SESI
CONSULTING ENGINEERS

2021 PERIODIC REVIEW REPORT
for

April 30, 2021 – April 30, 2022
Reporting Period

FORMER GROSSINGERS RESORT
LIBERTY, SULLIVAN COUNTY, NEW YORK

NYSDEC Site # C353015

prepared for:

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LIST OF ACRONYMS

Acronym	Definition
AWQS	Ambient Water Quality Standards
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	Below ground surface
CFCs	Chlorofluorocarbons
DER	Division of Environmental Remediation
DER-10	NYSDEC Technical Guidance for Site Investigation & Remediation
ECs	Engineering Controls
EE	Environmental Easement
HAL	USEPA Health Advisory Level
ICs	Institutional Controls
LNAPL	Light Non-Aqueous Phase Liquid
MCL	Maximum Contaminant Level
MW	Monitoring Well
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PAH	Polynuclear Aromatic Hydrocarbons
PFAS	Per and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctanesulfonic Acid
ppt	parts per trillion
PRR	Periodic Review Report
RI	Remedial Investigation
RI/IRM	Remedial Investigation/Interim Remedial Measure
RIWP	Remedial Investigation Work Plan
SCO	Soil Cleanup Objectives
SESI	SESI Consulting Engineers, PC
SMP	Site Management Plan
SV	Soil Vapor
SVI	Soil Vapor Investigation

Acronym	Definition
SVOCs	Semi-Volatile Organic Compounds
TAL	Target Analyte List
TCL	Target Compound List
TOGS	Technical and Operations Guidance Series
USCO	Unrestricted Use Soil Cleanup Objectives
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

1.0 INTRODUCTION

1.1 SUMMARY

SESI Consulting Engineers DPC (SESI) prepared this Periodic Review Report (PRR) for the period April 30, 2021 to April 30, 2022 for the Former Grossingers Resort, New York State Brownfield Cleanup Program (BCP) Site No. C335015, located in Liberty, New York (hereinafter referred to as the "Site"). SESI prepared this PRR on behalf of Sullivan Resorts LLC, who entered into a Brownfield Cleanup Agreement (BCA) as Volunteers in April 2018 with the New York State Department of Environmental Conservation (NYSDEC) to remediate the Site.

Historically, Site development included a 272-room resort hotel, boiler room, laundry room, convention center, swimming pool, ice skating rink and its ancillary building, service building known as the Joy Cottage, service building known as the Harry G, and outdoor tennis courts constructed over time since 1950s. A downhill ski slope was located to the west of the main hotel buildings.

A remedial investigation (RI) was conducted in 2019 and the results of the soil sampling showed exceedances to the unrestricted use Soil Cleanup Objectives (USCOs) for benzene, ethylbenzene, 2-methylnaphthalene, polyaromatic hydrocarbons (PAHs), mercury and lead. The results of surface soil samples showed one (1) or more of the pesticides 4,4'-DDT, 4,4'-DDE and 4,4'-DDD, lead and PAHs above the USCOs. The Site investigation for soil vapor identified elevated concentrations of Trichlorofluoromethane (Freon-11), Dichlorodifluoromethane (Freon-12), benzene, and 1,3 butadiene. The Site investigation for groundwater showed exceedances to the Class GA Groundwater Standards for benzene, ethylbenzene, isopropyl benzene, lead, barium, nickel and beryllium, Freon-11, Freon-12. The per-and polyfluoroalkyl substances (PFAS) perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) were detected at concentrations exceeding the U.S. Environmental Protection Agency Health Advisory Level (HAL) of 70 parts per trillion (ppt). The impacts at the Site are the result of a leaking underground storage tank (UST), historically applied pesticides, and other historical Site facilities.

The Site has been remediated to conditional Track 1. The remaining Engineering Control (EC) is groundwater monitoring. There are no engineering controls for soil vapors because

the Site does not have any buildings; however, a vapor intrusion investigation is ongoing. Institutional and Engineering Controls (ICs and ECs) have been incorporated into the Site remedy to control exposure to the remaining contamination to ensure protection of public health and the environment. An Environmental Easement (EE) was granted to the NYSDEC and recorded by the Site owners with the Sullivan County Clerk, and it requires compliance with a Site Management Plan (SMP) and the ICs and ECs placed on the Site. These ICs currently allow for residential, restricted residential use, commercial, and industrial uses, but prohibit the use of groundwater without necessary water quality treatment. The ECs require quarterly groundwater monitoring for natural attenuation. A Site Location Map is provided in Figure 1.1 of the SMP. All SMP figures are included in **Appendix A** of this report.

This PRR reports the required inspection and monitoring activities that were conducted during the current reporting period. The inspection and monitoring were conducted to ensure compliance with the ICs required by the EE and as stated in the SMP as approved by NYSDEC.

1.2 EFFECTIVENESS OF REMEDIAL PROGRAM

In order to monitor the effectiveness of the contaminant removal and the Site natural attenuation, an on-site monitoring well network including MW-201, MW-203, MW-204, MW-205, MW-206, MW-207, MW-209, MW-210, MW-211, MW-213, MW-214, MW-216, and MW-217 was sampled for volatile organic compounds (VOCs) and PFAS. As presented in Section 3, Freon 11 and Freon 12 exceedances that were detected in groundwater samples collected from monitoring wells MW-213, MW-214, MW-216, and MW-217 post-COC in March 2020 are generally showing decreasing trends and have remained stable. There was a slight rebound in samples collected from monitoring wells MW-213, MW-214, and MW-17 in the November 2021 sampling event but are still below the post-COC concentrations with the exception of MW-217.

The PFAS compound PFOA exceedances that were detected in monitoring wells MW-203, MW-206, MW-207, MW-208, MW-213, MW-214, MW-216, and MW-217 post-COC in March 2020 and September 2020 are generally showing decreasing trends have remained stable. There was a slight rebound in monitoring wells MW-206, MW-213, and

MW-214, in the November 2021 sampling event but are still below the March 2020 post-COC concentrations with the exception of PFOS in MW-214. PFOA and PFAS concentrations in the July 2022 sampling event are below the AWQSs in all wells sampled.

Soil vapor samples were collected from vapor points SMPV-1, SMPV-2, SMPV-3, SMPV-10, SMPV-11, SMPV-12, SMPV-13, and SMPV-14 in September 2021 and July 2022. As presented in Section 3. The highest detected levels of Freon 11 and Freon 12 across the Site have generally decreased in the post COC sampling rounds. The samples collected from SMPV-11 have dropped from 660,000 ug/m3 for Freon 11 pre-COC to 1700 ug/m3 in the last post-COC sampling round. The levels in SMPV-11 have dropped in the earlier sampling rounds but have shown some rebound in the last sampling round of July, 2022. SMPV-13 is the only location in which the Freon 11 (48.7 ug/m3 to 691 ug/m3) and Freon 12 (285 ug/m3 to 2,950 ug/m3) have increased from pre- to post-COC.

1.3 COMPLIANCE

SESI sampled the groundwater well network in September 2021, November 2021, and July 2022. Soil vapor samples were collected in September 2021 and July 2022. The 2021 second quarter sampling event was submitted with the previous PRR, and the 2022 first quarter sampling event was not conducted because of the accumulated snow, which hindered safe Site access and therefore samples collected in July 2022 are presented herein.

1.4 CONCLUSIONS AND RECOMMENDATIONS

SESI has verified that the ECs and ICs developed for the Site are in compliance with the SMP.

We recommend the following for the next reporting period:

- SESI recommends continued sampling of monitoring of wells MW-203, MW-206, MW-207, MW-213, MW-214, MW-216, and MW-217 on a biannual schedule.
- There were no exceedances of the AWQSs in monitoring wells MW-201, MW-204, MW-205, MW-210, or MW-211 during this monitoring period. SESI recommends no further sampling of monitoring of wells MW-201, MW-204, MW-205, MW-210, or MW-211.

- SESI recommends continued sampling of vapor points SMP-V2, SMP-V10, SMP-V11, SMP-13, and SMP-V14 on a biannual schedule.
- Soil vapor monitoring of the onsite vapor monitoring points SMP-V1, SMP-V3, SMP-V13 shows that the soil vapor concentrations in these sampling points have reached asymptotic levels. Therefore, SESI recommends no further sampling of vapor SMP-V1, SMP-V3, SMP-V12.

2.0 SITE OVERVIEW

2.1 SITE LOCATION AND DESCRIPTION

The Site is located in New Liberty, Sullivan County, New York, and is identified as a portion of tax parcel ID number 30-1-1.1 on the Sullivan County Tax Map. A United States Geological Survey (USGS) topographical quadrangle map, SMP Figure 1.1 in **Appendix A**, shows the Site location. The Site is an approximately is a 17.30-acre area bounded by residential dwellings and undeveloped woodlands along Route 52 to the north, Route 52 and multiple commercial dwellings to the south, residential dwellings and commercial properties along Sunset Lake to the east, and the Middle Mongauop River and commercial properties along Route 17 to the west. A boundary map is attached to the amended BCA as required by Environmental Conservation Law Title 14 Section 27-1419 and is shown on SMP Figure 1.2 in **Appendix A**.

2.2 SITE HISTORY

The Site is part of the former Grossingers Resort, developed in 1916. The resort hotel was composed of more than three dozen buildings with a total floor area of approximately 700,000 square feet. The resort featured indoor and outdoor tennis facilities, indoor and outdoor pools, a championship golf course, a skating rink, skiing facilities, horse trails and more. Since its closure in 1986 and prior to the implementation of the Remedial Investigation/Interim Remedial Measure (RI/IRM), the hotel complex had been shuttered and many of the old resort hotel structures remained. The structures were well beyond repair and required demolition. This Site is currently vacant; all operations on the Site ceased around 1986. However, the golf course is still active and is not part of the Site.

2.2.1 REMEDIAL INVESTIGATION (RI) CONDUCTED AT THE SITE

The Remedial Investigation Report/Interim Remedial Measure Construction Completion Report prepared by SESI in December 2019 details the results of prior investigations and the RI performed on the Site. The RI was conducted in accordance with the Remedial Investigation\Interim Remedial Measures Work Plan (RI/IRMWP) for the Site, which was submitted to NYSDEC on October 3, 2018 and subsequently approved by the NYSDEC on October 16, 2018.

The results of the remedial investigation soil sampling showed exceedances to the USCOs for benzene, ethylbenzene, 2-methylnaphthalene, PAHs, mercury and lead.

After the demolition and removal of the building foundations, a soil boring investigation was conducted in every building footprint to determine the environmental conditions of the uncovered areas. The soil boring investigation included performing 24 additional soil borings (SB-51 to SB-74) at the Site. Two (2) soil samples were collected from each boring. Soil borings were also conducted around the boiler room, which contained two (2) 15,000-gallon No. 4 heating oil USTs. Light non-aqueous phase liquid (LNAPL) was observed in borings in the boiler room area. (This LNAPL was subsequently removed as part of the remedial action.) The soil boring locations are shown on SMP Figure 2.2 in **Appendix A**. The exceedances shown on SMP Figure 2.2 in **Appendix A** are the exceedances left post remediation as described below in Section 2.2.6.

All soil borings were advanced to a minimum of 15 ft-bgs or to bedrock, whichever was encountered first. Two (2) soil samples were collected from each boring. Sample collection depths from each boring location were biased based on the field screening which included photo ionization detector, visual, and olfactory observations. If the field screening did not result in any impacts, the soil samples were collected at the six-inch interval above the water table and at the deepest six-inch interval, which is just above bedrock. All samples were analyzed for Target Compound List/Target Analyte List (TCL/TAL) +30 tentatively identified compounds.

The results of the soil boring samples showed PAHs were detected above the unrestricted use SCOs in a soil sample collected from boring SB-62 at concentrations ranging from 3.23 mg/kg to 8.15 mg/kg. The pesticide 4,4'-DDE was detected in soil boring SB-66 (3.5 to 4.0 feet) above the unrestricted use SCO at a concentration of 0.005 mg/kg. In soil boring SB-73 (11.5 to 12.0), the pesticides 4,4'-DDT (0.014 mg/kg), 4,4'-DDE (0.027 mg/kg) and 4,4'-DDD (0.008 mg/kg) were detected above the unrestricted use SCOs. All these exceedances were excavated as part of the remedial action as described below; the remaining exceedances shown on SMP Figure 2.2 in **Appendix A** are described in Section 2.2.6 below.

Surface Soil Sampling

Surface soil samples were initially collected at ten (10) locations during October and November 2018 after most of the buildings were demolished. The surface soil sample locations were determined after the vegetation was removed based on field screening, visual observations of stained soils and historic data. Surface soil samples were collected from the 0.0 to 2-inch interval below ground surface.

The results of the ten (10) surface soil samples showed one (1) or more of the pesticides 4,4'-DDT, 4,4'-DDE and 4,4'-DDD were detected above the unrestricted use SCOs in seven (7) of the ten (10) surface soil samples at concentrations ranging from 0.005 mg/kg to 0.061 mg/kg. Lead was detected in surface soil sample SS-3 above the unrestricted use SCOs at 67.1 mg/kg. PAHs were detected above the unrestricted use SCOs in sample SS-5 at concentrations ranging from 3.96 mg/kg to 9.92 mg/kg.

To determine the horizontal and vertical extent of the pesticides, additional surface soil samples were collected 15 locations within the BCP Area during November and December 2018. Two (2) samples were collected from each location at the 0 to 2-inch below grade interval and the 6 to 8-inch below grade interval after the vegetation was removed. The soil samples were collected using a stainless-steel trowel or shovel and delivered to Test America Laboratories for pesticide analysis on a 24-hour turnaround time. Care was taken when collecting the soil samples not to cross-contaminate between sample intervals and sample locations. The stainless-steel trowel or shovel was decontaminated prior to each use with a detergent wash and distilled water rinse. Any fall in from the surrounding soil was removed prior to collecting the sample. All surface soil exceedances were excavated except for the exceedances shown on SMP Figure 2.3 in **Appendix A**. The remaining soil exceedances are described in Section 2.2.6 below.

After demolition of the buildings, eight (8) additional surface soil samples were collected beneath the former buildings during June 2019. Pesticide exceedances to the unrestricted use SCOs were detected in three (3) of the eight (8) samples.

Soil Vapor Sampling

A soil vapor investigation was determined to be necessary in preparation for the planned development on the Site, which may include buildings. To evaluate the potential for future exposures in the future building, SESI designed a soil vapor investigation (SVI) in accordance with the NYS Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion (Guidance) (October 2006). The SVI plan was included in the RI/IRMWP submitted to the NYSDEC on October 3, 2018 and subsequently approved on October 16, 2018.

During the period from November 30, 2018 to December 14, 2018, ten (10) soil vapor (SV) samples (V-1, V-2, V-3, V-10, V-11, V-12, V-13, V-14, V-15, and V-16) were collected across the Site. The sample locations and results are presented on SMP Figure 2.4 in **Appendix A**. The soil vapor samples were collected from vapor points installed in the vadose zone to a depth of 2 or 3 ft-bg. Planned SV sample locations V-4 through V-9 were not installed because they are all in the former LNAPL area, which was subsequently remediated by excavation to bedrock.

A second round of soil vapor samples was collected from February 8 to 11, 2019. SV samples were collected from locations V-1, V-2, V-11, V-12, V-13 and V-14. SESI attempted to collect samples from the remaining locations; however, melting ice and snow caused the vapor points to fill up with water. The soil vapor results were compared to the NYSDOH October 2006 air guideline values, which does not include values for soil vapors.

The soil vapor results showed that benzene was detected in samples V-1 (24 ug/m^3), V-10 (40 ug/m^3) and V-14 (18 ug/m^3). Soil vapor point V-1 is located in the former tennis court area. Soil vapor point V-10 is located south of the former indoor pool and V-14 is located near the western boundary of the BCP area. The compound 1,3-butadiene was also detected in samples V-1 (66 ug/m^3), V-3 (28 ug/m^3), V-11 (53 ug/m^3), V-15 (60 ug/m^3) and V-16 (57 ug/m^3). Soil vapor point V-3 is located beneath the former convention center, V-11 is located at the southeast portion of the BCP and V-15 and V-16 are located in the former ski maintenance area. The results of the soil vapor samples collected from February 8 to February 11, 2019 showed trichlorofluoromethane in all six (6) samples at concentrations ranging from 2,300 ug/m^3 at V-2 to 660,000 ug/m^3 at V-11.

Dichlorodifluoromethane was detected at concentrations ranging from 110 ug/m^3 at V-2 to 680,000 ug/m^3 at V-13. Benzene was detected in soil vapor point V-14 at 16 ug/m^3. The compound 1,3-butadiene was not detected in any of the vapor points sampled in February 2019.

Groundwater Sampling

The Site investigation for groundwater included the installation of five (5) monitoring wells. The results of the groundwater sample showed exceedances to the Class GA AWQS for benzene, ethylbenzene, isopropyl benzene, lead, barium, nickel and beryllium. These wells were abandoned prior to the implementation of the IRM.

Initially, twelve (12) groundwater monitoring wells (MW-201 through MW-212) were installed. The wells were installed to replace the abandoned wells, investigate potential impacts to groundwater from the soil contamination and delineate groundwater contamination upgradient and downgradient from the former, since remediated, boiler room/LNAPL area.

The twelve (12) groundwater monitoring wells (MW-201 through MW-212) were gauged for depth to LNAPL/depth to groundwater after they were installed and developed. A sheen was detected in five (5) monitoring wells (MW-202, MW-203, MW-204, MW-205 and MW-206) located within the boiler room/LNAPL area. Therefore, these five (5) wells located in the former UST/LNAPL area were not sampled. In later sampling events, wells MW-203, MW-204, MW-205 and MW-206 were sampled because there was no LNAPL detected; and MW-202 was destroyed and never sampled. The remaining wells were sampled for TCL/TAL+30, 1-4 dioxane and PFAS in accordance with the RI/IRMWP. During the December 2018 sampling event, one (1) well (MW-207) resulted in exceedances of the AWQS for Freon-12 and Freon-11. There were no other exceedances for any of the other TCL/TAL compounds or 1,4 dioxane in any of the wells. The groundwater sampling results are presented in on SMP Figure 2.8 in **Appendix A**.

Based on the NYSDEC January 10, 2019 comments, three (3) monitoring wells (MW-213, MW-214, and MW-215) were installed at the Site on January 17, 2019. MW-215 was installed in the ski maintenance area to replace MW-1. Two (2) monitoring wells (MW-

216 and MW-217) were installed in July 2019 along the western boundary of the BCP site area for downgradient delineation of the Freon.

An additional round of groundwater samples was collected from the previous and new monitoring wells on January 29, 2019 and from February 6 to February 8, 2019. The samples were analyzed for TCL/TAL+30, and select wells, where PFAS were previously detected, were analyzed also for PFAS. The results of the groundwater samples collected on January 29 and February 6 through 8, 2019 showed Freon-12 and Freon-11 exceedances in well MW-213. No other exceedances of the Groundwater Class GA Effluent Standards were detected in any of the wells sampled. This includes MW-207, which previously had exceedances for Freon-12 and Freon-11.

As a result of the Freon exceedances in well MW-213, on July 10, 2019 two (2) additional monitoring wells (MW-216 and MW-217) were installed to the north of well MW-213 to delineate the northern extent of the Freon plume. The results of the groundwater sampling for wells MW-216 and MW-217 showed Freon 12 and Freon 11 above 5 ug/l in monitoring well MW-216 at concentrations of 48 ug/l and 120 ug/l, respectively. Freon 11 was detected in monitoring well MW-217 at a concentration of 12 ug/L. Freon 12 was not detected in monitoring well MW-217.

The PFAS compounds PFOS and PFOA were detected in well MW-207 at concentrations of 91 and 100 ppt, respectively. PFOS and PFOA are present at a maximum combined concentration of 159 ppt in MW-206 and 191 ppt in MW-217, compared to the current U.S. Environmental Protection Agency HAL of 70 ppt.

2.2.2 DESCRIPTION OF INTERIM REMEDIAL MEASURES

The following IRM were conducted in accordance with the NYSDEC approved RI/IRMWP.

1. Removal of two (2) USTs that were present under the boiler room slab and the clean-up of the resulting LNAPL discharge area.
2. Basin Sediment: Removal of sediments that contained metals exceedances, and excavation around the outlet area until confirmed clean post-excavation samples (which did not exceed the USCOs) were obtained.

3. Stockpile D: Disposal of the stockpiled material and sampling in the stockpile area to confirm removal of all contaminants that exceeded the unrestricted SCOs.
4. Ice Skating Rink: Excavation of the area around SB-14, which contained PAH and VOC exceedances, on a 25-foot radius to a depth of 1-foot. Collection of bottom and side wall samples to document the remedial action.
5. Joy Cottage: Excavation of the area around SB-38, which contained pesticide exceedances, on a 25-foot radius to a depth of 1.5-foot. Collection of bottom and side wall samples to document the remedial action.
6. Ski Maintenance Area: Excavation of the area around SB-16, which had metal exceedances, on a 25-foot radius to depth of 1.5-foot and around SB-41, which had pesticide exceedances, on a 25-foot radius to a depth of 1.5 foot. Collection of bottom and side wall samples to document remedial action.
7. From August 2018 through December 2018, SESI observed Capital Wrecking remove structures on the Site, remove two (2) USTs, and excavate contaminated soil. Air monitoring was conducted in accordance with the Community Air Monitoring Plan.

2.2.3 DESCRIPTION OF REMEDIAL ACTIONS

The site was remediated in accordance with the remedy selected by the NYSDEC in the RI/IRMWP dated October 2018.

The factors considered during the selection of the remedy are those listed in 6NYCRR 375-1.8. The following are the components of the selected remedy:

1. Excavation and off-Site disposal of on-Site soils which exceed USCOs, as defined by 6 NYCRR Part 375-6.8.
2. Closure of the two (2) USTs by removal of all observable LNAPL in soil and weathered shale;
3. Collection and analysis of end-point samples at the bottom and sidewalls of all the excavations to evaluate the remedy by comparing results to the Track 1 USCOs.

4. Execution and recording of an Environmental Easement to restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH.

5. Development and implementation of an SMP for long-term management of remaining contamination as required by the Environmental Easement, which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance, and (4) reporting.

6. Periodic certification of the institutional and Engineering Controls listed above.

2.2.4 REMOVAL OF CONTAMINATED MATERIALS FROM THE SITE

The remedial excavations removed contaminated soil and other materials to achieve the Track 1 USCOs. The soil was found to contain PAHs such as benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, and indeno(1,2,3-cd)pyrene and the pesticides 4,4'-DDD, 4,4'-DDE and 4,4'-DDT at concentrations above their applicable Track 1 SCOs.

For soil disposal and excavation organization purposes, prior to the soil disposal activities, waste characterization samples were collected in-situ for disposal purposes. The soil samples were collected and analyzed as requested by the disposal facility.

The remediation was considered complete when all excavation post-excavation samples resulted in constituent concentrations below the Track 1 USCOs.

2.2.5 ON-SITE AND OFF-SITE TREATMENT SYSTEMS

No long-term treatment systems were required to be installed as part of the site remedy.

2.2.6 DESCRIPTION OF RESIDUAL CONTAMINATION

Described in Section 3.0 of this report.

2.2.7 MANAGEMENT OF RESIDUAL CONTAMINATION THROUGH INSTITUTIONAL AND ENGINEERING CONTROLS IN THE ENVIRONMENTAL EASEMENT

The SMP lists the ICs and ECs required by the NYSDEC to manage the residual contamination present at this Site to protect public health and the environment in the future and keep the Site safe for reuse. The remedy for the Site did not require the construction of any other Engineering Control systems.

The Site has conditionally achieved a Track 1 remedy. Until that is changed to an unconditional remedy, the Department requires that an EE be placed on the Site to (1) implement, maintain and monitor the Engineering Controls; (2) prevent future exposure to remaining contamination by controlling the use of groundwater; and (3) limit the use and development of the site to residential, restricted residential, commercial and industrial uses. A SMP (December 2019) was prepared by SESI and approved by the NYSDEC for the long-term management and monitoring of the EE requirements.

3.0 REMEDY PERFORMANCE, EFFECTIVENESS, PROTECTIVENESS

The goal of the SMP is to manage the residual contamination at the Site through implementation of ICs until the Department determines that the conditional Track 1 designation can be changed to an unconditional Track 1. At present, SESI is conducting monitoring/inspection of the ICs and ECs on the Site in accordance with the SMP dated December 2019.

Groundwater Monitoring

In order to monitor the effectiveness of the contaminant removal and the Site natural attenuation, an onsite monitoring well network including MW-201, MW-203, MW-204, MW-205, MW-206, MW-207, MW-209, MW-210, MW-211, MW-213, MW-214, MW-216, and MW-217 was sampled for VOCs and PFAS in September 2021, November 2021, and July 2022. Monitoring well MW-208 has been damaged and was not sampled. Monitoring well MW-212 was not sampled in September 2021, November 2021, or July 2022 due to insufficient water levels. Monitoring well MW-209 was not sampled in July 2022 due to insufficient water levels. Monitoring wells MW-201, MW-205, MW-210, and MW-211 were not sampled in the July 2022 sampling event as per the previous recommendation as no exceedances were noted during the previously submitted PRR or the reporting period discussed herein.

The groundwater sampling and purging logs are presented in **Appendix B**. **Table 3.1** presents the groundwater analytical result summary compared to the AWQS. The laboratory data of the sampling events for this monitoring period are presented in **Appendix C**.

Table 3.2 below and **Figure 3.1** presents a summary of VOC exceedances in groundwater. Freon-11 exceedances were detected in groundwater samples collected from monitoring wells MW-213 , MW-216, and MW-217 at concentrations ranging from 5.3 ug/L (MW-216 September 2021) to 62 ug/L (MW-217 November 2021). Freon 11 concentrations detected during the July 2022 sampling event have decreased in MW-213 and MW-217 in comparison with the September 2021 sampling event. No Freon-11 exceedances were detected in monitoring wells MW-201, MW-203, MW-204, MW-206, MW-207, MW-210, and MW-211 during this monitoring period.

Freon 12 exceedances were detected in groundwater samples collected from monitoring wells MW-213 and MW-214 at concentrations ranging from 9.9 ug/L (MW-214, July 2022) to 45.0 ug/L (MW-213, November 2021). Freon 12 concentrations detected during the July 2022 sampling event have decreased in MW-213 and MW-14, in comparison with the November 2021 sampling event. No Freon 12 exceedances were detected in monitoring wells MW-201, MW-203, MW-204, MW-206, MW-207, MW-210, MW-211, or MW-217 during this monitoring period.

Table 3.2 Summary of Historical VOC Exceedances in Groundwater

LOCATION			MW-213		MW-213		MW-213		MW-213		MW-213		MW-213		MW-213	
SAMPLING DATE			1/29/2019		3/4/2020		9/2/2020		4/27/2021		9/8/2021		11/19/2021		7/12/2022	
SAMPLE TYPE			Results	Q	WATER		WATER		WATER		WATER		WATER		WATER	
	NY-AWQS	Units			Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Trichlorofluoromethane (Freon 11)	5	ug/l	**48**		**71**		**56**		**52**		**48**		**61**		**37**	
Dichlorodifluoromethane (Freon 12)	5	ug/l	**29**		**74**		**40**		**54**		**41**		**45**		**31**	

LOCATION			MW-214		MW-214		MW-214		MW-214		MW-214		MW-214		MW-214	
SAMPLING DATE			1/29/2019		3/4/2020		9/3/2020		4/27/2021		9/9/2021		11/22/2021		7/12/2022	
SAMPLE TYPE			Results	Q	WATER		WATER		WATER		WATER		WATER		WATER	
	NY-AWQS	Units			Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Trichlorofluoromethane (Freon 11)	5	ug/l	0.14	U	**10**		**5.1**		**5.4**		1	J	3		2.5	
Dichlorodifluoromethane (Freon 12)	5	ug/l	0.88	J	**27**		**16**		**21**		5	U	**10**		**9.9**	

LOCATION			MW-216		MW-216		MW-216		MW-216		MW-216		MW-216		MW-216	
SAMPLING DATE			7/10/2019		3/6/2020		9/3/2020		4/28/2021		9/8/2021		11/19/2021		7/11/2022	
SAMPLE TYPE			Results	Q	WATER		WATER		WATER		WATER		WATER		WATER	
	NY-AWQS	Units			Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Trichlorofluoromethane (Freon 11)	5	ug/l	**120**		**48**		**6.9**		**29**		**5.3**		4.7		**5.5**	
Dichlorodifluoromethane (Freon 12)	5	ug/l	**48**		**15**		3.9		**11**		3.6	J	3.5	J	3.6	J

LOCATION			MW-217		MW-217		MW-217		MW-217		MW-217		MW-217		MW-217	
SAMPLING DATE			7/10/2019		3/6/2020		9/3/2020		4/28/2021		9/8/2021		11/19/2021		7/11/2022	
SAMPLE TYPE			Results	Q	WATER		WATER		WATER		WATER		WATER		WATER	
	NY-AWQS	Units			Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Trichlorofluoromethane (Freon 11)	5	ug/l	**12**		**22**		**5.6**		**47**		**55**		**62**		**52**	
Dichlorodifluoromethane (Freon 12)	5	ug/l	5	U	5	U	0.31	U	5	U	5	U	5	U	5	U

Notes:

1. Results are shown in micrograms per liter (ug/L)
2. Yellow shading denotes exceedances of NYSDEC AWQS
3. Bold = Compound Detected
4. Q = Qualifier
5. U = Compound Not Detected

Table 3.3 below and **Figure 3.1** presents a summary of PFAS exceedances in groundwater. The PFAS compound PFOS exceedances were detected in monitoring wells MW-203, MW-206, and MW-207, MW-213, MW-214, MW-16, and MW-217 at concentrations ranging from 12.8 ng/L (MW-203 November 2021) to 67.4 ng/L (MW-213 November 2021) during this monitoring period. However, PFOS concentrations declined in July 2022 in MW-203, 204, 206, 207, 213, 214, 216, and 217 in comparison with the September 2021 sampling event and are now below the maximum contaminant level (MCL) of 10 ng/L in MW-203, MW-204, MW-206, MW-207, MW-213, MW-214, MW-216, and MW-17.

The PFAS compound PFOA exceedances were detected in monitoring wells MW-206, MW-213, MW-214, and MW-217 during this monitoring period. PFOA concentrations have declined in July 2022 in monitoring wells MW-203, MW-204, MW-206, MW-207, MW-213, MW-214, MW-216, and MW-217 in comparison with the November 2021 sampling event. In addition, no PFOA exceedances were detected in monitoring wells MW-203, MW-204, or MW-207 during this monitoring period.

Table 3.3 Summary of Historical PFAS Exceedances in Groundwater

LOCATION			MW-203		MW-203		MW-203		MW-203		MW-203		MW-203		MW-203	
SAMPLING DATE			2/7/2019		3/5/2020		9/2/2020		4/28/2021		9/8/2021		11/22/2021		7/11/2022	
SAMPLE TYPE			WATER		WATER		WATER		WATER		WATER		WATER		WATER	
	NY-AWQS	Units	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Perfluorooctanesulfonic Acid (PFOS)	10	ng/l	37		27.9		25		14.5		18		12.8		0.982	J
Perfluorooctanoic Acid (PFOA)	10	ng/l	22.3		6		5.15		3.26		3.28		1.82	J	1.82	U

LOCATION			MW-204		MW-204		MW-204		MW-204		MW-204		MW-204		MW-204	
SAMPLING DATE			3/5/2020		3/5/2020		9/2/2020		4/27/2021		9/9/2021		11/22/2021		7/11/2022	
SAMPLE TYPE			WATER		WATER		WATER		WATER		WATER		WATER		WATER	
	NY-AWQS	Units	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Perfluorooctanesulfonic Acid (PFOS)	10	ng/l	5.05		5.05		12.1		4.41		7.56		4.68		1.8	U
Perfluorooctanoic Acid (PFOA)	10	ng/l	2.22		2.22		3.94		1.53	J	1.95		1.28	JF	1.8	U

LOCATION			MW-206		MW-206		MW-206		MW-206		MW-206		MW-206		MW-206	
SAMPLING DATE			2/6/2019		3/5/2020		9/2/2020		4/27/2021		9/9/2021		11/22/2021		7/11/2022	
SAMPLE TYPE			WATER		WATER		WATER		WATER		WATER		WATER		WATER	
	NY-AWQS	Units	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Perfluorooctanesulfonic Acid (PFOS)	10	ng/l	51.9		47.9		38.7		30.9		32.5		34.1		4.43	
Perfluorooctanoic Acid (PFOA)	10	ng/l	107		25.5		12.1		26		14.6		13.1		1.79	U

LOCATION			MW-207		MW-207		MW-207		MW-207		MW-207		MW-207		MW-207	
SAMPLING DATE			2/6/2019		3/5/2020		9/3/2020		4/27/2021		9/9/2021		11/22/2021		7/11/2022	
SAMPLE TYPE			WATER		WATER		WATER		WATER		WATER		WATER		WATER	
	NY-AWQS	Units	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Perfluorooctanesulfonic Acid (PFOS)	10	ng/l	34		11.3		22.1		8.36		29.9		17.4		1.5	J
Perfluorooctanoic Acid (PFOA)	10	ng/l	23.4		6.59		5.46		2.2		9.68		3.64		1.8	U

LOCATION			MW-208		MW-208	
SAMPLING DATE			2/7/2019		3/5/2020	
SAMPLE TYPE			WATER		WATER	
	NY-AWQS	Units	Results	Q	Results	Q
Perfluorooctanesulfonic Acid (PFOS)	10	ng/l	17.6		68.2	
Perfluorooctanoic Acid (PFOA)	10	ng/l	10.8		38.2	

LOCATION			MW-213		MW-213		MW-213		MW-213		MW-213		MW-213		MW-213	
SAMPLING DATE			1/29/2019		3/4/2020		9/2/2020		4/27/2021		9/8/2021		11/19/2021		7/12/2022	
SAMPLE TYPE			WATER		WATER		WATER		WATER		WATER		WATER		WATER	
	NY-AWQS	Units	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Perfluorooctanesulfonic Acid (PFOS)	10	ng/l	91.2		73.4		60.7		70		64.1		67.4		7	
Perfluorooctanoic Acid (PFOA)	10	ng/l	40.4		32.8		26.5		27.7		24		25.4		1.03	J

LOCATION			MW-214		MW-214		MW-214		MW-214		MW-214		MW-214		MW-214	
SAMPLING DATE			1/29/2019		3/4/2020		9/3/2020		4/27/2021		9/9/2021		11/22/2021		7/12/2022	
SAMPLE TYPE			WATER		WATER		WATER		WATER		WATER		WATER		WATER	
	NY-AWQS	Units	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Perfluorooctanesulfonic Acid (PFOS)	10	ng/l	48.5		47.3		46.6		40.3		30.5		56.2		5.68	
Perfluorooctanoic Acid (PFOA)	10	ng/l	68.6		29.9		25.8		29.5		15.9		24.7		0.826	J

LOCATION			MW-216		MW-216		MW-216		MW-216		MW-216		MW-216		MW-216	
SAMPLING DATE			7/10/2019		3/6/2020		9/3/2020		4/28/2021		9/8/2021		11/19/2021		7/11/2022	
SAMPLE TYPE			WATER		WATER		WATER		WATER		WATER		WATER		WATER	
	NY-AWQS	Units	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Perfluorooctanesulfonic Acid (PFOS)	10	ng/l	29.4		6.51		24.8		24.9		20.8		15.7		3.75	
Perfluorooctanoic Acid (PFOA)	10	ng/l	17.9		8.18		9.39		10.8		11.7		9.79		1.78	U

LOCATION			MW-217		MW-217		MW-217		MW-217		MW-217		MW-217		MW-217	
SAMPLING DATE			7/10/2019		3/6/2020		9/3/2020		4/28/2021		9/8/2021		11/19/2021		7/11/2022	
SAMPLE TYPE			WATER		WATER		WATER		WATER		WATER		WATER		WATER	
	NY-AWQS	Units	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Perfluorooctanesulfonic Acid (PFOS)	10	ng/l	17		30		42.1		19.5		38.6		27		2.26	
Perfluorooctanoic Acid (PFOA)	10	ng/l	16.5		15.7		13.8		14.6		21.4		12.8		1.74	U

Notes:

1. Results are shown in micrograms per liter (ug/L)
2. Yellow shading denotes exceedances of NYSDEC PFAS Screening Values
3. Bold = Compound Detected
4. Q = Qualifier
5. U = Compound Not Detected

Soil Vapor

Soil vapor samples were collected from vapor points SMPV-1, SMPV-2, SMPV-3, SMPV-10, SMPV-11, SMPV-13, and SMPV-14 during this monitoring period. SMPV-3 and SMPV-12 were sampled in July 2022 but could not be sampled in September 2021 due to water in the vapor line. **Table 3.4** presents the vapor analytical results. The analytical data are presented in **Appendix D**. The soil vapor locations are depicted in **Figure 3.2**. No comparison has been made to standards as New York State does not have guidance values or standards for VOCs in soil vapor.

As shown on **Table 3.5** below, detections of Freon-11 were identified in vapor points SMPV-1, SMPV-2, SMPV-3, SMPV-10, SMPV-11, SMPV-12, SMPV-13, and SMPV-14 at concentrations ranging from 2.11 ug/m3 (SMPV-3 July 2022) to 1,700 ug/m3 (SMPV-11 July 2022). Freon 11 soil vapor concentrations from the July 2022 sampling event have remained stable and have reached asymptotic levels except for SMPV-13.

Freon-12 was detected in soil vapor points SMPV-1, SMPV-2, SMPV-3, SMPV-10, SMPV-11, SMPV-12, SMPV-13, and SMPV-14 at concentrations ranging from 2.09 ug/m3 (SMPV-1, September 2021) to 2,950 ug/m3 (SMPV-13, July 2022). Freon-12 soil vapor concentrations have remained stable in comparison with the historical sampling events except for SMPV-13.

Table 3.5: Summary of Historical Soil Vapor Results

LOCATION	V-1		V-1		SMPV-1		SMPV-1		SMPV-1		SMPV-1	
SAMPLING DATE	12/14/2018		2/11/2019		3/6/2020		4/29/2021		9/20/2021		7/12/2022	
Units ug/m3	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
1,3-Butadiene	**66**		370	U	0.442	U	0.442	U	0.442	U	0.442	U
Benzene	**24**		590	U	**0.811**		**2.37**		**1.65**		**5.24**	
Trichlorofluoromethane (FREON 11)	3.5	U	**380000**	B	**4.24**		**2.56**		**6.57**		**5.9**	
Dichlorodifluoromethane (FREON 12)	9.9	U	2600	U	**3.21**		**2.36**		**2.09**		**3.63**	

LOCATION	V-2		V-2		SMPV-2		SMPV-2		SMPV-2		SMPV-2	
SAMPLING DATE	11/30/2018		2/11/2019		3/6/2020		4/29/2021		9/20/2021		7/12/2022	
Units ug/m3	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
1,3-Butadiene	1.4	U	3.5	U	0.442	U	0.442	U	0.442	U	0.442	U
Benzene	2.3	U	5.6	U	0.639	U	**1.52**		**1.53**		**7.16**	
Trichlorofluoromethane (FREON 11)	**3.5**		**2300**	B	1.12	U	**21.5**		**58.4**		**27.2**	
Dichlorodifluoromethane (FREON 12)	9.9	U	**110**		**2.16**		**2.52**		**2.62**		**3.26**	

LOCATION	V-3		SMPV-3		SMPV-3		SMPV-3	
SAMPLING DATE	12/14/2018		3/6/2020		4/29/2021		7/12/2022	
Units ug/m3	Results	Q	Results	Q	Results	Q	Results	Q
1,3-Butadiene	**28**		0.442	U	0.442	U	0.442	U
Benzene	**5.1**	J	0.639	U	**2.87**		0.639	U
Trichlorofluoromethane (FREON 11)	**26**		**3.2**		**1.21**		**2.11**	
Dichlorodifluoromethane (FREON 12)	**140**		**4.84**		**2.34**		**3.89**	

LOCATION	V-10		SMPV-10		SMPV-10		SMPV-10		SMPV-10	
SAMPLING DATE	11/30/2018		3/6/2020		4/28/2021		9/20/2021		7/12/2022	
Units ug/m3	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
1,3-Butadiene	1.4	U	0.442	U	0.442	U	0.442	U	0.442	U
Benzene	**40**		**1.09**		**1.9**		0.639	U	**8.79**	
Trichlorofluoromethane (FREON 11)	3.5	U	**111**		**21.5**		**7.81**		**43.9**	
Dichlorodifluoromethane (FREON 12)	9.9	U	**73.2**		**8.41**		**2.67**		**10.3**	

LOCATION	V-11		V-11		SMPV-11		SMPV-11		SMPV-11		SMPV-11	
SAMPLING DATE	12/13/2018		2/11/2019		3/6/2020		4/28/2021		9/20/2021		7/12/2022	
Units ug/m3	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
1,3-Butadiene	**53**		510	U	0.442	U	0.442	U	0.442	U	2.21	U
Benzene	**11**		810	U	**0.652**		**2.87**		0.639	U	**21.2**	
Trichlorofluoromethane (FREON 11)	**62**		**660000**	B	**9.72**		**238**		**1210**		**1700**	
Dichlorodifluoromethane (FREON 12)	9.9	U	3500	U	**2.52**		**2.24**		**2.38**		4.94	U

LOCATION	V-12		V-12		SMPV-12		SMPV-12	
SAMPLING DATE	11/30/2018		2/11/2019		3/6/2020		7/12/2022	
Units ug/m3	Results	Q	Results	Q	Results	Q	Results	Q
1,3-Butadiene	1.4	U	5.7	U	0.442	U	0.442	U
Benzene	2.3	U	5.7	U	0.639	U	**6.9**	
Trichlorofluoromethane (FREON 11)	3.5	U	**5300**	B	**1.82**		**3.53**	
Dichlorodifluoromethane (FREON 12)	9.9	U	25	U	**2.73**		**2.8**	

LOCATION	V-13		SMPV-13		SMPV-13		SMPV-13		SMPV-13	
SAMPLING DATE	11/30/2018		3/6/2020		4/28/2021		9/20/2021		7/12/2022	
Units ug/m3	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
1,3-Butadiene	0.14	U	**0.878**		0.442	U	0.442	U	0.923	U
Benzene	0.23	U	0.639	U	**1.38**		**0.984**		**10.4**	
Trichlorofluoromethane (FREON 11)	**13**		**48.7**		**105**		**91**		**691**	
Dichlorodifluoromethane (FREON 12)	**69**		**285**		**376**		**96.9**		**2950**	

LOCATION	V-14		V-14		SMPV-14		SMPV-14		SMPV-14		SMPV-14	
SAMPLING DATE	11/30/2018		2/11/2019		3/6/2020		4/28/2021		9/20/2021		7/12/2022	
Units ug/m3	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
1,3-Butadiene	1.4	U	5	U	0.442	U	0.442	U	0.442	U	0.442	U
Benzene	**18**		**16**	J	**1.51**		**0.834**		**0.958**		**6.23**	
Trichlorofluoromethane (FREON 11)	**4.5**	J	**4600**	B	**826**		**447**		**72.5**		**181**	
Dichlorodifluoromethane (FREON 12)	**21**	J	**1400**		**82.1**		**10.6**		**3.16**		**40.5**	

Notes:

1. Results are shown in micrograms per cubic meter (ug/m3)
2. Bold = Compound Detected
3. Q = Qualifier
4. U = Compound Not Detected
5. J = concentration estimated

4.0 IC/EC PLAN COMPLIANCE

4.1 IC/EC REQUIREMENTS AND COMPLIANCE

Institutional and Engineering Controls

The Site remedy requires that an EE be placed on the property to (1) implement, maintain and monitor the Institutional and Engineering Controls; (2) prevent future exposure to remaining contamination by controlling the use of groundwater; and (3) limit the use and development of the site to residential, restricted residential, commercial and industrial uses. An SMP (December 2019) was prepared by SESI and approved by the NYSDEC for the long-term management and monitoring of the EE requirements.

A series of ICs is required to prevent future exposure to remaining contamination. Adherence to these ICs on the Site is required and will be implemented under this SMP. The IC boundaries are shown on SMP Figure 3.1. These ICs are:

- The property may be used for residential, restricted residential, commercial, and industrial use;
- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Sullivan County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department.
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP; all ECs must be inspected at a frequency and in a manner defined in the SMP.
- Access to the Site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement; and
- The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on SMP Figure 3.1, and any potential impacts that are identified must be monitored or mitigated.

Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC Division of Environmental Remediation (DER-10) Technical Guidance for Site Investigation and Remediation (May 3, 2010).

Monitoring Wells Associated with Monitored Natural Attenuation

Groundwater monitoring activities to assess natural attenuation will continue as determined by the NYSDEC, with consultation with NYSDOH, until residual concentrations of the dissolved phase Freon in groundwater are found to be consistently below ambient water quality standards, the Site Standards, Criteria and Guidelines, or have become asymptotic at an acceptable level over an extended period. In the event that monitoring data indicates that monitoring for natural attenuation may no longer be required, a proposal to discontinue the system will be submitted by the remedial party. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If Freon levels in groundwater become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

Soil Vapor Intrusion Evaluation

A soil vapor intrusion evaluation must be performed upon a change in use of the property that will result in occupancy of a previously unoccupied building or initial occupancy of a new building. Upon completion of the evaluation, if an action is required, any actions taken or to be taken must be reflected in an updated SMP.

4.2 IC/EC CERTIFICATION

The NYSDEC Institutional and Engineering Controls Certification Form has been completed and is included in **Appendix E**.

5.0 MONITORING PLAN COMPLIANCE

Monitoring Completed During Current Reporting Period

Table 5.1: SMP Monitoring Frequency Requirements

Task/Report	Reporting Frequency
Inspection Report	NA
Groundwater monitoring and sampling	Quarterly: March, June, September and December
Soil Vapor Sampling	Semi-annually
Periodic Review Report	Annually, or as otherwise determined by the Department

Groundwater Monitoring

Groundwater samples were collected from monitoring wells MW-201, MW-203, MW-204, MW-205, MW-206, MW-207, MW-210, MW-211, MW-213, MW-214, MW-216, and MW-217 in accordance with the SMP. However, samples were not obtained from the first quarter of 2022 due to excessive snow restricting safe access to the Site. Groundwater samples were collected during July 2022 and presented herein. Groundwater samples were analyzed for VOCs and PFAS as described in Section 3.0.

Soil Vapor Monitoring

Soil vapor samples were collected from vapor points SMPV-1, SMPV-2, SMPV-3, SMPV-10, SMPV-12, SMPV-11, SMPV-13, and SMPV-14 in September 2021 and July 2022 in accordance with the SMP.

Comparison with Remedial Objectives

Groundwater

As discussed in Section 3 of this report, Freon 11 and Freon 12 exceedances that were detected in groundwater samples collected from monitoring wells MW-213, MW-214, MW-216, and MW-217 post-COC in March 2020 are generally showing decreasing trends. There was a slight rebound in samples collected from monitoring wells MW-213, MW-214, and MW-17 in the November 2021 sampling event but are still below the post-COC concentrations with the exception of MW-217. No Freon 12 exceedances were detected

in monitoring wells MW-201, MW-203, MW-204, MW-206, MW-207, MW-210, MW-211, or MW-217 during this monitoring period.

The PFAS compound PFOA exceedances that were detected in monitoring wells MW-203, MW-206, MW-207, MW-208, MW-213, MW-214, MW-216, and MW-217 post-COC in March 2020 and September 2020 are generally showing decreasing trends. There was a slight rebound in monitoring wells MW-206, MW-213, and MW-214, in the November 2021 sampling event but are still below the March 2020 post-COC concentrations with the exception of PFOS in MW-214. PFOA and PFAS concentrations in the July 2022 sampling event are below the AWQSs in all wells sampled.

Soil Vapor

As discussed in Section 3 of this report Freon-11 were identified in vapor points SMPV-1, SMPV-2, SMPV-3, SMPV-10, SMPV-11, SMPV-12, SMPV-13, and SMPV-14 and Freon-12 was detected in soil vapor points SMPV-1, SMPV-2, SMPV-3, SMPV-10, SMPV-11, SMPV-12, SMPV-13, and SMPV-14. The soil vapor concentrations have remained stable in comparison with the historical sampling events with the exception of SMPV-11 and SMPV-13 which have rebounded recently but are still below the Pre-COC levels in SMPV-11. The 1,3-butadiene concentrations have decreased to be below detection limits. The benzene concentrations have shown an overall gradual decreased since the pre-COC sampling on November 2018.

Monitoring Deficiencies

All aspects of the monitoring plan were in accordance with NYSDEC applicable regulations.

6.0 OPERATION AND MAINTENANCE PLAN COMPLIANCE

The site remedy does not rely on any mechanical systems, such as sub-slab depressurization systems or air sparge/ soil vapor extraction systems, to protect public health and the environment. Therefore, the operation and maintenance of such components is not applicable.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Compliance with the SMP

All aspects of the SMP, including IC/EC and monitoring, have met the requirements. The O&M is not required at this time for the site.

There are no new exposure pathways resulting in an unacceptable risk.

Performance and Effectiveness of the Remedy

The sampling of the monitoring well network is determining the effectiveness of the Site's ability to naturally degrade the contaminants of concern in groundwater.

Future PRR Submittals

The next PRR will be submitted in May 2023.

Recommendations

All aspects of the remedial program appear to be meeting the site remedy design goal.

We recommend the following for the next reporting period:

- SESI recommends continued sampling of monitoring of wells MW-203, MW-206, MW-207, MW-213, MW-214, MW-216, and MW-217 on a biannual schedule.
- There were no exceedances of the AWQSs in monitoring wells MW-201, MW-204, MW-205, MW-210, or MW-211 during this monitoring period. SESI recommends no further sampling of monitoring of wells MW-201, MW-204, MW-205, MW-210, or MW-211.
- SESI recommends continued sampling of vapor points SMP-V2, SMP-V10, SMP-V11, SMP-13, and SMP-V14 on a biannual schedule.
- Soil vapor monitoring of the onsite vapor monitoring points SMP-V1, SMP-V3, SMP-V13 shows that the soil vapor concentrations in these sampling points have reached asymptotic levels. Therefore, SESI recommends no further sampling of vapor SMP-V1, SMP-V3, SMPV-12.