Quarterly Operations Report
First Quarter 2016

Groundwater Treatment Plant
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant
Bethpage, New York

Contract No. N40085-10-D-9409
Contract Task Order No. 0002

June 2016

Prepared for:

Naval Facilities Engineering Command Mid-Atlantic
9324 Virginia Avenue
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6/29/16

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Acronyms and Abbreviations

ARAR	Applicable or Relevant and Appropriate Requirement
AS	air stripper
ASE	air stripper effluent
BFE	bag filter effluent
bgs	below ground surface
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
DAR	Division of Air Resources
DCA	dichloroethane
DCE	dichloroethene
DMR	Discharge Monitoring Report
DO	dissolved oxygen
DoD	Department of Defense
DTW	depth to water
ECL	Environmental Conservation Law
EB	equipment rinsate blank
ELAP	Environmental Laboratory Accreditation Program
GOCO	Government Owned Contractor Operated
gpm	gallon per minute
GWTP	groundwater treatment plant
KGS	KOMAN Government Solutions, LLC
HMI	human-machine interface
IRP	Installation Restoration Program
LGAC	liquid-phase granular activated carbon
MS/MSD	matrix spike/matrix spike duplicate
NAVFAC	Naval Facilities Engineering Command Mid-Atlantic
Navy	U.S. 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
ORP	oxidation reduction potential

OU	operable unit
PCE	tetrachloroethene
PLC	programmable logic controller
QA/QC	quality assurance / quality control
ROD	Record of Decision
RPD	relative percent difference
SC	standard conductivity
scfm	standard cubic feet per minute
SPDES	Storm Pollution Discharge Elimination System
TB	trip blank
TCE	trichloroethene
TE	treated effluent
TIC	tentatively identified compound
TSS	total suspended solids
TtEC	Tetra Tech EC, Inc.
USEPA	U.S. Environmental Protection Agency
VGAC	vapor–phase granular activated carbon
VOC	volatile organic compound

1.0 INTRODUCTION

KOMAN Government Solutions, LLC (KGS) has prepared this Quarterly Operations Report for the GM-38 Area Groundwater Treatment Plant (GWTP) at the Naval Weapons Industrial Reserve Plant (NWIRP) in Bethpage, New York. This report has been prepared for the U.S. Department of the Navy (Navy), Naval Facilities Engineering Command (NAVFAC), Mid-Atlantic, under Contract No. N40085-10-D-9409, Contract Task Order No. 0002. This First Quarter 2016 Operations Report details activities that occurred from January to March 2016. Data was collected and operational activities were performed by KGS in accordance with the following documents:

- *Final Operation, Maintenance & Monitoring Plan for Groundwater Treatment Plant GM-38 Area Groundwater Remediation, 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 Sampling and Analysis Plan (Field Sampling Plan and Quality Assurance Project Plan), UFP-SAP for Operations, Maintenance, and Monitoring of the Groundwater Treatment Plant, GM-38 Area, Naval Weapons Industrial Reserve Plant, Bethpage, New York* prepared by TtEC in 2010.

1.1 Background

NWIRP Bethpage is located in east central Nassau County, Long Island, New York, approximately 30 miles east of New York City (**Figure 1**) and is currently listed by New York State Department of Environmental Conservation (NYSDEC) as an "inactive hazardous waste site" (#1-30-003B). In the late 1990s, the Navy's property totaled approximately 109.5 acres and was 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 GM-38 Area refers to a cluster of monitoring wells installed in the 1990s by NG. The GM-38 Area is approximately 8,500 feet south, southeast and hydraulically downgradient of NWIRP Bethpage. The GWTP is located within a utility easement with a street address of 100 Broadway, Bethpage, NY.

The "hot spot" cleanup remedy for the GM-38 Area groundwater was originally set forth in Record of Decision (ROD) documents for Operable Unit 2 (OU 2) Groundwater for the NG and NWIRP Sites (New York State Registry Site Numbers 1-30-003A & 1-30-003B, respectively) issued by NYSDEC Division of Environmental Remediation in March 2001 and for the NWIRP Bethpage Site by NAVFAC in April 2003 (Revision 1). The selected remedy was chosen in accordance with the New York State Environmental Conservation Law (ECL) and the Navy's Installation Restoration Program (IRP). It is also consistent with the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), as amended, 42 U.S.C. §§ 9601-9675.

1.2 GWTP Overview

Groundwater is extracted from recovery wells RW-1 and RW-3 (though RW-3 has recently been taken off-line, as described below) and treated in the GWTP. The treatment process consists of flow equalization, air stripping and vapor-phase carbon treatment, bag filtration, and liquid-phase carbon treatment. Though the GWTP was originally equipped with a pH adjustment system utilizing sodium hydroxide, it has since been determined that pH adjustment is not necessary and the equipment has been taken off-line and sodium hydroxide sent off site for beneficial reuse. A process flow diagram is presented as **Figure 2**. The treated water is either re-injected into injection well IW-1 or discharged into the Nassau County Recharge Basin #495. Under CERCLA, the Navy is required to meet the effluent requirement in the NYSDEC's Storm Pollution Discharge Elimination System (SPDES) Permit Application as an Applicable or Relevant and Appropriate Requirement (ARAR).

The GWTP was designed to operate at an average flow rate of 1,100 gallons per minute (gpm) (800 gpm from RW-1 and 300 gpm from RW-3), as measured by the average discharge flow rate. It was determined that this flow rate would be necessary to effectively contain the higher concentration of contamination in the GM-38 Area groundwater. Volatile Organic Compounds (VOCs) in the influent groundwater consist of trichloroethene (TCE), tetrachloroethene (PCE), vinyl chloride, cis-1,2-dichloroethene (cis-1,2-DCE), 1,2-dichloroethane (1,2-DCA), benzene, toluene, and total xylenes.

The air stripper (AS) is a structural aluminum tower that is packed with 3.5-inch diameter polypropylene Jaeger Tripack. Groundwater is pumped to the air stripper distribution port and sprayed over the column of Jaeger Tripack at a flow rate of approximately 1,100 gpm. Previously, 100 gpm of recirculated water was also rerouted through the AS, but as of October 2010, recirculation was no longer deemed necessary to the operation of the system. An induced draft countercurrent flow of air enters the air stripper below the base of the packing material at a rate of 8,000 standard cubic feet per minute (scfm). The large surface area of the packing material allows for a mass transfer of the VOCs from the groundwater into the air stream. The VOCs in the off-gas, except for vinyl chloride, are removed via two 20,000-lb vapor phase granular activated carbon (VGAC) units (VGAC-1 and VGAC-2). Vinyl chloride is oxidized by a 20,000-lb vessel containing zeolite impregnated with potassium permanganate (VGAC-3) into potassium chloride and carbon dioxide. The potassium chloride remains in the pore structure of the zeolite substrate. The treated off-gas is discharged from the stack.

Water treated by the air stripper is subsequently processed through three 8,000-lb liquid phase granular activated carbon (LGAC) units in parallel prior to discharge in the recovery basin (or injection well, if necessary. To date, no water has been discharged to the injection well).

The GWTP is controlled by a programmable logic controller (PLC)-based digital and analog control system, with instrumentation that monitors pH, pressure, tank level, flow transmitters, differential pressure transmitters, water level in recovery wells, and motor operational status. The information in the PLC is made available to an operator via a human-machine interface (HMI) program. By using this program, the status of the GWTP can be displayed in real time and adjusted, if necessary, by the operator.

A recent evaluation of the GM-38 Area, conducted in order to better determine the capture zone of the recovery wells, recommended that use of recovery well RW-3 be discontinued. The report entitled "*Capture Zone Evaluation and Path Forward, GM-38 Area Groundwater Treatment Plant*" (Tetra Tech 2014) was submitted to NYSDEC in March 2014. The recommended path forward consisted of ceasing operation of recovery well RW-3 and increasing the pumping rate of recovery well RW-1. These system modifications would maintain the existing GWTP pumping rate of 1,000 to 1,100 gpm while maintaining the desired capture zone of the GWTP (Tetra Tech 2014). NYSDEC concurred with the implementation of this path forward and associated system modifications on 20 April 2015. On 1 July 2015, in accordance with the approved path forward, recovery well RW-3 was taken off-line. RW-3 is activated on a monthly basis (for approximately one hour per month at a flowrate of approximately 200 gpm) for maintenance and/or sampling purposes. The flowrate of recovery well RW-1 was increased from approximately 800 gpm to approximately 1,000 gpm.

2.0 GWTP OPERATIONS AND MAINTENANCE

While designed to run completely automated, the GWTP requires regular visits by an operator to record and adjust operational parameters and to perform scheduled maintenance. The GWTP 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 GWTP were performed during the operator's visits. These activities include general site inspections, collection of operational data (water and vapor flowrates, differential pressures across the AS, carbon units, bag filter units and blower discharge pressures, tank levels and totalizer readings), measurement of water levels in the recovery wells, adjustment of pump signal settings, collection of vapor and process water samples, changing out of bag filters, switching of lead/lag pump assignments, and preventive maintenance of system equipment.

In addition, the following maintenance tasks were also performed during this reporting period:

- On 4 January, 9 February, 8 March, and 30 March, bag filters were changed out.
- On 19 January, the system was shut down in order to backwash the three LGAC units.
- On 19 February, the annual backflow preventer inspection was performed. Results were submitted to Bethpage Water District and New York State Department of Health (NYSDOH), as required.

2.2 Non-routine Maintenance / Site Activities

The following non-routine activities occurred during the First Quarter:

- As previously mentioned, on 1 July 2015, recovery well RW-3 was taken off-line and the pumping rate for RW-1 was increased. RW-3 was operated for approximately one hour each subsequent month to maintain the integrity of the well for potential future use.
- On 13 February, an alarm was received regarding the blower discharge pressure. The system was restarted later that day upon clearing of the alarm.
- On 16 February, multiple alarm calls were received, and it was determined that a fuse in the auto-dialer needed to be replaced. The fuse was replaced and the auto-dialer resumed normal operation.
- On 24 February, a rain gauge alarm was received. The system was restarted upon clearing of the alarm.
- On 25 February, the system went down due to a power interruption caused by storms and/or loss of power in the area. The system was restarted upon arrival by the operator and restoration of power.

3.0 GWTP MONITORING

The intent of the GWTP is to remove contaminant mass and reduce elevated VOC levels to levels similar to those in the surrounding aquifer. It is anticipated that GWTP operation will minimize contaminant impacts on water supply wells and currently unaffected portions of the groundwater aquifer. The GWTP is not intended to remediate groundwater contamination in the local aquifer to non-detectable levels (TtEC 2010). Various process samples (water and vapor) are collected on a monthly basis to monitor GWTP efficiency and to ensure compliance with Federal and State effluent discharge and air emission requirements. In addition, groundwater samples are collected semi-annually to monitor water quality and determine the effectiveness of the remediation activities and monitor the hydraulic containment and capture of impacted groundwater by the recovery wells.

3.1 Process Water Quality Monitoring

Processed groundwater is analyzed to comply with calculations submitted by the Navy and approved by NYSDEC Water Division for the effluent limitations and monitoring requirements. These results are also submitted to NYSDEC on a monthly basis in the form of a Discharge Monitoring Report (DMR). A copy of the approved NYSDEC effluent limitation and monitoring constituents and the reporting forms are included in **Appendix A**.

Monthly aqueous samples are collected from the active recovery well, RW-1, and the treated effluent (TE) discharge line. In addition, various intermediary process system samples are collected monthly, consisting of air stripper effluent (ASE), bag filter effluent (BFE), and effluent of each of the three LGAC units (LC1, LC2, and LC3). Sampling frequency of now inactive recovery well, RW-3, was reduced from monthly to semi-annually. The analytical results of monthly process water samples collected during the First Quarter are presented in **Table 1**. The data demonstrates that all permitted constituents were in compliance with regulatory requirements during the First Quarter. **Table 1** also summarizes the average monthly flowrates in gallons per minute along with the total volume of water processed during each month of the First Quarter.

Monthly DMRs for the First Quarter (January – March 2016) are included in **Appendix A**.

3.2 Air Quality Monitoring

Treated off-gas discharged at the stack of the GWTP is subject to emissions limitations. Original discharge goals were derived from calculations submitted by the Navy and approved by the NYSDEC Division of Air Resources (DAR) in July 2009. In November 2011, the Navy submitted an evaluation proposing revised discharge goals, which NYSDEC approved in October 2013. A copy of this documentation is included as **Appendix B**.

While only sampling of the stack emissions is required for NYSDEC compliance, process vapor samples are also collected using 6-L summa canisters at various locations to monitor for breakthrough of the VGAC units. The analytical results of monthly influent and effluent vapor samples as well as midfluent samples (VC12 and VC23) collected during the First Quarter are presented in **Table 2**. Air emissions calculations using the stack vapor concentrations along with discharge flowrates are presented in **Table 3**.

The calculations demonstrate that all constituents were within the regulatory requirements during the First Quarter based on the calculated emission rates.

3.3 Groundwater Quality Monitoring

The groundwater monitoring well system at the GM-38 Groundwater Remediation Area consists of fourteen monitoring wells (as summarized in **Table 4**), three recovery wells (RW-1, RW-2, RW-3) and one injection well (IW-1). Though RW-2 was installed in 2005, a pump was never installed in this well and the well is not operated as a recovery well due to concerns expressed by the Bethpage Water District. As mentioned above, RW-3 was taken off-line on 1 July 2015. Well locations are depicted on **Figure 3**.

Depth to water (DTW) measurements are collected from twelve of the monitoring wells on a quarterly basis. Prior to 2014, water quality samples were collected from eight of the monitoring wells on a quarterly basis; beginning in 2014, the sample collection frequency was reduced to semi-annually, with sample collection generally in the March and September time-frame. The monitoring network includes well clusters located near the recovery and injection wells as described below and as shown on **Figure 3**. In addition, two wells, GM-38D and GM-38D2, located at the corner of Arthur Avenue and Broadway, are monitored by others.

Semi-annual groundwater samples are collected from eight monitoring wells (RW1-MW1, RW1-MW3, RW2-MW1, RW3-MW1, RW3-MW2, RW3-MW3, RW3-MW4, and TP-01) and one recovery well (RW-3). Samples are collected from monitoring wells using bladder pumps in accordance with the U.S. Environmental Protection Agency (USEPA) low-flow sampling methodologies. Samples are collected from recovery well RW-3 using the dedicated extraction pump following a 3-well volume purge. Results of the groundwater sampling for the First Quarter are presented in Section 3.3.1 below, and descriptions of monitoring well locations are as follows:

Recovery Well 1 (RW-1) Monitoring Wells
The RW-1 cluster consists of three monitoring wells screened between 395 and 435 feet below ground surface (bgs). RW1-MW1 is located approximately 140 feet northwest of RW-1 and RW1-MW2 is located approximately 50 feet north of RW-1. RW1-MW3 is located approximately 400 feet northeast of RW-1, on the eastern side of Seaford Oyster Bay Expressway. All three wells are hydraulically monitored while only RW1-MW1 and RW1-MW3 are also monitored for water quality.

Recovery Well 2 (RW-2) Monitoring Wells
The RW-2 cluster consists of three monitoring wells screened between 470 and 510 feet bgs. RW2-MW1 is located approximately 60 feet northwest of RW-2, RW2-MW2 is located approximately 20 feet west of RW-2, and RW2-MW3 is located approximately 100 feet west of RW-2. All three wells are hydraulically monitored while only RW2-MW1 is monitored for water quality.

Recovery Well 3 (RW-3) Monitoring Wells
The RW-3 cluster consists of four monitoring wells. RW3-MW2 and RW3-MW4 are screened between 475 and 495 feet bgs. RW3-MW1 and RW3-MW3 are screened between 330 and 350 feet bgs and 320 and 340 feet bgs, respectively. RW3-MW1 and RW3-MW2 are located approximately 500 feet west of the GM-38 cluster, at the intersection of Arthur Avenue and Leroy Avenue. RW3-MW3 and RW3-MW4

are located approximately 400 feet north of the intersection of Arthur Avenue and Broadway. All four wells are both hydraulically monitored and monitored for water quality.

TP-01
TP-01 is screened between 450 and 470 feet bgs and is located approximately 25 feet north of the GWTP building, inside the fenced area. It is hydraulically monitored to observe the change in water levels due to the influence from the pumping rates at the neighboring public water supply well field near the hot spot area and is also monitored for water quality.

Injection Well 1 (IW-1) Monitoring Well
There is one monitoring well associated with injection well IW-1. IW1-MW1 is screened between 20 and 150 feet bgs, is located approximately 20 feet south of IW-1, and is only hydraulically monitored on a quarterly basis.

3.3.1 Groundwater Quality Results

KGS collected groundwater samples for the First Quarter on 21-22 March 2016. Field parameters measured during well purging, which consisted of pH, specific conductance (SC), temperature, oxidation-reduction potential (ORP) and dissolved oxygen (DO), are summarized in **Table 5**. Following stabilization of field parameters, groundwater samples were collected. Copies of the field logs and chain of custody documentation are presented in **Appendix C**.

Groundwater samples were submitted to a National Environmental Laboratory Accreditation Conference (NELAC), Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP) certified, laboratory, Analytical Laboratories Services, located in Middletown, PA. The samples were analyzed for VOCs (including tentatively identified compounds [TICs]) via USEPA Method 624, mercury via USEPA Method 245.1, and total suspended solids (TSS) via USEPA Method SM20 2540D. Validated analytical sampling results collected during the First Quarter monitoring event are summarized in **Table 6.** Data validation reports are presented in **Appendix D**. Raw analytical data is provided under separate cover.

3.3.2 Quality Assurance/Quality Control Sampling

Quality assurance/quality control (QA/QC) samples were collected during the semi-annual groundwater monitoring event in accordance with the *Final Sampling and Analysis Plan* (TtEC 2010a). These samples consisted of blind field duplicates (collected from RW2-MW1 during the First Quarter), matrix spike/matrix spike duplicate (MS/MSD) samples, equipment rinsate blanks (EB) collected at a rate of one per sampling event, and trip blanks (TB) submitted at a rate of one per sample cooler. No contaminants were detected in the equipment blank or trip blank submitted for this event. The overall lack of contamination in the blanks indicates that quality control requirements were achieved.

For field duplicate samples, the precision between the original sample and its duplicate is evaluated by calculating the relative percent difference (RPD). RPDs for the First Quarter sampling event are presented in the data validation report in **Appendix D**. As indicated, RPDs for most analytes were well

below the guideline of 50%, and a majority of the RPDs were below 10%. This overall consistency between the samples and its duplicate verifies that proper sample collection methods were followed.

3.3.3 Groundwater Concentration Trends

Historical groundwater analytical results through the First Quarter are presented in **Table 7**. Groundwater analytical results of select VOCs (cis-1,2-DCE, PCE, TCE, and vinyl chloride) for the First Quarter monitoring event are presented graphically as **Figure 4**. Additionally, concentration trends of select VOCs (cis-1,2-DCE, TCE, and PCE, as well as vinyl chloride for RW-1) over time for each recovery well (RW-1, sampled monthly, and RW-3 now sampled semi-annually) and the eight monitoring wells sampled during the First Quarter monitoring event are presented in **Figures 5 through 14** and discussed below.

Figure 5 presents concentrations detected at recovery well RW-1. Concentrations of TCE have decreased from initial concentrations in early 2010 (maximum value of 747 µg/L detected in April 2010), remaining below 300 µg/L since the latter half of 2012 and below 200 µg/L since May 2014. During the First Quarter 2016, concentrations ranged from 135-147 µg/L. Concentrations of cis-1,2-DCE have followed a similar trend, decreasing from a high of 160 µg/L in February 2010 to a low of 11.2 µg/L in December 2015. PCE concentrations have also exhibited decreasing trends over time, with concentrations decreasing from 180 µg/L in February 2010 to a low of 28.0 µg/L in March 2016. Concentrations of vinyl chloride have decreased below initial concentrations in 2010. After reaching a maximum concentration of 61 µg/L in February 2010, vinyl chloride concentrations have remained below 5.0 µg/L since the final quarter of 2011 and below 1.0 µg/L since June 2013.

Figure 6 presents concentrations detected at recovery well RW-3, with the most recent data collected in the First Quarter 2016. Concentrations of TCE have decreased from initial concentrations in February 2010 (660 µg/L), remaining below 300 µg/L from the latter half of 2012 through the Third Quarter 2015, with a low of 160 µg/L detected in December 2013. The TCE concentration of 370 µg/L observed in the First Quarter 2016 is an increase from concentrations observed in 2015, when concentrations ranged from 209 µg/L in May 2015 to 237 µg/L in September 2015. As previously mentioned, RW-3 was taken off-line on 1 July 2015 and is no longer actively pumping, which may have contributed to the recent increasing trend. Concentrations of cis-1,2-DCE have remained consistently below 4.0 µg/L, and below 2.0 µg/L since September 2013, though the concentration increased slightly to 2.4 µg/L in the First Quarter 2016. PCE has been detected at low levels during only a few sampling events, with the most recent detection of 0.79 J µg/L in March 2016. Vinyl chloride has not been detected during any sampling event.

Figure 7 presents concentrations detected at RW1-MW1, with the most recent data collected in the First Quarter 2016. The concentration of TCE in the First Quarter 2016 (114 µg/L) was higher than initial concentrations observed in May 2005 (53.6 µg/L) but less than the highest concentration observed to date (175 µg/L in September 2013). The concentration of cis-1,2-DCE in the First Quarter 2016 (20.0 µg/L) was below the initial concentration observed in May 2005 (78.6 µg/L), below the maximum concentration observed in May 2009 (180 µg/L), and the lowest concentration observed to date. Concentrations of PCE have remained consistently below 1.0 µg/L.

Figure 8 presents concentrations detected at RW1-MW3, with the most recent data collected in the First Quarter 2016. Concentrations of cis-1,2-DCE and PCE have consistently remained below 1.0 µg/L. Concentrations of TCE have also remained low, ranging from 0.58 J µg/L in July 2010 to a maximum of 4.5 µg/L in March 2016.

Figure 9 presents concentrations detected at RW2-MW1, with the most recent data collected in the First Quarter 2016. Concentrations of TCE in the First Quarter 2016 (43.9 µg/L) were greater than initial concentrations observed in May 2005 (37.6 µg/L), and also the highest TCE concentration observed to date. The concentration of cis-1,2-DCE observed in the First Quarter 2016 (15.3 µg/L) was also above initial concentrations observed in May 2005 (non-detect) and also the maximum observed to date. PCE has not been detected during any sampling event.

Figure 10 presents concentrations detected at RW3-MW1, with the most recent data collected in the First Quarter 2016. Concentrations of TCE in the First Quarter 2016 (37.6 µg/L) were slightly higher than initial concentrations observed in January 2010 (35.0 µg/L), though remain less than maximum TCE concentrations observed in November 2010 (77.6 µg/L). Concentrations of cis-1,2-DCE have remained consistently below 1.0 µg/L and concentrations of PCE have remained consistently near or below 2.0 µg/L, with a concentration of 2.5 µg/L in the First Quarter 2016.

Figure 11 presents concentrations detected at RW3-MW2, with the most recent data collected in the First Quarter 2016. TCE concentrations observed in the First Quarter 2016 (204 µg/L) were above initial concentrations observed in January 2010 (160 µg/L), but slightly below the maximum concentration observed in April 2010 (211 µg/L). Concentrations of cis-1,2-DCE at this location have consistently remained between 1.0 – 2.0 µg/L. PCE has only been detected during a few sampling events, with concentrations ranging from 0.28 J µg/L in August 2012 to 0.66 J µg/L in March 2016.

Figure 12 presents concentrations detected at RW3-MW3, with the most recent data collected in the First Quarter 2016. TCE concentrations observed in the First Quarter 2016 (284 µg/L) were less than initial concentrations observed in January 2010 (350 µg/L), and also less than the maximum concentration observed in June 2013 (410 µg/L). Concentrations of cis-1,2-DCE have remained near or below 2.0 µg/L and PCE has remained below 1.0 µg/L.

Figure 13 presents concentrations detected at RW3-MW4, with the most recent data collected in the First Quarter 2016. TCE concentrations have decreased since the initial sampling event in January 2010 (21 µg/L), with a concentration of 2.9 µg/L observed in the First Quarter 2016. PCE was detected for the first time in the Third Quarter 2015 at a concentration of 0.31 J µg/L and was detected again during the First Quarter 2016 at a concentration of 0.46 J µg/L, and cis-1,2-DCE has not been detected since the initial sampling event in January 2010 (0.46 µg/L).

Figure 14 presents concentrations detected at TP-01, with the most recent data collected in the First Quarter 2016. TCE concentrations observed in the First Quarter 2016 (61.7 µg/L) were slightly less than initial concentrations observed in January 2010 (65 µg/L), which was also the maximum concentration observed to date. Concentrations of cis-1,2-DCE have generally decreased over time, from an initial

value of 190 µg/L to 10.8 µg/L in the First Quarter 2016. PCE concentrations have ranged from non-detectable levels in March 2014 to 6.0 µg/L in June 2012.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The intent of the groundwater treatment system at GM-38 is to remove mass and reduce elevated VOC concentrations to levels similar to those in the surrounding aquifer, and in doing so minimize the impacts on downgradient water supply wells and currently unaffected portions of the aquifer. Based on the removal of VOCs by the GWTP and decreasing contaminant concentration trends observed in the recovery wells and several of the monitoring wells, progress toward these goals is apparent. However, VOC concentrations in recovery well RW-3 and surrounding monitoring wells should continue to be evaluated to determine if concentrations are rebounding since deactivation of RW-3 in July 2015 and whether reactivation of RW-3 or other operational changes are warranted.

Based on the concentrations in the groundwater wells, the GWTP should continue to be operated. In accordance with the O&M Manual, the groundwater sampling frequency for the eight monitoring wells has been reduced to semi-annually. Water levels for the 14 monitoring wells will continue to be monitored on a quarterly basis.

5.0 REFERENCES

Tetra Tech, Inc. (Tetra Tech). 2014. *Capture Zone Evaluation and Path Forward, GM-38 Area Groundwater Treatment Plant, Naval Weapons Industrial Reserve Plant, Bethpage, New York.* March.

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TABLES

Table 1
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Discharge Monitoring Results
First Quarter 2016

SPDES Parameters	Daily Maximum Goal	Units	January 2016									
Process Stream			RW-1 [1]	RW-3 [1]	Combined Influent [1] (RW-1 + RW-3)	Air Stripper Effluent (ASE)	Bag Filter Effluent (BFE)	Liquid Carbon 1 Effluent (LC1)	Liquid Carbon 2 Effluent (LC2)	Liquid Carbon 3 Effluent (LC3)	Treated Effluent (TE)	Treated Effluent (TE) Duplicate
Well Depth		ft	445	530	NA	NA	NA	NA	NA	NA	NA	NA
Screened Interval		ft	335-395 410-430	392-412 442-504	NA	NA	NA	NA	NA	NA	NA	NA
Sampling Date			1/7/16									
Average Flowrate	1100	GPM	987	0.2	987	NR	986	NR	NR	NR	1,022	NR
Total Flow		gallons	44,068,260	10,000	44,078,260	NR	44,007,260	NR	NR	NR	45,632,760	NR
pH	5.5 - 8.5	SU	5.49	NA	5.49	5.96	6.05	6.07	6.08	6.08	6.09	6.05
Carbon Tetrachloride	NA	µg/L	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,1-Dichloroethane	5	µg/L	2.2	NA	2.2	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,2-Dichloroethane	0.6	µg/L	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,1-Dichloroethene	5	µg/L	2.7	NA	2.7	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
cis 1,2-Dichloroethene	5	µg/L	12.8	NA	13	0.37 J	0.33 J	ND (1.0)	0.29 J	0.29 J	0.27 J	0.28 J
trans 1,2-Dichloroethene	5	µg/L	0.28 J	NA	0.28 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Tetrachloroethene	5	µg/L	33.7	NA	33.7	0.31 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,1,1-Trichloroethene	5	µg/L	1.5	NA	1.5	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Trichloroethene	5	µg/L	147	NA	147	2.0	1.6	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Vinyl Chloride	2	µg/L	0.47 J	NA	0.47 J	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Mercury	0.00025	mg/L	ND (0.00050)	NA	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)
Total Suspended Solids (TSS)	NA	mg/L	ND (5)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)

Table 1
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Discharge Monitoring Results
First Quarter 2016

SPDES Parameters	Daily Maximum Goal	Units	February 2016									
Process Stream			RW-1 [(1)]	RW-3 [(1)]	Combined Influent [(1)] (RW-1 + RW-3)	Air Stripper Effluent (ASE)	Bag Filter Effluent (BFE)	Liquid Carbon 1 Effluent (LC1)	Liquid Carbon 2 Effluent (LC2)	Liquid Carbon 3 Effluent (LC3)	Treated Effluent (TE)	Treated Effluent (TE) Duplicate
Well Depth		ft	445	530	NA	NA	NA	NA	NA	NA	NA	NA
Screened Interval		ft	335-395 410-430	392-412 442-504	NA	NA	NA	NA	NA	NA	NA	NA
Sampling Date			2/4/16									
Average Flowrate	1100	GPM	954	0.3	955	NR	953	NR	NR	NR	988	NR
Total Flow		gallons	39,855,800	10,700	39,866,500	NR	39,810,400	NR	NR	NR	41,269,950	NR
pH	5.5 - 8.5	SU	5.41	NA	5.41	5.94	6.07	6.08	6.08	6.08	6.07	6.07
Carbon Tetrachloride	NA	µg/L	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,1-Dichloroethane	5	µg/L	1.9	NA	1.9	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,2-Dichloroethane	0.6	µg/L	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,1-Dichloroethene	5	µg/L	1.8	NA	1.8	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
cis 1,2-Dichloroethene	5	µg/L	11.6	NA	11.6	0.42 J	0.34 J	0.28 J	ND (1.0)	0.29 J	0.27 J	0.28 J
trans 1,2-Dichloroethene	5	µg/L	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Tetrachloroethene	5	µg/L	29.5	NA	29.5	0.30 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,1,1-Trichloroethene	5	µg/L	1.3	NA	1.3	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Trichloroethene	5	µg/L	135	NA	135	2.0	1.7	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Vinyl Chloride	2	µg/L	0.50 J	NA	0.50 J	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Mercury	0.00025	mg/L	ND (0.00050)	NA	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)
Total Suspended Solids (TSS)	NA	mg/L	ND (5)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)

Table 1
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Discharge Monitoring Results
First Quarter 2016

SPDES Parameters	Daily Maximum Goal	Units	March 2016									
Process Stream			RW-1 (1)	RW-3 (1) (2)	Combined Influent (1) (RW-1 + RW-3)	Air Stripper Effluent (ASE)	Bag Filter Effluent (BFE)	Liquid Carbon 1 Effluent (LC1)	Liquid Carbon 2 Effluent (LC2)	Liquid Carbon 3 Effluent (LC3)	Treated Effluent (TE)	Treated Effluent (TE) Duplicate
Well Depth		ft	445	530	NA	NA	NA	NA	NA	NA	NA	NA
Screened Interval		ft	335-395 410-430	392-412 442-504	NA	NA	NA	NA	NA	NA	NA	NA
Sampling Date			3/3/16									
Average Flowrate	1100	GPM	982	0.5	983	NR	982	NR	NR	NR	1,007	NR
Total Flow		gallons	43,852,500	24,100	43,876,600	NR	43,848,100	NR	NR	NR	44,942,850	NR
pH	5.5 - 8.5	SU	5.27	NA	5.27	5.85	5.88	5.92	5.95	5.99	6.01	6.00
Carbon Tetrachloride	NA	µg/L	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,1-Dichloroethane	5	µg/L	2.1	NA	2.1	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,2-Dichloroethane	0.6	µg/L	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,1-Dichloroethene	5	µg/L	1.9	NA	1.9	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
cis 1,2-Dichloroethene	5	µg/L	12.0	NA	12.0	0.38 J	0.33 J	0.29 J	0.27 J	0.29 J	0.28 J	0.33 J
trans 1,2-Dichloroethene	5	µg/L	0.23 J	NA	0.23 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Tetrachloroethene	5	µg/L	28.0	NA	28.0	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,1,1-Trichloroethene	5	µg/L	1.3	NA	1.3	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Trichloroethene	5	µg/L	145	NA	145	2.2	2.0	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Vinyl Chloride	2	µg/L	0.50 J	NA	0.50 J	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Mercury	0.00025	mg/L	ND (0.00050)	NA	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)
Total Suspended Solids (TSS)	NA	mg/L	ND (5)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)

Notes:
J - Estimated result between laboratory method detection limit and reporting limit
NA - Not Applicable
ND - Not detected above laboratory method detection limit. Limit of detection (LOD) given in parentheses.
NR - Not Recorded
NS - Not Sampled
gpm - gallons per minute

(1) On 1 July 2015, the RW-1 flowrate was increased from ~800 gpm to ~1,000 gpm and RW-3 was taken off-line, as approved by NYSDEC on 20 April 2015. To maintain the integrity of RW-3 for potential future use, approximately 200 gallons per minute of water are pumped for a 1-hour period from the well on a monthly basis. RW-3 will be sampled semi-annually, consistent with the groundwater monitoring program. Influent concentrations presented above are therefore equivalent to RW-1 concentrations only.
(2) Analytical results for the March 2016 sample collection of RW-3 are presented in Tables 6 and 7.

Table 2
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Air Sampling Results
First Quarter 2016

DAR Parameters	Discharge Goal [3]	Units	January 2016					February 2016				
Process Stream			Influent (VCI1)	VC12	VC23	Effluent	Effluent Duplicate	Influent (VCI1)	VC12	VC23	Effluent	Effluent Duplicate
Sampling Date			1/7/16					2/4/16				
Average Flowrate		CFM	NR	NR	NR	9,415	NR	NR	NR	NR	9,545	NR
Total Flow [1]		ft^3	NR	NR	NR	420,276,672	NR	NR	NR	NR	398,593,234	NR
Total Flow [2]		m^3	NR	NR	NR	11,900,910	NR	NR	NR	NR	11,286,903	NR
1,2-Dichloroethane	NA	$\mu g/m^3$	3.1	ND	ND	ND	ND	3.3 J	ND	ND	ND	ND
cis 1,2-Dichloroethene	> 100,000 [4]	$\mu g/m^3$	110	ND	ND	ND	1.7 J	130	1.3 J	ND	ND	ND
trans 1,2-Dichloroethene		$\mu g/m^3$	2.0 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene (total)	> 100,000	$\mu g/m^3$	120	ND	ND	ND	ND	130	ND	ND	ND	ND
Toluene	NA	$\mu g/m^3$	4.4	1.3 J	ND	ND	0.66 J	ND	ND	ND	ND	0.92 J
Xylene	NA	$\mu g/m^3$	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	NA	$\mu g/m^3$	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	2,600	$\mu g/m^3$	1,400	8.5	28	5.7	44	1,400	19	30	8.6	1.3 J
Vinyl Chloride	560	$\mu g/m^3$	3.8	3.8	3.8	1.8 J	1.9 J	4.3	4.4	4.3	1.8 J	ND
Tetrachloroethene	5,100	$\mu g/m^3$	310	9.8	30	2.8 J	16	360	22	26	3.8 J	ND

Table 2
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Air Sampling Results
First Quarter 2016

DAR Parameters	Discharge Goal [3]	Units	March 2016				
Process Stream			Influent (VCI1)	VC12	VC23	Effluent	Effluent Duplicate
Sampling Date			3/3/16				
Average Flowrate		CFM	NR	NR	NR	9,509	NR
Total Flow [1]		ft^3	NR	NR	NR	424,492,920	NR
Total Flow [2]		m^3	NR	NR	NR	12,020,301	NR
1,2-Dichloroethane	NA	$\mu g/m^3$	3.0 J	ND	ND	ND	0.74 J
cis 1,2-Dichloroethene	> 100,000 [4]	$\mu g/m^3$	130	42	0.42 J	ND	0.85 J
trans 1,2-Dichloroethene		$\mu g/m^3$	1.8 J	1.2 J	ND	ND	ND
1,2-Dichloroethene (total)	> 100,000	$\mu g/m^3$	130	44	ND	ND	ND
Toluene	NA	$\mu g/m^3$	16	0.40 J	0.28 J	0.99 J	23
Xylene	NA	$\mu g/m^3$	7.8	ND	ND	ND	9.6
1,1,2-Trichloroethane	NA	$\mu g/m^3$	ND	ND	ND	ND	0.89 J
Trichloroethene	2,600	$\mu g/m^3$	1,500	27	23	4.7	2.4 J
Vinyl Chloride	560	$\mu g/m^3$	3.7	4.2	4.7	1.8 J	1.8 J
Tetrachloroethene	5,100	$\mu g/m^3$	400	71	24	3.0 J	2.5 J

Notes:
NA - Not applicable
ND - Not detected
NR - Not recorded
NS - Not sampled
SGC - Short-term Guideline Concentration
$\mu g/m^3$ - micrograms per cubic meter
CFM - cubic feet per minute
DAR - Division of Air Rescources
(1) Total Flow (ft^3) = avg flowrate (cfm) * operational time (min)
(2) Total Flow (m^3) = total flow (ft^3) * (0.3048^3)m^3/ft^3
(3) Disharge goal as approved by NYSDEC's letter dated 31 October 2013.
(4) Discharge goal is for total 1,2-Dichloroethene.

Table 3
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Stack Emissions
First Quarter 2016

DAR Parameters	Discharge Goal [(1)]	Units	January 2016	February 2016	March 2016
Sampling Date			1/7/16	2/4/16	3/3/16
Average Flowrate		CFM	9,415	9,545	9,509
Total Flow		ft^3	420,276,672	398,593,234	424,492,920
Total Flow		m^3	11,900,910	11,286,903	12,020,301
Trichloroethene	0.09	lb/hr	0.00020	0.00031	0.00017
Vinyl Chloride	0.02	lb/hr	0.00006	0.00006	0.00006
1,2 Dichloroethene	11	lb/hr	0.00000	0.00000	0.00000
1,2-Dichloroethane	NA	lb/hr	0.00000	0.00000	0.00000
Toluene	NA	lb/hr	0.00000	0.00000	0.00004
Xylene	NA	lb/hr	0.00000	0.00000	0.00000
1,1,2-Trichloroethane	NA	lb/hr	0.00000	0.00000	0.00000
Tetrachloroethene	0.18	lb/hr	0.00010	0.00014	0.00011

Notes:
NA - Not applicable
lb/hr - pounds per hour
DAR - Divison of Air Resources
CFM - Cubic feet per minute
Stack Emissions (lb/hr) = average flowrate (cfm) * $(0.3048^{\wedge 3})m^3/ft^3$ * conc.(ug/m^3) * 1 lb/453592370 ug * 60 min/hr

(1) Discharge goal as approved by NYSDEC's letter dated 31 October 2013.

Table 4
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Level Measurements
First Quarter 2016

Monitoring Well ID	Date	Well Elevation (ft amsl)	Total Depth (ft)	Screen Interval (ft)	Depth to Water (ft)	Groundwater Elevation (ft amsl)
RW1-MW1	03/21/16	85.86	435	395-435	36.67	49.19
RW1-MW2	03/21/16	87.35	435	395-435	39.76	47.59
RW1-MW3	03/21/16	80.34	435	395-435	29.53	50.81
RW2-MW1	03/21/16	90.75	510	470-510	39.65	51.10
RW2-MW2	03/21/16	90.15	510	470-510	38.82	51.33
RW2-MW3	03/21/16	89.75	510	470-510	38.50	51.25
RW3-MW1	03/21/16	92.22	350	330-350	38.47	53.75
RW3-MW2	03/21/16	91.98	495	475-495	39.67	52.31
RW3-MW3	03/21/16	92.98	340	320-340	39.88	53.10
RW3-MW4	03/21/16	92.92	495	475-495	40.48	52.44
TP-01	03/21/16	85.91	470	450-470	34.67	51.24
IW1-MW1	03/21/16	89.41	150	20-150	37.32	52.09
GM38D	NA	91.37	340	320-340	NA	NA
GM382D	NA	91.57	495	475-495	NA	NA

Notes:
amsl - above mean sea level
ft - feet
NA - Not Available

Table 5
Summary of Final Groundwater Chemistry Data
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Summary of Groundwater Chemistry Results
First Quarter 2016

Location	Temp (ºC)	pH (SU)	S.C. (uS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Color (Visual)
RW1-MW1	12.78	4.44	163	0.72	307.3	0.07	clear
RW1-MW3	13.25	4.89	171	0.57	259.4	2.34	clear
RW2-MW1	12.76	5.96	225	0.18	20.6	25.1	clear with rust-colored particles
RW3-MW1	12.34	4.64	115	5.17	282.0	4.99	clear
RW3-MW2	12.87	4.74	88	0.17	271.5	1.17	clear
RW3-MW3	13.10	4.91	129	1.09	289.4	6.82	clear
RW3-MW4	13.18	4.63	144	0.21	267.2	4.32	clear
TP-01	12.76	6.03	146	8.12	223.6	0.51	clear

Notes:
S.C. = Specific Conductance
mS/cm = milliSiemens per centimeter
NTU = nephelometric turbidity units
mg/L = milligrams per liter
ºC = degrees celsius
mV = millivolts
SU = standard units
ORP = oxidation/reduction potential

Table 6
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Summary of Detected Groundwater Analytical Results
First Quarter 2016

Sample ID	RW1-MW1	RW1-MW3	RW2-MW1	RW2-MW1	RW3-MW1	RW3-MW2	RW3-MW3	RW3-MW4	TP-01	RW-3 (2)
Sample Date	3/22/2016	3/21/2016	3/21/2016	3/21/2016	3/22/2016	3/22/2016	3/21/2016	3/21/2016	3/21/2016	3/22/2016
Comments				Duplicate						
VOCS (EPA 624) ug/L (1)										
Benzene	ND	ND	ND	0.18 J	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	ND	0.41 J	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	7.0 J	1.6 J	ND	ND	ND	ND	ND	ND
Chloroform	0.48 J	0.79 J	3.4	3.5	ND	0.27 J	ND	0.64 J	1.7	0.46 J
1,1-dichloroethane	6.5	7.4	8.7	8.5	0.40 J	0.52 J	4.0	4.9	1.8	2.1
1,2-dichloroethane	ND	ND	1.4	1.3	ND	ND	ND	ND	0.86 J	ND
1,1-dichloroethene	2.2	2.5	3.7	3.4	0.29 J	0.46 J	2.4	0.85 J	0.75 J	2.5
cis-1,2-dichloroethene	20.0	0.58 J	15.3	15.0	ND	1.7	1.1	ND	10.8	2.4
trans-1,2-dichloroethene	0.51 J	ND	ND	ND	ND	ND	ND	ND	ND	0.23 J
Methylene chloride	ND	ND	ND	ND	ND	ND	ND	0.43 J	0.37 J	0.64 J
1,1,2,2-tetrachloroethane	ND	0.25 J	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.67 J	ND	ND	ND	2.5	0.66 J	0.71 J	0.46 J	0.72 J	0.79 J
Toluene	ND	ND	0.20 J	ND	ND	ND	ND	ND	ND	ND
1,1,1-trichloroethane	ND	2.1	ND	ND	0.30 J	0.47 J	1.1	0.48 J	ND	1.3
1,1,2-trichloroethane	ND	0.47 J	ND	ND	ND	0.32 J	ND	ND	ND	0.49 J
Trichloroethene	114	4.5	43.9	44.2	37.6	204	284	2.9	61.7	371
Mercury (EPA 245.1) ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TSS (SM20 2540D) mg/L	ND	ND	24	26	ND	ND	ND	ND	ND	ND

Notes:
J = estimated value
ND = Not detected above laboratory method detection limit
mg/L = milligrams per liter
µg/L = micrograms per liter

(1) Samples were analyzed for TCL VOCs (including tentatively identified compounds [TICs]). Only those VOCs detected are presented above.
(2) RW-3, previously an active extraction well sampled on a monthly basis, was taken off-line on 7/1/15. RW-3 is now sampled semi-annually, in conjunction with the semi-annual LTM events.

Table 7
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Summary of Historical Groundwater Analytical Results
Through First Quarter 2016

Sample ID	RW1-MW1																										
Sample Date	5/4/2005	7/22/2005	5/27/2009	1/21/2010	4/21/2010	7/28/2010	11/10/2010	3/25/2011	6/14/2011[1]	6/14/2011	9/28/2011	11/30/2011	3/8/2012	6/6/2012	6/6/2012	8/21/2012	12/4/2012	3/13/2013	6/19/2013[2]	9/17/2013	12/16/2013	3/24/2014	3/24/2014	9/22/2014	3/25/2015	9/15/2015	3/22/2016
Comments										Duplicate					Duplicate								Duplicate				
Well Depth (Ft)	435																										
Screened Interval (Ft)	395-435																										
VOCS (EPA 624) ug/L [4]																											
Acrolein	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	30 R	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-butanone	R	R	ND	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR
carbon disulfide	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Carbon tetrachloride	ND	ND	0.32J	ND	ND	ND	0.17J	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	NR	NR	ND	NR	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-chloroethylvinyl ether	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	2.0 R	ND	ND	ND	ND	ND
Chloroform	ND	0.7J	1.1	ND	0.70J	0.65J	0.56J	0.55J	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.55 J	0.39 J	ND	ND	0.48 J
Chloromethane	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cyclohexane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dibromo-3-chloro-propane	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dibromomethane	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dichlorobenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND
1,3-dichlorobenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND
1,4-dichlorobenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND
dichlorodifluoromethane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
1,1-dichloroethane	0.74J	0.79J	3.3	2.9J	2.8	2.8	3.0	3.6	1.6 J	4.2 J	4.0 J	4.1	5.2	4.8	4.3	5.3	4.9	5.3	4.8 J	4.7 J	5.2	5.3	5.3	4.1 J	5.1	5.1	6.5
1,2-dichloroethane	ND	ND	0.29J	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	1.3	2.8	3.1	1.7J	1.9	1.7	1.7	1.9	0.85 J	2.1 J	2.3 J	2.1	2.7	2.5	2.3	2.8	2.0	2.8	ND	2.5	2.6	2.8	2.7	2.2 J	2.2 J	1.9	2.2
cis-1,2-dichloroethene	78.6	80.4	180D	130	121	118	108	121	55.8 J	145 J	164	132	179	165	145	167	108	91.7	64	86.2 J	84.4	92.6 J	94.2	49.8	39.5	22.0	20.0
trans-1,2-dichloroethene	2.0	1.3J	2.8	4J	2.9	2.1	1.3	4.2	0.71 J	2.0 J	2.0 J	1.7	3.0	3.7	2.6	2.4	1.8	1.7	ND	ND	1.4	1.4	1.4	1.0	0.79 J	0.50 J	0.51 J
1,2-dichloropropane	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-dioxane	1.75J	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-hexanone	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
isopropylbenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
methyl acetate	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Methylene chloride	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
methylcyclohexane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4-methyl-2-pentanone	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
methyl-tert-butyl-ether	NR	NR	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
styrene	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
1,1,2,2-tetrachloroethane	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-trichlorobenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethene	ND	ND	0.72J	ND	0.42J	ND	ND	ND	ND	ND	0.36 J	ND	ND	ND	ND	ND	ND	ND	ND	0.35 J	0.67 J	0.33 J	0.37 J	0.76 J	0.30 J	0.62 J	0.67 J
Toluene	ND	0.33J	0.68	ND	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-trichloroethane	ND	ND	0.71J	ND	0.52J	0.43J	0.53J	0.79J	ND	0.63 J	1.1 J	0.66 J	0.96 J	0.98 J	0.89 J	0.99 J	0.88 J	1.1	ND	1.2	1.5	ND	ND	ND	ND	ND	ND
1,1,2-trichloroethane	ND	ND	0.58J	NR	ND	ND	ND	ND	NR	NR	ND	0.33 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	53.6	52.7	140.0	79.0	116	95.4	84.2	97.6	26.6 J	73.8 J	129	84.5	115	107	102	126	85	101	78	175	128	101	103	94.3	99.5	98.9	114
m,p-xylene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
Trichlorofluoromethane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
Trichlorotrifluoroethane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
o-xylene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
1,1,2-trichloro-1,2,2-trifluoroethane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Vinyl chloride	ND	ND	1.6	ND	ND	ND	0.17J	ND	ND	0.38 J	0.29 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
xylenes (total)	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Mercury (EPA 245.1) ug/L	NR	NR	ND	0.20	<0.20	<0.20	<0.20	<0.20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TSS (SM20 2540D) mg/L	NR	NR	2.8	2.8	6.0	4.0	4.0	4.0	ND	6	ND	11	16	9	5	6	ND	ND	ND	ND	11	ND	ND	ND	ND	ND	ND

Table 7
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Summary of Historical Groundwater Analytical Results
Through First Quarter 2016

Sample ID	RW1-MW2				RW1-MW3																			
Sample Date	5/4/2005	7/22/2005	5/28/2009	6/18/2013[2]	1/20/2010	4/21/2010	7/29/2010	11/10/2010	3/25/2011	6/14/2011	9/28/2011	11/30/2011	3/8/2012	6/7/2012	8/22/2012	12/7/2012	3/14/2013	6/19/2013[2]	9/17/2013	12/17/2013	3/25/2014	9/23/2014	3/25/2015	9/14/2015	3/21/2016
Comments																								
Well Depth (Ft)	435				435																			
Screened Interval (Ft)	395-435				395-435																			
VOCS (EPA 624) ug/L [4]																								
Acrolein	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	30 R	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-butanone	R	R	ND	ND	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	ND	ND	NR	NR	NR	NR	NR	NR
carbon disulfide	ND	ND	ND	NR	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.41 J
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	NR	NR	ND	ND	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-chloroethylvinyl ether	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	1.4	ND	ND	0.67J	0.80J	0.47J	0.69J	0.73J	NR	0.97 J	ND	0.73 J	0.64 J	ND	1.2 J	ND	0.82	ND	ND	0.74 J	0.67 J	0.79 J	ND	0.79 J
Chloromethane	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.29 J	ND	ND
cyclohexane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dibromo-3-chloro-propane	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dibromomethane	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dichlorobenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-dichlorobenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-dichlorobenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
dichlorodifluoromethane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1-dichloroethane	4.6	5.5	3.4	3.9	2.4	4.6	1.5	2.3	2.4	9.3	10.1 J	2.1	8.4	5.7	9.4	9.3	8.5	10	9.7 J	8.1	8.6	6.1 J	8.1	7.7	7.4
1,2-dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.18 J	ND	ND	ND	ND	ND	ND	ND
1,1-dichloroethene	3.2	12.3	ND	ND	0.42J	1.10	ND	0.28J	ND	1.8	2.2 J	ND	1.8	0.86 J	2.4	2.2	1.7	1.8	1.6	1.9	2.1	1.6 J	2.3 J	2.3	2.5
cis-1,2-dichloroethene	181.0	47.6	160.0	120	0.54J	0.48J	0.36J	0.55J	0.58J	0.59 J	0.43 J	0.55 J	0.68 J	0.33 J	0.56 J	0.46 J	0.53 J	0.46 J	0.72 J	0.60 J	0.57 J	0.44 J	0.54 J	0.49 J	0.58 J
trans-1,2-dichloroethene	2.5	7.6	2.5	1.9 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-dichloropropane	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-dioxane	4.01	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-hexanone	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR
isopropylbenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
methyl acetate	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Methylene chloride	1.0	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
methylcyclohexane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4-methyl-2-pentanone	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR
methyl-tert-butyl-ether	NR	NR	ND	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
styrene	ND	ND	ND	NR	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1,2,2-tetrachloroethane	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	0.23 J	ND	ND	ND	0.20 J	ND	ND	ND	ND	ND	ND	0.25 J
1,2,4-trichlorobenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethene	ND	134.0	19.0	5.9	ND	049J	ND	ND	ND	0.33 J	0.62 J	ND	0.65 J	0.30 J	0.97 J	0.40 J	ND	ND	ND	ND	ND	ND	ND	0.50 J	ND
Toluene	0.32J	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-trichloroethane	1.3	1.0	ND	ND	0.41J	0.98J	ND	0.26J	0.33J	1.6	2.7 J	ND	ND	1.1 J	1.9	1.7	1.4	1.8	1.5	2.0	1.7	1.2 J	1.5	1.6	2.1
1,1,2-trichloroethane	ND	0.65J	ND	ND	0.62J	0.60J	0.36J	0.55J	0.41J	NR	0.57 J	0.63 J	0.70 J	0.61 J	0.56 J	0.54 J	0.61 J	0.46 J	ND	0.55 J	0.46 J	0.46 J	0.43 J	0.44 J	0.47 J
Trichloroethene	158.0	198.0	200.0	64	1.2	1.6	0.58J	0.91J	1.0	1.4	1.8 J	1.0 J	2.2	1.3	2.3	1.6	1.9	1.7	2.5	3.2	2.5	1.9	2.0	2.4	4.5
m,p-xylene	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR
Trichlorofluoromethane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR
Trichlorotrifluoroethane	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR
o-xylene	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR
1,1,2-trichloro-1,2,2-trifluoroethane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Vinyl chloride	12.9	187.0	4.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
xylenes (total)	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR
Mercury (EPA 245.1) ug/L	NR	NR	0.20	NR	NR	<0.20	<0.20	<0.20	<0.20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TSS (SM20 2540D) mg/L	NR	NR	4.0	NR	NR	8.0	<4.0	<4.0	<4.0	ND	ND	ND	5	ND	ND	ND	ND	ND	ND	ND	5	ND	ND	ND	ND

Table 7
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Summary of Historical Groundwater Analytical Results
Through First Quarter 2016

Sample ID	RW2-MW1																									RW2-MW2		
Sample Date	**5/4/2005**	**7/20/2005**	**5/27/2009**	**1/18/2010**	**4/21/2010**	**7/28/2010**	**11/3/2010**	**3/24/2011**	**6/14/2011**	**9/27/2011**	**11/29/2011**	**3/7/2012**	**6/6/2012**	**8/21/2012**	**12/7/2012**	**3/13/2013**	**6/17/2013[2]**	**9/17/2013**	**12/17/2013**	**12/17/2013**	**3/25/2014**	**9/23/2014**	**3/26/2015**	**9/14/2015**	**3/21/2016**	**3/21/2016**	**5/4/2005**	**7/21/2005**	**6/17/2013[2]**
Comments																				**Duplicate**						**Duplicate**			
Well Depth (Ft)	**510**																										**510**		
Screened Interval (Ft)	**470-510**																										**470-510**		
VOCS (EPA 624) ug/L [4]																													
Acrolein	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	30 R	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR
Acrylonitrile	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR
Acetone	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND
Benzene	ND	ND	ND	ND	0.15J	0.69J	0.58J	0.30J	NR	0.22 J	0.27 J	0.22 J	ND	ND	0.68 J	0.54 J	ND	0.59 J	ND	ND	0.21 J	0.21 J	0.56 J	ND	ND	0.18 J	ND	ND	ND
Bromodichloromethane	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.8 J	ND	ND	ND	ND	ND	ND	ND	ND
2-butanone	R	R	ND	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	R	R	ND
carbon disulfide	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	NR
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.0 J	1.6 J	ND	ND	ND
Dibromochloromethane	NR	NR	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	ND
Chloroethane	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-chloroethylvinyl ether	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	ND	2.0 R	2.0 R	ND	ND	ND	ND	ND	ND	NR	NR	NR
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	0.38 J	ND	ND	ND	2.9	ND	ND	ND	2.8 J	1.5	0.46 J	2.2	3.4	3.5	ND	ND	0.55
Chloromethane	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.68 J	ND	ND	ND	ND	ND	ND	ND	ND
cyclohexane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dibromo-3-chloro-propane	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	NR
1,2-dibromomethane	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	NR
1,2-dichlorobenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR
1,3-dichlorobenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR
1,4-dichlorobenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR
dichlorodifluoromethane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1-dichloroethane	0.53J	0.93J	1.2J	0.82J	0.60J	0.58J	0.42J	ND	0.61 J	0.64 J	ND	0.50 J	4.2	4.8	0.58 J	0.52 J	7.0	ND	5.8	6.4	5.1	ND	2.1	6.3	8.7	8.5	ND	0.78J	4.9
1,2-dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	ND	1.9 J	1.7 J	1.3	0.69 J	0.41 J	1.4	1.4	1.3	ND	ND	0.32 J
1,1-dichloroethene	ND	0.58J	0.55J	0.63J	ND	ND	ND	ND	ND	ND	ND	ND	0.55 J	0.95 J	0.19 J	ND	1.9	ND	2.6	2.6	1.8	1.3 J	0.61 J	2.6	3.7	3.4	ND	0.41J	0.72
cis-1,2-dichloroethene	ND	0.55J	1.9	1.0	0.78J	0.80J	0.55J	0.43J	0.56 J	0.32 J	0.39 J	0.34 J	0.32 J	0.39 J	0.33 J	0.29 J	7.7	0.77 J	11.0 J	11.1 J	8.0	4.0	2.6	13.3	15.3	15.0	0.33J	0.41J	4.6
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	ND	ND	ND	ND
1,2-dichloropropane	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-dioxane	5.34	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	7.45J	NR	NR
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-hexanone	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND
isopropylbenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
methyl acetate	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Methylene chloride	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
methylcyclohexane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4-methyl-2-pentanone	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND
methyl-tert-butyl-ether	NR	NR	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
styrene	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	NR
1,1,2,2-tetrachloroethane	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-trichlorobenzene	NR	NR	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethene	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	ND	ND	ND	ND
Toluene	ND	0.85J	1.0	ND	0.52J	0.49J	0.50J	ND	NR	0.24 J	0.29 J	0.19 J	ND	ND	0.27 J	ND	ND	0.31 J	ND	ND	ND	ND	0.26 J	ND	0.20 J	ND	0.33J	0.53J	ND
1,1,1-trichloroethane	ND	0.37J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.33 J	ND	ND	0.84	ND	0.94 J	0.94 J	ND	0.39 J	ND	ND	ND	ND	ND	ND	0.34 J
1,1,2-trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	D	ND	ND
Trichloroethene	37.6	34.6	12.0	15.0	0.42J	ND	ND	1.7	1.6	0.89 J	0.67 J	0.67 J	9.0	20.8	0.73 J	0.67 J	14	1.5	34.6	33.5	23.4	18.3	4.3	27.5	43.9	44.2	7.8	13.8	12
m,p-xylene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND
Trichlorofluoromethane	NR	NR	ND	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR
Trichlorofluoromethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND
Trichlorotrifluoroethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND
o-xylene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND
1,1,2-trichloro-1,2,2-trifluoroethane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
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	ND	ND	ND	ND
xylenes (total)	ND	1.4J	ND	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	NR
Mercury (EPA 245.1) ug/L	NR	NR	0.05J	NR	<0.20	<0.20	<0.20	<0.20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR
TSS (SM20 2540D) mg/L	NR	NR	2260.0	NR	58.0	<4.0	<4.0	<4.0	181	5	36	6	25	12	10	ND	13	12	30	24	12	6	17	11	24	26	NR	NR	NR

Table 7
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Summary of Historical Groundwater Analytical Results
Through First Quarter 2016

Sample ID	RW2-MW3				RW3-MW1																						
Sample Date	5/3/2005	7/20/2005	5/28/2009	6/18/2013[2]	1/19/2010	4/22/2010	7/29/2010	11/9/2010	3/25/2011	3/25/2011	6/14/2011	9/27/2011	11/30/2011	11/30/2011	3/7/2012	6/7/2012	8/22/2012	12/6/2012	3/14/2013	6/20/2013[2]	6/20/2013[2]	9/18/2013	12/17/2013	3/25/2014	9/23/2014	3/25/2015	9/15/2015	3/22/2016
Comments										Duplicate				Duplicate							Duplicate							
Well Depth (Ft)	510				350																						
Screened Interval (Ft)	470-510				330-350																						
VOCS (EPA 624) ug/L [4]																											
Acrolein	NR	NR	30 R	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	30 R	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-butanone	R	R	ND	ND	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR
carbon disulfide	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	0.19J	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	NR	NR	ND	ND	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-chloroethylvinyl ether	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	0.20J	ND	ND	NR	ND	ND	ND	ND	ND	ND	0.63 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cyclohexane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dibromo-3-chloro-propane	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dibromomethane	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dichlorobenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND
1,3-dichlorobenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND
1,4-dichlorobenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND
dichlorodifluoromethane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1-dichloroethane	0.68J	0.31J	1.4	7.4	1.6	1.5	1.7	1.4	1.3	1.3	1.1	1.0 J	0.96 J	0.93 J	0.90 J	0.80 J	0.87 J	0.98 J	1.2	ND	ND	1.2 J	1.2	1.1	0.69 J	0.64 J	0.76 J	0.40 J
1,2-dichloroethane	ND	ND	ND	ND	0.27J	ND	ND	ND	ND	ND	ND	0.57 J	ND	ND	0.43 J	ND	ND	0.50 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-dichloroethene	ND	ND	0.42J	ND	1.2	1.3	1.2	1.2	1.2	1.1	0.85 J	0.65 J	0.64 J	0.66 J	0.47 J	0.19 J	0.54 J	0.65 J	0.68 J	ND	ND	0.57 J	0.69 J	0.74 J	0.43 J	0.42 J	0.41 J	0.29 J
cis-1,2-dichloroethene	0.40J	0.66J	2.3	ND	0.37J	ND	0.32J	0.45J	0.47J	0.45J	0.48 J	0.31 J	0.36 J	0.43 J	0.37 J	0.39 J	0.36 J	0.44 J	0.38 J	ND	ND	0.43 J	0.41 J	0.38 J	0.30 J	ND	ND	ND
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	ND	ND	ND
1,2-dichloropropane	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-dioxane	7.42J	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-hexanone	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	NR	NR	NR	NR	NR	NR	NR
isopropylbenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
methyl acetate	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Methylene chloride	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
methylcyclohexane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4-methyl-2-pentanone	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	NR	NR	NR	NR	NR	NR	NR
methyl-tert-butyl-ether	NR	NR	ND	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
styrene	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1,2,2-tetrachloroethane	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-trichlorobenzene	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethene	ND	ND	ND	ND	0.49J	0.81J	0.73J	1.5	1.4	1.6	1.2	1.3 J	1.0	1.1	1.0	0.33 J	ND	0.44 J	1.6	1.8 J	1.7 J	1.2	1.6	1.5	1.6	2.2	1.6	2.5
Toluene	ND	0.50J	0.39J	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	0.26 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-trichloroethane	ND	ND	ND	ND	ND	0.98J	0.84J	1.2	1.1	1.1	0.78 J	1.0 J	0.59 J	0.63 J	0.58 J	0.54 J	0.42 J	0.34 J	0.49 J	ND	ND	0.61 J	0.66 J	0.66 J	0.39 J	0.35 J	0.36 J	0.30 J
1,1,2-trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	16.2	20.6	18.0	60	35.0	53.2	52.3	77.6	76.2	77.9	63.1	72.4 J	51.0	55.2	59.0	42.5	37.7	42.8	46.6	49	48	62.7	60.5	60.0	43.4	41.8	45.4	37.6
m,p-xylene	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	NR	NR	NR	NR	NR	NR	NR
Trichlorofluoromethane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	NR	NR	NR	NR	NR	NR	NR
Trichlorotrifluoroethane	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.80 J	ND	NR	NR	NR	NR	NR	NR	NR
o-xylene	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	NR	NR	NR	NR	NR	NR	NR
1,1,2-trichloro-1,2,2-trifluoroethane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
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	ND	ND	ND
xylenes (total)	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Mercury (EPA 245.1) ug/L	NR	NR	ND	NR	NR	<0.20	<0.20	<0.20	<0.20	<0.20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.04 J	ND
TSS (SM20 2540D) mg/L	NR	NR	14.8	NR	NR	<4.0	<4.0	<4.0	<4.0	<4.0	5160	ND	ND	ND	NR	17	ND	ND	16	ND	9.5 J	ND	15	14	8	12	ND	ND

Table 7
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Summary of Historical Groundwater Analytical Results
Through First Quarter 2016

Sample ID	RW3-MW2																									
Sample Date	**1/19/2010**	**1/19/2010**	**4/22/2010**	**7/29/2010**	**11/9/2010**	**11/9/2010**	**3/25/2011**	**6/14/2011**	**9/27/2011**	**11/30/2011**	**3/8/2012**	**6/7/2012**	**8/22/2012**	**8/22/2012**	**12/4/2012**	**12/4/2012**	**3/14/2013**	**6/20/2013[2]**	**9/17/2013**	**12/17/2013**	**3/25/2014**	**9/23/2014**	**9/23/2014**	**3/25/2015**	**9/14/2015**	**3/22/2016**
Comments		**Duplicate**			**Duplicate**									**Duplicate**		**Duplicate**							**Duplicate**			
Well Depth (Ft)	**495**																									
Screened Interval (Ft)	**475-495**																									
VOCS (EPA 624) ug/L [4]																										
Acrolein	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	30 R	30 R	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	NR	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR
Benzene	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	NR	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	NR	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	NR	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-butanone	NR	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
carbon disulfide	NR	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	NR	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	NR	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-chloroethylvinyl ether	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	0.23 J	ND	ND	0.62 J	0.64 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.27 J
Chloromethane	NR	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cyclohexane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dibromo-3-chloro-propane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dibromomethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dichlorobenzene	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND
1,3-dichlorobenzene	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND
1,4-dichlorobenzene	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND
dichlorodifluoromethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1-dichloroethane	ND	ND	0.54J	ND	ND	ND	ND	0.52 J	0.37 J	ND	0.41 J	0.66 J	0.74 J	0.73 J	0.69 J	0.71 J	0.68 J	ND	0.65 J	0.59 J	0.62 J	0.51 J	0.51 J	0.56 J	0.47 J	0.52 J
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	ND
1,1-dichloroethene	ND	ND	1.2	ND	ND	ND	ND	0.57 J	0.45 J	0.27 J	0.27 J	0.36 J	0.49 J	0.49 J	0.40 J	0.43 J	0.53 J	ND	0.29 J	0.45 J	0.44 J	0.38 J	0.33 J	0.33 J	0.30 J	0.46 J
cis-1,2-dichloroethene	1.5J	1.6J	2.4	1.1	0.92J	0.92J	1.6	1.7	1.1	1.4	1.3	1.5	1.6	1.5	1.6	1.6	1.6	ND	1.3 J	1.9	1.7	1.4	1.3	1.5	1.4	1.7
trans-1,2-dichloroethene	ND	ND	0.43 J	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-dichloropropane	NR	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	0.69 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	NR	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	NR	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-dioxane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-hexanone	NR	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
isopropylbenzene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
methyl acetate	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Methylene chloride	NR	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
methylcyclohexane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4-methyl-2-pentanone	NR	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
methyl-tert-butyl-ether	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
styrene	NR	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1,2,2-tetrachloroethane	NR	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-trichlorobenzene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.28 J	ND	ND	ND	ND	ND	ND	ND	0.29 J	ND	ND	ND	0.52 J	0.66 J
Toluene	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-trichloroethane	ND	ND	0.58J	ND	ND	ND	ND	0.39 J	0.43 J	ND	ND	0.54 J	0.52 J	0.49 J	0.42 J	0.43 J	0.41 J	ND	0.47 J	0.50 J	0.43 J	0.36 J	0.39 J	0.38 J	0.41 J	0.47 J
1,1,2-trichloroethane	ND	ND	ND	ND	0.25 J	0.27J	ND	NR	0.32 J	0.32 J	0.32 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.32 J
Trichloroethene	160	170	211	73	58.2	60.9	110	135	151	71.9	96.5	209	198	192	173 J	171	155	140	174	176	164	148	151	159	169	204
m,p-xylene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
Trichlorofluoromethane	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
Trichlorotrifluoroethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
o-xylene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
1,1,2-trichloro-1,2,2-trifluoroethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
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	ND
xylenes (total)	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Mercury (EPA 245.1) ug/L	NR	NR	<0.20	<0.20	<0.20	<0.20	<0.20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TSS (SM20 2540D) mg/L	NR	NR	5.0	6.0	ND	10.0	10.0	7	6	ND	8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 7
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Summary of Historical Groundwater Analytical Results
Through First Quarter 2016

Sample ID	RW3-MW3																							
Sample Date	1/20/2010	4/22/2010	4/22/2010	7/28/2010	11/3/2010 (1)	3/25/2011	6/15/2011	9/28/2011	11/29/2011	3/7/2012	3/7/2012	6/7/2012	8/22/2012	12/4/2012	3/14/2013	6/21/2013(2)	9/18/2013	12/17/2013	3/26/2014	9/23/2014	3/25/2015	3/25/2015	9/15/2015	3/21/2016
Comments			Duplicate								Duplicate											Duplicate		
Well Depth (Ft)	340																							
Screened Interval (Ft)	320-340																							
VOCS (EPA 624) ug/L (4)																								
Acrolein	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	150 R	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR
Benzene	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-butanone	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
carbon disulfide	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-chloroethylvinyl ether	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.0 R	ND	ND	ND
Chloroform	ND	ND	0.40J	0.46J	ND	0.33J	NR	0.48 J	ND	0.42 J	0.42 J	2.3 J	ND	0.88 J	ND	ND	ND	3.4 J	ND	0.27 J	0.40 J	0.33 J	ND	ND
Chloromethane	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cyclohexane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dibromo-3-chloro-propane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dibromomethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dichlorobenzene	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-dichlorobenzene	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-dichlorobenzene	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
dichlorodifluoromethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1-dichloroethane	ND	1.6	1.6	2.3	1.0	1.5	7.1	3.2 J	1.5	3.3	3.3	2.6 J	ND	4.2	4.5 J	ND	ND	3.7 J	4.9 J	1.3 J	1.8	1.8	1.2	4.0
1,2-dichloroethane	ND	0.52J	0.54J	ND	ND	ND	0.37 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-dichloroethene	ND	1.1	1.3	1.2	ND	0.96J	2.6	1.8 J	0.96 J	1.9	1.9	1.7 J	1.4 J	1.9	2.1 J	ND	ND	ND	2.4 J	0.94 J	1.5 J	1.4 J	1.1	2.4
cis-1,2-dichloroethene	ND	2.1	2.1	1.7	ND	2.3	1.2	1.9	2.1	2.1	2.1	1.4 J	1.8 J	1.2	ND	ND	ND	ND	ND	1.2	1.3	1.3	1.3	1.1
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
1,2-dichloropropane	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-dioxane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ethylbenzene	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-hexanone	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
isopropylbenzene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
methyl acetate	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Methylene chloride	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	3.2 J	ND	6.2 J	ND	ND	ND	ND	ND	ND	ND
methylcyclohexane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4-methyl-2-pentanone	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
methyl-tert-butyl-ether	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
styrene	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1,2,2-tetrachloroethane	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-trichlorobenzene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethene	ND	0.45J	0.49J	ND	ND	ND	0.40 J	0.50 J	ND	0.72 J	0.69 J	ND	ND	0.43 J	ND	ND	ND	ND	ND	ND	0.36 J	0.37 J	0.77 J	0.71 J
Toluene	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-trichloroethane	ND	0.95J	1.0J	0.72J	ND	0.62J	1.3	1.0 J	0.49 J	0.84 J	0.87 J	ND	ND	0.85 J	ND	ND	ND	ND	ND	0.40 J	0.48 J	0.45 J	0.36 J	1.1
1,1,2-trichloroethane	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	350	397	382	297	8.5	288	331	215 J	250	312	325	285	248	291	347	410	322	322	350	147	182	184	138	284
m,p-xylene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
Trichlorofluoromethane	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
Trichlorotrifluoroethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
o-xylene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR
1,1,2-trichloro-1,2,2-trifluoroethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
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
xylenes (total)	ND	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Mercury (EPA 245.1) ug/L	NR	<0.20	<0.20	<0.20	<0.20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TSS (SM20 2540D) mg/L	NR	4.0	5.0	<4.0	<4.0	<4.0	ND	ND	ND	ND	ND	13	10	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 7
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Summary of Historical Groundwater Analytical Results
Through First Quarter 2016

Sample ID	RW3-MW4																					
Sample Date	1/20/2010	4/22/2010	7/28/2010	7/28/2010	11/3/2010 [1]	3/24/2011	6/15/2011	9/28/2011	11/29/2011	3/7/2012	6/7/2012	8/22/2012	12/4/2012	3/14/2013	6/21/2013 [2]	9/17/2013	12/17/2013	3/26/2014	9/23/2014	3/25/2015	9/15/2015	3/21/2016
Comments				Duplicate																		
Well Depth (Ft)	495																					
Screened Interval (Ft)	475-495																					
VOCS (EPA 624) ug/L [4]																						
Acrolein	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	30 R	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND
Acetone	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR
Benzene	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-butanone	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR
carbon disulfide	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-chloroethylvinyl ether	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	0.32J	ND	NR	0.87 J	ND	0.38 J	ND	ND	0.71 J	ND	1.2	ND	ND	1.2 J	0.38 J	1.2	ND	0.64 J
Chloromethane	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cyclohexane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dibromo-3-chloro-propane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dibromomethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-dichlorobenzene	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND
1,3-dichlorobenzene	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND
1,4-dichlorobenzene	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND
dichlorodifluoromethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1-dichloroethane	2.5	0.6	0.54J	0.50J	1.8	0.81	0.78 J	5.4 J	0.84 J	1.8	0.50 J	ND	1.2	3.8	4.6	2.9	4.9	5.5	2.7 J	6.9	0.88 J	4.9
1,2-dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.23 J	ND	ND	0.37 J	ND	ND	ND	ND
1,1-dichloroethene	1.0	ND	ND	ND	0.86J	ND	0.20 J	0.53 J	ND	0.21 J	ND	ND	0.19 J	0.38 J	0.42 J	ND	0.39 J	0.95 J	0.37 J	1.3 J	0.21 J	0.85 J
cis-1,2-dichloroethene	0.46J	ND	ND	ND	1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
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
1,2-dichloropropane	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-dichloropropene	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-dioxane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ethylbenzene	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-hexanone	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR
isopropylbenzene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
methyl acetate	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Methylene chloride	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.43 J
methylcyclohexane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4-methyl-2-pentanone	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR
methyl-tert-butyl-ether	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
styrene	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1,2,2-tetrachloroethane	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-trichlorobenzene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.31 J	0.46 J
Toluene	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-trichloroethane	ND	ND	ND	ND	0.67J	ND	ND	0.66 J	ND	ND	ND	ND	ND	ND	0.29 J	ND	0.39 J	0.48 J	ND	0.60 J	ND	0.48 J
1,1,2-trichloroethane	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	21	11	7.5	8.0	308	7.7	6.7	3.4 J	5.6	4.6	5.4	5.5	4.5	2.3	1.8	5.0	4.4	3.3	2.5	2.7	4.1	2.9
m,p-xylene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR
Trichlorofluoromethane	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR
Trichlorotrifluoroethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR
o-xylene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR
1,1,2-trichloro-1,2,2-trifluoroethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
xylenes (total)	ND	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Mercury (EPA 245.1) ug/L	NR	<0.20	<0.20	<0.20	<0.20	<0.20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TSS (SM20 2540D) mg/L	NR	16.0	<4.0	<4.0	<4.0	<4.0	ND	11	6	5	ND	ND	ND	22	ND	ND	ND	9	5	5	ND	ND

Table 7
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Summary of Historical Groundwater Analytical Results
Through First Quarter 2016

Sample ID	TP-01																					IW-1 MW-1		IW-1	RW-3 [3]	
Sample Date	1/21/2010	6/15/2011	9/27/2011	9/27/2011	11/30/2011	3/8/2012	6/6/2012	8/22/2012	12/4/2012	3/13/2013	3/13/2013	6/17/2013[2]	9/17/2013	9/17/2013	12/16/2013	3/25/2014	9/22/2014	3/25/2015	9/14/2015	9/14/2015	3/21/2016	5/3/2005	6/18/2013[2]	5/27/2009	9/15/2015	3/22/2016
Comments				Duplicate							Duplicate			Duplicate						Duplicate							
Well Depth (Ft)	470																					150		230	530	
Screened Interval (Ft)	450-470																					20-150		200-230	392-412 442-504	
VOCS (EPA 624) ug/L [4]																										
Acrolein	NR	NR	ND	ND	ND	ND	ND	30 R	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	ND	ND
Acrylonitrile	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	ND	ND
Acetone	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.34 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-butanone	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	R	ND	ND	NR	NR
carbon disulfide	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	ND	NR	NR
Carbon tetrachloride	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND
Chloroethane	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-chloroethylvinyl ether	NR	NR	ND	ND	ND	ND	ND	ND	ND	2.0 R	2.0 R	NR	ND	ND	ND	ND	ND	ND	2.0 R	ND	ND	NR	NR	NR	ND	ND
Chloroform	ND	NR	0.68 J	0.74 J	ND	0.74 J	0.82 J	ND	2.5 J	1.2	1.1	11	5.2 J	ND	7.4	6.8 J	1.9	2.6	1.3	1.3	1.7	0.94J	ND	0.98J	ND	0.46 J
Chloromethane	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cyclohexane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR
1,2-dibromo-3-chloro-propane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	ND	NR	NR
1,2-dibromomethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	ND	NR	NR
1,2-dichlorobenzene	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	ND	ND	ND
1,3-dichlorobenzene	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	ND	ND	ND
1,4-dichlorobenzene	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	ND	ND	ND
dichlorodifluoromethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR
1,1-dichloroethane	3.6J	5.0	3.7	3.7	2.9	3.7	3.7	3.4	1.1	1.5	1.4	3.2	2.1 J	2.8	1.5	ND	1.3 J	2.5	2.1	2.0	1.8	0.39J	0.51	0.22J	1.9	2.1
1,2-dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	0.35 J	0.36 J	0.37 J	0.30 J	ND	ND	ND	ND	0.67 J	0.88 J	0.82 J	0.82 J	0.86 J	ND	ND	ND	ND	ND
1,1-dichloroethene	ND	1.7	1.1	1.0	1.0	1.2	1.4	1.1	0.23 J	0.44 J	0.42 J	0.77	0.66 J	0.74 J	0.33 J	0.22 J	0.47 J	1.2 J	0.77 J	0.83 J	0.75 J	ND	ND	ND	1.9	2.5
cis-1,2-dichloroethene	190	43.4	40.4	40.2	74.9	53.3	29.9	16.1	4.2	5.8	5.8	8.7	14.1 J	14.7	8.0	5.3	7.6	13.4	11.3	11.6	10.8	ND	ND	ND	1.6	2.4
trans-1,2-dichloroethene	3.0J	1.1	1.0 J	0.92 J	1.1	0.87 J	0.79 J	0.35 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.23 J
1,2-dichloropropane	NR	NR	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-1,3-dichloropropene	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-dichloropropene	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-dioxane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Ethylbenzene	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-hexanone	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	NR	NR
isopropylbenzene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR
methyl acetate	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR
Methylene chloride	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.37 J	ND	ND	ND	ND	0.64 J
methylcyclohexane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR
4-methyl-2-pentanone	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	NR	NR
methyl-tert-butyl-ether	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.46J	NR	NR
styrene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	ND	NR	NR
1,1,2,2-tetrachloroethane	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-trichlorobenzene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR
Tetrachloroethene	3.4J	3.3	4.4	4.4	3.6	4.7	6.0	4.0	0.42 J	0.34 J	0.32 J	1.6	0.77 J	1.5 J	0.57 J	ND	ND	0.48 J	0.82 J	0.88 J	0.72 J	ND	0.55	ND	0.68 J	0.79 J
Toluene	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.19J	ND	ND
1,1,1-trichloroethane	ND	0.63 J	0.73 J	0.76 J	0.29 J	0.57 J	1.1 J	0.86 J	ND	0.35 J	0.35 J	0.62	0.66 J	0.66 J	0.50 J	ND	ND	ND	ND	ND	ND	0.47	0.92	0.49J	0.96 J	1.3
1,1,2-trichloroethane	ND	NR	0.31 J	0.31 J	0.32 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.30 J	0.49 J
Trichloroethene	65	35.3	41.0	39.6	38.0	38.1	40.4	27.9	22.0	25.9	25.4	25	27.0	26.7	29.8	21.7	31.9	52.3	53.0	53.9	61.7	ND	ND	0.17J	237	371
m,p-xylene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	NR	NR
Trichlorofluoromethane	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	ND	ND	ND
Trichlorofluoromethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	NR	NR
Trichlorotrifluoroethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	NR	NR
o-xylene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	NR	NR
1,1,2-trichloro-1,2,2-trifluoroethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR
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	ND
xylenes (total)	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	ND	NR	NR
Mercury (EPA 245.1) ug/L	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	0.20	ND	ND
TSS (SM20 2540D) mg/L	NR	63	18	NR	ND	7	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	2.4	ND	ND

Note:
VOC analysis changed from SW846 8260B to EPA Method 624 in January 2010.
D = Dilution
J = estimated value
ND = not detected
NR = not reported / required
R = rejected
mg/L - milligrams per liter
µg/L - micrograms per liter

(1) Analytical results presented above for samples collected from RW3-MW3 and RW3-MW4 in November 2010 are not consistent with historical trends, indicating samples may have been switched. For trend analysis, concentrations for RW3-MW3 were used for RW3-MW4 for November 2010 and vise versa.

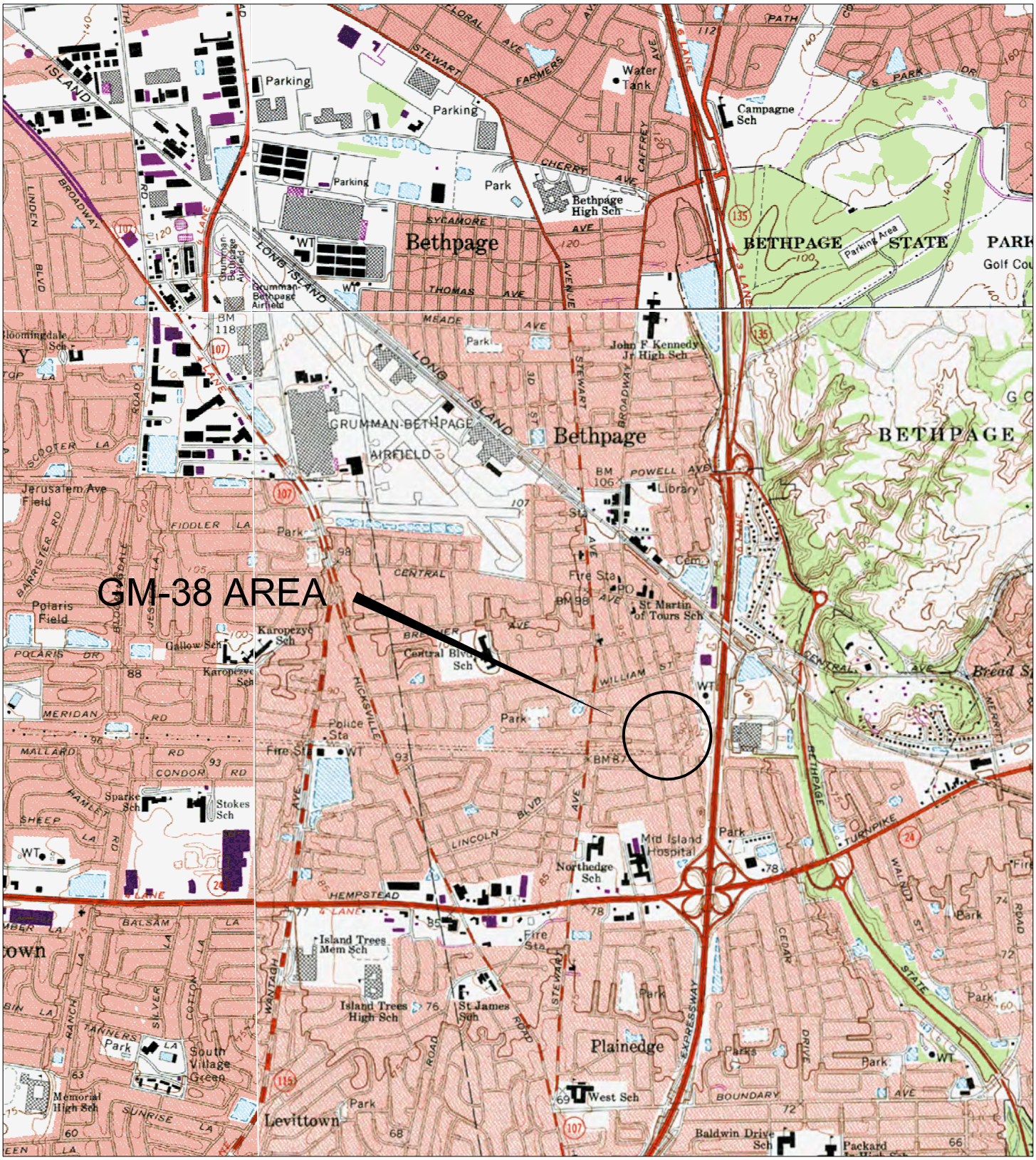
(2) VOCs were analyzed by USEPA Method 524.2 (as opposed to Method 624) in June 2013 to correlate with samples collected under the Bethpage Regional Plume Comprehensive Groundwater Sampling Plan conducted in June 2013.

(3) RW-3, previously an active extraction well sampled on a monthly basis, was taken off-line on 7/1/15. RW-3 is now sampled semi-annually, in conjunction with the semi-annual LTM events.

(4) Samples were analyzed for TCL VOCs, including tentatively identified compounds (TICs), beginning in March 2016. No TICs were detected, unless otherwise indicated.

Data prior to June 2011 were collected by others.

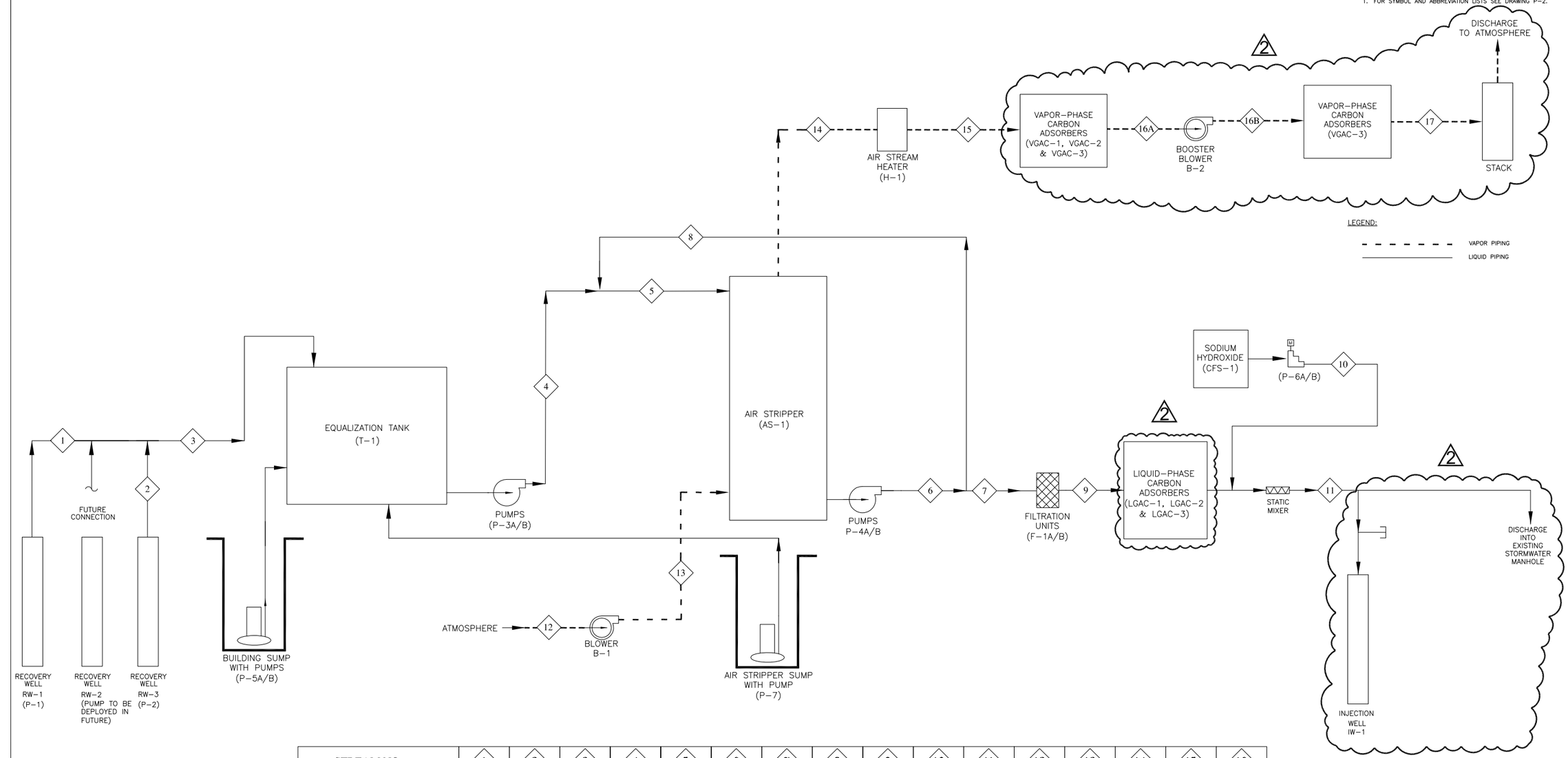
FIGURES



P:\LantDiv\Bethpage\CAD - GIS\Dwg\O&M Manual\Site Location Map.dwg, 6/29/2009 3:33:52 PM

NOTES:

1. FOR SYMBOL AND ABBREVIATION LISTS SEE DRAWING P-2.



STREAM NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COMPOSITION (UG/L, UNLESS OTHERWISE NOTED)																
BENZENE	4	4	4	4	3	-	-	-	-		-					
TOLUENE	15	15	15	15	12	-	-	-	-		-					
XYLENES, TOTAL	16	16	16	16	12	-	-	-	-		-					
1,2-DICHLOROETHANE	3	3	3	3	2.8						2.7 E-07					
cis 1,2-DICHLOROETHENE	1100	1100	1100	1100	1008	0.10	0.10	0.10	0.10		1.0 E-04					
VINYL CHLORIDE	300	300	300	300	275	0.03	0.03	0.03	0.03		2.7 E-05					
TETRACHLOROETHENE (PCE)	900	900	900	900	825	0.08	0.08	0.08	0.08		8.2 E-05					
TRICHLOROETHENE (TCE)	3400	3400	3400	3400	3117	3.12	3.12	3.12	3.12		3.1 E-03					
WATER FLOW RATE (GPM)	800	300	1100	1100	1200	1200	1100	100	1100	1.1 gpd	1100					
TEMPERATURE (°F)	55	55	55	55	55	55	55	55	55	60	55					
PRESSURE (PSIG)												-0.27	1.50	1.36	1.18	0.53
DENSITY (lb/ft^3)										95.5		0.077	0.085	0.084	0.082	0.079
MASS FLOW RATE (lb/hr)	400364	150136	550500	550500	600545	600545	550500	50,045	550500	0.59	550500	36,960	40,800	40,320	39,360	37,920
RELATIVE HUMIDITY (%)												50	50	100	50	50
STATIC PRESSURE (PSIA)												0.214	0.214	0.214	0.275	0.275
pH (S.U.)	5.5	5.5	5.5	5.5	5.5	6.0	6.0	6.0	6.0	14	7.0					
VAPOR FLOW RATE (CFM)												8000	8000	8000	8000	8000
TOTAL VAPOR VOC (PPMV)												-	-	25.5	25.5	1.2
TOTAL VAPOR VOC (LBS/HR)												-	-	3.18	3.18	0.15

TETRA TECH ENGINEERING CORPORATION PC

REV	DESCRIPTION	PREP BY	DATE	APPRVD
0	FINAL DESIGN	DL	05/05/06	BKB
1	ADDED RECOVERY WELL RW-3 CHANGED RW-2 TO FUTURE CONNECTION	DLB	03/31/08	BKB
2	REVISED BASED ON VENDOR SUBMITTALS. DRAWING UPDATES FOR CONSTRUCTION	DLB	02/24/09	BKB

DSGN: DR: CHK:
SCHD: CH ENG: (TITLE)
SUBMITTED BY: (PRIN MEMBER) (DATE)
NORTHDIV DIV: HO: RO: FPC: DIR:
OFFICER IN CHARGE
APPROVED
DATE

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVFAC LANTDIV
NAVAL FACILITIES ENGINEERING COMMAND NORTHEAST
LESTER, PENNSYLVANIA
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
BETHPAGE, NEW YORK

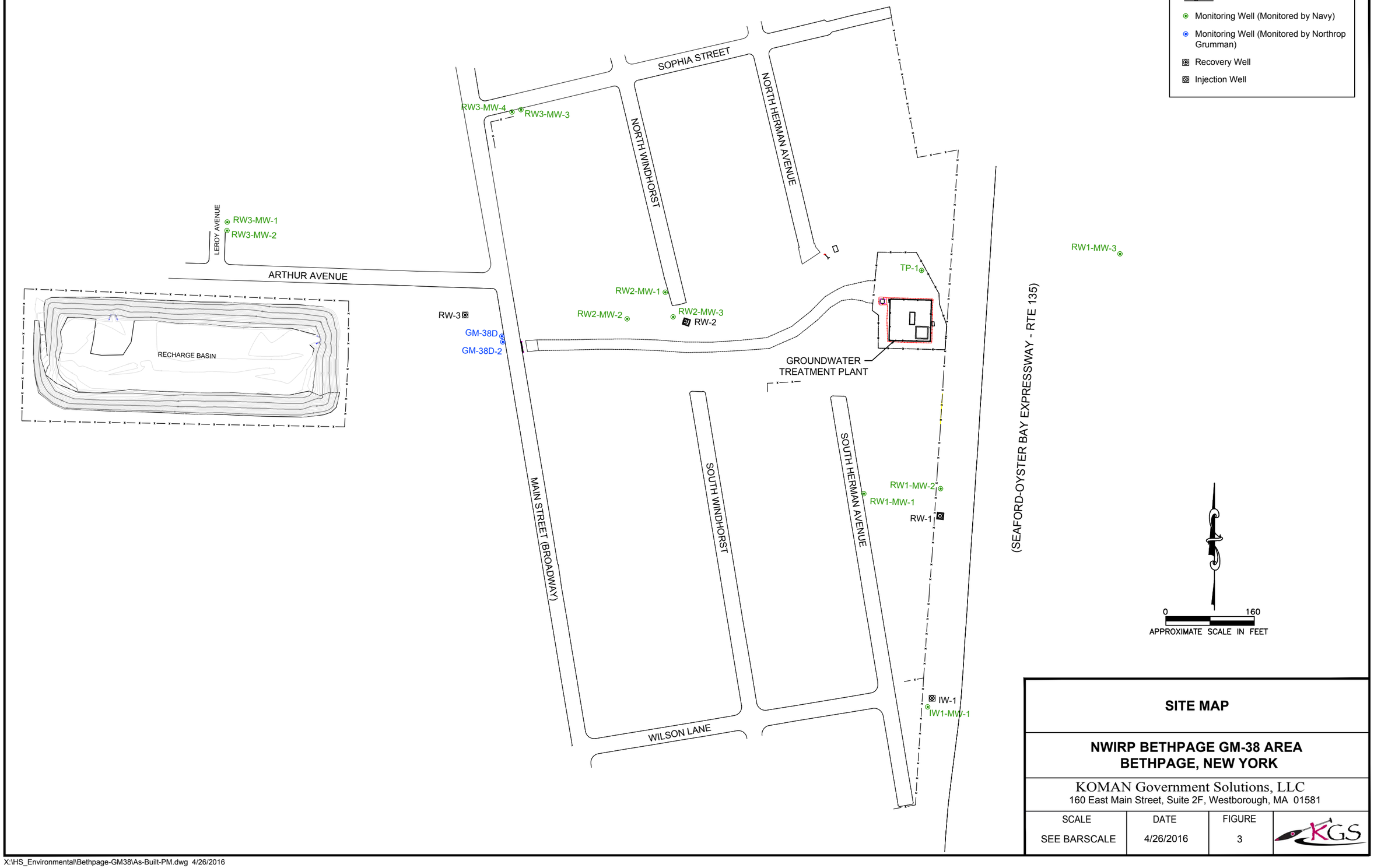
ENGINEERING FIELD ACTIVITY - NORTHEAST

GM-38 AREA
GROUNDWATER TREATMENT PLANT
PROCESS FLOW DIAGRAM - GROUNDWATER AND OFF-GAS TREATMENT

EFANE FOR COMMANDER, NAVFAC
DATE
APPROVED

THIS DRAWING PRODUCED ON AUTOCAD
DO NOT REVISE MANUALLY

SAT TO DATE 05/05/06
CODE I.D. NO. 80091
SCALE : AS SHOWN
SPEC. NO.
CONSTRN. CONTR. NO. N62472-99-D-0032
NAVFAC DRAWING NO. Figure 2
SHEET OF
SIZE: D
DIS. SH. NO. 1-4



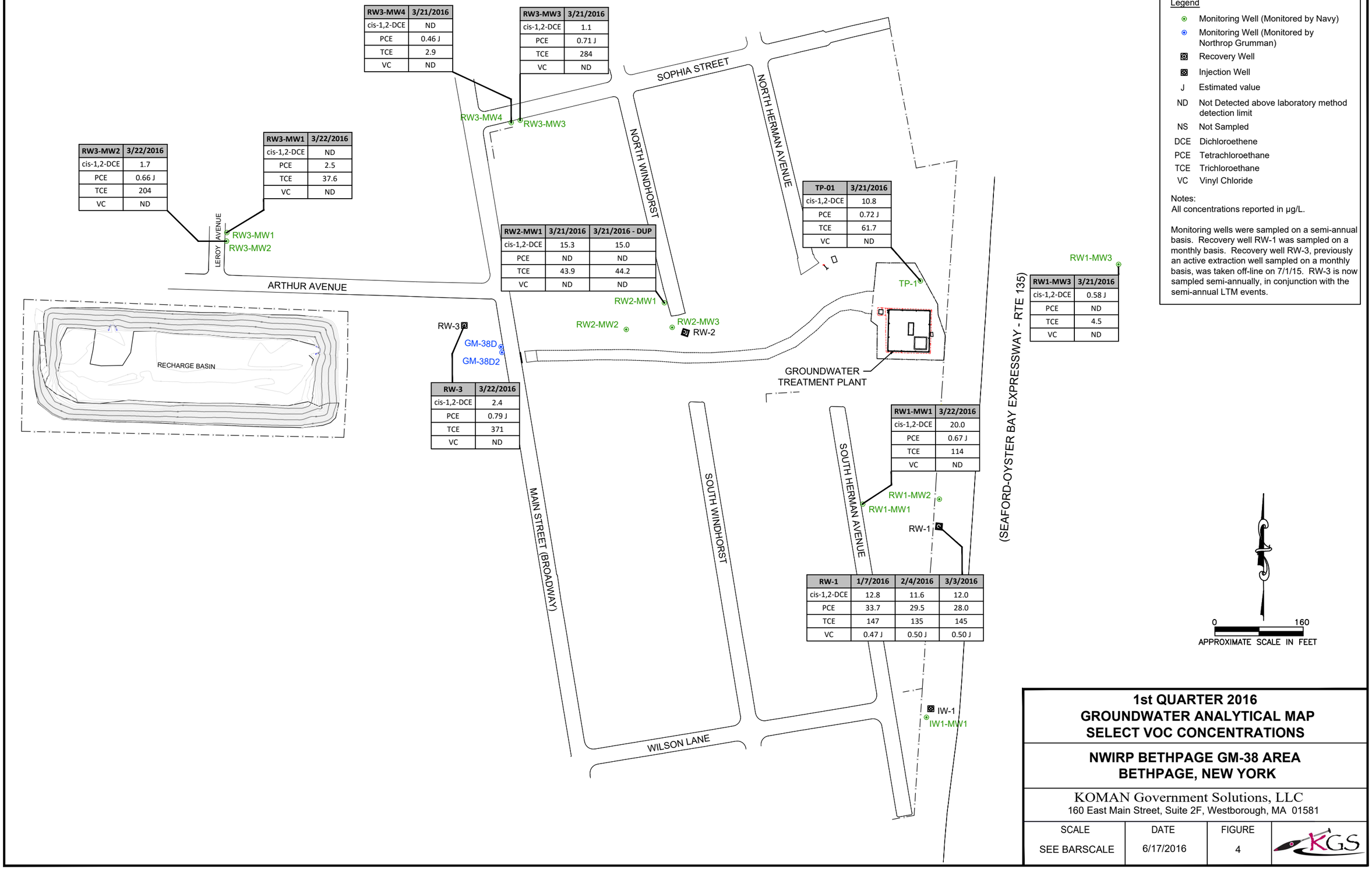
SITE MAP

NWIRP BETHPAGE GM-38 AREA
BETHPAGE, NEW YORK

KOMAN Government Solutions, LLC
160 East Main Street, Suite 2F, Westborough, MA 01581

SCALE	DATE	FIGURE
SEE BARSCALE	4/26/2016	3

X:\HS_Environmental\Bethpage-GM38\As-Built-PM.dwg 4/26/2016



1st QUARTER 2016
GROUNDWATER ANALYTICAL MAP
SELECT VOC CONCENTRATIONS

NWIRP BETHPAGE GM-38 AREA
BETHPAGE, NEW YORK

KOMAN Government Solutions, LLC
160 East Main Street, Suite 2F, Westborough, MA 01581

SCALE	DATE	FIGURE
SEE BARSCALE	6/17/2016	4

Figure 5
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

RW1

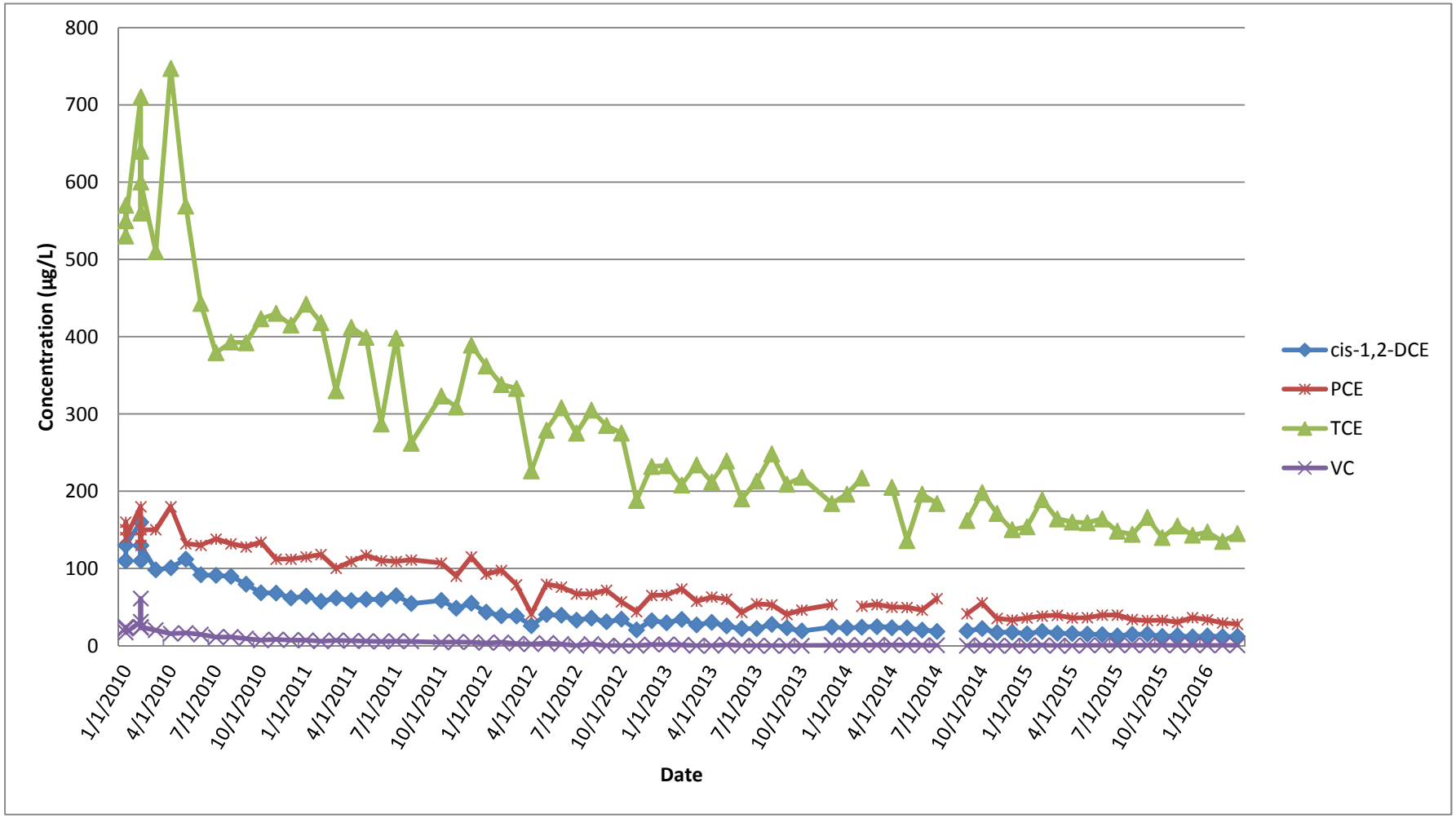


Figure 6
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

RW3

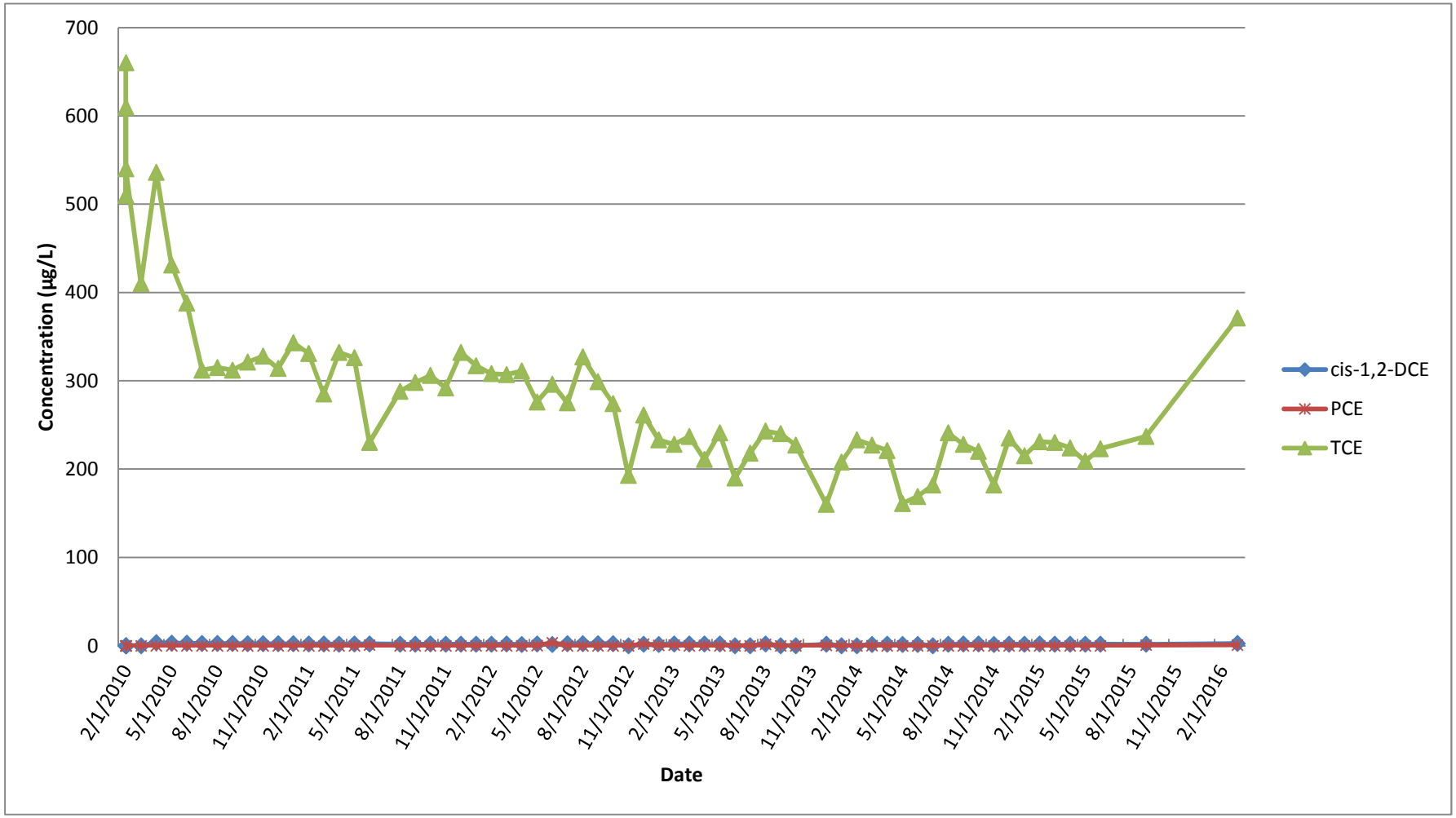


Figure 7
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

RW1-MW1

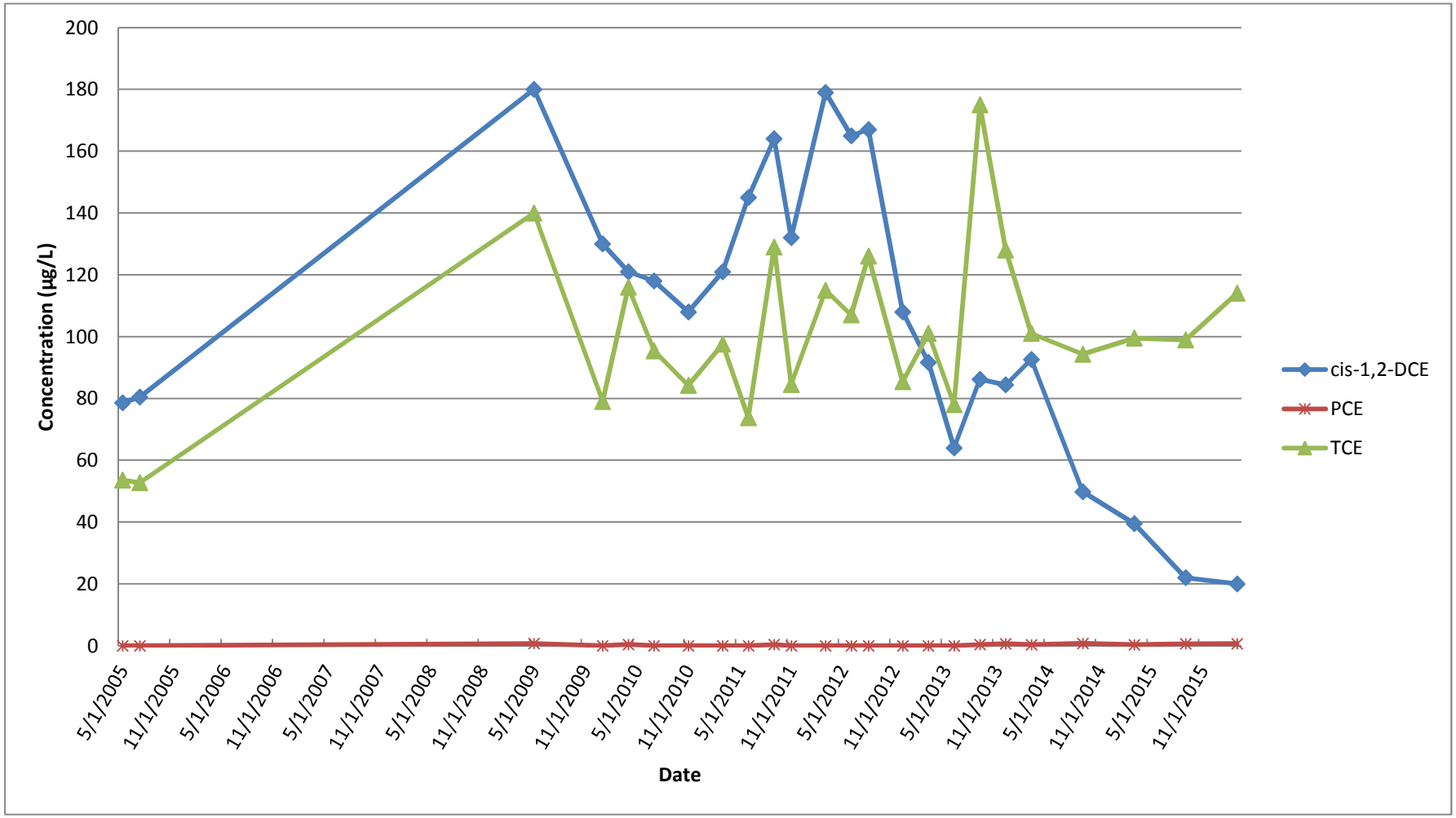


Figure 8
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

RW1-MW3

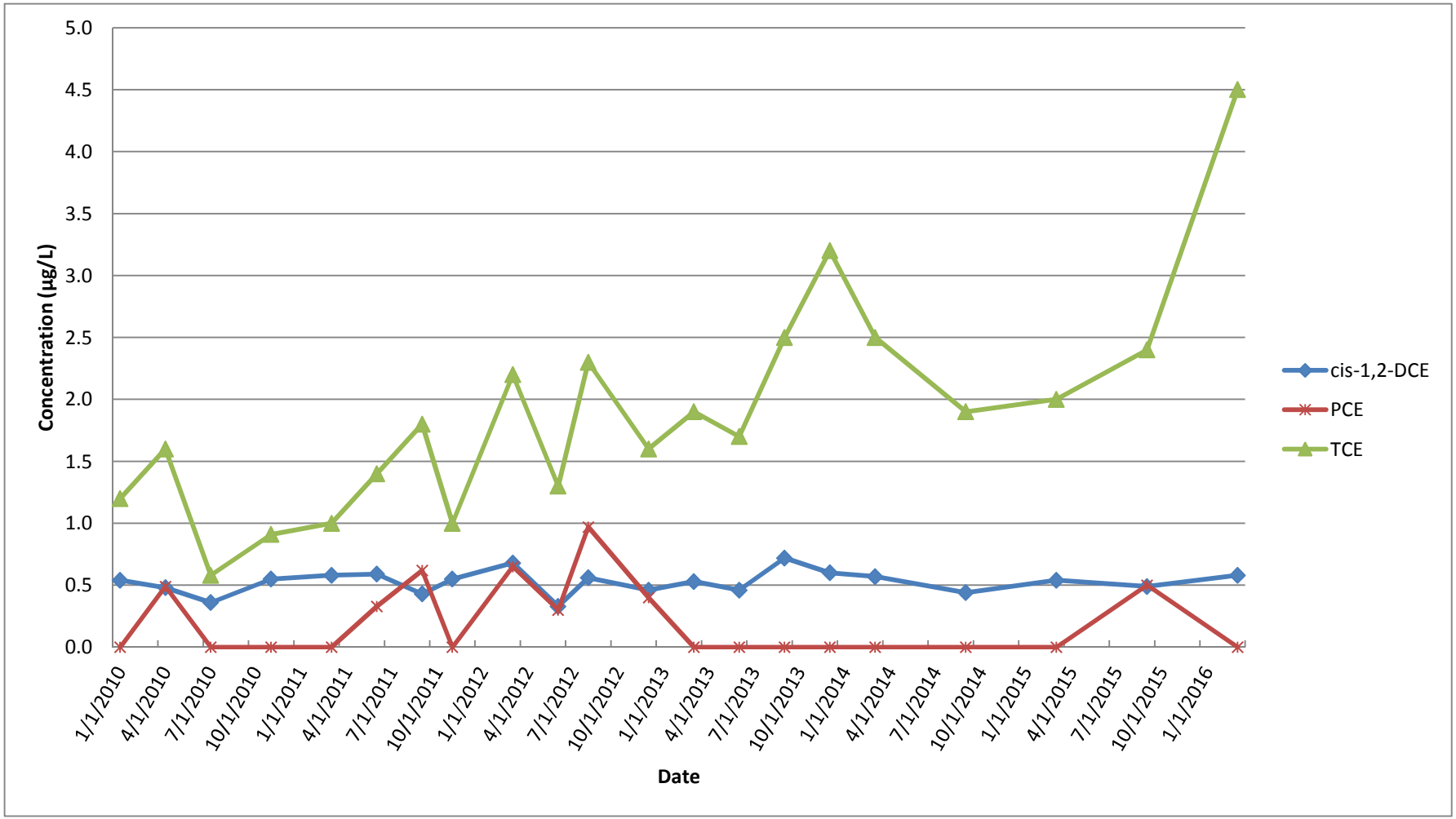


Figure 9
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

RW2-MW1

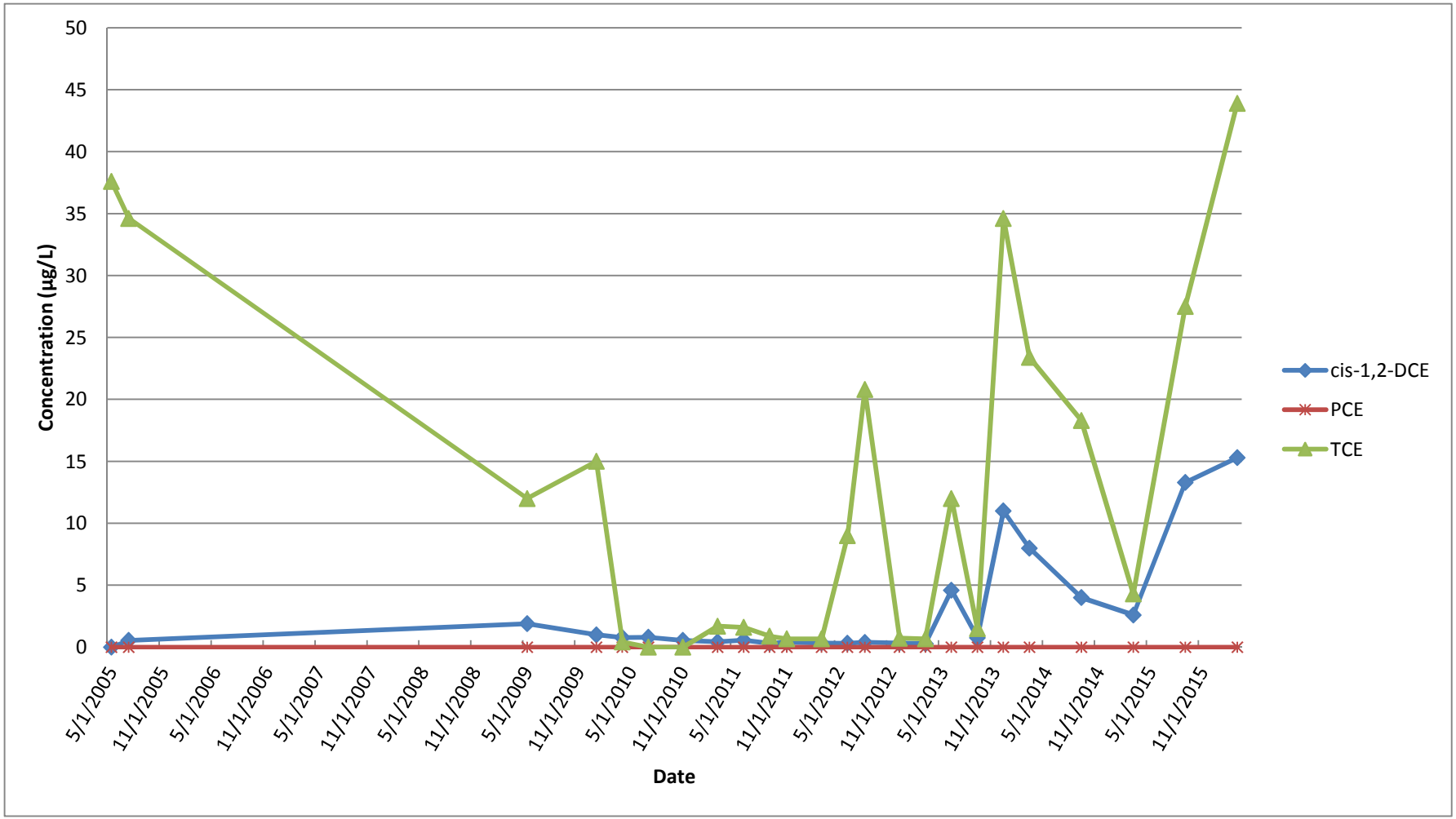


Figure 10
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

RW3-MW1

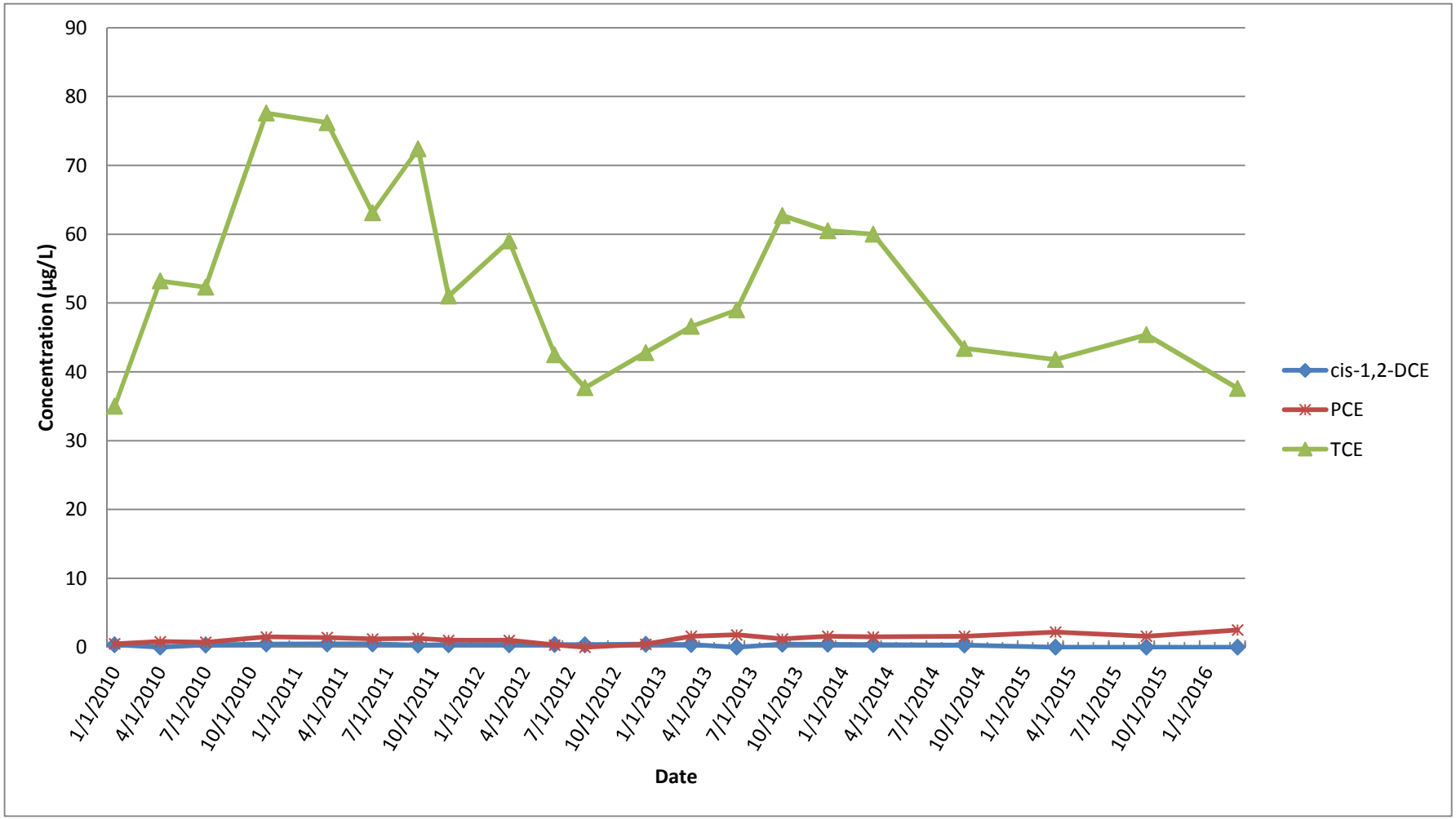


Figure 11
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

RW3-MW2

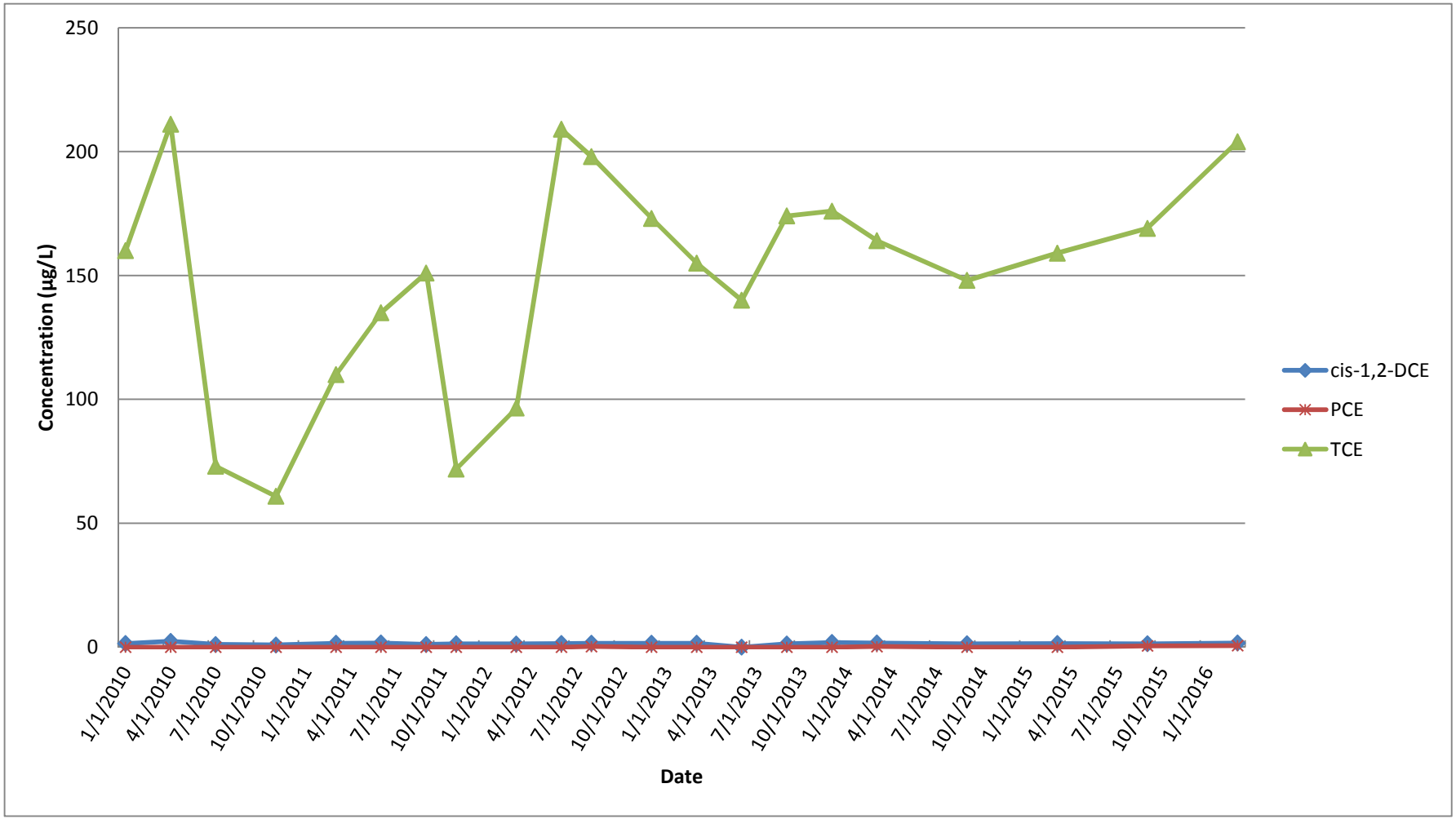


Figure 12
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

RW3-MW3

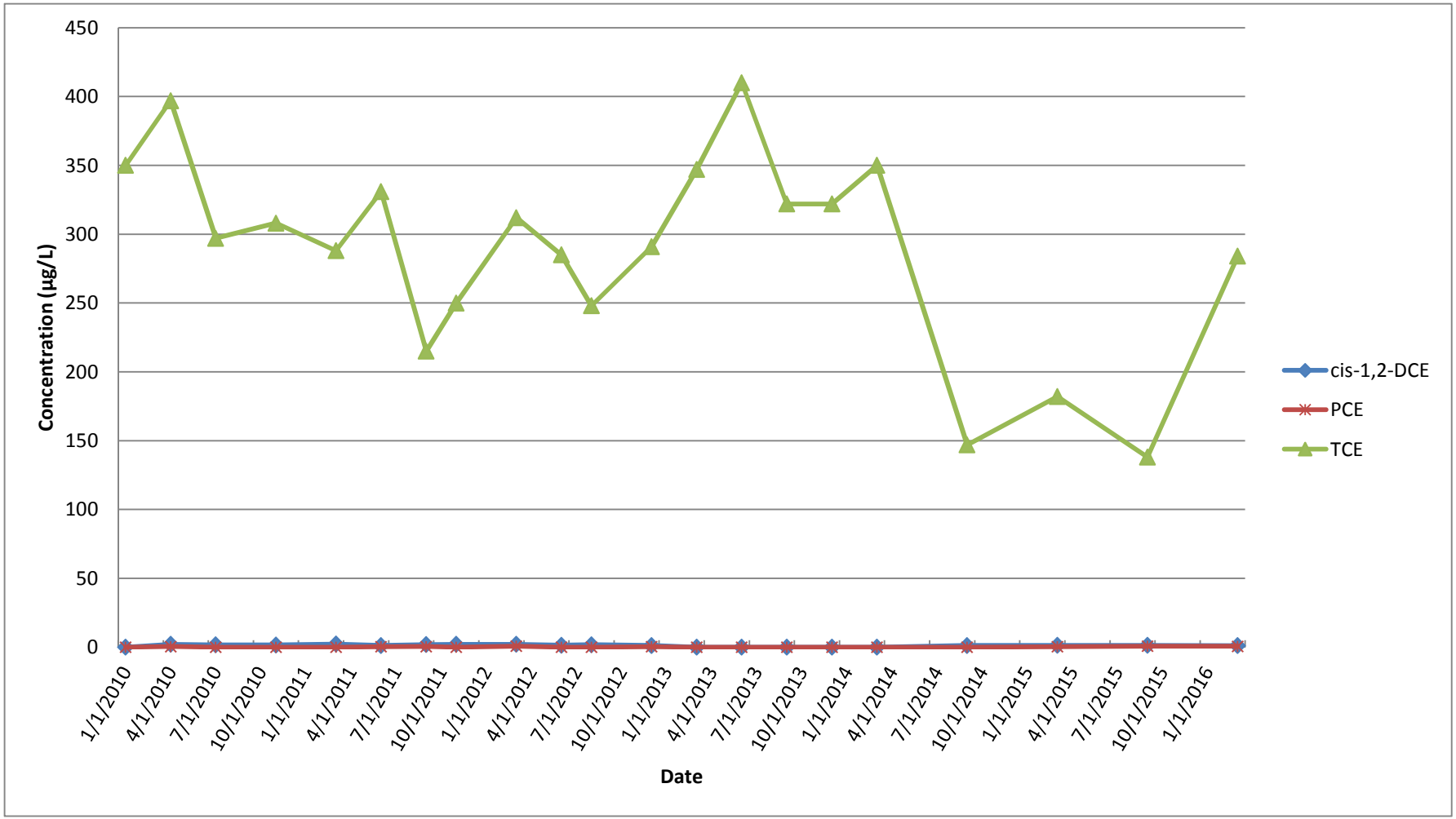


Figure 13
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

RW3-MW4

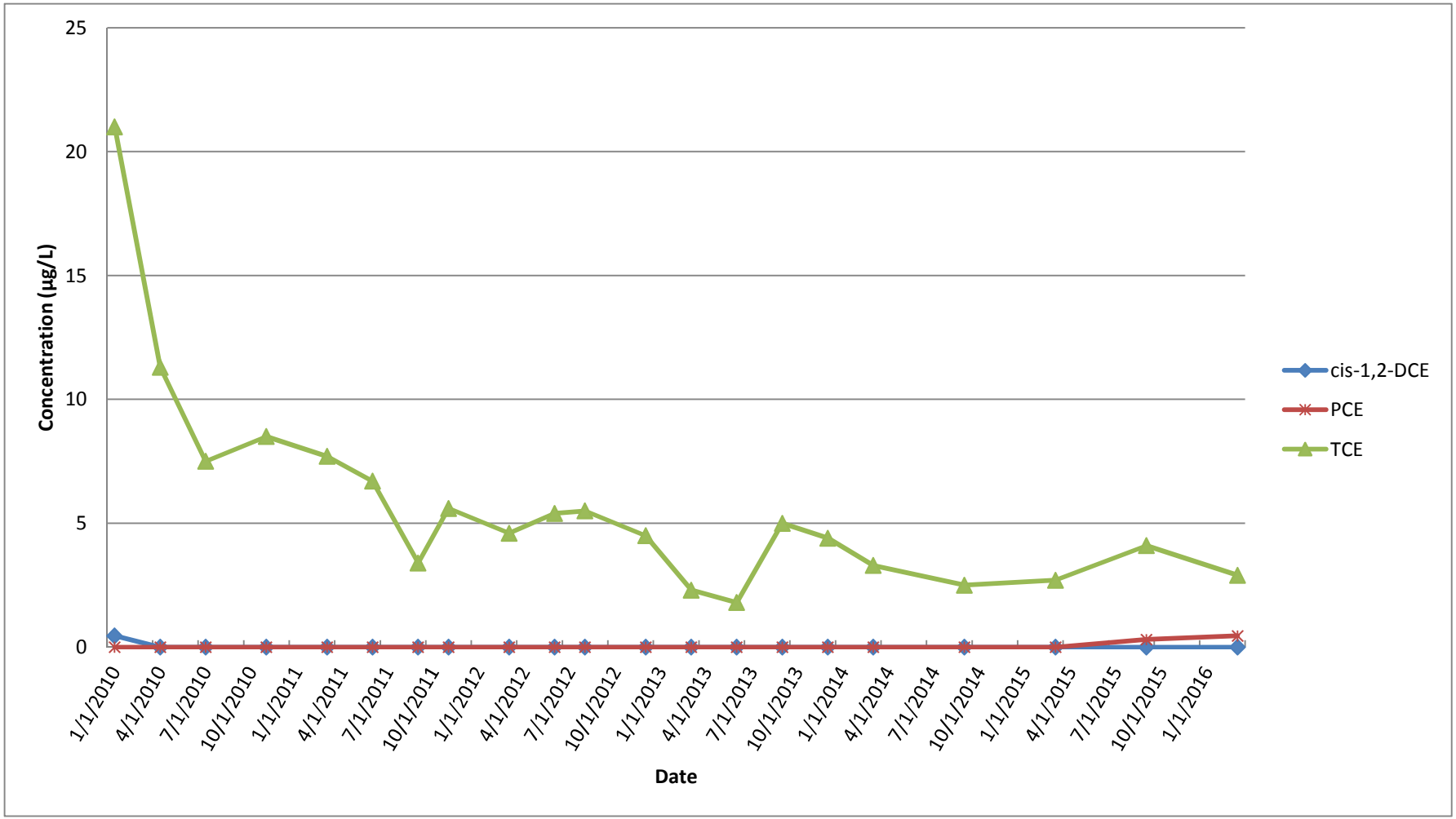
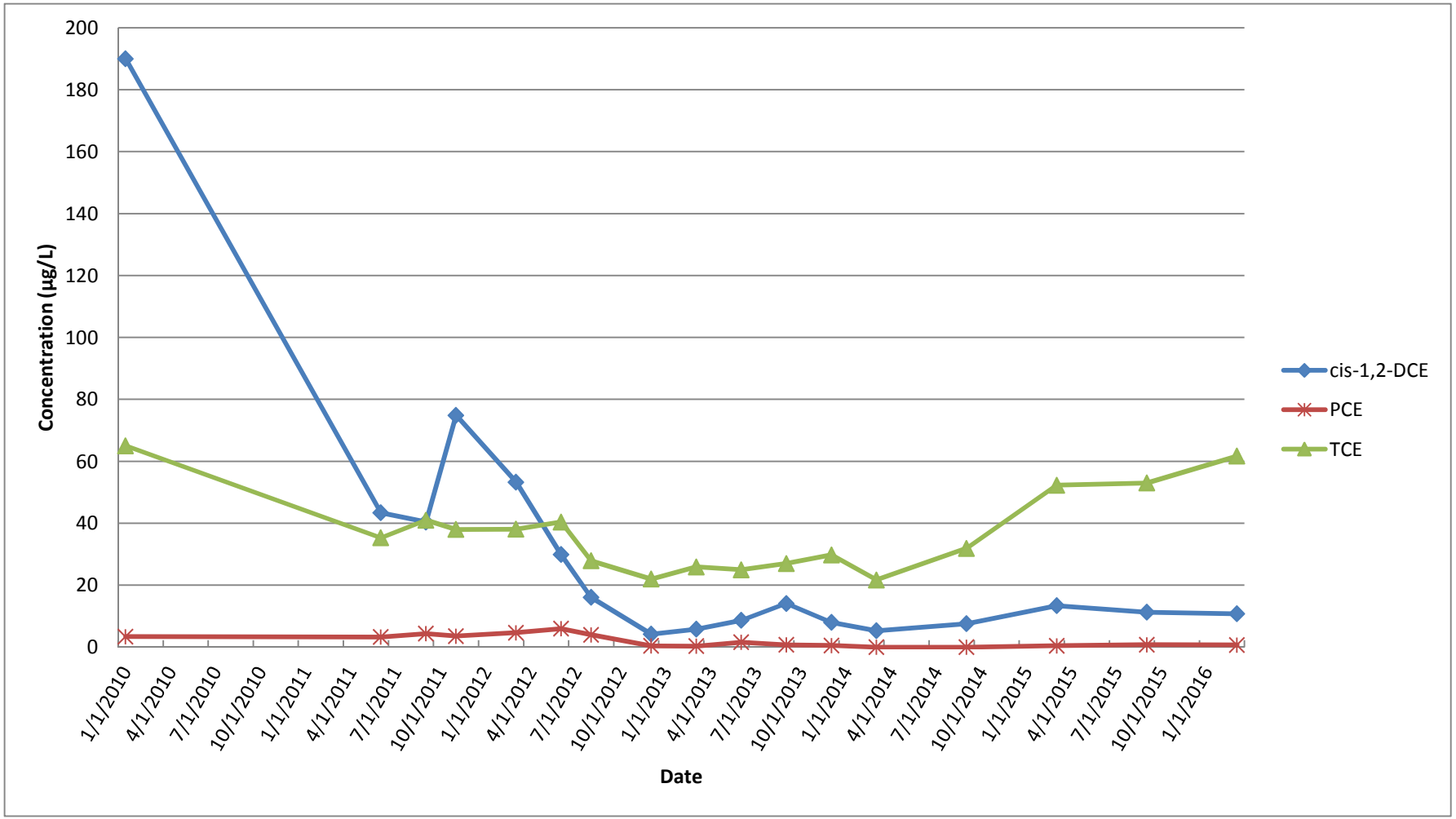


Figure 14
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

TP-01



APPENDIX A

NYSDEC EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS AND MONTHLY DMRS

New York State Department of Environmental Conservation
Division of Water
Bureau of Water Permits, 4th Floor
625 Broadway, Albany, New York 12233-3505
Phone: (518) 402-8111 • **FAX:** (518) 402-9029
Website: www.dec.state.ny.us

Alexander B. Grannis
Commissioner

MEMORANDUM

TO: Steven Scharf, DER

FROM: Jean Occidental, DOW, Bureau of Water Permits JO

SUBJECT: Naval Weapons Industrial Reserve Plant (NWIRP); DER Site # 1-01-001

DRAINAGE BASIN: na

DATE: June 6, 2008

In response to your request and the permittee's SPDES Permit Equivalent Application dated April 27, 2008, attached is the effluent criteria for the above noted groundwater remediation discharge.

The Division of Water does not have any regulatory authority over a discharge from a State, PRP, or Federal Superfund Site. The Division of Environmental Remediation will be responsible for ensuring compliance with the attached effluent criteria and approval of all engineering submissions. Additional Condition (1) identifies the contact to send all effluent results, engineering submissions, and modification requests. The Regional Water Engineer should be kept appraised of the status of these discharges and, in accordance with the attached criteria, receive a copy of the effluent results for informational purposes.

If you have any questions, please call me at (518) 402-8116.

Attachment

cc: (w/att) RWE, Region 1
C. Webber
BWP Permit Coordinator

Naval Weapons Industrial Reserve Plant

DER site # 1-01-001
Page 1 of 2

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning: April 1, 2009

and lasting until: April 1, 2014

the discharges from the treatment facility to Groundwater shall be limited and monitored by the operator as specified below:

Outfall and Parameters	Limitations		Units	Minimum Monitoring Requirements	
	Daily Avg.	Daily Max.		Measurement Frequency	Sample Type
Treated Groundwater Remediation Discharge from: Recovery Wells 1, 2, and 3					
Flow	Monitor	1100	GPM	Continuous	Recorder
pH (range)	5.5 - 8.5		SU	Weekly	Grab
1,1-Dichloroethane	NA	5	µg/l	Monthly [1]	Grab
1,2-Dichloroethane	NA	0.6	µg/l	Monthly [1]	Grab
1,1-Dichloroethene	NA	5	µg/l	Monthly [1]	Grab
cis-1,2-Dichloroethene	NA	5	µg/l	Monthly [1]	Grab
trans-1,2-Dichloroethene	NA	5	µg/l	Monthly [1]	Grab
Tetrachloroethene	NA	5	µg/l	Monthly [1]	Grab
1,1,1-Trichloroethane	NA	5	µg/l	Monthly [1]	Grab
Trichloroethene	NA	5	µg/l	Monthly [1]	Grab
Vinyl chloride	NA	2	µg/l	Monthly [1]	Grab
Mercury	NA	0.25	µg/l	Monthly [1]	Grab

Footnotes:

(1) The minimum measurement frequency shall be monthly following a period of 24 consecutive weekly sampling events showing no exceedances of the stated discharge limitations.

Additional Conditions:

(1) Discharge is not authorized until such time as an engineering submission showing the method of treatment is approved by the Department. The discharge rate may not exceed the effective or design treatment system capacity. All monitoring data, engineering submissions and modification requests must be submitted to:

Steven Scharf
Division of Environmental Remediation
NYSDEC, 625 Broadway
Albany, NY 12233-7015
Phone: (518) 402-9620

With a copy sent to:

Regional Water Engineer
NYSDEC - Region 1
Building 40, SUNY Campus
Stony Brook, New York 11790-2356
Phone: (631) 444-0354

(2) Only site generated wastewater is authorized for treatment and discharge.

(3) Authorization to discharge is valid only for the period noted above but may be renewed if appropriate. A request for renewal must be received 6 months prior to the expiration date to allow for a review of monitoring data and reassessment of monitoring requirements.

(4) Any use of corrosion/scale inhibitors, biocidal-type compounds, or other water treatment chemicals used in the treatment process must be approved by the department prior to use.

(5) This discharge and administration of this discharge must comply with the substantive requirements of 6NYCRR Part 750.

JANUARY 2016

16 February 2016

Mr. Henry Wilkie
New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials
625 Broadway
Albany, NY 12233-7252

Subject: GROUNDWATER DISCHARGE MONITORING/AIR EMISSION REPORT GM-38 AREA, NWIRP BETHPAGE, NY; DER SITE # 1-30-003B-OU 2 JANUARY 2016 REPORTING PERIOD

Dear Mr. Wilkie:

H&S Environmental, Inc. (H&S) is submitting this monthly monitoring report of the groundwater discharge and air emission results for the Groundwater Treatment Plant (GWTP) located at the Former Naval Weapons Industrial Reserve Plant (NWIRP), Bethpage, NY, GM-38 Area. This report was prepared in accordance with GWTP operational requirements for DER Site # 1-30-003B-OU 2.

GWTP operational data from 1 January 2016 to 31 January 2016 are presented in Attachment A. There was no significant downtime for the GWTP during this reporting period.

As indicated in Attachment A, all permitted constituents were in compliance with regulatory guidelines during this reporting period.

Please contact me at 508-366-7442 with any questions or concerns you may have regarding this report.

Sincerely,
H&S Environmental, Inc.

Jennifer Good
Project Manager

Attachment A: Groundwater and Air Sampling Results from January 2016

Cc: Steven Scharf – NYSDEC
Jean Occidental - NYSDEC Division of Water
Jennifer Pilewski - NYSDEC – Region 1 Water Engineer
Gerard Ennis - Nassau County Department of Public Works
Linda Bianculli - Town of Oyster Bay
Lora Fly - NAVFAC Mid-Atlantic RPM
Greg Pearman – NWIRP Bethpage
GM-38 Copy

ATTACHMENT A

GROUNDWATER AND AIR SAMPLING RESULTS

JANUARY 2016

GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Discharge Monitoring Report
January 2016

SPDES Parameters	January 2016					
Process Stream	**Daily Treated Effluent Maximum**	**Units**	**RW-1 (1)**	**RW-3 (1)**	**Combined Influent (1)**	**Treated Effluent**
Well Depth	N/A	ft	445	530	N/A	N/A
Screened Interval	N/A	ft bgs	335-395 410-430	392-412 442-504	N/A	N/A
Sampling Date	N/A		1/7/16			
Average Flowrate	1100	GPM	987	0.2	987	1,022
Total Flow	N/A	gallons	44,068,260	10,000	44,078,260	45,632,760
pH	5.5 - 8.5	SU	5.49	N/A	5.49	6.09
Carbon Tetrachloride	NA	µg/L	ND (1.0)	N/A	ND (1.0)	ND (1.0)
1,1-Dichloroethane	5	µg/L	2.2	N/A	2.2	ND (1.0)
1,2-Dichloroethane	0.6	µg/L	ND (1.0)	N/A	ND (1.0)	ND (1.0)
1,1-Dichloroethene	5	µg/L	2.7	N/A	2.7	ND (1.0)
cis 1,2-Dichloroethene	5	µg/L	12.8	N/A	12.8	0.27 J
trans 1,2-Dichloroethene	5	µg/L	0.28 J	N/A	0.28 J	ND (1.0)
Tetrachloroethene	5	µg/L	33.7	N/A	33.7	ND (1.0)
1,1,1-Trichloroethene	5	µg/L	1.5	N/A	1.5	ND (1.0)
Trichloroethene	5	µg/L	147	N/A	147	ND (1.0)
Vinyl Chloride	2	µg/L	0.47 J	N/A	0.47 J	ND (2.0)
Mercury	0.00025	mg/L	ND (0.00050)	N/A	ND (0.00050)	ND (0.00050)
Total Suspended Solids (TSS)	N/A	mg/L	ND (5)	N/A	ND (5)	ND (5)

Notes:

J - Estimated result between laboratory method detection limit and reporting limit

ND - Not detected above laboratory method detection limit. Reporting Limit (RL) given in parentheses.

NR - Not Recorded

NS - Not Sampled. RW-3 sampling frequency has been reduced from monthly to semi-annually.

N/A - Not Applicable

(1) On 1 July 2015, the RW-1 flowrate was increased from ~800 gpm to ~1,000 gpm and RW-3 was taken off-line, as approved by NYSDEC on 20 April 2015. To maintain the integrity of RW-3 for potential future use, approximately 200 gallons per minute of water are pumped for a 1-hour period from the well on a monthly basis. RW-3 will be sampled semi-annually, consistent with the groundwater monitoring program. Influent concentrations presented above are therefore equivalent to RW-1 concentrations only.

GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Air Sampling Results
January 2016

DAR Parameters	Units	Discharge Goal [1]	January 2016	
Process Stream			Influent	Effluent
Sampling Date	N/A	N/A	1/7/16	
Average Flowrate	CFM	N/A	NR	9,415
Total Flow	ft^3	N/A	NR	420,276,672
Total Flow	m^3	N/A	NR	11,900,910
1,2-Dichloroethane	$\mu g/m^3$	N/A	3.1	ND
cis 1,2-Dichloroethene	$\mu g/m^3$	> 100,000 [2]	110	ND
trans 1,2-Dichloroethene	$\mu g/m^3$		2.0 J	ND
1,2-Dichloroethene (total)	$\mu g/m^3$	>100,000	120	ND
Toluene	$\mu g/m^3$	N/A	4.4	ND
Total Xylene	$\mu g/m^3$	N/A	ND	ND
1,1,2-Trichloroethane	$\mu g/m^3$	N/A	ND	ND
Trichloroethene	$\mu g/m^3$	2,600	1,400	5.7
Vinyl Chloride	$\mu g/m^3$	560	3.8	1.8 J
Tetrachloroethene	$\mu g/m^3$	5,100	310	2.8 J

Notes:
CFM - cubic feet per minute
DAR - Division of Air Resources
J - Estimated result between laboratory method detection limit and reporting limit
N/A - Not Applicable
NR - Not recorded
(1) Discharge goal as approved by NYSDEC's letter dated 31 October 2013.
(2) Discharge goal is for total 1,2-Dichloroethene.

GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Controlled Stack Emissions
January 2016

DAR Parameters	Units	Discharge Goal (1)	January 2016
Sampling Date	N/A	N/A	1/7/16
Average Flowrate	CFM	N/A	9,415
Total Flow	ft^3	N/A	420,276,672
Total Flow	m^3	N/A	11,900,910
Trichloroethene	lb/hr	0.09	0.00020
Vinyl Chloride	lb/hr	0.02	0.00006
1,2 Dichloroethene	lb/hr	11	0.00000
1,2-Dichloroethane	lb/hr	N/A	0.00000
Toluene	lb/hr	N/A	0.00000
Total Xylene	lb/hr	N/A	0.00000
1,1,2-Trichloroethane	lb/hr	N/A	0.00000
Tetrachloroethene	lb/hr	0.18	0.00010

Notes:
CFM - cubic feet per minute
DAR - Division of Air Resources
N/A - Not Applicable
(1) Discharge goal as approved by NYSDEC's letter dated 31 October 2013.

FEBRUARY 2016

10 March 2016

Mr. Henry Wilkie
New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials
625 Broadway
Albany, NY 12233-7252

Subject: GROUNDWATER DISCHARGE MONITORING/AIR EMISSION REPORT GM-38 AREA, NWIRP BETHPAGE, NY; DER SITE # 1-30-003B-OU 2 FEBRUARY 2016 REPORTING PERIOD

Dear Mr. Wilkie:

H&S Environmental, Inc. (H&S) is submitting this monthly monitoring report of the groundwater discharge and air emission results for the Groundwater Treatment Plant (GWTP) located at the Former Naval Weapons Industrial Reserve Plant (NWIRP), Bethpage, NY, GM-38 Area. This report was prepared in accordance with GWTP operational requirements for DER Site # 1-30-003B-OU 2.

GWTP operational data from 1 February 2016 to 29 February 2016 are presented in Attachment A. During this reporting period, unscheduled downtime occurred for weather-related issues (e.g power outages), which affected the average flowrates during the February 2016 reporting period.

As indicated in Attachment A, all permitted constituents were in compliance with regulatory guidelines during this reporting period.

Please contact me at 508-366-7442 with any questions or concerns you may have regarding this report.

Sincerely,
H&S Environmental, Inc.

Jennifer Good
Project Manager

Attachment A: Groundwater and Air Sampling Results from February 2016

Cc: Steven Scharf – NYSDEC
Jean Occidental - NYSDEC Division of Water
Jennifer Pilewski - NYSDEC – Region 1 Water Engineer
Gerard Ennis - Nassau County Department of Public Works
Linda Bianculli - Town of Oyster Bay
Lora Fly - NAVFAC Mid-Atlantic RPM
Greg Pearman – NWIRP Bethpage
GM-38 Copy

ATTACHMENT A

GROUNDWATER AND AIR SAMPLING RESULTS

FEBRUARY 2016

GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Discharge Monitoring Report
February 2016

SPDES Parameters	February 2016					
Process Stream	**Daily Treated Effluent Maximum**	**Units**	**RW-1 (1)**	**RW-3 (1)**	**Combined Influent (1)**	**Treated Effluent**
Well Depth	N/A	ft	445	530	N/A	N/A
Screened Interval	N/A	ft bgs	335-395 410-430	392-412 442-504	N/A	N/A
Sampling Date	N/A		2/4/16			
Average Flowrate	1100	GPM	954	0.3	955	988
Total Flow	N/A	gallons	39,855,800	10,700	39,866,500	41,269,950
pH	5.5 - 8.5	SU	5.41	N/A	5.41	6.07
Carbon Tetrachloride	NA	µg/L	ND (1.0)	N/A	ND (1.0)	ND (1.0)
1,1-Dichloroethane	5	µg/L	1.9	N/A	1.9	ND (1.0)
1,2-Dichloroethane	0.6	µg/L	ND (1.0)	N/A	ND (1.0)	ND (1.0)
1,1-Dichloroethene	5	µg/L	1.8	N/A	1.8	ND (1.0)
cis 1,2-Dichloroethene	5	µg/L	11.6	N/A	11.6	0.27 J
trans 1,2-Dichloroethene	5	µg/L	ND (1.0)	N/A	ND (1.0)	ND (1.0)
Tetrachloroethene	5	µg/L	29.5	N/A	29.5	ND (1.0)
1,1,1-Trichloroethene	5	µg/L	1.3	N/A	1.3	ND (1.0)
Trichloroethene	5	µg/L	135	N/A	135	ND (1.0)
Vinyl Chloride	2	µg/L	0.50 J	N/A	0.50 J	ND (2.0)
Mercury	0.00025	mg/L	ND (0.00050)	N/A	ND (0.00050)	ND (0.00050)
Total Suspended Solids (TSS)	N/A	mg/L	ND (5)	N/A	ND (5)	ND (5)

Notes:

J - Estimated result between laboratory method detection limit and reporting limit

ND - Not detected above laboratory method detection limit. Reporting Limit (RL) given in parentheses.

NR - Not Recorded

NS - Not Sampled. RW-3 sampling frequency has been reduced from monthly to semi-annually.

N/A - Not Applicable

(1) On 1 July 2015, the RW-1 flowrate was increased from ~800 gpm to ~1,000 gpm and RW-3 was taken off-line, as approved by NYSDEC on 20 April 2015. To maintain the integrity of RW-3 for potential future use, approximately 200 gallons per minute of water are pumped for a 1-hour period from the well on a monthly basis. RW-3 will be sampled semi-annually, consistent with the groundwater monitoring program. Influent concentrations presented above are therefore equivalent to RW-1 concentrations only.

GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Air Sampling Results
February 2016

DAR Parameters	Units	Discharge Goal [1]	February 2016	
Process Stream			Influent	Effluent
Sampling Date	N/A	N/A	2/4/16	
Average Flowrate	CFM	N/A	NR	9,545
Total Flow	ft^3	N/A	NR	398,593,234
Total Flow	m^3	N/A	NR	11,286,903
1,2-Dichloroethane	$\mu g/m^3$	N/A	3.3 J	ND
cis 1,2-Dichloroethene	$\mu g/m^3$	> 100,000 [2]	130	ND
trans 1,2-Dichloroethene	$\mu g/m^3$		ND	ND
1,2-Dichloroethene (total)	$\mu g/m^3$	>100,000	130	ND
Toluene	$\mu g/m^3$	N/A	ND	ND
Total Xylene	$\mu g/m^3$	N/A	ND	ND
1,1,2-Trichloroethane	$\mu g/m^3$	N/A	ND	ND
Trichloroethene	$\mu g/m^3$	2,600	1,400	8.6
Vinyl Chloride	$\mu g/m^3$	560	4.3	1.8 J
Tetrachloroethene	$\mu g/m^3$	5,100	360	3.8 J

Notes:
CFM - cubic feet per minute
DAR - Division of Air Resources
J - Estimated result between laboratory method detection limit and reporting limit
N/A - Not Applicable
NR - Not recorded
(1) Discharge goal as approved by NYSDEC's letter dated 31 October 2013.
(2) Discharge goal is for total 1,2-Dichloroethene.

GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Controlled Stack Emissions
February 2016

DAR Parameters	Units	Discharge Goal (1)	February 2016
Sampling Date	N/A	N/A	2/4/16
Average Flowrate	CFM	N/A	9,545
Total Flow	ft^3	N/A	398,593,234
Total Flow	m^3	N/A	11,286,903
Trichloroethene	lb/hr	0.09	0.00031
Vinyl Chloride	lb/hr	0.02	0.00006
1,2 Dichloroethene	lb/hr	11	0.00000
1,2-Dichloroethane	lb/hr	N/A	0.00000
Toluene	lb/hr	N/A	0.00000
Total Xylene	lb/hr	N/A	0.00000
1,1,2-Trichloroethane	lb/hr	N/A	0.00000
Tetrachloroethene	lb/hr	0.18	0.00014

Notes:
CFM - cubic feet per minute
DAR - Division of Air Resources
N/A - Not Applicable
(1) Discharge goal as approved by NYSDEC's letter dated 31 October 2013.

MARCH 2016

KGS has merged with H&S Environmental, Inc.

15 April 2016

Mr. Henry Wilkie
New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials
625 Broadway
Albany, NY 12233-7252

Subject: GROUNDWATER DISCHARGE MONITORING/AIR EMISSION REPORT GM-38 AREA, NWIRP BETHPAGE, NY; DER SITE # 1-30-003B-OU 2 MARCH 2016 REPORTING PERIOD

Dear Mr. Wilkie:

KOMAN Government Solutions, LLC (KGS) is submitting this monthly monitoring report of the groundwater discharge and air emission results for the Groundwater Treatment Plant (GWTP) located at the Former Naval Weapons Industrial Reserve Plant (NWIRP), Bethpage, NY, GM-38 Area. This report was prepared in accordance with GWTP operational requirements for DER Site # 1-30-003B-OU 2.

GWTP operational data from 1 March 2016 to 31 March 2016 are presented in Attachment A. There was no significant downtime for the GWTP during this reporting period.

As indicated in Attachment A, all permitted constituents were in compliance with regulatory guidelines during this reporting period.

Please contact me at 508-366-7442 with any questions or concerns you may have regarding this report.

Sincerely,
KOMAN Government Solutions, LLC

Jennifer Good
Project Manager

Attachment A: Groundwater and Air Sampling Results from March 2016

Cc: Steven Scharf – NYSDEC
Jean Occidental - NYSDEC Division of Water
Jennifer Pilewski - NYSDEC – Region 1 Water Engineer
Gerard Ennis - Nassau County Department of Public Works
Linda Bianculli - Town of Oyster Bay
Lora Fly - NAVFAC Mid-Atlantic RPM
Greg Pearman – NWIRP Bethpage
GM-38 Copy

ATTACHMENT A

GROUNDWATER AND AIR SAMPLING RESULTS

MARCH 2016

GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Discharge Monitoring Report
March 2016

SPDES Parameters	March 2016					
Process Stream	**Daily Treated Effluent Maximum**	**Units**	**RW-1 (1)**	**RW-3 (1)**	**Combined Influent (1)**	**Treated Effluent**
Well Depth	N/A	ft	445	530	N/A	N/A
Screened Interval	N/A	ft bgs	335-395 410-430	392-412 442-504	N/A	N/A
Sampling Date	N/A		3/3/16			
Average Flowrate	1100	GPM	982	0.5	983	1,007
Total Flow	N/A	gallons	43,852,500	24,100	43,876,600	44,942,850
pH	5.5 - 8.5	SU	5.27	N/A	5.27	6.01
Carbon Tetrachloride	NA	µg/L	ND (1.0)	N/A	ND (1.0)	ND (1.0)
1,1-Dichloroethane	5	µg/L	2.1	N/A	2.1	ND (1.0)
1,2-Dichloroethane	0.6	µg/L	ND (1.0)	N/A	ND (1.0)	ND (1.0)
1,1-Dichloroethene	5	µg/L	1.9	N/A	1.9	ND (1.0)
cis 1,2-Dichloroethene	5	µg/L	12.0	N/A	12.0	0.28 J
trans 1,2-Dichloroethene	5	µg/L	0.23 J	N/A	0.23 J	ND (1.0)
Tetrachloroethene	5	µg/L	28.0	N/A	28.0	ND (1.0)
1,1,1-Trichloroethene	5	µg/L	1.3	N/A	1.3	ND (1.0)
Trichloroethene	5	µg/L	145	N/A	145	ND (1.0)
Vinyl Chloride	2	µg/L	0.50 J	N/A	0.50 J	ND (2.0)
Mercury	0.00025	mg/L	ND (0.00050)	N/A	ND (0.00050)	ND (0.00050)
Total Suspended Solids (TSS)	N/A	mg/L	ND (5)	N/A	ND (5)	ND (5)

Notes:

J - Estimated result between laboratory method detection limit and reporting limit

ND - Not detected above laboratory method detection limit. Reporting Limit (RL) given in parentheses.

NR - Not Recorded

NS - Not Sampled. RW-3 sampling frequency has been reduced from monthly to semi-annually.

N/A - Not Applicable

(1) On 1 July 2015, the RW-1 flowrate was increased from ~800 gpm to ~1,000 gpm and RW-3 was taken off-line, as approved by NYSDEC on 20 April 2015. To maintain the integrity of RW-3 for potential future use, approximately 200 gallons per minute of water are pumped for a 1-hour period from the well on a monthly basis. RW-3 will be sampled semi-annually, consistent with the groundwater monitoring program. Influent concentrations presented above are therefore equivalent to RW-1 concentrations only.

GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Air Sampling Results
March 2016

DAR Parameters	Units	Discharge Goal [1]	March 2016	
Process Stream			Influent	Effluent
Sampling Date	N/A	N/A	3/3/16	
Average Flowrate	CFM	N/A	NR	9,509
Total Flow	ft^3	N/A	NR	424,492,920
Total Flow	m^3	N/A	NR	12,020,301
1,2-Dichloroethane	$\mu g/m^3$	N/A	3.0 J	ND
cis 1,2-Dichloroethene	$\mu g/m^3$	> 100,000 [2]	130	ND
trans 1,2-Dichloroethene	$\mu g/m^3$		1.8 J	ND
1,2-Dichloroethene (total)	$\mu g/m^3$	>100,000	130	ND
Toluene	$\mu g/m^3$	N/A	16	0.99 J
Total Xylene	$\mu g/m^3$	N/A	7.8	ND
1,1,2-Trichloroethane	$\mu g/m^3$	N/A	ND	ND
Trichloroethene	$\mu g/m^3$	2,600	1,500	4.7
Vinyl Chloride	$\mu g/m^3$	560	3.7	1.8 J
Tetrachloroethene	$\mu g/m^3$	5,100	400	3.0 J

Notes:
CFM - cubic feet per minute
DAR - Division of Air Resources
J - Estimated result between laboratory method detection limit and reporting limit
N/A - Not Applicable
NR - Not recorded
(1) Discharge goal as approved by NYSDEC's letter dated 31 October 2013.
(2) Discharge goal is for total 1,2-Dichloroethene.

GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Controlled Stack Emissions
March 2016

DAR Parameters	Units	Discharge Goal (1)	March 2016
Sampling Date	N/A	N/A	3/3/16
Average Flowrate	CFM	N/A	9,509
Total Flow	ft^3	N/A	424,492,920
Total Flow	m^3	N/A	12,020,301
Trichloroethene	lb/hr	0.09	0.00017
Vinyl Chloride	lb/hr	0.02	0.00006
1,2 Dichloroethene	lb/hr	11	0.00000
1,2-Dichloroethane	lb/hr	N/A	0.00000
Toluene	lb/hr	N/A	0.00004
Total Xylene	lb/hr	N/A	0.00000
1,1,2-Trichloroethane	lb/hr	N/A	0.00000
Tetrachloroethene	lb/hr	0.18	0.00011

Notes:
CFM - cubic feet per minute
DAR - Division of Air Resources
N/A - Not Applicable
(1) Discharge goal as approved by NYSDEC's letter dated 31 October 2013.

APPENDIX B

NYSDEC AIR DISCHARGE LIMIT DOCUMENTATION

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Action Bureau A, 12th Floor
625 Broadway, Albany, New York 12233-7015
Phone: (518) 402-9620 FAX: (518) 402-9022

Joseph Martens
Commissioner

October 31, 2013

Lora Fly
Remedial Program Manager
NAVFAC Mid-Atlantic
Northeast IPT
9742 Maryland Avenue
Norfolk, VA, 23511-3095

RE: Northrop Grumman, Naval Weapons Industrial Reserve Plant (NWIRP) and Grumman Steel Los Sites, NYSDEC Site No.'s 1-30-003 A & B.

Dear Ms. Fly:

Tetra Tech NUS Inc., on behalf of the Department of the Navy NAVFAC Midlantic, has submitted an application to remove the GM 38 Area Groundwater Extraction and Treatment system impregnated Xeolite[tm] resin from the air discharge treatment system. Currently, the air treatment system uses a combined activated carbon with permanganate impregnated resin treatment train. The New York State Department of Environmental Conservation (NYSDEC) has reviewed the Department of the Navy application and concurs with the findings presented.

The routine monitoring, as detailed in Table 1, clearly indicates that vinyl chloride, one of the main contaminants of concern, has diminished to almost non-detect, and discharge concentrations have dropped to below the limit to require air treatment for the other contaminants as well. However, NAVFAC Midlantic is still proposing activated carbon to reduce the other discharge contaminant levels. Therefore, the NYSDEC hereby approves the proposed changes to the GM 38 Area air treatment. The Xeolite[tm] resin beds will remain in place should reactivation, based on routine monitoring, be required.

If you have any questions in the interim, please contact me at (518)402-9620.

Sincerely,

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

EC: J. Swartwout
S. Scharf
W. Parish, Region 1
S. Karpinski, NYSDOH
E. Hannon, NGC
D. Stern, Arcadis
D. Brayack, TTNUS

NOR-01264

November 21, 2011

Mr. Stephen Scharf
New York Department of Environmental Conservation
Division of Environmental Remediation
Bureau of Remedial Action A
625 Broadway, 11th Floor
Albany, New York 12233-7015

Reference: CLEAN Contract No. N62470-08-D-1001
Contract Task Order WE06

Subject: Proposed Modification to Discharge Limits for Off Gas Volatile Organic Compounds (VOCs) for Air Stripping Tower
GM-38 Offsite Groundwater Treatment Plant,
NWIRP Bethpage, New York

Dear Mr. Scharf:

On behalf of the Navy, please find enclosed a copy of the subject document. This document presents an evaluation of current concentrations of off gas VOCs from the GM-38 groundwater treatment plant air-stripping tower (prior to treatment with granular activated carbon). Maximum emission rates were re-evaluated due to decreasing maximum concentrations of target VOCs in un-treated air stripper AS-1 off gas. In addition, breakthrough of target contaminants (e.g., cis-1,2-dichloroethene) is beginning to occur in the granular activated carbon bed. Maximum emission rates were re-evaluated to provide a determination if breakthrough of contaminants would trigger the need for a replacement of the granular activated carbon bed.

Existing Discharge Goals were established in the "Final Operation, Maintenance and Monitoring Plan for Groundwater Treatment Plant GM-38 Area Groundwater Remediation" prepared by Tetra Tech EC (April 2010). Existing goals were based on emission estimates for a 95% reduction (see Attachment A), instead of being based on the original DAR-1 analysis of air stripper off gas. Emission estimates were calculated using the air stripper design flow rate of 8,000 cubic feet per minute (cfm), and previous contaminant discharge rates in pounds per hour (lb/hr). Original emission estimates are provided in Attachment B.

Proposed Revised Discharge Goals were calculated using an average flow rate of 9,200 cfm, January to March 2011 VOC loading rates (taken from the Quarterly Operations Report First Quarter 2011 from ECOR Federal Services), and the Actual Annual % of Annual Guideline Concentrations (AGCs), taken from the revised DAR-1 Model Output. The revised DAR-1 Model Output is provided in Attachment C. Existing Discharge Goals and Proposed Revised Discharge Goals are compared in tabular format in the first page of the attachment. Proposed Revised Discharge Goals for trichloroethene (TCE) are the same as previous. The proposed limit for tetrachloroethene (PCE) is approximately 10 times the previous limit, and vinyl chloride is approximately 2 times the previous limit. Revised Discharge Goals for 1,2-dichloroethene (goals are the same for cis-1,2-dichloroethene) are 100 times greater than previously established limits. It is recommended that these revised limits replace previous discharge goals, and treatment of air stripper off gas by granular activated carbon is recommended to continue for TCE and PCE, with no treatment required for vinyl chloride and 1,2-dichloroethene.

Tetra Tech NUS, Inc.
5700 Lake Wright Drive, Suite 309, Norfolk, VA 23502
Tel 757.461.3768 Fax 757.461.4148 www.ttnus.com

If you have any questions please contact Ms. Lora Fly, NAVFAC Mid-LANT, at (757) 341-2012.

Sincerely,

David D. Brayack, P.E.
Project Manager

Enclosure: (1) Proposed Modification to Discharge Limits for Off Gas Volatile Organic Compounds (VOCs) for Air Stripping Tower
GM-38 Offsite Groundwater Treatment Plant

Distribution:

Mid-Lant, Lora Fly
NYSDEC (Albany), Henry Wilkie
NYSDOH (Troy), Steve Karpinski
NAVAIR, Richard Smith
USEPA, Carol Stein
NGC, Kent Smith
Tetra Tech NUS, Dave Brayack
ECOR Solutions, Al Taormina
Administrative Record
Public Repository
Project File

Tetra Tech NUS, Inc.
5700 Lake Wright Drive, Suite 309, Norfolk, VA 23502
Tel 757.461.3768 Fax 757.461.4148 www.ttnus.com

TABLE 1
COMPARISON OF EXISTING DISCHARGE GOALS WITH ACTUAL EMISSIONS AND PROPOSED DISCHARGE GOALS
AIR STRIPPING TOWER GM-38 OFFSITE GROUNDWATER TREATMENT PLANT
NWIRP BETHPAGE, NEW YORK

	Existing Discharge Goal		Actual January to March 2011 Values (Pre-Off Gas Treatment)		Proposed Revised Discharge Goals based on DAR-1 Analysis	
Chemical	Existing Discharge Loading Rate (pounds (lbs)/hour)[(1)]	Equivalent Existing Discharge Goals ($\mu g/m^3$)[(2)]	Actual Jan-Mar 2011 Concentration ($\mu g/m^3$)[(3)]	Actual VOC Loading Pre-Off Gas Treatment (lbs/hour)[(4)]	Proposed Discharge Loading Rate (lbs/hour)[(5)]	Equivalent Proposed Discharge Goal ($\mu g/m^3$)[(5)]
TCE	0.09	2,600	10,000	0.345	0.09	2,600
PCE	0.02	580	6,800	0.234	0.18	5,100
Vinyl Chloride	0.01	290	76	0.003	0.02	560
1,2-Dichloroethene (total)	0.03	870	750	0.026	11	greater than 100,000

Notes:

[(1)]Existing Discharge Goals are based on the design flow rate of 8,000 cfm. Existing Discharge Goals were taken from the Final Operations and Maintenance Plan for GM-38 Area Groundwater Remediation from Tetra Tech EC. Existing goals were based on emission estimates for a 95% reduction, and not the previous DAR-1 Analysis. Attachment B (provided at the end of this package) provides the original emission estimates.

[(2)]Existing Discharge Goals were calculated using the actual flow rate of 9,200 cfm and the existing discharge loading rate in pounds per hour (lb/hr).

[(3)]Values were taken from the Quarterly Operations Report First Quarter 2011 from ECOR Federal Services. Values were the maximum effluent concentration in off gas from air stripper stack AS-1 prior to treatment with vapor phase granular activated carbon (GAC), for the months of January, February and March 2011.

[(4)]Actual VOC Loading was calculated using an average flow rate of 9,200 cfm and the January-March 2011 concentrations. Existing off gas treatment consists of two stage vapor phase GAC followed by potassium permanganate zeolite media to provide additional treatment for vinyl chloride.

[(5)]Values were calculated using an average flow rate of 9,200 cfm, and the Actual Annual % of the AGCs from the 2011 DAR-1 Model Output to achieve air quality requirements.

ATTACHMENT A

2008 AIR PERMIT SUBMITTAL

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
☐ New ☐ Significant Modification ☐ Administrative Amendment
☐ Renewal ☐ Minor Modification General Permit Title:

State Facility Permit N/A
☐ New ☐ Modification
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) GM-38 Area	
Location Address	Bethpage	
☐ City / ☒ Town / ☐ Village	Oyster Bay, New York	Zip 11714

Project Description ☐ Continuation Sheet(s)

Air stripping of groundwater to remove VOCs

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)	Same		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)
Groundwater Remediation by Air Stripping followed by Vapor-Phase GAC for emission control

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
	CERCLA	all substantive requirements							

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
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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	117		
NY100 - 00 - 0	HAP	110		
0079 - 01 - 6	Trichloroethylene	99		
00075 - 01 - 4	Vinyl Chloride	3.7		
00540 - 59 - 0	1,2-Dichloroethylene	7.3		
- -				
- -				

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Section IV - Emission Unit Information

Emission Unit Description

❑ Continuation Sheet(s)

EMISSION UNIT: 0-00EU1

Air Stripper AS-1 for groundwater remediation, provided with activated carbon for emission control. The emission point is stack 00ST-1. The 2-stage VGAC is followed by a 3rd vessel containing a potassium permanganate zeolite media for increased VC capacity.

Building

❑ Continuation Sheet(s)

Building	Building Name	Length (ft)	Width (ft)	Orientation
BLDG-1	Treatment Plant	75	75	0

Emission Point

❑ Continuation Sheet(s)

EMISSION PT.: 00ST1

Ground Elev. (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section	
					Length (in)	Width (in)
90	40	15	36	80		
Exit Velocity (FPS)	**Exit Flow (ACFM)**	**NYTM (E) (KM)**	**NYTM (N) (KM)**	**Building**	**Distance to Property Line (ft)**	**Date of Removal**
19	8020			BLDG-1	50	

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	Type	Date of Construction	Date of Operation	Date of Removal	Control Type Code	Control Type Description	Manufacturer's Name/Model No.
AS-1	I				048	Granular Act. Carbon	Air Stripping Column

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	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
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Section IV - Emission Unit Information (continued)

Process Information

☐ Continuation Sheet(s)

EMISSION UNIT 0-00EU1 PROCESS PR1

Description

The remedial system is air stripping, using a packed column at a groundwater flow rate of 1,100 gpm (plus 100 gpm recycle, for a total of 1,200 gpm). Vapor phase treatment includes the use of 3 vessels, a 2-stage GAC unit, followed by a 3rd vessel containing a potassium permanganate impregnated zeolite for increased VC capacity. Prior to entering the vapor-phase GAC adsorption system, the humidity of the air stripper exhaust is reduced to approximately 50 percent or less to optimize the efficiency of the vapor-phase GAC.

Air Stripper AS-1: Existing. Type: Vertical, Cylindrical Construction: Aluminum

Packing: 25-foot Jaeger Tripack. Dimensions: 10.0 ft. Dia x 47 ft. H

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	BLDG-1	Main

Emission Source/Control Identifier(s)

AS-1							

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
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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
0-00EU1	00ST1	PR1	AS-1	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 vapor phase treatment system influent, effluent and two intermediate locations.

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
3,125		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

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	0-00EU1				PROCESS	P R 1
CAS No.	Contaminant Name	% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined
0079 - 01 - 6	Trichloroethylene			95	1.87	02

PTE			Standard Units	PTE How Determined	Actual	
(lbs/hr)	(lbs/yr)	(standard units)			(lbs/hr)	(lbs/yr)
0.09	99			02		

EMISSION UNIT	0-00EU1				PROCESS	P R 1
CAS No.	Contaminant Name	% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined
00075- 01 - 4	Vinyl Chloride			95	0.17	03

PTE			Standard Units	PTE How Determined	Actual	
(lbs/hr)	(lbs/yr)	(standard units)			(lbs/hr)	(lbs/yr)
0.01	3.7			02		

EMISSION UNIT	0-00EU1				PROCESS	P R 1
CAS No.	Contaminant Name	% Thruput	% Capture	% Control	ERP (lbs/hr)	ERP How Determined
000540 - 59 - 0	1,2-Dichloroethylene			95	0.6	02

PTE			Standard Units	PTE How Determined	Actual	
(lbs/hr)	(lbs/yr)	(standard units)			(lbs/hr)	(lbs/yr)
0.03	7.3			02		

DEC ID
- - -

Section IV - Emission Unit Information (continued)

EMISSION UNIT 0-00EU1	Emission Unit Emissions Summary			❑ Continuation Sheet(s)
CAS No.	Contaminant Name			
00107- 06 - 2	1,2-Dichloroethane			
ERP (lbs/yr)	PTE Emissions		Actual	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
13.4	Below Reporting Threshold BRT			
CAS No.	Contaminant Name			
00108 - 88 - 3	Toluene			
ERP (lbs/yr)	PTE Emissions		Actual	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
72.7	BRT	BRT		
CAS No.	Contaminant Name			
01330- 20 - 7	Xylene			
ERP (lbs/yr)	PTE Emissions		Actual	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
77.1	BRT	BRT		
CAS No.	Contaminant Name			
- -	1,1,2-Trichloroethane			
ERP (lbs/yr)	PTE Emissions		Actual	
	(lbs/hr)	(lbs/yr)	(lbs/hr)	(lbs/yr)
	BRT	BRT		

Compliance Plan

❑ 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

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	Reduction Method
/ /	

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

DEC ID
	-					-				

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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ATTACHMENT B

2008 EMISSION ESTIMATES BASED ON 95% REMOVAL

ATTACHMENT 1
Emission Estimate

POTENTIAL EMISSION ESTIMATES, USED TO DEVELOP 95% REDUCTION OF EMISSION VALUES AS BASED ON INFLUENT GROUNDWATER CONCENTRATIONS (95% REDUCTION OF EMISSION VALUES ARE PROVIDED ON PAGE 7 OF THE 2008 AIR PERMIT APPLICATION PROCESS EMISSIONS SUMMARY)

Feed Water Flow	1,100	gpm: max or normal
	250	m^3/hr
Water Flow Including Recycle	1,200	gpm: max or normal
	273	m^3/hr
Air Flow	8,000	cfm
	13,592	m^3/hr
A/W vol ratio	50	

EXAMPLE EMISSION CALC: Vinyl Chloride
4.8 ug/L x 1000 L/m^3 x 250 m^3 water/13,623 m^3 air = 88 ug/m^3

Name	CAS Number	Toxicity: H/M/L[2]	VOC[3]	HAP[4]	GW Conc.[1] Max ug/L	GW Conc.[1] Avg ug/L	Effluent Conc[1] Max ug/L	Effluent Conc[1] Avg ug/L	Uncontrolled Stripper Exhaust Max lb/day	Avg lb/day	Max lb/hr	Avg lb/hr	Max gm/sec	Avg gm/sec	Max ug/m^3	Avg ug/m^3
1,1,1-Trichloroethane (Methyl Chloroform)	00071-55-6	L	**No**	Yes	3	3.0			0.04	0.04	0.00	0.00	2.08E-04	2.08E-04	55	55
1,1,2-Trichloroethane	00079-00-5	M	Yes	Yes	3.5	0.3			0.05	0.00	0.00	0.00	2.43E-04	2.08E-05	64	6
1,1-Dichloroethane	00075-34-3	L	Yes	Yes	4	0.7			0.05	0.01	0.00	0.00	2.77E-04	4.85E-05	74	13
1,2-Dichloroethane	00107-06-2	M	Yes	Yes	3	1.0	0.3	0.1	0.04	0.01	0.00	0.00	1.87E-04	6.24E-05	55	18
1,1-Dichloroethylene (Vinylidene Chloride)	00075-35-4	M	Yes	Yes	9	1.6			0.12	0.02	0.00	0.00	6.24E-04	1.11E-04	165	29
1,2-Dichloroethylene	00540-59-0	M	Yes	**No**	1,100	31.5	1.3	0.0	14.51	0.42	0.60	0.02	7.62E-02	2.18E-03	20,219	579
Benzene	00071-43-2	H	Yes	Yes	4	0.1			0.05	0.00	0.00	0.00	2.77E-04	6.94E-06	74	2
Carbon Tetrachloride	00056-23-5	H	Yes	Yes	4	0.1			0.05	0.00	0.00	0.00	2.77E-04	6.94E-06	74	2
Chlorobenzene (Monochlorobenzene)	00108-90-7	M	Yes	Yes	1	0.1			0.01	0.00	0.00	0.00	6.94E-05	6.94E-06	18	2
Chloroform	00067-66-3	M	Yes	Yes	2	0.8			0.03	0.01	0.00	0.00	1.39E-04	5.55E-05	37	15
Methyl Tert Butyl Ether	01634-04-4	M	Yes	Yes	2	0.1			0.03	0.00	0.00	0.00	1.39E-04	6.94E-06	37	2
Tetrachloroethylene	00127-18-4	M	Yes	Yes	900	33.8	0.9	0.0	11.88	0.45	0.49	0.02	6.24E-02	2.34E-03	16,543	621
Toluene	00108-88-3	L	Yes	Yes	15	0.7			0.20	0.01	0.01	0.00	1.04E-03	4.85E-05	276	13
Trichloroethylene	00079-01-6	M	Yes	Yes	3,400	411.5	4.5	0.5	44.86	5.43	1.87	0.23	2.35E-01	2.85E-02	62,494	7,564
Vinyl chloride	00075-01-4	H	Yes	Yes	300	4.8	0.0	0.0	3.96	0.06	0.17	0.00	2.08E-02	3.33E-04	5,514	88
Xylenes	01330-20-7	M	Yes	Yes	16	0.2			0.21	0.00	0.01	0.00	1.11E-03	1.39E-05	294	4
Total VOCs					5,764	487.3	7.0	0.6	76.05	6.43	3.17	0.27				
Total HAPs					4,667	458.8	5.7	0.6	61.57	6.05	2.57	0.25				

Total Uncontrolled VOC 2,347 lb/yr
Total Uncontrolled HAP 2,209 lb/yr

1. Source: "GM-38 Groundwater Remedy Analysis Report", February 2003
2. Source: DAR-1 AGC/SGC Tables, NYSDEC Division of Air Resources, Air Toxics Section, September 10, 2007.
3. Source: 6 NYCRR Part 200 1(cg)
4. Source: 6 NYCRR Part 200.1(ag)

ATTACHMENT 1
Emission Estimate

Feed Water Flow	1,100	gpm: max or normal
	250	m^3/hr
Water Flow Including Recycle	1,200	gpm: max or normal
	273	m^3/hr
Air Flow	8,000	cfm
	13,592	m^3/hr
A/W vol ratio	50	

							Controlled Stripper Exhaust	
	CAS	Toxicity:			Control by	Max	Avg	Max	Avg
Name	Number	H/M/L[2]	VOC[3]	HAP[4]	GAC	lb/day	lb/day	gm/sec	gm/sec
1,1,1-Trichloroethane (Methyl Chloroform)	00071-55-6	L	**No**	Yes	95%	0.00	0.00	1.04E-05	1.04E-05
1,1,2-Trichloroethane	00079-00-5	M	Yes	Yes	95%	0.00	0.00	1.21E-05	1.04E-06
1,1-Dichloroethane	00075-34-3	L	Yes	Yes	95%	0.00	0.00	1.39E-05	2.43E-06
1,2-Dichloroethane	00107-06-2	M	Yes	Yes	95%	0.00	0.00	9.36E-06	3.12E-06
1,1-Dichloroethylene (Vinylidene Chloride)	00075-35-4	M	Yes	Yes	95%	0.01	0.00	3.12E-05	5.55E-06
1,2-Dichloroethylene	00540-59-0	M	Yes	**No**	95%	0.73	0.02	3.81E-03	1.09E-04
Benzene	00071-43-2	H	Yes	Yes	95%	0.00	0.00	1.39E-05	3.47E-07
Carbon Tetrachloride	00056-23-5	H	Yes	Yes	95%	0.00	0.00	1.39E-05	3.47E-07
Chlorobenzene (Monochlorobenzene)	00108-90-7	M	Yes	Yes	95%	0.00	0.00	3.47E-06	3.47E-07
Chloroform	00067-66-3	M	Yes	Yes	95%	0.00	0.00	6.94E-06	2.77E-06
Methyl Tert Butyl Ether	01634-04-4	M	Yes	Yes	95%	0.00	0.00	6.94E-06	3.47E-07
Tetrachloroethylene	00127-18-4	M	Yes	Yes	95%	0.59	0.02	3.12E-03	1.17E-04
Toluene	00108-88-3	L	Yes	Yes	95%	0.01	0.00	5.20E-05	2.43E-06
Trichloroethylene	00079-01-6	M	Yes	Yes	95%	2.24	0.27	1.18E-02	1.43E-03
Vinyl chloride	00075-01-4	H	Yes	Yes	95%	0.20	0.00	1.04E-03	1.66E-05
Xylenes	01330-20-7	M	Yes	Yes	95%	0.01	0.00	5.55E-05	6.94E-07
Total VOCs						3.80	0.32		
Total HAPs						3.08	0.30		

Total Controlled VOC	117	lb/yr
Total Controlled HAP	110	lb/yr

1. Source: "GM-38 Groundwater Remedy Analysis Report", February 2003
2. Source: DAR-1 AGC/SGC Tables, NYSDEC Division of Air Resources, Air Tox
3. Source: 6 NYCRR Part 200.1(cg)
4. Source: 6 NYCRR Part 200.1(ag)

ATTACHMENT C

2011 DISCHARGE GOALS AND 2011 DAR-1 ANALYSIS

Tetra Tech NUS		***STANDARD CALCULATION SHEET***	
CLIENT: US CLEAN	FILE No:	BY: SK	PAGE: 1 of 1
SUBJECT: Calculation of Current Discharge Goals GM-38 Area NWIRP Bethpage, New York		CHECKED BY:	DATE: 9/7/2011

1. Purpose:

To calculate current discharge goals for Trichloroethene (TCE), Tetrachloroethene (PCE), Vinyl Chloride, cis 1,2-Dichloroethene, and 1,2-Dichloroethene (total), for treatment of off-gas from the air stripper stack AS-1.

2. Approach:

From the Contaminant Assessment Summary of the DAR-1 Model output for TCE, PCE, Vinyl Chloride, cis 1,2-Dichloroethene, and 1,2-Dichloroethene (total) (see DAR-1 output for analysis inputs), use the Actual Annual % of the Annual Guideline Concentration (AGC), a current average flow rate of 9,200 cubic feet per minute (cfm), and influent chemical emission rates in pounds per hour (lb/hour) and pounds per year (lb/year) to back calculate current discharge goals.

3. Calculation of Current Discharge Goals:

Chemical	Current Actual Annual % of AGC[(1)]	Current Maximum Concentration ($\mu g/m^3$)[(2)]	Current Chemical Emission Rate Prior to Treatment (lb/hour)[(3)]	Current Chemical Emission Rate Prior to Treatment (lb/year)[(3)]	Calculated Discharge Goal (lb/hr)[(4)]	Calculated Discharge Goal (lb/year)[(4)]	Maximum Allowable Concentration ($\mu g/m^3$)[(4)]
TCE	390.6	10,000	0.3446	3,019	0.0882	770	2,600
PCE	132.8	6,800	0.2344	2,053	0.1764	1,500	5,100
Vinyl Chloride	13.49	76	0.0026	22.94	0.0194	170	560
cis 1,2-Dichloroethene	0.2322	750	0.0258	226.4	11.13	98,000	320,000
1,2-Dichloroethene (total)	0.2322	750	0.0258	226.4	11.13	98,000	320,000

Notes:

[(1)]Actual Annual % of the AGCs is from the attached DAR-1 Model Output.

[(2)]Values were taken from the Quarterly Operations Report First Quarter 2011 (June 2011) from ECOR Federal Services. Values were the maximum effluent concentration in off gas from air stripper stack AS-1 for the months of January, February, and March 2011.

[(3)]Chemical Emission Rates were calculated from maximum concentrations and an average flow rate of 9,200 cfm.

[(4)]Discharge Goals are based on a flow of 9,200 cfm, and calculated from the Actual Annual % of the AGCs from the DAR-1 Model Output to achieve air quality requirements. The summary of additional inputs for this model run is provided in the DAR-1 Model Output. Stack height is 40 feet, and the property line was evaluated at a distance of 50 feet.

BETHPAGE SITE GM-38 OFF-SITE GROUNDWATER AIR STRIPPER STACK EMISSIONS
DAR-1 MODEL OUTPUT, POINT SOURCE (STACK EMISSIONS) TYPE
INCLUDES ISCLT MODELING SUMMARY

I. Summary of Inputs for Model Run to Nearest Property Line (50 feet), worst case scenario (highest contaminant concentrations seen in first quarter 2011 in untreated effluent from Air Stripper AS-1 prior to treatment with granular activated carbon (GAC))

Chemical	CAS No. 00079-01-6 (TCE)	CAS No. 00127-18-4 (PCE)	CAS No. 00075-01-4 (Vinyl Chloride)	CAS No. 00156-59-2 (cis 1,2-Dichloroethene)	CAS No. 00540-59-0 (1,2-Dichloroethene, total)
Emission Rate Prior to Treatment[(1)] (lb/hour)	0.3444	0.2342	0.0026	0.0258	0.0258
Emission Rate Prior to Treatment[(1)] (lb/year)	3,017	2,052	22.93	226.0	226.0
Maximum Concentration of Untreated Off Gas ($\mu g/m^3$)[(1)]	10,000	6,800	76	750	750
Annual Guideline Concentration (AGC) ($\mu g/m^3$)	0.5	1.0	0.11	63	63
Short-term Guideline Concentration (SGC) ($\mu g/m^3$)	14,000	1,000	180,000	--	--

HA	Height Above stack/ maximum height of plume (HA, feet)	15
SH	Stack Height/Treatment Building Air Stack (SH, feet)	40
D	Stack Diameter (D, inches)	36
T	Stack Exit Temperature (T, degrees Fahrenheit)	80
V	Stack Exit Velocity (V, ft/sec)	21.69
Q[(2)]	Stack Exit Flow Rate [Q, Actual Cubic Feet per Minute (ACFM)]	9,200
Dpl	Shortest Distance from Source Building (Treatment Building) to Property Line (Dpl, feet) for point sources	50
BW	Building Width (BW, feet) of Source Building (Treatment Building) for point sources	75
BL	Building Length (BL, feet) of Source Building (Treatment Building)	75
Q	Actual Hourly Emission Rate (lbs/hour) for source contaminant	Chemical specific, see above
Qa	Actual Annual Emission Rate (lbs/year) for source contaminant	Chemical specific, see above

[(1)] Emission rates and maximum concentration values were taken from the Quarterly Operations Report First Quarter (June 2011) as provided by ECOR Services, using January, February, and March 2011 maximum rates of untreated off gas from Air Stripper AS-1 in the

GM-38 Treatment Building. Emission rates are based on continuous operation 24 hours per day, 7 days a week, 52 weeks a year, or approximately 8,760 hours of operation.
(2) "Q" is an average value of January and February 2011 monthly flow rates. Effective water and vapor flow rates were reduced during the reporting period of March due to a shutdown of the Treatment Plant on March 23, 2011.

II. Contaminant Assessment Summary of TCE, PCE, Vinyl Chloride, cis 1,2-Dichloroethene, and 1,2-Dichloroethene (total):

CONTAMINANT ASSESSMENT SUMMARY OF DAR-1 ANALYSIS 9/ 8/11
Page 1

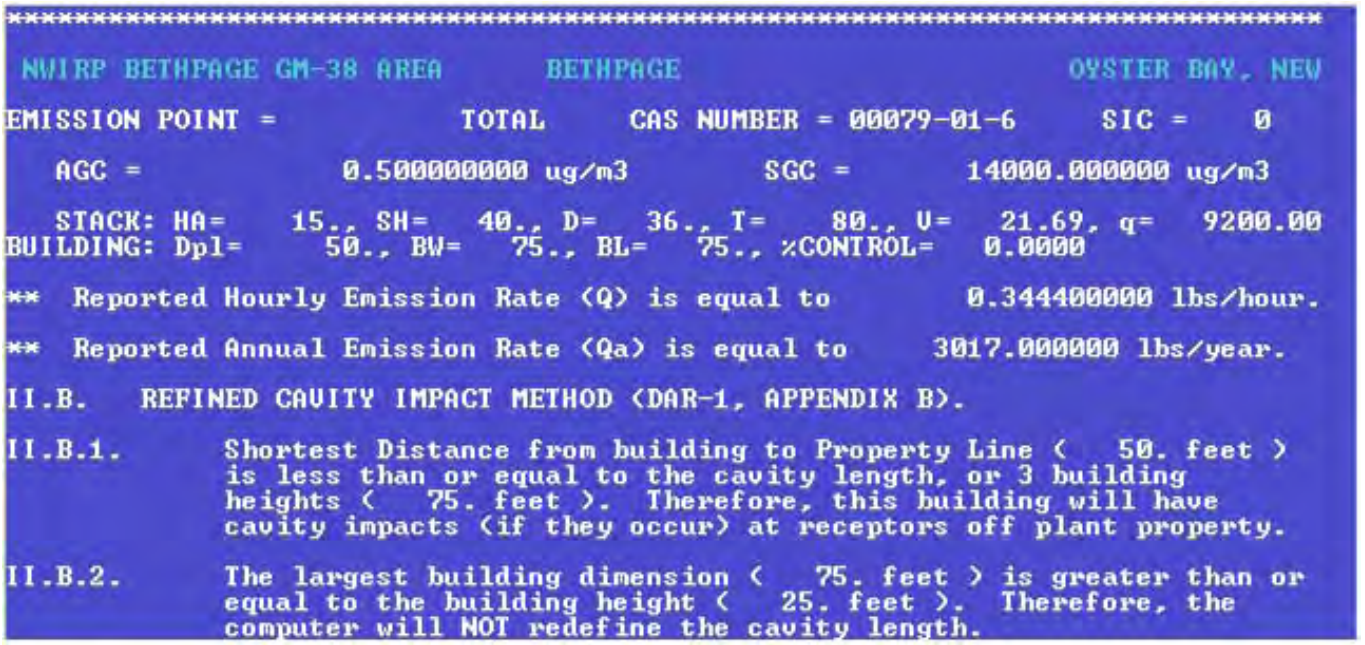
		SHORT-TERM	CAVITY	POINT or AREA SOURCE	
CAS NUMBER	AGC ug/m3	MAXIMUM (Gav,Pt,Area) % OF SGC	ACTUAL ANNUAL % OF AGC	POTENTIAL ANNUAL % OF AGC	ACTUAL ANNUAL % OF AGC
00075-01-4	0.11000000	0.0005	0.0000	13.3889	13.4948
00079-01-6	0.50000000	0.7757	0.0000	390.1734	390.6266
00127-18-4	1.00000000	7.3852	0.0000	132.6635	132.8415
00156-59-2	63.00000000	0.0000	0.0000	0.2320	0.2322
00540-59-0	63.00000000	0.0000	0.0000	0.2320	0.2322
SUMMARY TOTALS		8.1614	0.0000	536.6897	537.4274

III. Contaminant Impact Summary of TCE, PCE, Vinyl Chloride, cis 1,2-Dichloroethene, and 1,2-Dichloroethene (total):

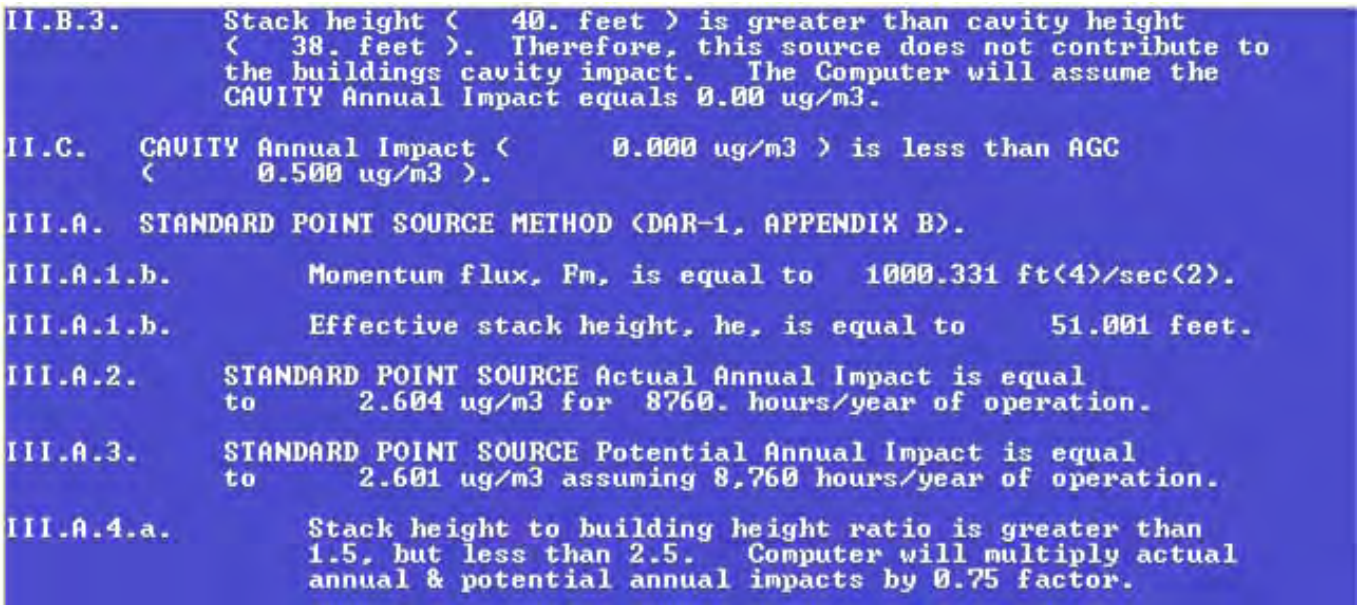
CONTAMINANT IMPACT SUMMARY OF DAR-1 ANALYSIS 9/ 8/11
Page 1

		SHORT-TERM	CAVITY	POINT or AREA SOURCE	
CAS NUMBER	AGC ug/m3	MAXIMUM (Gav,Pt,Area) ug/m3	ACTUAL ANNUAL ug/m3	POTENTIAL ANNUAL ug/m3	ACTUAL ANNUAL ug/m3
00075-01-4	0.11000000	0.81988204	0.00000000	0.01472780	0.01484433
00079-01-6	0.50000000	108.60282900	0.00000000	1.95086694	1.95313276
00127-18-4	1.00000000	73.85244750	0.00000000	1.32663476	1.32841504
00156-59-2	63.00000000	8.13575172	0.00000000	0.14614509	0.14630693
00540-59-0	63.00000000	8.13575172	0.00000000	0.14614509	0.14630693

IV. Contaminant Impact Summary Step by Step Menu for TCE:



```
**********************************************************************************
 NWIRP BETHPAGE GM-38 AREA      BETHPAGE                              OYSTER BAY, NEW

EMISSION POINT =           TOTAL     CAS NUMBER = 00079-01-6     SIC =    0

   AGC =            0.500000000 ug/m3        SGC =       14000.000000 ug/m3

   STACK: HA=    15., SH=   40., D=   36., T=    80., V=   21.69, q=   9200.00
BUILDING: Dpl=     50., BW=   75., BL=   75., %CONTROL=   0.0000

**  Reported Hourly Emission Rate (Q) is equal to         0.344400000 lbs/hour.

**  Reported Annual Emission Rate (Qa) is equal to     3017.000000 lbs/year.

II.B.   REFINED CAVITY IMPACT METHOD (DAR-1, APPENDIX B).

II.B.1.       Shortest Distance from building to Property Line (   50. feet )
              is less than or equal to the cavity length, or 3 building
              heights (   75. feet ).  Therefore, this building will have
              cavity impacts (if they occur) at receptors off plant property.

II.B.2.       The largest building dimension (   75. feet ) is greater than or
              equal to the building height (   25. feet ).  Therefore, the
              computer will NOT redefine the cavity length.
```



```
II.B.3.       Stack height (   40. feet ) is greater than cavity height
              (   38. feet ).  Therefore, this source does not contribute to
              the buildings cavity impact.   The Computer will assume the
              CAVITY Annual Impact equals 0.00 ug/m3.

II.C.   CAVITY Annual Impact (      0.000 ug/m3 ) is less than AGC
        (      0.500 ug/m3 ).

III.A.  STANDARD POINT SOURCE METHOD (DAR-1, APPENDIX B).

III.A.1.b.          Momentum flux, Fm, is equal to   1000.331 ft(4)/sec(2).

III.A.1.b.          Effective stack height, he, is equal to     51.001 feet.

III.A.2.      STANDARD POINT SOURCE Actual Annual Impact is equal
              to       2.604 ug/m3 for  8760. hours/year of operation.

III.A.3.      STANDARD POINT SOURCE Potential Annual Impact is equal
              to       2.601 ug/m3 assuming 8,760 hours/year of operation.

III.A.4.a.          Stack height to building height ratio is greater than
                    1.5, but less than 2.5.   Computer will multiply actual
                    annual & potential annual impacts by 0.75 factor.
```

```
III.A.5.      STANDARD POINT SOURCE Short-Term Impact is calculated below
              using the DAR-1 SOFTWARE PROGRAM SHORT-TERM METHOD.

III.D.  STANDARD POINT SOURCE Actual Annual Impact (      1.953 ug/m3 ) is
        greater than AGC (        0.500 ug/m3 ).

        **** Refer to DAR-1 Section III.D.1.  A refined site          ****
        **** specific modeling analyis may be required.                ****

III.D.  STANDARD POINT SOURCE Potential Annual Impact (      1.951 ug/m3 )
        is greater than AGC (        0.500 ug/m3 ).

        **** Potential Annual Impact is based upon 8760 hours/year         ****
        **** operation instead of reported 8760. hours/year.               ****

2.0     DAR-1 SOFTWARE PROGRAM SHORT-TERM METHOD.
        See "Technical Reference for the Screening Procedures of the
        DAR-1 Software Program, Wade/Sedefian,' 1/11/94.

2.2           CAVITY Short-Term Impact is equal to  0.00 ug/m3 as the plume
              escaped the cavity region:  hs(  40. feet) > hc(  26. feet).

II.C.   CAVITY Short-Term Impact (      0.000 ug/m3 ) is less
        than SGC (  14000.000 ug/m3 ).
```

```
2.3           Momentum flux, Fm, is equal to   1000.331 ft(4)/sec(2).

2.3           Effective stack height, he, is equal to     51.001 feet.

2.4           Maximum non-downwash GEP stack Short-Term Impact (GSTP) is equal
              to        38.826 ug/m3,  for   hs/hb =   1.60

2.5           Maximum downwash Short-Term Impact (GSTD) is equal
              to      129.908 ug/m3, for:  hs/hb =   1.60 and ESH =   51. feet.

2.6           Adjusted maximum downwash Short-Term (GSTD) is equal
              to      108.603 ug/m3,  for:  RF =   0.84

III.D.  Maximum non-cavity Short-Term Impact (CST:       108.603 ug/m3 ) is
        less than the SGC (    14000.000 ug/m3 ) for the point source.

2.7           Maximum Short-Term cavity, point, or area source impact
              (SHORT-TERM MAXIMUM, (Cav,Pt,Area)) equals      108.603 ug/m3
              and is reported in the ANALYSIS MENU.  This value is less than
              the SGC (    14000.000 ug/m3 ).
```

V. Contaminant Impact Summary Step by Step Menu for PCE:

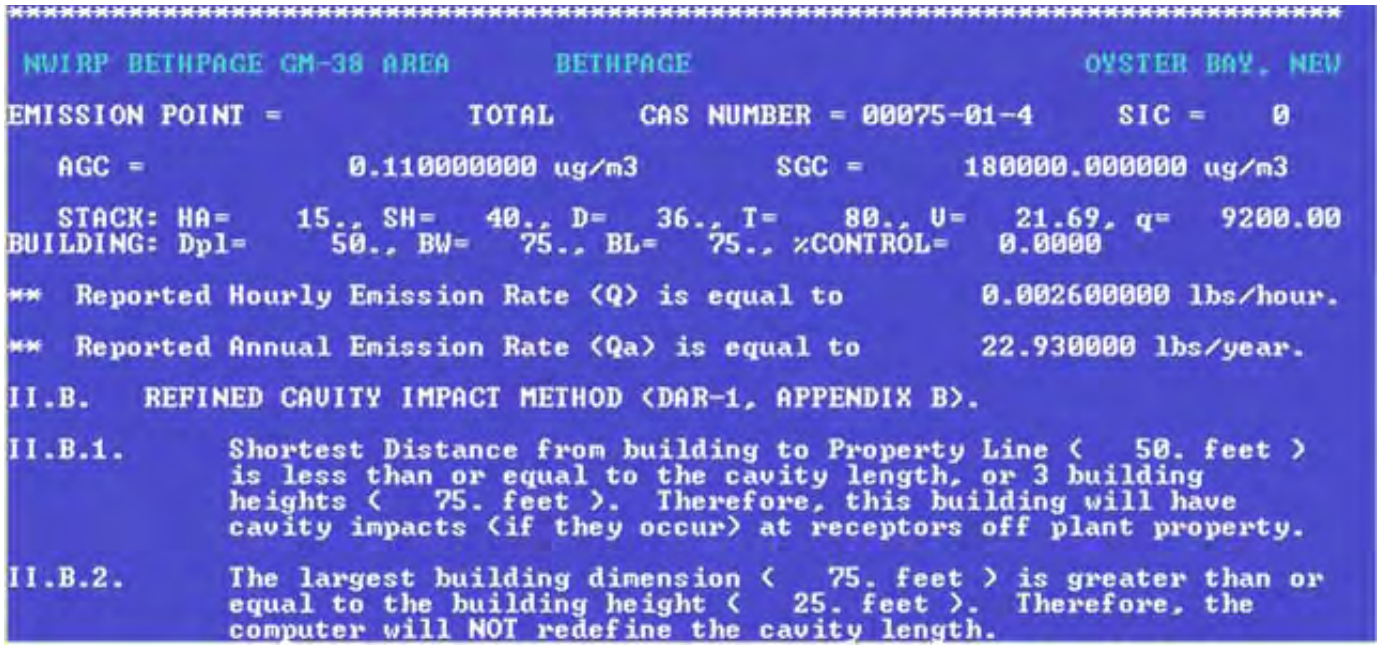
```
**********************************************************************************
 NWIRP BETHPAGE GM-38 AREA      BETHPAGE                          OYSTER BAY, NEW
EMISSION POINT =          TOTAL     CAS NUMBER = 00127-18-4     SIC =    0
   AGC =            1.000000000 ug/m3        SGC =         1000.000000 ug/m3
   STACK: HA=    15., SH=   40., D=   36., T=    80., V=   21.69, q=   9200.00
BUILDING: Dpl=     50., BW=   75., BL=   75., %CONTROL=   0.0000
**  Reported Hourly Emission Rate (Q) is equal to         0.234200000 lbs/hour.
**  Reported Annual Emission Rate (Qa) is equal to     2052.000000 lbs/year.
II.B.   REFINED CAVITY IMPACT METHOD (DAR-1, APPENDIX B).
II.B.1.       Shortest Distance from building to Property Line (   50. feet )
              is less than or equal to the cavity length, or 3 building
              heights (   75. feet ).  Therefore, this building will have
              cavity impacts (if they occur) at receptors off plant property.
II.B.2.       The largest building dimension (   75. feet ) is greater than or
              equal to the building height (   25. feet ).  Therefore, the
              computer will NOT redefine the cavity length.
```

```
II.B.3.       Stack height (   40. feet ) is greater than cavity height
              (   38. feet ).  Therefore, this source does not contribute to
              the buildings cavity impact.   The Computer will assume the
              CAVITY Annual Impact equals 0.00 ug/m3.
II.C.   CAVITY Annual Impact (      0.000 ug/m3 ) is less than AGC
        (      1.000 ug/m3 ).
III.A.  STANDARD POINT SOURCE METHOD (DAR-1, APPENDIX B).
III.A.1.b.        Momentum flux, Fm, is equal to   1000.331 ft(4)/sec(2).
III.A.1.b.        Effective stack height, he, is equal to     51.001 feet.
III.A.2.      STANDARD POINT SOURCE Actual Annual Impact is equal
              to      1.771 ug/m3 for  8762. hours/year of operation.
III.A.3.      STANDARD POINT SOURCE Potential Annual Impact is equal
              to      1.769 ug/m3 assuming 8,760 hours/year of operation.
III.A.4.a.        Stack height to building height ratio is greater than
                  1.5, but less than 2.5.   Computer will multiply actual
                  annual & potential annual impacts by 0.75 factor.
```

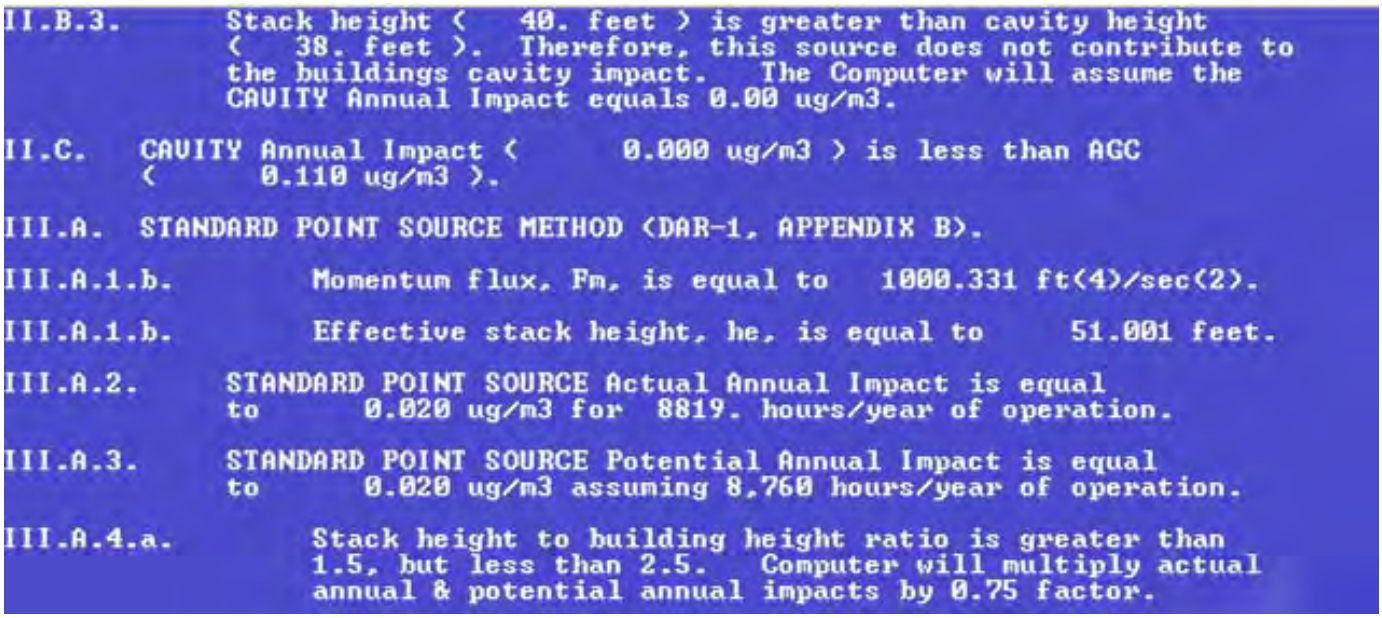
```
III.A.5.      STANDARD POINT SOURCE Short-Term Impact is calculated below
              using the DAR-1 SOFTWARE PROGRAM SHORT-TERM METHOD.

III.D.  STANDARD POINT SOURCE Actual Annual Impact (      1.328 ug/m3 ) is
        greater than AGC (        1.000 ug/m3 ).

        **** Refer to DAR-1 Section III.D.1.  A refined site          ****
        **** specific modeling analyis may be required.                ****

III.D.  STANDARD POINT SOURCE Potential Annual Impact (      1.327 ug/m3 )
        is greater than AGC (        1.000 ug/m3 ).

        ***** Potential Annual Impact is based upon 8760 hours/year        *****
        ***** operation instead of reported 8762. hours/year.              *****

2.0     DAR-1 SOFTWARE PROGRAM SHORT-TERM METHOD.
        See "Technical Reference for the Screening Procedures of the
        DAR-1 Software Program, Wade/Sedefian," 1/11/94.

2.2           CAVITY Short-Term Impact is equal to  0.00 ug/m3 as the plume
              escaped the cavity region:  hs(  40. feet) > hc(  26. feet).

II.C.   CAVITY Short-Term Impact (      0.000 ug/m3 ) is less
        than SGC (   1000.000 ug/m3 ).
```

```
2.3           Momentum flux, Fm, is equal to   1000.331 ft(4)/sec(2).

2.3           Effective stack height, he, is equal to     51.001 feet.

2.4           Maximum non-downwash GEP stack Short-Term Impact (CSTP) is equal
              to        26.403 ug/m3,  for   hs/hb =   1.60

2.5           Maximum downwash Short-Term Impact (CSTD) is equal
              to        88.340 ug/m3, for:  hs/hb =   1.60 and ESH =   51. feet.

2.6           Adjusted maximum downwash Short-Term (CSTD) is equal
              to        73.852 ug/m3,  for:  RF =   0.84

III.D.  Maximum non-cavity Short-Term Impact (CST:        73.852 ug/m3 ) is
        less than the SGC (     1000.000 ug/m3 ) for the point source.

2.7           Maximum Short-Term cavity, point, or area source impact
              (SHORT-TERM MAXIMUM, (Cav,Pt,Area)) equals       73.852 ug/m3
              and is reported in the ANALYSIS MENU.  This value is less than
              the SGC (     1000.000 ug/m3 ).
```

VI. Contaminant Impact Summary Step by Step Menu for Vinyl Chloride:



```
**********************************************************************
 NWIRP BETHPAGE GM-38 AREA      BETHPAGE                    OYSTER BAY, NEW
EMISSION POINT =          TOTAL     CAS NUMBER = 00075-01-4     SIC =    0
   AGC =            0.110000000 ug/m3        SGC =      180000.000000 ug/m3
   STACK: HA=    15., SH=   40., D=   36., T=    80., V=   21.69, q=   9200.00
BUILDING: Dpl=     50., BW=   75., BL=   75., %CONTROL=   0.0000
**  Reported Hourly Emission Rate (Q) is equal to        0.002600000 lbs/hour.
**  Reported Annual Emission Rate (Qa) is equal to       22.930000 lbs/year.
II.B.   REFINED CAVITY IMPACT METHOD (DAR-1, APPENDIX B).
II.B.1.      Shortest Distance from building to Property Line (   50. feet )
             is less than or equal to the cavity length, or 3 building
             heights (   75. feet ).  Therefore, this building will have
             cavity impacts (if they occur) at receptors off plant property.
II.B.2.      The largest building dimension (   75. feet ) is greater than or
             equal to the building height (   25. feet ).  Therefore, the
             computer will NOT redefine the cavity length.
```



```
II.B.3.      Stack height (   40. feet ) is greater than cavity height
             (   38. feet ).  Therefore, this source does not contribute to
             the buildings cavity impact.   The Computer will assume the
             CAVITY Annual Impact equals 0.00 ug/m3.
II.C.   CAVITY Annual Impact (      0.000 ug/m3 ) is less than AGC
        (      0.110 ug/m3 ).
III.A.  STANDARD POINT SOURCE METHOD (DAR-1, APPENDIX B).
III.A.1.b.       Momentum flux, Fm, is equal to   1000.331 ft(4)/sec(2).
III.A.1.b.       Effective stack height, he, is equal to     51.001 feet.
III.A.2.     STANDARD POINT SOURCE Actual Annual Impact is equal
             to      0.020 ug/m3 for  8819. hours/year of operation.
III.A.3.     STANDARD POINT SOURCE Potential Annual Impact is equal
             to      0.020 ug/m3 assuming 8,760 hours/year of operation.
III.A.4.a.       Stack height to building height ratio is greater than
                 1.5, but less than 2.5.   Computer will multiply actual
                 annual & potential annual impacts by 0.75 factor.
```

```
III.A.5.      STANDARD POINT SOURCE Short-Term Impact is calculated below
              using the DAR-1 SOFTWARE PROGRAM SHORT-TERM METHOD.

III.D.  STANDARD POINT SOURCE Actual Annual Impact (      0.015 ug/m3 ) is
        less than AGC (        0.110 ug/m3 ).

III.D.  STANDARD POINT SOURCE Potential Annual Impact (      0.015 ug/m3 )
        is less than AGC (        0.110 ug/m3 ).

        **** Potential Annual Impact is based upon 8760 hours/year        ****
        **** operation instead of reported 8819. hours/year.              ****

2.0     DAR-1 SOFTWARE PROGRAM SHORT-TERM METHOD.
        See "Technical Reference for the Screening Procedures of the
        DAR-1 Software Program, Wade/Sedefian,' 1/11/94.

2.2           CAVITY Short-Term Impact is equal to  0.00 ug/m3 as the plume
              escaped the cavity region:  hs(  40. feet) > hc(  26. feet).

II.C.   CAVITY Short-Term Impact (      0.000 ug/m3 ) is less
        than SGC ( 180000.000 ug/m3 ).

2.3           Momentum flux, Fm, is equal to   1000.331 ft(4)/sec(2).
```

```
2.3           Effective stack height, he, is equal to     51.001 feet.

2.4           Maximum non-downwash GEP stack Short-Term Impact (CSTP) is equal
              to         0.293 ug/m3,  for   hs/hb =   1.60

2.5           Maximum downwash Short-Term Impact (CSTD) is equal
              to         0.981 ug/m3, for:  hs/hb =   1.60 and ESH =   51. feet.

2.6           Adjusted maximum downwash Short-Term (CSTD) is equal
              to         0.820 ug/m3,  for:  RF =   0.84

III.D.  Maximum non-cavity Short-Term Impact (CST:         0.820 ug/m3 ) is
        less than the SGC (   180000.000 ug/m3 ) for the point source.

2.7           Maximum Short-Term cavity, point, or area source impact
              (SHORT-TERM MAXIMUM, (Cav,Pt,Area)) equals         0.820 ug/m3
              and is reported in the ANALYSIS MENU.  This value is less than
              the SGC (   180000.000 ug/m3 ).
```

VII. Contaminant Impact Summary Step by Step Menu for cis 1,2-Dichloroethene:

```
**********************************************************************************
 NWIRP BETHPAGE GM-38 AREA      BETHPAGE                              OYSTER BAY, NEW
EMISSION POINT =          TOTAL     CAS NUMBER = 00156-59-2     SIC =    0
   AGC =          63.000000000 ug/m3        SGC =           0.000000 ug/m3
   STACK: HA=    15., SH=   40., D=   36., T=    80., V=   21.69, q=   9200.00
BUILDING: Dpl=    50., BW=   75., BL=   75., %CONTROL=   0.0000
**  Reported Hourly Emission Rate (Q) is equal to          0.025800000 lbs/hour.
**  Reported Annual Emission Rate (Qa) is equal to       226.000000 lbs/year.
II.B.   REFINED CAVITY IMPACT METHOD (DAR-1, APPENDIX B).
II.B.1.      Shortest Distance from building to Property Line (   50. feet )
             is less than or equal to the cavity length, or 3 building
             heights (   75. feet ).  Therefore, this building will have
             cavity impacts (if they occur) at receptors off plant property.
II.B.2.      The largest building dimension (   75. feet ) is greater than or
             equal to the building height (   25. feet ).  Therefore, the
             computer will NOT redefine the cavity length.
```

```
II.B.3.      Stack height (   40. feet ) is greater than cavity height
             (   38. feet ).  Therefore, this source does not contribute to
             the buildings cavity impact.   The Computer will assume the
             CAVITY Annual Impact equals 0.00 ug/m3.
II.C.   CAVITY Annual Impact (      0.000 ug/m3 ) is less than AGC
        (     63.000 ug/m3 ).
III.A.  STANDARD POINT SOURCE METHOD (DAR-1, APPENDIX B).
III.A.1.b.       Momentum flux, Fm, is equal to   1000.331 ft(4)/sec(2).
III.A.1.b.       Effective stack height, he, is equal to     51.001 feet.
III.A.2.     STANDARD POINT SOURCE Actual Annual Impact is equal
             to      0.195 ug/m3 for  8760. hours/year of operation.
III.A.3.     STANDARD POINT SOURCE Potential Annual Impact is equal
             to      0.195 ug/m3 assuming 8,760 hours/year of operation.
III.A.4.a.       Stack height to building height ratio is greater than
                 1.5, but less than 2.5.   Computer will multiply actual
                 annual & potential annual impacts by 0.75 factor.
```

```
III.A.5.      STANDARD POINT SOURCE Short-Term Impact is calculated below
              using the DAR-1 SOFTWARE PROGRAM SHORT-TERM METHOD.

III.D.  STANDARD POINT SOURCE Actual Annual Impact (      0.146 ug/m3 ) is
        less than AGC (       63.000 ug/m3 ).

III.D.  STANDARD POINT SOURCE Potential Annual Impact (      0.146 ug/m3 )
        is less than AGC (       63.000 ug/m3 ).

        ***** Potential Annual Impact is based upon 8760 hours/year        *****
        ***** operation instead of reported 8760. hours/year.              *****

2.0     DAR-1 SOFTWARE PROGRAM SHORT-TERM METHOD.
        See "Technical Reference for the Screening Procedures of the
        DAR-1 Software Program, Wade/Sedefian,' 1/11/94.

2.2           CAVITY Short-Term Impact is equal to  0.00 ug/m3 as the plume
              escaped the cavity region:  hs(  40. feet) > hc(  26. feet).

II.C.   CAVITY Short-Term Impact is equal to       0.000 ug/m3.
        There is no SGC for this contaminant.

2.3           Momentum flux, Fm, is equal to   1000.331 ft(4)/sec(2).
```

```
2.3           Effective stack height, he, is equal to     51.001 feet.

2.4           Maximum non-downwash GEP stack Short-Term Impact (CSTP) is equal
              to         2.909 ug/m3,  for   hs/hb =   1.60

2.5           Maximum downwash Short-Term Impact (CSTD) is equal
              to         9.732 ug/m3, for:  hs/hb =   1.60 and ESH =   51. feet.

2.6           Adjusted maximum downwash Short-Term (CSTD) is equal
              to         8.136 ug/m3,  for:  RF =   0.84

III.D.  Maximum non-cavity Short-Term Impact (CST) equals        8.136 ug/m3
        for the point source.  There is no SGC for this contaminant.

2.7           Maximum Short-Term cavity, point, or area source impact
              (SHORT-TERM MAXIMUM, (Cav,Pt,Area)) equals        8.136 ug/m3
              and is reported in the ANALYSIS MENU.
```

VIII. Contaminant Impact Summary Step by Step Menu for 1,2-Dichloroethene (total):

```
**********************************************************************************
 NWIRP BETHPAGE GM-38 AREA      BETHPAGE                          OYSTER BAY, NEW
EMISSION POINT =          TOTAL     CAS NUMBER = 00540-59-0     SIC =    0
   AGC =          63.000000000 ug/m3        SGC =          0.000000 ug/m3
   STACK: HA=    15., SH=   40., D=   36., T=    80., V=   21.69, q=   9200.00
BUILDING: Dpl=    50., BW=   75., BL=   75., %CONTROL=   0.0000
**  Reported Hourly Emission Rate (Q) is equal to       0.025800000 lbs/hour.
**  Reported Annual Emission Rate (Qa) is equal to     226.000000 lbs/year.
II.B.   REFINED CAVITY IMPACT METHOD (DAR-1, APPENDIX B).
II.B.1.      Shortest Distance from building to Property Line (   50. feet )
             is less than or equal to the cavity length, or 3 building
             heights (   75. feet ).  Therefore, this building will have
             cavity impacts (if they occur) at receptors off plant property.
II.B.2.      The largest building dimension (   75. feet ) is greater than or
             equal to the building height (   25. feet ).  Therefore, the
             computer will NOT redefine the cavity length.
```

```
II.B.3.      Stack height (   40. feet ) is greater than cavity height
             (   38. feet ).  Therefore, this source does not contribute to
             the buildings cavity impact.   The Computer will assume the
             CAVITY Annual Impact equals 0.00 ug/m3.
II.C.   CAVITY Annual Impact (      0.000 ug/m3 ) is less than AGC
        (     63.000 ug/m3 ).
III.A.  STANDARD POINT SOURCE METHOD (DAR-1, APPENDIX B).
III.A.1.b.       Momentum flux, Fm, is equal to   1000.331 ft(4)/sec(2).
III.A.1.b.       Effective stack height, he, is equal to     51.001 feet.
III.A.2.     STANDARD POINT SOURCE Actual Annual Impact is equal
             to      0.195 ug/m3 for  8760. hours/year of operation.
III.A.3.     STANDARD POINT SOURCE Potential Annual Impact is equal
             to      0.195 ug/m3 assuming 8,760 hours/year of operation.
III.A.4.a.       Stack height to building height ratio is greater than
                 1.5, but less than 2.5.   Computer will multiply actual
                 annual & potential annual impacts by 0.75 factor.
```

```
III.A.5.     STANDARD POINT SOURCE Short-Term Impact is calculated below
             using the DAR-1 SOFTWARE PROGRAM SHORT-TERM METHOD.

III.D.   STANDARD POINT SOURCE Actual Annual Impact (      0.146 ug/m3 ) is
         less than AGC (       63.000 ug/m3 ).

III.D.   STANDARD POINT SOURCE Potential Annual Impact (      0.146 ug/m3 )
         is less than AGC (       63.000 ug/m3 ).

         **** Potential Annual Impact is based upon 8760 hours/year        ****
         **** operation instead of reported 8760. hours/year.              ****

2.0      DAR-1 SOFTWARE PROGRAM SHORT-TERM METHOD.
         See "Technical Reference for the Screening Procedures of the
         DAR-1 Software Program, Wade/Sedefian," 1/11/94.

2.2          CAVITY Short-Term Impact is equal to  0.00 ug/m3 as the plume
             escaped the cavity region:  hs(  40. feet) > hc(  26. feet).

II.C.    CAVITY Short-Term Impact is equal to       0.000 ug/m3.
         There is no SGC for this contaminant.

2.3          Momentum flux, Fm, is equal to   1000.331 ft(4)/sec(2).
```

```
2.3          Effective stack height, he, is equal to     51.001 feet.

2.4          Maximum non-downwash GEP stack Short-Term Impact (CSTP) is equal
             to          2.909 ug/m3.  for   hs/hb =   1.60

2.5          Maximum downwash Short-Term Impact (CSTD) is equal
             to         9.732 ug/m3. for:  hs/hb =   1.60 and ESH =   51. feet.

2.6          Adjusted maximum downwash Short-Term (CSTD) is equal
             to         8.136 ug/m3.  for:  RF =   0.84

III.D.   Maximum non-cavity Short-Term Impact (CST) equals         8.136 ug/m3
         for the point source.  There is no SGC for this contaminant.

2.7          Maximum Short-Term cavity, point, or area source impact
             (SHORT-TERM MAXIMUM, (Cav,Pt,Area)) equals          8.136 ug/m3
             and is reported in the ANALYSIS MENU.
```

IX. AGCs and SGCs for TCE, PCE, Vinyl Chloride, cis 1,2-Dichloroethene, and 1,2-Dichloroethene (total):

AGCs & SGCs — 9/ 8/11 — Page 1

CAS NUMBER	CONTAMINANT NAME	SGC ug/m3	H O W	AGC ug/m3	H O W	T O X	CODES
00075-01-4	VINYL CHLORIDE	180000.00000	D	0.110000000	E	H	U HA
00079-01-6	TRICHLOROETHYLENE	14000.00000	Z	0.500000000	D	M	U HB
00127-18-4	TETRACHLOROETHYLENE	1000.00000	H	1.000000000	H	M	U HI
00156-59-2	DICHLOROETHYLENE,cis	0.00000		63.000000000	D	M	
00540-59-0	DICHLOROETHYLENE, 12	0.00000		63.000000000	D	M	

X. Contaminant Emissions Summary for TCE, PCE, Vinyl Chloride, cis 1,2-Dichloroethene, and 1,2-Dichloroethene (total):'

CONTAMINANT EMISSIONS SUMMARY 9/ 8/11
Page 1

CAS NUMBER	CONTAMINANT NAME	NUM. OF EPs PER CONTAM.	EMISSIONS (lbs/hour)	EMISSIONS (lbs/year)
00075-01-4	VINYL CHLORIDE	1	0.0026000	22.93000
00079-01-6	TRICHLOROETHYLENE	1	0.3444000	3017.00000
00127-18-4	TETRACHLOROETHYLENE	1	0.2342000	2052.00000
00156-59-2	DICHLOROETHYLENE,cis	1	0.0258000	226.00000
00540-59-0	DICHLOROETHYLENE, 12	1	0.0258000	226.00000
SUMMARY TOTALS		5	0.6328000	5543.93000

XI. Meter Grid Modeling Results for Maximum Annual Concentrations of TCE, within 25 meters:

CONCENTRATIONS x 10 (-2) (ug/m3) for 00079-01-6 09/08/11 13:17:58
AGC = 0.500000000 ug/m3

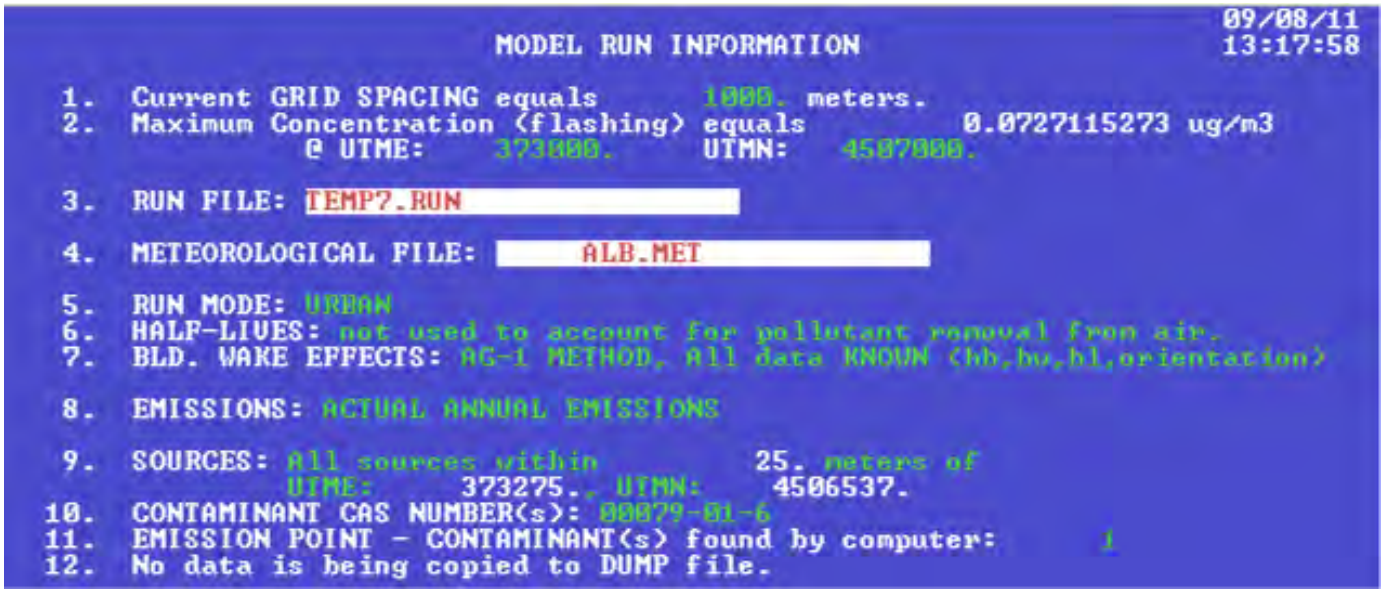
UTMN ▼ \ UTME ▶	367000.	368000.	369000.	370000.	371000.	372000.	373000.	374000.	375000.	376000.	377000.	378000.	379000.
4511000.	0.04		0.06		0.08		0.14		0.23		0.32		0.41
4510000.	0.03		0.05		0.08		0.13		0.25		0.43		0.60
4509000.	0.02		0.03		0.06		0.11		0.24		0.58		1.01
4508000.	0.02		0.03		0.04		0.06		0.18		0.62		2.16
4507000.	0.02		0.03		0.04		0.06		0.11		0.26		7.27
4506000.	0.03		0.03		0.05		0.07		0.13		0.33		2.58
4505000.	0.03		0.04		0.05		0.08		0.20		0.45		0.94
4504000.	0.03		0.04		0.07		0.12		0.20		0.22		0.47

UTMN ▼ \ UTME ▶	380000.	381000.	382000.	383000.	384000.	385000.	386000.	387000.	388000.	389000.	390000.	391000.	392000.
4511000.	0.30		0.14		0.10		0.08		0.06		0.05		0.04
4510000.	0.40		0.17		0.12		0.09		0.07		0.06		0.04
4509000.	0.52		0.22		0.14		0.11		0.08		0.06		0.04
4508000.	0.64		0.31		0.19		0.13		0.11		0.09		0.06
4507000.	1.43		0.60		0.34		0.22		0.15		0.12		0.08
4506000.	2.99		1.12		0.51		0.30		0.20		0.14		0.10
4505000.	0.81		0.60		0.45		0.33		0.23		0.16		0.12
4504000.	0.43		0.33		0.27		0.24		0.20		0.16		0.13

TOP 100 CONTRIBUTORS TO MAXIMUM CONCENTRATION FOR 00079-01-6 09/08/11 13:17:58
@ UTME: 373000. UTMN: 4507000.

Emission Point	Facility Name (shortened)	EP DIR	Distance to Max.(m)	CONC. ug/m3	Percent of Max.
TOTAL	NWIRP BETHPAGE GM-38 AREA	SSE	539.	0.727E-01	100.000
TOTAL OF ALL 1 CONTRIBUTORS				0.727E-01	100.000

XII. ISCLT Model Run Information, within 25 meters:



APPENDIX C

FIELD LOGS AND
CHAIN OF CUSTODY DOCUMENTATION

Date: 03/21/16

H&S

Groundwater Level Measurement Sheet

Project Site: NWIRP Bethpage – GM-38
Location: Bethpage, NY
Field Crew: JG, KA

Water Level Meter: Solinst
Weather: partly cloudy ~35-40°F
Time of Low Tide: N/A
Time of High Tide: N/A

Well ID	Time	Depth to Water (ft.)	Total Depth of Well / Screed Interval (ft.)	PID (ppm)	Comments
RW1-MW1	1625	36.67	435 / 395-435	---	
RW1-MW2	1758	39.76	435 / 395-435	---	
RW1-MW3	1202	29.53	435 / 395-435	---	
RW2-MW1	1000	39.65	510 / 470-510	---	
RW2-MW2	1148	38.82	510 / 470-510	---	
RW2-MW3	1123	38.50	510 / 470-510	---	
RW3-MW1	1620	38.47	350 / 330-350	---	
RW3-MW2	1615	39.67	495 / 475-495	---	
RW3-MW3	1342	39.88	340 / 320-340	---	
RW3-MW4	1328	40.48	495 / 475-495	---	
TP1	1653	34.67	470 / 450-470	---	
IW1-MW1	1753	37.32	470 / 450-470	---	
RW-1	1800	✓	Open vault and check integrity of piping, etc.		GOOD
RW-3	3/22@1300	✓	Open vault and check integrity of piping, etc.		GOOD

Signature: [signature]

Date: 3/21/16

H&S Environmental, Inc.

Low Flow/ Low Stress Groundwater Sampling Log

Project: NWIRP Bethpage - GM-38
Location: Bethpage, NY
Well ID: RW | - MW |

Date: 03/22/16
Sampler: JF, KA
PID: ----

Start Time: 0830 End Time: 0920
Well Construction: 4"
Depth to Water: 36.70
Well Depth: 435'
Water Column: ~398'
Total Volume Removed (L): ~9.0L
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	15L100983
LaMotte	2020e	1860-0412
QED	MP15	
Marschalk Bladder Pump	24"	ID# A00242

Time (hh:mm)	Volume Removed (L)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (STD)	SPC (µS/cm°)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Color
0835	0.9	180	36.69	11.98	4.88	158	4.65	259.1	0.38	clear
0840			36.68	12.63	4.80	158	2.66	259.7	0.97	"
0845			36.69	13.12	4.75	159	1.13	273.3	0.76	"
0850			36.69	13.23	4.74	158	0.87	275.5	0.59	"
0855			36.69	13.29	4.64	161	0.67	287.2	0.31	"
0900			36.69	13.39	4.52	162	0.70	296.1	0.30	"
0905			36.69	13.45	4.47	163	0.70	301.5	0.20	"
0910			36.69	13.49	4.45	162	0.72	303.1	0.12	"
0915			36.69	13.59	4.44	162	0.71	305.4	0.10	"
0920	↓	↓	36.69	12.78	4.44	163	0.72	307.3	0.07	"
Acceptance Criteria:			<0.3ft	3%	±0.1	3%	10%	± 10mv	10%	

2" Screen Volume = 0.16 gal/ft
4" Screen Volume = 0.64 gal/ft
6" Screen Volume = 1.46 gal/ft

Sample Collection

Time	Sample ID	Container	# Bottles	Preservative	Analysis
0920	NWIRP-GM-38-GW-	40 mL CG	3	—	TCL VOCs (624)
	RW | -MW | - 032216	500 mL PL	1	HNO_3	Hg (245.1)
		250 mL PL	1	—	TSS (SM2540D)

Comments

Signature

3/22/16
Date

H&S Environmental, Inc.

Low Flow/ Low Stress Groundwater Sampling Log

Project: NWIRP Bethpage - GM-38
Location: Bethpage, NY
Well ID: RW 1 - MW 3

Date: 03/21/16
Sampler: TK, ICA
PID: ----

Start Time: 1212 End Time: 1257
Well Construction: 4"
Depth to Water: 29.53
Well Depth: 435'
Water Column: ~405'
Total Volume Removed (L): 16.2 L
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	15L100983
LaMotte	2020e	1860-0412
QED	MP15	
Marschalk Bladder Pump	24"	ID# AJ242

Time (hh:mm)	Volume Removed (L)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (STD)	SPC (µS/cm°)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Color
1217	1.8	360	29.90	13.03	5.16	173	0.82	187.6	3.20	Clear
1222			29.58	12.96	4.96	171	0.71	221.0	3.00	"
1227			29.55	13.03	4.94	171	0.64	227.0	2.57	"
1232			29.55	13.06	4.92	171	0.62	236.1	4.92	"
1237			29.55	13.09	4.91	171	0.59	240.2	4.11	"
1242			29.55	13.03	4.90	171	0.56	246.5	3.93	"
1247			29.55	13.10	4.89	171	0.59	254.4	2.52	"
1252			29.55	13.17	4.89	171	0.57	257.6	2.31	"
1257	↓	↓	29.55	13.25	4.89	171	0.57	259.4	2.34	"
Acceptance Criteria:			<0.3ft	3%	±0.1	3%	10%	± 10mv	10%	

2" Screen Volume = 0.16 gal/ft
4" Screen Volume = 0.64 gal/ft
6" Screen Volume = 1.46 gal/ft

Sample Collection

Time	Sample ID	Container	# Bottles	Preservative	Analysis
1257	NWIRP-GM-38-GW-	40 mL CG	3	---	TCL VOCs (624)
	RW 3 -MW 1 - 032116	500 mL PL	1	HNO_3	Hg (245.1)
		250 mL PL	1	---	TSS (SM2540D)

Comments

Signature

3/21/16
Date

H&S Environmental, Inc.

Low Flow/ Low Stress Groundwater Sampling Log

Project: NWIRP Bethpage - GM-38
Location: Bethpage, NY
Well ID: RW2 - MW 1

Date: 03/21 /16
Sampler: SC, KA
PID: ----

Start Time: 1007 End Time: 1107
Well Construction: 4"
Depth to Water: 39.65
Well Depth: ~510'
Water Column: ~ 470'
Total Volume Removed (L): 14.6 L
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	15L100983
LaMotte	2020e	1800 - 0412
QED	MP15	
Marschalk Bladder Pump	24"	ID# A00242

Time (hh:mm)	Volume Removed (L)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (STD)	SPC (µS/cm°)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Color
1012	1.3	260	39.55	12.48	6.96	179	0.30	44.5	2.33	Clear
1017			39.55	12.35	7.35	173	0.23	89.4	2.65	"
1022			39.55	12.60	8.25	167	0.17	-66.1	11.21	slight particles
1027			39.55	12.58	7.72	168	0.16	-52.1	11.43	"
1032			39.55	12.57	7.19	169	0.15	-45.3	16.4	"
1037			39.55	12.68	6.25	199	0.39	-0.9	19.3	"
1042			39.50	12.75	6.00	225	0.31	10.8	24.6	"
1047			39.48	12.67	5.99	227	0.26	14.0	26.4	"
1052			39.47	12.76	5.97	226	0.22	17.0	26.8	"
1057			39.44	12.84	5.97	226	0.19	19.3	26.2	"
1102			39.43	12.79	5.97	225	0.19	19.7	25.5	"
1107			39.43	12.76	5.96	225	0.18	20.6	25.1	"
Acceptance Criteria:			<0.3ft	3%	±0.1	3%	10%	± 10mv	10%	

2" Screen Volume = 0.16 gal/ft
4" Screen Volume = 0.64 gal/ft
6" Screen Volume = 1.46 gal/ft

Sample Collection

Time	Sample ID	Container	# Bottles	Preservative	Analysis
1107	NWIRP-GM-38-GW-	40 mL CG	3	—	TCL VOCs (624)
	RW 2-MW 1 - 032116	500 mL PL	1	HNO_3	Hg (245.1)
		250 mL PL	1	---	TSS (SM2540D)
	- MS	"			
	- MSD	"			
	- DUP	VOCs / Hg only			

Comments

Equipment Blank (EB-1-032116) collected @ 1145 after leaving pump

Signature

3/21/16
Date

H&S Environmental, Inc.

Low Flow/ Low Stress Groundwater Sampling Log

Project: NWIRP Bethpage - GM-38
Location: Bethpage, NY
Well ID: RW 3 - MW 1

Date: 03/ 22 /16
Sampler: JT, KF
PID: ----

Start Time: 1112 **End Time:** 1157
Well Construction: 4"
Depth to Water: 38.60
Well Depth: 350'
Water Column: ~311'
Total Volume Removed (L):
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	15L100983
LaMotte	2020e	1860 - 0412
QED	MP15	
Marschalk Bladder Pump	24"	ID# ~~A00242~~ 9980 SF

Time (hh:mm)	Volume Removed (L)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (STD)	SPC (µS/cm°)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Color
1117	1.75	350	38.60	12.47	4.70	119	4.66	270.4	12.0	clear-light brown
1122	↓	↓	38.60	12.42	4.69	118	4.72	273.1	6.66	clear
1127	0.75	150	38.58	12.35	4.67	116	4.96	276.9	6.32	"
1132			38.58	12.12	4.65	116	5.20	279.0	5.40	"
1137			38.58	12.00	4.64	116	5.20	285.2	5.62	"
1142			38.58	12.06	4.63	115	5.13	283.6	5.74	"
1147			38.58	12.23	4.64	115	5.15	283.3	4.76	"
1452			38.58	12.29	4.64	115	5.09	282.4	4.99	"
1457	↓	↓	38.58	12.24	4.64	115	5.17	282.0	4.95	"
Acceptance Criteria:			<0.3ft	3%	±0.1	3%	10%	± 10mv	10%	

2" Screen Volume = 0.16 gal/ft
4" Screen Volume = 0.64 gal/ft
6" Screen Volume = 1.46 gal/ft

Sample Collection

Time	Sample ID	Container	# Bottles	Preservative	Analysis
1157	NWIRP-GM-38-GW-	40 mL CG	3	---	TCL VOCs (624)
	RW 3 -MW 1 - 032216	500 mL PL	1	HNO_3	Hg (245.1)
		250 mL PL	1	---	TSS (SM2540D)

Comments

last event - collected rinse w/ tubing
This event - cut 8.5' off drop tube maximum - now ~282' long
Added 80 to air/water line (cut to 53') - Arrived submerged 1.48'+282' = 340' mid screen

Signature

3/22/16
Date

H&S Environmental, Inc.

Low Flow/ Low Stress Groundwater Sampling Log

Project: NWIRP Bethpage - GM-38
Location: Bethpage, NY
Well ID: RW 3 - MW 2

Date: 03/ 22 /16
Sampler: JG, KA
PID: ----

Start Time: 1000 **End Time:** 1130
Well Construction: 4"
Depth to Water: 39.67
Well Depth: 495'
Water Column: ~455'
Total Volume Removed (L): ~15.0 L
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	15L102983
LaMotte	2020e	1860-0412
QED	MP15	
Marschalk Bladder Pump	24"	ID# AJ2242

Time (hh:mm)	Volume Removed (L)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (STD)	SPC (µS/cm°)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Color
1005	1.25	250	40.12	12.61	4.81	85	1.37	262.0	5.12	clear
1010			40.10	12.36	4.75	85	0.53	262.2	2.69	"
1015			40.08	12.42	4.75	85	0.36	264.3	1.11	"
1020			39.95	11.64	4.76	85	0.66	266.9	0.67	"
1025			39.98	11.78	4.71	85	0.52	270.5	1.32	"
1030			40.11	12.44	4.73	85	0.32	271.1	1.86	"
1035			40.12	12.48	4.73	86	0.26	271.5	2.11	"
1040			40.12	12.52	4.74	87	0.20	271.7	2.47	"
1045			40.12	12.58	4.74	87	0.18	272.5	2.11	"
1050			40.12	12.64	4.73	88	0.17	272.7	1.99	"
1055			40.12	12.76	4.74	88	0.17	271.6	1.35	"
1100	↓	↓	40.12	12.87	4.74	88	0.18	271.5	1.17	"
Acceptance Criteria:			<0.3ft	3%	±0.1	3%	10%	± 10mv	10%	

2" Screen Volume = 0.16 gal/ft
4" Screen Volume = 0.64 gal/ft
6" Screen Volume = 1.46 gal/ft

Sample Collection

Time	Sample ID	Container	# Bottles	Preservative	Analysis
1100	NWIRP-GM-38-GW-	40 mL CG	3	---	TCL VOCs (624)
	RW 3 -MW 2- 032216	500 mL PL	1	HNO_3	Hg (245.1)
		250 mL PL	1	---	TSS (SM2540D)

Comments

Signature

3/22/16
Date

H&S Environmental, Inc.

Low Flow/ Low Stress Groundwater Sampling Log

Project: NWIRP Bethpage - GM-38
Location: Bethpage, NY
Well ID: RW 3 - MW 3

Date: 03/21/16
Sampler: JL, ISA
PID: —

Start Time: 1447 End Time: ~~1552~~ 1627
Well Construction: 4"
Depth to Water: 39.88
Well Depth: 341.01
Water Column: ~ 3.01
Total Volume Removed (L): ~7.9L
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	15L100983
LaMotte	2020e	1860-0412
QED	MP15	
Marschalk Bladder Pump	24"	ID# 9980

Time (hh:mm)	Volume Removed (L)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (STD)	SPC (µS/cm°)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Color
1457	1.8	180	39.85	13.96	5.06	141	3.02	244.2	2.71	clear
1502	0.9		39.86	14.15	5.00	138	1.31	248.8	7.62	"
1507	0.9		39.85	14.30	4.93	131	1.10	251.3	11.21	clear w/ fine sed
1512			39.85	14.25	4.91	130	1.13	255.7	11.38	"
1517			39.86	14.10	4.90	129	1.17	258.9	11.06	"
1522			39.84	13.96	4.90	129	1.14	263.9	11.36	"
1527	↓		39.86	13.99	4.91	130	1.10	264.9	8.97	clear
1537	1.8		39.86	12.87	4.87	129	1.17	278.1	7.97	"
1542	0.9		39.86	13.08	4.89	130	1.19	280.7	8.10	"
1547			39.86	13.16	4.89	129	1.16	283.2	8.65	"
~~1552~~	1.8	↓	39.86	13.04	4.87	129	1.36	286.1	7.19	"
1612	↓	↓	39.85	13.08	4.91	130	1.20	284.4	6.86	"

Switch tanks 2' / Switch tanks, rest 5 min

Acceptance Criteria:		<0.3ft	3%	±0.1	3%	10%	± 10mv	10%	

2" Screen Volume = 0.16 gal/ft
4" Screen Volume = 0.64 gal/ft
6" Screen Volume = 1.46 gal/ft

Sample Collection

Time	Sample ID	Container	# Bottles	Preservative	Analysis
~~1552~~	NWIRP-GM-38-GW-	40 mL CG	3	—	TCL VOCs (624)
	RW 3 -MW 3- 032116	500 mL PL	1	HNO_3	Hg (245.1)
		250 mL PL	1	—	TSS (SM2540D)

1617	0.9	180	39.85	13.08	4.91	129	1.14	288.0	7.25	clear
1622	↓	↓	39.85	13.06	4.91	129	1.10	288.3	6.90	"
1627	↓	↓	39.85	13.10	4.91	129	1.09	289.4	6.82	"

Comments

Signature

3/21/16
Date

H&S Environmental, Inc.

Low Flow/ Low Stress Groundwater Sampling Log

Project: NWIRP Bethpage - GM-38
Location: Bethpage, NY
Well ID: RW 3 - MW 4

Date: 03/21/16
Sampler: T. KA
PID: ----

Start Time: 1337 End Time: 1437
Well Construction: 4"
Depth to Water: 40.48
Well Depth: 495'
Water Column: ~ 455'
Total Volume Removed (L): 9.6 L
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	15L100983
LaMotte	2020e	1860-0412
QED	MP15	
Marschalk Bladder Pump	24"	ID# AD242

Time (hh:mm)	Volume Removed (L)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (STD)	SPC (µS/cm°)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Color
1342	0.8	160	40.50	13.79	4.89	115	3.80	230.4	1.55	Clear
1347			40.45	13.43	4.75	117	1.74	247.6	1.11	"
1352			40.45	13.56	4.70	117	0.85	255.0	0.41	"
1357			40.45	13.67	4.69	117	0.53	256.8	1.62	"
1402			40.45	13.67	4.66	125	0.42	261.3	3.73	"
1407			40.45	13.57	4.66	133	0.34	261.1	4.31	"
1412			40.45	13.61	4.65	138	0.31	263.7	4.69	"
1417			40.45	13.45	4.64	142	0.31	264.1	4.74	"
1422			40.45	13.42	4.63	143	0.25	265.3	4.19	"
1427			40.45	13.33	4.63	143	0.23	265.3	4.43	"
1432			40.45	13.20	4.63	143	0.22	266.5	4.27	"
1437			40.45	13.18	4.63	144	0.21	267.2	4.32	"
Acceptance Criteria:			<0.3ft	3%	±0.1	3%	10%	± 10mv	10%	

2" Screen Volume = 0.16 gal/ft
4" Screen Volume = 0.64 gal/ft
6" Screen Volume = 1.46 gal/ft

Sample Collection

Time	Sample ID	Container	# Bottles	Preservative	Analysis
1437	NWIRP-GM-38-GW-	40 mL CG	3	—	TCL VOCs (624)
	RW 3-MW 4-032116	500 mL PL	1	HNO_3	Hg (245.1)
		250 mL PL	1	---	TSS (SM2540D)

Comments

Signature

3/21/16
Date

H&S Environmental, Inc.

Low Flow/ Low Stress Groundwater Sampling Log

Project: NWIRP Bethpage - GM-38
Location: Bethpage, NY
Well ID: TP1

Date: 03/21/16
Sampler: JT, KA
PID: —

Start Time: 1700 **End Time:** 1730
Well Construction: 4"
Depth to Water: 34.67
Well Depth: 47.01
Water Column: ~ 13.51
Total Volume Removed (L): ~7.5L
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	15L100983
LaMotte	2020e	1860-0417
QED	MP15	
Marschalk Bladder Pump	24"	ID# A00242

Time (hh:mm)	Volume Removed (L)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (STD)	SPC (µS/cm°)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Color
1705	1.25	250	34.72	13.06	6.03	160	8.01	227.2	1.71	Clear
1710			34.70	12.96	6.02	152	8.12	228.6	1.11	"
1715			34.70	13.26	6.02	147	8.07	226.7	0.65	"
1720			34.70	13.19	6.02	147	8.09	225.7	0.60	"
1725			34.70	12.82	6.03	147	8.07	223.9	0.65	"
1730	↓	↓	34.70	12.76	6.03	146	8.12	223.6	0.51	"

Acceptance Criteria:	<0.3ft	3%	±0.1	3%	10%	± 10mv	10%

2" Screen Volume = 0.16 gal/ft
4" Screen Volume = 0.64 gal/ft
6" Screen Volume = 1.46 gal/ft

Sample Collection

Time	Sample ID	Container	# Bottles	Preservative	Analysis
1730	NWIRP-GM-38-GW-TP1-032116	40 mL CG	3	—	TCL VOCs (624)
		500 mL PL	1	HNO_3	Hg (245.1)
		250 mL PL	1	—	TSS (SM2540D)

Comments

Signature

3/21/16
Date

H&S Environmental, Inc.

Low Flow/ Low Stress Groundwater Sampling Log

Project: NWIRP Bethpage - GM-38
Location: Bethpage, NY
Well ID: ~~RW - MW~~ RW-3

Date: 03/22/16
Sampler: JG, KA
PID: —

Start Time: 1222 End Time: 1325
Well Construction: 4"
Depth to Water: —
Well Depth: —
Water Column: —
Total Volume Removed (L): —
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	15L100983
LaMotte	2020e	1860-0412
QED	~~MP15~~	Ded. to Well
~~Marschalk Bladder Pump~~	24"	ID# Pump

Time (hh:mm)	Volume Removed (L)	Flow Rate (mL/min)	Depth to Water (ft)	Temp (°C)	pH (STD)	SPC (µS/cm°)	DO (mg/L)	ORP (mv)	Turbidity (NTU)	Color
1325	~1200 mL	~200 gpm	—	13.17	4.99	92	1.50	201.4	3.23	Clear
Acceptance Criteria:			<0.3ft	3%	±0.1	3%	10%	± 10mv	10%	

2" Screen Volume = 0.16 gal/ft
4" Screen Volume = 0.64 gal/ft
6" Screen Volume = 1.46 gal/ft

Sample Collection

Time	Sample ID	Container	# Bottles	Preservative	Analysis
1325	NWIRP-GM-38-GW-	40 mL CG	3	—	TCL VOCs (624)
	~~RW - MW~~ -	500 mL PL	1	HNO_3	Hg (245.1)
	RW3 - 032216	250 mL PL	1	---	TSS (SM2540D)

Comments

Signature

3/22/16
Date

RW-3 - 3/22/16

Changed RW-1 setpnt from 88 to 73

@ 1222 → Flowrate from 1,000 gpm → ~ 800 gpm

Turned RW-3 on in Auto

Setpnt is @ 73 → Flowrate ~ 200 gpm

Returned to normal @ 1332

(Sampled RW-3) @ 1325

RW-1 → 89 setpnt

RW-3 → off in Manual

H&S

Instrument Calibration Log

Project/Site Name: NWIRP Bethpage – GM-38 **Date:** 03/22/16 **Weather:** Clear, ~ 35°F

Calibrated By: [illegible] **Instrument:** YSI 556 **Serial Number:** 15L100983

Parameters	Morning Calibration Time: 0800	Cal. Temperature °C	Afternoon Cal. Check Time: 1400	Comments
Conductivity 1413 (µS/cm°)	1406 / 1413	18.77	1482	
pH (7)	7.10 / 7.00	18.90	6.92	
pH (4)	4.00 / 4.00	19.00	3.93	
pH (10)	9.94 / 9.99	18.89	10.21	
ORP 240 (mv)	238.0 / 240.0	18.82	241.4	
Dissolved Oxygen (%)	103.0 / 100.0	16.85		
Zero Dissolved Oxygen (mg/L)	—	—		
Barometric Pressure (mmHg)	760	—		

pH Check (Every 3 hrs): (NJ only)

Time: Standard: NA Reading:

Time: Standard: NA Reading:

Time: Standard: NA Reading:

Signature: [signature]

Date: 3/22/16

H&S

Instrument Calibration Log

Project/Site Name: NWIRP Bethpage – GM-38 **Date:** 03/21/16 **Weather:** partly cloudy, ~35°F

Calibrated By: FT **Instrument:** YSI 556 **Serial Number:** 15L100983

Parameters	Morning Calibration Time: 0900	Cal. Temperature °C	Afternoon Cal. Check Time: 1800	Comments
Conductivity 1413 (µS/cm°)	1336 / 1413	17.19	1406	
pH (7)	6.93 / 7.00	16.64	7.10	
pH (4)	4.06 / 4.00	16.68	4.00	
pH (10)	9.98 / 10.00	16.96	9.94	
ORP 240 (mv)	245.2 / 240.0	16.93	238.0	
Dissolved Oxygen (%)	106.1 / 100.0	17.11	103.0	
Zero Dissolved Oxygen (mg/L)	—	—	—	
Barometric Pressure (mmHg)	760	—	—	

pH Check (Every 3 hrs): (NJ only)

Time: Standard: NA Reading:

Time: Standard: NA Reading:

Time: Standard: NA Reading:

Signature: [signature]

Date: 3/21/16

H&S

Instrument Calibration Log

Project/Site Name: NWIRP Bethpage GM-38 **Calibrated By:** JS

Instrument/Serial Number	Pre-Cal 1-AM (NTU)	Pre-Cal 1-PM (NTU)	Pre-Cal 10-AM (NTU)	Pre-Cal 10-PM (NTU)	Post-Cal 1-AM (NTU)	Post-Cal 1-PM (NTU)	Post-Cal 10-AM (NTU)	Post-Cal 10-PM (NTU)	Date
LaMotte 2020e 1860-0412	0.83	1.07	9.82	10.00	1.00	~~9.75~~ 1.00 JS	10.00	10.00	3/21/16 Time: 0900 & 1500
"	1.07	0.78	9.75	9.23	1.00	1.00	10.00	10.00	3/22/16 Time: 0800 & 1400
									Time: &
									Time: &
									Time: &
									Time: &
									Time: &
									Time: &
									Time: &
									Time: &
									Time: &

Signature: _____ Date: 3/22/16

Analytical Laboratory Services, Inc.
Environmental • Industrial Hygiene • Field Services
34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Page 1 of 2

Courier:

Tracking #:

COC#

Co. Name: H&S Environmental, Inc.

Contact (Report to): Jen Good **Phone:** 508.366.7442

Address: 160 E. Main St., Suite 2F
Westborough, MA 01581

Bill to (if different than Report to): Same

PO#: 2031-507

Project Name/#: NWIRP Bethpage GM-38 Qtrly LTM **ALSI Quote #:**

TAT: [x] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALSI approval and surcharges. **Date Required:** **Approved By:**

Email? [x] -Y jgood@hsenv.com

Fax? [ ] -Y No.:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TCL VOCs (Method 624) + INCLUDE TIC / LIBRARY SEARCH	Mercury (Method 245.1)	TSS (SM2540D)
***Container Type						40 mL	500 mL	250 mL
***Container Size						CG	PL	PL
*** Preservative						—	HNO3	—
1 BP-GM-38-GW-RW1-MW1-032216	*All VOCs - include * *TIC / Library Search*	3/22/16	0920	G	GW	3	1	1
2 BP-GM-38-GW-RW1-MW3-032116		3/21/16	1257	G	GW	3	1	1
3 BP-GM-38-GW-RW2-MW1-032116	MS/MSD for VOCs, Hg	3/21/16	1107	G	GW	9	3	1
4 BP-GM-38-GW-RW3-MW1-032216		3/22/16	1157	G	GW	3	1	1
5 BP-GM-38-GW-RW3-MW2-032216		3/22/16	1100	G	GW	3	1	1
6 BP-GM-38-GW-RW3-MW3-032116		3/21/16	1627	G	GW	3	1	1
7 BP-GM-38-GW-RW3-MW4-032116		3/21/16	1437	G	GW	3	1	1
8 BP-GM-38-GW-TP1-032116		3/21/16	1730	G	GW	3	1	1

ANALYSES/METHOD REQUESTED — Enter Number of Containers Per Analysis

Receipt Information (completed by Sample)
Performed by: INITIAL HERE
Cooler Temp:
Therm. ID:
No. of Coolers:
Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
	N / Y	N / Y	N / Y	N / Y	
1	N / Y	N / Y	N / Y	N / Y	N / Y
2	N / Y	N / Y	N / Y	N / Y	N / Y
3	N / Y	N / Y	N / Y	N / Y	N / Y
4	N / Y	N / Y	N / Y	N / Y	N / Y
5	N / Y	N / Y	N / Y	N / Y	N / Y
6	N / Y	N / Y	N / Y	N / Y	N / Y
7	N / Y	N / Y	N / Y	N / Y	N / Y
8	N / Y	N / Y	N / Y	N / Y	N / Y

	Custody seals Present?	(If present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?

SAMPLED BY (Please Print): J. Good, K. Anderson

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] / H+S	3/22/16	1430	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] (other)

EDDs Required? [ ] If yes, format type:

SDWA Forms? yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected in? MD [ ] NJ [ ] NY [X] PA [ ]

Other

PWSID

ALSI FIELD SERVICES: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

DOD Criteria Required?

* G=Grab; C=Composite

**Matrix: Al=Air; DW=Drinking Water; GW=Groundwater; Oil=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

Rev 06-2008

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Page 2 of 2
Courier:
Tracking #:

COC#

Co. Name: H&S Environmental, Inc.
Contact (Report to): Jen Good **Phone:** 508.366.7442
Address: 160 E. Main St., Suite 2F
Westborough, MA 01581

Bill to (if different than Report to): Same **PO#:** 2031-507

Project Name/#: NWIRP Bethpage GM-38 Qtrly LTM **ALSI Quote #:**

TAT: [x] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALSI approval and surcharges. **Date Required:** **Approved By:**

Email? [x] -Y jgood@hsenv.com
Fax? [ ] -Y No.:

	***Container Type	40 mL	500 mL	250 mL							
	***Container Size	CG	PL	PL							
	*** Preservative	—	HNO3	—							
	ANALYSES/METHOD REQUESTED										
		*G or C	**Matrix	TCL VOCs (Method 624) + INCLUDE TIC / LIBRARY SEARCH	Mercury (Method 245.1)	TSS (SM2540D)					
	Sample Description/Location (as it will appear on the lab report) / **COC Comments**			**Enter Number of Containers Per Analysis**							
1	BP-GM-38-RW2-MW-1-DUP-032116	G	GW	3	1	1					
2	BP-GM-38-RW3-032216	G	GW	3	1	1					
3	BP-GM-38-FB-032116	G	GW	3	1						
4	BP-GM-38-TB-032216	G	GW	3							
5											
6											
7											
8											

	Sample Date	Military Time
1	3/21/16	0000
2	3/22/16	1325
3	3/21/16	1145
4	3/22/16	—

Receipt Information (completed by Sample)
Performed by: INITIAL HERE
Cooler Temp:
Therm. ID:
No. of Coolers:
Notes:

	Correct containers?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Circle appropriate Y or N.
N	N	N	N	N	
Y	Y	Y	Y	Y	
N	N	N	N	N	N
Y	Y	Y	Y	Y	Y

	Custody seals Present?	(If present) Seals intact?	Received on Ice?	COC/Labels complete/accurate?	Container in good condition?
N	N	N	N	N	N
Y	Y	Y	Y	Y	Y

SAMPLED BY (Please Print): J Good, K Anderson
LOGGED BY(signature): DATE TIME
REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	3/22/16	1430	2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] (other)
EDDs Required? [ ] If yes, format type:
SDWA Forms? yes [ ] yes [ ] yes [ ] yes [ ]
State Samples Collected In? MD [ ] NJ [ ] NY [X] PA [ ]
Other
PWSID
DOD Criteria Required?

ALSI FIELD SERVICES
[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite
**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

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Rev 08-2008

APPENDIX D

DATA VALIDATION REPORTS

VOLATILE ORGANIC COMPOUNDS
USEPA Region II –Data Validation

Project Name: Naval Weapons Industrial Reserve Plant, GM-38 Area-LTM

Location: 100 Broadway, Bethpage, NY

Project Number: 2031-707

SDG #: 2131792-HNW-103

Client: KOMAM Government Solutions, LLC

Date: 05/02/2016

Laboratory: ALS Environmental, Middletown, PA

Reviewer: Sherri Pullar

Summary:

1. Data validation was performed on the data for ten (10) water samples, one (1) trip blank and one (1) field blank analyzed for Volatiles by EPA Method 624.

2. The samples were collected on 3/21 thru 22/2016. The samples were submitted to ALS Environmental, Middletown, PA on 3/23/2016 for analysis.

3. The USEPA Region II SOP HW-24, Revision No.: 2, 2008, Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry, SW-846 Method 8260B; USEPA National Functional Guidelines for Organic Data Review, EPA 540/R-99/008, October 1999; EPA Method 624 and Quality Assurance Project Plan for GM-38 Area, Naval Weapons Industrial Reserve Plant, Bethpage, NY; September 3, 2009 were used in evaluating the Volatiles data in this summary report.

4. In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformance of certain Quality Control criteria (See discussion below) with the exception of the TICs in three samples. The TIC results (unknown) in Samples BP-GM-38-GW-RW3-MW2-032216, BP-GM-38-GW-RW3-MW3-032116, and BP-GM-38-RW3-032216 were qualified as rejected (R) and were considered not useable.

Samples:

The samples included in this review are listed below:

Client Sample ID	Laboratory Sample ID	Collection Date	Matrix	Sample Status
BP-GM-38-GW-RW1-MW1-032216	2131792001	3/22/2016	Water	
BP-GM-38-GW-RW1-MW3-032116	2131792002	3/21/2016	Water	
BP-GM-38-GW-RW2-MW1-032116	2131792003	3/21/2016	Water	
BP-GM-38-GW-RW3-MW1-032216	2131792004	3/22/2016	Water	
BP-GM-38-GW-RW3-MW2-032216	2131792005	3/22/2016	Water	
BP-GM-38-GW-RW3-MW3-032116	2131792006	3/21/2016	Water	
BP-GM-38-GW-RW3-MW4-032116	2131792007	3/21/2016	Water	
BP-GM-38-GW-TP1-032116	2131792008	3/21/2016	Water	
BP-GM-38-RW2-MW-1-DUP-032116	2131792009	3/21/2016	Water	Field Duplicate of sample BP-GM-38-GW-RW2-MW1-032116
BP-GM-38-RW3-032216	2131792010	3/22/2016	Water	
BP-GM-38-FB-032116	2131792011	3/21/2016	Water	Field Blank
BP-GM-38-TB-032216	2131792012	3/22/2016	Water	Trip Blank

Sample Conditions/Problems:

1. The Traffic Reports/Chain-of-Custody Records, Sampling Report and/or Laboratory Case Narrative did not indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data. No qualifications were required.

Holding Times:

1. All water samples were analyzed within 14days from sample collection. No qualifications were required.

2. All water samples were properly preserved (pH<2.0). No qualifications were required.

GC/MS Tuning:

1. All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria. No qualifications were required.

Initial Calibration:

1. Initial calibration curve analyzed on 3/25/2016 (ms15.i) exhibited acceptable %RSD and average RRF values for all compounds with the following exception(s):

Compound	%RSD
Bromoform	25
Bromomethane	24
Cis-1,3-dichloropropene	23
Trans-1,3-dichloropropene	24

Client Sample ID	Laboratory Sample ID	Compound	Action
BP-GM-38-GW-RW1-MW1-032216	2131792001	Bromoform Bromomethane Cis-1,3-dichloropropene Trans-1,3-dichloropropene	UJ UJ UJ UJ
BP-GM-38-GW-RW1-MW3-032116	2131792002	Bromoform Bromomethane Cis-1,3-dichloropropene Trans-1,3-dichloropropene	UJ UJ UJ UJ
BP-GM-38-GW-RW2-MW1-032116	2131792003	Bromoform Bromomethane Cis-1,3-dichloropropene Trans-1,3-dichloropropene	UJ UJ UJ UJ
BP-GM-38-GW-RW3-MW1-032216	2131792004	Bromoform Bromomethane Cis-1,3-dichloropropene Trans-1,3-dichloropropene	UJ UJ UJ UJ
BP-GM-38-GW-RW3-MW2-032216	2131792005	Bromoform Bromomethane Cis-1,3-dichloropropene Trans-1,3-dichloropropene	UJ UJ UJ UJ
BP-GM-38-GW-RW3-MW3-032116	2131792006	Bromoform Bromomethane Cis-1,3-dichloropropene Trans-1,3-dichloropropene	UJ UJ UJ UJ

Client Sample ID	Laboratory Sample ID	Compound	Action
BP-GM-38-GW-RW3-MW4-032116	2131792007	Bromoform Bromomethane Cis-1,3-dichloropropene Trans-1,3-dichloropropene	UJ UJ UJ UJ
BP-GM-38-GW-TP1-032116	2131792008	Bromoform Bromomethane Cis-1,3-dichloropropene Trans-1,3-dichloropropene	UJ UJ UJ UJ
BP-GM-38-RW2-MW-1-DUP-032116	2131792009	Bromoform Bromomethane Cis-1,3-dichloropropene Trans-1,3-dichloropropene	UJ UJ UJ UJ
BP-GM-38-RW3-032216	2131792010	Bromoform Bromomethane Cis-1,3-dichloropropene Trans-1,3-dichloropropene	UJ UJ UJ UJ
BP-GM-38-FB-032116	2131792011	Bromoform Bromomethane Cis-1,3-dichloropropene Trans-1,3-dichloropropene	UJ UJ UJ UJ
BP-GM-38-TB-032216	2131792012	Bromoform Bromomethane Cis-1,3-dichloropropene Trans-1,3-dichloropropene	UJ UJ UJ UJ

Continuing Calibration Verification (CCV):

1. CCV analyzed on 3/28/2016 @ 20:25 (ms15.i) exhibited acceptable %Ds (≤20.0%) for all compounds with the following exception(s):

Compound	%D
Bromomethane(1)	-22.4
Chloroethane	-25.9

(1) Results for these compounds were previously qualified due to ICV criteria.

Client Sample ID	Laboratory Sample ID	Compound	Action
BP-GM-38-GW-RW3-MW2-032216	2131792005	Bromomethane, Chloroethane	UJ
BP-GM-38-GW-RW3-MW3-032116	2131792006	Bromomethane, Chloroethane	UJ
BP-GM-38-GW-RW3-MW4-032116	2131792007	Bromomethane, Chloroethane	UJ

Client Sample ID	Laboratory Sample ID	Compound	Action
BP-GM-38-RW3-032216	2131792010	Bromomethane, Chloroethane	UJ

Surrogates:

1. All surrogates %REC values for all water samples and associated QC were within the laboratory control limits. No qualifications were required.

Internal Standard (IS) Area Performance:

1. All samples exhibited acceptable area count for all three internal standards. No qualifications were required.

Method Blank (MB), Storage Blank (SB), Trip Blank (TB), Field Blank (FB), Rinsate Blank (RB) and Equipment Blank (EB):

1. Method Blank (2314680) analyzed on 3/25/2016 was free of contamination with the exception of the following:

Sample ID	Compound	Result (µg/l)	Action Level (5x)* (µg/l)	Sample(s) Affected	Action
2314680	Benzene	0.26	1.3	BP-GM-38-FB-032116, BP-GM-38-TB-032216, BP-GM-38-GW-RW1-MW1-032216, BP-GM-38-GW-RW1-MW3-032116 BP-GM-38-GW-RW2-MW1-032116	None None None None U
2314680	Bromomethane	0.41	2.05	BP-GM-38-FB-032116, BP-GM-38-TB-032216, BP-GM-38-GW-RW1-MW1-032216, BP-GM-38-GW-RW1-MW3-032116, BP-GM-38-GW-RW2-MW1-032116	U
2314680	Chloromethane	0.41	2.05	BP-GM-38-FB-032116, BP-GM-38-TB-032216, BP-GM-38-GW-RW1-MW1-032216, BP-GM-38-GW-RW1-MW3-032116 BP-GM-38-GW-RW2-MW1-032116	U
2314680	1,2-Dichlorobenzene	0.44	2.2	BP-GM-38-FB-032116, BP-GM-38-TB-032216, BP-GM-38-GW-RW1-MW1-032216, BP-GM-38-GW-RW1-MW3-032116 BP-GM-38-GW-RW2-MW1-032116	None
2314680	1,3-Dichlorobenzene	0.52	2.6	BP-GM-38-FB-032116, BP-GM-38-TB-032216, BP-GM-38-GW-RW1-MW1-032216, BP-GM-38-GW-RW1-MW3-032116	None

Sample ID	Compound	Result (µg/l)	Action Level (5x)* (µg/l)	Sample(s) Affected	Action
				BP-GM-38-GW-RW2-MW1-032116	
2314680	1,4-Dichlorobenzene	0.69	3.45	BP-GM-38-FB-032116, BP-GM-38-TB-032216, BP-GM-38-GW-RW1-MW1-032216, BP-GM-38-GW-RW1-MW3-032116 BP-GM-38-GW-RW2-MW1-032116	None U U None None
2314680	Methylene Chloride	0.75	7.5	BP-GM-38-FB-032116, BP-GM-38-TB-032216, BP-GM-38-GW-RW1-MW1-032216, BP-GM-38-GW-RW1-MW3-032116 BP-GM-38-GW-RW2-MW1-032116	U

2. Method Blank (2315817) analyzed on 3/26/2016 was free of contamination with exception of the following:

Sample ID	Compound	Result (µg/l)	Action Level (5x)* (µg/l)	Sample(s) Affected	Action
2315817	Bromomethane	0.40	2.0	BP-GM-38-GW-RW3-MW1-032216 BP-GM-38-GW-RW3-MW2-032216 BP-GM-38-GW-RW3-MW3-032116 BP-GM-38-GW-TP1-032116 BP-GM-38-RW2-MW-1-DUP-032116 BP-GM-38-RW3-032216	U None U U U U
	Chloromethane	0.58	2.9	BP-GM-38-GW-RW3-MW1-032216 BP-GM-38-GW-RW3-MW2-032216 BP-GM-38-GW-RW3-MW3-032116 BP-GM-38-GW-TP1-032116 BP-GM-38-RW2-MW-1-DUP-032116 BP-GM-38-RW3-032216	U
	1,3-Dichlorobenzene	0.29	1.45	BP-GM-38-GW-RW3-MW1-032216 BP-GM-38-GW-RW3-MW2-032216 BP-GM-38-GW-RW3-MW3-032116 BP-GM-38-GW-TP1-032116 BP-GM-38-RW2-MW-1-DUP-032116 BP-GM-38-RW3-032216	None
	1,4-Dichlorobenzene	0.42	2.1	BP-GM-38-GW-RW3-MW1-032216 BP-GM-38-GW-RW3-MW2-032216 BP-GM-38-GW-RW3-MW3-032116 BP-GM-38-GW-TP1-032116 BP-GM-38-RW2-MW-1-DUP-032116 BP-GM-38-RW3-032216	U U U U U None

3. Method Blank (2316948) analyzed on 3/29/2016 was free of contamination with exception of the following:

Sample ID	Compound	Result (µg/l)	Action Level (5x)* (µg/l)	Sample(s) Affected	Action
2316948	Bromomethane	0.42	2.1	BP-GM-38-GW-RW3-MW4-032116 BP-GM-38-GW-RW3-MW2-032216 BP-GM-38-GW-RW3-MW3-032116 BP-GM-38-RW3-032216	U None None None
	Chloromethane	0.42	2.1	BP-GM-38-GW-RW3-MW4-032116 BP-GM-38-GW-RW3-MW2-032216 BP-GM-38-GW-RW3-MW3-032116 BP-GM-38-RW3-032216	U None None None

4. Field Blank (BP-GM-38-FB-032116) (2131792011) analyzed on 3/25/2016 was free of contamination with the exception of bromomethane (0.29 µg/l), chloromethane (0.35 µg/l), and methylene chloride (0.55 µg/l). Bromomethane, chloromethane, and methylene chloride were qualified as non-detect due to method blank contamination, therefore, no qualifications were required.

5. Trip Blank (BP-GM-38-TB-032216) (2131792012) analyzed on 3/25/2016 was free of contamination with the exception of bromomethane (0.39 µg/l), chloromethane (0.39 µg/l), 1,4-dichlorobenzene (0.16 µg/l), and methylene chloride (0.4 µg/l). Bromomethane, chloromethane, 1,4-dichlorobenzene, and methylene chloride were qualified as non-detect due to method blank contamination, therefore, no qualifications were required.

Laboratory Control Sample (LCS)/ Laboratory Control Sample Duplicate (LCSD):

1. Laboratory Control Sample (2314681) was analyzed on 03/25/2016. All %RECs were within the laboratory control limits. No qualifications were required.

2. Laboratory Control Sample (2315818) was analyzed on 03/25/2016. All %RECs were within the laboratory control limits. No qualifications were required.

3. Laboratory Control Sample (2316949) was analyzed on 03/26/2016. All %RECs were within the laboratory control limits. No qualifications were required.

Field Duplicate:

1. Sample BP-GM-38-RW2-MW-1-DUP-032116 (2131792009) was collected as field duplicate for sample BP-GM-38-GW-RW2-MW1-032116 (2131792003). All RPDs were ≤50.0% with the following exceptions:

Field Sample	Compound	Analytical Method	Result	Units	Field Duplicate	Result	Units	RPD	Qualifier
BP-GM-38-GW-RW2-MW1-032116	1,1-Dichloroethane	EPA 624	8.7	µg/l	BP-GM-38-RW2-MW-1-DUP-032116	8.5	µg/l	2.3	None
BP-GM-38-GW-RW2-MW1-032116	1,1-Dichloroethene	EPA 624	3.7	µg/l	BP-GM-38-RW2-MW-1-DUP-032116	3.4	µg/l	8.5	None
BP-GM-38-GW-RW2-MW1-032116	1,2-Dichloroethane	EPA 624	1.4	µg/l	BP-GM-38-RW2-MW-1-DUP-032116	1.3	µg/l	7.4	None
BP-GM-38-GW-RW2-MW1-032116	Benzene	EPA 624	ND	µg/l	BP-GM-38-RW2-MW-1-DUP-032116	0.18	µg/l	NC	None
BP-GM-38-GW-RW2-MW1-032116	Chlorobenzene	EPA 624	7	µg/l	BP-GM-38-RW2-MW-1-DUP-032116	1.6	µg/l	125.6	J
BP-GM-38-GW-RW2-MW1-032116	Chloroform	EPA 624	3.4	µg/l	BP-GM-38-RW2-MW-1-DUP-032116	3.5	µg/l	2.9	None
BP-GM-38-GW-RW2-MW1-032116	Cis-1,2-Dichloroethene	EPA 624	15.3	µg/l	BP-GM-38-RW2-MW-1-DUP-032116	15	µg/l	2.0	None
BP-GM-38-GW-RW2-MW1-032116	Toluene	EPA 624	0.2	µg/l	BP-GM-38-RW2-MW-1-DUP-032116	ND	µg/l	NC	None
BP-GM-38-GW-RW2-MW1-032116	Trichloroethene	EPA 624	43.9	µg/l	BP-GM-38-RW2-MW-1-DUP-032116	44.2	µg/l	0.7	None

Matrix Spike (MS)/ Matrix Spike Duplicate (MSD):

1. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) were performed on sample BP-GM-38-GW-RW2-MW1-032116 (2131792003). All %RECs and RPDs were within the laboratory control limits. No qualifications were required.

Compound Quantitation and Reported Contract Required Quantitation Limits (CRQLs):

1. All results were within the linear calibration range. No qualifications were required.

2. Tentatively identified compounds (TICs) were required for this project. The laboratory provided all of the necessary documentation for the TICs. Base on professional judgement, TICs identified as "unknown" in samples BP-GM-38-GW-RW3-MW2-032216, BP-GM-38-GW-RW3-MW3-032116, and BP-GM-38-RW3-032216 were qualified unusable (R) because they are suspected of being artifacts of common laboratory contaminant (i.e., common lab contaminants: solvent preservative front and related byproducts).

Target Compound Identification:

1. All Relative Retention Times (RRTs) of the reported compounds were within ± 0.06 RRT units of the standard (opening CCV).

2. Sample compound spectra were compared against the laboratory standard spectra.

3. No QC deviations were observed.

Comments:

1. Validation qualifiers (if required) were entered into the EDD for SDG: 2131792-HNW-103.

MERCURY
USEPA Region II – Data Validation

Project Name: Naval Weapons Industrial Reserve Plant, GM-38 Area-LTM

Location: 100 Broadway, Bethpage, NY

Project Number: 2031-707

SDG #: 2131792-HNW-103

Client: KOMAM Government Solutions, LLC

Date: 05/02/2016

Laboratory: ALS Environmental, Middletown, PA

Reviewer: Sherri Pullar

Summary:

1. Data validation was performed on the data for ten (10) water samples and one (1) field blank analyzed for Mercury by EPA Method 245.1.

2. The samples were collected on 3/21 thru 22/2016. The samples were submitted to ALS Environmental, Middletown, PA on 3/23/2016 for analysis.

3. The USEPA Region II SOP No. HW-2, Revision 13, September 2006, Validation of Metals for Contract Laboratory Program (CLP), SOW-ILM05.3 (SOP Revision 13); USEPA National Functional Guidelines for Inorganic Data Review, EPA 540-R-04-004, October 2004 and Quality Assurance Project Plan for GM-38 Area, Naval Weapons Industrial Reserve Plant, Bethpage, NY; September 3, 2009 were used in evaluating the Mercury data in this summary report.

4. In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformance of certain Quality Control criteria (See discussion below).

Samples:

The samples included in this review are listed below:

Client Sample ID	Laboratory Sample ID	Collection Date	Matrix	Sample Status
BP-GM-38-GW-RW1-MW1-032216	2131792001	3/22/2016	Water	
BP-GM-38-GW-RW1-MW3-032116	2131792002	3/21/2016	Water	
BP-GM-38-GW-RW2-MW1-032116	2131792003	3/21/2016	Water	
BP-GM-38-GW-RW3-MW1-032216	2131792004	3/22/2016	Water	
BP-GM-38-GW-RW3-MW2-032216	2131792005	3/22/2016	Water	
BP-GM-38-GW-RW3-MW3-032116	2131792006	3/21/2016	Water	
BP-GM-38-GW-RW3-MW4-032116	2131792007	3/21/2016	Water	
BP-GM-38-GW-TP1-032116	2131792008	3/21/2016	Water	
BP-GM-38-RW2-MW-1-DUP-032116	2131792009	3/21/2016	Water	Field Duplicate of sample BP-GM-38-GW-RW2-MW1-032116
BP-GM-38-RW3-032216	2131792010	3/22/2016	Water	
BP-GM-38-FB-032116	2131792011	3/21/2016	Water	Field Blank

Sample Conditions/Problems:

1. The Traffic Reports/Chain-of-Custody Records, Sampling Report and/or Laboratory Case Narrative did not indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data. No qualifications were required.

Holding Times:

1. All water samples were digested and analyzed within the 28 days holding times for Mercury. No qualifications were required.

Initial and Continuing Calibration Verification (ICV and CCV):

1 The correlation coefficient for Mercury calibration curve analyzed was ≥0.995. No qualifications were required.

2. All ICVs and CCVs %REC values were within the QC limits (80-120%). No qualifications were required.

Blanks (Method Blank, ICB and CCB):

1. All ICBs and CCBs were free of contamination. No qualifications were required.

2. Method Blank (2317236) digested on 3/30/2016 was free of contamination. No qualifications were required.

3. Method Blank (2317242) digested on 03/30/2016 was free of contamination. No qualifications were required.

Field Blank (FB) and Equipment Blank (EB):

1. Field Blank (BP-GM-38-FB-032116) (2131792011) analyzed on 3/30/2016 was free of contamination. No qualifications were required.

Laboratory Control Sample (LCS)/ Laboratory Control Sample Duplicate (LCSD):

1. Mercury %REC in Laboratory Control Sample (2317237) analyzed on 03/30/2016 was within the laboratory control limits. No qualifications were required.

2. Mercury %REC in Laboratory Control Sample (2317243) analyzed on 03/30/2016 was within the laboratory control limits. No qualifications were required.

Field Duplicate:

1. Sample BP-GM-38-RW2-MW-1-DUP-032116 (2131792009) was collected as field duplicate for sample BP-GM-38-GW-RW2-MW1-032116 (2131792003). Both samples were reported as non-detects. No qualifications were required.

Matrix Spike (MS)/ Matrix Spike Duplicate (MSD) and Duplicate/Laboratory Duplicate:

1. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) were performed on sample BP-BP-GM-38-GW-RW2-MW1-032116 (2131792003). All %RECs and RPD were within the laboratory control limits. No qualifications were required.

2. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) were performed on sample BP-BP-GM-38-RW2-MW-1-DUP-032116 (2131792009). All %RECs and RPD were within the laboratory control limits. No qualifications were required.

Compound Quantitation and Reported Detection Limits:

1. All sample results were reported within the linear calibration range.

Comments:

1. Validation qualifiers (if required) were entered into the EDD for SDG: 2131792-HNW-103.

GENERAL CHEMISTRY
USEPA Region II – Data Validation

Project Name: Naval Weapons Industrial Reserve Plant, GM-38 Area-LTM

Location: 100 Broadway, Bethpage, NY

Project Number: 2031-707

SDG #: 2131792-HNW-103

Client: KOMAM Government Solutions, LLC

Date: 05/02/2015

Laboratory: ALS Environmental, Middletown, PA

Reviewer: Sherri Pullar

Summary:

1. Data validation was performed on the data for ten (10) water samples analyzed for Solids, Total Suspended (TSS) by SM20th 2540D.

2. The samples were collected on 3/21 thru 22/2016. The samples were submitted to ALS Environmental, Middletown, PA on 3/23/2016 for analysis.

3. The USEPA Region II SOP No. HW-2, Revision 13, September 2006, Validation of Metals for Contract Laboratory Program (CLP), SOW-ILM05.3 (SOP Revision 13); USEPA National Functional Guidelines for Inorganic Data Review, EPA 540-R-04-004, October 2004 and Quality Assurance Project Plan for GM-38 Area, Naval Weapons Industrial Reserve Plant, Bethpage, NY; September 3, 2009 were used in evaluating the Solids, Total Suspended data in this summary report.

4. In general, the data are valid as reported and may be used for decision making purposes. No data points were qualified due to nonconformance of Quality Control criteria (See discussion below).

Samples:

The samples included in this review are listed below:

Client Sample ID	Laboratory Sample ID	Collection Date	Matrix	Sample Status
BP-GM-38-GW-RW1-MW1-032216	2131792001	3/22/2016	Water	
BP-GM-38-GW-RW1-MW3-032116	2131792002	3/21/2016	Water	
BP-GM-38-GW-RW2-MW1-032116	2131792003	3/21/2016	Water	
BP-GM-38-GW-RW3-MW1-032216	2131792004	3/22/2016	Water	
BP-GM-38-GW-RW3-MW2-032216	2131792005	3/22/2016	Water	
BP-GM-38-GW-RW3-MW3-032116	2131792006	3/21/2016	Water	
BP-GM-38-GW-RW3-MW4-032116	2131792007	3/21/2016	Water	
BP-GM-38-GW-TP1-032116	2131792008	3/21/2016	Water	
BP-GM-38-RW2-MW-1-DUP-032116	2131792009	3/21/2016	Water	Field Duplicate of sample BP-GM-38-GW-RW2-MW1-032116
BP-GM-38-RW3-032216	2131792010	3/22/2016	Water	

Sample Conditions/Problems:

1. The Traffic Reports/Chain-of-Custody Records, Sampling Report and/or Laboratory Case Narrative did not indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data. No qualifications were required.

Holding Times:

1. All water samples were analyzed within the 7 days holding times for Solids, Total Suspended. No qualifications were required.

Method Blank (MB), Storage Blank (SB), Field Blank (FB), Rinsate Blank (RB) and Equipment Blank (EB):

1. Method Blank (2316203) analyzed on 3/27/2016 was free of contamination. No qualifications were required.

2. Method Blank (2157926) analyzed on 3/31/2015 was free of contamination. No qualifications were required.

Field Duplicate:

1. Sample BP-GM-38-RW2-MW-1-DUP-032116 (2131792009) was collected as field duplicate for sample BP-GM-38-GW-RW2-MW1-032116 (2131792003). All RPDs were ≤50.0%. No qualifications were required.

Field Sample	Compound	Analytical Method	Result	Units	Field Duplicate	Result	Units	RPD	Qualifier
BP-GM-38-GW-RW2-MW1-032116	TSS	EPA 2540D	24	mg/L	BP-GM-38-RW2-MW-1-DUP-032116	26	mg/L	8	None

Laboratory Duplicate:

1. Sample Duplicate was performed on sample BP-GM-38-GW-RW3-MW3-032116 (2131792006). All RPDs were within the laboratory control limits. No qualifications were required.

Compound Quantitation and Reported Detection Limits:

1. All sample results were reported within the linear calibration range.

Comments:

1. Validation qualifiers (if required) were entered into the EDD for SDG: 2131792-HNW-103.

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MARCH 2016 EVENT
DATA SUMMARY TABLE
AQUEOUS
SDG: 2131792, HNW-103

Sample Name	Lab ID	Analytical Method	Analysis Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-FB-032116	2131792011	4	2016325	1	No TIC's Detected					
BP-GM-38-FB-032116	2131792011	245.1	2016330	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-FB-032116	2131792011	624	2016325	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	cis-1,3-Dichloropropene	1	ug/L	UJ	0.12	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	trans-1,3-Dichloropropene	1	ug/L	UJ	0.14	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-FB-032116	2131792011	624	2016325	1	1,2-Dichloroethane	1	ug/L	U	0.22	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-FB-032116	2131792011	624	2016325	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-FB-032116	2131792011	624	2016325	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	Tetrachloroethene	1	ug/L	U	0.26	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	cis-1,2-Dichloroethene	1	ug/L	U	0.26	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	1,3-Dichloropropene, Tota	1	ug/L	U	0.19	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	Carbon Tetrachloride	1	ug/L	U	0.24	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	Chloroform	1	ug/L	U	0.15	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	Benzene	1	ug/L	U	0.16	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	1,1,1-Trichloroethane	1	ug/L	U	0.27	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	Bromomethane	1	ug/L	UJ	0.27	2
BP-GM-38-FB-032116	2131792011	624	2016325	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	Vinyl Chloride	2	ug/L	U	0.24	2
BP-GM-38-FB-032116	2131792011	624	2016325	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-FB-032116	2131792011	624	2016325	1	Bromodichloromethane	1	ug/L	U	0.13	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	1,1-Dichloroethane	1	ug/L	U	0.19	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	1,1-Dichloroethene	1	ug/L	U	0.17	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	Trichlorofluoromethane	1	ug/L	U	0.21	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	1,2-Dichloropropane	1	ug/L	U	0.24	1

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DATA SUMMARY TABLE
AQUEOUS
SDG: 2131792, HNW-103

Sample Name	Lab ID	Analytical Method	Analysis Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-FB-032116	2131792011	624	2016325	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	Trichloroethene	1	ug/L	U	0.21	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-FB-032116	2131792011	624	2016325	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	4	2016325	1	No TIC's Detected					
BP-GM-38-GW-RW1-MW1-03221	2131792001	245.1	2016330	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-GW-RW1-MW1-03221	2131792001	2540D	2016327	1	Total Suspended Solids	5	mg/L	U	5	5
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	1,1,1-Trichloroethane	1	ug/L	U	0.27	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	1,1-Dichloroethane	6.5	ug/L		0.19	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	1,1-Dichloroethene	2.2	ug/L		0.17	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	1,2-Dichloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	1,3-Dichloropropene, Tota	1	ug/L	U	0.19	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Benzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Bromodichloromethane	1	ug/L	U	0.13	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Bromomethane	1	ug/L	UJ	0.27	2
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Carbon Tetrachloride	1	ug/L	U	0.24	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Chloroform	0.48	ug/L	J	0.15	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	cis-1,2-Dichloroethene	20	ug/L		0.26	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	cis-1,3-Dichloropropene	1	ug/L	UJ	0.12	1

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Sample Name	Lab ID	Analytical Method	Analysis Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Tetrachloroethene	0.67	ug/L	J	0.26	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	trans-1,2-Dichloroethene	0.51	ug/L	J	0.12	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	trans-1,3-Dichloropropene	1	ug/L	UJ	0.14	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Trichloroethene	114	ug/L		0.21	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Trichlorofluoromethane	1	ug/L	U	0.21	1
BP-GM-38-GW-RW1-MW1-03221	2131792001	624	2016325	1	Vinyl Chloride	2	ug/L	U	0.24	2
BP-GM-38-GW-RW1-MW3-03211	2131792002	4	2016325	1	No TIC's Detected					
BP-GM-38-GW-RW1-MW3-03211	2131792002	245.1	2016330	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-GW-RW1-MW3-03211	2131792002	2540D	2016327	1	Total Suspended Solids	5	mg/L	U	5	5
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	cis-1,3-Dichloropropene	1	ug/L	UJ	0.12	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	trans-1,3-Dichloropropene	1	ug/L	UJ	0.14	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	1,2-Dichloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Tetrachloroethene	1	ug/L	U	0.26	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	cis-1,2-Dichloroethene	0.58	ug/L	J	0.26	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	1,3-Dichloropropene, Tota	1	ug/L	U	0.19	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Carbon Tetrachloride	0.41	ug/L	J	0.24	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Chloroform	0.79	ug/L	J	0.15	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Benzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	1,1,1-Trichloroethane	2.1	ug/L		0.27	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Bromomethane	1	ug/L	UJ	0.27	2

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Sample Name	Lab ID	Analytical Method	Analysis Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Vinyl Chloride	2	ug/L	U	0.24	2
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Bromodichloromethane	1	ug/L	U	0.13	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	1,1-Dichloroethane	7.4	ug/L		0.19	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	1,1-Dichloroethene	2.5	ug/L		0.17	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Trichlorofluoromethane	1	ug/L	U	0.21	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	1,1,2-Trichloroethane	0.47	ug/L	J	0.3	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	Trichloroethene	4.5	ug/L		0.21	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	1,1,2,2-Tetrachloroethane	0.25	ug/L	J	0.22	1
BP-GM-38-GW-RW1-MW3-03211	2131792002	624	2016325	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	4	2016325	1	No TIC's Detected					
BP-GM-38-GW-RW2-MW1-03211	2131792003	245.1	2016330	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-GW-RW2-MW1-03211	2131792003	2540D	2016327	1	Total Suspended Solids	24	mg/L		5	5
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	cis-1,3-Dichloropropene	1	ug/L	UJ	0.12	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	trans-1,3-Dichloropropene	1	ug/L	UJ	0.14	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	1,1-Dichloroethane	8.7	ug/L		0.19	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	1,1-Dichloroethane	8.5	ug/L		0.19	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	1,1-Dichloroethene	3.7	ug/L		0.17	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Tetrachloroethene	1	ug/L	U	0.26	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	1,1-Dichloroethene	3.4	ug/L		0.17	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	1,3-Dichloropropene, Tota	1	ug/L	U	0.19	1

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Sample Name	Lab ID	Analytical Method	Analysis Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Carbon Tetrachloride	1	ug/L	U	0.24	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	1,2-Dichloroethane	1.4	ug/L		0.22	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	1,2-Dichloroethane	1.3	ug/L		0.22	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	1,1,1-Trichloroethane	1	ug/L	U	0.27	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Benzene	0.36	ug/L	U	0.16	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Vinyl Chloride	2	ug/L	U	0.24	2
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Benzene	0.18	ug/L	J	0.16	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Bromodichloromethane	1	ug/L	U	0.13	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Bromomethane	0.58	ug/L	UJ	0.27	2
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Bromomethane	2	ug/L	UJ	0.27	2
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Trichlorofluoromethane	1	ug/L	U	0.21	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Chlorobenzene	7	ug/L	J	0.11	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	4	2016326	1	No TIC's Detected					
BP-GM-38-GW-RW3-MW1-03221	2131792004	245.1	2016330	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-GW-RW3-MW1-03221	2131792004	2540D	2016327	1	Total Suspended Solids	5	mg/L	U	5	5
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	cis-1,3-Dichloropropene	1	ug/L	UJ	0.12	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	trans-1,3-Dichloropropene	1	ug/L	UJ	0.14	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	1,2-Dichloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Chlorodibromomethane	1	ug/L	U	0.22	1

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Sample Name	Lab ID	Analytical Method	Analysis Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Tetrachloroethene	2.5	ug/L		0.26	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	cis-1,2-Dichloroethene	1	ug/L	U	0.26	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	1,3-Dichloropropene, Tota	1	ug/L	U	0.19	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Carbon Tetrachloride	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Chloroform	1	ug/L	U	0.15	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Benzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	1,1,1-Trichloroethane	0.3	ug/L	J	0.27	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Bromomethane	2	ug/L	UJ	0.27	2
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Vinyl Chloride	2	ug/L	U	0.24	2
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Bromodichloromethane	1	ug/L	U	0.13	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	1,1-Dichloroethane	0.4	ug/L	J	0.19	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	1,1-Dichloroethene	0.29	ug/L	J	0.17	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Trichlorofluoromethane	1	ug/L	U	0.21	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	Trichloroethene	37.6	ug/L		0.21	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW1-03221	2131792004	624	2016326	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	4	2016326	1	No TIC's Detected					
BP-GM-38-GW-RW3-MW2-03221	2131792005	245.1	2016330	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-GW-RW3-MW2-03221	2131792005	2540D	2016327	1	Total Suspended Solids	5	mg/L	U	5	5
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	cis-1,3-Dichloropropene	1	ug/L	UJ	0.12	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	trans-1,3-Dichloropropene	1	ug/L	UJ	0.14	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	1,2-Dichloroethane	1	ug/L	U	0.22	1

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Sample Name	Lab ID	Analytical Method	Analysis Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Tetrachloroethene	0.66	ug/L	J	0.26	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	cis-1,2-Dichloroethene	1.7	ug/L		0.26	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	1,3-Dichloropropene, Tota	1	ug/L	U	0.19	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Carbon Tetrachloride	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Chloroform	0.27	ug/L	J	0.15	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Benzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	1,1,1-Trichloroethane	0.47	ug/L	J	0.27	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Bromomethane	2	ug/L	UJ	0.27	2
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Chloroethane	1	ug/L	UJ	0.24	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Vinyl Chloride	2	ug/L	U	0.24	2
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Bromodichloromethane	1	ug/L	U	0.13	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	1,1-Dichloroethane	0.52	ug/L	J	0.19	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	1,1-Dichloroethene	0.46	ug/L	J	0.17	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	Trichlorofluoromethane	1	ug/L	U	0.21	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	1,1,2-Trichloroethane	0.32	ug/L	J	0.3	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016326	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016329	5	Trichloroethene	204	ug/L		1.1	5
BP-GM-38-GW-RW3-MW2-03221	2131792005	624	2016329	5	Unknown	1050	ug/L	R		
BP-GM-38-GW-RW3-MW3-03211	2131792006	4	2016326	1	No TIC's Detected					
BP-GM-38-GW-RW3-MW3-03211	2131792006	245.1	2016330	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-GW-RW3-MW3-03211	2131792006	2540D	2016327	1	Total Suspended Solids	5	mg/L	U	5	5

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Sample Name	Lab ID	Analytical Method	Analysis Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	cis-1,3-Dichloropropene	1	ug/L	UJ	0.12	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	trans-1,3-Dichloropropene	1	ug/L	UJ	0.14	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	1,2-Dichloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Tetrachloroethene	0.71	ug/L	J	0.26	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	cis-1,2-Dichloroethene	1.1	ug/L		0.26	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	1,3-Dichloropropene, Tota	1	ug/L	U	0.19	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Carbon Tetrachloride	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Chloroform	1	ug/L	U	0.15	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Benzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	1,1,1-Trichloroethane	1.1	ug/L		0.27	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Bromomethane	2	ug/L	UJ	0.27	2
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Chloroethane	1	ug/L	UJ	0.24	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Vinyl Chloride	2	ug/L	U	0.24	2
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Bromodichloromethane	1	ug/L	U	0.13	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	1,1-Dichloroethane	4	ug/L		0.19	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	1,1-Dichloroethene	2.4	ug/L		0.17	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	Trichlorofluoromethane	1	ug/L	U	0.21	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1

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Sample Name	Lab ID	Analytical Method	Analysis Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016326	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016329	10	Trichloroethene	284	ug/L		2.1	10
BP-GM-38-GW-RW3-MW3-03211	2131792006	624	2016329	10	UnKnown	2090	ug/L	R		
BP-GM-38-GW-RW3-MW4-03211	2131792007	4	2016329	1	No TIC's Detected					
BP-GM-38-GW-RW3-MW4-03211	2131792007	245.1	2016330	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-GW-RW3-MW4-03211	2131792007	2540D	2016327	1	Total Suspended Solids	5	mg/L	U	5	5
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	cis-1,3-Dichloropropene	1	ug/L	UJ	0.12	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	trans-1,3-Dichloropropene	1	ug/L	UJ	0.14	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	1,2-Dichloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Tetrachloroethene	0.46	ug/L	J	0.26	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	cis-1,2-Dichloroethene	1	ug/L	U	0.26	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	1,3-Dichloropropene, Tota	1	ug/L	U	0.19	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Carbon Tetrachloride	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Chloroform	0.64	ug/L	J	0.15	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Benzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	1,1,1-Trichloroethane	0.48	ug/L	J	0.27	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Bromomethane	2	ug/L	UJ	0.27	2
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Chloroethane	1	ug/L	UJ	0.24	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Vinyl Chloride	2	ug/L	U	0.24	2
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Methylene Chloride	0.43	ug/L	J	0.32	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Bromodichloromethane	1	ug/L	U	0.13	1

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Sample Name	Lab ID	Analytical Method	Analysis Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	1,1-Dichloroethane	4.9	ug/L		0.19	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	1,1-Dichloroethene	0.85	ug/L	J	0.17	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Trichlorofluoromethane	1	ug/L	U	0.21	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	Trichloroethene	2.9	ug/L		0.21	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW4-03211	2131792007	624	2016329	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-GW-TP1-032116	2131792008	4	2016326	1	No TIC's Detected					
BP-GM-38-GW-TP1-032116	2131792008	245.1	2016330	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-GW-TP1-032116	2131792008	2540D	2016327	1	Total Suspended Solids	5	mg/L	U	5	5
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	cis-1,3-Dichloropropene	1	ug/L	UJ	0.12	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	trans-1,3-Dichloropropene	1	ug/L	UJ	0.14	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	1,2-Dichloroethane	0.86	ug/L	J	0.22	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Tetrachloroethene	0.72	ug/L	J	0.26	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	cis-1,2-Dichloroethene	10.8	ug/L		0.26	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	1,3-Dichloropropene, Tota	1	ug/L	U	0.19	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Carbon Tetrachloride	1	ug/L	U	0.24	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Chloroform	1.7	ug/L		0.15	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Benzene	1	ug/L	U	0.16	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	1,1,1-Trichloroethane	1	ug/L	U	0.27	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Bromomethane	2	ug/L	UJ	0.27	2
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Chloromethane	1	ug/L	U	0.25	1

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Sample Name	Lab ID	Analytical Method	Analysis Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Vinyl Chloride	2	ug/L	U	0.24	2
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Methylene Chloride	0.37	ug/L	J	0.32	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Bromodichloromethane	1	ug/L	U	0.13	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	1,1-Dichloroethane	1.8	ug/L		0.19	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	1,1-Dichloroethene	0.75	ug/L	J	0.17	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Trichlorofluoromethane	1	ug/L	U	0.21	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	Trichloroethene	61.7	ug/L		0.21	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-TP1-032116	2131792008	624	2016326	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	245.1	2016330	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-RW2-MW-1-DUP-032	2131792009	2540D	2016327	1	Total Suspended Solids	26	mg/L		5	5
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	cis-1,3-Dichloropropene	1	ug/L	UJ	0.12	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	trans-1,3-Dichloropropene	1	ug/L	UJ	0.14	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Chlorobenzene	1.6	ug/L	J	0.11	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Chloroform	3.4	ug/L		0.15	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Chloroform	3.5	ug/L		0.15	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Tetrachloroethene	1	ug/L	U	0.26	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Chloromethane	0.79	ug/L	U	0.25	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	1,3-Dichloropropene, Tota	1	ug/L	U	0.19	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Carbon Tetrachloride	1	ug/L	U	0.24	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Chloromethane	1	ug/L	U	0.25	1

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Sample Name	Lab ID	Analytical Method	Analysis Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	cis-1,2-Dichloroethene	15.3	ug/L		0.26	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	1,1,1-Trichloroethane	1	ug/L	U	0.27	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	cis-1,2-Dichloroethene	15	ug/L		0.26	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Methylene Chloride	0.6	ug/L	U	0.32	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Vinyl Chloride	2	ug/L	U	0.24	2
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Bromodichloromethane	1	ug/L	U	0.13	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Toluene	0.2	ug/L	J	0.12	1
BP-GM-38-GW-RW2-MW1-03211	2131792003	624	2016325	1	Trichloroethene	43.9	ug/L		0.21	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Trichlorofluoromethane	1	ug/L	U	0.21	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	Trichloroethene	44.2	ug/L		0.21	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-RW2-MW-1-DUP-032	2131792009	624	2016326	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-RW3-032216	2131792010	245.1	2016330	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-RW3-032216	2131792010	2540D	2016327	1	Total Suspended Solids	5	mg/L	U	5	5
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	cis-1,3-Dichloropropene	1	ug/L	UJ	0.12	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	trans-1,3-Dichloropropene	1	ug/L	UJ	0.14	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-RW3-032216	2131792010	624	2016326	1	1,2-Dichloroethane	1	ug/L	U	0.22	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Tetrachloroethene	0.79	ug/L	J	0.26	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	cis-1,2-Dichloroethene	2.4	ug/L		0.26	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	trans-1,2-Dichloroethene	0.23	ug/L	J	0.12	1

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Sample Name	Lab ID	Analytical Method	Analysis Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-RW3-032216	2131792010	624	2016326	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	1,3-Dichloropropene, Tota	1	ug/L	U	0.19	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Carbon Tetrachloride	1	ug/L	U	0.24	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Chloroform	0.46	ug/L	J	0.15	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Benzene	1	ug/L	U	0.16	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	1,1,1-Trichloroethane	1.3	ug/L		0.27	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Bromomethane	2	ug/L	UJ	0.27	2
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Chloroethane	1	ug/L	UJ	0.24	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Vinyl Chloride	2	ug/L	U	0.24	2
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Methylene Chloride	0.64	ug/L	J	0.32	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Bromodichloromethane	1	ug/L	U	0.13	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	1,1-Dichloroethane	2.1	ug/L		0.19	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	1,1-Dichloroethene	2.5	ug/L		0.17	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	Trichlorofluoromethane	1	ug/L	U	0.21	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	1,1,2-Trichloroethane	0.49	ug/L	J	0.3	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-RW3-032216	2131792010	624	2016326	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-RW3-032216	2131792010	624	2016329	10	Trichloroethene	371	ug/L		2.1	10
BP-GM-38-RW3-032216	2131792010	624	2016329	10	UnKnown	2210	ug/L	R		
BP-GM-38-TB-032216	2131792012	4	2016325	1	No TIC's Detected					
BP-GM-38-TB-032216	2131792012	624	2016325	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	cis-1,3-Dichloropropene	1	ug/L	UJ	0.12	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	trans-1,3-Dichloropropene	1	ug/L	UJ	0.14	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-TB-032216	2131792012	624	2016325	1	1,2-Dichloroethane	1	ug/L	U	0.22	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-TB-032216	2131792012	624	2016325	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2

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Sample Name	Lab ID	Analytical Method	Analysis Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-TB-032216	2131792012	624	2016325	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	Tetrachloroethene	1	ug/L	U	0.26	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	cis-1,2-Dichloroethene	1	ug/L	U	0.26	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	1,3-Dichloropropene, Tota	1	ug/L	U	0.19	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	Carbon Tetrachloride	1	ug/L	U	0.24	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	Chloroform	1	ug/L	U	0.15	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	Benzene	1	ug/L	U	0.16	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	1,1,1-Trichloroethane	1	ug/L	U	0.27	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	Bromomethane	1	ug/L	UJ	0.27	2
BP-GM-38-TB-032216	2131792012	624	2016325	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	Vinyl Chloride	2	ug/L	U	0.24	2
BP-GM-38-TB-032216	2131792012	624	2016325	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-TB-032216	2131792012	624	2016325	1	Bromodichloromethane	1	ug/L	U	0.13	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	1,1-Dichloroethane	1	ug/L	U	0.19	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	1,1-Dichloroethene	1	ug/L	U	0.17	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	Trichlorofluoromethane	1	ug/L	U	0.21	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	Trichloroethene	1	ug/L	U	0.21	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-TB-032216	2131792012	624	2016325	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1