25 October 2022

Mr. Scott Sokolowski
Remedial Project Manager
Naval Facilities Engineering Command, Mid Atlantic
9324 Virginia Avenue, Building Z-144
Norfolk, VA 23511-3095

Subject: **US NAVY CONTRACT NO. N40085-16-D-2288**
CONTRACT TASK ORDER NO. 4042
SECOND QUARTER 2022 SVECS OPERATIONS REPORT - SITE 1
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT, BETHPAGE, NY

Dear Mr. Sokolowski:

An electronic copy of the *Second Quarter 2022 Operations Report, Soil Vapor Extraction Containment System, Site 1, Former Drum Marshalling Yard, Naval Weapons Industrial Reserve Plant, Bethpage, New York*, has been submitted to your attention.

Please contact me at rgregory@komangs.com or 610.400.0636 if you have any questions or comments regarding this submittal.

Sincerely,
KOMAN Government Solutions, LLC (KGS)

Robert G. Gregory
Project Manager

Cc: Mr. Vin Varricchio (NWIRP Bethpage Facility Management) – 2 hard copies, 2 CDs
Mr. Jason Pelton (NYSDEC) – 1 Electronic Copy
Ms. Kristin Granzen (NYSDEC) – 1 Electronic Copy
Mr. Matthew Travis (NYSDEC) – 1 Electronic Copy
Mr. William Cords (NAVAIR) – 1 Electronic Copy
Mr. James Sullivan (NYSDOH) – 1 Electronic Copy
Ms. Monica Marrow (Jacobs - NIRIS) – 1 hard copy, DDS Form, 1 CD
Mr. David Brayack (Tetra Tech) – 1 Electronic Copy

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Quarterly Operations Report
Second Quarter 2022

Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant
Bethpage, New York

Contract No. N40085-16-D-2288
Contract Task Order No. N4008517F4042

October 2022

Prepared for:

Naval Facilities Engineering Systems Command Mid-Atlantic
9324 Virginia Avenue
Norfolk, VA 23511

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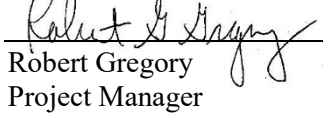
9324 Virginia Avenue
Norfolk, VA 23511

10/04/2022

Patrick Schauble
Program Manager
Date



10/04/2022

Robert Gregory
Project Manager
Date

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

Acronyms and Abbreviations

bgs	below ground surface
CTO	Contract Task Order
DAR	Division of Air Resources
DCA	dichloroethane
DCE	dichloroethene
DoD	Department of Defense
ELAP	Environmental Laboratory Accreditation Program
FMS	Flow Monitoring Station
GOCO	Government Owned Contractor Operated
i.w.	inches of water column
KGS	KOMAN Government Solutions, LLC
lbs	pounds
NAVFAC	Naval Facilities Engineering Systems Command
Navy	United States Department of the Navy
NELAC	National Environmental Accreditation Conference
NG	Northrop Grumman
NWIRP	Naval Weapons Industrial Reserve Plant
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	Operation and Maintenance
PCB	polychlorinated biphenyls
PCE	tetrachloroethene
PID	photoionization detector
scfm	standard cubic feet per minute
SVE	soil vapor extraction
SVECS	soil vapor extraction containment system
SVEW	soil vapor extraction well
SVOC	semi-volatile organic compound
SVPM	soil vapor pressure monitor
TCA	trichloroethane
TCE	trichloroethene
TCL	target compound list
TtEC	Tetra Tech EC, Inc.
TtNUS	Tetra Tech NUS, Inc.
$\mu g/m^3$	micrograms per cubic meter
VC	vinyl chloride
VGAC	vapor–phase granular activated carbon
VOC	volatile organic compound

1.0 INTRODUCTION

KOMAN Government Solutions, LLC (KGS) has prepared this Second Quarter 2022 Operations Report for the Soil Vapor Extraction Containment System (SVECS) at Site 1, Former Drum Marshalling Area, at the Naval Weapons Industrial Reserve Plant (NWIRP) in Bethpage, New York. This report has been prepared for the United States Department of the Navy (Navy), Naval Facilities Engineering Systems Command (NAVFAC), Mid-Atlantic, under Contract No. N40085-16-D-2288, Contract Task Order (CTO) No. N4008517F4042. This Second Quarter 2022 Operations Report details activities that occurred from April 2022 to June 2022. Data were collected, and operational activities were performed by KGS in accordance with the following documents:

- *Final Operation & Maintenance Plan for Soil Vapor Extraction Containment System Site 1, Former Drum Marshalling Yard at Naval Weapons Industrial Reserve Plant Bethpage, New York* prepared by Tetra Tech EC, Inc. (TtEC) in 2010, hereafter referred to as the "O&M Manual."

- *Final Supplemental Offsite Soil Vapor Intrusion Monitoring Plan for the Soil Vapor Extraction Containment System, Site 1, Former Drum Marshalling Yard at Naval Weapons Industrial Reserve Plant, Bethpage, New York* prepared by Tetra Tech NUS, Inc. (TtNUS) in 2012.

1.1 Site Location

NWIRP Bethpage is located in east central Nassau County, Long Island, New York, approximately 30 miles east of New York City. In the late 1990s, the Navy's property totaled approximately 109.5 acres and was formerly a Government Owned Contractor-Operated (GOCO) facility that was operated by Northrop Grumman (NG) until September 1998. NWIRP Bethpage was bordered on the north, west, and south by property owned, or formerly owned, by NG that covered approximately 550 acres, and on the east by a residential neighborhood. The Navy currently retains approximately nine acres of the former NWIRP, including Site 1, which lies within the fenced area of NWIRP Bethpage and is located east of Plant No. 3, west of 11th Street, and north of Plant 17 South (**Figures 1 and 2**).

1.2 Background

NWIRP Bethpage was established in 1943. Since inception, the primary mission of the facility was the research, prototyping, testing, design engineering, fabrication, and primary assembly of military aircraft. Historical operations that resulted in hazardous material generation at the facility included metal finishing processes, maintenance operations, painting of aircraft and components, and other activities that involve aircraft manufacturing. Wastes generated by plant operations were disposed of directly into drainage sumps, dry wells, and/or on the ground surface, resulting in the disposal of a number of hazardous wastes, including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and inorganic analytes (chromium and cadmium) at the site. Some of these contaminants have migrated from the source area to surrounding areas, including the soils at these sites and the groundwater beneath and downgradient of the NWIRP Bethpage property. NWIRP Bethpage is currently listed by the New York State Department of Environmental Conservation (NYSDEC) as an "inactive hazardous waste site" (#1-30-003B).

Soils at Site 1 consist mainly of unconsolidated sediments that overlie crystalline bedrock. A clay unit is present near the groundwater table (50 feet below ground surface [bgs]) at the southeast corner of the site. This clay unit is suspected to be a source of chlorinated solvents that are migrating into the overlying soil gas and the source of off-site VOCs in soil vapor (TtEC, 2010).

Chlorinated solvents including trichloroethene (TCE), tetrachloroethene (PCE), and 1,1,1-trichloroethane (TCA) have been identified as the VOCs of interest in soil gas at the site. Concentrations greater than 1,000 micrograms per cubic meter ($\mu g/m^3$) of soil vapor have been directly associated with Site 1 activities and historical environmental data, and based on preliminary screening, exceed guidelines established by the New York State Department of Health (NYSDOH) for sub-slab soil vapor concentrations at the time. Of these compounds, TCE is the primary VOC of concern. Mitigation of TCE contamination in accordance with NYSDOH guidance is expected to remediate other VOCs associated with the site. PCBs, cadmium, and chromium have also been identified in site soils at concentrations requiring remediation. The majority of these chemicals have been detected in the central portion of Site 1 and will be addressed via a separate remediation (TtEC, 2010).

Prior to implementation of the SVECS, the mean concentrations of VOCs in soil gas samples collected along the eastern fence-line were 41,128 $\mu g/m^3$ of TCE, 381 $\mu g/m^3$ of PCE, and 20,634 $\mu g/m^3$ of 1,1,1-TCA. The maximum concentrations of VOCs in the soil gas samples were 180,000 $\mu g/m^3$ of TCE, 1,200 $\mu g/m^3$ of PCE, and 90,000 $\mu g/m^3$ of 1,1,1-TCA (TtEC, 2010).

1.3 Project Overview and Objective

The remedial objective for this project is to use an on-site soil vapor extraction (SVE) system to prevent further off-site migration of VOC-contaminated soil vapor and to the extent practical, capture contaminated soil vapor with a TCE concentration greater than 250 $\mu g/m^3$. A secondary objective of this project is to address soil vapor with a TCE concentration greater than 5 $\mu g/m^3$. The SVECS is an interim action intended to address migration of VOCs in contaminated soil vapors. It is expected to operate continuously 24 hours/day, seven days/week, with the exception of maintenance and adjustment periods, until the remedial objectives are met (TtEC, 2010).

1.4 SVECS Overview

The SVECS consists of soil vapor extraction, soil vapor monitoring, and soil vapor treatment. Twelve SVE wells (SVEWs) are located along the eastern boundary of Site 1 in six clusters, each consisting of one intermediate well and one deep well. Intermediate wells SVE-101I, SVE-102I, SVE-103I, SVE-104I, SVE-105I, and SVE-106I have a screened interval between 25 and 35 feet bgs. Deep wells SVE-101D, SVE-102D, SVE-103D, SVE-104D, SVE-105D, and SVE-106D have a screened interval between 40 and 60 feet bgs. The groundwater table fluctuates between approximately 50 and 55 feet bgs. Each SVEW is operated at a flow rate such that the combined total flow rate is approximately 300-400 standard cubic feet per minute (scfm) of soil vapor. Each intermediate depth SVEW requires an approximate vacuum of four inches of water column (i.w.) and each deep SVEW requires a vacuum of up to 20 i.w. in order to extract the targeted flow rates. The 12 SVEWs have been piped below the ground to the Flow Monitoring Station (FMS), where flow, vacuum, and vapor quality are monitored. Within the FMS, the discharge lines from the individual SVEWs have been equipped with a 2-inch flow control butterfly valve, a

vacuum gauge, and a sampling port. The sampling port is utilized to measure the flow rate from an individual well using a portable velocity meter and to collect vapor samples. All the SVE lines collect into a single manifold within the FMS and from this location a single underground pipeline has been routed approximately 1,400 linear feet to the Treatment Building (Building 03-35). Five additional SVEWs (SV-107D, SV-108D, SV-109D, SV-110D, and SV-111D) were installed in October 2011 to address potential VOCs under Plant No. 3 and the South Warehouse. During the Second Quarter 2022, an additional six SVEWs (SV-112D, SV-113D, SV-114D, SV-115D, SV-116D and SV-117D were being brought online to address residual VOC concentrations in the central area of the Site 1. Sampling of these additional wells is scheduled to begin in the Third Quarter 2022. A site plan depicting well locations is included as **Figure 3**.

The SVECS is housed within the Treatment Building, an existing and unoccupied building also known as Building 03-35. The treatment system consists of a moisture separator, two SVE blowers, and a 5,000-pound vapor-phase granular activated carbon (VGAC) unit for removal of chlorinated VOCs from the off-gas. Soil vapor that enters the Treatment Building first passes through the moisture separator tank where any condensate is separated. To date, no condensate has formed in this tank. The vapor is then passed through an air filter and SVE blower and then treated in the VGAC unit. The treated vapor is discharged from the VGAC via an exhaust stack. The SVECS has a control panel comprised of mechanical interlocks and relays for local operation. A System Layout Plan is presented in **Figure 4**, which also illustrates the design flow rates through the soil vapor extraction and treatment process.

The off-gas from the SVECS is monitored for chlorinated VOCs as identified in the NYSDEC Division of Air Resources (DAR) permit equivalent effluent limitations and updated approval documentation (**Appendix A**) and monitoring requirements (TtEC, 2010). Samples are submitted to a National Environmental Laboratory Accreditation Conference (NELAC)-accredited, Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP)-accredited laboratory, Eurofins Air Toxics, LLC. located in Folsom, California, for analysis of VOCs by modified method TO-15. Prior to January 2014, samples were analyzed for target compound list (TCL) VOCs. As of January 2014, upon approval by NYSDEC and NYSDOH, samples are analyzed for site-specific VOCs. The site-specific VOCs are: 1,1,1-TCA, 1,1-dichloroethane (DCA), 1,1-dichloroethene (DCE), 1,2-DCA, cis-1,2-DCE, PCE, trans-1,2-DCE, TCE, and vinyl chloride (VC).

A total of 18 soil vapor pressure monitor (SVPM) / soil gas monitoring points have been installed in the residential neighborhood east of Site 1 at NWIRP Bethpage (**Figure 3**). These off-site monitoring points consist of eight previously existing SVPMs as well as 10 SVPMs installed in September 2012. Soil vapor pressure readings from the SVPMs are collected quarterly and used to evaluate the SVECS vacuum field. In addition, analytical results of vapor samples collected annually from these locations and the soil vapor pressure readings are used to further evaluate the SVECS operation and the potential for vapor intrusion.

2.0 SVECS OPERATION AND MAINTENANCE

While designed to run autonomously, the SVECS requires regular visits by an operator to record and adjust operational parameters and to perform scheduled maintenance. The SVECS is equipped with telemetry that will alert an on-call operator in the event of a plant shutdown.

2.1 Routine Maintenance Activities

Routine maintenance activities at the SVECS were performed during the operator's weekly visits during this reporting period. These activities include general site inspections (of the grounds, buildings, doors, and locks), collection of operational data (vapor flowrates, pressures, vacuums, temperature, and photoionization detector [PID] readings), adjustment of system valves, collection of vapor samples (on a monthly and quarterly basis), collection/disposal of condensate if needed, cleaning of filters, switching of lead/lag blower assignments, and preventive maintenance of system equipment.

2.2 Non-routine Maintenance / Site Activities

The following non-routine activities / repair activities occurred at the SVECs during the Second Quarter 2022 reporting period:

- On 19 May, the upgraded B-1B pump was installed.
- On 28 June, the system was offline for 8 hours to install new piping for the six additional SVEWs.

3.0 SVECS MONITORING

Several process vapor samples are collected on a monthly basis to monitor the SVECS operation. These samples consist of an influent sample (as well as a duplicate sample), located immediately prior to the VGAC unit, and an effluent sample, located after the VGAC unit and before the exhaust stack. Vapor samples are also collected from the 12 original SVEWs on a quarterly basis to monitor the capture of the contaminated soil vapor by the SVEWs. In addition, quarterly pressure measurements are collected from the 12 SVEWs and the 18 SVPMs to monitor the SVECS vacuum field, and soil gas sampling from the 18 SVPMs is conducted annually (generally in the winter time-frame) to evaluate the effectiveness of the SVECS. The first annual soil gas sampling event was conducted in the winter 2012-2013. The tenth annual sampling event was conducted in March 2022.

3.1 Monthly Air Quality Monitoring

Analysis of influent and effluent vapor sample locations is performed to evaluate VOC mass removal and the effectiveness of the VGAC adsorption unit. Time-integrated vapor samples are collected using 6-liter summa canisters with 30-minute flow regulators.

Treated off-gas discharged at the exhaust stack is subject to emissions limitations. Initially, discharge goals were derived from calculations submitted by the Navy and accepted by the NYSDEC in the February 2010 DAR permit equivalent application. In September 2011, the Navy submitted an evaluation proposing revised discharge goals (TtNUS, 2011), which NYSDEC agreed to in October 2011. A copy of this documentation is included as **Appendix A**.

Summaries of the monthly vapor sampling results collected in April, May, and June (Second Quarter) are presented in **Tables 1, 2, and 3**, respectively. Emission rate calculations for both the influent stream (prior to VGAC treatment) and effluent stream (following VGAC treatment) and the computed monthly mass recoveries are also presented. Emission rates of the influent stream as well as mass recovery are calculated to monitor progress and determine when influent concentrations have reached levels at which vapor treatment via carbon adsorption is no longer required. The data presented in **Tables 1, 2, and 3** demonstrate that all constituents were within the effluent emission rate guidelines (**Appendix A)**. Raw analytical data are provided under a separate cover.

3.2 Quarterly Air Quality Monitoring of SVEWs

Time-integrated vapor samples are collected quarterly using 6-liter summa canisters with 30-minute flow regulators at six intermediate and six deep SVEWs. The samples are collected for the purpose of tracking and documenting the performance of the SVECS (TtEC, 2010).

Quarterly vapor samples were collected on 13 June from the 12 SVEWs. A summary of detected compounds is included as **Table 4**. Raw analytical data are provided under a separate cover.

Analytical results of select VOCs (1,1,1-TCA, PCE, and TCE) detected at the 12 SVEWs during the Second Quarter monitoring event are presented graphically in **Figure 5**. Historical analytical results of quarterly vapor samples collected from December 2009 through the Second Quarter 2022 are presented in **Table 5**.

3.3 Quarterly Soil Vapor Pressure Monitoring of SVEWs and Off-site SVPMs

Soil vapor pressure readings are collected quarterly from the 12 SVEWs and 18 SVPMs to monitor the SVECS vacuum field. Soil vapor pressure readings from the 12 SVEWs and 18 SVPMs were collected on 23 June. Results of the Second Quarter vapor pressure monitoring are presented in **Table 6**.

The vapor pressure readings collected from the SVEWs ranged between -4.0 to -11.0 i.w., indicating that a vacuum has been established along the fence line. The vapor pressure readings collected from the SVPMs ranged between -0.05 to -1.30 i.w., indicating that a vacuum has been established in the residential neighborhood. Pressure readings from the 18 SVPMs are presented graphically in **Figure 6**.

3.4 Annual Vapor Quality Monitoring of Off-site SVPMs

Time-integrated vapor samples are collected annually using 6-liter summa canisters with 30-minute flow regulators at 18 SVPM locations. The Annual 2022 SVPM samples were collected in March 2022. Analytical results from the SVPM monitoring event will be included in the 2022 Annual Operations Report prepared during the Fourth Quarter.

3.5 Soil Vapor Quality Concentration Trends

Historical vapor analytical results for the 12 SVEWs through the Second Quarter are presented in **Table 5**. In addition, concentration trends of select VOCs for the SVECS combined influent (1,1,1-TCA, PCE, TCE, and total VOCs) and each of the 12 SVEWs (1,1,1-TCA, PCE, and TCE) are presented in **Appendix B**. Concentration trends observed in the 12 SVEWs through the Second Quarter 2022 are discussed below.

- Combined Influent: Overall VOC concentrations in the combined influent fluctuated during the Second Quarter 2022, with a total VOC concentration 1,706 µg/m^3 in April (**Table 1**), 1,504 µg/m^3 in May (**Table 2**), and 1,614 µg/m^3 in June (**Table 3**). TCE, PCE and 1,1,1-TCA concentrations remain approximately one to three orders of magnitude below baseline concentrations measured in December 2009 (42,000 µg/m^3 TCE, 7,900 µg/m^3 PCE, and 13,000 µg/m^3 1,1,1-TCA).

- SV-101I: Concentrations measured at this location (5,800 µg/m^3 TCE, 60 µg/m^3 PCE, and 1,800 µg/m^3 1,1,1-TCA) increased in the Second Quarter 2022 relative to concentrations measured in the First Quarter 2022 (**Table 5)**. The measured concentrations are consistent with respect to the range in concentration variability noted over the past several years. All concentrations remain one to two orders of magnitude below baseline concentrations measured in December 2009 (180,000 µg/m^3 TCE, 1,700 µg/m^3 PCE, and 51,000 µg/m^3 1,1,1-TCA).

- SV-101D: Concentrations of two VOCs measured at this location (250 µg/m^3 TCE and 32 µg/m^3 PCE) increased in the Second Quarter 2022 relative to concentrations measured in the First Quarter 2022 (**Table 5**). The concentration of 1,1,1-TCA (3.1 J µg/m^3) decreased between the two quarters. The measured concentrations are consistent with respect to the range in concentration variability noted over the past several years. All concentrations remain two to four

orders of magnitude below baseline concentrations measured in December 2009 (100,000 µg/m^3 TCE, 3,200 µg/m^3 PCE, and 26,000 µg/m^3 1,1,1-TCA).

- SV-102I: Concentrations measured at this location (34 µg/m^3 TCE, 3.7 J µg/m^3 PCE, and 2.1 J µg/m^3 1,1,1-TCA) increased in the Second Quarter 2022 relative to concentrations measured in the First Quarter 2022 (**Table 5**). All concentrations are below the maximum concentration measured in June 2010 (300 µg/m^3 TCE, 17 µg/m^3 PCE, and 13 µg/m^3 1,1,1-TCA).

- SV-102D: Concentrations measured at this location (45 µg/m^3 TCE, 7.2 µg/m^3 PCE, and 1.2 J µg/m^3 1,1,1-TCA) increased in the Second Quarter 2022 relative to concentrations measured in the First Quarter 2022 (**Table 5**). The measured concentrations are consistent with respect to the range in concentration variability noted over the past several years. All concentrations are below the baseline concentrations measured in December 2009 (440 µg/m^3 TCE, 10 µg/m^3 PCE, and 130 µg/m^3 1,1,1-TCA).

- SV-103I: Concentrations measured at this location (26 µg/m^3 TCE, 250 µg/m^3 PCE, and 3.4 J µg/m^3 1,1,1-TCA) either decreased or remained consistent in the Second Quarter 2022 relative to concentrations measured in the First Quarter 2022 (**Table 5**). The measured concentrations are consistent with respect to the range in concentration variability noted over the past several years. All concentrations remain below the baseline concentrations measured in December 2009 (900 µg/m^3 TCE, 580 µg/m^3 PCE, and 900 µg/m^3 1,1,1-TCA).

- SV-103D: Concentrations measured at this location (31 µg/m^3 TCE, 660 µg/m^3 PCE, and 6.7 µg/m^3 1,1,1-TCA) decreased notably in the Second Quarter 2022 relative to concentrations measured in the First Quarter 2022 (**Table 5**) and are more consistent with previous sampling events in 2020 and early 2021. All concentrations remain one to two orders of magnitude below baseline concentrations measured in December 2009 (3,100 µg/m^3 TCE, 20,000 µg/m^3 PCE, and 3,000 µg/m^3 1,1,1-TCA).

- SV-104I: Concentrations measured at this location (18 µg/m^3 TCE, 220 µg/m^3 TCE, and 3.5 J µg/m^3 1,1,1-TCA) increased in the Second Quarter 2022 relative to concentrations measured in the First Quarter 2022 (**Table 5**). The measured concentrations are consistent with respect to the range in concentration variability noted over the past several years. All concentrations remain one to two orders of magnitude below baseline concentrations measured in December 2009 (710 µg/m^3 TCE, 3,100 µg/m^3 PCE, and 730 µg/m^3 1,1,1-TCA).

- SV-104D: Concentrations measured at this location (760 µg/m^3 TCE, 7,200 µg/m^3 PCE, and 550 µg/m^3 1,1,1-TCA) increased notably in the Second Quarter 2022 relative to concentrations measured in the First Quarter 2022 (**Table 5**) and are more consistent with previous sampling events in 2020 and early 2021. All concentrations remain one order of magnitude below baseline concentrations measured in December 2009 (4,600 µg/m^3 TCE, 20,000 µg/m^3 PCE, and 3,600 µg/m^3 1,1,1-TCA).

- SV-105I: Concentrations measured at this location (12 µg/m^3 TCE, 14 µg/m^3 PCE, and 6.0 µg/m^3 1,1,1-TCA) increased in the Second Quarter 2022 relative to concentrations measured in the First Quarter 2022 (**Table 5**). The measured concentrations are consistent with respect to the

range in concentration variability noted over the past several years. All concentrations remain below baseline concentrations measured in December 2009 (76 µg/m^3 TCE, 70 µg/m^3 PCE, and 9.9 µg/m^3 1,1,1-TCA).

- SV-105D: Concentrations of two VOCs measured at this location (12 µg/m^3 TCE and 5.2 µg/m^3 1,1,1-TCA) increased in the Second Quarter 2022 relative to concentrations measured in the First Quarter 2022 (**Table 5**). The concentration of PCE decreased between the two quarters from 20 µg/m^3 to 18 µg/m^3. The measured concentrations are consistent with respect to the range in concentration variability noted over the past several years. All concentrations remain one to two orders of magnitude below baseline concentrations measured in December 2009 (1,700 µg/m^3 TCE, 2,100 µg/m^3 PCE, and 550 µg/m^3 1,1,1-TCA).

- SV-106I: Concentrations measured at this location (70 µg/m^3 TCE, 110 µg/m^3 PCE, and 6.1 µg/m^3 1,1,1-TCA) increased significantly in the Second Quarter 2022 relative to concentrations measured in the First Quarter 2022 (**Table 5**) and are more consistent with concentrations measured in previous events. This may be reflective of the consistent downward trend in concentration observed in 2021, following a substantial increase in concentrations during a soil remediation/excavation event in 2020. Baseline concentrations were established at this site in December 2009 (1,900 µg/m^3 TCE, 390 µg/m^3 PCE, and 220 µg/m^3 1,1,1-TCA).

- SV-106D: Concentrations measured at this location (13 µg/m^3 TCE, 13 µg/m^3 PCE, and 2.0 J µg/m^3 1,1,1-TCA) either increased or remained consistent in the Second Quarter 2022 relative to concentrations measured in the First Quarter 2022 (**Table 5**). The measured concentrations are consistent with respect to the range in concentration variability noted over the past several years. All concentrations remain one to three orders of magnitude below baseline concentrations measured in December 2009 (3,400 µg/m^3 TCE, 720 µg/m^3 PCE, and 340 µg/m^3 1,1,1-TCA) .

4.0 CONCLUSIONS AND RECOMMENDATIONS

As stated in Section 1.3, the objectives of the Site 1 SVECS are to prevent further off-site migration of VOC contaminated soil vapor and to the extent practical, capture soil vapor with elevated TCE concentrations. Based on the presence of a vacuum field and the reduction of VOC concentrations to less than the screening values in the off-property area, the SVECS is functioning as designed. Influent vapor analytical data with concentrations of TCE above the project action level (greater than 250 $\mu g/m^3$) indicate that the SVECS should continue to be operated on a full-time basis to achieve continued capture of contaminated soil vapor. Monthly monitoring of the combined influent and effluent as well as quarterly monitoring of individual SVEWs should continue. Quarterly and annual monitoring of the SVPMs should also continue in order to ensure that a measurable vacuum field is being established and that the area is being effectively treated.

Beginning in September 2022, soil vapor samples will be collected from six additional deep SVEWs (SV-112D to SV-117D) located within the central portion of Site 1. Assessment of these additional data will be incorporated into the subsequent quarterly operations reports.

5.0 REFERENCES

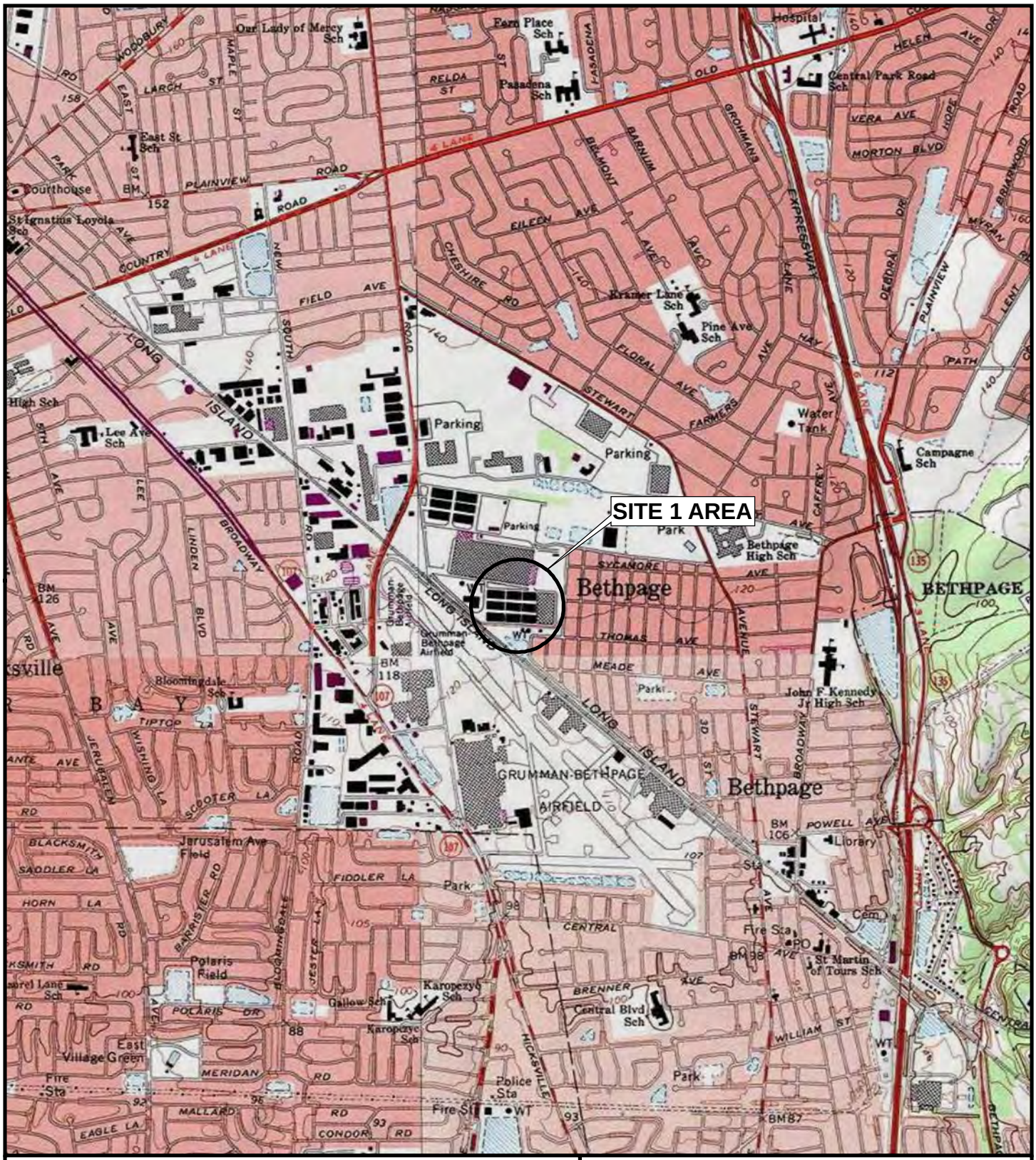
New York State Department of Health (NYSDOH). 2006. *Guidance for Evaluating Soil Vapor Intrusion in the State of New York.* October.

Tetra Tech EC, Inc. (TtEC). 2010. *Final Operation & Maintenance Plan for Soil Vapor Extraction Containment System, Site 1, Former Drum Marshalling Yard at Naval Weapons Industrial Reserve Plant, Bethpage, New York.* June.

Tetra Tech NUS, Inc. (TtNUS). 2011. *Modification to Existing Soil Vapor Extraction Containment System at Site 1 – Former Drum Marshalling Area, Installation of Soil Vapor Extraction Wells SVE-107D to -111D, NWIRP Bethpage, Bethpage, New York.* September.

TtNUS. 2012. *Final Supplemental Offsite Soil Vapor Intrusion Monitoring Plan for the Soil Vapor Extraction Containment System, Site 1, Former Drum Marshalling Yard at Naval Weapons Industrial Reserve Plant, Bethpage, New York.* February.

FIGURES



Quadrangle Location Map

Map Reference: Copyright© 2013 National Geographic Society, i-cubed
USGS 7.5 Minutes Quadrangles: Amityville, Freeport, Hicksville, Huntington, New York

Site Location Map

Department of the Navy
Naval Facilities Engineering Systems Command, Mid-Atlantic

Site 1, Former Drum Marshalling Area
Naval Weapons Industrial Reserve Plant
Bethpage, New York

KOMAN Government Solutions, LLC
180 Gordon Drive, Suite 110, Exton, PA 19341

0 1,000 2,000
Feet

Date: 09/15/2022

Figure 1

KGS TRINITY

File: 0922_BethpageSite1_F1_SLM.mxd

ASSEMBLY POINT

SITE ENTRANCE

EMERGENCY EVACUATION/EGRESS ROUTE TO MAIN ROAD-OLD SOUTH OYSTER BAY ROAD

N

Old South Oyster Bay Road

PLANT 3

SITE 1

Sycamore Ave

11th ST

10th ST

9th ST

8th ST

Maple Ave

TREATMENT BUILDING

BUILDING 03-35

BUILDING 10

WAREHOUSE I

WAREHOUSE J

WAREHOUSE K

WAREHOUSE L

WAREHOUSE M

WAREHOUSE E

WAREHOUSE F

WAREHOUSE G

WAREHOUSE H

WAREHOUSE N

WAREHOUSE A

WAREHOUSE B

WAREHOUSE C

WAREHOUSE D

Site 1 Area and Vicinity

Department of the Navy
Naval Facilities Engineering Systems Command, Mid-Atlantic

Site 1, Former Drum Marshalling Area
Naval Weapons Industrial Reserve Plant
Bethpage, New York

KOMAN Government Solutions, LLC
180 Gordon Drive, Suite 110, Exton, PA 19341

SCALE IN FEET	DATE	FIGURE	
0 200	09/09/2022	2	KGS

BETHPAGE_0922_F2_Site1_Area_Vicinity.dwg

N

SITE 1

SITE 4

PLANT 3

SVE-106D
SVE-106I
SVE-112D
SVE-115D
SVE-105I
SVE-105D
SVE-113D
SVE-104D
SVE-116D
SVE-104I
SVE-114D
SVE-103D
SVE-103I
SVE-117D
SVE-101D
SVE-101I
SVE-102D
SVE-102I
SVE-107D
SVE-108D
SVE-109D
SVE-110D
SVE-111D

SVPM-2004D
SVPM-2004I
SVPM-2004S
SVPM-2001S
SVPM-2001I
SVPM-2001D
SVPM-2006S
SVPM-2006I
SVPM-2006D
SVPM-2007I
SVPM-2007D
SVPM-2007S
SVPM-2002D
SVPM-2002I
SVPM-2002S
SVPM-2003D
SVPM-2003S
SVPM-2003I

Sycamore Ave
Maple Ave
11th ST
10th ST
9th ST

TRAP & CLEANOUT #5
TRAP & CLEANOUT #4
TRAP & CLEANOUT #3
TRAP & CLEANOUT #2
TRAP & CLEANOUT #1

TREATMENT BUILDING
FLOW MONITORING STATION
BUILDING 10

WAREHOUSE I
WAREHOUSE J
WAREHOUSE K
WAREHOUSE L
WAREHOUSE M
WAREHOUSE E
WAREHOUSE F
WAREHOUSE G
WAREHOUSE H
WAREHOUSE N
WAREHOUSE A
WAREHOUSE B
WAREHOUSE C
WAREHOUSE D

LEGEND

- FORMER NWIRP BOUNDARY
- CURRENT NWIRP BOUNDARY
- SOIL VAPOR PRESSURE MONITOR (SVPM)
- SVE CONTAINMENT WELL LOCATION
- SOIL VAPOR EXTRACTION WELL (SVEW)

Site Plan – Existing Layout,
Soil Vapor Extraction Containment System

Department of the Navy
Naval Facilities Engineering Systems Command, Mid-Atlantic

Site 1, Former Drum Marshalling Area
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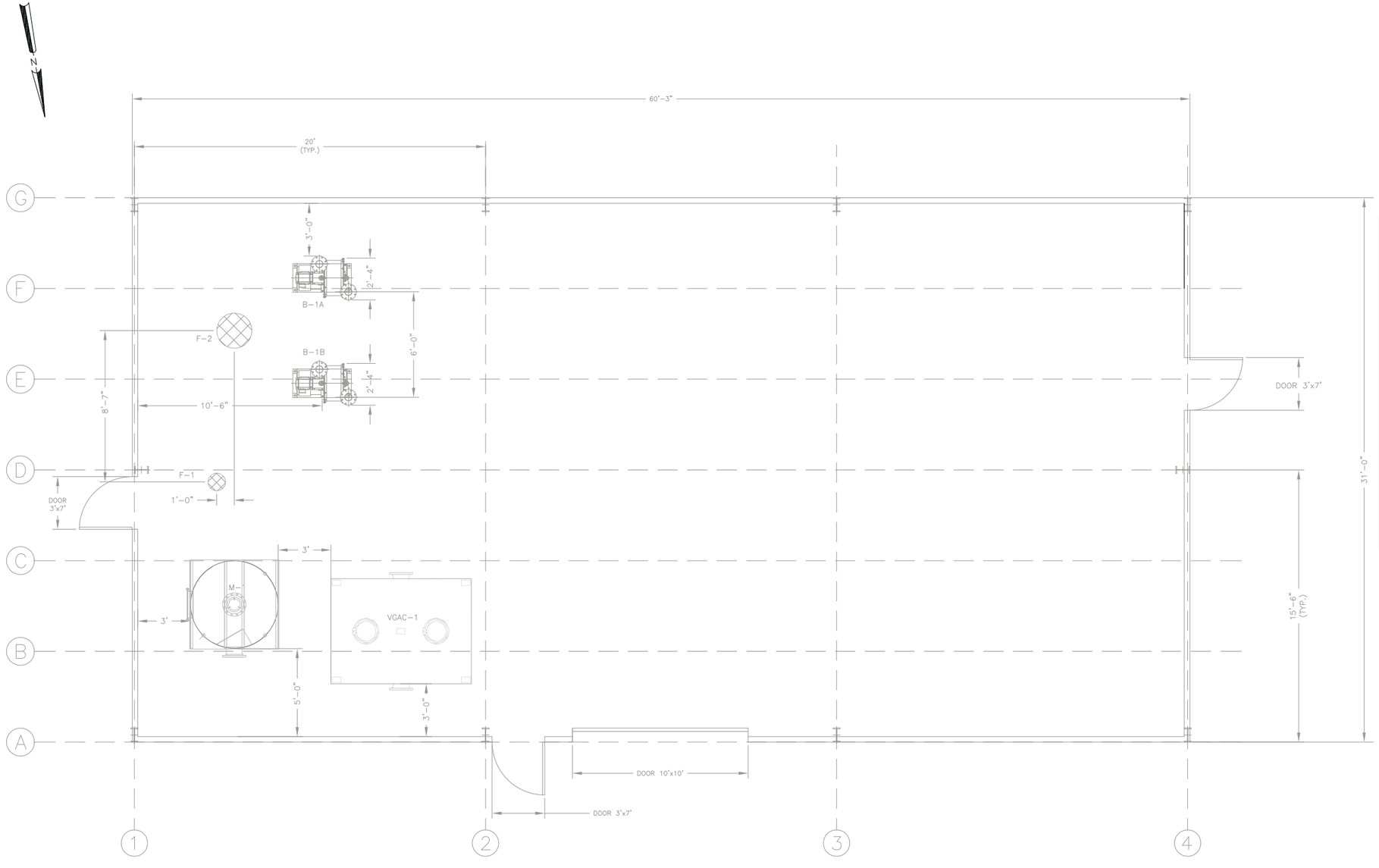
SCALE IN FEET	DATE	FIGURE	
0 160	09/15/2022	3	KGS

BETHPAGE_0922_SVESiteLayout.dwg

NOTES:

1. ALL MAN DOORS AND OVERHEAD DOORS ARE EXISTING. MAN DOORS ARE APPROXIMATELY 7'X3'. OVERHEAD DOOR IS APPROXIMATELY 10'X10'.



PROCESS EQUIPMENT LIST		
ITEM NUMBER	NUMBER REQUIRED	NAME/DESCRIPTION
M-1	1	MOISTURE SEPARATOR -CONFIGURATION: VERTICAL, CYLINDRICAL -MATERIAL OF CONSTRUCTION: CARBON STEEL, EPOXY INTERIOR COATING, PAINT EXTERIOR COATING -CAPACITY: 400 GALLON CONDENSATE COLLECTION -DIMENSIONS: 5 FT DIA X 6 FEET HT, 718 GALLON
F-1	1	MAKE-UP AIR FILTER -CONFIGURATION: INTAKE FILTER/SILENCER COMBINATION HOUSING -MATERIAL OF CONSTRUCTION: CARBON STEEL, CORROSION RESISTANCE COATING -CAPACITY: 500 CFM AT 20 IW, 4 INCH FLANGED CONNECTION
F-2	1	BLOWER AIR FILTER -CONFIGURATION: INLINE VACUUM SERVICE FILTER -MATERIAL OF CONSTRUCTION: CARBON STEEL, CORROSION RESISTANCE COATING -CAPACITY: 1,200 CFM AT 35 IW, 10 INCH FLANGED CONNECTION
B-1A, B-1B	2	SOIL VAPOR EXTRACTION BLOWER -CONFIGURATION: HORIZONTAL CENTRIFUGAL -RATING: 600 CFM AT 40 IW -MOTOR: 7.5 HP, 460V, 3PH, 60HZ, ODP
VGAC-1	1	VAPOR-PHASE GRANULAR ACTIVATED CARBON -CONFIGURATION: RECTANGULAR TANK -MATERIAL OF CONSTRUCTION: CARBON STEEL, EPOXY INTERIOR COATING, EPOXY EXTERIOR COATING -RATING: 1,600 CFM AT 3 IW, 2,000 CFM AT 6 IW -CAPACITY: 5,000 LBS CARBON -DIMENSIONS: 6' X 8' FOOTPRINT, 6' 8" HT

3 0 3 6

1" = 3'

TETRA TECH ENGINEERING CORPORATION PC

DESIGN BY: SGP | DR. BY: | CH. ENG: | DRC. SP

SUPV: | SUBMITTED BY: (FIRM NAME) (TITLE) (DATE)

SOLICITATION NO. | HD: | MD: | DR: | PIC: | OFFICER IN CHARGE

REV	DESCRIPTION	PREP BY	DATE	APPRVD
0	ISSUED FOR CONSTRUCTION	DLB	10-14-09	SGP

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND, MID-ATLANTIC
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT, BETHPAGE, NEW YORK

SITE 1, FORMER DRUM MARSHALLING AREA
SOIL VAPOR EXTRACTION CONTAINMENT SYSTEM
LAYOUT PLAN

APPROVED | DATE | EFANE FOR COMMANDER, NAVFAC

SEAL AREA

THIS DRAWING PRODUCED ON AUTOCAD
DO NOT REVISE MANUALLY

SAT TO DATE

CODE I.D. NO.

SCALE : AS SHOWN

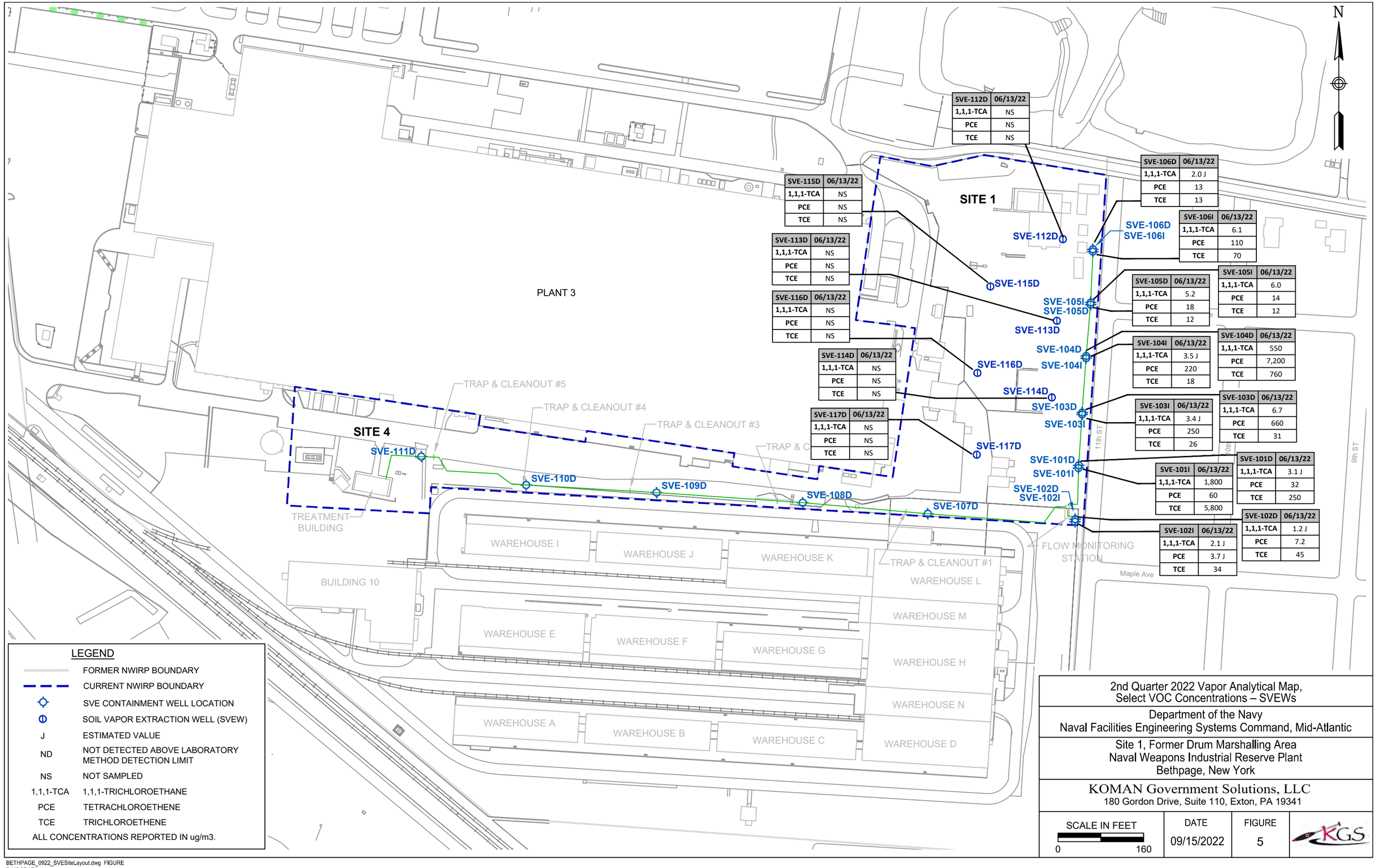
SPEC. NO.

CONSTRN. CONTR. NO.
N62473-10-D-3211

NAVFAC DRAWING NO.
Figure 4

SHEET OF

SIZE: D | DIS. SH. NO. 1-3



SVE-112D	06/13/22
1,1,1-TCA	NS
PCE	NS
TCE	NS

SVE-115D	06/13/22
1,1,1-TCA	NS
PCE	NS
TCE	NS

SVE-113D	06/13/22
1,1,1-TCA	NS
PCE	NS
TCE	NS

SVE-116D	06/13/22
1,1,1-TCA	NS
PCE	NS
TCE	NS

SVE-114D	06/13/22
1,1,1-TCA	NS
PCE	NS
TCE	NS

SVE-117D	06/13/22
1,1,1-TCA	NS
PCE	NS
TCE	NS

SVE-106D	06/13/22
1,1,1-TCA	2.0 J
PCE	13
TCE	13

SVE-106I	06/13/22
1,1,1-TCA	6.1
PCE	110
TCE	70

SVE-105D	06/13/22
1,1,1-TCA	5.2
PCE	18
TCE	12

SVE-105I	06/13/22
1,1,1-TCA	6.0
PCE	14
TCE	12

SVE-104I	06/13/22
1,1,1-TCA	3.5 J
PCE	220
TCE	18

SVE-104D	06/13/22
1,1,1-TCA	550
PCE	7,200
TCE	760

SVE-103I	06/13/22
1,1,1-TCA	3.4 J
PCE	250
TCE	26

SVE-103D	06/13/22
1,1,1-TCA	6.7
PCE	660
TCE	31

SVE-101I	06/13/22
1,1,1-TCA	1,800
PCE	60
TCE	5,800

SVE-101D	06/13/22
1,1,1-TCA	3.1 J
PCE	32
TCE	250

SVE-102I	06/13/22
1,1,1-TCA	2.1 J
PCE	3.7 J
TCE	34

SVE-102D	06/13/22
1,1,1-TCA	1.2 J
PCE	7.2
TCE	45

LEGEND

- FORMER NWIRP BOUNDARY
- CURRENT NWIRP BOUNDARY
- SVE CONTAINMENT WELL LOCATION
- SOIL VAPOR EXTRACTION WELL (SVEW)
- J — ESTIMATED VALUE
- ND — NOT DETECTED ABOVE LABORATORY METHOD DETECTION LIMIT
- NS — NOT SAMPLED
- 1,1,1-TCA — 1,1,1-TRICHLOROETHANE
- PCE — TETRACHLOROETHENE
- TCE — TRICHLOROETHENE

ALL CONCENTRATIONS REPORTED IN ug/m3.

2nd Quarter 2022 Vapor Analytical Map, Select VOC Concentrations – SVEWs

Department of the Navy
Naval Facilities Engineering Systems Command, Mid-Atlantic

Site 1, Former Drum Marshalling Area
Naval Weapons Industrial Reserve Plant
Bethpage, New York

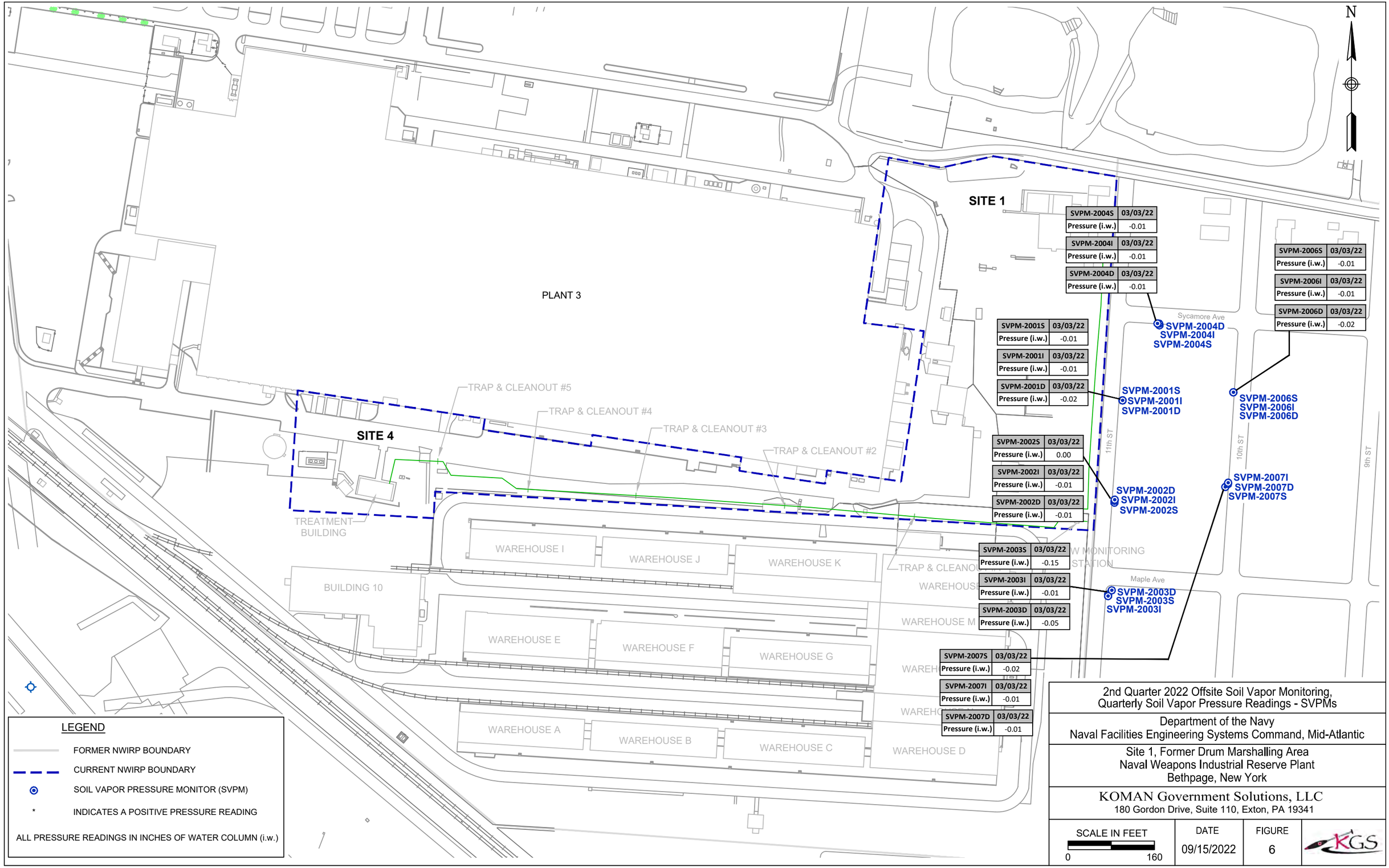
KOMAN Government Solutions, LLC
180 Gordon Drive, Suite 110, Exton, PA 19341

SCALE IN FEET
0 160

DATE
09/15/2022

FIGURE
5

BETHPAGE_0922_SVESiteLayout.dwg FIGURE 5_VOCDATA



2nd Quarter 2022 Offsite Soil Vapor Monitoring,
Quarterly Soil Vapor Pressure Readings - SVPMs

Department of the Navy
Naval Facilities Engineering Systems Command, Mid-Atlantic

Site 1, Former Drum Marshalling Area
Naval Weapons Industrial Reserve Plant
Bethpage, New York

KOMAN Government Solutions, LLC
180 Gordon Drive, Suite 110, Exton, PA 19341

SCALE IN FEET	DATE	FIGURE	
0 160	09/15/2022	6	KGS

BETHPAGE_0922_SVESiteLayout.dwg

TABLES

Table 1
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Vapor Monitoring Results
April 2022

Compound	Concentration (ug/m^3)				Emission Rate [1],[2]				Monthly Mass Recovery [3]
					Prior to Treatment		Following Treatment		
	Influent #1	Influent #2	Average	Effluent	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	(lbs)
1,1,1-Trichloroethane	220	210	215	0.0	0.0002	2.0145	0.0000	0.0000	0.1656
1,1-Dichloroethane	6.5	6.0	6.25	0.0	0.0000	0.0586	0.0000	0.0000	0.0048
1,1-Dichloroethene	0.0	0.0	0.0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
1,2-Dichloroethane	0.0	0.0	0.0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
cis-1,2-Dichloroethene	210	200	205	0.0	0.0002	1.9208	0.0000	0.0000	0.1579
Tetrachloroethene	760	720	740	0.0	0.0008	6.9337	0.0000	0.0000	0.5699
trans-1,2-Dichloroethene	4.2	5.0	4.6	0.0	0.0000	0.0431	0.0000	0.0000	0.0035
Trichloroethene	550	520	535	0.0	0.0006	5.0129	0.0000	0.0000	0.4120
Vinyl Chloride	0.0	0.0	0.0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
Total VOCs	1751	1661	1706	0.0	0.0018	15.9836	0.0000	0.0000	1.3137

Notes:

All samples were analyzed for site-specific VOCs by modified method TO-15.

Average Monthly Vapor Temp (ºF) =	107
Average Monthly Flowrate (cfm) =	307
Average Monthly Flowrate (scfm) =	286
Operational Hours for the month =	720

(1) Emissions (lbs/hr) = Concentration (ug/m^3)*(lb/454000000ug)*(0.3048^3m^3/ft^3)*exhaust flow (scfm)*(60min/hour)

(2) Emissions (lbs/yr) = Emissions (lbs/hour)*(8760hours/yr)

(3) Monthly Mass Removal = AVERAGE FLOWRATE (scfm) * 0.3048^3m^3/ft^3 * INF AVG CONC (ug/m^3) * (lb/454000000ug) * 60 min/hr * OPERATIONAL TIME (hr)

Table 2
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Vapor Monitoring Results
May 2022

Compound	Concentration (ug/m^3)				Emission Rate [1],[2]				Monthly Mass Recovery [3]
					Prior to Treatment		Following Treatment		
	Influent #1	Influent #2	Average	Effluent	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	(lbs)
1,1,1-Trichloroethane	200	210	205	0.0	0.0002	1.9148	0.0000	0.0000	0.1626
1,1-Dichloroethane	5.9	6.0	5.95	0.0	0.0000	0.0556	0.0000	0.0000	0.0047
1,1-Dichloroethene	0.0	0.0	0.0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
1,2-Dichloroethane	0.0	0.0	0.0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
cis-1,2-Dichloroethene	140	150	145	1.7 J	0.0002	1.3544	0.0000	0.0159	0.1150
Tetrachloroethene	550	570	560	12	0.0006	5.2308	0.0000	0.1121	0.4443
trans-1,2-Dichloroethene	3.2	3.4	3.3	0.0	0.0000	0.0308	0.0000	0.0000	0.0026
Trichloroethene	580	590	585	0.0	0.0006	5.4643	0.0000	0.0000	0.4641
Vinyl Chloride	0.0	0.0	0.0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
Total VOCs	1479	1529	1504	13.7	0.0016	14.0508	0.0000	0.1280	1.1934

Notes:

All samples were analyzed for site-specific VOCs by modified method TO-15.

Average Monthly Vapor Temp (ºF) =	108
Average Monthly Flowrate (cfm) =	307
Average Monthly Flowrate (scfm) =	285
Operational Hours for the month =	744

(1) Emissions (lbs/hr) = Concentration (ug/m^3)*(lb/454000000ug)*(0.3048^3m^3/ft^3)*exhaust flow (scfm)*(60min/hour)

(2) Emissions (lbs/yr) = Emissions (lbs/hour)*(8760hours/yr)

(3) Monthly Mass Removal = AVERAGE FLOWRATE (scfm) * 0.3048^3m^3/ft^3 * INF AVG CONC (ug/m^3) * (lb/454000000ug) * 60 min/hr * OPERATIONAL TIME (hr)

Table 3
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Vapor Monitoring Results
June 2022

Compound	Concentration (ug/m^3)				Emission Rate [1],[2]				Monthly Mass Recovery [3]
					Prior to Treatment		Following Treatment		
	Influent #1	Influent #2	Average	Effluent	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)	(lbs)
1,1,1-Trichloroethane	220	220	220	0.0	0.0002	2.0320	0.0000	0.0000	0.1652
1,1-Dichloroethane	6.0	6.5	6.25	0.0	0.0000	0.0577	0.0000	0.0000	0.0047
1,1-Dichloroethene	0.0	0.0	0.0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
1,2-Dichloroethane	0.0	0.0	0.0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
cis-1,2-Dichloroethene	150	160	155	3.2	0.0002	1.4316	0.0000	0.0296	0.1164
Tetrachloroethene	520	530	525	0.0	0.0006	4.8491	0.0000	0.0000	0.3941
trans-1,2-Dichloroethene	2.9	3.1	3	0.0	0.0000	0.0277	0.0000	0.0000	0.0023
Trichloroethene	710	700	705	0.0	0.0007	6.5116	0.0000	0.0000	0.5293
Vinyl Chloride	0.0	0.0	0.0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
Total VOCs	1609	1620	1614	3.2	0.0017	14.9097	0.0000	0.0296	1.2118

Notes:

All samples were analyzed for site-specific VOCs by modified method TO-15.

Average Monthly Vapor Temp (ºF) =	116
Average Monthly Flowrate (cfm) =	307
Average Monthly Flowrate (scfm) =	282
Operational Hours for the month =	712

(1) Emissions (lbs/hr) = Concentration (ug/m^3)*(lb/454000000ug)*(0.3048^3m^3/ft^3)*exhaust flow (scfm)*(60min/hour)

(2) Emissions (lbs/yr) = Emissions (lbs/hour)*(8760hours/yr)

(3) Monthly Mass Removal = AVERAGE FLOWRATE (scfm) * 0.3048^3m^3/ft^3 * INF AVG CONC (ug/m^3) * (lb/454000000ug) * 60 min/hr * OPERATIONAL TIME (hr)

Table 4
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Second Quarter 2022 Vapor Monitoring Results Summary of SVE Wells

Sample ID	SVE 101I	SVE 101D	SVE 102I	SVE 102D	SVE 103I	SVE 103D	SVE 104I	SVE 104D	SVE 105I	SVE 105D	SVE 106I	SVE 106D
Sample Date	**06/13/22**	**06/13/22**	**06/13/22**	**06/13/22**	**06/13/22**	**06/13/22**	**06/13/22**	**06/13/22**	**06/13/22**	**06/13/22**	**06/13/22**	**06/13/22**
Analysis by TO-15 (µg/m^3)												
1,1,1-Trichloroethane	1,800	3.1 J	2.1 J	1.2 J	3.4 J	6.7	3.5 J	550	6.0	5.2	6.1	2.0 J
1,1-Dichloroethane	31	1.0 J	ND	ND	ND	3.2	ND	30	ND	1.2 J	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	6.8 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	6.8	ND	1.3 J	2.3 J	62	9.3	1,800	ND	ND	5.9	ND
Tetrachloroethene	60	32	3.7 J	7.2	250	660	220	7,200	14	18	110	13
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	1.5 J	1.7 J	35	ND	ND	1.5 J	ND
Trichloroethene	5,800	250	34	45	26	31	18	760	12	12	70	13
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

All samples were analyzed for site-specific VOCs by modified method TO-15.

µg/m^3 = micrograms per cubic meter

ND = Not detected above method detection limit

Table 5
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Quarterly Vapor Monitoring Results of SVE Wells
Through Second Quarter 2022

Sample ID	SVE 101I																											
Sample Date	**12/21/09**	**03/31/10**	**06/09/10**	**09/16/10**	**12/08/10**	**03/30/11**	**06/28/11**	**09/06/11**	**10/14/11**	**02/10/12**	**05/11/12**	**09/11/12**	**12/05/12**	**01/15/13**	**05/16/13**	**08/27/13**	**11/08/13**	**01/30/14**	**04/10/14**	**07/29/14**	**10/02/14**	**01/12/15**	**05/07/15**	**08/12/15**	**10/29/15**	**01/13/16**
Analysis by TO-15 (µg/m^3)																												
1,1,1-Trichloroethane	51000	3900	2600	450	850	300	1	0.7 J	0.7 J	1500	1500	3200	4400	3400	1900	2200	2900	2600	1200	1600	2500	2000	720	520	2200	2700
1,1-Dichloroethane	1200	65	34	14	31	5	0.8 J	0.4 J	0.4 J	28	28	61	76	62	35	36	57	50	22	29	51	39	15	10	42	45
1,1-Dichloroethene	250	ND	ND	4	8	ND	0.7 J	0.4 J	0.5 J	7.6 J	10	ND	15 J	ND	12 J	8.9 J	16 J	11 J	7.9 J	6.2 J	21	11 J	ND	ND	ND	ND
1,2-Dichloroethane	NR	30	ND	4	8	ND	0.9	0.5 J	0.5 J	6.9 J	6.4 J	11 J	14 J	12 J	10 J	8.6 J	9.2 J	7.5 J	4.4 J	9.2 J	12 J	9.8 J	5.2 J	3.8	15	9.0 J
cis-1,2-Dichloroethene	480	59	ND	9	15	3	0.7 J	ND	0.4 J	7.1 J	7.4 J	20 J	22 J	14 J	6.2 J	11 J	22 J	12 J	4.2 J	8.8 J	24	9.4 J	4.6 J	3.8	9.2 J	6.0 J
Tetrachloroethene	1700	410	260	36	63	10	1	ND	2	48	46	93	120	80	49	79	100	80	34	67	83	54	31	31	74	83
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	0.7 J	0.4 J	0.4 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	180000	18000	14000	1200	2400	560	1	0.6 J	0.6 J	4200	4300	7200	12000	8100	5200	5400	8900	7100	3300	4400	6900	5300	2500	1600	7600	8200
Vinyl Chloride	ND	ND	ND	ND	ND	ND	0.5 J	0.3 J	0.3 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Sample Date	**04/21/16**	**09/13/16**	**11/16/16**	**01/17/17**	**04/26/17**	**08/15/17**	**12/11/17**	**02/06/18**	**05/03/18**	**08/02/18**	**11/05/18**	**02/05/19**	**05/02/19**	**08/12/19**	**12/20/19**	**02/27/20**	**05/07/20**	**08/12/20**	**11/06/20**	**03/05/21**	**05/14/21**	**08/26/21**	**11/17/21**	**03/04/22**	**06/13/22**
Analysis by TO-15 (µg/m^3)																									
1,1,1-Trichloroethane	3000	ND	ND	1100	1400	2700	4300	3600	950	1900	2500	1500	920	1400	2000	2000	1100	2000	1900	1700	1300	2000	2300	1400	1800
1,1-Dichloroethane	38	ND	ND	17	22	47	59	43	16	25	35	22	15	21	34	32	16	29	32	25	26	37	36	24	31
1,1-Dichloroethene	6.9 J	ND	ND	4.5 J	6.0 J	8.0 J	ND	8.2 J	ND	ND	ND	ND	ND	ND	10 J	8.0 J	4.7 J	3.8 J	ND	4.4 J	4.5 J	8.6 J	9.9 J	5.9 J	ND
1,2-Dichloroethane	ND	ND	ND	3.1 J	4.2 J	7.0 J	11 J	8.6 J	4.5 J	10.0 J	ND	6.9	7.0 J	5.6 J	7.3 J	8.0 J	4.3 J	8.0 J	7.4 J	6.1 J	3.3 J	6.8 J	7.0 J	ND	6.8 J
cis-1,2-Dichloroethene	ND	ND	ND	ND	4.0 J	7.0 J	7.0 J	6.6 J	3.2 J	7.0 J	ND	ND	5.0 J	5.1 J	4.4 J	ND	ND	ND	6.5 J	3.9 J	ND	6.9 J	ND	ND	ND
Tetrachloroethene	82	ND	ND	29	41	87	130	100	42	74	91	56	40	60	73	60	31	78	88	48	39	80	82	28	60
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	7100	ND	ND	3400	4100	7600	13000	11000	3600	5300	7500	5100	3600	4000	6100	6600	3300	6100	7400	4700	4200	6600	6900	3800	5800
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

µg/m^3= micrograms per cubic meter
NR = Not Recorded
NA = Data not available
ND = Not detected above method detection limit

Table 5
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Quarterly Vapor Monitoring Results of SVE Wells
Through Second Quarter 2022

Sample ID	SVE 101D																										
Sample Date	**12/21/09**	**03/31/10**	**06/09/10**	**09/16/10**	**12/22/10**	**03/30/11**	**06/28/11**	**09/06/11**	**10/14/11**	**02/10/12**	**05/11/12**	**09/11/12**	**12/05/12**	**01/15/13**	**05/16/13**	**08/27/13**	**11/08/13**	**01/30/14**	**04/10/14**	**07/29/14**	**10/02/14**	**01/12/15**	**05/07/15**	**08/12/15**	**10/29/15**	**01/13/16**
Analysis by TO-15 (µg/m^3)																											
1,1,1-Trichloroethane	26000	130	53	ND	ND	ND	3	8	0.8 J	ND	3.1 J	9.9	11	ND	ND	5.6	16	14	12	20	19	12	ND	22	22	27
1,1-Dichloroethane	660	3.9	ND	ND	ND	ND	2	0.9 J	0.5 J	ND	ND	1.0 J	1.1 J	1.1 J	ND	ND	1.5 J	1.4 J	1.2 J	0.89 J	1.4 J	ND	ND	2.5 J	2.8 J	2.3 J
1,1-Dichloroethene	180	2	ND	ND	ND	ND	ND	0.7 J	0.4 J	ND	ND	ND	ND	ND	ND	ND	1.0 J	0.75 J	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	NR	0.5	ND	ND	ND	ND	2	0.5 J	0.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	220	8.5	7.5	ND	3	ND	2	2	0.5 J	ND	ND	2.1 J	3.2	ND	ND	ND	3.0 J	4.5	3.5	1.5 J	4.1	2.3 J	ND	3.3	5.9	5.8
Tetrachloroethene	3200	1200	1200	ND	4	ND	26	210	2	ND	79	150	170	130	0.92 J	73	330	340	270	240	260	200	1.0 J	230	250	310
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	2	0.6 J	0.4 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	100000	1600	310	3	1	ND	3	120	1 J	ND	200	400	350	120	ND	56	540	680	330	180	410	190	1.7 J	450	1000	2200
Vinyl Chloride	ND	ND	ND	ND	ND	ND	1	0.4 J	0.3 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Sample Date	**04/21/16**	**09/13/16**	**11/16/16**	**01/17/17**	**04/26/17**	**08/15/17**	**12/11/17**	**02/06/18**	**05/03/18**	**08/02/18**	**11/05/18**	**02/05/19**	**05/02/19**	**08/12/19**	**12/20/19**	**02/27/20**	**05/07/20**	**08/12/20**	**11/06/20**	**03/05/21**	**05/14/21**	**08/26/21**	**11/17/21**	**03/04/22**	**06/13/22**
Analysis by TO-15 (µg/m^3)																									
1,1,1-Trichloroethane	22	ND	20	15	5.0	22	20	12	9.3	ND	9.8	5.9	2.1 J	14	22	6.8	7.8	3.0 J	3.5 J	3.2 J	2.2 J	4.0	3.4 J	7.2	3.1 J
1,1-Dichloroethane	1.7 J	ND	3.1	2.2 J	0.85 J	3.0 J	2.3 J	2.4 J	1.8 J	ND	0.88 J	0.72 J	ND	ND	4.9	0.83 J	0.72 J	ND	ND	ND	ND	0.66 J	ND	ND	1.0 J
1,1-Dichloroethene	ND	ND	0.76 J	0.80 J	ND	ND	ND	0.60 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	6.4	ND	31	21	3.9	14	12	19	4.4	ND	2.5 J	1.6 J	ND	ND	13	2.0 J	0.99 J	3.1 J	2.2 J	3.3	3.0	4.2	2.8	6.3	6.8
Tetrachloroethene	220	ND	300	240	66	250	190	220	190	ND	210	240	51	190	210	220	160	16	28	22	13	27	24	16	32
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	990	ND	970	760	260	1100	880	900	780	ND	700	270	50	190	240	190	210	180	290	240	180	210	200	240	250
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

µg/m^3= micrograms per cubic meter
NR = Not Recorded
NA = Data not available
ND = Not detected above method detection limit

Table 5
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Quarterly Vapor Monitoring Results of SVE Wells
Through Second Quarter 2022

Sample ID	SVE 102I																										
Sample Date	**12/21/09**	**03/31/10**	**06/09/10**	**09/16/10**	**12/22/10**	**03/30/11**	**06/28/11**	**09/06/11**	**10/14/11**	**02/10/12**	**05/11/12**	**09/11/12**	**12/05/12**	**01/15/13**	**05/16/13**	**08/27/13**	**11/08/13**	**02/05/14**	**04/10/14**	**07/29/14**	**10/02/14**	**01/12/15**	**05/07/15**	**08/12/15**	**10/29/15**	**01/13/16**
Analysis by TO-15 (µg/m^3)																											
1,1,1-Trichloroethane	ND	ND	13	3	ND	NA	2	3	2	ND	0.60 J	3.3 J	ND	ND	ND	1.6 J	ND	ND	0.95 J	10	4.0 J	0.82 J	1.6 J	12	2.8 J	0.87 J
1,1-Dichloroethane	ND	ND	ND	ND	ND	NA	0.8 J	0.5 J	0.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	NA	0.7 J	0.4 J	0.4 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	NR	ND	ND	ND	ND	NA	0.8	0.4 J	0.4 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	NA	0.7 J	0.5 J	0.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	2.4	1.4	17	6	NR	NA	3	6	6	ND	1.6 J	6.4	1.5 J	2.4 J	1.4 J	3.3 J	2.6 J	ND	ND	10	4.8 J	1.5 J	2.5 J	13	6.6	2.4 J
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	NA	0.7 J	0.4 J	0.4 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	5.6	3.8	300	88	3	NA	34	76	52	10	26	99	10	10	15	49	21	7.6	8.0	84	39	8.0	22	120	40	12
Vinyl Chloride	ND	ND	ND	ND	ND	NA	0.5 J	0.4 J	0.3 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Sample Date	**04/21/16**	**09/13/16**	**11/16/16**	**01/17/17**	**04/26/17**	**08/15/17**	**12/11/17**	**02/06/18**	**05/03/18**	**08/02/18**	**11/05/18**	**02/05/19**	**05/02/19**	**08/12/19**	**12/20/19**	**02/27/20**	**05/07/20**	**08/12/20**	**11/06/20**	**03/05/21**	**05/14/21**	**08/26/21**	**11/17/21**	**03/04/22**	**06/13/22**
Analysis by TO-15 (µg/m^3)																									
1,1,1-Trichloroethane	ND	1.3 J	1.2 J	0.54 J	ND	6.4	0.95 J	ND	ND	7.4	1.8 J	ND	ND	8.8	ND	ND	ND	7.7	1.0 J	ND	ND	4.0	ND	ND	2.1 J
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	2.9 J	3.2 J	1.6 J	1.4 J	7.8	2.7 J	1.4 J	1.8 J	8.1	3.4 J	1.5 J	3.8 J	11	ND	1.5 J	ND	9.6	3.8 J	ND	ND	6.8	ND	ND	3.7 J
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	21	24	8.4	12	74	15	7.9	14	72	24	7.8	15	100	0.75 J	10	11	71	20	2.4 J	4.1	62	5.6	4.5	34
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

µg/m^3= micrograms per cubic meter

NR = Not Recorded

NA = Data not available

ND = Not detected above method detection limit

Table 5
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Quarterly Vapor Monitoring Results of SVE Wells
Through Second Quarter 2022

Sample ID	SVE 102D																										
Sample Date	**12/21/09**	**03/31/10**	**06/09/10**	**09/16/10**	**12/08/10**	**03/30/11**	**06/28/11**	**09/06/11**	**10/14/11**	**02/10/12**	**05/11/12**	**09/11/12**	**12/05/12**	**01/15/13**	**05/16/13**	**08/27/13**	**11/08/13**	**01/30/14**	**04/24/14**	**07/29/14**	**10/02/14**	**01/12/15**	**05/07/15**	**08/12/15**	**10/29/15**	**01/13/16**
Analysis by TO-15 (µg/m^3)																											
1,1,1-Trichloroethane	130	53	14	7	2	2	6	4	5	1.4 J	1.2 J	3.9 J	ND	ND	ND	2.3 J	3.1 J	ND	1.6 J	4.5	5.1	2.6 J	ND	5.2	4.9	3.5 J
1,1-Dichloroethane	ND	2.7	ND	ND	ND	ND	1	0.6 J	0.7 J	ND	ND	0.51 J	0.95 J	ND	ND	ND	0.69 J	ND	0.44 J	ND	ND	ND	ND	ND	1.0 J	0.81 J
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	1	0.6 J	0.6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	NR	ND	ND	ND	ND	ND	0.9	0.5 J	0.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.38 J	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	1.4	ND	ND	0.9	ND	1	0.5 J	0.9	ND	ND	1.1 J	4.1	ND	ND	ND	3.4	ND	2.8 J	0.89 J	3.6	1.6 J	ND	4.2	9.3	8.9
Tetrachloroethene	10	31	31	19	3	9	25	23	39	5.9	6.5	24	25	0.96 J	1.4 J	14	28	2.6 J	9.6	16	20	11	3.8 J	22	41	42
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	1	0.5 J	0.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	440	390	190	110	17	21	89	81	87	34	58	170	140	6.5	ND	88	160	3.9 J	39	79	92	36	20	160	180	120
Vinyl Chloride	ND	ND	ND	ND	ND	ND	0.6	0.4 J	0.3 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Sample Date	**04/21/16**	**09/13/16**	**11/16/16**	**01/17/17**	**04/26/17**	**08/15/17**	**12/11/17**	**02/06/18**	**05/03/18**	**08/02/18**	**11/05/18**	**02/05/19**	**05/02/19**	**08/12/19**	**12/20/19**	**02/27/20**	**05/07/20**	**08/12/20**	**11/06/20**	**03/05/21**	**05/14/21**	**08/26/21**	**11/17/21**	**03/04/22**	**06/13/22**
Analysis by TO-15 (µg/m^3)																									
1,1,1-Trichloroethane	1.1 J	6.6	3.8 J	2.7 J	1.8 J	3.6 J	1.8 J	1.8 J	ND	2.4 J	2.2 J	1.2 J	ND	3.0 J	1.1 J	1.0 J	ND	3.6 J	1.9 J	0.85 J	ND	2.0 J	1.3 J	ND	1.2 J
1,1-Dichloroethane	ND	0.93 J	0.95 J	0.8 J	0.50 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	0.75 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	4.4	13	10	5.2	2.6 J	2.2 J	1.3 J	1.8 J	ND	0.86 J	ND	2.3 J	ND	ND	0.92 J	ND	ND	3.0 J	2.1 J	ND	ND	0.77 J	ND	2.4 J	1.3 J
Tetrachloroethene	18	51	37	26	15	17	15	18	6.2	12	13	9.4	2.3 J	13	8.7	7	3.9 J	18	16	5.1	4.3 J	11	11	6.4	7.2
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	38	150	74	44	48	80	43	61	15	50	54	22	19	79	36	28	17	150	80	12	22	75	36	28	45
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

µg/m^3= micrograms per cubic meter

NR = Not Recorded

NA = Data not available

ND = Not detected above method detection limit

Table 5
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Quarterly Vapor Monitoring Results of SVE Wells
Through Second Quarter 2022

Sample ID	SVE 103I																										
Sample Date	**12/21/09**	**03/31/10**	**06/09/10**	**09/16/10**	**12/08/10**	**03/30/11**	**06/28/11**	**09/06/11**	**10/14/11**	**02/10/12**	**05/11/12**	**09/11/12**	**12/05/12**	**01/15/13**	**05/16/13**	**08/27/13**	**11/08/13**	**01/30/14**	**04/10/14**	**07/29/14**	**10/02/14**	**01/12/15**	**05/07/15**	**08/12/15**	**10/29/15**	**01/13/16**
Analysis by TO-15 (µg/m^3)																											
1,1,1-Trichloroethane	900	ND	ND	ND	ND	ND	0.9 J	6	6	ND	1.6 J	9.2	ND	ND	1.4 J	4.7 J	2.8 J	0.92 J	ND	4.6	4.9	ND	1.3 J	6.6	3.6 J	1.2 J
1,1-Dichloroethane	26	ND	ND	ND	ND	ND	0.6 J	2	2	ND	0.75 J	1.5 J	0.77 J	ND	ND	1.5 J	1.3 J	ND	ND	0.89 J	2.0 J	ND	0.68 J	ND	1.4 J	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	0.6 J	0.6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	NR	ND	ND	ND	ND	ND	0.7 J	0.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	58	ND	ND	1	ND	1	0.5 J	16	12	18	16	19	6.0	2.4 J	5.0	11	15	6.9	3.4	4.2	6.1	ND	11	9.3	7.3	13
Tetrachloroethene	580	ND	ND	ND	ND	2	1 J	420	590	140	200	430	120	40	78	220	200	97	40	150	130	8.6	130	290	210	450
trans-1,2-Dichloroethene	580	ND	ND	ND	ND	ND	0.6 J	1	1	ND	ND	ND	ND	ND	ND	ND	0.85 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	900	0.9	ND	ND	ND	ND	0.9 J	100	97	29	47	130	48	16	35	95	78	46	20	47	50	4.9 J	37	92	74	70
Vinyl Chloride	ND	ND	ND	ND	ND	ND	0.4 J	0.4 J	0.3 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Sample Date	**04/21/16**	**09/13/16**	**11/16/16**	**01/17/17**	**04/26/17**	**08/15/17**	**12/11/17**	**02/06/18**	**05/03/18**	**08/02/18**	**11/05/18**	**02/05/19**	**05/02/19**	**08/12/19**	**12/20/19**	**02/27/20**	**05/07/20**	**08/12/20**	**11/06/20**	**03/05/21**	**05/14/21**	**08/26/21**	**11/17/21**	**03/04/22**	**06/13/22**
Analysis by TO-15 (µg/m^3)																									
1,1,1-Trichloroethane	0.76 J	6.0	2.2 J	0.73 J	ND	6.0	0.94 J	0.77 J	ND	5.8	2.4 J	1.0 J	ND	11	5.1	ND	4.8	6.7	5.9	2.3 J	1.5 J	12	8.6	3.8	3.4 J
1,1-Dichloroethane	ND	1.9 J	1.1 J	ND	ND	1.8 J	ND	ND	ND	1.5 J	ND	ND	1.0 J	1.8 J	2.7 J	ND	0.67 J	ND	ND	ND	ND	1.3 J	1.0 J	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	2.7 J	5.2	2.2 J	1.8 J	1.3 J	5.8	0.75 J	1.4 J	1.6 J	3.4	2.9	3.4	2.3 J	5.6	8.6	1.8 J	3.2	1.7 J	1.2 J	ND	1.1 J	18	8.2	31	2.3 J
Tetrachloroethene	71	200	99	70	36	180	56	56	70	200	120	150	69	510	190	100	1200	190	200	140	88	1400	930	320	250
trans-1,2-Dichloroethene	ND	1.3 J	ND	ND	ND	ND	ND	ND	ND	1.2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	17	67	34	20	9.9	63	21	19	17	54	36	24	18	90	89	23	29	33	38	16	10	77	66	26	26
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

µg/m^3= micrograms per cubic meter

NR = Not Recorded

NA = Data not available

ND = Not detected above method detection limit

Table 5
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Quarterly Vapor Monitoring Results of SVE Wells
Through Second Quarter 2022

Sample ID	SVE 103D																										
Sample Date	**12/21/09**	**03/31/10**	**06/09/10**	**09/16/10**	**12/08/10**	**03/30/11**	**06/28/11**	**09/06/11**	**10/14/11**	**02/10/12**	**05/11/12**	**09/11/12**	**12/05/12**	**01/15/13**	**05/16/13**	**08/27/13**	**11/08/13**	**01/30/14**	**04/10/14**	**07/29/14**	**10/02/14**	**01/12/15**	**05/07/15**	**08/12/15**	**10/29/15**	**01/13/16**
Analysis by TO-15 (µg/m^3)																											
1,1,1-Trichloroethane	3000	1100	230	ND	13	ND	2 J	20	31	7.4 J	6.9 J	22	190	ND	150	170	200	550	400	25	38	ND	310	26	30 J	ND
1,1-Dichloroethane	82	69	ND	ND	2	2	1 J	4	9	1.6 J	1.5 J	1.9 J	10 J	ND	10	10 J	20 J	50	48	ND	7.8 J	ND	24	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	1 J	2	6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	NR	ND	ND	ND	ND	ND	1 J	1 J	6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	420	1500	370	ND	92	ND	1 J	360	160	290	230	300	750	ND	550	700	2600	2100	1800	280	490	ND	930	310	530	ND
Tetrachloroethene	20000	28000	16000	9	1500	ND	3	1600	6700	3800	3200	4700	4600	1.6 J	3300	4900	17000	15000	8600	6600	8900	ND	5800	8900	17000	ND
trans-1,2-Dichloroethene	ND	24	ND	ND	1	ND	1 J	3	7 J	ND	ND	ND	8.8 J	ND	5.7 J	8.8 J	18 J	32	18	ND	ND	ND	17	ND	ND	ND
Trichloroethene	3100	1600	640	7	92	ND	2 J	290	240	180	200	480	440	6.0	360	660	2100	1400	900	530	680	ND	580	640	1200	ND
Vinyl Chloride	ND	5.9	ND	ND	2	ND	0.8 J	4	5 J	ND	ND	ND	ND	ND	1.9 J	ND	14 J	ND	2.6 J	ND	ND	ND	ND	ND	ND	ND

Sample Date	**04/21/16**	**09/13/16**	**11/16/16**	**01/17/17**	**04/26/17**	**08/15/17**	**12/11/17**	**02/06/18**	**05/03/18**	**08/02/18**	**11/05/18**	**02/05/19**	**05/02/19**	**08/12/19**	**12/20/19**	**02/27/20**	**05/07/20**	**08/12/20**	**11/06/20**	**03/05/21**	**05/14/21**	**08/26/21**	**11/17/21**	**03/04/22**	**06/13/22**
Analysis by TO-15 (µg/m^3)																									
1,1,1-Trichloroethane	38	ND	16 J	11 J	23 J	22	8.2 J	63	47	35	33 J	18 J	19	48	48	150	170	29	15	8.8	5.9	110	83	370	6.7
1,1-Dichloroethane	ND	ND	6.2 J	ND	4.3 J	ND	ND	4.5 J	ND	ND	ND	ND	2.7 J	ND	12 J	14 J	15 J	5	4.1	2.7 J	2.5 J	10	9.4	25	3.2
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2 J	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	310	ND	340	210	250	180	130	320	210	190	340	200	160	140	330	310	400	120	9.1	10	16	420	380	1700	62
Tetrachloroethene	7500	ND	12000	13000	7500	6800	9200	8000	7700	6900	12000	8000	4400	8400	9000	22000	15000	680	530	530	460	2500	2500	3700	660
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	7.8	30	1.5 J
Trichloroethene	300	ND	730	620	320	440	420	380	340	340	460	260	180	380	560	420	410	57	65	38	40	200	190	540	31
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

µg/m^3= micrograms per cubic meter

NR = Not Recorded

NA = Data not available

ND = Not detected above method detection limit

Table 5
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Quarterly Vapor Monitoring Results of SVE Wells
Through Second Quarter 2022

Sample ID	SVE 104I																										
Sample Date	**12/21/09**	**03/31/10**	**06/09/10**	**09/16/10**	**12/08/10**	**03/30/11**	**06/28/11**	**09/06/11**	**10/14/11**	**02/10/12**	**05/11/12**	**09/11/12**	**12/05/12**	**01/15/13**	**05/16/13**	**08/27/13**	**11/08/13**	**01/30/14**	**04/24/14**	**07/29/14**	**10/02/14**	**01/12/15**	**05/07/15**	**08/12/15**	**10/29/15**	**01/13/16**
Analysis by TO-15 (µg/m^3)																											
1,1,1-Trichloroethane	730	4.2	ND	4	NR	NA	1 J	4	2	ND	ND	8.3	ND	ND	ND	3.1 J	2.6 J	ND	9.6	17	15	7.0	1.5 J	8.3	4.0 J	4.6
1,1-Dichloroethane	24	0.54	ND	ND	ND	NA	1 J	0.6 J	0.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.4	8.7	7.7	6.6	ND	ND	ND	2.9 J
1,1-Dichloroethene	ND	ND	ND	ND	ND	NA	1 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	NR	ND	ND	ND	ND	NA	1 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	110	14	ND	2	0.8	NA	0.9 J	2	3	0.90 J	ND	5.0	ND	2.7 J	ND	3.3	5.3	ND	94	160	160	130	7.3	4.2	6.6	54
Tetrachloroethene	3100	210	68	96	16	NA	2 J	54	33	12	ND	86	1.6 J	4.8 J	2.3 J	30	36	ND	69	210	190	91	13	82	66	79
trans-1,2-Dichloroethene	15	ND	ND	ND	ND	NA	1 J	0.5 J	0.4 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.8 J	2.1 J	1.4 J	ND	ND	ND	ND
Trichloroethene	710	44	60	72	12	NA	2 J	44	25	9.6	ND	73	ND	3.1 J	ND	30	31	ND	39	110	120	43	17	85	54	35
Vinyl Chloride	ND	0.47	ND	ND	ND	NA	0.7 J	0.3 J	0.3 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Sample Date	**04/21/16**	**09/13/16**	**11/16/16**	**01/17/17**	**04/26/17**	**08/15/17**	**12/11/17**	**02/06/18**	**05/03/18**	**08/02/18**	**11/05/18**	**02/05/19**	**05/02/19**	**08/12/19**	**12/20/19**	**02/27/20**	**05/07/20**	**08/12/20**	**11/06/20**	**03/05/21**	**05/14/21**	**08/26/21**	**11/17/21**	**03/04/22**	**06/13/22**
Analysis by TO-15 (µg/m^3)																									
1,1,1-Trichloroethane	0.48 J	6.9	6.5	ND	1.2 J	7.8	1.7 J	1.3 J	1.4 J	9.1	3.1 J	1.7 J	1.9 J	14	1.2 J	1.3 J	1.8 J	68	25	11	5.3	11	6.6	2.2 J	3.5 J
1,1-Dichloroethane	ND	ND	3.6	ND	ND	1.3 J	ND	ND	ND	1.4 J	ND	ND	ND	ND	ND	ND	ND	6.4 J	ND	ND	ND	0.90 J	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	0.92 J	2.1 J	110	ND	4.1	31	6.7	4.6	12	27	20	18	17	28	13	7.4	1.8 J	18	10	20	8.0	26	17	2.8	9.3
Tetrachloroethene	10	80	530	0.68 J	21	190	90	20	34	96	76	46	34	130	20	21	11	3900	3900	1400	320	300	230	34	220
trans-1,2-Dichloroethene	ND	ND	1.2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.7 J
Trichloroethene	7.6	83	110	ND	15	87	22	11	15	63	33	14	24	73	13	10	9.3	170	150	42	17	40	30	9.5	18
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

µg/m^3= micrograms per cubic meter

NR = Not Recorded

NA = Data not available

ND = Not detected above method detection limit

Table 5
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Quarterly Vapor Monitoring Results of SVE Wells
Through Second Quarter 2022

Sample ID	SVE 104D																										
Sample Date	**12/21/09**	**03/31/10**	**06/09/10**	**09/16/10**	**12/22/10**	**03/30/11**	**06/28/11**	**09/06/11**	**10/14/11**	**02/10/12**	**05/11/12**	**09/11/12**	**12/05/12**	**01/15/13**	**05/16/13**	**08/27/13**	**11/08/13**	**01/30/14**	**04/10/14**	**07/29/14**	**10/02/14**	**01/12/15**	**05/07/15**	**08/12/15**	**10/29/15**	**01/13/16**
Analysis by TO-15 (µg/m^3)																											
1,1,1-Trichloroethane	3600	3000	860	ND	270	ND	370	620	440	520	580	620	920	820	0.89 J	500	600	340	84	930	880	1.7 J	350	480	790	760
1,1-Dichloroethane	290	350	140	ND	66	ND	56	110	77	87	95	100	190	160	ND	95	130	56	22	120	130	ND	72	77	120	91
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	3	7 J	7 J	3.0 J	5.0 J	ND	11 J	ND	ND	ND	ND	4.3 J	1.0 J	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	NR	ND	ND	ND	ND	ND	1 J	5 J	5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	2400	6600	3500	ND	1200	ND	1000	3600	2100	2200	2800 J	2200	4200	3700	8.6	2000	3200	1600	460	3300	4400	21	1500	2500	3600	3200
Tetrachloroethene	20000	39000	21000	ND	2400	ND	1400	5800	6300	3800	4300	4600	4500	4200	69	2600	3900	2500	780	8200	8000	120	2200	5100	10000	7700
trans-1,2-Dichloroethene	130	70	30	ND	13	ND	14	25	22	26	31	27	55	40	ND	24	40	15	3.5	34	53	ND	18	39	49	38
Trichloroethene	4600	6000	2400	ND	470	ND	420	1600	1300	1400	1400	1700	2300	2100	14	1200	1600	1100	430	2000	2100	19	1100	1200	2200	1600
Vinyl Chloride	ND	12	ND	ND	ND	ND	2	5	5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Sample Date	**04/21/16**	**09/13/16**	**11/16/16**	**01/17/17**	**04/26/17**	**08/15/17**	**12/11/17**	**02/06/18**	**05/03/18**	**08/02/18**	**11/05/18**	**02/05/19**	**05/02/19**	**08/12/19**	**12/20/19**	**02/27/20**	**05/07/20**	**08/12/20**	**11/06/20**	**03/05/21**	**05/14/21**	**08/26/21**	**11/17/21**	**03/04/22**	**06/13/22**
Analysis by TO-15 (µg/m^3)																									
1,1,1-Trichloroethane	460	460	710	88	260	390	290	440	520	510	100	480	410	460	360	320	270	630	510	750	460	800	800	280	550
1,1-Dichloroethane	54	73	110	11	31	60	44	67	57	59	15	54	50	47	73	37	18	76	41	36	34	40	39	16	30
1,1-Dichloroethene	ND	ND	7.6 J	1.2 J	2.9 J	3.0 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.2 J	ND	5.8 J	ND	ND	ND	5.7 J	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	1900	2400	3800	400	1000	2200	1600	2500	2200	2300	700	2500	1900	1800	3000	1600	830	3400	2400	2300	2200	2400	2400	700	1800
Tetrachloroethene	4500	9400	15000	1400	3000	5900	7600	6000	6500	6800	1500	6500	4400	4800	3200	3600	2000	8800	8700	7700	4800	7400	8900	3600	7200
trans-1,2-Dichloroethene	30	38	67	6.5	16	30	22	37	39	37	9.3	43	36	30	45	27	20	36	38	50	33	51	50	13	35
Trichloroethene	750	1400	2200	290	600	980	860	1100	870	870	210	790	740	780	690	600	370	1000	1100	1000	770	1200	1200	400	760
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

µg/m^3= micrograms per cubic meter

NR = Not Recorded

NA = Data not available

ND = Not detected above method detection limit

Table 5
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Quarterly Vapor Monitoring Results of SVE Wells
Through Second Quarter 2022

Sample ID	SVE 105I																											
Sample Date	**12/21/09**	**03/31/10**	**06/09/10**	**09/16/10**	**12/08/10**	**03/30/11**	**06/28/11**	**09/06/11**	**10/14/11**	**02/10/12**	**05/11/12**	**09/11/12**	**12/05/12**	**01/15/13**	**05/16/13**	**08/27/13**	**11/08/13**	**01/30/14**	**04/10/14**	**07/29/14**	**10/02/14**	**01/12/15**	**05/07/15**	**08/12/15**	**10/29/15**	**01/13/16**
Analysis by TO-15 (µg/m^3)																										
1,1,1-Trichloroethane	9.9	11	29	ND	24	1	1 J	21	31	11	13	26	22	22	11	24	18	32	26	17	20	20	25	29	30	12
1,1-Dichloroethane	ND	5.7	13	ND	6	ND	0.6 J	5	7	4.2	5.6	5.6	10	12	8.8	8.0	7.4	24	6.8	7.0	8.2	8.6	22	15	28	17
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	0.6 J	0.6 J	0.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	NR	ND	ND	ND	ND	ND	0.7 J	0.6 J	0.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	6.6	20	ND	ND	ND	1	10	16	8.1	9.7	13	16	13	14	14	7.4	17	6.2	9.5	12	7.5	31	28	23	17
Tetrachloroethene	70	9.1	240	ND	55	5	2	95	100	31	43	100	77	66	38	91	57	77	48	73	85	51	43	87	66	44
trans-1,2-Dichloroethene	ND	ND	1.6	ND	ND	ND	0.5 J	1	1	ND	ND	1.5 J	ND	ND	ND	ND	1.0 J	1.6 J	ND	ND	2.8 J	ND	ND	ND	2.3 J	ND
Trichloroethene	76	6.3	370	ND	120	7	1	170	200	110	140	260	180	160	94	220	140	180	190	140	200	130	160	290	240	84
Vinyl Chloride	ND	ND	ND	ND	ND	ND	0.4 J	0.4 J	0.3 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Sample Date	**04/21/16**	**09/13/16**	**11/16/16**	**01/17/17**	**04/26/17**	**08/15/17**	**12/11/17**	**02/06/18**	**05/03/18**	**08/02/18**	**11/05/18**	**02/05/19**	**05/02/19**	**08/12/19**	**12/20/19**	**02/27/20**	**05/07/20**	**08/12/20**	**11/06/20**	**03/05/21**	**05/14/21**	**08/26/21**	**11/17/21**	**03/04/22**	**06/13/22**
Analysis by TO-15 (µg/m^3)																									
1,1,1-Trichloroethane	5.0	16	11	5.6	4.8	13	5.6	4.9	3.5 J	8.7	10	4.6	3.3 J	21	4.8	2.3 J	88	40	15	3.4 J	4.1	14	11	4.2	6.0
1,1-Dichloroethane	1.5 J	2.8	3.4	2.2 J	2.7 J	2.1 J	0.98 J	3.5	0.99 J	1.2 J	1.6 J	1.3 J	4.8	3.4	1.8 J	0.86 J	ND	9.9	2.3 J	0.79 J	0.54 J	1.4 J	1.1 J	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	1.8 J	7.9	5.0	2.6 J	4.2	5.1	1.9 J	5.0	2.5 J	1.9 J	3.7	2.1 J	7.5	6.2	3.2	ND	ND	0.98 J	ND	ND	ND	0.55 J	ND	ND	ND
Tetrachloroethene	27	64	46	26	17	50	27	21	17	23	46	20	13	38	15	11	9.3	41	34	10	15	30	28	11	14
trans-1,2-Dichloroethene	ND	0.83 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	39	250	160	50	38	140	58	40	30	60	110	36	32	130	41	17	18	67	38	9.8	12	32	30	9.6	12
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

µg/m^3= micrograms per cubic meter

NR = Not Recorded

NA = Data not available

ND = Not detected above method detection limit

Table 5
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Quarterly Vapor Monitoring Results of SVE Wells
Through Second Quarter 2022

Sample ID	SVE 105D																										
Sample Date	**12/21/09**	**03/31/10**	**06/09/10**	**09/16/10**	**12/08/10**	**03/30/11**	**06/28/11**	**09/06/11**	**12/02/11**	**02/10/12**	**05/11/12**	**09/11/12**	**12/05/12**	**01/15/13**	**05/16/13**	**08/27/13**	**11/08/13**	**01/30/14**	**04/10/14**	**07/29/14**	**10/02/14**	**01/12/15**	**05/07/15**	**08/12/15**	**10/29/15**	**01/13/16**
Analysis by TO-15 (µg/m^3)																											
1,1,1-Trichloroethane	550	47	320	1000	590	ND	1 J	490	930	350	320	270	380	430	160	110	120	190	ND	92	79	4.3 J	16	35	52	62
1,1-Dichloroethane	300	28	270	250	ND	ND	0.6 J	74	150	69	78	72	110	110	46	45	70	46	ND	36	28	ND	4.7	12	30	21
1,1-Dichloroethene	3.9	ND	ND	2	4	4	0.6 J	6 J	ND	ND	ND	ND	ND	ND	ND	ND	1.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	NR	ND	ND	ND	ND	ND	4	5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	61	36	85	300	ND	ND	0.7 J	150	380	190	220	150	210	200	73	76	85	46	ND	50	36	ND	3.6	16	22	18
Tetrachloroethene	2100	1.1	650	270	420	ND	2	240	330	140	220	270	350	330	100	140	260	300	ND	140	120	2.1 J	18	76	130	140
trans-1,2-Dichloroethene	19	1.1	3.1	3	ND	ND	0.6 J	7 J	3 J	ND	ND	ND	ND	ND	1.4 J	2.4 J	3.6	1.3 J	ND	1.3 J	1.9 J	ND	ND	ND	ND	ND
Trichloroethene	1700	68	200	1100	1400	1	2	3000	7000	3600	4500	2200	3800	3800	1400	900	1200	1900	8.5	650	520	15	75	250	400	410
Vinyl Chloride	ND	ND	ND	ND	ND	ND	0.4 J	4 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Sample Date	**04/21/16**	**09/13/16**	**11/16/16**	**01/17/17**	**04/26/17**	**08/15/17**	**12/11/17**	**02/06/18**	**05/03/18**	**08/02/18**	**11/05/18**	**02/05/19**	**05/02/19**	**08/12/19**	**12/20/19**	**02/27/20**	**05/07/20**	**08/12/20**	**11/06/20**	**03/05/21**	**05/14/21**	**08/26/21**	**11/17/21**	**03/04/22**	**06/13/22**
Analysis by TO-15 (µg/m^3)																									
1,1,1-Trichloroethane	68	47	29	23	38	33	24	28	13	ND	27	61	75	54	66	26	15	200	52	11	8.3	10	9.0	2.2 J	5.2
1,1-Dichloroethane	15	22	23	19	21	12	14	12	12	ND	14	16	22	20	25	13	3.7	79	20	8.4	4.9	3.8	3.0	ND	1.2 J
1,1-Dichloroethene	ND	ND	ND	ND	ND	2.7 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.1 J	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	26	31	19	19	32	20	13	17	22	ND	18	24	32	36	27	26	4.1	9.3	7.2	3.8	2.5 J	1.5 J	ND	ND	ND
Tetrachloroethene	130	150	110	69	70	120	130	97	48	ND	140	140	85	78	100	94	39	31	45	20	18	25	33	20	18
trans-1,2-Dichloroethene	ND	1.8 J	2.0 J	1.2 J	1.6 J	ND	ND	ND	ND	ND	0.88 J	0.92 J	ND	ND	1.7 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	350	360	210	140	200	310	170	160	57	ND	140	170	220	190	180	110	83	470	210	48	29	31	37	11	12
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

µg/m^3= micrograms per cubic meter

NR = Not Recorded

NA = Data not available

ND = Not detected above method detection limit

Table 5
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Quarterly Vapor Monitoring Results of SVE Wells
Through Second Quarter 2022

Sample ID	SVE 106I																										
Sample Date	**12/21/09**	**03/31/10**	**06/09/10**	**09/16/10**	**12/08/10**	**03/30/11**	**06/28/11**	**09/06/11**	**10/14/11**	**02/10/12**	**05/11/12**	**09/11/12**	**12/05/12**	**01/15/13**	**05/16/13**	**08/27/13**	**11/08/13**	**01/30/14**	**04/10/14**	**07/29/14**	**10/02/14**	**01/12/15**	**05/07/15**	**08/12/15**	**10/29/15**	**01/13/16**
Analysis by TO-15 (µg/m^3)																											
1,1,1-Trichloroethane	220	8.6	ND	4	ND	NA	6	3	7	1.0 J	2.2 J	11	ND	ND	ND	ND	18	1.4 J	3.8 J	8.9	2.2 J	ND	8.0	29	30	2.8 J
1,1-Dichloroethane	120	ND	ND	1	ND	NA	1	0.5 J	1	0.62 J	0.70 J	1.6 J	2.5 J	1.9 J	ND	ND	3.8	ND	17	3.9	1.1 J	ND	18	2.6 J	3.4	1.2 J
1,1-Dichloroethene	ND	ND	ND	ND	ND	NA	0.6 J	2	0.6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	NR	ND	ND	0.8	ND	NA	0.6 J	0.5 J	0.6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3 J	ND	ND	ND
cis-1,2-Dichloroethene	46	ND	ND	4	ND	NA	6	0.5 J	4	1.6 J	2.3 J	7.5	5.4	3.7	ND	ND	8.3	ND	23	11	3.1 J	ND	23	6.6	4.9	3.2
Tetrachloroethene	390	35	ND	15	ND	NA	15	7	19	4.3 J	7.2	27	14	7.0	0.73 J	ND	19	4.2 J	6.2	11	2.9 J	ND	14	39	49	11
trans-1,2-Dichloroethene	7.9	ND	3.1	0.9	ND	NA	0.8	0.5 J	0.7 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	1900	41	ND	140	10	NA	210	92	190	69	110	260	180	110	5.5	ND	210	28	70	110	16	0.87 J	130	560	660	200
Vinyl Chloride	ND	ND	ND	0.5	ND	NA	0.4 J	0.3 J	0.4 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Sample Date	**04/21/16**	**09/13/16**	**11/16/16**	**01/17/17**	**04/26/17**	**08/15/17**	**12/11/17**	**02/06/18**	**05/03/18**	**08/02/18**	**11/05/18**	**02/05/19**	**05/02/19**	**08/12/19**	**12/20/19**	**02/27/20**	**05/07/20**	**08/12/20**	**11/06/20**	**03/05/21**	**05/14/21**	**08/26/21**	**11/17/21**	**03/04/22**	**06/13/22**
Analysis by TO-15 (µg/m^3)																									
1,1,1-Trichloroethane	1.5 J	12	7.5	5.5	2.0 J	11	4.8	0.91 J	2.0 J	8.8	4.2	0.78 J	1.9 J	14	34	880	7.0 J	27	11	2.5 J	4.0	16	2.7 J	ND	6.1
1,1-Dichloroethane	ND	ND	1.3 J	2.4 J	0.56 J	5.4	1.9 J	ND	1.6 J	0.69 J	ND	1.2 J	ND	ND	5.6	260	ND	3.2 J	0.96 J	ND	ND	1.0 J	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	55	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	0.84 J	3.8	3.1 J	3.2	1.5 J	14	3.9	0.57 J	2.2 J	1.7 J	1.5 J	3.4	1.8 J	1.4 J	5.8	6600	41	86	23	7	11	21	2.8	ND	5.9
Tetrachloroethene	5.1 J	20	6.7	4.9	3.9 J	16	8.3	2.5 J	4.5 J	12	9.9	3.1 J	3.1 J	20	20	96000	5500	1400	480	100	150	380	61	ND	110
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	33 J	ND	ND	ND	ND	ND	ND	3.4	ND	1.5 J
Trichloroethene	40	190	71	53	59	170	83	39	45	88	79	43	44	150	100	9300	180	310	160	45	62	180	33	ND	70
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

µg/m^3= micrograms per cubic meter

NR = Not Recorded

NA = Data not available

ND = Not detected above method detection limit

Table 5
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Quarterly Vapor Monitoring Results of SVE Wells
Through Second Quarter 2022

Sample ID	SVE 106D																										
Sample Date	**12/21/09**	**03/31/10**	**06/09/10**	**09/16/10**	**12/08/10**	**03/30/11**	**06/28/11**	**09/06/11**	**10/14/11**	**02/10/12**	**05/11/12**	**09/11/12**	**12/05/12**	**01/15/13**	**05/16/13**	**08/27/13**	**11/08/13**	**01/30/14**	**04/10/14**	**07/29/14**	**10/02/14**	**01/12/15**	**05/07/15**	**08/12/15**	**10/29/15**	**01/13/16**
Analysis by TO-15 (µg/m^3)																											
1,1,1-Trichloroethane	340	32	30	20	12	9	20	23	29	ND	11	26	18	ND	ND	27	25	5.8	6.3	14	28	ND	26	ND	ND	11
1,1-Dichloroethane	250	6.3	ND	5	2	5	4	3	3	ND	3.0	4.3	5.8	ND	ND	4.9	11	3.7	3.3	5.1	8.9	ND	2.6 J	ND	ND	2.7 J
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	0.5 J	0.7 J	0.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	NR	ND	ND	ND	ND	ND	ND	0.6 J	0.7 J	ND	ND	ND	ND	ND	ND	ND	2.5 J	ND	ND	ND	1.1 J	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	79	13	11	13	2	11	11	5	4	ND	4.1	7.1	8.2	ND	ND	10	15	2.8 J	3.9	8.4	15	ND	36	ND	ND	3.2
Tetrachloroethene	720	65	70	ND	13	19	41	8	66	ND	28	62	48	ND	1.3 J	50	58	16	17	22	60	ND	110	ND	1.4 J	33
trans-1,2-Dichloroethene	15	ND	ND	ND	ND	ND	0.6 J	0.8	0.9	ND	ND	ND	ND	ND	ND	ND	1.1 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	3400	600	900	230	130	170	210	260	320	ND	180	380	300	ND	ND	460	440	160	84	170	370	0.56 J	71	1.6 J	ND	280
Vinyl Chloride	ND	1.6	ND	ND	ND	ND	ND	0.4 J	0.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Sample Date	**04/21/16**	**09/13/16**	**11/16/16**	**01/17/17**	**04/26/17**	**08/15/17**	**12/11/17**	**02/06/18**	**05/03/18**	**08/02/18**	**11/05/18**	**02/05/19**	**05/02/19**	**08/12/19**	**12/20/19**	**02/27/20**	**05/07/20**	**08/12/20**	**11/06/20**	**03/05/21**	**05/14/21**	**08/26/21**	**11/17/21**	**03/04/22**	**06/13/22**
Analysis by TO-15 (µg/m^3)																									
1,1,1-Trichloroethane	7.2	30	14	10	7.6	18	8.3	4.6	2.2 J	14	12	10	8.0	30	250	500	46	7.5	3.0 J	0.92 J	1.2 J	5.2	4.1 J	0.94 J	2.0 J
1,1-Dichloroethane	13	6.8	21	17	2.6 J	11	7.1	1.6 J	2.8 J	6.1	7.9	7.3	2.2 J	2.5 J	36	260	12 J	ND	0.73 J	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	25 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	24	14	22	20	5.6	24	13	5.0	4.6	16	21	22	7.5	16	15	3700	240	1.3 J	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	27	57	33	24	17	44	39	15	9.5	26	37	26	15	37	35	25000	4800	27	26	13	13	26	30	13	13
trans-1,2-Dichloroethene	ND	0.63 J	1.3 J	2.1 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	170	450	210	170	190	300	220	140	89	210	220	170	170	420	290	4400	730	37	15	6.4	12	21	23	6.0	13
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.52 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

µg/m^3= micrograms per cubic meter

NR = Not Recorded

NA = Data not available

ND = Not detected above method detection limit

Table 6
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Second Quarter 2022 Off-site Soil Vapor Monitoring of SVPMs

SVPM/ SVEW Location	Pressure Reading (i.w.)	Valve Position (% open)
Monitoring Date:	***6/23/22***	***6/23/22***
BPS1-SVPM2001S	-0.28	--
BPS1-SVPM2001I	-0.15	--
BPS1-SVPM2001D	-0.20	--
BPS1-SVPM2002S	-0.25	--
BPS1-SVPM2002I	-0.25	--
BPS1-SVPM2002D	-0.10	--
BPS1-SVPM2003S	-0.15	--
BPS1-SVPM2003I	-0.09	--
BPS1-SVPM2003D	-0.10	--
BPS1-SVPM2004S	-0.05	--
BPS1-SVPM2004I	-0.10	--
BPS1-SVPM2004D	-1.30	--
BPS1-SVPM2006S	-0.09	--
BPS1-SVPM2006I	-0.08	--
BPS1-SVPM2006D	-0.07	--
BPS1-SVPM2007S	-0.08	--
BPS1-SVPM2007I	-0.08	--
BPS1-SVPM2007D	-1.00	--
SV-101I	-4.0	40
SV-101D	-10.0	40
SV-102I	-4.0	50
SV-102D	-11.0	40
SV-103I	-5.0	40
SV-103D	-10.0	40
SV-104I	-4.0	40
SV-104D	-10.0	40
SV-105I	-4.0	40
SV-105D	-10.0	50
SV-106I	-4.0	40
SV-106D	-11.0	40

Notes:
i.w. = inches of water column
SVEW = soil vapor extraction well
SVPM = soil vapor pressure monitor

Pressure readings for the SVPMs were measured using a portable Magnehelic® Differential Pressure Gauge 2000-0, with a range of 0-0.50 i.w. Vacuum readings for SVEWs were recorded from dedicated in-line pressure gauges.

APPENDIX A

NYSDEC AIR DISCHARGE LIMIT DOCUMENTATION

From: Steven Scharf [mailto:sxscharf@gw.dec.state.ny.us]
Sent: Thursday, October 06, 2011 11:57 AM
To: Fly, Lora B CIV NAVFAC MIDLANT, IPTNE
Cc: John Swartwout; Walter Parish; Steven Karpinski; John cofman; klumpe@steelequities.com; David.Brayack@ttnus.com
Subject: NWIRP Plant 3 Site 1 SVE Modification Plan

Lora,

The New York State Department of Environmental Conservation (NYSDEC), in conjunction with the New York State Department of Health (NYSDOH), have reviewed the Navy Submittal entitled:

" Modification to existing Soil vapor Extraction (SVE) Containment System At Site 1-Former Drum Marshaling Area, Installation of Soil Vapor Extraction Wells SVE-107D to 111D, NWIRP Bethpage, September 2011."

Based on this Departmental review, and the follow up October 6, 2011 tele-conference,.this modification work plan is acceptable and can be used for immediate implementation. The NWIRP Site 1 SVE system has redundant blowers and overcapacity, even with the additional SVE wells being added. should the Navy and the new property owner, Steel Equities Inc., for the former Plant 3 complex come to agreement to add SVE piping from the former Plant 3, this would be acceptable. Appropriate plans, consistent with the covenants and restrictions to the deed, should be submitted accordingly.

A letter will not follow this e-mail. If you have any questions, please contact me directly.

Electronic Documentation Information
NWIRP Bethpage
130003B-OU1-OMM
FOIlable
Region 1, Nassau (C), Oyster Bay (T)

Thanks,

Steven M. Scharf, P.E.
Project Engineer
New York State Department of
Environmental Conservation
Division of Environmental Remediation
Remedial Action, Bureau A
625 Broadway
Albany, NY 12233-7015
(518)402-9620
Fax: (518)402-9022

4.0 PROPOSED REVISIONS TO VAPOR DISCHARGE GOALS

To determine the continued need for off gas treatment, the quality of the influent vapor stream was initially estimated based on soil gas results and compared to discharge goals. Vapor phase treatment was initially installed for the system based on projected relatively high concentrations of several chemicals including 1,1,1-trichloroethane (TCA), trichloroethene (TCE), and tetrachloroethene (PCE). Since the December 2009 startup, VOC concentrations in the extracted vapors have decreased by approximately 98.3 percent and it is uncertain as to whether vapor phase treatment is still required. Presented below are the December 2009 and March 2011 influent (untreated) VOC concentrations and loadings and current discharge goals.

Parameter	December 2009 Influent VOCs		March 2011 Influent VOCs ($\mu g/m^3$)		Current Discharge Goal (pound/hour)[3]
	Concentration ($\mu g/m^3$)[1]	Loading (pound/ hour)[1]	Concentration ($\mu g/m^3$)	Loading (pound/ hour)[2]	
TCA	13,000	0.074	150	0.00023	0.13
TCE	42,000	0.26	460	0.00069	0.07
PCE	7,900	0.029	440	0.00066	0.0009

(1) Initial VOC Loading Rates are from baseline data taken in December 2009. The flow meter was not yet installed when this data was taken, so a value of 385 CFM (flow rate in January 2010) was used to estimate system loading.
(2) Calculated using a flow rate of 400 CFM.
(3) Current discharge goals were based on calculated VOC concentrations using soil gas data from the fence line investigation, a flow rate of 600 CFM, and an assumed treatment efficiency for each VOC of 80 to 90 percent. Based on this evaluation, the existing treatment is no longer required to meet discharge goals.

A DAR-1 Model Analysis was then conducted using the August 2010 influent vapor concentrations of TCA, TCE, and PCE at a flow rate of 500 CFM. The calculated results were then used to back calculate proposed discharge goals based on an allowance of 100% of the annual guideline concentrations (see Appendix E). The following table provides a summary of the proposed discharge goals.

Parameter	August 2010 Influent VOCs (370 CFM – Actual)		Percent AGC Using August 2010 Data	Proposed Discharge Goals	
	Concentration ($\mu g/m^3$)	Loading (pounds/ hour)		Concentration at 500 CFM ($\mu g/m^3$)	Loading (pounds/ hour)
TCA	868	0.0009	0.0004	None[1]	225
TCE	4,170	0.0039	19.4	11,000	0.02
PCE	5,780	0.0057	14.2	22,000	0.04

(1) Greater than 100,000 $\mu g/m^3$.
AGC - Annual Guideline Concentration

New York State Department of Environmental Conservation
Division of Environmental Remediation
Bureau of Remedial Action A
625 Broadway, 11th Floor
Albany, New York 12233-7015
Phone: (518) 402-9625 • Fax: (518) 402-9022

Website: www.dec.state.ny.us

February 5, 2010

Lora Fly, Project Manager
Naval Facilities Engineering Command-Midlant
9742 Maryland Avenue
Norfolk, VA 23511-3095

RE: Naval Weapons Industrial Research Plant(NWIRP)
Site-Bethpage, NYSDEC No. 1-30-003B.

Dear Ms. Fly:

Tetra Tech FW, on behalf of the Department of the Navy (Navy), has submitted the enclosed New York State Department of Environmental Conservation (NYSDEC) Division of Air Resources (DAR) Air Permit Application as a permit equivalent. This DAR Air permit equivalent is for the soil vapor extraction system at Site 1 of Plant 3 of the former Naval Weapons Industrial Reserve Plant (NWIRP) site in Bethpage, NY. The NYSDEC Division of Environmental Remediation (DER) has reviewed the permit equivalent and, by means of this letter approves the Site 1 remedy air discharge for immediate operation.

The NWIRP Site 1 SVE system utilizes the reasonably available control technology (RACT) with activated carbon. The air discharge will be periodically monitored at start up and will be added for routine monitoring in the operation, maintenance and monitoring (OMM) plan, to be submitted shortly for Departmental review.

If you have any questions, please contact me at your earliest convenience at (518)402-9620.

Sincerely,

Steven M. Scharf, P.E.
Project Engineer
Division of Environmental Remediation
Bureau of Remedial Action A

Enclosure
ec/w/enc: J. Swartwout/S. Scharf/File
W. Parish, Region 1 NYSDEC
A. J. Shah, Region 1 NYSDEC
S. Patselos, Tetra Tech FW
J. Cofman, Northrop Grumman
E docs: Region 1, Nassau, Oyster Bay (T): NWIRP Bethpage 130003B-OU1-OMM

New York State Department of Environmental Conservation
Air Permit Application

DEC ID	APPLICATION ID	OFFICE USE ONLY
- -	- /	/ /

Section I - Certification

Title V Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information [required pursuant to 6 NYCRR 201-6.3(d)] I believe the information is, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Responsible Official	Title
Signature	Date / /

State Facility Certification

I certify that this facility will be operated in conformance with all provisions of existing regulations.

Responsible Official	Title
Signature	Date / /

Section II - Identification Information

Title V Facility Permit N/A			State Facility Permit N/A	
❑ New	❑ Significant Modification	❑ Administrative Amendment	❑ New	❑ Modification
❑ Renewal	❑ Minor Modification	General Permit Title:	General Permit Title:	
☒ Application involves construction of new facility		❑ Application involves construction of new emission unit(s)		

Owner/Firm

Name	US Navy / NAVFAC Midlant		
Street Address	9742 Maryland Ave, Bldg Z-144		
City Norfolk	State VA	Country US	Zip 23511-3095
Owner Classification ☒ Federal ❑ State ❑ Municipal ❑ Corporation/Partnership ❑ Individual			Taxpayer ID

Facility

❑ Confidential

Name	Naval Weapons Industrial Reserve Plant (NWIRP) Site 1	
Location Address	Bethpage	
❑ City / ☒ Town / ❑ Village	Oyster Bay, New York	Zip 11714

Project Description

❑ Continuation Sheet(s)

Vapor phase granular activated carbon to remove VOCs from soil gas

Owner/Firm Contact Mailing Address

Name (Last, First, Middle Initial)	Fly, Lora		Phone No. (757) 444-0781
Affiliation	Department of the Navy	Title Remedial PM	Fax No. ( )
Street Address	9742 Maryland Ave, Bldg Z-144		
City Norfolk	State VA	Country US	Zip 23511-3095

Facility Contact Mailing Address

Name (Last, First, Middle Initial)			Phone No. ( )
Affiliation	Title		Fax No. ( )
Street Address			
City	State	Country	Zip

New York State Department of Environmental Conservation
Air Permit Application

DEC ID
- - - - - - - - - -

Section III - Facility Information

Classification

☐ Hospital ☐ Residential ☐ Educational/Institutional ☐ Commercial ☒ Industrial ☐ Utility

Affected States (Title V Only) N/A

☐ Vermont ☐ Massachusetts ☐ Rhode Island ☐ Pennsylvania Tribal Land:_____
☐ New Hampshire ☐ Connecticut ☐ New Jersey ☐ Ohio Tribal Land:_____

SIC Codes

9999												

Facility Description ☐ Continuation Sheet(s)

Soil vapor remediation by SVE followed by vapor phase GAC

Compliance Statements (Title V Only) N/A

I certify that as of the date of this application the facility is in compliance with all applicable requirements: ☐ YES ☐ NO

If one or more emission units at the facility are not in compliance with all applicable requirements at the time of signing this application (the 'NO' box must be checked), the noncomplying units must be identified in the "Compliance Plan" block on page 8 of this form along with the compliance plan information required. For all emission units at this facility that are operating in compliance with all applicable requirements complete the following:

- ☐ This facility will continue to be operated and maintained in such a manner as to assure compliance for the duration of the permit, except those units referenced in the compliance plan portion of Section IV of this application.
- ☐ For all emission units, subject to any applicable requirements that will become effective during the term of the permit, this facility will meet all such requirements on a timely basis.
- ☐ Compliance certification reports will be submitted at least once a year. Each report will certify compliance status with respect to each requirement, and the method used to determine the status.

Facility Applicable Federal Requirements N/A ☐ Continuation Sheet(s)

Title	Type	Part	Sub Part	Section	Sub Division	Paragraph	Sub Paragraph	Clause	Sub Clause

Facility State Only Requirements ☐ Continuation Sheet(s)

Title	Type	Part	Sub Part	Section	Sub Division	Paragraph	Sub Paragraph	Clause	Sub Clause

New York State Department of Environmental Conservation
Air Permit Application

DEC ID
- - - - - - - - -

Section III - Facility Information (continued)

Facility Compliance Certification N/A ❑ Continuation Sheet(s)

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Paragraph	Sub Paragraph	Clause	Sub Clause

❑ Applicable Federal Requirement ❑ State Only Requirement	❑ Capping	CAS No. - -	Contaminant Name

Monitoring Information

❑ Ambient Air Monitoring ❑ Work Practice Involving Specific Operations ❑ Record Keeping/Maintenance Procedures

Description

Work Practice Type	Process Material Code	Process Material Description	Reference Test Method

Parameter Code	Parameter Description	Manufacturer Name/Model No.

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description

Averaging Method Code	Averaging Method Description	Monitoring Frequency Code	Monitoring Frequency Description	Reporting Requirements Code	Reporting Requirements Description

Facility Emissions Summary ☒ Continuation Sheet(s)

CAS No.	Contaminant Name	PTE (lbs/yr)	PTE Range Code	Actual (lbs/yr)
NY075 - 00 - 5	PM-10			
NY075 - 00 - 0	PARTICULATES			
7446 - 09 - 5	SULFUR DIOXIDE			
NY210 - 00 - 0	OXIDES OF NITROGEN			
630 - 08 - 0	CARBON MONOXIDE			
7439 - 92 - 1	LEAD			
NY998 - 00 - 0	VOC	1,322		
NY100 - 00 - 0	HAP	1,813		
00071 - 55 - 6	1,1,1-Trichloroethane (Methyl Chloroform)	591		
00127 - 18 - 4	Tetrachloroethylene	8		
00079 - 01 - 6	Trichloroethylene	1,181		
00075 - 34 - 3	1,1-Dichloroethane	11		
00075 - 35 - 4	1,1-Dichloroethylene (Vinylidine Chloride)	16		

New York State Department of Environmental Conservation
Air Permit Application

DEC ID
- - - - - - - - - -

Section III - Facility Information

Facility Emissions Summary (continuation)

CAS No.	Contaminant Name	PTE (lbs/yr)	PTE Range Code	Actual (lbs/yr)
00540-59-0	cis-1,2-Dichloroethene	5		
00107-06-2	1,2-Dichloroethane	0		
00156-60-5	trans-1,2-Dichloroethene	0		
00075-01-4	Vinyl Chloride	0		
- -				
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New York State Department of Environmental Conservation
Air Permit Application

DEC ID
- - - - - - - - -

Section IV - Emission Unit Information

Emission Unit Description

❑ Continuation Sheet(s)

EMISSION UNIT: 1-00EU1 Effluent from first soil vapor extraction blower (BL-1)

Vapor Phase Granular Activated Carbon Unit. The emission point is stack 00ST-2

Building

❑ Continuation Sheet(s)

Building	Building Name	Length (ft)	Width (ft)	Orientation
03-35	Treatment Building	60	40	0

Emission Point

❑ Continuation Sheet(s)

EMISSION PT.: 00ST2

Ground Elev. (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section	
					Length (in)	Width (in)
	36	6	8	70		
Exit Velocity (FPS)	**Exit Flow (ACFM)**	**NYTM (E) (KM)**	**NYTM (N) (KM)**	**Building**	**Distance to Property Line (ft)**	**Date of Removal**
	1,000			03-35	100'	

EMISSION PT.:

Ground Elev. (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section	
					Length (in)	Width (in)
Exit Velocity (FPS)	**Exit Flow (ACFM)**	**NYTM (E) (KM)**	**NYTM (N) (KM)**	**Building**	**Distance to Property Line (ft)**	**Date of Removal**

Emission Source/Control

❑ Continuation Sheet(s)

Emission Source ID	Emission Source Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model No.
BL 1/2	1				048	Granular Act. Carbon	Tetrasolv Filtration

Design Capacity	Design Capacity Units Code	Design Capacity Units Description	Waste Feed Code	Waste Feed Description	Waste Type Code	Waste Type Description

Emission Source ID	Emission Source Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model No.

Design Capacity	Design Capacity Units Code	Design Capacity Units Description	Waste Feed Code	Waste Feed Description	Waste Type Code	Waste Type Description

New York State Department of Environmental Conservation
Air Permit Application

DEC ID
- - - - - - - - - -

Section IV - Emission Unit Information (continued)

Process Information

❑ Continuation Sheet(s)

EMISSION UNIT 1-00EU1 PROCESS SVE

Description

The Soil Vapor Extraction System will consist of 12 SVE wells (6 intermediate and 6 deep), a moisture separator, and 2 soil vapor extraction blowers (BL-1 and BL-2) which both vent to a vapor phase granular activated carbon unit for treatment prior to discharge from stack 00STA. The VGAC unit will be a 5,000 pound unit, filled with Tetrasolv Virgin Carbon. The VGAC unit has been designed to operate nominally at 600 cfm, with a maximum of 1,000 cfm.

Source Classification Code (SCC)	Total Thruput		Thruput Quantity Units	
	Quantity/Hr	Quantity/Yr	Code	Description

❑ Confidential
☒ Operating at Maximum Capacity
❑ Activity with Insignificant Emissions

Operating Schedule		Building	Floor/Location
Hrs/Day	Days/Yr		
24	365	03-35	Main

Emission Source/Control Identifier(s)

BL-1	BL-2						

EMISSION UNIT - PROCESS

Description

Source Classification Code (SCC)	Total Thruput		Thruput Quantity Units	
	Quantity/Hr	Quantity/Yr	Code	Description

❑ Confidential
❑ Operating at Maximum Capacity
❑ Activity with Insignificant Emissions

Operating Schedule		Building	Floor/Location
Hrs/Day	Days/Yr		

Emission Source/Control Identifier(s)

New York State Department of Environmental Conservation
Air Permit Application

DEC ID
- - - - - - - - - -

Section IV - Emission Unit Information (continued)

Emission Unit	Emission Point	Process	Emission Source	Emission Unit Applicable Federal Requirements ❑ Continuation Sheet(s)									
				Title	Type	Part	Sub Part	Section	Sub Division	Parag.	Sub Parag.	Clause	Sub Clause
-													
-													
-													
-													

Emission Unit	Emission Point	Process	Emission Source	Emission Unit State Only Requirements ❑ Continuation Sheet(s)									
				Title	Type	Part	Sub Part	Section	Sub Division	Parag.	Sub Parag.	Clause	Sub Clause
-													
-													
-													
-													

Emission Unit Compliance Certification ❑ Continuation Sheet(s)

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Paragraph	Sub Paragraph	Clause	Sub Clause
6	NYCRR	212	-						

❑ Applicable Federal Requirement ❑ State Only Requirement ❑ Capping

Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name
1-00EU1	00ST2	SVE		00079-01-6	Trichloroethylene

Monitoring Information

- ❑ Continuous Emission Monitoring
- ☒ Intermittent Emission Testing
- ❑ Ambient Air Monitoring
- ❑ Monitoring of Process or Control Device Parameters as Surrogate
- ❑ Work Practice Involving Specific Operations
- ❑ Record Keeping/Maintenance Procedures

Description

Monthly grab samples analyzed for VOCs from the VGAC unit influent and effluent

Work Practice Type	Process Material Code	Process Material Description	Reference Test Method

Parameter Code	Parameter Description	Manufacturer Name/Model No.
23	Concentration	

Limit Upper	Limit Lower	Limit Units Code	Limit Units Description
36,000		255	micrograms per cubic meter

Averaging Method Code	Averaging Method Description	Monitoring Frequency Code	Monitoring Frequency Description	Reporting Requirements Code	Reporting Requirements Description
01	Instantaneous	05	Monthly	10	Upon Request

New York State Department of Environmental Conservation
Air Permit Application

DEC ID
- - - - - - - - -

Section IV - Emission Unit Information (continued)

Determination of Non-Applicability (Title V Only) N/A ❑ Continuation Sheet(s)

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Paragraph	Sub Paragraph	Clause	Sub Clause

Emission Unit	Emission Point	Process	Emission Source	❑ Applicable Federal Requirement ❑ State Only Requirement
-				

Description

Rule Citation

Title	Type	Part	Sub Part	Section	Sub Division	Paragraph	Sub Paragraph	Clause	Sub Clause

Emission Unit	Emission Point	Process	Emission Source	❑ Applicable Federal Requirement ❑ State Only Requirement
-				

Description

Process Emissions Summary ☒ Continuation Sheet(s)

EMISSION UNIT 1-00EU1 PROCESS SVE

CAS No.	Contaminant Name	% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined
00071-55-6	1,1,1-Trichloroethane			80	0.34	02

PTE (lbs/hr)	PTE (lbs/yr)	PTE (standard units)	Standard Units	PTE How Determined	Actual (lbs/hr)	Actual (lbs/yr)
0.07	591			02		

EMISSION UNIT 1-00EU1 PROCESS SVE

CAS No.	Contaminant Name	% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined
00127-18-4	Tetrachloroethylene			80	0.00	02

PTE (lbs/hr)	PTE (lbs/yr)	PTE (standard units)	Standard Units	PTE How Determined	Actual (lbs/hr)	Actual (lbs/yr)
~~0.00~~ BRT	8			02		

EMISSION UNIT 1-00EU1 PROCESS SVE

CAS No.	Contaminant Name	% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined
00079-01-6	Trichloroethylene			80	0.67	02

PTE (lbs/hr)	PTE (lbs/yr)	PTE (standard units)	Standard Units	PTE How Determined	Actual (lbs/hr)	Actual (lbs/yr)
0.13	1,181			02		

New York State Department of Environmental Conservation
Air Permit Application

DEC ID
- - - - - - - - -

Section IV - Emission Unit Information (continued)

EMISSION UNIT i-OOEU1	Emission Unit Emissions Summary			☒ Continuation Sheet(s)
CAS No.	Contaminant Name			
00075-34-3	1,1-Dichloroethane			
ERP (lbs/yr)	PTE Emissions		Actual	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
	BRT	11		
CAS No.	Contaminant Name			
00075-35-4	1,1-Dichloroethylene (Vinylidine Chloride)			
ERP (lbs/yr)	PTE Emissions		Actual	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
	BRT	16		
CAS No.	Contaminant Name			
00540-59-0	cis-1,2-Dichloroethene			
ERP (lbs/yr)	PTE Emissions		Actual	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
	BRT	5		
CAS No.	Contaminant Name			
00107-06-2	1,2-Dichloroethane			
ERP (lbs/yr)	PTE Emissions		Actual	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
	BRT	BRT		

Compliance Plan N/A

☐ Continuation Sheet(s)

For any emission units which are not in compliance at the time of permit application, the applicant shall complete the following

Consent Order — Certified progress reports are to be submitted every 6 months beginning ____/____/____

Emission Unit	Process	Emission Source	Applicable Federal Requirement									
			Title	Type	Part	Sub Part	Section	Sub Division	Parag.	Sub Parag.	Clause	Sub Clause
-												

Remedial Measure / Intermediate Milestones	R/I	Date Scheduled

New York State Department of Environmental Conservation
Air Permit Application

DEC ID
- -

Section IV - Emission Unit Information

EMISSION UNIT	Emission Unit Emissions Summary (continuation)		
1 - 0 0 E U 1			

CAS No.	Contaminant Name			
00156 - 60 - 5	trans-1,2-Dichloroethene			
ERP (lbs/yr)	PTE Emissions		Actual	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
	BRT	BRT		
CAS No.	**Contaminant Name**			
00075 - 01 - 4	Vinyl Chloride			
ERP (lbs/yr)	PTE Emissions		Actual	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
	BRT	BRT		
CAS No.	**Contaminant Name**			
- -				
ERP (lbs/yr)	PTE Emissions		Actual	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
CAS No.	**Contaminant Name**			
- -				
ERP (lbs/yr)	PTE Emissions		Actual	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
CAS No.	**Contaminant Name**			
- -				
ERP (lbs/yr)	PTE Emissions		Actual	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
CAS No.	**Contaminant Name**			
- -				
ERP (lbs/yr)	PTE Emissions		Actual	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
CAS No.	**Contaminant Name**			
- -				
ERP (lbs/yr)	PTE Emissions		Actual	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
CAS No.	**Contaminant Name**			
- -				
ERP (lbs/yr)	PTE Emissions		Actual	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)

New York State Department of Environmental Conservation
Air Permit Application

DEC ID
- -

Section IV - Emission Unit Information (continued)

Request for Emission Reduction Credits ❑ Continuation Sheet(s)

EMISSION UNIT -

Emission Reduction Description

Contaminant Emission Reduction Data

Baseline Period ___/___/___ to ___/___/___

Reduction	
Date	Method
/ /	

CAS No.	Contaminant Name	ERC (lbs/yr)	
		Netting	Offset
- -			
- -			
- -			

Facility to Use Future Reduction

Name | APPLICATION ID - - /

Location Address

❑ City / ❑ Town / ❑ Village | State | Zip

Use of Emission Reduction Credits ❑ Continuation Sheet(s)

EMISSION UNIT -

Proposed Project Description

Contaminant Emissions Increase Data

CAS No.	Contaminant Name	PEP (lbs/yr)
- -		

Statement of Compliance

❑ All facilities under the ownership of this "ownership/firm" are operating in compliance with all applicable requirements and state regulations including any compliance certification requirements under Section 114(a)(3) of the Clean Air Act Amendments of 1990, or are meeting the schedule of a consent order.

Source of Emission Reduction Credit - Facility

Name | PERMIT ID - - /

Location Address

❑ City / ❑ Town / ❑ Village | State | Zip

Emission Unit	CAS No.	Contaminant Name	ERC (lbs/yr)	
			Netting	Offset
-	- -			
-	- -			
-	- -			

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Supporting Documentation

- ❑ P.E. Certification (form attached)
- ❑ List of Exempt Activities (form attached)
- ❑ Plot Plan
- ❑ Methods Used to Determine Compliance (form attached)
- ☒ Calculations
- ❑ Air Quality Model (_____ / _____ / _____)
- ❑ Confidentiality Justification
- ❑ Ambient Air Monitoring Plan (_____ / _____ / _____)
- ❑ Stack Test Protocols/Reports (_____ / _____ / _____)
- ❑ Continuous Emissions Monitoring Plans/QA/QC (_____ / _____ / _____)
- ❑ MACT Demonstration (_____ / _____ / _____)
- ❑ Operational Flexibility: Description of Alternative Operating Scenarios and Protocols
- ❑ Title IV: Application/Registration
- ❑ ERC Quantification (form attached)
- ❑ Use of ERC(s) (form attached)
- ❑ Baseline Period Demonstration
- ❑ Analysis of Contemporaneous Emission Increase/Decrease
- ❑ LAER Demonstration (_____ / _____ / _____)
- ❑ BACT Demonstration (_____ / _____ / _____)
- ❑ Other Document(s): _____ (/ /)

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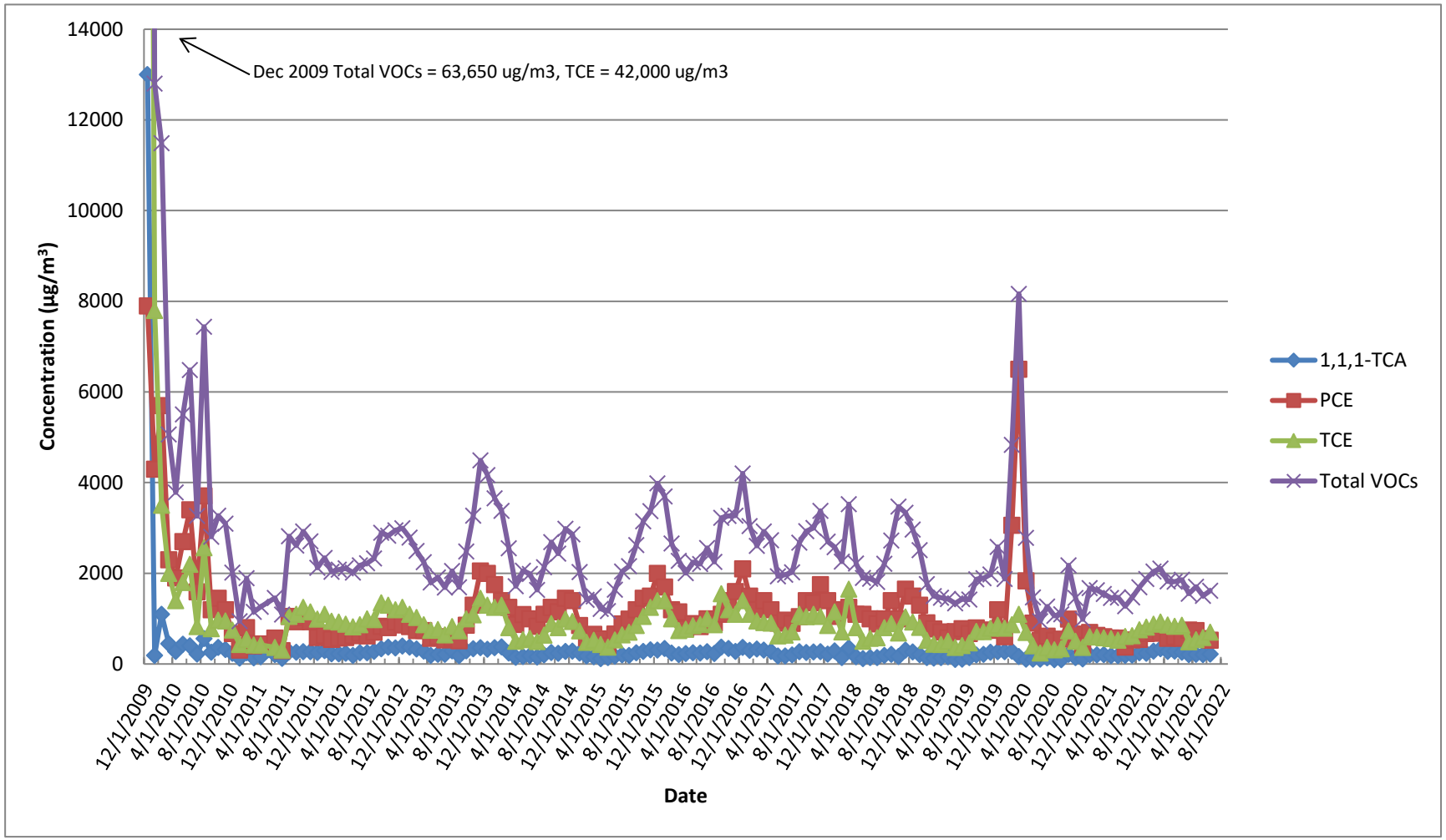
APPENDIX B

VAPOR CONCENTRATION TREND GRAPHS OF SELECT VOCs – SVEWs

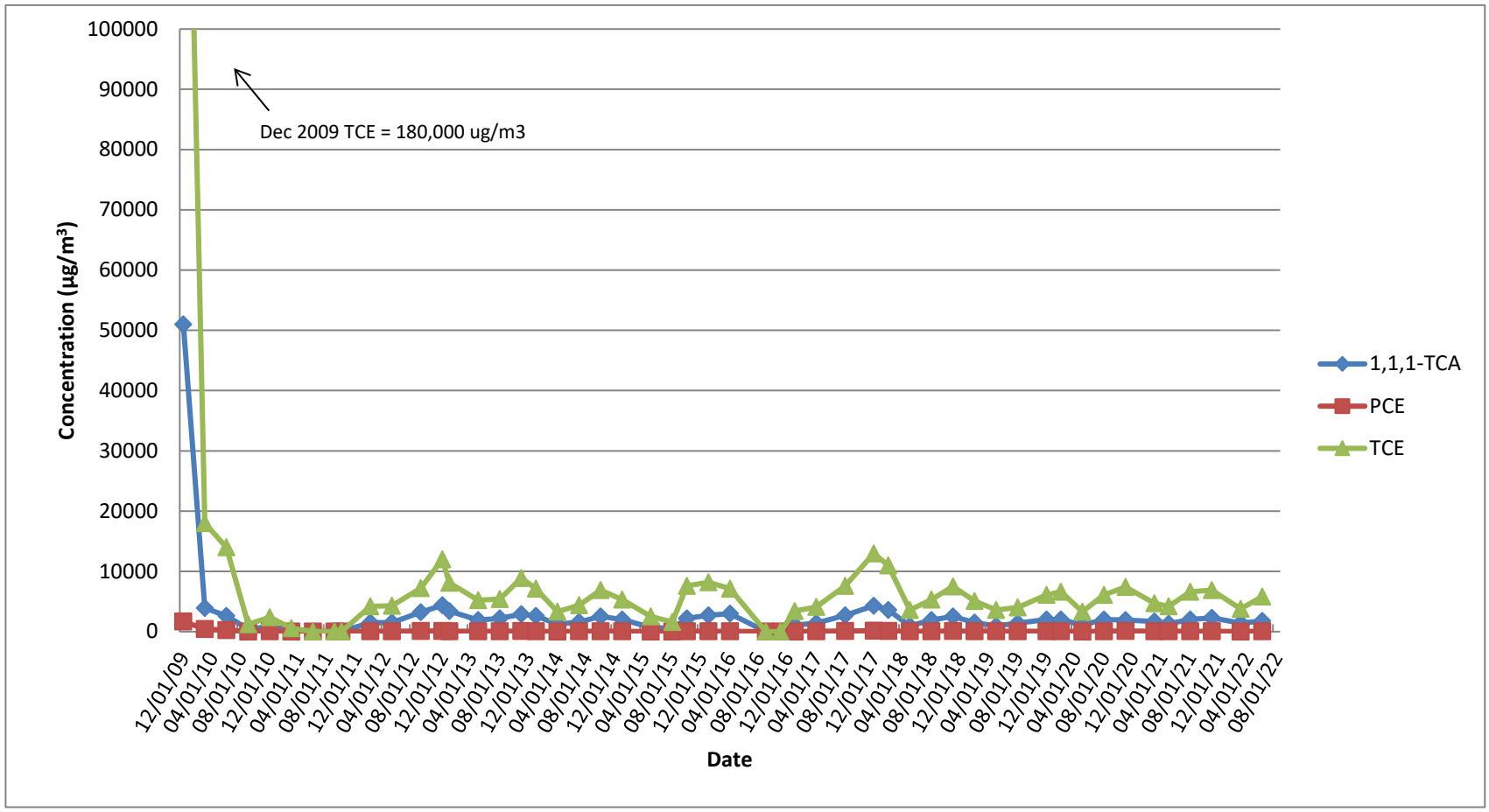
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Vapor Concentration Trends of Select and Total VOCs

COMBINED INFLUENT



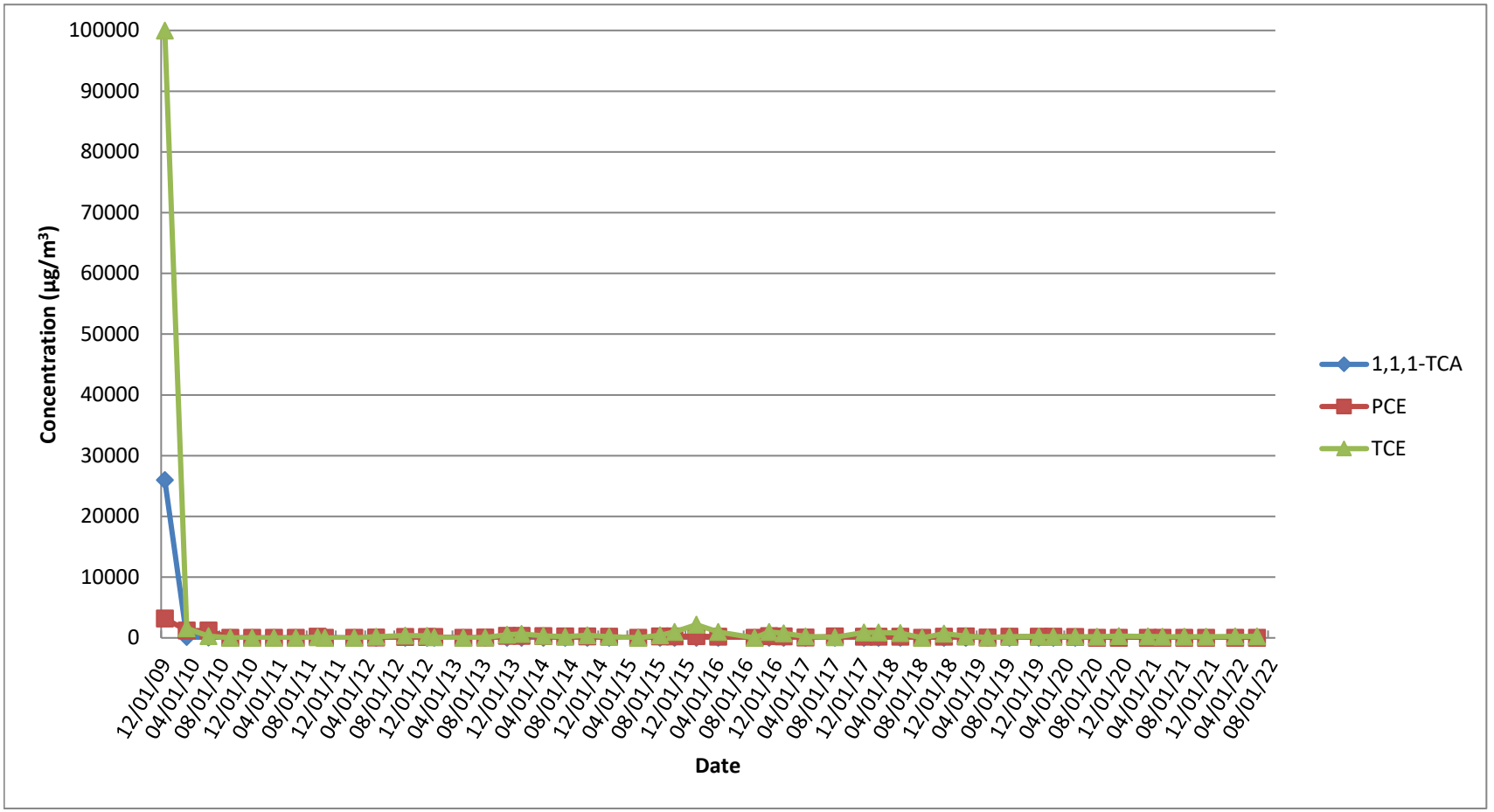
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Concentration Trends of Select VOCs
SVEWs

SV-101I



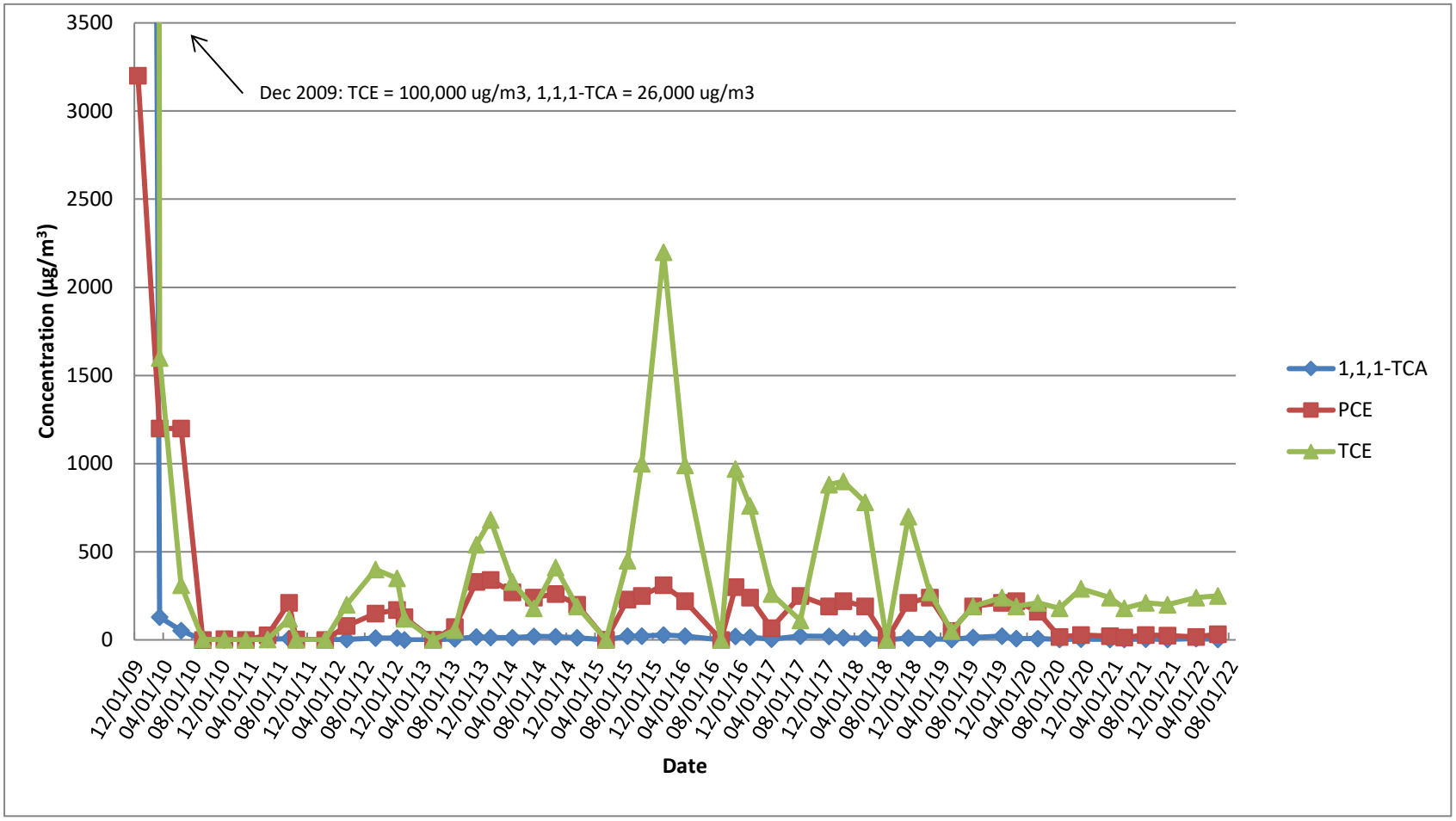
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Concentration Trends of Select VOCs
SVEWs

SV-101D



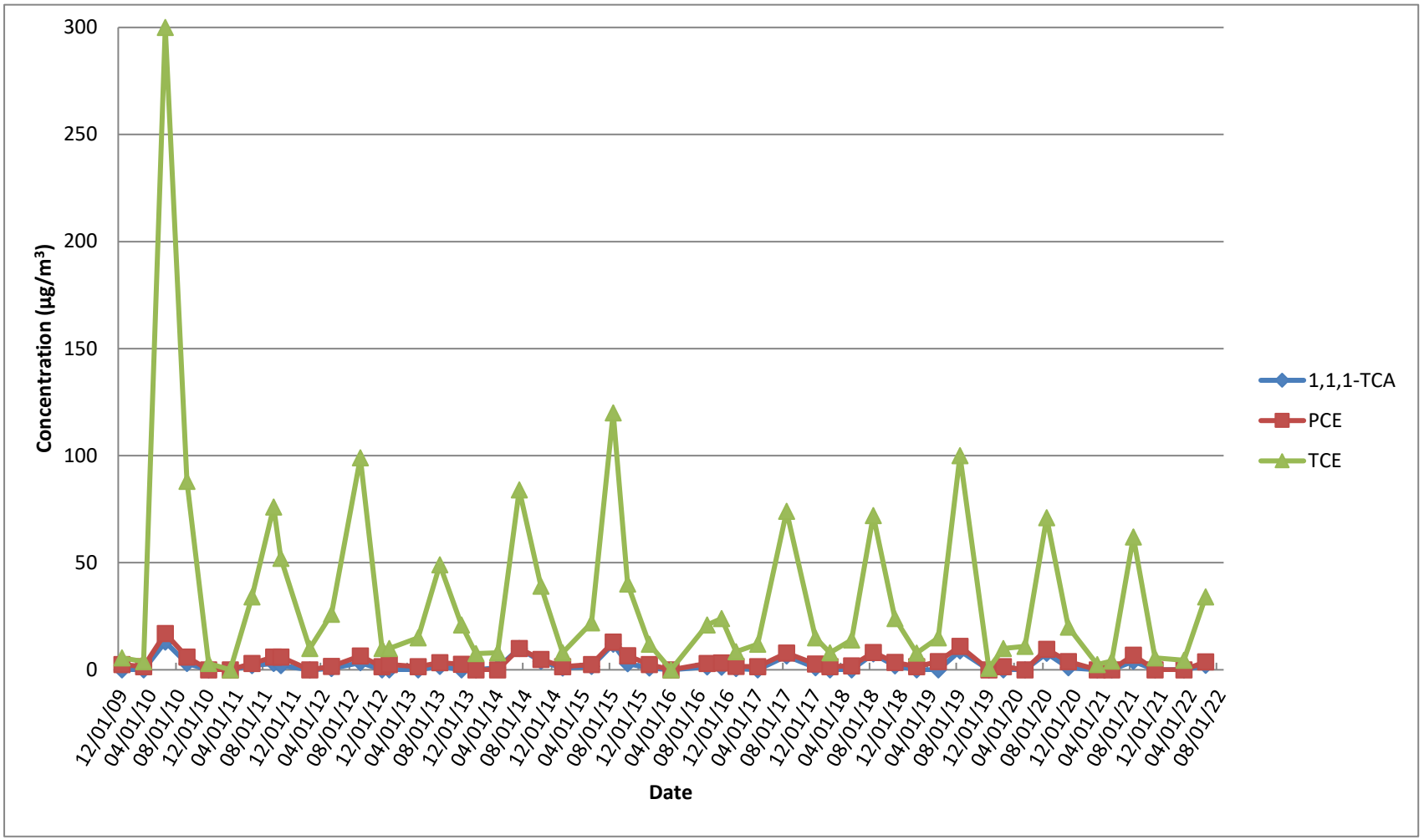
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Concentration Trends of Select VOCs
SVEWs

SV-101D (smaller scale)



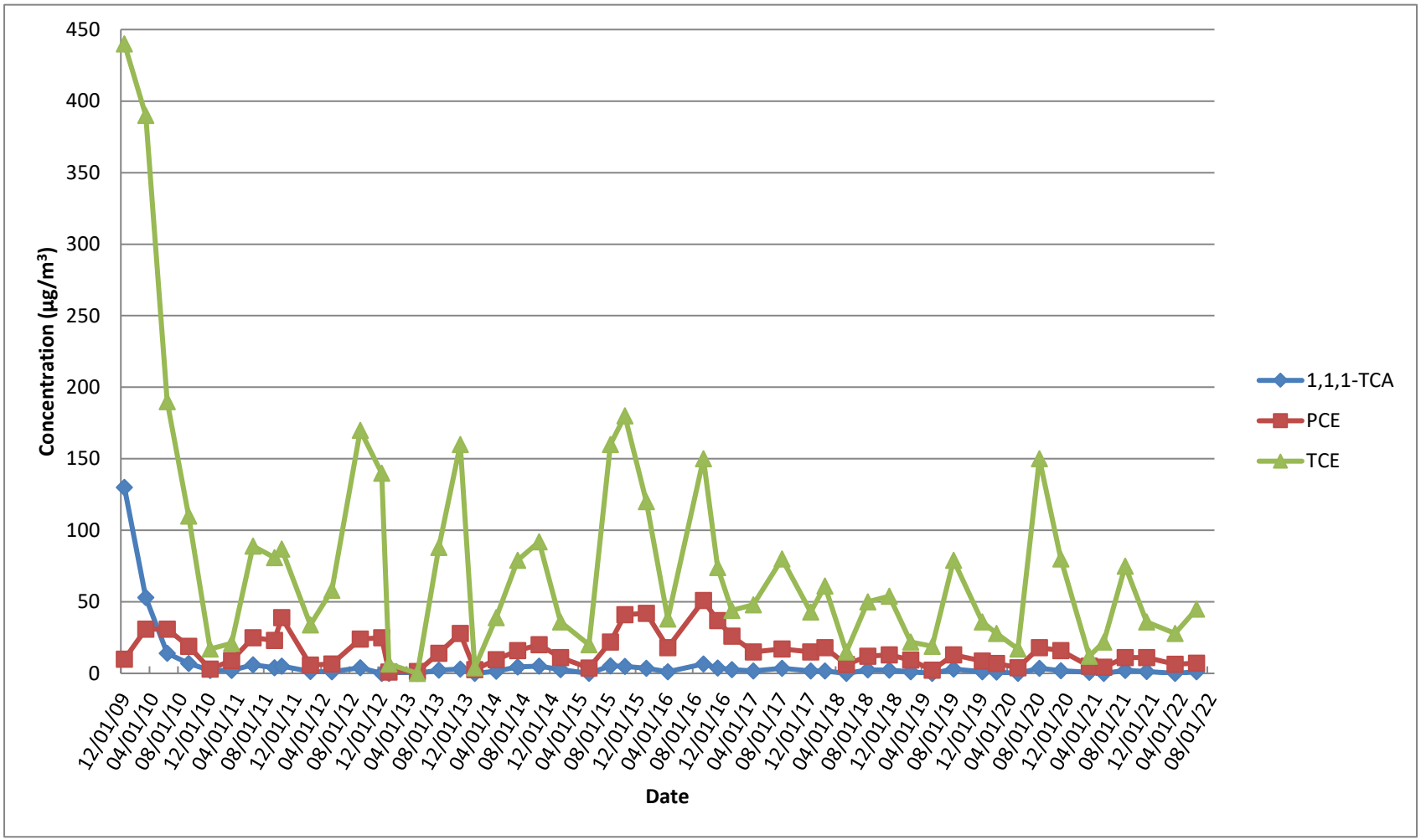
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Concentration Trends of Select VOCs
SVEWs

SV102I



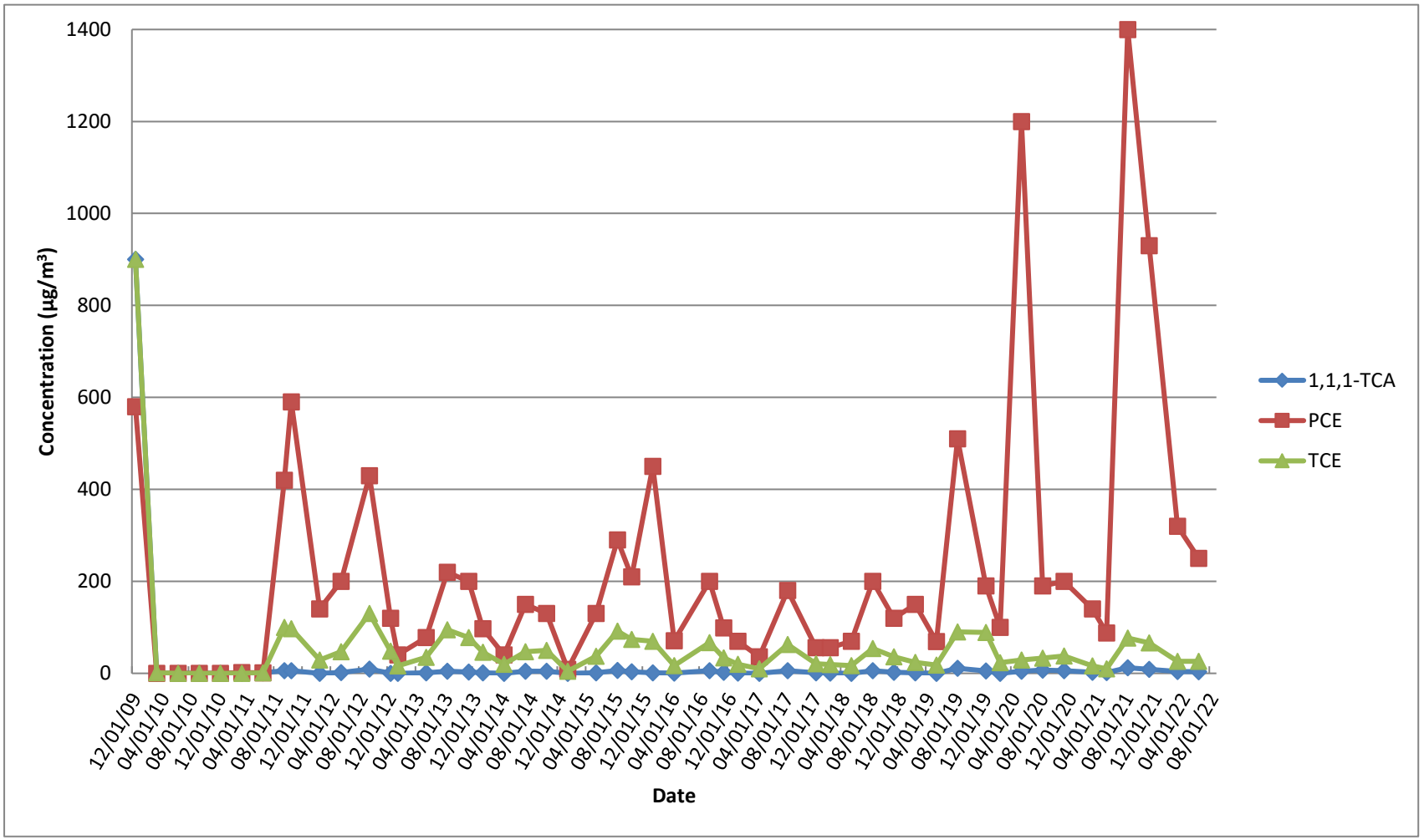
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Concentration Trends of Select VOCs
SVEWs

SV-102D



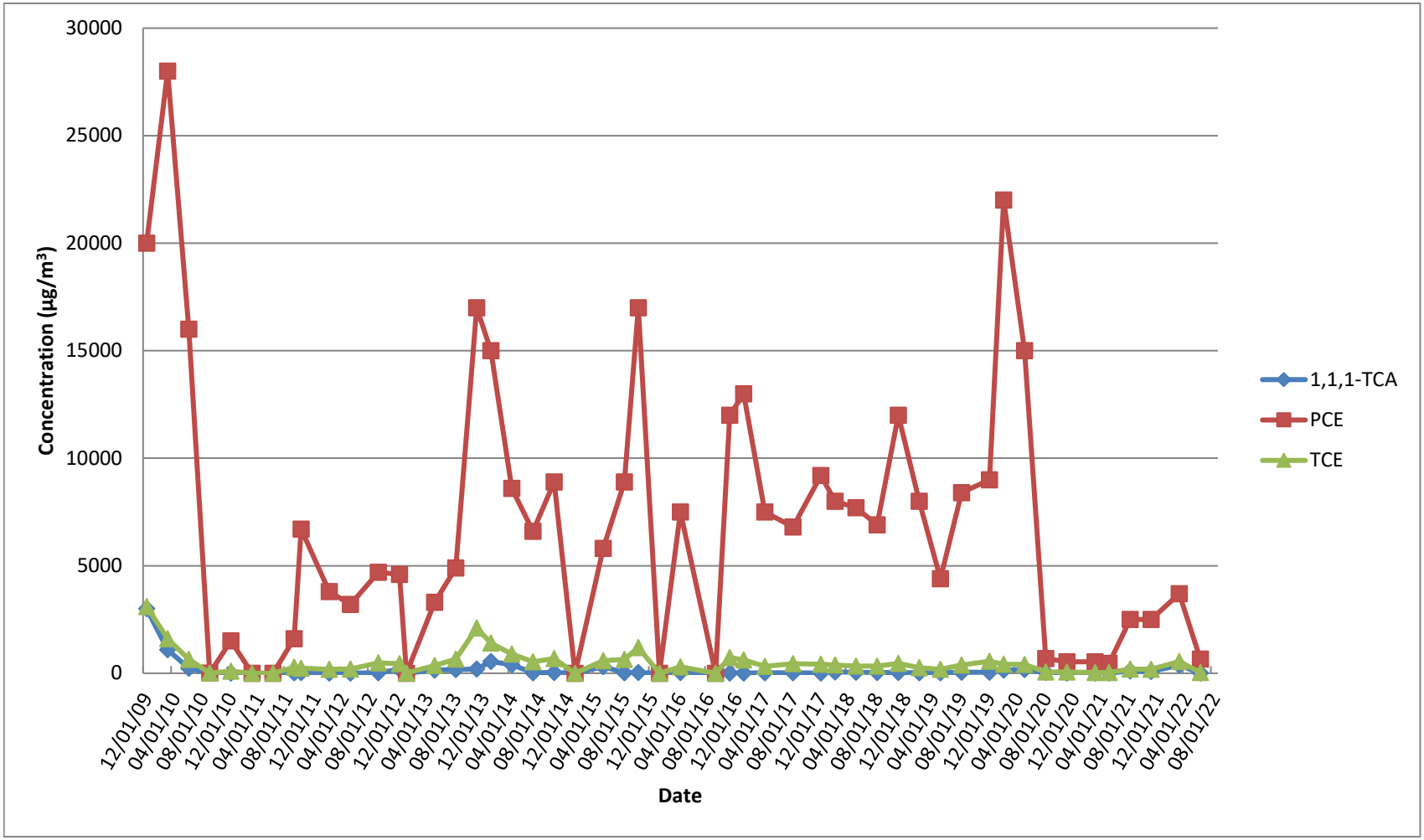
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Concentration Trends of Select VOCs
SVEWs

SV-103I



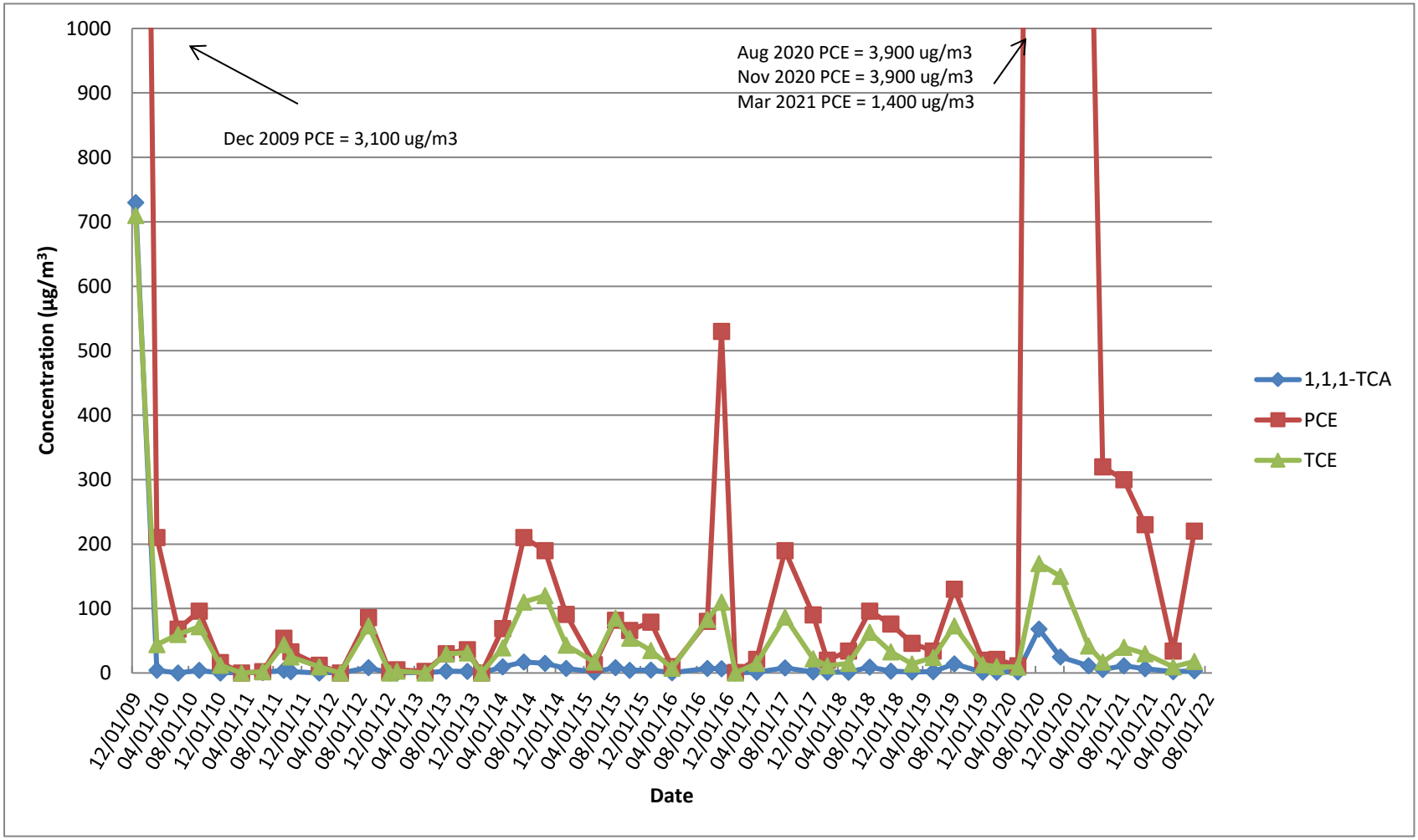
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Concentration Trends of Select VOCs
SVEWs

SV103D



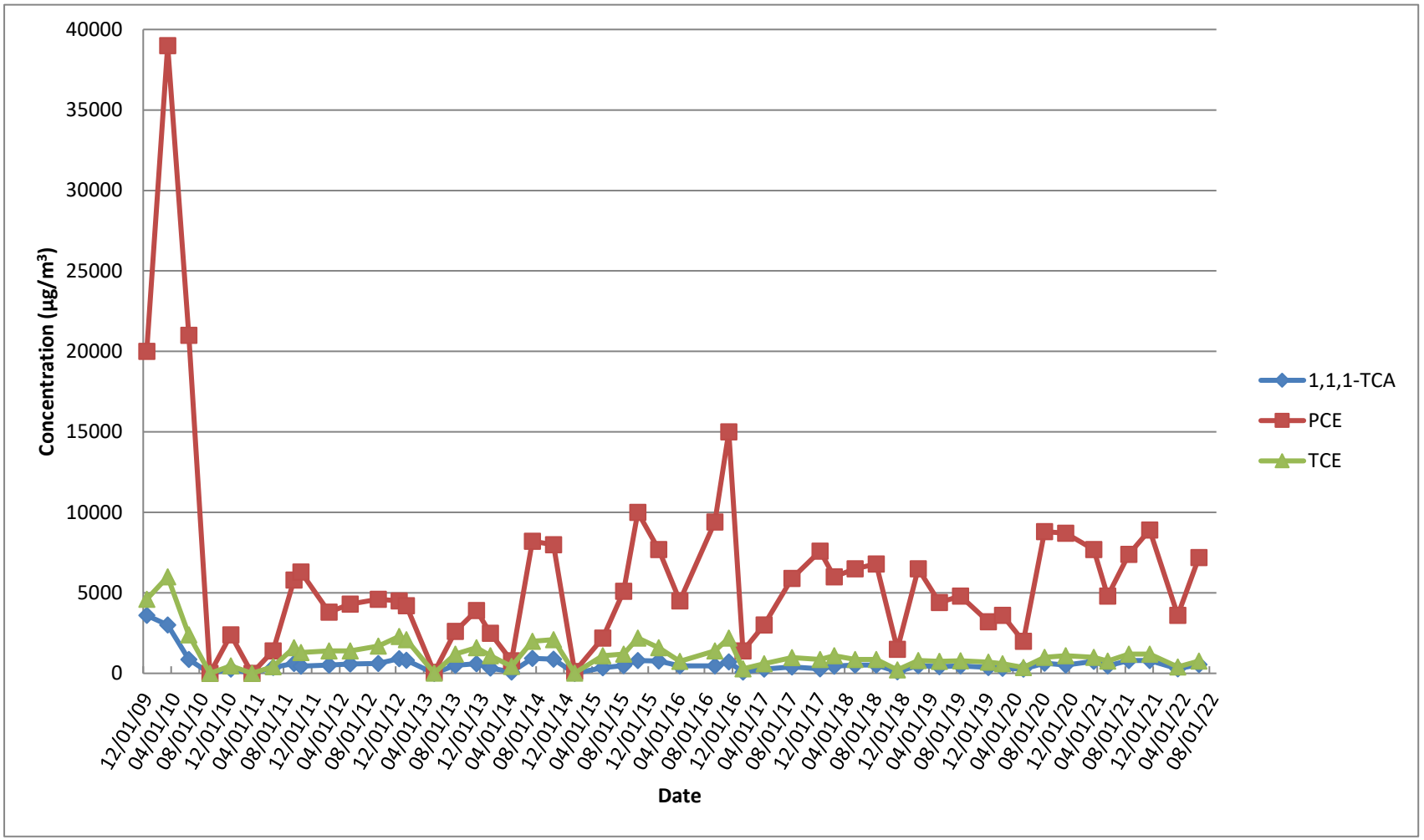
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Concentration Trends of Select VOCs
SVEWs

SV104I



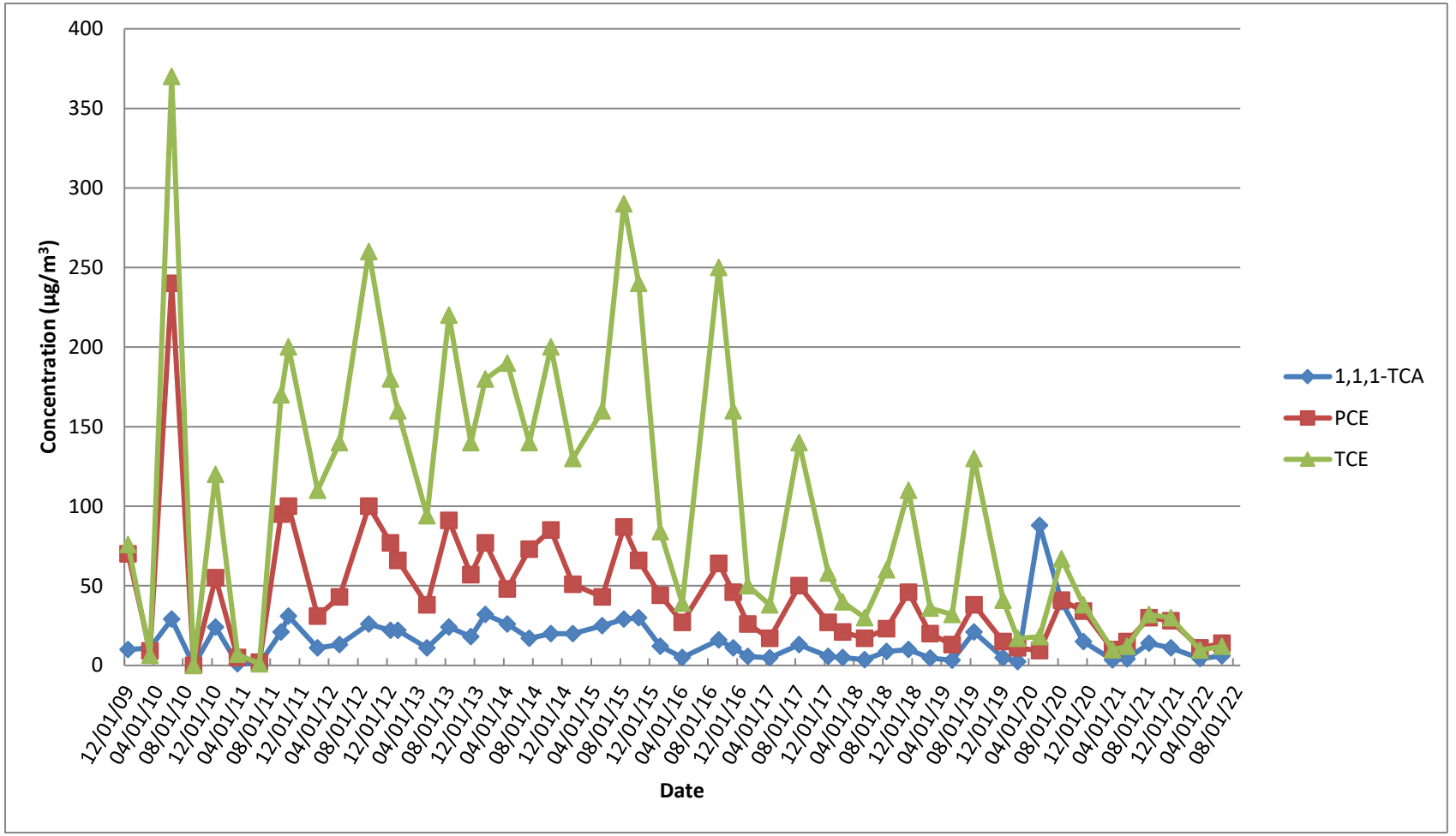
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Concentration Trends of Select VOCs
SVEWs

SV-104D



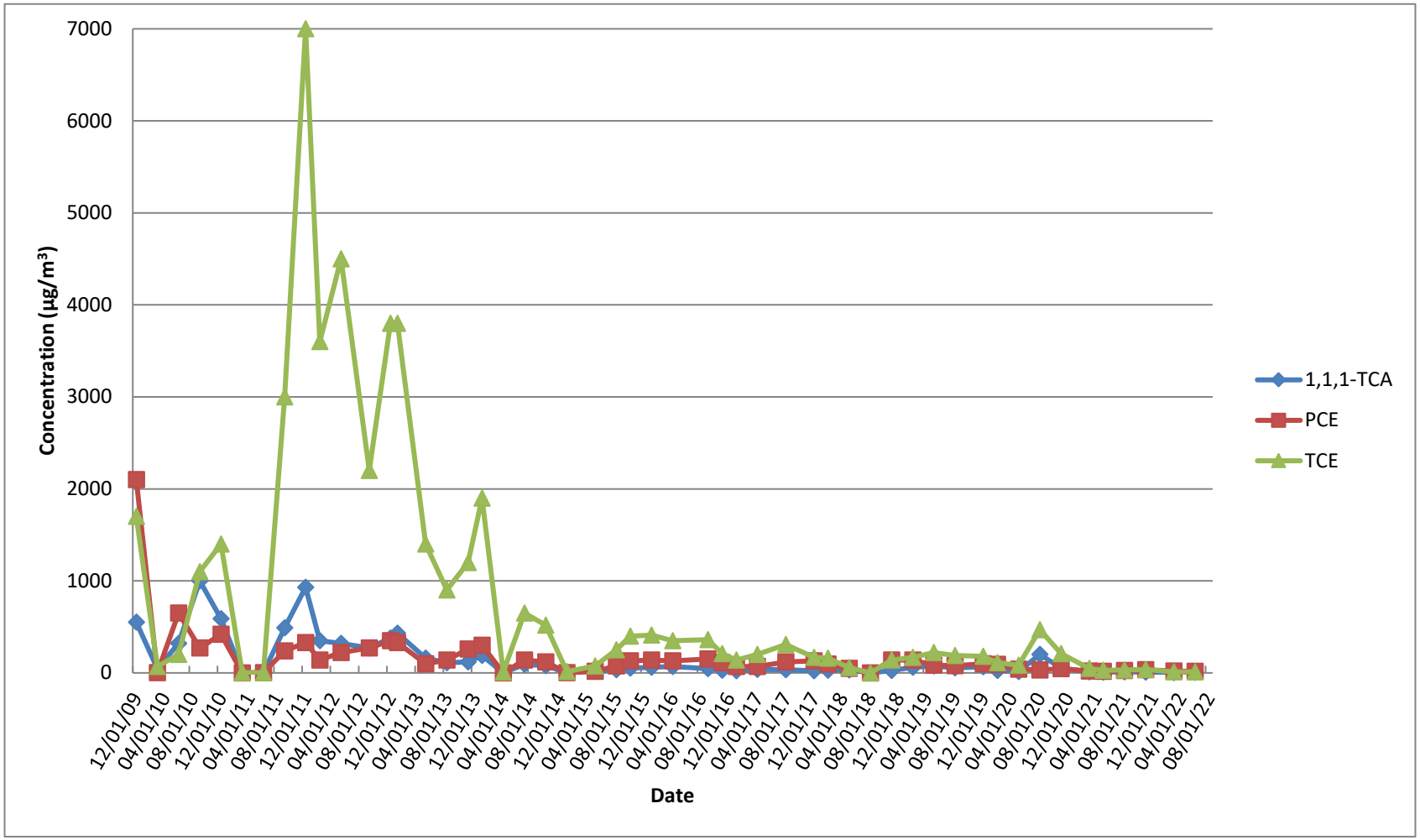
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Concentration Trends of Select VOCs
SVEWs

SV-105I



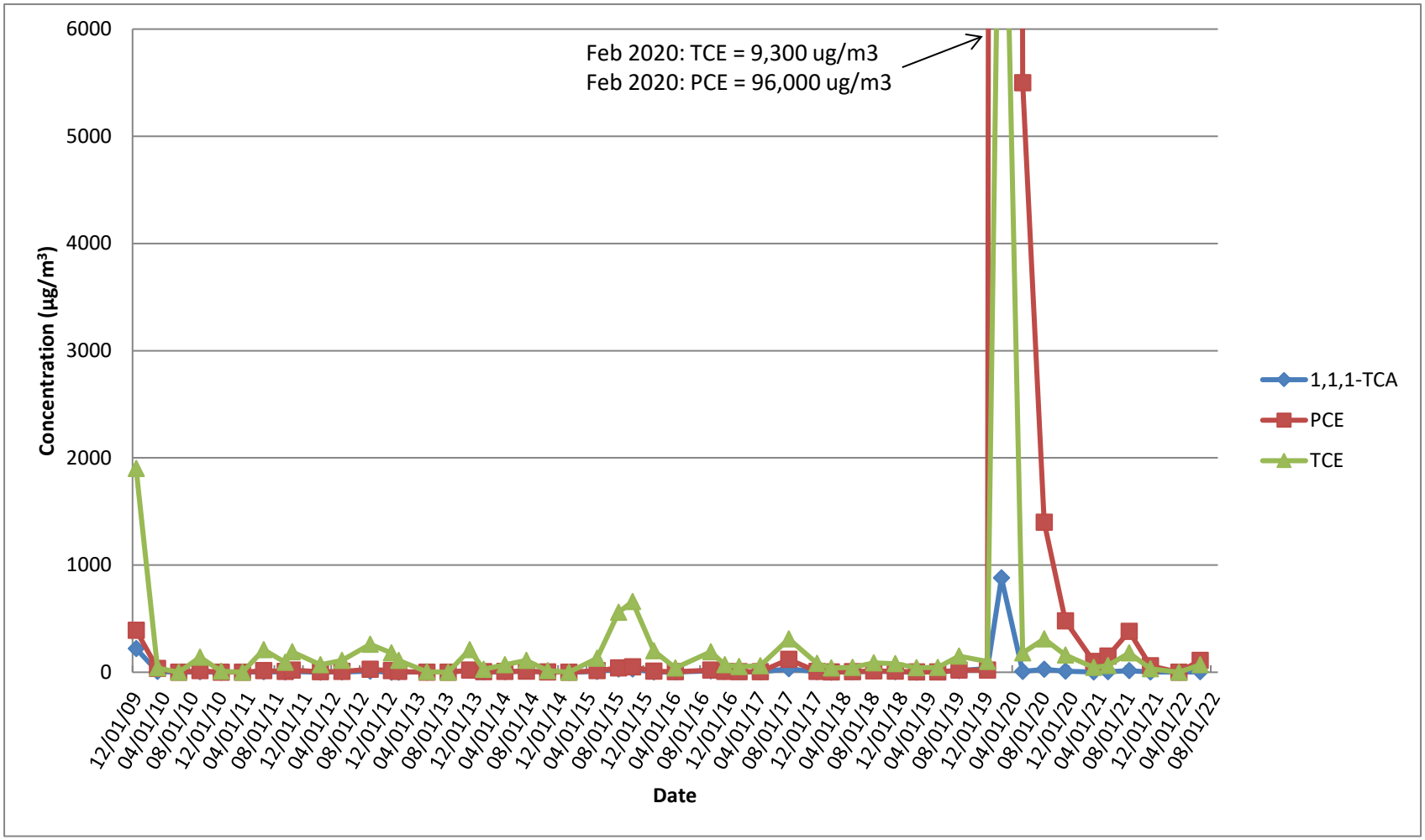
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Concentration Trends of Select VOCs
SVEWs

SV-105D



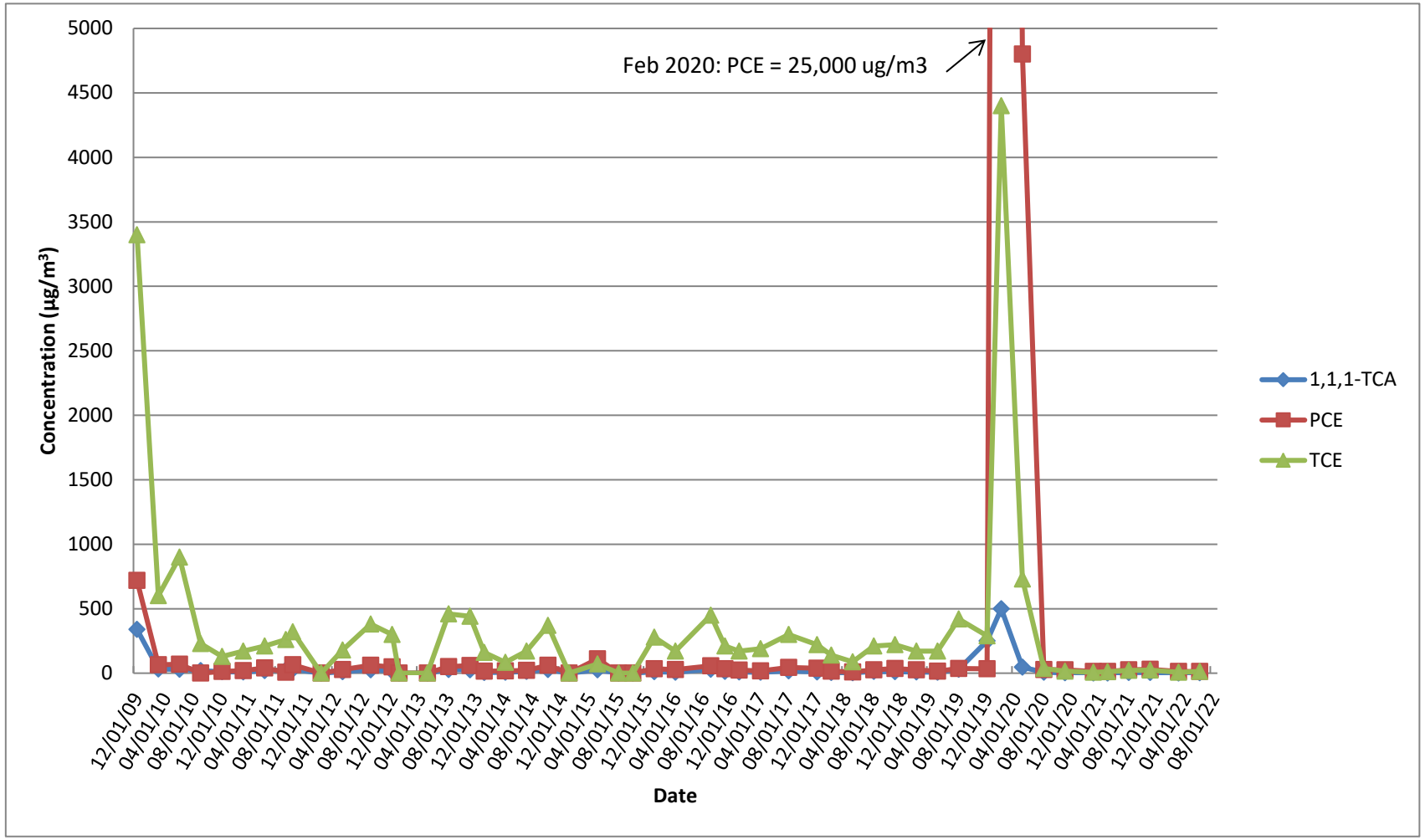
Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Concentration Trends of Select VOCs
SVEWs

SV-106I



Soil Vapor Extraction Containment System
Site 1, Former Drum Marshalling Yard
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Concentration Trends of Select VOCs
SVEWs

SV-106D



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SV-106D (smaller scale)