PERIODIC REVIEW ANNUAL REPORT No. 7
(JULY 1, 2018 – JUNE 30, 2019)
CARRIAGE CLEANERS-BRIGHTON
NYSDEC SITE NO. 828120

WORK ASSIGNMENT NO. D007619-08

Prepared for:

New York State Department of Environmental Conservation
Albany, New York

Prepared by:

MACTEC Engineering and Consulting, P.C.
Portland, Maine

MACTEC: 3612112223

DECEMBER 2019

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Submitted by:

Kaitlyn Chick
Project Engineer

Approved by:

Mark J. Stelmack, P.E.
Project Manager

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GLOSSARY OF ACRONYMS AND ABBREVIATIONS

EC	engineering control
FS	Feasibility Study
ft	foot
GES	Groundwater and Environmental Services, Inc.
gpm	gallon(s) per minute
GWETS	groundwater extraction and treatment system
IC	institutional control
lbs/hr	pounds per hour
MACTEC	MACTEC Engineering and Consulting, P.C.
µg/L	microgram(s) per liter
$\mu g/m^3$	microgram(s) per cubic meter
mg/L	milligrams per liter
ND	non-detect
NYSDEC	New York State Department of Environmental Conservation
O&M	operation and maintenance
OBG	O'Brien and Gere Engineers
ORP	oxidation reduction potential
PCE	tetrachloroethene
PID	photoionization detector
ppbv	part(s) per billion by volume
ppm	part(s) per million
PRR	periodic review report

GLOSSARY OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

RA	Remedial Action
RI	Remedial Investigation
ROD	Record of Decision
RSO	remedial system optimization
SCO	soil cleanup objective
Site	Carriage Cleaners site
SM	site management
SMP	Site Management Plan
SSDS	sub-slab depressurization system
SVE	soil vapor extraction
SVI	soil vapor intrusion
TCE	trichloroethylene
VE	vapor extraction
VOC	volatile organic compound

EXECUTIVE SUMMARY

The Carriage Cleaners site (Site No. 828120; hereinafter referred to as the Site) is a commercially zoned parcel approximately 0.35 acres in size located at the intersection of Brooklawn Drive and Monroe Avenue, in Brighton, New York (Figure 1.1) where dry cleaning operations have occurred for at least 30 years.

The remedy for the Site was selected and a Record of Decision (ROD) issued in March 2008 (New York State Department of Environmental Conservation [NYSDEC], 2008). Contaminants of concern at the Site are volatile organic compounds, specifically tetrachloroethene and its breakdown components. Remedial Action (RA) work began in June 2011 and construction was completed in December 2011 RA activities included:

1. At a suspected contaminant source area adjacent to the active dry cleaner building, contaminated soil was excavated to bedrock (approximately sixteen feet below ground surface). Excavated material was transported and disposed at an off-site facility. The excavation was backfilled with clean soil.
2. A soil vapor extraction (SVE) system was installed. Contaminated air from the extraction wells previously underwent treatment by granular activated carbon to remove contaminants before being discharged to the atmosphere; air treatment has been discontinued as it was determined to no longer be needed to achieve applicable air quality guidelines. The SVE system was shut down from December 20, 2017 to November 21, 2018 during execution of a rebound study, but was restarted after witnessing rebound in the soil vapor.
3. A groundwater extraction treatment system (GWETS) was installed. The GWETS consists of one extraction well which collects groundwater on site to prevent continued off-site migration of contaminants. Contaminated water from the extraction well is treated to remove contaminants before being discharged to the sanitary sewer in accordance with an approved permit.

A Site Management (SM) Plan was created to outline the controls established to meet the ROD requirements. Because remaining contaminated groundwater exists beneath the Site, engineering controls (ECs)/institutional controls are required to protect human health and the environment. EC systems at the Site include:

1. A cover system consisting of asphalt pavement, concrete sidewalks, and concrete building slabs.

2. Site fencing to keep the public from approaching the Site treatment trailer.
3. An SVE system to treat soil contamination on-site.
4. A GWETS to prevent off-site migration of contaminants through groundwater.
5. Seventeen sub-slab depressurization systems (SSDS)to mitigate soil vapor in the neighboring community. The SSDSs are being monitored and maintained by the NYSDEC under a separate contract and are not a focus of the annual Periodic Review Report (PRR), however they are still active and their locations in relation to the Site are shown in Figure 1.2.

This is the seventh annual PRR for the Site. The PRR summarizes the SM activities completed at the Site from July 1, 2018 through June 30, 2019 and evaluates the effectiveness of the RA conducted in 2011. During the reporting period, SM requirements were met. Based on this review, the combined remedy continues to be protective of the public health and the environment; several of the remedial action objectives in the ROD have been achieved, and ongoing SM activities could be optimized while continuing to be protective of public health and the environment.

1.0 SITE OVERVIEW

1.1 INTRODUCTION

The remedy for the Carriage Cleaners site (Site) was selected and a Record of Decision (ROD) issued in March 2008 (New York State Department of Environmental Conservation [NYSDEC], 2008). Remedial Action (RA) work began in June 2011 and was completed in December 2011 (MACTEC Engineering and Consulting, P.C. [MACTEC], 2012).

Ongoing Site Management (SM) consists of the operation of a groundwater extraction and treatment system (GWETS) to contain the groundwater contaminant plume in bedrock fractures, and a soil vapor extraction (SVE) system to treat contaminated vadose zone soil beneath the Site building.

The following major RA activities were completed at the Site in 2011:

1. At a suspected contaminant source area adjacent to the active dry cleaner building, contaminated soil was excavated to bedrock (approximately sixteen feet below ground surface). Excavated material was transported and disposed at an off-site facility. The excavation was backfilled with clean soil.
2. An SVE system was installed to treat residual vadose zone soil contamination. Contaminated air from the extraction wells previously underwent treatment by granular activated carbon to remove contaminants before being discharged to the atmosphere; air treatment has been discontinued as it was determined to no longer be needed to achieve applicable air quality guidelines. After results of soil sampling indicated that the tetrachloroethylene (PCE) soil cleanup objective (SCO) had been met, the SVE system was shut down from December 20, 2017 to November 21, 2018 to conduct a rebound study. The system was restarted as a means to prevent soil vapor intrusion (SVI) after witnessing rebound in the soil vapor.
3. A GWETS was installed. The GWETS consists of one extraction well which collects groundwater on site to prevent continued off-site migration of contaminants. Contaminated water from the extraction well is treated to remove contaminants before being discharged to the sanitary sewer in accordance with an approved Monroe County Department of Environmental Services permit.

Full-time combined SVE and GWETS operations and corresponding SM activities were initiated in January 2012. The treatment systems are currently being operated, monitored, and maintained by

Groundwater and Environmental Services, Inc. (GES) under a standby contract (No. C100607) to the NYSDEC and under direction by MACTEC.

This Periodic Review Report (PRR) is the seventh annual PRR for the Site. This PRR, which covers the period of performance from July 1, 2018 to June 30, 2019 (hereinafter referred to as the "reporting period"), includes:

- required institutional control/engineering control (IC/EC) certification by the site owner and the project engineer (MACTEC)
- summary and documentation of site-related data to support IC/EC certification
- discharge monitoring data for the certification period
- a description of the on-line treatment system(s) performance.

1.2 SITE HISTORY AND DESCRIPTION

The Site is located at 2101 Monroe Avenue, Town of Brighton, Monroe County, New York (Figure 1.1). The Site is a commercially zoned parcel approximately 0.35 acres in size located at the intersection of Brooklawn Drive and Monroe Avenue. The area is a densely populated, mixed commercial and residential area. The Site is currently occupied by a one-story cement block dry cleaning facility, a two-story wood house, and a paved parking lot.

Dry cleaning operations have occurred at the Site for at least 30 years; a Town of Brighton Sewer inspection suggests that dry cleaning operations may have occurred at the Site as early as 1959. Up until October 10, 2018 Carriage Cleaners utilized PCE during dry-cleaning operations. Since then naphthalene, a petroleum-based solvent, has been used.

In 2003, a petroleum spill (Spill Number 0306131, closed on March 27, 2013) occurred adjacent to the Site at a former Newcomb Oil/Citgo Gasoline Station located at 2087 Monroe Avenue. PCE was discovered within groundwater downgradient of the Site during a series of investigations related to the petroleum spill. Due to the proximity of the Site and the history of PCE used during dry cleaning operations at the Site, the Carriage Cleaners Property was determined to be a potential source of the PCE detected within the groundwater (NYSDEC, 2008).

Because of the PCE detections, a Phase II Environmental Site Assessment was completed by the site owner in 2004. This investigation did not identify an onsite source for the PCE; however, the assessment suggested that potential ruptures within the sanitary and storm sewer line could be a source for the PCE detected within groundwater. The NYSDEC completed an offsite vapor intrusion study at four nearby residential properties. The results from this study led to the installation of one basement ventilation system and four SSDS as part of an interim remedial measure (NYSDEC, 2008).

As a result of these investigations, the NYSDEC listed the Site as a Class 2 Site in the Registry of Inactive Hazardous Waste Disposal Sites in New York in June of 2004. The NYSDEC ordered a Remedial Investigation (RI) and Feasibility Study (FS) to be completed (NYSDEC, 2008).

1.3 PHYSICAL SETTING

The geology beneath and near the Site directly influences the distribution and ability for contaminants to migrate from the Site. Site geology consists of a sandy glacial till (overburden beneath the Site) comprised of loose to dense, fine, and medium sand with some silt and gravel overlying a medium dark gray dolomite (bedrock beneath the Site) of the Lockport Group. The thickness of the overburden ranges from approximately 3 feet to 15 feet. Based on data collected as part of the RI, O'Brien and Gere Engineers (OBG) reported that three zones can be distinguished within the bedrock unit. These include a weathered bedrock zone immediately below the till deposit ranging from 1 to 3 feet in thickness, a shallow fractured bedrock zone with a thickness of approximately 6 to 15 feet, and a more competent intermediate bedrock zone where fracture frequency decreases with depth. The data suggest that there is a hydraulic connection/communication between the overburden zone and the shallow bedrock groundwater zone (OBG, 2007).

1.4 CLEANUP GOALS AND REMEDIAL PROGRESS

1.4.1 Description of Selected Remedy and Associated Cleanup Goals

Based on the results of the RI/FS and the criteria identified for evaluation of alternatives, the NYSDEC selected excavation (to the extent practical) to remove from the Site contaminated soil exhibiting concentrations of PCE greater than the SCO for unrestricted use (1.3 parts per million).

The selected remedy also included operation of an on-site SVE system to treat residual contaminated soil (i.e., beneath the building) and operation of a groundwater extraction and treatment system to contain contaminated shallow bedrock groundwater, along with the continued operation of the existing off-site SSDS and periodic SVI monitoring at nearby residences.

ICs in the form of an environmental easement are being used to impose land use restrictions and groundwater use restrictions at the Site. Specifically, the environmental easement includes:

- limiting use and development of the property to commercial and industrial activities
- land use restrictions which require proper worker protections during construction or excavation activities that would potentially cause a worker to contact contaminated soil, groundwater, or soil vapor
- compliance with the approved SM Plan (SMP)
- groundwater use restrictions which preclude the use of groundwater at the Site without prior notification and approval from NYSDEC
- restrictions related to soil, groundwater, and soil vapor implemented on the site property
- a periodic certification of ICs/ECs.

1.4.2 Remedial Progress

In accordance with the ROD, operation of the remedy components will continue until the remedial objectives have been achieved, or until the NYSDEC determines that continued operation is technically impracticable or not feasible.

In March 2017, results of collected soil samples indicated that the SCOs were achieved beneath the building. Therefore the SVE system was taken offline from December 20, 2017 to conduct a rebound study to evaluate the need for its continued operation. The SVE system was turned back on to support SVI mitigation in the Site building on November 21, 2018. Results of the rebound study are discussed in detail in a subsequent section of this report.

Based on available hydrologic data, it cannot be clearly demonstrated whether the GWETS has been containing the contaminated shallow bedrock groundwater. However, concentrations in the groundwater appear to be trending downwards as discussed in further detail in subsequent sections of this report.

2.0 EVALUATION OF REMEDY PERFORMANCE, EFFECTIVENESS AND PROTECTIVENESS

In this section, SM activities are discussed. Ongoing SM activities include ICs/ECs, the monitoring program, and the implementation of the site Operation and Maintenance (O&M) Plan which is included in the SMP. The comprehensive SMP developed for the Site includes plans for ICs/ECs, O&M, long term monitoring, and associated reporting (MACTEC, 2013).

2.1 SITE MANAGEMENT STATUS

During this reporting period MACTEC performed O&M oversight of the on-site standby remedial contractor GES and prepared quarterly O&M monitoring reports. Since the previous PRR, MACTEC has prepared four quarterly O&M monitoring reports for third and fourth quarter 2018 and first and second quarter 2019 (MACTEC, 2019a, MACTEC, 2019b, MACTEC, 2019c, and MACTEC, 2019d, respectively). Since the previous PRR, GES provided MACTEC with a monthly transmittal of field data tables and a summary of site activities included in the quarterly reporting.

This PRR was completed using site specific documentation including the Site's ROD (NYSDEC, 2008), periodic site inspections conducted by GES, the quarterly O&M monitoring reports, and the SMP. This review was conducted to confirm that established controls according to the SMP are operational and effective, that the SMP is being implemented and conducted accordingly, and that the remedy remains protective of the environment and/or public health. A summary of SM activities completed during the reporting period and an evaluation of the performance, protectiveness, and effectiveness of the remedy is provided below.

2.2 INSTITUTIONAL CONTROLS/ENGINEERING CONTROLS

Because of residual contamination present in subsurface soils at this Site above the SCO for unrestricted use (1.3 parts per million for PCE), and in groundwater above drinking water standards, ICs and ECs have been implemented to protect public health and the environment. The IC/ECs are designed to prevent:

- ingestion/direct contact with contaminated soil
- inhalation of or exposure to contaminants volatilizing from contaminated soil

- ingestion of groundwater with contaminant levels that exceed drinking water standards
- contact with or inhalation of volatiles from contaminated groundwater.

2.2.1 Institutional Controls

A series of ICs were put in place to provide site restrictions and implement, maintain, and monitor the ECs. Currently, the ICs in place consist of a groundwater use restriction and a land use restriction. Based on current site conditions and inspections conducted throughout the reporting period, there has not been a change in property use, site activities are compliant with the ICs, and no change in ICs are required.

2.2.2 Engineering Controls

In accordance with the ROD, the following ECs were put in place:

- use of the existing asphalt pavement, concrete sidewalks, and concrete building slabs as a cover system to minimize direct contact to impacted subsurface soil
- an SVE system to treat soil contamination on-site
- groundwater monitoring wells and a GWETS to prevent and monitor off-site migration of contaminants through groundwater.
- site fencing to keep the public from approaching the treatment trailer

The following subsections describes the current condition of the various ECs and evaluates their performance and need for continued O&M.

2.2.2.1 Asphalt and Concrete Cover System

The cover system, comprised of asphalt pavement and concrete sidewalks and building slabs, documented in the ALTA/ACSM Land Title Survey included in Appendix A of the SMP (MACTEC, 2013) is a permanent control to prevent direct contact to impacted subsurface soil. The cover system was observed during the reporting period to be intact and continuing to provide an effective barrier to site soils. However, as described in subsequent sections, the SCOs for the site have been achieved and therefore the cover system may no longer be required.

2.2.2.2 Soil Vapor Extraction System

The purpose of the SVE system is to treat residual contamination in overburden, vadose zone soil. The general configuration of the SVE system's extraction wells and vapor monitoring points is presented in Figure 2.1.

PCE concentrations in soil samples collected in March of 2017 indicated that the SCO has been reached in subsurface soil and that the SVE system has treated subsurface soil to the extent practicable as described in the ROD. Table 2.1 shows that 2017 PCE concentrations are below the SCO of 1.3 parts per million (ppm) and vastly reduced compared to 2013 results.

Table 2.1 PCE Concentrations in Subsurface Soil

Boring Location	December 2008		September 2013		March 2017	
	Depth Interval (ft bgs)	PCE Concentration (ppm)	Depth Interval (ft bgs)	PCE Concentration (ppm)	Depth Interval (ft bgs)	PCE Concentration (ppm)
DP-14	6	**290**	4 – 6	**140.01**	4 – 6	0.0061
			6 – 8	**39.01**	6 – 8	0.019
			10 – 11.5	0.85	10 – 11.5	Not Sampled

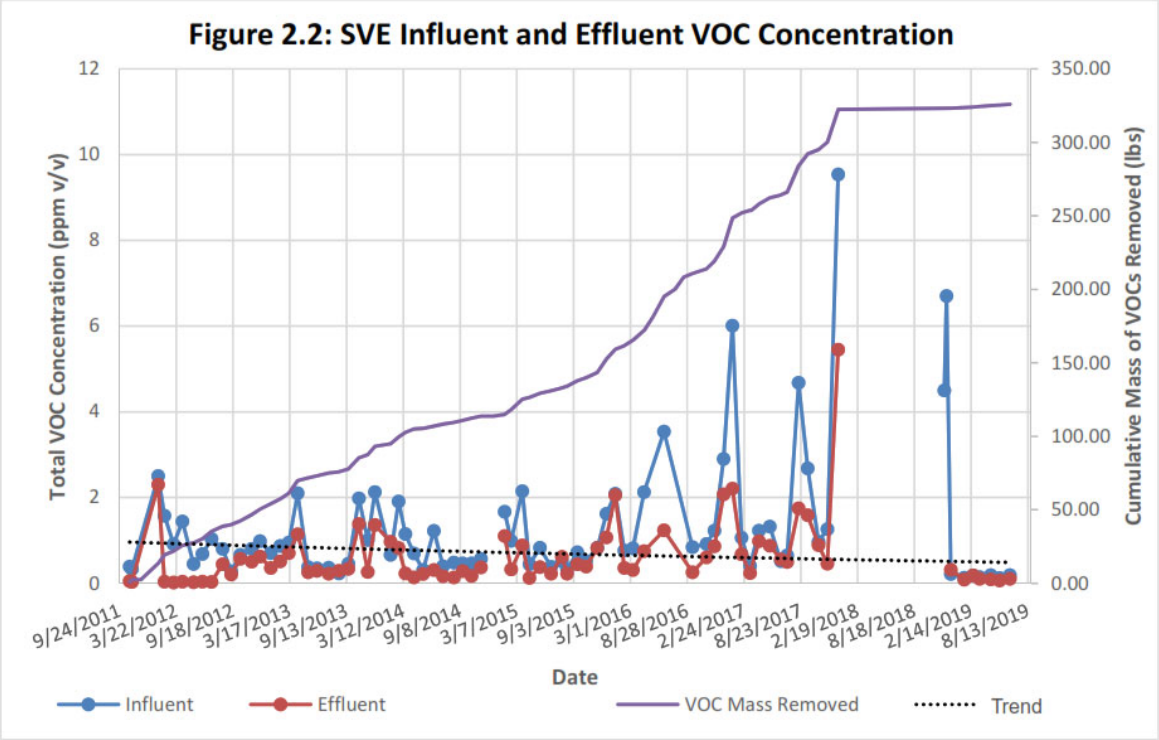
Notes:
Results in **bold** exceed the SCO of 1.3 ppm.
ft bgs = feet below ground surface
ppm = parts per million

As a result of the soil sampling investigation, a rebound study involving shutdown of the SVE system from December 2017 until November 21, 2018 was conducted.
This section includes a discussion of the performance of the SVE system during the active portion of the reporting period. Additional discussion of the rebound study is included in Section 2.3.4.

During this PRR reporting period, average total volatile organic compound (VOC) concentration per quarter in the combined influent soil vapor samples (via TO-15 analysis) was as follows:

- 2018 third quarter - system was down for rebound study
- 2018 fourth quarter - 3,806 parts per billion by volume (ppbv)
- 2019 first quarter - 152 ppbv
- 2019 second quarter - 167 ppbv

The elevated VOC concentrations in fourth quarter 2018 is due to the SVE system being down for the rebound study for about one year. Concentrations in the first and second quarter of 2019 returned to normal range as shown on Figure 2.2. A trend line showing a slight decrease in influent VOC concentration since the beginning of SVE system operation and the cumulative total mass of VOCs removed from the system are also depicted on Figure 2.2.



Through June 30, 2019, the aggregate mass of total VOCs extracted by the SVE system is estimated to be approximately 325.9 pounds. As shown on Figure 2.2, the rate of mass removal has decreased since the rebound study, and the total VOC concentrations have a slight decreasing trend over the years signaling diminishing returns as the SVE continues to operate.

During the PRR reporting period (July 1, 2018 through June 30, 2019) monthly effluent samples were collected to evaluate compliance with the air discharge criteria for the Site, defined in the DAR-1 Guidelines for the Control of Toxic Ambient Air Contaminants and Title 6 of the New York Codes, Rules, and Regulations Part 212. The average monthly combined stack discharge for the period did not exceed the discharge objective of 0.1 pounds per hour (lbs/hr) of high toxicity contaminants, with

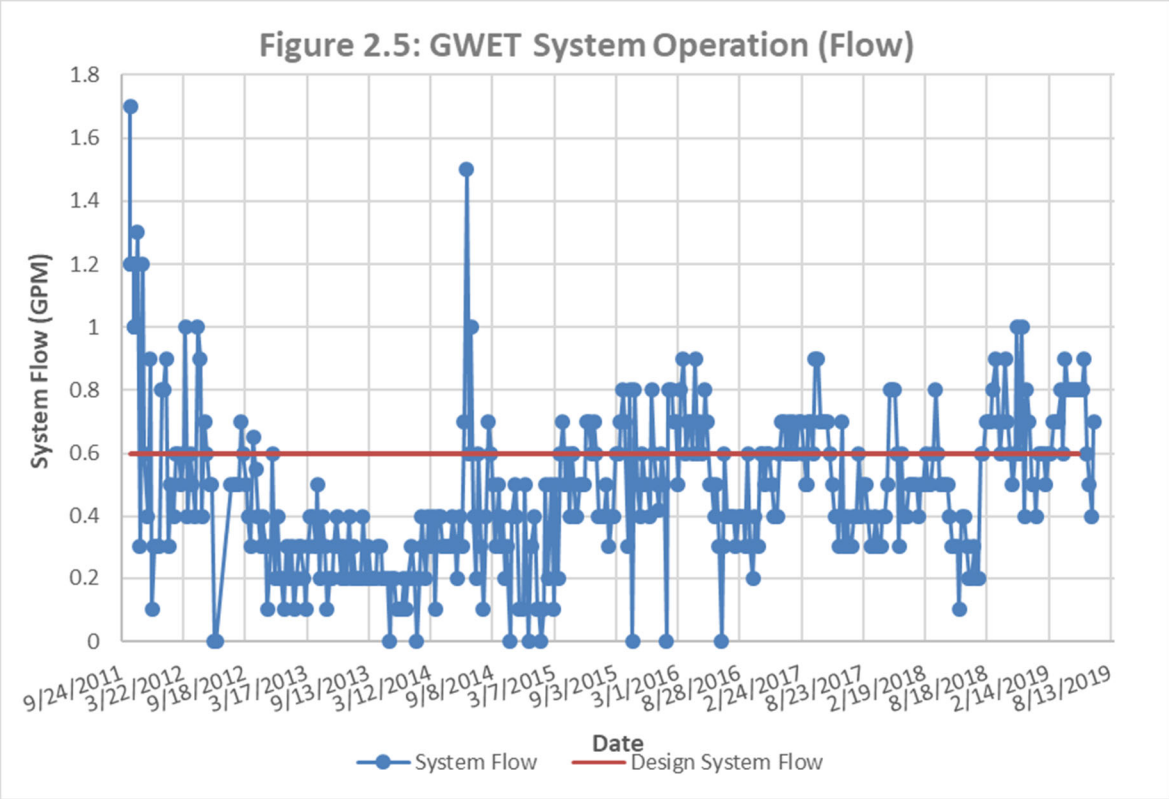
the maximum monthly average combined stack discharge occurring in the month of February 2019 at 0.0057 lbs/hr (MACTEC, 2019a; MACTEC, 2019b; MACTEC, 2019c; and MACTEC 2019d).

Overall, the SVE system performed as expected for the reporting period, with minimal downtime following the rebound study.

2.2.2.3 Groundwater Extraction and Treatment System

The general configuration of the GWETS, and SVE components is presented in Figure 2.3, and the location of the GWETS extraction well (EW-1) is shown on Figure 2.4.

Groundwater influent and effluent samples at the GWETS are collected by GES personnel and submitted to TestAmerica in Buffalo, New York for VOC analysis under NYSDEC Standby Contract No. C100900. System flow and influent/effluent VOC concentrations for this reporting period are shown on Figures 2.5 and 2.6, respectively. The average flow rate (0.63 gallons per minute [gpm]) of the extraction well for this reporting period is slightly greater than the design flow of 0.6 gpm (Figure 2.5).

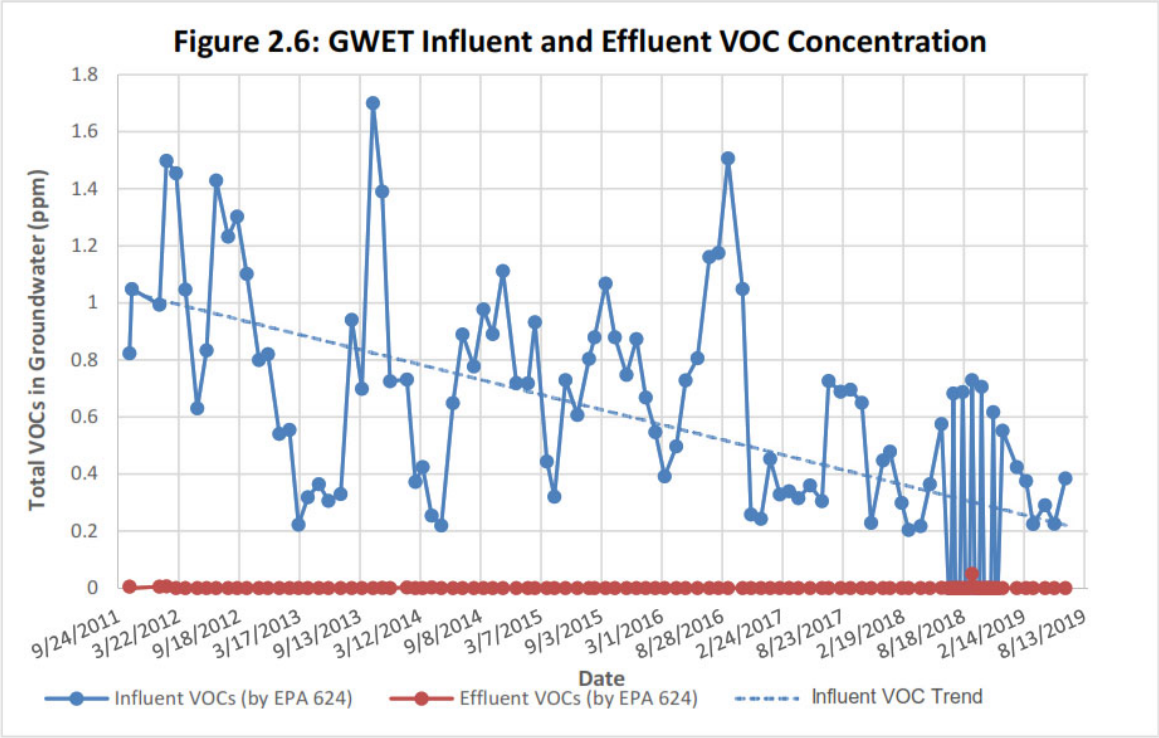


The average influent VOC concentration to the GWETS during the reporting period was reported as follows:

- 700 micrograms per liter (µg/L) during the third quarter 2018
- 625µg/L during the fourth quarter 2018
- 342 µg/L during the first quarter 2019
- 301 µg/L during the second quarter 2019.

The change in influent concentration over the reporting period is within normal fluctuations, but overall is following a decreasing trend as shown in Figure 2.6. The GWETS effluent water was analyzed to evaluate compliance with the discharge criteria determined by the County of Monroe Sewer Use Permit No. IWC-951 included in Appendix A. The discharge criteria of 2.3 milligrams per liter (mg/L) for the summation of purgeable aromatics and halocarbons was not exceeded during the reporting period; VOCs were not detected in the discharge during the third and fourth quarters of 2018, except during September 2018 when 0.05 mg/L were reported. VOCs were also not detected

in the discharge during the first quarter of 2019. VOCs were detected in April of the second quarter 2019 at 0.00056 mg/L.



Overall, the GWETS system performed as expected during the reporting period, with minimal downtime for routine maintenance. Although there is a decreasing influent VOC concentration trend at the extraction well, and the targeted extraction flowrates were generally achieved throughout the reporting period, containment of the contaminant plume can't be clearly demonstrated. Additional discussion is included in Section 2.3.2.

2.3 ADDITIONAL ACTIVITIES

2.3.1 Downgradient Well Monitoring

Monitoring wells MW-111I, HA-114, MW-210, MW-8B, MW-9, and MW-9B, shown in Figure 2.4, were sampled by GES on November 14, 2018 and May 1, 2019 as part of semiannual monitoring well sampling. MW-8B was sampled on May 15th, June 12th, and June 25th, 2019. MW-6B was

previously not sampled due to the presence of the permanganate cylinders (see report subsection 2.3.2), but after their removal, it was sampled on May 1, 2019. Table 2.2 below summarizes groundwater PCE concentrations in monitoring wells onsite and adjacent to the Site. Historical PCE and TCE concentrations in site monitoring wells for the past four years are presented in Figure 2.8.

Table 2.2

Groundwater Monitoring Well PCE Concentrations

Date	Groundwater PCE Concentration (µg/L)						
	MW-111I	**HA-114**	**MW-210**	**MW-8B**	**MW-9**	**MW-9B**	**MW-6B**
January 2009	240	-	230	-	-	-	-
December 2012	-	31	-	-	-	-	-
2/14/2013	-	-	4.3	-	-	-	-
10/10/2013	-	-	5.1	-	-	-	-
4/4/2014	-	-	2.6	-	-	-	-
12/17/2014	83	13	3.5	-	-	-	-
5/26/2015	96	55	1.8	620	-	ND	-
8/25/2015	150	76	2.8	810	5.5	ND	-
4/25/2016	200	6.3	1.1	450	1.9	ND	-
11/9/2016	290	19	160	380	3.9	46	-
5/10/2017	190	2.8	7.5	140	1.7	0.73	-
11/1/17*	92	10	5.6	490	5.19	ND	-
5/2/2018**	170	42	2.6	480	0.94	ND	-
11/14/2018	44	60	3.7	380	ND	6.5	-
5/1/2019	49	30	1.2	290	2.2	-	5.8
5/15/2019	-	-	-	200	-	-	-
6/12/2019	-	-	-	300	-	-	-
6/25/2019	-	-	-	290	-	-	-

Notes:
1. – not sampled

2. ND – non-detect

3. *Sample for well HA-114 was collected on 11/2/2017

4. **Samples for wells HA-114 and MW-210 were collected on 5/3/2018

Overall, groundwater contaminant concentrations have decreased since 2009. Reported PCE concentrations in the monitoring wells closest to EW-1 decreased from May 2018 to May 2019, except at MW-9 and MW-9B. MW-9 increased from nondetectable concentrations in November 2018 to May 2019. The PCE concentration at MW-9B increased from nondetectable levels during the November 2018 sampling event.

MW-210 is the only downgradient well that has been monitored consistently on a semiannual basis since GWETS and SVE system startup. Historical results have indicated a seasonal fluctuation in PCE concentration, with a slight rise in concentration in the summer/fall seasons. Results from the samples collected from 2009 to 2019 were found to be within the range of past observations, except for the November 2016 concentration of 160 µg/L. This outlier can be attributed to the heterogeneity of the plume and bedrock fractures, and still indicates a decreasing trend in concentration

Although concentrations are decreasing, it is difficult to determine the effect the GWETS is having. The 2015 Radius of Influence testing performed by GES was unable to determine if EW-1 had a hydraulic influence on the surrounding monitoring wells because the monitoring wells did not exhibit a hydraulic response when EW-1 was drawn down. Therefore, it cannot be definitively said that the GWETS is effectively containing the plume. The decreasing concentration trends in the monitoring wells could be a result of natural attenuation.

2.3.2 Bedrock Groundwater Containment Pilot Test

Because groundwater containment using EW-1 cannot be clearly demonstrated, pilot testing of monitoring wells that are (a) big enough to accommodate a down-hole extraction well, (b) have specific capacities greater than that measured at EW-1, and (c) have elevated VOC concentrations in groundwater, was conducted to identify if an existing on-site well would be better suited for continued groundwater containment. Monitoring wells MW-6B and MW-8B were identified for the pilot test.

MW-6B and MW-6 have been undergoing passive groundwater treatment using RemOx® SR permanganate cylinders, which were installed in 2014. Although the permanganate continued to persist based on visual observations at MW-6 and at MW-6B, the color and oxidation reduction potential levels at the GWETS influent had not changed since the cylinders were installed, and significant changes in VOC contaminant concentrations in surrounding monitoring wells and in GWETS influent samples were not observed. Therefore, the bedrock groundwater containment pilot test was initiated in December 2018 to evaluate the potential to convert MW-6B as a replacement GWETS extraction well and to evaluate the effectiveness of the passive permanganate

treatment. The cylinders were removed from MW-6B and MW-6 on December 5 and 6, 2018 in accordance with the pilot test work plan (MACTEC, 2018).

Water was pumped from the two extraction wells on a weekly basis to remove residual permanganate in the wells prior to commencing bi-weekly groundwater sampling on January 23, 2019. Generally, groundwater samples were collected both at the beginning (identified as grab samples) of low flow sampling and once field parameters were stabilized (identified as low flow).

Results of the MW-6B sampling through May 1, 2019 are presented in Table 2.3 below.

Table 2.3

PCE and TCE Concentrations in MW-6B

Parameter:	Tetrachloroethene (PCE), µg/L			Trichloroethene (TCE), µg/L		
Sample Type:	**Grab**	**Low Flow**	**Average**	**Grab**	**Low Flow**	**Average**
1/23/2019	310	360	335	24	19	21.5
2/6/2019	1400	NS	1400	10	NS	10
2/20/2019	110	150	130	6.5	9	7.75
3/13/2019	96	61	78.5	0	1.1	0.55
3/21/2019	34	18	26	0	0	0
4/3/2019	25	14	19.5	1.1	0.89	0.995
4/17/2019	NS	12	12	NS	0.86	0.86
5/1/2019	NS	5.8	5.8	NS	0.67 J	0.67 J

Notes:

1. NS = not sampled
2. ND = not detected
3. µg/L = micrograms per liter
4. J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL

PCE concentrations peaked on February 6, 2019 and then began to decline exponentially; TCE concentrations peaked initially on January 23, 2019 and began to decline toward non-detect levels in March 2019. Since the plume is heterogeneous, these fluctuations are expected. Based on the relatively low reported TCE and PCE concentrations, indicative of successful passive treatment from the permanganate cylinders, sampling at MW-6B was discontinued. The PCE and TCE concentrations reported in the well, are lower than typical ranges at EW-1, and therefore were not

considered high enough to provide any value in converting MW-6B into a replacement extraction well.

Historically, reported PCE and TCE concentrations at MW-8B have been higher than those at MW-6B, and the specific capacity measured at MW-8B (approximately four gpm/foot[ft]) is similar to that for MW-6B (approximately 5 gpm/ft). Together, these observations qualified MW-8B as a potentially stronger candidate for relocation of the existing extraction well EW-1.

During the second quarter 2019 evaluation of MW-8B for conversion to an extraction well began. Beginning on May 1, 2019 MW-8B was purged and sampled for VOC via Method 8260 analysis every two weeks through the end of the second quarter 2019. Although concentrations in MW-8B remained consistent during the four sampling rounds, and at concentrations similar to concentrations at EW-1, a bedrock collapse of the well occurred during a sampling round on July 11, 2019. The rock failure was determined to have occurred at a depth of approximately 18 feet, above the target pumping zone, and prevented removal of the downhole pump. Therefore, the pilot testing was discontinued and at this time there are no existing monitoring wells that would be a suitable replacement to provide better groundwater containment than that being provided by EW-1.

Sample results and results of historic PCE and TCE sampling in MW-6B, 8B, and other area wells are presented in Figure 2.7.

2.3.4 Soil Vapor Extraction Rebound Study Summary

In response to the Remedial System Optimization (RSO) report (MACTEC, 2016), a rebound study for the SVE system was initiated in December 2017 and concluded in December 2018. The objective of the study was to assess the need for continued SVE system operation given that the SCOs were achieved. Starting on December 20, 2017, the SVE system was shut down in accordance with the Soil Vapor Extraction Rebound Study Work Plan (MACTEC, 2017b).

During the rebound study, weekly PID readings were taken at the vapor monitoring points and vapor extraction (VE) wells shown on Figure 2.1, monthly vapor samples were collected at vapor extraction point VE-4 and at vapor monitoring point VP-9, and quarterly vapor samples were collected in dry cleaner facility indoor and outdoor air for TO-15 analysis. The PCE and trichloroethylene (TCE)

results of the vapor sampling collected during the rebound study, including baseline samples collected in March 2017, are summarized in Table 2.4.

Table 2.4

Soil Vapor Extraction Rebound Study TO-15 Results

	VP-9		**VE-4 (March 2017 was Combined Influent Sample)**		**Indoor**		**Outdoor[1]**	
Date	PCE ($\mu g/m^3$)	TCE ($\mu g/m^3$)	PCE ($\mu g/m^3$)	TCE ($\mu g/m^3$)	PCE ($\mu g/m^3$)	TCE ($\mu g/m^3$)	PCE ($\mu g/m^3$)	TCE ($\mu g/m^3$)
3/19/2017 (Baseline)	8,100	650	2,600	130	7,200	360	4.2	1.3
12/20/2017	47,000	3,500	1,900	54	NA	NA	NA	NA
1/10/2018	27,000	1,400	24,000	720	27,000	1,100	4.4	< 0.21
2/14/2018	17,000	870	2,900	150	NA	NA	NA	NA
3/4/2018	27,000	1,200	410	23	NA	NA	NA	NA
4/11/2018	16,000	680	1,700	61	33,000	8,800	300 / 200	7.5 / 6
5/9/2018	26,000	1,100	2,700	81	NA	NA	NA	NA
6/13/2018	33,000	1,100	13,000	370	NA	NA	NA	NA
7/18/2018	28,000	720	31,000	500	1,700	760	230 / 670	0.83 / 9
8/15/2018	26,000	640	28,000	450	3,100	4,000	130 / 290	22 / 18
9/12/2018	46,000	930	54,000	740	720	770	29 / 1,300	1.4 / 13
10/10/2018	35,000	690	4,900	580	760	250	9.4/700	1.1/6.8
11/14/2018	30,000	670	28,000	510	880	5,500	0/0	0.77/0

Notes:

1. Single outdoor samples were collected for comparison to ambient conditions during the baseline and first quarter 2018. During second, third, and fourth quarters 2018, two outdoor samples were collected, one upgradient and one downgradient from the dry cleaner. Results are shown as upwind / downwind.

2. NA = not analyzed

3. $\mu g/m^3$ = micrograms per cubic meter.

Monthly sampling results from vapor extraction well VE-4 indicate fluctuations of PCE and TCE influent concentrations above and below the baseline SVE measurements observed on March 19, 2017 prior to system shutdown. The baseline concentrations for VP-9, located below the building slab, are significantly lower than observed during the rebound study. This can be attributed to VP-9

having been recently installed in 2017 and not being fully saturated with vapor at the time of baseline sampling. PCE and TCE results from VP-9 coincide with relatively high indoor air concentrations during the first half of the rebound study. The high indoor air concentrations are likely a result of dry cleaning operations due to the continued use of PCE-based dry cleaning chemicals during this period.

During the second half of 2018, reported indoor air PCE concentrations were well below the sub-slab concentrations, possibly as result of open windows during warmer weather (3rd quarter) and the dry-cleaning facility switching from use of PCE-based product to naphthalene-based product in October 2018. Outdoor air PCE and TCE concentrations, especially downwind of the building, were elevated during the third quarter, which are most likely correlated to dry cleaning activities and building ventilation for cooling purposes (opening of doors, windows) during warmer months. Prior to the rebound study, indoor and outdoor air concentrations were not collected on a routine basis, so it is not possible to verify that this is a seasonal trend.

Monitoring results observed during the completed SVE rebound study indicate a generally steady increase in VOC concentrations near VE-4. However, VOC concentrations at VP-9 remained relatively stable throughout the study. The disparity between an upward trend and a static trend in VOC concentrations at VE-4 and VP-9, respectively, is most likely related to their depths:

- VE-4, one of the SVE system's extraction wells with a screened interval of 3.5 to 6.5 feet below ground surface
- VP-9, a vapor monitoring point located directly beneath the building slab, which is not the target zone for vapor extraction.

The SVE system shutdown appears to have impacted soil gas concentrations in deeper soils (i.e., in VE-4) and has not had an observable effect in shallow soils (i.e., VP-9). The data indicates that chemical rebound occurred in the zone affected by the vapor extraction wells. Because soil sampling results indicate that SCO's have been achieved, the observed rebound can likely be attributed to contaminants off-gassing from groundwater and/or the bedrock matrix.

Regardless of the reasoning for the soil vapor rebound at VE-4, there was a concern that the elevated rebound soil vapor concentrations could continue to increase and contribute to the dry cleaner subslab and/or indoor areas, and therefore the SVE system was reactivated on November 21, 2018. Based on combined SVE influent results as shown on Figure 2.2, vapor contaminant concentrations in the SVE target zone decreased to baseline shortly after restarting the system.

Given that the concentrations at VP-9, located directly beneath the building slab, were elevated throughout the rebound study, it does not appear that vapor in this area is attributed to the shutdown of the SVE system. Likewise, the SVE system was not installed to target the subslab area. The elevated concentrations at VP-9 may be due to saturation of the concrete slab with PCE over time during dry cleaning operations. Now that the dry cleaner no longer uses PCE, these concentrations could negatively impact indoor air. Because this zone is not targeted by the existing SVE system, and is more likely to impact indoor air than the SVE's target treatment depth zone, installation and operation of an SSDS would appear to offer a more effective deterrent to SVI in the dry cleaner building. In addition to enhanced effectiveness, an SSDS would reduce O&M costs compared to those currently being incurred by the existing SVE system.

3.0 CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the site remedy continues to be protective of the public health and the environment and is compliant with the decision document. However, portions of the remedy could be omitted or optimized while continuing to be protective.

3.1 INSTITUTIONAL CONTROLS

The current ICs are adequate to achieve the objectives for protection of human health and the environment based on current site use.

3.2 ENGINEERING CONTROLS

The current ECs are adequate to achieve the objectives for protection of human health and the environment based on current Site use. The SCO's have been achieved, indicating that the SVE system and cover system may no longer be necessary for the purpose of soil remediation. Although the degree of groundwater containment cannot be clearly demonstrated, observed influent groundwater concentrations and surrounding groundwater concentrations generally exhibit a decreasing trend. This decreasing trend could be as a result of natural attenuation rather than a consequence of the current groundwater extraction/containment efforts.

3.3 RECOMMENDATIONS

Based on the information presented in this PRR, an updated RSO report is proposed to identify and evaluate alternative remedial options to the existing SVE and GWET systems that will be protective of the public health and the environment and be compliant with the ROD requirements. The alternative remedy options will include:

- Conversion of the SVE system to an SSDS: SCOs have been achieved, and conversion of the existing SVE system to an SSDS will mitigate potential SVI issues while reducing O&M costs.
- Discontinuance of GWETS operation and implementation of monitored natural attenuation: groundwater containment under current operations cannot be demonstrated, however, VOC concentrations in groundwater exhibit a decreasing trend, and SSDS systems at downgradient residents provide ongoing protection from potential SVI issues.

In the event the proposed alternative remedies suggested in the proposed RSO report are implemented, the SMP for the site will be revised accordingly.

4.0 REFERENCES

MACTEC Engineering and Consulting, P.C. (MACTEC), 2012. *Final Engineering Report – Carriage Cleaners Remedial Action – Site No. 828120.* Prepared for the New York State Department of Environmental Conservation. June 2012.

MACTEC, 2016. *Remedial System Optimization Report – Carriage Cleaners Site – Site #828120*. Prepared for the New York State Department of Environmental Conservation. October 2016.

MACTEC, 2013. *Site Management Plan - Carriage Cleaners Site – Site #828120*. Prepared for the New York State Department of Environmental Conservation. September 2013.

MACTEC, 2017b. *Soil Vapor Extraction Rebound Study Work Plan – Carriage Cleaners Site – Site #828120.* Prepared for the New York State Department of Environmental Conservation. November 2017.

MACTEC, 2018. *Bedrock Remediation Evaluation Pilot Test Work Plan – Carriage Cleaners Site #828120.* Prepared for the New York State Department of Environmental Conservation. December 2018.

MACTEC, 2019a. *Operations, Maintenance and Monitoring Progress Report (Final) – Third Quarter 2018 - Carriage Cleaners Site – Site #828120*. Prepared for the New York State Department of Environmental Conservation. February 2019.

MACTEC, 2019b. *Operations, Maintenance and Monitoring Progress Report (Draft) – Fourth Quarter 2018 - Carriage Cleaners Site – Site #828120*. Prepared for the New York State Department of Environmental Conservation. March 2019.

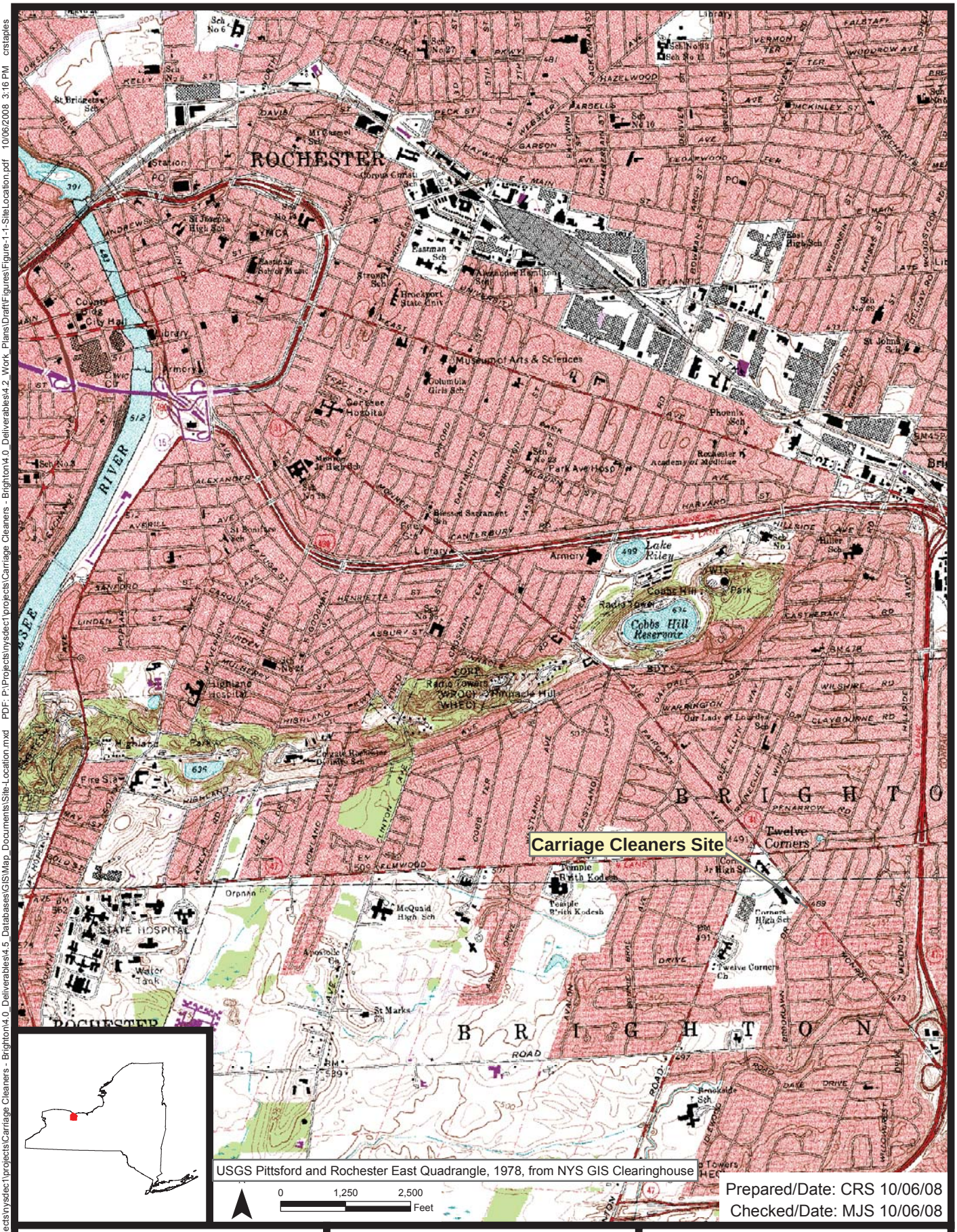
MACTEC, 2019c. *Operations, Maintenance and Monitoring Progress Report (Draft) – First Quarter 2019 - Carriage Cleaners Site – Site #828120.* Prepared for the New York State Department of Environmental Conservation. June 2019.

MACTEC, 2019d. *Operations, Maintenance and Monitoring Progress Report (Draft) – Second Quarter 2019 - Carriage Cleaners Site – Site #828120*. Prepared for the New York State Department of Environmental Conservation. August 2019.

New York State Department of Environmental Conservation, 2008. *Record of Decision, Carriage Cleaners – Brighton Site. Town of Brighton, Monroe County, New York. Site Number 8-28-120.* March 2008.

O'Brien and Gere Engineers, Inc. (OBG), 2007. *Remedial Investigation Report Remedial Investigation/Feasibility Study – Carriage Cleaners – Site No. 8-28-120. Town of Brighton, NY.* January 31, 2007.

FIGURES



Prepared/Date: CRS 10/06/08
Checked/Date: MJS 10/06/08

NYSDEC
Carriage Cleaners Site
Brighton, NY

MACTEC

Site Location
Project 3612112223
Figure 1.1

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Legend

- SSDS System in Place
- House is currently abandoned and SSDS is not in operation

N

0 40 80 Feet

Monroe County color digital orthoimagery (2015) obtained from New York State GIS Clearinghouse at: gis.ny.gov

Prepared/Date: BRP 09/25/19
Checked/Date: KC 09/25/19

NYSDEC Site # 828120
Carriage Cleaners Site
Brighton, NY

MACTEC

SSDS Locations

Project 3612112223 Figure 1.2

Prepared/Date: BRP 09/18/17
Checked/Date: SLB 09/18/17

NYSDEC
Carriage Cleaners Site
Brighton, NY

MACTEC

Vapor and Soil
Sampling Locations
Project 3612112223 Figure 2.1

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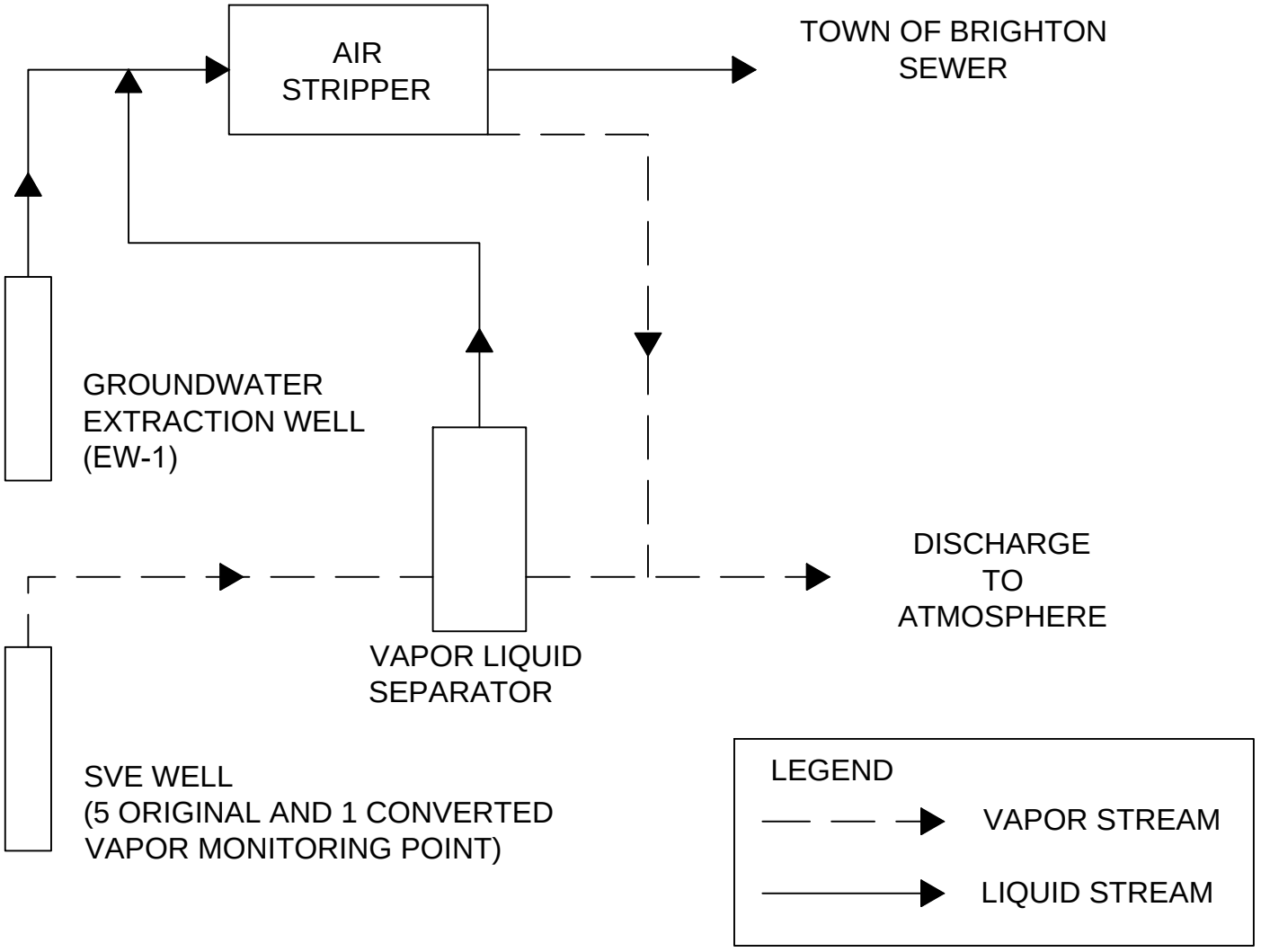

Prepared/Date: JMF 03/14/16
Checked/Date: SLB 03/14/16

NYSDEC
Carriage Cleaners Site
Brighton, New York

MACTEC

SVE and GWETS
Process Flow Diagram

Figure 2.3

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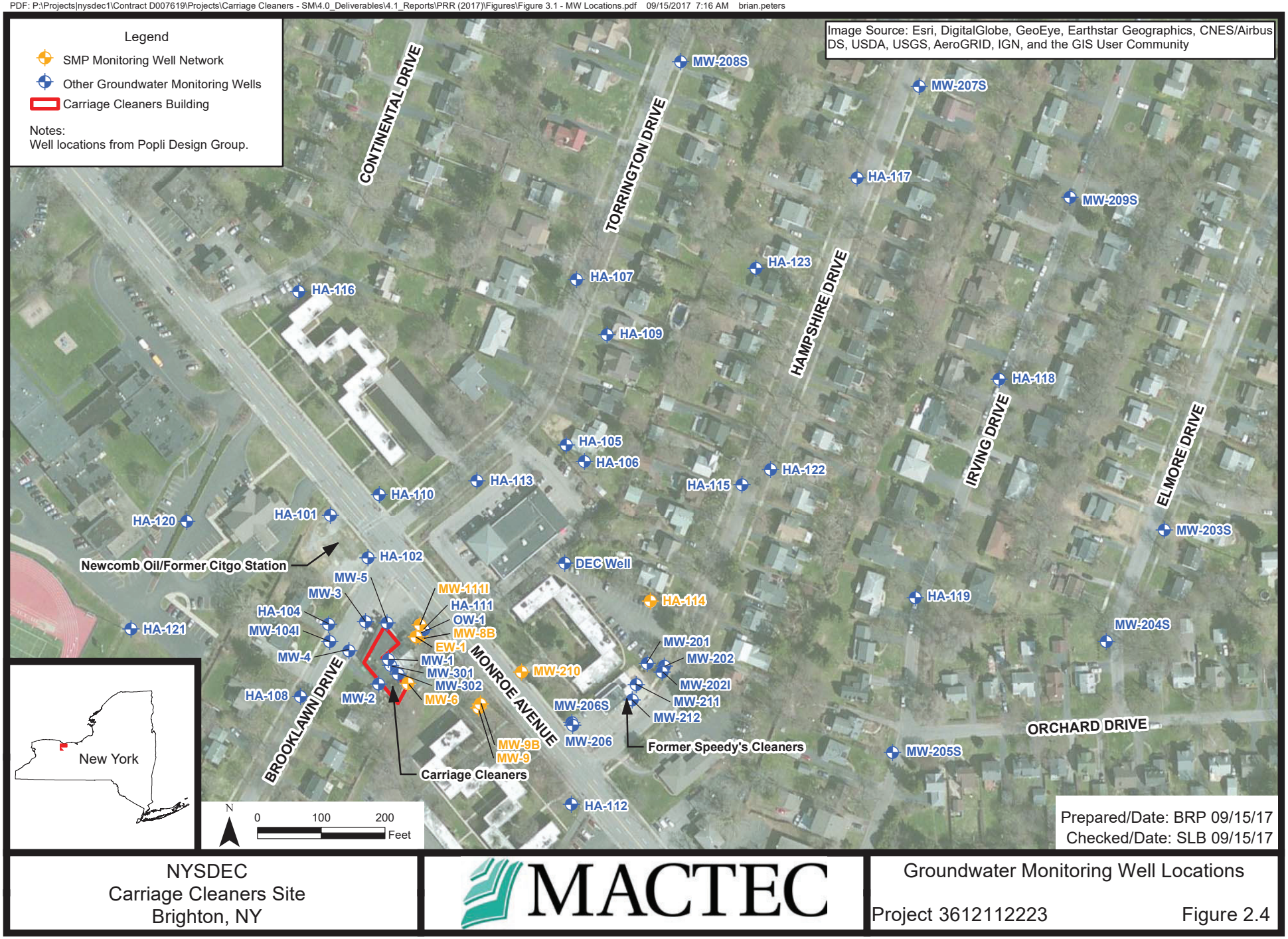

NYSDEC
Carriage Cleaners Site
Brighton, NY

MACTEC

Groundwater Monitoring Well Locations

Project 3612112223 Figure 2.4

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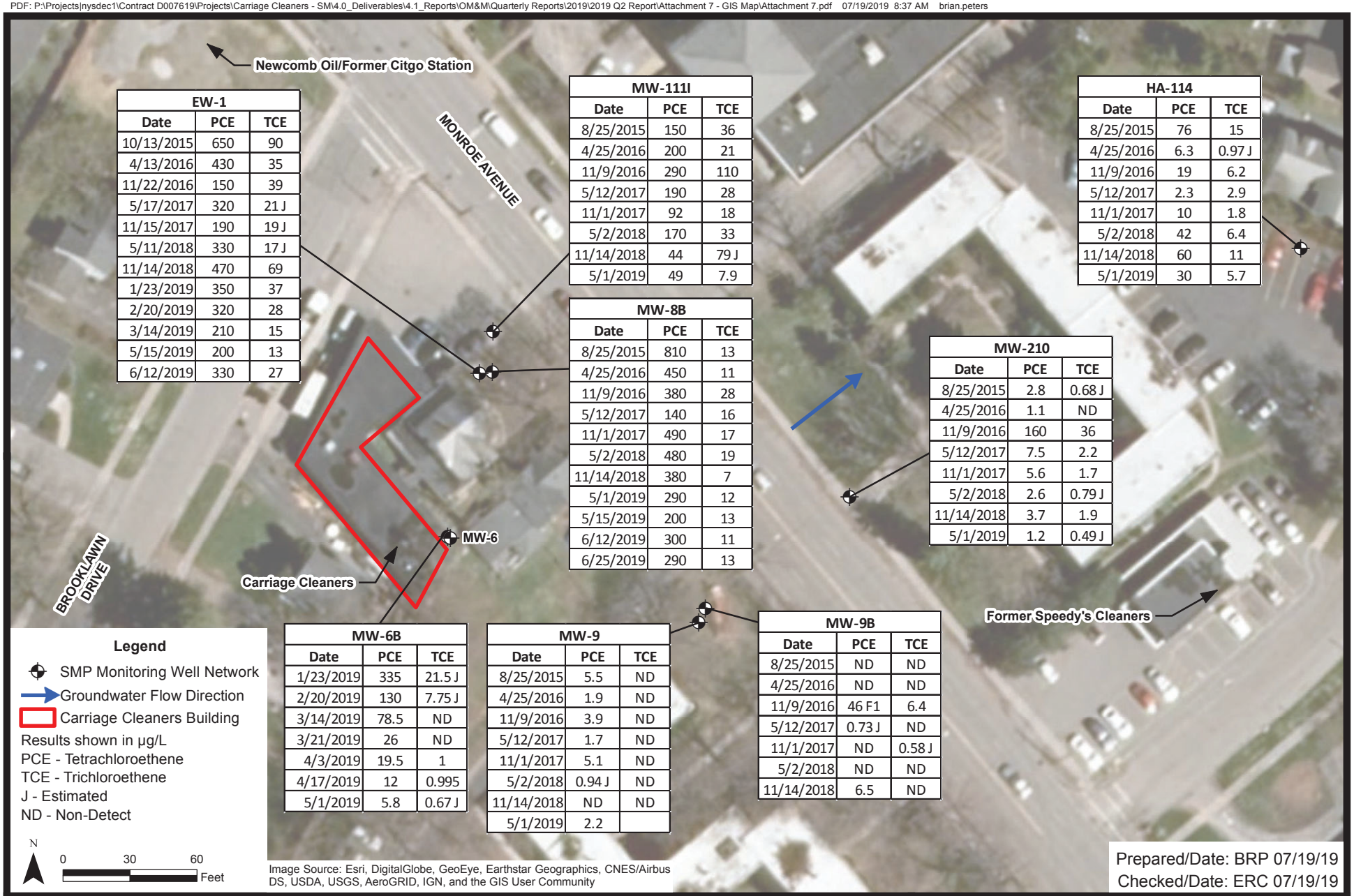

EW-1

Date	PCE	TCE
10/13/2015	650	90
4/13/2016	430	35
11/22/2016	150	39
5/17/2017	320	21 J
11/15/2017	190	19 J
5/11/2018	330	17 J
11/14/2018	470	69
1/23/2019	350	37
2/20/2019	320	28
3/14/2019	210	15
5/15/2019	200	13
6/12/2019	330	27

MW-111I

Date	PCE	TCE
8/25/2015	150	36
4/25/2016	200	21
11/9/2016	290	110
5/12/2017	190	28
11/1/2017	92	18
5/2/2018	170	33
11/14/2018	44	79 J
5/1/2019	49	7.9

MW-8B

Date	PCE	TCE
8/25/2015	810	13
4/25/2016	450	11
11/9/2016	380	28
5/12/2017	140	16
11/1/2017	490	17
5/2/2018	480	19
11/14/2018	380	7
5/1/2019	290	12
5/15/2019	200	13
6/12/2019	300	11
6/25/2019	290	13

HA-114

Date	PCE	TCE
8/25/2015	76	15
4/25/2016	6.3	0.97 J
11/9/2016	19	6.2
5/12/2017	2.3	2.9
11/1/2017	10	1.8
5/2/2018	42	6.4
11/14/2018	60	11
5/1/2019	30	5.7

MW-210

Date	PCE	TCE
8/25/2015	2.8	0.68 J
4/25/2016	1.1	ND
11/9/2016	160	36
5/12/2017	7.5	2.2
11/1/2017	5.6	1.7
5/2/2018	2.6	0.79 J
11/14/2018	3.7	1.9
5/1/2019	1.2	0.49 J

MW-6B

Date	PCE	TCE
1/23/2019	335	21.5 J
2/20/2019	130	7.75 J
3/14/2019	78.5	ND
3/21/2019	26	ND
4/3/2019	19.5	1
4/17/2019	12	0.995
5/1/2019	5.8	0.67 J

MW-9

Date	PCE	TCE
8/25/2015	5.5	ND
4/25/2016	1.9	ND
11/9/2016	3.9	ND
5/12/2017	1.7	ND
11/1/2017	5.1	ND
5/2/2018	0.94 J	ND
11/14/2018	ND	ND
5/1/2019	2.2	

MW-9B

Date	PCE	TCE
8/25/2015	ND	ND
4/25/2016	ND	ND
11/9/2016	46 F1	6.4
5/12/2017	0.73 J	ND
11/1/2017	ND	0.58 J
5/2/2018	ND	ND
11/14/2018	6.5	ND

Legend

- SMP Monitoring Well Network
- Groundwater Flow Direction
- Carriage Cleaners Building

Results shown in µg/L
PCE - Tetrachloroethene
TCE - Trichloroethene
J - Estimated
ND - Non-Detect

N
0 30 60 Feet

Image Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Prepared/Date: BRP 07/19/19
Checked/Date: ERC 07/19/19

NYSDEC
Carriage Cleaners Site
Brighton, NY

MACTEC

Historical PCE & TCE Concentrations in Monitoring Wells
Project 3612112223 Figure 2.7

APPENDIX A

MONROE COUNTY SEWER USE PERMIT

Department of **Environmental Services**
Monroe County, New York

Cheryl Dinolfo
County Executive

Michael J. Garland, P.E.
Director

October 22, 2019

Mr. David Chiusano
NYS DEC - Carriage Cleaners
625 Broadway, 12th Floor
Albany, NY 12233-7017

Re: Industrial Sewer Use Permit

Dear Mr. David Chiusano:

Attached you will find your Industrial Sewer Use Permit No . IWC-951, which will expire on October 31, 2019. Prior to expiration, we will mail you a renewal application .

Please refer to the Required Monitoring section of your permit . It will be the facility's responsibility to submit the required monitoring for the frequency listed .

If you have any questions regarding the permit, please call Sean Keenan at 585-753-7658.

CK # 496475

COUNTY OF MONROE
SEWER USE PERMIT RENEWAL

Firm Name: NYS DEC - Carriage Cleaners
2101 MonroeAvenue

Mailing Addr: 625 Broadway, 12th Floor
Albany, NY 12233-7017

Business Type: Pretreatment

Permit Number: IWC-951
Fee: $ 75.00
Expires: October 31, 2022

W/C Expire: 7/1/2020
District No: 8574

Has there been any revision to the plant sewer system or any change in industrial wastes discharged to the public sewer in the past twelve months
Yes: __ No: ✓ If yes, please explain in a separate letter.

Approx. monthly treated groundwater discharged
8/18 → 8/19 - 29,000 gallons/month

Average monthly consumption for the past twelve (12) months:

Water Account No.(s) _____ (cu ft/gal) N/A

In consideration of the granting of this renewal permit the undersigned agrees to comply with all the requirements in the Initial Permit as listed under II.

Name of person to be contacted for inspection & sampling purposes:

Type or Print: Thomas Palmer (GES) Phone No: (716) 866 3590

YOUR PERMIT MUST BE SIGNED AS FOLLOWS:

1 For a corporation, by a responsible corporate officer A corporate officer means
(a) A president, secretary, treasurer or vice - president of the corporation in charge of a principal business function, or any other person who performs similar policy - or decision - making functions for the corporation or
(b) The manager of one or more manufacturing, production, or operation facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second - quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures

2. For a partnership or sole proprietorship by a general partner or the proprietor, respectively, or

3 By a duly authorized representative of the individual designated in items (1) or (2) above if

(a) The authorization is made in writing by the individual described in items (1) or (2).
(b) The authorization specifies either an individual or a position having responsibility for the overall operation of the facility from which the Industrial Discharge originates such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company; (A duly authorized representative may thus be either a named individual or any individual occupying named position), and
(c) The written authorization is submitted to this Department

Print or Type: David J. Chiusano Phone No (518) 402-9813

Signature: _____ Date: 09/24/19

Title: Env Eng/PM (NYSDEC - DER)

Renewal Approved by: _____ Issued this 3 day of Oct 20 19

Michael J. Garland, P.E.
Director of Environmental Services-PureWaters
Monroe County

COUNTY OF MONROE
SEWER USE PERMIT ENCLOSURE

NYS DEC- Carriage Cleaners
625 Broadway, 12th Floor
Albany, NY 12233-7017

PERMIT NUMBER: 951
DISTRICT NUMBER: 8574

TYPE OF BUSINESS: Groundwater Remediation
LOCATION: 2101 Monroe Ave
Brighton, NY

SAMPLE POINT: IWC-951.1 – Sample Port on Treatment System

REQUIRED MONITORING & EFFLUENT LIMITS

SAMPLE POINT: IWC-951.1 – Sample Port on Treatment System

SELF-MONITORING FREQUENCY: **MONTHLY**

SAMPLING PROTOCOL: Sampling and analysis shall be performed in accordance with the techniques prescribed in 40CFR part 136 and amendments thereto. A grab sample, collected from the above noted sample point shall be analyzed for the following:

Parameter	Sewer Use Limit	Action Level
Purgeable Aromatics		2.13 mg/L*
Purgeable Halocarbons		2.13 mg/L*
Methyl tert-butyl ether	(monitor only)	

*The summation of the purgeable aromatics and purgeable halocarbons with detection levels greater than 10µg/l shall not exceed 2.13 mg/l.

SPECIAL CONDITIONS:

1. All groundwater must be treated regardless of the influent concentrations.
2. Monthly flow summaries shall be submitted for billing purposes.
3. If there is no discharge for a given month, then a letter must be submitted stating so.

TERMS AND CONDITIONS

GENERAL REQUIRMENTS:

A. The permittee agrees to accept and abide by all provisions of the Sewer Use Law of Monroe County (MCSUL) and of all pertinent rules or regulations now in force or shall be adopted in the future.

B. In addition to the parameters/limits outlined, the total facility discharge shall meet all other concentration values listed within the MCSUL and as described in Article III, Section 3.3(d) of the Law.

C. Included in Article II, Section 2.1 of the MCSUL, is the definition of "Normal Sewage". "Normal Sewage" may be discharged to the sewer system in excess of the concentrations outlined in the definition, however, the facility will be subject to the imposition of a sewer surcharge and possible self-monitoring requirements as a result. Surcharging procedures are outlined in Article X of the MCSUL.

D. Regulatory sampling for analytes not specified under "required monitoring" shall be conducted by Monroe County at a minimum frequency of once every three (3) years.

E. This permit is not assignable or transferable. The permit is issued to a specific user and location.

F. Per Article IX, section 9.9 of the MCSUL, a violation by the permittee of the permit conditions may be cause for revocation or suspension of the permit after a Hearing by the Administrative Board, or if the violation is found to be within the emergency powers of the Director under Section 9.6. The revocation is immediate upon receipt of notice to the Industrial User. If the revocation or suspension is issued under Section 9.6, a Hearing shall be held as soon as possible.

G. As provided under Article VI, Section 6.1 of the MCSUL, the Director and/or his duly authorized representatives shall gain entry on to private lands by permission or duly issued warrant for the purpose of inspection, observation, measurement sampling and testing in accordance with the provisions of this law and its implementing Rules and Regulations. The Director or his representatives shall not have authority to inquire into any processes used in any industrial operation beyond that information having a direct bearing on the kind and source of discharge to the sewers or the on-site facilities for waste treatment. While performing the necessary work on private lands, referred to above, the Director or his duly authorized representative shall observe all safety rules applicable to the premises as established by the owner and/or occupant.

H. All required monitoring shall be analyzed by a New York State Department of Health certified laboratory. All sampling and analysis must be performed in accordance with Title 40 Code of Federal Regulations Part 136.

I. The pH range for this permit is 5.0 – 12.0 su. This range is specifically permitted by the Director as allowed under Article III, Section 3.3(b) of the MCSUL. pH must be analyzed within 15 minutes of the time of collection as specified in 40 CFR, part 136.

J. Discharges of wax, fats, oil or grease shall not exceed 100 mg/l as imposed by the Director under Article III, Section 3.3 of the MCSUL.

SURCHARGE CONCENTRATIONS:

Concentration and/or characteristics of normal sewage:
"Normal Sewage" shall mean sewage, industrial wastes or other wastes, which when analyzed, show concentration values with the following characteristics based on daily maximum limits:

a. B. O. D.	300 mg/l
b. Total Suspended Solids	300 mg/l
c. Total Phosphorus, as P	10 mg/l

Annual average concentrations above normal sewage are subject to surcharge as defined in Article X, section 10.7 of the MCSUL.

DISCHARGE LIMITATIONS (SEWER USE LIMITS)

Permissible concentrations of toxic substances and/or substances the Department wishes to control:
The concentration in sewage of any of the following toxic substances and/or substances the Department wishes to control shall not exceed the concentration limits specified when discharged into the County Sewer System; metal pollutants are expressed as <u>total</u> metals in mg/l (ppm): the following pollutant limits are based on daily maximum values:

a. Antimony (Sb)	1.0 mg/l
b. Arsenic (As)	0.5 mg/l
c. Barium (Ba)	2.0 mg/l
d. Beryllium (Be)	5.0 mg/l
e. Cadmium (Cd)	1.0 mg/l
f. Chromium (Cr)	3.0 mg/l
g. Copper (Cu)	3.0 mg/l
h. Cyanide (CN)	1.0 mg/l
i. Iron (Fe)	5.0 mg/l
j. Lead (Pb)	1.0 mg/l
k. Manganese (Mn)	5.0 mg/l
l. Mercury (Hg)	0.05 mg/l
m. Nickel (Ni)	3.0 mg/l
n. Selenium (Se)	2.0 mg/l
o. Silver (Ag)	2.0 mg/l
p. Thallium (Tl)	1.0 mg/l
q. Zinc (Zn)	5.0 mg/l

REPORTING REQUIREMENTS:

A. Per the requirements of 40 CFR, Part 403.12, Significant Industrial Users must submit Periodic Reports on Continued Compliance to the Control Authority on a biannual (2/yr) basis. Deadline dates of submission for these reports will be August 15 and February 15, respectively.

B. Discharge monitoring reports shall be submitted to the Control Authority upon receipt from the permittee's testing laboratory. Reports submitted from industrial users identified as Significant Industrial Users (SIU) must be accompanied by a certification statement as required by 40 CFR part 403 and the MCSUL, Article VI, section 6.12.

C. Any Industrial User subject to the reporting requirements of the General Pretreatment Regulations shall maintain records of all information resulting from any monitoring activities required by 40 CFR, part 403.12 for a minimum of three (3) years. These records shall be available for inspection and copying by the Control Authority. This period of retention shall be extended during the course

of any unresolved litigation regarding the discharge of pollutants by the Industrial User or the operation of the POTW Pretreatment Program or when requested by the Director or the Regional Administrator.

D. Pursuant to Article VI, Section 6.10 (4) of the MCSUL and the reporting requirements of the Code of Federal Regulations 40 CFR part 403.12, if a permitted user elects to perform monitoring at compliance monitoring locations more often than required and uses approved laboratory procedures, the results of all such additional monitoring and any additional flow measurements shall be reported to the Director on a timely basis and shall be included in reports as outlined in the MCSUL section 6.10(1)-(4).

NOTIFICATION REQUIREMENTS:

A. Pursuant to Article VI, Section 6.10(5), the permittee shall notify the Department within 24 hours of becoming aware that discharge monitoring is in violation of any permit limit. This notification shall be directed to the Industrial Waste Section at 585-753-7600 Option 4. The User shall also repeat sampling and analysis for the analyte in non-compliance and submit the results of the repeat analysis to Monroe County within 30 days after becoming aware of the violation.

B. Notify the Director in writing when considering a revision to the plant sewer system or any change in industrial waste discharges to the public sewers. The later encompasses either an increase or decrease in average daily volume or strength of waste or new wastes.

C. Notify the Director immediately of any accident, negligence, breakdown of pretreatment equipment or other occurrence that occasions discharge to the public sewer of any waste or process waters not covered by this permit.

SLUG CONTROL

An Industrial User shall be required to report any/all slug discharges to the Monroe County sewer system by calling 585-753-7600 option 4. For the purpose of this permit enclosure, a slug discharge shall be identified as any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge. Following a review process, the Control Authority (Monroe County) shall determine the applicability of a facility slug control plan. If the Control Authority decides that a Slug Discharge Control Plan (SDCP) is needed, the plan shall contain, at a minimum, the following elements:

1. Description of discharge practices, including non-routine batch discharges.
2. Description of stored chemicals.
3. Procedures for immediately notifying the Control Authority of slug discharges, including any discharge that would violate a prohibition under 40 CFR 403.5 (b), with procedures for follow up written notification within five (5) days.
4. If necessary, procedures to prevent adverse impact from accidental spills, including, but not limited to, inspection and maintenance of storage areas, handling and transfer of materials, loading and unloading operations, control of plant site run-off, worker training, building of containment structures or equipment, measures for containing toxic organic pollutants (including solvents) and/or measures and equipment for emergency purposes.

SNC DEFINITION:

In accordance with 40 CFR 403.8 (f) (vii), an Industrial User is in significant noncompliance (SNC) if its violations meet one or more of the following criteria:

A. Chronic violations of wastewater discharge limits – defined as those which 66% or more of all the measurements taken during a six-month period exceed (by any magnitude) the daily maximum limit or the average limit for the same pollutant parameter (ref. Article IX, section 9.19 – MCSUL). This criteria does NOT apply to the following Monroe County surchargeable parameters: Biochemical Oxygen Demand, Total Suspended Solids, Chlorine Demand and Total Phosphorus.

B. Technical review criteria (TRC) violations – defined as those in which 33% or more of all the measurements for each pollutant parameter taken during a six month period equal or exceed the product of the daily maximum limit or the average limit times the applicable TRC (ref. Article IX, section 9.19 – MCSUL). This criteria does NOT apply to the following Monroe County surchargeable parameters: Biochemical Oxygen Demand, Total Suspended Solids, Chlorine Demand and Total Phosphorus.

C. Any other violation of a pretreatment effluent limit (daily maximum or longer-term average) that the Control Authority determines has caused, alone or in combination with other discharges, interference or pass-through (including endangering the health or POTW personnel or the general public).

D. Any discharge of a pollutant that has caused imminent endangerment to human health, welfare or the environment or has resulted in the POTW's exercise of its emergency authority under paragraph (t)(1)(vi)(8) of 40 CFR part 403 to prevent such a discharge.

E. Failure to meet, within 90 days after the scheduled date, a compliance schedule milestone contained in a local control mechanism or enforcement order, for starting construction, completing construction or attaining final compliance.

F. Failure to provide, within 30 days after the due date, required reports such as BMRs, 90 day compliance reports, periodic reports on continued compliance.

G. Failure to accurately report noncompliance.

H. Any other violation or group of violations that the Control Authority determines will adversely affect the operation and implementation of the local Pretreatment Program.

PENALTIES

Should the facility be considered in Significant Non-Compliance (SNC), based on the above mentioned criteria, the minimum enforcement response by Monroe County will be the publication of the company name in the Gannett Rochester newspaper. The company will be published as an Industrial User in Significant Non-Compliance (SNC). Fines and criminal penalties may follow this publication (ref. Article IX – MCSUL).

Nothing in this permit shall be construed to relieve the permittees from civil/criminal penalties for noncompliance under Article IX, Section 9.7(a)(5) MCSUL. Article IX provides that any person who violates a permit condition is subject to a civil penalty not to exceed $25,000 for any one case and an additional penalty not to exceed $25,000 for each day of continued violation.

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 09/12/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Jane Begreen	
Insurance Solutions & Services, Inc. 619 Amboy Avenue Edison NJ 08837	PHONE (A/C, No, Ext): (732) 738-6080	FAX (A/C, No): (732) 738-6081
	E-MAIL ADDRESS: jbegreen@issi-nj.com	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A : Great Divide Insurance Company	25224
INSURED Groundwater & Environmental Services, Inc. 415 Lawrence Bell Blvd, Suite Williamsville NY 14221	INSURER B :	
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** CL1961800740 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ CLAIMS-MADE ☐ OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
	☐ POLICY ☐ PRO-JECT ☐ LOC						PRODUCTS - COMP/OP AGG	$
	☐ OTHER:						Employee Benefits	$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	☐ ANY AUTO						BODILY INJURY (Per person)	$
	☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
							Medical payments	$
	☐ UMBRELLA LIAB ☐ OCCUR						EACH OCCURRENCE	$
	☐ EXCESS LIAB ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DED ☐ RETENTION $ 0							$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N: N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		WCA2022992	07/01/2019	07/01/2020	☒ PER STATUTE ☐ OTH-ER	
							E.L. EACH ACCIDENT	$ 1,000,000
							E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
						0		

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

Monroe County Department of Environmental Services
145 Paul Road, Building 1
Rochester NY 14624

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

STATE OF NEW YORK
WORKERS' COMPENSATION BOARD

CERTIFICATE OF NYS WORKERS' COMPENSATION INSURANCE COVERAGE

1a. Legal Name & Address of Insured (Use street address only) Groundwater & Environmental Services, Inc. 5 Technology Place Suite 4 East Syracuse, NY 13057 **NYC TRACKING CODE 601456** **Work Location of Insured** ***(Only required if coverage is specifically limited to certain locations in New York State, i.e., a Wrap-Up Policy)***	**1b. Business Telephone Number of Insured** 800-220-3068 **1c. NYS Unemployment Insurance Employer Registration Number of Insured** 83-51399 **1d. Federal Employer Identification Number of Insured or Social Security Number** 23-2335424
2. Name and Address of the Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder) **Monroe County Department of Environmental Services** **Industrial Waste Section** **145 Paul Road, Bldg.1** **Rochester, NY 14624**	**3a. Name of Insurance Carrier** Great Divide Insurance Company **3b. Policy Number of entity listed in box "1a"** WCA202299212 **3c. Policy effective period** 7/1/2019 to 7/1/2020 **3d. The Proprietor, Partners or Executive Officers are** ☒ **included.** **(Only check box if all partners/officers included)** ☐ **all excluded or certain partners/officers excluded.**

This certifies that the insurance carrier indicated above in box "3" insures the business referenced above in box "1a" for workers' compensation under the New York State Workers' Compensation Law. **(To use this form, New York (NY) must be listed under Item 3A on the INFORMATION PAGE of the workers' compensation insurance policy).** The Insurance Carrier or its licensed agent will send this Certificate of Insurance to the entity listed above as the certificate holder in box "2".

The Insurance Carrier will also notify the above certificate holder within 10 days IF a policy is canceled due to nonpayment of premiums or within 30 days IF there are reasons other than nonpayment of premiums that cancel the policy or eliminate the insured from the coverage indicated on this Certificate. (These notices may be sent by regular mail.) ***Otherwise, this Certificate is valid for one year after this form is approved by the insurance carrier or its licensed agent, or until the policy expiration date listed in box "3c", whichever is earlier.***

Please Note: Upon the cancellation of the workers' compensation policy indicated on this form, if the business continues to be named on a permit, license or contract issued by a certificate holder, the business must provide that certificate holder with a new Certificate of Workers' Compensation Coverage or other authorized proof that the business is complying with the mandatory coverage requirements of the New York State Workers' Compensation Law.

Under penalty of perjury, I certify that I am an authorized representative or licensed agent of the insurance carrier referenced above and that the named insured has the coverage as depicted on this form.

Approved by: Insurance Solutions & Services, Inc.
(Print name of authorized representative or licensed agent of insurance carrier)

Approved by: Frank G Jacobs 9/12/2019
(Signature) (Date)

Title: Frank G. Jacobs, President

Telephone Number of authorized representative or licensed agent of insurance carrier: (732) 738-6080

Please Note: *Only insurance carriers and their licensed agents are authorized to issue Form C-105.2. Insurance brokers are* ***NOT*** *authorized to issue it.*

NEW YORK STATE | Workers' Compensation Board

CERTIFICATE OF INSURANCE COVERAGE

DISABILITY AND PAID FAMILY LEAVE BENEFITS LAW

PART 1. To be completed by Disability and Paid Family Leave Benefits Carrier or Licensed Insurance Agent of that Carrier

1a. Legal Name & Address of Insured (use street address only)

GROUNDWATER & ENVIRONMENTAL SERVICES INC.
5 TECHNOLOGY PLACE SUITE 4
EAST SYRACUSE, NY 13057

Work Location of Insured *(Only required if coverage is specifically limited to certain locations in New York State, i.e., Wrap-Up Policy)*

1b. Business Telephone Number of Insured

800-220-3068

1c. Federal Employer Identification Number of Insured or Social Security Number

232335424

2. Name and Address of Entity Requesting Proof of Coverage (Entity Being Listed as the Certificate Holder)

Monroe County Department of Environmental Services
Industrial Waste Section
145 Paul Road, Bldg.1
Rochester, NY 14624

3a Name of Insurance Carrier

HARTFORD LIFE AND ACCIDENT

3b Policy Number of Entity Listed in Box "1a"

LNY324265

3c Policy effective period

01-01-2019 to 12-31-2019

4. Policy provides the following benefits:

- [x] A. Both disability and paid family leave benefits.
- [ ] B. Disability benefits only.
- [ ] C. Paid family leave benefits only.

5. Policy covers:

- [x] A. All of the employer's employees eligible under the NYS Disability and Paid Family Leave Benefits Law.
- [ ] B. Only the following class or classes of employer's employees:

Under penalty of perjury, I certify that I am an authorized representative or licensed agent of the insurance carrier referenced above and that the named insured has NYS Disability and/or Paid Family Leave Benefits insurance coverage as described above.

Date Signed 01-03-2019 *Elizabeth Tello*

(Signature of Insurance carrier's authorized representative or NYS Licensed Insurance Agent of that insurance carrier)

Telephone Number (212) 553-8074 **Name and Title**: Elizabeth Tello – Assistant Director, Statutory Services

IMPORTANT: If Boxes 4A and 5A are checked, and this form is signed by the insurance carrier's authorized representative or NYS Licensed Insurance Agent of that carrier, this certificate is COMPLETE. Mail it directly to the certificate holder.

If Box 4B, 4C or 5B is checked, this certificate is NOT COMPLETE for purposes of Section 220, Subd. 8 of the NYS Disability and Paid Family Leave Benefits Law. It must be mailed for completion to the Workers' Compensation Board, Plans Acceptance Unit, PO Box 5200, Binghamton, NY 13902-5200.

PART 2. To be completed by the NYS Workers' Compensation Board (Only if Box 4C or 5B of Part 1 has been checked)

State of New York
Workers' Compensation Board

According to information maintained by the NYS Workers' Compensation Board, the above-named employer has complied with the NYS Disability and Paid Family Leave Benefits Law with respect to all of his/her employees.

Date Signed **By**

(Signature of Authorized NYS Workers' Compensation Board Employee)

Telephone Number **Name and Title**

Please Note: Only insurance carriers licensed to write NYS disability and paid family leave benefits insurance policies and NYS licensed insurance agents of those insurance carriers are authorized to issue Form DB-120.1. Insurance brokers are NOT authorized to issue this form.