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QUARTERLY OPERATIONS REPORT THIRD QUARTER 2014 GROUNDWATER TREATMENT PLANT GM-38 AREA GROUNDWATER REMEDIATION NWIRP BETHPAGE NY

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H & S ENVIRONMENTAL INC

Quarterly Operations Report
Third Quarter 2014

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

March 2015

Prepared for:

Naval Facilities Engineering Command Mid-Atlantic
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3/18/15

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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
H&S	H&S Environmental, Inc.
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
NELAC	National Environmental Accreditation Conference
NG	Northrop Grumman
NWIRP	Naval Weapons Industrial Reserve Plant
NYSDEC	New York State Department of Environmental Conservation
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
TSS	total suspended solids
TtEC	Tetra Tech EC, Inc.
USEPA	U.S. Environmental Protection Agency
VC	vinyl chloride
VFD	variable frequency drive
VGAC	vapor–phase granular activated carbon
VOC	volatile organic compound

1.0 INTRODUCTION

H&S Environmental, Inc. (H&S) 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 Third Quarter 2014 Operations Report details activities that occurred from July 2014 to September 2014. Data was collected and operational activities were performed by H&S 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 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 Requirements (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 contaminated groundwater in the GM-38 Area. Volatile Organic Compounds (VOCs) in the influent groundwater consist of trichloroethene (TCE), tetrachloroethene (PCE), vinyl chloride (VC), 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 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).

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 and stated, “When RW01 and RW03 were pumped together, there was no noticeable additive influence on the drawdown in shallower monitoring wells, indicating that in the shallower portions of the GM-38 Area groundwater, RW01 operation is sufficient.” This recommendation is currently under consideration, and in the meantime, both RW-1 and RW-3 continue to be operated.

2.0 GWTP OPERATIONS AND MAINTENANCE

While designed to run completely automated, the GWTP requires regular weekly 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 14 July, 19 July, 22 July, 24 July, 2 September, 18 September, and 25 September, bag filters were changed out.
- On 5 September and 11 September, the system was shut down in order to backwash the three LGAC units.
- On 16 September, the system was shut down in order to clean the wye strainers on each of the process pumps: P-3A, P-3B, P-4A, and P-4B.

2.2 Non-routine Maintenance / Site Activities

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

- On 4 July, 14 July, and 1 September, a high rain gauge alarm was received. On each occasion, the system was restarted once the alarm was cleared and/or heavy rainfall subsided.
- On 2 July, high and low blower pressure alarms were received, resulting in several hours of downtime over the next several days. Troubleshooting was performed and the issue was resolved on 9 July.
- On 5 July and 16 July, the variable frequency drive (VFD) display for RW-1 stopped working properly. The VFD display was replaced on 8 July and again on 16 July.
- On 15 July, the flow rate in RW-1 was observed to decrease significantly. Troubleshooting and evaluation throughout the next several days indicated an issue with the RW-1 pump and/or motor, and that the reduction in flow was not due to a VFD or other electrical issue. The flow rate in RW-3 was temporarily increased to partially offset the loss of flow from RW-1.

- On 28 July, the pump/motor for RW-1 was pulled by Delta Well and Pump, Co. The well was flushed and video logging was performed on 29 July. An evaluation of the pump/motor concluded that the pump needed to be replaced due to wear (the motor was in good condition). The decision was made to redevelop the well while the new pump was being procured in order to reduce the likelihood that the new pump would prematurely develop wear from possible sand intrusion in the well.

- Redevelopment of RW-1 was performed from 19 August – 25 August. Segmental air lifting was performed on both sections of the well screen (335-395 feet below ground surface [bgs] and 410-430 feet bgs). On 26 August, bailing was performed and the well was flushed again. Post-redevelopment video logging of the well was performed on 27 August. Field logs from the redevelopment of RW-1 are included as **Appendix A.**

- On 28 August, a new pump was installed in RW-1, and the recovery well was brought back on-line. However, upon restarting RW-1, the air stripper effluent pumps (P-4A and P-4B) were not able to achieve flowrates above approximately 850 gpm. The combined influent flowrate from RW-1 and RW-3was adjusted down to balance the system until the reduced performance of the air stripper effluent pumps could be resolved.

- On 29 August, the pump in RW-1 shut off on several occasions, requiring a manual restart. This issue was subsequently determined to be a result of an error in the programmable logic and corrected accordingly.

- The reduced performance of air stripper effluent pumps P-4A and P-4B was evaluated throughout September, including troubleshooting and eliminating possible causes, as well as performing a pump test on each. Performance was subsequently restored on 16 October 2014, after determining the check valves between the pumps had failed, and influent and effluent flowrates returned to normal operating range.

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 the 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 B**.

Monthly aqueous samples are collected from each recovery well (RW-1 and RW-3), as well as 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). The analytical results of monthly process water samples collected during the Third Quarter are presented in **Table 1**. The data demonstrates that all permitted constituents were in compliance with regulatory requirements during the Third 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 Third Quarter.

Monthly DMRs for the Third Quarter (July – September 2014) are included in **Appendix B**.

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 C**.

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 VC13) collected during the Third 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 Third 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. 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 has been 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 were collected from eight monitoring wells (RW1-MW1, RW1-MW3, RW2-MW1, RW3-MW1, RW3-MW2, RW3-MW3, RW3-MW4, and TP-01). Samples were collected using bladder pumps in accordance with the U.S. Environmental Protection Agency (USEPA) low-flow sampling methodologies. Results of the groundwater sampling for the Third 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 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-MW1 and RW3-MW4 are screened between 475 and 495 feet bgs. RW3-MW2 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

H&S collected groundwater samples for the Third Quarter from 22-23 September 2014. Field parameters measured during well purging, consisting 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 D**.

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 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 Third Quarter monitoring event are summarized in **Table 6.** Data validation reports are presented in **Appendix E**. 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 RW3-MW2 during the Third 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 Third Quarter sampling event are presented in the data validation report in **Appendix E**. As indicated, RPDs for all analytes were well below the guideline of 50%. 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 Third Quarter are presented in **Table 7**. Groundwater analytical results of select VOCs (cis-1,2-DCE, PCE, TCE, and VC) for the Third 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 VC for RW-1) over time for each recovery well (RW-1 and RW-3 sampled monthly) and the eight monitoring wells sampled during the Third 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 710 µg/L detected in February 2010), remaining around or below 300 µg/L since the latter half of 2012. During the Third Quarter 2014, concentrations ranged from 162-184 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 18.5 µg/L in July 2014. PCE concentrations have also exhibited decreasing trends over time, with concentrations decreasing from 180 µg/L in February 2010 to a low of 40.4 µg/L in September 2013. Concentrations of VC have decreased below initial concentrations in 2010. After reaching a maximum concentration of 61 µg/L in February 2010, VC concentrations have remained below 5.0 µg/L since the final quarter of 2011 and below 2.0 µg/L since September 2012.

Figure 6 presents concentrations detected at recovery well RW-3. Concentrations of TCE have decreased from initial concentrations in February 2010 (660 µg/L). During the Third Quarter 2014, concentrations ranged from 182-241 µg/L. Concentrations of cis-1,2-DCE have remained consistently below 4.0 µg/L. PCE has been detected at low levels during only a few sampling events, with the most recent detection of 0.28 J µg/L in March 2014.

Figure 7 presents concentrations detected at RW1-MW1. The concentration of TCE in the Third Quarter 2014 (94.3 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). No overall trend is discernible. The concentration of cis-1,2-DCE in the Third Quarter 2014 (49.8.6 µg/L) was below the initial concentration observed in May 2005 (78.6 µg/L) and also below the maximum concentration observed in May 2009 (180 µg/L). Concentrations of PCE have remained consistently below 1.0 µg/L.

Figure 8 presents concentrations detected at RW1-MW3. Concentrations of cis-1,2-DCE and PCE have consistently remained below 1.0 µg/L. Concentrations of TCE ranged between 1.5 -3.2 µg/L but remain below the maximum contaminant level of 5 µg/L.

Figure 9 presents concentrations detected at RW2-MW1. Concentrations of TCE in the Third Quarter 2014 (18.3 µg/L) were less than initial concentrations observed in May 2005 (37.6 µg/L), which was also the highest TCE concentration observed to date. No overall trend is discernible. The concentration of cis-1,2-DCE observed in the Third Quarter 2014 (4.0 µg/L) was above initial concentrations observed in May 2005 (non-detect) but below the maximum concentration observed in December 2013 (11.0 µg/L). PCE has not been detected during any sampling event.

Figure 10 presents concentrations detected at RW3-MW1. Concentrations of TCE in the Third Quarter 2014 (43.4 µg/L) were 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). No overall trend is discernible. Concentrations of cis-1,2-DCE and PCE have exhibited similar trends, increasing slightly from initial concentrations, but remaining consistently below 2.0 µg/L.

Figure 11 presents concentrations detected at RW3-MW2. TCE concentrations observed in the Third Quarter 2014 (148 µg/L) were lower than initial concentrations observed in January 2010 (160 µg/L), and also less than the maximum concentration observed in April 2010 (211 µg/L). No overall trend is discernible. Concentrations of cis-1,2-DCE at this location have consistently remained between 1.0 – 2.0 µg/L. PCE has not been detected during any sampling event with the exception of August 2012 and March 2014, when concentrations of 0.28 J µg/L and 0.29 J µg/L, respectively, were observed.

Figure 12 presents concentrations detected at RW3-MW3. TCE concentrations observed in the Third Quarter 2014 (147 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), and are the lowest concentration observed at this location to date. No overall trend is discernible. 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. TCE concentrations have decreased since the initial sampling event in January 2010 (21 µg/L), with a concentration of 2.5 µg/L observed in the Third Quarter 2014. PCE had not been detected during any sampling event, 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. TCE concentrations have decreased since the initial sampling event in January 2010 (65 µg/L), with a concentration of 31.9 µg/L observed in the Third Quarter 2014. A similar trend exists for concentrations of cis-1,2-DCE. Concentrations have decreased from an initial value of 190 µg/L to 7.6 µg/L in the Third Quarter 2014, with concentrations fluctuating over time. 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. 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.

Tetra Tech EC, Inc. (TtEC). 2010. *Final Operation, Maintenance & Monitoring Plan for Groundwater Treatment Plant GM-38 Area Groundwater Remediation, Naval Weapons Industrial Reserve Plant, Bethpage, New York.* April.

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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
Third Quarter 2014

SPDES Parameters	Daily Maximum Goal	Units	July 2014									
Process Stream			RW-1 (2)	RW-3 (2)	Combined Influent (1) (2) (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) (2)	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			7/15/14									
Average Flowrate	1100	GPM	407	213	619	NR	613	NR	NR	NR	644	NR
Total Flow		gallons	18,152,100	9,493,433	27,645,533	NR	27,342,367	NR	NR	NR	28,748,067	NR
pH	5.5 - 8.5	SU	5.26	5.22	5.25	6.20	6.01	6.07	6.32	6.37	6.17	6.40
Carbon Tetrachloride	NA	µg/L	ND (1.0)	ND (5.0)	ND (5.0)	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	1.9 J	2.0 J	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)	ND (5.0)	ND (5.0)	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	1.6	1.3 J	1.5 J	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	18.5	ND (5.0)	12.1	0.36 J	0.35 J	ND (1.0)	0.31 J	0.28 J	0.28 J	ND (1.0)
trans 1,2-Dichloroethene	5	µg/L	ND (1.0)	ND (5.0)	ND (5.0)	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	61.0	ND (5.0)	40.1	0.32 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	ND (1.0)	ND (5.0)	ND (5.0)	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	184	182	183	1.8	1.9	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Vinyl Chloride	2	µg/L	0.47 J	ND (10.0)	0.31 J	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Mercruy	0.25	µg/L	ND (0.00050)	ND (0.00050)	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)	ND (5)	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
Third Quarter 2014

SPDES Parameters	Daily Maximum Goal	Units	August 2014									
Process Stream			RW-1 (2)	RW-3 (2)	Combined Influent (2) (3) (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) (2)	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			8/7/14									
Average Flowrate	1100	GPM	53	333	386	NR	387	NR	NR	NR	405	NR
Total Flow		gallons	2,357,100	14,885,160	17,242,260	NR	17,270,720	NR	NR	NR	18,070,700	NR
pH	5.5 - 8.5	SU	NS	5.45	5.83	5.83	6.26	6.40	6.47	6.45	6.35	6.35
Carbon Tetrachloride	NA	µg/L	NS	ND (5.0)	ND (5.0)	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	NS	2.9 J	2.9 J	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	NS	ND (5.0)	ND (5.0)	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	NS	1.7 J	1.7 J	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	NS	1.6 J	1.6 J	ND (1.0)	ND (1.0)	0.28 J	0.35 J	0.28 J	0.30 J	0.30 J
trans 1,2-Dichloroethene	5	µg/L	NS	ND (5.0)	ND (5.0)	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	NS	ND (5.0)	ND (5.0)	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	NS	ND (5.0)	ND (5.0)	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	NS	241	241	2.0	2.0	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Vinyl Chloride	2	µg/L	NS	ND (10.0)	ND (10.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Mercruy	0.25	µg/L	NS	ND (0.00050)	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	NS	ND (5)	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
Third Quarter 2014

SPDES Parameters	Daily Maximum Goal	Units	September 2014									
Process Stream			RW-1 (4)	RW-3 (4)	Combined Influent (1) (4) (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) (4)	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			9/9/14									
Average Flowrate	1100	GPM	672	188	860	NR	857	NR	NR	NR	908	NR
Total Flow		gallons	29,033,514	8,106,440	37,139,954	NR	37,034,266	NR	NR	NR	39,241,729	NR
pH	5.5 - 8.5	SU	5.40	5.31	5.38	6.08	6.47	6.68	6.70	6.75	6.58	6.59
Carbon Tetrachloride	NA	µg/L	ND (5.0)	ND (5.0)	ND (5.0)	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	2.3 J	2.8 J	2.4 J	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 (5.0)	ND (5.0)	ND (5.0)	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	3.2 J	1.6 J	2.9 J	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	19.2	1.8 J	15.0 J	0.38 J	0.43 J	0.34 J	0.35 J	0.41 J	0.34 J	0.35 J
trans 1,2-Dichloroethene	5	µg/L	ND (5.0)	ND (5.0)	ND (5.0)	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	41.3	ND (5.0)	32.3	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	1.7 J	ND (5.0)	1.3 J	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	162	228	176	2.0	2.0	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Vinyl Chloride	2	µg/L	ND (10.0)	ND (10.0)	ND (10.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Mercruy	0.25	µg/L	ND (0.00050)	ND (0.00050)	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)	ND (5)	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) Influent concentrations presented are the weighted average concentrations of RW-1 and RW-3.

(2) Due to decreasing performance, the RW-1 pump was pulled on 28 July 2014. The flowrate in RW-3 was increased during this reporting period to compensate for some of the lack of flow from RW-1. The RW-1 well was redeveloped, a new pump was procured and installed on 28 August 2014, and RW-1 was brought back on-line. The RW-1 downtime resulted in lower than average flowrates for this reporting period.

(3) Because RW-1 was not operational during the majority of August 2014 reporting period, the influent concentrations presented above equal concentrations of RW-3 only, as opposed to the weighted average of RW-1 and RW-3.

(4) A decrease in performance of the air stripper effluent pumps, P-4A and P-4B, was observed during this reporting period. The pumps are currently being evaluated for repair / replacement. The decreased performance of these pumps resulted in lower than average flowrates during the September 2014 reporting period.

Table 2
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Air Sampling Results
Third Quarter 2014

DAR Parameters	Discharge Goal [3]	Units	July 2014					August 2014 [5]				
Process Stream			Influent (VCI1)	VC12	VC23	Effluent	Effluent Duplicate	Influent (VCI1)	VC12	VC23	Effluent	Effluent Duplicate
Sampling Date			7/18/14					8/7/14				
Average Flowrate		CFM	NR	NR	NR	8,295	NR	NR	NR	NR	8,755	NR
Total Flow [1]		ft^3	NR	NR	NR	370,303,680	NR	NR	NR	NR	390,818,240	NR
Total Flow [2]		m^3	NR	NR	NR	10,485,832	NR	NR	NR	NR	11,066,740	NR
1,2-Dichloroethane	NA	$\mu g/m^3$	2.5 J	ND	ND	ND	ND	0.97 J	ND	ND	ND	ND
cis 1,2-Dichloroethene	> 100,000 [4]	$\mu g/m^3$	110	360	ND	ND	ND	5.7	390	1.3 J	ND	ND
trans 1,2-Dichloroethene		$\mu g/m^3$	1.6 J	6.3	ND	ND	ND	ND	5.8	ND	ND	ND
1,2-Dichloroethene (total)	> 100,000	$\mu g/m^3$	120	360	ND	ND	ND	5.6	400	ND	ND	ND
Toluene	NA	$\mu g/m^3$	ND	0.42 J	ND	ND	ND	1.4 J	0.72 J	ND	ND	ND
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	1.2 J	ND	ND	ND	ND
Trichloroethene	2,600	$\mu g/m^3$	1,400	13	3.7 J	ND	ND	920	16	7.2	ND	1.6 J
Vinyl Chloride	560	$\mu g/m^3$	3.3 J	2.6	3.4	1.1 J	0.97 J	ND	ND	ND	ND	ND
Tetrachloroethene	5,100	$\mu g/m^3$	230	51	2.1 J	ND	ND	1.9 J	59	1.2 J	1.4 J	ND

Table 2
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Air Sampling Results
Third Quarter 2014

DAR Parameters	Discharge Goal (3)	Units	September 2014				
Process Stream			Influent (VCI1)	VC12	VC23	Effluent	Effluent Duplicate
Sampling Date			9/9/14				
Average Flowrate		CFM	NR	NR	NR	8,645	NR
Total Flow (1)		ft^3	NR	NR	NR	373,480,200	NR
Total Flow (2)		m^3	NR	NR	NR	10,575,782	NR
1,2-Dichloroethane	NA	$\mu g/m^3$	3.6 J	1.2 J	ND	ND	ND
cis 1,2-Dichloroethene	> 100,000 (4)	$\mu g/m^3$	190	360	0.92 J	0.62 J	ND
trans 1,2-Dichloroethene		$\mu g/m^3$	3.8 J	5.8	ND	ND	ND
1,2-Dichloroethene (total)	> 100,000	$\mu g/m^3$	190	370	ND	ND	ND
Toluene	NA	$\mu g/m^3$	ND	0.57 J	ND	ND	ND
Xylene	NA	$\mu g/m^3$	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	NA	$\mu g/m^3$	ND	ND	ND	ND	ND
Trichloroethene	2,600	$\mu g/m^3$	2,400	10	4.6	ND	1.0 J
Vinyl Chloride	560	$\mu g/m^3$	4.7	4.9	5.0	0.84 J	0.81 J
Tetrachloroethene	5,100	$\mu g/m^3$	440	43	2.0 J	ND	ND

Notes:
NA - Not applicable
ND - Not detected
NR - Not recorded
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.
(5) RW-1 was off-line and only RW-3 was in operation at time of sample collection.

Table 3
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Stack Emissions
Third Quarter 2014

DAR Parameters	Discharge Goal (1)	Units	July 2014	August 2014	September 2014
Sampling Date			7/18/14	8/7/14	9/9/14
Average Flowrate		CFM	8,295	8,755	8,645
Total Flow		ft^3	370,303,680	390,818,240	373,480,200
Total Flow		m^3	10,485,832	11,066,740	10,575,782
Trichloroethene	0.09	lb/hr	0.00000	0.00000	0.00000
Vinyl Chloride	0.02	lb/hr	0.00003	0.00000	0.00000
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	0.00000
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	0.00000	0.00005	0.00000

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
Third Quarter 2014

Monitoring Well ID	Date	Well Elevation (ft amsl)	Total Depth (ft)	Screen Interval (ft)	Depth to Water (ft)	Groundwater Elevation (ft amsl)
RW1-MW1	09/22/14	85.86	435	395-435	38.55	47.31
RW1-MW2	09/22/14	87.35	435	395-435	41.84	45.51
RW1-MW3	09/22/14	80.34	435	395-435	29.61	50.73
RW2-MW1	09/22/14	90.75	510	470-510	42.03	48.72
RW2-MW2	09/22/14	90.15	510	470-510	41.46	48.69
RW2-MW3	09/22/14	89.75	510	470-510	41.08	48.67
RW3-MW1	09/22/14	92.22	495	475-495	39.11	53.11
RW3-MW2	09/22/14	91.98	350	330-350	41.53	50.45
RW3-MW3	09/22/14	92.98	340	320-340	41.60	51.38
RW3-MW4	09/22/14	92.92	495	475-495	43.00	49.92
TP-01	09/22/14	85.91	470	450-470	37.74	48.17
IW1-MW1	09/22/14	89.41	150	20-150	---	---
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
Third Quarter 2014

Location	Temp (ºC)	pH (SU)	S.C. (uS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Color (Visual)
RW1-MW1	16.27	4.40	173	1.00	170.1	0.30	clear
RW1-MW3	16.31	5.06	192	1.09	178.8	2.77	clear
RW2-MW1	14.25	6.49	194	0.29	-36.1	2.07	clear
RW3-MW1	20.15	4.41	130	2.37	213.9	8.99	clear
RW3-MW2	16.69	4.75	73	0.27	176.6	0.70	clear
RW3-MW3	15.88	4.79	149	1.26	171.3	15.5	clear
RW3-MW4	15.38	4.18	148	0.86	120.8	6.40	clear
TP-01	16.44	5.87	198	6.93	133.9	0.42	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
Third Quarter 2014

Sample ID	**RW1-MW1**	**RW1-MW3**	**RW2-MW1**	**RW3-MW1**	**RW3-MW2**		**RW3-MW3**	**RW3-MW4**	**TP-01**
Sample Date	**9/22/2014**	**9/23/2014**	**9/23/2014**	**9/23/2014**	**9/23/2014**	**9/23/2014**	**9/23/2014**	**9/23/2014**	**9/22/2014**
Comments						**Duplicate**			
VOCS (EPA 624) ug/L [(1)]									
Benzene	ND	ND	0.21 J	ND	ND	ND	ND	ND	ND
Chloroform	0.39 J	0.67 J	1.5	ND	ND	ND	0.27 J	0.38 J	1.9
1,1-dichloroethane	4.1 J	6.1 J	ND	0.69 J	0.51 J	0.51 J	1.3 J	2.7 J	1.3 J
1,2-dichloroethane	ND	ND	0.69 J	ND	ND	ND	ND	ND	0.67 J
1,1-dichloroethene	2.2 J	1.6 J	1.3 J	0.43 J	0.38 J	0.33 J	0.94 J	0.37 J	0.47 J
cis-1,2-dichloroethene	49.8	0.44 J	4.0	0.30 J	1.4	1.3	1.2	ND	7.6
Tetrachloroethene	0.76 J	ND	ND	1.6	ND	ND	ND	ND	ND
1,1,1-trichloroethane	ND	1.2 J	0.39 J	0.39 J	0.36 J	0.39 J	0.40 J	ND	ND
1,1,2-trichloroethane	ND	0.46 J	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	94.3	1.9	18.3	43.4	148	151	147	2.5	31.9
Mercury (EPA 245.1) ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
TSS (SM20 2540D) mg/L	ND	ND	6	8	ND	ND	ND	5	ND

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

Samples were analyzed for TCL VOCs. Only those VOCs detected are presented above.

Table 7
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Summary of Historical Groundwater Analytical Results
Through Third Quarter 2014

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
Comments										Duplicate					Duplicate								Duplicate	
Well Depth (Ft)	435																							
Screened Interval (Ft)	395-435																							
VOCS (EPA 624) ug/L																								
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
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
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
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
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
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
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
2-butanone	R	R	ND	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

Table 7
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Summary of Historical Groundwater Analytical Results
Through Third Quarter 2014

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
Comments																						
Well Depth (Ft)	435				435																	
Screened Interval (Ft)	395-435				395-435																	
VOCS (EPA 624) ug/L																						
Acrolein	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	30 R	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
Acetone	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	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
Bromodichloromethane	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	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
Bromomethane	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	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	NR	ND	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
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	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
Chloroethane	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	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
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
Chloromethane	ND	ND	ND	ND	NR	ND	ND	ND	ND	NR	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
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
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
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
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
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
dichlorodifluoromethane	NR	NR	ND	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
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
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
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
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
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
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
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
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
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	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
isopropylbenzene	NR	NR	ND	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
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
methylcyclohexane	NR	NR	ND	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
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
styrene	ND	ND	ND	NR	NR	ND	ND	ND	ND	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
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
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
Toluene	0.32J	ND	ND	ND	ND	ND	ND	ND	ND	NR	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
1,1,2-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
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
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
Trichlorofluoromethane	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	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
Trichlorotrifluoroethane	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	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
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
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
xylenes (total)	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	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
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

Table 7
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Summary of Historical Groundwater Analytical Results
Through Third Quarter 2014

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	5/4/2005	7/21/2005	6/17/2013[2]
Comments																				Duplicate					
Well Depth (Ft)	510																						510		
Screened Interval (Ft)	470-510																						470-510		
VOCS (EPA 624) ug/L																									
Acrolein	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	30 R	ND	ND	NR	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	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	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	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
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
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
2-butanone	R	R	ND	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	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	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
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	ND
Dibromochloromethane	NR	NR	ND	NR	ND	ND	ND	ND	NR	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
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	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	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
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	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	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	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	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	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
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	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	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	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	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
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
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
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
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	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
2-hexanone	ND	ND	ND	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	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
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	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
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	NR	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	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
styrene	ND	ND	ND	NR	ND	ND	ND	ND	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
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
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
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	0.33J	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	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	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	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	ND
Trichlorofluoromethane	NR	NR	ND	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	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	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	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	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
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
xylenes (total)	ND	1.4J	ND	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	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	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	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 Third Quarter 2014

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
Comments										Duplicate				Duplicate							Duplicate				
Well Depth (Ft)	510				495																				
Screened Interval (Ft)	470-510				475-495																				
VOCS (EPA 624) ug/L																									
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
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
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
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
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
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
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
2-butanone	R	R	ND	ND	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	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
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
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
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
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
2-chloroethylvinyl ether	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
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
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
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	NR	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	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	ND	NR	NR	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	ND	NR	NR	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	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
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
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
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
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
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
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
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
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
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
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
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	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
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	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	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	ND	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
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	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
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
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
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
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
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
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
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
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
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
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	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
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
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

Table 7
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Summary of Historical Groundwater Analytical Results
Through Third Quarter 2014

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
Comments		Duplicate			Duplicate									Duplicate		Duplicate							Duplicate
Well Depth (Ft)	350																						
Screened Interval (Ft)	330-350																						
VOCS (EPA 624) ug/L																							
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
Acrylonitrile	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	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
Benzene	ND	ND	ND	ND	ND	ND	ND	NR	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
Bromoform	NR	NR	ND	ND	ND	ND	ND	NR	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
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
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
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
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	NR	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
Chloroethane	NR	NR	ND	ND	ND	ND	ND	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	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	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
Chloromethane	NR	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	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
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
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
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
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
dichlorodifluoromethane	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
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
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
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
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
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
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
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
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
Ethylbenzene	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	NR	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	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
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
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
methylcyclohexane	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
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
styrene	NR	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	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	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
Toluene	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	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
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
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
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
Trichlorofluoromethane	NR	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	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
Trichlorotrifluoroethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	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
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
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
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
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
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

Table 7
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Summary of Historical Groundwater Analytical Results
Through Third Quarter 2014

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
Comments			Duplicate								Duplicate									
Well Depth (Ft)	340																			
Screened Interval (Ft)	320-340																			
VOCS (EPA 624) ug/L																				
Acrolein	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	150 R	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
Acetone	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	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
Bromodichloromethane	NR	ND	ND	ND	ND	ND	NR	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
Bromomethane	NR	ND	ND	ND	ND	ND	NR	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
carbon disulfide	NR	ND	ND	ND	ND	ND	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
Chlorobenzene	ND	ND	ND	ND	ND	ND	NR	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
Chloroethane	NR	NR	NR	NR	NR	NR	NR	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
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
Chloromethane	NR	ND	ND	ND	ND	ND	NR	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
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
1,2-dibromomethane	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
1,3-dichlorobenzene	NR	NR	NR	NR	NR	NR	NR	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
dichlorodifluoromethane	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
1,2-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
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
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
trans-1,2-dichloroethene	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
cis-1,3-dichloropropene	NR	ND	ND	ND	ND	ND	NR	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
1,4-dioxane	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
2-hexanone	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	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
methyl acetate	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
methylcyclohexane	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
methyl-tert-butyl-ether	ND	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
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
1,2,4-trichlorobenzene	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
Toluene	ND	ND	ND	ND	ND	ND	NR	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
1,1,2-trichloroethane	ND	ND	ND	ND	ND	ND	NR	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
m,p-xylene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	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
Trichlorofluoromethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	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
o-xylene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	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
Vinyl chloride	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
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
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

Table 7
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Summary of Historical Groundwater Analytical Results
Through Third Quarter 2014

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
Comments				Duplicate															
Well Depth (Ft)	495																		
Screened Interval (Ft)	475-495																		
VOCS (EPA 624) ug/L																			
Acrolein	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	30 R	ND	ND	NR	ND	ND	ND	ND
Acrylonitrile	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND
Acetone	NR	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	NR	NR
Benzene	ND	ND	ND	ND	ND	ND	NR	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
Bromoform	NR	ND	ND	ND	ND	ND	NR	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
2-butanone	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	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
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	NR	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
Dibromochloromethane	NR	ND	ND	ND	ND	ND	NR	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
2-chloroethylvinyl ether	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	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
Chloromethane	NR	ND	ND	ND	ND	ND	NR	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
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
1,2-dibromomethane	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
1,3-dichlorobenzene	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	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
dichlorodifluoromethane	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
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
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
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
trans-1,2-dichloroethene	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
cis-1,3-dichloropropene	NR	ND	ND	ND	ND	ND	NR	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
1,4-dioxane	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
2-hexanone	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR
isopropylbenzene	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
Methylene chloride	NR	ND	ND	ND	ND	ND	NR	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
4-methyl-2-pentanone	NR	ND	ND	ND	ND	ND	NR	NR	NR	NR	NR	NR	NR	NR	ND	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
styrene	NR	ND	ND	ND	ND	ND	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
1,2,4-trichlorobenzene	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
Toluene	ND	ND	ND	ND	ND	ND	NR	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
1,1,2-trichloroethane	ND	ND	ND	ND	ND	ND	NR	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
m,p-xylene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR
Trichlorofluoromethane	NR	NR	NR	NR	NR	NR	NR	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND
Trichlorofluoromethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR
Trichlorotrifluoroethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	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
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
Vinyl chloride	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
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
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

Table 7
GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Summary of Historical Groundwater Analytical Results
Through Third Quarter 2014

Sample ID	TP-01																	IW-1 MW-1		IW-1
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	5/3/2005	6/18/2013(2)	5/27/2009
Comments				Duplicate							Duplicate			Duplicate						
Well Depth (Ft)	470																	150		230
Screened Interval (Ft)	450-470																	20-150		200-230
VOCS (EPA 624) ug/L																				
Acrolein	NR	NR	ND	ND	ND	ND	ND	30 R	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	NR	NR
Acrylonitrile	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	NR	NR
Acetone	NR	NR	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
Bromodichloromethane	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.34 J	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
Bromomethane	NR	NR	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	NR	ND	NR	NR	NR	NR	NR	R	ND	ND
carbon disulfide	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	ND
Carbon tetrachloride	ND	NR	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
Dibromochloromethane	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND
Chloroethane	NR	NR	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	NR	NR	NR
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	0.94J	ND	0.98J
Chloromethane	NR	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	ND
1,2-dibromo-3-chloro-propane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	ND
1,2-dibromomethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	ND
1,2-dichlorobenzene	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	NR	ND
1,3-dichlorobenzene	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	NR	ND
1,4-dichlorobenzene	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	NR	ND
dichlorodifluoromethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND
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	0.39J	0.51	0.22J
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	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	ND	ND	ND
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	ND	ND	ND
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
1,2-dichloropropane	NR	NR	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
trans-1,3-dichloropropene	NR	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
Ethylbenzene	ND	NR	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	NR	ND	NR	NR	NR	NR	NR	ND	ND	ND
isopropylbenzene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND
methyl acetate	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND
Methylene chloride	NR	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	ND
4-methyl-2-pentanone	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	ND	ND	ND
methyl-tert-butyl-ether	ND	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.46J
styrene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	ND
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
1,2,4-trichlorobenzene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND
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	ND	0.55	ND
Toluene	ND	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.19J
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	0.47	0.92	0.49J
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
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	ND	ND	0.17J
m,p-xylene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	ND	ND
Trichlorofluoromethane	NR	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	NR	NR	ND
Trichlorofluoromethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	ND	ND
Trichlorotrifluoroethane	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	ND	ND
o-xylene	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	ND	NR	NR	NR	NR	NR	NR	ND	ND
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	ND
Vinyl chloride	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	ND	NR	ND
Mercury (EPA 245.1) ug/L	NR	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	0.20
TSS (SM20 2540D) mg/L	NR	63	18	NR	ND	7	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NR	NR	2.4

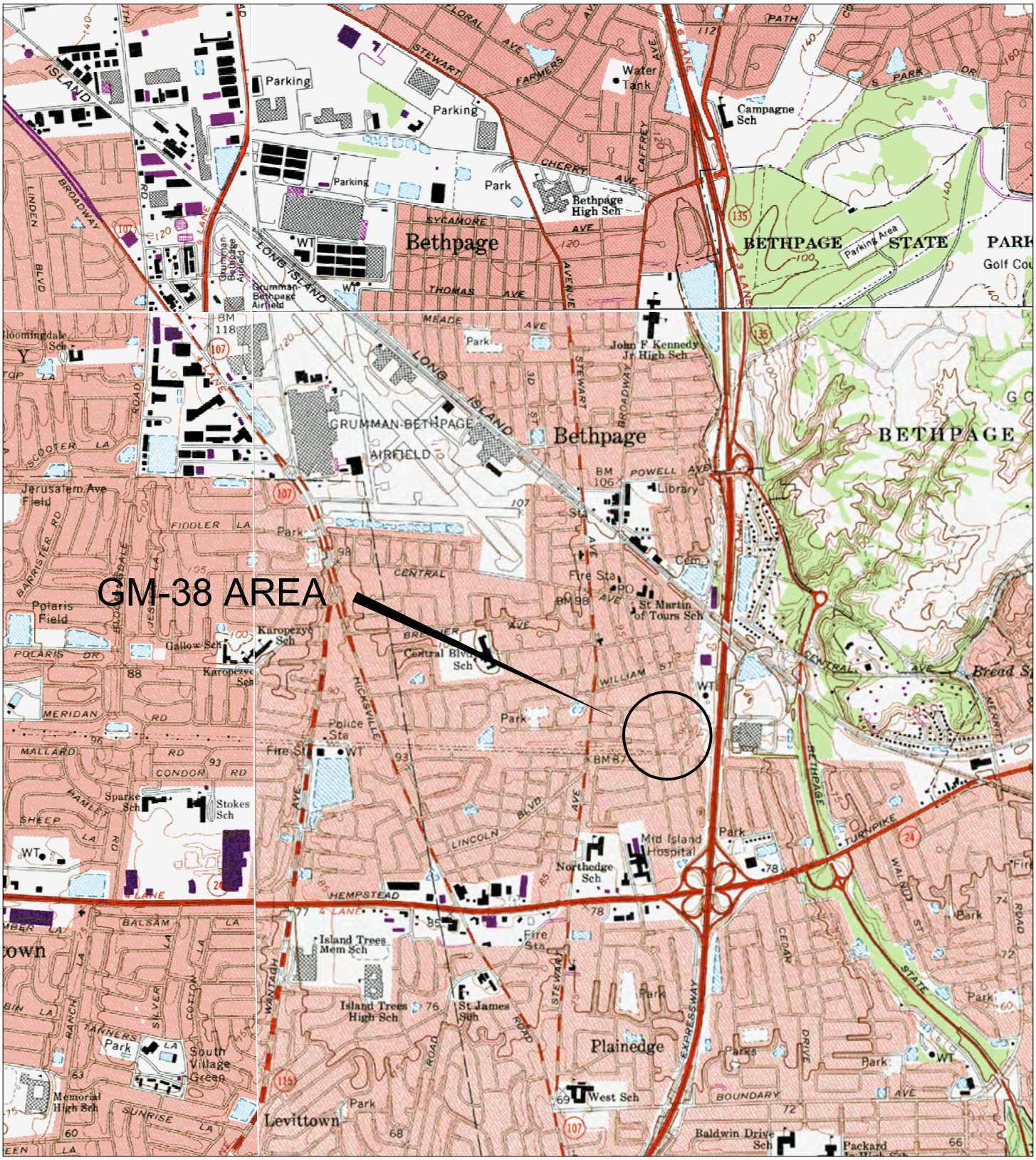
Note:
VOC analysis changed from SW846 8260B to EPA Method 624 in January 2010.
D = Dilution
J = estimated value
ND = not detected
NR = not reported / required
R = rejected
mg/L - milligrams per liter
µg/L - micrograms per liter

(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.

Data prior to June 2011 were collected by others.

FIGURES



Quadrangle Location Map

0 2000 4000 Feet

N

Source: U.S.G.S. Topographic Maps (7.5 Minute)
Amityville, Freeport, Hicksville, Huntington, NY Quadrangles

U.S. Navy RAC
Engineering Field Activity, Northeast

GM-38 Area (Offsite)
NWIRP Bethpage
Bethpage, NY

Figure 1
Site Location Map

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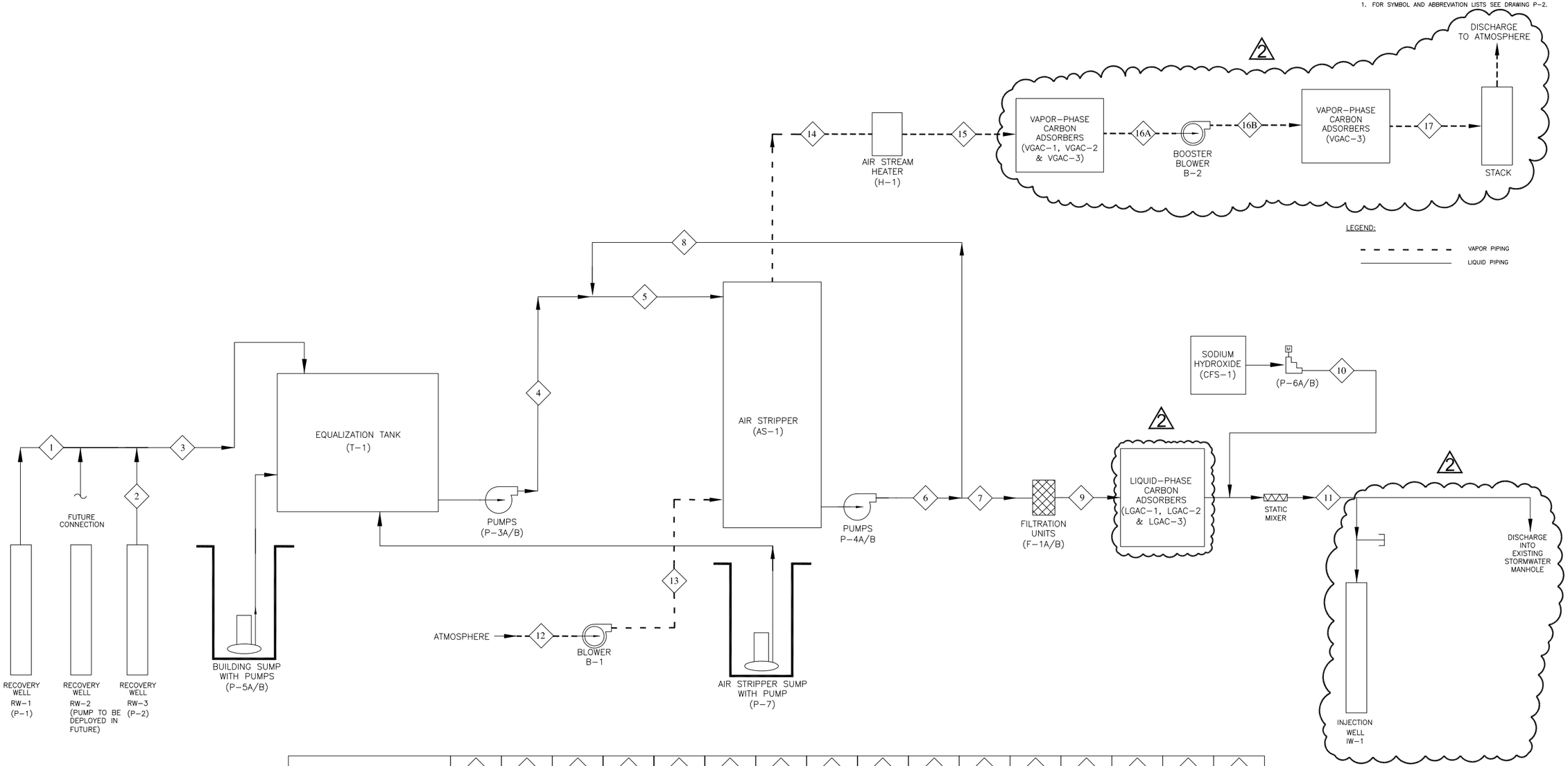
NOTES:

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: CH ENG: CHK:
SUPV: SUBMITTED BY: (TITLE) (DATE)
(TRM NUMBER) HD: HD: HD:
NORTHDIV DA: DR:
FPC:
OFFICER IN CHARGE
APPROVED DATE

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
LESTER PENNSYLVANIA

ENGINEERING FIELD ACTIVITY - NORTHEAST

NAVAL WEAPONS INDUSTRIAL RESERVE PLANT BETHPAGE, NEW YORK

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

APPROVED EFANE FOR COMMANDER, NAVFAC DATE

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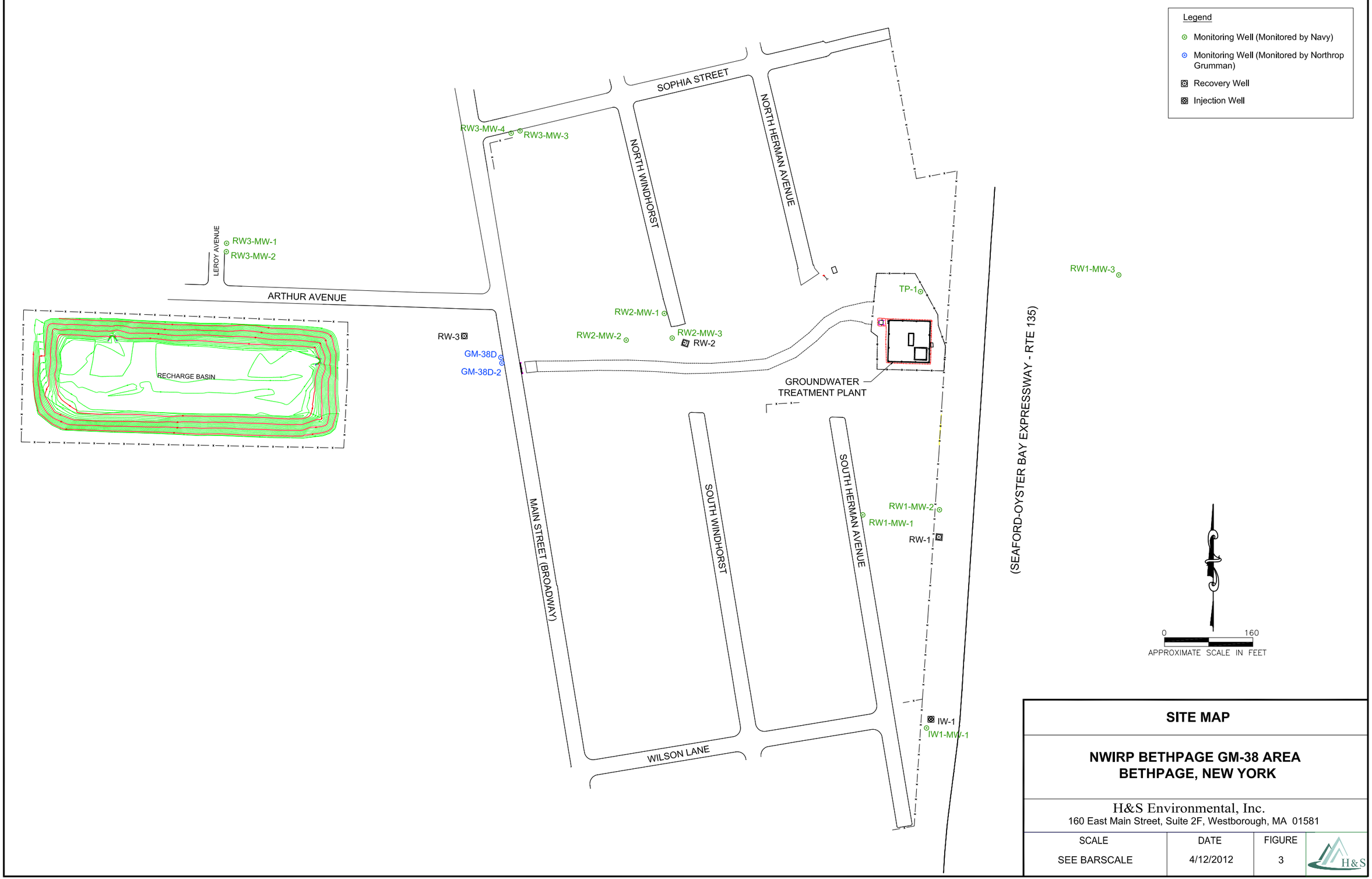
NAVFAC DRAWING NO. Figure 2
SHEET OF
SIZE: D DIS. SH. NO. 1-4



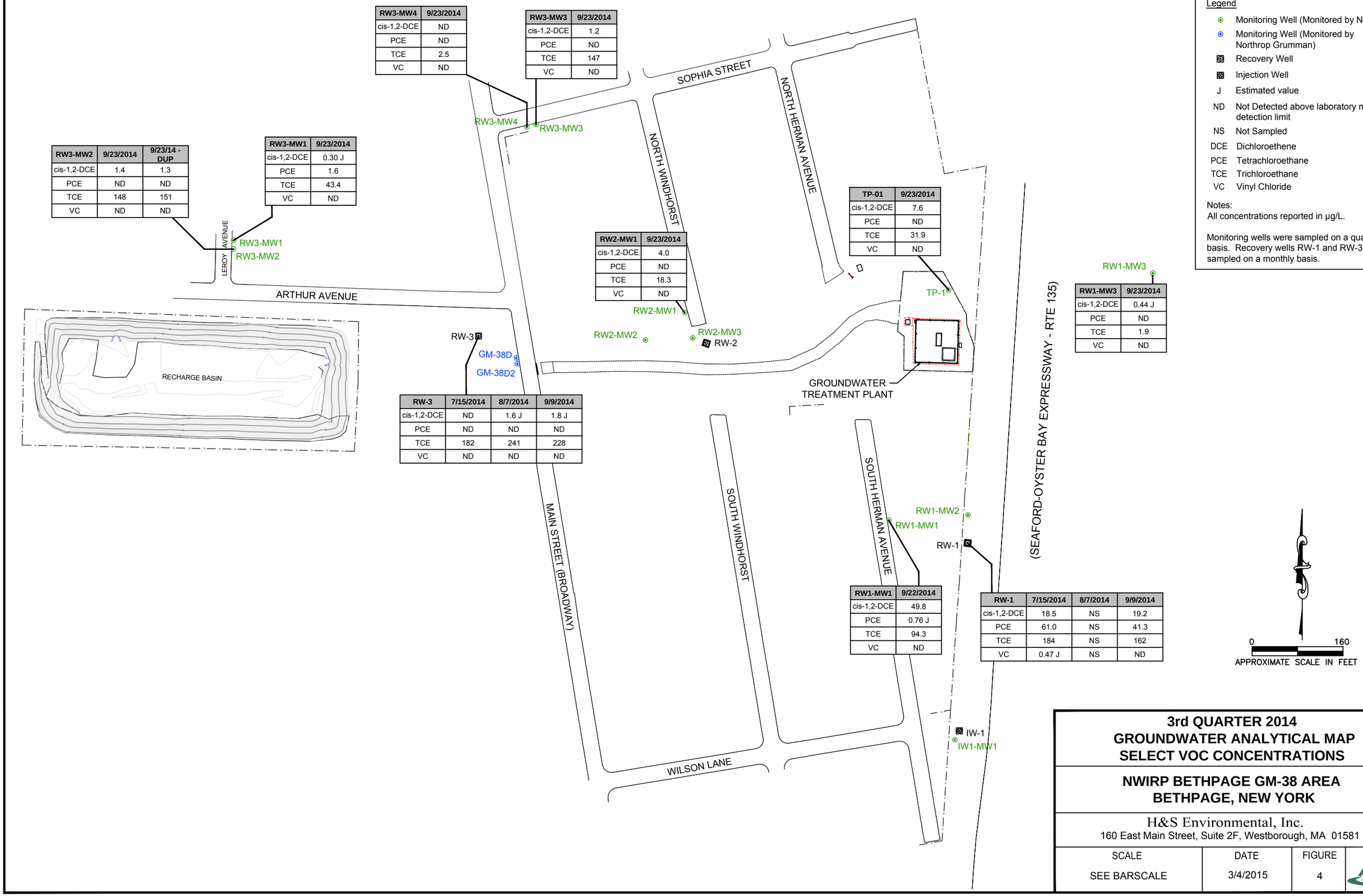
SITE MAP

NWIRP BETHPAGE GM-38 AREA
BETHPAGE, NEW YORK

H&S Environmental, Inc.
160 East Main Street, Suite 2F, Westborough, MA 01581

SCALE	DATE	FIGURE
SEE BARSCALE	4/12/2012	3

X:\HS_Environmental\NWIRP-NY\As-Built 2008-PM.dwg 4/12/2012



RW3-MW4	9/23/2014
cis-1,2-DCE	ND
PCE	ND
TCE	2.5
VC	ND

RW3-MW3	9/23/2014
cis-1,2-DCE	1.2
PCE	ND
TCE	147
VC	ND

RW3-MW2	9/23/2014	9/23/14 - DUP
cis-1,2-DCE	1.4	1.3
PCE	ND	ND
TCE	148	151
VC	ND	ND

RW3-MW1	9/23/2014
cis-1,2-DCE	0.30 J
PCE	1.6
TCE	43.4
VC	ND

RW2-MW1	9/23/2014
cis-1,2-DCE	4.0
PCE	ND
TCE	18.3
VC	ND

TP-01	9/23/2014
cis-1,2-DCE	7.6
PCE	ND
TCE	31.9
VC	ND

RW1-MW3	9/23/2014
cis-1,2-DCE	0.44 J
PCE	ND
TCE	1.9
VC	ND

RW-3	7/15/2014	8/7/2014	9/9/2014
cis-1,2-DCE	ND	1.6 J	1.8 J
PCE	ND	ND	ND
TCE	182	241	228
VC	ND	ND	ND

RW1-MW1	9/22/2014
cis-1,2-DCE	49.8
PCE	0.76 J
TCE	94.3
VC	ND

RW-1	7/15/2014	8/7/2014	9/9/2014
cis-1,2-DCE	18.5	NS	19.2
PCE	61.0	NS	41.3
TCE	184	NS	162
VC	0.47 J	NS	ND

Legend

- Monitoring Well (Monitored by Navy)
- Monitoring Well (Monitored by Northrop Grumman)
- Recovery Well
- Injection Well
- J Estimated value
- ND Not Detected above laboratory method detection limit
- NS Not Sampled
- DCE Dichloroethene
- PCE Tetrachloroethane
- TCE Trichloroethane
- VC Vinyl Chloride

Notes:
All concentrations reported in µg/L.

Monitoring wells were sampled on a quarterly basis. Recovery wells RW-1 and RW-3 were sampled on a monthly basis.

3rd QUARTER 2014
GROUNDWATER ANALYTICAL MAP
SELECT VOC CONCENTRATIONS

NWIRP BETHPAGE GM-38 AREA
BETHPAGE, NEW YORK

H&S Environmental, Inc.
160 East Main Street, Suite 2F, Westborough, MA 01581

SCALE	DATE	FIGURE
SEE BARSCALE	3/4/2015	4

X:\HS_Environmental\Bethpage-GM38\2014\3rdQ2014-GW-VOC.dwg 3/4/2015

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

RW1

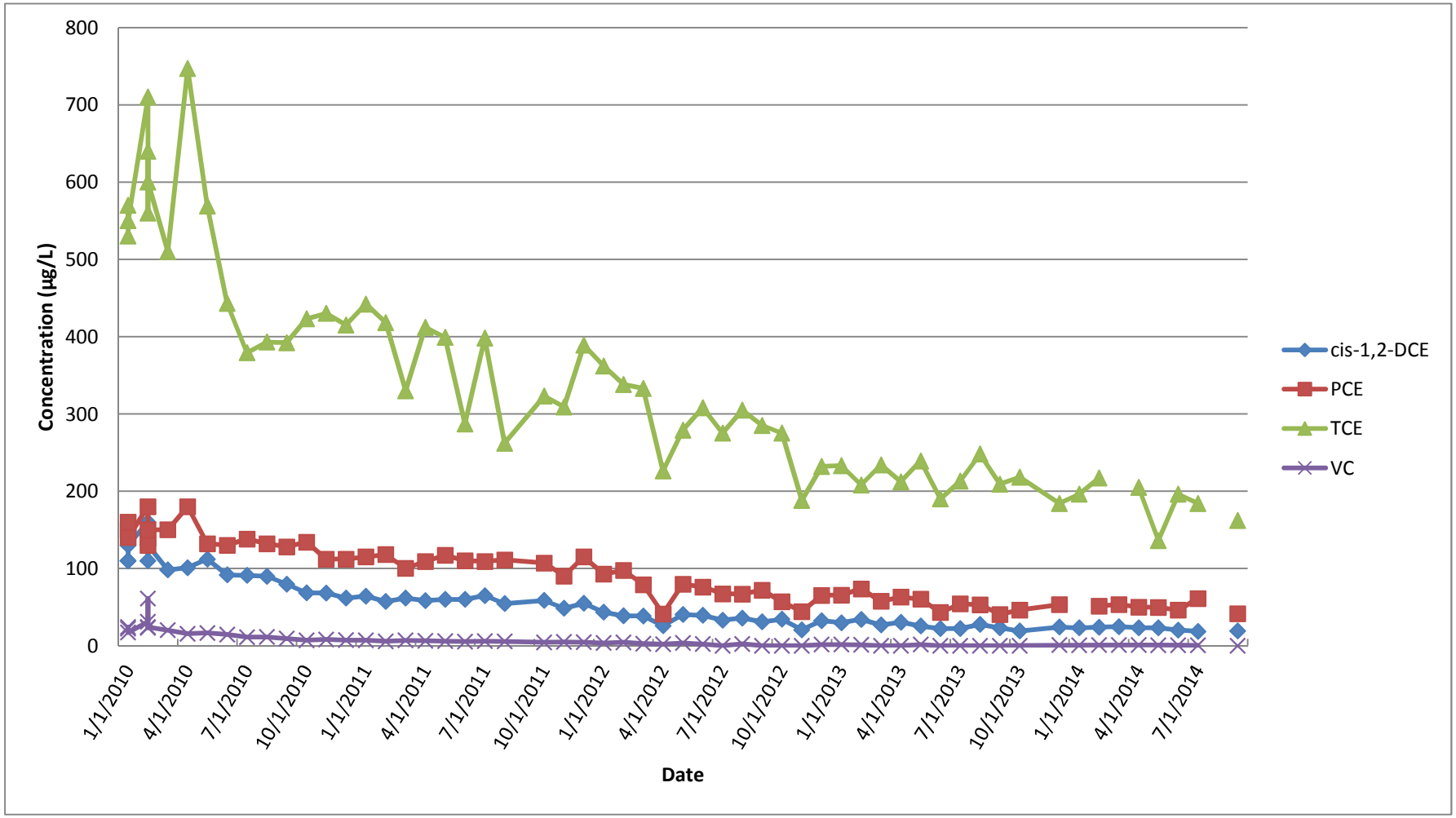


Figure 6
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

RW3

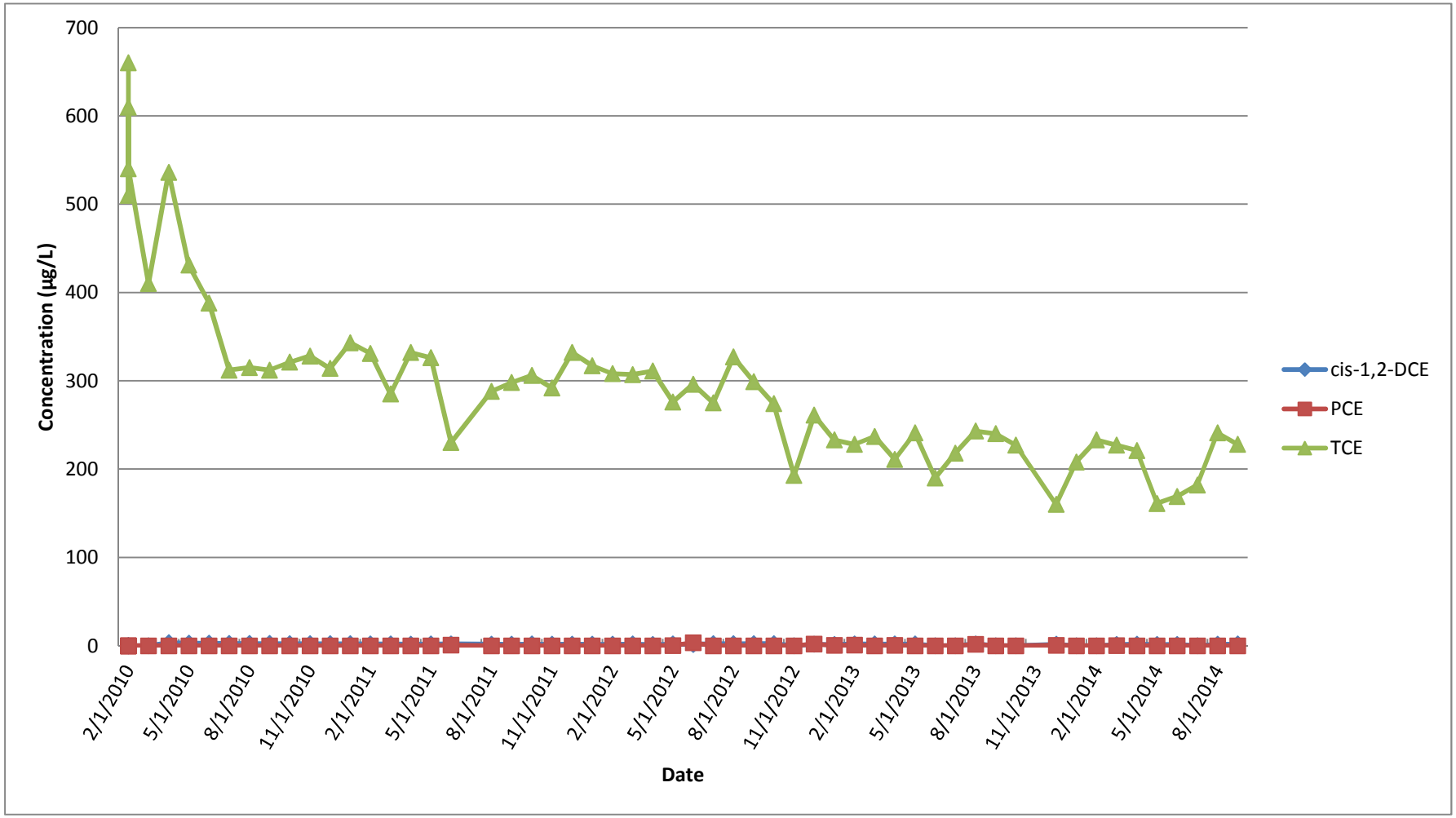


Figure 7
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

RW1-MW1

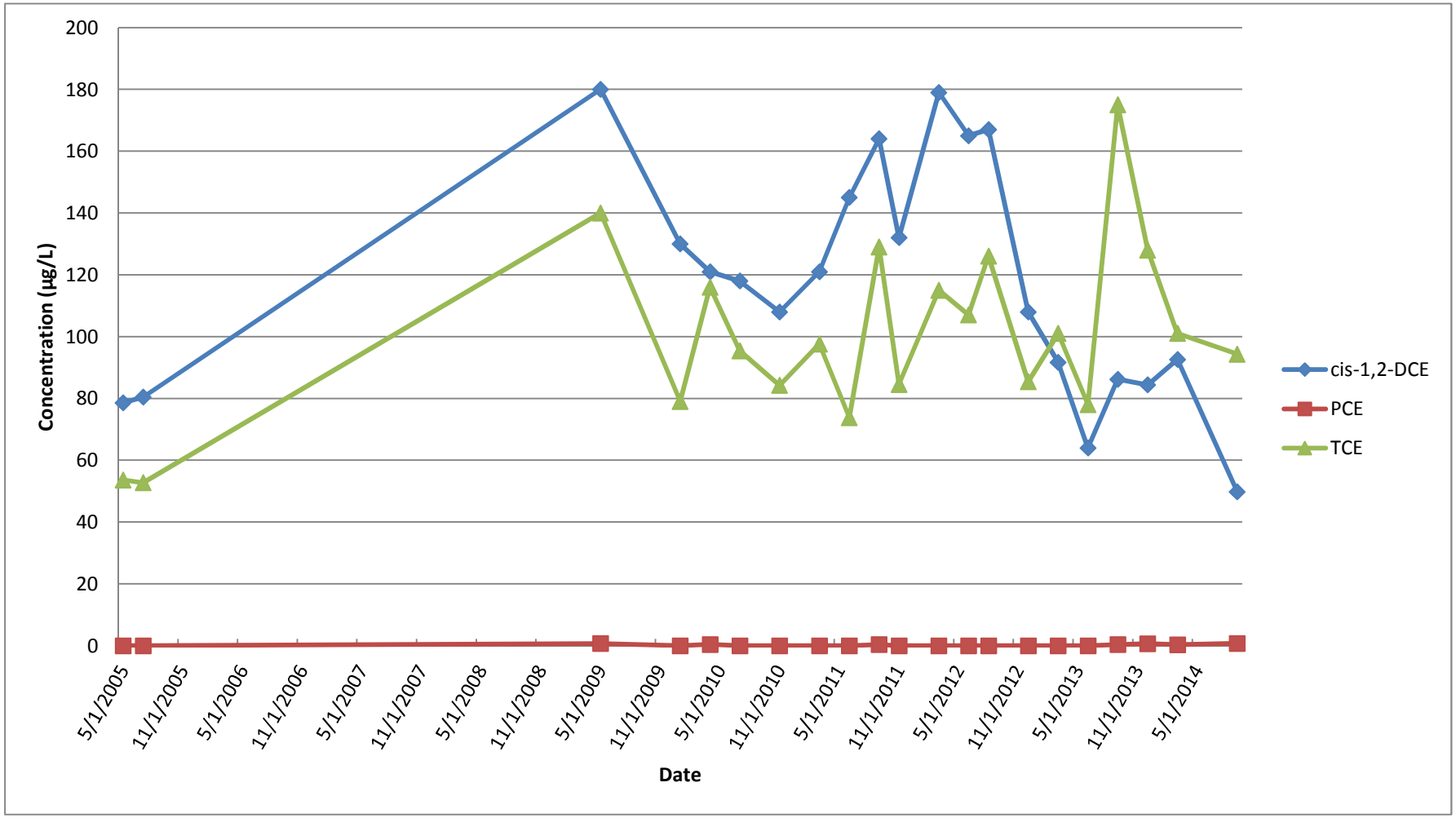


Figure 8
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

RW1-MW3

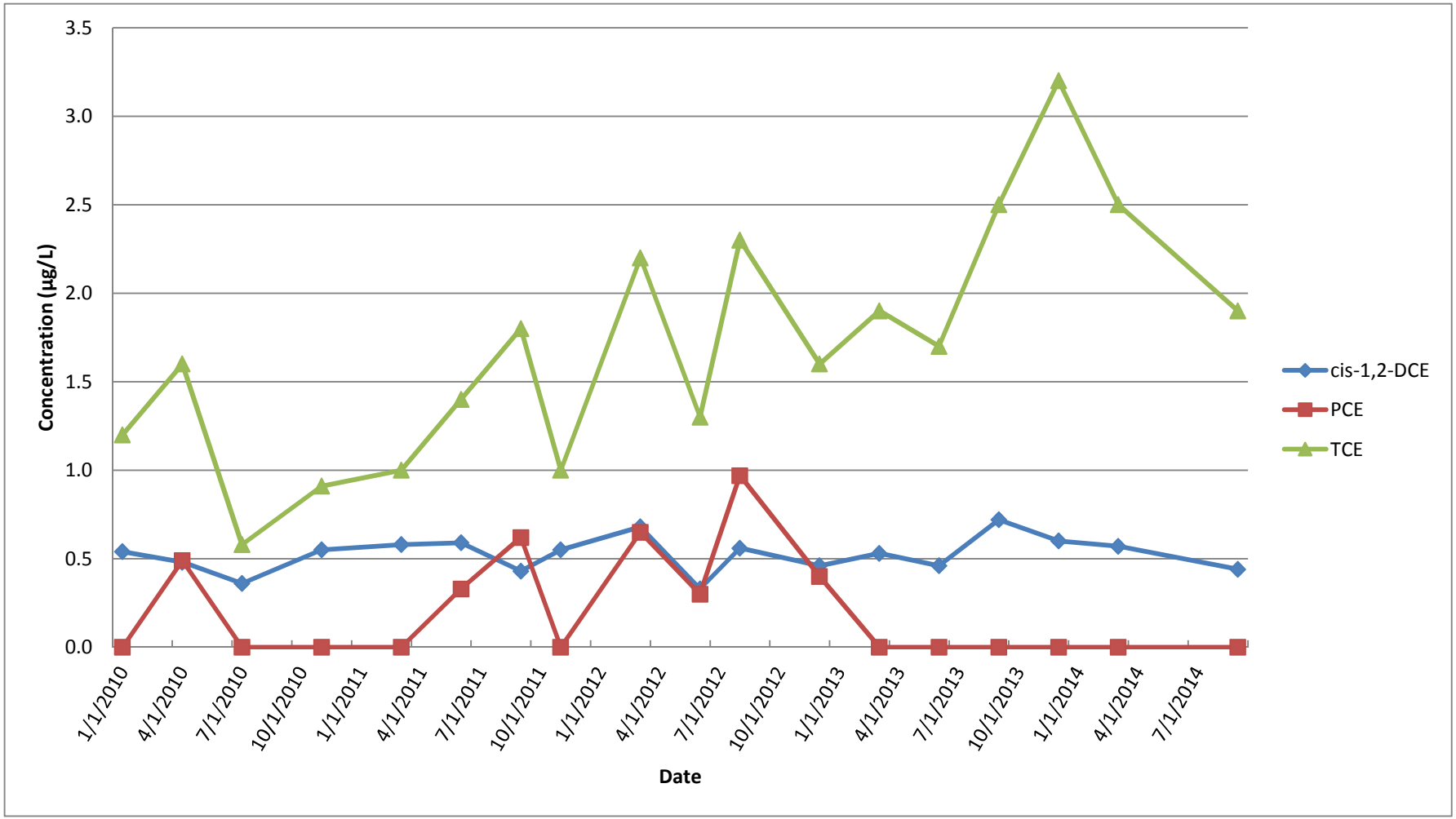


Figure 9
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

RW2-MW1

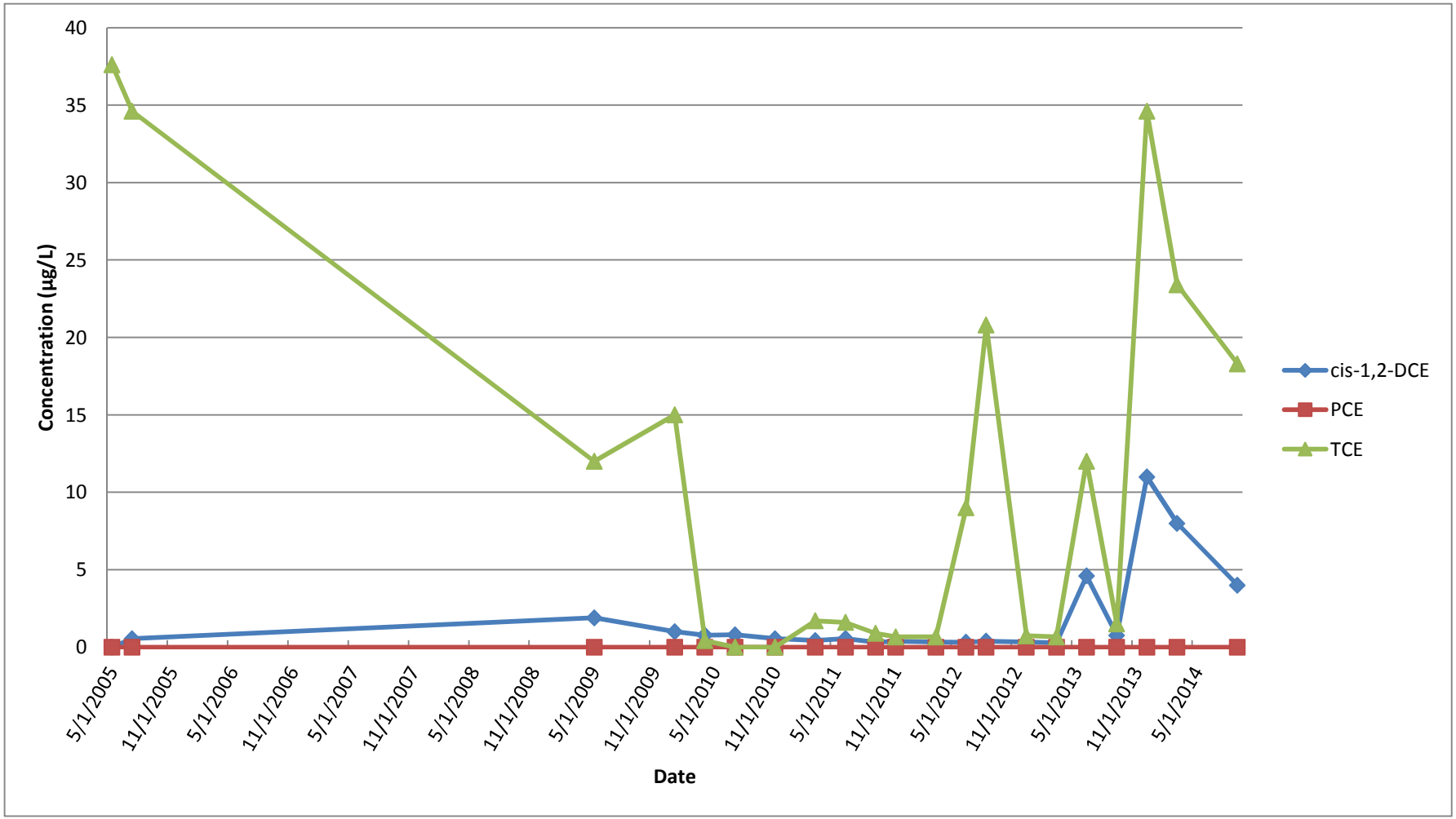


Figure 10
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

RW3-MW1

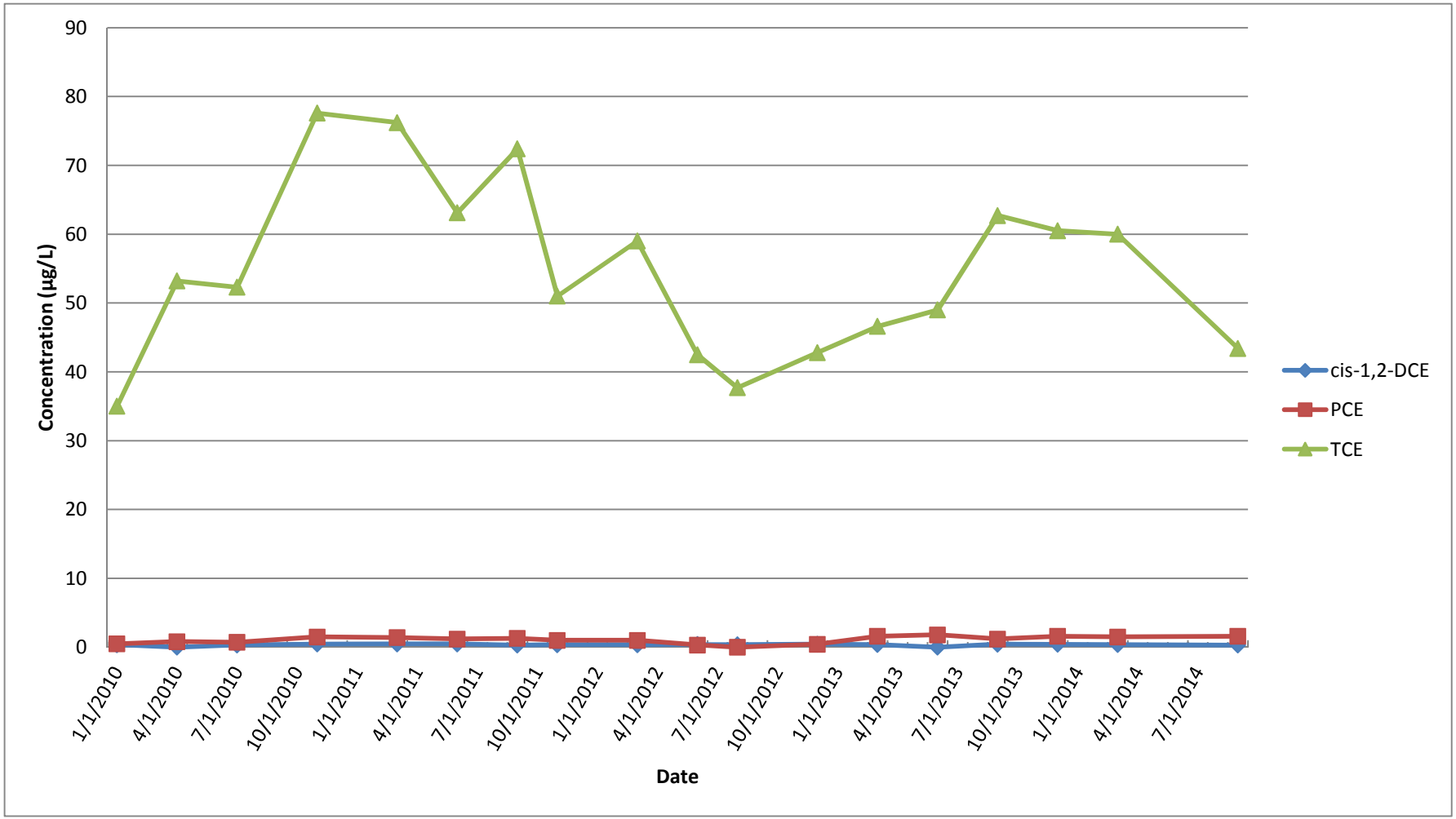


Figure 11
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

RW3-MW2

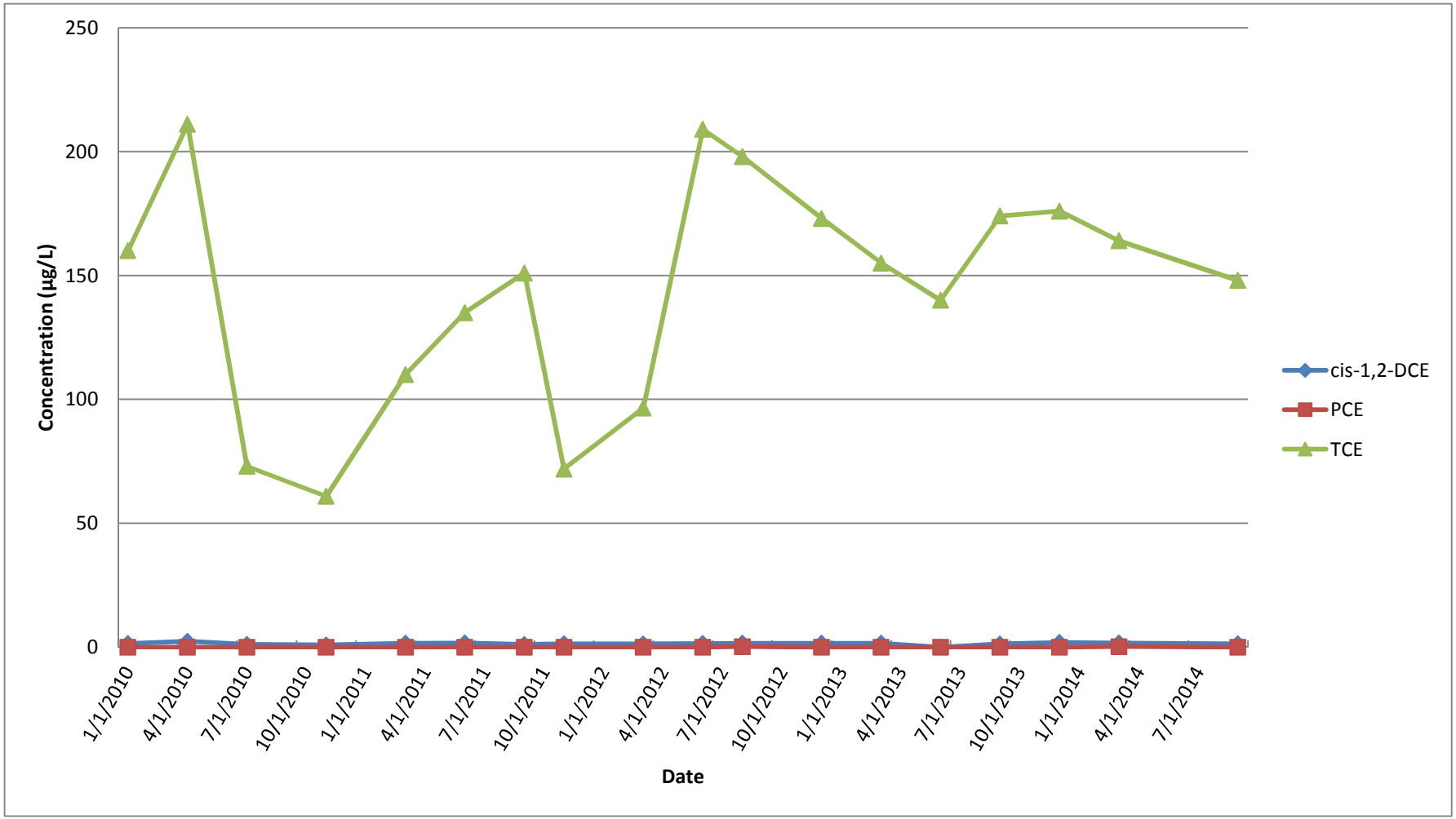


Figure 12
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

RW3-MW3

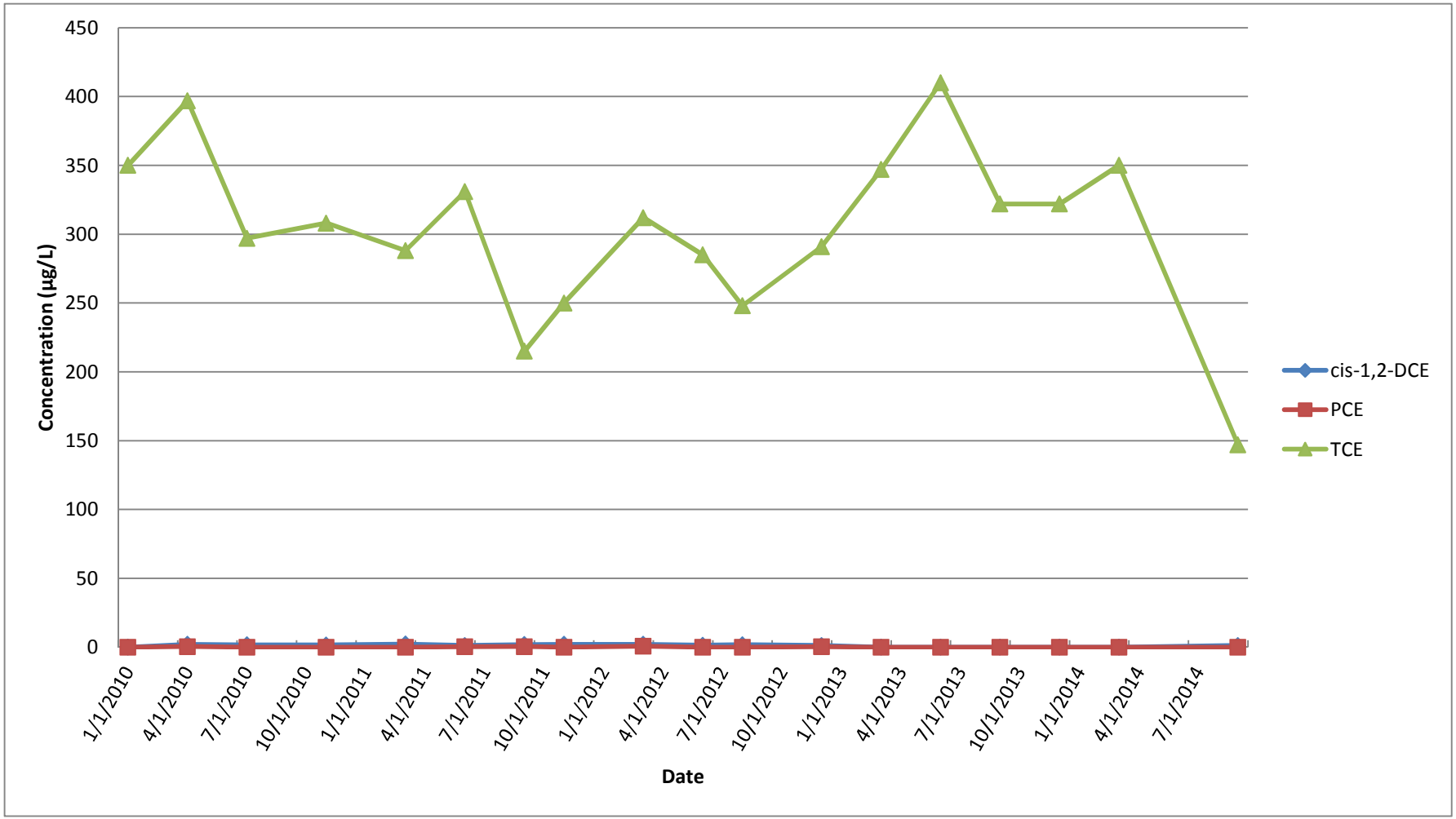


Figure 13
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

RW3-MW4

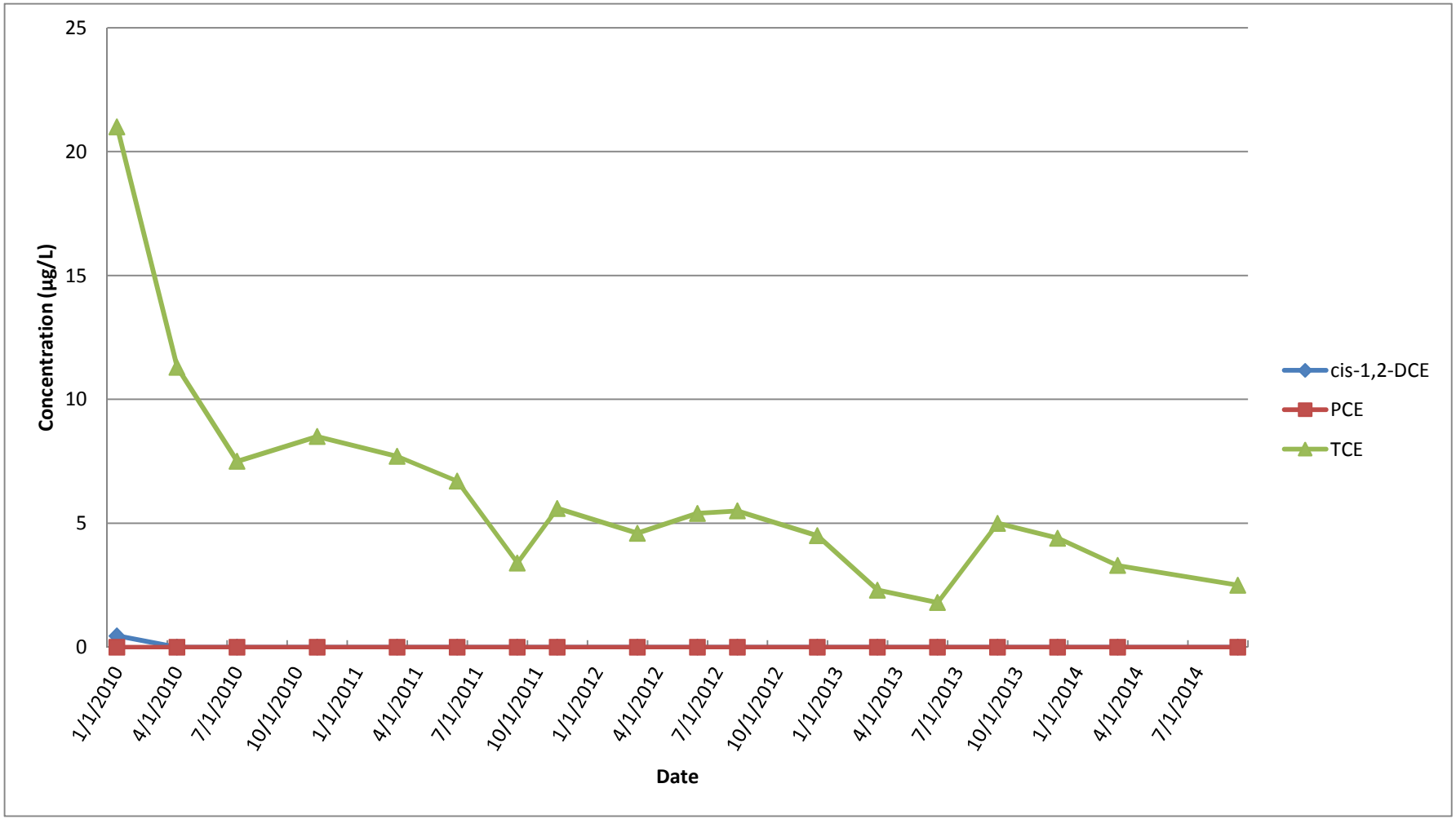
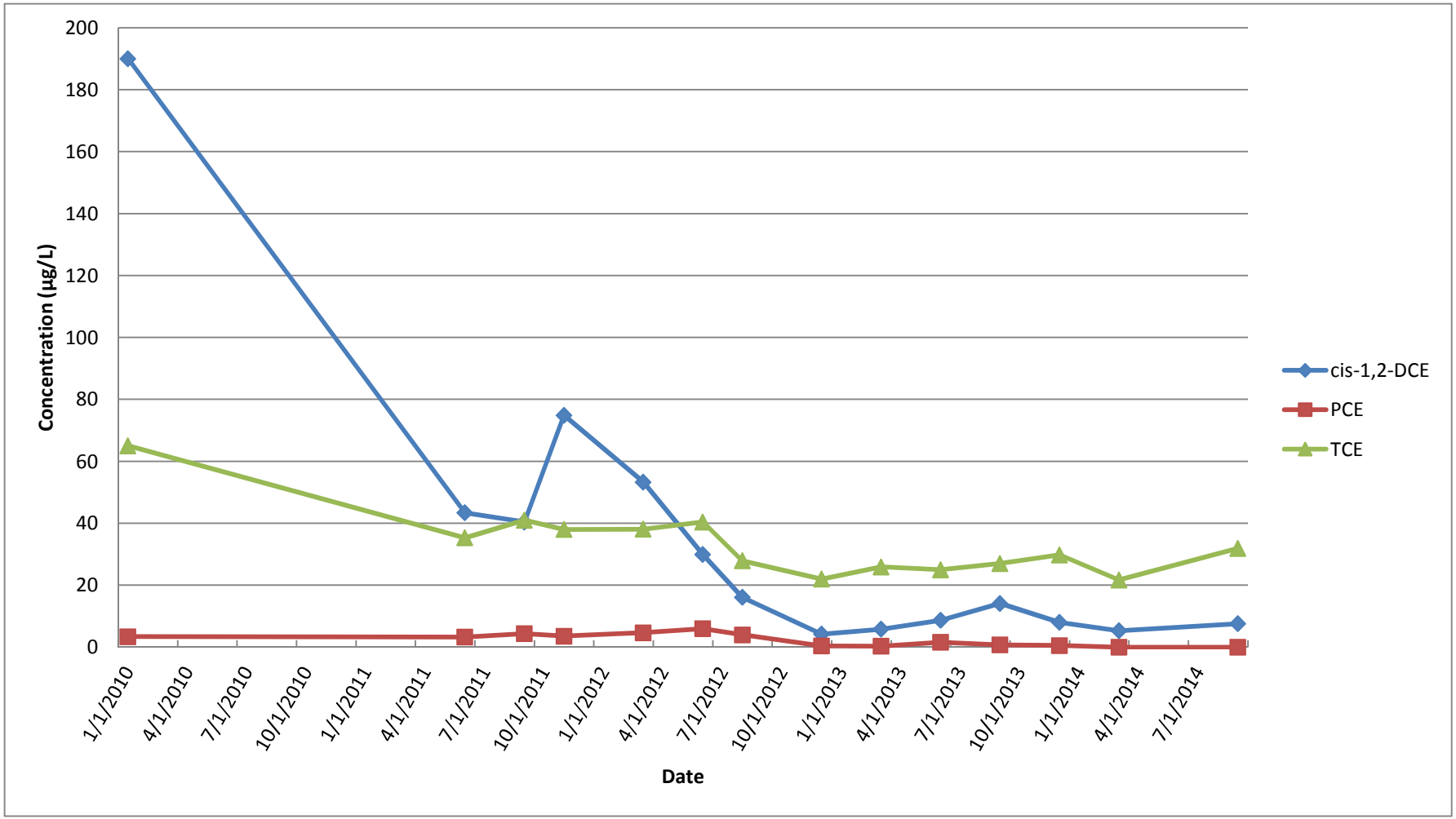


Figure 14
GM-38 Area Groundwater Remediation
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Groundwater Concentration Trends of Select VOCs

TP-01



APPENDIX A

RW-1 REDEVELOPMENT FIELD LOGS

Monday 8/18/14

Sunny, clear, ~75°F

0700 JS on site

0810 Baker on site w/ Frac Tank, awaiting Delta Rep

0830 Tom King (Delta) on site

Baker unloads Frac Tank

0845 Baker Crew + Tom King off site

Delta crew headed over soon

0940 Delta on site - 3 guys, 3 trucks

1000 Tailgate safety

Begin setting up on RW-1

1130 All piping off support truck, boom truck in place

1140 Break for lunch + to go pick up other Delta truck

1240 Back from lunch - move air compressor back to RW-1

1310 Begin running discharge hose back to frac tank or then from frac tank into GWTP bldg sump

1400 Greg Gangemi - operator - on site

Loads fresh bag filters into second filter vessel in prep for tomorrow

1515 Delta off site

1600 Greg changes out bag filters in 1st vessel in prep for tomorrow

→

Monday 8/18/14 - continued

* Note: Delta will begin setting pipe tomorrow morning 8/19/14 in order to begin segmented air lifting
Bailing before hand is determined not to be necessary because previous video log showed down to 434.5'
& bottom of well is 435' - only ~6" difference
Bottom screen interval is 410 - 430' so 6" will not interfere w/ development
will bail well at end of project after segmented air lifting complete

1630 Greg & Ken go over basic operations of building sump. bag filter vessels, etc

1600 J. Good off site

J Good

Tuesday 8/19/14

Sunny, clear ~75° F

0700 J. Good, Delta on site -
Delta - 2 guys (Ron + John)
Tailgate safety, ~~[illegible]~~ safety, etc

0715 Continue set up on RW1

22 20 ft
5 10 ft
3 5 ft
} Total # of tools at start

Tools

0730 Begin putting tooling together to go down well
Started air lift tool down 1st
Add 19 20' sections to air lift tool (380' + fittings for each connection)
Add 3 10' sections

0905 Hit bottom 434 - 435'
Pull up so bottom of air lift tool rubber is at 431' (1' below bottom of screen)

* Note: hole is 12" diameter ~~at~~ surface, change to 10" diameter
Piping is 4" diameter
Air lift tool w/ rubber is 10" diameter below section of screen

0910 Begin setting up for air lifting (compressed air, hosing, etc)

Tuesday 8/19/14 - continued

0945 Begin surging section 431 - 426'
initial turbidity 95.5 NTU
0958 - 52.5 NTU
Take break from 1000 - 1015
1015 resume surging, surge on + off multiple times until water runs clean
1030 Stop surging 426 - 431' - pull up NTU @ 1030 = 10.68

* Note: Purge water is being pumped into box at well head, then pumped by trash pump back to frac tank, then let gravity drain into GWTP sump & run through bag filter before transferring into sump
1025 - sump level @ start = 5.65"

1041 Begin surging section 421 - 426'
1045 turbidity = 13.46 NTU
1058 turbidity = 7.26 NTU

→ 1100 Stacey Lee (HRS) arrives on site

1125 turbidity = 5.84 NTU
1129 Finish surging section 421 - 426' - pull up
* Note - Air line is set @ 150' bgs

1115 Break for lunch after starting surge

8/19/14 TUES

1146 Begin surging 416-421' - surge from 1146-1215, then restart at 1246

Surge of dirty water right at beginning then clears up

1251 Turbidity 2.26 NTU

Surged several times, no increase in turbidity

1315 Finish surging section 416-421' - pull up

Begin surging section 411-416', surging and pumping

water appears cloudier, pump stopped, loss of suction sediment settles.

1341 Turbidity 12.26 NTU

1348 Turbidity 3.42 NTU

1401 turbidity 3.07 NTU

Continue surging

surged several times, no increase in turbidity

1405 Finish surging 411-416' going to pull up 16' to next interval screen

- Pulled out 10' section
- Pulled out 20' section
- Put in 15' (three 5' sections)

~~396-401'~~ (SC)

now at 395-400 which is a blank, pulling up 5 more feet

~~395-400'~~

1440 395-390 begin surging

1441 initial 6.13 NTU

1450 9.50 NTU

1459 4.82 NTU

surged several times, no increase in turbidity

1500 finish surging 395-390'

TUES 8/19 CONTINUED

1505 Pump down remainder in holding tank
secure all equipment for the night, housekeeping

1520 Delta off site

1530 Arcg & onsite discuss pumping activities

1600 Steve off site - all complete for the day

SL

* NOTE overnight the Frac tank has drained into the GWTP leaving a layer of silt/sediment visible at the bottom

8/20/14 Wednesday

0700 H&S (Stacey Lee) on site.
Delta (John + Ron) on site
conduct safety tail gate. set up to resume well development

0730 resume surging 395-390' continued from 8/19/14
0736 Turbidity 3.85 NTU, clear
0745 Turbidity 2.47 NTU, clear
0752 Turbidity 3.26 NTU, clear
purging is faster than pump can handle, several pauses for pump to keep up with higher flow
0808 Turbidity 2.06 NTU 0821 Turbidity 1.42 NTU
surged several times, no increase in turbidity
0820 Finished surging 395-390' pull up 5'

0835 begin surging 390-385' some brown silt in purge water initially: clearing up with continued flow
0839 turbidity 6.44 NTU brown particulate
0858 turbidity 7.51 NTU
alternating surging and pauses to allow pump to keep up
0908 turbidity 1.98 NTU
0919 turbidity 3.36 NTU
0926 turbidity 4.80 NTU sand or silt in water
0933 turbidity 1.87 NTU
0937 Finish surging 390-385'

8/20/14 WED

0935 - 0955 break

pull up 5'

*Started with medium brown, some light sand/silt, cleared up after 1st SURGE color = light brown

0955 begin 385-380' surging - brown particles in suspension; silty

1000 TURBIDITY 31.9 NTU - slightly brown, silt, sand

1005 TURBIDITY 7.92 NTU - slightly brown, some sand

1014 TURBIDITY 6.20 NTU - slightly brown, some sand

- Alternating surging and pauses to allow pump to "catch up"

continue surging

1023 TURBIDITY 5.57 NTU, very light sand

1031 TURBIDITY 3.92 NTU light sand

1040 TURBIDITY 2.39 NTU clear

- continued surging no changes in turbidity, pull up 5'

1045 - Finish w/ 385-380' - pulling up

Pulled out (1) twenty foot piece, put in (1) ten & (1) five foot

1115 Begin 380-375'

1120 TURBIDITY 2.09 NTU clear, fine floating silt or sand

1129 TURBIDITY 6.96 NTU clear, some silt

1137 TURBIDITY 7.09 NTU clear some silt

1143 TURBIDITY 10.43 NTU clear

1145 Paused - FRAK tank about 2' from top about 1' from discharge inlet

1100 Lora Fly and Al Taormina onsite

[5/20 WCU]

lunch break, waiting for Frak tank to go down

1240 resume purging at 380-375' 1310 turbidity 2.28 NTU
add additional pump to Frak tank → Floor sump
1315 No changes in turbidity, finish 380-375'

1325 begin 375-370' Surging
1330 turbidity 1.62 NTU clear
1340 turbidity 1.91 NTU clear, fine silt in suspension
1347 turbidity ~~1.4~~ 2.54 NTU clear
1356 turbidity 1.95 NTU clear
1405 turbidity 1.08 NTU clear
1414 turbidity 2.08 NTU clear
1421 turbidity 1.27 NTU clear
1425 finish 375-370' - no changes in turbid

1435 370-365' begin surging
1440 Turbidity 1.87 NTU some silt
1445 Turbidity 0.67 NTU clear
1453 Turbidity 1.46 NTU clear
continue surging, no change in turbidity
1500 finish 370-365 for the day will resume tomorrow

8/20/14

1510 Secure all equipment

1515 Delta offsite

1530 Greg onsite

1600 Stacy (HRS) offsite

8/21 THURS

~~370-365~~ · Frac tank drained down

· Floor sump at 11.7"

0700 Stacey (HRS) on site Della (John) onsite

0710 Della (Ron) on site

Perform safety tailgate

Set up equipment, calibration check Lamotte

0720 resume surging 370-365'

0721 Turbidity 6.77 NTU clear no silt

0726 Turbidity 1.38 NTU clear no silt

0738 Turbidity 4.04 NTU clear no silt

0745 Finished 370-365. no changes in turbidity Pull up 5'

0755 begin surging 365-360'

Turbidity checks

0759	33.5 NTU	moderate silt / fine sand
0809	2.57 NTU	some silt
0815	1.42 NTU	clear
0830	2.68 NTU	clear, few fine particles
0841	0.75 NTU	clear
0849	1.16 NTU	clear

0850 NO turbidity changes. Surged multiple times

365-360 complete

Pulling up 5'

8/21/14 THURS

0900 using tape reel, double check bottom depth of section. depth confirmed

0910 break

0930 resume. removed 20' section. replaced three 5' sections. (pulled up 5')

0955 begin surging 360-355'. alternate surge + pauses. Turbidity checks.

0956 1.33 NTU clear. some fine silt

1003 1.81 NTU clear

1017 1.30 NTU clear

1026 2.08 NTU clear

1037 9.00 NTU clear, some silt

1048 1.68 NTU clear

1055 several surges, no change in turbidity 360-355' complete pull up 5'

1105 begin surging 355'-350'

1107 1.22 NTU light fine silt

1116 473 NTU clear, some silt/sand

1123 1.02 NTU clear

1131 1.03 NTU clear fine silt/sand

1148 1.89 NTU clear, some fine sand

1154 101 NTU clear, some very, very fine silt in suspension

1155 stopped surging, some rust and sand apparent now at bottom of pit.

8/21/14 T+HURS

NO changes in turbidity during surges. 355-350' complete

1155 lunch break

1245 pull up 5'

1250 begin 350-345'

1255	8.85	NTU	clear, some fine particules (rust?) in suspension
1257	12.21	NTU	silt, appears light gray, clear upon settling
1306	1.33	NTU	clear
1314	1.64	NTU	clear, some silt or sand
1322	3.53	NTU	clear some silt in suspension
1334	0.62	NTU	clear

*alternate surging and pausing to allow pump to catch up

1345	0.71	NTU	clear

1350 NO changes in turbidity, pull up 5', 350-345 complete

1400 begin surging 345-340'

1403	15.20	NTU	slightly gray some silt or sand
1406	1.63	NTU	some sand, slight gray color silt shadows
1414	2.11	NTU	few fine sand, clear
1423	1.49	NTU	few fine sand, clear
1431	1.32	NTU	few fine sand. clear
1444	1.68	NTU	some fines in suspension
1456	1.11	NTU	clear
1459	0.94	NTU	clear some fine sand

1500 NO changes in turbidity 345-340 complete

hold in place, will pull up tomorrow

8/21/14 THURS

secure all equipment

1520 Delta offsite

1600 HQS offsite

8

UPDATE
- Frac tank empty w/ visible sand/silt
- Floor sump at 9"

8/22/14 FRIDAY

0700 Delta and H&S on site
(John and Leo) (Stacey)
Conduct safety tailgate. Continue redevelopment activities

0710 Pulling up completed 345-340' sections
pulled up one 20' section, replaced three 5' sections

0735 calibration check Lamotte - pass
~~0740~~
~~0750~~ begin surging 340-335 - light brown slug then cleaned up quickly
light mostly

0735 18.6 NTU Slightly brown, clear w/ silt
0740 2.14 NTU clear, w/ some sand
0754 3.26 NTU clear w/ some sand
0802 1.37 NTU clear
0810 1.33 NTU clear
0820 0.56 NTU clear

0825 340-335 complete No turbidity changes. pull up

0835 begin surging 335-330'
0843 0.71 NTU clear
0849 0.74 NTU clear some fine sand
0856 1.55 NTU clear

0900 completed surging of 335-330' No turb. changes

910 measuring top of screen w/ tape reel for confirmation; measured 337-332 approx 2' off of where we thought will go 5' up to ensure both sides of screen thoroughly surged

8/22/14 FRI

* keeping depth nomenclature the same - really at 332-327'

0930 begin 330-325', some initial sand

0940 0.67 NTU clear

0944 2.10 NTU clear small amout of fine sand

0946 1.53 NTU clear few fine sand in suspension

0952 0.58 NTU clear

0955 complete 330-325', no changes in turbidity

break

1015 begin adding 20' sections to reach the total bottom of well 445'

1048 ~~1050~~ begin surging 445-440'

1050 132 NTU brown, opaque, visible Moderate sand

1053 78.2 NTU lighter brown. some sand

→ moving up and down ~3' to create turbidity to mix up and pump out

1058 93.2 NTU light brown, transparent moderate sand (or rust?)

1113 28.4 NTU slightly brown some sand

1117 12.1 NTU light brown some sand

→ continue moving up and down with crane to churn up bottom

1122 117 NTU brown opaque visible silt

1127 67.1 NTU brown visible silt

1135 19.5 NTU clear w/ silt floating throughout

1152 14.9 NTU Clear w/ silt

8/22/14

sand visible in "pit" and Frak tank in suspension then settling over time.

1150 4.90 clear w/ silt in suspension

1200 lunch

1230-1245 Tom King (Delta) on site

1245 begin/resume 445-440'

1253 4.53 NTU clear very trace sand

1255 move up 431-426'

1259 4.42 clear trace sand

1302 2.37 clear very fine trace sand

1307 1.71 clear

1307 No turbidity change, move up 5'

pulled up 20' replaced three 5' sections

1331 426'-421' begin surging

1333 5.83 NTU light sand, clear

1337 3.87 NTU clear trace sand

1343 0.91 NTU clear

1351 No changes apparent. Pull up 5'.

1405 begin surging 421-416'

1407 2.39 NTU trace sand

1416 1.34 NTU trace sand and rust BITS

1425 0.81 NTU some sand > trace

1425 complete 421-416' moving up 5'

8/22

1439 begin 416-411'

1439	3.44	NTU	trace sand, clear
1445	2.39	NTU	trace sand, clear
1452	2.53	NTU	trace sand/silt
1457	1.18	NTU	trace fine sand

1459 complete 416-411', continue pumping down pit
secure all equipment. for the weekend

1515 Delta offsite
1530 H&S offsite, site secured.
1600 Greg onsite

8/22

Note upon arrival frac tank has some sand at the bottom

8/25/14 Monday

0700 H&S on site, Delta Ron on site

0715 Delta John on site, tailgate conducted

0730 begin set up, move up column 20'
next section of screen,
removed 25' (one 20', one 5') returned 5'
calibration check LaMotte - pass

0755 begin 395-390'

0755	378	NTU	moderate silt light brown / yellow / opaque
0758	250	NTU	light brown
0804	164		cloudy, slightly brown
0806	210		clear
0810	330		clear some sand
0815	3.20		clear
~~88~~ 0819	1.60	NTU	clear

0820 complete 395-390' pull 0.5'
begin surging 390-385'

0823	2.23	clear
0835	1.42	clear
0841	0.94	clear

0845 complete 390-385'
removed 20' replaced 15'

0905-0925 Break

0925 begin surging 385-380'

0926	1.85	NTU	clear
0933	2.11	NTU	clear
0937	2.32	NTU	clear

385-380 con't 8/25/14

0941 2.44 NTU clear

0948 3.89 NTU clear w/ some suspended solids, sand?

0950 complete 385-380' slide up 5'

begin 380-375'

0952 35.4 NTU slightly brown, some sand

1003 22.9 NTU slightly brown, moderate silt, sand and rust particles are light orange

1007 3.52 NTU clear with some sand

1012 2.15 NTU clear with some sand

1012 complete 380-375, move up 5'

1025 begin surging 375-370' - initial light brown water exited pipe

1026 4.79 NTU clear some sand.

1032 1.37 NTU clear trace sand

1047 0.84 NTU clear trace sand

1050 complete 375-370' move up 5', begin 370-365

1052 3.05 NTU clear trace sand

1058 2.45 NTU clear. some sand

1112 1.55 NTU clear trace sand

1112 complete 370-365', moving up 5'

1135 begin surging 365-360'

1137 7.79 NTU some sand, clear

1149 3.03 NTU trace sand, clear

1153 4.18 NTU trace sand

1157 1.46 NTU trace sand

1200 complete 365-360 lunch

~~1.61 NTU clear~~

→

8/25/14

1240 begin 360-355'
1247 1.61 NTU clear
1251 3.16 NTU clear
1254 8.63 NTU trace sand
1257 0.82 NTU clear
1300 complete 360-355. move up 5'
begin surging 355-350'
1312 5.90 NTU trace sand
1317 6.31 NTU trace sand
1324 1.87 NTU clear
1327 3.25 NTU clear
1330 complete 355-350', move up 5'
1335 begin surging 350-345'
1340 6.27 NTU clear trace sand
1345 4.94 NTU clear
1349 5.32 NTU clear. trace sand
1350 complete 350-345' move up 5', remove 20 replace 15
1415 begin 345-340'
1415 3.32 NTU clear
1420 4.64 NTU clear
1436 2.71 NTU clear
1438 3.31 NTU clear
1440 complete 345-340' move up 5'
1445 1445 3.40 NTU clear trace sand
340-335' 1448 1.84 NTU trace sand

8/25/14

1455 2.79 NTU trace sand/silt

1458 2.76 NTU trace sand

1500 complete 340-335' . John offsite 1500.

- pumpdown pit, secure all equipment

1515 - Ron off site at

1530 - H&S (Stacey) off site

1530 Greg on site

8/26/14 Tuesday

0700 H&S and Delta on site to begin demobilization activities
- safety tail gate conducted
- Begin dismantling pipes
- Begin rolling up hoses and other equipment

0815-0840 Al Taromina on site

0900 break
continue break down of site

1130 begin setup for bailing well.
- also measuring total depth / attached tape reel to top of the metal hook of the bailer

435' 3" to bottom from grade

- bailed once some sand gravel (small) pulled and drummed

1210 lunch

1300 bailed a second time, drummed sediment ~ 2-3" total at base of drum
- Continue cleaning up site

1355 - using air compressor to lift one side of the frak tank; draining, spray down silt/sand

1415 - gravity drain to plant remaining water

1430 - Flooding well

1515 Delta off site, site secured

1530 H&S off site

8/26/14

8/27/14 Wed

0700 HES + Delta onsite to continue demobilization / video log well.

- conduct safety tailgate
- begin cleaning frac tank. → raised ~6" John enters using a broom push solids to one end, using small transfer pump to transfer to drum, solids settle

0805 Chris (Delta) on site to video log well. Setup. begin logging ~830

1040 Chris offsite

- reflushed out frac tank, using pump to drum; solids settle, transfer to plant

1045 - tank clean inside

1100 lunch

1400 all items secure on flat bed truck Ron offsite, return Flatbed truck to shop

1415 John offsite

1430 Stacey offsite

SL

8/28/14 THURS

0700 HRS onsite

0720 Baker tank driver onsite for pickup

0730 Delta onsite 0740 Delta 2 onsite

- loading up crane truck w/ pump.

0815 - Baker off site.

0845 A1 T. on site

0940 Fred onsite

1030 reassemble pump/motor lower back to grade

- put in bolts, secure all fittings

- splice wires, reattach probes

1210 lunch

- continue with securing bolts/wiring

- reinstall insulation — NOTE insulation will need to be replaced before winter

1400 Pump complete. Start up plant w/ Fred.

1430 Delta off site.

Plant up and running, plant operator watching for plant to reach equilibrium

1550 Stacey offsite

APPENDIX B

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

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BUREAU OF EASTERN

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

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.

JULY 2014

H&S ENVIRONMENTAL
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13 August 2014

Mr. Steven Scharf
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Action, Bureau A
625 Broadway
Albany, NY 12233-7015

Subject: GROUNDWATER DISCHARGE MONITORING/AIR EMISSION REPORT GM-38 AREA, NWIRP BETHPAGE, NY; DER SITE # 1-30-003B-OU 2 JULY 2014 REPORTING PERIOD

Dear Mr. Scharf:

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 July 2014 to 31 July 2014 are presented in Attachment A. During this reporting period, scheduled and unscheduled downtime occurred for various maintenance and operational activities, including bag filter changeouts and troubleshooting of the RW-1 pump. Due to a decrease in performance, the RW-1 pump was pulled on 28 July 2014. A new pump is being procured and redevelopment of the well is scheduled. RW-1 remains off-line pending redevelopment and installation of a new pump. RW-3 remains in operation. Both scheduled and unscheduled downtime affected the average flowrates during the July 2014 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, P.G.
Project Manager

Attachment A: Groundwater and Air Sampling Results from July 2014

Cc: 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
Al Taormina – H&S
GM-38 Copy

ATTACHMENT A

GROUNDWATER AND AIR SAMPLING RESULTS

JULY 2014

GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Discharge Monitoring Report
July 2014

SPDES Parameters	**July 2014**					
Process Stream	**Daily Treated Effluent Maximum**	**Units**	**RW-1 (2)**	**RW-3 (2)**	**Combined Influent (1) (2) (RW-1 + RW-3)**	**Treated Effluent (2)**
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		7/15/14			
Average Flowrate	1100	GPM	407	213	619	644
Total Flow	N/A	gallons	18,152,100	9,493,433	27,645,533	28,748,067
pH	5.5 - 8.5	SU	5.26	5.22	5.25	6.17
Carbon Tetrachloride	NA	µg/L	ND (1.0)	ND (5.0)	ND (5.0)	ND (1.0)
1,1-Dichloroethane	5	µg/L	2.1	1.9 J	2.0 J	ND (1.0)
1,2-Dichloroethane	0.6	µg/L	ND (1.0)	ND (5.0)	ND (5.0)	ND (1.0)
1,1-Dichloroethene	5	µg/L	1.6	1.3 J	1.5 J	ND (1.0)
cis 1,2-Dichloroethene	5	µg/L	18.5	ND (5.0)	12.1	0.28 J
trans 1,2-Dichloroethene	5	µg/L	ND (1.0)	ND (5.0)	ND (5.0)	ND (1.0)
Tetrachloroethene	5	µg/L	61.0	ND (5.0)	40.1	ND (1.0)
1,1,1-Trichloroethene	5	µg/L	ND (1.0)	ND (5.0)	ND (5.0)	ND (1.0)
Trichloroethene	5	µg/L	184	182	183	ND (1.0)
Vinyl Chloride	2	µg/L	0.47 J	ND (10.0)	0.31 J	ND (2.0)
Mercury	0.25	mg/L	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)
Total Suspended Solids (TSS)	N/A	mg/L	ND (5)	ND (5)	ND (5)	ND (5)

Notes:
J - Estimated result between laboratory method detection limit and reporting limit
ND - Not detected above laboratory method detection limit. Limit of detection (LOD) given in parentheses.
NR - Not Recorded
N/A - Not Applicable
(1) Influent concentrations presented are the weighted average concentrations of RW-1 and RW-3.

(2) Due to decreasing performance, the RW-1 pump was pulled on 28 July 2014. The well is currently off-line pending procurement of new pump and redevelopment of the well. This downtime resulted in lower than average flowrates for this reporting period. The flowrate in RW-3 was increased on 18 July 2014 to compensate for some of the lack of flow from RW-1.

GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Air Sampling Results
July 2014

DAR Parameters	**Units**	**Discharge Goal (1)**	**July 2014**	
Process Stream			**Influent**	**Effluent**
Sampling Date	N/A	N/A	7/18/14	
Average Flowrate	CFM	N/A	NR	8,295
Total Flow	ft^3	N/A	NR	370,303,680
Total Flow	m^3	N/A	NR	10,485,832
1,2-Dichloroethane	$\mu g/m^3$	N/A	2.5 J	ND
cis 1,2-Dichloroethene	$\mu g/m^3$	> 100,000 (2)	110	ND
trans 1,2-Dichloroethene	$\mu g/m^3$		1.6 J	ND
1,2-Dichloroethene (total)	$\mu g/m^3$	>100,000	120	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	ND
Vinyl Chloride	$\mu g/m^3$	560	3.3 J	1.1 J
Tetrachloroethene	$\mu g/m^3$	5,100	230	ND

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) Disharge goal as approved by NYSDEC's letter dated 31 October 2013.
(2) Disharge 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
July 2014

DAR Parameters	Units	Discharge Goal (1)	July 2014
Sampling Date	N/A	N/A	7/18/14
Average Flowrate	CFM	N/A	8,295
Total Flow	ft^3	N/A	370,303,680
Total Flow	m^3	N/A	10,485,832
Trichloroethene	lb/hr	0.09	0.00000
Vinyl Chloride	lb/hr	0.02	0.00003
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	0.00000

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

AUGUST 2014

H&S ENVIRONMENTAL
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12 September 2014

Mr. Steven Scharf
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Action, Bureau A
625 Broadway
Albany, NY 12233-7015

Subject: GROUNDWATER DISCHARGE MONITORING/AIR EMISSION REPORT GM-38 AREA, NWIRP BETHPAGE, NY; DER SITE # 1-30-003B-OU 2 AUGUST 2014 REPORTING PERIOD

Dear Mr. Scharf:

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 August 2014 to 31 August 2014 are presented in Attachment A. There was no significant downtime for the GWTP during this reporting period. However, recovery well (RW)-1 was off-line for the majority of the reporting period. As indicated previously, the RW-1 pump was pulled on 28 July 2014 due to a decrease in performance. The well was redeveloped, a new pump was procured and installed on 28 August 2014, and RW-1 was brought back on-line. The loss of flow from RW-1 was partially offset by an increased pumping rate in RW-3. Because the capacity of RW-3 is less than that of RW-1, the RW-1 downtime affected the average flowrates during the August 2014 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, P.G.
Project Manager

Attachment A: Groundwater and Air Sampling Results from August 2014

Cc: 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
Al Taormina – H&S
GM-38 Copy

ATTACHMENT A

GROUNDWATER AND AIR SAMPLING RESULTS

AUGUST 2014

GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Discharge Monitoring Report
August 2014

SPDES Parameters	**August 2014**					
Process Stream	**Daily Treated Effluent Maximum**	**Units**	**RW-1 (2)**	**RW-3 (2)**	**Combined Influent (1) (2) (RW-1 + RW-3)**	**Treated Effluent (2)**
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		8/7/14			
Average Flowrate	1100	GPM	53	333	386	405
Total Flow	N/A	gallons	2,357,100	14,885,160	17,242,260	18,070,700
pH	5.5 - 8.5	SU	NS	5.45	5.83	6.35
Carbon Tetrachloride	NA	µg/L	NS	ND (5.0)	ND (5.0)	ND (1.0)
1,1-Dichloroethane	5	µg/L	NS	2.9 J	2.9 J	ND (1.0)
1,2-Dichloroethane	0.6	µg/L	NS	ND (5.0)	ND (5.0)	ND (1.0)
1,1-Dichloroethene	5	µg/L	NS	1.7 J	1.7 J	ND (1.0)
cis 1,2-Dichloroethene	5	µg/L	NS	1.6 J	1.6 J	0.30 J
trans 1,2-Dichloroethene	5	µg/L	NS	ND (5.0)	ND (5.0)	ND (1.0)
Tetrachloroethene	5	µg/L	NS	ND (5.0)	ND (5.0)	ND (1.0)
1,1,1-Trichloroethene	5	µg/L	NS	ND (5.0)	ND (5.0)	ND (1.0)
Trichloroethene	5	µg/L	NS	241	241	ND (1.0)
Vinyl Chloride	2	µg/L	NS	ND (10.0)	ND (10.0)	ND (2.0)
Mercury	0.25	mg/L	NS	ND (0.00050)	ND (0.00050)	ND (0.00050)
Total Suspended Solids (TSS)	N/A	mg/L	NS	ND (5)	ND (5)	ND (5)

Notes:
J - Estimated result between laboratory method detection limit and reporting limit
ND - Not detected above laboratory method detection limit. Limit of detection (LOD) given in parentheses.
NR - Not Recorded
N/A - Not Applicable
NS - Not Sampled
(1) Because RW-1 was not operational during the majority of this reporting period, the influent concentrations presented above equal concentrations of RW-3 only, as opposed to the weighted average of RW-1 and RW-3.
(2) Due to decreasing performance, the RW-1 pump was pulled on 28 July 2014. The flowrate in RW-3 was increased during this reporting period to compensate for some of the lack of flow from RW-1. The RW-1 well was redeveloped, a new pump was procured and installed on 28 August 2014, and RW-1 was brought back on-line. The RW-1 downtime resulted in lower than average flowrates for this reporting period.

GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Air Sampling Results
August 2014

DAR Parameters	**Units**	**Discharge Goal (1)**	**August 2014 (3)**	
Process Stream			**Influent**	**Effluent**
Sampling Date	N/A	N/A	8/7/14	
Average Flowrate	CFM	N/A	NR	8,755
Total Flow	ft^3	N/A	NR	390,818,240
Total Flow	m^3	N/A	NR	11,066,740
1,2-Dichloroethane	$\mu g/m^3$	N/A	0.97 J	ND
cis 1,2-Dichloroethene	$\mu g/m^3$	> 100,000 (2)	5.7	ND
trans 1,2-Dichloroethene	$\mu g/m^3$		ND	ND
1,2-Dichloroethene (total)	$\mu g/m^3$	>100,000	5.6	ND
Toluene	$\mu g/m^3$	N/A	1.4 J	ND
Total Xylene	$\mu g/m^3$	N/A	ND	ND
1,1,2-Trichloroethane	$\mu g/m^3$	N/A	1.2 J	ND
Trichloroethene	$\mu g/m^3$	2,600	920	ND
Vinyl Chloride	$\mu g/m^3$	560	ND	ND
Tetrachloroethene	$\mu g/m^3$	5,100	1.9 J	1.4 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) Disharge goal as approved by NYSDEC's letter dated 31 October 2013.
(2) Disharge goal is for total 1,2-Dichloroethene.
(3) RW-1 was off-line and only RW-3 was in operation at time of sample collection.

GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Controlled Stack Emissions
August 2014

DAR Parameters	Units	Discharge Goal (1)	August 2014
Sampling Date	N/A	N/A	8/7/14
Average Flowrate	CFM	N/A	8,755
Total Flow	ft^3	N/A	390,818,240
Total Flow	m^3	N/A	11,066,740
Trichloroethene	lb/hr	0.09	0.00000
Vinyl Chloride	lb/hr	0.02	0.00000
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	0.00005

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

SEPTEMBER 2014

H&S ENVIRONMENTAL
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8 October 2014

Mr. Steven Scharf
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Action, Bureau A
625 Broadway
Albany, NY 12233-7015

Subject: GROUNDWATER DISCHARGE MONITORING/AIR EMISSION REPORT GM-38 AREA, NWIRP BETHPAGE, NY; DER SITE # 1-30-003B-OU 2 SEPTEMBER 2014 REPORTING PERIOD

Dear Mr. Scharf:

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 September 2014 to 30 September 2014 are presented in Attachment A. There was no significant downtime for the GWTP during this reporting period; minor downtime occurred for scheduled maintenance activities of the liquid-phase granular activated carbon (LGAC) units and bag filter units.

A decrease in performance of the air stripper effluent pumps, P-4A and P-4B, was observed during this reporting period. The pumps are currently being evaluated for repair / replacement. The decreased performance of these pumps resulted in lower than average flowrates during the September 2014 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, P.G.
Project Manager

Attachment A: Groundwater and Air Sampling Results from September 2014

Cc: 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
Al Taormina – H&S
GM-38 Copy

ATTACHMENT A

GROUNDWATER AND AIR SAMPLING RESULTS

SEPTEMBER 2014

GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Discharge Monitoring Report
September 2014

SPDES Parameters	**September 2014**					
Process Stream	**Daily Treated Effluent Maximum**	**Units**	**RW-1 (2)**	**RW-3 (2)**	**Combined Influent (1) (2) (RW-1 + RW-3)**	**Treated Effluent (2)**
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		9/9/14			
Average Flowrate	1100	GPM	672	188	860	908
Total Flow	N/A	gallons	29,033,514	8,106,440	37,139,954	39,241,729
pH	5.5 - 8.5	SU	5.40	5.31	5.38	6.58
Carbon Tetrachloride	NA	µg/L	ND (5.0)	ND (5.0)	ND (5.0)	ND (1.0)
1,1-Dichloroethane	5	µg/L	2.3 J	2.8 J	2.4 J	ND (1.0)
1,2-Dichloroethane	0.6	µg/L	ND (5.0)	ND (5.0)	ND (5.0)	ND (1.0)
1,1-Dichloroethene	5	µg/L	3.2 J	1.6 J	2.9 J	ND (1.0)
cis 1,2-Dichloroethene	5	µg/L	19.2	1.8 J	15.0 J	0.34 J
trans 1,2-Dichloroethene	5	µg/L	ND (5.0)	ND (5.0)	ND (5.0)	ND (1.0)
Tetrachloroethene	5	µg/L	41.3	ND (5.0)	32.3	ND (1.0)
1,1,1-Trichloroethene	5	µg/L	1.7 J	ND (5.0)	1.3 J	ND (1.0)
Trichloroethene	5	µg/L	162	228	176	ND (1.0)
Vinyl Chloride	2	µg/L	ND (10.0)	ND (10.0)	ND (10.0)	ND (2.0)
Mercury	0.25	mg/L	ND (0.00050)	ND (0.00050)	ND (0.00050)	ND (0.00050)
Total Suspended Solids (TSS)	N/A	mg/L	ND (5)	ND (5)	ND (5)	ND (5)

Notes:
J - Estimated result between laboratory method detection limit and reporting limit
ND - Not detected above laboratory method detection limit. Limit of detection (LOD) given in parentheses.
NR - Not Recorded
N/A - Not Applicable
(1) Influent concentrations presented are the weighted average concentrations of RW-1 and RW-3.
(2) A decrease in performance of the air stripper effluent pumps, P-4A and P-4B, was observed during this reporting period. The pumps are currently being evaluated for repair / replacement. The decreased performance of these pumps resulted in lower than average flowrates during the September 2014 reporting period.

GM-38 Area Groundwater Remediation
Groundwater Treatment Plant
Naval Weapons Industrial Reserve Plant - Bethpage, NY
Air Sampling Results
September 2014

DAR Parameters	**Units**	**Discharge Goal (1)**	**September 2014**	
Process Stream			**Influent**	**Effluent**
Sampling Date	N/A	N/A	9/9/14	
Average Flowrate	CFM	N/A	NR	8,645
Total Flow	ft^3	N/A	NR	373,480,200
Total Flow	m^3	N/A	NR	10,575,782
1,2-Dichloroethane	$\mu g/m^3$	N/A	3.6 J	ND
cis 1,2-Dichloroethene	$\mu g/m^3$	> 100,000 (2)	190	0.62 J
trans 1,2-Dichloroethene	$\mu g/m^3$		3.8 J	ND
1,2-Dichloroethene (total)	$\mu g/m^3$	>100,000	190	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	2,400	ND
Vinyl Chloride	$\mu g/m^3$	560	4.7	0.84 J
Tetrachloroethene	$\mu g/m^3$	5,100	440	ND

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) Disharge goal as approved by NYSDEC's letter dated 31 October 2013.
(2) Disharge 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
September 2014

DAR Parameters	Units	Discharge Goal (1)	September 2014
Sampling Date	N/A	N/A	9/9/14
Average Flowrate	CFM	N/A	8,645
Total Flow	ft^3	N/A	373,480,200
Total Flow	m^3	N/A	10,575,782
Trichloroethene	lb/hr	0.09	0.00000
Vinyl Chloride	lb/hr	0.02	0.00000
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	0.00000

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

APPENDIX C

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 (µg/m^3)[2]	Actual Jan-Mar 2011 Concentration (µg/m^3)[3]	Actual VOC Loading Pre-Off Gas Treatment (lbs/hour)[4]	Proposed Discharge Loading Rate (lbs/hour)[5]	Equivalent Proposed Discharge Goal (µg/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

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- -

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
Air Permit Application

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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	Process Material		Reference Test Method
Type	Code	Description	

Parameter		Manufacturer Name/Model No.
Code	Description	

Limit		Limit Units	
Upper	Lower	Code	Description

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

New York State Department of Environmental Conservation
Air Permit Application

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Section IV - Emission Unit Information

Emission Unit Description

❑ Continuation Sheet(s)

EMISSION UNT	0 - 0 0 E U 1

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.	0 0 S T 1					
Ground Elev. (ft)	Height (ft)	Height Above Structure (ft)	Inside Diameter (in)	Exit Temp. (°F)	Cross Section Length (in)	Cross Section 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)	Cross Section Width (in)
Exit Velocity (FPS)	Exit Flow (ACFM)	NYTM (E) (KM)	NYTM (N) (KM)	Building	Distance to Property Line (ft)	Date of Removal

Emission Source/Control

❑ Continuation Sheet(s)

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

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

New York State Department of Environmental Conservation
Air Permit Application

DEC ID
- -

Section IV - Emission Unit Information (continued)

Process Information

❑ Continuation Sheet(s)

EMISSION UNIT	0 - 0 0 E U 1	PROCESS	P R 1

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
Air Permit Application

DEC ID
- -

Section IV - Emission Unit Information (continued)

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

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

Emission Unit Compliance Certification ❑ Continuation Sheet(s)

Rule Citation

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

☒ Applicable Federal Requirement ❑ State Only Requirement ❑ Capping

Emission Unit	Emission Point	Process	Emission Source	CAS No.	Contaminant Name
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

New York State Department of Environmental Conservation
Air Permit Application

DEC ID
- -

Section IV - Emission Unit Information (continued)

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

Rule Citation

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

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

Description

Rule Citation

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

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

Description

Process Emissions Summary ❑ Continuation Sheet(s)

EMISSION UNIT	0 - 0 0 E U 1				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 (lbs/hr)	PTE (lbs/yr)	PTE (standard units)	Standard Units	PTE How Determined	Actual (lbs/hr)	Actual (lbs/yr)
0.09	99			02		

EMISSION UNIT	0 - 0 0 E U 1				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 (lbs/hr)	PTE (lbs/yr)	PTE (standard units)	Standard Units	PTE How Determined	Actual (lbs/hr)	Actual (lbs/yr)
0.01	3.7			02		

EMISSION UNIT	0 - 0 0 E U 1				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 (lbs/hr)	PTE (lbs/yr)	PTE (standard units)	Standard Units	PTE How Determined	Actual (lbs/hr)	Actual (lbs/yr)
0.03	7.3			02		

DEC ID
- -

Section IV - Emission Unit Information (continued)

EMISSION UNIT	Emission Unit Emissions Summary ❑ Continuation Sheet(s)			
0 - 0 0 E U 1				
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	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

					GW Conc.[1]		Effluent Conc[1]		Uncontrolled Stripper Exhaust							
Name	CAS Number	Toxicity: H/M/L[2]	VOC[3]	HAP[4]	Max ug/L	Avg ug/L	Max ug/L	Avg ug/L	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	

Name	CAS Number	Toxicity: H/M/L[2]	VOC[3]	HAP[4]	Control by GAC	Max lb/day	Avg lb/day	Controlled Stripper Exhau Max gm/sec	Avg 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 (µg/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 (µg/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

APPENDIX D

FIELD LOGS AND
CHAIN OF CUSTODY DOCUMENTATION

Date: 09/22/14

H&S

Groundwater Level Measurement Sheet

Project Site: NWIRP Bethpage – GM-38
Location: Bethpage, NY
Field Crew: RM / SL

Water Level Meter: Solinst
Weather: Clear 73°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	13:15	38.55	435 / 395-435	---	
RW1-MW2	07:55	41.84	435 / 395-435	---	Water in casing. Pad overgrown w/ vines. Bees.
RW1-MW3	16:34	29.1[illegible]	435 / 395-435	---	
RW2-MW1	13:20	42.03	510 / 470-510	---	
RW2-MW2	13:27	41.40	510 / 470-510	---	
RW2-MW3	13:25	41.08	510 / 470-510	---	Water in casing
RW3-MW1	13:38	39.11	350 / 330-350	---	
RW3-MW2	13:40	41.53	495 / 475-495	---	
RW3-MW3	13:34	41.60	340 / 320-340	---	
RW3-MW4	13:32	43.00	495 / 475-495	---	
TP1	12:24	37.74	470 / 450-470	---	
IW1-MW1	–	–	470 / 450-470	---	inaccessible due to overgrown vegetation & trash

Signature: RM

Date: 9-22-14

H&S Environmental, Inc.

Low Flow/ Low Stress Groundwater Sampling Log

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

Date: 09/22 /14
Sampler: RM
PID: ------

Start Time: 1500 **End Time:** 15:50
Well Construction: 4"
Depth to Water: 38.32
Well Depth: 435.00
Water Column: 396.68
Total Volume Removed (L): 10.0
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	10H100928
LaMotte	2020e	MB 15044
QED	MP15	Pine 1
Marschalk Bladder Pump	24"	ID# 022318

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
15:10	2.0	200	38.36	18.08	5.60	170	8.10	84.9	0.12	clear
15:20	4.0	"	38.38	17.74	4.80	174	2.06	134.9	0.53	clear
15:25	5.0	"	38.35	16.76	4.65	171	0.99	151.1	0.66	clear
15:30	6.0	"	38.36	16.56	4.58	171	0.77	161.6	0.67	clear
15:35	7.0	"	38.37	16.45	4.44	173	0.87	163.5	0.26	clear
15:40	8.0	"	38.37	16.27	4.40	173	1.00	167.0	0.26	clear
15:45	9.0	"	38.36	16.24	4.40	172	0.99	169.2	0.33	clear
15:50	10.0	"	38.36	16.27	4.40	173	1.00	170.1	0.30	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
15:50	NWIRP-GM-38-GW-	40 mL CG	3	---	TCL VOCs (624)
	RW 1 -MW 1 - 20140922	250 mL PL	1	HNO_3	Hg (245.1)
		500 mL PL	1	---	TSS (SM2540D)

Comments

Signature

9/22/14
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: 09/23/14
Sampler: RM/SL
PID: ------

Start Time: 16:45 End Time: 17:20
Well Construction: 4"
Depth to Water: 29.70
Well Depth: 435.00
Water Column:
Total Volume Removed (L):
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	10H100928
LaMotte	2020e	15044
QED	MP15	Pine 1
Marschalk Bladder Pump	24"	ID#

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
16:50	.50	100	29.70							
16:55	.50	100	29.70	18.17	4.93	187	3.46	170.6	5.36	Clear
17:00	.50	100	29.70	18.00	4.90	186	2.87	173.2	3.70	Clear
17:05	.50	100	29.70	17.07	4.75	189	1.83	177.3	3.62	Clear
17:10	.50	100	29.70	16.52	4.99	188	1.15	178.6	2.98	Clear
17:15	.50	100	29.70	16.51	5.03	191	1.09	179.5	3.23	Clear
17:20	.50	100	29.70	16.31	5.06	192	1.09	178.8	2.77	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
17:20	NWIRP-GM-38-GW-	40 mL CG	3	---	TCL VOCs (624)
	RW 1 -MW3 -20140923	250 mL PL	1	HNO_3	Hg (245.1)
		500 mL PL	1	---	TSS (SM2540D)

Comments

RM
Signature

9-23-14
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: 09/23 /14
Sampler: RM/SL
PID: ------

H&S

Start Time: 08:40 **End Time:** 0955
Well Construction: 4"
Depth to Water: 42.30
Well Depth: 510.00
Water Column: 467.7
Total Volume Removed (L): 14.5
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	10H100928
LaMotte	2020e	15044
QED	MP15	Pinel
Marschalk Bladder Pump	24"	ID# 15179

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
0845	.875	175	42.35	14.11	6.16	179	2.35	117.7	3.44	Clear
0850	.875	175	42.30	14.07	6.67	178	0.93	108.9	2.64	Clear
0855	.875	175	42.09	14.17	6.15	177	0.63	64.4	2.81	Clear
0900	.875	175	42.04	14.01	6.53	176	0.51	23.0	2.56	Clear
0905	1.0	200	42.06	13.99	6.70	175	0.45	-4.5	3.37	Clear
0910	1.0	200	42.20	14.04	6.92	174	0.39	-42.7	2.61	Clear
0915	1.0	200	42.34	14.04	7.34	167	0.34	-134.6	2.78	Clear
0920	1.0	200	42.44	14.14	7.20	177	0.30	-113.5	2.79	Clear
0925	1.0	200	42.51	14.18	7.03	181	0.30	-92.8	3.09	Clear
0930	1.0	200	42.53	14.18	6.95	186	0.33	-73.4	3.01	CLEAR
0935	1.0	200	42.58	14.21	6.66	190	0.31	-55.2	3.0	Clear
0940	1.0	200	42.61	14.21	6.63	191	0.31	-51.9	4.20	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
0955	NWIRP-GM-38-GW-	40 mL CG	3	---	TCL VOCs (624)
	RW2 -MW 1 - 20140923	250 mL PL	1	HNO_3	Hg (245.1)
		500 mL PL	1	---	TSS (SM2540D)

Comments

RM
Signature

9-23-14
Date

H&S Environmental, Inc.

Low Flow/ Low Stress Groundwater Sampling Log

Project: NWIRP Bethpage - GM-38
Location: Bethpage, NY
Well ID: RW2 - MW1

Date: 09/23/14
Sampler: RM/SL
PID: ------

Start Time: 08:40 End Time: 0955
Well Construction: 4"
Depth to Water: 42.30
Well Depth: 510.0
Water Column: 467.7
Total Volume Removed (L): 14.5
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	10H100928
LaMotte	2020e	15044
QED	MP15	Pine 1
Marschalk Bladder Pump	24"	ID# 15179

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
0945	1.0	200	42.60	14.25	6.54	194	0.30	-41.4	2.94	Clear
0950	1.0	200	42.68	14.25	6.50	195	0.31	-38.1	2.83	Clear
0955	1.0	200	42.70	14.25	6.49	194	0.29	-36.1	2.07	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
0955	NWIRP-GM-38-GW-	40 mL CG	3	---	TCL VOCs (624)
	RW2 -MW1 - 20140923	250 mL PL	1	HNO_3	Hg (245.1)
		500 mL PL	1	---	TSS (SM2540D)

Comments

PM
Signature

9-23-14
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: 09/23 /14
Sampler: RM/SL
PID: ------

Start Time: 11:05 **End Time:** 13:05
Well Construction: 4"
Depth to Water: 39.45
Well Depth: 350.00
Water Column: 310.55
Total Volume Removed (L): ~20
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	13J102654
LaMotte	2020e	13577
QED	MP15	Pine 1
Marschalk Bladder Pump	24"	ID# 15179

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	
11:15	1.250	125	39.45	20.31	4.69	0.131	2.45	189.6	86.4	Clear	w orange particles
11:30	1.875	125	39.43								
11:35	0.625	125	39.40	21.54	4.81	0.127	1.49	176.9	38.4	Clear w/	orange floc
11:50	1.875	125	39.35	21.01	4.43	0.130	2.64	212.2	55.7	"Clear	
11:55	0.625	125	39.34	20.23	4.25	0.131	2.64	221.6		Clear	
Changed air tank, pump paused											
12:10	0.625	125	39.25	20.10	4.61	0.130	2.78	203.8	26.0	Clear	
12:15	0.625	125	39.22	22.47	4.66	0.132	2.86	201.6	29.5	Clear	
12:20	0.625	125	39.22	22.59	4.66	0.132	2.66	200.8	47.2	Clear	
12:25	0.625	125	39.22	20.50	4.30	0.133	2.73	219.4	81.1	Clear w	orange floc
12:30	0.625	125	39.21	20.05	4.15	0.132	2.55	225.3	40.2	Clear w	orange floc
12:40	1.25	125	39.10	20.62	4.47	0.130	2.37	209.1	20.2	Clear "	
Acceptance Criteria:			<0.3ft	3%	±0.1	3%	10%	± 10mv	10%		

16.875

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
13:05	NWIRP-GM-38-GW-	40 mL CG	3	---	TCL VOCs (624)
	RW 3 -MW 1 - 20140923	250 mL PL	1	HNO_3	Hg (245.1)
		500 mL PL	1	---	TSS (SM2540D)

Comments

RM
Signature

9/23/14
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: 09/23/14
Sampler: RM/SL
PID: ------

Start Time: 11:05 **End Time:** 13:05
Well Construction: 4"
Depth to Water: 39.45
Well Depth: 350.00
Water Column: 310.55
Total Volume Removed (L): ~ 20.0
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	13J10 2654
LaMotte	2020e	13577
QED	MP15	Pine 1
Marschalk Bladder Pump	24"	ID# 15179

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
12:45	.625	125	39.10	20.18	4.38	0.130	2.30	215.0	16.0	Clear w/ orange flock
12:50	.625	125	39.07	20.29	4.42	0.130	2.31	212.7	13.0	Clear
12:55	.625	125	39.06	20.06	4.38	0.130	2.26	216.2	9.36	Clear
13:00	.625	125	39.06	20.19	4.36	0.130	2.33	216.5	9.02	Clear
13:05	.625	125	39.05	20.15	4.41	0.130	2.37	213.9	8.99	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
13:05	NWIRP-GM-38-GW-	40 mL CG	3	HCl	TCL VOCs (624)
	RW 3 -MW 1 - 20140923	250 mL PL	1	HNO_3	Hg (245.1)
		500 mL PL	1	---	TSS (SM2540D)

Comments

Signature

9/23/14
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: 09/23 /14
Sampler: RM/SL
PID: ------

Start Time: 10.25 **End Time:** _____
Well Construction: 4"
Depth to Water: 42.48
Well Depth: 495.00
Water Column: 452.52
Total Volume Removed (L): ~9.35
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	10411009 728
LaMotte	2020e	15044
QED	MP15	Pine 2
Marschalk Bladder Pump	24"	ID# 022318

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
1030	0.85	170	42.69	16.53	4.92	84	1.24	134.4	3.16	clear
1035	0.85	170	42.70	16.75	4.89	84	0.86	142.8	0.56	clear
1040	0.85	170	42.70	16.99	4.89	72	0.50	154.4	1.37	clear
1045	0.85	170	42.71	16.89	4.86	72	0.46	157.7	0.97	clear
1050	0.85	170	42.74	16.85	4.81	73	0.39	163.0	1.41	clear
1055	0.85	170	42.75	16.88	4.79	74	0.36	165.5	1.33	clear
1100	0.85	170	42.75	16.89	4.77	74	0.34	168.5	0.99	clear
1105	0.85	170	42.75	16.74	4.78	73	0.32	171.0	0.79	clear
1110	0.85	170	42.75	16.68	4.76	73	0.31	173.2	0.67	clear
1115	0.85	170	42.77	16.69	4.75	73	0.27	176.8	0.72	clear
1120	0.85	170	42.77	16.69	4.75	73	0.27	176.6	0.70	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
1120	NWIRP-GM-38-GW-	40 mL CG	3	---	TCL VOCs (624)
	RW 3 -MW 2 - 20140923	250 mL PL	1	HNO_3	Hg (245.1)
		500 mL PL	1	---	TSS (SM2540D)
1120	+ MS/MSD	TCL VOCs & Hg			
0000	+ DUP-01	TCL VOCs, Hg & TSS			

Comments

_____
_____
_____

Signature: _____ Date: 9/23/14

H&S Environmental, Inc.

Low Flow/ Low Stress Groundwater Sampling Log

Project: NWIRP Bethpage - GM-38
Location: Bethpage, NY
Well ID: RW3 - MW3

Date: 09/23/14
Sampler: SL
PID: ------

Start Time: 1450 **End Time:** 1550
Well Construction: 4"
Depth to Water: 40.00
Well Depth: 340
Water Column: 300
Total Volume Removed (L): ~ 7.2
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	10H100928
LaMotte	2020e	15044
QED	MP15	Pine 2
Marschalk Bladder Pump	24"	ID# 22318

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
1455	0.60	120	39.97	20.18	5.36	151	5.73	92.7	2.49	clear
1500	0.60	120	39.97	19.97	5.06	149	2.23	120.8	6.56	clear
1505	0.60	120	39.96	17.02	5.01	150	1.64	135.0	17.1	some floc orange
1510	0.60	120	39.96	16.99	4.99	148	1.54	140.3	19.6	"
1515	0.60	120	39.96	16.49	4.89	148	1.77	147.8	22.7	"
1520	0.60	120	39.96	16.19	4.83	148	1.62	152.0	24.0	some suspended solids
1525	0.60	120	39.96	16.21	4.81	148	1.45	156.6	19.9	"
1530	0.60	120	39.96	16.07	4.82	148	1.31	160.5	17.6	cloudy
1535	0.60	120	39.95	16.00	4.78	148	1.29	165.5	17.6	clear
1540	0.60	120	39.95	15.98	4.77	148	1.31	166.6	17.1	clear
1545	0.60	120	39.95	15.90	4.79	149	1.29	168.2	14.7	clear
1550	0.60	120	39.95	15.88	4.79	149	~~1.0~~ 1.26	171.3	15.5	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
1550	NWIRP-GM-38-GW-	40 mL CG	3	---	TCL VOCs (624)
	RW 3 -MW3 -20140923	250 mL PL	1	HNO_3	Hg (245.1)
		500 mL PL	1	---	TSS (SM2540D)

Comments

Stacey Lee
Signature

9-23-14
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: 09/23 /14
Sampler: RM/SL
PID: ------

H&S

Start Time: 14:30 **End Time:** 15:15
Well Construction: 4"
Depth to Water: 41.55
Well Depth: 495.0
Water Column: 453.45
Total Volume Removed (L): ~6.0
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	13102654
LaMotte	2020e	13577
QED	MP15	Pine 1
Marschalk Bladder Pump	24"	ID# 15179

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
14.40	3.0	300	41.55	16.16	4.30	0.159	8.49	217.6	9.59	clear
14:55	4.5	300	41.50	16.20	4.19	0.161	1.57	132.6	7.40	clear
15:00	1.5	300	41.49	15.60	4.20	0.147	1.33	127.5	6.80	clear
15:05	1.5	300	41.49	15.42	4.12	0.146	0.99	124.3	5.80	clear
15:10	1.5	300	41.49	15.37	4.15	0.147	0.89	121.7	5.63	clear
15:15	1.5	300	41.50	15.38	4.18	0.148	0.86	120.8	6.40	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
15:15	NWIRP-GM-38-GW-	40 mL CG	3	---	TCL VOCs (624)
	RW 3 -MW4 - 20140923	250 mL PL	1	HNO_3	Hg (245.1)
		500 mL PL	1	---	TSS (SM2540D)

Comments

Signature

9-23-14
Date

H&S Environmental, Inc.

Low Flow/ Low Stress Groundwater Sampling Log

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

Date: 09 / 22 /14
Sampler: S.Lee
PID: ------

H&S

Start Time: 1240 **End Time:** 13:30
Well Construction: 4"
Depth to Water: 37.65
Well Depth: 470.00
Water Column: 432.35
Total Volume Removed (L): ~6.65
Dedicated Pump in Well?: No

Field Testing Equipment

Make	Model	Serial #
YSI	556	10H100928
LaMotte	2020e	15044
QED	MP15	Pine 1
Marschalk Bladder Pump	24"	ID# 022318

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
1245	0.76	140	37.62	21.09	6.86	219	9.70	51.2	5.28	clear
1250	0.70	140	37.66	17.14	6.01	201	7.16	91.3	1.46	clear
1255	0.70	140	37.60	17.21	5.85	201	7.15	110.5	0.96	clear
1300	0.65	130	37.60	16.97	5.85	200	7.09	114.1	2.09	clear
1305	0.65	130	37.60	16.84	5.84	200	7.00	117.3	1.19	clear
1310	0.65	130	37.60	16.35	5.83	200	7.12	124.6	0.65	clear
1315	0.65	130	37.61	15.78	5.81	198	7.04	129.5	0.77	clear
1320	0.65	130	37.61	16.27	5.81	199	6.92	131.2	0.68	clear
1325	0.65	130	37.61	16.39	5.84	198	6.94	131.3	0.55	clear
1330	0.65	130	37.61	16.44	5.87	198	6.93	133.9	0.42	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
1330	NWIRP-GM-38-GW-TP1- 20140922	40 mL CG	3	---	TCL VOCs (624)
		250 mL PL	1	HNO_3	Hg (245.1)
		500 mL PL	1	---	TSS (SM2540D)

Comments

Signature

9/22/14
Date

H&S

Instrument Calibration Log

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

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 161164	0.93	0.97	10.03	9.79	0.99	1.01	10.03	9.92	9/22/14 Time: 0730 & 1700
15044	1.08	0.99	9.83	9.99	1.01	1.03	9.99	10.03	9/22/14 Time: 0730 & 1700
15044	1.01	1.01	10.03	10.06	1.00	0.99	10.01	10.06	9/23/14 Time: 0730 & 1730
161164	1.01	0.98	9.92	10.09	1.00	1.03	9.97	10.02	9/23/14 Time: 0730 & 1730
									Time: &
									Time: &
									Time: &
									Time: &
									Time: &
									Time: &
									Time: &

Signature: SL Date: 9/23/14

H&S

Instrument Calibration Log

Project/Site Name: NWIRP Bethpage – GM-38 **Date:** 09/22/14 **Weather:** Clear 61 °F

Calibrated By: SL **Instrument:** YSI 556 **Serial Number:** 10H100928

Parameters	Morning Calibration Time: 0730	Cal. Temperature °C	Afternoon Cal. Check Time: 1700	Comments
Conductivity 1413 (µS/cm°)	1261 / 1413	20.94	1341	
pH (7)	6.93 / 7.00	20.99	6.86	
pH (4)	4.02 / 4.00	21.11	3.92	
pH (10)	10.10 / 10.02	21.04	10.18	
ORP 240 (mv)	232.1 / 240.0	21.27	234.1	
Dissolved Oxygen (%)	95.7 / 100.7	—	88.1	
Zero Dissolved Oxygen (mg/L)	—	—	—	
Barometric Pressure (mmHg)	765.6	—	776.7	

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

Time:	Time:	Time:
Standard: NA	Standard: NA	Standard: NA
Reading:	Reading:	Reading:

Signature: SL Date: 9-22-14

H&S

Instrument Calibration Log

Project/Site Name: NWIRP Bethpage – GM-38 **Date:** 09/23/14 **Weather:** Clear 64°F

Calibrated By: SL **Instrument:** YSI 556 **Serial Number:** 10H100928

Parameters	Morning Calibration Time: 0730	Cal. Temperature °C	Afternoon Cal. Check Time: 1700	Comments
Conductivity 1413 (µS/cm°)	~~1341~~ 1341 / 1413	20.15	1359	
pH (7)	6.86 / 6.91	20.45	7.01	
pH (4)	3.92 / 4.00	19.88	3.97	
pH (10)	10.18 / 10.00	19.93	10.03	
ORP 240 (mv)	234.1 / ~~2040~~ 240.2	20.51	~~3~~ 236.1	
Dissolved Oxygen (%)	88.1 / 101.2	19.15	92.5	
Zero Dissolved Oxygen (mg/L)	—	—	—	
Barometric Pressure (mmHg)	774.7	—	779.1	

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

Time:	Time:	Time:
Standard: NA	Standard: NA	Standard: NA
Reading:	Reading:	Reading:

Signature: SL Date: 9-22-14

H&S

Instrument Calibration Log

Project/Site Name: NWIRP Bethpage – GM-38 **Date:** 09/23/14 **Weather:** Clear 64°F

Calibrated By: SL **Instrument:** YSI 556 **Serial Number:** 13J102654

Parameters	Morning Calibration Time: 0730	Cal. Temperature °C	Afternoon Cal. Check Time: 1730	Comments
Conductivity 1413 (µS/cm°)				
pH (7)	6.93 / 7.00	20.99	6.98	
pH (4)	4.02 / 4.00	21.11	4.01	
pH (10)	10.10 / 10.02	21.04	10.09	
ORP 240 (mv)	232.1 / 240.0	21.27	236.4	
Dissolved Oxygen (%)	95.7 / 100.7	—	99.2	
Zero Dissolved Oxygen (mg/L)	~~95.7 / 100.7~~	—	—	
Barometric Pressure (mmHg)	760.0	—	763.4	

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

Time:	Time:	Time:
Standard: NA	Standard: NA	Standard: NA
Reading:	Reading:	Reading:

Signature: SL Date: 9-23-14

A' tical
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

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:

Tracking #:

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#:** 2031-307

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

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

	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)	Mercury (Method 245.1)	TSS (SM2540D)								
							Enter Number of Containers Per Analysis										
1	BP-GM-38-GW-RW1-MW1-20140922		09/22/14	1550	G	GW	3	1	1								
2	BP-GM-38-GW-RW1-MW3-20140923		09/23/14	1720	G	GW	3	1	1								
3	BP-GM-38-GW-RW2-MW1-20140923		09/23/14	0955	G	GW	3	1	1								
4	BP-GM-38-GW-RW3-MW1-20140923		09/23/14	1305	G	GW	3	1	1								
5	BP-GM-38-GW-RW3-MW2-20140923	MS/MSD for VOCs, Hg	09/23/14	1120	G	GW	9	3	1								
6	BP-GM-38-GW-RW3-MW3-20140923		09/23/14	1550	G	GW	3	1	1								
7	BP-GM-38-GW-RW3-MW4-20140923		09/23/14	1515	G	GW	3	1	1								
8	BP-GM-38-GW-TP1-20140922		09/22/14	1330	G	GW	3	1	1								

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

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

Circle appropriate Y or N.	Custody seals Present?	(If present) Seals intact?	Received on ice?	COC/Labels complete/accurate?	Container in good condition?
	N	N	N	N	N
	Y	Y	Y	Y	Y

SAMPLED BY (Please Print): Rosa Mastrocola + Stacey Lee

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Stacey Lee H&S	9/23/14	1900	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:

DOD Criteria Required?

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:

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

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

Rev 08-2008

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

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:

Tracking #:

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#:** 2031-307

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

TAT: [x] Normal-Standard TAT is 10-12 business days. **Date Required:**
[ ] Rush-Subject to ALSI approval and surcharges. **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																		
	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)	Mercury (Method 245.1)	TSS (SM2540D)														
							Enter Number of Containers Per Analysis																
1	BP-GM-38-GW-RW3-MW2-DUP		09/23/14	0000	G	GW	3	1	1														
2	BP-GM-38-FB- 20140922		09/22/14	1420	G	GW	3	1															
3	BP-GM-38-TB-						3																
4																							
5																							
6																							
7																							
8																							

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

	1	2	3	4	5	6	7	8
Correct containers?	N	N	N	N	N	N	N	N
Correct sample volume?	Y	Y	Y	Y	Y	Y	Y	Y
Correct preservation?								
Headspace/Volatiles?								
Circle appropriate Y or N.								
Custody seals Present?	N	N	N	N	N	N	N	N
(If present) Seals intact?	Y	Y	Y	Y	Y	Y	Y	Y
Received on Ice?								
COC/Labels complete/accurate?								
Container in good condition?								

SAMPLED BY (Please Print):

LOGGED BY(signature): DATE TIME

REVIEWED BY(signature): DATE TIME

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Stacey Lee	9/23/14	1900	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:

DOD Criteria Required?

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:

* 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

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

Rev 08-2008

APPENDIX E

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: 2031-507

SDG #: G2030803-HNW-081

Client: H&S Environmental, Inc.

Date: 10/20/2014

Laboratory: ALS Environmental, Middletown, PA

Reviewer: Sherri Pullar

Summary:

1. Data validation was performed on the data for nine (9) water samples, one (1) trip blank and one (1) field blank analyzed for Volatiles by EPA Method 624.

2. The samples were collected on 9/22 thru 24/2014. The samples were submitted to ALS Environmental, Middletown, PA on 9/24/2014 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).

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-MW1-20140922	2030803001	9/22/2014	Water	
BP-GM-38-GW-RW1-MW3-20140923	2030803002	9/23/2014	Water	
BP-GM-38-GW-RW2-MW1-20140923	2030803003	9/23/2014	Water	
BP-GM-38-GW-RW3-MW1-20140923	2030803004	9/23/2014	Water	
BP-GM-38-GW-RW3-MW2-20140923	2030803005	9/23/2014	Water	
BP-GM-38-GW-RW3-MW3-20140923	2030803006	9/23/2014	Water	
BP-GM-38-GW-RW3-MW4-20140923	2030803007	9/23/2014	Water	
BP-GM-38-GW-TP1-20140922	2030803008	9/23/2014	Water	
BP-GM-38-GW-RW3-MW2-DUP	2030803009	9/23/2014	Water	Field Duplicate of sample BP-GM-38-GW-RW3-MW2-20140923
BP-GM-38-FB-20140922	2030803010	9/23/2014	Water	Field Blank
BP-GM-38-TB	2030803011	9/23/2014	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 9/22/2014 (ms03.i) exhibited acceptable %RSD and average RRF values for all compounds. No qualifications were required.

Compound	%D
Benzene	17.6

Client Sample ID	Laboratory Sample ID	Compound	Action
BP-GM-38-GW-RW1-MW1-20140922	2030803001	Benzene	UJ
BP-GM-38-GW-RW1-MW3-20140923	2030803002	Benzene	UJ
BP-GM-38-GW-RW2-MW1-20140923	2030803003	Benzene	J
BP-GM-38-GW-RW3-MW1-20140923	2030803004	Benzene	UJ
BP-GM-38-GW-RW3-MW2-20140923	2030803005	Benzene	UJ
BP-GM-38-GW-RW3-MW3-20140923	2030803006	Benzene	UJ
BP-GM-38-GW-RW3-MW4-20140923	2030803007	Benzene	UJ
BP-GM-38-GW-TP1-20140922	2030803008	Benzene	UJ
BP-GM-38-GW-RW3-MW2-DUP	2030803009	Benzene	UJ
BP-GM-38-FB-20140922	2030803010	Benzene	UJ
BP-GM-38-TB	2030803011	Benzene	UJ

Continuing Calibration Verification (CCV):

1. CCV analyzed on 9/26/2014 @ 10:12 (ms03.i) exhibited acceptable %Ds (≤15.0%) for all compounds with the following exception(s):

Compound	%D
Bromodichloromethane	-22.1
Bromoform	-22.3
Bromomethane	-44.6
Carbon Tetrechloride	-22.2
1,1-Dichloroethane	-15.8
1,1-Dichloroethene	-24.5
1,1,1-Trichloroethane	-16.9
Trichlorofluoromethane	-16.9

Compound	%D
Vinyl Chloride	-16.1

Client Sample ID	Laboratory Sample ID	Compound	Action
BP-GM-38-GW-RW1-MW1-20140922	2030803001	Bromodichloromethane, Bromoform Bromomethane, Carbon Tetrechloride Trichlorofluoromethane 1,1-Dichloroethane, 1,1-Dichloroethene 1,1,1-Trichloroethane, vinyl chloride	UJ UJ UJ J UJ
BP-GM-38-GW-RW1-MW3-20140923	2030803002	Bromodichloromethane, Bromoform Bromomethane, Carbon Tetrechloride Trichlorofluoromethane, vinyl chloride 1,1-Dichloroethane, 1,1-Dichloroethene 1,1,1-Trichloroethane	UJ UJ UJ J J
BP-GM-38-GW-RW2-MW1-20140923	2030803003	Bromodichloromethane, Bromoform Bromomethane, Carbon Tetrechloride Trichlorofluoromethane, vinyl chloride, 1,1-Dichloroethane, 1,1-Dichloroethene 1,1,1-Trichloroethane	UJ UJ UJ UJ J J
BP-GM-38-GW-RW3-MW1-20140923	2030803004	Bromodichloromethane, Bromoform Bromomethane, Carbon Tetrechloride Trichlorofluoromethane, vinyl chloride 1,1-Dichloroethane, 1,1-Dichloroethene 1,1,1-Trichloroethane	UJ UJ UJ J J
BP-GM-38-GW-RW3-MW2-20140923	2030803005	Bromodichloromethane, Bromoform Bromomethane, Carbon Tetrechloride Trichlorofluoromethane, vinyl chloride 1,1-Dichloroethane, 1,1-Dichloroethene 1,1,1-Trichloroethane	UJ UJ UJ J J
BP-GM-38-GW-RW3-MW3-20140923	2030803006	Bromodichloromethane, Bromoform Bromomethane, Carbon Tetrechloride Trichlorofluoromethane, vinyl chloride 1,1-Dichloroethane, 1,1-Dichloroethene 1,1,1-Trichloroethane	UJ UJ UJ J J
BP-GM-38-GW-RW3-MW4-20140923	2030803007	Bromodichloromethane, Bromoform Bromomethane, Carbon Tetrechloride Trichlorofluoromethane, vinyl chloride 1,1-Dichloroethane, 1,1-Dichloroethene 1,1,1-Trichloroethane, vinyl chloride	UJ UJ UJ J UJ
BP-GM-38-GW-TP1-20140922	2030803008	Bromodichloromethane, Bromoform Bromomethane, Carbon Tetrechloride Trichlorofluoromethane, vinyl chloride 1,1-Dichloroethane, 1,1-Dichloroethene 1,1,1-Trichloroethane	UJ UJ UJ J UJ
BP-GM-38-GW-RW3-MW2-DUP	2030803009	Bromodichloromethane, Bromoform Bromomethane, Carbon Tetrechloride	UJ UJ

Client Sample ID	Laboratory Sample ID	Compound	Action
		Trichlorofluoromethane, vinyl chloride 1,1-Dichloroethane, 1,1-Dichloroethene 1,1,1-Trichloroethane	UJ J J
BP-GM-38-FB-20140922	2030803010	Bromodichloromethane, Bromoform Bromomethane, Carbon Tetrechloride Trichlorofluoromethane, vinyl chloride 1,1-Dichloroethane, 1,1-Dichloroethene 1,1,1-Trichloroethane	UJ UJ UJ UJ UJ
BP-GM-38-TB	2030803011	Bromodichloromethane, Bromoform Bromomethane, Carbon Tetrechloride Trichlorofluoromethane, vinyl chloride 1,1-Dichloroethane, 1,1-Dichloroethene 1,1,1-Trichloroethane	UJ UJ UJ UJ 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 (2077840) analyzed on 9/26/2014 was free of contamination. No qualifications were required.

2. Field Blank (BP-GM-38-FB-20140922) (2030803010) analyzed on 9/26/2014 was free of contamination. No qualifications/action required.

3. Trip Blank (BP-GM-38-TB) (2030803011) analyzed on 9/26/2014 was free of contamination. No qualifications were required.

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

1. Laboratory Control Sample (1268582) was analyzed on 09/26/2014. All %RECs were within the laboratory control limits. No qualifications were required.

Field Duplicate:

1. Sample BP-GM-38-GW-RW3-MW2-DUP (2030803009) was collected as field duplicate for sample BP-GM-38-GW-RW3-MW2-20140923 (2030803005). 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-RW3-MW2-20140923	1,1,1-Trichloroethane	EPA 624	0.36	µg/l	BP-GM-38-GW-RW3-MW2-DUP	0.39	µg/l	8.0	None
BP-GM-38-GW-RW3-MW2-20140923	Cis-1,2-Dichloroethene	EPA 624	1.4	µg/l	BP-GM-38-GW-RW3-MW2-DUP	1.3	µg/l	7.4	None
BP-GM-38-GW-RW3-MW2-20140923	1,1-Dichloroethane	EPA 624	0.51	µg/l	BP-GM-38-GW-RW3-MW2-DUP	0.51	µg/l	0.0	None
BP-GM-38-GW-RW3-MW2-20140923	1,1-Dichloroethene	EPA 624	0.38	µg/l	BP-GM-38-GW-RW3-MW2-DUP	0.33	µg/l	14.1	None
BP-GM-38-GW-RW3-MW2-20140923	Trichloroethene	EPA 624	148	µg/l	BP-GM-38-GW-RW3-MW2-DUP	151	µg/l	2.0	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-RW3-MW2-20140923 (2030803005). All %RECs and RPDs were within the laboratory control limits with the following exception(s):

Compound	%REC/%REC/RPD	Action
2-Chloroethylvinyl ether	A/A/170	UJ

NA= Not Applicable; A=Acceptable

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

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

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: G2030803-HNW-081.

MERCURY
USEPA Region II – Data Validation

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

Location: 100 Broadway, Bethpage, NY

Project Number: 2031-507

SDG #: G2030803-HNW-081

Client: H&S Environmental, Inc.

Date: 10/20/2014

Laboratory: ALS Environmental, Middletown, PA

Reviewer: Sherri Pullar

Summary:

1. Data validation was performed on the data for nine (9) water samples and one (1) field blank analyzed for Mercury by EPA Method 245.1.

2. The samples were collected on 9/22 thru 24/2014. The samples were submitted to ALS Environmental, Middletown, PA on 9/24/2014 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-MW1-20140922	2030803001	9/22/2014	Water	
BP-GM-38-GW-RW1-MW3-20140923	2030803002	9/23/2014	Water	
BP-GM-38-GW-RW2-MW1-20140923	2030803003	9/23/2014	Water	
BP-GM-38-GW-RW3-MW1-20140923	2030803004	9/23/2014	Water	
BP-GM-38-GW-RW3-MW2-20140923	2030803005	9/23/2014	Water	
BP-GM-38-GW-RW3-MW3-20140923	2030803006	9/23/2014	Water	
BP-GM-38-GW-RW3-MW4-20140923	2030803007	9/23/2014	Water	
BP-GM-38-GW-TP1-20140922	2030803008	9/23/2014	Water	
BP-GM-38-GW-RW3-MW2-DUP	2030803009	9/23/2014	Water	Field Duplicate of sample BP-GM-38-GW-RW3-MW2-20140923
BP-GM-38-FB-20140922	2030803010	9/23/2014	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 (2079887) digested on 10/02/2014 was free of contamination. No qualifications were required.

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

1. Field Blank (BP-GM-38-FB-20140922) (2030803010) analyzed on 10/02/2014 was free of contamination. No qualifications were required.

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

1. Mercury %REC in Laboratory Control Sample (2079888) analyzed on 10/02/2014 was within the laboratory control limits. No qualifications were required.

Field Duplicate:

1. Sample BP-GM-38-GW-RW3-MW2-DUP (2030803009) was collected as field duplicate for sample BP-GM-38-GW-RW3-MW2-20140923 (2030803005). Both samples were reported as non-detects. No qualifications were required.

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

1. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) were performed on sample BP-GM-38-GW-RW3-MW2-20140923 (2030803005). 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: G2030803-HNW-081.

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: 2031-507

SDG #: G2030803-HNW-081

Client: H&S Environmental, Inc.

Date: 10/20/2014

Laboratory: ALS Environmental, Middletown, PA

Reviewer: Sherri Pullar

Summary:

1. Data validation was performed on the data for nine (9) water samples analyzed for Solids, Total Suspended (TSS) by SM20th 2540D.

2. The samples were collected on 9/22 thru 24/2014. The samples were submitted to ALS Environmental, Middletown, PA on 9/24/2014 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. 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-MW1-20140922	2030803001	9/22/2014	Water	
BP-GM-38-GW-RW1-MW3-20140923	2030803002	9/23/2014	Water	
BP-GM-38-GW-RW2-MW1-20140923	2030803003	9/23/2014	Water	
BP-GM-38-GW-RW3-MW1-20140923	2030803004	9/23/2014	Water	
BP-GM-38-GW-RW3-MW2-20140923	2030803005	9/23/2014	Water	
BP-GM-38-GW-RW3-MW3-20140923	2030803006	9/23/2014	Water	
BP-GM-38-GW-RW3-MW4-20140923	2030803007	9/23/2014	Water	
BP-GM-38-GW-TP1-20140922	2030803008	9/23/2014	Water	
BP-GM-38-GW-RW3-MW2-DUP	2030803009	9/23/2014	Water	Field Duplicate of sample BP-GM-38-GW-RW3-MW2-20140923
BP-GM-38-FB-20140922	2030803010	9/23/2014	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 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 (2076721) analyzed on 9/24/2014 was free of contamination. No qualifications were required.

Field Duplicate:

1. Sample BP-GM-38-GW-RW3-MW2-DUP (2030803009) was collected as field duplicate for sample BP-GM-38-GW-RW3-MW2-20140923 (2030803005). Both samples were reported as non-detects. No qualifications were required.

Laboratory Duplicate:

1. Laboratory Duplicate for TSS was not performed on sample from this SDG.

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: G2030803-HNW-081.

NWIRP BETHPAGE GM-38
SEPTEMBER 2014 EVENT
DATA SUMMARY TABLE
AQUEOUS
SDG: 2030803, HNW-081

Sample Name	Lab ID	Analytical Method	Sample Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	cis-1,3-Dichloropropene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	trans-1,3-Dichloropropene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	1,2-Dichloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Tetrachloroethene	0.76	ug/L	J	0.26	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	cis-1,2-Dichloroethene	49.8	ug/L		0.26	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	trans-1,2-Dichloroethene	1	ug/L		0.12	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	1,3-Dichloropropene, Total	1	ug/L	U	0.19	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Carbon Tetrachloride	1	ug/L	UJ	0.24	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Chloroform	0.39	ug/L	J	0.15	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Benzene	1	ug/L	UJ	0.16	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	1,1,1-Trichloroethane	1	ug/L	UJ	0.27	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Bromomethane	2	ug/L	UJ	0.27	2
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Vinyl Chloride	2	ug/L	UJ	0.24	2
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Bromodichloromethane	1	ug/L	UJ	0.13	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	1,1-Dichloroethane	4.1	ug/L	J	0.19	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	1,1-Dichloroethene	2.2	ug/L	J	0.17	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Trichlorofluoromethane	1	ug/L	UJ	0.21	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	Trichloroethene	94.3	ug/L		0.21	1

NWIRP BETHPAGE GM-38
SEPTEMBER 2014 EVENT
DATA SUMMARY TABLE
AQUEOUS
SDG: 2030803, HNW-081

Sample Name	Lab ID	Analytical Method	Sample Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	624	20140926	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-GW-RW1-MW1-20140922	2030803001	245.1	20141002	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-GW-RW1-MW1-20140922	2030803001	2540D	20130924	1	Total Suspended Solids	5	mg/L	U	5	5
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	cis-1,3-Dichloropropene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	trans-1,3-Dichloropropene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	1,2-Dichloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Tetrachloroethene	0.31	ug/L	J	0.26	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	cis-1,2-Dichloroethene	0.44	ug/L	J	0.26	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	1,3-Dichloropropene, Total	1	ug/L	U	0.19	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Carbon Tetrachloride	1	ug/L	UJ	0.24	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Chloroform	0.67	ug/L	J	0.15	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Benzene	1	ug/L	UJ	0.16	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	1,1,1-Trichloroethane	1.2	ug/L	J	0.27	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Bromomethane	2	ug/L	UJ	0.27	2
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Vinyl Chloride	2	ug/L	UJ	0.24	2
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Bromodichloromethane	1	ug/L	UJ	0.13	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	1,1-Dichloroethane	6.1	ug/L	J	0.19	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	1,1-Dichloroethene	1.6	ug/L	J	0.17	1

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Sample Name	Lab ID	Analytical Method	Sample Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Trichlorofluoromethane	1	ug/L	UJ	0.21	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	1,1,2-Trichloroethane	0.46	ug/L	J	0.3	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	Trichloroethene	1.9	ug/L		0.21	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	624	20140926	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-GW-RW1-MW3-20140923	2030803002	245.1	20141002	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-GW-RW1-MW3-20140923	2030803002	2540D	20140924	1	Total Suspended Solids	5	mg/L	U	5	5
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	cis-1,3-Dichloropropene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	trans-1,3-Dichloropropene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	1,2-Dichloroethane	0.69	ug/L	J	0.22	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Tetrachloroethene	1	ug/L	U	0.26	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	cis-1,2-Dichloroethene	4	ug/L		0.26	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	1,3-Dichloropropene, Total	1	ug/L	U	0.19	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Carbon Tetrachloride	1	ug/L	UJ	0.24	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Chloroform	1.5	ug/L		0.15	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Benzene	0.21	ug/L	J	0.16	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	1,1,1-Trichloroethane	0.39	ug/L	J	0.27	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Bromomethane	2	ug/L	UJ	0.27	2
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Vinyl Chloride	2	ug/L	UJ	0.24	2
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Methylene Chloride	1	ug/L	U	0.32	1

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Sample Name	Lab ID	Analytical Method	Sample Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Bromodichloromethane	1	ug/L	UJ	0.13	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	1,1-Dichloroethane	1	ug/L	UJ	0.19	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	1,1-Dichloroethene	1.3	ug/L	J	0.17	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Trichlorofluoromethane	1	ug/L	UJ	0.21	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	Trichloroethene	18.3	ug/L		0.21	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	624	20140926	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-GW-RW2-MW1-20140923	2030803003	245.1	20141002	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-GW-RW2-MW1-20140923	2030803003	2540D	20140924	1	Total Suspended Solids	6	mg/L		5	5
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	cis-1,3-Dichloropropene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	trans-1,3-Dichloropropene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	1,2-Dichloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Tetrachloroethene	1.6	ug/L		0.26	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	cis-1,2-Dichloroethene	0.3	ug/L	J	0.26	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	1,3-Dichloropropene, Total	1	ug/L	U	0.19	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Carbon Tetrachloride	1	ug/L	UJ	0.24	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Chloroform	1	ug/L	U	0.15	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Benzene	1	ug/L	UJ	0.16	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	1,1,1-Trichloroethane	0.39	ug/L	J	0.27	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Bromomethane	2	ug/L	UJ	0.27	2

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Sample Name	Lab ID	Analytical Method	Sample Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Vinyl Chloride	2	ug/L	UJ	0.24	2
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Bromodichloromethane	1	ug/L	UJ	0.13	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	1,1-Dichloroethane	0.69	ug/L	J	0.19	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	1,1-Dichloroethene	0.43	ug/L	J	0.17	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Trichlorofluoromethane	1	ug/L	UJ	0.21	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	Trichloroethene	43.4	ug/L		0.21	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	624	20140926	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-GW-RW3-MW1-20140923	2030803004	245.1	20141002	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-GW-RW3-MW1-20140923	2030803004	2540D	20140924	1	Total Suspended Solids	8	mg/L		5	5
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	cis-1,3-Dichloropropene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	trans-1,3-Dichloropropene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	1,2-Dichloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	2-Chloroethylvinyl ether	2	ug/L	UJ	0.28	2
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Tetrachloroethene	1	ug/L	U	0.26	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	cis-1,2-Dichloroethene	1.4	ug/L		0.26	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	1,3-Dichloropropene, Total	1	ug/L	U	0.19	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Carbon Tetrachloride	1	ug/L	UJ	0.24	1

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Sample Name	Lab ID	Analytical Method	Sample Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Chloroform	1	ug/L	U	0.15	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Benzene	1	ug/L	UJ	0.16	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	1,1,1-Trichloroethane	0.36	ug/L	J	0.27	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Bromomethane	2	ug/L	UJ	0.27	2
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Vinyl Chloride	2	ug/L	UJ	0.24	2
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Bromodichloromethane	1	ug/L	UJ	0.13	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	1,1-Dichloroethane	0.51	ug/L	J	0.19	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	1,1-Dichloroethene	0.38	ug/L	J	0.17	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Trichlorofluoromethane	1	ug/L	UJ	0.21	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	Trichloroethene	148	ug/L		0.21	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	624	20140926	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-GW-RW3-MW2-20140923	2030803005	245.1	20141002	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-GW-RW3-MW2-20140923	2030803005	2540D	20140924	1	Total Suspended Solids	5	mg/L	U	5	5
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	cis-1,3-Dichloropropene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	trans-1,3-Dichloropropene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	1,2-Dichloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Tetrachloroethene	1	ug/L	U	0.26	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	cis-1,2-Dichloroethene	1.2	ug/L		0.26	1

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Sample Name	Lab ID	Analytical Method	Sample Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	1,3-Dichloropropene, Total	1	ug/L	U	0.19	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Carbon Tetrachloride	1	ug/L	UJ	0.24	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Chloroform	0.27	ug/L	J	0.15	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Benzene	1	ug/L	UJ	0.16	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	1,1,1-Trichloroethane	0.4	ug/L	J	0.27	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Bromomethane	2	ug/L	UJ	0.27	2
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Vinyl Chloride	2	ug/L	UJ	0.24	2
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Bromodichloromethane	1	ug/L	UJ	0.13	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	1,1-Dichloroethane	1.3	ug/L	J	0.19	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	1,1-Dichloroethene	0.94	ug/L	J	0.17	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Trichlorofluoromethane	1	ug/L	UJ	0.21	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	Trichloroethene	147	ug/L		0.21	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	624	20140926	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-GW-RW3-MW3-20140923	2030803006	245.1	20141002	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-GW-RW3-MW3-20140923	2030803006	2540D	20140924	1	Total Suspended Solids	5	mg/L	U	5	5
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	cis-1,3-Dichloropropene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	trans-1,3-Dichloropropene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	1,2-Dichloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Chlorobenzene	1	ug/L	U	0.11	1

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DATA SUMMARY TABLE
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Sample Name	Lab ID	Analytical Method	Sample Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Tetrachloroethene	1	ug/L	U	0.26	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	cis-1,2-Dichloroethene	1	ug/L	U	0.26	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	1,3-Dichloropropene, Total	1	ug/L	U	0.19	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Carbon Tetrachloride	1	ug/L	UJ	0.24	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Chloroform	0.38	ug/L	J	0.15	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Benzene	1	ug/L	UJ	0.16	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	1,1,1-Trichloroethane	1	ug/L	UJ	0.27	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Bromomethane	2	ug/L	UJ	0.27	2
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Vinyl Chloride	2	ug/L	UJ	0.24	2
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Bromodichloromethane	1	ug/L	UJ	0.13	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	1,1-Dichloroethane	2.7	ug/L	J	0.19	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	1,1-Dichloroethene	0.37	ug/L	J	0.17	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Trichlorofluoromethane	1	ug/L	UJ	0.21	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	Trichloroethene	2.5	ug/L		0.21	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	624	20140926	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-GW-RW3-MW4-20140923	2030803007	245.1	20141002	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-GW-RW3-MW4-20140923	2030803007	2540D	20140924	1	Total Suspended Solids	5	mg/L		5	5
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	cis-1,3-Dichloropropene	1	ug/L	U	0.12	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	trans-1,3-Dichloropropene	1	ug/L	U	0.14	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Acrolein	30	ug/L	U	2.4	30

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DATA SUMMARY TABLE
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Sample Name	Lab ID	Analytical Method	Sample Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	1,2-Dichloroethane	0.67	ug/L	J	0.22	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Tetrachloroethene	1	ug/L	U	0.26	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	cis-1,2-Dichloroethene	7.6	ug/L		0.26	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	1,3-Dichloropropene, Total	1	ug/L	U	0.19	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Carbon Tetrachloride	1	ug/L	UJ	0.24	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Chloroform	1.9	ug/L		0.15	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Benzene	1	ug/L	UJ	0.16	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	1,1,1-Trichloroethane	1	ug/L	UJ	0.27	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Bromomethane	2	ug/L	UJ	0.27	2
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Vinyl Chloride	2	ug/L	UJ	0.24	2
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Bromodichloromethane	1	ug/L	UJ	0.13	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	1,1-Dichloroethane	1.3	ug/L	J	0.19	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	1,1-Dichloroethene	0.47	ug/L	J	0.17	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Trichlorofluoromethane	1	ug/L	UJ	0.21	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	Trichloroethene	31.9	ug/L		0.21	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-TP1-20140922	2030803008	624	20140926	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-GW-TP1-20140922	2030803008	245.1	20141002	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-GW-TP1-20140922	2030803008	2540D	20140924	1	Total Suspended Solids	5	mg/L	U	5	5
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Ethylbenzene	1	ug/L	U	0.16	1

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DATA SUMMARY TABLE
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Sample Name	Lab ID	Analytical Method	Sample Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	cis-1,3-Dichloropropene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	trans-1,3-Dichloropropene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	1,2-Dichloroethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Tetrachloroethene	1	ug/L	U	0.26	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	cis-1,2-Dichloroethene	1.3	ug/L		0.26	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	1,3-Dichloropropene, Total	1	ug/L	U	0.19	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Carbon Tetrachloride	1	ug/L	UJ	0.24	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Chloroform	1	ug/L	U	0.15	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Benzene	1	ug/L	UJ	0.16	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	1,1,1-Trichloroethane	0.39	ug/L	J	0.27	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Bromomethane	2	ug/L	UJ	0.27	2
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Vinyl Chloride	2	ug/L	UJ	0.24	2
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Bromodichloromethane	1	ug/L	UJ	0.13	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	1,1-Dichloroethane	0.51	ug/L	J	0.19	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	1,1-Dichloroethene	0.33	ug/L	J	0.17	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Trichlorofluoromethane	1	ug/L	UJ	0.21	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	Trichloroethene	151	ug/L		0.21	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1

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Sample Name	Lab ID	Analytical Method	Sample Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-GW-RW3-MW2-DUP	2030803009	624	20140926	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-GW-RW3-MW2-DUP	2030803009	245.1	20141002	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-GW-RW3-MW2-DUP	2030803009	2540D	20140924	1	Total Suspended Solids	5	mg/L	U	5	5
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	cis-1,3-Dichloropropene	1	ug/L	U	0.12	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	trans-1,3-Dichloropropene	1	ug/L	U	0.14	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-FB-20140922	2030803010	624	20140926	1	1,2-Dichloroethane	1	ug/L	U	0.22	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Tetrachloroethene	1	ug/L	U	0.26	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	cis-1,2-Dichloroethene	1	ug/L	U	0.26	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	1,3-Dichloropropene, Total	1	ug/L	U	0.19	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Carbon Tetrachloride	1	ug/L	UJ	0.24	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Chloroform	1	ug/L	U	0.15	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Benzene	1	ug/L	UJ	0.16	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	1,1,1-Trichloroethane	1	ug/L	UJ	0.27	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Bromomethane	2	ug/L	UJ	0.27	2
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Vinyl Chloride	2	ug/L	UJ	0.24	2
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Bromodichloromethane	1	ug/L	UJ	0.13	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	1,1-Dichloroethane	1	ug/L	UJ	0.19	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	1,1-Dichloroethene	1	ug/L	UJ	0.17	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Trichlorofluoromethane	1	ug/L	UJ	0.21	1

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Sample Name	Lab ID	Analytical Method	Sample Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-FB-20140922	2030803010	624	20140926	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	Trichloroethene	1	ug/L	U	0.21	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-FB-20140922	2030803010	624	20140926	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1
BP-GM-38-FB-20140922	2030803010	245.1	20141002	1	Mercury, Total	0.0005	mg/L	U	0.00016	0.0005
BP-GM-38-TB	2030803011	624	20140926	1	Ethylbenzene	1	ug/L	U	0.16	1
BP-GM-38-TB	2030803011	624	20140926	1	cis-1,3-Dichloropropene	1	ug/L	U	0.12	1
BP-GM-38-TB	2030803011	624	20140926	1	trans-1,3-Dichloropropene	1	ug/L	U	0.14	1
BP-GM-38-TB	2030803011	624	20140926	1	1,4-Dichlorobenzene	1	ug/L	U	0.15	1
BP-GM-38-TB	2030803011	624	20140926	1	Acrolein	30	ug/L	U	2.4	30
BP-GM-38-TB	2030803011	624	20140926	1	1,2-Dichloroethane	1	ug/L	U	0.22	1
BP-GM-38-TB	2030803011	624	20140926	1	Acrylonitrile	5	ug/L	U	0.89	5
BP-GM-38-TB	2030803011	624	20140926	1	Toluene	1	ug/L	U	0.12	1
BP-GM-38-TB	2030803011	624	20140926	1	Chlorobenzene	1	ug/L	U	0.11	1
BP-GM-38-TB	2030803011	624	20140926	1	2-Chloroethylvinyl ether	2	ug/L	U	0.28	2
BP-GM-38-TB	2030803011	624	20140926	1	Chlorodibromomethane	1	ug/L	U	0.22	1
BP-GM-38-TB	2030803011	624	20140926	1	Tetrachloroethene	1	ug/L	U	0.26	1
BP-GM-38-TB	2030803011	624	20140926	1	cis-1,2-Dichloroethene	1	ug/L	U	0.26	1
BP-GM-38-TB	2030803011	624	20140926	1	trans-1,2-Dichloroethene	1	ug/L	U	0.12	1
BP-GM-38-TB	2030803011	624	20140926	1	1,3-Dichlorobenzene	1	ug/L	U	0.14	1
BP-GM-38-TB	2030803011	624	20140926	1	1,3-Dichloropropene, Total	1	ug/L	U	0.19	1
BP-GM-38-TB	2030803011	624	20140926	1	Carbon Tetrachloride	1	ug/L	UJ	0.24	1
BP-GM-38-TB	2030803011	624	20140926	1	Chloroform	1	ug/L	U	0.15	1
BP-GM-38-TB	2030803011	624	20140926	1	Benzene	1	ug/L	UJ	0.16	1
BP-GM-38-TB	2030803011	624	20140926	1	1,1,1-Trichloroethane	1	ug/L	UJ	0.27	1
BP-GM-38-TB	2030803011	624	20140926	1	Bromomethane	2	ug/L	UJ	0.27	2
BP-GM-38-TB	2030803011	624	20140926	1	Chloromethane	1	ug/L	U	0.25	1
BP-GM-38-TB	2030803011	624	20140926	1	Chloroethane	1	ug/L	U	0.24	1
BP-GM-38-TB	2030803011	624	20140926	1	Vinyl Chloride	2	ug/L	UJ	0.24	2
BP-GM-38-TB	2030803011	624	20140926	1	Methylene Chloride	1	ug/L	U	0.32	1
BP-GM-38-TB	2030803011	624	20140926	1	Bromoform	2	ug/L	UJ	0.21	2
BP-GM-38-TB	2030803011	624	20140926	1	Bromodichloromethane	1	ug/L	UJ	0.13	1

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Sample Name	Lab ID	Analytical Method	Sample Date	Dilution Factor	Analyte	Result	Unit	Qualifier	DL	LOD
BP-GM-38-TB	2030803011	624	20140926	1	1,1-Dichloroethane	1	ug/L	UJ	0.19	1
BP-GM-38-TB	2030803011	624	20140926	1	1,1-Dichloroethene	1	ug/L	UJ	0.17	1
BP-GM-38-TB	2030803011	624	20140926	1	Trichlorofluoromethane	1	ug/L	UJ	0.21	1
BP-GM-38-TB	2030803011	624	20140926	1	1,2-Dichloropropane	1	ug/L	U	0.24	1
BP-GM-38-TB	2030803011	624	20140926	1	1,1,2-Trichloroethane	1	ug/L	U	0.3	1
BP-GM-38-TB	2030803011	624	20140926	1	Trichloroethene	1	ug/L	U	0.21	1
BP-GM-38-TB	2030803011	624	20140926	1	1,1,2,2-Tetrachloroethane	1	ug/L	U	0.22	1
BP-GM-38-TB	2030803011	624	20140926	1	1,2-Dichlorobenzene	1	ug/L	U	0.2	1