NOR-03002

January 6, 2023

Ms. Kristi Granzen
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau D, Section B
625 Broadway
Albany, New York 12233-7015

Reference: CLEAN Contract No. N6247016D9008
Contract Task Order WE13

Subject: Operable Unit 2 Plume Data Gap Investigation
Monitoring Well Installation Summary Report
Monitoring Well TT205S1
Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage, New York

Dear Ms. Granzen:

On behalf of the Department of the Navy, Tetra Tech is providing the *Operable Unit 2 Plume Data Gap Investigation, Monitoring Well Installation Summary Report, Monitoring Well TT205S1, NWIRP Bethpage* to the New York State Department of Environmental Conservation (NYSDEC) for information. This report provides documentation for installation of groundwater monitoring well TT205S1. The Navy is issuing this document as a final. If no comments are received by February 6, 2023, the Navy will include this report as a final in the NWIRP Bethpage Administrative Record.

If you have any questions, please contact Mr. Scott Sokolowski, NAVFAC MIDLANT, at scott.c.sokolowski.civ@us.navy.mil or (757) 341-2011.

Sincerely,

Ernie Wu
Project Manager

Enclosures: Final Operable Unit 2 Plume Data Gap Investigation
Monitoring Well Installation Summary Report
Monitoring Well TT205S1
Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage, New York

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Naval Facilities Engineering Systems Command Atlantic
Norfolk, Virginia

Operable Unit 2 Plume Data Gap Investigation Monitoring Well Installation Summary Report for Monitoring Well TT205S1

Naval Weapons Industrial Reserve Plant
Bethpage, New York

December 2022

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OPERABLE UNIT 2 PLUME DATA GAP INVESTIGATION
MONITORING WELL INSTALLATION SUMMARY REPORT
MONITORING WELL TT205S1

NAVAL WEAPONS INDUSTRIAL RESERVE PLANT

BETHPAGE, NEW YORK

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Department of the Navy
Naval Facilities Engineering Systems Command
9324 Virginia Avenue
Norfolk, Virginia 23511-3095

Submitted by:
Tetra Tech
4433 Corporation Lane, Suite 300
Virginia Beach, Virginia 23462

CONTRACT NUMBER N62470D9008
CONTRACT TASK ORDER WE13

December 2022

PREPARED UNDER THE DIRECTION OF:

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PROGRAM MANAGER
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NEW YORK PROFESSIONAL GEOLOGIST SEAL

As a New York-licensed Professional Geologist, I have reviewed and approved the geological information and drawings in the Operable Unit 2 Plume Data Gap Investigation, Monitoring Well Installation Summary Report for Monitoring Well TT205S1, Naval Weapons Industrial Reserve Plant, Bethpage and seal it in accordance with Article 145 Section 7209 of the New York State Education Laws. In sealing this document, I certify that the geological information contained in it is true to the best of my knowledge and the geological methods and procedures included herein are consistent with currently accepted geological practices.

It is a violation of this law for any person to alter the contained drawings in anyway, unless he or she is acting under the direction of a NY-licensed Professional Geologist.

Name: Vincent J. Varricchio
NY PG License Number: 000095
State: New York

Signature:

Date:

12/19/2022

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Acronyms and Abbreviations

AOC	Area of Concern
bgs	below ground surface
CAMP	Community Air Monitoring Program
CLEAN	Comprehensive Long- Term Environmental Action Navy
COR	Continuously Operating Reference
DoD	Department of Defense
ELAP	Environmental Laboratory Accreditation Program
EPA	Environmental Protection Agency, United States
ft	feet
GOCO	Government-Owned Contractor-Operated
GPS	Global Positioning System
IDW	Investigation Derived Waste
IR	Installation Restoration
NAD	North American Datum
NAVD	North American Vertical Datum
NAVFAC	Naval Facilities Engineering Systems Command
NG	Northrop Grumman
NGS	National Geodetic Survey
NTU	Nephelometric Turbidity Units
NWIRP	Naval Weapons Industrial Reserve Plant
NYSDEC	New York State Department of Environmental Conservation
OU	Operable Unit
PCBs	Polychlorinated Biphenyls
PID	Photoionization Detector
POTW	Publicly Owned Treatment Works
PPE	Personal Protective Equipment
PVC	Polyvinyl Chloride
ROD	Record of Decision
SVOC	Semivolatile Organic Compounds
VOC	Volatile Organic Compounds
VPB	Vertical Profile Boring

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1.0 Introduction

Tetra Tech has prepared this Monitoring Well Installation Summary Report for the Naval Facilities Engineering Systems Command (NAVFAC) Atlantic Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract Number N6247016D9008 Task Order WE13, which is part of the Navy's ongoing Environmental Restoration Program for the Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage Operable Unit (OU) 2 Site 1 plume identified in the 2003 Record of Decision (ROD) (NAVFAC, 2003). This report describes monitoring well installation activities for TT205S1 under the OU2 Plume Data Gap Investigation. As shown in Figure 1, NWIRP Bethpage is located in east-central Nassau County, Long Island, New York, approximately 30 miles east of New York City.

1.1 Scope and Objectives

The shallow OU2 VOC plume (0 to 300 feet [ft] below ground surface [bgs]) downgradient of the former NWIRP is delineated primarily based on vertical profile boring (VPB) data. Similarly, the southern boundary of the intermediate plume (300 to 500 ft bgs) is also delineated based on VPB data. The VPB data consists of groundwater grab samples that represent primarily a single non-reproduceable sampling event. The OU2 Plume Data Gap Investigation includes installation of eleven monitoring wells (eight shallow and three intermediate depth wells) to allow collection of current data to delineate the OU2 volatile organic compounds (VOC) plume in this area and allows for the collection of future groundwater data to evaluate potential changes in the VOC concentrations over time. Groundwater data collected from these wells will be used to support the Navy's ongoing and planned remediation of the OU2 VOC plume.

The monitoring wells installed in this investigation are located at or near former VPB locations. The well screen intervals were selected based on data from the VPBs, such as presence/absence of VOCs and subsurface geology. The location of these wells is shown on Figure 2.

This monitoring well installation summary report provides information on the installation of monitoring well TT205S1 associated with VPB-131 (Figure 2). VPB-131 was installed in 2012. The purpose of monitoring well TT205S1 is to address data gaps in the shallow (0 to 300 ft bgs) interval of the OU2 plume.

Field tasks were conducted during May 2022 in accordance with the CERCLA Letter Work Plan Site 1 Operable Unit 2 Plume Data Gap Investigation Monitoring Well

Installation Program (Tetra Tech, 2021). The field investigation included split spoon sampling, groundwater sampling, the installation and development of one monitoring well, and surveying.

Documentation of these activities is included in the appendices of this report. Appendix A contains the summary packet for monitoring well TT205S1. Appendix B contains the survey report.

1.2 Site History

NWIRP Bethpage is in the Hamlet of Bethpage, Town of Oyster Bay, New York. Since its inception in 1941, the plant's primary mission was the research, prototyping, testing, design, engineering, fabrication, and primary assembly of military aircraft. The facilities at NWIRP included four plants used for assembly and prototype testing, a group of quality control laboratories, two warehouse complexes (north and south), a salvage storage area, water recharge basins, the Industrial Wastewater Treatment Plant, and several smaller support buildings.

The Navy's property originally totaled 109.5 acres and was formerly a Government-Owned Contractor-Operated (GOCO) facility that was operated by Northrop Grumman (NG) until September 1998. Prior to 2002, the NWIRP property was bordered on the north, west, and south by current or former NG facilities, and on the east by a residential neighborhood. By March 2008, approximately 100 acres of NWIRP property were transferred to Nassau County in three separate actions. The remaining 9 acres and access easements were retained by the Navy to continue remedial efforts at Installation Restoration (IR) Site 1 – Former Drum Marshalling Area and Site 4 – Former Underground Storage Tanks (Area of Concern [AOC] 22). A parcel of land connecting the two sites was also retained. Currently, the 9-acre parcel of NWIRP is bordered on the east by a residential neighborhood and on the north, south, and west by Steel Equities; however, a small portion near Sites 2 and 3 is still owned by Nassau County. Access to the NWIRP is from South Oyster Bay Road.

1.3 Geology and Hydrogeology

1.3.1 Stratigraphy

Overburden at the site consists of approximately 1,100 ft of unconsolidated deposits overlying crystalline bedrock of the Hartland Formation. Overburden is divided into four geologic units in descending order: the Upper Glacial Formation, the Magothy Formation, the clay member of the Raritan Formation ("Raritan Clay") and the Lloyd

Sand member of the Raritan Formation ("Lloyd Sand") (Geraghty and Miller, 1994). The crystalline bedrock consists primarily of metamorphic and igneous rocks.

The Upper Glacial Formation consists of till and outwash deposits of medium to coarse sand and gravel with lenses of fine sand, silt, and clay (Smolensky and Feldman, 1988); these deposits form the Upper Glacial Aquifer. Directly underlying this unit is the Magothy Formation with a thickness of 650 to 900 ft that extends to a depth of 700 to 1,000 ft bgs, as observed at the former NWIRP and extending southeast to areas south of Southern State Parkway. The Magothy is characterized by fine to medium sands and silts interbedded with zones of clays, silty sands, and sandy clays. Sand and gravel lenses are found in some areas between depths of 425 and 820 ft bgs; these deposits form the main groundwater producing zones of the Magothy Aquifer.

Investigations performed by the Navy since 2012 indicate that the bottom of the Magothy (top of the Raritan Clay) can extend to depths of 700 to greater than 1,000 ft bgs. The top of the Raritan Clay deepens to the south-southeast, as evidenced by clay depths of 1,000 ft bgs (or more) in borings installed offsite. The Raritan Clay Unit is of continental origin and consists of clay, silty clay, clayey silt, and fine silty sand. This member acts as a confining layer over the Lloyd Sand Unit. The Lloyd Sand Unit is also of continental origin, having been deposited in a large freshwater lacustrine environment. The material consists of fine to coarse-grained sands, gravel, inter-bedded clay, and silty sand. These deposits form the Lloyd Aquifer.

1.3.2 Hydrogeology

The Upper Glacial Aquifer and the Magothy Aquifer comprise the aquifers of interest at the NWIRP. Regionally, these formations are generally considered to form a common, interconnected aquifer as the coarse nature of each unit near their contact and the lack of any regionally confining clay unit allows for the unrestricted flow of groundwater between the formations.

The Magothy Aquifer is the major source of public water in Nassau County. The most productive water bearing zones are the discontinuous lenses of sand and gravel that occur within the siltier matrix. The major water-bearing zones are coarse sand and gravel lenses located in the lower portion of the Magothy. Because of the presence of intermittent clay layers and the depths, the Magothy Aquifer is commonly regarded to function overall as an unconfined aquifer at shallow depths and a confined aquifer at greater depths. The drilling program at the NWIRP has revealed that clay zones

beneath the facility are common but laterally discontinuous. No confining clay units of facility-wide extent have been encountered.

Groundwater is encountered at an average depth of approximately 50 ft bgs at the facility. Historically, because of pumping and recharge at the facility, groundwater depths have been measured to range from 15 to 60 ft bgs. The groundwater flow in the area is to the south- southeast.

2.0 Field Program

Field investigation activities at TT205S1 consisted of drilling, split spoon soil sampling, groundwater sampling, geophysical logging, monitoring well installation, monitoring well development, and surveying. After the borehole drilling and geophysical logging were completed, the data was reviewed and used to confirm the planned monitoring well screen interval was acceptable. Drilling during this investigation was performed by Delta Well and Pump Company of Ronkonkoma, New York under the oversight of Tetra Tech. A description of these tasks is provided below.

2.1 Borehole Drilling

Borehole TT205S1 was completed during this field effort in May 2022. The total depth of the borehole was 270 ft bgs. The location is shown in Figure 2 and details are summarized in Table 1.

2.1.1 Drilling

In order to prevent sloughing of the borehole through unconsolidated lithologies, the borehole was installed by setting a 10-inch diameter surface casing using a hollow stem auger drill rig. The surface casing was set to 52 ft bgs at the borehole location. The remainder of the drilling depth was advanced using mud rotary drilling techniques.

Drilling mud consisted of potable water and polymer-free sodium bentonite. Drilling mud was contained and re- circulated in baffled, high-capacity mud tubs. A sand separator was used intermittently to remove fines from circulation.

2.1.2 Sampling

A total of three (3) split spoon samples were collected from borehole TT205S1 to confirm lithology at the proposed screen interval. Samples were logged by the field geologist and screened for VOCs utilizing a photoionization detector (PID). A detailed boring log for the TT205S1 screen interval is included in Appendix A.

Groundwater grab samples were collected from the top and bottom of the proposed screen interval (230 to 232 ft bgs and 250 to 252 ft bgs). Groundwater grab samples were collected with a hydropunch sampler and analyzed for VOCs and 1,4-dioxane using Environmental Protection Agency (EPA) Methods SW846-8260B and SW846-8270 SIM, respectively. The groundwater grab samples were analyzed by Chemtech, a Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP), and New York State Department of Environmental Conservation (NYSDEC)- certified

laboratory. During the collection of groundwater grab samples, field parameters were measured (pH, temperature, specific conductivity, oxidation reduction potential, dissolved oxygen, and turbidity). These groundwater samples were collected for screening level data and did not receive validation. Groundwater grab sample logs, sample chain of custody forms, and analytical data reporting form Is for TT205S1 are included in Appendix A.

During drilling, air sampling was conducted under a Community Air Monitoring Plan (CAMP). At this drilling location, two air samples, upwind and downwind, were collected using summa canisters and were submitted for laboratory analysis for VOCs by EPA Method TO-15. The analysis was performed by Eurofins Air Toxics, LLC. Air sample logs, sample chain of custody forms, and analytical data reporting form Is are included in Appendix A. In addition to the collected air samples, dust monitoring and PID readings were collected during active drilling operations. No exceedances which would cause drilling to cease under the CAMP were observed during the active drilling operations.

2.1.3 Geophysics

Borehole geophysical logs (gamma) were recorded after the borehole was drilled but prior to the removal of drill rods. A copy of the log was printed in the field for review once the probe reached the bottom of the borehole. The instrument was then raised to the top of the boring and a second log was generated and printed in the field. The gamma log is included in Appendix A.

2.2 Monitoring Well Installation

Monitoring well TT205S1 was installed in May 2022. The geophysical logs and the groundwater analytical data collected from the hydropunch sampler were used to confirm the planned screened interval for the monitoring well. The total depth of the monitoring well is 255 ft bgs.

2.2.1 Drilling and Well Construction

The well was installed using mud rotary drilling techniques. Well construction details are summarized in Table 2. The well was installed near VPB-131. The well screen interval for monitoring well TT205S1 was selected using the data (VOC and subsurface geology) from the VPB-131.

During the monitoring well installation, split spoon soil samples were collected every ten feet within the screen interval to confirm the presence of a highly permeable interval.

The monitoring well was constructed of 4-inch diameter, Schedule 40, National Sanitation Foundation-approved polyvinylchloride (PVC) riser pipe and 0.010-slot well screen. The well was completed at the surface with a 12-inch diameter steel curb box. The well riser was set below grade and fit with a lockable J plug. A detailed monitoring well construction diagram for monitoring well TT205S1 is included in Appendix A.

2.2.2 Well Development

Following installation, the monitoring well was developed to evacuate silts and other fine-grained materials and to establish the filter pack to promote a hydraulic connection between the well and the surrounding aquifer. Well development was not initiated until at least 5 days after well installation.

The monitoring well screen was developed using a combination of air lifting and pumping with a submersible pump. The following groundwater quality parameters were collected during development to determine stabilization: pH, specific conductivity, dissolved oxygen, turbidity, temperature, and oxidation-reduction potential. In compliance with NYSDEC policy, wells were developed until turbidity was less than 50 nephelometric turbidity units (NTUs) if possible. Table 3 summarizes total pumped volume from air lifting and pump development and final turbidity. The well development log for monitoring well TT205S1 is included in Appendix A.

Groundwater samples were collected at the end of development activities using the submersible pump dedicated for development. These samples were collected to provide initial screening level data for VOCs and 1,4-dioxane using Methods SW846-8260B and SW846-8270 SIM, respectively. This data did not receive data validation since the samples are not considered high quality samples. The groundwater sample log sheet, sample chain of custody form and, laboratory reporting form I for TT205S1 is included in Appendix A. This monitoring well is sampled as part of the ongoing routine groundwater sampling program and data from these sampling events are reported/documented under separate reports.

2.3 Decontamination and Investigation Derived Waste (IDW)

As part of the IDW management practices and in accordance with the work plan, the IDW (consisting of soil cuttings, drilling muds, groundwater monitoring well development water, decontamination fluids, and personal protective equipment [PPE]) generated during the boring installation was containerized and staged at NWIRP Bethpage. IDW solids were characterized and disposed of properly under requirements outlined in NYSDEC subpart 375-6.8(b) and CP-51. Representative samples of soil IDW were

collected from roll off containers and submitted to Chemtech for analysis, which includes VOCs, semi-volatile organic compounds (SVOCs), Metals and polychlorinated biphenyls (PCBs)/Pesticides.

IDW water was containerized in frac tanks and stored at NWIRP Bethpage for characterization and ultimate disposal to the Publicly Owned Treatment Works (POTW), in accordance with the facilities existing discharge permit. A representative water sample was collected from each frac tank and submitted to Chemtech for analysis of VOCs via EPA Method 624.1, PCBs via Method 8082A and Total Metals via Method 6010. To the extent feasible, soil and water were not mixed.

All IDW generated during this investigation was characterized as non-hazardous.

2.4 Surveying

A survey of the monitoring well location was conducted by Borbas Surveying & Mapping, LLC, of Boonton, NJ, under the direct supervision of Tetra Tech. The location was tied into the existing base map developed for this investigation. The survey elevation is referenced to the North American Vertical Datum (NAVD) 1988 and has a vertical accuracy of 0.01 foot. Vertical control is based on observations of the National Geodetic Survey (NGS) Continuously Operating Reference (COR) Stations NYBR, NYCI, NYVH and SHK6. The horizontal location is referenced to the North American Datum (NAD) 1983 New York, Long Island State Plane Coordinate System and has an accuracy of 0.1 foot. Horizontal control is based on Global Positioning System (GPS) observations using the NGS COR Stations NYBR, NYCI, NYVH and SHK6.

A table of survey data (grade elevation, northing/easting, and latitude/longitude) is included in Appendix B.

3.0 References

Geraghty and Miller, Inc., 1994. *Remedial Investigation Report, Grumman Aerospace Corporation, Bethpage, New York.* Revised September 1994.

Naval Facilities Engineering Command (NAVFAC), 2003. *Record of Decision Naval Weapons Industrial Reserve Plant Bethpage, New York, Operable Unit 2 – Groundwater,* NYS Registry: 1-30- 003B. April.

Tetra Tech, 2021. *CERCLA Letter Work Plan Site 1 Operable Unit 2 Plume Data Gap Investigation Monitoring Well Installation Program, NWIRP Bethpage, New York*, February.

Smolensky, D., and Feldman, S., 1988. *Geohydrology of the Bethpage-Hicksville-Levittown Area, Long Island, New York,* U.S. Geological Survey Water-Resourced Investigations Report 88-4135, 25 pp.

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Tables

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TABLE 1
BORING SUMMARY – TT205S1 OU2 PLUME DATA GAP INVESTIGATION
NWIRP BETHPAGE, NEW YORK

BORING	BORING START DATE	BORING COMPLETION DATE	GROUND ELEVATION (MSL)	TOTAL DEPTH (ft bgs)	SURFACE CASING SET AT (ft bgs)	NO. OF SPOON SAMPLES	GAMMA LOG (ft bgs)	NO. GW SAMPLES COLLECTED/ ATTEMPTED	DATE OF AIR SAMPLE	MONITORING WELLS INSTALLED AT LOCATION
TT205S1	5/5/2022	5/13/2022	68.5	270	52	3	270	2 / 2	5/12/2022	TT205S1

MSL - mean sea level
ft bgs - feet below ground surface N/A - not applicable

TABLE 2
MONITORING WELL CONSTRUCTION SUMMARY OU2 PLUME DATA GAP INVESTIGATION
NWIRP BETHPAGE, NEW YORK

MONITORING WELL	ADJACENT VPB	WELL COMPLETION DATE	GROUND ELEVATION (MSL)	TOP OF CASING ELEVATION (MSL)	WELL DEPTH (ft bgs)	CASING DEPTH (ft bgs)	SCREEN INTERVAL (ft bgs)	SUMP DEPTH INTERVAL (ft bgs)	BORING DEPTH (ft bgs)
TT205S1	VPB131	5/18/2022	68.5	68.36	255	52	230 - 250	250 - 255	270

MSL - mean sea level
ft bgs - feet below ground surface

TABLE 3
MONITORING WELL DEVELOPMENT SUMMARY OU2 PLUME DATA GAP INVESTIGATION
NWIRP BETHPAGE, NEW YORK

MONITORING WELL	ADJACENT VPB	AIR DEVELOPMENT		PUMP DEVELOPMENT			APPROX. TOTAL DEVELOPMENT VOLUME (GAL)	FINAL TURBIDITY (NTUs)
		DATE	APPROX. VOLUME (GAL)	DATE	FINAL PUMP DEPTH (FT)	APPROX. VOLUME (GAL)		
TT205S1	VPB131	5/23/2022	3,660	5/24/2022	250	4,660	8,320	4.16

GAL - gallon FT - feet
NTUs - Nephelometric Turbidity Units

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Figures

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NAVFAC

GENERAL LOCATION MAP
NWIRP BETHPAGE, NEW YORK

CTO	N62470-16-D-9008 WE13
DRAWN BY	DATE
MS	08/15/19
CHECKED BY	DATE
EW	08/15/19
FIGURE NUMBER	
1	

NOR P:\GIS_files\Bethpage\MAP DOCS\MXD\2013\RI_add\BP_longisland-new_8x11.mxd MMC

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N

NG

HR

BCP

NWIRP

NG

Groundwater Flow

TT158I1

TT158S1

TT149I1

TT149S1

TT174I1

TT150S1

TT172S1

TT162S1

TT205S1

TT161S1

TT163S1

HEMPSTEAD TNPK

SOUTHERN STATE PKWY

NEW YORK

Notes:
BCP- Bethpage Community Park (OU3)
HR- Hooker Ruco Superfund Site
NG- Former Northrop Grumman Facility
NWIRP- Former Naval Weapons Industrial Reserve Plant Bethpage Facility

Legend

- 2022 Installed Shallow Monitoring Well
- 2022 Installed Intermediate Monitoring Well
- Monitoring Well
- Vertical Profile Boring

2,000 0 2,000 Feet

USGS The National Map: National Boundaries

2022 INSTALLED MONITORING WELLS
OU2 VOC PLUME DATA GAP INVESTIGATION
NWIRP BETHPAGE, NEW YORK

Naval Facilities Engineering Systems Command

DRAWN BY	DATE	CTO
MAS	12/8/2022	N62470-16-D-9008-WE13
CHECKED BY	DATE	FIGURE NUMBER
EW	12/8/2022	2

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Appendix A

TT205S1

1. **TT205S1 Boring Log**
2. **TT205S1 Hydropunch Groundwater Sample Log Sheets**
3. **TT205S1 Gamma Log**
4. **TT205S1 Monitoring Well Construction Log**
5. **TT205S1 Well Development/Groundwater Sample Log Sheets**
6. **TT205S1 Analytical Data Unvalidated**

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1. TT205S1 Boring Log

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Tetra Tech

WELL NUMBER TT205S1

CLIENT NAVFAC MIDLANT
PROJECT NAME NWIRP Bethpage OU2
PROJECT NUMBER 112G08005-WE13
PROJECT LOCATION BETHPAGE
DATE STARTED 5/5/22 **COMPLETED** 5/13/22
GROUND ELEVATION 68.5 **HOLE SIZE** 9.25 inches
DRILLING CONTRACTOR DELTA WELL & PUMP
DRILLING METHOD HSA (0-52' bgs) Mud Rotary (>52' bgs).
GROUND WATER LEVEL ---
LOGGED BY B. Benfield
NORTHING 199862.5 ft **EASTING** 1126287.2 ft **DATUM:** NAVD 88
NOTES Hole size 12.25" from 0 to 52 feet below ground surface

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in)	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						See NWIRP Bethpage VPB-131 Summary Packet (Tetra Tech 2012) for detailed lithology of 0-230' bgs	Casing Top Elev: 68.36 (ft) Casing Type: PVC Sch. 40 Top of Casing 10" Diameter Steel Surface Casing Bentonite Cement Grout

WELL NUMBER TT205S1

Tetra Tech

CLIENT NAVFAC MIDLANT **PROJECT NAME** NWIRP Bethpage OU2

PROJECT NUMBER 112G08005-WE13 **PROJECT LOCATION** BETHPAGE

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY (in)	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
130						See NWIRP Bethpage VPB-131 Summary Packet (Tetra Tech 2012) for detailed lithology of 0-230' bgs *(continued)*	
140							Schedule 40 PVC Riser
150							
160							
170							
180							
190							
200							
210							Bentonite Seal
220							Secondary Sand Pack #0 Sand
230						230.0 -161.5	Primary Sand Pack #1 Sand
	SS	13	4-12-12-22 (24)	SP		(SP) Poorly graded fine SAND, orange brown, little Silt, gray to dark gray 236.0 -167.5	
240				SPSM		(SPSM) Poorly graded fine SAND, gray, some Silt 240.0 -171.5	
	SS	14	7-12-17-25 (29)	SP		(SP) Poorly graded fine SAND, orange brown, little Silt, gray to dark gray 247.0 -178.5	Schedule 40 PVC 0.010 Slotted Screen With #1 Sand
250				MLSP		(MLSP) Sandy SILT, gray to dark gray 252.0 -183.5	
	SS	15	7-15-13-39 (28)				5' Sump
260							
270							

Bottom of borehole at 270.0 feet.

2. TT205S1 Hydropunch Groundwater Sample Log Sheets

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GROUNDWATER SAMPLE LOG SHEET

TETRA TECH

Event:	MW205S1 Hydropunch
Project Site Name:	NWIRP Bethpage
Project No.:	112G08005-WE13

Sample ID:	BP-TT-MW205S1-230-232	**Sampled By:**	BB
QA/QC Duplicate ID:	N/A	**Sample Date:**	05/13/22
MS/MSD Collected:	YES / NO	**Sample Time:**	1030
WELL INFORMATION:			
Well ID :	MW205S1	**Purge Date:**	--
Well Diameter (in):	4	**Static Water Level (ft-BTOR):**	--
Top of Screen (ft-BTOR):	230	**PID Monitor Reading:**	--
Bottom of Screen (ft-BTOR):	250	**Purge Method:**	--
Total Well Depth (ft-BTOR):	255	**Sample Method:**	Hydropunch
EQUIPMENT INFORMATION:			
Water Quality Instrument:	YSI Professional DSS	**Pump Controller:**	--
Turbidity Meter:	Hach 2100Q		

WATER QUALITY DATA:

Time (Hrs)	H_20 Level (ft-BTOR)	Flow gal / min.	Color	pH (S.U.)	S.C. (uS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% or ppt)	Other
Not enough volume for WQ meter											

FINAL PURGE / SAMPLE DATA:

Start Purge	End Purge	Total (min.)	Total Vol. (gal. / L.)	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% or ppt)	Other

ANALYSIS, PRESERVATION AND BOTTLE REQUIRMENTS

Analysis	Method	Preservative	Number	Vol.	Bottle Type	Collected
VOC	SW846-8260B	HCl	2	40 ml	VOA	yes
1-4-Dioxane	8270 SIM	None	1	1-L	Glass Amber	yes

OBSERVATIONS / NOTES:

Coordinates:	N	E	Signature(s):

GROUNDWATER SAMPLE LOG SHEET

TETRA TECH

Event:	MW205S1 Hydropunch
Project Site Name:	NWIRP Bethpage
Project No.:	112G08005-WE13

Sample ID:	BP-TT-MW205S1-250-252	**Sampled By:**	BB
QA/QC Duplicate ID:	N/A	**Sample Date:**	05/13/22
MS/MSD Collected:	YES / NO	**Sample Time:**	1310
WELL INFORMATION:			
Well ID :	MW205S1	**Purge Date:**	--
Well Diameter (in):	4	**Static Water Level (ft-BTOR):**	--
Top of Screen (ft-BTOR):	230	**PID Monitor Reading:**	0
Bottom of Screen (ft-BTOR):	250	**Purge Method:**	--
Total Well Depth (ft-BTOR):	255	**Sample Method:**	Hydropunch
EQUIPMENT INFORMATION:			
Water Quality Instrument:	YSI Professional DSS	**Pump Controller:**	--
Turbidity Meter:	Hach 2100Q		

WATER QUALITY DATA:

Time (Hrs)	H_20 Level (ft-BTOR)	Flow gal / min.	Color	pH (S.U.)	S.C. (uS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% or ppt)	Other
Not enough volume for WQ meter											

FINAL PURGE / SAMPLE DATA:

Start Purge	End Purge	Total (min.)	Total Vol. (gal. / L.)	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% or ppt)	Other

ANALYSIS, PRESERVATION AND BOTTLE REQUIRMENTS

Analysis	Method	Preservative	Number	Vol.	Bottle Type	Collected
VOC	SW846-8260B	HCl	2	40 ml	VOA	yes
1-4-Dioxane	8270 SIM	None	1	1-L	Glass Amber	yes

OBSERVATIONS / NOTES:

Coordinates:	N	E	Signature(s):

3. TT205S1 Gamma Log

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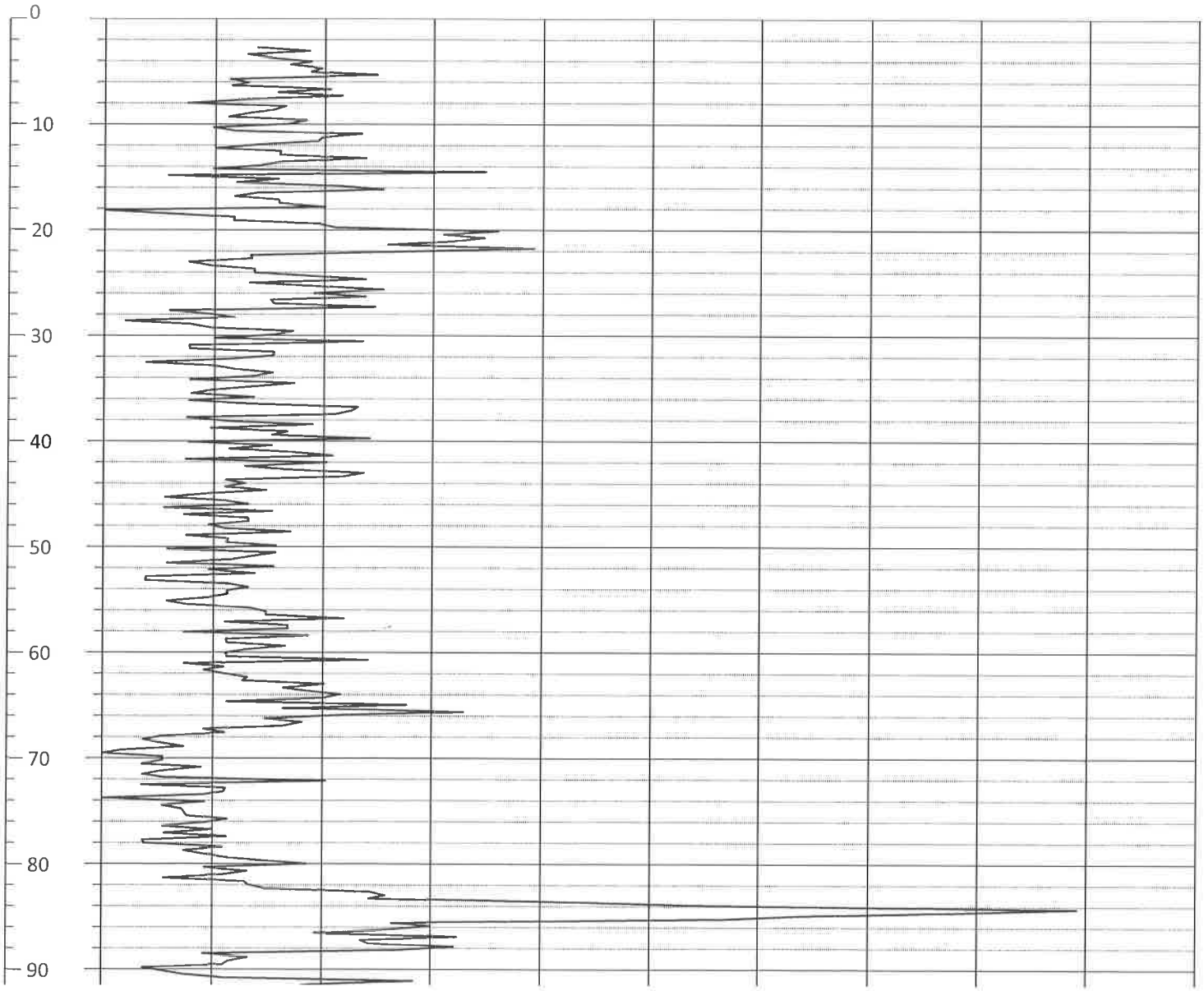
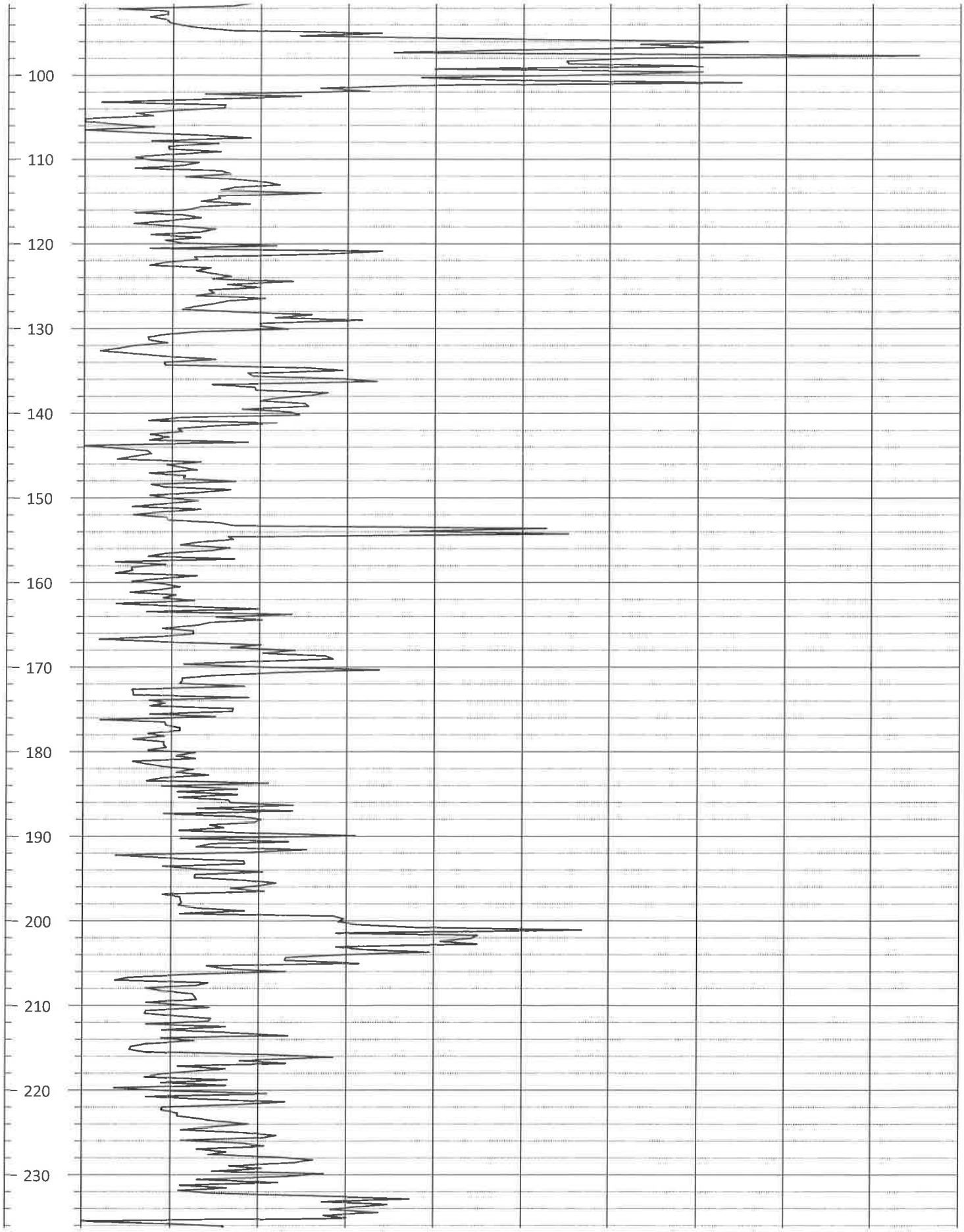
DOWN

COMPANY:	DELTA WELL & PUMP CO., INC.
LOCATION:	NWIRP PIPING ROCK RD
Well: MW-205-S1	Depth Driller:
	Depth Logger:
Date: 05-13-2022 Time:	Logged by: CMO
File Name: 763	Witness: BO

Depth (ft.)	0.0	GAMMA (cps)	100.0



Depth (ft.)	0.0	GAMMA (cps)	100.0



Depth (ft.)	0.0	GAMMA (cps)	100.0

Depth (ft.)	0.0	GAMMA (cps)	100.0

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4. TT205S1 Monitoring Well Construction Log

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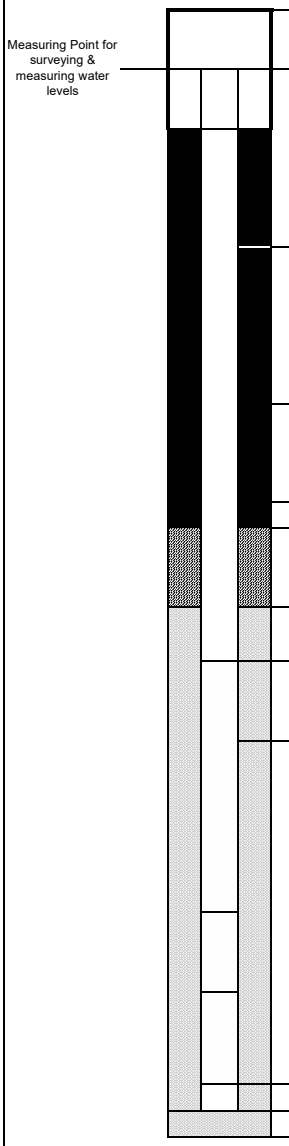
TETRA TECH

Client: NAVFAC *Project Number: 112G08005-WE13*	***WELL ID: MW205S1***
Site Location: NWIRP BETHPAGE, NY	
Well Location: Wellwood Rd and Piping Rock Rd Hempstead	*Date Installed:* *5/18/2022*
Method: Mud Rotary	*Inspector:* *Beau Benfield*
Coordinates: *Northing: 199862.5 Easting: 1126287.2*	*Contractor:* *Delta Well & Pump*

MONITORING WELL CONSTRUCTION DETAIL



	Depth from G.S. (feet)	Elevation(feet)
Top of Flush Mount Well Cap	0	68.51
Top of Riser Pipe	0.15	68.36
Riser Pipe:		
Length 230.00		
Inside Diameter (ID) 4"		
Type of Material PVC Sch. 40		
Bottom of 10 inch diameter Steel Surface Casing	52.0	16.5
Top of Bentonite Seal	203.0	-134.5
Top of Secondary Sand Pack #0 Sand	210.0	-141.5
Top of Primary Sand Pack #1 Sand	216.0	-147.5
Top of Screen	230.00	-161.5
Screen:		
Length 20'		
Inside Diameter (ID) 4"		
Slot Size 0.01		
Bottom of Screen	250.00	-181.5
Bottom of Sump	255.00	-186.5
Bottom of Borehole	270.00	-201.5

Borehole Diameter: 9.25"

Signature

5/18/2022
Date

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5. TT205S1 Well Development/Groundwater Sample Log Sheets

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TETRA TECH

MONITORING WELL DEVELOPMENT RECORD

Event: OU2 Plume Data Gap Investigation
Project Site Name: NWIRP Bethpage
Project Number: 112G08005-WE13

WELL INFORMATION:

Well No.:	BP-TT-MW205S1	**Casing ID (in.):**	4
Drilling Co.:	Delta	**Depth to Bottom (ft.):**	255
Date Installed:	5/18/2022	**Static Water Level Before (ft.):**	--
Date Developed:	5/23/2022	**Static Water Level After (ft.):**	--
Dev. Method:	Air Lift	**Screen Length (ft.):**	20
Pump Type:	--	**Specific Capacity:**	--
Developed By:	Beau Benfield		

DEVELOPMENT DATA:

Time	Estimated Sediment Thickness (ft.)	Cumulative Water Volume (Gal.)	Water Level (ft. below TOC)	Temp. (C°)	pH (S.U.)	SC (mS/cm)	Turbidity (NTU)	Remarks: (odor, color, etc.)
0830	Begin air lifting							
0910	-	715	-	-	-	-	86.2	
0950	-	1400	-	-	-	-	24.2	
1050	-	2500	-	-	-	-	9.86	
1150	-	3500	-	-	-	-	13.3	
1155	Shut down air compressor							

TETRA TECH

MONITORING WELL DEVELOPMENT RECORD

Event: OU2 Plume Data Gap Investigation
Project Site Name: NWIRP Bethpage
Project Number: 112G08005-WE13

WELL INFORMATION:

Well No.:	BP-TT-MW205S1	**Casing ID (in.):**	4
Drilling Co.:	Delta	**Depth to Bottom (ft.):**	225
Date Installed:	5/18/2022	**Static Water Level Before (ft.):**	26.15
Date Developed:	5/24/2022	**Static Water Level After (ft.):**	26.31
Dev. Method:	Submersible Pump	**Screen Length (ft.):**	20
Pump Type:	Grundfos	**Specific Capacity:**	156.3
Developed By:	Beau Benfield		

DEVELOPMENT DATA:

Time	Estimated Sediment Thickness (ft.)	Cumulative Water Volume (Gal.)	Water Level (ft. below TOC)	Temp. (C°)	pH (S.U.)	SC (mS/cm)	Turbidity (NTU)	Remarks: (odor, color, etc.)
0830	Begin Development							
0915	-	1125	-	-	-	-	6.91	Lower pump 5'
1000	-	2250	-	-	-	-	5.48	Lower pump 5'
1045	-	3375	-	-	-	-	4.06	Lower pump 5'
1130	-	4500	-	-	-	-	4.09	
1140	-	4660	26.31	15.9	6.16	598.4	4.16	

GROUNDWATER SAMPLE LOG SHEET

TETRA TECH

Event:	MW205S1 Hydropunch
Project Site Name:	NWIRP Bethpage
Project No.:	112G08005-WE13

Sample ID:	BP-TT-MW205S1-20220524	**Sampled By:**	BB
QA/QC Duplicate ID:	N/A	**Sample Date:**	05/24/22
MS/MSD Collected:	YES / NO	**Sample Time:**	1140
WELL INFORMATION:			
Well ID :	MW205S1	**Purge Date:**	05/24/22
Well Diameter (in):	4	**Static Water Level (ft-BTOR):**	--
Top of Screen (ft-BTOR):	230	**PID Monitor Reading:**	0
Bottom of Screen (ft-BTOR):	250	**Purge Method:**	Grundfos
Total Well Depth (ft-BTOR):	255	**Sample Method:**	Grab
EQUIPMENT INFORMATION:			
Water Quality Instrument:	YSI Professional DSS	**Pump Controller:**	Grundfos
Turbidity Meter:	Hach 2100Q		

WATER QUALITY DATA:

Time (Hrs)	H_20 Level (ft-BTOR)	Flow gal / min.	Color	pH (S.U.)	S.C. (uS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% or ppt)	Other
1140	--	25	Clear	6.16	598.4	6.62	4.16	15.9	188.8	--	

FINAL PURGE / SAMPLE DATA:

Start Purge	End Purge	Total (min.)	Total Vol. (gal. / L.)	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% or ppt)	Other
0830	1140	190	4660	6.16	598.4	6.62	4.16	15.9	188.8	--	

ANALYSIS, PRESERVATION AND BOTTLE REQUIRMENTS

Analysis	Method	Preservative	Number	Vol.	Bottle Type	Collected
VOC	SW846-8260B	HCl	2	40 ml	VOA	yes
1-4-Dioxane	8270 SIM	None	1	1-L	Glass Amber	yes

OBSERVATIONS / NOTES:

Coordinates:	N	E	Signature(s):

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6. TT205S1 Analytical Data Unvalidated

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Hydropunch Analytical Data

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CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 • Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO. N2867
COC Number 2034703

7
7.1

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: Tetra Tech
ADDRESS: 5700 Lake Wright Dr Suite 102
CITY Norfolk STATE: VA ZIP: 23502
ATTENTION: Ernie Wu
PHONE: (757)466-4901 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NWIRP Bethpage
PROJECT NO.: 112G08005-WE13 LOCATION: MW205S1
PROJECT MANAGER: Ernie Wu
e-mail: ernie.wu@tetratech.com
PHONE: (757)466-4901 FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX (RUSH) ~~standard 2~~ ~~standard 5~~ DAYS*
HARDCOPY (DATA PACKAGE): ~~5 2~~ ~~standard~~ standard DAYS*
EDD: ~~standard 2~~ ~~standard 5~~ DAYS*
*TO BE APPROVED BY CHEMTECH
STANDARD HARDCOPY TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

❑ Level 1 (Results Only) ❑ Level 4 (QC + Full Raw Data)
❑ Level 2 (Results + QC) ❑ NJ Reduced ❑ US EPA CLP
❑ Level 3 (Results + QC + Raw Data) ❑ NYS ASP A ❑ NYS ASP B
❑ Other
❑ EDD FORMAT

ANALYSIS

1 VOCs (8260)
2 1-4 Dioxane (8270-SIM)
3
4
5
6
7
8
9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	BP-TT-TB-20220513	QA		✓	5/13/22	0900	2	2									
2.	BP-TT-MW205S1-230-232	GW		✓	5/13/22	1030	3	2	1								
3.	BP-TT-MW205S1-250-252	GW		✓	5/13/22	1310	3	2	1								
4.																	
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

← Specify Preservatives
A-HCl D-NaOH
B-HN03 E-ICE
C-H2SO4 F-OTHER

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1.	5/13/22 1530	1. 5-14-2022 0930
2.		2.
3.		3.

Conditions of bottles or coolers at receipt: ❑ COMPLIANT ❑ NON COMPLIANT ❑ COOLER TEMP 1.1 °C
Comments: Standard TAT

Page ____ of ____

CLIENT: ❑ Hand Delivered ❑ Other
CHEMTECH: ❑ Picked Up ❑ Field Sampling

Shipment Complete ❑ YES ❑ NO

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	05/13/22
Project:	CTO WE13	Date Received:	05/14/22
Client Sample ID:	BP-TT-MW205S1-230-232	SDG No.:	N2867
Lab Sample ID:	N2867-02	Matrix:	Water
Analytical Method:	SW8260	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	DB-624UI ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VX028741.D	1		05/16/22 19:02	VX051622

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
74-87-3	Chloromethane	0.75	U	0.20	0.75	1.00	ug/L
75-01-4	Vinyl Chloride	0.50	U	0.22	0.50	1.00	ug/L
74-83-9	Bromomethane	2.50	U	1.60	2.50	5.00	ug/L
75-00-3	Chloroethane	0.75	U	0.26	0.75	1.00	ug/L
75-69-4	Trichlorofluoromethane	0.50	U	0.20	0.50	1.00	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.50	U	0.17	0.50	1.00	ug/L
75-35-4	1,1-Dichloroethene	0.75	U	0.23	0.75	1.00	ug/L
67-64-1	Acetone	8.60		1.20	3.80	5.00	ug/L
75-15-0	Carbon Disulfide	0.75	U	0.26	0.75	1.00	ug/L
1634-04-4	Methyl tert-butyl Ether	0.50	U	0.18	0.50	1.00	ug/L
75-09-2	Methylene Chloride	0.50	U	0.18	0.50	1.00	ug/L
156-60-5	trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.00	ug/L
75-34-3	1,1-Dichloroethane	0.50	U	0.20	0.50	1.00	ug/L
78-93-3	2-Butanone	2.50	U	0.82	2.50	5.00	ug/L
56-23-5	Carbon Tetrachloride	0.75	U	0.18	0.75	1.00	ug/L
156-59-2	cis-1,2-Dichloroethene	0.75	U	0.17	0.75	1.00	ug/L
67-66-3	Chloroform	0.31	J	0.18	0.75	1.00	ug/L
71-55-6	1,1,1-Trichloroethane	0.50	U	0.18	0.50	1.00	ug/L
108-87-2	Methylcyclohexane	0.50	U	0.13	0.50	1.00	ug/L
71-43-2	Benzene	0.50	U	0.16	0.50	1.00	ug/L
107-06-2	1,2-Dichloroethane	0.50	U	0.18	0.50	1.00	ug/L
79-01-6	Trichloroethene	5.60		0.27	0.50	1.00	ug/L
78-87-5	1,2-Dichloropropane	0.50	U	0.17	0.50	1.00	ug/L
75-27-4	Bromodichloromethane	0.50	U	0.18	0.50	1.00	ug/L
108-10-1	4-Methyl-2-Pentanone	2.50	U	0.87	2.50	5.00	ug/L
108-88-3	Toluene	0.50	U	0.17	0.50	1.00	ug/L
10061-02-6	t-1,3-Dichloropropene	0.50	U	0.14	0.50	1.00	ug/L
10061-01-5	cis-1,3-Dichloropropene	0.50	U	0.16	0.50	1.00	ug/L
79-00-5	1,1,2-Trichloroethane	0.50	U	0.19	0.50	1.00	ug/L
591-78-6	2-Hexanone	2.50	U	0.76	2.50	5.00	ug/L
124-48-1	Dibromochloromethane	0.50	U	0.18	0.50	1.00	ug/L
127-18-4	Tetrachloroethene	0.40	J	0.18	0.50	1.00	ug/L

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	05/13/22
Project:	CTO WE13	Date Received:	05/14/22
Client Sample ID:	BP-TT-MW205S1-230-232	SDG No.:	N2867
Lab Sample ID:	N2867-02	Matrix:	Water
Analytical Method:	SW8260	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	DB-624UI ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VX028741.D	1		05/16/22 19:02	VX051622

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
108-90-7	Chlorobenzene	0.50	U	0.17	0.50	1.00	ug/L
100-41-4	Ethyl Benzene	0.50	U	0.17	0.50	1.00	ug/L
179601-23-1	m/p-Xylenes	1.00	U	0.33	1.00	2.00	ug/L
95-47-6	o-Xylene	0.50	U	0.18	0.50	1.00	ug/L
100-42-5	Styrene	0.50	U	0.13	0.50	1.00	ug/L
75-25-2	Bromoform	0.50	U	0.16	0.50	1.00	ug/L
98-82-8	Isopropylbenzene	0.50	U	0.19	0.50	1.00	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.75	U	0.23	0.75	1.00	ug/L
541-73-1	1,3-Dichlorobenzene	0.50	U	0.20	0.50	1.00	ug/L
106-46-7	1,4-Dichlorobenzene	0.50	U	0.19	0.50	1.00	ug/L
95-50-1	1,2-Dichlorobenzene	0.50	U	0.17	0.50	1.00	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	52.2		81 - 118		104%	SPK: 50
1868-53-7	Dibromofluoromethane	50.9		80 - 119		102%	SPK: 50
2037-26-5	Toluene-d8	49.1		89 - 112		98%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.1		85 - 114		98%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	238000	5.556				
540-36-3	1,4-Difluorobenzene	443000	6.763				
3114-55-4	Chlorobenzene-d5	427000	10.055				
3855-82-1	1,4-Dichlorobenzene-d4	230000	12.024				
TENTATIVE IDENTIFIED COMPOUNDS							
75-43-4	Dichlorofluoromethane	N.D					

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements
M = MS/MSD acceptance criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
() = Laboratory InHouse Limit
A = Aldol-Condensation Reaction Products

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	05/13/22
Project:	CTO WE13	Date Received:	05/14/22
Client Sample ID:	BP-TT-MW205S1-230-232	SDG No.:	N2867
Lab Sample ID:	N2867-02	Matrix:	Water
Analytical Method:	SW8270SIM	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	Decanted : N	Level :	LOW
Injection Volume :	GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BN019859.D	1	05/19/22 09:03	05/19/22 17:28	PB144940

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
123-91-1	1,4-Dioxane	0.23		0.080	0.20	0.20	ug/L
SURROGATES							
7297-45-2	2-Methylnaphthalene-d10	0.32		30 - 150		81%	SPK: 0.4
93951-69-0	Fluoranthene-d10	0.40		30 - 150		101%	SPK: 0.4
4165-60-0	Nitrobenzene-d5	0.31		55 - 111		76%	SPK: 0.4
321-60-8	2-Fluorobiphenyl	0.27		53 - 106		68%	SPK: 0.4
1718-51-0	Terphenyl-d14	0.40		58 - 132		101%	SPK: 0.4
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	3590	7.854				
1146-65-2	Naphthalene-d8	12300	10.637				
15067-26-2	Acenaphthene-d10	8310	14.474				
1517-22-2	Phenanthrene-d10	18700	17.205				
1719-03-5	Chrysene-d12	16100	21.404				
1520-96-3	Perylene-d12	14100	23.741				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements
M = MS/MSD acceptance criteria did not meet requirements
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
() = Laboratory InHouse Limit
A = Aldol-Condensation Reaction Products

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	05/13/22
Project:	CTO WE13	Date Received:	05/14/22
Client Sample ID:	BP-TT-MW205S1-250-252	SDG No.:	N2867
Lab Sample ID:	N2867-03	Matrix:	Water
Analytical Method:	SW8260	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	DB-624UI ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VX028742.D	1		05/16/22 19:26	VX051622

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
74-87-3	Chloromethane	0.75	U	0.20	0.75	1.00	ug/L
75-01-4	Vinyl Chloride	0.50	U	0.22	0.50	1.00	ug/L
74-83-9	Bromomethane	2.50	U	1.60	2.50	5.00	ug/L
75-00-3	Chloroethane	0.75	U	0.26	0.75	1.00	ug/L
75-69-4	Trichlorofluoromethane	0.50	U	0.20	0.50	1.00	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.50	U	0.17	0.50	1.00	ug/L
75-35-4	1,1-Dichloroethene	0.75	U	0.23	0.75	1.00	ug/L
67-64-1	Acetone	6.40		1.20	3.80	5.00	ug/L
75-15-0	Carbon Disulfide	0.37	J	0.26	0.75	1.00	ug/L
1634-04-4	Methyl tert-butyl Ether	0.50	U	0.18	0.50	1.00	ug/L
75-09-2	Methylene Chloride	0.50	U	0.18	0.50	1.00	ug/L
156-60-5	trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.00	ug/L
75-34-3	1,1-Dichloroethane	0.50	U	0.20	0.50	1.00	ug/L
78-93-3	2-Butanone	1.20	J	0.82	2.50	5.00	ug/L
56-23-5	Carbon Tetrachloride	0.75	U	0.18	0.75	1.00	ug/L
156-59-2	cis-1,2-Dichloroethene	0.75	U	0.17	0.75	1.00	ug/L
67-66-3	Chloroform	0.75	U	0.18	0.75	1.00	ug/L
71-55-6	1,1,1-Trichloroethane	0.50	U	0.18	0.50	1.00	ug/L
108-87-2	Methylcyclohexane	0.50	U	0.13	0.50	1.00	ug/L
71-43-2	Benzene	0.50	U	0.16	0.50	1.00	ug/L
107-06-2	1,2-Dichloroethane	0.50	U	0.18	0.50	1.00	ug/L
79-01-6	Trichloroethene	1.10		0.27	0.50	1.00	ug/L
78-87-5	1,2-Dichloropropane	0.50	U	0.17	0.50	1.00	ug/L
75-27-4	Bromodichloromethane	0.50	U	0.18	0.50	1.00	ug/L
108-10-1	4-Methyl-2-Pentanone	2.50	U	0.87	2.50	5.00	ug/L
108-88-3	Toluene	0.50	U	0.17	0.50	1.00	ug/L
10061-02-6	t-1,3-Dichloropropene	0.50	U	0.14	0.50	1.00	ug/L
10061-01-5	cis-1,3-Dichloropropene	0.50	U	0.16	0.50	1.00	ug/L
79-00-5	1,1,2-Trichloroethane	0.50	U	0.19	0.50	1.00	ug/L
591-78-6	2-Hexanone	2.50	U	0.76	2.50	5.00	ug/L
124-48-1	Dibromochloromethane	0.50	U	0.18	0.50	1.00	ug/L
127-18-4	Tetrachloroethene	0.50	U	0.18	0.50	1.00	ug/L

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	05/13/22
Project:	CTO WE13	Date Received:	05/14/22
Client Sample ID:	BP-TT-MW205S1-250-252	SDG No.:	N2867
Lab Sample ID:	N2867-03	Matrix:	Water
Analytical Method:	SW8260	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	DB-624UI ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VX028742.D	1		05/16/22 19:26	VX051622

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
108-90-7	Chlorobenzene	0.50	U	0.17	0.50	1.00	ug/L
100-41-4	Ethyl Benzene	0.50	U	0.17	0.50	1.00	ug/L
179601-23-1	m/p-Xylenes	1.00	U	0.33	1.00	2.00	ug/L
95-47-6	o-Xylene	0.50	U	0.18	0.50	1.00	ug/L
100-42-5	Styrene	0.50	U	0.13	0.50	1.00	ug/L
75-25-2	Bromoform	0.50	U	0.16	0.50	1.00	ug/L
98-82-8	Isopropylbenzene	0.50	U	0.19	0.50	1.00	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.75	U	0.23	0.75	1.00	ug/L
541-73-1	1,3-Dichlorobenzene	0.50	U	0.20	0.50	1.00	ug/L
106-46-7	1,4-Dichlorobenzene	0.50	U	0.19	0.50	1.00	ug/L
95-50-1	1,2-Dichlorobenzene	0.50	U	0.17	0.50	1.00	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	52.4		81 - 118		105%	SPK: 50
1868-53-7	Dibromofluoromethane	50.0		80 - 119		100%	SPK: 50
2037-26-5	Toluene-d8	54.8		89 - 112		110%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.3		85 - 114		99%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	225000	5.556				
540-36-3	1,4-Difluorobenzene	421000	6.763				
3114-55-4	Chlorobenzene-d5	408000	10.055				
3855-82-1	1,4-Dichlorobenzene-d4	185000	12.024				
TENTATIVE IDENTIFIED COMPOUNDS							
75-43-4	Dichlorofluoromethane	N.D					

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements
M = MS/MSD acceptance criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
() = Laboratory InHouse Limit
A = Aldol-Condensation Reaction Products

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	05/13/22
Project:	CTO WE13	Date Received:	05/14/22
Client Sample ID:	BP-TT-MW205S1-250-252	SDG No.:	N2867
Lab Sample ID:	N2867-03	Matrix:	Water
Analytical Method:	SW8270SIM	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	Decanted : N	Level :	LOW
Injection Volume :	GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BN019860.D	1	05/19/22 09:03	05/19/22 18:04	PB144940

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
123-91-1	1,4-Dioxane	0.17	J	0.080	0.20	0.20	ug/L
SURROGATES							
7297-45-2	2-Methylnaphthalene-d10	0.32		30 - 150		81%	SPK: 0.4
93951-69-0	Fluoranthene-d10	0.42		30 - 150		105%	SPK: 0.4
4165-60-0	Nitrobenzene-d5	0.31		55 - 111		78%	SPK: 0.4
321-60-8	2-Fluorobiphenyl	0.27		53 - 106		68%	SPK: 0.4
1718-51-0	Terphenyl-d14	0.39		58 - 132		96%	SPK: 0.4
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	3250	7.854				
1146-65-2	Naphthalene-d8	10900	10.637				
15067-26-2	Acenaphthene-d10	7350	14.474				
1517-22-2	Phenanthrene-d10	16800	17.205				
1719-03-5	Chrysene-d12	15400	21.404				
1520-96-3	Perylene-d12	13900	23.744				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements
M = MS/MSD acceptance criteria did not meet requirements
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
() = Laboratory InHouse Limit
A = Aldol-Condensation Reaction Products

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TO-15 Summa Canister Analytical Data

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Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 2205328

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

page--of ---

Client: Tetra Tech
Project Name: NWIRP Bethpage
Project Manager: Ernie Wu Project # 112608005-WE13
Sampler: Beau Benfield
Site Name: MW20551

Special Instructions/Notes:

Turnaround Time (Rush surcharges may apply)
Standard ✓ Rush _____(specify)

Lab ID	Field Sample Identification(Location)	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Canister Vacuum/Pressure		Lab Use Only		Requested Analyses			
				Date	Time	Date	Time	Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N_2 / He	TO-15			
01A	BP-MW20551-UU-20220512	6L1604	24501	5/12/22	0700	5/12/22	1511	25.25	6.5			✓			
02A	BP-MW20551-DU-20220512	6L1317	23443	5/12/22	0702	5/12/22	1504	29.75	6.25			✓			

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Tetra Tech	5/12/22	1530		5-13-22	0945
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name: FedEx | Custody Seals Intact? | Yes | No | (None)

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

Client ID:	BP-MW205S1-UW-20220512		
Lab ID:	2205328-01A	**Date/Time Analyzed:**	5/25/22 12:34 PM
Date/Time Collected:	5/12/22 03:11 PM	**Dilution Factor:**	1.41
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msdv.i / v052508

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	0.88	3.1	5.2	3.1 U
1,2,4-Trimethylbenzene	95-63-6	0.095	0.55	0.69	0.37 J
1,2-Dichlorobenzene	95-50-1	0.16	0.68	0.85	0.68 U
1,2-Dichloropropane	78-87-5	0.17	0.52	0.65	0.52 U
1,3,5-Trimethylbenzene	108-67-8	0.11	0.55	0.69	0.55 U
1,3-Butadiene	106-99-0	0.090	0.25	0.31	0.25 U
1,3-Dichlorobenzene	541-73-1	0.16	0.68	0.85	0.68 U
1,4-Dioxane	123-91-1	0.13	0.41	0.51	0.41 U
2,2,4-Trimethylpentane	540-84-1	0.27	2.0	3.3	1.1 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.43	1.2	2.1	5.2
2-Hexanone	591-78-6	0.34	1.7	2.9	1.7 U
2-Propanol	67-63-0	0.19	1.0	3.5	3.5
3-Chloropropene	107-05-1	0.58	1.3	2.2	1.3 U
4-Ethyltoluene	622-96-8	0.066	0.55	0.69	0.16 J
4-Methyl-2-pentanone	108-10-1	0.13	0.46	0.58	0.52 J
Acetone	67-64-1	0.33	1.0	3.3	21
alpha-Chlorotoluene	100-44-7	0.16	0.58	0.73	0.58 U
Bromodichloromethane	75-27-4	0.23	0.76	0.94	0.76 U
Bromoform	75-25-2	0.26	1.2	1.4	1.2 U
Bromomethane	74-83-9	1.2	1.6	2.7	1.6 U
Carbon Disulfide	75-15-0	0.20	1.3	2.2	1.5 J
Chlorobenzene	108-90-7	0.069	0.52	0.65	0.52 U
cis-1,3-Dichloropropene	10061-01-5	0.083	0.51	0.64	0.51 U
Cumene	98-82-8	0.16	0.55	0.69	0.55 U

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
NWIRP Bethpage

Client ID:	BP-MW205S1-UW-20220512		
Lab ID:	2205328-01A	**Date/Time Analyzed:**	5/25/22 12:34 PM
Date/Time Collected:	5/12/22 03:11 PM	**Dilution Factor:**	1.41
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msdv.i / v052508

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	110-82-7	0.36	1.4	2.4	0.81 J
Dibromochloromethane	124-48-1	0.16	0.96	1.2	0.96 U
Ethanol	64-17-5	0.72	0.80	2.6	160 J
Freon 11	75-69-4	0.16	0.63	0.79	1.2
Freon 113	76-13-1	0.14	0.86	1.1	0.50 J
Heptane	142-82-5	0.31	1.7	2.9	0.94 J
Hexachlorobutadiene	87-68-3	1.2	4.5	7.5	4.5 U
Hexane	110-54-3	0.21	1.5	2.5	2.0 J
Methylene Chloride	75-09-2	0.26	0.39	2.4	0.56 J
Propylbenzene	103-65-1	0.18	0.55	0.69	0.55 U
Styrene	100-42-5	0.19	0.48	0.60	0.37 J
Tetrahydrofuran	109-99-9	1.0	1.2	2.1	1.2 U
trans-1,3-Dichloropropene	10061-02-6	0.16	0.51	0.64	0.51 U

U = The analyte was not detected above the MDL.
J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	79-140	98
4-Bromofluorobenzene	460-00-4	68-121	100
Toluene-d8	2037-26-5	81-119	94

Client ID:	BP-MW205S1-UW-20220512 Lab Dupli		
Lab ID:	2205328-01AA	**Date/Time Analyzed:**	5/25/22 03:35 PM
Date/Time Collected:	5/12/22 03:11 PM	**Dilution Factor:**	1.41
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msdv.i / v052511

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	0.88	3.1	5.2	3.1 U
1,2,4-Trimethylbenzene	95-63-6	0.095	0.55	0.69	0.47 J
1,2-Dichlorobenzene	95-50-1	0.16	0.68	0.85	0.68 U
1,2-Dichloropropane	78-87-5	0.17	0.52	0.65	0.52 U
1,3,5-Trimethylbenzene	108-67-8	0.11	0.55	0.69	0.55 U
1,3-Butadiene	106-99-0	0.090	0.25	0.31	0.25 U
1,3-Dichlorobenzene	541-73-1	0.16	0.68	0.85	0.68 U
1,4-Dioxane	123-91-1	0.13	0.41	0.51	0.41 U
2,2,4-Trimethylpentane	540-84-1	0.27	2.0	3.3	1.4 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.43	1.2	2.1	4.7
2-Hexanone	591-78-6	0.34	1.7	2.9	1.7 U
2-Propanol	67-63-0	0.19	1.0	3.5	3.3 J
3-Chloropropene	107-05-1	0.58	1.3	2.2	1.3 U
4-Ethyltoluene	622-96-8	0.066	0.55	0.69	0.46 JCN
4-Methyl-2-pentanone	108-10-1	0.13	0.46	0.58	0.40 J
Acetone	67-64-1	0.33	1.0	3.3	21
alpha-Chlorotoluene	100-44-7	0.16	0.58	0.73	0.58 U
Bromodichloromethane	75-27-4	0.23	0.76	0.94	0.76 U
Bromoform	75-25-2	0.26	1.2	1.4	1.2 U
Bromomethane	74-83-9	1.2	1.6	2.7	1.6 U
Carbon Disulfide	75-15-0	0.20	1.3	2.2	1.7 J
Chlorobenzene	108-90-7	0.069	0.52	0.65	0.52 U
cis-1,3-Dichloropropene	10061-01-5	0.083	0.51	0.64	0.51 U
Cumene	98-82-8	0.16	0.55	0.69	0.55 U

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
NWIRP Bethpage

Client ID:	BP-MW205S1-UW-20220512 Lab Dupli		
Lab ID:	2205328-01AA	**Date/Time Analyzed:**	5/25/22 03:35 PM
Date/Time Collected:	5/12/22 03:11 PM	**Dilution Factor:**	1.41
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msdv.i / v052511

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	110-82-7	0.36	1.4	2.4	0.63 J
Dibromochloromethane	124-48-1	0.16	0.96	1.2	0.96 U
Ethanol	64-17-5	0.72	0.80	2.6	170 J
Freon 11	75-69-4	0.16	0.63	0.79	1.3
Freon 113	76-13-1	0.14	0.86	1.1	0.50 J
Heptane	142-82-5	0.31	1.7	2.9	0.95 J
Hexachlorobutadiene	87-68-3	1.2	4.5	7.5	4.5 U
Hexane	110-54-3	0.21	1.5	2.5	2.0 J
Methylene Chloride	75-09-2	0.26	0.39	2.4	0.72 J
Propylbenzene	103-65-1	0.18	0.55	0.69	0.55 U
Styrene	100-42-5	0.19	0.48	0.60	0.27 J
Tetrahydrofuran	109-99-9	1.0	1.2	2.1	1.2 U
trans-1,3-Dichloropropene	10061-02-6	0.16	0.51	0.64	0.51 U

U = The analyte was not detected above the MDL.
J = Estimated value.
CN =See Case Narrative explanation
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	79-140	104
4-Bromofluorobenzene	460-00-4	68-121	98
Toluene-d8	2037-26-5	81-119	92

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
NWIRP Bethpage

Client ID:	BP-MW205S1-UW-20220512		
Lab ID:	2205328-01B	**Date/Time Analyzed:**	5/25/22 12:34 PM
Date/Time Collected:	5/12/22 03:11 PM	**Dilution Factor:**	1.41
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msdv.i / v052508sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.0099	0.054	0.15	0.054 U
1,1,2,2-Tetrachloroethane	79-34-5	0.019	0.068	0.19	0.068 U
1,1,2-Trichloroethane	79-00-5	0.013	0.054	0.15	0.054 U
1,1-Dichloroethane	75-34-3	0.0066	0.040	0.11	0.040 U
1,1-Dichloroethene	75-35-4	0.010	0.039	0.056	0.039 U
1,2-Dibromoethane (EDB)	106-93-4	0.060	0.076	0.54	0.076 U
1,2-Dichloroethane	107-06-2	0.017	0.040	0.11	0.077 J
1,4-Dichlorobenzene	106-46-7	0.094	0.10	0.42	0.12 J
Benzene	71-43-2	0.028	0.032	0.22	0.95
Carbon Tetrachloride	56-23-5	0.036	0.062	0.18	0.44
Chloroethane	75-00-3	0.041	0.11	0.19	0.11 U
Chloroform	67-66-3	0.012	0.048	0.14	0.091 J
Chloromethane	74-87-3	0.16	0.44	1.4	1.4 J
cis-1,2-Dichloroethene	156-59-2	0.012	0.039	0.11	0.039 U
Ethyl Benzene	100-41-4	0.016	0.043	0.12	0.37
Freon 114	76-14-2	0.022	0.069	0.20	0.13 J
Freon 12	75-71-8	0.029	0.049	0.35	2.2
m,p-Xylene	108-38-3	0.016	0.043	0.24	1.0
Methyl tert-butyl ether	1634-04-4	0.010	0.036	0.51	0.027 J
o-Xylene	95-47-6	0.014	0.043	0.12	0.95
Tetrachloroethene	127-18-4	0.014	0.067	0.19	0.15 J
Toluene	108-88-3	0.022	0.037	0.26	3.2
trans-1,2-Dichloroethene	156-60-5	0.014	0.039	0.56	0.73
Trichloroethene	79-01-6	0.030	0.053	0.15	0.046 J

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
NWIRP Bethpage

Client ID:	BP-MW205S1-UW-20220512		
Lab ID:	2205328-01B	**Date/Time Analyzed:**	5/25/22 12:34 PM
Date/Time Collected:	5/12/22 03:11 PM	**Dilution Factor:**	1.41
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msdv.i / v052508sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	75-01-4	0.015	0.025	0.072	0.025 U

J = Estimated value.
U = The analyte was not detected above the MDL.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	76-131	106
4-Bromofluorobenzene	460-00-4	68-122	95
Toluene-d8	2037-26-5	77-125	101

eurofins | Air Toxics

Client ID:	BP-MW205S1-UW-20220512 Lab Dupli		
Lab ID:	2205328-01BB	**Date/Time Analyzed:**	5/25/22 03:35 PM
Date/Time Collected:	5/12/22 03:11 PM	**Dilution Factor:**	1.41
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msdv.i / v052511sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.0099	0.054	0.15	0.054 U
1,1,2,2-Tetrachloroethane	79-34-5	0.019	0.068	0.19	0.068 U
1,1,2-Trichloroethane	79-00-5	0.013	0.054	0.15	0.054 U
1,1-Dichloroethane	75-34-3	0.0066	0.040	0.11	0.040 U
1,1-Dichloroethene	75-35-4	0.010	0.039	0.056	0.039 U
1,2-Dibromoethane (EDB)	106-93-4	0.060	0.076	0.54	0.076 U
1,2-Dichloroethane	107-06-2	0.017	0.040	0.11	0.080 J
1,4-Dichlorobenzene	106-46-7	0.094	0.10	0.42	0.11 J
Benzene	71-43-2	0.028	0.032	0.22	0.96
Carbon Tetrachloride	56-23-5	0.036	0.062	0.18	0.43
Chloroethane	75-00-3	0.041	0.11	0.19	0.11 U
Chloroform	67-66-3	0.012	0.048	0.14	0.096 J
Chloromethane	74-87-3	0.16	0.44	1.4	1.0 J
cis-1,2-Dichloroethene	156-59-2	0.012	0.039	0.11	0.039 U
Ethyl Benzene	100-41-4	0.016	0.043	0.12	0.37
Freon 114	76-14-2	0.022	0.069	0.20	0.13 J
Freon 12	75-71-8	0.029	0.049	0.35	2.3
m,p-Xylene	108-38-3	0.016	0.043	0.24	1.0
Methyl tert-butyl ether	1634-04-4	0.010	0.036	0.51	0.032 J
o-Xylene	95-47-6	0.014	0.043	0.12	1.0
Tetrachloroethene	127-18-4	0.014	0.067	0.19	0.13 J
Toluene	108-88-3	0.022	0.037	0.26	3.2
trans-1,2-Dichloroethene	156-60-5	0.014	0.039	0.56	0.75
Trichloroethene	79-01-6	0.030	0.053	0.15	0.045 J

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
NWIRP Bethpage

Client ID:	BP-MW205S1-UW-20220512 Lab Dupli		
Lab ID:	2205328-01BB	**Date/Time Analyzed:**	5/25/22 03:35 PM
Date/Time Collected:	5/12/22 03:11 PM	**Dilution Factor:**	1.41
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msdv.i / v052511sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	75-01-4	0.015	0.025	0.072	0.025 U

J = Estimated value.
U = The analyte was not detected above the MDL.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	76-131	104
4-Bromofluorobenzene	460-00-4	68-122	96
Toluene-d8	2037-26-5	77-125	99

Client ID:	BP-MW205S1-DW-20220512		
Lab ID:	2205328-02A	**Date/Time Analyzed:**	5/25/22 02:55 PM
Date/Time Collected:	5/12/22 03:04 PM	**Dilution Factor:**	1.44
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msdv.i / v052510

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	0.90	3.2	5.3	3.2 U
1,2,4-Trimethylbenzene	95-63-6	0.097	0.57	0.71	0.50 J
1,2-Dichlorobenzene	95-50-1	0.17	0.69	0.86	0.69 U
1,2-Dichloropropane	78-87-5	0.17	0.53	0.66	0.53 U
1,3,5-Trimethylbenzene	108-67-8	0.11	0.57	0.71	0.16 J
1,3-Butadiene	106-99-0	0.092	0.25	0.32	0.25 U
1,3-Dichlorobenzene	541-73-1	0.16	0.69	0.86	0.69 U
1,4-Dioxane	123-91-1	0.13	0.42	0.52	0.42 U
2,2,4-Trimethylpentane	540-84-1	0.27	2.0	3.4	1.1 J
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.44	1.3	2.1	5.0
2-Hexanone	591-78-6	0.34	1.8	2.9	1.8 U
2-Propanol	67-63-0	0.19	1.1	3.5	2.9 J
3-Chloropropene	107-05-1	0.59	1.4	2.2	1.4 U
4-Ethyltoluene	622-96-8	0.068	0.57	0.71	0.51 JCN
4-Methyl-2-pentanone	108-10-1	0.14	0.47	0.59	0.39 J
Acetone	67-64-1	0.34	1.0	3.4	18
alpha-Chlorotoluene	100-44-7	0.16	0.60	0.74	0.60 U
Bromodichloromethane	75-27-4	0.23	0.77	0.96	0.77 U
Bromoform	75-25-2	0.27	1.2	1.5	1.2 U
Bromomethane	74-83-9	1.2	1.7	2.8	1.7 U
Carbon Disulfide	75-15-0	0.20	1.3	2.2	1.4 J
Chlorobenzene	108-90-7	0.071	0.53	0.66	0.53 U
cis-1,3-Dichloropropene	10061-01-5	0.085	0.52	0.65	0.52 U
Cumene	98-82-8	0.16	0.57	0.71	0.57 U

Client ID:	BP-MW205S1-DW-20220512		
Lab ID:	2205328-02A	**Date/Time Analyzed:**	5/25/22 02:55 PM
Date/Time Collected:	5/12/22 03:04 PM	**Dilution Factor:**	1.44
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msdv.i / v052510

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	110-82-7	0.36	1.5	2.5	0.48 J
Dibromochloromethane	124-48-1	0.16	0.98	1.2	0.98 U
Ethanol	64-17-5	0.73	0.81	2.7	180
Freon 11	75-69-4	0.16	0.65	0.81	1.1
Freon 113	76-13-1	0.14	0.88	1.1	0.54 J
Heptane	142-82-5	0.31	1.8	3.0	0.98 J
Hexachlorobutadiene	87-68-3	1.2	4.6	7.7	4.6 U
Hexane	110-54-3	0.21	1.5	2.5	2.0 J
Methylene Chloride	75-09-2	0.26	0.40	2.5	0.69 J
Propylbenzene	103-65-1	0.18	0.57	0.71	0.57 U
Styrene	100-42-5	0.20	0.49	0.61	0.32 J
Tetrahydrofuran	109-99-9	1.0	1.3	2.1	1.4 J
trans-1,3-Dichloropropene	10061-02-6	0.16	0.52	0.65	0.52 U

U = The analyte was not detected above the MDL.
J = Estimated value.
CN =See Case Narrative explanation
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	79-140	106
4-Bromofluorobenzene	460-00-4	68-121	105
Toluene-d8	2037-26-5	81-119	99

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
NWIRP Bethpage

Client ID:	BP-MW205S1-DW-20220512		
Lab ID:	2205328-02B	**Date/Time Analyzed:**	5/25/22 02:55 PM
Date/Time Collected:	5/12/22 03:04 PM	**Dilution Factor:**	1.44
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msdv.i / v052510sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.010	0.055	0.16	0.055 U
1,1,2,2-Tetrachloroethane	79-34-5	0.020	0.069	0.20	0.069 U
1,1,2-Trichloroethane	79-00-5	0.013	0.055	0.16	0.055 U
1,1-Dichloroethane	75-34-3	0.0067	0.041	0.12	0.041 U
1,1-Dichloroethene	75-35-4	0.010	0.040	0.057	0.040 U
1,2-Dibromoethane (EDB)	106-93-4	0.062	0.077	0.55	0.077 U
1,2-Dichloroethane	107-06-2	0.018	0.041	0.12	0.079 J
1,4-Dichlorobenzene	106-46-7	0.096	0.10	0.43	0.10 J
Benzene	71-43-2	0.029	0.032	0.23	0.96
Carbon Tetrachloride	56-23-5	0.037	0.063	0.18	0.42
Chloroethane	75-00-3	0.042	0.11	0.19	0.11 U
Chloroform	67-66-3	0.013	0.049	0.14	0.094 J
Chloromethane	74-87-3	0.16	0.45	1.5	0.78 J
cis-1,2-Dichloroethene	156-59-2	0.012	0.040	0.11	0.13
Ethyl Benzene	100-41-4	0.016	0.044	0.12	0.35
Freon 114	76-14-2	0.022	0.070	0.20	0.14 J
Freon 12	75-71-8	0.029	0.050	0.36	2.2
m,p-Xylene	108-38-3	0.017	0.044	0.25	0.99
Methyl tert-butyl ether	1634-04-4	0.010	0.036	0.52	0.036 J
o-Xylene	95-47-6	0.014	0.044	0.12	0.94
Tetrachloroethene	127-18-4	0.014	0.068	0.20	0.17 J
Toluene	108-88-3	0.022	0.038	0.27	3.1
trans-1,2-Dichloroethene	156-60-5	0.014	0.040	0.57	0.64
Trichloroethene	79-01-6	0.031	0.054	0.15	0.061 J

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
NWIRP Bethpage

Client ID:	BP-MW205S1-DW-20220512		
Lab ID:	2205328-02B	**Date/Time Analyzed:**	5/25/22 02:55 PM
Date/Time Collected:	5/12/22 03:04 PM	**Dilution Factor:**	1.44
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msdv.i / v052510sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	75-01-4	0.015	0.026	0.074	0.026 U

J = Estimated value.
U = The analyte was not detected above the MDL.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	76-131	104
4-Bromofluorobenzene	460-00-4	68-122	95
Toluene-d8	2037-26-5	77-125	103

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Monitoring Well Development Analytical Data

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CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 • Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO. N 3040
COC Number 2034704

7
7.1

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: Tetra Tech
ADDRESS: 5700 Lake Wright Dr. Suite 102
CITY Norfolk STATE: VA ZIP: 23502
ATTENTION: Ernie Wu
PHONE: (757)466-4901 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NWIRP Bethpage
PROJECT NO.: 112608005 wE LOCATION: Bethpage, NY
PROJECT MANAGER: Ernie Wu
e-mail: ernie.wu@tetratech.com
PHONE: (757)466-4901 FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX (RUSH) Standard DAYS*
HARDCOPY (DATA PACKAGE): Standard DAYS*
EDD: Standard DAYS*
*TO BE APPROVED BY CHEMTECH
STANDARD HARDCOPY TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

- ❑ Level 1 (Results Only)
- ❑ Level 2 (Results + QC)
- ❑ Level 3 (Results + QC + Raw Data)
- ❑ Level 4 (QC + Full Raw Data)
- ❑ NJ Reduced ❑ US EPA CLP
- ❑ NYS ASP A ❑ NYS ASP B
- ❑ Other
- ❑ EDD FORMAT

ANALYSIS

1: VOCs (8260)
2: 1,4-Dioxane (8270-SIM)
3–9:

PRESERVATIVES

COMMENTS

← Specify Preservatives
A-HCl D-NaOH
B-HN03 E-ICE
C-H2SO4 F-OTHER

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRES 1	PRES 2	PRES 3	PRES 4	PRES 5	PRES 6	PRES 7	PRES 8	PRES 9
1.	~~BP-TT-TB-20220524~~	~~AQ~~		✓	5/24/22	~~0830~~ 0833										
2.	BP-TT-TB-20220524	AQ		✓	5/24/22	0830	2	2								
3.	BP-TT-MW205SI-20220524	GW		✓	5/24/22	1140	3	2	1							
4.																
5.																
6.																
7.																
8.																
9.																
10.																

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

	RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1.		5/24/22 1500	1.
2.	Fedex	5-25-22 0525	2.
3.			3.

Conditions of bottles or coolers at receipt: ❑ COMPLIANT ❑ NON COMPLIANT ❑ COOLER TEMP 3.1°C °C
Comments:

Page ____ of ____

CLIENT: ❑ Hand Delivered ❑ Other
CHEMTECH: ❑ Picked Up ❑ Field Sampling

Shipment Complete ❑ YES ❑ NO

2/[illegible]

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	05/24/22
Project:	CTO WE13	Date Received:	05/25/22
Client Sample ID:	BP-TT-MW205S1-20220524	SDG No.:	N3040
Lab Sample ID:	N3040-02	Matrix:	Water
Analytical Method:	SW8260	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	DB-624UI ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VX028985.D	1		05/26/22 05:48	VX052522

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
74-87-3	Chloromethane	0.75	U	0.20	0.75	1.00	ug/L
75-01-4	Vinyl Chloride	0.50	U	0.22	0.50	1.00	ug/L
74-83-9	Bromomethane	2.50	U	1.60	2.50	5.00	ug/L
75-00-3	Chloroethane	0.75	U	0.26	0.75	1.00	ug/L
75-69-4	Trichlorofluoromethane	0.50	U	0.20	0.50	1.00	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.50	U	0.17	0.50	1.00	ug/L
75-35-4	1,1-Dichloroethene	0.75	U	0.23	0.75	1.00	ug/L
67-64-1	Acetone	2.60	J	1.20	3.80	5.00	ug/L
75-15-0	Carbon Disulfide	0.75	U	0.26	0.75	1.00	ug/L
1634-04-4	Methyl tert-butyl Ether	0.50	U	0.18	0.50	1.00	ug/L
75-09-2	Methylene Chloride	0.50	U	0.18	0.50	1.00	ug/L
156-60-5	trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.00	ug/L
75-34-3	1,1-Dichloroethane	0.59	J	0.20	0.50	1.00	ug/L
78-93-3	2-Butanone	2.50	U	0.82	2.50	5.00	ug/L
56-23-5	Carbon Tetrachloride	0.75	U	0.18	0.75	1.00	ug/L
156-59-2	cis-1,2-Dichloroethene	0.75	U	0.17	0.75	1.00	ug/L
67-66-3	Chloroform	0.75	U	0.18	0.75	1.00	ug/L
71-55-6	1,1,1-Trichloroethane	0.50	U	0.18	0.50	1.00	ug/L
108-87-2	Methylcyclohexane	0.50	U	0.13	0.50	1.00	ug/L
71-43-2	Benzene	0.50	U	0.16	0.50	1.00	ug/L
107-06-2	1,2-Dichloroethane	0.50	U	0.18	0.50	1.00	ug/L
79-01-6	Trichloroethene	2.70		0.27	0.50	1.00	ug/L
78-87-5	1,2-Dichloropropane	0.50	U	0.17	0.50	1.00	ug/L
75-27-4	Bromodichloromethane	0.50	U	0.18	0.50	1.00	ug/L
108-10-1	4-Methyl-2-Pentanone	2.50	U	0.87	2.50	5.00	ug/L
108-88-3	Toluene	0.50	U	0.17	0.50	1.00	ug/L
10061-02-6	t-1,3-Dichloropropene	0.50	U	0.14	0.50	1.00	ug/L
10061-01-5	cis-1,3-Dichloropropene	0.50	U	0.16	0.50	1.00	ug/L
79-00-5	1,1,2-Trichloroethane	0.50	U	0.19	0.50	1.00	ug/L
591-78-6	2-Hexanone	2.50	U	0.76	2.50	5.00	ug/L
124-48-1	Dibromochloromethane	0.50	U	0.18	0.50	1.00	ug/L
127-18-4	Tetrachloroethene	0.50	U	0.18	0.50	1.00	ug/L

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	05/24/22
Project:	CTO WE13	Date Received:	05/25/22
Client Sample ID:	BP-TT-MW205S1-20220524	SDG No.:	N3040
Lab Sample ID:	N3040-02	Matrix:	Water
Analytical Method:	SW8260	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	DB-624UI ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VX028985.D	1		05/26/22 05:48	VX052522

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
108-90-7	Chlorobenzene	0.50	U	0.17	0.50	1.00	ug/L
100-41-4	Ethyl Benzene	0.50	U	0.17	0.50	1.00	ug/L
179601-23-1	m/p-Xylenes	1.00	U	0.33	1.00	2.00	ug/L
95-47-6	o-Xylene	0.50	U	0.18	0.50	1.00	ug/L
100-42-5	Styrene	0.50	U	0.13	0.50	1.00	ug/L
75-25-2	Bromoform	0.50	U	0.16	0.50	1.00	ug/L
98-82-8	Isopropylbenzene	0.50	U	0.19	0.50	1.00	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.75	U	0.23	0.75	1.00	ug/L
541-73-1	1,3-Dichlorobenzene	0.50	U	0.20	0.50	1.00	ug/L
106-46-7	1,4-Dichlorobenzene	0.50	U	0.19	0.50	1.00	ug/L
95-50-1	1,2-Dichlorobenzene	0.50	U	0.17	0.50	1.00	ug/L
SURROGATES							
17060-07-0	1,2-Dichloroethane-d4	49.0		81 - 118		98%	SPK: 50
1868-53-7	Dibromofluoromethane	50.5		80 - 119		101%	SPK: 50
2037-26-5	Toluene-d8	48.2		89 - 112		96%	SPK: 50
460-00-4	4-Bromofluorobenzene	51.2		85 - 114		102%	SPK: 50
INTERNAL STANDARDS							
363-72-4	Pentafluorobenzene	338000	5.556				
540-36-3	1,4-Difluorobenzene	606000	6.763				
3114-55-4	Chlorobenzene-d5	586000	10.055				
3855-82-1	1,4-Dichlorobenzene-d4	273000	12.024				
TENTATIVE IDENTIFIED COMPOUNDS							
75-43-4	Dichlorofluoromethane	N.D					

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements
M = MS/MSD acceptance criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
() = Laboratory InHouse Limit
A = Aldol-Condensation Reaction Products

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	05/24/22
Project:	CTO WE13	Date Received:	05/25/22
Client Sample ID:	BP-TT-MW205S1-20220524	SDG No.:	N3040
Lab Sample ID:	N3040-02	Matrix:	Water
Analytical Method:	SW8270SIM	% Moisture:	100
Sample Wt/Vol:	1000 Units: mL	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-SIMGroup1
Extraction Type :	Decanted : N	Level :	LOW
Injection Volume :	GPC Factor : 1.0	GPC Cleanup :	N PH :

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BN019993.D	1	05/27/22 09:41	05/27/22 18:32	PB145157

CAS Number	Parameter	Conc.	Qualifier	MDL	LOD	LOQ / CRQL	Units
TARGETS							
123-91-1	1,4-Dioxane	0.27		0.080	0.20	0.20	ug/L
SURROGATES							
7297-45-2	2-Methylnaphthalene-d10	0.26		30 - 150		65%	SPK: 0.4
93951-69-0	Fluoranthene-d10	0.31		30 - 150		79%	SPK: 0.4
4165-60-0	Nitrobenzene-d5	0.22		55 - 111		56%	SPK: 0.4
321-60-8	2-Fluorobiphenyl	0.25		53 - 106		62%	SPK: 0.4
1718-51-0	Terphenyl-d14	0.44		58 - 132		109%	SPK: 0.4
INTERNAL STANDARDS							
3855-82-1	1,4-Dichlorobenzene-d4	3440	7.854				
1146-65-2	Naphthalene-d8	11900	10.637				
15067-26-2	Acenaphthene-d10	7040	14.474				
1517-22-2	Phenanthrene-d10	14300	17.205				
1719-03-5	Chrysene-d12	9020	21.395				
1520-96-3	Perylene-d12	7170	23.744				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
Q = indicates LCS control criteria did not meet requirements
M = MS/MSD acceptance criteria did not meet requirements
J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
() = Laboratory InHouse Limit
A = Aldol-Condensation Reaction Products

Appendix B

Survey Data Report

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Borbas Surveying & Mapping, LLC

402 Main Street, Boonton, New Jersey 07005 Phone (973) 316-8743 www.borbas.com

MONITORING WELL CHART

Former Naval Weapons Industrial Reserve Plant (NWIRP)
999 S. Oyster Bay Road (Industrial Park)
Bethpage, New York, 11714
September 30, 2022

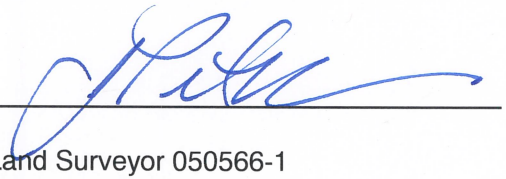
Monitor Well ID	Grade Elev	Outer Casing	Inner Casing	Northing	Easting	Latitude North	Longitude West	Survey Date
BPOW4-2R	66.6	66.56	66.11	200691.4	1123199.9	40°42'59.17"	73°29'55.53"	9/8/2022
MW149I1	69.6	69.59	69.29	201001.8	1125735.2	40°43'02.10"	73°29'22.58"	9/8/2022
MW149S1	69.5	69.54	69.33	201011.1	1125752.1	40°43'02.19"	73°29'22.36"	9/8/2022
MW150S1	73.9	73.86	73.45	202102.8	1128288.1	40°43'12.83"	73°28'49.34"	9/8/2022
MW158I1	74.7	74.73	74.31	202260.4	1122178.8	40°43'14.73"	73°30'08.67"	9/8/2022
MW158S1	74.5	74.52	74.09	202262.5	1122200.3	40°43'14.75"	73°30'08.39"	9/8/2022
MW161SI	62.0	62.03	61.74	199135.9	1131245.5	40°42'43.34"	73°28'11.17"	9/8/2022
MW162S1	69.2	69.24	69.04	200519.8	1129194.9	40°42'57.13"	73°28'37.69"	9/8/2022
MW163S1	54.1	54.06	53.97	196100.4	1124114.4	40°42'13.76"	73°29'43.99"	9/8/2022
MW172S1	68.4	68.36	68.11	201422.1	1127026.9	40°43'06.17"	73°29'05.77"	9/8/2022
MW174I1	66.7	66.73	66.44	200714.6	1123208.0	40°42'59.40"	73°29'55.42"	9/8/2022
MW205S1	68.5	68.51	68.36	199862.5	1126287.2	40°42'50.81"	73°29'15.50"	9/8/2022
RE115D1	69.6	69.55	69.06	200996.0	1125727.4	40°43'02.04"	73°29'22.68"	9/8/2022
RE115D2	69.6	69.59	69.05	201006.4	1125743.8	40°43'02.14"	73°29'22.47"	9/8/2022
RE127D1	61.8	61.79	61.37	199120.2	1131245.0	40°42'43.18"	73°28'11.18"	9/8/2022
RE127D2	61.7	61.72	61.22	199105.3	1131245.6	40°42'43.03"	73°28'11.17"	9/8/2022
RE128D2	69.1	69.06	68.57	200537.6	1129203.3	40°42'57.31"	73°28'37.58"	9/8/2022
RE129D1	54.0	54.05	53.92	196086.6	1124099.7	40°42'13.62"	73°29'44.19"	9/8/2022
RE129D2	54.0	54.02	53.88	196073.3	1124074.2	40°42'13.49"	73°29'44.52"	9/8/2022
RW8	45.4	45.43	44.58	194913.7	1124679.5	40°42'02.00"	73°29'36.75"	9/8/2022
RW8-MW01D3	44.7	48.44	48.41	194916.7	1124608.5	40°42'02.03"	73°29'37.67"	9/8/2022
RW9	53.0	53.03	51.98	195193.1	1126400.1	40°42'04.66"	73°29'14.39"	9/8/2022
RW9-MW01D1	53.1	56.20	56.20	195208.5	1126506.0	40°42'04.81"	73°29'13.01"	9/8/2022
RW9-MW01D2	53.1	56.12	55.88	195212.7	1126527.7	40°42'04.85"	73°29'12.73"	9/8/2022
RW9-MW01D3	53.3	56.24	56.32	195214.3	1126546.1	40°42'04.86"	73°29'12.49"	9/8/2022
RW9-MW01S	53.0	56.26	56.12	195204.6	1126487.1	40°42'04.77"	73°29'13.26"	9/8/2022
RW9-VPB	53.5			195238.1	1126494.1	40°42'05.10"	73°29'13.16"	9/8/2022

Notes:

1. The horizontal datum is the New York, Long Island State Plane Coordinate System (NAD83) verified by differential GPS observations utilizing the NGS CORS Network on September 6, 2022. Reference Station: NYEL AND NYDP

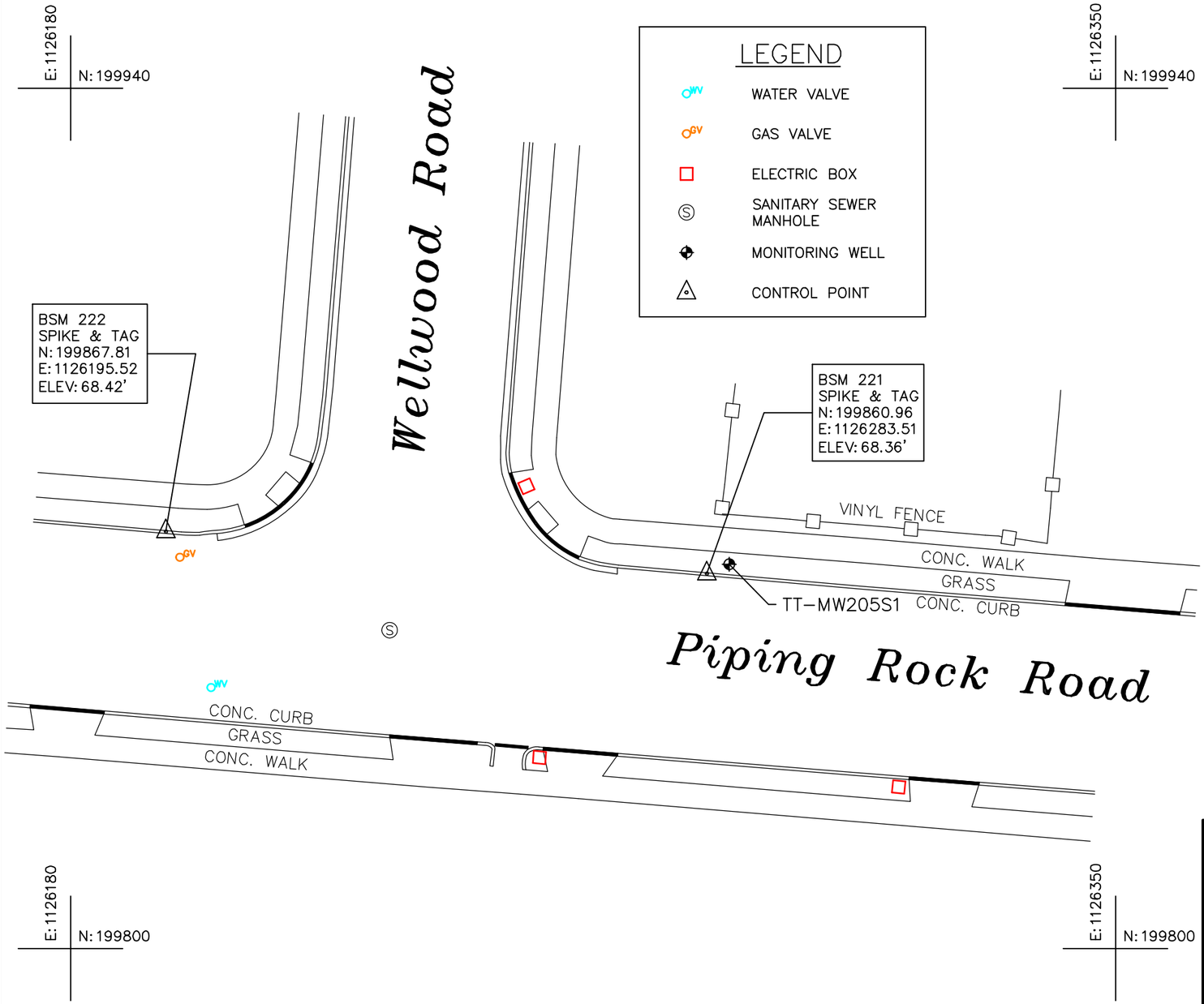
2. The vertical datum is the North American Vertical Datum of 1988 (NAVD88) GEOID12A, verified by differential GPS observations from the NGS CORS System on December 17, 2019. Benchmark Reference Stations: NYBR (orthometric height= 42.156'), NYCI (orthometric height= 56.453'), NYVH (orthometric height= 309.251') and SHK6 (orthometric height= 30.141').

3. All coordinates and elevations shown hereon are in U.S. Survey Feet.



J Peter Borbas, P.L.S.
New York Professional Land Surveyor 050566-1
September 30, 2022

P:\LP\P:\LP\2019\11\191103\Documents\191103_2022-09-30_Monitoring Well Chart



0 10 20 40

SCALE: 1"=20'

NORTH (NAD83 NYLISPCS)

NOTES:

1. THE HORIZONTAL DATUM IS THE NEW YORK, LONG ISLAND STATE PLANE COORDINATE SYSTEM (NAD83) VERIFIED BY DIFFERENTIAL GPS OBSERVATIONS UTILIZING THE NGS CORS SYSTEM ON SEPTEMBER 06, 2022. REFERENCE STATIONS: NYEL AND NYDPI.

2. THE VERTICAL DATUM IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) GEOID12A, VERIFIED BY DIFFERENTIAL GPS OBSERVATIONS FROM THE NGS CORS SYSTEM ON DECEMBER 17, 2019. BENCHMARK REFERENCE STATIONS: NYBR (ORTHOMETRIC HEIGHT= 42.156'), NYCI (ORTHOMETRIC HEIGHT= 56.453'), NYVH (ORTHOMETRIC HEIGHT= 309.251') AND SHK6 (ORTHOMETRIC HEIGHT= 30.141').

3. THIS BASE MAP DEPICTS LIMITED PHYSICAL IMPROVEMENTS AS THEY EXISTED ON SEPTEMBER 06, 2022, IN THE AREA OF THE EXISTING GROUNDWATER MONITORING WELLS. NO ATTEMPT HAS BEEN MADE TO DETERMINE THE LOCATION OF PROPERTY LINES, EASEMENTS OR RIGHT-OF-WAY LINES.

4. ALL COORDINATES AND ELEVATIONS SHOWN HEREON ARE IN U.S. SURVEY FEET.

5. THE UTILITIES SHOWN HAVE BEEN LOCATED FROM EVIDENCE OBSERVED ON THE SURFACE ONLY. THE SURVEYOR MAKES NO GUARANTEES THAT THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

DESCRIPTION	GROUND ELEVATION	OUTER CASING ELEVATION	INNER CASING ELEVATION	DATE SURVEYED
TT-MW205S1	68.5	68.51	68.36	09/08/2022

MONITORING WELL LOCATION MAP - TT-205
FMR. NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
4019 WELLWOOD ROAD
SEAFORD, NASSAU COUNTY, NEW YORK

BORBAS SURVEYING & MAPPING, LLC
402 MAIN STREET, BOONTON, NEW JERSEY 07005
Phone (973) 316-8743 www.borbas.com
A NEW YORK FOREIGN SERVICE CORPORATION
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Remote Sensing and GIS o Hydrographic/Bathymetric Surveys o ALTA/NSPS Certified Surveys
Transportation and Right of Way Surveys o Deformation and Structure Monitoring Surveys

		SCALE: 1"=20'
		SHEET NO.: 8 OF 11
		FIELD BOOK: 2022-3/95
		JOB NO.: 191103
SEP 30, 2022	ORIGINAL ISSUE	PROJECT NAME: 191103
ADDITIONS AND UPDATES		DRAWING NO.: 191103_2022-09-30_WELLS.DWG

J. PETER BORBAS
NEW YORK PROFESSIONAL LAND SURVEYOR 050566-1

STATE OF NEW YORK J. PETER BORBAS LICENSE NO. 050566-1 PROFESSIONAL LAND SURVEYOR

Date: SEPTEMBER 30, 2022

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