane			11 U]		11 U			11 U	11 U		11 U
Carbon tetrachloride	NS (5)	NS (5)	2.2 U	NS (5)	NS ⁽⁵⁾	2.2 U	NS ⁽⁵⁾	NS (5)	2.2 U	2.2 U	NS (5)	2.2 U
Benzene			6.4 U]		6.4 U			6.4 U	6.4 U		6.4 U
Trichloroethene			11]		6.4			10	2.4		4.1
Toluene			7.5 U]		9.5			7.5 U	7.5 U		7.5 U
Tetrachloroethene			14 U			14 U			14 U	14 U		14 U
Chlorobenzene			9.2 U]		9.2 U			9.2 U	9.2 U		9.2 U
m,p-Xylene			22 U]		4.4 J	I		22 U	22 U		22 U
Xylene, o-			8.7 U]		8.7 U	I		8.7 U	8.7 U		8.7 U
Bromoform			21 U]		21 U	I		21 U	21 U		21 U
1,1,2,2-Tetrachloroethane			14 U]		14 U	[14 U	14 U		14 U
Total VOCs	-	-	28	-	-	316.5	-	-	944.8	731	-	730.4

Sample ID						Post-Di	lution-EFF					
Location					Betv	veen VPGA	C 104 and	Blower				
Sample Collection Date	1/31/2019	2/21/2019	3/19/2019	4/23/2019	5/28/2019	6/24/2019	7/31/2019	8/21/2019	9/25/2019	10/31/2019	11/19/2019	12/17/2019
Analyte	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Vinyl chloride			0.89 U			2 U			2 U	2 U		2 U *
1,1-Dichloroethene			1.4 U			1.4 U			1.4 U	1.4 U		1.4 U
Acetone			120 U			120 U			120 U	120 U		120 U
Methylene Chloride			17 U			17 U			17 U	17 U		17 U
trans-1,2-Dichloroethene			7.9 U			7.9 U			7.9 U	7.9 U		7.9 U
1,1-Dichloroethane			8.1 U			8.1 U			8.1 U	8.1 U		8.1 U
cis-1,2-Dichloroethene			1.4 U			2 U			3	2 U		2 U
1,2-Dichloroethene, Total			16 U			16 U			16 U	16 U		16 U
1,1,1-Trichloroethane			11 U			8.7 J			11 U	11 U		11 U
Carbon tetrachloride	NS (5)	NS (5)	2.2 U	NS (5)	NS ⁽⁵⁾	2.2 U	NS (5)	NS (5)	2.2 U	2.2 U	NS (5)	2.2 U
Benzene			6.4 U			6.4 U			6.4 U	6.4 U		2.7 J
Trichloroethene			3.3			4.9			1.9 U	1.9 U		1.9 U
Toluene			3.3 J			7.5 U			7.5 U	7.5 U		7.5 U
Tetrachloroethene	1		14 U	1		4.8 J			14 U	14 U		14 U
Chlorobenzene	1		9.2 U	1		9.2 U			9.2 U	9.2 U		9.2 U
m,p-Xylene			22 U			22 U			22 U	22 U		22 U
Xylene, o-			8.7 U			3.1 J			8.7 U	8.7 U		8.7 U
Bromoform			21 U			21 U			21 U	21 U		21 U
1,1,2,2-Tetrachloroethane			14 U			14 U			14 U	14 U		14 U
Total VOCs	-	-	6.6	-	-	21.5	-	-	3.0	ND	-	2.70

Sample ID		Post-Blower/ Effluent													
Location						Efi	fluent								
Sample Collection Date	1/31/2019	2/21/2019	3/19/2019	4/23/2019	5/28/2019	6/24/2019	7/31/2019	8/21/2019	9/25/2019	10/31/2019	11/19/2019	12/17/2019			
Analyte	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result			
Vinyl chloride	0.89 U	0.89 U *	0.89 U	0.89 U	0.89 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U *			
1,1-Dichloroethene	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U *	1.4 U	1.4 U	1.4 U	1.4 U			
Acetone	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U			
Methylene Chloride	17 U	17 U *	17 U	17 U	17 U										
trans-1,2-Dichloroethene	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U			
1,1-Dichloroethane	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U			
cis-1,2-Dichloroethene	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U			
1,2-Dichloroethene, Total	16 U	16 U	16 U	16 U	16 U	16 U	16 U	16 U	16 U	16 U	16 U	16 U			
1,1,1-Trichloroethane	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U			
Carbon tetrachloride	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U			
Benzene	6.4 U	6.4 U	6.4 U	6.4 U	6.4 U	6.4 U	6.4 U	6.4 U	6.4 U	6.4 U	6.4 U	6.4 U			
Trichloroethene	8.6	5.1	1.9 U	1.9 U	2.4	1.9 U	3.3	11	2.2	1.9 U	8.2	1.9 U			
Toluene	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	4.5 J	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U			
Tetrachloroethene	14 U	14 U	14 U	2.1 J	14 U	14 U	2.5 J	14 U	14 U	14 U	14 U	14 U			
Chlorobenzene	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U			
m,p-Xylene	22 U	22 U	22 U	22 U	22 U	22 U	22 U	22 U	22 U	22 U	22 U	22 U			
Xylene, o-	8.7 U	8.7 U	8.7 U	8.7 U	8.7 U	8.7 U	8.7 U	8.7 U	8.7 U	8.7 U	8.7 U	8.7 U			
Bromoform	21 U	21 U	21 U	21 U	21 U *	21 U	21 U	21 U							
1,1,2,2-Tetrachloroethane	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U			
Total VOCs	8.60	5.10	ND	2.10	2.40	ND	10.30	11.00	2.20	ND	8.20	ND			



Notes:

- 1) Samples analyzed for VOCs by USEPA Method TO-15.
- 2) All concentrations are in $\mu g/m^3$.
- 3) Total VOCs shown include estimated concentrations (e.g., concentrations with "J" laboratory qualifiers).
- 4) VPGAC-101 taken offline on February 22, 2017; VPGAC-102 taken offline on January 31, 2019.
- 5) Mid-carbon sampling performed quarterly.
- 6) Sample not collected due to faulty canister.
- * = The laboratory control sample or laboaroty control sample duplicate is outside acceptance limits.
- B = Indicates the analyte was detected in the blank and sample.
- ID = identification
- J = Result is less than the reporting limit but greater than or equal to the method detection limit, and the concentration is an approximate value.
- NS = not sampled
- SDS = sub-slab depressurization sump
- U = Indicates the analyte was analyzed for but not detected.
- $\mu g/m^3 = microgram per cubic meter$
- USEPA = United States Environmental Protection Agency
- VOC = volatile organic compound
- VPGAC = vapor-phase granular-activated carbon



Volatile Organic Compounds ^(a)	AGC ^(a) (µg/m ³)	SGC ^(a) (µg/m ³)	Maximum SSDS Effluent Concentration During 2019 (μg/m ³) ^(c)	Standard Cubic Feet Per Minute ^(d)	Number of Discharge Points	Building Height (feet)	Stack Height	Maximum Houly Rate (Ib/hr)	Maximum Emission Rate (Ib/day)	Actual Annual Impact (µg/m ³) ^(b)	Actual Annual Impact Percentage of AGC (%)	Actual Short Term Impact (µg/m ³) ^(b)	Actual Short Term Impact Percentage of SGC (%)
Vinyl chloride	0.07	180,000.00	2.00	225	1.00	33.00	38.00	0.00	0.0000	0.0000	0.03	0.00	0.00
1,1-Dichloroethene	200.00	-	1.40	225	1.00	33.00	38.00	0.00	0.0000	0.0000	0.00	0.00	-
Acetone	30,000.00	180,000.00	120.00	225	1.00	33.00	38.00	0.00	0.0024	0.0014	0.00	0.01	0.00
Methylene Chloride	60.00	14,000.00	17.00	225	1.00	33.00	38.00	0.00	0.0003	0.0002	0.00	0.00	0.00
trans-1,2-Dichloroethene	63.00	-	7.90	225	1.00	33.00	38.00	0.00	0.0002	0.0001	0.00	0.00	-
1,1-Dichloroethane	0.63	-	8.10	225	1.00	33.00	38.00	0.00	0.0002	0.0001	0.01	0.00	-
cis-1,2-Dichloroethene	63.00	-	2.00	225	1.00	33.00	38.00	0.00	0.0000	0.0000	0.00	0.00	-
1,2-Dichloroethene, Total	63.00	-	16.00	225	1.00	33.00	38.00	0.00	0.0003	0.0002	0.00	0.00	-
1,1,1-Trichloroethane	5,000.00	9,000.00	11.00	225	1.00	33.00	38.00	0.00	0.0002	0.0001	0.00	0.00	0.00
Carbon tetrachloride	0.17	1,900.00	2.20	225	1.00	33.00	38.00	0.00	0.0000	0.0000	0.02	0.00	0.00
Benzene	0.13	1,300.00	6.40	225	1.00	33.00	38.00	0.00	0.0001	0.0001	0.06	0.00	0.00
Trichloroethene	0.20	14,000.00	8.60	225	1.00	33.00	38.00	0.00	0.0002	0.0001	0.05	0.00	0.00
Toluene	5,000.00	37,000.00	7.50	225	1.00	33.00	38.00	0.00	0.0002	0.0001	0.00	0.00	0.00
Tetrachloroethene	4.00	300.00	14.00	225	1.00	33.00	38.00	0.00	0.0003	0.0002	0.00	0.00	0.00
Chlorobenzene	60.00	-	9.20	225	1.00	33.00	38.00	0.00	0.0002	0.0001	0.00	0.00	-
m,p-Xylene	100.00	22,000.00	22.00	225	1.00	33.00	38.00	0.00	0.0004	0.0003	0.00	0.00	0.00
Xylene, o-	100.00	22,000.00	8.70	225	1.00	33.00	38.00	0.00	0.0002	0.0001	0.00	0.00	0.00
Bromoform	0.91	-	21.00	225	1.00	33.00	38.00	0.00	0.0004	0.0002	0.03	0.00	-
1,1,2,2-Tetrachloroethane	16.00	-	14.00	225	1.00	33.00	38.00	0.00	0.0003	0.0002	0.00	0.00	-

Notes:

^(a) AGC and SGC values obtained from NYSDEC DAR-1 AGC/SGC Tables, dated February 28, 2014.

^(b) Actual annual impact calculated via the Basic Cavity Impact Method by following the procedures described in NYSDEC DAR-1 Guidelines for the Control of Toxic Ambient Air Contaminants (NYSDEC 1997).

^(c) The maximum detected concentration or maximum reporting limit (whichever is greater) for each analyte during 2019 has been included in this table.

^(d) The flow rate included in this table is the maximum flow rate based on blower's performance curve.

- = indicates no established guideline
% = percent
AGC = Annual Guideline Concentration
DAR = Division of Air Resources
SGC = Short-term Guideline Concentration
Ib/day = pound per day
Ib/hr = pound per hour
NYSDEC = New York State Department of Environmental Conservation
SSDS = sub-slab depressurization system
µg/m³ = microgram per cubic meter

Table 4 VOC Mass Removal Estimate Periodic Review Report Crosman Corporation East Bloomfield, New York

ARCADIS	Design & Consultancy for natural and built assets
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		Peri	od ^(a)				Used for Ma		Mass	Mara Damanal	Mass	Cumulative
					Influent	Rate C	Calculation (scfm) ^(d)	Removal	Mass Removal	Removed	Mass
Sample Date	Start Date	End Date	Duration (days)	Uptime (%) ^(b)	VOCs (μg/m ³) ^(c) SDS-1 SDS-2 Combined Influent (grams/day) Rate for Period (grams/day) ^(e)	Per Period (kg)	Removed Since Startup (kg) ^(f)					
1/31/2019	12/12/18	1/31/19	50	84.8%	14,340	13	14	27	15.7	20.0	0.9	187.4
2/22/2019	1/31/19	2/22/19	22	99.6%	20,630	7	14	21	17.5	16.6	0.4	187.7
3/19/2019	2/22/19	3/19/19	25	88.1%	20,310	10	17	26	21.9	19.7	0.4	188.1
4/23/2019	3/19/19	4/23/19	35	99.5%	15,210	7	14	21	13.1	17.5	0.6	188.8
5/29/2019	4/23/19	5/29/19	36	99.8%	11,250	8	16	23	10.8	11.9	0.4	189.2
6/18/2019	5/29/19	6/18/19	20	91.9%	16,330	6	13	19	12.7	11.7	0.2	189.4
7/31/2019	6/18/19	7/31/19	43	99.6%	18,420	7	15	22	16.3	14.5	0.6	190.0
8/29/2019	7/31/19	8/29/19	29	99.7%	17,310	6	14	20	14.3	15.3	0.4	190.5
9/25/2019	8/29/19	9/25/19	27	99.6%	32,630	7	15	22	29.4	21.8	0.6	191.1
10/31/2019	9/25/19	10/31/19	36	99.7%	8,899	7	23	29	10.7	20.0	0.7	191.8
11/19/2019	10/31/19	11/19/19	19	99.7%	15,230	9	17	26	16.3	13.5	0.3	192.0
12/12/2019	11/19/19	12/12/19	23	99.4%	11,234	11	17	28	12.6	14.5	0.3	192.4

Notes:

^(a) Time periods shown for each sample date begin at previous sample date and end at current sample date.

^(b) Uptime percentage calculated using system runtime readings from system's human machine interface.

^(c) Sum of VOCs are based on system vapor sample laboratory analytical results from respective sample date. Combined influent laboratory analytical data have been used for mass removal rate calculations.

^(d) Flow rates utilized for mass removal rate calculations obtained by measuring air velocity from the individual extraction points using a handheld anemometer.

^(e) Mass removal rates have been calculated for each sampling date using laboratory analytical data and system flow rates. Representative mass removal rates have been assigned to each time period (i.e., between sampling dates) by averaging the respective mass removal rates from the start and end of the time period.

^(f) Mass removal through end of 2018 reporting period was 186.5 kg.

- = not applicable

% = percent

kg = kilograms

scfm = standard cubic feet per minute

SDS = sub-slab depressurization sump

 μ g/m³ = micrograms per cubic meter

VOC = volatile organic compound

Program Monitoring Wells Groundwater Analytical Results Periodic Review Report Crosman Site East Bloomfield, New York

Well I.D.			MW-3A		
Date Sampled	22-Apr-15	18-Apr-16	19-Apr-17	3-Apr-18	23-Apr-19
Volatiles					
Acetone	-	-	-	-	-
Benzene	-	-	-	-	-
Bromodichloromethane	-	-	-	-	-
Bromoform	-	-	-	-	-
Carbon Disulfide	-	-	-	-	-
Carbon Tetrachloride	-	-	-	-	-
Chlorobenzene	-	-	-	-	-
Chloroform	-	-	-	-	-
cis-1,2-Dichloroethene	-	-	-	-	-
trans-1,2-Dichloroethene	-	-	-	-	-
Dibromochloromethane	-	-	-	-	-
1,1-Dichloroethane	-	-	-	-	-
1,1-Dichloroethene	-	-	-	-	-
1,1,2,2-Tetrachloroethane	-	-	-	-	-
Methylene Chloride	-	-	-	-	-
Tetrachloroethene	-	-	-	-	-
Trichloroethene	250	350	260	190	130
Toluene	-	-	-	-	-
Xylenes (total)	-	-	-	-	-





Well I.D.		MW-4								
Date Sampled	22-Apr-15	21-Oct-15	18-Apr-16	26-Oct-16	19-Apr-17	17-Oct-17	3-Apr-18	26-Oct-18	23-Apr-19	31-Oct-19
Volatiles										
Acetone	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	-	-	-	-	-	-	-	-	-	-
Bromoform	-	-	-	-	-	-	-	-	-	-
Carbon Disulfide	-	-	-	-	-	-	-	-	-	-
Carbon Tetrachloride	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	-	-	-	-	-	-	-	-	-	-
Chloroform	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	-	-	-	-	-	-	-	-	-	-
1,1 - Dichloroethane	-	-	-	-	-	-	-	-	-	-
1,1 - Dichloroethene	-	-	-	-	-	-	-	-	-	-
1,1,2,2 - Tetrachloroethane	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	-	-	-	-	-	-	-	-	-	-
Trichloroethene	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-
Xylenes (total)	-	-	-	-	-	-	-	-	-	-

Table 5Program Monitoring Wells Groundwater Analytical ResultsPeriodic Review ReportCrosman SiteEast Bloomfield, New York

Well I.D.		MW-5										
Date Sampled	22-Apr-15	21-Oct-15	18-Apr-16	26-Oct-16	19-Apr-17	17-Oct-17	3-Apr-18	26-Oct-18	23-Apr-19	31-Oct-19		
Volatiles												
Acetone	-	-	-	-	-	-	-	12	-	-		
Benzene	-	-	-	-	-	-	-	-	-	-		
Bromodichloromethane	-	-	-	-	-	-	-	-	-	-		
Bromoform	-	-	-	-	-	-	-	-	-	-		
Carbon Disulfide	-	-	-	-	-	-	-	-	-	-		
Carbon Tetrachloride	-	-	-	-	-	-	-	-	-	-		
Chlorobenzene	-	-	-	-	-	-	-	-	-	-		
Chloroform	-	-	-	-	-	-	-	-	-	-		
cis-1,2-Dichloroethene	17	15	14	9.4	8.8	9.6	11	8.0	9.5	9.4		
trans-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-		
Dibromochloromethane	-	-	-	-	-	-	-	-	-	-		
1,1-Dichloroethane	-	-	-	-	-	-	-	-	-	-		
1,1-Dichloroethene	-	-	-	-	-	-	-	-	-	-		
1,1,2,2-Tetrachloroethane	-	-	-	-	-	-	-	-	-	-		
Methylene Chloride	-	-	-	-	-	-	-	-	-	-		
Tetrachloroethene	-	-	-	-	-	-	-	-	-	-		
Trichloroethene	5.7	6.4	-	6.1	5.0	17	11	11	9.5	9.1		
Toluene	-	-	-	-	-	-	-	-	-	-		
Xylenes (total)	-	-	-	-	-	-	-	-	-	-		

Table 5Program Monitoring Wells Groundwater Analytical ResultsPeriodic Review ReportCrosman SiteEast Bloomfield, New York

Well I.D.					MV	<i>I</i> -13				
Date Sampled	22-Apr-15	21-Oct-15	18-Apr-16	26-Oct-16	19-Apr-17	17-Oct-17	3-Apr-18	26-Oct-18	23-Apr-19	31-Oct-19
Volatiles										
Acetone	-	-	-	-	-	-	-	16	-	-
Benzaldehyde	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	-	-	-	-	-	-	-	-	-	-
Bromoform	-	-	-	-	-	-	-	-	-	-
Carbon Disulfide	-	-	-	-	-	-	-	-	-	-
Carbon Tetrachloride	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	-	-	-	-	-	-	-	-	-	-
Chloroform	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	-	29	-	13	16	-	-	15	-	-
trans-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	-	-	-	-	-	-	-	-	-	-
Trichloroethene	180	400 D	130	96	250 D	110	51	140	34	58
Toluene	-	-	-	-	-	-	-	-	-	-
Xylenes (total)	-	-	-	-	-	-	-	-	-	-



Table 5Program Monitoring Wells Groundwater Analytical ResultsPeriodic Review ReportCrosman SiteEast Bloomfield, New York



Well I.D.					MM	/-14				
Date Sampled	22-Apr-15	21-Oct-15	18-Apr-16	26-Oct-16	19-Apr-17	17-Oct-17	3-Apr-18	26-Oct-18	23-Apr-19	31-Oct-19
Volatiles										
Acetone	-	-	-	-	-	-	-	-	-	-
Benzaldehyde	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	-	-	-	-	-	-	-	-	-	-
Bromoform	-	-	-	-	-	-	-	-	-	-
Carbon Disulfide	-	-	-	-	-	-	-	-	-	-
Carbon Tetrachloride	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	-	-	-	-	-	-	-	-	-	-
Chloroform	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	-	-	-	-	-	-	-	-	-	-
Trichloroethene	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-
Xylenes (total)	-	-	-	-	-	-	-	-	-	-

Program Monitoring Wells Groundwater Analytical Results Periodic Review Report Crosman Site East Bloomfield, New York

Well I.D.		MW-15										
Date Sampled	22-Apr-15	21-Oct-15	18-Apr-16	26-Oct-16	19-Apr-17	17-Oct-17	3-Apr-18	26-Oct-18	23-Apr-19	31-Oct-19		
Volatiles												
Acetone	-	-	-	-	-	-	-	15	-	-		
Benzene	-	-	-	-	-	-	-	-	-	-		
Bromodichloromethane	-	-	-	-	-	-	-	-	-	-		
Bromoform	-	-	-	-	-	-	-	-	-	-		
Carbon Disulfide	-	-	-	-	-	-	-	-	-	-		
Carbon Tetrachloride	-	-	-	-	-	-	-	-	-	-		
Chlorobenzene	-	-	-	-	-	-	-	-	-	-		
Chloroform	-	-	-	-	-	-	-	-	-	-		
cis-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-		
trans-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-		
Dibromochloromethane	-	-	-	-	-	-	-	-	-	-		
1,1-Dichloroethane	-	-	-	-	-	-	-	-	-	-		
1,1-Dichloroethene	-	-	-	-	-	-	-	-	-	-		
1,1,2,2-Tetrachloroethane	-	-	-	-	-	-	-	-	-	-		
Methylene Chloride	-	-	-	-	-	-	-	-	-	-		
Tetrachloroethene	-	-	-	-	-	-	-	-	-	-		
Trichloroethene	-	-	-	-	-	-	-	-	-	-		
Toluene	-	-	-	-	-	-	-	-	-	-		
Xylenes (total)	-	-	-	-	-	-	-	-	-	-		

Program Monitoring Wells Groundwater Analytical Results Periodic Review Report Crosman Site East Bloomfield, New York

Well I.D.			MW-17		
Date Sampled	22-Apr-15	18-Apr-16	19-Apr-17	3-Apr-18	23-Apr-19
Volatiles					
Acetone	-	-	-	-	-
Benzene	-	-	-	-	-
Bromodichloromethane	-	-	-	-	-
Bromoform	-	-	-	-	-
Carbon Disulfide	-	-	-	-	-
Carbon Tetrachloride	-	-	-	-	-
Chlorobenzene	-	-	-	-	-
Chloroform	-	-	-	-	-
cis-1,2-Dichloroethene	-	-	-	-	-
trans-1,2-Dichloroethene	-	-	-	-	15
Dibromochloromethane	-	-	-	-	-
1,1-Dichloroethane	-	-	-	-	-
1,1-Dichloroethene	-	-	-	-	-
1,1,2,2-Tetrachloroethane	-	-	-	-	-
Methylene Chloride	-	-	-	-	-
Tetrachloroethene	-	-	-	-	-
Trichloroethene	400	340	500 D	470	440
Toluene	-	-	-	-	-
Xylenes (total)	-	-	-	-	-



Program Monitoring Wells Groundwater Analytical Results Period Review Report Crosman Site East Bloomfield, New York

Well I.D.			MW-18		
Date Sampled	22-Apr-15	18-Apr-16	19-Apr-17	3-Apr-18	23-Apr-19
Volatiles					
Acetone	-	-	-	-	-
Benzene	-	-	-	-	-
Bromodichloromethane	-	-	-	-	-
Bromoform	-	-	-	-	-
Carbon Disulfide	-	-	-	-	-
Carbon Tetrachloride	-	-	-	-	-
Chlorobenzene	-	-	-	-	-
Chloroform	-	-	-	-	-
cis-1,2-Dichloroethene	-	-	-	-	-
trans-1,2-Dichloroethene	-	-	-	-	-
Dibromochloromethane	-	-	-	-	-
1,1-Dichloroethane	-	-	-	-	-
1,1-Dichloroethene	-	-	-	-	-
1,1,2,2-Tetrachloroethane	-	-	-	-	-
Methylene Chloride	-	-	-	-	-
Tetrachloroethene	-	-	-	-	-
Trichloroethene	-	-	-	-	-
Notes on page 20.	-	-	-	-	-
Xylenes (total)	-	-	-	-	-



Program Monitoring Wells Groundwater Analytical Results Period Review Report Crosman Site East Bloomfield, New York

Well I.D.			MW-19		
Date Sampled	22-Apr-15	18-Apr-16	19-Apr-17	3-Apr-18	23-Apr-19
Volatiles					
Acetone	-	-	-	-	-
Benzene	-	-	-	-	-
Bromodichloromethane	-	-	-	-	-
Bromoform	-	-	-	-	-
2-Butanone	-	-	-	-	-
Carbon Disulfide	-	-	-	-	-
Carbon Tetrachloride	-	-	-	-	-
Chlorobenzene	-	-	-	-	-
Chloroform	-	-	-	-	-
cis-1,2-Dichloroethene	-	-	-	-	-
trans-1,2-Dichloroethene	-	-	-	-	-
Dibromochloromethane	-	-	-	-	-
1,1-Dichloroethane	-	-	-	-	-
1,1-Dichloroethene	-	-	-	-	-
1,2-Dichloroethene (total)	-	-	-	-	-
2-Hexanone	-	-	-	-	-
1,1,2,2-Tetrachloroethane	-	-	-	-	-
4-Methyl-2-pentanone	-	-	-	-	-
Methylene Chloride	-	-	-	-	-
Tetrachloroethene	-	-	-	-	-
Trichloroethene	-	-	-	-	-
Notes on page 20.	-	-	-	-	-
Xylenes (total)	-	-	-	-	-



Program Monitoring Wells Groundwater Analytical Results Periodic Review Report Crosman Site East Bloomfield, New York

Well I.D.					PW-1				
Date Sampled	27-Apr-15	21-Oct-15	18-Apr-16	26-Oct-16	19-Apr-17	3-Apr-18	26-Oct-18	23-Apr-19	31-Oct-19
Volatiles									
Acetone	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-
Bromodichloromethane	-	-	-	-	-	-	-	-	-
Bromoform	-	-	-	-	-	-	-	-	-
Carbon Disulfide	-	-	-	-	-	-	-	-	-
Carbon Tetrachloride	-	-	-	-	-	-	-	-	-
Chlorobenzene	-	-	-	-	-	-	-	-	-
Chloroform	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-
Dibromochloromethane	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	-	-	-	-	-	-	-	-	-
Methylene Chloride	-	-	-	-	-	-	-	-	-
Tetrachloroethene	-	-	-	-	-	-	-	-	-
Trichloroethene	69	98	79	92	41	14	22	15	38
Notes on page 20.	-	-	-	-	-	-	-	-	-
Xylenes (total)	-	-	-	-	-	-	-	-	-

Program Monitoring Wells Groundwater Analytical Results Periodic Review Report Crosman Site East Bloomfield, New York

Well I.D.	MW-20				
Date Sampled	22-Apr-15	18-Apr-16	19-Apr-17	3-Apr-18	23-Apr-19
Volatiles					
Acetone	-	-	-	-	-
Benzene	-	-	-	-	-
Bromodichloromethane	-	-	-	-	-
Bromoform	-	-	-	-	-
Carbon Disulfide	-	-	-	-	-
Carbon Tetrachloride	-	-	-	-	-
Chlorobenzene	-	-	-	-	-
Chloroform	-	-	-	-	-
cis-1,2-Dichloroethene	-	-	-	-	-
trans-1,2-Dichloroethene	-	-	-	-	-
Dibromochloromethane	-	-	-	-	-
1,1-Dichloroethane	-	-	-	-	-
1,1-Dichloroethene	-	-	-	-	-
1,1,2,2-Tetrachloroethane	-	-	-	-	-
Methlyene Chloride	-	-	-	-	-
Tetrachloroethene	-	-	-	-	-
Trichloroethene	110	120	160	120	150
Toluene	-	-	-	-	-
Xylenes (total)	-	-	-	-	-



Table 5Program Monitoring WellsGroundwater Analytical ResultsCrosman SiteEast Bloomfield, New York

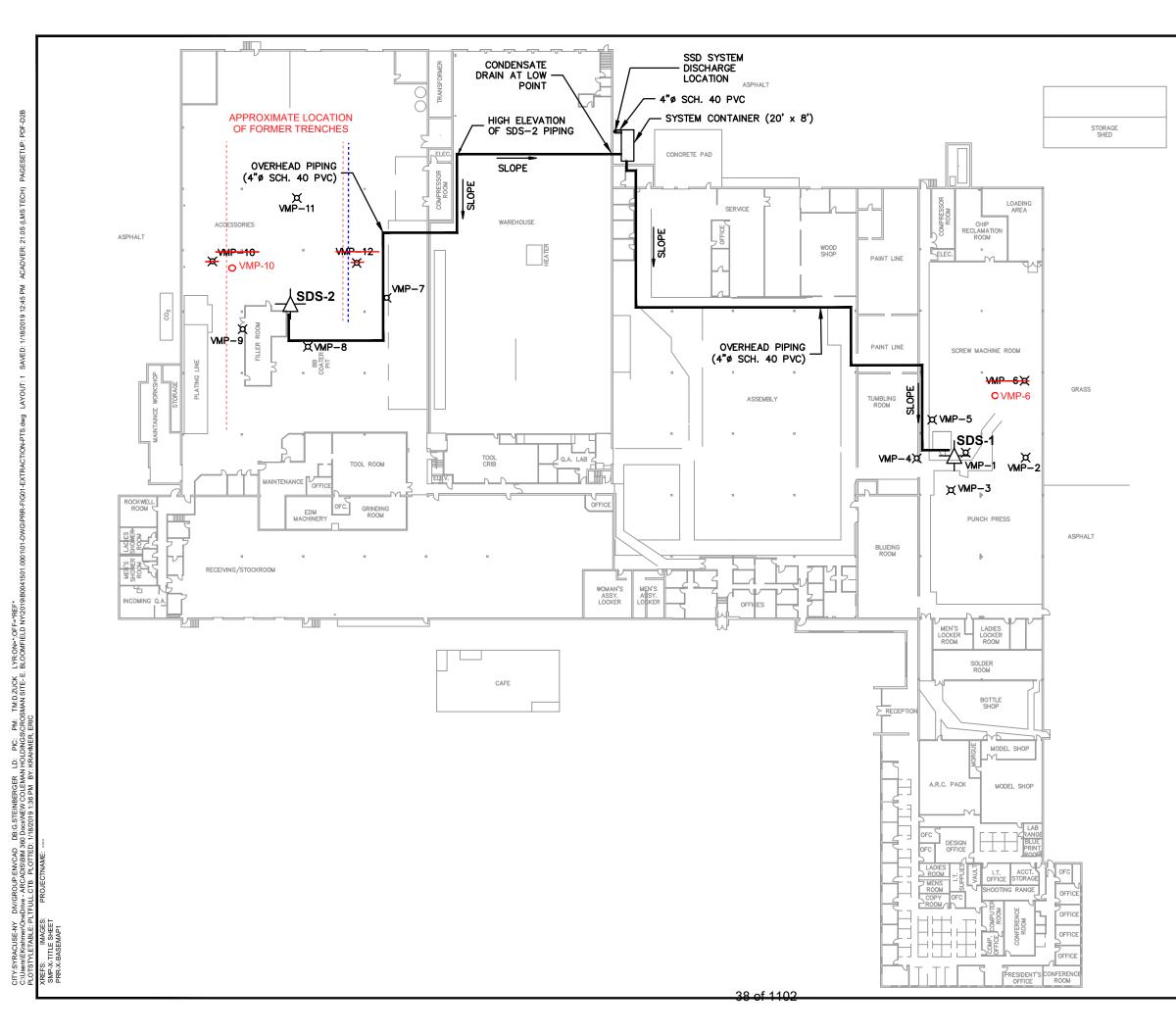


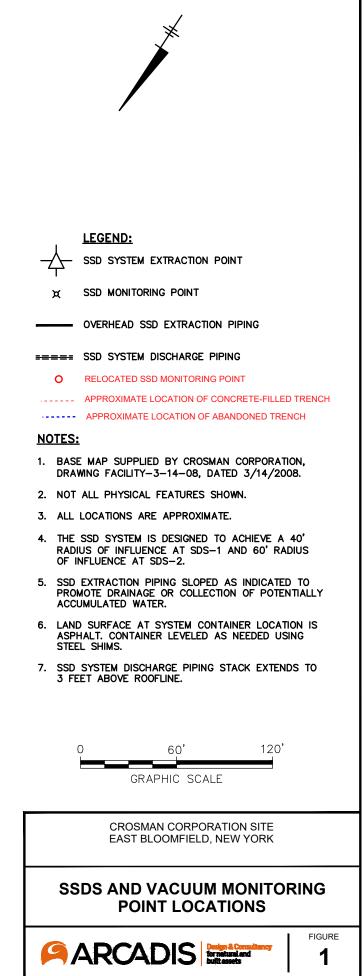
- J: The compound was positively identified; however, the associated numerical value is an estimated concentration.
- N: Spiked sample recovery was not within control limits.
- S: The reported value was determined by the method of standard additions (MSA).
- D: Denotes a secondary dilution.
- E: Exceeds calibration range.
- NA: Denotes not analyzed.
- : Denotes a nondetectable concentration.

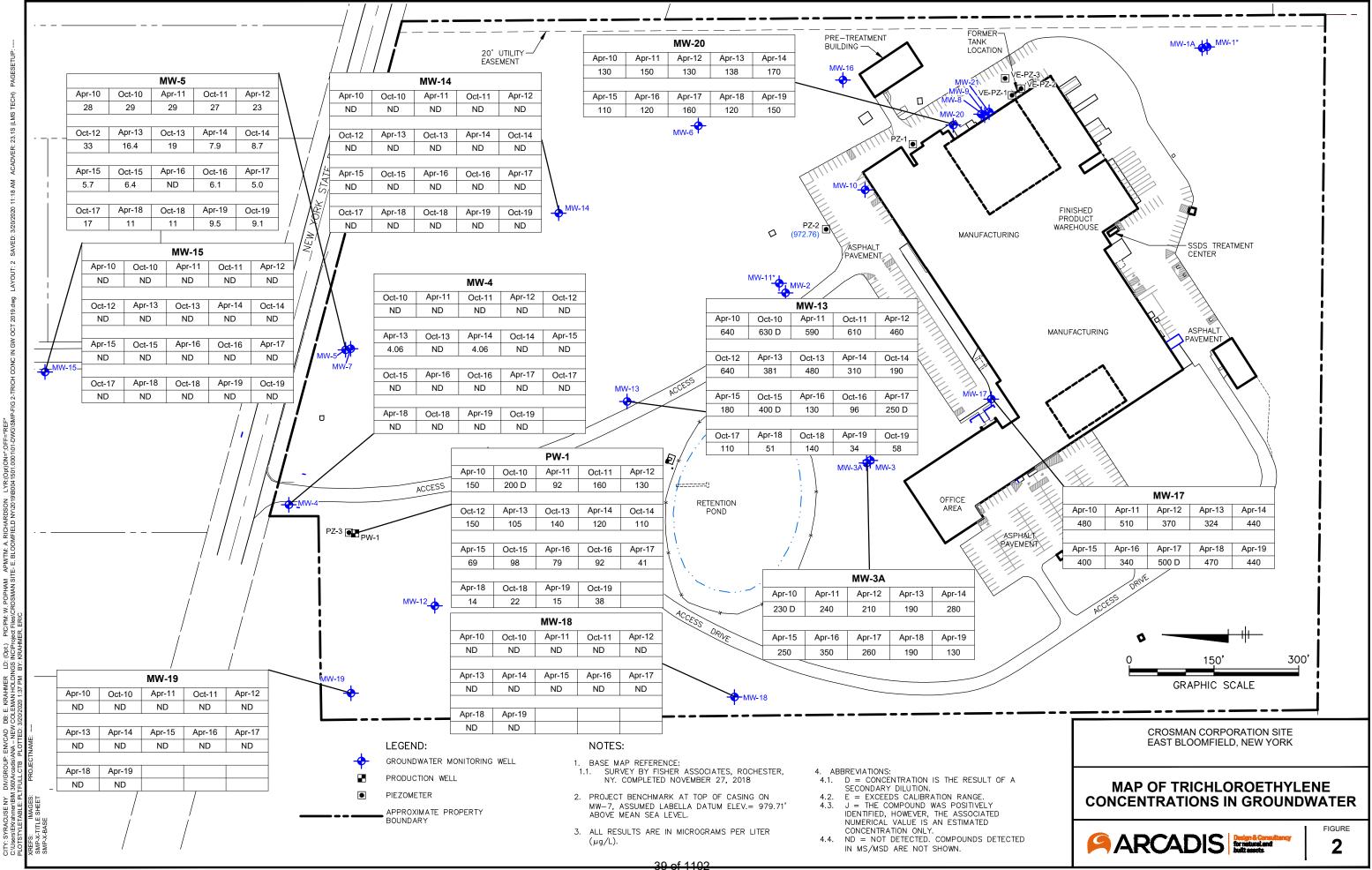
Water quality results are expressed in micrograms per liter (μ g/L), equivalent to parts per billion.

FIGURES









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