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April 4, 2018

Ms. Karen Lumino
US EPA, Region 1
Office of Site Remediation and Restoration
CT Superfund Section
5 Post Office Square, Suite 100
Mailcode OSRR07-4
Boston, MA 02109

Subject: **Solvents Recovery Service of New England Inc. Superfund Site**
Southington, Connecticut
Annual State of Compliance Report #9

Dear Ms. Lumino:

Pursuant to Section 62.e of the Consent Decree (CD) for the Remedial Design/Remedial Action at the Solvents Recovery Service of New England, Inc. Superfund Site entered on March 26, 2009 by the United States District Court for the District of Connecticut in connection with Civil Actions No. 3:08cv1509 (SRU) and No. 3:08cv1504 (WWE), and in accordance with Section VIII.B of the Statement of Work (SOW) attached to the CD as Appendix B, enclosed please find Annual State of Compliance Report No. 9.

This report covers the period from October 30, 2016 through October 31, 2017, and is submitted on behalf of the Respondents to the CD.

Please contact me if you have any questions.

Sincerely,

Bruce Thompson
Project Coordinator

Enclosure

cc: Shannon Pociu, CTDEEP
SRSNE Executive Committee

Solvents Recovery Service of New England, Inc. Superfund Site

Southington, CT

Annual State of Compliance Report # 9

October 31, 2016 through October 30, 2017

de maximis, inc.

January 2018

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A. Introduction

On October 30, 2008, the United States Environmental Protection Agency (USEPA) lodged a Consent Decree (CD) with the United States District Court for the District of Connecticut in connection with Civil Actions No. 3:08cv1509 (SRU) and No. 3:08cv1504 (WWE). The CD was entered by the Court on March 26, 2009. The CD addresses Remedial Design/Remedial Action (RD/RA) activities for the Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site in Southington, Connecticut (Site). Appendix B to the CD is a Statement of Work (SOW) that defines the required RD/RA activities and deliverables.

Section VIII.B of the SOW requires the Settling Defendants to submit an Annual State of Compliance Report one year after lodging of the CD and annually thereafter, to USEPA for approval or modification, after reasonable opportunity for review and comment by Connecticut Department of Energy and Environmental Protection (CTDEEP). Section 62.e of the CD requires a demonstration of the amounts of the Rolling Oversight Cost Cap and the Available Balance. This ***Annual State of Compliance Report #9*** (report) has been prepared on behalf of the SRSNE Site Group, an unincorporated association of Settling Defendants to the CD, to address these CD and SOW requirements. This report documents Site activities during the period of October 31, 2016 through October 30, 2017 (the “reporting period”).

As specified in SOW Section VIII.B, this report includes a comprehensive evaluation of all monitoring required by this SOW, including, but not limited to:

- compliance with the Performance Standards of the Hydraulic Containment and Treatment System and Severed Plume;
- Institutional Controls;
- construction, operation and maintenance;
- habitat restoration;
- hydraulic containment;
- the Memorandum of Agreement with Southington Water Department / Town of Southington; and
- groundwater monitoring program, including monitored natural attenuation.

Also required in the report is an assessment of the progress being made towards achieving the Performance Standards, as well as recommendations for changes to any monitoring program to address deficiencies identified during the evaluation. Proposals for reductions in monitoring, along with justifications, are provided as appropriate.

B. Background

The SRSNE Site is located on approximately 14 acres of land along Lazy Lane in Southington, Hartford County, Connecticut, approximately 15 miles southwest of the city of Hartford (Figure 1). The physical setting of the Site – including the regional geology, overburden geology, bedrock geology, hydrogeology, groundwater use and classification, drainage, and surface water use and classification – is summarized below. This information is also described in detail in prior report submittals, including the *Remedial Investigation Report* (Blasland, Bouck & Lee, Inc. [BBL] 1998) and the *Feasibility Study Report* (BBL and USEPA 2005), and the *Remedial Design Work Plan (RDWP)* (ARCADIS, November 2010).

The SRSNE Site includes portions of several properties/areas that are referred to within the RDWP consistent with terminology established in prior Site-related documents. These properties/areas include the former SRSNE Operations Area, the former Boston & Maine railroad right-of-way, the former Cianci Property, and the Town of Southington Well Field Property (Town Well Field Property). These areas are shown on Figure 2, and further described below:

- **Former SRSNE Operations Area:** The former SRSNE Operations Area comprises approximately 2.5 paved acres on a 3.7-acre lot South of Lazy Lane in the Quinnipiac River basin approximately 600 feet west of the Quinnipiac River channel. This is the area where SRSNE historically performed solvent recovery and related operations. The Operations Area is bordered on the east (downhill) by an abandoned railroad right-of-way and the former Cianci Property; to the north by commercial businesses; to the west (uphill) by private property; and to the south by private property, the Connecticut Light & Power (CL&P) electrical transmission line easement, and the Town Well Field Property.

- **Railroad Right-of-Way:** The railroad right-of-way is an approximately 50-foot wide corridor running north-south that separates the former Operations Area (to the west) from the former Cianci Property (to the east). The railroad was historically owned and operated by Boston & Maine, but is presently abandoned and the rails have been removed. CT DEP purchased the right-of-way in this area in support of extending the Farmington Canal Heritage Trail, a rails-to-trails greenway, from New Haven to the Massachusetts border (draft *Preliminary Reuse Assessment* [USEPA 2003]).

- **Former Cianci Property:** The former Cianci Property is a 10-acre parcel located immediately east of the Operations Area and railroad right-of-way. The Quinnipiac River borders the eastern edge of the former Cianci Property. Lazy Lane is to the north, and the Town Well Field Property borders the property to the south.

- **Town Well Field Property:** The Town Well Field Property consists of approximately 28 acres of undeveloped land south of the former Cianci Property and southeast of the Operations Area. The well field is bounded to the east by the Quinnipiac River and to the south by the Quinnipiac River and Curtiss Street. The railroad right-of-way and the Delahunty Property border the western perimeter of the well field. The CL&P easement runs northwest-southeast through the northern portion of the Town Well Field Property.

Town Production Wells No. 4 and 6 are approximately 2,000 and 1,400 feet south of the SRSNE Property, respectively. The Quinnipiac River divides the area between Wells No. 4 and 6. Production Well No. 6 is accessible using dirt roads originating from Lazy Lane or Curtiss Street, while Well No. 4 is only accessible from Curtiss Street. Production Well No. 4 was installed in August 1965 and provided drinking water to the Town of Southington from July 1966 to December 1977. Production Well No. 6 was installed in April 1976 and was pumped from May through October 1978, May through July 1979, and March 1980. Both wells have been inactive since that time.

Within these areas, “the Site” includes areas where Site-related constituents have come to be present in soil (including wetland soil) and groundwater at concentrations exceeding SOW-specified cleanup levels. This includes observed and interpreted non-aqueous phase liquid- (NAPL-) containing areas, impacted soils in the Operations Area, railroad right-of-way, and Cianci Property, and areas of impacted groundwater in both the overburden and bedrock zones. These areas, shown on Figures 3A (overburden) and 3B (bedrock), are generally described as follows:

- **Overburden NAPL Area:** This is the area where NAPL has been observed or inferred to exist in overburden soils based on the findings of prior investigations. The estimated extent of the Overburden NAPL Area includes portions of the Operations Area, the railroad right-of-way, and a portion of the Cianci Property, as shown on Figure 3A. This area has been further delineated in the northwest corner of the former Operations Area as component of the pre-design investigations referenced in the RDWP.

- **Overburden Groundwater Area:** The Overburden Groundwater Area is the portion of the Site where dissolved volatile organic compounds (VOC) concentrations in the overburden aquifer exceed cleanup goals. While the overburden groundwater is typically considered in three zones (each approximately one-third of the saturated thickness), the composite extent of this area (based on *Feasibility Study Report* [BBL and USEPA 2005] data) is depicted on Figure 3A. The overburden groundwater VOC plume extends south to the Town Well Field Property. The extent of the overburden groundwater area, particularly to the east of the Quinnipiac River, is subject to further assessment and delineation as part of the investigations referenced in the RDWP.

- **Bedrock NAPL Area:** The Bedrock NAPL Area is the area where NAPL has been observed or is inferred to exist based on prior site investigations. This includes a majority of the former SRSNE Operations Area and Cianci Property, as shown on Figure 3B.

- **Bedrock Groundwater Area:** This includes the portion of the Site where dissolved VOC concentrations in the bedrock aquifer exceed groundwater cleanup goals (based on *Feasibility Study Report* [BBL and USEPA 2005] data). The bedrock groundwater VOC plume extends south into the central portion of the Town Well Field Property, represented in figures 10 and 11 in Attachment 3 the *Draft 2017 MNA report* (ARCADIS, January 2018)

- **Severed Plume:** The portion of the affected groundwater zone that is outside the groundwater capture zone of the Non-Time-Critical Removal Action 1 (NTCRA 1) and NTCRA 2 extraction systems (described below), which contains Site-related constituents (primarily VOCs) above detectable levels is referred to as the severed plume. The approximate location and extent of the severed plume is shown on Figure 3A.

Other key Site features referenced include the Hydraulic Containment and Treatment System (HCTS). The HCTS consists of the on-site groundwater treatment system and the two groundwater extraction systems described as follows:

- **NTCRA 1 Groundwater Extraction System:** The NTCRA 1 groundwater extraction system (“NTCRA 1 system”) is located within the NTCRA containment area on the Cianci Property east of the Operations Area (Figure 4). It originally consisted of a steel sheet pile wall through the overburden to the top of bedrock, and 12 overburden groundwater extraction wells (RW-1 through RW-12) west (formerly upgradient) of the sheet pile wall. Groundwater is extracted from the wells to maintain hydraulic gradient reversal across the sheet pile wall. This system was installed in 1995 pursuant to Administrative Order on Consent (AOC) I-94-1045, effective October 4, 1994. Pumping from the NTCRA 1 system was initiated in July 1995.

  In December of 2009, *de maximis* submitted a letter to the Agencies summarizing changes to the NTCRA-1 Demonstration of Compliance Plan (DCP) as a result of the abandonment of monitoring well CPZ-9 (one of the ten NTCRA I compliance monitoring points) and decommission of recovery wells RW-5 and RW-6. Monitoring well abandonment activities at the site have been undertaken in accordance with Attachment N of the RDWP.

  On October 31, 2016, *de maximis* submitted a memorandum to the Agencies requesting modifications of operations and monitoring of the NCTRA-1, these modifications include taking low yielding NCTRA-1 extraction wells out of service while still maintaining reversal of gradient and continuing to monitor water levels. This request was approved on March 2017.

NTCRA 2 Groundwater Extraction System: The NTCRA 2 groundwater extraction system ("NTCRA 2 system") consists of three overburden extraction wells (RW-13, RW-14 and RW-15) and one bedrock extraction well (RW-1R) just north of the CL&P easement (Figure 4). These wells were installed pursuant to AOC 1-97-1000, effective February 18, 1997, and began operating in 1999, 2007, 2014 and 2001, respectively. The supplemental Groundwater Recovery Well (RW-15) was installed in October 2014. The additional recovery well was installed to ensure that target flow (30 gpm) and the overburden target zone recovery in NCTRA 2 will continue to be maintained. This extraction well cluster is located in the Town Well Field Property north of the CL&P easement.

In 2017, the average combined NTCRA 1 and NTCRA 2 groundwater extraction systems pumping rate was 37.8 gallons per minute. The capture zones created by the NTCRA 1 and 2 groundwater extraction systems are shown on Figure 3A (overburden) and Figure 3B (bedrock). The operation of the combined NTCRA 1 and NTCRA 2 systems has successfully contained the overburden and bedrock VOC plumes, creating the severed plume within the Town Well Field Property. Approximately 19,970,000 gallons of groundwater were extracted, treated and discharged during this monitoring period.

On-site Groundwater Treatment System: The combined operations of the extraction systems and the treatment facility were previously referred to as the "NTCRA 1 and NTCRA 2 Groundwater Extraction and Treatment System" or "NTCRA 1/2 Groundwater System." Following entry of the CD, continued operation of the NTCRA 1/2 Groundwater System became part of the ROD-specified remedial approach for groundwater, and the system is now referred to as the HCTS (SOW Section V.A).

Groundwater extracted from the NTCRA 1 and 2 systems is treated on site with a process that was originally constructed as part of the NTCRA 1 system (Figure 4). The groundwater extracted by the NTCRA-1 and 2 containment systems is pumped directly to the groundwater treatment facility. The treatment system consists of the following unit processes: metals pretreatment, filtration, ultraviolet oxidation (UV), and granular activated carbon adsorption. Vapor phase carbon adsorption is also used to capture contaminants that volatize during treatment. The system precipitates and extracts metals, reduces suspended solids, and destroys and captures volatile organic contaminants. Treated water is discharged to the Quinnipiac River in accordance with the Revised Connecticut Department of Environmental Protection (CTDEP) Substantive Requirements for Discharge of Pre-Treated Groundwater issued 6 November 1995. Approximately 18,000 pounds of VOCs have been removed from the groundwater since system startup.

C. Site Operational History

The SRSNE facility began operations in Southington in 1955 (ATSDR 1992). From approximately 1955 until the facility's closure in 1991, spent solvents were received from customers and distilled to remove impurities, and the recovered solvents were returned to the customer or sold to others for reuse. Based on a partial record of materials processed at the SRSNE facility (excluding pre-1967 operations files, which were destroyed in a fire), SRSNE handled in excess of 41 million gallons of waste solvents, fuels, paints, etc. Additional details regarding the operational history are provided in the *Remedial Investigation Report* (BBL 1998).

D. Regulatory Status

The SRSNE Site was added to the National Priorities List (NPL) on September 8, 1983. Since that time USEPA and the State of Connecticut have implemented a variety of enforcement, regulatory and response actions, culminating with the issuance of the Proposed Plan and Record of Decision (ROD) in September 2005. After issuing the ROD, the USEPA and SRSNE Site Group negotiated the terms of the CD.

Key regulatory milestones in the recent history of the Site, based on lists included on USEPA's project website (USEPA 2009) and in the fact sheet USEPA developed in support of the 2005 Proposed Plan (USEPA 2005b), are as follows:

Regulatory Milestone	Year
USEPA adds the Site to the NPL; SRSNE signs a consent decree with USEPA to install a groundwater recovery system and store/manage hazardous waste on site.	1983
USEPA and the State of Connecticut take enforcement action to require cleanup of the facility operations and the property.	1983-1988
USEPA initiates the Remedial Investigation for the Site, conducting three phases of investigation that are presented in a four-volume report (HNUS 1994).	1990
SRSNE operations cease.	1991
USEPA conducts a Time-Critical Removal Action to remove contaminated soils from the railroad grade drainage ditch and to remove some chemicals stored at the property to an off-site location.	1992
USEPA and the SRSNE Group enter into an Administrative Order on Consent (AOC) for Removal Action to construct and operate a pump and treat system to contain the principally contaminated overburden groundwater (the NTCRA 1 work). Other work conducted under this AOC included the construction of a mitigation wetland in the northeast corner of the Cianci Property, implementation of a full-scale phytoremediation study within the NTCRA 1 sheet pile wall, and extension of public water to three buildings adjacent to the Site.	1994
USEPA issues an Action Memorandum for a second NTCRA (NTCRA 2) to hydraulically contain VOC-impacted bedrock groundwater down gradient of the NTCRA 1 system.	1995
USEPA and the SRSNE Site Group enter into a second AOC for Removal Action and Remedial Investigation/Feasibility Study (RI/FS) to expand the groundwater containment system and complete site investigations. Work under this AOC resulted in the completion of the Site RI/FS, implementation of NTCRA 2, and the decontamination, demolition and removal of the remaining buildings and tanks from the Operations Area.	1996
SRSNE Site Group operates groundwater controls in the overburden and bedrock aquifers,	1996 - 2004

completes remedial investigations, and conducts feasibility studies.	
USEPA issues the Proposed Plan in June and holds two public meetings; the public comment period runs from June through August.	2005
USEPA issues the ROD for the Site, which describes the final remedy.	2005
SRSNE Site Group continues operation of the NTCRA 1 and 2 hydraulic containment and treatment systems	2005-2008
USEPA and SRSNE Site Group sign CD to implement the RD/RA activities.	2008
SRSNE Site Group continues operation of HCTS	2008 - present
Court enters CD; Remedial Design work initiated.	2009
Annual Report #1	2009
1st Five Year Review Report	2010
USEPA issues Remedial Design Work Plan Approval	2010
USEPA issues approval of PIPP 100% Design and RAWP	2010
Initiated Pre-ISTR Preparation Plan Construction Activities	2010
EPA, CTDEEP and SRSNE Site Group hold open house for public at Site	2010
Annual Report #2	2010
ISTR Conceptual Design Approval	2011
Approval of ISTR 100% Wellfield Design	2011
Annual Report #3	2011
Institutional Control Plan revisions based on March 2012 comments and May 2012 meeting	2012
Approval of the use of Hydro sleeve for interim sampling	2012
Approval for low flow screen length	2012
Completed delineation of extent of groundwater contamination	2012
Completed Pre-ISTR Preparation Plan Construction Activities	2012
Annual Report #4	2012
Initiated ISTR construction	2013
EPA, CTDEEP and SRSNE Site Group hold open house for public at Site	2013
Annual Report #5	2013
Approval of the 100% design ISTR Work Plan	2014
Issuance of final Memorandum of Agreement	2014
Submittal of the Supplemental Containment Action Plan	2014
ISTR initiated	2014
Approval of Technical Work Plan for NTCRA supplemental Recovery Well (RW-15)	2014
Installation of RW-15	2014
Annual Report #6	2015
ISTR completed	2015
Approval of ISTR Completion/Remedial Action Completion Report	2015
Revised Conceptual Site Model (CSM)	2015
2nd Five Year Review Report	2015
Annual Report #7	2016
Draft RCRA CAP 100% RD and RAWP report	2016
RCRA CAP 100% RD and RAWP report	2016
Approval of RCRA CAP 100 RD and RAWP Report	2016

Commence RCRA Cap Construction	2016
Complete RCRA Cap Construction	2017
Draft RCRA Cap Construction Completion Report	2017

E. Selected Remedy

The overall purpose of RD/RA activities is to design and implement the selected remedial approach for the Site. The selected remedy, developed by combining components of different alternatives for source control and management of migration to obtain a comprehensive approach for Site remediation, was described in the ROD. Key elements are summarized as follows:

- Treat waste oil and solvents – where present as NAPL in the subsurface in the overburden aquifer (i.e., the Overburden NAPL Area) – using in-situ thermal treatment. Completed 2015 as described in the *In-Situ Thermal Remediation Construction Completion Report (de maximis,* September 2015)

- Following in-situ thermal treatment, cap the former SRSNE Operations Area. The cap will be low-permeability and multi-layered and is to be designed, constructed, and maintained to meet the requirements of Resource Conservation and Recovery Act (RCRA) Subtitle C. As described in the "*Re-use of Excavated Material from Railroad Right of Way for ISTR Area Fill"* memorandum (*de maximis, in*c., April 29, 2010), soils excavated from the Rail Road Right of Way will be incorporated as fill material in the Thermal Treatment Zone (TTZ). Excavation of soil in a specific portion of the former railroad right-of-way to a depth of 4 feet – followed by backfill to match surrounding grade –will meet the direct exposure criteria (DEC) and pollutant mobility criteria (PMC) requirements of the Connecticut Remediation Standard Regulations with the understanding that an Activity and Use Limitation (ELUR) would subsequently be established for this area. Completed 2017 as described in the *DRAFT RCRA Subtitle C Cap Construction Completion Report (GEI, October 2017)*

- Excavate soils exceeding cleanup levels from certain discrete portions of the former Cianci Property. The estimated limits of soil removal on the former Cianci Property (five discrete excavation areas) are shown on Figure G-1 of the *Post-Excavation Confirmatory Sampling Plan* (Attachment G to the RDWP); these limits were subject to modification based on additional sampling proposed as part of remedial design. Provided that concentrations of polychlorinated biphenyls (PCBs) did not warrant off-site disposal, soils excavated from the former Cianci Property (and from other areas excavated outside the cap limits as part of other RD/RA activities) may be relocated to the former SRSNE Operations Area for placement beneath the cap.

- Capture and treat (on site) groundwater in both the overburden and bedrock aquifers that exceeds applicable federal drinking water standards and risk-based levels. This will be achieved through continued operation, maintenance, and modification (as needed) of the HCTS.

- Monitored natural attenuation of the groundwater plume outside the capture zones (i.e., the severed plume, shown on Figure 3A of the RDWP) that exceeds cleanup levels.

- Monitor natural degradation of constituents in the groundwater plume inside the capture zones and within the Bedrock NAPL Area (shown on Figure 3B of the RDWP).

- Implement institutional controls (i.e., Environmental Land Use Restrictions) to minimize the potential for human exposure to Site-related constituents in the subsurface soils and to prohibit activities that might affect the performance or integrity of the cap.

- Monitor groundwater and maintain the cap over the long term.

F. Performance Standards

Section IV of the SOW establishes Performance Standards for the various affected media at the SRSNE Site. It also establishes Performance Standards for other aspects of the RD/RA, including subsurface NAPL in the overburden and bedrock aquifers, performance of the multi-layer cap, hydraulic containment and treatment, the severed plume, habitat restoration, environmental monitoring, and institutional controls. These non-media-specific Performance Standards are summarized and addressed (to the extent applicable at this point in the RD/RA process) in the various task-specific work plans summarized in the RDWP.

Performance Standards for soil, wetland soil, and groundwater have been reviewed and compared to the current applicable USEPA and CTDEP standards and guidance. Based on this review, it was concluded that none of the USEPA or CTDEP criteria for Site-related constituent have been revised since the ROD was issued. However, the CTDEP has published a lower detection limit for 1,2,4-trichlorobenzene in water (0.5 micrograms per liter [ug/L] rather than the prior value of 2 ug/L). Because the detection limit is the cleanup level for groundwater (discussed below), this modification is noted on the copy of Table L-1 from the ROD that is provided as Appendix 1 to the RDWP. No other modifications were warranted to Tables L-1 or L-2 of the ROD to reflect current published guidance and standards.

The RD/RA SOW requires a soil investigation be conducted after implementation of in situ thermal treatment to re-assess the size of the area to be capped. That sampling needs to determine the background concentrations of 2,3,7,8-tetrachlorodibenzo-pdioxin,or “2,3,7,8-TCDD”, calculated as “toxic equivalents” or (TEQ), which are the sum of seventeen 2,3,7,8-substitute dioxin and furan congeners multiplied by their respective Toxic Equivalency Factors. In Table L-2 of the ROD, EPA and CTDEEP agreed that the cleanup level for 2,3,7,8-TCDD TEQ (“dioxin”) would be “the lower of the EPA policy for residential sites (0.001mg/kg) and the background concentration which will be determined based on future field study, or another concentration consistent with the CT RSRs, but not lower than background.”

Background dioxin sampling was performed in 2010, and results found very low background levels. This suggested use of a risk-based clean up level, rather than trying to meet background. Accordingly, a draft "white paper” proposing an alternative dioxin clean up level was submitted to the Agencies on September 16, 2014, EPA provided comments and a revised memo with response to comments was submitted on December 30, 2014The “white paper” proposed 50 part per trillion (ppt) soil clean up level that is consistent with EPA's residential soil standard, and was also derived using the CTDEEP RSR process to determine direct exposure and leaching based criteria. EPA approved the proposed dioxin soil cleanup level of 50 ppt on March 30, 2015. However, the 50ppt dioxin clean up level did not satisfy CTDEEP RSR criteria. An alternative risk based recreational cleanup soil level of 34 ppt was calculated and proposed to CTDEEP on February 5, 2016. This proposed cleanup level was approved on March 11, 2016. Additional soil delineation was performed and approximately 1,110 cubic yards of soil, along the railroad grade at the south end of the site was placed under the cap.

G. Summary of Activities Completed This Reporting Period

A summary of activities completed during this reporting period is provided within the attached Table 1.

H. Updated Schedule

An updated project schedule is included as Attachment 1 to this report.

I. Hydraulic Containment & Treatment System Operations and Maintenance

The HCTS achieved compliance during this reporting period with the Demonstration of Compliance Requirements (see Attachment B to the SOW). Details of the operation are provided as Attachment 2 to this report.

The HCTS includes 10 groundwater extraction wells within the NTCRA 1 Containment Area and four downgradient groundwater extraction wells that were originally installed, operated and monitored as part of NTCRA 2. In combination, the NTCRA 1- and NTCRA 2-area extraction wells are all components of the HCTS. For clarity, they are still referred to as NTCRA 1 and NTCRA 2 extraction wells to differentiate the extraction locations and operational histories.

The NTCRA 1 containment system was installed and began operating in 1995. The system includes an approximately 700-foot-long sheet pile wall that extends through the overburden to the top of bedrock, and overburden groundwater extraction wells just west of the sheet pile wall. The purpose for the NTCRA 1 system was to physically and hydraulically control the highest concentrations of dissolved VOCs in overburden groundwater migrating downgradient from the former SRSNE Operations Area. The original NTCRA 1 system had twelve overburden extraction wells. Two wells (RW-5 and RW-6) were abandoned in 2011 during preparation for thermal treatment system construction. Additionally, five low yielding wells (RW-1, 4, 8, 9 and, 10) were approved to be taken out of service by EPA in March 2017.

The NTCRA 1 hydraulic containment system now consists of 5 wells (RW-2, 3, 7, 11, and 12). Groundwater extraction rates from the NTCRA 1 wells since 1995 have typically been in the range of 5 to 15 gallons per minute (gpm), combined. Groundwater pumped from the wells is treated using metals pre-treatment, ultraviolet oxidation, and carbon polish, and then discharged to the Quinnipiac River. In addition to hydraulically controlling overburden groundwater, the NTCRA 1 overburden extraction wells produce a hydraulic response in the shallow bedrock, indicating that the overburden and shallow bedrock are hydraulically connected in this area.

The NTCRA 2 system was installed to hydraulically control bedrock groundwater downgradient of the interpreted NAPL zones in overburden and bedrock. A pumping test of well RW-13 during the FS indicated that this overburden well – which is screened from the middle overburden to the top of bedrock – has a significant hydraulic influence in the shallow bedrock and even the deep bedrock. Because the overburden and bedrock are hydraulically connected in the Town Well Field Property, and the natural groundwater flow direction is upward from bedrock to overburden in that area, the NTCRA 2 system hydraulically controls overburden and bedrock groundwater. A summary of the NTCRA 2 extraction wells is as follows:

- RW-13 began operation in July 1999 – it extracts groundwater from the middle and deep overburden with a screened interval from 35 to 75 feet bgs, and typically operates between 10 and 25 gpm.

- RW-14 began operation in October 2007 – it extracts groundwater from the middle and deep overburden with a screened interval from 31 to 71 feet bgs, and typically operates between 10 and 25 gpm.

- RW-1R began operation in September 2001 – it extracts groundwater from the shallow and deep bedrock with an open-bedrock interval from 82 to 271 feet bgs. In spite of its long open interval, well RW-1R has historically produced approximately 0.1 gpm or less.

- RW-15 was began operation in October 2014 – it also extracts groundwater from the middle and deep overburden, between 30 and 72 feet bgs, and typically operates between 20 and 30 gpm

The addition of well RW-15 provided additional pumping capacity and is expected to allow two of the three overburden NTCRA 2 extraction wells to operate continuously, even when the third well is undergoing maintenance. Groundwater pumped from the NTCRA 2 wells is also treated at the UV-OX treatment system that was constructed as part of NTCRA 1. With the exception of sporadic power outages and system maintenance, the HCTS operates nearly continuously. Weston Solutions, which operates the system, estimates that the HCTS operates over 99% of the time. The average combined pumping rates in 2016 were approximately 31.6 gpm from the NTCRA 2 extraction wells.

Map views and cross-sections to demonstrate hydraulic containment in accordance with EPA guidance from January 2008 entitled *A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems* (EPA/600/R-08/003) are provided in Figures 7 through 11 of the 2014 -*Groundwater Sampling and Monitored Natural Attenuation Report* (ARCADIS, 2014) . These figures depict groundwater elevation contours measured on June 9, 2014), and generalized overburden and bedrock capture zone boundaries for the NTCRA 2 extraction wells, which are now part of the HCTS. The estimated capture zone boundaries are based on a combination of measured water level data, historical and recent groundwater modeling results and stagnation point calculations presented in the FS Report (BBL and USEPA, May 2005; Appendix A), and updated VOC concentration data at select monitoring wells (collected in June 2014). Groundwater flow directions based on the June 2014 data are consistent with previously derived groundwater flow directions. The figures indicate that groundwater in all five hydro stratigraphic units converges in the vicinity of the Quinnipiac River, and zones of potentiometric depression were observed in the vicinity of the hydraulic containment and treatment system (HCTS) extraction wells.

Concentrations of dissolved VOCs extracted by the NTCRA 1 system, and consequently its mass removal rate, have declined from 1995 to the present. The overall decrease indicates source zone attenuation due to continued dissolution of NAPL, degradation in the dissolved phase and the completion of in-situ thermal remediation. Concentrations of VOCs pumped by the NTCRA 2 wells have also declined steadily in recent years.

VOCs above Action Levels (the more stringent of the USEPA Maximum Contaminant Levels [MCLs] or Connecticut Class GA Groundwater Protection Criteria [GWPC]) are generally contained within the previously estimated containment boundary of the hydraulic containment and treatment system (HCTS).

The SOW calls for “optimizing” the groundwater treatment system once groundwater conditions stabilize after in-situ thermal treatment. Temperatures and concentrations are currently being monitored and data indicates a decline in groundwater VOC concentration within the NTCRA 1 area due to ISTR. Conditions are expected to stabilize in 2018.

A review of the current influent data concluded that concentrations are below that required for discharge to the Publically Owned Treatment Works (POTW) under a CTDEEP General Permit. The Town of Southington to reviewed the influent data and conditionally agreed to allowed connect to the POTW as an industrial customer.

A formal request for this change was submitted to the Agencies on October 30, 2015. Concern was expressed by CTDEEP regarding 1,4-dioxin levels in the discharge, for which the state had not established a surface water standard. As a condition of granting the discharge permit the CTDEEP required four rounds of 1,4-dioxin sampling at the treatment system effluent, at the influent, midpoint and discharge of the POTW and in the Quinnipiac River at the POTW discharge. Four rounds were collected and the data was submitted to CTDEEP on February 8, 2016 and CTDEEP agreed with the connection on February 22, 2016. However, on March 6, 2016 additional concerns were raised about the possible presence of per-fluorinated compounds in the SRSNE discharge. CTDEEP requested analysis of per-fluorooctanoic acid (PFOA) and per-fluorooctyl sulfonate (PFOS) and there precursor compounds. Samples were collected at the NTCRA 1 & 2 influents in April 2016 and results confirmed the presence on PFOA/PFOS compounds. Further discussions with the agencies prompted a round of sampling at the POTW, in the Quinnipiac River, and of the SRSNE influent and effluent. These results were submitted to the Agencies on April 17, 2016. On September 12, 2016 CTDEEP decided that at that point in time they did not have enough information regarding PFAS to allow the change from onsite treatment to the connection of the POTW.

Additional samples were collected from the NTCRA 2 effluent, the POTW, and the Quinnipiac River. On May 1, 2017, a letter was submitted to the CT DEEP requesting reconsideration of our request to the POTW. The letter included additional PFAS information and presented PFAS sampling data and analysis of the additional samples taken. Results indicated that the NTCRA 2 effluent, POTW influent, and Quinnipiac River PFAS concentrations are similar to low, with the higher concentration in the POTW influent. A copy of the final form agreement between the Town of Southington and the Group which includes a section that recognizes that the CTDEEP may in the future regulate the discharge of 1,4-dioxane, perfluorinateds, and/or other “emerging contaminants” to surface water, and requires us to perform necessary monitoring and gives Southington the authority to terminate discharge to the sewer if necessary. CTDEEP is currently considering the request.

J. Institutional Controls / Access Agreements

Institutional controls in the form of deed restrictions are already in place on the Operations Area and Cianci Properties that prohibit all uses except for those associated with environmental response actions, as further described in CD paragraph 26. No additional institution controls were implemented during this reporting period. In 2010, the SRSNE Site Group took control of the Voting Trusts that control the Operations Area Property and the Cianci Property, respectively, which allows the implementation of additional institutional controls on those properties when appropriate. Additional institutional controls will be implemented pursuant to the Institutional Control Plan that has been developed as required by SOW Section V.B.7. The Institutional Control Plan was revised and resubmitted in May 2013 to address comments received in December 2011 and May 2012 meeting. The revised plan includes the use of groundwater modeling to evaluate properties where future pumping may cause migration of the plume. The properties included in this “buffer zone” will be controlled with an ordinance through the local Health Department, a process that has been used by the Town of Southington in recent years. A conference call between representatives of EPA, CTDEEP, CT AG and the SRSNE Site Group on July 18, 2013 was held to discuss the IC Plan. On August 10, 2015 a meeting was held with the CT AG and CTDEEP to determine path forward with the IC Plan. In October 2015, CTDEEP requested the IC plan be revised to include the updated Environmental Land Use Restrictions that was revised in 2014 and a revised plan has been submitted. A meeting was held with the Agencies on November 2, 2015 to discuss final comments on the IC Plan and the IC Plan will be completed once final comments are received from CTDEEP.

On August 8, 2017 comments were receive on the draft IC plan and there was conference call to discuss the comments and the revision approach on August 30, 2017. It is expected that the IC Plan will be finalized an implementation will commence in 2018.

K. Explanation of Significant Differences

EPA provided a Public Notice in August 2016, for the proposed publication of an Explanation of Significant Differences (ESD). Pursuant to Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9617(c), and the National Contingency Plan, 40 C.F.R. § 300.435(c)(2)(i), if EPA determines that the remedial action to be undertaken at a site differs significantly from the Record of Decision (ROD) for that site, EPA shall publish an ESD and the reasons such changes are being made. According to 40 C.F.R. § 300.435(c)(2)(i), and EPA guidance (OSWER Directive 9200.1-23-P, July 1999), an ESD, rather than a ROD amendment, is appropriate where the adjustments being made to the ROD are significant but do not fundamentally alter the remedy with respect to scope, performance or cost.

The ESD will describe three minor modifications to the formal cleanup plan presented in the 2005 ROD. These changes are:

- A smaller engineered cap area- the original cap design included the former SRSNE operations area and along a section of the railroad grade. During PIPP construction the soils along the railroad grade to be capped were excavated and placed in the in the former operations area. The excavated area was backfilled with clean soil. As a result the final footprint of the area to be capped is smaller than originally designed.

- Soil dioxin cleanup level-EPA approved a risk based dioxin cleanup level of 50ppt. This level was based on sampling performed at the site from 2010 through 2016. This level is lower than what was considered for the 2005 ROD and consistent with policies and requirements of the EPA.

- Modification of Hydraulic Containment System-EPA agrees that concentrations of contaminants in the Site groundwater are low enough that onsite treatment is no longer required. EPA has approved the request to change from onsite treatment to discharge to the Southington Water Pollution Control Authority provided all requirements of the Connecticut Discharge of Groundwater Remediation Wastewater to a Sanitary Sewer are met, and CT DEEP issues the permit.

EPA has determined that the changes to the ROD provided in this ESD are significant but do not fundamentally alter the overall remedy for the Solvents Recovery Service of New England Superfund (SRSNE) Site with respect to scope, performance or cost and therefore will be properly issued. This ESD was issued on November 21, 2016.

L. Construction, Operation and Maintenance Activities

HCTS operations and maintenance are discussed above in Section I. In situ thermal remediation was performed between May 2014 and March 2015, removing an estimated 210,000 kilograms (kg) of NAPL mass. During operation, ISTR operational parameters were monitored to assess operational performance and treatment progress. This included soil temperature, sub-surface vacuum levels, VOC mass extracted and extraction rate, vapor stream flammability, energy usage, and caustic usage. In addition to monitoring the ISTR operational performance, soil and groundwater sampling were also performed to assess the treatment progress. Groundwater samples were collected from seven monitoring wells (ISTR-1 through -7) located within the thermal treatment area. Samples were collected before heating commenced, and monthly during ISTR. Sampling included “progress” soil sampling performed by TerraTherm to confirm treatment progress and to help evaluate when each treatment Phase was ready for the final confirmation sampling. In total, 60 confirmation soil samples were collected from 28 locations within the Phase I area, and 83 confirmation soil samples were collected from 32 locations within the Phase II area (including supplemental samples collected by TerraTherm after initial samples from certain areas did not achieve Interim NAPL Cleanup Levels). These data were used to support shutdown in the Phase I and Phase II areas, and the associated data were used to demonstration of Attainment of INCL’s. Additional details can be found in the In-Situ Thermal Remediation Construction Completion Report (*de maximis*, September 2015)

Post-thermal treatment groundwater monitoring events have been conducted in three times per year since the completion of ISTR in February 2015 for select monitoring wells in the NTCRA 1 area. During these events groundwater samples and temperatures were collected. Initial results from these the monitoring events indicate generally decreasing COC concentrations and moderately to strongly reducing conditions in groundwater in the NTCRA 1 area. Samples and temperatures will continue to be collected and evaluated on a triannual basis until temperatures return to the pre-thermal levels, which is expected to occur in 2018.

The RCRA Cap 100% Design and the RCRA Cap Remedial Action Work Plan (RAWP) was approved on October 18, 2016. Implementation of the work included in the plan commenced in November 2016 and was completed in September 2017. A ribbon cutting ceremony celebrating this milestone completion was held on September 21, 2017. The Draft RCRA Subtitle C Cap Construction Completion Report was submitted in October 2017. Work completed during construction is summarized below:

- Site preparation activities such as brush and tree clearing, installation of erosion control measures, relocation of perimeter fencing, establishment of construction support facilities, removal of abandoned utilities, and drainage system modifications.

- Modifications to the NTCRA 1 sheet pile wall to allow for future subsurface groundwater flow beyond the wall once capture of the groundwater is no longer needed in this area. The modifications include a permeable trench and collection piping along the upgradient side of the wall, pipe penetrations through the wall, valves to open or close the sheet pile penetrations, permeable trenches along the downgradient side of the sheet pile wall, extensions atop wells and Hydraulic Containment and Treatment System (HCTS) components to accommodate grade changes, vertical riser pipes at each of the three NTCRA 1 penetrations through the sheet pile wall for future remedial additives, and placement of fill to help maintain the water table below ground surface under the modified conditions.

- Installation of a piping from NTCRA treatment building to the sanitary sewer located on Lazy Lane. The piping was installed to allow for future connection to the POTW if approved, no physical connection has been made.

- Excavation of various soils located outside of the planned cap limits, consolidation of those soils beneath the cap, and backfill of the excavation areas. Soils excavated from outside the cap limits included the five Cianci property excavation areas identified in the ROD (as modified based on delineation sampling), dioxin-impacted surficial soils exceeding cleanup goals, and soil/debris piles associated with prior remedial construction phases. A borrow pit was also excavated adjacent to the Quinnipiac River floodplain to offset lost floodplain storage capacity associated with the NTCRA 1 fill area, and to provide a portion of the fill for the NTCRA 1 fill area.

- Construction of a new drainage channel extending southeast from the culverted swale crossing at the south end of the RCRA cap to a pre-existing drainage swale leading to the Quinnipiac River within the power line easement. This swale was necessitated by the need to manage storm water from the southern half of cap area.

- Construction of a RCRA cap within the former SRSNE Operations Area.

- Construction of a rails-to-trails path extending from Lazy Lane to Curtiss Street, extending north and south outside the limits of the RCRA cap, with a section constructed directly over the RCRA cap.

- Site mitigation, restoration, and stabilization activities. This included measures to address wetland areas impacted by the RCRA cap and NTCRA 1 modifications, restoration of ecological habitats (to the extent possible) upon completion of the work, provision of temporary erosion and sedimentation controls to stabilize post-construction conditions, and post-restoration monitoring to ensure performance standards are met.

M. Habitat Restoration

Habitat restoration activities that were conducted during this reporting period are summarized in section L above and detailed in section 3.3.6 of the RCRA Subtitle C Cap Construction Completion Report (GEI, October 2017).

N. Memorandum of Agreement (MOA) with Southington Water Department / Town of Southington

A draft MOA was prepared during the Annual Report #1 reporting period as required by SOW Section V.B.3. This draft MOA was submitted for EPA review on September 16, 2009 and resubmitted based upon EPA comments on June 23, 2010. EPA provided further comments on the MOA on October 28, 2011. The revised MOA was provided for further EPA review on November 15, 2011. EPA issued the final MOA on September 15, 2014. Execution of the MOA triggered finalization and submittal of the Supplementary Containment Action Plan (SCAP). The SCAP sets forth the process the Group would undertake to enhance containment of groundwater in the event SWD re-starts pumping from the Town Well Field Property. The revised SCAP was submitted on October 13, 2014, and approved by EPA on November 7, 2014.

O. Groundwater Monitoring Program

A comprehensive groundwater monitoring program was scoped in the *Monitoring Well Network Evaluation and Groundwater Monitoring Program* (Work Plan; Attachment N to the Remedial Design Work Plan [RDWP]; ARCADIS, 2010). A summary of the planned sampling frequency is provided in the attached Table N-1 from the RDWP. The first comprehensive groundwater sampling event occurred during May/June 2010 which supported the first Five-Year Review, submitted in 2010. This sampling event provided data for the draft 1st Monitored Natural Attenuation Report which was submitted in September 2010.

The second comprehensive groundwater sampling event was performed in June 2014 and included sampling of groundwater at 129 monitoring wells for analysis of volatile organic compounds (VOCs), 1,4-dioxane, target analyte list (TAL) metals, and/or MNA parameters in support of the USEPA's Five-Year Review. In support of the 2nd Five Year Review a revised Conceptual Site Model (CSM) was presented in April 2015. The updated CSM included an overview of site history and physical setting, remedial actions, hydrogeology, lateral and vertical groundwater plume extent, groundwater quality trends, mass removal, and progress toward groundwater remedial goals.
The 2nd Five Year Review was issued by EPA on September 24, 2015.

Figures 2 through 6 of the draft 2017 Groundwater Sampling and Monitored Natural Attenuation Report (MNA) show the locations of former Interim Monitoring and Sampling (IMS) wells that were used to monitor the VOC plume between the completion of the RI and the issuance of the ROD. These wells have the most complete data sets and concentration trends at these wells are presented in Figures 13 through 17 of the Draft 2017 MNA Report). Middle overburden well MW-03 (Figure 14-Draft 2017 MNA Report) and shallow bedrock well MW-127C (Figure 16-Draft 2017 MNA Report) are the only monitoring wells south of the Connecticut Light & Power (CL&P) easement that contained VOC concentrations above the Interim Cleanup Levels (ICLs) before the start-up of the NTCRA 2 system, but they declined to below the ICLs following NTCRA 2 system start up. As shown on Figures 13 through 17 of the Draft 2017 MNA Report, the VOC concentration trends at the former IMS wells south of the CL&P Easement are generally declining or have too many samples with no detected VOCs to support trend analysis.

In accordance with *Monitoring Well Network Evaluation and Groundwater Monitoring Program,* the 2017 annual groundwater sampling event was performed in June 2017 and included sampling of groundwater at 37 monitoring wells. The 2016Groundwater Sampling and Monitored Natural Attenuation Report (Attachment 3) summarizes the 2017 groundwater sampling events and presents the results and interpretation of data collected in support of MNA as a remedy for groundwater that contains Site related constituents of concern (COCs) at concentrations exceeding acceptable risk levels or regulatory limits. Sampling results are discussed below:

VOCs above Action Levels (the more stringent of the USEPA Maximum Contaminant Levels [MCLs] or Connecticut Class GA Groundwater Protection Criteria [GWPC], i.e., drinking water standards) are contained within the previously estimated capture zone boundary of the hydraulic containment and treatment system (HCTS). None of the wells within the severed plume (i.e., wells with historical COC concentrations above Action

Levels downgradient of the HCTS capture zone boundary) had COC concentrations above Action Levels during the 2014 through 2017 groundwater monitoring events.

Tetrachloroethene (PCE) and trichloroethene (TCE) were detected at middle overburden monitoring well PZO-2M at concentrations of 4.13 micrograms per liter (ug/L) and 2.16 ug/L, respectively, in the June 2017 sample. Both concentrations are below the Action Level of 5.0 ug/L and continue to decline. PCE was first detected above the Action Level at this well in June 2013, while TCE was first detected above the Action Level in June 2012.

PCE and TCE were detected at deep bedrock monitoring well MW-1003DR at concentrations of 2.67 µg/L and 30.4 µg/L, respectively, in the June 2016 sample. The PCE concentration dropped below the Action Level of 5.0 µg/L starting in June 2014, while the TCE concentration is above the Action Level of 5.0 µg/L (and was previously above the Action Level in 2013, 2014 and 2015). PCE and TCE were first detected above the Action Level at this well in June 2013. Concentrations of both compounds have continued to decline relative to the 2013 results.

TCE was also detected at monitoring well MW-1002R at a concentration of 10.1 µg/L above the Action Level of 5 µg/L. The only detection of TCE above Action Levels at this well occurred in June 2015.

As noted in the 2012 MNA Report, total VOC concentrations at shallow bedrock monitoring well P-11A increased notably between 2011 (583 ug/L) and 2012 (approximately 26,400 ug/L). This well is located within the bedrock NAPL zone initially delineated during the Remedial Investigation (RI; Blasland, Bouck & Lee, Inc. [BBL] June 1998), and more recently refined (based on additional data from the RD/RA activities) in the *Groundwater Conceptual Site Model Update* (ARCADIS, 2015). This well is also located within the HCTS capture zone. The total VOC concentration in June 2017 was significantly lower (4,573 ug/L) than in June 2012, though concentrations remain elevated above most pre-June 2012 values. VOC concentrations at this well will continue to be monitored as part of future sampling events.

Three post-thermal treatment monitoring events occurred during this reporting period, conducted in November 2016, March 2017, and July 2017, in accordance with SOW Sections IV.B.5.d and e. Note that three of the ten “N” wells (TW-08A, TW-08B, and TW-08D) were abandoned in March 2017, shortly after the March 2017 sampling event. Results indicate that total VOC concentrations have decreased by one-to-three orders of magnitude at six of the seven remaining “N” wells (relative to the initial comprehensive sampling event conducted in 2010). Significant rebound in total VOC concentrations was observed in groundwater at MWL-304 in July 2017 relative to previous sampling events (Appendix C). This increase in total VOC concentration at MWL-304 is driven primarily by increases in cis-1,2-dichloroethene (cDCE) and vinyl chloride (VC) concentrations. Increases in cDCE and VC concentrations indicate increased reductive dechlorination of higher chlorinated VOCs including PCE and TCE.

Results from Bio-Trap® sampling with QuantArray-Chlor analyses at three Non-Time-Critical Removal Action (NTCRA) 1 locations, ISTR-1, ISTR-5, and TW-08D, and QuantArray-Petro analyses at one NTCRA 1 location, ISTR-5, demonstrate increased diversity in the microbial population relative to pre-treatment conditions (Appendix D). These results indicate that anaerobic biodegradation processes dominate in the thermal treatment area, especially for chlorinated volatile organic compounds (CVOCs). However, results also indicate a strong potential for aerobic co-metabolism of CVOCs and aerobic metabolism of petroleum hydrocarbons if oxidation-reduction conditions become more favorable for these processes in the future. In addition, a Bio-Trap® sampler was deployed at 1 monitoring well (CPA-7R) for analysis of 1,4-dioxane and tetrahydrofuran (THF) biodegradation potential. The assessment of 1,4-dioxane biodegradation potential at monitoring well CPZ-7R indicates the potential for multiple biodegradation mechanisms in this area of the site. Because groundwater conditions are generally reducing to strongly reducing, it is likely that aerobic biodegradation is limited. However, it is possible that even small amounts of dissolved oxygen stimulate processes that may include the metabolism and/or co-metabolism of 1,4-dioxane.

The 2017 MNA Report (Attachment 3) fulfills the requirement set forth in Section VII.A.2 of the SOW and the reporting approach outlined in the MNA Plan presented as Attachment L to the RDWP (ARCADIS, 2009) and presents results of an ongoing evaluation of the effectiveness of MNA as a remedial measure for COCs in groundwater in the Site. As an extension of the prior evaluations (presented in the 2010 through 2016 MNA Reports), this evaluation considers groundwater monitoring results from the June 2017 annual groundwater monitoring event for VOCs and TAL metals at a subset of monitoring wells and presents: an evaluation of current concentration trends for total VOCs in groundwater at select monitoring locations; an evaluation of post-thermal treatment data at the “N” wells; estimates of bulk attenuation rates for total VOCs in groundwater; and HCTS COC mass extraction rates with time.

Results of these evaluations indicated:

Detected concentrations of VOCs above Action Levels are contained within the estimated capture zone boundary of the HCTS.

Groundwater total VOC concentrations are generally declining with time throughout the Site groundwater COC plume.

Estimated bulk VOC attenuation rates were comparable to attenuation rates for individual COCs presented in the *Feasibility Study* (FS) (BBL and USEPA 2005).

Compliance monitoring data from the HCTS indicate generally stable COC mass extraction rates from the early 2000s to 2013, with a decline in COC mass extraction rates observed starting in 2014.

These results support continued use of MNA as a remedy for COCs in Site groundwater.

On July 21, 2017, a memorandum proposing changes to the current long term groundwater monitoring program outlined in the *Monitoring Well Network Evaluation and Groundwater Monitoring Program* (Work Plan; Attachment N to the Remedial Design Work Plan [RDWP]; ARCADIS 2010), was submitted to the agencies. The memorandum summarized groundwater quality improvements since completion of the Remedial Investigation with particular focus on significant concentration declines since completion of In-situ Thermal Treatment. The changes were proposed in an effort to improve monitoring efficiency.

Proposed changes included:

- Reducing sampling frequency at select wells and number of wells sampled;
- Reducing frequency of analysis for MNA and other chemical parameters;
- Discontinuing sampling for metals until VOCs approach the Action Levels;
- And decommissioning (abandoning) select monitoring wells that are no longer needed to delineate the plume and/or are spatially redundant.

The current program includes comprehensive rounds of 125 wells every 5 years to support five-year year reviews, with routine annual sampling of 26 wells. The proposed changes would result in comprehensive round of 104 wells every 10 years and annual sampling of 19 wells.

The proposal was presented and discussed with the Agencies in September 2017 and comments and a request for a summary was requested in October 2017.

Q. Costs Incurred this Reporting Period

Paragraph 62 of the CD sets forth “Additional Provisions Regarding Settling Defendants’ Payments of U.S. Oversight Costs and State Oversight Costs.” Pursuant to this paragraph, an interest bearing “Oversight Costs Payment Subaccount” of the Remedial Trust Account was established on April 27, 2009, in the amount of $5,700,000.

In May 2016, EPA approved a permanent funding level of $1,000,000 for the future oversight cost sub-account, transfer of the remainder of the account to the RD/RA Trust, and that future oversight costs would be paid from the RD/RA Trust.

Costs incurred this reporting period were: $3,259,594. Total costs through the end of this reporting period were: $30,575,476.

R. References

BBL. 1998. *Remedial Investigation Report*. June 1998.

BBL. 2005. Interim Monitoring and Sampling Report No. 13. January 6, 2005.

BBL and USEPA. 2005. *Feasibility Study Report*. Solvents Recovery Service of New England, Inc. Superfund Site, Southington, Connecticut. May 2005.

Halliburton NUS (HNUS) Environmental Corporation. 1994. Final *Remedial Investigation Report: Remedial Investigation/Feasibility Study, SRSNE Site, Southington, Connecticut*. May 1994.

Hubert, J.F., Reed, A.A., Dowdall, W.L., and Gilchrist, M.J. 1978. Guide to the Mesozoic Redbeds of Central Connecticut. State Geological and Natural History Survey of Connecticut, Department of Environmental Protection. Guidebook No. 4.

La Sala, Jr. A. M. 1961. Surficial Geology of the Southington Quadrangle, Connecticut. United States Geological Survey Map GQ-146.

Mazzaferro, D.L. 1975. Contour Map of the Bedrock Surface, Southington Quadrangle, Connecticut. United States Geological Survey (USGS) Map MF-660A.

Rogers, J. 1985. Bedrock Geological Map of Connecticut. Connecticut Geological and Natural History Survey in Cooperation with the U.S. Geological Survey.

Southington Water Department. Town of Southington Water Works Map. January 1997.

United States District Court for the District of Connecticut. 2008. Consent Decree Regarding Solvents Recovery Service of New England, Inc. Superfund Site. August 29, 2008.

USEPA. 1986. *Superfund Remedial Design and Remedial Action Guidance*, OSWER Directive 9355.0-4A. June 1986.

USEPA. 1989. Inspection Report: Solvents Recovery Service of New England. February 1-2, 1989.

USEPA. 1995a. *Remedial Design/Remedial Action Handbook.* OSWER Directive 9355.0-04B. June 1995.

USEPA. 1995b. *Guidance for Scoping the Remedial Design.* OSWER Directive 9355.0-43. March 1995.

USEPA. 1998. Approach for Addressing Dioxin in Soil at CERCLA and RCRA Sites. OSWER Directive 9200.4-26. April 1998.

USEPA. 2003. Draft *Preliminary Reuse Assessment*. September 2003.

USEPA. 2005a. Record of Decision Summary, Solvents Recovery Service of New England, Inc. (SRSNE) Site, Southington, Connecticut. September 2005.

USEPA. 2005b. Solvents Recovery Service of New England, Inc. Superfund Site, Southington, CT. Proposed Plan Fact Sheet, May 2005. Available at: http://www.epa.gov/region01/superfund/sites/srs/229296.pdf.

USEPA. 2009. USEPA’s project website for the Solvents Recovery Service of New England, Inc. Superfund Site. Accessed February 24, 2009. http://www.epa.gov/region01/superfund/sites/srs.

ARCADIS, 2009. Draft Project Operations Plans for the Solvents Recovery Service of New England, Inc. Superfund Site. April 2009.

GEI Consultants, Inc., 2017. Draft RCRA Subtitle C Cap Construction Completion Report. October 2017.

Acronyms and abbreviations used in this Annual Report and associated attachments:

1,1-DCE	1,1-dichloroethene
1,1,1-TCA	1,1,1-trichloroethane
1,2-DCA	1,2-dichloroethane
2,3,7,8-TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin
ALEP	Action Level Exceedance Plan
AOC	Administrative Order on Consent
AQC	Air Quality Control System
ARARs	Applicable or Relevant and Appropriate Requirements
ATSDR	Agency for Toxic Substance and Disease Registry
B&M	Boston & Maine
BACT	Best Available Control Technology
BBL	Blasland, Bouck & Lee, Inc.
bgs	below ground surface
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
BTU	British Thermal Unit
°C	degrees Celsius
CA	chloroethane
CBYD	Call Before You Dig
cc	cubic centimeter
cDCE	cis-1,2-dichloroethene
CD	Consent Decree
CEMS	Continuous Emissions Monitoring System
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CH_4	methane
CL&P	Connecticut Light & Power
CO_2	carbon dioxide
COCs	Constituents of Concern
CT	carbon tetrachloride
CTDEP	Connecticut Department of Environmental Protection
CTDPH	Connecticut Department of Public Health
CVOCs	Chlorinated Volatile Organic Compounds
CWA	Clean Water Act
DCE	dichloroethene
DCM	dichloromethane
DCP	Demonstration of Compliance Plan
ddms	*de maximis* Data Management Solutions
DHC	Dehalococcoides
DNAPL	dense non-aqueous phase liquid
DO	dissolved oxygen
DQA	Data Quality Assessment
DQOs	Data Quality Objectives

DRE	Destruction/Removal Efficiency
DRO	Diesel Range Organics
EISB	Enhanced In-Situ Bioremediation
ELUR	Environmental Land Use Restriction
ESD	Explanation of Significant Differences
°F	degrees Fahrenheit
$Fe(OH)_3$	ferrous hydroxide
f_{oc}	fraction of solid organic carbon in soil
FS	Feasibility Study
FSP	Field Sampling Plan
PMC	Pollutant Mobility Criteria applicable to designated Class “GA” groundwater areas
GAC	granular activated carbon
GCTEOS	Groundwater Containment and Treatment Evaluation and Optimization Study
gpm	gallons per minute
GRO	Gasoline Range Organics
GWPC	Groundwater Protection Criteria
GWTF	Groundwater Treatment Facility
H	Henry’s Law Constant
H_2	hydrogen
H_2O	water
H_2S	hydrogen sulfide
HAP	hazardous air pollutant
HCl	hydrochloric acid
HCTS	Hydraulic Containment and Treatment System
HDPE	High-Density Polyethylene
HLVs	Hazard Limiting Values
HZ	Heated Zone
ID	inner diameter
IFT	interfacial tension
IMS	Interim Monitoring and Sampling
IQAT	Independent Quality Assurance Team
IRIS	Integrated Risk Information System
ISTD	In-Situ Thermal Desorption
ISTR	In-Situ Thermal Remediation
J&E	Johnson & Ettinger
K_d	soil-water partition coefficient
kg	kilogram
K_{oc}	chemical-specific organic carbon partition coefficient
LAER	Lowest Achievable Emission Rate
lbs	pounds
LNAPL	light non-aqueous phase liquid
MAROS	Monitoring and Remediation Optimization System
MASC	Maximum Allowable Stack Concentration
MCLs	Maximum Contaminant Levels

MCLG	Maximum Contaminant Level Goal
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MIBK	4-methyl-2-pentanone (methyl isobutyl ketone)
mL	milliliter
MNA	Monitored Natural Attenuation
MOA	Memorandum of Agreement
N_2	nitrogen
NA	Natural Attenuation
NAPL	non-aqueous phase liquid
ng/L	nanograms per liter
NH_4^+	ammonia
NOAA	National Oceanic and Atmospheric Administration
NO_2^-	nitrite
NO_3^-	nitrate
NSR	New Source Review
NTCRA	Non-Time-Critical Removal Action
O_2	oxygen
O&M	Operations and Maintenance
OD	outer diameter
OH^-	hydroxyl radical
OIS	On-Site Interceptor System
OMM	Operation, Maintenance and Monitoring
ONOGU	Observed NAPL in the Overburden Groundwater Unit
ORP	oxidation-reduction potential
OSHA	Occupational Safety and Health Administration
OSWER	Office of Solid Waste and Emergency Response
PAHs	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PCDDs	polychlorinated dibenzo-p-dioxins
PCDFs	polychlorinated dibenzofurans
PCE	tetrachloroethylene
PCR	Polymerase Chain Reaction
PEL	Permissible Exposure Limit
PFD	process flow diagram
PID	photoionization detector
PIPP	Pre-ISTR Preparation Plan
PLC	Programmable Logic Controller
POP	Project Operations Plan
ppb	parts per billion
PPE	personal protective equipment
ppm	parts per million
PSD	Prevention of Significant Deterioration
psig	pounds per square inch, gauge
PVC	polyvinyl chloride
QAPP	Quality Assurance Project Plan

R^2	correlation coefficient
RAOs	Response Action Objectives
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RDWP	Remedial Design Work Plan
RD/RA	Remedial Design/Remedial Action
Redox	Reduction-Oxidation
RDEC	Residential Direct Exposure Criteria
RH	Relative Humidity
RI	Remedial Investigation
ROD	Record of Decision
RSRs	Remediation Standard Regulations
SAP	Sampling and Analysis Plan
SCAP	Supplemental Containment Action Plan
SCM	Site Conceptual Model
SO_4^{2-}	sulfate
SOP	Standard Operating Procedure
SOW	Statement of Work
SPLP	Synthetic Precipitation Leaching Procedure
SRSNE	Solvents Recovery Service of New England, Inc.
SSO	Site Safety Officer
SVOCs	semi-volatile organic compounds
SWD	Southington Water Department
SWPC	Surface Water Protection Criteria
TAL	Target Analyte List
TCE	trichloroethylene
TCH	thermal conduction heating
TCLP	Toxicity Characteristic Leaching Procedure
TEFs	Toxic Equivalency Factors
TEQ	Toxic Equivalence Quotient
TEX	Toluene, Ethylbenzene and Xylenes
TSCA	Toxic Substances Control Act
TTZ	thermal treatment zone
ug/L	micrograms per liter
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UV	ultraviolet
VC	vinyl chloride
VI	Vapor Intrusion
VOC	volatile organic compound
WHO	World Health Organization

Tables

Table 1

Summary of Activities Completed

October 30, 2008-October 31, 2017

TABLE 1.0
Summary of Activities Completed
October 31, 2010 through October 30, 2017

Document Name / Activity	Author(s)	Date Submitted	Date Approved	Type
Final RDWP and POP	ARCADIS	11/19/2010	pending	Deliverable under SOW
Response to Comments on ISTR Conceptual Design	TerraTherm	12/3/2010	7/7/2011	Deliverable under SOW
Annual State of Compliance Report #2	de maximis	12/20/2010	pending	Deliverable under SOW
PIPP Winter Stabilization Plan	de maximis	12/30/2010	pending	Deliverable under SOW
Vapor Intrusion Technical Memorandum	EPA	10/27/2010	1/19/2011	Conditional Approval
Data Comparison - Groundwater Sampling Techniques	ARCADIS	1/4/2011	N/A	Technical Memorandum
Updates to Existing MODFLOW Groundwater Flow Model	ARCADIS	1/5/2011	N/A	Technical Memorandum
Data Comparison - Groundwater Sampling Techniques	ARCADIS	2/10/2011	N/A	Technical Memorandum
Draft Institutional Controls Plan	de maximis/ARCADIS	2/18/2011	pending	Deliverable under SOW
Comments on Response to Comments on ISTR Conceptual Design	EPA	3/2/2011	7/7/2011	EPA comments
PIPP Sheetpile Wall Extension Design	ARCADIS	3/21/2011	4/22/2011	Deliverable under SOW
Data Comparison - HydraSleeve vs. Low-Flow Groundwater Sampling Techniques	ARCADIS	3/22/2011	N/A	Technical Memorandum
Response to Comments on Response to Comments on ISTR Conceptual Design	TerraTherm	4/6/2011	7/7/2011	Deliverable under SOW
Bedrock Outcrop Study	ARCADIS	4/20/2011	N/A	Technical Memorandum
Supplementary Vapor Intrusion Technical Memorandum	ARCADIS	6/6/2011	pending	Deliverable under SOW
Bedrock Modeling Memorandum	ARCADIS	6/6/2011	N/A	Technical Memorandum
Comments on Vapor Intrusion Technical Memorandum	EPA	6/15/2011	pending	EPA comments
ISTR Conceptual Design Approval	EPA	7/7/2011	7/7/2011	Approval
Technical Memorandum - Proposed Use of Hydrasleeve Sampling	ARCADIS	7/8/2011	7/8/2011	Technical Memorandum
Approval of ISTR 100% Wellfield Design	EPA	9/23/2011	9/23/2011	EPA Approval
Comments on Draft Memorandum of Agreement with Town and Southington Water Department	EPA	10/28/2011	pending	EPA comments
Annual State of Compliance Report #3	de maximis	1/12/2012	pending	Deliverable under SOW
Screen Volume Purge vs lowflow groundwater metholds	de maximis	5/11/2011	5/21/2012	Approval
Submittal for the use of hydrosleeve during interim sampling events	de maximis	1/4/2011	6/12/2012	Approval
Annual State of Compliance Report #4	de maximis	1/3/2013	pending	Deliverable under SOW
PIPP Completion Report	ARCADIS	4/3/2013	N/A	Technical Repot
Revised Institutional Controls Plan	de maximis / ARCADIS	5/21/2013	pending	Deliverable under SOW
Revised Draft ISTR work plan and POP	TerraTherm	7/8/2013	pending	Deliverable under SOW
Comments on revised Draft ISTR Work Plan and POP	EPA/CTDEEP	9/30/2013	N/A	EPA /CTDEEP comments
Response to EPA and CTDEEP comments on revised DRAFT ISTR Work Plan and POP	de maximis	10/26/2013	pending	Deliverable under SOW
Annual State of Compliance Report #5	de maximis	3/3/2013	pending	Deliverable under SOW
Annual State of Compliance Report #6	de maximis	3/4/2014	pending	Deliverable under SOW
Approval of In Situ Thermal Remediation Final (100%) Design	de maximis	7/10/2014	4/18/2014	Deliverable under SOW
Revised Supplemental Containment Action Plan	de maximis	10/13/2014	11/5/2014	Deliverable under SOW
Draft In-Situ Thermal Remediation Construction Completion Report	de maximis	4/6/2015	N/A	Deliverable under SOW
Comments on Draft In-Situ Thermal Remediation Construction Completion Report	EPA/CTDEEP	9/10/2015	N/A	EPA /CTDEEP comments
Revised Conceptual Site Model	de maximis	4/29/2015	pending	Deliverable under SOW
Draft Soil Sampling Plan – SIP Delineation and Additional Dioxin Characterization	de maximis/ARCADIS	6/30/2015	N/A	
Final Soil Sampling Plan – SIP Delineation and Additional Dioxin Characterization	de maximis	8/24/2015	8/24/2015	
Final In-Situ Thermal Remediation Construction Completion Report	de maximis	9/18/2015	9/22/2015	Deliverable under SOW
2nd Five Year Review	EPA	9/24/2015	9/24/2015	
Treatment System Optimization Request	de maximis	10/30/2015	pending	
Annual State of Compliance Report #7	de maximis	3/20/2016	pending	Deliverable under SOW
RCRA CAP 100% RD and RAWP report	de maximis/ARCADIS	3/31/2016	N/A	Deliverable under SOW
Comments on RCRA CAP 100% RD and RAWP report	EPA	4/20/2016		EPA Comments
Final RCRA CAP 100% RD and RAWP Report	de maximis/ARCADIS	9/28/2016	10/19/2016	Deliverable under SOW
Explantaion of Significant Differences	EPA	8/4/2016	11/21/2016	EPA issue under ROD
NTCRA 1 Groundwater Modification Request	de maximis	10/31/2016	3/13/2017	EPA Approval
Annual State of Compliance Report #8	de maximis	4/5/2017	pending	Deliverable under SOW
RCRA Subtitle C Cap Construction Completion Report	de maximis/GEI	10/27/2017	pending	Deliverable under SOW

Table 2

N-1

Groundwater Monitoring Network and Sampling Events

Table N-1.
Groundwater Monitoring Network and Sampling Events
SRSNE Superfund Site, Southington, CT

Well Group	# Wells	Sampling Period	Sampling Frequency	Analytical Parameters
"C" wells	83	first comprehensive event	1 event	VOCs, alcohols, 1,4-dioxane, TAL metals, PAHs, PCBs
"R" wells	30			VOCs, alcohols, 1,4-dioxane, TAL metals, PAHs, PCBs, MNA parameters
"N" wells	10			VOCs, alcohols, 1,4-dioxane, TAL metals, PAHs, PCBs, MNA parameters
"M" wells	5			TAL metals, MNA parameters (background)
"B" wells	3			TAL metals (background)
"C" wells	83	subsequent comprehensive events	every 5 years	VOCs, 1,4-dioxane, TAL metals
"R" wells	30			VOCs, 1,4-dioxane, TAL metals, MNA parameters
"N" wells	10			VOCs, 1,4-dioxane, TAL metals, MNA parameters
"M" wells	5			TAL metals, MNA parameters
"B" wells	3			TAL metals
"R" wells	30	after first comprehensive event	annual	VOCs
			biennial	MNA parameters
"M" wells	5	after first comprehensive event	annual	TAL metals (background)
			biennial	MNA parameters (background)
"B" wells	3	after first comprehensive event	annual	TAL metals (background)
"N" wells - overburden	8	before thermal treatment	biennial	VOCs, MNA parameters
		during thermal treatment	annual	VOCs, MNA parameters
		after thermal, before equilibrium	3x / year	VOCs, MNA parameters
		after equilibrium	annual	VOCs
			biennial	MNA parameters
"N" wells - bedrock	2	before thermal treatment	annual	VOCs, MNA parameters
		during thermal treatment	annual	VOCs, MNA parameters
		after thermal, before equilibrium	3x / year	VOCs, MNA parameters
		after equilibrium	annual	VOCs
			biennial	MNA parameters
"W" wells	35	all comprehensive events	every 5 years	Water levels only - during all comprehensive events

Notes:

1) biennial = once every two years

VOCs = Volatile Organic Compounds

TAL = Target Analyte List

PAHs = Polycyclic Aromatic Hydrocarbons

PCBs = Polychlorinated Biphenyls

MNA = Monitored Natural Attenuation

Figures

CITY: MANCHESTER DIV/GROUP: ENVCAD DB: B.SMALL PM: TM:
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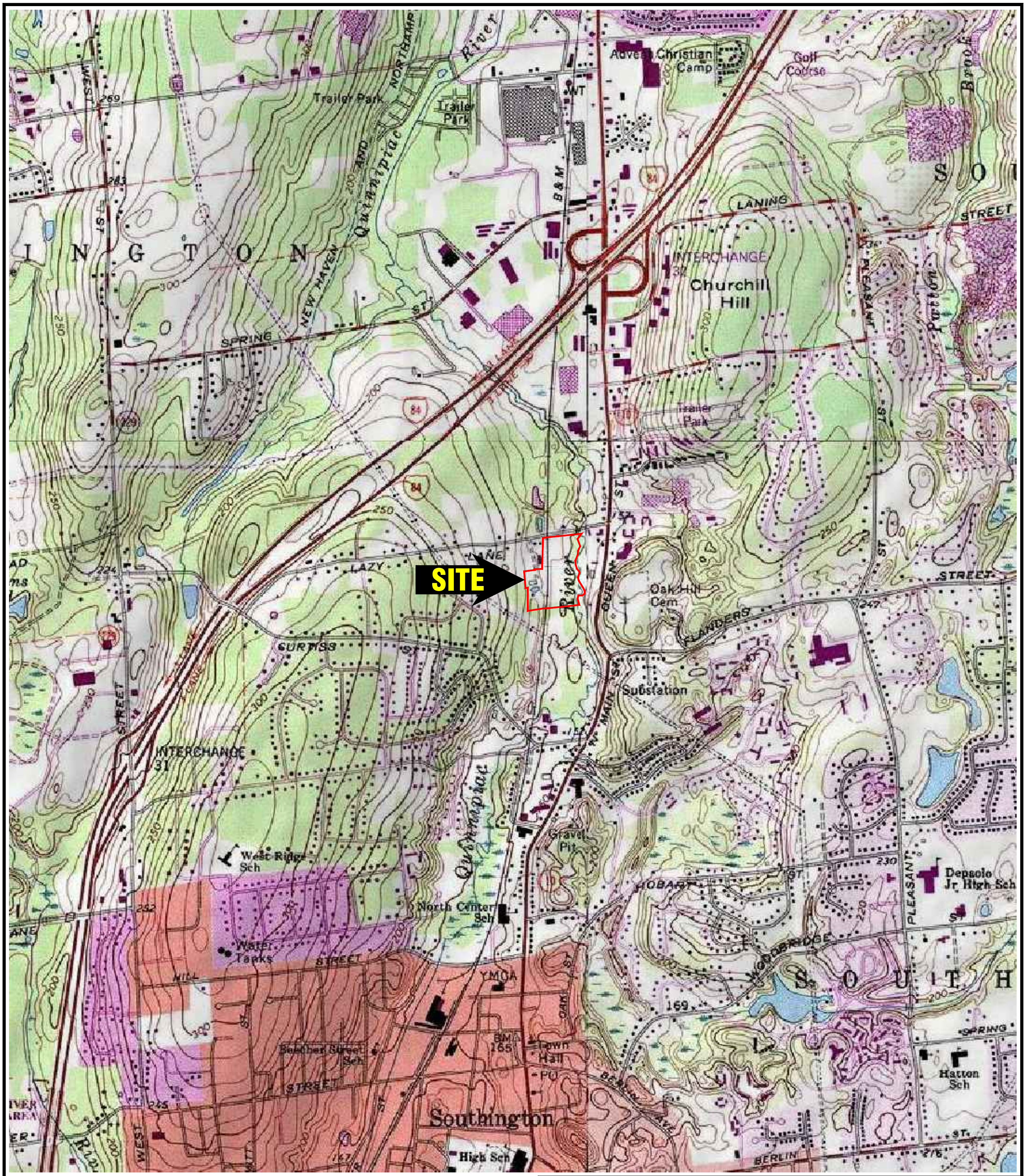
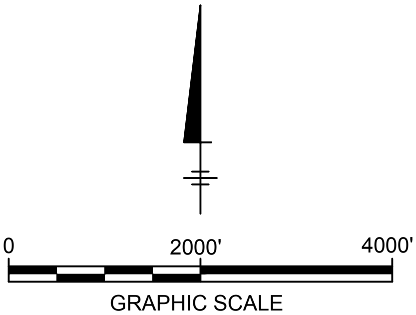


SOURCE: TOPO!
QUAD: MERIDEN, CT
DATE: 1992

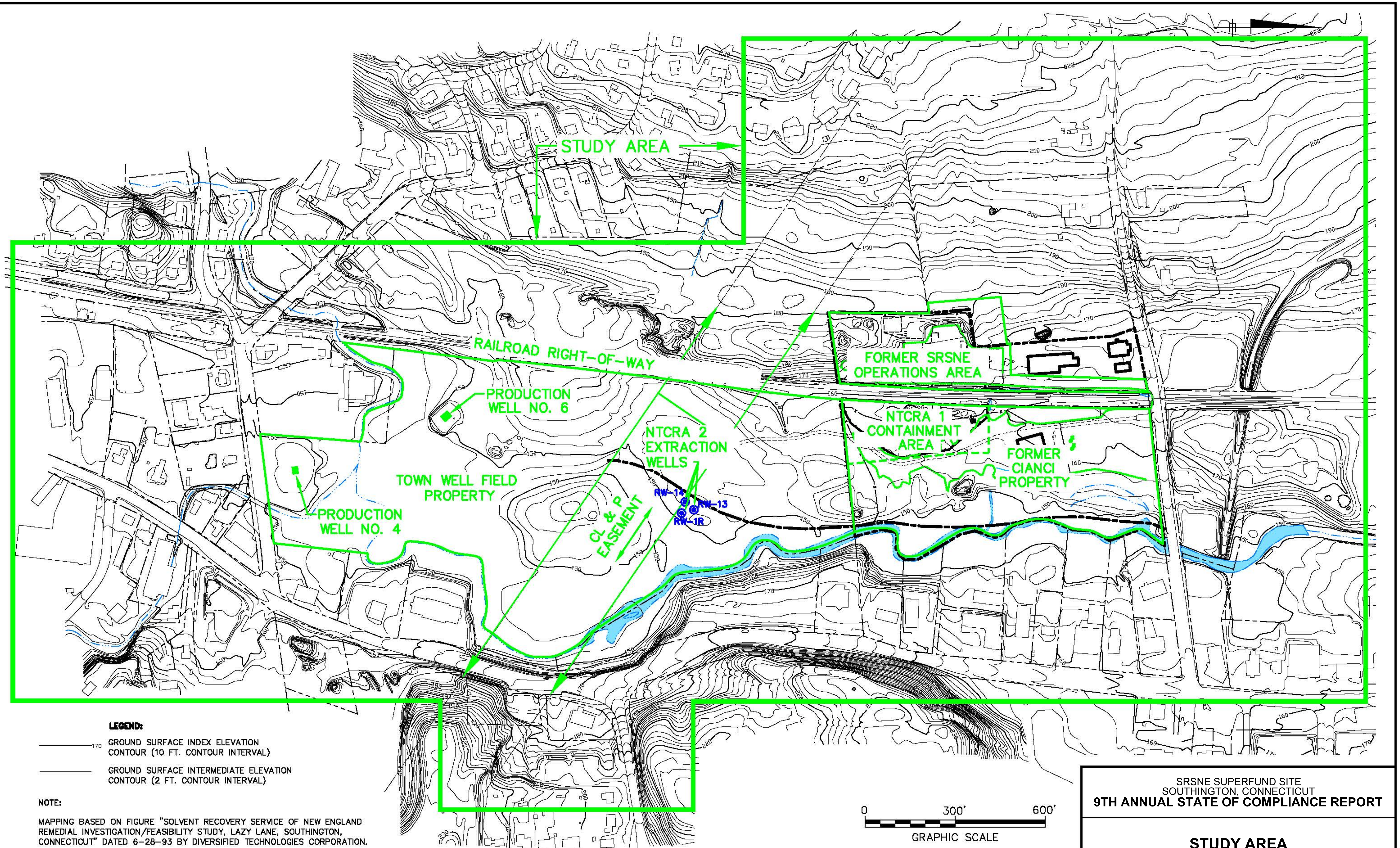


SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
9TH ANNUAL STATE OF COMPLIANCE REPORT

SITE LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1



LEGEND:

——170	GROUND SURFACE INDEX ELEVATION CONTOUR (10 FT. CONTOUR INTERVAL)
——	GROUND SURFACE INTERMEDIATE ELEVATION CONTOUR (2 FT. CONTOUR INTERVAL)

NOTE:

MAPPING BASED ON FIGURE "SOLVENT RECOVERY SERVICE OF NEW ENGLAND REMEDIAL INVESTIGATION/FEASIBILITY STUDY, LAZY LANE, SOUTHINGTON, CONNECTICUT" DATED 6-28-93 BY DIVERSIFIED TECHNOLOGIES CORPORATION.

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STUDY AREA

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FIGURE
2

CITY: SYRACUSE, NY GROUP: ENVCAD DB: P. LISTER, R. BASSETT, P. LISTER PM: M. GEFELL TR: R. STEVENSON LYR: ON=*;OFF=REF
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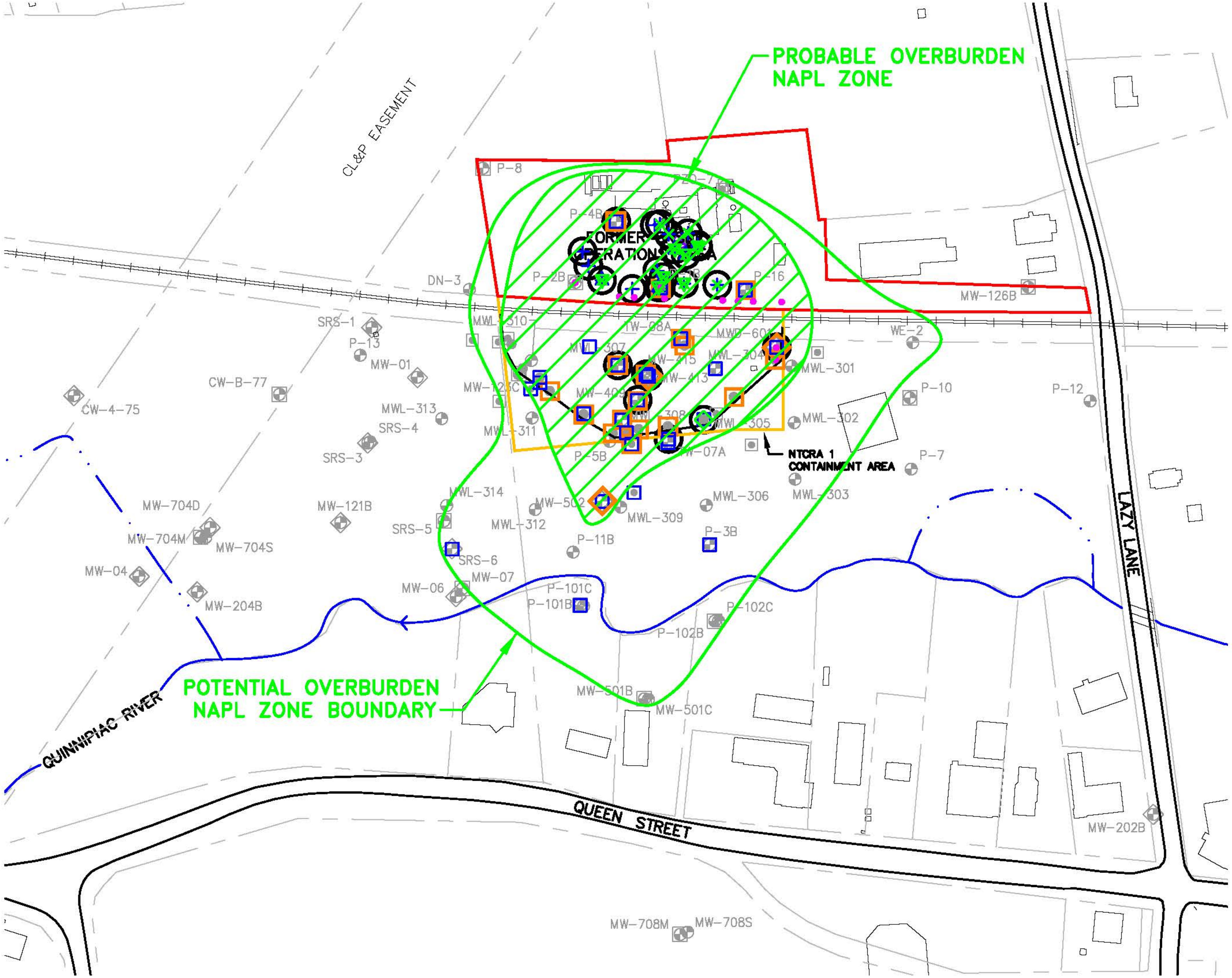

LEGEND:

○	SATURATED SOIL AND/OR GROUND-WATER SAMPLING LOCATION WITH VOCs DETECTED >10% OF EFFECTIVE SOLUBILITY (MATHEMATICAL AND/OR EMPIRICAL EVALUATION)
□	GROUND-WATER SAMPLING LOCATION WITH VOCs DETECTED >1% OF EFFECTIVE SOLUBILITY (MATHEMATICAL EVALUATION)
◇	GROUND-WATER SAMPLE WITH VOCs DETECTED >1% OF EMPIRICAL SOLUBILITY
□	GROUND-WATER SAMPLING LOCATION WITH ALCOHOLS DETECTED
●	OTHER LOCATIONS WHERE NAPL VISUALLY OBSERVED, OR IDENTIFIED BY SHEEN OR POSITIVE HYDROPHOBIC DYE TEST
+	SOIL SAMPLE WITH VOCs DETECTED >10% OF EFFECTIVE SOLUBILITY CALCULATED IN PORE WATER (MATHEMATICAL EVALUATION)
△	SOIL SAMPLE WITH VOCs DETECTED >100% OF EFFECTIVE SOLUBILITY CALCULATED IN PORE WATER (MATHEMATICAL EVALUATION)
×	SOIL SAMPLE WITH VOCs DETECTED >10% OF EMPIRICAL SOLUBILITY CALCULATED IN PORE WATER
▽	SOIL SAMPLE WITH VOCs DETECTED >100% OF EMPIRICAL SOLUBILITY CALCULATED IN PORE WATER
◉	VADOSE SOIL SAMPLE WITH VOCs DETECTED >100% OF EMPIRICAL SOLUBILITY CALCULATED IN PORE WATER
MW-704S ◍	SHALLOW OVERBURDEN MONITORING WELL
P-10 ⊞	MIDDLE OVERBURDEN MONITORING WELL
MW-121B ◈	DEEP OVERBURDEN MONITORING WELL
●	NTCRA 1 EXTRACTION WELL
▣	NTCRA 1 COMPLIANCE PIEZOMETER

NOTE:

1. MAPPING BASED ON FIGURE "SOLVENT RECOVERY SERVICE OF NEW ENGLAND REMEDIAL INVESTIGATION/FEASIBILITY STUDY, LAZY LANE, SOUTHINGTON, CONNECTICUT" DATED 6-28-93 BY DIVERSIFIED TECHNOLOGIES CORPORATION.

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ESTIMATED NAPL-ZONE BOUNDARY IN OVERBURDEN

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FIGURE
3A

CITY: SYRACUSE, NY DIV/GROUP: 141/ENVCAD DB: L.POSENAUER LD:(Opt) PIC: G.CAMERON PM: J.HOLDEN TM: J.HOLDEN LYR:(Opt)ON=*;OFF=*REF* PLOTTED: 3/29/2017 10:12 AM BY: SMALL, BRIAN
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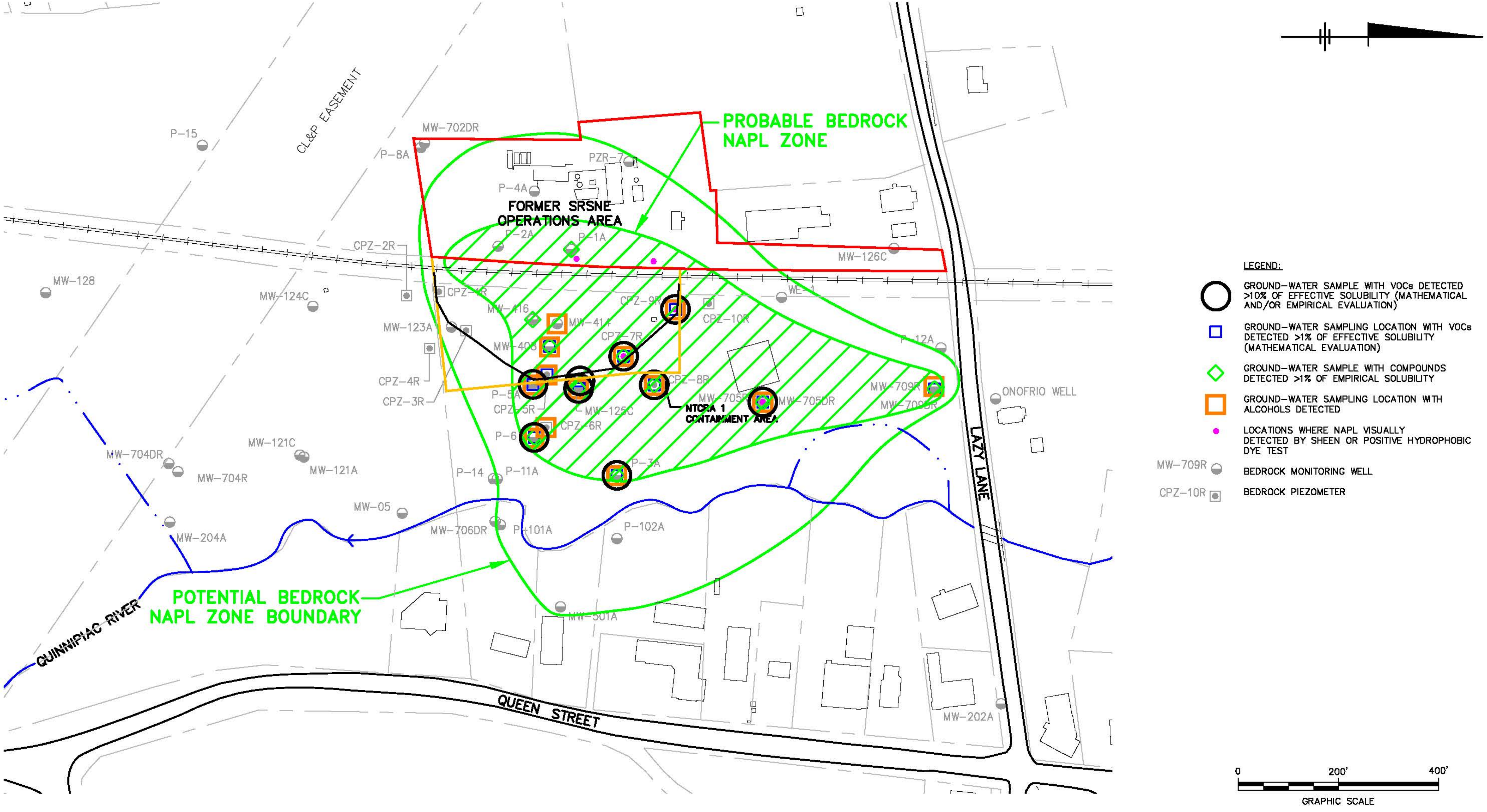

NOTE:

1. MAPPING BASED ON FIGURE "SOLVENT RECOVERY SERVICE OF NEW ENGLAND REMEDIAL INVESTIGATION/FEASIBILITY STUDY, LAZY LANE, SOUTHINGTON, CONNECTICUT" DATED 6-28-93 BY DIVERSIFIED TECHNOLOGIES CORPORATION.

CITY: SYRACUSE, NY DIV/GROUP: 141/ENVCAD DB: LJPOSENAUER LD:(Opt) PIC: G.CAMERON PM: J.HOLDEN TM: J.HOLDEN LYR:(Opt)ON=*;OFF=*REF*
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54634X00
54634X01

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9TH ANNUAL STATE OF COMPLIANCE REPORT

ESTIMATED NAPL-ZONE BOUNDARY IN BEDROCK

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3B

CITY: SYRACUSE DIV/GROUP: ENVCAD DB: PGL LAF GMS LD:(Opt) PIC: G. CAMERON PM: J. HOLDEN TM: J. HOLDEN LYR: ON=*;OFF=*REF*, |CONCRETE, |FLOODPLAIN
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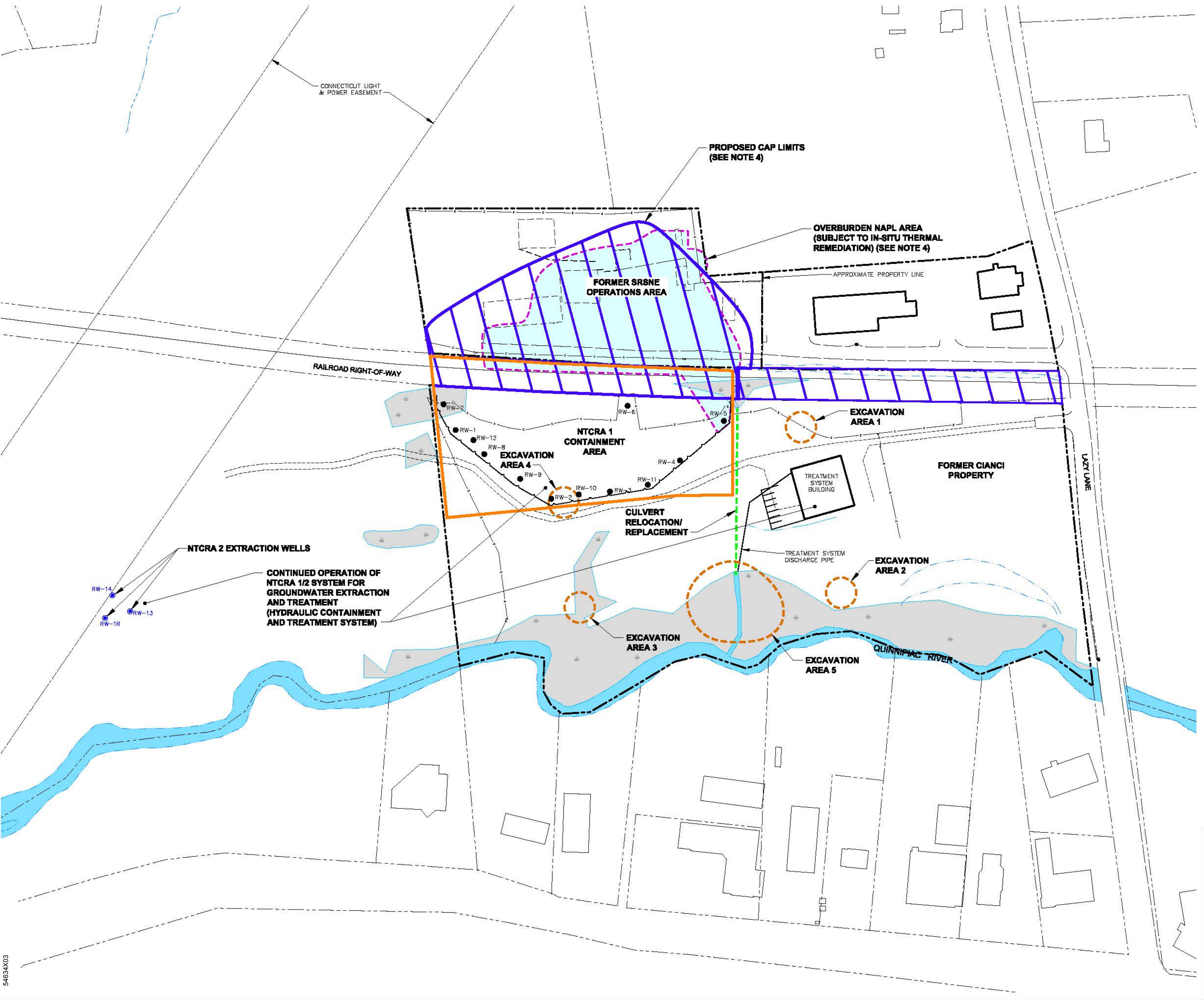

LEGEND:

PROPERTY LINE

PROPERTY LINE – ADJOINER

BUILDING

BUILDING – ADJOINER

FORMER BUILDING

RAILROAD

ROAD

GRAVEL ROAD

DRAINAGE SWALE

RIVER

EASEMENT

CHAINLINK FENCE

AREA OF DISCRETE SOIL REMOVAL ON FORMER CIANCI PROPERTY (SEE NOTE 4)

SHEETPILE

WETLAND

RW-1● NTCRA 1 OVERBURDEN EXTRACTION WELL

NOTES:

1. SITE PLAN TAKEN FROM DIVERSIFIED TECHNOLOGIES CORP., 556 WASHINGTON AVE., NORTH HAVEN, CT, DATED 6/93. TOPOGRAPHY REPORTED TO HAVE BEEN DIGITIZED FROM TOWN OF SOUTHINGTON TOPOGRAPH MAPS G-7, G-8, G-9; PHOTOGRAPHY DATED NOV. 1978, SCALE: 1"=100'. PROPERTY LINES REPORTED TO HAVE BEEN DIGITIZED AND LOT NUMBERS TAKEN FROM "PROPERTY MAP, TOWN OF SOUTHINGTON" MAPS 134 & 147, SCALE: 1"=100' BY DIVERSIFIED TECHNOLOGIES CORPORATION.

2. BENCHMARK #1 IS AT ELEVATION 164.03. PK NAIL; S'LY SIDE; POLE #9049.

3. WETLAND AREAS WERE TAKEN FROM THE FINAL REMEDIAL INVESTIGATION REPORT (HNUS 1994).

4. THE LIMITS OF REMEDIAL ACTIVITIES ARE PRELIMINARY AND ARE SUBJECT TO CONFIRMATION/MODIFICATION BASED ON REMEDIAL DESIGN ACTIVITIES.

SRSNE SUPERFUND SITE
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9TH ANNUAL STATE OF COMPLIANCE REPORT

REMEDIAL ACTIVITIES COMPLETED

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4

Attachments

Attachment 1

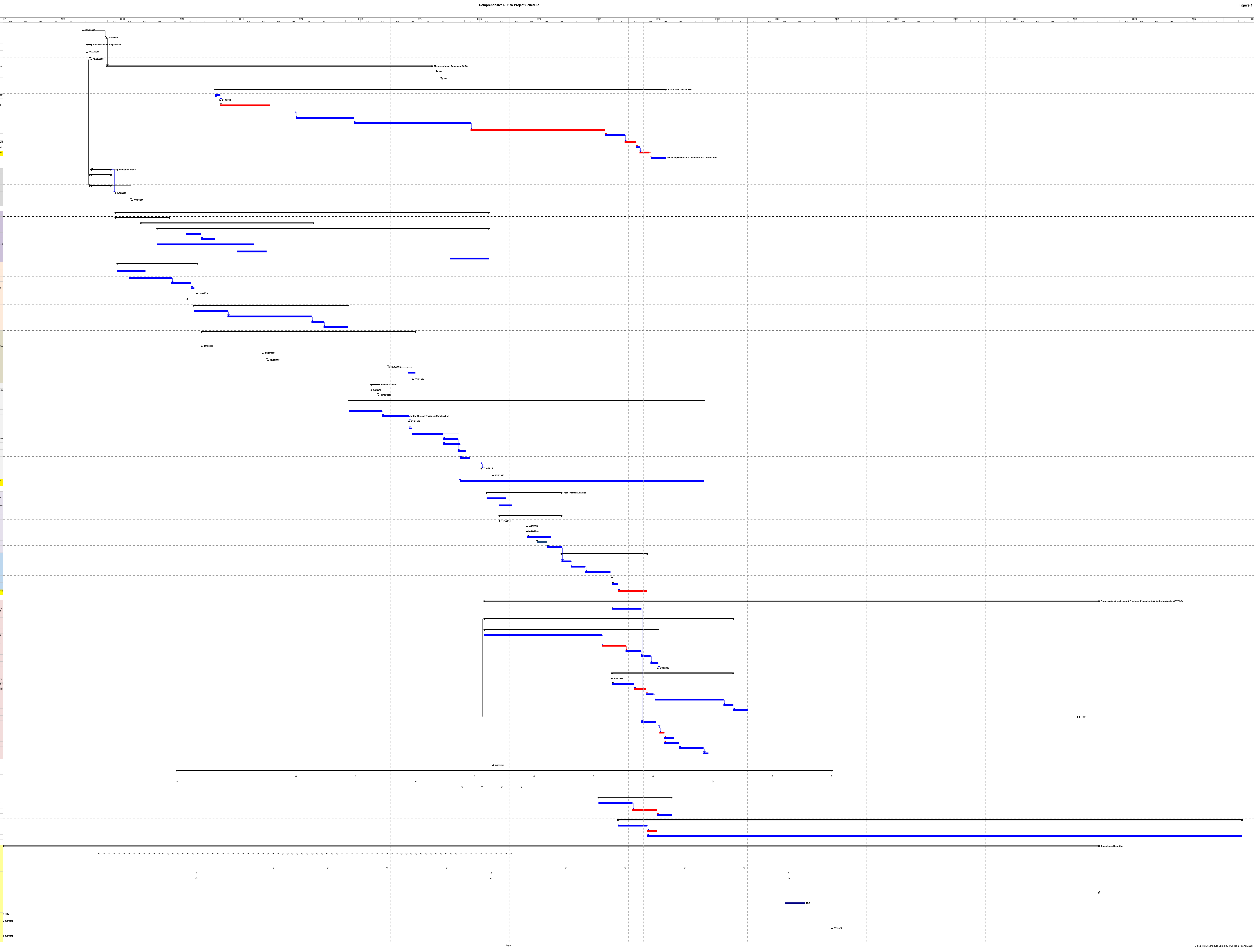
Project Schedule

de maximis, inc.

Comprehensive RD/RA Project Schedule

Figure 1

ID	Deliverable/Activity	Trigger	Time Frame	SOW Sections	Start Date	Finish Date	Duration	Predecessors	Notes/Status
0	**RDRA Schedule**				**Sun 7/1/07**	**Sat 4/22/...**	**7602 da...**		
1	**Lodging of the Consent Decree**				Fri 10/31/08	Fri 10/31/08	1 day		
2	**Entry of the CD**				Thu 3/26/09	Thu 3/26/09	1 day	1	
3	**Initial Remedial Steps Phase**	EPA Approval of Contractors		**V.B**	Thu 11/27/08	Mon 12/22/08	26 days		
4	**Notification of Supervising Contractor/Project Coordinator**	Lodging of the CD	Satisfied in the draft SOW.	**V.B.1**	Thu 11/27/08	Thu 11/27/08	1 day		
5	**Notification/Selection of a Remedial Design Contractor**	Lodging of the CD	Notification/Selection of a Remedial Design Contractor	**V.B.2**	Mon 12/22/08	Mon 12/22/08	1 day	4	
6	**Memorandum of Agreement (MOA)**	Entry of the CD.	Within 180 days of Entry of CD	**V.B.3**	Fri 3/27/09	Sat 9/13/14	1997 days	**2**	Drafts provided to EPA; latest
10	**Supplemental Containment Action Plan**	EPA Approval of MOA	Within 30 days of signed MOA.	**V.B.5**	Tue 10/14/14	Tue 10/14/14	1 day	9FS+30 days,6	
11	**Implementation of Supplemental Containment Action Plan (TBD)**	Upon notification by EPA, and consistent with the terms of the Memorandum of Agreement	As specified by EPA.	**V.B.6**	Fri 11/14/14	Fri 11/14/14	1 day	10FS+30 days	
12	**Institutional Control Plan**	Completion of Vapor Intrusion Study	Within 30 days of completion of Vapor Intru	**V.B.7**	**Thu 1/20/11**	**Thu 8/16/18**	**2766 days**		
13	Develop Institutional Control Plan	Completion of Vapor Intrusion Study	Within 30 days of completion of Vapor Intru		Thu 1/20/11	Fri 2/18/11	30 days	64	triggered by initial VI, not add'l
14	Submit Institutional Control Plan				Sat 2/19/11	Sat 2/19/11	1 day	13	
15	Agency Review and Comment On Institutional Control Plan				Sun 2/20/11	Fri 12/23/11	307 days	14	Agency comments 12/23/11
16	IC Meeting				Tue 5/29/12	Tue 5/29/12	1 day		
17	Revised Institutional Control Plan				Wed 5/30/12	Tue 5/21/13	357 days	16	5/21/13 submittal
18	Revised Institutional Control Plan #2				Wed 5/22/13	Thu 5/7/15	716 days	17	
19	Agency Review and Comment				Fri 5/8/15	Tue 8/8/17	824 days	18	comments received 8/8/17
20	Revised IC Plan #3	Agency comments; revised regulations; changed conditions			Wed 8/9/17	Thu 12/7/17	121 days	19	
21	Agency Review and Comment				Fri 12/8/17	Wed 2/14/18	69 days	20	1/24 comments from EPA; 2/1
22	Revised IC Plan #4				Thu 2/15/18	Fri 3/9/18	23 days	21	3/9 submittal of possible final
23	Agency Review and Approval				Sat 3/10/18	Tue 5/8/18	60 days	22	3/16/18 EPA OK, but final app
24	Initiate Implementation of Institutional Control Plan		Within ten (10) days of receipt of EPA's approval or modification of the INSTITUTIONAL CONTROL PLAN	**V.B.8**	Sat 5/19/18	Thu 8/16/18	90 days	23FS+10 days	
25									
26	**Design Initiation Phase**			**V.C**	Tue 12/23/08	Tue 4/21/09	120 days?	**5**	
27	**Remedial Design Work Plan (RDWP)**	EPA approval of RD Contractor.	Within one hundred twenty (120) days of receipt of EPA's written notice of authorization to proceed	**V.C.1**	Tue 12/23/08	Tue 4/21/09	120 days?	**5SS**	
44	**Remedial Design Project Operations Plan (POP)**	EPA approval of RD Contractor.	Within 120 days of EPA approval.	**V.C.2**	Tue 12/23/08	Tue 4/21/09	120 days	**5SS**	
50	**Agency Review and Comment on Accelerated Pre Design Studies**				Tue 5/19/09	Tue 5/19/09	1 day?	26	
51	**Agency Review and Comment on Remedial Design Work Plan and POP**				Sat 8/29/09	Sat 8/29/09	1 day?	44FS+30 days,27	
52									
53	**Pre-Design Studies**				Wed 5/20/09	Wed 8/26/15	2290 days?		
54	**Accelerated Pre-Design Studies**				**Wed 5/20/09**	**Wed 4/14/10**	**330 days**	**50**	
59	**Groundwater Pre-design Studies**				**Thu 10/22/09**	**Sat 9/15/12**	**1060 days**		
62	**Vapor Intrusion Study**			**V.C.1.k**	**Mon 2/1/10**	**Wed 8/26/15**	**2033 days?**		
63	Initial VI Study				Thu 7/29/10	Tue 10/26/10	90 days		memo to EPA 10/26/10
64	USEPA Review and Approval				Wed 10/27/10	Wed 1/19/11	85 days	63	EPA approved 1/19/11
65	Follow-up Groundwater Sampling Round	6 Months Following Initial Sampling Event			Mon 2/1/10	Thu 9/15/11	592 days?		4 rounds conducted; last Sept 2011
66	Revised Vapor Intrusion Study				Mon 6/6/11	Fri 12/2/11	180 days		Last memo 12/2/11; Approved by EPA 5/14/12
67	Supplemental Vapor Intrusion Study	EPA Request			Thu 1/1/15	Wed 8/26/15	238 days?		memo dated 8/26/15
68	**Pre-ISTR Detailed Design (PIPP)**	EPA approval or modification of Conceptual Design.	Within 90 days of notice by EPA.	**V.E.1**	Mon 6/1/09	Mon 10/4/10	491 days		
69	NAPL Delineation Investigation Report				Mon 6/1/09	Thu 11/19/09	172 days		rpt submitted 11/19/09
70	Pre-ISTR Design Report			**V.E.1.h,i**	Wed 8/12/09	Wed 4/28/10	260 days	57	
71	USEPA Review and Conditional Approval			**V.E.1.i**	Thu 4/29/10	Thu 8/26/10	120 days	70	
72	Response to Final Comments				Fri 8/27/10	Wed 9/15/10	20 days	71	response submitted 9/15/10
73	Final "For Construction" Drawings				Mon 10/4/10	Mon 10/4/10	1 day		
74	**Technical Information Meeting**	Submittal of 100% Design.		**V.E.2**	Thu 8/5/10	Thu 8/5/10	1 day		estimated date
75	**PIPP Construction Activities**				**Mon 9/13/10**	**Mon 4/15/13**	**946 days**		
76	Initial PIPP Work				Mon 9/13/10	Thu 4/7/11	207 days		
77	Break For Fiber Optic Relocation				Fri 4/8/11	Mon 9/3/12	515 days	76	reloc completed 8/1/12
78	Complete PIPP Work				Tue 9/4/12	Fri 11/16/12	74 days	77	
79	PIPP Completion Report				Sat 11/17/12	Mon 4/15/13	150 days	78	Rpt submitted April 2013
80	**ISTR Design Process**	EPA approval or modification of RD Work Plan.	Within 120 days of EPA approval that necessary pre-design studies to be described in the RD Work Plan are complete.	**V.D.1**	Mon 11/1/10	Mon 6/2/14	1310 days?		
81	"75%" Design Package (including ISTR-related RDWP studies)			**V.C.1.b,d,e** **V.D.1.a**	Mon 11/1/10	Mon 7/18/11	260 days		Initial design submittal to EPA July 2011
82	Technical Information Meeting			**V.D.3**	Fri 11/11/11	Fri 11/11/11	1 day		estimated date
83	Rounds of Submittals and EPA Review/Comment				Mon 12/12/11	Mon 12/23/13	743 days	82FS+30 days	Upload Revised Design 12/23/13
84	USEPA Review, Comments, Responses				Tue 12/24/13	Fri 4/18/14	116 days	83	approved 4/18/14
85	Final Design Reports Submitted, including O&M Plan, RA POP, ERP				Sat 4/19/14	Mon 6/2/14	45 days	84	Date of TT uploads?
86	Technical Information Meeting				Mon 5/19/14	Mon 5/19/14	1 day?	84FS+30 days	confirm actual date?
87	**Remedial Action**	EPA approval or modification of the F	Within 120 days of notice by EPA.	**VI**	Fri 9/6/13	Tue 10/22/13	47 days		
88	Pre-construction Conference(s)	EPA approval or modification of Final	Within 30 days of notice by EPA.	**VI.C**	Fri 9/6/13	Fri 9/6/13	1 day		date of EPA/DEEP mtg at site
89	Pre-construction Public Meeting(s)	EPA approval or modification of Final	Within 45 days of notice by EPA.	**VI.D**	Tue 10/22/13	Tue 10/22/13	1 day	88FS+45 days	9/7/13
90	**ISTR**	**EPA approval or modification of Fi**	**Within 60 days of notice by EPA.**	**VI.E**	**Tue 4/23/13**	**Wed 4/10/19**	**2179 days?**		
91	Meetings During Construction	Start of Construction	Weekly during construction	VI.F	Tue 4/23/13	Tue 4/23/13	1 day?	92SS	
92	Wellfield Installation				Tue 4/23/13	Fri 11/8/13	200 days		
93	In-Situ Thermal Treatment Construction				Sat 11/9/13	Wed 4/23/14	166 days	92	
94	Thermal Final Construction Inspection	Within 60 days of notice by Settling Defendants.		**VI.G**	Thu 4/24/14	Thu 4/24/14	1 day?	93	EPA/DEP on site 4/24/14
95	Shakedown/Testing				Thu 4/24/14	Wed 5/14/14	21 days	93	
96	Implementation of Thermal Treatment				Thu 5/15/14	Fri 11/21/14	190 edays		Start 5/15/14
97	Soil Sampling and Data Evaluation				Fri 11/21/14	Tue 2/17/15	89 days	96	2 phases, plus multiple rounds
98	Additional Operation of Thermal Treatment System (if required)				Fri 11/21/14	Mon 3/2/15	102 days	96	shutdown on 3/2/15
99	Demonstration of Completion		Documented request for shutdown and rationale	N/A	Wed 2/18/15	Mon 4/6/15	48 days	97	final submitted 4/6/15
100	Demobilize				Tue 3/3/15	Fri 5/1/15	60 days	98	
101	Final Construction Inspection				Mon 7/13/15	Mon 7/13/15	1 day?		
102	Submit Construction Completion Report (Draft and Final)	Draft within 30 days of Final Construction Inspection.	Within 30 Days	**VI.H**	Tue 7/14/15	Fri 9/18/15	67 days	101	submitted 9/18/15
103	Agency Approval of Completion Report				Tue 9/22/15	Tue 9/22/15	1 day?		
104	Time to Achieve Equilibrium	ISTR shutdown	initial estimate 2 yrs; revised based on data		Tue 3/3/15	Wed 4/10/19	1500 days	96,98	equilibrium not clear; temps staying high
105									
106	**Post Thermal Activities**				Sat 8/15/15	Tue 11/15/16	459 days		
107	Soil Investigation (SIP)	After In-Situ Thermal to re-assess the size of the area to be capped		**V.C.i**	Sat 8/15/15	Sat 12/12/15	120 days		SIP summary memo Dec'15
108	Vapor Control System Evaluation	After In-Situ Thermal to determine whether (or not) a vapor control system is needed below the cap.		**V.C.j**	Sun 11/1/15	Thu 1/14/16	75 days		Included with design package
109	**Soil & RCRA C Cap Design**				**Sun 11/1/15**	**Tue 11/15/16**	**381 days**		
110	Draft Design Package				Sun 11/1/15	Thu 3/31/16	152 days		
111	Technical Information Meeting				Tue 4/19/16	Tue 4/19/16	1 day		sched for 4/19/16
112	Agency Review/Comments				Wed 4/20/16	Sat 6/18/16	60 days	111	
113	Address Comments and Finalize Design				Wed 4/20/16	Sun 9/11/16	145 days	111	
114	Contractor Procurement				Sun 6/19/16	Wed 8/17/16	60 days	112	
115	USEPA Approvals and Contractor Pre-Mobilization				Thu 8/18/16	Tue 11/15/16	90 days	114	
116	**Soil & RCRA C Cap Construction (incl Cianci soils, dioxin soils, and NTCRA 1 area)**				**Wed 11/16/16**	**Wed 4/25/18**	**526 days**		
117	Field Construction				Wed 11/16/16	Wed 1/11/17	57 days	115	
118	Winter Shutdown				Thu 1/12/17	Mon 4/10/17	89 days	117	
119	Field Construction (cont)				Tue 4/11/17	Mon 9/11/17	154 days	118	
120	Final Construction Inspection	Settling Defendants conclude construction complete.	Within 60 days of notice by Settling Defendants.	**VI.G**	Thu 9/21/17	Thu 9/21/17	1 day		9/21/17 site meeting
121	Prepare/ Submit Construction Completion Report				Fri 9/22/17	Fri 10/27/17	36 days	120	draft CCR 10/27/17
122	Agency Review and Approval				Sat 10/28/17	Wed 4/25/18	180 days	121	approval pending as of 4/3/18
123									
124	**Groundwater Containment & Treatment Evaluation & Optimization Study (GCTEOS)**			**V.C.4**	**Sat 8/1/15**	**Tue 11/25/25**	**3770 days?**		
125	GCTEOS	Completion of ISTR and capping		**V.C.4**	Fri 9/22/17	Tue 3/20/18	180 days	120	Draft GCTEOS to agencies in August 2017, but discussed changing to Pilot test on 9/21/17
126	**Initial Optimization Studies**	**Need to upgrade system due to parts limitations; possible need to address in cap design**	**As directed by the EPA, or proposed by the Settling Defendants, no less frequently than every 10 years**	**V.C.6**	**Sat 8/1/15**	**Sat 10/5/19**	**1527 days?**		
127	**Change to POTW Discharge**				**Sat 8/1/15**	**Sat 6/30/18**	**1065 days?**		
128	Proposal, POTW sampling, permit application				Sat 8/1/15	Thu 7/20/17	720 days		8/1/15 start, 10/30/15 sewer discharge proposal; December 2015 POTW sampling; 3/16-3/17 PFAS;
129	Agency Review and Concept Approval				Fri 7/21/17	Wed 12/13/17	146 days	128	
130	New DEEP General Permit Language				Thu 12/14/17	Fri 3/16/18	93 days	129	
131	Request approval consistent with revised Gen'l Permit				Sat 3/17/18	Tue 5/15/18	60 days	130	
132	Sewer tie-in and HCTS modifications				Wed 5/16/18	Fri 6/29/18	45 days	131	
133	Commence sewer discharge				Sat 6/30/18	Sat 6/30/18	1 day?	132	
134	**PlumeStop and ZVI Pilot Study**				**Thu 9/21/17**	**Sat 10/5/19**	**745 days**		
135	Agree to Pilot Study approach with Agencies				Thu 9/21/17	Thu 9/21/17	0 days		discussed at 9/21/17 site mtg
136	Draft Pilot Study Work Plan				Thu 9/21/17	Fri 2/2/18	135 days	135	2/2/18 PSWP draft to agencie
137	Agency Review and Comment				Sat 2/3/18	Wed 4/18/18	75 days	136	DEEP comments 3/12/18; EP
138	Revise and Finalize				Thu 4/19/18	Sat 6/2/18	45 days	137	
139	Fieldwork and monitoring period				Tue 6/12/18	Tue 8/6/19	420 edays	138FS+2 wks	
140	Pilot Study Completion Report				Wed 8/7/19	Sat 10/5/19	60 days	139	
141	GCTEOS (to reflect Initial Optimization Study results)				Sun 10/6/19	Fri 1/3/20	90 days	140	assume GCTEOS will be finalized once determination is made about PS/ZVI
142	Additional Optimization Study(ies) (TBD)			**V.C.6**	**Tue 7/29/25**	**Tue 11/25/25**	**120 days**	**26SS+3650 days**	
143	Draft Design for HCTS Modifications				Wed 3/21/18	Mon 6/18/18	90 days	125	
144	Technical Information Meeting				Mon 7/9/18	Mon 7/9/18	1 day?	143FS+20 days	
145	Agency Review/Comments				Tue 7/10/18	Wed 8/8/18	30 days	144	
146	Address Comments and Finalize Design				Thu 8/9/18	Sun 10/7/18	60 days	145	
147	Contractor Procurement				Thu 8/9/18	Tue 11/6/18	90 days	145	
148	HCTS Modifications				Wed 11/7/18	Fri 4/5/19	150 days	147	
149	Prepare/ Submit Construction Completion Report				Sat 4/6/19	Sun 5/5/19	30 days	148	
150									
151	**Commence Operation and Maintenance**	EPA approval or modification of Cons	Immediately upon notice by EPA.	**VI.I**	Wed 9/23/15	Wed 9/23/15	1 day	103	
152	**Compliance Monitoring (CM)**			**VII.B**	Tue 6/1/10	Tue 6/1/21	4019 days		
153	**Annual Groundwater Sampling Event**				**Wed 6/1/11**	**Tue 6/1/21**	**3654 days**		
163	**"Comprehensive" Sampling Events**				**Tue 6/1/10**	**Sat 6/1/19**	**3288 days**		
167	**Sampling "N" Wells during Equilibrium Period (events outside equi period coincide with annual)**				**Wed 3/18/15**	**Wed 3/15/17**	**729 days**		
175	**Proposed Changes to GWMP**				**Sat 7/1/17**	**Fri 9/21/18**	**448 days**		
176	Proposed Changes and Rationale Document				Sat 7/1/17	Wed 1/24/18	208 days		est start date; latest draft to agencies 1/24/18
177	Agency Review and Comment				Thu 1/25/18	Sat 6/23/18	150 days	176	
178	Develop written plan to reflect new program				Sun 6/24/18	Fri 9/21/18	90 days	177	
179	**Site-Wide OM&M Plan**				**Sat 10/28/17**	**Sat 4/22/28**	**3830 days**		
180	Draft OM&M Plan				Sat 10/28/17	Wed 4/25/18	180 days	121	
181	Agency Review and Approval				Thu 4/26/18	Sun 6/24/18	60 days	180	
182	Implement and update as needed				Thu 4/26/18	Sat 4/22/28	3650 days	180	
183									
184	**Compliance Reporting**			**VIII**	Sun 7/1/07	Wed 11/26/25	6724 days?		
185	**Monthly Progress Reports**	**Lodging of the CD.**	**On the 10th day following lodging and monthly thereafter until approval of final Construction Compl Rpt.**	**VIII.A**	**Tue 2/10/09**	**Tue 11/14/17**	**3200 days**		
282	**Annual State of Compliance Reports**	**One Year After the Lodging of the**	**Annually**	**VIII.B**	**Thu 4/15/10**	**Thu 12/12/19**	**3529 days**		
294	**Five Year Review Reports**	**Five Years after the date of the Rec**	**Every Five years**	**VII.A.D**	**Wed 9/29/10**	**Thu 9/10/20**	**3635 days**		
298	**Compliance Monitoring (CM) Work Plan Evaluation(s) (part of 5-year reviews)**	**No less frequently than once after implementation of the excavation and capping component, and long-term groundwater containment and treatment system.**	**As part of the five-year reviews.**	**VII.B.3**	**Wed 9/29/10**	**Thu 9/10/20**	**3635 days**		
302	**Interim Remedial Action Report**	EPA determination that long-term groundwater containment and treatment system is operational and functional.	Within 90 days of notice by EPA.	**VIII.C**	Wed 11/26/25	Wed 11/26/25	1 day	124	
303	**Determination of Background Metals in Groundwater (TBD)**	Compliance with Interim Cleanup Levels for Groundwater.	No sooner than 365 days prior to submittal of Demonstration of Compliance Report.	**VIII.E**	Thu 8/20/20	Wed 12/16/20	119 days		
304	**Demonstration of Compliance Report (TBD)**	Compliance with cleanup levels.	As demonstrated by Settling Defendants.	**VIII.F**	Sun 7/1/07	Sun 7/1/07	1 day?		
305	**Risk Assessment**			**IV.A.1**	Sun 7/1/07	Sun 7/1/07	1 day		
306	**Site Closure (TBD)**				Wed 6/2/21	Wed 6/2/21	1 day?	152	
307	**Summary of Cost Information (TBD)**	Compliance with cleanup levels.	As demonstrated by Settling Defendants.	VIII.G	Sun 7/1/07	Sun 7/1/07	1 day?		



Attachment 2

Hydraulic Containment and Treatment System, Annual Demonstration of Compliance Report No.8, October 31, 2016 through October 30, 2017

DRAFT

SRSNE Site Group

2017 GROUNDWATER SAMPLING AND MONITORED NATURAL ATTENUATION REPORT

Solvents Recovery Service of New England, Inc.
(SRSNE) Superfund Site
Southington, Connecticut

December 2017

Disclaimer: *This document is a DRAFT document prepared by the Settling Defendants under a government Consent Decree. This document has not undergone formal review by the U.S. Environmental Protection Agency (EPA) and CT Department of Energy and Environmental Protection (DEEP). The opinions, findings, and conclusions, expressed are those of the author and not those of the EPA or the CT DEEP.*

2017 GROUNDWATER SAMPLING AND MONITORED NATURAL ATTENUATION REPORT

Solvents Recovery Service of New England, Inc.
(SRSNE) Superfund Site
Southington, Connecticut

Prepared for:

SRSNE Site Group

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B0054634.0001.02200

Date:

December 2017

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APPENDICES

EXECUTIVE SUMMARY

This *2017 Groundwater Sampling and Monitored Natural Attenuation Report* (MNA Report) was prepared to address certain requirements of the Statement of Work (SOW) for the Remedial Design/Remedial Action (RD/RA) activities at the Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site in Southington, Connecticut (Site). Specifically, this report summarizes the 2017 groundwater sampling event performed in accordance with the *Monitoring Well Network Evaluation and Groundwater Monitoring Program* (Work Plan; Attachment N to the Remedial Design Work Plan [RDWP]; Arcadis 2010b), and presents the results and interpretation of data collected in support of MNA as a remedy for groundwater that contains Site-related constituents of concern (COCs) at concentrations above risk levels or regulatory limits. Monitored natural attenuation is a component of the overall remedial strategy for Site groundwater as described in the United States Environmental Protection Agency's (USEPA's) 2005 Record of Decision (ROD) for the Site.

In accordance with the Work Plan, the 2017 annual groundwater sampling event was performed in June 2017 and included sampling of groundwater at 37 monitoring wells for analysis of volatile organic compounds (VOCs) or target analyte list (TAL) metals, as indicated in the Work Plan. These wells were also sampled for the full suite of potential site-related constituents in 2014 as part of the second "comprehensive" event in support of the 2015 Second Five Year Review (USEPA 2015).

The June 2017 results indicate that:

- VOCs above Action Levels (the more stringent of the USEPA Maximum Contaminant Levels [MCLs] or Connecticut Class GA Groundwater Protection Criteria [GWPC], i.e., drinking water standards) are contained within the estimated capture zone boundary of the hydraulic containment and treatment system (HCTS). None of the wells within the severed plume (i.e., wells with historical COC concentrations above Action Levels downgradient of the HCTS capture zone boundary) had COC concentrations above Action Levels during the 2014 through 2017 groundwater monitoring events.
- Tetrachloroethene (PCE) and trichloroethene (TCE) were detected at middle overburden monitoring well PZO-2M at concentrations of 4.13 micrograms per liter (ug/L) and 2.16 ug/L, respectively, in the June 2017 sample. Both concentrations are below the Action Level of 5.0 ug/L and continue to decline. PCE was first detected above the Action Level at this well in June 2013, while TCE was first detected above the Action Level in June 2012.
- PCE and TCE were detected at deep bedrock monitoring well MW-1003DR at concentrations of 2.67 ug/L and 30.4 ug/L , respectively, in the June 2017 sample. The PCE concentration dropped below the Action Level of 5.0 ug/L starting in June 2014, while the TCE concentration is above the Action Level of 5.0 ug/L. PCE and TCE were first detected

above the Action Level at this well in June 2013 at concentrations of 81 and 660 ug/L, respectively. Concentrations of both compounds have continued to decline relative to the 2013 results.

- TCE was detected at monitoring well MW-1002R at a concentration (10.1 ug/L) above the Action Level of 5 ug/L. The only other detection of TCE above the Action Level at this well occurred in June 2015.
- As noted in the 2012 MNA Report, total VOC concentrations at shallow bedrock monitoring well P-11A increased notably between 2011 (583 ug/L) and 2012 (approximately 26,400 ug/L). This well is located within the bedrock NAPL zone initially delineated during the Remedial Investigation (RI; Blasland, Bouck & Lee, Inc. [BBL] June 1998), and more recently refined (based on additional data from the RD/RA activities) in the *Groundwater Conceptual Site Model Update* (Arcadis 2015). This well is also located within the HCTS capture zone. The total VOC concentration in June 2017 was significantly lower (4,573 ug/L) than in June 2012, though concentrations remain elevated above most pre-June 2012 values. VOC concentrations at this well will continue to be monitored as part of future sampling events.

This report also summarizes the three post-thermal treatment monitoring events, conducted in November 2016, March 2017, and July 2017, in accordance with SOW Sections IV.B.5.d and e. Note that three of the ten “N” wells (TW-08A, TW-08B, and TW-08D) were abandoned in March 2017, shortly after the March 2017 sampling event. Results indicate that total VOC concentrations have decreased by one-to-three orders of magnitude at six of the seven remaining “N” wells (relative to the initial comprehensive sampling event conducted in 2010). Significant rebound in total VOC concentrations was observed in groundwater at MWL-304 in July 2017 relative to previous sampling events (Appendix C). This increase in total VOC concentration at MWL-304 is driven primarily by increases in cis-1,2-dichloroethene (cDCE) and vinyl chloride (VC) concentrations. Increases in cDCE and VC concentrations indicate increased reductive dechlorination of higher chlorinated VOCs including PCE and TCE.

Results from Bio-Trap® sampling with QuantArray-Chlor analyses at three Non-Time-Critical Removal Action (NTCRA) 1 locations, ISTR-1, ISTR-5, and TW-08D, and QuantArray-Petro analyses at one NTCRA 1 location, ISTR-5, demonstrate increased diversity in the microbial population relative to pre-treatment conditions (Appendix D). These results indicate that anaerobic biodegradation processes dominate in the thermal treatment area, especially for chlorinated volatile organic compounds (CVOCs). However, results also indicate a strong potential for aerobic cometabolism of CVOCs and aerobic metabolism of petroleum hydrocarbons if oxidation-reduction conditions become more favorable for these processes in the future. In addition, a Bio-Trap® sampler was deployed at 1 monitoring well (CPA-7R) for analysis of 1,4-dioxane and tetrahydrofuran (THF) biodegradation potential. The assessment of 1,4-dioxane biodegradation potential at monitoring well CPZ-7R indicates the potential for multiple biodegradation mechanisms in this area of the site. Because groundwater conditions are generally reducing to strongly reducing, it is likely that aerobic biodegradation is limited. However, it is possible that even small amounts of dissolved oxygen stimulate processes that may include the metabolism and/or cometabolism of 1,4-dioxane.

This MNA Report fulfills the requirement set forth in Section VII.A.2 of the SOW and the reporting approach outlined in the MNA Plan presented as Attachment L to the RDWP (Arcadis 2009) and presents results of an ongoing evaluation of the effectiveness of MNA as a remedial measure for COCs in groundwater in the Site. As an extension of the prior evaluations (presented in the 2010 through 2016 MNA Reports), this evaluation considers groundwater monitoring results from the June 2017 annual groundwater monitoring event for VOCs and TAL metals at a subset of monitoring wells and presents: an evaluation of current concentration trends for total VOCs in groundwater at select monitoring locations; an evaluation of post-thermal treatment data at the “N” wells; estimates of bulk attenuation rates for total VOCs in groundwater; and HCTS COC mass extraction rates with time.

Results of these evaluations indicated:

- Detected concentrations of VOCs above Action Levels are contained within the estimated capture zone boundary of the HCTS.
- Groundwater total VOC concentrations are generally declining with time throughout the Site groundwater COC plume.
- Estimated bulk VOC attenuation rates were comparable to attenuation rates for individual COCs presented in the *Feasibility Study* (FS) (BBL and USEPA 2005).
- Compliance monitoring data from the HCTS indicate generally stable COC mass extraction rates from the early 2000s to 2013, with a decline in COC mass extraction rates observed starting in 2014.

These results support continued use of MNA as a remedy for COCs in Site groundwater.

1 INTRODUCTION

1.1 Purpose

This *2017 Groundwater Sampling and Monitored Natural Attenuation Report* (MNA Report) was prepared on behalf of the Solvents Recovery Service of New England, Inc. (SRSNE) Site Group, an unincorporated association of Settling Defendants to a Consent Decree (CD), to address certain requirements of the Statement of Work (SOW) for the Remedial Design/Remedial Action (RD/RA) at the SRSNE Superfund Site in Southington, Connecticut (Site) (Figure 1). The CD was lodged on October 30, 2008 with the United States District Court for the District of Connecticut in connection with Civil Actions No. 3:08cv1509 (SRU) and No. 3:08cv1504 (WWE) and was entered by the Court on March 26, 2009.

This MNA Report presents the results and evaluation of data collected during the June 2017 annual groundwater monitoring event conducted in accordance with the Remedial Design Work Plan (RDWP), the MNA Plan (Attachment L to the RDWP [Arcadis 2009]), and in fulfillment of the requirements of the SOW (Section IV.B.5.f). This report also presents the results and evaluation of data collected during three post-thermal treatment groundwater monitoring events conducted in accordance with SOW Sections IV.B.5.d and e. These events are to be conducted three times per year until equilibrium is restored (i.e., groundwater temperatures return to approximately pre-thermal temperatures). Thermal treatment was completed in early March 2015, and post-thermal monitoring events were performed in March, July, and October/November 2015; March, July, and November 2016; and March and July 2017. The third 2017 post-thermal monitoring event is scheduled for November 2017.

Section VII.A.2 of the SOW requires the submittal of annual MNA Reports as part of the Annual State of Compliance Reports. MNA is a component of the overall remedial strategy set forth for the Site in the Record of Decision (ROD) (United States Environmental Protection Agency [USEPA] 2005) for groundwater containing Site-related constituents of concern (COCs) at concentrations exceeding acceptable risk levels or regulatory limits.

1.2 Scope

In accordance with the *Monitoring Well Network Evaluation and Groundwater Monitoring Program* (Work Plan; Attachment N to the RDWP [Arcadis 2010b]), the 2017 annual groundwater sampling event was performed in June 2017 and included sampling of groundwater from 30 “R”, 4 “M”, and 3 “B”-designated monitoring wells. Post-thermal treatment groundwater sampling events in November 2016 and March 2017 included 10 “N”-designated monitoring wells; the July 2017 event only included 7 “N” wells, as three of the wells (TW-08A, TW-08B, and TW-08D) were abandoned in March 2017. As further described in Section 3.1, the letter designations generally pertain to the locations, monitoring scope, and sampling frequency of monitoring wells.

In addition to the above SOW-required sampling events, a microbial survey was conducted in 2017 to evaluate post- in-situ thermal remediation (ISTR) QuantArray levels. Bio-Trap® samplers were deployed at three monitoring wells (ISTR-1, ISTR-5, and TW08D) to evaluate the post-thermal treatment microbial community relative to the pre-thermal treatment community. In addition, a Bio-Trap® sampler was deployed at 1 monitoring well (CPA-7R) for analysis of 1,4-dioxane and tetrahydrofuran (THF) biodegradation potential. A discussion of the results of the microbiological survey is included in Section 4.2.

MNA refers to the reliance on natural attenuation (NA) processes, within the context of a carefully controlled and monitored site cleanup approach, to achieve site-specific remediation objectives within a timeframe that is reasonable compared to those offered by more active methods. Natural attenuation is the reduction in mass or concentration of COCs in groundwater over time or distance from the source of the impact due to naturally occurring processes. Attenuation processes include nondestructive physical processes (e.g., advection, dilution, dispersion, volatilization, dissolution, and sorption) and destructive chemical and biological processes.

The MNA remedy applies to both groundwater and non-aqueous phase liquid (NAPL) and addresses the following areas of the Site, in accordance with the SOW:

- Groundwater and saturated glacial deposits (gravel, sand, silt and clay) in the “Overburden Groundwater” unit that contain COC concentrations above acceptable risk levels or regulatory criteria; and
- Groundwater and fractured rock in the “Bedrock Groundwater” unit that contain COC concentrations above acceptable risk levels or regulatory criteria.

COCs in overburden and bedrock groundwater are monitored as part of the MNA remedy. The Site COCs include VOCs such as chlorinated ethenes and ethanes, ketones, aromatic compounds, and 1,4-dioxane; TAL metals; semi-volatile organic compounds (SVOCs); and polychlorinated biphenyls (PCBs). Only VOCs and metals were analyzed during the June 2017 annual event. During the post-thermal treatment sampling events (November 2016, and March and July 2017), VOCs (including 1,4-dioxane during the March 2017 event) and MNA parameters (discussed below) were analyzed.

In addition to monitoring COC concentrations, the MNA Plan specifies long-term monitoring of a suite of geochemical parameters (“MNA parameters”) to confirm geochemical evidence of NA and to verify that biochemical processes continue to support COC degradation in Site groundwater. The MNA parameters monitored at the Site include anions (sulfate, chloride, nitrate, nitrite), total organic carbon (TOC), iron (ferric, ferrous), divalent manganese, light hydrocarbons (methane, ethane, ethene), dissolved oxygen (DO), oxidation/reduction potential (ORP), pH, alkalinity, and temperature.

1.3 Document Organization

The remainder of this MNA Report is organized into the following sections:

- **Section 2 – Annual Groundwater Sampling Event – 2017:** summarizes the groundwater sampling activities performed in June 2017 and presents an evaluation of the data.
- **Section 3 – Post-Thermal Treatment Groundwater Sampling:** summarizes the groundwater sampling activities performed in November 2016 and March and July 2017 and presents an evaluation of the data.
- **Section 4 – Additional Sampling:** presents the non-SOW-required sampling conducted in June 2017, and presents an evaluation of the data.
- **Section 5 – MNA Background:** describes the MNA performance monitoring program at the Site, including the Site conceptual model, MNA remedy, and performance standards.
- **Section 6 – Performance Monitoring:** describes the MNA performance monitoring program at the Site, including monitoring locations, parameters, frequency and objectives.
- **Section 7 – MNA Evaluation:** presents an evaluation of Site data based on results from the June 2017 annual sampling event, and discusses the analysis of performance monitoring data, including the data quality assessment process, data interpretation approach, and statistical procedures.
- **Section 8 – Summary:** presents a summary of conclusions from the MNA evaluation and provides recommendations for action.
- **Section 9 – References:** lists the references cited within this MNA Report.

2 ANNUAL GROUNDWATER SAMPLING EVENT – 2017

2.1 Scope of Work

The 2017 annual groundwater sampling event was conducted to satisfy the requirements of SOW Section IV.B.5.f, which includes annual monitoring of VOCs and biennial (i.e., every two years) monitoring of MNA parameters at a select subset of monitoring wells in the overburden and bedrock aquifers. The sampled wells are located in the area outside the NTCRA 1 sheet pile wall and referred to as "R" wells. Note that only VOCs were analyzed during this annual event.

In addition to the SOW-required sampling, the background monitoring wells – referred to as the "M" and "B" wells – were sampled for TAL metals. As outlined in SOW Section VIII.F, Interim Cleanup Levels (ICLs) for metals need to be established prior to submittal of the Demonstration of Compliance Report. To that end, metals will be analyzed on an annual basis to establish a dataset sufficient for determining the appropriate background metals concentrations at the Site.

In total, 37 monitoring wells were sampled as part of the June 2017 monitoring event. Of these, 20 were sampled using HydraSleeve^{TM} samplers and 17 were sampled using low-flow methods.

In addition to the sampling discussed above, Bio-Trap$^{®}$ samplers were voluntarily (i.e., not SOW-required) deployed at four monitoring wells. The analyses conducted for these samples are summarized in Section 4.

2.2 Summary of Field Activities

The 2017 annual groundwater sampling event was conducted June 5 through 9, 2017. Procedures used for gauging and sampling the 17 monitoring wells using low-flow methods were consistent with those outlined in the *Summary of Initial (2010) Comprehensive Groundwater Sampling Event* (Arcadis January 2011a). HydraSleeves^{TM} were used to collect samples from 20 of the 37 wells, consistent with the approach proposed in a memorandum dated July 7, 2011, and approved by the USEPA in a letter dated May 21, 2012. In summary, the approved HydraSleeve^{TM} sampling approach included the following conditions:

- Used for "routine" samples collected for tracking changes and trends in the groundwater over time. It does not apply to samples collected for specific decision points such as evaluating remedy protectiveness for five-year reviews, capture zone analysis, confirming results of modeling, risk assessments, etc.
- To be used only for sampling of VOCs and MNA parameters.
- Used for any well that has been given an "R" or "N" designation and that contains one or more constituents at a concentration greater than or equal to ten times the ICL, or, is located within the hydraulic capture zone.

Samples were submitted to Alpha Analytical (Alpha) of Westborough, Massachusetts, for analysis of VOCs or TAL Metals. A tabular summary of the sampling event is provided below:

SOW Section	Well Group	# of Wells Intended		# of Wells Sampled		Analytical Parameters
		LF	HS	LF	HS	
IV.B.5.f	"R"	10	20	10	20	VOCs
VIII.F	"M"	5	--	4	--	TAL Metals
IV.B.5.f	"B"	3	--	3	--	TAL Metals

LF – Wells sampled using low-flow method

HS – Wells sampled using HydraSleeve^{TM} samplers

There was one deviation from the intended scope: "M" monitoring well MW-901D was not sampled due to insufficient water in this overburden well (i.e., dry) at the time of sampling.

Monitoring well locations in each of the five hydrostratigraphic zones are shown on Figures 2 through 6. Field sampling forms and equipment calibration logs from the sampling event are included in Appendices A and B, respectively.

2.3 Results

Groundwater analytical results from the June 2017 annual groundwater monitoring event are provided in Table 1 (VOCs) and Table 2 (TAL metals). Groundwater data were validated consistent with the procedures outlined in the *Summary of Initial (2010) Comprehensive Groundwater Sampling Event* (Arcadis January 2011a). Any qualifiers and/or modifications made via the validation process are reflected in the tables.

2.3.1 Groundwater Elevations

Synoptic groundwater elevation measurements are only collected during five-year comprehensive monitoring events, and therefore were not collected during the June 2017 groundwater monitoring event. Groundwater elevation data from the most recent comprehensive event (June 2014) were included in the *2014 Groundwater Sampling and Monitored Natural Attenuation Report* (Arcadis 2014).

2.3.2 VOCs

Groundwater VOC concentrations from the June 2017 groundwater monitoring event are provided in Table 1. Groundwater VOC concentrations were compared against USEPA Maximum Contaminant Levels (MCLs) and Connecticut Class GA Groundwater Protection Criteria (GWPC), with the lower of the two criteria, referred to as the "Action Level", used as the criterion for the comparison for each VOC. The Action Levels are intended to be protective of groundwater that could be used for drinking water purposes. Groundwater VOC concentrations that exceeded their respective Action Levels are highlighted in Table 1. For comparison, the ICLs specified in Table L-1 of the ROD (USEPA 2005) are also listed in Table 1.

Concentrations of VOCs greater than Action Levels are contained within the estimated capture zone boundary of the Hydraulic Containment and Treatment System (HCTS).

Tetrachloroethene (PCE) and trichloroethene (TCE) were detected at middle overburden monitoring well PZO-2M at concentrations of 4.13 micrograms per liter (ug/L) and 2.16 ug/L, respectively, in the June 2017 sample. Both concentrations are below the Action Level of 5 ug/L, and concentrations of both compounds continue to decline. PCE was first detected above the Action Level at this well in June 2013, while TCE was first detected above the Action Level in June 2012.

PCE and TCE were detected at deep bedrock monitoring well MW-1003DR at concentrations of 2.67 ug/L and 30.4 ug/L, respectively, in the June 2017 sample. The PCE concentration has been below the Action Level of 5.0 ug/L since June 2014, while the TCE concentration is above the Action Level of 5.0 ug/L (and has been since 2013). PCE and TCE were first detected above the Action Level at this well in June 2013 at concentrations of 81 and 660 ug/L, respectively. Concentrations of both compounds have continued to decline relative to the 2013 results.

TCE was detected at monitoring well MW-1002R at a concentration (10.1 ug/L) above the Action Level of 5 ug/L. The only other detection of TCE above the Action Level at this well (19.3 ug/L) occurred in June 2015.

As noted in the 2012 MNA Report, total VOC concentrations at shallow bedrock monitoring well P-11A increased notably between 2011 (583 ug/L) and 2012 (approximately 26,400 ug/L). This well is located within the bedrock NAPL zone initially delineated during the Remedial Investigation (RI; Blasland, Bouck & Lee, Inc. [BBL] June 1998), and more recently refined (based on additional data from the RD/RA activities) in the *Groundwater Conceptual Site Model Update* (Arcadis 2015). This well is also located within the HCTS capture zone. The total VOC concentration in June 2017 (4,573 ug/L) was significantly lower than in June 2012 (26,400 ug/L), though concentrations remain elevated above most pre-June 2012 values. VOC concentrations at this well will continue to be monitored in future sampling events.

VOC Plume Delineation

Data from the 2014 through 2017 groundwater monitoring events were used to update the VOC plume maps, originally presented in the *Summary of Initial (2010) Comprehensive Groundwater Sampling Event* (Arcadis January 2011a), for each of the five hydrostratigraphic units. Using the approach that was initially presented in the RI (BBL June 1998), groundwater VOC results (the most recent data available at each well) were used to derive VOC regulatory exceedance ratios by dividing detected concentrations of VOCs by the lower of the federal standard (MCL) or the state standard (GWPC), which are the ARARs-based "Action Levels"; these generally represent drinking water standards. An exceedance ratio value greater than 1.0 indicates that the detected VOC concentration exceeded the Action Level. Exceedance ratio values less than 1.0 indicate that the detected VOC concentrations were less than the Action Level. The highest (and in some cases, the two highest) VOC exceedance ratio(s) for each well, and the specific compound associated with each ratio, are summarized for each hydrostratigraphic unit on Figures 7 through 11, and these regulatory exceedance ratios were used to delineate groundwater with VOCs above Action Levels. VOCs greater than Action Levels are contained within the estimated capture zone boundary of the Hydraulic Containment and Treatment System (HCTS).

2.3.3 SVOCs and PCBs

SVOC data are only collected in conjunction with five-year comprehensive monitoring events, and PCB data were only collected during the initial comprehensive event; therefore, SVOCs and PCBs were not included in the June 2017 groundwater monitoring event. Previously collected SVOC and PCB data were evaluated in the *Monitored Natural Attenuation Report* (Arcadis September 2010a) and the *2014 Groundwater Sampling and Monitored Natural Attenuation Report* (Arcadis 2014).

2.3.4 TAL Metals

Groundwater concentrations of TAL metals for background samples collected during the June 2017 groundwater monitoring event are summarized in Table 2. Groundwater TAL metals concentrations were compared against the Action Levels (i.e., the lower of the MCLs and GWPCs; note that there are no Action Levels for dissolved metals). ICLs have not yet been developed for metals in groundwater because they are a function of background concentrations, which are to be established in the future based on background sampling performed through that time.

The groundwater sample collected at MW-126B indicated total manganese (Mn) at a concentration (5,793 ug/L) above the Action Level of 500 ug/L. MW-126B is an upgradient, background well located north and west, respectively, of the former Operations Area of the SRSNE Site.

2.3.5 MNA Parameters

Concentrations and distributions of electron acceptors, electron donors, and byproducts of microbially-mediated reactions are periodically evaluated to verify the types of geochemical and biodegradation processes active in Site groundwater. MNA parameters were not analyzed during the June 2017 annual groundwater monitoring event, but will be collected as part of the June 2019 comprehensive groundwater monitoring event. MNA parameter data were collected as part of the post-thermal treatment groundwater sampling events, as described in Section 3.

3 POST-THERMAL TREATMENT GROUNDWATER SAMPLING

3.1 Scope of Work

As described in SOW Sections IV.B.5.d and e, groundwater monitoring is required at select overburden and bedrock monitoring wells in the area between the former Boston and Maine railroad tracks and the NTCRA 1 sheetpile wall (i.e., the “N” wells), with different sampling frequencies during different stages of the RD/RA process.

With the completion of ISTR on March 2, 2015, triannual (i.e., three times per year) sampling is continuing until groundwater temperatures return to approximate pre-thermal conditions. Sampling events were conducted in November 2016, March 2017 and July 2017; and the third triannual event for 2017 is anticipated to occur in November. Note that following the March 2017 sampling event, monitoring wells TW-08A, TW-08B, and TW-08D were decommissioned. Analysis for 1,4-dioxane is not part of the post-thermal treatment monitoring program, but was voluntarily added to the analyte list for the March 2017 samples. Additionally, Bio-Trap® samplers were deployed at four monitoring wells (ISTR-1, ISTR-5, TW-08D, and CPZ-7R [as a replacement for TW-08B, which was damaged]) in the thermal treatment area on February 6, 2017 and retrieved on March 8, 2017 (CPZ-7R was deployed on March 3, 2017 and retrieved on April 4, 2017). QuantArray-Chlor and/or QuantArray-Petro analyses were applied to Bio-Trap® samples from ISTR-1, ISTR-5, and TW-08D to evaluate post-ISTR QuantArray levels prior to subsequent abandonment of these wells. Results of this evaluation are summarized in Section 3.3.

As discussed below, groundwater temperatures are also monitored at selected well locations as a basis for assessing the migration of heated groundwater from the thermal treatment zone, and to assess the point at which temperatures have returned to baseline conditions (which will trigger the completion of the triannual “N” well sampling).

3.2 Summary of Field Activities

During each monitoring event, wells were sampled using HydraSleeves™, except for TW-08B in March. During a previous sampling event, it was determined that a portion of the well casing was bent and that HydraSleeve™ deployment was not feasible for TW-08B. As a result, TW-08B has been sampled using standard low-flow procedures since July 2015.

Samples were submitted to Alpha for analysis of VOCs, 1,4-dioxane (March 2017 only), and MNA parameters.

Temperature Datalogging

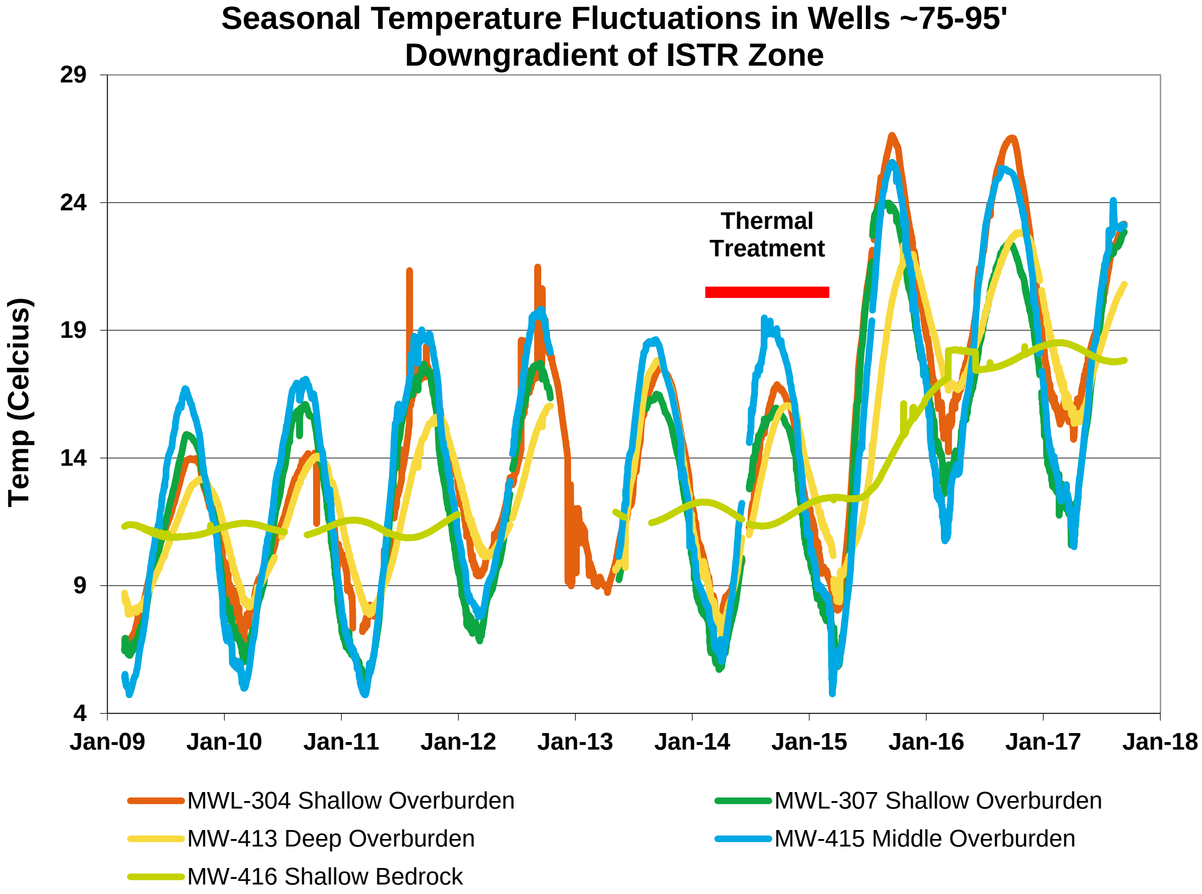
Temperature data have been recorded with dataloggers at the following five “N” wells every 12 hours since February 2009: shallow overburden wells MWL-304 and MWL-307; middle overburden well MW-415; deep overburden well MW-413; and shallow bedrock well MW-416. These wells are approximately 75 to 95 feet downgradient of the thermal treatment zone (TTZ).

Manual Temperature Measurements

Temperature data have been measured monthly since July 2015 using a downhole temperature probe at middle overburden well TW-08A, deep overburden well TW-08B, and shallow bedrock well TW-08D, which are at the downgradient edge of the TTZ (Figure 12). However, these three wells were abandoned in March 2017.

3.3 Results

Pre-ISTR temperatures at the continuously monitored wells were between approximately 5ºC and 20ºC, and fluctuated seasonally by approximately 1ºC in the shallow bedrock up to 12ºC in the shallow overburden. As shown on the following chart, temperatures in each of these wells increased 5º to 6ºC once the thermal treatment was completed and a lag time allowed for movement of the heated water to the downgradient area.



Peak temperatures have been occurring in late summer or early fall (September and October). Temperature data from 2017 show an approximate 3ºC decline in peak temperatures for the four overburden monitoring locations compared with the previous two years, indicating a shift towards pre-ISTR conditions. However, these data demonstrate that groundwater temperatures have not returned to pre-ISTR conditions, thus sampling of "N" wells continues on a triennial basis. Temperature datalogging will continue at these five wells until such time that they indicate a return to baseline conditions (or until they are no longer available for monitoring because some will be affected by the planned Resource Conservation and Recovery Act [RCRA] cap construction activities). Once temperature data indicate a return to pre-ISTR levels, the SRSNE Site Group will make a demonstration to the USEPA and request a reduced sampling frequency for these wells in accordance with the approved monitoring program.

The VOC concentrations measured in post-thermal treatment groundwater samples are provided in Table 3. Relative to the initial comprehensive sampling event in 2010, total VOC concentrations have decreased by one to three orders of magnitude at six of the seven remaining "N" wells sampled (Appendix C). Significant rebound in total VOC concentrations was observed in groundwater at MWL-304 in July 2017 relative to previous sampling events (Appendix C). This increase in total VOC concentration at MWL-304 is driven primarily by increases in vinyl chloride (VC) concentrations. Increases in VC concentrations indicate increased reductive dechlorination of higher chlorinated VOCs including PCE and TCE. Trend graphs depicting concentration trends select VOCs and total VOCs in groundwater at the “N” wells are included in Appendix C.

Groundwater samples were collected at the “N” wells in June 2014, approximately four weeks after the start of Phase 1 heating upgradient of these wells, but before the first indications of warming associated with the TT remedy. Thus, June 2014 data are considered the baseline condition for evaluation of ISTR-related groundwater changes (Appendix C). Sampling events at the “N” wells in November 2016, March 2017, and July 2017 provide a basis of comparison versus the baseline data from June 2014. Six of the seven remaining “N” wells indicated lower total VOC concentrations in July 2017 compared to June 2014 with total VOC concentration decreases between 58% and 99%, with decreases greater than 95% at five of these six wells. The only exception is the observed increase in total VOC concentrations at MWL-304 described above. Based on the combined results from six of the seven remaining “N” wells, total VOC concentrations have declined by an average of 97% relative to baseline conditions.

Note also that changes in VOC concentrations between June 2014 and June 2017 (excluding MWL-304) varied slightly for different compound groups:

- Halogenated VOCs – average concentration decrease of 99.2%
- Aromatic VOCs – average concentration decrease of 95.8%
- Ketones – one ketone, 2-butanone (MEK) was detected at a concentration of 3.02 ug/L at MW-415

These results indicate that source removal achieved by ISTR resulted in substantial decreases in VOC concentrations in groundwater during and following the thermal treatment period.

MNA parameter concentration results are provided in Table 4. As described in Attachment N to the RDWP (Arcadis 2010b), groundwater MNA parameters were selected to confirm dominant biotransformation processes, evaluate the potential for continued transformation of COCs, and identify zones of dominant geochemical conditions. In general, MNA parameter results indicate moderately to strongly reducing (i.e., manganese and iron reducing, sulfate reducing, and methanogenic) conditions in the NTCRA 1 area, except for shallow bedrock well MW-416, which indicates mildly reducing conditions. This interpretation of MNA parameter results is based on dissolved iron and manganese concentrations greater than 1,000 ug/L, sulfate concentrations less than 10 mg/L, and methane concentrations greater than 1,000 ug/L at most locations sampled during post-thermal treatment groundwater sampling. TOC concentrations were greater than 10 mg/L at most locations, indicating sufficient organic carbon to support microbial populations. At most locations, concentrations of alkalinity, chloride, iron, manganese, TOC, ethane, ethene, and methane increased between the March 2015 and July 2016 post-thermal treatment monitoring events, suggesting microbial populations also increased during this time.

Concentrations of these parameters have generally remained elevated in comparison to the March 2015 results. Results from Bio-Trap® sampling with QuantArray-Chlor and QuantArray-Petro analyses (see Section 4) indicate increased diversity in the microbial population relative to pre-treatment conditions. The results suggest that anaerobic biodegradation processes dominate in the thermal treatment area, but also indicate a strong potential for aerobic cometabolism of chlorinated volatile organic compounds (CVOCs) and aerobic metabolism of petroleum hydrocarbons if conditions become more favorable for these processes in the future. These results demonstrate robust microbial activity in the NTCRA 1 area groundwater downgradient from the thermal treatment area.

1,4-dioxane concentrations for the October 2015, March 2016, and March 2017 post-thermal treatment groundwater samples are summarized in Table 5. Concentrations of 1,4-dioxane varied between October 2015 (6.48 to 160 ug/L) and March 2017 (5.4 J to 131 ug/L), with some locations showing a decrease and other locations showing an increase in 1,4-dioxane concentrations. However, for most locations 1,4-dioxane concentrations have a similar order of magnitude for the two events.

The third and final post-thermal treatment groundwater sampling event of 2017 was conducted on November 20-21, 2017. Results from this event will be evaluated as part of the 2018 MNA Report.

4 ADDITIONAL SAMPLING

4.1 Summary of Field Activities

In addition to the SOW-required sampling described above in Sections 2 and 3, Bio-Trap® samplers were deployed at four monitoring wells in the thermal treatment area. The samplers at ISTR-1, ISTR-5 and TW-08D were deployed on February 6, 2017 and retrieved on March 8, 2017. The sampler at CPZ-7R was deployed on March 3, 2017 and retrieved on April 4, 2017. QuantArray-Chlor and/or QuantArray-Petro analyses were applied for the Bio-Trap® samplers deployed at wells ISTR-1, ISTR-5 and TW-08D to evaluate post-ISTR QuantArray levels prior to subsequent abandonment of these wells. Following the March 2017 sampling event, monitoring wells TW-08A, TW-08B, and TW-08D were decommissioned. For the CPZ-7R Bio-Trap® sampler, quantitative polymerase chain reaction (qPCR) was performed on individual gene targets to assess potential degradation process for 1,4-dioxane. Samples were submitted to Microbial Insights, Inc. located in Knoxville, Tennessee. Sample analytical techniques are described in more detail in Appendix D.

4.2 Results

Results of the microbial sampling indicate a broad range of COC degradation capabilities within the site microbial community, with organisms capable of aerobic and anaerobic degradation present. A comparison of results between the 2014 pre-thermal treatment sampling event and the post-thermal treatment events in 2016 and 2017 demonstrate increased microbial diversity and abundance at the three locations sampled in 2017 (ISTR-1, ISTR-5 and TW-08D). These results indicate that anaerobic biodegradation processes dominate in the thermal treatment area, especially for chlorinated volatile organic compounds (CVOCs). However, results also indicate a strong potential for aerobic cometabolism of CVOCs and aerobic metabolism of petroleum hydrocarbons if oxidation-reduction conditions become more favorable for these processes in the future. The assessment of 1,4-dioxane biodegradation potential at monitoring well CPZ-7R indicates the potential for multiple biodegradation mechanisms in this area of the site. Because groundwater conditions are generally reducing to strongly reducing, it is likely that aerobic biodegradation is limited. However, it is possible that even small amounts of dissolved oxygen stimulate processes that may include the metabolism and/or cometabolism of 1,4-dioxane.

5 NA BACKGROUND

An MNA remedy requires a strong scientific basis supported by appropriate monitoring. When properly employed, MNA is an effective remedy – based on thorough analysis of site-specific data – to understand, monitor, predict, and document COC transport and NA processes.

5.1 Site Conceptual Model

For any MNA remedy to succeed, it is important to understand the Site Conceptual Model (SCM). The SCM combines available site information into a comprehensive picture of the nature and extent of the COCs and the processes controlling their transport and fate in the environment. The level of site characterization necessary to support a comprehensive evaluation of MNA can be more detailed than that needed to support active remediation.

The SCM, including information regarding the Site operational history, regulatory status, geology, hydrogeology, and surface water hydrology, and the distribution and mass of COCs in Site groundwater, including delineation of NAPL zones and dissolved-phase groundwater plume, and VOC mass estimates, was originally provided in Section 2 of the RDWP (Arcadis 2009) to fulfill the requirements set forth in the SOW, Section V.C.1.l.

A Draft SCM Update was prepared in April 2015 (Arcadis 2015) to reflect additional data collected and changes in Site conditions since completion of the RI (BBL 1998) and Feasibility Study (FS; BBL and USEPA 2005).

The MNA conceptual model for the Site may be described in terms of source condition, dissolved plume stability, and NA processes, and is summarized as follows:

Source Condition: The source of groundwater-quality impacts was extensively characterized during the RI (BBL 1998) and FS (BBL and USEPA 2005), and consists of zones containing NAPL in overburden soils and bedrock. The NAPL is a complex mixture of chlorinated and other solvents. The NAPL zones in overburden soils and bedrock contain mixtures of dissolved NAPL-related chlorinated ethenes, ethanes, and methanes, as well as aromatic hydrocarbons, ketones, phthalates, ethers, furan, and alcohols. These NAPL zones are currently hydraulically contained by the NTCRA 1 sheet-pile wall and overburden groundwater extraction wells and the NTCRA 2 overburden and bedrock extraction wells. Upon entry of the CD, the NTCRA 1 and NTCRA 2 systems became known as the HCTS. The NAPL zones have formed a dissolved-phase chemical plume that has been severed by the HCTS. The Overburden NAPL zone historically contained most of the Site VOC mass, but *in situ* thermal remediation was performed in this zone between May 2014 and March 2015, removing an estimated 210,000 kilograms (kg) of NAPL mass. This greatly diminished the source zone upgradient of the NTCRA 1 sheet-pile wall.

Dissolved Plume Stability: The dissolved-phase chemical plumes in overburden and bedrock groundwater within the source area are stable and are likely shrinking in time due to the combination of hydraulic containment and active *in situ* biodegradation processes in groundwater within the capture zone of the HCTS. *In situ* biodegradation processes within the capture zone of the HCTS were characterized as “robust” in the FS (BBL and USEPA 2005). The dissolved-phase chemical plume in overburden and bedrock groundwater in the severed portion of the plume, beyond the capture zone of the HCTS, are generally shrinking with time due to the combination of hydraulic containment of the higher concentration portions of the dissolved-phase chemical plume and NA processes. Total dissolved-phase VOC concentration trends in groundwater within the HCTS capture zone boundary and the severed plume indicate statistically significantly decreasing concentration trends. None of the wells representative of the severed plume (i.e., wells with historical COC concentrations above Action Levels downgradient of the HCTS capture zone) indicated COC concentrations above drinking-water-based standards during the 2014 through 2017 groundwater monitoring events.

NA Processes: Natural attenuation processes that have contributed to plume stabilization and shrinkage within the overburden and bedrock include *in situ* abiotic and biodegradation reactions, sorption to aquifer solids, flow path mixing, and matrix diffusion. Reductive dechlorination is a prominent removal mechanism that continues to operate at the Site, as demonstrated by the production of cis-1,2-dichloroethene (cDCE); VC; 1,1-dichloroethane (1,1-DCA); ethene, ethane, and chloride, which are dechlorination (i.e., “breakdown”) products of tetrachloroethene (PCE); TCE; and 1,1,1-trichloroethane (TCA). There is also potential for anaerobic oxidation reactions that remove cDCE, VC, and ethene by oxidation to carbon dioxide (CO_2). In addition, microbial population survey results demonstrate robust communities capable of both full reductive dechlorination to innocuous end products, and also aerobic cometabolism of chlorinated compounds, at 11 monitoring locations evaluated using QuantArray-Chlor methodology (Arcadis 2015). In addition, microorganisms capable of degrading aromatic compounds were detected at two locations where the QuantArray-Petro analysis was conducted (Arcadis 2015). Additional microbial monitoring conducted within NTCRA 1 in 2017 also demonstrated robust communities capable of degradation of chlorinated and aromatic compounds as described in Section 4.

A detailed description of the SCM is provided in the *Groundwater Conceptual Site Model Update* (Arcadis 2015).

5.2 Selection of MNA Remedy

Due to the demonstrated efficacy of NA for treating COCs in Site groundwater, MNA was included as a component of several remedial alternatives evaluated in the FS (BBL and USEPA 2005). Based on evaluations presented in the FS, the USEPA selected MNA as a component of the remedial approach for the Site.

The ROD for the Site was issued by the USEPA in September 2005 (USEPA 2005). The selected remedy consists of MNA of the groundwater plume, including:

- Groundwater outside the capture zone of the HCTS until groundwater cleanup levels are achieved;
- Groundwater within the capture zone of the HCTS until groundwater cleanup levels are achieved; and
- Groundwater in the NAPL area of the overburden and bedrock aquifers, until groundwater cleanup levels are achieved.

5.3 Identified Data Gaps

The SOW identified two data gaps associated with implementing the MNA remedy component at the Site. The identified data gaps and the strategies used for addressing them are as follows:

- *Incomplete plume delineation in the severed plume*. This data gap has been addressed by the installation and sampling of additional groundwater monitoring wells near the eastern edge of the severed plume, east of the Quinnipiac River and in the CL&P easement as presented in the *Monitoring Well Network Evaluation and Groundwater Monitoring Program* (Attachment N to the RDWP) and subsequent discussions with USEPA. In addition to the new plume delineation wells installed prior to the start of the May–June 2010 comprehensive groundwater sampling (including MW-903S, MW-903M, MW-903D, MW-903R, PZ-903DR, MW-904S, MW-904D, MW-906M, MW-906D, MW-906R, PZ-906DR, and MW-910S), three other well clusters (MW-1001M/MW-1001R, MW-1002DR/MW-1002R and MW-1003DR/MW-1003R) have been installed to address this data gap. Delineation of the downgradient extent of the plume is shown on Figures 7 through 11.
- *Long-term monitoring data demonstrating the effectiveness of MNA as a remedy component*. This data gap is being addressed through the preparation, submittal, approval, and implementation of the MNA Plan.

5.4 Objectives of MNA Performance Monitoring

The MNA Plan, in conjunction with the *Monitoring Well Network Evaluation and Groundwater Monitoring Program* (Attachment N to the RDWP), describes the monitoring and analysis steps required to meet the following objectives of MNA performance monitoring, as specified in Section VII.A.1 of the SOW:

- Complete the delineation of COCs in groundwater in three dimensions;
- Assess the temporal and spatial variations in groundwater chemistry and geochemistry;

- Assess the progress in meeting the long-term remedial goal of groundwater restoration throughout the Site to its natural quality; and
- Evaluate the effectiveness of institutional controls.

Based on the results of MNA performance monitoring, decisions related to the MNA program, described in detail in the MNA Plan, may include:

- Continuation of the performance monitoring program without change.
- Continuation of the performance monitoring program with action.
- Modification of the institutional controls.

5.5 Performance Standards

The remedial action is being implemented in compliance with applicable or relevant and appropriate requirements (ARARs) identified in the ROD (USEPA 2005). These requirements include compliance with performance standards for the affected groundwater, soil and wetland soil, and for NAPL. The following subsections discuss performance standards applicable to MNA and the means for demonstrating compliance with these standards.

5.5.1 MNA-Related Performance Standards

Performance standards pertaining to MNA at the Site, as set forth in the SOW, are described in detail in the MNA Plan for Groundwater, NAPL outside of the Overburden NAPL Area, and the Severed Plume.

5.5.2 Demonstration of Compliance Report

As specified in Section VIII.G of the SOW, a Demonstration of Compliance Report will be prepared in accordance with the evaluation procedures defined in 40 CFR Section 264.97 when groundwater COC concentrations have remained below the ICLs for three consecutive years as outlined in 40 CFR Section 264.96(c). If the USEPA, after reasonable opportunity for review and comment by the Connecticut Department of Energy and Environmental Protection (CT DEEP), approves the Demonstration of Compliance Report and agrees that the ICLs have been achieved, a risk assessment of residual groundwater conditions will be performed.

6 MNA PERFORMANCE MONITORING

6.1 Introduction

The MNA Plan specified the performance monitoring program for Site groundwater as it relates to the MNA component of the remedy, while Section IV.B.5 of the SOW set forth requirements for an environmental monitoring program to be implemented to evaluate the performance of the HCTS and the overall effectiveness of the Site remedy, including the MNA component. These groundwater MNA monitoring requirements were summarized in the MNA Plan.

The following subsections describe the MNA program monitoring locations, monitoring frequency, monitoring parameters, and data quality objectives (DQOs) designed to meet the environmental monitoring program requirements set forth in Section IV.B.5 of the SOW. Groundwater monitoring is conducted to monitor changes in groundwater COC concentrations, changes in plume size and shape, and the effectiveness of NA processes in reducing concentrations of COCs in groundwater. Groundwater samples from June 2017 were collected in accordance with the monitoring frequency outlined in the MNA Plan and represent the most recent dataset utilized for this MNA evaluation.

6.2 Groundwater Performance Monitoring Locations

Groundwater performance monitoring locations were chosen to provide robust, three-dimensional coverage of COCs in overburden and bedrock groundwater at the Site, with monitoring well cluster locations providing vertical assessment of COC concentrations and groundwater geochemistry. Monitoring locations were identified in the *Monitoring Well Network Evaluation and Groundwater Monitoring Program* (Attachment N to the RDWP) and are shown on Figures 2 through 6 of this MNA Report.

In accordance with the SOW, selected MNA monitoring locations include upgradient (background) sampling locations, in-plume sampling locations (HCTS capture zones and severed plume), side-gradient sampling locations outside of plume areas, and downgradient locations. Monitoring locations are designated by well groups (e.g., “N”) to define the purpose of each sampling location. Well group designations that are relevant to MNA monitoring are summarized in the MNA Plan and shown on Figures 2 through 6.

6.3 MNA Monitoring Parameters

The primary classes of data included in the MNA monitoring program are: Site-specific groundwater COCs; groundwater MNA parameters; groundwater hydraulic information; and HCTS COC mass removal estimates. Each of these primary data classes is described below.

Site-specific COCs were identified during Site investigations and risk assessment and are required to be addressed by the response actions set forth in the ROD (USEPA 2005). Site-specific COCs for groundwater include selected VOCs, 1,4-dioxane, TAL metals, SVOCs, and PCBs.

Groundwater MNA parameters were selected to confirm dominant biotransformation processes, evaluate the potential for continued transformation of COCs, and identify zones of dominant geochemical conditions. These parameters include: nitrate–nitrogen, nitrite–nitrogen, dissolved manganese, dissolved iron, sulfate, light hydrocarbons (methane, ethane, ethane), alkalinity, chloride, pH, and TOC. In addition to laboratory-analyzed MNA parameters, the following are collected as field measurements: pH, DO, ORP, and temperature.

The hydraulic parameter of interest is groundwater elevation. Groundwater elevations are characterized in all five groundwater depth zones, and provide a basis to assess the horizontal and vertical components of hydraulic gradients that control three-dimensional migration of COCs. Synoptic groundwater elevation measurements are only collected in conjunction with five-year comprehensive monitoring events, and therefore were not collected during the June 2017 groundwater monitoring event.

Estimates of groundwater COC mass removal from the HCTS, obtained as part of the compliance monitoring program for the HCTS operations, are used to evaluate potential trends in COC mass removal from the HCTS and can be used to evaluate future efficacy of groundwater remedies, including MNA.

6.4 Monitoring Frequency

Monitoring frequencies were designed to meet requirements of the environmental monitoring program set forth in Section IV.B.5 of the SOW and are summarized in the MNA Plan. Detailed monitoring frequency information is provided in the *Monitoring Well Network Evaluation and Groundwater Monitoring Program* (Attachment N to the RDWP). Any proposed changes to the long-term monitoring program will be submitted as part of the Annual State of Compliance Report(s).

6.5 MNA Monitoring Objectives

The MNA performance monitoring program set forth in the MNA Plan was designed to evaluate the MNA monitoring objectives listed below (USEPA 1999; USEPA 2004) and described in detail in the MNA Plan:

- Provide timely warning of potential impact to receptors.
- Detect changes in plume size/concentration.
- Determine temporal variability of data.

- Detect changes in geochemistry that warn of potential changes in COC attenuation.
- Yield data necessary to reliably evaluate progress toward COC reduction objectives.

6.6 Data Quality Objectives

The DQO process is a systematic planning tool based on the scientific method that is used to establish criteria for data quality and to develop data collection designs (USEPA 1994). The DQOs for the data described in this MNA Report are provided in the *Quality Assurance Project Plan* (QAPP; [Rev. 2] Arcadis 2012b; Attachment C to the RD Project Operations Plan [POP]).

7 MNA EVALUATION

This section evaluates the effectiveness of the MNA program based on the data collected through June 2017. Data analysis, interpretation and reporting methods were completed in accordance with the following regulatory guidance documents:

- *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water* (USEPA 1998)
- *Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites* (USEPA 1999)
- *Performance Monitoring of MNA Remedies for VOCs in Ground Water* (USEPA 2004)

In general, data interpretation included:

- Placing the MNA performance monitoring data in the context of time, location, sampling and analytical methods.
- Applying appropriate statistical tests to detect changes and trends in COC concentrations, and attainment of remedial objectives.

These data interpretation methods and results are presented in the following sections.

7.1 Total VOC Concentration Trends

Data collected during previous sampling events (RI and Interim Monitoring Sampling [IMS] events) and presented in the MNA Plan and the 2010 through 2016 MNA reports indicate an overall decline in groundwater COC concentrations with time, supporting the selection of MNA as a remedial measure for COCs in groundwater at the Site. This section builds upon results of the previous MNA evaluations discussed in detail in the MNA Plan and the preceding MNA reports (2010 through 2016). Included in this section are a discussion of concentration trends for total VOCs in groundwater at select monitoring locations, estimates of bulk attenuation rates for total VOCs in groundwater at locations with decreasing concentration trends, and presentation of COC mass extraction rates and cumulative mass removal for the HCTS.

7.1.1 Trend Analysis

The final IMS Report (BBL 2005) compared groundwater VOC concentrations reported in the RI with concentrations measured at 25 IMS locations during the April 2005 (final) IMS event. Trend analyses were updated using total VOC concentration data collected at 21 IMS monitoring locations (within the NTCRA 2 portion of the HCTS, the severed plume, and the interior of the VOC plume) during the RI, IMS program, and groundwater sampling events between 2010 and 2016. These trend analyses have been updated with total VOC concentrations from the June 2017 annual groundwater monitoring event and results are summarized in Table 6. Because only 11 of the monitoring locations with long-term time-concentration data sets were sampled during the June 2017 sampling event, only those trend analyses were updated. However, the previous trend results for wells that were not sampled in June 2017 are also included in Table 6. Results of the 2017 trend analyses are similar to the results of the trend analyses conducted in 2010 through 2016, which indicated statistically significant decreasing total VOC concentration trends at most of the IMS monitoring locations.

Groundwater total VOC concentrations plotted versus time were updated for the 11 IMS monitoring locations that were sampled during the July 2017 groundwater sampling event (Figures 13 through 17). As shown on the figures, total VOC concentrations are generally declining or stable at all groundwater depth intervals, consistent with previous results.

Non-parametric Mann-Kendall and Sen's slope trend analyses, and parametric linear regression trend analyses, were conducted to evaluate trend direction and statistical significance of the groundwater total VOC concentration trends at the Site. The Mann-Kendall test provides a yes/no determination for the existence of a slope that is significantly different from zero, while the Sen's slope test provides an estimate of the value for the slope. The linear regression test estimates slope and confidence level and quantifies how well the data correlate to the estimated trend line. Trend analyses were conducted with natural log (ln) normalized total VOC concentrations using all three test methods for all sampling locations.

A 90% confidence level with a corresponding p-value less than or equal to 0.10 was used to determine statistical significance for the trend analyses. Mann-Kendall and linear regression trend results with p-values greater than 0.10 were not considered to be statistically significant. The trend direction was defined as decreasing if total VOC concentrations decreased with time (negative slope), and increasing if total VOC concentrations increased with time (positive slope); however, the trend was not considered significant unless the relationship for the test was significant at a confidence level of 90%. For the linear regression analysis, the correlation coefficient, or R^2, is a measure of how well the linear regression fits the data. Values close to 1 are considered a good fit, while R^2 values close to 0 are considered to be a poor fit.

Results of the trend analyses indicate significant decreasing total VOC concentration trends at 10 of the 11 locations sampled for long-term trend evaluation in June 2017 based on the Mann-Kendall, Sen's slope, and linear regression trend tests (Table 6). Statistically significant decreasing total VOC concentration trends at monitoring well MW-707DR were found over the abbreviated evaluation period (from April 2004 through June 2017) by all three evaluation methods. Therefore, this well has been included in the tally of decreasing trends, although total VOC concentrations continue to show a statistically significant increase (linear regression and Mann-Kendall) when the full period (between December 1996 and June 2017) is considered. Monitoring wells sampled in June 2017 that indicate statistically significant decreasing total VOC concentration trends with linear regression and/or Mann-Kendall analysis include P-13, P-101C,

MW-03, P-101B, MW-502, MW-704D, MW-127C, MW-704DR, MW-706DR, and at MW-707DR over the abbreviated evaluation period (Table 6).

Monitoring well P-11A shows a statistically significant increasing total VOC concentration based on linear regression analysis. No trend was identified by Mann-Kendall and Sen's slope analyses. Total VOC concentrations at P-11A have decreased by approximately 83% since the recent peak concentration that occurred in June 2012.

MW-707DR, indicates a significant increasing total VOC concentration trend based on the Mann-Kendall and linear regression trend tests using data between December 1996 and June 2017. The maximum total VOC concentration measured at MW-707DR was 18 □g/L (April 2000) and 28% of the historical samples have been below detection for all VOC constituents, indicating generally low concentrations of VOCs in groundwater at this location. The total VOC concentration measured at MW-707DR in June 2017 was 1.4 ug/L. Linear regression, Mann-Kendall, and Sen's slope trend tests were also performed over an abbreviated period using total VOC concentrations from April 2004 to June 2017, to exclude the previous monitoring events in which VOC concentrations were below detection limits. Since April 2004, total VOC concentrations indicate a statistically significant decreasing concentration trend, indicating that groundwater quality is improving at this monitoring location.

7.1.2 Total VOC Attenuation Rate

Results from the linear regression and Sen's slope analyses were used to estimate attenuation rates for total VOCs in groundwater at the Site. Attenuation rates were calculated in accordance with the USEPA guidance document on determining first-order attenuation rate constants for MNA studies (USEPA 2002). Following this guidance, the natural log of COC groundwater concentration versus time was used and a best-fit linear regression line was generated for total VOC concentrations for each monitoring location that had a statistically significant decreasing total VOC concentration trend. Slopes derived from the Sen's slope test were also used to estimate attenuation rates. The slope of the linear regression line and the slope from the Sen's slope test provide estimates of the total VOC attenuation rate constant (k_{point}) in groundwater at the respective monitoring locations.

$$k_{point} = [\mathit{slope\ of\ best\text{-}fit\ regression\ line}]$$

The half-life ($t_{1/2}$) for total VOC concentrations in groundwater was estimated for each sampling location from the equation:

$$t_{1/2} = 0.693 / k_{point}$$

> where: 0.693 is the negative of the natural log of 0.5 (half of the starting total VOC concentration).

Estimated half-life values for total VOCs in groundwater range from 628 to 6,221 days (1.7 to 17.0 years) based on linear regression results and from 610 to 8705 days (1.7 to 23.8 years) based on Sen’s slope results. These estimated half-life values for total VOC concentrations compare well with literature values of attenuation rates presented for individual compounds in Appendix H of the FS (BBL and USEPA 2005) and indicate that COC concentrations in groundwater are attenuating.

7.2 Estimate of COC Mass Flux in Groundwater

As part of the compliance monitoring program, COC mass extraction rates and cumulative mass removal are monitored for the HCTS. With the exception of the severed plume and incidental discharge to surface water, the HCTS captures the entire dissolved phase groundwater COC plume at the Site. Therefore, the HCTS COC mass removal rates and cumulative mass removal data represent the total mass flux for the dissolved phase COC groundwater plume and can be used to monitor changes in groundwater total dissolved-phase COC mass flux with time.

Total VOC mass removal rates and cumulative mass removal for the HCTS were plotted for the July 1995 to June 2017 time period (Figure 18). Mass removal rates are expressed in units of pounds per day (lbs/day) and the cumulative mass removal is expressed in units of pounds. Mass removal rates have ranged between about 0.1 to 10 pounds per day and are generally declining since 1995. The overall decline in mass removal rate indicates a general decline in dissolved VOC concentrations in the water pumped by the former NTCRA 1 extraction wells. The total mass of VOCs removed by the HCTS between system startup in 1995 and June 2017 is approximately 18,000 pounds. The mass of COCs removed via the HCTS is small compared with the estimated mass removal that is occurring via *in situ* degradation. As described in detail in the FS (BBL and USEPA 2005) and summarized in the MNA Plan (Arcadis November 2010), the quantity of TCE and degradation products being biodegraded *in situ* was calculated to be approximately 17,000 to 41,000 pounds per year within the NTCRA 1 area alone.

The mass extraction data will continue to be collected as part of the HCTS compliance monitoring program and will be periodically evaluated as part of the MNA performance monitoring program.

7.3 Distribution of VOCs in NAPL and Groundwater

An assessment of the distribution of select VOCs in NAPL and groundwater samples was conducted as part of the 2010 comprehensive MNA report to gain insight into how VOC distributions in NAPL and Site groundwater varied by location and with time. VOCs evaluated in the assessment included:

- Chlorinated ethenes (PCE, TCE, cDCE, 1,1-dichloroethene [1,1-DCE], and VC).
- Chlorinated ethanes (TCA, 1,1-DCA, and chloroethane [CA]).
- Ketones (2-butanone [MEK], 4-methyl-2-pentanone [MIBK], and acetone).

- Toluene, ethylbenzene, and xylenes (TEX).
- Methylene chloride, styrene, THF, and 1,4-dioxane.

Data used for assessment of distribution of VOCs in NAPL and groundwater were presented in the 2010 comprehensive MNA report. The assessment concluded that NAPL samples were composed primarily of PCE, TCE, TCA, TEX, methylene chloride, and styrene, with lesser contributions from cDCE, 1,1-DCE, and 1,1-DCA. Ketones generally were not detected in NAPL samples. 1,4-dioxane was not analyzed for these samples. Overall, the results indicated that the detected groundwater constituents are generally consistent with NAPL constituents, except for ketones. The general absence of detectable ketones in the NAPL samples likely relates to the elevated detection levels associated with the NAPL samples.

Molar VOC concentration plots were also presented in the 2010 comprehensive MNA report, were updated following the June 2014 comprehensive sampling event, and were included in the 2014 MNA Report. In general, constituent concentrations in groundwater were greatest in the NTCRA 1 area with consistently decreasing primary constituent (e.g., TCE, TCA, ketones, and TEX) concentrations observed in directions downgradient from the NTCRA 1 area. These results clearly demonstrate degradation of parent compounds in groundwater.

Groundwater molar VOC concentration plots for select groundwater monitoring locations with samples collected during multiple sampling events illustrate that some locations have clear declining concentration trends for most or all constituents. Shifts in the relative distribution of chlorinated VOCs (CVOCs) towards greater proportions of daughter products to parent demonstrate ongoing degradation of CVOCs in Site groundwater.

In summary, molar concentration plots of select CVOCs provide a means for readily comparing the distribution of COC concentrations in Site groundwater with distance from the source area, as well as with depth and with time at discrete locations.

7.4 Evaluation of Monitoring Objectives

7.4.1 Evaluation of Changes in Environmental Conditions that May Reduce Efficiency of MNA

MNA data will be used to evaluate potential changes in environmental conditions that may reduce the efficiency of MNA. Currently, the only anticipated environmental changes that may reduce the efficiency of MNA are within the capture zone of the Site NTCRA 1 groundwater containment system due to the addition of heat and removal of electron donors during *in situ* thermal treatment of the Overburden NAPL Area. The thermal treatment remedy was conducted between May 2014 and March 2015. As described in Section 3, post-thermal treatment groundwater monitoring events were conducted on a triennial basis starting in March 2015 for select monitoring wells in the NTCRA 1 area. Initial results from these monitoring events indicate generally decreasing COC concentrations and moderately to strongly reducing conditions in groundwater in the NTCRA 1 area. The 2017 MNA Report and future MNA Reports will assess potential effects on MNA efficiency due to thermal treatment in the Overburden NAPL Area. Specifically, VOC and MNA parameter concentration data for the post-thermal treatment time period will be compared to results from the pre-thermal treatment time period to see what changes in VOC and MNA parameter concentrations may be attributable to the thermal remedy.

Changes in the composition and availability of electron donors with time may affect the efficiency of NA. As electron donors, such as ketones, aromatic compounds, and alcohols are consumed, the efficiency of NA may decline. As noted in the 2010 comprehensive MNA report, alcohols are currently only minimally detected in Site groundwater. As concentrations of these readily available electron donors decline, other electron donor sources may be available to support continued NA of COCs in Site groundwater. Other potential electron donor sources include natural organic matter in the aquifer matrix, natural organic matter in groundwater, as well as recycling of microbial biomass. The efficiency of NA for remediation of COCs in Site groundwater will continue to be monitored via the MNA remedial program using techniques set forth in the MNA Plan and in this MNA Report including, but not limited to:

- Defining changes in the VOC regulatory plume boundaries, including exceedance of MCLs and GWPC as well as exceedance of ICLs.
- Evaluation of COC concentration trends with time.
- Assessment of changes in the distribution of COCs, especially ketones, alcohols, and aromatic compounds.
- Continued monitoring of groundwater redox conditions.

If changes in the efficiency of NA result in a loss of effectiveness of MNA as a remedy for COCs in Site groundwater, contingencies will be considered, as described in the MNA Plan.

7.4.2 Evaluation of Potentially Toxic and/or Mobile Transformation Products

Potentially toxic transformation products include regulated chemical intermediates, such as cDCE, 1,1-DCE, 1,1-DCA, CA, and VC, and regulated transition metals (e.g., manganese and arsenic). Locations with concentrations of cDCE, 1,1-DCE, 1,1-DCA, CA, VC that exceed MCLs or GWPC are within the overburden and bedrock groundwater capture zone boundary. With the exception of total manganese in upgradient/background monitoring well MW-126B (5,793 ug/L), metals detected in groundwater samples collected in June 2017 did not exceed Action Levels (Table 2).

7.4.3 Evaluation of Plume Stability

In terms of plume stability, a dissolved-phase chemical plume in groundwater may be characterized as a:

- Shrinking plume, in which the plume volume decreases through time.
- Stable plume, in which the plume volume does not change through time.
- Growing plume, in which the plume volume increases through time.

In general, shrinking plumes are indicated by decreasing chemical concentrations through time, growing plumes may be indicated by increasing or stable chemical concentrations through time, and stable plumes are indicated by plume volume estimates that do not change significantly through time. Currently available long-term monitoring data demonstrate that the plume of COCs in Site groundwater is generally shrinking or stable.

7.4.4 Evaluation of No Unacceptable Impacts to Downgradient Receptors

Groundwater and surface water monitoring data collected during the RI and the IMS program indicate that there are no potential impacts to downgradient receptors. The water supply wells within the Town Well Field Property are dormant and are beyond the zone of COC concentrations in groundwater that are above drinking water standards. Therefore, there are no receptors within the vicinity of the groundwater plume with COC concentrations above drinking water standards. Monitoring of surface water in the Quinnipiac River demonstrated that surface water is not impacted by the Site COC-impacted groundwater plume. Monitoring of groundwater within the Town Well Field will continue as part of the MNA program.

7.4.5 Evaluation of New Releases of COCs

Evaluation of new releases of COCs is not needed because potential sources of new releases have been removed from the Site, the former source area is located within the capture zone of the HCTS, and the Overburden NAPL Area (also within the capture zone) has been remediated via *in situ* thermal remediation.

7.4.6 Evaluation of Institutional Controls

The draft *Institutional Control Plan* (IC Plan), which is a remedial design submittal required by Section V.B.7 of the SOW, was initially submitted to the USEPA in February 2011. Based on comments received and further coordination with the regulatory agencies, a revised draft IC Plan was provided to the USEPA in May 2013. It describes the proposed scope and monitoring program associated with institutional controls to be implemented at the Site. Once the IC Plan is approved and institutional controls are established, any observed or pending changes in land or resource uses or ownership (e.g., property ownership change, housing developments, and well installations) will be evaluated in view of their current and possible future impact on the effectiveness of the institutional controls and the performance monitoring operations.

7.4.7 COC Mass Flux / Mass Reduction

COC mass flux and mass reduction can be conservatively evaluated by monitoring groundwater COC mass recovery from the HCTS. Because extraction of groundwater COCs by the HCTS does not account for the mass of COCs degraded *in situ*, this method of estimating mass reduction provides a minimum estimate of mass reduction. With the exception of the severed plume and de minimis discharges to surface water immediately adjacent to the river, the Site-related groundwater plume is contained within the HCTS capture zone. As a result, the groundwater extracted via the HCTS represents the majority of the mass flux of COCs within the plume. Groundwater extraction rate and COC concentration information collected periodically during system operation, maintenance and monitoring (OMM) activities as part of the compliance monitoring program for the HCTS will be used to evaluate changes in COC mass flux with time. As shown on Figure 18, COC mass extraction rates declined from 1995 to the early 2000s, and were relatively stable between the early 2000s and 2013. Concentrations dropped somewhat in 2014 due to system modifications associated with ISTR preparation and implementation (including shutdown of multiple NTCRA 1 area extraction wells). Concentrations dropped further since 2015 due to reduced source contribution in the NTCRA 1 area due to ISTR implementation.

7.5 Contingency Measures

An evaluation of contingency measures will be performed if progress in meeting long-term groundwater restoration goals is inadequate, as determined by the USEPA. While the specific measures to be undertaken may depend on several factors (e.g., the nature, location, apparent source, or timeframe at which the inadequacy is identified), examples of possible contingency measures are provided in the MNA Plan. Any contingency measure considered will first be approved by USEPA, in consultation with CT DEEP, prior to implementation.

8 SUMMARY

The 2017 annual groundwater monitoring event was conducted in June 2017, and included the sampling of 37 monitoring wells for VOCs or TAL metals. Results from the annual event indicate that:

- VOCs above Action Levels (the more stringent of the USEPA Maximum Contaminant Levels [MCLs] or Connecticut Class GA Groundwater Protection Criteria [GWPC], i.e., drinking water standards) are contained within the estimated capture zone boundary of the hydraulic containment and treatment system (HCTS). None of the wells within the severed plume (i.e., wells with historical COC concentrations above Action Levels downgradient of the HCTS capture zone boundary) had COC concentrations above Action Levels during the 2014 through 2017 groundwater monitoring events.
- Tetrachloroethene (PCE) and trichloroethene (TCE) were detected at middle overburden monitoring well PZO-2M at concentrations of 4.13 micrograms per liter (ug/L) and 2.16 ug/L, respectively, in the June 2017 sample. Both concentrations are below the Action Level of 5 ug/L, and concentrations of both compounds continue to decline. PCE was first detected above the Action Level at this well in June 2013, while TCE was first detected above the Action Level in June 2012.
- PCE and TCE were detected at deep bedrock monitoring well MW-1003DR at concentrations of 2.67 ug/L and 30.4 ug/L, respectively, in the June 2017 sample. The PCE concentration dropped below the Action Level of 5.0 ug/L starting in June 2014, while the TCE concentration is above the Action Level of 5.0 ug/L (and has been since 2016). PCE and TCE were first detected above the Action Level at this well in June 2013. Concentrations of both compounds have continued to decline relative to the 2013 results.
- TCE was detected at monitoring well MW-1002R at a concentration (10.1 ug/L) above the Action Level of 5 ug/L. The only other detection of TCE above the Action Level at this well occurred in June 2015.
- As noted in the 2012 MNA Report, total VOC concentrations at shallow bedrock monitoring well P-11A increased notably between 2011 (583 ug/L) and 2012 (approximately 26,400 ug/L). This well is located within the bedrock NAPL zone initially delineated during the Remedial Investigation (RI; Blasland, Bouck & Lee, Inc. [BBL] June 1998), and more recently refined (based on additional data from the RD/RA activities) in the *Groundwater Conceptual Site Model Update* (Arcadis 2015). This well is also located within the HCTS capture zone. The total VOC concentration in June 2017 was significantly lower (4,573 ug/L) than in June 2012, though concentrations remain elevated above most pre-June 2012 values. VOC concentrations at this well will continue to be monitored as part of future sampling events.

This report also summarizes the post-thermal treatment monitoring events performed triennially starting in March 2015, in accordance with SOW Sections IV.B.5.d and e. Results indicate that total VOC concentrations have decreased by one to three orders of magnitude in six of the seven remaining “N” wells (relative to the initial comprehensive sampling event conducted in 2010). Significant rebound in total VOC concentrations was observed in MWL-304 relative to previous sampling events. Much of the rebound in total VOC concentrations at MWL-304 is due to an increase in cDCE and VC concentrations, demonstrating continued degradation of PCE and TCE is occurring in Site groundwater.

Results from Bio-Trap® sampling with QuantArray-Chlor analyses at three Non-Time-Critical Removal Action (NTCRA) 1 locations, ISTR-1, ISTR-5, and TW-08D, and QuantArray-Petro analyses at one NTCRA 1 location, ISTR-5, demonstrate increased diversity in the microbial population relative to pre-treatment conditions (Appendix D). These results indicate that anaerobic biodegradation processes dominate in the thermal treatment area, especially for chlorinated volatile organic compounds (CVOCs). However, results also indicate a strong potential for aerobic cometabolism of CVOCs and aerobic metabolism of petroleum hydrocarbons if oxidation-reduction conditions become more favorable for these processes in the future. In addition, a Bio-Trap® sampler was deployed at 1 monitoring well (CPA-7R) for analysis of 1,4-dioxane and tetrahydrofuran (THF) biodegradation potential. The assessment of 1,4-dioxane biodegradation potential at monitoring well CPZ-7R indicates the potential for multiple biodegradation mechanisms in this area of the site. Because groundwater conditions are generally reducing to strongly reducing, it is likely that aerobic biodegradation is limited. However, it is possible that even small amounts of dissolved oxygen stimulate processes that may include the metabolism and/or cometabolism of 1,4-dioxane.

Section 5 presents results of an evaluation of the effectiveness of MNA as a remedial measure for COCs in groundwater in the Site. As an extension of the prior evaluations (presented in the 2010 through 2015 MNA Reports), this evaluation considers groundwater monitoring results from the June 2016 annual groundwater monitoring event for VOCs and TAL metals at a subset of monitoring wells and presents: an evaluation of current concentration trends for total VOCs in groundwater at select monitoring locations; evaluation of post-thermal treatment data at the “N” wells; estimates of bulk attenuation rates for total VOCs in groundwater; and HCTS COC mass extraction rates with time.

Results of these evaluations demonstrated:

- Detected concentrations of VOCs above Action Levels are contained within the estimated capture zone boundary of the HCTS.
- Groundwater total VOC concentrations are generally declining or remaining stable with time throughout the Site groundwater COC plume.

- Estimated bulk VOC attenuation rates were comparable to attenuation rates for individual COCs presented in the FS (BBL and USEPA 2005).
- Compliance monitoring data from the HCTS indicate generally stable COC mass extraction rates from the early 2000s to 2013 with a decline in COC mass extraction rates observed starting in 2014.

These results support continued use of MNA as a remedy for COCs in Site groundwater.

9 REFERENCES

Arcadis. 2009. *Draft Remedial Design Work Plan*. Solvents Recovery Service of New England, Inc., Southington, Connecticut. April 2009.

Arcadis. 2010a. *Monitored Natural Attenuation Report*. Solvents Recovery Service of New England, Inc. Southington, Connecticut. September 2010.

Arcadis. 2010b. *Monitoring Well Network Evaluation and Groundwater Monitoring Program*. Solvents Recovery Service of New England, Inc. Southington, Connecticut. November 2010.

Arcadis. 2011a. *Summary of Initial (2010) Comprehensive Groundwater Sampling Event*. January 2011.

Arcadis. 2012b. *Quality Assurance Project Plan* (Rev. 2). Solvents Recovery Service of New England, Inc. Southington, Connecticut. August 2012.

Arcadis. 2014. *2014 Groundwater Sampling and Monitored Natural Attenuation Report*. September 2014.

Arcadis. 2015. *Groundwater Conceptual Site Model Update*. April 2015.

BBL. 1998. *Remedial Investigation Report*. Solvents Recovery Service of New England, Inc., Southington, Connecticut. June 1998.

BBL. 2005. *Interim Monitoring and Sampling Report No. 14*. June 2005.

BBL and USEPA. May 2005. Draft Feasibility Study, Solvents Recovery Service of New England, Inc., Southington, Connecticut.

USEPA. 1994. Guidance for the Data Quality Objectives Process. EPA/600/R-96/055 September 1994.

USEPA. 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water. EPA/600/R-98/128.

USEPA. 1999. Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites. USEPA OSWER Directive 9200.4-17P. April 1999.

USEPA. 2002. Calculation and Use of First-Order Rate Constants for Monitored Natural Attenuation Studies. EPA/540/S-02/500, National Risk Management Research Laboratory, Office of Research and Development, Cincinnati, OH. November 2002.

USEPA. 2004. Performance of Monitoring of MNA Remedies for VOCs in Ground Water. EPAl600R-041027, April 2004.

USEPA. 2005. EPA Superfund Record of Decision: Solvents Recovery Service Of New England, Southington, CT. EPA/ROD/R01-05/008, EPA ID: CTD009717604. September 2005.

USEPA. 2015. Five-Year Review Report for Solvents Recovery Service of New England, Inc. Superfund Site Hartford County, Connecticut. September 2015.

TABLES

Table 1 – VOCs – Annual Groundwater Sample Results – June 2017
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

Sample Location					CPZ-4A		CPZ-8R		MW-03		MW-1002DR		MW-1002R		MW-1003DR		MW-1003R		MW-121B		MW-121C		MW-121M	
Sample Date					6/7/2017		6/8/2017		6/8/2017		6/6/2017		6/6/2017		6/8/2017		6/6/2017		6/7/2017		6/8/2017		6/7/2017	
Field Sample ID					CPZ-4A-HS-06072017		CPZ-8R-HS-06082017		MW-03-06082017		MW-1002DR-HS-06062017		MW-1002R-06062017		MW-1003DR-HS-06082017		MW-1003R-06062017		MW-121B-HS-06072017		MW-121C-HS-06082017		MW-121M-HS-06072017	
Well Group					R		R		R		R		R		R		R		R		R		R	
HydroStratZone(s)					SOB, MOB		SBR		MOB		DBR		SBR		DBR		SBR		DOB		SBR		MOB	
Analyte **VOCs**	**CAS No.**	**Unit**	**Action Level**	**ICL**																				
1,1,1,2-Tetrachloroethane	630-20-6	ug/L	1	0.5	0.5	U	250	U	0.5	U	2.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	0.5	U	**7190**	--	0.5	U	2.5	U	0.5	U	**0.417**	J	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	0.75	U	375	U	0.75	U	3.75	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U
1,1-Dichloroethane	75-34-3	ug/L	70	0.5	**0.643**	J	**238**	J	0.75	U	**1.08**	J	0.75	U	**0.366**	J	0.75	U	0.75	U	**0.218**	J	0.75	U
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	0.5	U	**1630**	--	0.5	U	**5.76**	--	0.5	U	**0.169**	J	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	2	**0.385**	J	1250	U	2.5	U	12.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	2.5	U	1250	U	2.5	U	12.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,2-Dichloroethane	107-06-2	ug/L	1	0.5	0.5	U	250	U	0.5	U	2.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	2.5	U	1250	U	2.5	U	12.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
2-Butanone (MEK)	78-93-3	ug/L	400	5	5	UJ	2500	UJ	5	UJ	25	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ
2-Hexanone	591-78-6	ug/L	140	5	5	U	2500	U	5	U	25	U	5	UJ	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	350	5	5	UJ	**2310**	J	5	UJ	25	U	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ
Acetone	67-64-1	ug/L	700	5	**44.8**	J	2500	U	5	U	25	UJ	5	UJ	5	U	5	UJ	5	UJ	5	U	5	UJ
Benzene	71-43-2	ug/L	1	0.5	**2.3**	--	**353**	--	0.5	U	**0.94**	J	0.5	U	**0.78**	--	**0.442**	J	**7.12**	--	**2.99**	--	**0.677**	--
Bromomethane	74-83-9	ug/L	9.8	0.5	1	U	500	U	1	U	5	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon disulfide	75-15-0	ug/L	700	0.5	5	U	**262**	J	**0.351**	J	**11.9**	J	5	UJ	**2.6**	J	**3.16**	J	5	U	5	U	5	U
Carbon tetrachloride	56-23-5	ug/L	5	0.5	0.5	UJ	250	UJ	0.5	UJ	2.5	U	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ
Chlorobenzene	108-90-7	ug/L	100	0.5	**0.767**	--	250	U	0.5	U	2.5	U	0.5	U	0.5	U	0.5	U	**6.8**	--	**5.78**	--	**1**	--
Chloroethane	75-00-3	ug/L	12.1	0.5	**12.7**	--	500	U	1	U	5	U	1	U	**0.36**	J	1	U	**25.8**	--	**18.5**	--	**9.34**	--
Chloroform	67-66-3	ug/L	6	0.5	0.75	U	**82.5**	J	0.75	U	3.75	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U
Chloromethane	74-87-3	ug/L	2.7	0.5	2.5	U	1250	UJ	2.5	UJ	12.5	U	2.5	U	2.5	UJ	2.5	U	2.5	U	2.5	UJ	2.5	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	**10.6**	--	**84100**	--	0.5	U	**53.1**	--	0.5	U	**0.269**	J	**0.959**	--	0.5	U	0.5	U	0.5	U
Ethylbenzene	100-41-4	ug/L	700	0.5	**2.66**	--	**5450**	--	0.5	U	2.5	U	0.5	U	**0.511**	--	0.5	U	0.5	U	0.5	U	0.5	U
Hexachlorobutadiene	87-68-3	ug/L	0.45	0.45	0.6	U	300	U	0.6	U	3	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U
Methylene chloride	75-09-2	ug/L	5	0.5	5	U	**386**	J	5	U	25	U	5	U	5	U	5	U	5	U	5	U	5	U
Naphthalene	91-20-3	ug/L	280	0.5	**0.615**	J	**264**	J	2.5	U	12.5	U	2.5	U	**0.598**	J	2.5	U	2.5	U	2.5	U	2.5	U
Styrene	100-42-5	ug/L	100	0.5	1	U	**528**	--	1	U	5	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	0.5	U	**14600**	--	0.5	U	**32.3**	--	**0.289**	J	**2.67**	--	0.5	U	0.5	U	0.5	U	0.5	U
Tetrahydrofuran	109-99-9	ug/L	4.6	0.5	**18.6**	--	2500	U	5	U	25	U	5	UJ	5	U	5	U	**10.2**	--	5	U	**6.64**	--
Toluene	108-88-3	ug/L	1000	0.5	**0.231**	J	**33900**	--	**0.161**	J	3.75	U	**0.206**	J	**4.6**	--	**1.55**	--	0.75	U	0.75	U	0.75	U
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	0.75	U	375	U	0.75	U	3.75	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	0.5	0.5	0.5	U	250	U	0.5	U	2.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	79-01-6	ug/L	5	0.5	**0.348**	J	**72300**	--	0.5	U	**816**	--	**10.1**	--	**30.4**	--	**0.896**	--	0.5	U	0.5	U	0.5	U
Vinyl chloride	75-01-4	ug/L	2	0.5	**25.9**	--	**4710**	--	1	U	5	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylenes, Total	1330-20-7	ug/L	530	0.5	**3.95**	--	**13100**	--	1	U	5	U	1	U	**1.88**	J	**0.426**	J	**0.486**	J	1	U	1	U
Total Volatile Organics L-1 GW	TVO	ug/L	--	--	**124.499**	--	**241403.5**	--	**0.512**	--	**921.08**	--	**10.595**	--	**45.62**	--	**7.433**	--	**50.406**	--	**27.488**	--	**17.657**	--

Notes:

U = Analyte not detected above the laboratory reporting limit
J = Analyte result is estimated
ug/L = micrograms per liter
VOCs = volatile organic compounds
Action Level = the lower of the USEPA Maximum Contaminant Level (MCL) and the Connecticut Class GA Groundwater Protection Criteria (GWPC)
ICL = Interim Cleanup Level based on Table L-1 from Record of Decision Summary, September 2005
Bold = Analyte detected above the laboratory reporting limit
Shaded Cell = Analyte detected above the Action Level
SOB = Shallow Overburden
MOB = Middle Overburden
DOB = Deep Overburden
SBR = Shallow Bedrock
DBR = Deep Bedrock

Table 1 – VOCs – Annual Groundwater Sample Results – June 2017
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

				Sample Location	MW-124C		MW-127C		MW-502		MW-704D		MW-704DR		MW-704M		MW-705DR		MW-706DR		MW-707DR		MW-907D	
				Sample Date	6/6/2017		6/7/2017		6/7/2017		6/6/2017		6/6/2017		6/7/2017		6/8/2017		6/8/2017		6/8/2017		6/7/2017	
				Field Sample ID	MW-124C-HS-06062017		MW-127C-06072017		MW-502-HS-06072017		MW-704D-HS-06062017		MW-704DR-HS-06062017		MW-704M-06072017		MW-705DR-HS-06082017		MW-706DR-HS-06082017		MW-707DR-06082017		MW-907D-HS-06072017	
				Well Group	R		R		R		R		R		R		R		R		R		R	
				HydroStratZone(s)	SBR		SBR		DOB		DOB		DBR		MOB		DBR		DBR		DBR		DOB	
Analyte	**CAS No.**	**Unit**	**Action Level**	**ICL**																				
VOCs																								
1,1,1,2-Tetrachloroethane	630-20-6	ug/L	1	0.5	0.5	U	0.5	U	2.5	U	0.5	U	0.5	U	0.5	U	250	U	25	U	0.5	U	0.5	U
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	**2.5**	--	**1.17**	--	2.5	UJ	0.5	U	**0.605**	--	0.5	U	**18900**	--	**16.5**	J	0.5	U	0.5	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	0.75	U	0.75	U	3.75	U	0.75	U	0.75	U	0.75	U	375	U	37.5	U	0.75	U	0.75	U
1,1-Dichloroethane	75-34-3	ug/L	70	0.5	**1.78**	--	**4.93**	--	3.75	U	**1.74**	--	**2.14**	--	**0.325**	J	**174**	J	37.5	U	**0.616**	J	**0.52**	J
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	**4.62**	--	**2.21**	--	2.5	U	0.5	U	**0.891**	--	0.5	U	**3490**	--	**60.2**	--	0.5	U	0.5	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	2	2.5	U	2.5	U	12.5	U	2.5	U	2.5	U	2.5	U	1250	U	125	U	2.5	U	2.5	U
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	2.5	U	2.5	U	12.5	U	2.5	U	2.5	U	2.5	U	1250	U	125	U	2.5	U	**0.25**	J
1,2-Dichloroethane	107-06-2	ug/L	1	0.5	0.5	U	0.5	U	2.5	U	0.5	U	0.5	U	0.5	U	**501**	--	25	U	0.5	U	0.5	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	2.5	U	2.5	U	12.5	U	2.5	U	2.5	U	2.5	U	1250	U	125	U	2.5	U	**0.261**	J
2-Butanone (MEK)	78-93-3	ug/L	400	5	5	UJ	5	UJ	25	UJ	5	UJ	5	UJ	5	UJ	**23100**	J	250	UJ	5	UJ	5	UJ
2-Hexanone	591-78-6	ug/L	140	5	5	U	5	U	25	U	5	UJ	5	U	5	U	2500	U	250	U	5	U	5	U
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	350	5	5	U	5	UJ	25	UJ	5	UJ	5	U	5	UJ	**31500**	J	**186**	J	5	UJ	5	UJ
Acetone	67-64-1	ug/L	700	5	5	UJ	5	U	25	UJ	5	UJ	5	UJ	7.14	U	4330	U	250	U	5	U	5	UJ
Benzene	71-43-2	ug/L	1	0.5	0.5	U	0.5	U	**50.9**	--	0.5	U	**0.206**	J	**0.161**	J	**478**	--	25	U	0.5	U	**17.2**	--
Bromomethane	74-83-9	ug/L	9.8	0.5	1	U	1	U	5	U	1	U	1	U	1	U	500	U	50	U	1	U	1	U
Carbon disulfide	75-15-0	ug/L	700	0.5	5	UJ	5	U	25	U	5	UJ	5	UJ	**0.299**	J	**176**	J	**24.9**	J	**0.335**	J	**0.347**	J
Carbon tetrachloride	56-23-5	ug/L	5	0.5	0.5	U	0.5	UJ	2.5	UJ	0.5	U	0.5	U	0.5	UJ	250	UJ	25	UJ	0.5	UJ	0.5	UJ
Chlorobenzene	108-90-7	ug/L	100	0.5	0.5	U	0.5	U	**18.5**	--	**0.508**	--	**0.184**	J	**0.866**	--	250	U	25	U	0.5	U	**9.17**	--
Chloroethane	75-00-3	ug/L	12.1	0.5	1	U	1	U	**43.8**	--	1	U	**1.58**	--	**0.233**	J	500	U	50	U	1	U	**33.1**	--
Chloroform	67-66-3	ug/L	6	0.5	**0.217**	J	**0.172**	J	3.75	U	0.75	U	0.75	U	0.75	U	**364**	J	37.5	U	0.75	U	0.75	U
Chloromethane	74-87-3	ug/L	2.7	0.5	2.5	U	2.5	UJ	12.5	UJ	2.5	U	2.5	U	2.5	UJ	1250	UJ	125	UJ	2.5	UJ	2.5	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	**8.86**	--	**2.38**	--	**1.14**	J	**0.366**	J	**0.986**	--	0.5	U	**24700**	--	**681**	--	**0.264**	J	0.5	U
Ethylbenzene	100-41-4	ug/L	700	0.5	0.5	U	0.5	U	**53.4**	--	0.5	U	0.5	U	0.5	U	**3660**	--	25	U	0.5	U	0.5	U
Hexachlorobutadiene	87-68-3	ug/L	0.45	0.45	0.6	U	0.6	U	3	U	0.6	U	0.6	U	0.6	U	300	U	30	U	0.6	U	0.6	U
Methylene chloride	75-09-2	ug/L	5	0.5	5	U	5	U	25	U	5	U	5	U	5	U	**17900**	--	**91.4**	J	5	U	5	U
Naphthalene	91-20-3	ug/L	280	0.5	2.5	U	2.5	U	**3.29**	J	2.5	U	2.5	U	**0.514**	J	1250	U	125	U	2.5	U	**0.563**	J
Styrene	100-42-5	ug/L	100	0.5	1	U	1	U	5	U	1	U	1	U	1	U	**1130**	--	50	U	1	U	1	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	**0.513**	--	0.5	U	2.5	U	0.5	U	**1.4**	--	0.5	U	**29400**	--	**175**	--	0.5	U	0.5	U
Tetrahydrofuran	109-99-9	ug/L	4.6	0.5	5	U	5	U	**1660**	J	5	UJ	**1.34**	J	**2.85**	J	**498**	J	250	U	5	U	**84.8**	--
Toluene	108-88-3	ug/L	1000	0.5	0.75	U	**0.218**	J	**3.07**	J	0.75	U	0.75	U	**0.192**	J	**42100**	--	**168**	--	**0.214**	J	0.75	U
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	0.75	U	0.75	U	3.75	U	0.75	U	0.75	U	0.75	U	375	U	37.5	U	0.75	U	0.75	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	0.5	0.5	0.5	UJ	0.5	U	2.5	U	0.5	UJ	0.5	U	0.5	U	250	U	25	U	0.5	U	0.5	U
Trichloroethene	79-01-6	ug/L	5	0.5	**2.49**	--	**0.574**	--	2.5	U	**0.232**	J	**43.5**	--	0.5	U	**480000**	--	**4920**	--	0.5	U	0.5	U
Vinyl chloride	75-01-4	ug/L	2	0.5	1	U	1	U	5	U	**0.333**	J	**0.08**	J	1	U	**508**	--	**13.4**	J	1	U	1	U
Xylenes, Total	1330-20-7	ug/L	530	0.5	1	U	1	U	**167**	J	1	U	1	U	1	U	**8700**	--	50	U	1	U	**0.561**	J
Total Volatile Organics L-1 GW	TVO	ug/L	--	--	**20.98**	--	**11.654**	--	**2001.1**	--	**3.179**	--	**52.912**	--	**5.44**	--	**687279**	--	**6336.4**	--	**1.429**	--	**146.772**	--

Notes:

U = Analyte not detected above the laboratory reporting limit
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Action Level = the lower of the USEPA Maximum Contaminant Level (MCL) and the Connecticut Class GA Groundwater Protection Criteria (GWPC)
ICL = Interim Cleanup Level based on Table L-1 from Record of Decision Summary, September 2005
Bold = Analyte detected above the laboratory reporting limit
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SOB = Shallow Overburden
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Table 1 – VOCs – Annual Groundwater Sample Results – June 2017
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

				Sample Location	MW-907DR		MW-907M		MWL-309		MWL-309		P-101B		P-101B		P-101C		P-11A		P-13		PZO-2D	
				Sample Date	6/6/2017		6/6/2017		6/7/2017		6/7/2017		6/8/2017		6/8/2017		6/9/2017		6/7/2017		6/5/2017		6/7/2017	
				Field Sample ID	MW-907DR-HS-06062017		MW-907M-HS-06062017		DUP-06072017-2		MWL-309-HS-06072017		DUP-06082017-1		P-101B-HS-06082017		P-101C-06092017		P-11A-HS-06072017		P-13-06052017		PZO-2D-06072017	
				Well Group	R		R		R		R		R		R		R		R		R		R	
				HydroStratZone(s)	DBR		MOB		SOB		SOB		MOB		MOB		SOB		SBR		SOB		DOB	
Analyte	**CAS No.**	**Unit**	**Action Level**	**ICL**																				
VOCs																								
1,1,1,2-Tetrachloroethane	630-20-6	ug/L	1	0.5	10	U	10	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	UJ	10	U	0.5	U	0.5	U
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	**897**	--	10	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	**13.4**	--	**0.929**	--	0.5	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	**9.42**	J	15	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U	15	U	0.75	U	0.75	U
1,1-Dichloroethane	75-34-3	ug/L	70	0.5	**29.6**	--	15	U	**2.23**	--	**3.91**	--	**0.628**	J	**0.716**	J	**3.1**	--	**6.22**	J	**0.308**	J	0.75	U
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	**301**	--	10	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	**18.4**	--	0.5	U	0.5	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	2	50	U	50	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	50	U	2.5	U	2.5	U
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	50	U	50	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	50	U	2.5	U	2.5	U
1,2-Dichloroethane	107-06-2	ug/L	1	0.5	**15.3**	--	10	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	10	U	0.5	U	0.5	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	50	U	50	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	50	U	2.5	U	2.5	U
2-Butanone (MEK)	78-93-3	ug/L	400	5	100	UJ	100	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	100	UJ	5	UJ	5	UJ
2-Hexanone	591-78-6	ug/L	140	5	100	U	100	UJ	5	U	5	U	5	U	5	U	5	U	100	U	5	U	5	U
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	350	5	**275**	--	100	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	U	100	UJ	5	U	5	UJ
Acetone	67-64-1	ug/L	700	5	100	UJ	100	UJ	5	UJ	5	UJ	5	U	5	U	5	UJ	100	UJ	5	UJ	5	UJ
Benzene	71-43-2	ug/L	1	0.5	**37.5**	--	**49.1**	--	0.5	U	0.5	U	**3.58**	--	**3.77**	--	**1.15**	--	**21.4**	--	0.5	U	0.5	U
Bromomethane	74-83-9	ug/L	9.8	0.5	20	U	20	U	1	U	1	U	1	U	1	U	1	U	20	U	1	U	1	U
Carbon disulfide	75-15-0	ug/L	700	0.5	**95**	J	100	UJ	5	U	5	U	5	U	5	U	5	UJ	100	U	5	UJ	5	U
Carbon tetrachloride	56-23-5	ug/L	5	0.5	10	U	10	U	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	U	10	UJ	0.5	U	0.5	UJ
Chlorobenzene	108-90-7	ug/L	100	0.5	10	U	**22.9**	--	0.5	U	0.5	U	**1.59**	--	**1.26**	--	**0.597**	--	**3.58**	J	0.5	U	0.5	U
Chloroethane	75-00-3	ug/L	12.1	0.5	20	U	**89.4**	--	1	U	1	U	**4.83**	--	**4.77**	--	1	U	20	U	1	U	1	U
Chloroform	67-66-3	ug/L	6	0.5	**15.9**	--	15	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U	15	U	0.75	U	0.75	U
Chloromethane	74-87-3	ug/L	2.7	0.5	50	U	50	U	2.5	U	2.5	U	2.5	UJ	2.5	UJ	2.5	U	50	U	2.5	U	2.5	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	**1350**	--	10	U	0.5	U	0.5	U	0.5	U	0.5	U	**0.473**	J	**2670**	--	**0.559**	--	**0.256**	J
Ethylbenzene	100-41-4	ug/L	700	0.5	**500**	--	10	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	**295**	--	0.5	U	0.5	U
Hexachlorobutadiene	87-68-3	ug/L	0.45	0.45	12	U	12	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	12	U	0.6	U	0.6	U
Methylene chloride	75-09-2	ug/L	5	0.5	**109**	--	100	U	5	U	5	U	5	U	5	U	5	U	100	U	5	U	5	U
Naphthalene	91-20-3	ug/L	280	0.5	50	U	50	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	**12**	J	2.5	U	2.5	U
Styrene	100-42-5	ug/L	100	0.5	**134**	--	20	U	1	U	1	U	1	U	1	U	1	U	20	U	1	U	1	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	**6510**	--	10	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	**18.7**	--	**0.343**	J	0.5	U
Tetrahydrofuran	109-99-9	ug/L	4.6	0.5	100	U	**2430**	J	5	U	5	U	5	U	5	U	**1.93**	J	100	U	5	U	5	U
Toluene	108-88-3	ug/L	1000	0.5	**3790**	--	15	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U	**168**	--	0.75	U	0.75	U
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	15	U	15	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U	15	U	0.75	U	0.75	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	0.5	0.5	10	UJ	10	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	UJ	10	U	0.5	UJ	0.5	U
Trichloroethene	79-01-6	ug/L	5	0.5	**75000**	--	10	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	**30.6**	--	**0.238**	J	**0.921**	--
Vinyl chloride	75-01-4	ug/L	2	0.5	20	U	20	U	1	U	1	U	1	U	1	U	**3.3**	--	**1190**	--	1	U	1	U
Xylenes, Total	1330-20-7	ug/L	530	0.5	**1500**	--	20	U	1	U	1	U	**0.356**	J	1	U	1	U	**126**	--	1	U	1	U
Total Volatile Organics L-1 GW	TVO	ug/L	--	--	**90568.72**	--	**2591.4**	--	**2.23**	--	**3.91**	--	**10.984**	--	**10.516**	--	**10.55**	--	**4573.3**	--	**2.377**	--	**1.177**	--

Notes:
U = Analyte not detected above the laboratory reporting limit
J = Analyte result is estimated
ug/L = micrograms per liter
VOCs = volatile organic compounds
Action Level = the lower of the USEPA Maximum Contaminant Level (MCL) and the Connecticut Class GA Groundwater Protection Criteria (GWPC)
ICL = Interim Cleanup Level based on Table L-1 from Record of Decision Summary, September 2005
Bold = Analyte detected above the laboratory reporting limit
Shaded Cell = Analyte detected above the Action Level
SOB = Shallow Overburden
MOB = Middle Overburden
DOB = Deep Overburden
SBR = Shallow Bedrock
DBR = Deep Bedrock

Table 1 – VOCs – Annual Groundwater Sample Results – June 2017
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

				Sample Location	PZO-2M		PZR-2R	
				Sample Date	6/6/2017		6/7/2017	
				Field Sample ID	PZO-2M-HS-06062017		PZR-2R-06072017	
				Well Group	R		R	
				HydroStratZone(s)	MOB		SBR	
Analyte **VOCs**	**CAS No.**	**Unit**	**Action Level**	**ICL**				
1,1,1,2-Tetrachloroethane	630-20-6	ug/L	1	0.5	0.5	U	0.5	U
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	0.5	U	0.5	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	0.75	U	0.75	U
1,1-Dichloroethane	75-34-3	ug/L	70	0.5	0.75	U	0.75	U
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	0.5	U	0.5	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	2	2.5	U	2.5	U
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	2.5	U	2.5	U
1,2-Dichloroethane	107-06-2	ug/L	1	0.5	0.5	U	0.5	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	2.5	U	2.5	U
2-Butanone (MEK)	78-93-3	ug/L	400	5	5	UJ	5	UJ
2-Hexanone	591-78-6	ug/L	140	5	5	U	5	U
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	350	5	5	U	5	UJ
Acetone	67-64-1	ug/L	700	5	5	UJ	5	UJ
Benzene	71-43-2	ug/L	1	0.5	0.5	U	0.5	U
Bromomethane	74-83-9	ug/L	9.8	0.5	1	U	1	U
Carbon disulfide	75-15-0	ug/L	700	0.5	5	UJ	5	U
Carbon tetrachloride	56-23-5	ug/L	5	0.5	0.5	U	0.5	UJ
Chlorobenzene	108-90-7	ug/L	100	0.5	0.5	U	0.5	U
Chloroethane	75-00-3	ug/L	12.1	0.5	1	U	1	U
Chloroform	67-66-3	ug/L	6	0.5	0.75	U	0.75	U
Chloromethane	74-87-3	ug/L	2.7	0.5	2.5	U	2.5	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	0.5	U	0.5	U
Ethylbenzene	100-41-4	ug/L	700	0.5	0.5	U	0.5	U
Hexachlorobutadiene	87-68-3	ug/L	0.45	0.45	0.6	U	0.6	U
Methylene chloride	75-09-2	ug/L	5	0.5	5	U	5	U
Naphthalene	91-20-3	ug/L	280	0.5	2.5	U	2.5	U
Styrene	100-42-5	ug/L	100	0.5	1	U	1	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	**4.13**	--	0.5	U
Tetrahydrofuran	109-99-9	ug/L	4.6	0.5	5	U	5	U
Toluene	108-88-3	ug/L	1000	0.5	0.75	U	0.75	U
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	0.75	U	0.75	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	0.5	0.5	0.5	UJ	0.5	U
Trichloroethene	79-01-6	ug/L	5	0.5	**2.16**	--	0.5	U
Vinyl chloride	75-01-4	ug/L	2	0.5	1	U	1	U
Xylenes, Total	1330-20-7	ug/L	530	0.5	1	U	1	U
Total Volatile Organics L-1 GW	TVO	ug/L	--	--	**6.29**	--	0	U

Notes:

U = Analyte not detected above the laboratory reporting limit
J = Analyte result is estimated
ug/L = micrograms per liter
VOCs = volatile organic compounds
Action Level = the lower of the USEPA Maximum Contaminant Level (MCL) and the Connecticut Class GA Groundwater Protection Criteria (GWPC)
ICL = Interim Cleanup Level based on Table L-1 from Record of Decision Summary, September 2005
Bold = Analyte detected above the laboratory reporting limit
Shaded Cell = Analyte detected above the Action Level
SOB = Shallow Overburden
MOB = Middle Overburden
DOB = Deep Overburden
SBR = Shallow Bedrock
DBR = Deep Bedrock

Table 2 – Metals – Annual Groundwater Sample Results – June 2017
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

Sample Location				MW-126B		MW-126C		MW-209A		MW-209A		MW-209B		MW-701DR		MW-901R		P-12	
Sample Date				6/5/2017		6/5/2017		6/7/2017		6/7/2017		6/9/2017		6/6/2017		6/6/2017		6/5/2017	
Field Sample ID				MW-126B-06052017		MW-126C-06052017		DUP-06072017-1		MW-209A-06072017		MW-209B-06092017		MW-701DR-06062017		MW-901R-06062017		P-12-06052017	
Well Group				M		B		B		B		B		M		M		M	
HydroStratZone(s)				MOB		SBR		SBR		SBR		DOB		DBR		SBR		SOB	
Analyte	**CAS No.**	**Unit**	**Action Level**																
Metals (6020)																			
Aluminum (Dissolved)	7429-90-5	ug/L	--	**6.12**	J	**5.36**	J	10	U	**3.66**	J	**49.6**	--	**4.24**	J	**9.05**	J	**15.8**	--
Aluminum (Total)	7429-90-5	ug/L	--	**53.9**	--	**39.7**	--	**94.9**	--	**72.5**	--	**596**	--	**35.7**	--	**717**	--	**853**	--
Antimony (Dissolved)	7440-36-0	ug/L	--	4	U	4	U	4	U	4	U	4	U	4	U	4	U	4	U
Antimony (Total)	7440-36-0	ug/L	6	4	U	4	U	4	U	4	U	4	U	4	U	4	U	4	U
Arsenic (Dissolved)	7440-38-2	ug/L	--	0.5	U	**0.1918**	J	**0.2283**	J	**0.2998**	J	0.5	U	**0.978**	--	**0.2277**	J	0.5	U
Arsenic (Total)	7440-38-2	ug/L	10	**0.1774**	J	0.5	U	**0.2648**	J	**0.2523**	J	**0.1771**	J	**1.051**	--	**0.5524**	--	**0.3606**	J
Barium (Dissolved)	7440-39-3	ug/L	--	**872.8**	--	**677.5**	J	**291.9**	--	**294.8**	--	**188.7**	--	**103.4**	--	**317.5**	--	**329.7**	--
Barium (Total)	7440-39-3	ug/L	1000	**1000**	--	**601.9**	J	**280.4**	--	**282.4**	--	**215.9**	--	**105.9**	--	**343.9**	--	**339**	--
Beryllium (Dissolved)	7440-41-7	ug/L	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Beryllium (Total)	7440-41-7	ug/L	4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	**0.1355**	J	0.5	U
Cadmium (Dissolved)	7440-43-9	ug/L	--	**0.2977**	--	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Cadmium (Total)	7440-43-9	ug/L	5	**0.3056**	--	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Chromium (Dissolved)	7440-47-3	ug/L	--	**0.4268**	J	**0.3904**	J	**0.5246**	J	**0.6321**	J	**0.4938**	J	**0.8187**	J	**0.5674**	J	**0.2783**	J
Chromium (Total)	7440-47-3	ug/L	--	**1.258**	--	**0.4558**	J	**0.7006**	J	**0.6657**	J	**1.122**	--	**0.92**	J	**1.348**	--	**1.444**	--
Cobalt (Dissolved)	7440-48-4	ug/L	--	**0.1743**	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Cobalt (Total)	7440-48-4	ug/L	10	**0.2315**	J	0.5	U	0.5	U	0.5	U	**0.3758**	J	0.5	U	**0.3464**	J	**0.661**	--
Copper (Dissolved)	7440-50-8	ug/L	--	**4.082**	J	**2.145**	J	1	U	**0.4336**	J	**1.232**	--	**0.9637**	J	**0.6565**	J	**1.278**	--
Copper (Total)	7440-50-8	ug/L	1300	**1.268**	J	**0.4423**	J	**0.4408**	J	1	U	**1.662**	--	1	U	**1.25**	--	**1.467**	--
Iron (Dissolved)	7439-89-6	ug/L	--	50	U	50	U	50	U	50	U	**34.8**	J	50	U	50	U	50	U
Iron (Total)	7439-89-6	ug/L	--	**41.6**	J	**36.5**	J	**73.6**	--	**57**	--	**580**	--	**23.7**	J	**528**	--	**912**	--
Lead (Dissolved)	7439-92-1	ug/L	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Lead (Total)	7439-92-1	ug/L	15	1	U	1	U	1	U	1	U	**0.6549**	J	1	U	**0.7774**	J	**0.4339**	J
Manganese (Dissolved)	7439-96-5	ug/L	--	**2926**	--	**0.644**	J	1	U	**0.4581**	J	**10.14**	--	1	U	**4.182**	--	**1.825**	--
Manganese (Total)	7439-96-5	ug/L	500	**5793**	--	**22.29**	--	**3.879**	--	**3.421**	--	**23.64**	--	**1.595**	--	**28.66**	--	**26.47**	--
Nickel (Dissolved)	7440-02-0	ug/L	--	**17.96**	--	**0.6841**	J	2	U	2	U	2	U	2	U	2	U	**0.6741**	J
Nickel (Total)	7440-02-0	ug/L	100	**32.97**	--	2	U	2	U	2	U	**1.092**	J	2	U	**0.9474**	J	**1.853**	J
Silver (Dissolved)	7440-22-4	ug/L	--	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Silver (Total)	7440-22-4	ug/L	36	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Thallium (Dissolved)	7440-28-0	ug/L	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Thallium (Total)	7440-28-0	ug/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vanadium (Dissolved)	7440-62-2	ug/L	--	5	U	5	U	5	U	5	U	5	U	**7.865**	--	5	U	5	U
Vanadium (Total)	7440-62-2	ug/L	50	**1.622**	J	5	U	5	U	5	U	**1.801**	J	**8.394**	--	**2.837**	J	**3.466**	J
Zinc (Dissolved)	7440-66-6	ug/L	--	**8.548**	J	**4.181**	J	10	U	10	U	10	U	10	U	10	U	10	U
Zinc (Total)	7440-66-6	ug/L	5000	**9.012**	J	10	U	10	U	10	U	**4.487**	J	10	U	10	U	**4.93**	J

Notes:

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Action Level = the lower of the USEPA Maximum Contaminant Level (MCL)
and the Connecticut Class GA Groundwater Protection Criteria (GWPC)
Bold = Analyte detected above the laboratory reporting limit
Shaded Cell = Analyte detected above the Action Level
SOB = Shallow Overburden
MOB = Middle Overburden
DOB = Deep Overburden
SBR = Shallow Bedrock
DBR = Deep Bedrock

Table 3 - Post-ISTR Groundwater Monitoring Summary Data - VOCs
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

				Sample Location	MW-413		MW-413		MW-413		MW-413		MW-413		MW-413		MW-413		MW-413		MW-413	
				Sample Date	3/18/2015 0:00		3/18/2015 14:30		7/17/2015 11:10		10/23/2015 9:45		3/11/2016 11:50		7/19/2016 10:45		11/4/2016 10:15		3/13/2017 10:30		7/7/2017 10:05	
				Field Sample ID	DUPLICATE-GW-03182015		MW-413-HS-03182015		MW-413-HS-07172015		MW-413-HS-10232015		MW-413-HS-03112016		MW-413-HS-07192016		MW-413-HS-11042016		MW-413-HS-03132017		MW-413-HS-07072017	
				Well Group	N		N		N		N		N		N		N		N		N	
				HydroStratZone(s)	DOB		DOB		DOB		DOB		DOB		DOB		DOB		DOB		DOB	
Analyte	**CAS No.**	**Unit**	**Action Level**	**ICL**																		
VOCs																						
1,1,1,2-Tetrachloroethane	630-20-6	ug/L	1	0.5	50	U	20	U	10	U	25	U	50	U	50	U	25	U	5	U	2.5	U
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	50	U	20	U	10	UJ	25	U	50	U	50	U	25	U	5	U	2.5	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	75	U	30	U	15	U	37.5	U	75	U	75	U	37.5	U	7.5	U	3.75	U
1,1-Dichloroethane	75-34-3	ug/L	70	0.5	**23.7**	J	**20.9**	J	**11.8**	J	37.5	U	**45.4**	J	**23.5**	J	**13.1**	J	**24.8**	--	**1.42**	J
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	50	U	20	U	10	UJ	25	U	50	U	50	U	**14.7**	J	5	U	2.5	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	2	250	U	100	U	50	U	125	U	250	U	250	U	125	U	25	U	**1.18**	J
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	250	U	100	U	50	U	125	U	250	U	250	U	125	U	**2.5**	J	**2.3**	J
1,2-Dichloroethane	107-06-2	ug/L	1	0.5	50	U	20	U	10	U	25	U	50	U	50	U	25	U	5	U	2.5	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	250	U	100	U	50	U	125	U	250	U	250	U	125	U	**2.4**	J	**3.46**	J
2-Butanone (MEK)	78-93-3	ug/L	400	5	886	U	340	U	**1090**	J	**164**	J	500	U	500	U	250	U	50	U	25	U
2-Hexanone	591-78-6	ug/L	140	5	500	U	200	U	100	U	250	U	500	U	500	U	250	UJ	50	U	25	U
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	350	5	500	U	200	U	**128**	J	250	U	500	U	500	U	250	U	50	U	25	U
Acetone	67-64-1	ug/L	700	5	10000	UJ	4000	UJ	**2120**	J	**348**	J	500	U	500	U	250	U	50	U	10.5	UJ
Benzene	71-43-2	ug/L	1	0.5	**17.5**	J	**17.5**	J	10	U	**16.9**	J	**41.6**	J	**27.5**	J	**32.2**	--	**36.6**	--	**31.8**	--
Bromomethane	74-83-9	ug/L	9.8	0.5	100	U	40	U	20	UJ	50	U	100	U	100	U	50	U	10	U	5	U
Carbon disulfide	75-15-0	ug/L	700	0.5	500	U	200	U	100	U	250	U	500	U	500	U	250	U	50	U	25	U
Carbon tetrachloride	56-23-5	ug/L	5	0.5	50	U	20	U	10	U	25	U	50	U	50	U	25	U	5	U	2.5	U
Chlorobenzene	108-90-7	ug/L	100	0.5	**45.6**	J	**44.1**	--	**13.7**	--	25	U	50	U	50	U	25	U	5	U	2.5	U
Chloroethane	75-00-3	ug/L	12.1	0.5	**73.5**	J	**66.7**	--	**4.01**	J	**24.7**	J	100	U	100	U	50	U	10	U	**26**	--
Chloroform	67-66-3	ug/L	6	0.5	75	U	30	U	15	U	37.5	U	75	U	75	U	37.5	U	7.5	U	3.75	U
Chloromethane	74-87-3	ug/L	2.7	0.5	250	U	100	U	50	U	125	U	250	U	250	U	125	U	25	U	12.5	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	50	U	20	U	**69.2**	J	**14.9**	J	50	U	**64.3**	--	**1540**	--	**32.2**	--	**6.56**	--
Ethylbenzene	100-41-4	ug/L	700	0.5	**1210**	--	**1220**	--	**504**	J	**514**	--	**917**	--	**630**	--	**516**	--	**688**	--	**518**	--
Hexachlorobutadiene	87-68-3	ug/L	0.45	0.45	60	U	24	U	12	U	30	U	60	U	60	U	30	U	6	U	3	U
Methylene chloride	75-09-2	ug/L	5	0.5	500	U	200	U	100	U	250	UJ	500	U	500	U	250	U	50	U	25	U
Naphthalene	91-20-3	ug/L	280	0.5	250	U	100	U	50	U	**31.9**	J	250	U	250	U	**12.2**	J	10.2	U	**13.5**	--
Styrene	100-42-5	ug/L	100	0.5	100	U	40	U	20	U	50	U	100	U	100	U	50	U	10	U	5	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	50	U	20	U	10	UJ	25	U	50	U	50	U	25	U	5	U	2.5	U
Tetrahydrofuran	109-99-9	ug/L	4.6	0.5	**125**	J	**114**	J	**55.1**	J	**43**	J	500	U	**86.1**	J	**54.1**	J	**53.8**	--	**107**	--
Toluene	108-88-3	ug/L	1000	0.5	**3900**	--	**3870**	--	1330	UJ	**1800**	--	**4190**	--	**2360**	--	**1000**	--	**89.5**	--	**23.7**	--
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	75	U	30	U	**4.92**	J	**47.8**	--	75	U	75	U	**10**	J	7.5	U	3.75	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	0.5	0.5	50	U	20	U	10	U	25	U	50	U	50	U	25	U	5	U	2.5	U
Trichloroethene	79-01-6	ug/L	5	0.5	50	U	20	U	10	U	25	U	50	U	50	U	25	U	5	U	2.5	U
Vinyl chloride	75-01-4	ug/L	2	0.5	100	U	40	U	**49.7**	J	**8.13**	J	**36.3**	J	**33.5**	J	**4540**	--	**312**	--	**5.16**	--
Xylenes, Total	1330-20-7	ug/L	530	0.5	**2780**	--	**2870**	--	1100	UJ	**1020**	--	**1990**	--	**1520**	--	**713**	--	**55.7**	--	**885**	--
Halogenated VOCs Total	THVO	ug/L	--	--	**142.8**	--	**131.7**	--	**153.33**	--	**127.43**	--	**81.7**	--	**121.3**	--	**6130**	--	**373.9**	--	**59.58**	--
Non-Halogenated VOCs Total	TNHVO	ug/L	--	--	**7907.5**	--	**7977.5**	--	**3842**	--	**3862.9**	--	**7138.6**	--	**4537.5**	--	**2261.2**	--	**869.8**	--	**1458.5**	--
Total Volatile Organics L-1 GW	TVO	ug/L	--	--	**8175.3**	--	**8223.2**	--	**4050.43**	--	**4033.33**	--	**7220.3**	--	**4744.9**	--	**8445.3**	--	**1297.5**	--	**1625.08**	--

Notes:

U = Analyte not detected above the laboratory reporting limit
J = Analyte result is estimated
ug/L = micrograms per liter
VOCs = volatile organic compounds
Action Level = the lower of the USEPA Maximum Contaminant Level (MCL) and the Connecticut Class GA Groundwater Protection Criteria (GWPC)
ICL = Interim Cleanup Level based on Table L-1 from Record of Decision Summary, September 2005
Bold = Analyte detected above the laboratory reporting limit
Shaded Cell = Analyte detected above the Action Level
SOB = Shallow Overburden
MOB = Middle Overburden
DOB = Deep Overburden
TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 3 - Post-ISTR Groundwater Monitoring Summary Data - VOCs
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

				Sample Location	MW-415		MW-415		MW-415		MW-415		MW-415		MW-415		MW-415		MW-415	
				Sample Date	3/18/2015 14:45		7/17/2015 11:45		10/23/2015 9:00		3/11/2016 12:10		7/19/2016 11:15		11/4/2016 13:15		3/13/2017 11:15		7/7/2017 10:35	
				Field Sample ID	MW-415-HS-03182015		MW-415-HS-07172015		MW-415-HS-10232015		MW-415-HS-03112016		MW-415-HS-07192016		MW-415-HS-11042016		MW-415-HS-03132017		MW-415-HS-07072017	
				Well Group	N		N		N		N		N		N		N		N	
				HydroStratZone(s)	MOB		MOB		MOB		MOB		MOB		MOB		MOB		MOB	
Analyte	**CAS No.**	**Unit**	**Action Level**	**ICL**																
VOCs																				
1,1,1,2-Tetrachloroethane	630-20-6	ug/L	1	0.5	0.5	U	0.5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	0.5	U	**1.13**	J	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	0.75	U	0.75	U	7.5	U	7.5	U	0.75	U	0.75	U	0.75	U	0.75	U
1,1-Dichloroethane	75-34-3	ug/L	70	0.5	0.75	U	**4.78**	J	**14.4**	--	**9.08**	--	**14.7**	--	**5.05**	--	**3.87**	--	**1.33**	--
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	0.5	U	**0.864**	J	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	2	2.5	U	2.5	U	25	U	25	U	**0.54**	J	**1.06**	J	2.5	U	**0.383**	J
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	2.5	U	2.5	U	25	U	25	U	2.5	U	**0.318**	J	2.5	U	2.5	U
1,2-Dichloroethane	107-06-2	ug/L	1	0.5	0.5	U	0.5	U	5	U	5	U	0.5	U	**0.579**	--	0.5	U	0.5	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	2.5	U	2.5	U	25	U	25	U	2.5	U	**0.291**	J	2.5	U	2.5	U
2-Butanone (MEK)	78-93-3	ug/L	400	5	5	U	**44.3**	J	50	U	50	U	**2.9**	J	5	U	5	U	**3.02**	J
2-Hexanone	591-78-6	ug/L	140	5	5	U	5	U	50	U	50	U	5	U	5	UJ	5	U	5	U
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	350	5	5	U	**4.32**	J	50	U	50	U	5	U	5	U	**2.3**	J	5	U
Acetone	67-64-1	ug/L	700	5	100	UJ	**97.5**	J	**50.7**	J	**52.1**	--	8.67	U	5	U	7.85	U	5	UJ
Benzene	71-43-2	ug/L	1	0.5	0.5	U	0.5	U	**8.05**	--	**9.04**	--	**6.83**	--	**14.5**	--	**5.6**	--	**20.8**	--
Bromomethane	74-83-9	ug/L	9.8	0.5	1	U	1	UJ	10	U	10	U	1	UJ	1	U	1	U	1	U
Carbon disulfide	75-15-0	ug/L	700	0.5	**0.607**	J	5	U	**4.64**	J	50	U	5	U	5	U	5	U	5	U
Carbon tetrachloride	56-23-5	ug/L	5	0.5	0.5	U	0.5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	108-90-7	ug/L	100	0.5	0.5	U	0.5	U	5	U	5	U	0.5	U	**0.407**	J	0.5	U	0.5	U
Chloroethane	75-00-3	ug/L	12.1	0.5	1	U	**2.16**	--	**8.54**	J	10	U	**1.88**	--	**3.47**	--	**3.13**	--	**5.97**	--
Chloroform	67-66-3	ug/L	6	0.5	0.75	U	0.75	U	7.5	U	7.5	U	0.75	U	0.75	U	0.75	U	0.75	U
Chloromethane	74-87-3	ug/L	2.7	0.5	2.5	U	2.5	U	25	U	25	U	2.5	U	2.5	U	2.5	U	2.5	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	**0.586**	--	**57.1**	J	**2.24**	J	**5.61**	--	**9.79**	--	**7.18**	--	**0.774**	--	**1.28**	--
Ethylbenzene	100-41-4	ug/L	700	0.5	0.5	U	3.13	UJ	**59.4**	--	**74.6**	--	**17.5**	--	**153**	--	**4.47**	--	**15**	--
Hexachlorobutadiene	87-68-3	ug/L	0.45	0.45	0.6	U	0.6	U	6	U	6	U	0.6	U	0.6	U	**0.221**	J	0.6	U
Methylene chloride	75-09-2	ug/L	5	0.5	5	U	**0.766**	J	50	UJ	50	U	**0.476**	J	5	U	5	U	5	U
Naphthalene	91-20-3	ug/L	280	0.5	2.5	U	2.5	U	25	UJ	25	U	**1.91**	J	**3.2**	--	0.774	U	**3.08**	--
Styrene	100-42-5	ug/L	100	0.5	1	U	1	U	**3.82**	J	**7.56**	J	**1.11**	--	1	U	1	U	**1.24**	--
Tetrachloroethene	127-18-4	ug/L	5	0.5	0.5	U	0.5	UJ	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrahydrofuran	109-99-9	ug/L	4.6	0.5	5	U	**3.04**	J	**24.3**	J	**79.6**	--	**24.6**	--	**33.1**	--	**18**	--	**39.9**	--
Toluene	108-88-3	ug/L	1000	0.5	0.75	U	15.8	UJ	**379**	--	**590**	--	**52.3**	--	**8.49**	--	**0.274**	J	**17.7**	--
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	0.75	U	**1**	--	**134**	--	**172**	--	**5.6**	--	**1.79**	--	**1.91**	--	**1.21**	--
trans-1,3-Dichloropropene	10061-02-6	ug/L	0.5	0.5	0.5	U	0.5	U	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	79-01-6	ug/L	5	0.5	0.5	U	**0.674**	--	5	U	5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	75-01-4	ug/L	2	0.5	**0.203**	J	**11.8**	J	**55.5**	--	**1950**	--	**9.02**	--	**1.72**	--	**0.855**	J	**0.423**	J
Xylenes, Total	1330-20-7	ug/L	530	0.5	1	U	7	UJ	**49.9**	--	**141**	--	**29.4**	--	**91.1**	--	**2.75**	--	**11.1**	--
Halogenated VOCs Total	THVO	ug/L	--	--	**0.789**	--	**80.274**	--	**218.5**	--	**2144.25**	--	**45.026**	--	**25.065**	--	**10.76**	--	**14.916**	--
Non-Halogenated VOCs Total	TNHVO	ug/L	--	--	0	--	**146.12**	--	**547.05**	--	**866.74**	--	**108.93**	--	**267.09**	--	**15.394**	--	**67.62**	--
Total Volatile Organics L-1 GW	TVO	ug/L	--	--	**1.396**	--	**229.434**	--	**794.49**	--	**3090.59**	--	**187.226**	--	**325.255**	--	**44.154**	--	**122.436**	--

Notes:

U = Analyte not detected above the laboratory reporting limit

J = Analyte result is estimated

ug/L = micrograms per liter

VOCs = volatile organic compounds

Action Level = the lower of the USEPA Maximum Contaminant Level (MCL) and the Connecticut Class GA Groundwater Protection Criteria (GWPC)

ICL = Interim Cleanup Level based on Table L-1 from Record of Decision Summary, September 2005

Bold = Analyte detected above the laboratory reporting limit

Shaded Cell = Analyte detected above the Action Level

SOB = Shallow Overburden

MOB = Middle Overburden

DOB = Deep Overburden

TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 3 - Post-ISTR Groundwater Monitoring Summary Data - VOCs
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

Sample Location					MW-416		MW-416		MW-416		MW-416		MW-416		MW-416		MW-416		MW-416	
Sample Date					3/18/2015 15:12		7/17/2015 14:17		10/23/2015 10:40		3/11/2016 14:30		7/19/2016 8:50		11/4/2016 10:45		3/13/2017 12:00		7/7/2017 11:45	
Field Sample ID					MW-416-HS-03182015		MW-416-HS-07172015		MW-416-HS-10232015		MW-416-HS-03112016		MW-416-HS-07192016		MW-416-HS-11042016		MW-416-HS-03132017		MW-416-HS-07072017	
Well Group					N		N		N		N		N		N		N		N	
HydroStratZone(s)					SBR		SBR		SBR		SBR		SBR		SBR		SBR		SBR	
Analyte	**CAS No.**	**Unit**	**Action Level**	**ICL**																
VOCs																				
1,1,1,2-Tetrachloroethane	630-20-6	ug/L	1	0.5	2.5	U	1.25	U	2.5	U	5	U	0.5	U	10	U	1.25	U	1.25	U
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	**66.9**	--	**45.1**	J	**42**	--	5	U	0.5	U	**25.8**	--	**16.9**	--	**8.53**	--
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	3.75	U	**0.414**	J	3.75	U	7.5	U	0.75	U	15	U	1.88	U	1.88	U
1,1-Dichloroethane	75-34-3	ug/L	70	0.5	**18.5**	--	**14.6**	J	**15.4**	--	**16.6**	--	**10.8**	--	**14.6**	J	**11.5**	--	**6.16**	--
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	**38.7**	--	**30.7**	J	**34**	--	**42**	--	**32.3**	--	**43.6**	--	**34.3**	--	**19.8**	--
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	2	12.5	U	6.25	U	12.5	U	25	U	2.5	U	50	U	6.25	U	6.25	U
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	12.5	U	6.25	U	12.5	U	25	U	2.5	U	50	U	6.25	U	6.25	U
1,2-Dichloroethane	107-06-2	ug/L	1	0.5	2.5	U	1.25	U	2.5	U	5	U	0.5	U	10	U	1.25	U	1.25	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	12.5	U	6.25	U	12.5	U	25	U	2.5	U	50	U	6.25	U	6.25	U
2-Butanone (MEK)	78-93-3	ug/L	400	5	25	U	12.5	U	25	U	50	U	5	U	100	U	12.5	U	12.5	U
2-Hexanone	591-78-6	ug/L	140	5	25	U	12.5	U	25	U	50	U	5	U	100	UJ	12.5	U	12.5	U
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	350	5	25	U	12.5	U	25	U	50	U	5	U	100	U	12.5	U	12.5	U
Acetone	67-64-1	ug/L	700	5	500	UJ	12.5	U	25	UJ	50	U	10	U	100	U	12.5	U	12.5	UJ
Benzene	71-43-2	ug/L	1	0.5	2.5	U	1.25	U	2.5	U	5	U	**0.373**	J	10	U	1.25	U	1.25	U
Bromomethane	74-83-9	ug/L	9.8	0.5	5	U	2.5	UJ	5	U	10	U	1	U	20	U	2.5	U	2.5	U
Carbon disulfide	75-15-0	ug/L	700	0.5	25	U	12.5	U	**1.87**	J	50	U	5	U	100	U	12.5	U	12.5	U
Carbon tetrachloride	56-23-5	ug/L	5	0.5	2.5	U	1.25	U	2.5	U	5	U	0.5	U	10	U	1.25	U	1.25	U
Chlorobenzene	108-90-7	ug/L	100	0.5	2.5	U	1.25	U	2.5	U	5	U	0.5	U	10	U	1.25	U	1.25	U
Chloroethane	75-00-3	ug/L	12.1	0.5	**1.32**	J	2.5	U	5	U	10	U	1	U	20	U	2.5	U	2.5	U
Chloroform	67-66-3	ug/L	6	0.5	3.75	U	1.88	U	3.75	U	7.5	U	**0.319**	J	15	U	1.88	U	1.88	U
Chloromethane	74-87-3	ug/L	2.7	0.5	12.5	U	6.25	U	12.5	U	25	U	2.5	U	50	U	6.25	U	6.25	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	**361**	--	**320**	J	**373**	--	**537**	--	**396**	--	**522**	--	**265**	--	**188**	--
Ethylbenzene	100-41-4	ug/L	700	0.5	2.5	U	1.25	UJ	2.5	U	5	U	0.5	U	**14.6**	--	1.25	U	**0.492**	J
Hexachlorobutadiene	87-68-3	ug/L	0.45	0.45	3	U	1.5	U	3	U	6	U	0.6	U	12	U	1.5	U	1.5	U
Methylene chloride	75-09-2	ug/L	5	0.5	25	U	12.5	U	25	UJ	50	U	5	U	100	U	12.5	U	12.5	U
Naphthalene	91-20-3	ug/L	280	0.5	12.5	U	6.25	U	12.5	UJ	25	U	2.5	U	50	U	0.948	U	6.25	U
Styrene	100-42-5	ug/L	100	0.5	5	U	2.5	U	5	U	10	U	1	U	20	U	2.5	U	2.5	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	**12.6**	--	**9.92**	J	**10.8**	--	**13.7**	--	**10.8**	--	**13.3**	--	**10.3**	--	**6.15**	--
Tetrahydrofuran	109-99-9	ug/L	4.6	0.5	25	U	**7.52**	J	**7.5**	J	50	U	**6.19**	J	100	U	**6.3**	J	**3.54**	J
Toluene	108-88-3	ug/L	1000	0.5	3.75	U	1.88	UJ	3.75	U	7.5	U	0.75	U	15	U	1.88	U	1.88	U
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	3.75	U	**0.734**	J	3.75	U	7.5	U	0.75	U	15	U	**0.57**	J	1.88	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	0.5	0.5	2.5	U	1.25	U	2.5	U	5	U	0.5	U	10	U	1.25	U	1.25	U
Trichloroethene	79-01-6	ug/L	5	0.5	**244**	--	**199**	--	**212**	--	**241**	--	**178**	--	**213**	--	**151**	--	**67.2**	--
Vinyl chloride	75-01-4	ug/L	2	0.5	**3.15**	J	**4**	J	**10.7**	--	**20.1**	--	**18**	--	**16.2**	J	**12.7**	--	**3.91**	--
Xylenes, Total	1330-20-7	ug/L	530	0.5	5	U	2.5	UJ	5	U	10	U	1	U	20	U	2.5	U	2.5	U
Halogenated VOCs Total	THVO	ug/L	--	--	**746.17**	--	**624.468**	--	**697.9**	--	**870.4**	--	**646.219**	--	**848.5**	--	**502.27**	--	**299.75**	--
Non-Halogenated VOCs Total	TNHVO	ug/L	--	--	0	--	0	--	0	--	0	--	**0.373**	--	**14.6**	--	0	--	**0.492**	--
Total Volatile Organics L-1 GW	TVO	ug/L	--	--	**746.17**	--	**631.988**	--	**707.27**	--	**870.4**	--	**652.782**	--	**863.1**	--	**508.57**	--	**303.782**	--

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TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 3 - Post-ISTR Groundwater Monitoring Summary Data - VOCs
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

Sample Location					MW-902D		MW-902D		MW-902D		MW-902D		MW-902D		MW-902D		MW-902D		MW-902D	
Sample Date					3/18/2015 15:43		7/17/2015 13:40		10/23/2015 10:15		3/11/2016 13:45		7/19/2016 12:45		11/4/2016 11:45		3/13/2017 14:30		7/7/2017 12:45	
Field Sample ID					MW-902D-HS-03182015		MW-902D-HS-07172015		MW-902D-HS-10232015		MW-902D-HS-03112016		MW-902D-HS-07192016		MW-902D-HS-11042016		MW-902D-HS-03132017		MW-902D-HS-07072017	
Well Group					N		N		N		N		N		N		N		N	
HydroStratZone(s)					DOB		DOB		DOB		DOB		DOB		DOB		DOB		DOB	
Analyte	**CAS No.**	**Unit**	**Action Level**	**ICL**																
VOCs																				
1,1,1,2-Tetrachloroethane	630-20-6	ug/L	1	0.5	10	U	10	U	50	U	12.5	U	25	U	12.5	U	2.5	U	1	U
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	10	U	10	UJ	50	U	12.5	U	25	U	12.5	U	2.5	U	1	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	15	U	15	U	75	U	18.8	U	37.5	U	18.8	U	3.75	U	1.5	U
1,1-Dichloroethane	75-34-3	ug/L	70	0.5	**81.2**	--	**64.2**	J	**27.8**	J	18.8	U	37.5	U	**7.72**	J	**4**	--	**0.75**	J
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	10	U	10	UJ	50	U	12.5	U	25	U	12.5	U	2.5	U	1	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	2	50	U	50	U	250	U	62.5	U	125	U	62.5	U	**1.7**	J	5	U
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	50	U	50	U	250	U	62.5	U	125	U	62.5	U	**1.66**	J	**0.746**	J
1,2-Dichloroethane	107-06-2	ug/L	1	0.5	10	U	10	U	50	U	12.5	U	25	U	12.5	U	2.5	U	1	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	50	U	50	U	250	U	62.5	U	125	U	**7.4**	J	**5.04**	J	**2.76**	J
2-Butanone (MEK)	78-93-3	ug/L	400	5	205	U	**47.8**	J	**1090**	--	**162**	--	**111**	J	125	U	25	U	**6.05**	J
2-Hexanone	591-78-6	ug/L	140	5	100	U	100	U	500	U	125	U	250	U	125	UJ	25	U	10	U
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	350	5	100	U	100	U	500	U	125	U	250	U	**17.6**	J	25	U	10	U
Acetone	67-64-1	ug/L	700	5	20000	UJ	200	UJ	**1720**	J	**189**	--	250	U	125	U	25	U	8.48	UJ
Benzene	71-43-2	ug/L	1	0.5	**9.3**	J	10	U	**21**	J	**31.1**	--	**29.3**	--	**31.8**	--	**26.4**	--	**11.7**	--
Bromomethane	74-83-9	ug/L	9.8	0.5	20	U	20	UJ	100	U	25	U	50	UJ	25	U	5	U	2	U
Carbon disulfide	75-15-0	ug/L	700	0.5	**89.9**	J	**227**	--	**99.6**	J	125	U	250	U	125	U	25	U	10	U
Carbon tetrachloride	56-23-5	ug/L	5	0.5	10	U	10	U	50	U	12.5	U	25	U	12.5	U	2.5	U	1	U
Chlorobenzene	108-90-7	ug/L	100	0.5	10	U	**5.9**	J	**22**	J	12.5	U	25	U	12.5	U	**0.99**	J	**0.508**	J
Chloroethane	75-00-3	ug/L	12.1	0.5	**172**	--	**35.4**	--	**537**	--	**63.2**	--	**24.1**	J	**18.7**	J	**13.1**	--	**12.5**	--
Chloroform	67-66-3	ug/L	6	0.5	15	U	15	U	75	U	18.8	U	37.5	U	18.8	U	3.75	U	1.5	U
Chloromethane	74-87-3	ug/L	2.7	0.5	50	U	50	U	250	U	62.5	U	125	U	62.5	U	12.5	U	5	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	**263**	--	10	UJ	50	U	12.5	U	**12.4**	J	12.5	U	**0.955**	J	1	U
Ethylbenzene	100-41-4	ug/L	700	0.5	**878**	--	**367**	J	**1570**	--	**691**	--	**446**	--	**437**	--	**410**	--	**126**	--
Hexachlorobutadiene	87-68-3	ug/L	0.45	0.45	12	U	12	U	60	U	15	U	30	U	15	U	3	U	1.2	U
Methylene chloride	75-09-2	ug/L	5	0.5	**6.52**	J	100	U	500	UJ	125	U	**17.1**	J	125	U	25	U	10	U
Naphthalene	91-20-3	ug/L	280	0.5	**8.71**	J	50	U	250	UJ	**23.2**	J	125	U	**16.9**	J	**11**	J	**8.07**	--
Styrene	100-42-5	ug/L	100	0.5	20	U	20	U	100	U	**18.2**	J	50	U	25	U	5	U	2	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	**7.85**	J	10	UJ	50	U	12.5	U	25	U	12.5	U	2.5	U	1	U
Tetrahydrofuran	109-99-9	ug/L	4.6	0.5	**87.7**	J	**77**	J	**179**	J	**85.8**	J	250	U	**126**	--	**37.3**	--	**40.3**	--
Toluene	108-88-3	ug/L	1000	0.5	**1990**	--	1510	UJ	**5790**	--	**2870**	--	**1560**	--	**1820**	--	**416**	--	**59.2**	--
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	**8.54**	J	**5.11**	J	**16.7**	J	**62.4**	--	**18.1**	J	**5.08**	J	**2.55**	J	**3.41**	--
trans-1,3-Dichloropropene	10061-02-6	ug/L	0.5	0.5	10	U	10	U	50	U	12.5	U	25	U	12.5	U	2.5	U	1	U
Trichloroethene	79-01-6	ug/L	5	0.5	10	U	10	U	50	U	12.5	U	25	U	12.5	U	2.5	U	1	U
Vinyl chloride	75-01-4	ug/L	2	0.5	**592**	--	20	UJ	100	U	25	U	50	U	**8.88**	J	5	U	**0.32**	J
Xylenes, Total	1330-20-7	ug/L	530	0.5	**1500**	--	710	UJ	**2520**	--	**1180**	--	**864**	--	**837**	--	**560**	--	**173**	--
Halogenated VOCs Total	THVO	ug/L	--	--	**1139.82**	--	**110.61**	--	**603.5**	--	**167**	--	**71.7**	--	**64.68**	--	**40.995**	--	**29.064**	--
Non-Halogenated VOCs Total	TNHVO	ug/L	--	--	**4377.3**	--	**414.8**	--	**12711**	--	**5123.1**	--	**3010.3**	--	**3143.4**	--	**1412.4**	--	**375.95**	--
Total Volatile Organics L-1 GW	TVO	ug/L	--	--	**5694.72**	--	**829.41**	--	**13593.1**	--	**5375.9**	--	**3082**	--	**3334.08**	--	**1490.695**	--	**445.314**	--

Notes:

U = Analyte not detected above the laboratory reporting limit

J = Analyte result is estimated

ug/L = micrograms per liter

VOCs = volatile organic compounds

Action Level = the lower of the USEPA Maximum Contaminant Level (MCL) and the Connecticut Class GA Groundwater Protection Criteria (GWPC)

ICL = Interim Cleanup Level based on Table L-1 from Record of Decision Summary, September 2005

Bold = Analyte detected above the laboratory reporting limit

Shaded Cell = Analyte detected above the Action Level

SOB = Shallow Overburden

MOB = Middle Overburden

DOB = Deep Overburden

TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 3 - Post-ISTR Groundwater Monitoring Summary Data - VOCs

Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site

Southington, Connecticut

Sample Location					MW-902M		MW-902M		MW-902M		MW-902M		MW-902M		MW-902M		MW-902M		MW-902M	
Sample Date					3/18/2015 16:03		7/17/2015 12:20		10/23/2015 10:00		3/11/2016 14:00		7/19/2016 11:45		11/4/2016 12:30		3/13/2017 13:45		7/7/2017 13:20	
Field Sample ID					MW-902M-HS-03182015		MW-902M-HS-07172015		MW-902M-HS-10232015		MW-902M-HS-03112016		MW-902M-HS-07192016		MW-902M-HS-11042016		MW-902M-HS-03132017		MW-902M-HS-07072017	
Well Group					N		N		N		N		N		N		N		N	
HydroStratZone(s)					MOB		MOB		MOB		MOB		MOB		MOB		MOB		MOB	
Analyte	**CAS No.**	**Unit**	**Action Level**	**ICL**																
VOCs																				
1,1,1,2-Tetrachloroethane	630-20-6	ug/L	1	0.5	50	U	20	U	25	U	2.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	50	U	20	UJ	25	U	2.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	75	U	30	U	37.5	U	3.75	U	0.75	U	0.75	U	0.75	U	0.75	U
1,1-Dichloroethane	75-34-3	ug/L	70	0.5	**21.2**	J	**26.1**	J	**12.9**	J	3.75	U	**1.6**	--	**1.79**	--	**0.273**	J	**0.269**	J
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	50	U	20	UJ	25	U	2.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	2	250	U	100	U	125	U	12.5	U	**0.436**	J	**0.403**	J	**0.435**	J	2.5	U
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	250	U	100	U	125	U	12.5	U	**0.557**	J	**0.51**	J	**1.05**	J	**0.574**	J
1,2-Dichloroethane	107-06-2	ug/L	1	0.5	50	U	20	U	25	U	2.5	U	0.5	U	**0.328**	J	0.5	U	0.5	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	250	U	100	U	125	U	12.5	U	**0.228**	J	**0.203**	J	**0.523**	J	2.5	U
2-Butanone (MEK)	78-93-3	ug/L	400	5	504	U	200	U	250	U	25	U	5	U	5	U	5	U	5	U
2-Hexanone	591-78-6	ug/L	140	5	500	U	200	U	250	U	25	U	5	U	5	UJ	5	U	5	U
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	350	5	500	U	200	U	250	U	25	U	5	U	5	U	5	U	5	U
Acetone	67-64-1	ug/L	700	5	10000	UJ	200	U	**74**	J	25	U	5	U	5	U	1.68	U	3.77	UJ
Benzene	71-43-2	ug/L	1	0.5	**23.4**	J	20	U	**15.6**	J	**9.99**	--	**4.25**	--	**6.18**	--	**7.84**	--	**3.03**	--
Bromomethane	74-83-9	ug/L	9.8	0.5	100	U	40	UJ	50	U	5	U	1	UJ	1	U	**0.291**	J	1	U
Carbon disulfide	75-15-0	ug/L	700	0.5	500	U	200	U	250	U	25	U	5	U	5	U	5	U	5	U
Carbon tetrachloride	56-23-5	ug/L	5	0.5	50	U	20	U	25	U	2.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	108-90-7	ug/L	100	0.5	50	U	20	U	25	U	2.5	U	**1.24**	--	**1.62**	--	**1.78**	--	**0.797**	--
Chloroethane	75-00-3	ug/L	12.1	0.5	**1920**	--	**1970**	--	**1640**	--	**601**	--	**86.2**	--	**156**	--	**124**	--	**36.9**	--
Chloroform	67-66-3	ug/L	6	0.5	75	U	30	U	37.5	U	3.75	U	0.75	U	0.75	U	0.75	U	0.75	U
Chloromethane	74-87-3	ug/L	2.7	0.5	250	U	100	U	125	U	12.5	U	2.5	U	2.5	U	2.5	U	2.5	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	50	U	**15.2**	J	25	U	2.5	U	**2.07**	--	**0.766**	--	0.5	U	**0.703**	--
Ethylbenzene	100-41-4	ug/L	700	0.5	**2650**	--	**1620**	J	**942**	--	**504**	--	**49.1**	--	**10.2**	--	**9.7**	--	**1.49**	--
Hexachlorobutadiene	87-68-3	ug/L	0.45	0.45	60	U	24	U	30	U	3	U	0.6	U	0.6	U	0.6	U	0.6	U
Methylene chloride	75-09-2	ug/L	5	0.5	**38**	J	**41.6**	J	250	UJ	**7.41**	J	**0.895**	J	**1.96**	J	**1.61**	J	**0.752**	J
Naphthalene	91-20-3	ug/L	280	0.5	**26.1**	J	100	U	125	UJ	**8.23**	J	**3.75**	--	**2.9**	--	**4.23**	--	**1.64**	J
Styrene	100-42-5	ug/L	100	0.5	100	U	40	U	50	U	5	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	50	U	20	UJ	25	U	2.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrahydrofuran	109-99-9	ug/L	4.6	0.5	**139**	J	**133**	J	**109**	J	**48.6**	--	**21.5**	--	**28.5**	--	**38**	--	**13.8**	--
Toluene	108-88-3	ug/L	1000	0.5	**6060**	--	3890	UJ	**2810**	--	**29.3**	--	**13.8**	--	**3.53**	--	**2.13**	--	**4.98**	--
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	75	U	30	U	37.5	U	**5.77**	--	**2.27**	--	**3.58**	--	**2.25**	--	**0.447**	J
trans-1,3-Dichloropropene	10061-02-6	ug/L	0.5	0.5	50	U	20	U	25	U	2.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	79-01-6	ug/L	5	0.5	50	U	20	U	25	U	2.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	75-01-4	ug/L	2	0.5	100	U	**22.9**	J	**17**	J	5	U	**3.51**	--	**0.643**	J	1	U	**0.962**	J
Xylenes, Total	1330-20-7	ug/L	530	0.5	**1250**	--	1030	UJ	**696**	--	**494**	--	**76.9**	--	**33.7**	--	**68.4**	--	**22.1**	J
Halogenated VOCs Total	THVO	ug/L	--	--	**2005.3**	--	**2075.8**	--	**1669.9**	--	**622.41**	--	**102.756**	--	**170.703**	--	**136.442**	--	**43.044**	--
Non-Halogenated VOCs Total	TNHVO	ug/L	--	--	**9983.4**	--	**1620**	--	**4537.6**	--	**1037.29**	--	**144.05**	--	**53.61**	--	**88.07**	--	**31.6**	--
Total Volatile Organics L-1 GW	TVO	ug/L	--	--	**12127.7**	--	**3828.8**	--	**6316.5**	--	**1708.3**	--	**268.306**	--	**252.813**	--	**262.512**	--	**88.444**	--

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Table 3 - Post-ISTR Groundwater Monitoring Summary Data - VOCs
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

				Sample Location	MWL-304		MWL-304		MWL-304		MWL-304		MWL-304		MWL-304		MWL-304		MWL-304		MWL-304	
				Sample Date	3/18/2015 12:27		7/17/2015 8:50		10/22/2015 14:45		3/11/2016 12:20		7/19/2016 9:15		11/4/2016 8:35		3/13/2017 9:00		7/7/2017 0:00		7/7/2017 9:35	
				Field Sample ID	MWL-304-HS-03182015		MWL-304-HS-07172015		MWL-304-HS-10222015		MWL-304-HS-03112016		MWL-304-HS-07192016		MWL-304-HS-11042016		MWL-304-HS-03132017		DUP-07072017-1		MWL-304-HS-07072017	
				Well Group	N		N		N		N		N		N		N		N		N	
				HydroStratZone(s)	SOB		SOB		SOB		SOB		SOB		SOB		SOB		SOB		SOB	
Analyte **VOCs**	**CAS No.**	**Unit**	**Action Level**	**ICL**																		
1,1,1,2-Tetrachloroethane	630-20-6	ug/L	1	0.5	0.5	U	1.25	U	5	U	1	U	0.5	U	0.5	U	1	U	50	U	50	U
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	0.5	U	**7.35**	J	5	U	1	U	0.5	U	0.5	U	1	U	50	U	50	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	0.75	U	1.88	U	7.5	U	1.5	U	**0.842**	--	0.75	U	1.5	U	75	U	75	U
1,1-Dichloroethane	75-34-3	ug/L	70	0.5	**13.3**	--	**88.5**	J	**31.5**	--	**13.6**	--	**10.7**	--	**4.33**	--	**7.14**	--	**71**	J	**68.8**	J
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	**1.29**	--	1.25	UJ	5	UJ	1	U	**1.61**	--	0.5	U	1	U	**112**	--	**114**	--
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	2	2.5	U	6.25	U	25	U	**1.02**	J	**0.705**	J	**0.76**	J	**1.02**	J	250	U	250	U
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	2.5	U	**1.18**	J	**2.6**	J	**2.16**	J	**1.04**	J	**1.16**	J	**1.57**	J	250	U	250	U
1,2-Dichloroethane	107-06-2	ug/L	1	0.5	0.5	U	1.25	U	5	U	1	U	0.5	U	**1.39**	--	**1.2**	--	50	U	50	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	2.5	U	6.25	U	25	U	**0.861**	J	**0.504**	J	**0.441**	J	**0.62**	J	250	U	250	U
2-Butanone (MEK)	78-93-3	ug/L	400	5	5	U	12.5	U	50	U	10	U	5	U	5	U	10	U	500	U	500	U
2-Hexanone	591-78-6	ug/L	140	5	5	U	12.5	U	50	U	10	U	5	U	5	UJ	10	U	500	U	500	U
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	350	5	5	U	12.5	U	50	U	10	U	5	U	5	U	10	U	500	U	500	U
Acetone	67-64-1	ug/L	700	5	100	UJ	16.2	UJ	**21.4**	J	**4.45**	J	7	U	5	U	10	U	500	UJ	500	UJ
Benzene	71-43-2	ug/L	1	0.5	**3.31**	--	26.2	U	**35.5**	--	**43.7**	--	**17.7**	--	**25.9**	--	**17**	--	**22.2**	J	**21.5**	J
Bromomethane	74-83-9	ug/L	9.8	0.5	1	U	2.5	UJ	10	UJ	2	U	1	U	1	U	2	U	100	U	100	U
Carbon disulfide	75-15-0	ug/L	700	0.5	5	U	**4.11**	J	50	UJ	10	U	5	U	5	U	10	U	500	U	500	U
Carbon tetrachloride	56-23-5	ug/L	5	0.5	0.5	U	1.25	U	5	U	1	U	0.5	U	0.5	U	1	U	50	U	50	U
Chlorobenzene	108-90-7	ug/L	100	0.5	0.5	U	1.25	U	**2.81**	J	1	U	0.5	U	**1.2**	--	**0.86**	J	50	U	50	U
Chloroethane	75-00-3	ug/L	12.1	0.5	1	U	2.5	U	**27.2**	--	**33.4**	--	1	U	**12.6**	--	**18**	--	100	U	100	U
Chloroform	67-66-3	ug/L	6	0.5	0.75	U	1.88	U	7.5	U	1.5	U	0.75	U	0.75	U	1.5	U	75	U	75	U
Chloromethane	74-87-3	ug/L	2.7	0.5	2.5	U	6.25	U	25	U	5	U	2.5	U	2.5	U	5	U	250	U	250	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	**209**	--	**22**	J	**2.48**	J	1	U	**389**	--	**0.473**	J	1	U	**8400**	--	**8320**	--
Ethylbenzene	100-41-4	ug/L	700	0.5	**0.323**	J	**161**	J	**217**	--	**352**	--	**124**	--	**82.7**	--	**148**	--	**786**	--	**827**	--
Hexachlorobutadiene	87-68-3	ug/L	0.45	0.45	0.6	U	1.5	U	6	U	1.2	U	0.6	U	0.6	U	1.2	U	60	U	60	U
Methylene chloride	75-09-2	ug/L	5	0.5	5	U	12.5	U	50	U	10	U	**0.307**	J	5	U	10	U	500	U	500	U
Naphthalene	91-20-3	ug/L	280	0.5	2.5	U	6.25	U	25	U	**2.73**	J	**2.67**	--	**2.2**	J	**4.06**	J	250	U	250	U
Styrene	100-42-5	ug/L	100	0.5	1	U	2.5	U	10	U	2	U	1	U	1	U	2	U	100	U	100	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	**0.412**	J	1.25	UJ	5	U	1	U	0.5	U	0.5	U	1	U	50	U	50	U
Tetrahydrofuran	109-99-9	ug/L	4.6	0.5	**3.65**	J	**12.8**	--	**9.87**	J	**12.3**	--	**10.7**	--	**8.46**	--	**11.3**	--	500	U	500	U
Toluene	108-88-3	ug/L	1000	0.5	**6.1**	--	**333**	J	**800**	--	**95.4**	--	**146**	--	**8.79**	--	**50.7**	--	**1720**	--	**1730**	--
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	**3.01**	--	**5.26**	--	7.5	U	**0.948**	J	**1.62**	--	0.75	U	**0.498**	J	**17.6**	J	**19.9**	J
trans-1,3-Dichloropropene	10061-02-6	ug/L	0.5	0.5	0.5	U	1.25	U	5	U	1	U	0.5	U	0.5	U	1	U	50	U	50	U
Trichloroethene	79-01-6	ug/L	5	0.5	**0.353**	J	**1.18**	J	5	U	1	U	0.5	U	0.5	U	1	U	50	U	50	U
Vinyl chloride	75-01-4	ug/L	2	0.5	**224**	--	**106**	J	10	U	2	U	**563**	--	**0.671**	J	**0.826**	J	**4340**	--	**4230**	--
Xylenes, Total	1330-20-7	ug/L	530	0.5	**4.24**	--	193	UJ	**388**	--	**640**	--	**234**	--	**175**	--	**378**	--	**1280**	--	**1360**	--
Halogenated VOCs Total	THVO	ug/L	--	--	**451.365**	--	**231.47**	--	**66.59**	--	**54.719**	--	**971.998**	--	**25.225**	--	**35.794**	--	**12940.6**	--	**12752.7**	--
Non-Halogenated VOCs Total	TNHVO	ug/L	--	--	**13.973**	--	**494**	--	**1461.9**	--	**1135.55**	--	**521.7**	--	**292.39**	--	**593.7**	--	**3808.2**	--	**3938.5**	--
Total Volatile Organics L-1 GW	TVO	ug/L	--	--	**468.988**	--	**742.38**	--	**1538.36**	--	**1202.569**	--	**1511.398**	--	**326.075**	--	**640.794**	--	**16748.8**	--	**16691.2**	--

Notes:

U = Analyte not detected above the laboratory reporting limit
J = Analyte result is estimated
ug/L = micrograms per liter
VOCs = volatile organic compounds
Action Level = the lower of the USEPA Maximum Contaminant Level (MCL) and the Connecticut Class GA Groundwater Protection Criteria (GWPC)
ICL = Interim Cleanup Level based on Table L-1 from Record of Decision Summary, September 2005
Bold = Analyte detected above the laboratory reporting limit
Shaded Cell = Analyte detected above the Action Level
SOB = Shallow Overburden
MOB = Middle Overburden
DOB = Deep Overburden
TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 3 - Post-ISTR Groundwater Monitoring Summary Data - VOCs
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

				Sample Location	MWL-307		MWL-307		MWL-307		MWL-307		MWL-307		MWL-307		MWL-307		MWL-307	
				Sample Date	3/18/2015 15:15		7/17/2015 14:55		10/23/2015 11:00		3/11/2016 14:15		7/19/2016 13:30		11/4/2016 11:15		3/13/2017 13:00		7/7/2017 11:10	
				Field Sample ID	MWL-307-HS-03182015		MWL-307-HS-07172015		MWL-307-HS-10232015		MWL-307-HS-03112016		MWL-307-HS-07192016		MWL-307-HS-11042016		MWL-307-HS-03132017		MWL-307-HS-07072017	
				Well Group	N		N		N		N		N		N		N		N	
				HydroStratZone(s)	SOB		SOB		SOB		SOB		SOB		SOB		SOB		SOB	
Analyte	**CAS No.**	**Unit**	**Action Level**	**ICL**																
VOCs																				
1,1,1,2-Tetrachloroethane	630-20-6	ug/L	1	0.5	0.5	U	2.5	U	2.5	U	12.5	U	10	U	10	U	2.5	U	0.5	U
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	**1.08**	--	2.5	UJ	2.5	U	12.5	U	10	U	10	U	2.5	U	0.5	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	0.75	U	3.75	U	3.75	U	18.8	U	15	U	15	U	3.75	U	0.75	U
1,1-Dichloroethane	75-34-3	ug/L	70	0.5	**4.2**	--	**2.91**	J	**6.06**	--	**17.3**	J	**7.55**	J	**6.52**	J	**4.18**	--	**2.53**	--
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	0.5	U	2.5	UJ	2.5	U	12.5	U	10	U	10	U	2.5	U	0.5	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	2	2.5	U	12.5	U	**2.33**	J	62.5	U	50	U	50	U	12.5	U	2.5	U
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	2.5	U	12.5	U	12.5	U	62.5	U	50	U	50	U	12.5	U	2.5	U
1,2-Dichloroethane	107-06-2	ug/L	1	0.5	0.5	U	2.5	U	2.5	U	12.5	U	10	U	10	U	2.5	U	0.5	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	2.5	U	12.5	U	12.5	U	62.5	U	50	U	**4.38**	J	12.5	U	2.5	U
2-Butanone (MEK)	78-93-3	ug/L	400	5	5	U	**113**	J	**121**	--	**52.8**	J	100	U	100	U	25	U	5	U
2-Hexanone	591-78-6	ug/L	140	5	5	U	**21.6**	J	**8.43**	J	125	U	100	U	100	UJ	25	U	5	U
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	350	5	5	U	**257**	J	**279**	--	125	U	100	U	100	U	25	U	5	U
Acetone	67-64-1	ug/L	700	5	100	UJ	133	U	**277**	J	**108**	J	100	U	100	U	25	U	6.47	UJ
Benzene	71-43-2	ug/L	1	0.5	**0.169**	J	5.49	U	**13.6**	--	**35.6**	--	**24.8**	--	**33.4**	--	**8.72**	--	**7.47**	--
Bromomethane	74-83-9	ug/L	9.8	0.5	1	U	5	UJ	5	U	25	U	20	U	20	U	5	U	1	U
Carbon disulfide	75-15-0	ug/L	700	0.5	**2.06**	J	25	U	**38.3**	--	125	U	100	U	100	U	25	U	5	U
Carbon tetrachloride	56-23-5	ug/L	5	0.5	0.5	U	2.5	U	2.5	U	12.5	U	10	U	10	U	2.5	U	0.5	U
Chlorobenzene	108-90-7	ug/L	100	0.5	0.5	U	2.5	U	2.5	U	12.5	U	10	U	10	U	2.5	U	**0.19**	J
Chloroethane	75-00-3	ug/L	12.1	0.5	**1.12**	--	**5.59**	--	**20.1**	--	25	U	20	U	**16.3**	J	**1.25**	J	**2.79**	--
Chloroform	67-66-3	ug/L	6	0.5	0.75	U	3.75	U	3.75	U	18.8	U	15	U	15	U	3.75	U	0.75	U
Chloromethane	74-87-3	ug/L	2.7	0.5	2.5	U	12.5	U	12.5	U	62.5	U	50	U	50	U	12.5	U	2.5	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	**17.5**	--	**55.3**	J	**2.93**	--	12.5	U	**5.18**	J	10	U	2.5	U	**3.33**	--
Ethylbenzene	100-41-4	ug/L	700	0.5	**12.4**	--	47.5	UJ	**129**	--	**353**	--	**148**	--	**355**	--	**31.8**	--	**13**	--
Hexachlorobutadiene	87-68-3	ug/L	0.45	0.45	0.6	U	3	U	3	U	15	U	12	U	12	U	3	U	0.6	U
Methylene chloride	75-09-2	ug/L	5	0.5	5	U	25	U	25	UJ	125	U	100	U	100	U	25	U	5	U
Naphthalene	91-20-3	ug/L	280	0.5	**0.377**	J	12.5	U	**6.87**	J	**9.67**	J	50	U	**10.8**	J	2.4	U	**0.546**	J
Styrene	100-42-5	ug/L	100	0.5	1	U	**2.23**	J	**5.69**	--	**38.5**	--	**9.73**	J	20	U	5	U	**0.523**	J
Tetrachloroethene	127-18-4	ug/L	5	0.5	**0.477**	J	2.5	UJ	2.5	U	12.5	U	10	U	10	U	2.5	U	0.5	U
Tetrahydrofuran	109-99-9	ug/L	4.6	0.5	**1.29**	J	**106**	J	**69.4**	--	**126**	--	**58.4**	J	**140**	--	**39.2**	--	**15.8**	--
Toluene	108-88-3	ug/L	1000	0.5	**52.1**	--	267	UJ	**448**	--	**1890**	--	**616**	--	**1310**	--	3.75	U	**5.81**	--
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	**2.85**	--	**3.07**	J	**62.4**	--	**170**	--	**18.3**	--	15	U	**3.31**	J	**1.86**	--
trans-1,3-Dichloropropene	10061-02-6	ug/L	0.5	0.5	0.5	U	2.5	U	2.5	U	12.5	U	10	U	10	U	2.5	U	0.5	U
Trichloroethene	79-01-6	ug/L	5	0.5	**0.288**	J	2.5	U	2.5	U	12.5	U	10	U	10	U	2.5	U	0.5	U
Vinyl chloride	75-01-4	ug/L	2	0.5	**3.44**	--	**74.6**	J	**2.42**	J	**432**	--	20	U	20	U	5	U	**1.78**	--
Xylenes, Total	1330-20-7	ug/L	530	0.5	**40.7**	--	42.8	UJ	**173**	--	**779**	--	**306**	--	**730**	--	**5.84**	J	**9.49**	--
Halogenated VOCs Total	THVO	ug/L	--	--	**31.332**	--	**143.7**	--	**108.8**	--	**667.47**	--	**40.76**	--	**38**	--	**8.74**	--	**13.549**	--
Non-Halogenated VOCs Total	TNHVO	ug/L	--	--	**105.369**	--	**391.6**	--	**1449.03**	--	**3218.4**	--	**1094.8**	--	**2428.4**	--	**46.36**	--	**35.77**	--
Total Volatile Organics L-1 GW	TVO	ug/L	--	--	**140.051**	--	**641.3**	--	**1665.53**	--	**4011.87**	--	**1193.96**	--	**2606.4**	--	**94.3**	--	**65.119**	--

Notes:

U = Analyte not detected above the laboratory reporting limit
J = Analyte result is estimated
ug/L = micrograms per liter
VOCs = volatile organic compounds
Action Level = the lower of the USEPA Maximum Contaminant Level (MCL) and the Connecticut Class GA Groundwater Protection Criteria (GWPC)
ICL = Interim Cleanup Level based on Table L-1 from Record of Decision Summary, September 2005
Bold = Analyte detected above the laboratory reporting limit
Shaded Cell = Analyte detected above the Action Level
SOB = Shallow Overburden
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DOB = Deep Overburden
TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 3 - Post-ISTR Groundwater Monitoring Summary Data - VOCs
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

Sample Location					TW-08A		TW-08A		TW-08A		TW-08A		TW-08A		TW-08A		TW-08A	
Sample Date					3/18/2015 13:54		7/17/2015 10:05		10/22/2015 15:20		3/11/2016 10:15		7/19/2016 10:15		11/4/2016 9:50		3/13/2017 10:10	
Field Sample ID					TW-08A-HS-03182015		TW-08A-HS-07172015		TW-08A-HS-10222015		TW-08A-HS-03112016		TW-08A-HS-07192016		TW-08A-HS-11042016		TW-08A-HS-03132017	
Well Group					N		N		N		N		N		N		N	
HydroStratZone(s)					MOB		MOB		MOB		MOB		MOB		MOB		MOB	
Analyte	**CAS No.**	**Unit**	**Action Level**	**ICL**														
VOCs																		
1,1,1,2-Tetrachloroethane	630-20-6	ug/L	1	0.5	0.5	U	20	U	10	U	100	U	25	U	50	U	25	U
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	0.5	U	20	UJ	10	U	100	U	25	U	50	U	25	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	0.75	U	30	U	15	U	150	U	37.5	U	75	U	37.5	U
1,1-Dichloroethane	75-34-3	ug/L	70	0.5	0.75	U	30	UJ	15	U	**92.1**	J	**57**	--	**84.1**	--	**37**	J
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	**0.407**	J	**38.6**	J	**120**	--	**142**	--	25	U	50	U	25	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	2	**0.58**	J	100	U	50	U	500	U	125	U	250	U	125	U
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	2.5	U	100	U	50	U	500	U	125	U	250	U	125	U
1,2-Dichloroethane	107-06-2	ug/L	1	0.5	0.5	U	20	U	10	U	100	U	25	U	50	U	25	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	2.5	U	100	U	50	U	500	U	125	U	250	U	125	U
2-Butanone (MEK)	78-93-3	ug/L	400	5	52	U	**1600**	J	**399**	--	1000	U	250	U	500	U	250	U
2-Hexanone	591-78-6	ug/L	140	5	5	U	200	U	100	U	1000	U	250	U	500	UJ	250	U
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	350	5	**19.5**	--	**240**	J	**277**	--	1000	U	250	U	500	U	250	U
Acetone	67-64-1	ug/L	700	5	100	UJ	2050	UJ	564	U	1000	U	250	U	500	U	250	U
Benzene	71-43-2	ug/L	1	0.5	**1.07**	--	20	U	**26.7**	--	100	U	**42.2**	--	**62.7**	--	**47.2**	--
Bromomethane	74-83-9	ug/L	9.8	0.5	1	U	40	UJ	20	UJ	200	U	50	U	100	U	50	U
Carbon disulfide	75-15-0	ug/L	700	0.5	5	U	**27.3**	J	**23**	J	1000	U	250	U	500	U	250	U
Carbon tetrachloride	56-23-5	ug/L	5	0.5	0.5	U	20	U	10	U	100	U	25	U	50	U	25	U
Chlorobenzene	108-90-7	ug/L	100	0.5	**0.294**	J	20	U	10	U	100	U	25	U	50	U	25	U
Chloroethane	75-00-3	ug/L	12.1	0.5	1	U	40	U	20	U	200	U	50	U	100	U	50	U
Chloroform	67-66-3	ug/L	6	0.5	0.75	U	30	U	15	U	150	U	37.5	U	75	U	37.5	U
Chloromethane	74-87-3	ug/L	2.7	0.5	2.5	U	100	U	50	U	500	U	125	U	250	U	125	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	**34.8**	--	**3330**	J	**6840**	--	**7850**	--	25	U	50	U	25	U
Ethylbenzene	100-41-4	ug/L	700	0.5	**25.3**	--	178	UJ	**503**	--	**1000**	--	**802**	--	**1160**	--	**1100**	--
Hexachlorobutadiene	87-68-3	ug/L	0.45	0.45	0.6	U	24	U	12	U	120	U	30	U	60	U	30	U
Methylene chloride	75-09-2	ug/L	5	0.5	5	U	200	U	100	U	1000	U	250	U	500	U	250	U
Naphthalene	91-20-3	ug/L	280	0.5	**1.29**	J	100	U	**15.2**	J	500	U	125	U	250	U	29.8	U
Styrene	100-42-5	ug/L	100	0.5	**1.93**	--	**16.7**	J	**30.1**	--	**109**	J	**37.5**	J	100	U	50	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	**0.424**	J	20	UJ	10	U	100	U	25	U	50	U	25	U
Tetrahydrofuran	109-99-9	ug/L	4.6	0.5	**3.88**	J	**61.8**	J	100	U	1000	U	**67**	J	**98.3**	J	**111**	J
Toluene	108-88-3	ug/L	1000	0.5	**54.5**	--	1000	UJ	**2700**	--	**4060**	--	**3430**	--	**5440**	--	**4530**	--
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	**0.362**	J	**63.2**	--	**805**	--	**458**	--	**42.2**	--	**52.7**	J	**29**	J
trans-1,3-Dichloropropene	10061-02-6	ug/L	0.5	0.5	0.5	U	20	U	10	U	100	U	25	U	50	U	25	U
Trichloroethene	79-01-6	ug/L	5	0.5	**1.86**	--	20	U	10	U	100	U	25	U	50	U	25	U
Vinyl chloride	75-01-4	ug/L	2	0.5	**76.8**	--	**472**	J	**740**	--	**11800**	--	**8880**	--	**22200**	--	**9220**	--
Xylenes, Total	1330-20-7	ug/L	530	0.5	**19.4**	--	423	UJ	**1100**	--	**2130**	--	**1800**	--	**2060**	--	**2050**	--
Halogenated VOCs Total	THVO	ug/L	--	--	**118.747**	--	**3920.5**	--	**8550.3**	--	**20451.1**	--	**9016.7**	--	**22336.8**	--	**9286**	--
Non-Halogenated VOCs Total	TNHVO	ug/L	--	--	**119.77**	--	**1840**	--	**5005.7**	--	**7190**	--	**6074.2**	--	**8722.7**	--	**7727.2**	--
Total Volatile Organics L-1 GW	TVO	ug/L	--	--	**242.397**	--	**5849.6**	--	**13579**	--	**27641.1**	--	**15157.9**	--	**31157.8**	--	**17124.2**	--

Notes:

U = Analyte not detected above the laboratory reporting limit

J = Analyte result is estimated

ug/L = micrograms per liter

VOCs = volatile organic compounds

Action Level = the lower of the USEPA Maximum Contaminant Level (MCL) and the Connecticut Class GA Groundwater Protection Criteria (GWPC)

ICL = Interim Cleanup Level based on Table L-1 from Record of Decision Summary, September 2005

Bold = Analyte detected above the laboratory reporting limit

Shaded Cell = Analyte detected above the Action Level

SOB = Shallow Overburden

MOB = Middle Overburden

DOB = Deep Overburden

TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 3 - Post-ISTR Groundwater Monitoring Summary Data - VOCs
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

Sample Location					TW-08B		TW-08B		TW-08B		TW-08B		TW-08B		TW-08B		TW-08B		TW-08B		TW-08B		TW-08B		TW-08B		TW-08B	
Sample Date					3/18/2015 13:22		7/17/2015 12:00		10/22/2015 0:00		10/22/2015 11:50		3/11/2016 0:00		3/11/2016 10:45		7/20/2016 0:00		7/20/2016 11:10		11/3/2016 0:00		11/3/2016 13:10		3/9/2017 0:00		3/9/2017 9:00	
Field Sample ID					TW-08B-HS-03182015		TW-08B-HS-07172015		DUP-1-10222015		TW-08B-10222015		DUP-GW-03112016		TW-08B-03112016		DUP-07202016-#1		TW-08B-HS-07202016		DUP-11032016-1		TW-08B-11032016		DUP-03092017		TW-08B-03092017	
Well Group					N		N		N		N		N		N		N		N		N		N		N		N	
HydroStratZone(s)					SBR		SBR		SBR		SBR		SBR		SBR		SBR		SBR		SBR		SBR		SBR		SBR	
Analyte	**CAS No.**	**Unit**	**Action Level**	**ICL**																								
VOCs																												
1,1,1,2-Tetrachloroethane	630-20-6	ug/L	1	0.5	500	U	1000	U	2500	U	2500	U	1000	U	1000	U	5000	U	5000	U	2500	U	2500	U	1250	U	1250	U
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	500	U	**4000**	J	2500	U	2500	U	1000	U	1000	U	5000	U	5000	U	**2900**	--	**2750**	--	**3450**	--	**3500**	--
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	750	U	1500	U	3750	U	3750	U	1500	U	1500	U	7500	U	7500	U	3750	U	3750	U	1880	U	1880	U
1,1-Dichloroethane	75-34-3	ug/L	70	0.5	750	U	**2280**	J	3750	U	3750	U	1500	U	1500	U	7500	U	7500	U	**2140**	J	3750	U	**2050**	--	**2060**	--
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	**2330**	--	**1830**	J	2500	UJ	2500	UJ	**2840**	--	**2620**	--	5000	U	**2480**	J	**2920**	--	**2900**	--	**2990**	--	**2860**	--
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	2	2500	U	5000	U	12500	U	12500	U	5000	U	5000	U	25000	U	25000	U	12500	U	12500	U	6250	U	6250	U
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	2500	U	5000	U	12500	U	12500	U	5000	U	5000	U	25000	U	25000	U	12500	U	12500	U	6250	U	6250	U
1,2-Dichloroethane	107-06-2	ug/L	1	0.5	500	U	1000	U	2500	U	2500	U	1000	U	1000	U	5000	U	5000	U	2500	U	2500	U	1250	U	1250	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	2500	U	5000	U	12500	U	12500	U	5000	U	5000	U	25000	U	25000	U	12500	U	12500	U	6250	U	6250	U
2-Butanone (MEK)	78-93-3	ug/L	400	5	6890	U	10000	U	25000	U	25000	U	10000	U	10000	U	50000	U	50000	U	25000	U	25000	U	12500	U	12500	U
2-Hexanone	591-78-6	ug/L	140	5	5000	U	10000	U	25000	U	25000	U	10000	U	10000	U	50000	U	50000	U	25000	UJ	25000	UJ	12500	U	12500	U
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	350	5	5000	U	10000	U	25000	U	25000	U	10000	U	10000	U	50000	U	50000	U	25000	U	25000	U	**2180**	J	**1420**	J
Acetone	67-64-1	ug/L	700	5	100000	UJ	10000	U	25000	U	25000	U	10000	U	10000	U	50000	U	**20400**	J	25000	U	25000	U	12500	U	12500	U
Benzene	71-43-2	ug/L	1	0.5	**497**	J	1000	U	2500	U	2500	U	1000	U	1000	U	5000	U	5000	U	2500	U	2500	U	**498**	J	**458**	J
Bromomethane	74-83-9	ug/L	9.8	0.5	1000	U	2000	UJ	5000	UJ	5000	UJ	2000	U	2000	U	10000	U	10000	U	5000	U	5000	U	2500	U	2500	U
Carbon disulfide	75-15-0	ug/L	700	0.5	5000	U	10000	U	25000	UJ	25000	UJ	10000	U	10000	U	50000	U	50000	U	25000	U	25000	U	12500	U	12500	U
Carbon tetrachloride	56-23-5	ug/L	5	0.5	500	U	1000	U	2500	U	2500	U	1000	U	1000	U	5000	U	5000	U	2500	U	2500	U	1250	U	1250	U
Chlorobenzene	108-90-7	ug/L	100	0.5	500	U	1000	U	2500	U	2500	U	1000	U	1000	U	5000	U	5000	U	2500	U	2500	U	1250	U	1250	U
Chloroethane	75-00-3	ug/L	12.1	0.5	**890**	J	**558**	J	5000	U	5000	U	2000	U	2000	U	10000	U	10000	U	5000	U	5000	U	2500	U	2500	U
Chloroform	67-66-3	ug/L	6	0.5	750	U	1500	U	3750	U	3750	U	1500	U	1500	U	7500	U	7500	U	3750	U	3750	U	1880	U	1880	U
Chloromethane	74-87-3	ug/L	2.7	0.5	2500	U	5000	U	12500	U	12500	U	5000	U	5000	U	25000	U	25000	U	12500	U	12500	U	6250	U	6250	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	**381000**	--	**289000**	J	**289000**	--	**299000**	--	**326000**	--	**309000**	--	**342000**	--	**303000**	--	**339000**	--	**336000**	--	**390000**	--	**381000**	--
Ethylbenzene	100-41-4	ug/L	700	0.5	**3990**	--	3140	UJ	**3640**	--	**3760**	--	**4110**	--	**4050**	--	**2480**	J	**2840**	J	**3680**	--	**3460**	--	**4320**	--	**4160**	--
Hexachlorobutadiene	87-68-3	ug/L	0.45	0.45	600	U	1200	U	3000	U	3000	U	1200	U	1200	U	6000	U	6000	U	3000	U	3000	U	1500	U	1500	U
Methylene chloride	75-09-2	ug/L	5	0.5	**917**	J	**872**	J	25000	U	25000	U	**1060**	J	**1070**	J	50000	U	50000	U	25000	U	25000	U	12500	U	12500	U
Naphthalene	91-20-3	ug/L	280	0.5	2500	U	5000	U	12500	U	12500	U	5000	U	5000	U	25000	U	25000	U	12500	U	12500	U	6250	U	6250	U
Styrene	100-42-5	ug/L	100	0.5	**390**	J	2000	U	5000	U	5000	U	**1100**	J	**1070**	J	10000	U	10000	U	5000	U	5000	U	2500	U	2500	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	**7200**	--	**6120**	J	**6630**	--	**7270**	--	**8600**	--	**7440**	--	**4900**	J	**3840**	J	**7850**	--	**7740**	--	**7040**	--	**7150**	--
Tetrahydrofuran	109-99-9	ug/L	4.6	0.5	5000	U	10000	U	25000	U	25000	U	10000	U	10000	U	50000	U	50000	U	25000	U	25000	U	12500	U	12500	U
Toluene	108-88-3	ug/L	1000	0.5	**44900**	--	38300	UJ	**40000**	--	**41000**	--	**46200**	--	**42900**	--	**36700**	--	**33800**	--	**41600**	--	**41100**	--	**46600**	--	**46400**	--
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	750	U	1500	U	3750	U	3750	U	1500	U	1500	U	7500	U	7500	U	3750	U	3750	U	1880	U	1880	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	0.5	0.5	500	U	1000	U	2500	U	2500	U	1000	U	1000	U	5000	U	5000	U	2500	U	2500	U	1250	U	1250	U
Trichloroethene	79-01-6	ug/L	5	0.5	**159000**	--	**136000**	--	**165000**	--	**172000**	--	**205000**	--	**178000**	--	**138000**	--	**130000**	--	**138000**	--	**133000**	--	**120000**	J	**118000**	J
Vinyl chloride	75-01-4	ug/L	2	0.5	**16000**	--	**12000**	J	**12200**	--	**12800**	--	**11000**	--	**11200**	--	**9280**	J	**10400**	--	**14200**	--	**11800**	--	**9960**	--	**9880**	--
Xylenes, Total	1330-20-7	ug/L	530	0.5	**9030**	--	7560	UJ	**8710**	J	**8910**	J	**9390**	--	**9400**	--	**3890**	J	**13800**	J	**8160**	J	**7820**	J	**9550**	J	**9280**	J
Halogenated VOCs Total	THVO	ug/L	--	--	**567727**	--	**452660**	--	**472830**	--	**491070**	--	**555600**	--	**510400**	--	**494180**	--	**449720**	--	**507010**	--	**494190**	--	**535490**	--	**524450**	--
Non-Halogenated VOCs Total	TNHVO	ug/L	--	--	**58417**	--	0	--	**52350**	--	**53670**	--	**59700**	--	**56350**	--	**43070**	--	**70840**	--	**53440**	--	**52380**	--	**63148**	--	**61718**	--
Total Volatile Organics L-1 GW	TVO	ug/L	--	--	**626144**	--	**452660**	--	**525180**	--	**544740**	--	**615300**	--	**566750**	--	**537250**	--	**520560**	--	**560450**	--	**546570**	--	**598638**	--	**586168**	--

Notes:

U = Analyte not detected above the laboratory reporting limit
J = Analyte result is estimated
ug/L = micrograms per liter
VOCs = volatile organic compounds
Action Level = the lower of the USEPA Maximum Contaminant Level (MCL) and the Connecticut Class GA Groundwater Protection Criteria (GWPC)
ICL = Interim Cleanup Level based on Table L-1 from Record of Decision Summary, September 2005
Bold = Analyte detected above the laboratory reporting limit
Shaded Cell = Analyte detected above the Action Level
SOB = Shallow Overburden
MOB = Middle Overburden
DOB = Deep Overburden
TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 3 - Post-ISTR Groundwater Monitoring Summary Data - VOCs
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

Sample Location					TW-08D		TW-08D		TW-08D		TW-08D		TW-08D		TW-08D		TW-08D		TW-08D	
Sample Date					3/18/2015 12:48		7/17/2015 0:00		7/17/2015 9:22		10/22/2015 15:00		3/11/2016 11:00		7/19/2016 9:45		11/4/2016 9:05		3/13/2017 9:30	
Field Sample ID					TW-08D-HS-03182015		DUP-GW-07172015		TW-08D-HS-07172015		TW-08D-HS-10222015		TW-08D-HS-03112016		TW-08D-HS-07192016		TW-08D-HS-11042016		TW-08D-HS-03132017	
Well Group					N		N		N		N		N		N		N		N	
HydroStratZone(s)					DOB		DOB		DOB		DOB		DOB		DOB		DOB		DOB	
Analyte **VOCs**	**CAS No.**	**Unit**	**Action Level**	**ICL**																
1,1,1,2-Tetrachloroethane	630-20-6	ug/L	1	0.5	250	U	25	U	250	U	500	U	500	U	50	U	250	U	125	U
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	250	U	25	UJ	**894**	J	500	U	500	U	50	U	250	U	**208**	--
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	375	U	37.5	U	375	U	750	U	750	U	75	U	375	U	188	U
1,1-Dichloroethane	75-34-3	ug/L	70	0.5	375	U	**103**	J	**407**	J	750	U	750	U	**695**	--	**357**	J	**526**	--
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	**640**	--	**60.7**	J	**261**	J	**1290**	J	**546**	--	**682**	--	**730**	--	**478**	--
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	2	1250	U	125	U	1250	U	2500	U	2500	U	250	U	1250	U	625	U
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	1250	U	125	U	1250	U	2500	U	2500	U	250	U	1250	U	625	U
1,2-Dichloroethane	107-06-2	ug/L	1	0.5	250	U	25	U	250	U	500	U	500	U	50	U	250	U	125	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	1250	U	125	U	1250	U	2500	U	2500	U	250	U	1250	U	625	U
2-Butanone (MEK)	78-93-3	ug/L	400	5	2500	U	250	U	2500	U	5000	U	5000	U	500	U	2500	U	1250	U
2-Hexanone	591-78-6	ug/L	140	5	2500	U	250	U	2500	U	5000	U	5000	U	500	U	2500	UJ	1250	U
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	350	5	2500	U	250	U	2500	U	5000	U	5000	U	500	U	2500	U	1250	U
Acetone	67-64-1	ug/L	700	5	50000	UJ	250	U	2500	U	5000	U	5000	U	500	U	2500	U	1250	U
Benzene	71-43-2	ug/L	1	0.5	**79.9**	J	25	U	250	U	**174**	J	500	U	**25.5**	J	250	U	125	U
Bromomethane	74-83-9	ug/L	9.8	0.5	500	U	50	UJ	**156**	J	1000	UJ	1000	U	100	UJ	500	U	**64.2**	J
Carbon disulfide	75-15-0	ug/L	700	0.5	2500	U	250	U	2500	U	5000	UJ	5000	U	500	U	2500	U	1250	U
Carbon tetrachloride	56-23-5	ug/L	5	0.5	250	U	25	U	250	U	500	U	500	U	50	U	250	U	125	U
Chlorobenzene	108-90-7	ug/L	100	0.5	250	U	25	U	250	U	500	U	500	U	50	U	250	U	125	U
Chloroethane	75-00-3	ug/L	12.1	0.5	500	U	50	U	500	U	1000	U	1000	U	100	U	500	U	250	U
Chloroform	67-66-3	ug/L	6	0.5	375	U	37.5	U	375	U	750	U	750	U	75	U	375	U	188	U
Chloromethane	74-87-3	ug/L	2.7	0.5	1250	U	125	U	1250	U	2500	U	2500	U	250	U	1250	U	625	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	**80600**	--	**7360**	J	**32300**	J	**86100**	--	**34500**	--	**25000**	--	**29300**	--	**30500**	--
Ethylbenzene	100-41-4	ug/L	700	0.5	**3440**	--	123	UJ	1740	UJ	**3610**	--	**2310**	--	**1510**	--	**1600**	--	**3260**	--
Hexachlorobutadiene	87-68-3	ug/L	0.45	0.45	300	U	30	U	300	U	600	U	600	U	60	U	300	U	150	U
Methylene chloride	75-09-2	ug/L	5	0.5	2500	U	250	U	2500	U	5000	U	5000	U	**31.7**	J	2500	U	1250	U
Naphthalene	91-20-3	ug/L	280	0.5	1250	U	125	U	1250	U	2500	U	2500	U	250	U	1250	U	120	U
Styrene	100-42-5	ug/L	100	0.5	500	U	50	U	500	U	1000	U	1000	U	100	U	500	U	250	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	**201**	J	**28.9**	J	**198**	J	500	U	500	U	50	U	250	U	125	U
Tetrahydrofuran	109-99-9	ug/L	4.6	0.5	2500	U	250	U	2500	U	5000	U	5000	U	500	U	2500	U	1250	U
Toluene	108-88-3	ug/L	1000	0.5	**15200**	--	652	UJ	7490	UJ	**21600**	--	**7510**	--	**5840**	--	**8890**	--	**11200**	--
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	375	U	37.5	U	375	U	750	U	750	U	75	U	375	U	188	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	0.5	0.5	250	U	25	U	250	U	500	U	500	U	50	U	250	U	125	U
Trichloroethene	79-01-6	ug/L	5	0.5	250	U	25	U	250	U	**427**	J	500	U	50	U	250	U	125	U
Vinyl chloride	75-01-4	ug/L	2	0.5	**3140**	--	**185**	J	**1100**	J	**9100**	--	**710**	J	**1960**	--	**6760**	--	**5670**	--
Xylenes, Total	1330-20-7	ug/L	530	0.5	**7930**	--	304	UJ	4170	UJ	**9050**	--	**4470**	--	**2910**	--	**2760**	--	**4640**	--
Halogenated VOCs Total	THVO	ug/L	--	--	**84581**	--	**7737.6**	--	**35316**	--	**96917**	--	**35756**	--	**28368.7**	--	**37147**	--	**37446.2**	--
Non-Halogenated VOCs Total	TNHVO	ug/L	--	--	**26649.9**	--	0	--	0	--	**34434**	--	**14290**	--	**10285.5**	--	**13250**	--	**19100**	--
Total Volatile Organics L-1 GW	TVO	ug/L	--	--	**111230.9**	--	**7737.6**	--	**35316**	--	**131351**	--	**50046**	--	**38654.2**	--	**50397**	--	**56546.2**	--

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Bold = Analyte detected above the laboratory reporting limit
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MOB = Middle Overburden
DOB = Deep Overburden
TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 4 - Post-Thermal Treatment Groundwater Sample Results – MNA Parameters

Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site

Southington, Connecticut

		Sample Location	MW-413		MW-413		MW-413		MW-413		MW-413		MW-413		MW-413		MW-413		MW-413		MW-413	
		Sample Date	3/18/2015 0:00		3/18/2015 14:30		7/17/2015 11:10		11/23/2015 10:00		3/11/2016 11:50		7/19/2016 10:45		11/4/2016 10:15		3/13/2017 10:30		7/7/2017 0:00		7/7/2017 10:05	
		Field Sample ID	DUPLICATE-GW-03182015		MW-413-HS-03182015		MW-413-HS-07172015		MW-413-HS-11232015		MW-413-HS-03112016		MW-413-HS-07192016		MW-413-HS-11042016		MW-413-HS-03132017		DUP-07072017-2		MW-413-HS-07072017	
		Well Group	N		N		N		N		N		N		N		N		N		N	
		HydroStratZone(s)	DOB		DOB		DOB		DOB		DOB		DOB		DOB		DOB		DOB		DOB	
Analyte	**CAS No.**	**Unit**																				
MNA																						
Alkalinity	ALK	mg/L	**345**	J	**345**	J	**438**	--	**291**	--	**276**	--	**373**	J	**303**	--	**359**	--	--	--	**568**	J
Chloride	16887-00-6	mg/L	**84.1**	--	**81.2**	--	**740**	--	**219**	--	**349**	--	**629**	--	**200**	--	**325**	--	--	--	**403**	--
Iron (Dissolved)	7439-89-6	ug/L	**37**	J	**71000**	--	**180000**	--	**62000**	J	**72000**	--	**92000**	J	**28000**	J	**39000**	--	--	--	**29000**	--
Manganese (Dissolved)	7439-96-5	ug/L	**282**	--	**15200**	--	**39700**	J	**11400**	J	**14800**	--	**19600**	--	**7290**	--	**9620**	--	--	--	**11100**	--
Nitrate as N	14797-55-8	mg/L	0.5	UJ	0.5	UJ	0.1	U	0.1	U	**0.139**	--	0.115	U	**0.046**	J	**0.039**	J	--	--	0.1	U
Nitrite as N	14797-65-0	mg/L	**0.097**	--	**0.114**	--	**0.148**	--	**0.053**	--	**0.068**	--	**0.065**	--	**0.031**	J	**0.04**	J	--	--	0.05	U
Sulfate	14808-79-8	mg/L	**0.207**	J	**0.099**	J	**3.54**	--	**2.97**	--	**0.09**	J	1	U	1	U	**38.6**	--	--	--	1	U
Total Organic Carbon	TOC	mg/L	**220**	J	**220**	J	**490**	J	**87**	J	**54**	--	**95**	J	**43**	J	**47**	J	**72**	--	**73**	--
Ethane	74-84-0	ug/L	**200**	--	**230**	--	**220**	--	**680**	--	**1600**	--	**2500**	--	**780**	--	**2000**	J	--	--	**1700**	--
Ethene	74-85-1	ug/L	**1900**	J	**2200**	J	**140**	--	**2.3**	--	**2600**	--	**1**	--	**1500**	--	**1900**	J	--	--	**2.5**	--
Methane	74-82-8	ug/L	**2000**	--	**2300**	--	**3000**	J	**14000**	--	**21000**	--	**13000**	--	**5500**	--	**9500**	--	--	--	**12000**	--

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MOB = Middle Overburden

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SOB = Shallow Overburden

TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 4 - Post-Thermal Treatment Groundwater Sample Results – MNA Parameters
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

Sample Location			MW-415		MW-415		MW-415		MW-415		MW-415		MW-415		MW-415		MW-415		MW-415	
Sample Date			3/18/2015 14:45		7/17/2015 11:45		11/23/2015 10:15		3/11/2016 12:10		7/19/2016 11:15		11/4/2016 13:15		3/13/2017 11:15		7/7/2017 0:00		7/7/2017 10:35	
Field Sample ID			MW-415-HS-03182015		MW-415-HS-07172015		MW-415-HS-11232015		MW-415-HS-03112016		MW-415-HS-07192016		MW-415-HS-11042016		MW-415-HS-03132017		DUP-07072017-3		MW-415-HS-07072017	
Well Group			N		N		N		N		N		N		N		N		N	
HydroStratZone(s)			MOB		MOB		MOB		MOB		MOB		MOB		MOB		MOB		MOB	
Analyte **MNA**	**CAS No.**	**Unit**																		
Alkalinity	ALK	mg/L	**27.8**	J	**63.2**	--	**266**	--	**426**	--	**479**	J	**487**	--	**370**	--	--	--	**558**	J
Chloride	16887-00-6	mg/L	**1.22**	--	**225**	--	**129**	--	**439**	--	**262**	--	**374**	--	**218**	--	--	--	**218**	--
Iron (Dissolved)	7439-89-6	ug/L	**34**	J	**22000**	J	**13000**	J	**19000**	--	**4600**	--	**19000**	J	**3000**	--	**4960**	--	**4880**	--
Manganese (Dissolved)	7439-96-5	ug/L	**284**	--	**4160**	J	**2080**	J	**3660**	--	**5170**	--	**7740**	--	**4470**	--	**4670**	--	**4570**	--
Nitrate as N	14797-55-8	mg/L	**0.142**	J	0.04	U	0.1	U	**0.052**	J	0.1	U	**0.024**	J	0.1	U	--	--	0.1	U
Nitrite as N	14797-65-0	mg/L	0.05	U	**0.07**	--	**0.021**	J	**0.017**	J	0.05	U	**0.015**	J	0.05	U	--	--	0.05	U
Sulfate	14808-79-8	mg/L	**7.09**	--	**33.6**	--	**26.2**	--	**6.54**	--	**1.02**	--	1	U	**160**	--	--	--	**0.171**	J
Total Organic Carbon	TOC	mg/L	**1.4**	J	**16**	J	**46**	J	**100**	--	**63**	J	**70**	J	**59**	J	--	--	**70**	--
Ethane	74-84-0	ug/L	0.015	U	**0.11**	J	**18**	--	**100**	--	**230**	--	**670**	--	**66**	--	--	--	**110**	--
Ethene	74-85-1	ug/L	0.054	U	**4.8**	--	**91**	--	**340**	--	**3.2**	--	**0.47**	--	**9.1**	--	--	--	**0.083**	J
Methane	74-82-8	ug/L	0.3	UJ	**42**	J	**1200**	--	**4300**	--	**4500**	--	**6600**	--	**210**	J	--	--	**2200**	--

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mg/L = milligrams per liter
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Shaded Cell = Analyte detected above the Action Level
MOB = Middle Overburden
DOB = Deep Overburden
SBR = Shallow Bedrock
SOB = Shallow Overburden
TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 4 - Post-Thermal Treatment Groundwater Sample Results – MNA Parameters
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

Sample Location			MW-416		MW-416		MW-416		MW-416		MW-416		MW-416		MW-416		MW-416		MW-416	
Sample Date			3/18/2015 15:12		7/17/2015 14:17		11/23/2015 11:15		3/11/2016 14:30		7/19/2016 8:50		11/4/2016 10:45		3/13/2017 12:00		7/7/2017 0:00		7/7/2017 11:45	
Field Sample ID			MW-416-HS-03182015		MW-416-HS-07172015		MW-416-HS-11232015		MW-416-HS-03112016		MW-416-HS-07192016		MW-416-HS-11042016		MW-416-HS-03132017		DUP-07072017-5		MW-416-HS-07072017	
Well Group			N		N		N		N		N		N		N		N		N	
HydroStratZone(s)			SBR		SBR		SBR		SBR		SBR		SBR		SBR		SBR		SBR	
Analyte	**CAS No.**	**Unit**																		
MNA																				
Alkalinity	ALK	mg/L	**107**	J	**112**	--	**108**	--	**104**	--	**110**	J	**109**	--	**111**	--	--	--	**126**	J
Chloride	16887-00-6	mg/L	**11.5**	--	**15.1**	--	**15.3**	--	**12.6**	--	**16.7**	--	**17.4**	--	**16.9**	--	**22.6**	--	**22.8**	--
Iron (Dissolved)	7439-89-6	ug/L	**38**	J	**100**	--	**32**	J	50	U	**300**	--	50	U	50	U	--	--	**20.3**	J
Manganese (Dissolved)	7439-96-5	ug/L	**7.8**	J	**29.7**	--	17.9	UJ	**4.3**	J	**145**	--	**14.1**	--	**13.9**	--	--	--	**33.7**	--
Nitrate as N	14797-55-8	mg/L	**0.554**	J	**0.675**	--	**0.64**	--	**0.659**	--	**0.775**	--	**0.727**	--	**0.591**	J	**0.964**	--	**0.947**	--
Nitrite as N	14797-65-0	mg/L	0.05	U	0.05	U	**0.026**	J	0.05	U	0.05	U	0.05	U	**0.047**	J	0.05	U	0.05	U
Sulfate	14808-79-8	mg/L	**97.6**	--	**85**	--	**90.7**	--	**80.4**	--	**73.4**	--	**71.2**	--	**96.9**	--	**67.6**	--	**68.8**	--
Total Organic Carbon	TOC	mg/L	**1.9**	J	1.4	UJ	**0.8**	J	**0.81**	J	**0.8**	J	**0.67**	J	**0.57**	J	--	--	1.2	U
Ethane	74-84-0	ug/L	0.18	U	**0.027**	J	**0.45**	--	**0.39**	--	**0.32**	--	**0.28**	--	**1.1**	--	--	--	**0.82**	--
Ethene	74-85-1	ug/L	0.084	U	0.2	U	**0.54**	--	**0.53**	--	**0.33**	--	**0.27**	--	**0.43**	--	--	--	**0.31**	--
Methane	74-82-8	ug/L	**4.9**	J	1.6	UJ	**55**	--	**38**	--	**29**	--	**20**	--	**52**	J	--	--	**11**	--

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Shaded Cell = Analyte detected above the Action Level
MOB = Middle Overburden
DOB = Deep Overburden
SBR = Shallow Bedrock
SOB = Shallow Overburden
TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 4 - Post-Thermal Treatment Groundwater Sample Results – MNA Parameters
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

		Sample Location	MW-902D		MW-902D		MW-902D		MW-902D		MW-902D		MW-902D		MW-902D		MW-902D		MW-902D	
		Sample Date	3/18/2015 15:43		7/17/2015 13:40		11/23/2015 11:00		3/11/2016 13:45		7/19/2016 12:45		11/4/2016 11:45		3/13/2017 14:30		7/7/2017 0:00		7/7/2017 12:45	
		Field Sample ID	MW-902D-HS-03182015		MW-902D-HS-07172015		MW-902D-HS-11232015		MW-902D-HS-03112016		MW-902D-HS-07192016		MW-902D-HS-11042016		MW-902D-HS-03132017		DUP-07072017-6		MW-902D-HS-07072017	
		Well Group	N		N		N		N		N		N		N		N		N	
		HydroStratZone(s)	DOB		DOB		DOB		DOB		DOB		DOB		DOB		DOB		DOB	
Analyte **MNA**	**CAS No.**	**Unit**																		
Alkalinity	ALK	mg/L	**168**	J	**173**	--	**433**	--	**381**	--	**459**	J	**390**	--	**416**	--	**407**	J	**416**	J
Chloride	16887-00-6	mg/L	**74.3**	--	**65**	--	**776**	--	**656**	--	**682**	--	**729**	--	**481**	--	--	--	**314**	--
Iron (Dissolved)	7439-89-6	ug/L	**37000**	--	**36000**	--	**210000**	J	**150000**	--	**140000**	--	**120000**	J	**100000**	--	--	--	**65200**	--
Manganese (Dissolved)	7439-96-5	ug/L	**7040**	--	**5940**	--	**33400**	J	**23800**	--	**24700**	--	**24800**	--	**17400**	--	--	--	**13000**	--
Nitrate as N	14797-55-8	mg/L	0.5	UJ	0.1	U	0.1	U	**0.077**	J	0.1	U	0.1	U	**0.115**	J	--	--	0.1	U
Nitrite as N	14797-65-0	mg/L	0.072	U	0.057	U	**0.154**	--	**0.127**	--	**0.106**	--	**0.109**	--	**0.099**	--	--	--	**0.033**	J
Sulfate	14808-79-8	mg/L	**0.529**	J	**30.2**	--	**4.63**	--	**0.054**	J	1	U	1	U	**0.48**	J	--	--	**0.322**	J
Total Organic Carbon	TOC	mg/L	**56**	J	**64**	J	**270**	J	**100**	--	**130**	J	**100**	J	**70**	J	--	--	**69**	--
Ethane	74-84-0	ug/L	**7.6**	--	**5.2**	--	**110**	--	**1100**	--	**900**	--	**880**	--	**2000**	J	--	--	**890**	--
Ethene	74-85-1	ug/L	**1300**	J	**980**	--	**1600**	--	**61**	--	**36**	--	**1.4**	--	**0.52**	--	--	--	**0.18**	--
Methane	74-82-8	ug/L	**290**	--	**280**	J	**12000**	--	**22000**	--	**13000**	--	**11000**	--	**16000**	--	--	--	**10000**	--

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TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 4 - Post-Thermal Treatment Groundwater Sample Results – MNA Parameters
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

		Sample Location	MW-902M		MW-902M		MW-902M		MW-902M		MW-902M		MW-902M		MW-902M		MW-902M		MW-902M		MW-902M		MW-902M	
		Sample Date	3/18/2015 16:03		7/17/2015 12:20		11/23/2015 10:30		3/11/2016 14:00		7/19/2016 11:45		11/4/2016 12:30		3/13/2017 13:45		7/7/2017 0:00		7/7/2017 13:20		7/7/2017 13:20		7/7/2017 13:20	
		Field Sample ID	MW-902M-HS-03182015		MW-902M-HS-07172015		MW-902M-HS-11232015		MW-902M-HS-03112016		MW-902M-HS-07192016		MW-902M-HS-11042016		MW-902M-HS-03132017		DUP-07072017-7		MW-902M-HS-07072017		MW-902M-HS-07072017 MS		MW-902M-HS-07072017 MSD	
		Well Group	N		N		N		N		N		N		N		N		N		N		N	
		HydroStratZone(s)	MOB		MOB		MOB		MOB		MOB		MOB		MOB		MOB		MOB		MOB		MOB	
Analyte	**CAS No.**	**Unit**																						
MNA																								
Alkalinity	ALK	mg/L	**321**	J	**300**	--	**318**	--	**284**	--	**314**	J	**288**	--	**418**	--	--	--	**395**	J	--	--	--	--
Chloride	16887-00-6	mg/L	**151**	--	**108**	--	**139**	--	**282**	--	**161**	--	**165**	--	**229**	--	--	--	**137**	--	--	--	--	--
Iron (Dissolved)	7439-89-6	ug/L	**48000**	--	**31000**	--	**30000**	J	**47000**	--	**24000**	--	**20000**	J	**26000**	--	--	--	**16400**	--	--	--	--	--
Manganese (Dissolved)	7439-96-5	ug/L	**9880**	--	**6450**	--	**6380**	J	**9450**	--	**6060**	--	**6670**	--	**8000**	--	--	--	**6030**	--	--	--	--	--
Nitrate as N	14797-55-8	mg/L	0.5	UJ	0.034	U	**0.024**	J	**0.098**	J	0.1	U	**0.044**	J	0.1	U	--	--	0.1	U	--	--	--	--
Nitrite as N	14797-65-0	mg/L	**0.09**	--	0.05	U	**0.03**	J	**0.043**	J	**0.016**	J	**0.028**	J	**0.019**	J	--	--	**0.018**	J	--	--	--	--
Sulfate	14808-79-8	mg/L	1	U	**8.9**	--	**2.39**	--	**2.74**	--	1	U	1	U	**0.19**	J	--	--	1	U	--	--	--	--
Total Organic Carbon	TOC	mg/L	**85**	J	**56**	J	**41**	J	**48**	--	**34**	J	**31**	J	**44**	J	--	--	**31**	--	--	--	--	--
Ethane	74-84-0	ug/L	**780**	--	**590**	--	**920**	--	**790**	--	**180**	--	**270**	--	**280**	J	**85**	--	**180**	--	**220**	--	**210**	--
Ethene	74-85-1	ug/L	**640**	--	**870**	--	**12**	--	**2.6**	--	**21**	--	**0.16**	J	**0.32**	--	**0.5**	--	**1.1**	--	**34**	--	**34**	--
Methane	74-82-8	ug/L	**21000**	--	**14000**	J	**13000**	--	**22000**	--	**5200**	--	**6500**	--	**7600**	J	**2000**	--	**4100**	--	**4700**	--	**4600**	--

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TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 4 - Post-Thermal Treatment Groundwater Sample Results – MNA Parameters
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

Sample Location			MWL-304		MWL-304		MWL-304		MWL-304		MWL-304		MWL-304		MWL-304		MWL-304	
Sample Date			3/18/2015 12:27		7/17/2015 8:50		11/23/2015 9:00		3/11/2016 12:20		7/19/2016 9:15		11/4/2016 8:35		3/13/2017 9:00		7/7/2017 9:35	
Field Sample ID			MWL-304-HS-03182015		MWL-304-HS-07172015		MWL-304-HS-11232015		MWL-304-HS-03112016		MWL-304-HS-07192016		MWL-304-HS-11042016		MWL-304-HS-03132017		MWL-304-HS-07072017	
Well Group			N		N		N		N		N		N		N		N	
HydroStratZone(s)			SOB		SOB		SOB		SOB		SOB		SOB		SOB		SOB	
Analyte	**CAS No.**	**Unit**																
MNA																		
Alkalinity	ALK	mg/L	**108**	J	**374**	--	**295**	--	**295**	--	**306**	J	**281**	--	**328**	--	**331**	J
Chloride	16887-00-6	mg/L	**2840**	--	**417**	--	**119**	--	**116**	--	**114**	--	**192**	--	**163**	--	**86.6**	--
Iron (Dissolved)	7439-89-6	ug/L	**7800**	--	**64000**	--	**53000**	J	**62000**	--	**49000**	--	**66000**	J	**65000**	--	**45200**	--
Manganese (Dissolved)	7439-96-5	ug/L	**16100**	--	**12200**	--	**11900**	J	**14500**	--	**12100**	--	**17200**	--	**15300**	--	**11500**	--
Nitrate as N	14797-55-8	mg/L	**0.21**	J	0.1	U	0.1	U	**0.137**	--	0.1	U	**0.081**	J	**0.064**	J	0.1	U
Nitrite as N	14797-65-0	mg/L	**0.05**	--	0.055	U	**0.022**	J	**0.062**	--	**0.021**	J	**0.07**	--	**0.056**	--	**0.024**	J
Sulfate	14808-79-8	mg/L	**19.9**	--	**20.7**	--	**4.09**	--	**0.422**	J	**0.674**	J	1	U	0.163	U	**1.15**	--
Total Organic Carbon	TOC	mg/L	**6.8**	J	**22**	J	**27**	J	**24**	--	**22**	J	**25**	J	**32**	J	**28**	--
Ethane	74-84-0	ug/L	**2.8**	--	**99**	--	**1300**	--	**1800**	--	**780**	--	**970**	--	**1100**	J	**290**	--
Ethene	74-85-1	ug/L	**200**	--	**1100**	--	**620**	--	**22**	--	**290**	--	**0.32**	--	**340**	--	**900**	--
Methane	74-82-8	ug/L	**1400**	--	**1900**	J	**10000**	--	**10000**	--	**4600**	--	**6400**	--	**8700**	--	**5300**	--

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TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 4 - Post-Thermal Treatment Groundwater Sample Results – MNA Parameters
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

		Sample Location	MWL-307		MWL-307		MWL-307		MWL-307		MWL-307		MWL-307		MWL-307		MWL-307	
		Sample Date	3/18/2015 15:15		7/17/2015 14:55		11/23/2015 11:30		3/11/2016 14:15		7/19/2016 13:30		11/4/2016 11:15		3/13/2017 13:00		7/7/2017 11:10	
		Field Sample ID	MWL-307-HS-03182015		MWL-307-HS-07172015		MWL-307-HS-11232015		MWL-307-HS-03112016		MWL-307-HS-07192016		MWL-307-HS-11042016		MWL-307-HS-03132017		MWL-307-HS-07072017	
		Well Group	N		N		N		N		N		N		N		N	
		HydroStratZone(s)	SOB		SOB		SOB		SOB		SOB		SOB		SOB		SOB	
Analyte	**CAS No.**	**Unit**																
MNA																		
Alkalinity	ALK	mg/L	**69.8**	J	**219**	--	**425**	--	**560**	--	**614**	J	**401**	--	**587**	--	**640**	J
Chloride	16887-00-6	mg/L	**18.5**	--	**984**	--	**780**	--	**950**	--	**452**	--	**585**	--	**291**	--	**154**	--
Iron (Dissolved)	7439-89-6	ug/L	**11000**	--	**23000**	--	**78000**	J	**21000**	--	**12000**	--	**75000**	J	**2400**	--	**2100**	--
Manganese (Dissolved)	7439-96-5	ug/L	**4130**	--	**6540**	--	**18400**	J	**10200**	--	**8650**	--	**20000**	--	**7870**	--	**4570**	--
Nitrate as N	14797-55-8	mg/L	0.1	UJ	0.1	U	**0.05**	--	**0.054**	J	0.1	U	**0.085**	J	**0.26**	J	--	--
Nitrite as N	14797-65-0	mg/L	0.05	U	0.05	U	**0.063**	--	**0.02**	J	0.05	U	**0.079**	--	**0.032**	J	0.05	U
Sulfate	14808-79-8	mg/L	**12.8**	--	**2.7**	--	**10.2**	--	**0.541**	J	**0.229**	J	1	U	**66.7**	--	**9.93**	--
Total Organic Carbon	TOC	mg/L	**11**	J	**230**	J	**120**	J	**210**	--	**110**	J	**93**	J	**89**	J	**82**	--
Ethane	74-84-0	ug/L	**2**	--	**0.23**	--	**270**	--	**290**	--	**790**	--	**1100**	--	**54**	--	**22**	--
Ethene	74-85-1	ug/L	**100**	--	**25**	--	**790**	--	**1400**	--	**0.64**	--	**7.6**	--	**12**	--	**0.38**	--
Methane	74-82-8	ug/L	**110**	--	**2100**	J	**12000**	--	**12000**	--	**9200**	--	**9500**	--	**160**	J	**890**	--

Notes:
U = Analyte not detected above the laboratory reporting limit
J = Analyte result is estimated
ug/L = micrograms per liter
mg/L = milligrams per liter
Bold = Analyte detected above the laboratory reporting limit
Shaded Cell = Analyte detected above the Action Level
MOB = Middle Overburden
DOB = Deep Overburden
SBR = Shallow Bedrock
SOB = Shallow Overburden
TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 4 - Post-Thermal Treatment Groundwater Sample Results – MNA Parameters
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

Sample Location			TW-08A		TW-08A		TW-08A		TW-08A		TW-08A		TW-08A		TW-08A	
Sample Date			3/18/2015 13:54		7/17/2015 10:05		11/23/2015 9:45		3/11/2016 10:15		7/19/2016 10:15		11/4/2016 9:50		3/13/2017 10:10	
Field Sample ID			TW-08A-HS-03182015		TW-08A-HS-07172015		TW-08A-HS-11232015		TW-08A-HS-03112016		TW-08A-HS-07192016		TW-08A-HS-11042016		TW-08A-HS-03132017	
Well Group			N		N		N		N		N		N		N	
HydroStratZone(s)			MOB		MOB		MOB		MOB		MOB		MOB		MOB	
Analyte	**CAS No.**	**Unit**														
MNA																
Alkalinity	ALK	mg/L	**85.8**	J	**255**	--	**301**	--	**254**	--	**318**	J	**278**	--	**374**	--
Chloride	16887-00-6	mg/L	**70**	--	**630**	--	**221**	--	**230**	--	**370**	--	**249**	--	**335**	--
Iron (Dissolved)	7439-89-6	ug/L	**4500**	--	**78000**	--	**33000**	J	**32000**	--	**40000**	--	**27000**	J	**37000**	--
Manganese (Dissolved)	7439-96-5	ug/L	**1470**	--	**18500**	--	**7350**	J	**7840**	--	**9900**	--	**7860**	--	**10900**	--
Nitrate as N	14797-55-8	mg/L	0.1	UJ	0.1	U	**0.176**	--	**0.083**	J	0.1	U	**0.052**	J	**0.026**	J
Nitrite as N	14797-65-0	mg/L	0.05	U	**0.086**	--	**0.056**	--	**0.035**	J	**0.036**	J	**0.031**	J	**0.035**	J
Sulfate	14808-79-8	mg/L	**16.1**	--	**4.9**	--	**4.93**	--	**0.282**	J	**1.52**	--	1	U	1	U
Total Organic Carbon	TOC	mg/L	**23**	J	**320**	J	**87**	J	**57**	--	**64**	J	**41**	J	**41**	J
Ethane	74-84-0	ug/L	**1.3**	--	**0.49**	--	**12**	--	**86**	--	**12**	--	**17**	--	**96**	--
Ethene	74-85-1	ug/L	**14**	--	**35**	--	**98**	--	**380**	--	**3000**	--	**2100**	--	**3700**	J
Methane	74-82-8	ug/L	**9100**	--	**1100**	J	**7900**	--	**9200**	--	**7900**	--	**5900**	--	**12000**	--

Notes:
U = Analyte not detected above the laboratory reporting limit
J = Analyte result is estimated
ug/L = micrograms per liter
mg/L = milligrams per liter
Bold = Analyte detected above the laboratory reporting limit
Shaded Cell = Analyte detected above the Action Level
MOB = Middle Overburden
DOB = Deep Overburden
SBR = Shallow Bedrock
SOB = Shallow Overburden
TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 4 - Post-Thermal Treatment Groundwater Sample Results – MNA Parameters
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

Sample Location			TW-08B		TW-08B		TW-08B		TW-08B		TW-08B		TW-08B		TW-08B		TW-08B		TW-08B		TW-08B		TW-08B		TW-08B	
Sample Date			3/18/2015 13:22		7/17/2015 12:00		11/23/2015 0:00		11/23/2015 14:00		3/11/2016 0:00		3/11/2016 10:45		7/20/2016 0:00		7/20/2016 11:10		11/3/2016 0:00		11/3/2016 13:10		3/9/2017 0:00		3/9/2017 9:00	
Field Sample ID			TW-08B-HS-03182015		TW-08B-HS-07172015		DUPLICATE-GW-11232015		TW-08B-11232015		DUP-GW-03112016		TW-08B-03112016		DUP-07202016-#1		TW-08B-HS-07202016		DUP-11032016-1		TW-08B-11032016		DUP-03092017		TW-08B-03092017	
Well Group			N		N		N		N		N		N		N		N		N		N		N		N	
HydroStratZone(s)			SBR		SBR		SBR		SBR		SBR		SBR		SBR		SBR		SBR		SBR		SBR		SBR	
Analyte	**CAS No.**	**Unit**																								
MNA																										
Alkalinity	ALK	mg/L	**250**	J	**236**	--	**241**	--	**241**	--	**263**	--	**256**	--	**251**	--	**259**	--	**190**	--	**256**	--	**239**	--	**236**	--
Chloride	16887-00-6	mg/L	**195**	--	**182**	--	**182**	--	**185**	--	**176**	--	**178**	--	**178**	--	**179**	--	**192**	--	**216**	--	**194**	--	**191**	--
Iron (Dissolved)	7439-89-6	ug/L	**11000**	--	**4900**	--	**4300**	J	**4500**	J	**3800**	--	**4000**	--	**4700**	--	**5100**	--	**4200**	J	**4600**	J	**5000**	J	**5200**	J
Manganese (Dissolved)	7439-96-5	ug/L	**7880**	--	**4980**	--	**4370**	J	**4500**	J	**4640**	--	**4580**	--	**4040**	--	**4210**	--	**4640**	--	**4860**	J	**4110**	J	**4540**	J
Nitrate as N	14797-55-8	mg/L	0.5	UJ	0.1	U	**0.023**	J	**0.023**	J	**0.022**	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	**0.353**	J	**0.502**	J
Nitrite as N	14797-65-0	mg/L	0.05	U	0.05	U	**0.027**	J	0.05	U	**0.012**	J	**0.01**	J	0.05	U	0.05	U	0.05	U	0.05	U	**0.013**	J	**0.01**	J
Sulfate	14808-79-8	mg/L	**1.68**	--	**1.79**	--	**5.62**	--	**6.02**	--	**1.42**	--	**1.3**	--	**1.12**	--	**1.45**	--	**1.14**	--	1.43	U	**0.826**	J	**0.831**	J
Total Organic Carbon	TOC	mg/L	**24**	J	**26**	J	**31**	J	**28**	J	**23**	--	**23**	--	**21**	--	**22**	--	**20**	J	**23**	J	**19**	J	**19**	J
Ethane	74-84-0	ug/L	**66**	--	**58**	--	**68**	--	**62**	--	**70**	--	**80**	--	**61**	--	**59**	--	**70**	--	**68**	--	--	--	--	--
Ethene	74-85-1	ug/L	**1900**	J	**1600**	J	**1300**	--	**1200**	--	**960**	--	**1100**	--	**850**	--	**850**	--	**910**	--	**920**	--	--	--	--	--
Methane	74-82-8	ug/L	**2700**	--	**2000**	J	**2200**	--	**2000**	--	**2100**	--	**2500**	--	**2100**	--	**1900**	--	**2300**	--	**2200**	--	--	--	--	--

Notes:

U = Analyte not detected above the laboratory reporting limit
J = Analyte result is estimated
ug/L = micrograms per liter
mg/L = milligrams per liter
Bold = Analyte detected above the laboratory reporting limit
Shaded Cell = Analyte detected above the Action Level
MOB = Middle Overburden
DOB = Deep Overburden
SBR = Shallow Bedrock
SOB = Shallow Overburden
TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 4 - Post-Thermal Treatment Groundwater Sample Results – MNA Parameters
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

		Sample Location	TW-08D		TW-08D		TW-08D		TW-08D		TW-08D		TW-08D		TW-08D		TW-08D	
		Sample Date	3/18/2015 12:48		7/17/2015 0:00		7/17/2015 9:22		11/23/2015 9:30		3/11/2016 11:00		7/19/2016 9:45		11/4/2016 9:05		3/13/2017 9:30	
		Field Sample ID	TW-08D-HS-03182015		DUP-GW-07172015		TW-08D-HS-07172015		TW-08D-HS-11232015		TW-08D-HS-03112016		TW-08D-HS-07192016		TW-08D-HS-11042016		TW-08D-HS-03132017	
		Well Group	N		N		N		N		N		N		N		N	
		HydroStratZone(s)	DOB		DOB		DOB		DOB		DOB		DOB		DOB		DOB	
Analyte	**CAS No.**	**Unit**																
MNA																		
Alkalinity	ALK	mg/L	**146**	J	**232**	--	**134**	--	**192**	--	**144**	--	**191**	J	**268**	--	**238**	--
Chloride	16887-00-6	mg/L	**61.1**	--	**186**	--	**50.5**	--	**75.4**	--	**47.9**	--	**61.9**	--	**98.8**	--	**77.3**	--
Iron (Dissolved)	7439-89-6	ug/L	**5100**	--	**5200**	--	**3300**	--	**5100**	J	**1800**	--	**1900**	--	**3400**	J	**2200**	--
Manganese (Dissolved)	7439-96-5	ug/L	**3200**	--	**4940**	--	**2210**	--	**3540**	J	**1820**	--	**2020**	--	**3850**	--	**2580**	--
Nitrate as N	14797-55-8	mg/L	0.5	UJ	0.019	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Nitrite as N	14797-65-0	mg/L	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Sulfate	14808-79-8	mg/L	**1.78**	--	**1.99**	--	**0.973**	J	**2.64**	--	**1.2**	--	**0.27**	J	1	U	**0.224**	J
Total Organic Carbon	TOC	mg/L	**8.2**	J	**26**	J	**5.1**	J	**23**	J	**5.6**	--	**16**	J	**40**	J	**27**	J
Ethane	74-84-0	ug/L	**64**	--	**14**	--	**17**	--	**32**	--	**13**	--	**17**	--	**34**	--	**42**	--
Ethene	74-85-1	ug/L	**680**	--	**150**	--	**180**	--	**240**	--	**88**	--	**140**	--	**300**	--	**410**	--
Methane	74-82-8	ug/L	**1400**	--	**270**	J	**340**	J	**1300**	--	**500**	--	**820**	--	**1800**	--	**2400**	--

Notes:
U = Analyte not detected above the laboratory reporting limit
J = Analyte result is estimated
ug/L = micrograms per liter
mg/L = milligrams per liter
Bold = Analyte detected above the laboratory reporting limit
Shaded Cell = Analyte detected above the Action Level
MOB = Middle Overburden
DOB = Deep Overburden
SBR = Shallow Bedrock
SOB = Shallow Overburden
TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

Table 5 - Post-ISTR Groundwater Monitoring Summary Data – 1,4-Dioxane
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

				Sample Location	MW-413		MW-413		MW-413		MW-415		MW-415		MW-415		MW-416		MW-416		MW-416	
				Sample Date	10/23/2015 9:45		3/11/2016 11:50		3/13/2017 10:30		10/23/2015 9:00		3/11/2016 12:10		3/13/2017 11:15		10/23/2015 10:40		3/11/2016 14:30		3/13/2017 12:00	
				Field Sample ID	MW-413-HS-10232015		MW-413-HS-03112016		MW-413-HS-03132017		MW-415-HS-10232015		MW-415-HS-03112016		MW-415-HS-03132017		MW-416-HS-10232015		MW-416-HS-03112016		MW-416-HS-03132017	
				Well Group	N		N		N		N		N		N		N		N		N	
				HydroStratZone(s)	DOB		DOB		DOB		MOB		MOB		MOB		SBR		SBR		SBR	
Analyte **VOCs**	**CAS No.**	**Unit**	**Action Level**	**ICL**																		
1,4-Dioxane	123-91-1	ug/L	20	--	**28.6**	--	300	U	**47**	--	**13.5**	--	**58**	--	**52**	J	**6.48**	--	30	U	**5.4**	J

				Sample Location	MW-902D		MW-902D		MW-902D		MW-902M		MW-902M		MW-902M		MWL-304		MWL-304		MWL-304	
				Sample Date	10/23/2015 10:15		3/11/2016 13:45		3/13/2017 14:30		10/23/2015 10:00		3/11/2016 14:00		3/13/2017 13:45		10/22/2015 14:45		3/11/2016 12:20		3/13/2017 9:00	
				Field Sample ID	MW-902D-HS-10232015		MW-902D-HS-03112016		MW-902D-HS-03132017		MW-902M-HS-10232015		MW-902M-HS-03112016		MW-902M-HS-03132017		MWL-304-HS-10222015		MWL-304-HS-03112016		MWL-304-HS-03132017	
				Well Group	N		N		N		N		N		N		N		N		N	
				HydroStratZone(s)	DOB		DOB		DOB		MOB		MOB		MOB		SOB		SOB		SOB	
Analyte **VOCs**	**CAS No.**	**Unit**	**Action Level**	**ICL**																		
1,4-Dioxane	123-91-1	ug/L	20	--	**70.2**	--	**170**	--	**72**	J	**41.7**	--	**36**	--	**31**	J	**11.2**	--	**8.9**	--	**12**	--

				Sample Location	MWL-307		MWL-307		MWL-307		TW-08A		TW-08A		TW-08A	
				Sample Date	10/23/2015 11:00		3/11/2016 14:15		3/13/2017 13:00		10/22/2015 15:20		3/11/2016 10:15		3/13/2017 10:10	
				Field Sample ID	MWL-307-HS-10232015		MWL-307-HS-03112016		MWL-307-HS-03132017		TW-08A-HS-10222015		TW-08A-HS-03112016		TW-08A-HS-03132017	
				Well Group	N		N		N		N		N		N	
				HydroStratZone(s)	SOB		SOB		SOB		MOB		MOB		MOB	
Analyte **VOCs**	**CAS No.**	**Unit**	**Action Level**	**ICL**												
1,4-Dioxane	123-91-1	ug/L	20	--	**64.5**	--	**160**	--	**47**	J	**27.6**	--	**310**	J	**72**	J

				Sample Location	TW-08B		TW-08B		TW-08B		TW-08B		TW-08B		TW-08B		TW-08D		TW-08D		TW-08D	
				Sample Date	10/22/2015 0:00		10/22/2015 11:50		3/11/2016 0:00		3/11/2016 10:45		3/9/2017 0:00		3/9/2017 9:00		10/22/2015 15:00		3/11/2016 11:00		3/13/2017 9:30	
				Field Sample ID	DUP-1-10222015		TW-08B-10222015		DUP-GW-03112016		TW-08B-03112016		DUP-03092017		TW-08B-03092017		TW-08D-HS-10222015		TW-08D-HS-03112016		TW-08D-HS-03132017	
				Well Group	N		N		N		N		N		N		N		N		N	
				HydroStratZone(s)	SBR		SBR		SBR		SBR		SBR		SBR		DOB		DOB		DOB	
Analyte **VOCs**	**CAS No.**	**Unit**	**Action Level**	**ICL**																		
1,4-Dioxane	123-91-1	ug/L	20	--	**160**	--	**140**	--	**138**	--	**131**	--	**131**	--	**128**	--	**51.7**	--	3000	U	750	U

Notes:

U = Analyte not detected above the laboratory reporting limit
J = Analyte result is estimated
ug/L = micrograms per liter
VOCs = volatile organic compounds
Action Level = the lower of the USEPA Maximum Contaminant Level (MCL) and the Connecticut Class GA Groundwater Protection Criteria (GWPC)
ICL = Interim Cleanup Level based on Table L-1 from Record of Decision Summary, September 2005
Bold = Analyte detected above the laboratory reporting limit
Shaded Cell = Analyte detected above the Action Level
SOB = Shallow Overburden
MOB = Middle Overburden
DOB = Deep Overburden
TW-08A, TW-08B, and TW-08D were decommissioned in March 2017.

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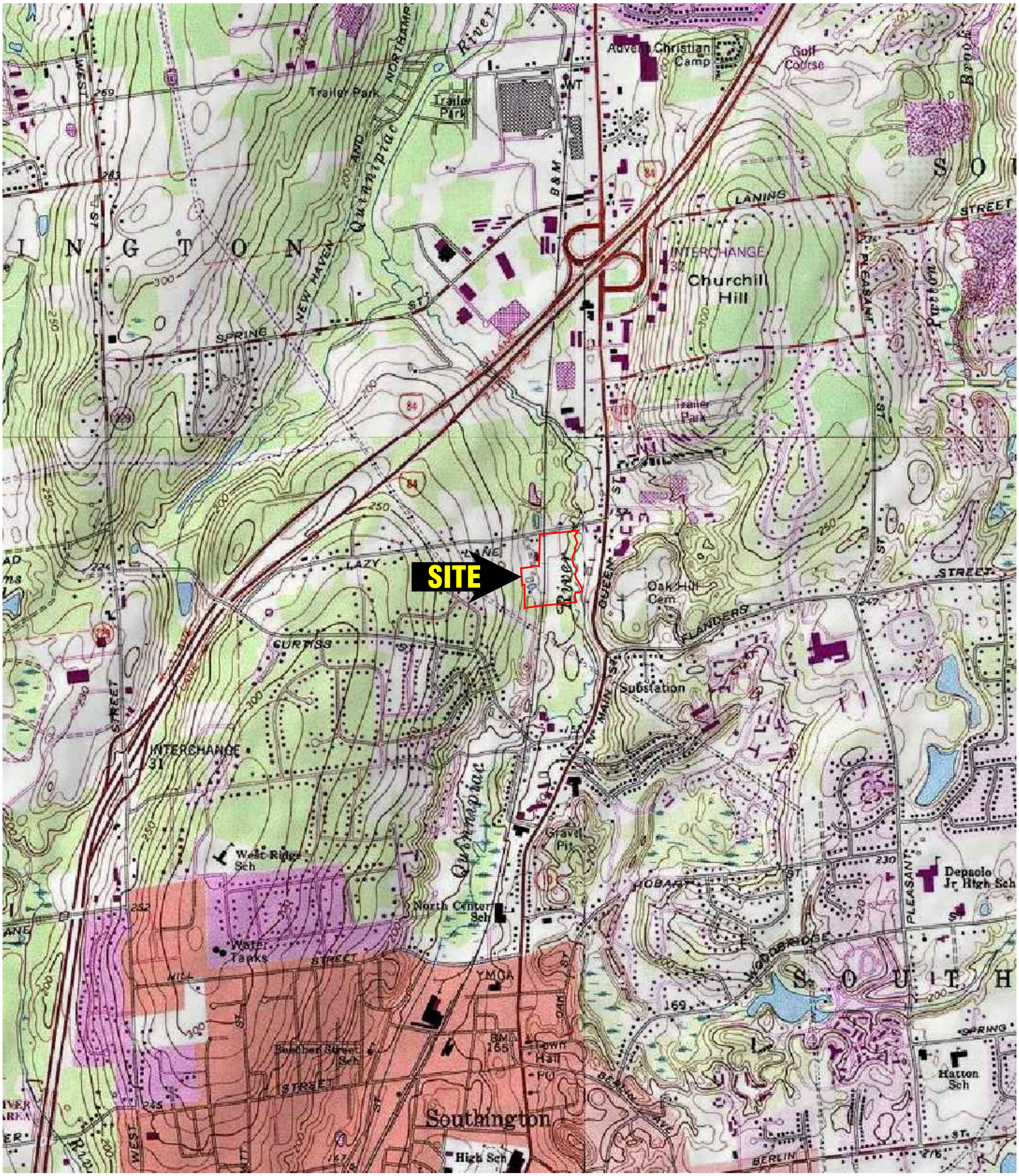
Table 6 - Statistical Summary of Groundwater Total VOC Concentration Trends
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

		Data Range					**Linear Regression Analysis**						**Mann-Kendall Analysis**			**Sen's Slope Analysis**	
Well	**Constituent**	**Minimum Concentration (ug/L)**	**Maximum Concentration (ug/L)**	**Percent of Data Below Laboratory Minimum Detection Limit**	**Start Date**	**End Date**	**Correlation Coefficient, R^2**	**p-value of Correlation**	**Estimated Attenuation Half-life (days)**	**Trend Direction (slope of trend line)**	**Trend Significant?**	**Comments**	**p-value of Correlation**	**Trend Direction**	**Trend Significant?**	**Estimated Attenuation Half-life (days)**	**Trend Direction**
Shallow Overburden Wells																	
P-13	Total VOCs	2.4	69	0	3/28/1995	6/5/2017	0.55	<0.001	2,497	Decreasing	Yes		<0.001	Decreasing	Yes	2,252	Decreasing
MWL-312	Total VOCs	<0.5	49	72	3/27/1995	6/10/2014	0.17	0.094	1,936	Decreasing	Yes	72% of results below detection	0.050	Decreasing	Yes	NA	No Trend
P-101C	Total VOCs	8	479	0	3/27/1995	6/9/2017	0.82	<0.001	1,802	Decreasing	Yes		<0.001	Decreasing	Yes	1,794	Decreasing
Middle Overburden Wells																	
MW-03	Total VOCs	0.31	120	4	12/5/1996	6/8/2017	0.37	0.0020	1,570	Decreasing	Yes		0.005	Decreasing	Yes	1,401	Decreasing
MW-205B	Total VOCs	<0.5	24	11	3/23/1995	6/10/2016	0.49	0.0009	1,594	Decreasing	Yes		0.002	Decreasing	Yes	1,352	Decreasing
P-101B	Total VOCs	1.4	187,400	0	3/27/1995	6/8/2017	0.80	<0.001	628	Decreasing	Yes		<0.001	Decreasing	Yes	610	Decreasing
MW-127B	Total VOCs	<0.5	22	11	3/23/1995	6/11/2014	0.33	0.013	1,648	Decreasing	Yes		0.018	Decreasing	Yes	1,777	Decreasing
MW-501B	Total VOCs	1.8	65	0	3/24/1995	6/11/2014	0.50	<0.001	1,369	Decreasing	Yes		<0.001	Decreasing	Yes	1,118	Decreasing
Deep Overburden Wells																	
MW-204B	Total VOCs	<0.5	87	17	3/28/1995	6/9/2014	0.21	0.054	1,703	Decreasing	Yes		0.001	Decreasing	Yes	924	Decreasing
MW-502	Total VOCs	630	118,160	0	3/21/1995	6/7/2017	0.76	<0.001	1,280	Decreasing	Yes		<0.001	Decreasing	Yes	1,574	Decreasing
MW-704D	Total VOCs	3	665	0	12/18/1996	6/6/2017	0.26	0.013	2,670	Decreasing	Yes		0.011	Decreasing	Yes	2,567	Decreasing
MW-707D	Total VOCs	<0.5	21	53	12/6/1996	6/10/2014	0.001	0.93	NA	No Trend	No	50% of results below detection	0.22	No Trend	No	NA	No Trend
Shallow Bedrock Wells																	
MW-127C	Total VOCs	9.8	147	0	3/23/1995	6/7/2017	0.71	<0.001	2,954	Decreasing	Yes		<0.001	Decreasing	Yes	3,106	Decreasing
MW-128	Total VOCs	2.2	15	0	3/23/1995	6/11/2014	0.62	<0.001	2,966	Decreasing	Yes		<0.001	Decreasing	Yes	2,390	Decreasing
MW-204A	Total VOCs	0.9	682	0	3/28/1995	6/9/2014	0.62	<0.001	872	Decreasing	Yes		<0.001	Decreasing	Yes	762	Decreasing
MW-501A	Total VOCs	8.7	118	0	3/24/1995	6/11/2014	0.85	<0.001	1,795	Decreasing	Yes		<0.001	Decreasing	Yes	1,690	Decreasing
P-11A	Total VOCs	223	26,400	0	3/27/1995	6/7/2017	0.17	0.047	NA	Increasing	Yes	Changed from decreasing in 2011	0.25	No Trend	No	NA	No Trend
Deep Bedrock Wells																	
MW-703DR	Total VOCs	<0.5	8.0	76	12/9/1996	6/10/2014	0.005	0.79	NA	No Trend	No	76% of results below detection	0.40	No Trend	No	NA	No Trend
MW-704DR	Total VOCs	11	455	0	12/17/1996	6/6/2017	0.50	<0.001	3,242	Decreasing	Yes		<0.001	Decreasing	Yes	3,822	Decreasing
MW-706DR	Total VOCs	2,079	11,240	0	12/10/1996	6/8/2017	0.34	0.0032	6,221	Decreasing	Yes		0.017	Decreasing	Yes	8,705	Decreasing
MW-707DR	Total VOCs	<0.5	18	28	12/30/1996	6/8/2017	0.09	0.15	NA	Increasing	No	28% of results below detection	0.138	Increasing	Yes	NA	NA
MW-707DR(2)	Total VOCs	1.31	16.86	0	4/20/2004	6/8/2017	0.51	0.0062	2,379	Decreasing	Yes	Using data beginning in April 2004	0.006	Decreasing	Yes	1,640	Decreasing

Notes and Assumptions:
ug/L = micrograms per liter
NS = no significant trend
NA = not applicable due to increasing trend or non-significant trend
Statistically significant trend defined as p-value less than or equal to 0.1.
For the linear regression analysis, 'No Trend' is defined as p-value greater than 0.1 and R^2 less than 0.1.

FIGURES



SOURCE: TOPO!
QUAD: MERIDEN, CT
DATE: 1992

0 2000' 4000'
GRAPHIC SCALE

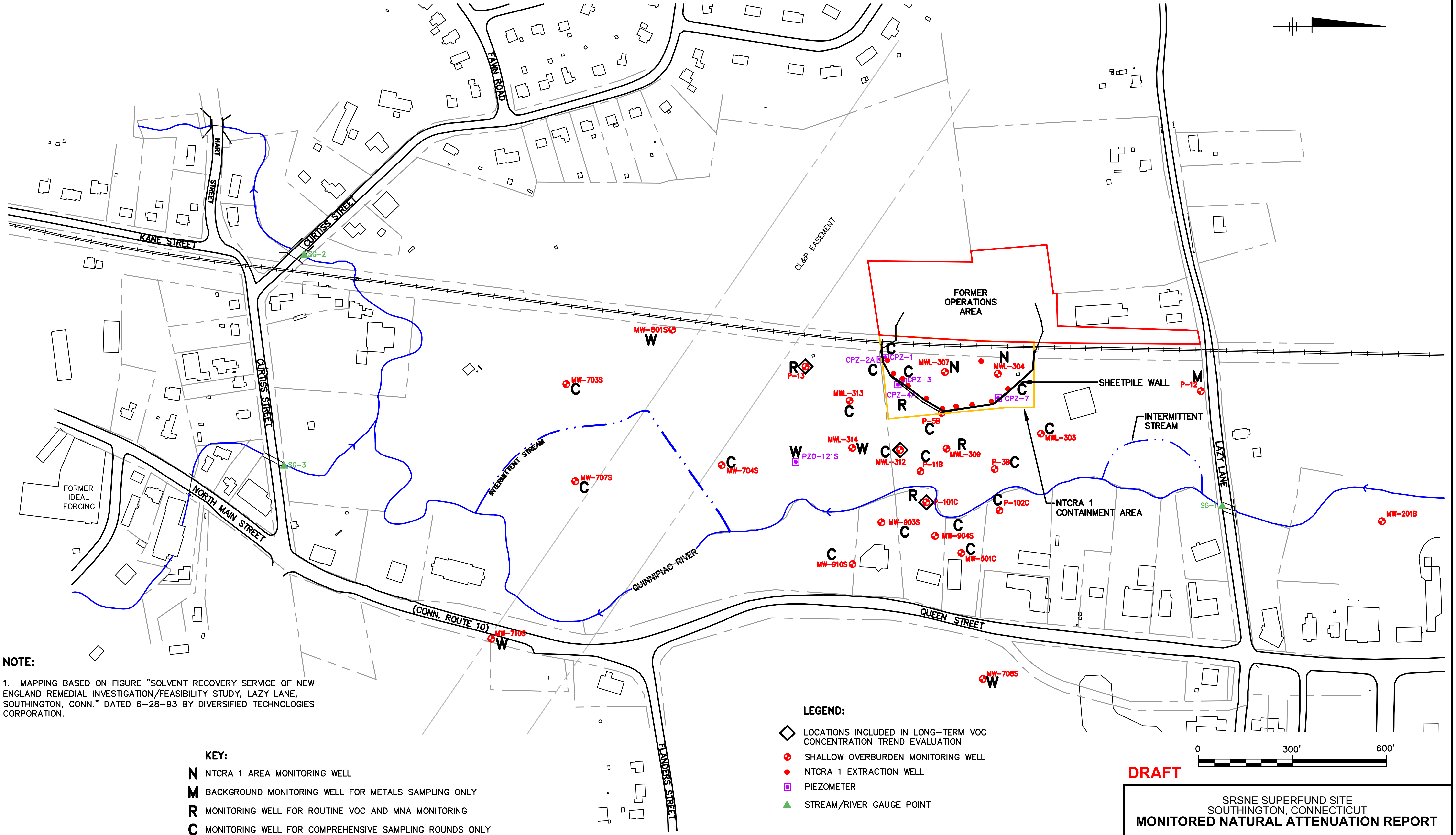
SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT

SITE LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1

CITY: MANCHESTER DIV/GROUP: ENVCAD DB: B.SMALL PM: TM:
G:\ENVCAD\Manchester\ACT\B0054634\0001\02200\2016 MNA\Site Location Map.dwg LAYOUT: 1 SAVED: 2/26/2016 4:06 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 9/14/2016 4:20 PM BY: SMALL, BRIAN



NOTE:

1. MAPPING BASED ON FIGURE "SOLVENT RECOVERY SERVICE OF NEW ENGLAND REMEDIAL INVESTIGATION/FEASIBILITY STUDY, LAZY LANE, SOUTHINGTON, CONN." DATED 6-28-93 BY DIVERSIFIED TECHNOLOGIES CORPORATION.

KEY:

N	NTCRA 1 AREA MONITORING WELL
M	BACKGROUND MONITORING WELL FOR METALS SAMPLING ONLY
R	MONITORING WELL FOR ROUTINE VOC AND MNA MONITORING
C	MONITORING WELL FOR COMPREHENSIVE SAMPLING ROUNDS ONLY
W	MONITORING WELL FOR WATER LEVEL MEASUREMENT ONLY

LEGEND:

◇	LOCATIONS INCLUDED IN LONG-TERM VOC CONCENTRATION TREND EVALUATION
⊕	SHALLOW OVERBURDEN MONITORING WELL
●	NTCRA 1 EXTRACTION WELL
▣	PIEZOMETER
▲	STREAM/RIVER GAUGE POINT

DRAFT

SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT

GROUNDWATER MONITORING LOCATIONS SHALLOW OVERBURDEN

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2

CITY: MANCHESTER, CT DIV/GROUP: ENV DB: B.SMALL PM: J. HOLDEN TM/TR: R. STEVENSON
G:\ENVCAD\Manchester\ACT\B0054634\0001\02200\54634C02.DWG LAYOUT: 2 SAVED: 9/7/2017 9:08 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 9/7/2017 9:23 AM BY: SMALL, BRIAN
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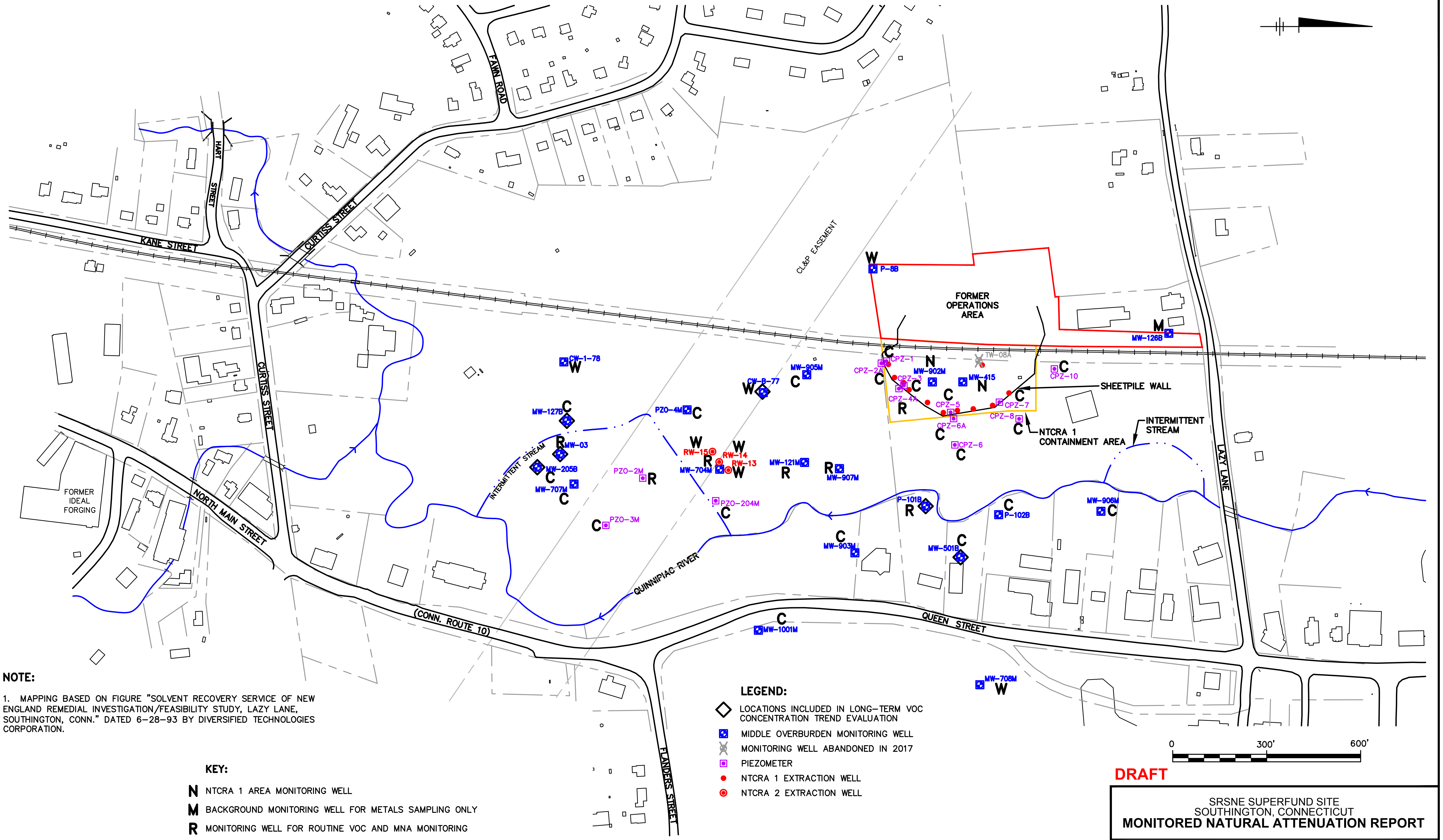

NOTE:

1. MAPPING BASED ON FIGURE "SOLVENT RECOVERY SERVICE OF NEW ENGLAND REMEDIAL INVESTIGATION/FEASIBILITY STUDY, LAZY LANE, SOUTHINGTON, CONN." DATED 6-28-93 BY DIVERSIFIED TECHNOLOGIES CORPORATION.

KEY:

N	NTCRA 1 AREA MONITORING WELL
M	BACKGROUND MONITORING WELL FOR METALS SAMPLING ONLY
R	MONITORING WELL FOR ROUTINE VOC AND MNA MONITORING
C	MONITORING WELL FOR COMPREHENSIVE SAMPLING ROUNDS ONLY
W	MONITORING WELL FOR WATER LEVEL MEASUREMENT ONLY

LEGEND:

◇	LOCATIONS INCLUDED IN LONG-TERM VOC CONCENTRATION TREND EVALUATION
⊞	MIDDLE OVERBURDEN MONITORING WELL
✕	MONITORING WELL ABANDONED IN 2017
▣	PIEZOMETER
●	NTCRA 1 EXTRACTION WELL
◉	NTCRA 2 EXTRACTION WELL

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SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT

GROUNDWATER MONITORING LOCATIONS MIDDLE OVERBURDEN

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3

CITY: MANCHESTER, CT DIV/GROUP: ENV DB: B.SMALL PM: J. HOLDEN TM/TR: R. STEVENSON
G:\ENVCAD\Manchester\ACT\B0054634\0001\02200\54634C03.DWG LAYOUT: 3 SAVED: 9/7/2017 9:22 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 9/7/2017 9:23 AM BY: SMALL, BRIAN
XREFS: IMAGES: PROJECTNAME: ---
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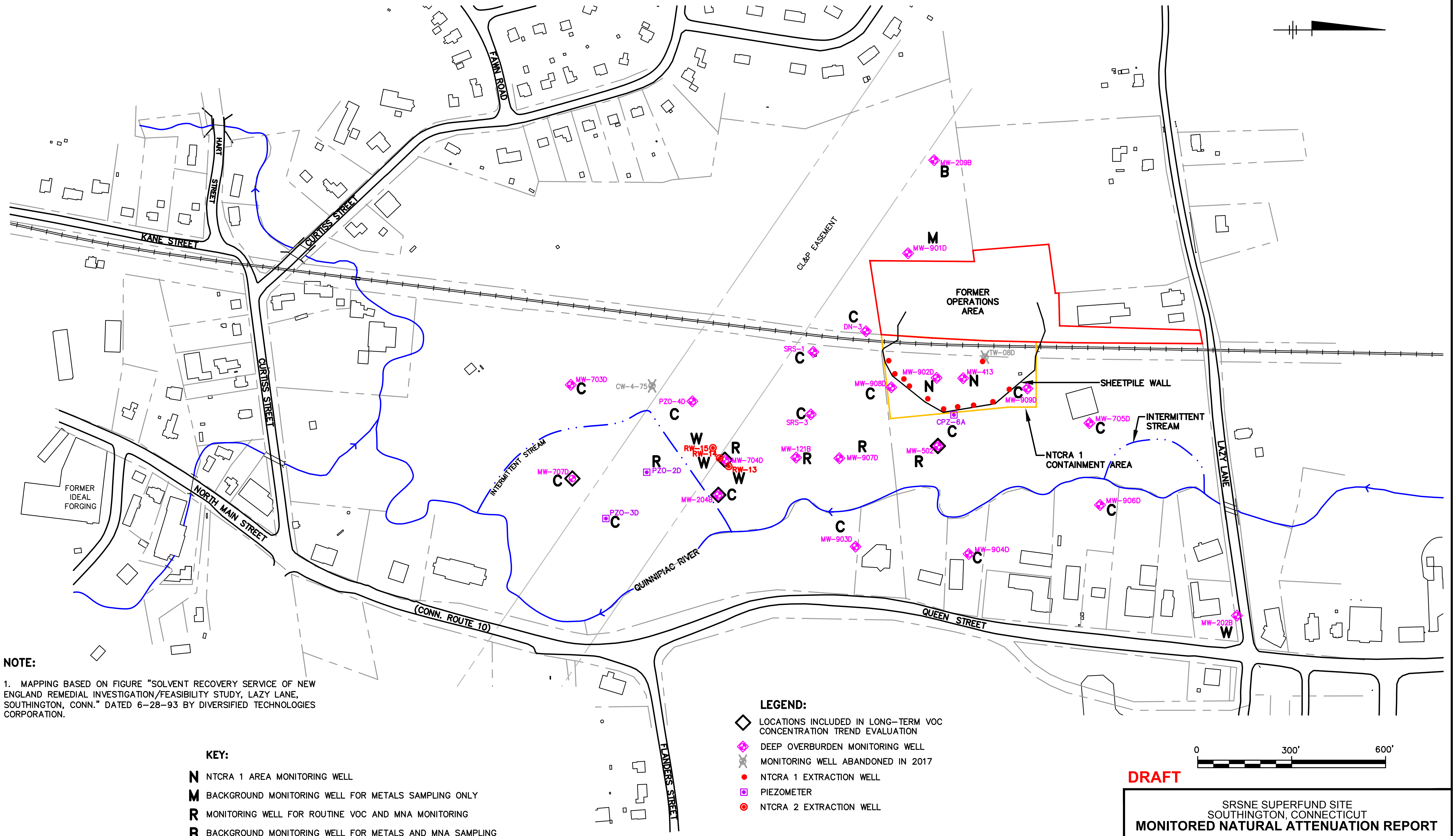
54634X00



NOTE:

1. MAPPING BASED ON FIGURE "SOLVENT RECOVERY SERVICE OF NEW ENGLAND REMEDIAL INVESTIGATION/FEASIBILITY STUDY, LAZY LANE, SOUTHINGTON, CONN." DATED 6-28-93 BY DIVERSIFIED TECHNOLOGIES CORPORATION.

KEY:

N NTCRA 1 AREA MONITORING WELL
M BACKGROUND MONITORING WELL FOR METALS SAMPLING ONLY
R MONITORING WELL FOR ROUTINE VOC AND MNA MONITORING
B BACKGROUND MONITORING WELL FOR METALS AND MNA SAMPLING
C MONITORING WELL FOR COMPREHENSIVE SAMPLING ROUNDS ONLY
W MONITORING WELL FOR WATER LEVEL MEASUREMENT ONLY

LEGEND:

◇ LOCATIONS INCLUDED IN LONG-TERM VOC CONCENTRATION TREND EVALUATION
⊕ DEEP OVERBURDEN MONITORING WELL
✕ MONITORING WELL ABANDONED IN 2017
● NTCRA 1 EXTRACTION WELL
▣ PIEZOMETER
◎ NTCRA 2 EXTRACTION WELL

DRAFT

SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT

GROUNDWATER MONITORING LOCATIONS DEEP OVERBURDEN

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4

CITY: MANCHESTER, CT DIV/GROUP: ENV DB: B.SMALL PM: J. HOLDEN TM/TR: R. STEVENSON
G:\ENVCAD\Manchester\ACT\B0054634\0001\02200\54634C04.DWG LAYOUT: 4 SAVED: 9/7/2017 9:22 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 9/7/2017 9:23 AM BY: SMALL, BRIAN
XREFS: IMAGES: PROJECTNAME: ---
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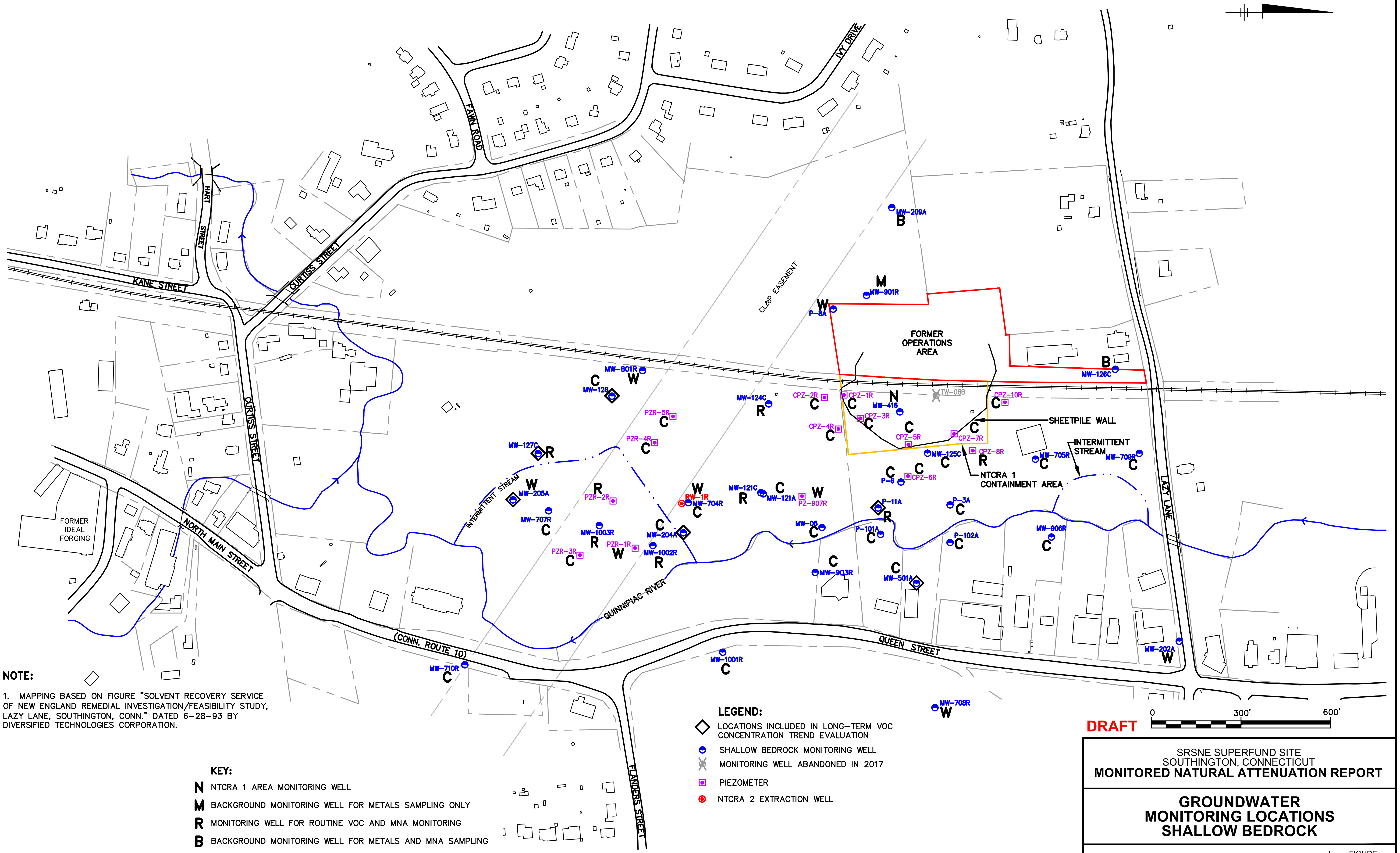
54634X00



DRAFT

NOTE:

1. MAPPING BASED ON FIGURE "SOLVENT RECOVERY SERVICE OF NEW ENGLAND REMEDIAL INVESTIGATION/FEASIBILITY STUDY, LAZY LANE, SOUTHINGTON, CONN." DATED 6-28-93 BY DIVERSIFIED TECHNOLOGIES CORPORATION.

KEY:

N	NTCRA 1 AREA MONITORING WELL
M	BACKGROUND MONITORING WELL FOR METALS SAMPLING ONLY
R	MONITORING WELL FOR ROUTINE VOC AND MNA MONITORING
B	BACKGROUND MONITORING WELL FOR METALS AND MNA SAMPLING
C	MONITORING WELL FOR COMPREHENSIVE SAMPLING ROUNDS ONLY
W	MONITORING WELL FOR WATER LEVEL MEASUREMENT ONLY

LEGEND:

◇	LOCATIONS INCLUDED IN LONG-TERM VOC CONCENTRATION TREND EVALUATION
●	SHALLOW BEDROCK MONITORING WELL
⊗	MONITORING WELL ABANDONED IN 2017
▣	PIEZOMETER
◉	NTCRA 2 EXTRACTION WELL

SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT

GROUNDWATER MONITORING LOCATIONS SHALLOW BEDROCK

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5

CITY: MANCHESTER, CT DIV/GROUP: ENV DB: B.SMALL PM: J. HOLDEN TM/TR: R. STEVENSON
G:\ENVCAD\Manchester\ACT\B0054634\0001\02200\54634C05.DWG LAYOUT: 5 SAVED: 9/7/2017 9:22 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 9/7/2017 9:23 AM BY: SMALL, BRIAN
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54634X01
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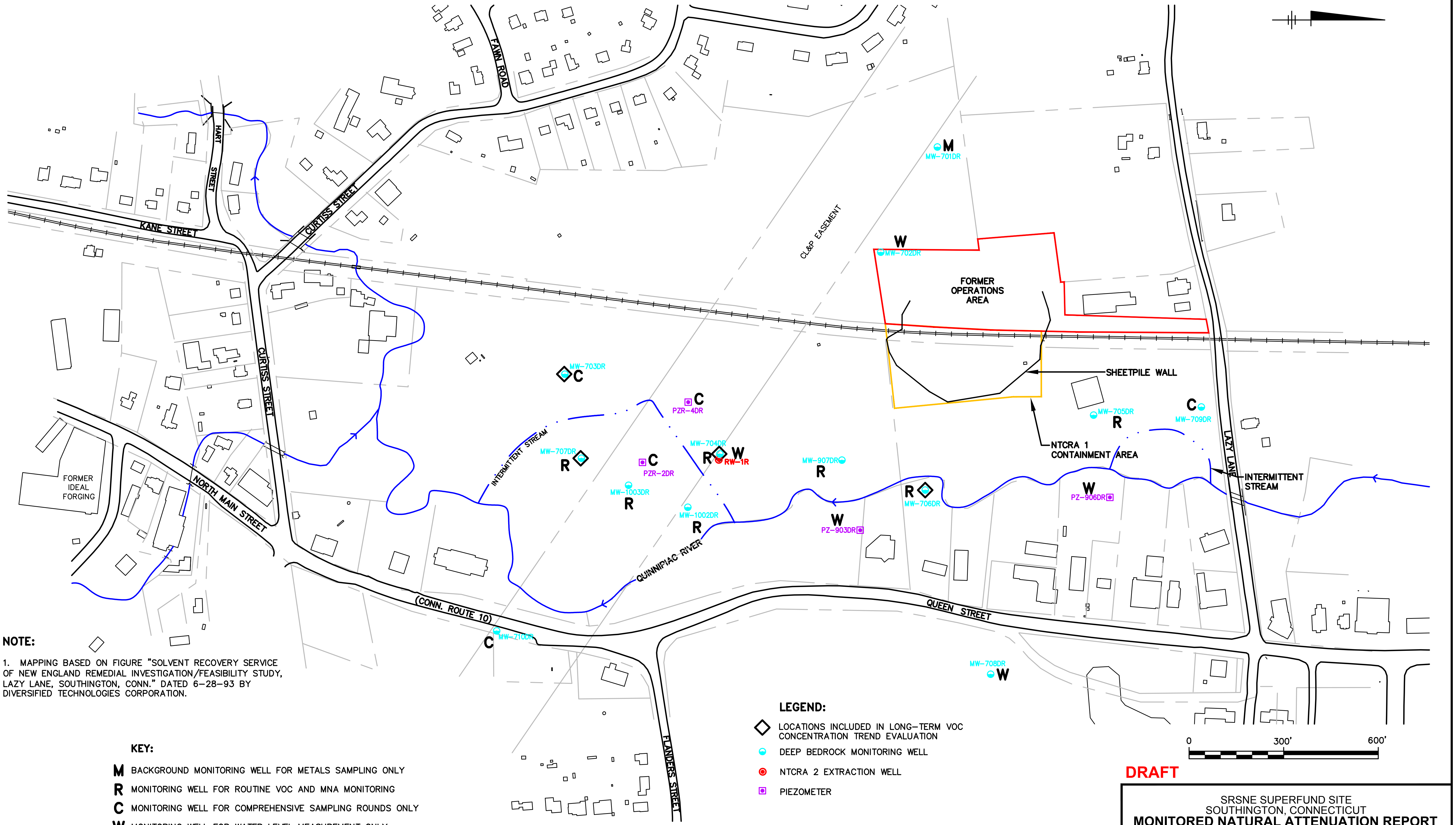

DRAFT

NOTE:

1. MAPPING BASED ON FIGURE "SOLVENT RECOVERY SERVICE OF NEW ENGLAND REMEDIAL INVESTIGATION/FEASIBILITY STUDY, LAZY LANE, SOUTHINGTON, CONN." DATED 6-28-93 BY DIVERSIFIED TECHNOLOGIES CORPORATION.

KEY:

M BACKGROUND MONITORING WELL FOR METALS SAMPLING ONLY
R MONITORING WELL FOR ROUTINE VOC AND MNA MONITORING
C MONITORING WELL FOR COMPREHENSIVE SAMPLING ROUNDS ONLY
W MONITORING WELL FOR WATER LEVEL MEASUREMENT ONLY

LEGEND:

◇ LOCATIONS INCLUDED IN LONG-TERM VOC CONCENTRATION TREND EVALUATION
◒ DEEP BEDROCK MONITORING WELL
◉ NTCRA 2 EXTRACTION WELL
▣ PIEZOMETER

SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT

GROUNDWATER MONITORING LOCATIONS DEEP BEDROCK

ARCADIS Design & Consultancy for natural and built assets

FIGURE
6

CITY: MANCHESTER, CT DIV/GROUP: ENV DB: B.SMALL PM: J. HOLDEN TM/TR: R. STEVENSON
G:\ENVCAD\Manchester\ACT\B0054634\0001\02200\54634C06.DWG LAYOUT: 6 SAVED: 9/7/2017 9:22 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 9/7/2017 9:23 AM BY: SMALL, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
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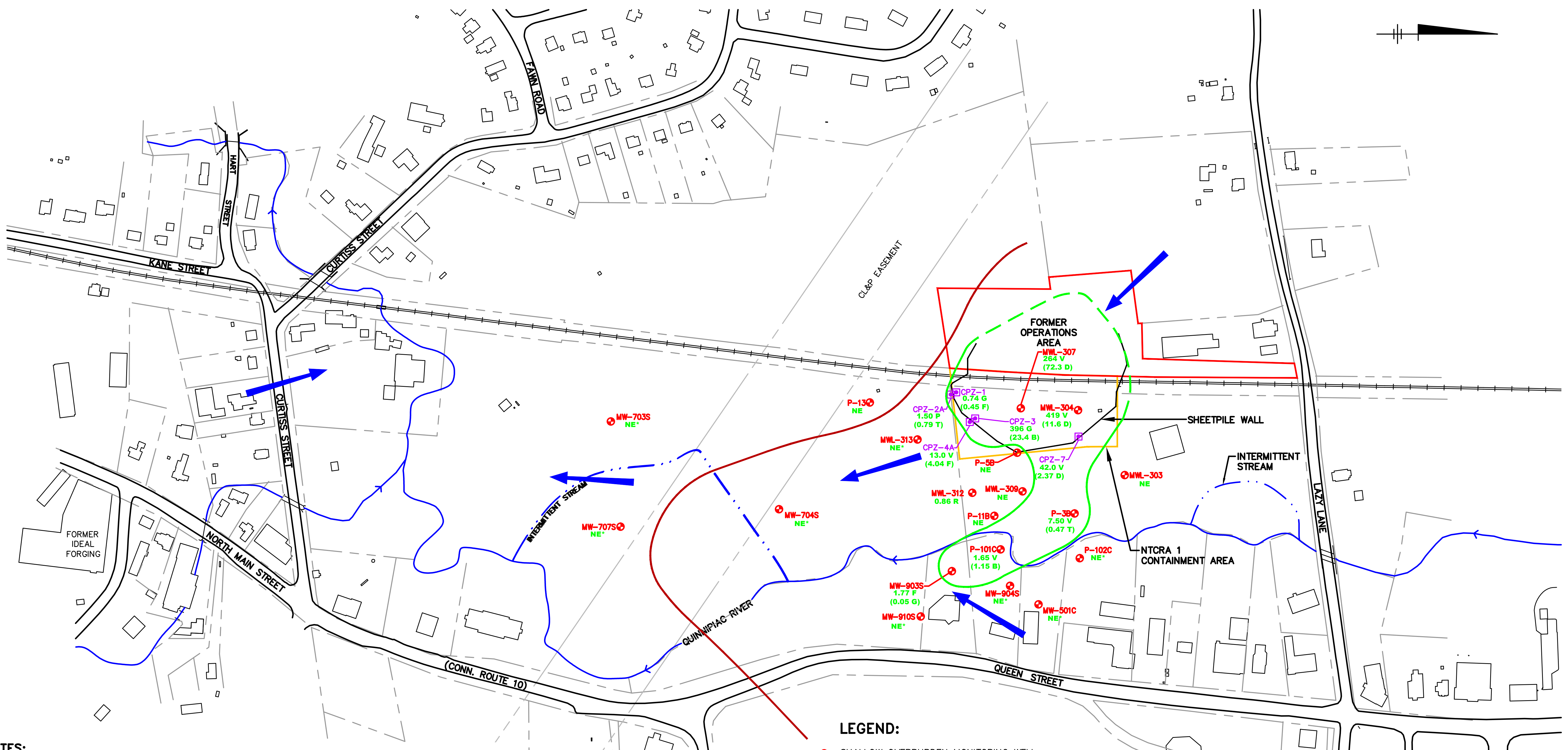
54634X00



NOTES:

1. MAPPING BASED ON FIGURE "SOLVENT RECOVERY SERVICE OF NEW ENGLAND REMEDIAL INVESTIGATION/FEASIBILITY STUDY, LAZY LANE, SOUTHINGTON, CONN." DATED 6-28-93 BY DIVERSIFIED TECHNOLOGIES CORPORATION.

2. POSTED DATA ARE THE LATEST SAMPLING RESULTS AT EACH WELL, AS OF JUNE 2017.

3. THE ESTIMATED OVERBURDEN CAPTURE ZONE WAS ESTIMATED BASED ON PARTICLE TRACKING USING THE CURRENT MODFLOW MODEL AND A COMBINED NTCRA 2 EXTRACTION RATE OF 35 GALLONS PER MINUTE.

KEY:

A	1,1-DICHLOROETHANE
B	BENZENE
D	CIS-1,2-DICHLOROETHENE
F	TETRAHYDROFURAN
G	CHLOROETHANE
N	ACETONE
P	TETRACHLOROETHENE
R	TRANS-1,3-DICHLOROPROPENE
T	TRICHLOROETHENE
V	VINYL CHLORIDE
NE	EXCEEDANCE RATIO LESS THAN 0.10

LEGEND:

●	SHALLOW OVERBURDEN MONITORING WELL
▣	PIEZOMETER
🟩	ESTIMATED EXTENT OF GROUNDWATER VOC EXCEEDANCES OF MCLs OR CT DEEP CLASS GA GWPCs (2014–2017 SAMPLING RESULTS) (DASHED WHERE INFERRED)
🟥	ESTIMATED NTCRA 2 CAPTURE ZONE BOUNDARY
←	GENERALIZED GROUNDWATER FLOW DIRECTION
P-101C 1.65 V (1.15 B)	WELL WITH REGULATORY EXCEEDANCE RATIO. NUMBERS >1.0 INDICATE GROUNDWATER REGULATORY LIMIT EXCEEDED. NUMBERS <1.0 INDICATE EXCEEDANCE RATIO FOR COMPOUNDS DETECTED BELOW REGULATORY LIMIT. FIRST NUMBER INDICATES MAXIMUM MULTIPLE OF A DETECTED VOC OVER REGULATORY LIMIT (e.g., 130 INDICATES 130 x LIMIT). LETTER INDICATES COMPOUND WITH INDICATED EXCEEDANCE RATIO (e.g., P = TETRACHLOROETHENE). NUMBERS IN PARENTHESES INDICATE OTHER EXCEEDANCE RATIOS FOR SELECT COMPOUNDS AND WELLS. COMPOUNDS DETECTED IN BLANK(S) ARE NOT INCLUDED IN THIS EVALUATION.
*	NO DETECTIONS ABOVE INTERIM CLEANUP LEVELS (ICLs) AT THIS LOCATION.

0 300' 600'

DRAFT

SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT

VOC EXCEEDANCE PLUME
SHALLOW OVERBURDEN

ARCADIS Design & Consultancy for natural and built assets

FIGURE
7

CITY: MANCHESTER, CT DIV/GROUP: ENV DB: B.SMALL PM: J. HOLDEN TM/TR: R. STEVENSON
G:\ENVCAD\Manchester\ACT\B0054634\0001\02200\54634C07.DWG LAYOUT: 7 SAVED: 9/7/2017 9:28 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 9/11/2017 9:02 AM BY: SMALL, BRIAN
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54634X01
54634X00

CITY: MANCHESTER, CT DIV/GROUP: ENV DB: B.SMALL PM: J. HOLDEN TM/TR: R. STEVENSON
G:\ENVCAD\Manchester\ACT\B0054634\0001\02200\54634C08.DWG LAYOUT: 8 SAVED: 9/7/2017 9:22 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 9/7/2017 9:23 AM BY: SMALL, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
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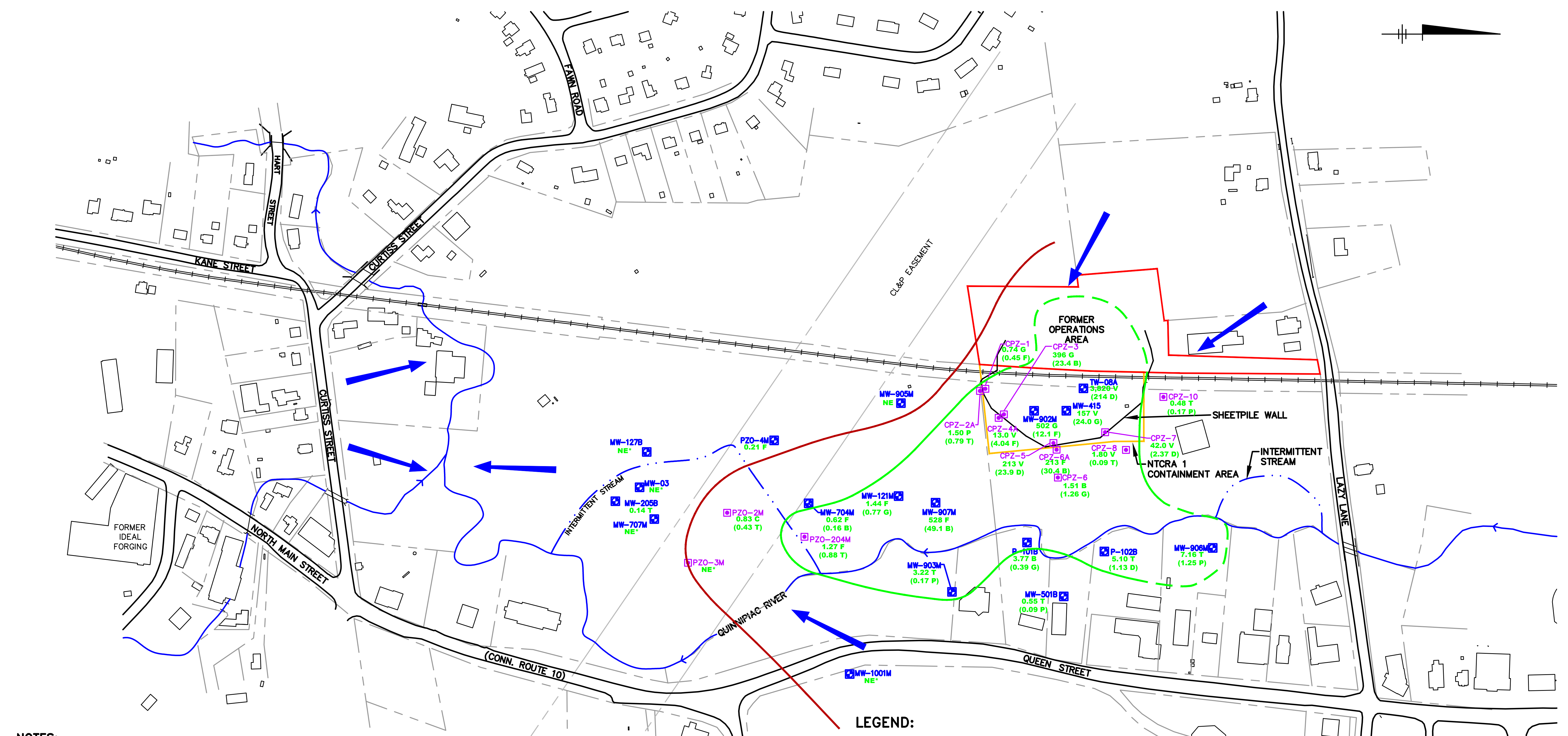
54634X00



NOTES:

1. MAPPING BASED ON FIGURE "SOLVENT RECOVERY SERVICE OF NEW ENGLAND REMEDIAL INVESTIGATION/FEASIBILITY STUDY, LAZY LANE, SOUTHINGTON, CONN." DATED 6-28-93 BY DIVERSIFIED TECHNOLOGIES CORPORATION.

2. POSTED DATA ARE THE LATEST SAMPLING RESULTS AT EACH WELL, AS OF JUNE 2017.

3. THE ESTIMATED OVERBURDEN CAPTURE ZONE WAS ESTIMATED BASED ON PARTICLE TRACKING USING THE CURRENT MODFLOW MODEL AND A COMBINED NTCRA 2 EXTRACTION RATE OF 35 GALLONS PER MINUTE.

KEY:

B	BENZENE
D	CIS-1,2-DICHLOROETHENE
F	TETRAHYDROFURAN
G	CHLOROETHANE
P	TETRACHLOROETHENE
T	TRICHLOROETHENE
V	VINYL CHLORIDE
NE	EXCEEDANCE RATIO LESS THAN 0.10

LEGEND:

⊠	MIDDLE OVERBURDEN MONITORING WELL
⊡	PIEZOMETER
──	ESTIMATED EXTENT OF GROUNDWATER VOC EXCEEDANCES OF MCLs OR CT DEEP CLASS GA GWPCs (2014–2017 SAMPLING RESULTS) (DASHED WHERE INFERRED)
──	ESTIMATED NTCRA 2 CAPTURE ZONE BOUNDARY
←	GENERALIZED GROUNDWATER FLOW DIRECTION
⊠ MW–903M 3.22 T (0.17 P)	WELL WITH REGULATORY EXCEEDANCE RATIO. NUMBERS >1.0 INDICATE GROUNDWATER REGULATORY LIMIT EXCEEDED. NUMBERS <1.0 INDICATE EXCEEDANCE RATIO FOR COMPOUNDS DETECTED BELOW REGULATORY LIMIT. FIRST NUMBER INDICATES MAXIMUM MULTIPLE OF A DETECTED VOC OVER REGULATORY LIMIT (e.g., 130 INDICATES 130 x LIMIT). LETTER INDICATES COMPOUND WITH INDICATED EXCEEDANCE RATIO (e.g., P = TETRACHLOROETHENE). NUMBERS IN PARENTHESES INDICATE OTHER EXCEEDANCE RATIOS FOR SELECT COMPOUNDS AND WELLS. COMPOUNDS DETECTED IN BLANK(S) ARE NOT INCLUDED IN THIS EVALUATION.
*	NO DETECTIONS ABOVE INTERIM CLEANUP LEVELS (ICLs) AT THIS LOCATION.

0 300' 600'

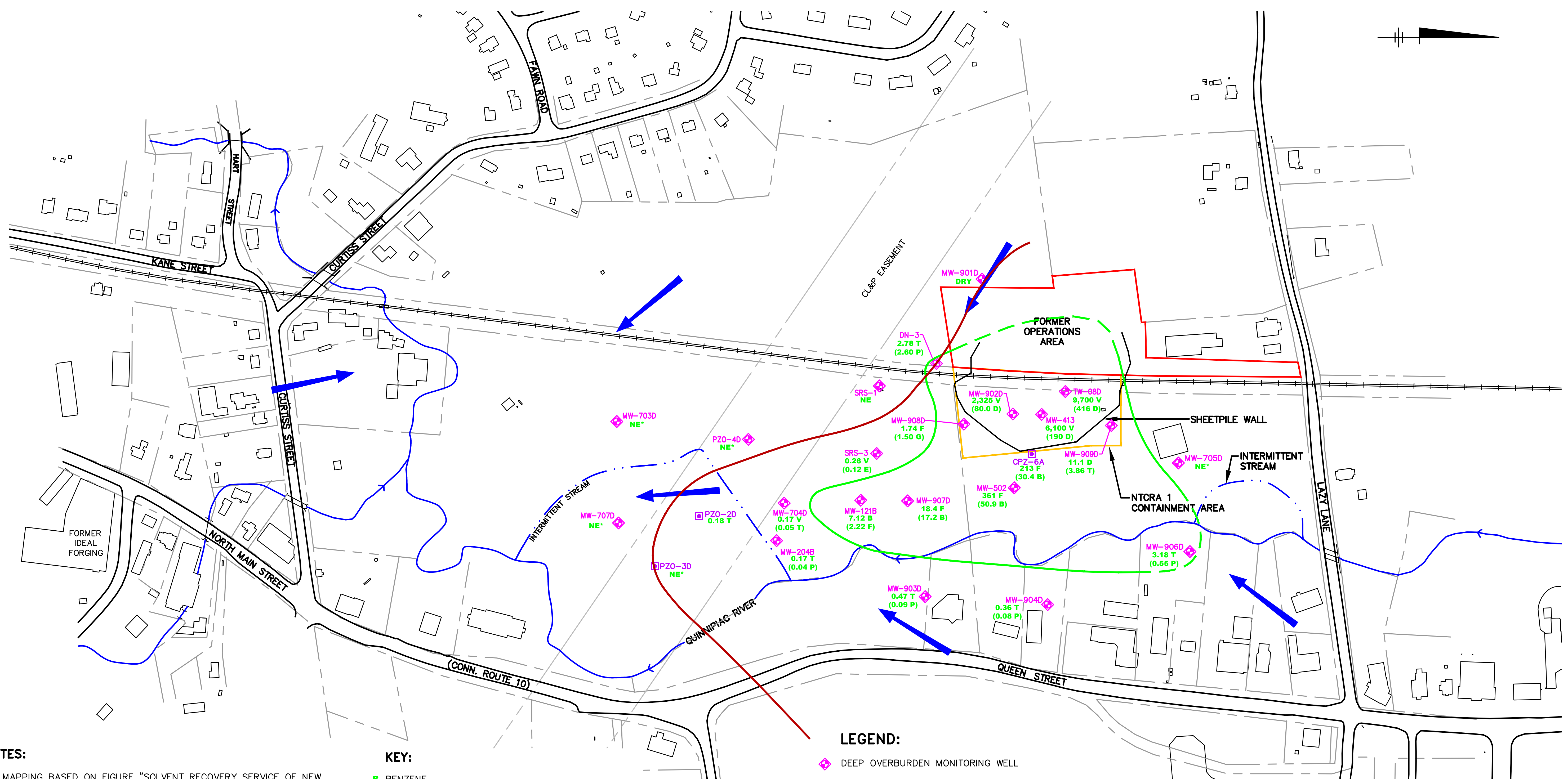
DRAFT

SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT

VOC EXCEEDANCE PLUME
MIDDLE OVERBURDEN

ARCADIS Design & Consultancy for natural and built assets

FIGURE
8



NOTES:

1. MAPPING BASED ON FIGURE "SOLVENT RECOVERY SERVICE OF NEW ENGLAND REMEDIAL INVESTIGATION/FEASIBILITY STUDY, LAZY LANE, SOUTHINGTON, CONN." DATED 6-28-93 BY DIVERSIFIED TECHNOLOGIES CORPORATION.

2. POSTED DATA ARE THE LATEST SAMPLING RESULTS AT EACH WELL, AS OF JUNE 2017.

3. THE ESTIMATED OVERBURDEN CAPTURE ZONE WAS ESTIMATED BASED ON PARTICLE TRACKING USING THE CURRENT MODFLOW MODEL AND A COMBINED NTCRA 2 EXTRACTION RATE OF 35 GALLONS PER MINUTE.

KEY:

B	BENZENE
D	CIS-1,2-DICHLOROETHENE
E	1,1-DICHLOROETHANE
F	TETRAHYDROFURAN
P	TETRACHLOROETHENE
T	TRICHLOROETHENE
V	VINYL CHLORIDE
NE	EXCEEDANCE RATIO LESS THAN 0.10

LEGEND:

◈	DEEP OVERBURDEN MONITORING WELL
▣	PIEZOMETER
🟩	ESTIMATED EXTENT OF GROUNDWATER VOC EXCEEDANCES OF MCLs OR CT DEEP CLASS GA GWPCs (2014-2017 SAMPLING RESULTS) (DASHED WHERE INFERRED)
🟥	ESTIMATED NTCRA 2 CAPTURE ZONE BOUNDARY
←	GENERALIZED GROUNDWATER FLOW DIRECTION
MW-502 ◈ 361 F (50.9 B)	WELL WITH REGULATORY EXCEEDANCE RATIO. NUMBERS >1.0 INDICATE GROUNDWATER REGULATORY LIMIT EXCEEDED. NUMBERS <1.0 INDICATE EXCEEDANCE RATIO FOR COMPOUNDS DETECTED BELOW REGULATORY LIMIT. FIRST NUMBER INDICATES MAXIMUM MULTIPLE OF A DETECTED VOC OVER REGULATORY LIMIT (e.g., 130 INDICATES 130 x LIMIT). LETTER INDICATES COMPOUND WITH INDICATED EXCEEDANCE RATIO (e.g., P = TETRACHLOROETHENE). NUMBERS IN PARENTHESES INDICATE OTHER EXCEEDANCE RATIOS FOR SELECT COMPOUNDS AND WELLS. COMPOUNDS DETECTED IN BLANK(S) ARE NOT INCLUDED IN THIS EVALUATION.
*	NO DETECTIONS ABOVE INTERIM CLEANUP LEVELS (ICLs) AT THIS LOCATION.

0 300' 600'

DRAFT

SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT

VOC EXCEEDANCE PLUME DEEP OVERBURDEN

ARCADIS Design & Consultancy for natural and built assets

FIGURE
9

CITY: MANCHESTER, CT DIV/GROUP: ENV DB: B.SMALL PM: J. HOLDEN TM/TR: R. STEVENSON
G:\ENVCAD\Manchester\ACT\B0054634\0001\02200\54634C09.DWG LAYOUT: 9 SAVED: 9/7/2017 9:28 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 9/11/2017 9:02 AM BY: SMALL, BRIAN
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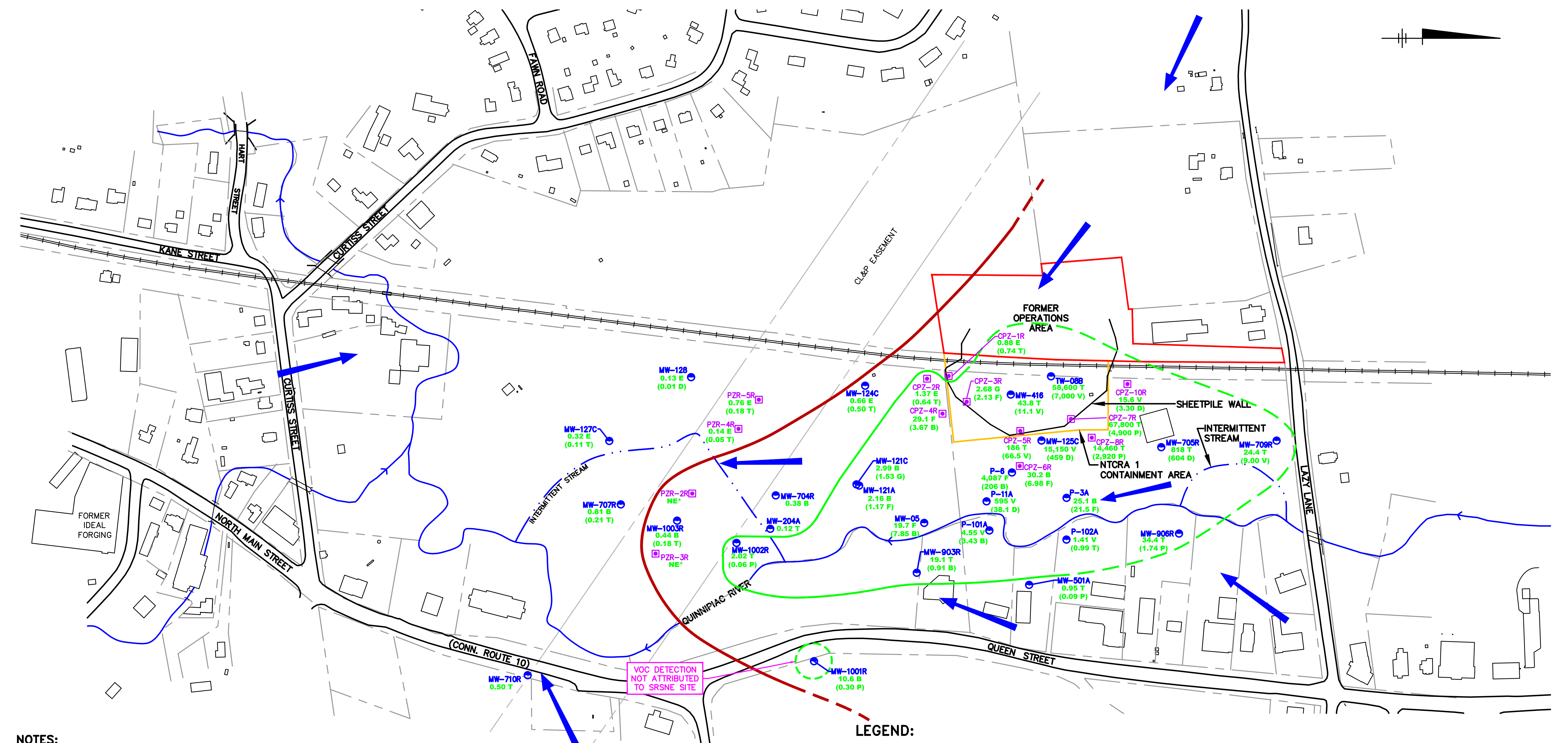
54634X00



NOTES:

1. MAPPING BASED ON FIGURE "SOLVENT RECOVERY SERVICE OF NEW ENGLAND REMEDIAL INVESTIGATION/FEASIBILITY STUDY, LAZY LANE, SOUTHINGTON, CONN." DATED 6-28-93 BY DIVERSIFIED TECHNOLOGIES CORPORATION.

2. POSTED DATA ARE THE LATEST SAMPLING RESULTS AT EACH WELL, AS OF JUNE 2017.

3. THE ESTIMATED BEDROCK CAPTURE ZONE WAS ESTIMATED BASED ON PARTICLE TRACKING USING THE CURRENT MODFLOW MODEL AND A COMBINED NTCRA 2 EXTRACTION RATE OF 35 GALLONS PER MINUTE.

KEY:

B	BENZENE
D	CIS-1,2-DICHLOROETHENE
E	1,1-DICHLOROETHENE
F	TETRAHYDROFURAN
G	CHLOROETHANE
P	TETRACHLOROETHENE
T	TRICHLOROETHENE
V	VINYL CHLORIDE
NE	EXCEEDANCE RATIO LESS THAN 0.10

LEGEND:

●	SHALLOW BEDROCK MONITORING WELL
▣	PIEZOMETER
—	ESTIMATED EXTENT OF GROUNDWATER VOC EXCEEDANCES OF MCLs OR CT DEEP CLASS GA GWPCs (2014–2017 SAMPLING RESULTS) (DASHED WHERE INFERRED)
—	ESTIMATED NTCRA 2 CAPTURE ZONE BOUNDARY
←	GENERALIZED GROUNDWATER FLOW DIRECTION
●P-11A 595 V (38.1 D)	WELL WITH REGULATORY EXCEEDANCE RATIO. NUMBERS >1.0 INDICATE GROUNDWATER REGULATORY LIMIT EXCEEDED. NUMBERS <1.0 INDICATE EXCEEDANCE RATIO FOR COMPOUNDS DETECTED BELOW REGULATORY LIMIT. FIRST NUMBER INDICATES MAXIMUM MULTIPLE OF A DETECTED VOC OVER REGULATORY LIMIT (e.g., 130 INDICATES 130 x LIMIT). LETTER INDICATES COMPOUND WITH INDICATED EXCEEDANCE RATIO (e.g., P = TETRACHLOROETHENE). NUMBERS IN PARENTHESES INDICATE OTHER EXCEEDANCE RATIOS FOR SELECT COMPOUNDS AND WELLS. COMPOUNDS DETECTED IN BLANK(S) ARE NOT INCLUDED IN THIS EVALUATION.
*	NO DETECTIONS ABOVE INTERIM CLEANUP LEVELS (ICLs) AT THIS LOCATION.

DRAFT

0 300' 600'

SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT

VOC EXCEEDANCE PLUME
SHALLOW BEDROCK

ARCADIS Design & Consultancy for natural and built assets

FIGURE
10

CITY: MANCHESTER, CT DIV/GROUP: ENV DB: B.SMALL PM: J. HOLDEN TM/TR: R. STEVENSON
G:\ENVCAD\Manchester\ACT\B0054634\0001\02200\54634C10.DWG LAYOUT: 10 SAVED: 9/7/2017 9:28 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 9/11/2017 9:01 AM BY: SMALL, BRIAN
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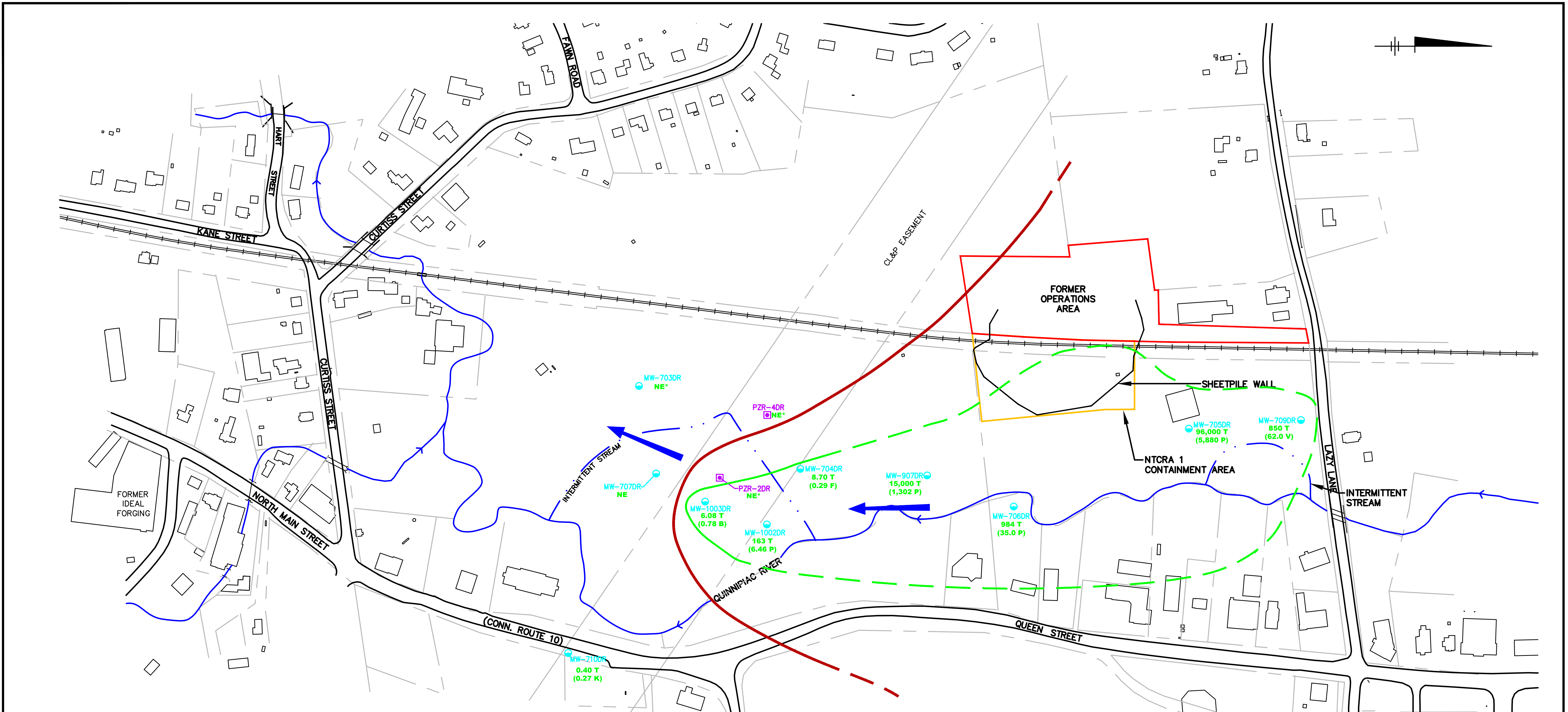
54634X00



NOTES:

1. MAPPING BASED ON FIGURE "SOLVENT RECOVERY SERVICE OF NEW ENGLAND REMEDIAL INVESTIGATION/FEASIBILITY STUDY, LAZY LANE, SOUTHINGTON, CONN." DATED 6-28-93 BY DIVERSIFIED TECHNOLOGIES CORPORATION.

2. POSTED DATA ARE THE LATEST SAMPLING RESULTS AT EACH WELL, AS OF JUNE 2017.

3. THE ESTIMATED BEDROCK CAPTURE ZONE WAS ESTIMATED BASED ON PARTICLE TRACKING USING THE CURRENT MODFLOW MODEL AND A COMBINED NTCRA 2 EXTRACTION RATE OF 35 GALLONS PER MINUTE.

KEY:

A	1,1-DICHLOROETHANE
B	BENZENE
F	TETRAHYDROFURAN
G	CHLOROETHANE
K	1,2-DICHLOROETHANE
P	TETRACHLOROETHENE
T	TRICHLOROETHENE
V	VINYL CHLORIDE
NE	EXCEEDANCE RATIO LESS THAN 0.10

LEGEND:

◒	DEEP BEDROCK MONITORING WELL
▣	PIEZOMETER
🟩	ESTIMATED EXTENT OF GROUNDWATER VOC EXCEEDANCES OF MCLs OR CT DEEP CLASS GA GWPCs (2014–2017 SAMPLING RESULTS) (DASHED WHERE INFERRED)
🟥	ESTIMATED NTCRA 2 CAPTURE ZONE BOUNDARY
←	GENERALIZED GROUNDWATER FLOW DIRECTION
MW-907DR ◒ 15,000 T (1,302 P)	WELL WITH REGULATORY EXCEEDANCE RATIO. NUMBERS >1.0 INDICATE GROUNDWATER REGULATORY LIMIT EXCEEDED. NUMBERS <1.0 INDICATE EXCEEDANCE RATIO FOR COMPOUNDS DETECTED BELOW REGULATORY LIMIT. FIRST NUMBER INDICATES MAXIMUM MULTIPLE OF A DETECTED VOC OVER REGULATORY LIMIT (e.g., 130 INDICATES 130 x LIMIT). LETTER INDICATES COMPOUND WITH INDICATED EXCEEDANCE RATIO (e.g., P = TETRACHLOROETHENE). NUMBERS IN PARENTHESES INDICATE OTHER EXCEEDANCE RATIOS FOR SELECT COMPOUNDS AND WELLS. COMPOUNDS DETECTED IN BLANK(S) ARE NOT INCLUDED IN THIS EVALUATION.
*	NO DETECTIONS ABOVE INTERIM CLEANUP LEVELS (ICLs) AT THIS LOCATION.

0 300' 600'

DRAFT

SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT

VOC EXCEEDANCE PLUME DEEP BEDROCK

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FIGURE
11

CITY: MANCHESTER, CT DIV/GROUP: ENV DB: B.SMALL PM: J. HOLDEN TM/TR: R. STEVENSON
G:\ENVCAD\Manchester\ACT\B0054634\0001\02200\54634C11.DWG LAYOUT: 11 SAVED: 9/11/2017 9:01 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 9/11/2017 9:01 AM BY: SMALL, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
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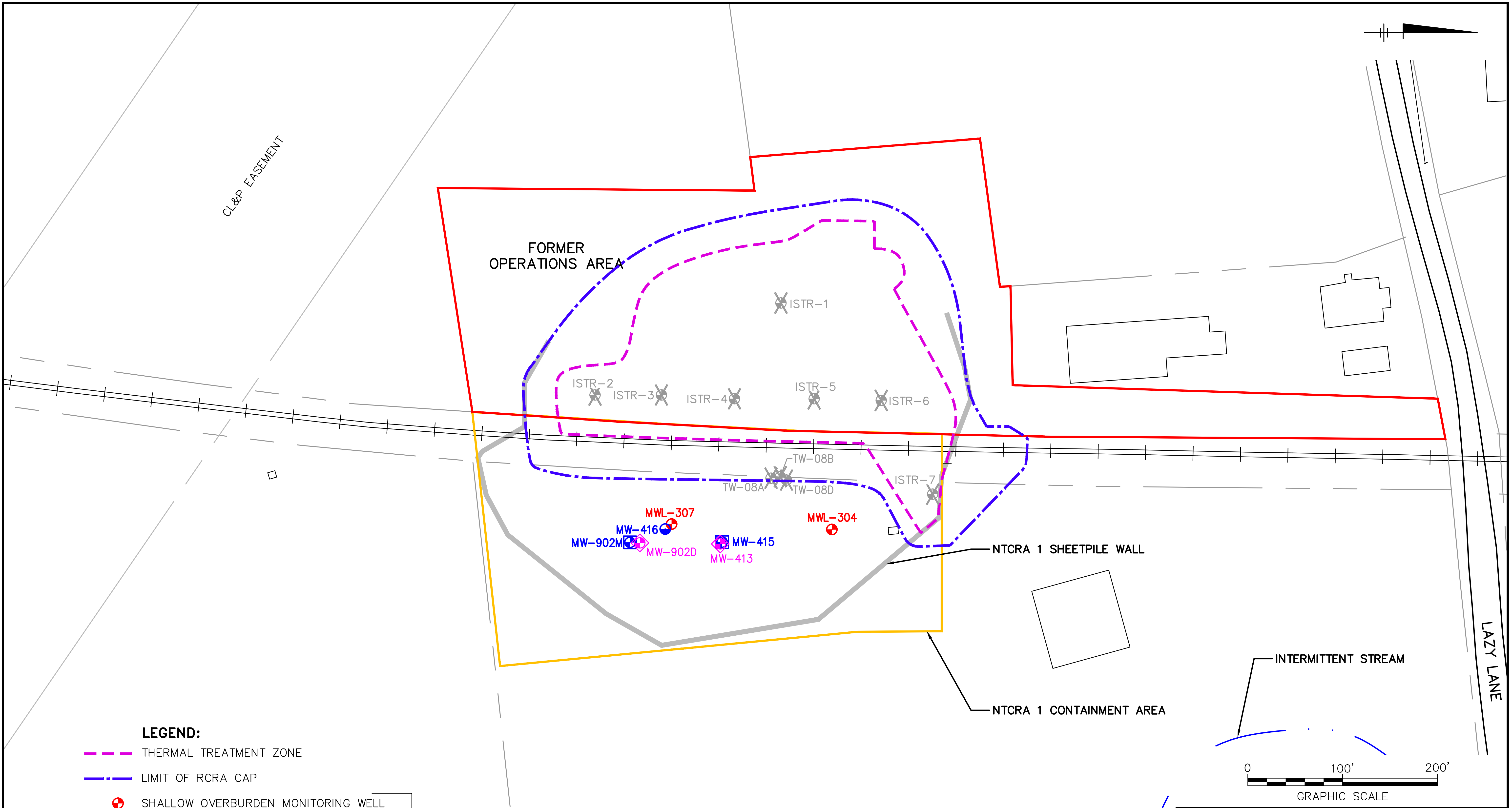
54634X00



LEGEND:

- ▬ ▬ THERMAL TREATMENT ZONE
- ▬ · ▬ LIMIT OF RCRA CAP
- ● SHALLOW OVERBURDEN MONITORING WELL
- ▣ MIDDLE OVERBURDEN MONITORING WELL
- ◈ DEEP OVERBURDEN MONITORING WELL
- ◒ SHALLOW BEDROCK MONITORING WELL
- ◓ DEEP BEDROCK MONITORING WELL
- ● ISTR WELLS
- ✕ MONITORING WELL ABANDONED IN 2017

"N" WELLS SHOWN ON THIS FIGURE

NOTE:

1. MAPPING BASED ON FIGURE "SOLVENT RECOVERY SERVICE OF NEW ENGLAND REMEDIAL INVESTIGATION/FEASIBILITY STUDY, LAZY LANE, SOUTHINGTON, CONN." DATED 6–28–93 BY DIVERSIFIED TECHNOLOGIES CORPORATION.

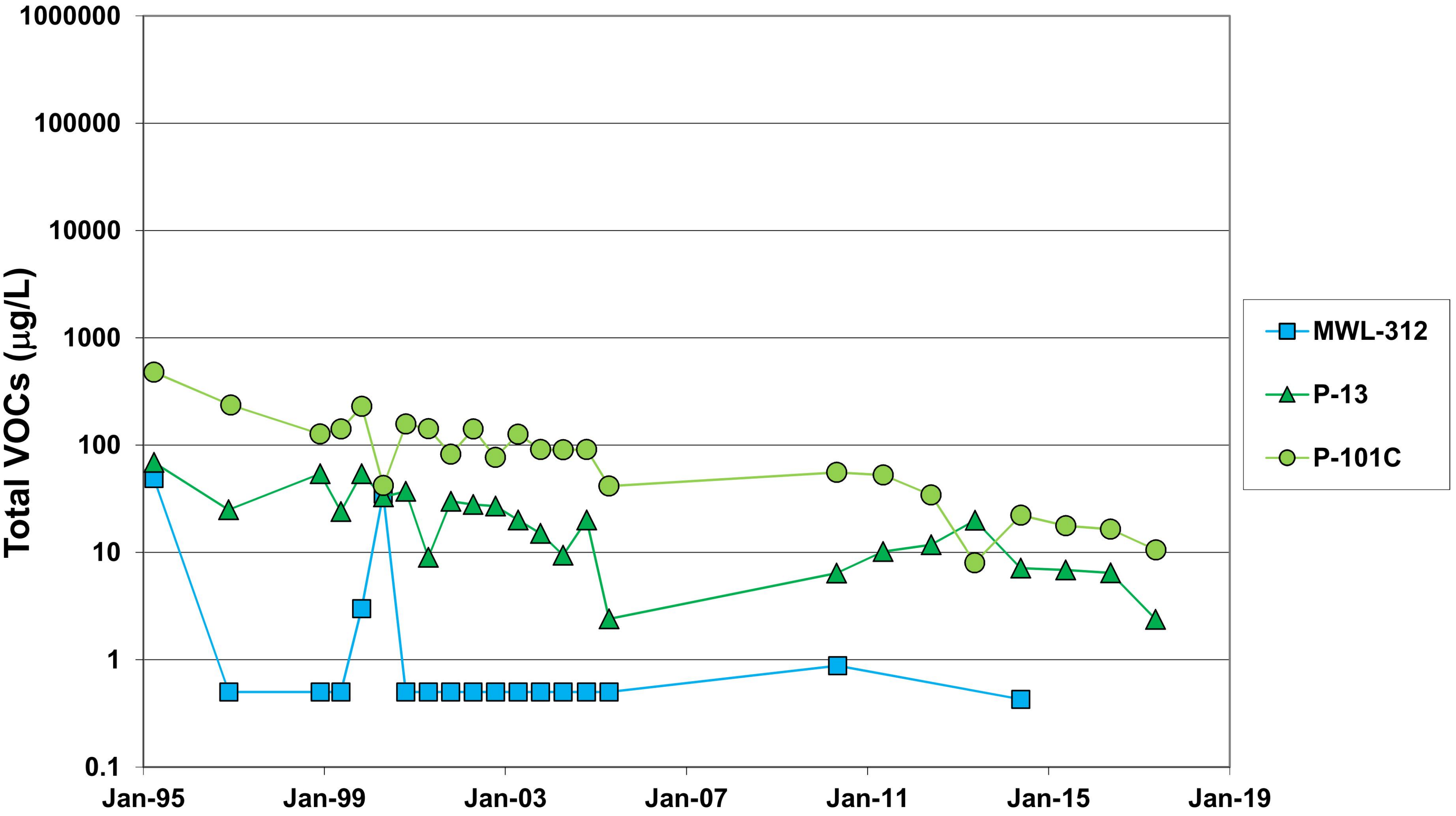
DRAFT

SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT

THERMAL TREATMENT AREA
MONITORING WELLS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
12



SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT

GROUNDWATER TOTAL VOC CONCENTRATIONS WITH TIME SHALLOW OVERBURDEN

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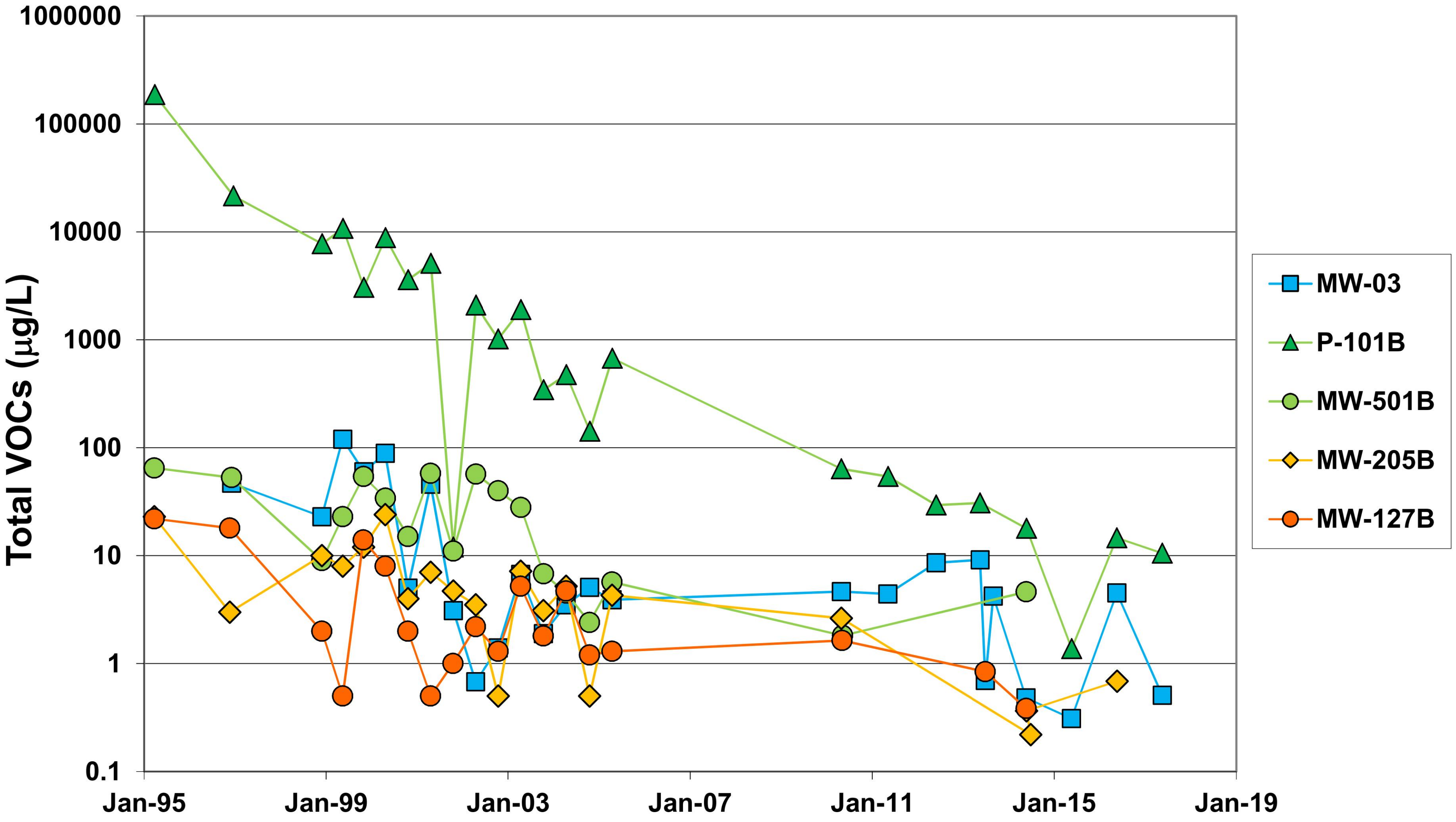
FIGURE
13



SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT

GROUNDWATER TOTAL VOC CONCENTRATIONS WITH TIME MIDDLE OVERBURDEN

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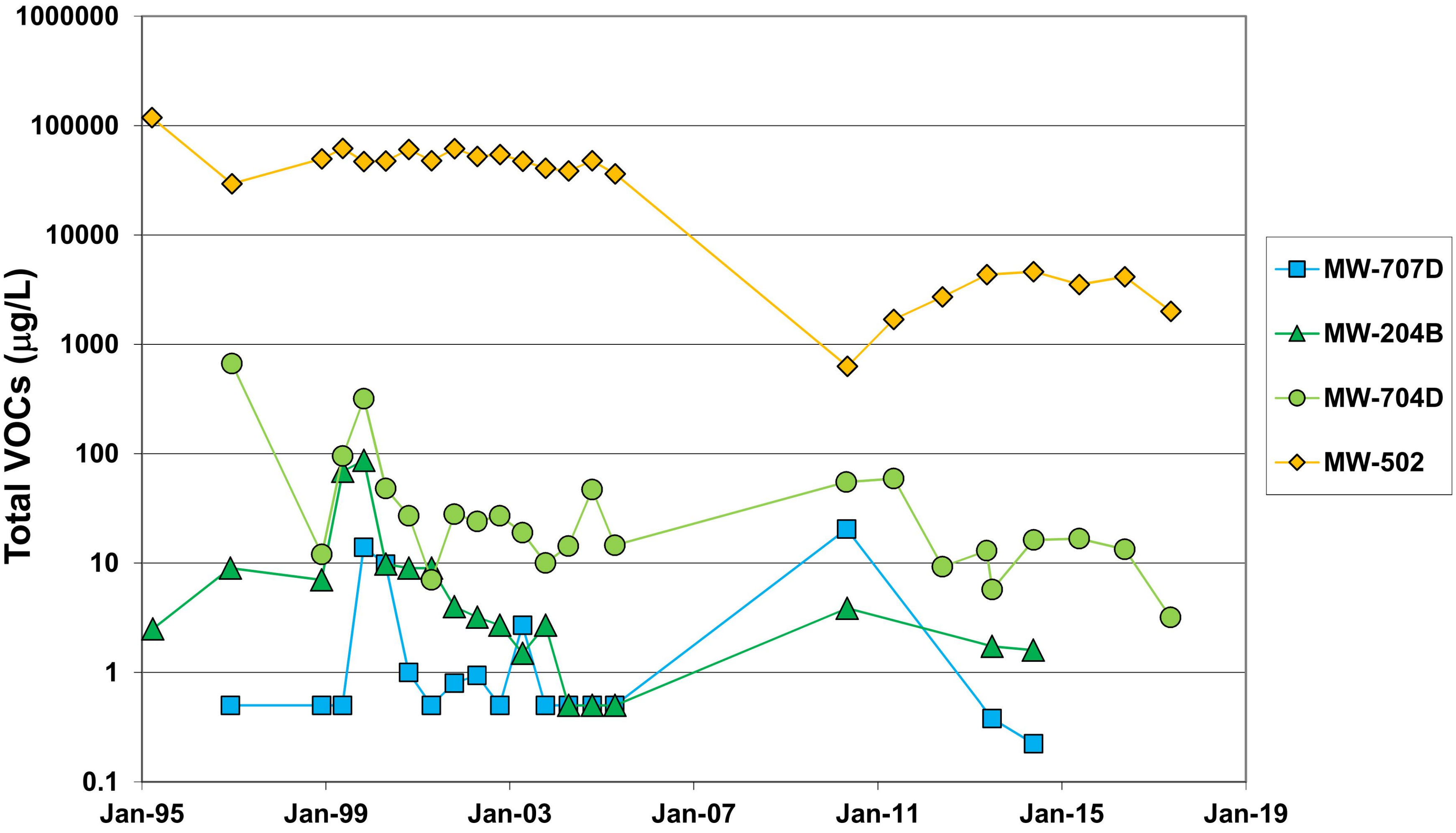
FIGURE
14



SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT

GROUNDWATER TOTAL VOC CONCENTRATIONS WITH TIME DEEP OVERBURDEN

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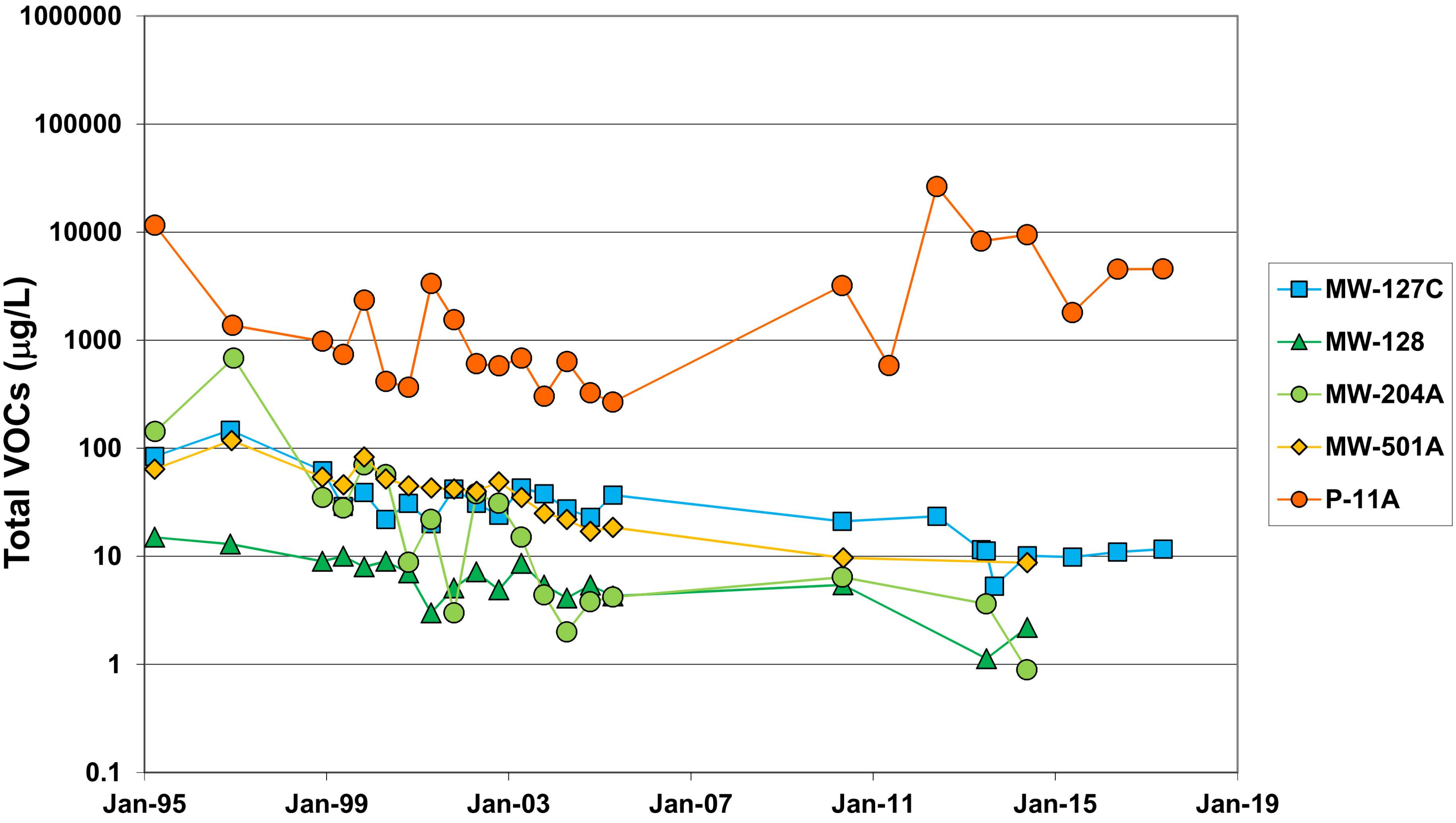
FIGURE
15



SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT

MONITORED NATURAL ATTENUATION REPORT

GROUNDWATER TOTAL VOC CONCENTRATIONS WITH TIME SHALLOW BEDROCK

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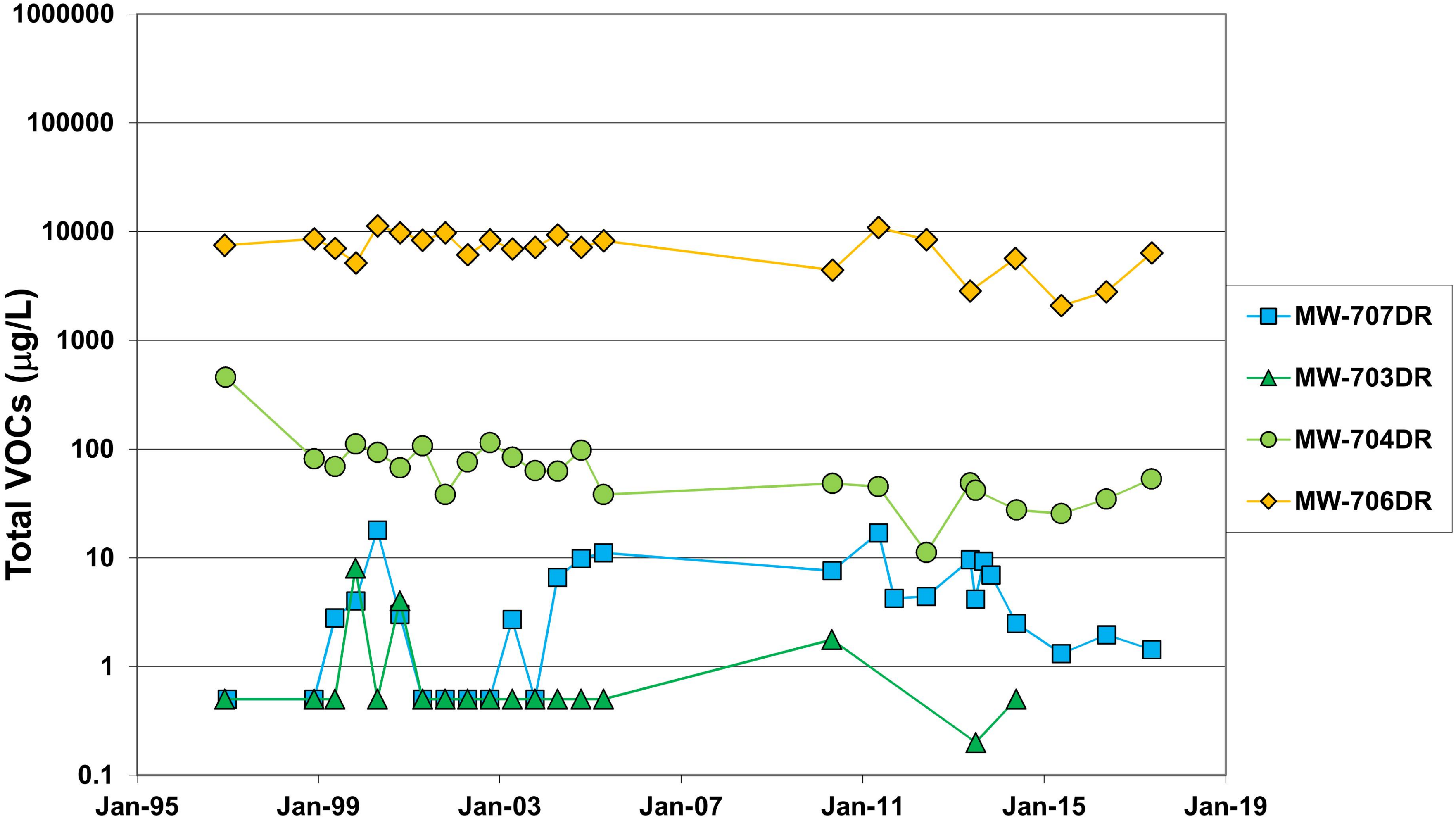
FIGURE

16



SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT

GROUNDWATER TOTAL VOC CONCENTRATIONS WITH TIME DEEP BEDROCK

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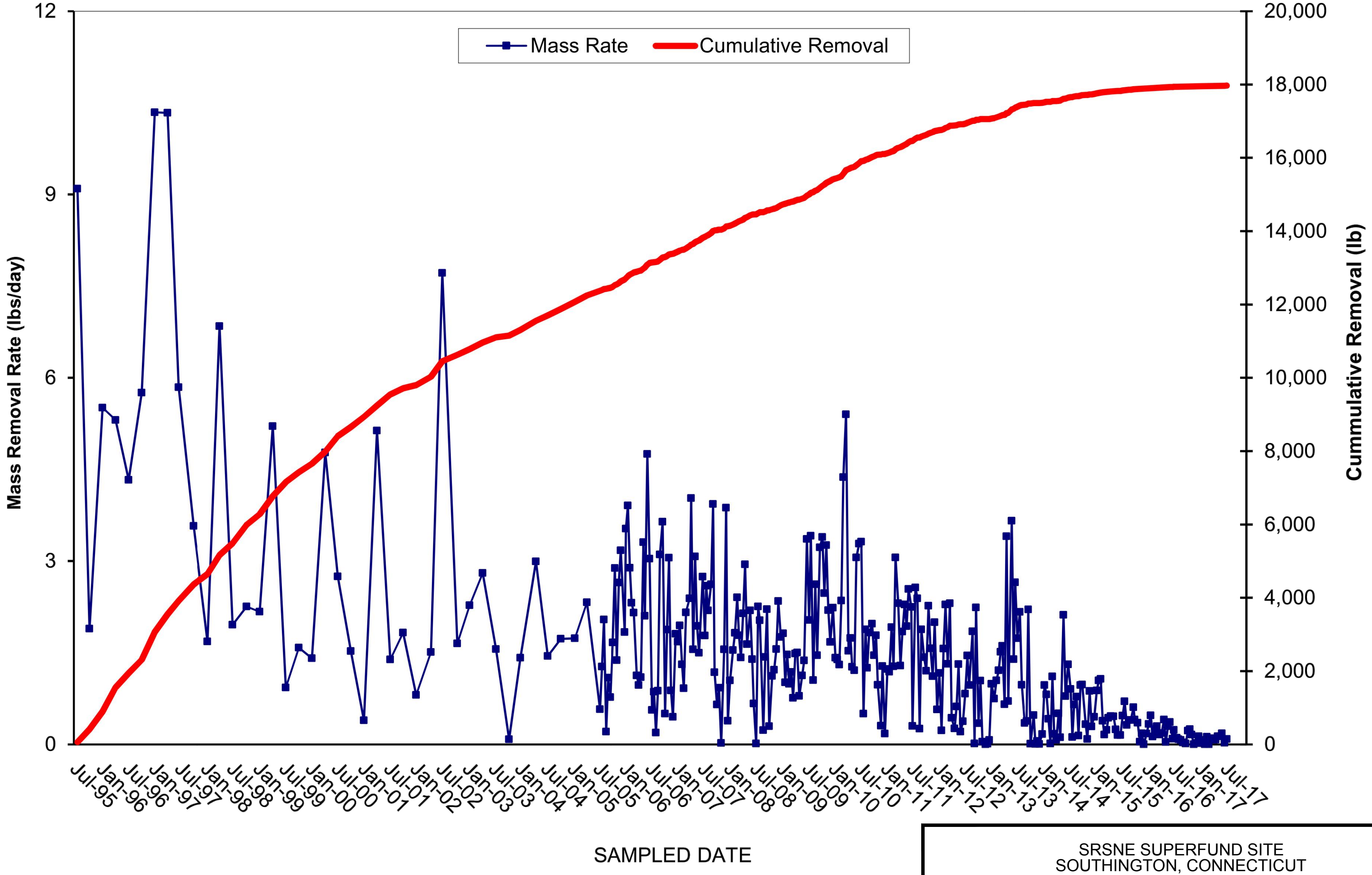
FIGURE
17

CITY: SYRACUSE, NY GROUP: ENVCAD DB: P. LISTER PM: M. GEFELL TM: M. GEFELL TR: R. STEVENSON LYR: ON=*;OFF=REF, (FRZ)
G:\ENVCAD\Manchester\ACT\B0054634\0001\02200\54634C18.dwg LAYOUT: 18 SAVED: 9/21/2016 9:48 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 9/7/2017 6:13 PM BY: SMALL, BRIAN



SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT

TOTAL MASS OF VOCs REMOVED BY NTCRA 1 AND NTCRA 2 GROUNDWATER EXTRACTION WELLS

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FIGURE
18

APPENDIX A

Field Sampling Forms

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Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-706DR

Well Type: [✓ Monitoring] • Other:
Well Finish: [✓ Stick Up] • Flush Mount
Measuring Pt: [✓ Top of Casing] • Other (specify): 116.5-126.5'
Total Depth As Constructed (ftbgs): 126.5' **Screened Interval (ftbgs):**
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 6/6/17 Time: 1315
Weather Conditions: Cloudy ~55°
Depth to groundwater at time of deployment: 1.82'
Total well depth at time of deployment: 128.40'
Dimensions of HydraSleeve™: Length (in.) 30 Diameter (in.) 1.8
Deployment Method/Position of Weight:

PID (ppm): 0.0

[✓ • Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.]
• Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): 121.5'

Retrieval

Date and Time of Retrieval: Date: 6/8/17 Time: 0945
Total # of days deployed: 1 Day
Weather Conditions: Partly Cloudy ~70°
Depth to groundwater at time of retrieval: 1.78'
Total well depth at time of retrieval: 128.40'
Downhole Field Parameters Upon Retrieval:
Temp: 18.21 (°C) **ORP:** 122.3 (mV) **Water quality meter:** YSI 556 MDS
pH: 7.98 **DO:** 3.70 (mg/L) **Serial #:** 15D101637

Notes/Observations:

Turb(NTU): 18.21
SpCond(us/cm): 228

Field Sampling Technician: Name(s) and Company

Name	Company
Matthew Kissane	Arcadis
David Bindsey	Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-121C
Well Type: [✓ Monitoring] ● Other:
Well Finish: [✓ Stick Up] ● Flush Mount
Measuring Pt: [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): 68.7' **Screened Interval** (ftbgs): 58.7-68.7'
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 6/6/17 Time: 1346
Weather Conditions: Cloudy ~55°
Depth to groundwater at time of deployment: 5.70'
Total well depth at time of deployment: 70.28'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.8
Deployment Method/Position of Weight:

PID (ppm): 0.0

[✓ Top-Down:] Weight attached to bottom of HydraSleeve™. Weight suspended in well.

● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): 63.7'

Retrieval

Date and Time of Retrieval: Date: 6/8/17 Time: 1045
Total # of days deployed: 1 Day
Weather Conditions: Partly Cloudy ~70°
Depth to groundwater at time of retrieval: 5.67'
Total well depth at time of retrieval: 70.28'
Downhole Field Parameters Upon Retrieval:
Temp: 15.72 (°C) **ORP:** -138.3 (mV) **Water quality meter:** YSI 556MDS
pH: 7.48 **DO:** 1.30 (mg/L) **Serial #:** 15D101637

Notes/Observations:

Turb(NTU): 9.24
SpCond(uS/cm): 507

Field Sampling Technician: Name(s) and Company

Name	Company
Matthew Kissane	Arcadis
David Birdsey	Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-1003BR

Well Type: ● [✓ Monitoring] ● Other:
Well Finish: ● [✓ Stick Up] ● Flush Mount
Measuring Pt: ● [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): 192.0' Screened Interval (ftbgs): 170.0-192.0'
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 6/6/17 Time: 1415
Weather Conditions: Cloudy ~55°
Depth to groundwater at time of deployment: 13.82'
Total well depth at time of deployment: 196.26'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.8
Deployment Method/Position of Weight:

PID (ppm): 0.0

● [✓ Top-Down:] Weight attached to bottom of HydraSleeve™. Weight suspended in well.
● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): 184.5'

Retrieval

Date and Time of Retrieval: Date: 6/8/17 Time: 1145
Total # of days deployed: 1 Day
Weather Conditions: Partly Cloudy ~75°
Depth to groundwater at time of retrieval: 13.78'
Total well depth at time of retrieval: 196.26'
Downhole Field Parameters Upon Retrieval:
Temp: 17.17 (°C) ORP: -139.4 (mV) Water quality meter: YSI 556 MDS
pH: 11.93 DO: 1.42 (mg/L) Serial #: 15D101637

Notes/Observations:

Turb(NTU): 32.1
SpCond(uS/cm): 2685

Field Sampling Technician: Name(s) and Company

Name	Company
Matthew Kissane	Arcadis
Dave Bindsey	Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: CP2-8R

Well Type: [✓ Monitoring] Other:
Well Finish: [✓ Stick Up] Flush Mount
Measuring Pt: [✓ Top of Casing] Other (specify): NA
Total Depth As Constructed (ftbgs): 61.7' **Screened Interval (ftbgs):** 41.7-61.7'
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 6/6/17 Time: 1430
Weather Conditions: Cloudy ~55°
Depth to groundwater at time of deployment: 7.83'
Total well depth at time of deployment: 62.77'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.8
Deployment Method/Position of Weight:

PID (ppm): 6.7

[✓ Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.]

Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): 46.7'

Retrieval

Date and Time of Retrieval: Date: 6/8/17 Time: 1245
Total # of days deployed: 1 Day
Weather Conditions: Partly Cloudy ~75°
Depth to groundwater at time of retrieval: 7.00'
Total well depth at time of retrieval: 62.77'
Downhole Field Parameters Upon Retrieval:
Temp: 16.78 (°C) **ORP:** -152.1 (mV) **Water quality meter:** YSI 556 MPS
pH: 6.99 **DO:** 1.22 (mg/L) **Serial #:** 15D101637

Notes/Observations:

Turb (NTU): 68.1
SpCond (uS/cm): 571

Field Sampling Technician: Name(s) and Company

Name	Company
Matthew Kissane	Arcadis
Dave Bindley	Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-705BR

Well Type: [✓ Monitoring] ● Other:
Well Finish: [✓ Stick Up] ● Flush Mount
Measuring Pt: [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): 100.0' **Screened Interval (ftbgs):** 90.0-100.0'
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 6/6/17 Time: 1450
Weather Conditions: Cloudy ~55°
Depth to groundwater at time of deployment: 4.62'
Total well depth at time of deployment: 104.48'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.8
Deployment Method/Position of Weight:

PID (ppm): 6.7

[✓ Top-Down]: Weight attached to bottom of HydraSleeve™. Weight suspended in well.

● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): 95.0'

Retrieval

Date and Time of Retrieval: Date: 6/8/17 Time: 1430
Total # of days deployed: 1 Day
Weather Conditions: Partly Cloudy ~80°
Depth to groundwater at time of retrieval: 4.59'
Total well depth at time of retrieval: 104.48'
Downhole Field Parameters Upon Retrieval:
Temp: 16.72 (°C) **ORP:** -81.7 (mV) **Water quality meter:** YSI 556 MDS
pH: 9.48 **DO:** 1.21 (mg/L) **Serial #:** 15D101637

Notes/Observations:

Turb(NTU): 27.1
SpCond (uS/cm): 692

Field Sampling Technician: Name(s) and Company

Name	Company
Matthew Kissane	Arcadis
Dave Bradley	Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-121R

Well Type: ● [✓ Monitoring] ● Other:
Well Finish: ● [✓ Stick Up] ● Flush Mount
Measuring Pt: ● [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): 310' **Screened Interval (ftbgs):** 21.0-31.0'
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 6/6/17 Time: 1150
Weather Conditions: Cloudy ~55°
Depth to groundwater at time of deployment: 6.07'
Total well depth at time of deployment: 33.24'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.8
Deployment Method/Position of Weight:

PID (ppm): 0.0

● [✓ Top-Down:] Weight attached to bottom of HydraSleeve™. Weight suspended in well.

● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): 26.0'

Retrieval

Date and Time of Retrieval: Date: 6/7/17 Time: 1435
Total # of days deployed: 1 Day
Weather Conditions: Partly Cloudy ~70°
Depth to groundwater at time of retrieval: 6.05'
Total well depth at time of retrieval: 33.24'
Downhole Field Parameters Upon Retrieval:
Temp: 15.32 (°C) **ORP:** -92.8 (mV) **Water quality meter:** YSI 556 MDS
pH: 6.81 **DO:** 1.83 (mg/L) **Serial #:** 14F100082

Notes/Observations:

Turb(NTU): 176.5
Sp Cond(uS/cm): 251

Field Sampling Technician: Name(s) and Company

Name: Matthew Kissane
Company: Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE

Location: Southington, CT

Well ID: P-101B

Well Type: [✓ Monitoring] ● Other:

Well Finish: [✓ Stick Up] ● Flush Mount

Measuring Pt: [✓ Top of Casing] ● Other (specify):

Total Depth As Constructed (ftbgs): 44.0' **Screened Interval (ftbgs):** 34.0-44.0'

Well Casing: Diameter: 2" Material: PVC

Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 6/6/17 Time: 12:45

Weather Conditions: Cloudy ~55°

Depth to groundwater at time of deployment: 2.66'

Total well depth at time of deployment: 43.70'

Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.8

Deployment Method/Position of Weight:

PID (ppm): 0.0 [illegible]

[✓ Top-Down:] Weight attached to bottom of HydraSleeve™. Weight suspended in well.

● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): 39.0'

Retrieval

Date and Time of Retrieval: Date: 6/8/17 Time: 0900

Total # of days deployed: 1 Day

Weather Conditions: Partly Cloudy ~ 65°

Depth to groundwater at time of retrieval: 2.62'

Total well depth at time of retrieval: 43.70'

Downhole Field Parameters Upon Retrieval:

Temp: 17.20 (°C) **ORP:** -74.4 (mV) **Water quality meter:** YSI 556 MPS

pH: 7.69 **DO:** 0.93 (mg/L) **Serial #:** 15D101687

Notes/Observations:

Take DUP-06082017-1 + MS/MSD

Turb (NTU): 24.75
SpCond (µS/cm): 1566

Field Sampling Technician: Name(s) and Company

Name	Company
Matthew Kissane	Arcadis
David Ridley	Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-907M

Well Type: ● [✓ Monitoring] ● Other:
Well Finish: ● [✓ Stick Up] ● Flush Mount
Measuring Pt: ● [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): 38.1 Screened Interval (ftbgs): 28.1-38.1'
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 6/5/17 Time: 1255
Weather Conditions: Cloudy ~55°
Depth to groundwater at time of deployment: 6.95'
Total well depth at time of deployment: 40.56'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.8
Deployment Method/Position of Weight:

PID (ppm): 0.0

● [✓ Top-Down:] Weight attached to bottom of HydraSleeve™. Weight suspended in well.

● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): 33.1'

Retrieval

Date and Time of Retrieval: Date: 6/6/17 Time: 1420
Total # of days deployed: 1 Day
Weather Conditions: Cloudy 55°
Depth to groundwater at time of retrieval: 6.93
Total well depth at time of retrieval: 40.55'
Downhole Field Parameters Upon Retrieval:
Temp: 12.12 **(°C)** **ORP:** -51.8 **(mV)** **Water quality meter:** YSI 556 MDS
pH: 7.22 **DO:** 0.87 **(mg/L)** **Serial #:** 14F100062

Notes/Observations:

Turb (NTU): 15.6
Sp Cond (uS/cm): 1001

Field Sampling Technician: Name(s) and Company

Name	Company
Dave Bindley	Arcadis
Matthew Kilbane	Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-124C
Well Type: ● [✓ Monitoring] ● Other:
Well Finish: ● [✓ Stick Up] ● Flush Mount
Measuring Pt: ● [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): 45.9' **Screened Interval (ftbgs):** 35.9'-45.9'
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 6/5/17 Time: 1345
Weather Conditions: Cloudy ~58°
Depth to groundwater at time of deployment: 5.78'
Total well depth at time of deployment: 47.68'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.8
Deployment Method/Position of Weight:

PID (ppm): 0.0

● [✓ Top-Down:] Weight attached to bottom of HydraSleeve™. Weight suspended in well.

● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): 40.9'

Retrieval

Date and Time of Retrieval: Date: 6/6/17 Time: 1400
Total # of days deployed: 1 Day
Weather Conditions: Cloudy~55°
Depth to groundwater at time of retrieval: 5.75'
Total well depth at time of retrieval: 47.68'
Downhole Field Parameters Upon Retrieval:
Temp: 12.11 **(°C)** **ORP:** -75.4 **(mV)** **Water quality meter:** YSI 556 MPS
pH: 7.29 **DO:** 1.33 **(mg/L)** **Serial #:** 14F100062

Notes/Observations:

Turb(NTU): 9.76
Sp Cond (uS/cm): 332

Field Sampling Technician: Name(s) and Company

Name	Company
Dave Bindsey	Arcadis
Matthew Kilfare	Arcadis

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Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MWL-309
Well Type: ● [✓ Monitoring] ● Other:
Well Finish: ● [✓ Stick Up] ● Flush Mount
Measuring Pt: ● [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): 11.0' **Screened Interval (ftbgs):** 1-11'
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 6/5/17 Time: 0900
Weather Conditions: Cloudy, ~55°
Depth to groundwater at time of deployment: 3.58'
Total well depth at time of deployment: 13.17'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.8
Deployment Method/Position of Weight:
PID (ppm): 0.0

● [✓ Top-Down:] Weight attached to bottom of HydraSleeve™. Weight suspended in well.
● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): 6.6'

Retrieval

Date and Time of Retrieval: Date: 6/7/17 Time: 0915
Total # of days deployed: 2 Days
Weather Conditions: Partly Cloudy ~60°
Depth to groundwater at time of retrieval: 3.55'
Total well depth at time of retrieval: 13.17'
Downhole Field Parameters Upon Retrieval:
Temp: 13.25 (°C) **ORP:** 67.1 (mV) **Water quality meter:** YSI 556 MPS
pH: 6.89 **DO:** 1.52 (mg/L) **Serial #:** 14F100062

Notes/Observations:

Take DUP-06072017-2 + MS/MSD on VOCs

Turb (NTU): 15.8
SpCond. (uS/cm): 290

Field Sampling Technician: Name(s) and Company

Name: Matthew Kissane
Company: Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington CT
Well ID: MW-1002DR
Well Type: [✓ Monitoring] ● Other:
Well Finish: [✓ Stick Up] ● Flush Mount
Measuring Pt: [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): 192.0' **Screened Interval (ftbgs):** 177.0-192.0'
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 6-5-17 Time: 0940
Weather Conditions: P. Cloudy 55°F
Depth to groundwater at time of deployment: 57.65'
Total well depth at time of deployment: 189.97'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.8
Deployment Method/Position of Weight:
[✓ Top-Down] Weight attached to bottom of HydraSleeve™. Weight suspended in well.
● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.
PID (ppm): 0.0
Deployment Depth (Top of HydraSleeve™) (ftbgs): 184.5

Retrieval

Date and Time of Retrieval: Date: 6-6-17 Time: 1030
Total # of days deployed: ~~Rain 55°F~~ 1 Day
Weather Conditions: Rain 55°F
Depth to groundwater at time of retrieval: 57.08'
Total well depth at time of retrieval: 189.97'
Downhole Field Parameters Upon Retrieval:
Temp: 11.46 (°C) **ORP:** 16.5 (mV) **Water quality meter:** YSI 556MPS
pH: 10.63 **DO:** 6.33 (mg/L) **Serial #:** 14F100062

Notes/Observations:
Turb: 39.22 NTU S@1030
Spcond: 1864 uS/cm

Field Sampling Technician: Name(s) and Company

Name	Company
Dave Bradley	Arcadis
Matt [illegible]	Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington CT
Well ID: MWE-502
Well Type: ● [✓ Monitoring] ● Other:
Well Finish: ● [✓ Stick Up] ● Flush Mount
Measuring Pt: ● [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): 25.0' Screened Interval (ftbgs): 15.0-25.0'
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 6/5/17 Time: 1010
Weather Conditions: Cloudy ~55°
Depth to groundwater at time of deployment: 7.09'
Total well depth at time of deployment: 36.14'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.8
Deployment Method/Position of Weight:
PID (ppm): 0.0 [illegible]
[illegible]
● [✓ Top-Down:] Weight attached to bottom of HydraSleeve™. Weight suspended in well.
● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.
Deployment Depth (Top of HydraSleeve™) (ftbgs): 20.0'

Retrieval

Date and Time of Retrieval: Date: 6/7/17 Time: 1015
Total # of days deployed: 2
Weather Conditions: Partly Cloudy ~60°
Depth to groundwater at time of retrieval: 7.08'
Total well depth at time of retrieval: 36.14'
Downhole Field Parameters Upon Retrieval:
Temp: 17.20 (°C) ORP: -74.9 (mV) Water quality meter: YSI 556 MPS
pH: 6.75 DO: 0.96 (mg/L) Serial #: 14F100062

Notes/Observations:
Turb (NTU): 35.43
SpCond. (uS/cm): 747

Field Sampling Technician: Name(s) and Company

Name	Company
Matthew Kossane	Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE

Location: Southington, CT

Well ID: P-11A

Well Type: [✓ Monitoring] ● Other:

Well Finish: [✓ Stick Up] ● Flush Mount

Measuring Pt: [✓ Top of Casing] ● Other (specify):

Total Depth As Constructed (ftbgs): 68.0' **Screened Interval (ftbgs):** 58.0 - 68.0'

Well Casing: Diameter: 2" Material: PVC

Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 6/6/17 Time: 0900

Weather Conditions: Cloudy ~55°

Depth to groundwater at time of deployment: 5.38'

Total well depth at time of deployment: 65.72'

Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.8

Deployment Method/Position of Weight:

PID (ppm): 0.0

[✓ Top-Down:] Weight attached to bottom of HydraSleeve™. Weight suspended in well.

● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): 63.0'

Retrieval

Date and Time of Retrieval: Date: 6/7/17 Time: 1110

Total # of days deployed: 1 Day

Weather Conditions: Partly Cloudy ~65°

Depth to groundwater at time of retrieval: 5.35'

Total well depth at time of retrieval: 65.72'

Downhole Field Parameters Upon Retrieval:

Temp: 13.52 (°C) **ORP:** -45.2 (mV) **Water quality meter:** YSI 556 MDS

pH: 6.78 **DO:** 1.58 (mg/L) **Serial #:** 14F10062

Notes/Observations:

Turb (NTU): 11.35
SpCond (uS/cm): 429

Field Sampling Technician: Name(s) and Company

Name	Company
Matthew Rossano	Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: CPZ-4A
Well Type: [✓ ● Monitoring] ● Other:
Well Finish: [✓ ● Stick Up] ● Flush Mount
Measuring Pt: [✓ ● Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): 23.3 **Screened Interval (ftbgs):** 8.3-23.3
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 6/6/17 Time: 0945
Weather Conditions: ~~[illegible]~~ Cloudy 55°
Depth to groundwater at time of deployment: 10.45'
Total well depth at time of deployment: 28.45'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.8
Deployment Method/Position of Weight:
PID (ppm): 0.4
[✓ ● Top-Down:] Weight attached to bottom of HydraSleeve™. Weight suspended in well.
● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.
Deployment Depth (Top of HydraSleeve™) (ftbgs): 15.8'

Retrieval

Date and Time of Retrieval: Date: 6/7/17 Time: 1245
Total # of days deployed: 1 Day
Weather Conditions: Partly Cloudy ~ 65°
Depth to groundwater at time of retrieval: 10.48'
Total well depth at time of retrieval: 28.45'
Downhole Field Parameters Upon Retrieval:
Temp: 17.82 (°C) **ORP:** -86.3 (mV) **Water quality meter:** YSI556MDS
pH: 6.38 **DO:** 0.85 (mg/L) **Serial #:** 14F100062

Notes/Observations:
Turb(NTU): ~~[illegible]~~ 11.36
SpCond(uS/cm): 697

Field Sampling Technician: Name(s) and Company

Name	Company
Matthew Kissane	Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-907D

Well Type: ● [✓ Monitoring] ● Other:
Well Finish: ● [✓ Stick Up] ● Flush Mount
Measuring Pt: ● [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): 50.0' Screened Interval (ftbgs): 40.0-50.0'
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 6/6/17 Time: 1055
Weather Conditions: Cloudy ~55°
Depth to groundwater at time of deployment: 7.80'
Total well depth at time of deployment: 52.58'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.8
Deployment Method/Position of Weight:

PID (ppm): 0.0

● [✓ Top-Down]: Weight attached to bottom of HydraSleeve™. Weight suspended in well.

● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): 45.0'

Retrieval

Date and Time of Retrieval: Date: 6/7/17 Time: 1320
Total # of days deployed: 1 Day
Weather Conditions: Partly Cloudy ~70°
Depth to groundwater at time of retrieval: 7.77'
Total well depth at time of retrieval: 52.58'
Downhole Field Parameters Upon Retrieval:
Temp: 18.47 (°C) ORP: 119.0 (mV) Water quality meter: YSI 556 MDS
pH: 6.77 DO: 0.98 (mg/L) Serial #: 14F100062

Notes/Observations:

Turb (NTU): 10.97
Sp.Cond (µS/cm): 569

Field Sampling Technician: Name(s) and Company

Name: ~~Ana~~ Matthew Kissane
Company: Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-121B
Well Type: ● [✓ Monitoring] ● Other:
Well Finish: ● [✓ Stick Up] ● Flush Mount
Measuring Pt: ● [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): 52.0' **Screened Interval (ftbgs):** 42.0 - 52.0'
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment:	Date: 6/6/17		Time: 1125
Weather Conditions:	Cloudy ~55°		
Depth to groundwater at time of deployment:	5.72'		
Total well depth at time of deployment:	53.91'		
Dimensions of HydraSleeve™: Length (in.)	36	Diameter (in.)	1.8
Deployment Method/Position of Weight:			
PID (ppm): 0.0	● [✓ Top-Down:] Weight attached to bottom of HydraSleeve™. Weight suspended in well. ● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.		
Deployment Depth (Top of HydraSleeve™) (ftbgs):	47.0'		

Retrieval

Date and Time of Retrieval:	Date: 6/7/17		Time: 1355
Total # of days deployed:	1 Day		
Weather Conditions:	Partly Cloudy ~70°		
Depth to groundwater at time of retrieval:	5.69'		
Total well depth at time of retrieval:	53.91'		

Downhole Field Parameters Upon Retrieval:
Temp: 18.42 (°C) ORP: -95.7 (mV) Water quality meter: YSI556MPS
pH: 6.80 DO: 1.26 (mg/L) Serial #: 14F100062

Notes/Observations:

Turb(NTU): 6.62
SpCond.(uS/cm): 578

Field Sampling Technician: Name(s) and Company

Name	Company
Matthew Kissane	Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-907DR
Well Type: ● [✓ Monitoring] ● Other:
Well Finish: ● [✓ Stick Up] ● Flush Mount
Measuring Pt: ● [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): 174' **Screened Interval (ftbgs):** 159-174'
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: ~~6/6/17~~ 6/5/17 Time: 1230
Weather Conditions: Cloudy ~55°
Depth to groundwater at time of deployment: 0.00
Total well depth at time of deployment: 172.94'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.8
Deployment Method/Position of Weight:
PID (ppm): 0.0
● [✓ Top-Down]: Weight attached to bottom of HydraSleeve™. Weight suspended in well.
● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.
Deployment Depth (Top of HydraSleeve™) (ftbgs): 166.5

Retrieval

Date and Time of Retrieval: Date: 6/6/17 Time: 1350
Total # of days deployed: 1 Day
Weather Conditions: Cloudy ~55°
Depth to groundwater at time of retrieval: 0.00
Total well depth at time of retrieval: 172.94'
Downhole Field Parameters Upon Retrieval:
Temp: 11.41 **(°C)** **ORP:** 44.7 **(mV)** **Water quality meter:** YSI 556 MDS
pH: 8.51 **DO:** 1.57 **(mg/L)** **Serial #:** 14F 100020

Notes/Observations:

Turb (NTU): 31.7
Sp Cond (us/cm): 1797

Field Sampling Technician: Name(s) and Company

Name	Company
Dave Birdsey	Arcadis
Matthew Kilrane	Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, Ct
Well ID: MW-704D

Well Type: ● [✓ Monitoring] ● Other:
Well Finish: ● ~~Stick Up~~ ● [✓ Flush Mount]
Measuring Pt: ● [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): 63.0' **Screened Interval (ftbgs):** 53.0-63.0'
Well Casing: Diameter: 2" Material: PVC.
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: ~~6/6/17~~ 6/5/17 Time: 1055
Weather Conditions: Cloudy ~56°
Depth to groundwater at time of deployment: 4.52'
Total well depth at time of deployment: 61.01'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.8
Deployment Method/Position of Weight:

PID (ppm): 0.0

● [✓ Top-Down] Weight attached to bottom of HydraSleeve™. Weight suspended in well.

● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): 58.0'

Retrieval

Date and Time of Retrieval: Date: 6/6/17 Time: 1145
Total # of days deployed: 1 Day
Weather Conditions: Cloudy/55°F
Depth to groundwater at time of retrieval: 4.48'
Total well depth at time of retrieval: 61.01'
Downhole Field Parameters Upon Retrieval:
Temp: 11.59 **(°C)** **ORP:** -44.5 **(mV)** **Water quality meter:** YSI 556 MPS
pH: 8.49 **DO:** 2.81 **(mg/L)** **Serial #:** 14F100062

Notes/Observations:

NTU (NTU) - 6.82
Sp Cond. (μS/cm) - 276

Field Sampling Technician: Name(s) and Company

Name	Company
Dan Bordy	Arcadis
Matt Kossane	Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE

Location: Southington, CT

Well ID: MW-704DR

Well Type: ● [✓ Monitoring] ● Other:

Well Finish: ● [✓ Stick Up] ● Flush Mount

Measuring Pt: ● [✓ Top of Casing] ● Other (specify):

Total Depth As Constructed (ftbgs): 132'   **Screened Interval** (ftbgs): 102.0 - 132.0'

Well Casing: Diameter: 2"   Material: PVC

Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: ~~6/6/17~~ 6/5/17   Time: 1130

Weather Conditions: Cloudy ~55°

Depth to groundwater at time of deployment: 70.82

Total well depth at time of deployment: 135.01'

Dimensions of HydraSleeve™: Length (in.) 36   Diameter (in.) 1.8

Deployment Method/Position of Weight:

PID (ppm): 0.0

● [✓ Top-Down:] Weight attached to bottom of HydraSleeve™. Weight suspended in well.

● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): 117.0'

Retrieval

Date and Time of Retrieval: Date: 6/6/17   Time: 1300

Total # of days deployed: 1 Day

Weather Conditions: Cloudy ~55°

Depth to groundwater at time of retrieval: 70.50

Total well depth at time of retrieval: 135.01'

Downhole Field Parameters Upon Retrieval:

Temp: 11.32 (°C)   **ORP:** -40.6 (mV)   **Water quality meter:** YSI 556 MDS

pH: 8.06   **DO:** 1.28 (mg/L)   **Serial #:** 14F100062

Notes/Observations:

NTU (NTU) 12.75
SpCond. (uS/cm) - 1254

Field Sampling Technician: Name(s) and Company

Name	Company
Dave Bindsey	Arcadis
Matthew Kissane	Arcadis

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington CT
Well ID: P20-2M
Well Type: ● [✓ Monitoring] ● Other:
Well Finish: ● [✓ Stick Up] ● Flush Mount
Measuring Pt: ● [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): 56.0' **Screened Interval (ftbgs):** 46.0-56.0
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter:

Deployment

Date and Time of Deployment: Date: 6-5-17 Time: 0815
Weather Conditions: Cloudy ~55°
Depth to groundwater at time of deployment: 7.74'
Total well depth at time of deployment: 58.32'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.8
Deployment Method/Position of Weight:
PID (ppm): 0.30 [illegible]
● [✓ Top-Down:] Weight attached to bottom of HydraSleeve™. Weight suspended in well.
● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.
Deployment Depth (Top of HydraSleeve™) (ftbgs): 51.0'

Retrieval

Date and Time of Retrieval: Date: 6-6-17 Time: 0920
Total # of days deployed: 1 Day
Weather Conditions: Rain 55°F
Depth to groundwater at time of retrieval: 7.70
Total well depth at time of retrieval: 58.32'
Downhole Field Parameters Upon Retrieval:
Temp: 10.55 **(°C)** **ORP:** 54.3 **(mV)** **Water quality meter:** YSI 556 MPS
pH: 9.34 **DO:** 3.30 **(mg/L)** **Serial #:** 14F100042

Notes/Observations:

Turb (NTU) ~ 5.12 S@ 0920
Sp Cond. (uS/cm) - 242

Field Sampling Technician: Name(s) and Company

Name Company
Dan Brodsky Arcadis
Matt Kissane Arcadis

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS
Well Number MW 126B Date 5/15/2017
Field Personnel Sean Hutchins
Sampling Organization OWM Inc
Identify MP Top of PVC Riser

Depth to 7.5 / 12.5 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 10
Purging Device; (pump type) Bladder
Total Volume Purged 23 Liters

PID: ______

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1] psi	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
10:00	3.12	10	50	0	14.02	528	6.49	35.7	1.46	12.53	Visible Solids
10:05	3.12	10	50	.25	13.99	542	6.28	23.9	2.14	13.49	|
10:10	3.12	10	50	.50	14.40	561	6.20	16.8	1.38	10.76	|
10:15	3.12	10	50	.75	14.46	563	6.20	16.0	1.17	14.54	|
10:20	3.12	10	50	1.00	14.53	565	6.19	15.0	0.97	11.39	
10:25	3.12	10	50	1.25	14.35	568	6.19	14.6	0.80	10.41	
10:30	3.12	10	50	1.50	14.22	567	6.18	12.5	0.56	11.41	
10:35	3.12	10	50	1.75	14.42	575	6.17	10.7	0.46	5.84	
10:40	3.12	10	50	2.00	14.57	589	6.18	10.1	0.46	9.25	
10:45	3.12	10	50	2.25	14.33	588	6.18	9.9	0.44	9.07	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 3.11

Depth to Bottom: 12.35

Comments:

16 R
50
(103)

1 of 2

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS
Well Number MW126B Date 6/5/2017
Field Personnel Sean Hutchins
Sampling Organization O&M Inc
Identify MP Top of PVC Riser

Depth to 7.5 / 12.5 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 10
Purging Device; (pump type) Bladder
Total Volume Purged 2.5 Liters

PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
10:50	3.12	10	50	2.50	14.34	588	6.18	7.6	0.35	9.02	Visible Solids
10:55	Sample Collected										
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 3.11

Depth to Bottom: 12.35

Comments:

2 of 2

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS
Well Number MW-126C Date 06/05/2017
Field Personnel Sean Hutchins
Sampling Organization OTM Inc
Identify MP Top of PVC Riser

Depth to 24 / 34 of screen
(below MP) top bottom
PID:
Pump Intake at (ft. below MP) 29
Purging Device; (pump type) Bladder
Total Volume Purged 1.5 Liters

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1] psi	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1315	1.77	20	100	0	13.25	525	6.72	42.3	6.55	2.82	Water Clear
1320	1.77	20	100	0.5	13.10	534	6.64	51.6	6.32	2.88	
1325	1.77	20	100	1.0	13.05	535	6.61	57.8	6.27	4.49	
1330	1.77	20	100	1.5	13.04	535	6.58	61.8	6.24	3.66	
1335	Samples										
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 1.76
Depth to Bottom: 33.8

Comments: 10 R
50
(103)

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS

Well Number MW-P12 Date 06/03/2017

Field Personnel Sean Hutchins

Sampling Organization GWR Inc

Identify MP Top of PVC Riser

Depth to (below MP) 8 9 top / 14 bottom of screen

Pump Intake at (ft. below MP) 11.5

PID:

Purging Device; (pump type) Bladder

Total Volume Purged 6.0 Liters

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1] psi	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1440	7.40	10	100	0	13.96	343	7.43	-2.0	1.79	13.76	Water clear
1445	7.40	10	100	.5	13.59	387	7.42	-7.2	1.50	8.96	
1450	7.40	10	100	1.0	1310	385	7.19	0.1	0.88	82.95	
1455	7.40	10	100	1.5	12.96	423	6.85	5.6	0.70	87.08	
1500	7.40	10	100	2.0	12.90	427	6.70	9.0	1.02	77.10	
1505	7.40	10	100	2.5	12.85	432	6.57	12.2	0.89	75.91	
1510	7.39	10	100	3.0	12.69	430	6.52	14.7	0.82	75.66	
1515	7.39	10	100	3.5	12.66	434	6.48	17.3	6.71	73.16	
1520	7.40	10	100	4.0	12.69	434	6.47	18.2	0.69	61.99	
1525	7.40	10	100	4.5	12.70	430	6.48	20.8	0.81	54.63	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 7.31

Depth to Bottom: 13.7

Comments:

10 R
5 D
(103)

1 of 2

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS
Well Number MW-P12 Date 06/05/2017
Field Personnel Sean Hutchins
Sampling Organization O&M Inc
Identify MP Top of PVC Riser

Depth to 9 / 14 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 11.5
Purging Device; (pump type) Bladder
Total Volume Purged 6.0 Liters

PID: ______

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1530	7.40	10	100	5.0	12.74	434	6.46	22.5	0.73	49.31	
1535	7.40	10	100	5.5	12.64	434	6.46	22.5	0.73	45.73	
1540	7.40	10	100	6.0	12.67	434	6.46	22.4	0.75	46.33	
1545	Samples	Taken									
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 7.31

Depth to Bottom: 13.7

Comments:

2 of 2

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS

Well Number MW-1003R Date

Field Personnel Sean Hutchins

Sampling Organization O-M Inc

Identify MP Pvc Top

Depth to (below MP) 103 top / 118 bottom of screen

PID:

Pump Intake at (ft. below MP) 110.5

Purging Device; (pump type) Bladder

Total Volume Purged 10.5 L

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °~~C~~ F	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments Temp °C
1355	5.66	60	100	.5 L	50.72	982	8.17	-146.7	3.57	15.53	Water Clear — 10.40
1400	6.61	60	100	1 L	50.76	1163	8.67	-121.6	2.00	55.63	10.42
1405	7.29	60	100	1.5 L	50.98	1180	8.80	-124.7	1.56	36.21	10.54
1410	7.88	60	100	2 L	51.04	1186	8.89	-125.1	1.39	10.90	10.58
1415	8.22	60	100	2.5 L	51.03	1187	9.04	-125.6	1.10	9.99	10.57 ~~10.76~~
1420	8.45	60	100	3 L	51.36	1186	9.11	-127.4	1.12	9.23	10.76 ~~10.47~~
1425	9.18	60	100	3.5 L	50.85	1169	9.19	-129.3	1.13	16.01	10.47 ~~10.41~~
1430	9.29	60	100	4 L	50.73	1161	9.20	-130.8	1.11	11.41	10.41 ~~10.32~~
1435	9.81	60	100	4.5	50.58	1145	9.20	-134.4	1.07	13.87	10.32 ~~10.33~~
1440	10.12	60	100	5 L	50.59	1190	9.19	-137.1	0.76	20.01	10.33 ~~10.32~~
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 8.86

Depth to Bottom: 122.42

Comments:

1 of 3

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS
Well Number MW-1003R Date
Field Personnel
Sampling Organization
Identify MP

Depth to ______/______ of screen
(below MP) top bottom
Pump Intake at (ft. below MP)
Purging Device; (pump type)
Total Volume Purged

PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. ~~°C~~ F	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments Temp °C
1445	10.44	60	100	5.5L	50.96	1137	9.19	-139.6	1.01	9.17	10.53
1450	10.60	60	100	6 L	50.58	1132	9.20	-140.8	0.99	10.88	10.32
1455	10.71	60	100	6.5L	50.46	1127	9.20	-141.4	0.95	6.27	10.26
1500	10.89	60	100	7 L	50.44	1126	9.20	-141.8	0.92	14.45	10.24
1505	11.32	60	100	7.6L	50.31	1135	9.21	-141.3	0.71	12.69	10.17
1510	11.61	60	120	8.0L	50.31	1136	9.22	-144.3	0.61	15.42	10.17
1515	11.94	60	100	8.5L	50.37	1133	9.24	-143.3	0.56	12.98	10.21
1520	12.44	60	100	9.0L	50.43	1132	9.25	-148.4	0.50	12.53	10.24
1525	12.65	60	100	9.5L	50.53	1134	9.27	-149.7	0.48	13.87	10.30
1530	12.81	60	100	10.0L	50.61	1138	9.28	-150.8	0.47	14.39	10.34
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water:
Depth to Bottom:

Comments:

2 of 3

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS
Well Number MW-1003R Date
Field Personnel Sean Hutchins
Sampling Organization Oth Inc
Identify MP

Depth to ____ / ____ of screen
(below MP) top bottom
Pump Intake at (ft. below MP)
Purging Device; (pump type)
Total Volume Purged

PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turbidity NTU	Comments temp °C
1535	13.78	60	100	10.5	50.69	1174	930	-151.7	0.44	13.67	10.38
1540											
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water:
Depth to Bottom: -1224)

Comments:

3 of 3

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) ~~Sea Hq.~~ SRS

Well Number MW-102R Date 6/6/17

Field Personnel SH

Sampling Organization O+M

Identify MP PVC Top

Depth to 105 / 120 of screen (below MP) top bottom

Pump Intake at (ft. below MP) 112.5

Purging Device; (pump type) Bladder

Total Volume Purged 14.60 L

PID:

Clock Time 24 HR	Water Depth below MP ft ft. bs	Pump Dial[1] psi	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °~~C~~F	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments	Temp °C
1030	[illegible]	60	200	1.0	51.03	2942	7.59	-72.0	2.06	12.09		10.51
1035	14.34	60	150	2.0	51.05	2942	7.57	-63.1	2.03	21.92		10.58
1040	16.22	60	150	2.75	51.01	2940	7.57	-61.5	2.16	29.06		10.56
1045	17.23	60	150	3.5	50.99	2938	7.56	-59.7	2.03	32.05		10.55
1050	17.50	60	150	4.25	51.02	2938	7.55	-58.2	1.98	34.90		10.57
1055	17.87	50	150	5	51.63	2945	7.59	-53.1	1.96	35.04	Let Well Recharge, Reduced Flow	10.91
1120	15.84	55	106	5.75	51.53	2958	7.51	-51.9	1.99	38.20	108 50 (103)	10.83
1125	15.76	60	125	6.375	51.27	2947	7.49	-51.2	2.00	34.12		10.71
1130	15.78	60	125	7	51.27	2942	7.46	-50.2	1.99	59.12		10.71
1135	15.79	60	125	7.625	51.22	2942	7.41	-50.4	1.90	46.81		10.68
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%		

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 4.96

Depth to Bottom: 123.60

Comments:

1 of 3

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS
Well Number MW 1002R Date 6/6/2017
Field Personnel Sean Hutchins
Sampling Organization Oak Inc
Identify MP

Depth to 105 / 120 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 112.5
Purging Device; (pump type) Bladder
Total Volume Purged

PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial¹	Purge Rate ml/min	Cum. Volume Purged liters	Temp. ~~°C~~ F	Spec. Cond.² µS/cm	pH	ORP³ mv	DO mg/L	Turb-idity NTU	Comments temp °C
1140	15.80	60	125	8.250	51.26	2943	7.36	-50.3	1.67	60.58	10.70
1145	15.80	60	125	8.875	51.17	2945	7.34	-51.4	1.54	48.56	10.65
1150	15.80	60	125	9.50	51.20	2946	7.33	-50.7	1.36	57.73	10.67
1155	15.80	60	125	10.125	51.22	2948	7.32	-50.3	1.28	60.58	10.68
1200	15.80	60	125	10.750	51.13	2948	7.31	-50.2	1.17	66.79	10.63
1205	15.80	60	125	11.375	51.17	2948	7.30	-49.9	1.09	83.30	10.65
1210	15.80	60	125	12.0	51.13	2954	7.29	-48.5	0.95	74.00	10.63
1215	15.80	60	125	12.625	51.11	2953	7.28	-48.3	0.90	78.98	10.62
1220	15.80	60	125	13.350	51.13	2953	7.28	-48.2	0.85	83.41	10.63
1225	15.80	60	125	13.975	51.13	2954	7.28	-48.0	0.80	76.53	10.63
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water:

Depth to Bottom:

Comments:

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name)________________
Well Number__________ Date__________
Field Personnel________________
Sampling Organization________________
Identify MP________________

Depth to ______/______ of screen
(below MP) top bottom
Pump Intake at (ft. below MP)______
Purging Device; (pump type)______
Total Volume Purged ______

PID: ______

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °~~C~~F	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments temp °C
1230	15.80	60	126	14.60	51.14	2954	7.28	-47.9	0.77	81.12	10.63
1235			Samples		Taken						
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: ______

Depth to Bottom: 123.60

Comments:

3 of 3

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS
Well Number MW-707DR Date 06/08/2017
Field Personnel Sean Hutchins
Sampling Organization O&M Inc
Identify MP Top of PVC Riser

Depth to 162 / 192 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 177
Purging Device; (pump type) Bladder
Total Volume Purged 20.875

PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
0900	10.14	80	150	0	11.79	477	8.27	-2022	2.13	29.66	
0905	10.56	80	150	.75	10.83	909	7.91	-1862	1.43	46.19	
0910	10.78	80	125	1.5	11.06	1033	7.86	-183.5	0.79	5222	
0915	10.88	80	125	2.125	11.09	1042	7.86	-183.8	0.72	49.34	
0920	10.89	80	125	2.750	11.19	1051	7.86	-186.6	0.64	51.91	
0925	10.59	80	125	3.375	12.20	1073	7.78	-156.9	0.62	54.53	
0930	10.65	80	125	34	12.55	1080	7.78	-165.3	0.77	47.08	
0935	10.72	80	125	4.625	11.79	1076	7.79	-165.3	0.79	4247	
0940	10.22	80	125	5.250	11.33	1062	7.81	-167.3	0.80	43.90	
0945	10.88	80	100	5.875	11.55	1066	782	-153.6	0.76	49.20	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 10.16
Depth to Bottom: 195.60

Comments:

1 of 4

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS
Well Number MW 707DR Date 06/08/17
Field Personnel Sean Hutchins
Sampling Organization CdM Inc
Identify MP Top of PVC

Depth to 162 / 192 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 177
Purging Device; (pump type) Bladder
Total Volume Purged 20.875

PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
0950	10.94	80	100	6.375	11.64	1071	7.81	-169.3	0.71	47.26	
0955	11.00	80	100	6.875	11.53	1068	7.79	-176.2	0.57	48.57	
1000	11.06	80	100	7.375	11.44	1066	7.77	-172.3	0.52	60.63	
1005	11.07	80	100	7.875	11.45	1065	7.76	-170.7	0.51	53.23	
1010	11.08	80	100	8.375	11.87	1071	7.77	-160.1	0.49	59.19	
1015	11.06	80	100	8.875	12.11	1083	7.78	-155.5	0.48	49.60	
1020	11.02	80	160	9.375	13.44	1101	7.61	-181.1	0.51	38.64	
1025	10.96	80	100	9.875	13.42	1103	7.61	-186.4	0.53	33.63	
1030	10.80	80	100	10.375	13.30	1108	7.61	-187.9	0.54	35.16	
1035	10.82	80	100	10.875	12.37	1093	7.62	-178.4	0.57	38.99	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 10.16
Depth to Bottom: 195.0

Comments:

2 of 4

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS

Well Number MW 707DR Date

Field Personnel Sean Hutchins

Sampling Organization ORM Inc

Identify MP Top of PVC

Depth to 162 / 192 of screen
(below MP) top bottom

Pump Intake at (ft. below MP) 177

Purging Device; (pump type) Bladder

Total Volume Purged 20.875L

PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turbidity NTU	Comments
1040	10.82	80	100	11.375	12.20	1084	7.62	-183.3	0.57	35.67	
1045	10.88	80	100	11.875	12.10	1078	7.61	-178.0	0.55	38.23	
1050	11.00	80	100	12.375	12.49	1086	7.55	-169.4	0.51	37.78	
1055	11.02	80	100	12.875	12.13	1080	7.52	-167.9	0.51	34.24	
1100	11.06	80	100	13.375	12.26	1079	7.48	-156.1	0.44	36.20	
1105	11.07	80	100	13.875	12.05	1079	7.46	-160.0	0.42	32.86	
1110	11.07	80	100	14.375	12.31	1078	7.44	-164.0	0.38	31.35	
1115	10.91	80	100	14.875	13.12	1091	7.41	-153.7	0.36	28.47	
1120	10.95	80	100	15.375	13.05	1094	7.39	-146.4	0.36	31.37	
1125	11.01	80	100	15.875	13.01	1095	7.38	-145.0	0.36	25.72	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 10.16

Depth to Bottom: 193.0

Comments:

3 of 4

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS
Well Number MW707DR Date
Field Personnel Sean Hutchins
Sampling Organization OHM Inc
Identify MP Top of PVC

Depth to 162 / 192 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 177
Purging Device; (pump type) Bladder
Total Volume Purged 20.875
PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial¹	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.² µS/cm	pH	ORP³ mv	DO mg/L	Turbidity NTU	Comments
130	11.04	80	100	16.375	12.74	1088	7.38	-142.6	0.35	26.35	
135	11.06	80	100	16.875	12.81	1088	7.37	-1495	0.34	28.09	
1140	11.07	80	100	17.375	12.95	1089	7.35	-142.1	0.31	27.90	
145	11.10	80	100	17.875	12.85	1087	7.34	-141.9	0.31	26.01	
1150	11.06	80	100	18.375	12.83	1085	7.32	-149.6	0.30	25.87	
1155	10.99	80	100	18.875	12.91	1090	7.33	-147.2	0.31	24.45	
1200	11.01	80	100	19.375	12.34	1073	7.26	-158.5	0.32	36.70	
1205	11.11	80	100	19.875	11.91	1058	7.27	-161.8	0.31	16.04	
1210	11.19	80	100	20.375	12.01	1054	7.28	-163.7	0.30	16.91	
1215	11.25	80	100	20.875	11.99	1048	7.29	-168.4	0.28	17.29	1220 Samples Taken
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 10.16
Depth to Bottom: 195.0

Comments:

4 of 4

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS
Well Number MW-704M Date 06-07-2027
Field Personnel Sean Hutchins
Sampling Organization O&M Inc
Identify MP Top of PVC

Depth to 37 / 47 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 42
Purging Device; (pump type) Bladder
Total Volume Purged 2.5L
PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1] PSI	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1505	6.15	50	50	0	21.23	339	7.20	-92.4	3.26	4.53	1412 - Pulled
1510	6.15	50	50	0.25	20.29	323	5.23	-67.0	2.02	4.21	Transducer
1515	6.13	50	50	0.50	20.62	316	5.07	-67.2	1.69	3.36	
1520	6.10	50	50	0.75	21.50	317	4.96	-75.5	1.21	3.91	
1525	6.06	50	50	1	21.98	320	4.95	-76.3	0.96	3.27	
1530	6.03	50	50	1.25	21.79	326	4.91	-78.3	0.80	3.79	
1535	6.00	50	50	1.5	21.76	322	4.88	-78.5	0.73	3.70	
1540	5.96	50	50	1.75	21.68	327	4.86	-83.1	0.60	4.64	
1545	5.96	50	50	2.0	21.55	332	4.86	-83.1	0.49	4.73	
1550	5.96	50	50	2.25	21.64	322	4.84	-81.8	0.40	4.77	1624 - Placed Transducer
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 6.67
Depth to Bottom: 48.10

Comments: Well Pipe Kinked
- Had to use Micro
*Visible Gas in Water

1 of 2

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS
Well Number MW704M Date 06-07-2017
Field Personnel Sean Hutchins
Sampling Organization ONM Inc
Identify MP Top of PVC

Depth to 37 / 47 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 42
Purging Device; (pump type) Bladder
Total Volume Purged 2.5L

PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1555	5.96	50	50	2.5	21.76	330	4.83	-80.6	0.38	4.82	
1600		Samples Taken									
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 6.67

Depth to Bottom: 48.10

Comments:

2 of 2

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS
Well Number PZR-2R Date 6/7/17
Field Personnel Sean Hutchins
Sampling Organization OHM Inc
Identify MP Top of PVC

Depth to 120.5 / 140.5 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 130.5
Purging Device; (pump type) Bladder
Total Volume Purged 12.75L

PID: ______

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1100	5.45	65	150	0	12.29	211	7.92	12.4	2.85	8.93	10:28 Removed Transducer
1105	6.41	65	150	.75	12.25	211	7.89	12.4	2.34	9.09	
1110	6.95	65	150	1.5	12.59	212	7.74	7.1	1.11	9.92	
1115	7.35	65	100	2.25	13.07	214	7.73	2.0	0.94	8.56	
1120	7.68	65	100	2.75	13.42	218	7.65	-7.2	0.83	7.83	
1125	8.04	65	100	3.25	13.25	217	7.59	-10.3	0.73	8.33	
1130	8.66	60	100	3.75	13.65	218	7.51	-14.5	0.66	8.75	changed from 10R50 to 7R80
1135	8.82	60	100	4.25	12.91	213	7.45	-19.3	0.43	7.36	
1140	9.63	60	100	4.75	13.36	215	7.44	-19.9	0.43	6.35	
1145	10.25	60	100	5.25	13.66	218	7.43	-20.9	0.44	4.91	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 8.06
Depth to Bottom: 141.5

Comments:

1 of 3

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS

Well Number PZR-2R Date 6/7/17

Field Personnel Sean Hudzins

Sampling Organization Oak Rdge

Identify MP top of PVC

Depth to 120.5 / 140.5 of screen
(below MP) top bottom

PID: ______

Pump Intake at (ft. below MP) 130.5

Purging Device; (pump type) Bladder

Total Volume Purged 12.75L

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1150	10.91	60	100	5.75	14.62	221	7.38	-21.2	0.45	4.27	
1155	10.78	60	100	6.25	15.21	227	7.34	-23.0	0.47	3.13	
1200	11.05	60	100	6.75	14.96	227	7.33	-22.5	0.46	2.51	
1205	11.06	60	100	7.25	17.34	235	7.28	-12.4	0.54	2.28	
1210	11.17	60	100	7.75	17.49	240	7.27	-13.6	0.54	260	
1215	11.35	60	100	8.25	16.90	238	7.22	-14.2	0.52	2.65	
1220	11.53	60	100	8.75	17.24	239	7.20	-14.3	0.54	5.03	
1225	11.69	60	100	9.25	16.80	238	7.19	-14.9	0.53	7.52	
1230	11.84	60	100	9.75	17.12	240	7.17	-17.8	0.49	20.67	
1235	12.00	60	100	10.25	16.55	237	7.17	-19.4	0.50	28.76	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 8.06

Depth to Bottom: 141.5

Comments:

2 of 3

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS
Well Number PZR-2R Date 6/7/17
Field Personnel Sean Hutchins
Sampling Organization OHM Inc
Identify MP Top of White PVC Riser

Depth to 120.5 / 140.5 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 130.5
Purging Device; (pump type) Bladder
Total Volume Purged 12.75 L

PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1240	12.17	60	100	10.75	16.21	234	7.17	-28.3	0.44	42.01	
1245	12.38	60	100	11.25	16.38	235	7.17	-35.2	0.43	43.22	
1250	12.50	60	100	11.75	16.90	237	7.15	-42.5	0.41	37.55	
1255	12.58	60	100	12.25	17.00	238	7.15	-43.3	0.39	37.84	
1300	12.92	60	100	12.75	17.19	239	7.17	-48.7	0.38	35.11	
1305			Samples		Taken						1350 Replaces
											Transducer
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 8.06

Depth to Bottom: 141.5

Comments:

3 of 3

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS
Well Number 020-2D Date 6/7/17
Field Personnel Sean Hutchins
Sampling Organization OHM Inc
Identify MP Top of PVC

Depth to 75 / 85 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 80
Purging Device; (pump type) Bladder
Total Volume Purged 6.5L

PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1] psi	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
0835	7.16	40	100	0	10.75	188	8.81	38.9	7.52	18.45	
0840	7.16	40	100	500ml	10.73	188	8.54	40.6	7.88	7.37	
0845	7.16	40	100	1	10.89	194	8.44	42.0	7.88	6.25	
0850	7.16	40	100	1.5	10.91	196	8.34	43.9	7.93	7.76	
0855	7.16	40	100	2L	11.14	196	8.24	45.0	7.90	9.93	
0900	7.16	40	100	2.5	11.16	197	8.15	47.4	9.93	84.24	
0905	7.16	40	100	3L	11.20	194	8.14	48.3	7.90	83.84	
0910	7.16	40	100	3.5	11.26	193	8.08	49.2	7.85	39.35	
0915	7.16	40	100	4	11.21	195	8.03	50.4	7.90	24.99	
0920	7.16	40	100	4.5	11.35	198	8.03	51.2	7.88	16.91	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 7.16
Depth to Bottom: 85.50

Comments:

1 of 2

[illegible]

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRS
Well Number PZ0-2D Date 6/7/17
Field Personnel Sean Hutchins
Sampling Organization Orth Inc
Identify MP Top of PVC

Depth to 75 / 85 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 80
Purging Device; (pump type) Bladder
Total Volume Purged 6.5L
PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
0925	7.16	40	100	5	11.24	194	7.97	53.0	7.98	7.65	
0930	7.16	40	100	5.5	11.16	189	7.96	53.3	7.90	3.96	
0935	7.16	40	100	6	11.22	191	7.95	53.8	7.86	3.16	
0940	7.16	40	100	6.5	11.22	192	7.92	54.7	7.93	1.23	
0945	Samples		Taken								
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 7.16

Depth to Bottom: 85.50

Comments:

2 of 2

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSWG

Well Number P-101C Date 6/9/17

Field Personnel Rm MK

Sampling Organization O&M, Arcadis

Identify MP PVC, Top

Depth to 3 / 13 of screen (below MP) top / bottom

Pump Intake at (ft. below MP) 8

PID:

Purging Device; (pump type) ~~Bladder~~ Peristaltic

Total Volume Purged 5.5 Liters

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1] cpm 11/4	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
0930	3.40	11/4	100	.5	13.92	247	7.85	-123.8	7.76	100.7	Cloudy
0935	3.42			1.0	13.99	248	7.83	-127.0	8.03	101.4	
0940	3.42			1.5	14.14	250	7.83	-127.3	9.13	93.2	
0945	3.45			2.0	14.22	254	7.83	-127.9	10.04	76.8	
0950	3.48			2.5	14.29	257	7.83	-129.3	12.92	56.4	
0955	3.48			3.0	14.40	258	7.81	-129.7	13.04	65.8	
1000	3.50			3.5	14.56	259	7.81	-130.0	13.51	61.0	Clear - partial clearing
1005	3.52			4.0	14.78	261	7.80	-131.4	13.56	54.3	
1010	3.53			4.5	14.92	263	7.79	-132.6	13.61	52.4	
1015	3.54	↓	↓	5.0	15.00	265	7.78	-133.0	13.72	50.8	
1020	3.55			5.5	15.02	265	7.77	-133.8	13.76	50.6	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 3.40

Depth to Bottom: 15.25

Comments: Sample @ 1030

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number MW-901D Date 6/6/17
Field Personnel RM
Sampling Organization O&M
Identify MP PVC Top

Depth to 8 / 13 of screen
(below MP) top bottom
Pump Intake at (ft. below MP)
Purging Device; (pump type)
Total Volume Purged

PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1000	Dry |										
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: Dry
Depth to Bottom: 14.83

Comments:

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number MW-701 DR Date 6/6/17
Field Personnel RM
Sampling Organization OHM
Identify MP PVC Top

Depth to 100.3 / 107.8 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 100'
Purging Device; (pump type) Bladder
Total Volume Purged 10.0 Liters

PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1] CPM	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1330	16.82	11/4	125	0.625	10.56	181	6.90	59.1	6.53	31.73	Clear
1335	16.84			1.25	10.49	197	6.98	23.0	5.11	23.08	
1340	16.86			1.875	10.47	213	7.07	14.8	5.22	17.55	
1345	16.86			2.5	10.50	221	7.19	13.2	5.24	11.06	
1350	16.88			3.125	10.61	228	7.58	20.3	5.49	7.64	
1355	16.88			3.75	10.43	232	7.61	38.9	5.77	8.08	
1400	16.89			4.375	10.30	241	7.68	40.4	5.90	8.14	
1405	16.89			5.00	10.27	244	7.72	40.6	5.69	8.01	
1410	16.90			5.625	10.22	245	7.73	40.9	5.73	8.13	
1415	16.90			6.25	10.22	245	7.75	40.9	5.75	7.98	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 16.82

Depth to Bottom: 105.5

Comments:

1 of 2

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE

Well Number MW-701DR Date 6/6/17

Field Personnel RM

Sampling Organization OHM

Identify MP PC Top

Depth to 100.31 107.8 of screen (below MP) top bottom

PID:

Pump Intake at (ft. below MP) 100'

Purging Device; (pump type) Bladder

Total Volume Purged 10.0 Liters

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1] CPM	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turbidity NTU	Comments
~~[illegible]~~ 1420	16.90	4/4	125	6.875	10.21	246	7.77	41.3	5.75	8.0	Clear
1425	16.90	↓	↓	7.5	10.20	246	7.78	41.4	5.80	7.34	
1430	16.90	↓	↓	8.125	10.20	246	7.78	41.5	5.81	7.56	
1435	16.90	↓	↓	8.75	10.18	248	7.80	41.6	5.83	6.99	
1440	16.91	↓	↓	9.375	10.18	248	7.80	41.6	5.83	7.23	
1445	16.91	↓	↓	10.0	10.17	250	7.81	41.7	5.85	7.18	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 16.82

Depth to Bottom: 105.5

Comments:

2 of 2

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number MW-209A Date 6/7/17
Field Personnel KM
Sampling Organization O+M
Identify MP PVC Top

Depth to 18 / 38 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 28
Purging Device; (pump type) Bladder
Total Volume Purged 13.125 Liters
PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1] CPM	Purge Rate ml/min	Cum. Volume Purged liters	Temp. ~~°C~~ F	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments	temp °C
0915	21.8	11/4	125	.625	52.40	209	7.57	-21.0	8.30	40.03	Clear	11.33
0920	21.8	↓	↓	1.25	52.01	292	6.96	-13.7	8.01	39.90		11.12
0925	21.8			1.875	52.07	291	6.60	-11.9	7.79	39.14		11.15
0930	21.8			2.5	51.82	289	6.52	-14.6	7.77	39.08		11.01
0935	21.8			3.125	51.61	286	6.43	-20.5	7.65	39.98		10.89
0940	21.8			3.75	51.60	286	6.34	-20.6	7.59	43.74		10.89
0945	21.8			4.375	51.71	287	6.33	-20.8	7.58	39.01		10.95
0950	21.8			5.0	51.81	287	6.30	-21.0	7.54	38.31		11.01
0955	21.8			5.625	51.87	287	6.29	-21.2	7.55	37.03		11.04
1000	21.8	↓	↓	6.25	51.81	288	6.28	-20.9	7.56	43.52		11.01
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%		

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 21.8
Depth to Bottom: 40.04

Comments: Purge minimum of 3.26 gallons - 20' Screen

Perform MS/MSD + DUP-06072017-1 for Total + dissolved metals

Sample @ 1100

Page 1 of 2

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number MW-209A Date 6/7/17
Field Personnel RM
Sampling Organization OFM
Identify MP PVC Top

Depth to (below MP) top 18 / bottom 38 of screen
Pump Intake at (ft. below MP) 28
Purging Device; (pump type) Bladder
Total Volume Purged
PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1] CPM	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °~~C~~ F	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments temp °C
1005	21.8	11/4	125	6.875	51.85	289	6.27	-22.0	7.53	37.09	Clear 11.03
1010	21.8	↓	↓	7.5	51.90	290	6.26	-22.0	7.52	34.03	11.06
1015	21.8			8.125	51.95	290	6.26	-21.6	7.53	30.76	11.08
1020	21.8			8.75	51.94	291	6.26	-21.4	7.54	27.05	11.08
1025	21.8			9.375	51.89	292	6.26	-21.2	7.57	25.15	11.08
1030	21.8			10.0	51.81	294	6.25	-20.3	7.58	21.45	11.01
1035	21.8			10.625	51.88	295	6.25	-20.1	7.56	20.09	11.04
1040	21.8			11.25	51.62	293	6.24	-20.5	7.63	19.23	10.90
1045	21.8			11.875	51.39	295	6.23	-19.8	7.70	18.56	10.77
1050	21.8			12.5	51.28	295	6.22	-18.8	7.72	17.93	10.77
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	
1055	21.8	↓	↓	13.125	51.10	295	6.22	-18.3	7.73	17.04	10.61

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water:

Depth to Bottom:

Comments:

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number MW-901R Date 6/6/17
Field Personnel RM
Sampling Organization OHM
Identify MP PVC Top

Depth to 25 / 40 of screen
(below MP) top bottom
Pump Intake at (ft. below MP) 32'
PID:
Purging Device; (pump type) Bladder
Total Volume Purged 11.25 Liters

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1] CPM	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turbidity NTU	Comments Purge w/ 2.45 gals.
1020	16.91	11/4	150	.750	10.13	263	8.01	74.5	7.91	461.9	Cloudy
1025	16.91			1.5	9.93	260	7.08	94.1	7.78	387.6	
1030	16.91			2.25	9.87	259	6.95	96.7	7.83	301.6	
1035	16.93			3.0	9.88	258	6.66	100.2	7.76	221.4	
1040	16.95			3.75	10.08	258	6.59	99.2	7.26	201.6	
1045	16.95			4.50	10.14	256	6.55	98.2	7.08	191.4	
1050	16.95			5.25	10.14	255	6.53	94.6	7.01	155.3	
1055	16.95			6.0	10.04	250	6.50	92.6	7.11	122.8	
1100	16.95			6.75	10.04	245	6.47	92.7	7.18	123.4	
1105	16.95	↓	↓	7.5	10.02	243	6.45	93.5	7.21	107.1	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 16.91
Depth to Bottom: 42.36

Comments:

1 of 2

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number MW-901S Date 6/6/17
Field Personnel RM
Sampling Organization OTM
Identify MP PVC Top

Depth to ____/____ of screen
(below MP) top bottom
Pump Intake at (ft. below MP) ____
Purging Device; (pump type) ____
Total Volume Purged ____

PID: ____

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turbidity NTU	Comments
1110	16.95	11/4	150	8.25	9.88	237	6.41	100.2	7.46	123.1	
1115	16.95	↓	↓	9.0	9.88	236	6.39	101.4	7.46	109.2	
1120	16.95			9.75	9.89	236	6.38	102.4	7.43	102.1	
1125	16.95			10.5	9.89	235	6.37	102.1	7.39	98.7	
1130	16.95			11.25	9.88	234	6.37	101.9	7.39	96.1	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: [illegible]
Depth to Bottom: [illegible]

Comments:
Sample @ 1140

2 of 2

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE

Well Number P-13 Date 6/5/17

Field Personnel RM

Sampling Organization O&M

Identify MP PVC Top

Depth to 4.9 / 14.9 of screen

(below MP) top bottom

PID: ______

Pump Intake at (ft. below MP) 13.0

Purging Device; (pump type) Bladder

Total Volume Purged 5.625 Liters

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1] CPM	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °~~C~~F	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments	Temp °C
1330	10.13	11/4	75	.375	53.32	212	7.62	-264	9.54	130.5	Cloudy	11.84
1335	10.25	↓	↓	.75	55.15	215	7.63	-29.5	7.17	128.1		~~[illegible]~~ 12.86
1340	10.28			1.125	54.43	211	7.75	-30.6	7.07	125.9		12.46
1345	10.28			1.5	54.11	276	7.74	-29.4	7.01	118.3		~~[illegible]~~ 12.28
1350	10.28			1.875	53.92	274	7.72	-28.7	7.04	112.8		12.18
1355	10.28			2.25	51.90	265	7.25	-24.4	7.25	104.2		~~[illegible]~~ 11.06
1400	10.28			2.625	52.13	258	7.49	-26.4	7.33	68.9	Clear	11.18
1405	10.28			3.0	52.22	259	7.48	-26.3	7.37	59.9		~~[illegible]~~ 11.23
1410	10.28			3.375	52.22	252	7.31	-25.4	7.48	45.40		11.23
1415	10.28			3.75	52.38	249	7.26	-25.0	7.77	39.98		11.32
1420	10.28			4.125	52.17	243	7.16	-24.0	8.00	35.89		11.21
1425	10.28			4.5	52.46	241	7.07	-22.8	8.09	34.30		11.37
1430	10.30			4.875	52.65	241	6.99	-21.8	8.23	33.73		11.47
1435	10.30			5.25	52.58	238	6.90	-20.5	8.31	33.44		11.43
1440	10.30	↓	↓	5.625	52.64	239	6.88	-20.1	8.33	33.09		11.47
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%		

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 10.01

Depth to Bottom: 17.20

Comments:

Sample @ 1445

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number MW-127C Date 6/7/17
Field Personnel RM
Sampling Organization O&M
Identify MP PVC Top

Depth to 91.5 / 101.5 of screen
(below MP) top bottom
PID: ________
Pump Intake at (ft. below MP) 96.5
Purging Device; (pump type) Bladder
Total Volume Purged 8.0 Liters

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1] CPM	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turbidity NTU	Comments
1340	2.82	11/4	100	.500	15.67	313	7.41	-81.7	3.27	45.66	Clear
1345	2.88	↓	↓	1.0	16.02	318	7.45	-93.9	3.61	51.06	"
1350	2.93	↓	↓	1.5	16.32	324	7.52	-103.4	3.97	67.03	"
1355	2.99	↓	↓	2.0	16.57	326	7.54	-102.8	3.92	69.04	"
1400	3.08	↓	↓	2.5	15.94	326	7.59	-100.9	4.08	97.39	Cloudy
1405	3.12	↓	↓	3.0	15.92	324	7.59	-103.6	3.84	86.05	
1410	3.13	↓	↓	3.5	16.03	326	7.59	-103.9	3.82	83.05	
1415	3.10	↓	↓	4.0	16.51	328	7.60	-104.1	3.80	83.15	
1420	3.10	↓	↓	4.5	16.52	330	7.60	-104.5	3.79	81.63	
1425	3.10	↓	↓	5.0	16.45	329	7.59	-103.9	3.76	75.14	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 3.0
Depth to Bottom: 102.28

Comments:

1 of 2

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number MW-127C Date 6/7/17
Field Personnel
Sampling Organization
Identify MP

Depth to ______/______ of screen
(below MP) top bottom
Pump Intake at (ft. below MP)
Purging Device; (pump type)
Total Volume Purged

PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1] CPM	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
~~3~~ 1430	3.10	11/4	100	5.5	16.36	328	7.59	-103.0	3.71	76.10	
1435	3.11	↓	↓	6.0	16.35	328	7.58	-103.0	3.70	70.10	
1440	3.11	↓	↓	6.5	16.33	327	7.58	-102.3	3.72	63.89	
1445	3.11	↓	↓	7.0	16.33	327	7.58	-102.2	3.70	64.06	
1450	3.11	↓	↓	7.5	16.22	326	7.57	-101.5	3.71	62.40	
1455	3.11	↓	↓	8.0	16.30	327	7.57	-100.7	3.67	62.48	
1500	3.11										Sample @ 1500
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: ________

Depth to Bottom: ________

Comments:

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE

Well Number MW-03 Date 6/8/17

Field Personnel RM

Sampling Organization OHM

Identify MP PVC Top

Depth to 52.5 / 82.5 of screen

(below MP) top bottom

PID: ______

Pump Intake at (ft. below MP) 67.5

Purging Device; (pump type) Bladder

Total Volume Purged 11.0 Liters

Clock Time 24 HR	Water Depth below MP ft	Pump Dial¹ Micro Purge 1.5/1.5	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.² µS/cm	pH	ORP³ mv	DO mg/L	Turb-idity NTU	Comments
0940	4.70	↓	50	.25	15.40	291	7.55	127.7	3.40	18.10	Clear
0945	4.68		↓	.50	11.73	271	4.93	243.7	2.20	17.53	
0950	4.62			.75	12.05	274	4.92	251.3	2.01	16.51	
0955	4.57			1.0	14.06	278	4.89	256.7	1.97	18.01	
1000	4.52			1.25	14.15	294	4.90	267.6	~~[illegible]~~ 0.57	15.11	
1005	4.52			1.50	14.73	296	4.93	268.6	0.41	10.06	
1010	4.50			1.75	14.89	297	5.00	269.1	0.42	9.50	
1015	4.55			2.0	15.19	299	4.95	273.8	0.40	5.40	
1020	4.52			2.25	15.57	304	4.94	276.5	0.37		
1025	4.52	↓	↓	2.50	15.74	305	4.95	279.3	0.40		
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 6.96

Depth to Bottom: 80.74

Comments:

Purge 2.75 gallons

Sample @ 1300

1 of 3

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number MW-03 Date 6/8/17
Field Personnel RM
Sampling Organization O&M
Identify MP PVC Top

Depth to ______/______ of screen
(below MP) top bottom
Pump Intake at (ft. below MP)______
Purging Device; (pump type)______
Total Volume Purged ______

PID: ______

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1] 1.5/1.5 MP	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1030	4.54	↓	50 ↓	2.75	16.20	309	4.97	277.3	0.43	5.78	
1035				3.0	16.39	310	4.98	277.2	0.43	5.71	
1040	4.56			3.25	16.45	310	4.97	279.8	0.47	5.69	
1045				3.50	16.49	310	4.97	280.7	0.50	5.55	
1050	4.55			3.75	16.86	314	4.99	280.7	0.68	2.84	
1055				4.0	17.27	315	4.98	282.0	0.62	2.99	
1100	4.54			4.25	17.28	317	4.98	282.1	0.57	2.64	
1105				4.50	17.30	317	4.98	282.2	0.24	2.69	
1110	4.56			4.75	17.36	317	4.99	282.0	0.11	2.65	
1115	4.60			5.0	17.55	320	4.98	282.5	-0.04	2.29	
1120	4.60			5.25	17.66	320	4.99	282.6	0.04	2.25	
1125	4.60			5.50	17.99	323	4.99	282.7	0.0	2.27	
1130	4.61			5.75	18.03	326	4.99	280.4	0.04	3.08	
1135	4.61			6.0	18.19	330	5.02	278.6	0.12	4.44	
1140	4.61			6.25	18.36	333	5.04	277.4	0.16	3.04	
1145	4.61			6.50	18.99	336	5.04	273.4	0.21	2.89	
1150	4.61			6.75	19.71	341	5.04	270.6	0.23	4.19	
1155	4.61			7.0	20.43	343	5.06	266.4	0.27	3.88	
1200	4.61			7.25	21.49	351	5.07	260.4	0.30	3.91	
1205	4.61			7.50	21.87	355	5.09	256.8	0.39	3.93	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: ______

Depth to Bottom: ______

Comments:

2 of 3

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number MW-03 Date 6/8/17
Field Personnel RM
Sampling Organization O&M
Identify MP PVC Top

Depth to ______/______ of screen
(below MP) top bottom
Pump Intake at (ft. below MP)______
Purging Device; (pump type)______
Total Volume Purged ______

PID: ______

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1] 1.5/1.5 MP	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1210	4.61			7.75	21.88	355	5.09	256.8	0.27	5.17	
1215	4.61		50	8.0	21.90	355	5.09	256.4	0.29	3.89	
1220	4.61			8.25	21.87	357	5.10	256.2	0.29	3.91	
1225	4.61			8.50	21.83	358	5.11	256.1	0.30	4.09	
1230	4.61			8.75	21.81	359	5.11	256.1	0.31	5.01	
1235	4.61			9.0	21.81	360	5.11	256.0	0.32	4.98	
1240	4.61			9.25	21.79	361	5.11	256.0	0.32	3.97	
1245	4.61			9.50	21.79	362	5.11	255.7	0.33	3.63	
1250	4.61			9.75	21.77	362	5.11	255.7	0.35	3.53	
1255	4.61			10.00	21.71	362	5.12	255.1	0.37	3.51	
1300	4.61			10.25	21.61	364	5.12	253.9	0.37	3.50	
1305	4.61			10.50	21.60	364	5.12	253.7	0.78	2.98	
1310	4.61			10.75	21.55	364	5.12	253.6	0.38	2.81	
1315	4.61			11.00	21.53	365	5.12	253.4	0.39	3.26	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: ______

Depth to Bottom: ______

Comments:

3 of 3

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number MW-209B Date 6/7/17
Field Personnel KM
Sampling Organization OHM
Identify MP PVC Top

Depth to ______/______ of screen
(below MP) top bottom
PID: ______
Pump Intake at (ft. below MP) ______
Purging Device; (pump type) Bailer
Total Volume Purged .23 gallons

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1115	15.72			≈1							Bail 1 well volume – 6-7-17
1500	15.72										Recharge + Sample @ 1150 6-8-17
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 15.72
Depth to Bottom: 17.15

Comments:

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE

Location: Southington, CT

Well ID: MW-902D

Well Type: • [✓ Monitoring] • Other:

Well Finish: • [✓ Stick Up] • Flush Mount

Measuring Pt: • [✓ Top of Casing] • Other (specify):

Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 12.5-17.5

Well Casing: Diameter: 2" Material: PVC

Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 1425

Weather Conditions: Sunny ~45°

Depth to groundwater at time of deployment: 12.33'

Total well depth at time of deployment: 23.50'

Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75

Deployment Method/Position of Weight:

PTD: 21.0

- Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.
- Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~15.0

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 1430

Total # of days deployed: 5

Weather Conditions: Partly Cloudy ~35°

Depth to groundwater at time of retrieval: 12.39'

Total well depth at time of retrieval: 23.50'

Downhole Field Parameters Upon Retrieval:

Temp: 6.7 **(°C)** **ORP:** -71.6 **(mV)** **Water quality meter:** YSI

pH: 6.39 **DO:** 1.8 **(mg/L)** **Serial #:** 10D101439

Notes/Observations:

turb: 70.30
C uS/cm: 1420

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Kissane	Arcadis
Ryan Malone	O&M

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-416

Well Type: ● [✓ Monitoring] ● Other:
Well Finish: ● [✓ Stick Up] ● Flush Mount
Measuring Pt: ● [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 29.4 - 49.4
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 1155
Weather Conditions: Sunny ~45°
Depth to groundwater at time of deployment: 11.95'
Total well depth at time of deployment: 51.88'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

PID: 0.0

- ● Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.
- ● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~39.0'

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 1200
Total # of days deployed: 5
Weather Conditions: Partly Cloudy ~35°
Depth to groundwater at time of retrieval: 12.94'
Total well depth at time of retrieval: 51.88'
Downhole Field Parameters Upon Retrieval:
Temp: 11.4 **(°C)** **ORP:** -50.4 **(mV)** **Water quality meter:** YSI
pH: 7.48 **DO:** 1.1 **(mg/L)** **Serial #:** 10D101139

Notes/Observations:

Turb: 17.88
Cμs/cm: 387.6

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Kissane	Arcadis
Ryan Malone	O&M

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: TW-08A

Well Type: ● [✓ Monitoring] ● Other:
Well Finish: ● [✓ Stick Up] ● Flush Mount
Measuring Pt: ● [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 4.0-14.0
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 1005
Weather Conditions: Sunny ~45°
Depth to groundwater at time of deployment: 7.83'
Total well depth at time of deployment: 14.16'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

PID: 0.0

- ● Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.
- ● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~9'

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 1010
Total # of days deployed: 5
Weather Conditions: Partly Cloudy ~35°
Depth to groundwater at time of retrieval: 7.89'
Total well depth at time of retrieval: 14.16'
Downhole Field Parameters Upon Retrieval:
Temp: 11.5 (°C) **ORP:** -89.4 (mV) **Water quality meter:** YSI
pH: 6.48 **DO:** 2.1 (mg/L) **Serial #:** 10D101439

Notes/Observations:

Turb: 381.7
C us/cm: 1254

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Kissane	Arcadis
Ryan Malone	O&M

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington CT
Well ID: TW-08D

Well Type: ● [✓ Monitoring] ● Other:
Well Finish: ● [✓ Stick Up] ● Flush Mount
Measuring Pt: ● [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 17-22'
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 0925
Weather Conditions: Sunny ~45°
Depth to groundwater at time of deployment: 7.20'
Total well depth at time of deployment: 25.89'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

PID: 18.6

- Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.
- Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~19.5'

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 0930
Total # of days deployed: 5
Weather Conditions: Partly Cloudy ~25°
Depth to groundwater at time of retrieval: 7.23'
Total well depth at time of retrieval: 25.89'
Downhole Field Parameters Upon Retrieval:
Temp: 17.5 (°C) **ORP:** -57.7 (mV) **Water quality meter:** YSI
pH: 7.02 **DO:** 1.9 (mg/L) **Serial #:** 10D101439

Notes/Observations:

Turb: 23.23
Cond: us/cm: 632

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Kissane	Arcadis
Ryan Malone	O&M

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-415U

Well Type: [✓ Monitoring] • Other:
Well Finish: [✓ Stick Up] • Flush Mount
Measuring Pt: [✓ Top of Casing] • Other (specify):
Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 6.8-11.8
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 1100
Weather Conditions: Sunny ~45°
Depth to groundwater at time of deployment: 9.44'
Total well depth at time of deployment: 16.00
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

PID: 0.0

- Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.
- Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~8.0'

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 1115
Total # of days deployed: 5
Weather Conditions: PartlyCloudy ~35°
Depth to groundwater at time of retrieval: 9.56'
Total well depth at time of retrieval: 16.00'
Downhole Field Parameters Upon Retrieval:
Temp: 4.9 **(°C)** **ORP:** -29.4 **(mV)** **Water quality meter:** YSI
pH: 6.50 **DO:** 2.1 **(mg/L)** **Serial #:** 10D101439

Notes/Observations:

Turb: 47.98
Cuskn: 1029

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Kissane	Arcadis
Ryan Malone	O&M

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-413U

Well Type: [✓ Monitoring] • Other:
Well Finish: [✓ Stick Up] • Flush Mount
Measuring Pt: [✓ Top of Casing] • Other (specify):
Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 14.8-19.8
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 1000
Weather Conditions: Sunny ~45°
Depth to groundwater at time of deployment: 9.49'
Total well depth at time of deployment: 24.60'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

PID: 0.0

- Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.
- Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~15.5'

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 1030
Total # of days deployed: 5
Weather Conditions: Partly Cloudy ~25°
Depth to groundwater at time of retrieval: 9.60'
Total well depth at time of retrieval: 24.60'
Downhole Field Parameters Upon Retrieval:
Temp: 8.4 **(°C)** **ORP:** -80.9 **(mV)** **Water quality meter:** YSI
pH: 6.78 **DO:** 4.2 **(mg/L)** **Serial #:** 10D101171

Notes/Observations:

Turb: 23.11
C µS/cm: 1219

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Keane	Arcadis
Ryan Malone	O&M

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, Ct
Well ID: MWL-304

Well Type: [✓ Monitoring] ● Other:
Well Finish: [✓ Stick Up] ● Flush Mount
Measuring Pt: [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 1.0-11.0
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 0900
Weather Conditions: Sunny ~45°
Depth to groundwater at time of deployment: 9.32'
Total well depth at time of deployment: 16.00'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

PID: 0.0

● Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.
● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~9.5'

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 0900
Total # of days deployed: 5
Weather Conditions: PartlyCloudy ~35°
Depth to groundwater at time of retrieval: 9.34
Total well depth at time of retrieval: 16.00'
Downhole Field Parameters Upon Retrieval:
Temp: 8.77 (°C) **ORP:** -57.1 (mV) **Water quality meter:** YSI MDS
pH: 6.29 **DO:** 1.12 (mg/L) **Serial #:** 10DIC 1439

Notes/Observations:

Outer Casing: 44" Turb: 57.21
PVC: 41" Cus km: 921

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Kissane	Arcadis
Ryan Malone	O&M

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MWL-30P

Well Type: ● [✓ Monitoring] ● Other:
Well Finish: ● [✓ Stick Up] ● Flush Mount
Measuring Pt: ● [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 1.0-11.0
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 1255
Weather Conditions: Sunny ~ 45°
Depth to groundwater at time of deployment: 9.12'
Total well depth at time of deployment: 15.92'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

PID: 0.0

● Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.

● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~8.0

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 1300
Total # of days deployed: 5
Weather Conditions: Partly Cloudy ~ 25°
Depth to groundwater at time of retrieval: 9.17'
Total well depth at time of retrieval: 15.92'
Downhole Field Parameters Upon Retrieval:
Temp: 6.5 (°C) **ORP:** -82 (mV) **Water quality meter:** YSI
pH: 7.01 **DO:** 2.7 (mg/L) **Serial #:** 10D10149

Notes/Observations:

Turb: 63.11
C µs/cm: 1434

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Kosjane	Arcadis
Ryan Malone	O&M

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE

Location: Southington, CT

Well ID: MW-902M

Well Type: [✓ Monitoring] • Other:

Well Finish: [✓ Stick Up] • Flush Mount

Measuring Pt: [✓ Top of Casing] • Other (specify):

Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 12.5-17.5

Well Casing: Diameter: 2" Material: PVC

Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 1340

Weather Conditions: Sunny ~45°

Depth to groundwater at time of deployment: 12.15'

Total well depth at time of deployment: 28.20'

Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75

Deployment Method/Position of Weight:

PID: 0.0

- Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.
- Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~15.0'

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 1345

Total # of days deployed: 5

Weather Conditions: Partly Cloudy ~25°

Depth to groundwater at time of retrieval: 12.21'

Total well depth at time of retrieval: 28.20'

Downhole Field Parameters Upon Retrieval:

Temp: 5.9 **(°C)** **ORP:** -97.8 **(mV)** **Water quality meter:** YSI

pH: 6.97 **DO:** 2.2 **(mg/L)** **Serial #:** 16D101439

Notes/Observations:

Turb: 81.72
C uS/cm: 954

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Kissane	Arcadis
Ryan Malone	O&M

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name)

Well Number TSER-2 Date 3/16/17

Field Personnel Matt Kissane

Sampling Organization

Identify MP TOC

Depth to ____/____ of screen
(below MP) top bottom

PID:

Pump Intake at (ft. below MP)

Purging Device; (pump type)

Total Volume Purged

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1230			120	.6	18.73	633	7.09	-143	7.22	22.8	
1235			120	1.2	18.82	620	7.08	-142	6.91	19.5	
1240			120	1.8	18.81	610	7.11	-147	6.43	18.1	
1245			120	2.4	18.89	605	7.10	-148	5.31	16.1	
1250			120	3	18.88	604	7.10	-148	5.38	17.8	
1255			120	3.6	18.89	605	7.11	-149	5.21	16.6	
1300 SAMPLE											
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 16.90

Depth to Bottom:

Comments:

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number JSTR-1 Date 3/9/17
Field Personnel RM, MK, DTS
Sampling Organization Arcadis / [illegible]
Identify MP Top of Steel

Depth to ______/______ of screen
(below MP) top bottom
Pump Intake at (ft. below MP)______
Purging Device; (pump type) Peri
Total Volume Purged ______

PID: ______

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1300	11.20		100		21.2	2872	6.90	-148.5	4.0	30.82	Clear
1305	11.41				20.9	2735	6.89	-147.7	0.9	30.56	
1310	11.59				21.0	2736	6.94	-148.4	0.4	28.76	
1315	11.63				20.9	2917	6.91	-149.0	0.1	31.09	
1320	11.70				20.6	2718	6.89	-147.3	0	29.4	
1325	11.78				20.5	2733	6.89	-147.9	0	28.56	
1330	11.89		↓		20.5	2736	6.90	-148.7	0	29.09	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 11.20

Depth to Bottom: ______

Comments:

jr

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE

Well Number FSTR-5 Date 3/9/11

Field Personnel KM, MK, DB

Sampling Organization

Identify MP

Depth to _____ / _____ of screen
(below MP) top bottom

PID:

Pump Intake at (ft. below MP)

Purging Device; (pump type)

Total Volume Purged

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1345	16.3		100	.5	20.5	2450	6.85	-90.1	3.0	199.5	Brown
1350	16.21			1.0	20.2	2523	6.87	-98.2	2.4	42.5	
1355	16.32			1.5	21.3	2530	6.82	-101.2	2.2	37.2	
1400	16.35			2.0	21.2	2537	6.87	-103.1	2.5	34.6	
1405	16.41			2.5	21.4	2543	6.87	-104.2	2.5	33.2	
1410	16.43			3.0	21.5	2546	6.82	-105.7	2.5	32.1	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 16.3

Depth to Bottom:

Comments:

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number ISTRC-3 Date 3/9/17
Field Personnel RM, DB, MK
Sampling Organization Arcadis / OTM
Identify MP TOC Steel

Depth to ______ / ______ of screen
(below MP) top bottom
Pump Intake at (ft. below MP) ______
Purging Device; (pump type) Perry
Total Volume Purged ______

PID: ______

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1030	13.77		120		19.1	1030	6.78	-65.2	5.5	16.41	Clear
1035	13.82		↓		16.8	1033	6.76	-85.1	0.4	14.81	
1040	13.83				19.5	1036	6.75	-96.6	0.2	13.01	
1045	13.83				19.2	1042	6.75	-101.3	0.1	12.96	
1050	13.83				19.2	1042	6.75	-102.6	0.1	12.93	
1055	13.83				19.3	1044	6.74	-102.9	0.1	12.97	
1100	13.83				19.4	1044	6.74	-103.7	0.1	12.03	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 13.77

Depth to Bottom: ______

Comments:

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name)__________
Well Number ISTB-6 Date 3/16/17
Field Personnel__________
Sampling Organization__________
Identify MP TOC

Depth to ______/______ of screen
(below MP) top bottom
Pump Intake at (ft. below MP)__________
Purging Device; (pump type)__________
Total Volume Purged __________

PID: __________

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
0830			120	.6	16.2	1147	7.30	-103.5	1.6	35.71	
0835			120	1.2	16.3	1152	7.15	-1136	1.8	28.31	
0840			120	1.8	16.4	1163	7.00	-120.1	1.9	16.22	
0845			120	2.4	16.4	1173	6.85	-123.2	2.3	15.11	
0850			120	3	16.5	1178	6.79	-126.7	2.5	13.99	
0855			120	3.6	16.4	1179	6.79	-1262	2.5	11.72	
0900:	SAMPLE ([illegible])										
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 13.20'

Depth to Bottom:__________

Comments:

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name)__________
Well Number [illegible] Date 3/16/17
Field Personnel__________
Sampling Organization__________
Identify MP__________

Depth to ______/______ of screen
(below MP) top bottom
Pump Intake at (ft. below MP)______
Purging Device; (pump type)______
Total Volume Purged ______

PID: ______

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
0915			120	.6	15.6	428.6	7.81	-128.5	4.0	12.78	
0920			120	1.2	13.1	427.1	7.31	-119.7	3.6	7.61	
0925			120	1.8	12.8	427.1	7.11	-117.6	2.0	5.11	
0930			120	2.4	11.7	426.8	7.08	-115.3	0.9	4.89	
0935			120	3	11.5	426.6	7.00	-113.7	0.5	4.11	
0940			120	3.6	11.6	426.5	6.95	+13.5	0.3	3.84	
0945			120	4.2	11.6	426.5	6.96	-113.6	0.3	3.11	
0950	SAMPLE										
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 15.96
Depth to Bottom: ______

Comments:

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number TW C8B Date 3/9/17
Field Personnel DB, MK, RM
Sampling Organization Arcadis / OOM
Identify MP STEEL TOP

Depth to ____/____ of screen
(below MP) top bottom
Pump Intake at (ft. below MP) ____
Purging Device; (pump type) Peri
Total Volume Purged ____
PID: ____

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
0830	7.72		100		15.8	1128	7.94	-79.3	2.7	11.60	Clear
0835	7.88				18.1	1063	6.46	-59.0	0.2	12.30	
0840	7.96				17.8	1068	6.63	-59.2	0.2	13.62	
0845	8.17				17.3	1065	6.62	-58.5	0.1	12.61	
0850	8.28				17.3	1063	6.61	-57.4	0.1	11.78	
0855	8.31				16.9	1064	6.61	-56.7	0.1	12.01	
0900	8.36		↓		16.9	1063	6.61	-55.9	0.1	12.12	Sample @ 0900
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 7.12
Depth to Bottom: ____

Comments:

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-902D

Well Type: [✓ Monitoring] • Other:
Well Finish: [✓ Stick Up] • Flush Mount
Measuring Pt: [✓ Top of Casing] • Other (specify):
Total Depth As Constructed (ftbgs):
Screened Interval (ftbgs): 12.5-17.5
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 1425
Weather Conditions: Sunny ~45°
Depth to groundwater at time of deployment: 12.33'
Total well depth at time of deployment: 23.50'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

PTD: 21.0

- Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.
- Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~15.0

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 1430
Total # of days deployed: 5
Weather Conditions: Partly Cloudy ~35°
Depth to groundwater at time of retrieval: 12.34'
Total well depth at time of retrieval: 23.50'
Downhole Field Parameters Upon Retrieval:
Temp: 6.7 (°C) **ORP:** -71.6 (mV) **Water quality meter:** YSI
pH: 6.39 **DO:** 1.8 (mg/L) **Serial #:** 16D101439

Notes/Observations:

turb: 70.30
C uS/cm: 1420

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Kissane	Arcadis
Ryan Malone	O&M

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-416

Well Type: [✓ ● Monitoring] ● Other:
Well Finish: [✓ ● Stick Up] ● Flush Mount
Measuring Pt: [✓ ● Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 29.4 - 49.4
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 1155
Weather Conditions: Sunny ~45°
Depth to groundwater at time of deployment: 11.95'
Total well depth at time of deployment: 51.88'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

PID: 0.0

- ● Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.
- ● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~39.0'

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 1200
Total # of days deployed: 5
Weather Conditions: Partly Cloudy ~35°
Depth to groundwater at time of retrieval: 12.94
Total well depth at time of retrieval: 51.88'
Downhole Field Parameters Upon Retrieval:
Temp: 11.4 **(°C)** **ORP:** -50.4 **(mV)** **Water quality meter:** YSI
pH: 7.18 **DO:** 1.1 **(mg/L)** **Serial #:** 10D104139

Notes/Observations:

Turb: 17.88
Cus/cm: 387.6

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Kissane	Arcadis
Ryan Malone	O&M

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: TW-08A

Well Type: • [✓ Monitoring] • Other:
Well Finish: • [✓ Stick Up] • Flush Mount
Measuring Pt: • [✓ Top of Casing] • Other (specify):
Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 4.0-14.0
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 1005
Weather Conditions: Sunny ~45°
Depth to groundwater at time of deployment: 7.83'
Total well depth at time of deployment: 14.16'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

PID: 0.0

• Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.
• Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~9'

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 1010
Total # of days deployed: 5
Weather Conditions: Partly Cloudy ~35°
Depth to groundwater at time of retrieval: 7.89'
Total well depth at time of retrieval: 14.16'
Downhole Field Parameters Upon Retrieval:
Temp: 11.5 (°C) **ORP:** -89.4 (mV) **Water quality meter:** YSI
pH: 6.48 **DO:** 2.1 (mg/L) **Serial #:** 10D101439

Notes/Observations:

Turb: 381.7
C us/cm: 1254

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Kissane	Arcadis
Ryan Malone	O&M

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington CT
Well ID: TW-08D

Well Type: [✓ ● Monitoring] ● Other:
Well Finish: [✓ ● Stick Up] ● Flush Mount
Measuring Pt: [✓ ● Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 17-22'
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 0925
Weather Conditions: Sunny ~45°
Depth to groundwater at time of deployment: 7.20'
Total well depth at time of deployment: 25.89'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

PID: 18.6

- ● Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.
- ● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~19.5'

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 0930
Total # of days deployed: 5
Weather Conditions: Partly Cloudy ~25°
Depth to groundwater at time of retrieval: 7.23'
Total well depth at time of retrieval: 25.89'
Downhole Field Parameters Upon Retrieval:
Temp: 17.5 **(°C)** **ORP:** -57.7 **(mV)** **Water quality meter:** YSI
pH: 7.02 **DO:** 1.9 **(mg/L)** **Serial #:** 10D101439

Notes/Observations:

Turb: 23.23
Cond: us/cm: 632

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Kissane	Arcadis
Ryan Malone	O&M

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-415U

Well Type: • [✓ Monitoring] • Other:
Well Finish: • [✓ Stick Up] • Flush Mount
Measuring Pt: • [✓ Top of Casing] • Other (specify):
Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 6.8-11.8
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 1100
Weather Conditions: Sunny ~45°
Depth to groundwater at time of deployment: 9.44'
Total well depth at time of deployment: 16.00
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

PID: 0.0

• Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.

• Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~8.0'

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 1115
Total # of days deployed: 5
Weather Conditions: Partly Cloudy ~25°
Depth to groundwater at time of retrieval: 9.56'
Total well depth at time of retrieval: 16.00'
Downhole Field Parameters Upon Retrieval:
Temp: 4.9 **(°C)** **ORP:** -29.4 **(mV)** **Water quality meter:** YSI
pH: 6.50 **DO:** 2.1 **(mg/L)** **Serial #:** 10D101439

Notes/Observations:

Turb: 47.98
Cusktn: 1029

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Kissane	Arcadis
Ryan Malone	O&M

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-413U

Well Type: [✓ Monitoring] • Other:
Well Finish: [✓ Stick Up] • Flush Mount
Measuring Pt: [✓ Top of Casing] • Other (specify):
Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 14.8-19.8
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 1000
Weather Conditions: Sunny ~45°
Depth to groundwater at time of deployment: 9.49'
Total well depth at time of deployment: 24.60'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

PID: 0.0

- Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.
- Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~15.5'

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 1030
Total # of days deployed: 5
Weather Conditions: Partly Cloudy ~25°
Depth to groundwater at time of retrieval: 9.60'
Total well depth at time of retrieval: 24.60'
Downhole Field Parameters Upon Retrieval:
Temp: 8.4 **(°C)** **ORP:** -80.9 **(mV)** **Water quality meter:** YSI
pH: 6.78 **DO:** 4.2 **(mg/L)** **Serial #:** 10D101471

Notes/Observations:

Turb. 23.11
C µS/cm: 1.219

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Krane	Arcadis
Ryan Malone	O&M

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, Ct
Well ID: MWL-304

Well Type: ● [✓ Monitoring] ● Other:
Well Finish: ● [✓ Stick Up] ● Flush Mount
Measuring Pt: ● [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 1.0-11.0
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 0900
Weather Conditions: Sunny ~45°
Depth to groundwater at time of deployment: 9.32'
Total well depth at time of deployment: 16.00'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

PID: 0.0

● Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.

● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~9.5'

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 0900
Total # of days deployed: 5
Weather Conditions: Partly Cloudy ~35°
Depth to groundwater at time of retrieval: 9.34
Total well depth at time of retrieval: 16.00'
Downhole Field Parameters Upon Retrieval:
Temp: 8.77 (°C) **ORP:** -57.1 (mV) **Water quality meter:** YSI MDS
pH: 6.29 **DO:** 1.12 (mg/L) **Serial #:** 10DIC 1439

Notes/Observations:

Outer Casing: 44" Turb: 57.21
PVC: 41" Cuskm: 921

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Kissane	Arcadis
Ryan Malone	O&M

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MWL-30P

Well Type: • [✓ Monitoring] • Other:
Well Finish: • [✓ Stick Up] • Flush Mount
Measuring Pt: • [✓ Top of Casing] • Other (specify):
Total Depth As Constructed (ftbgs):
Screened Interval (ftbgs): 1.0-11.0
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 1255
Weather Conditions: Sunny ~ 45°
Depth to groundwater at time of deployment: 9.12'
Total well depth at time of deployment: 15.92'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

PID: 0.0

• Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.

• Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~8.0

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 1300
Total # of days deployed: 5
Weather Conditions: Partly Cloudy ~ 25°
Depth to groundwater at time of retrieval: 9.17'
Total well depth at time of retrieval: 15.92'
Downhole Field Parameters Upon Retrieval:
Temp: 6.5 (°C) **ORP:** -8.2 (mV) **Water quality meter:** YSI
pH: 7.01 **DO:** 2.7 (mg/L) **Serial #:** 10D10149

Notes/Observations:

Turb: 63.11
C µS/cm: 1134

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Kossane	Arcadis
Ryan Malone	O&M

ARCADIS

Appendix B-2
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-902M

Well Type: • [✓ Monitoring] • Other:
Well Finish: • [✓ Stick Up] • Flush Mount
Measuring Pt: • [✓ Top of Casing] • Other (specify):
Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 12.5-17.5
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 3/8/17 Time: 1340
Weather Conditions: Sunny ~45°
Depth to groundwater at time of deployment: 12.15'
Total well depth at time of deployment: 28.20'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

PID: 0.0

• Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.
• Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~15.0'

Retrieval

Date and Time of Retrieval: Date: 3/13/17 Time: 1345
Total # of days deployed: 5
Weather Conditions: Partly Cloudy ~25°
Depth to groundwater at time of retrieval: 12.21'
Total well depth at time of retrieval: 28.20'
Downhole Field Parameters Upon Retrieval:
Temp: 5.9 **(°C)** **ORP:** -97.8 **(mV)** **Water quality meter:** YSI
pH: 6.97 **DO:** 2.2 **(mg/L)** **Serial #:** 16D101439

Notes/Observations:

Turb: 81.72
C uS/cm: .954

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Kissane	Arcadis
Ryan Malone	O&M

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name)__________
Well Number TSR-2 Date 3/16/17
Field Personnel Matt Kissane
Sampling Organization__________
Identify MP TOC

Depth to ______/______ of screen
(below MP) top bottom
PID: ______
Pump Intake at (ft. below MP)______
Purging Device; (pump type)______
Total Volume Purged ______

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1230			120	.6	18.73	633	7.09	-143	7.22	22.8	
1235			120	1.2	18.82	620	7.08	-142	6.91	19.5	
1240			120	1.8	18.81	610	7.11	-147	6.43	18.1	
1245			120	2.4	18.89	605	7.10	-148	5.31	16.1	
1250			120	3	18.88	604	7.10	-148	5.38	17.8	
1255			120	3.6	18.89	605	7.11	-149	5.21	16.6	
1300 SAMPLE											
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 16.90

Depth to Bottom: ______

Comments:

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number ISTR-1 Date 3/9/17
Field Personnel RM, MK, DTS
Sampling Organization Arcadis / [illegible]
Identify MP Top of Steel

Depth to ____/____ of screen
(below MP) top bottom
Pump Intake at (ft. below MP)________
Purging Device; (pump type) Peri
Total Volume Purged ________

PID: ________

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1300	11.20		100		21.2	2872	6.90	-145.5	4.0	30.82	Clear
1305	11.41				20.9	2735	6.89	-147.7	0.9	30.56	
1310	11.59				21.0	2736	6.94	-148.4	0.4	28.76	
1315	11.63				20.9	2917	6.91	-149.0	0.1	31.09	
1320	11.70				20.6	2718	6.89	-147.3	0	29.4	
1325	11.78				20.5	2733	6.89	-147.9	0	28.56	
1330	11.89		↓		20.5	2736	6.90	-148.7	0	29.09	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 11.20

Depth to Bottom: ________

Comments:

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number ESTR-5 Date 3/9/1
Field Personnel KM, MK, DB
Sampling Organization
Identify MP

Depth to ____/____ of screen
(below MP) top bottom
Pump Intake at (ft. below MP)
Purging Device; (pump type)
Total Volume Purged

PID:

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1345	16.3		100	.5	20.5	2450	6.55	-90.1	3.0	1995	Brown
1350	16.21			1.0	20.2	2523	6.87	-98.2	2.4	42.5	
1355	16.32			1.5	21.3	2530	6.87	-101.2	2.2	37.2	
1400	16.35			2.0	21.2	2537	6.87	-103.1	2.5	34.6	
1405	16.41			2.5	21.4	2543	6.87	-104.2	2.5	33.2	
1410	16.43			3.0	21.5	2516	6.87	-105.7	2.5	32.1	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 16.3

Depth to Bottom:

Comments:

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number ISTRC-3 Date 3/9/17
Field Personnel RM, DB, MK
Sampling Organization Arcadis / OTM
Identify MP TOC / Steel

Depth to ______/______ of screen
(below MP) top bottom
Pump Intake at (ft. below MP)______
Purging Device; (pump type) Perry
Total Volume Purged ______

PID: ______

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
1030	13.77		120		19.1	1030	6.78	-65.2	5.5	16.91	Clear
1035	13.82				16.8	1033	6.76	-85.1	0.4	14.81	
1040	13.83				19.5	1036	6.75	-96.6	0.2	13.01	
1045	13.83				19.2	1042	6.75	-101.3	0.1	12.96	
1050	13.83				19.2	1042	6.75	-102.6	0.1	12.93	
1055	13.83				19.3	1044	6.74	-102.9	0.1	12.97	
1100	13.83				19.4	1044	6.74	-103.7	0.1	12.03	
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 13.77

Depth to Bottom: ______

Comments:

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name)__________
Well Number ISTB-6 Date 3/16/17
Field Personnel__________
Sampling Organization__________
Identify MP TOC

Depth to _____/_____ of screen
(below MP) top bottom
Pump Intake at (ft. below MP)__________
Purging Device; (pump type)__________
Total Volume Purged __________

PID: __________

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
0830			120	.6	16.2	1147	7.30	-103.5	1.6	35.71	
0835			120	1.2	16.3	1152	7.15	-113.6	1.8	28.31	
0840			120	1.8	16.4	1163	7.00	-120.1	1.9	16.22	
0845			120	2.4	16.4	1173	6.85	-123.2	2.3	15.11	
0850			120	3	16.5	1178	6.79	-126.7	2.5	13.99	
0855			120	3.6	16.4	1179	6.79	-126.2	2.5	11.72	
0900 SAMPLE											
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 13.20'

Depth to Bottom:__________

Comments:

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name)__________
Well Number [illegible] Date 3/16/17
Field Personnel__________
Sampling Organization__________
Identify MP__________

Depth to ______/______ of screen
(below MP) top bottom
Pump Intake at (ft. below MP)______
Purging Device; (pump type)______
Total Volume Purged ______

PID: ______

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
0915			120	.6	15.6	428.6	7.81	-128.5	4.0	12.78	
0920			120	1.2	13.1	427.1	7.31	-119.7	3.0	7.61	
0925			120	1.8	12.8	427.1	7.11	-117.6	2.0	5.11	
0930			120	2.4	11.7	426.8	7.08	-115.3	0.9	4.89	
0935			120	3	11.5	426.6	7.00	-113.7	0.5	4.11	
0940			120	3.6	11.6	426.5	6.95	+13.5	0.3	3.84	
0945			120	4.2	11.6	426.5	6.96	-113.6	0.3	3.11	
0950	SAMPLE										
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 15.96
Depth to Bottom: ______

Comments:

WELL PURGING-FIELD WATER QUALITY MEASUREMENTS FORM

Location (Site/Facility Name) SRSNE
Well Number TW C8B Date 3/9/17
Field Personnel DB, MK, RM
Sampling Organization Arcadis / OOM
Identify MP Steel Top

Depth to ______/______ of screen
(below MP) top bottom
Pump Intake at (ft. below MP)______
Purging Device; (pump type) Peri
Total Volume Purged ______

PID: ______

Clock Time 24 HR	Water Depth below MP ft	Pump Dial[1]	Purge Rate ml/min	Cum. Volume Purged liters	Temp. °C	Spec. Cond.[2] µS/cm	pH	ORP[3] mv	DO mg/L	Turb-idity NTU	Comments
0830	7.72		100		15.8	1128	7.94	-79.3	2.7	11.60	Clear
0835	7.88				18.1	1063	6.46	-59.0	0.2	12.30	
0840	7.96				17.8	1068	6.63	-59.2	0.2	13.62	
0845	8.17				17.3	1065	6.62	-58.5	0.1	12.61	
0850	8.28				17.3	1063	6.61	-57.4	0.1	11.78	
0855	8.31				16.9	1064	6.61	-56.7	0.1	12.01	
0900	8.36				16.9	1063	6.61	-55.9	0.1	12.12	Sample @ 0900
Stabilization Criteria					3%	3%	±0.1	± 10 mv	10%	10%	

1. Pump dial setting (for example: hertz, cycles/min, etc).
2. µSiemens per cm(same as µmhos/cm)at 25°C.
3. Oxidation reduction potential (ORP)

Initial Depth to Water: 7.12
Depth to Bottom: ______

Comments:

ARCADIS

Attachment A
HydraSleeve™ Field Form

Site: SRSNE

Location: Southington, CT

Well ID: MW-902M

Well Type: [✓ Monitoring] • Other:

Well Finish: [✓ Stick Up] • Flush Mount

Measuring Pt: [✓ Top of Casing] • Other (specify):

Total Depth As Constructed (ftbgs): 17.5 **Screened Interval (ftbgs):** 12.5-17.5

Well Casing: Diameter: 2" Material: PVC

Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 7/6/17 Time: 13:20

Weather Conditions: 82° Cloudy

Depth to groundwater at time of deployment: 11.34

Total well depth at time of deployment: 28.20'

Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.25

Deployment Method/Position of Weight:

- • Bottom Anchor: Weight attached to bottom of HydraSleeve™. Weight rests on well bottom.
- [✓ • Top-Down]: Weight attached to bottom of HydraSleeve™. Weight suspended in well.
- • Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

PID: 0.0

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~15.0

Retrieval

Date and Time of Retrieval: Date: 7/7/17 Time: 1320

Total # of days deployed: 1

Weather Conditions: 65° Rain

Depth to groundwater at time of retrieval: 11.32'

Total well depth at time of retrieval: 28.20'

Downhole Field Parameters Upon Retrieval:

Temp: 17.72 **(°C)** **ORP:** -71.6 **(mV)** **Water quality meter:** 556 MPS

pH: 6.83 **DO:** 9.10 **(mg/L)** **Serial #:**

Notes/Observations:

MS, MSD, DUP - diss. gasses
C: 607 Turb: 43.70

Field Sampling Technician: Name(s) and Company

Name	Company
Ryan Malone	O&M, Inc.
Matt Kissane	Arcadis

ARCADIS

Attachment A
HydraSleeve™ Field Form

Site: SRSNE

Location: Southington, CT

Well ID: MW-415

Well Type: ● [✓ Monitoring] ● Other:

Well Finish: ● [✓ Stick Up] ● Flush Mount

Measuring Pt: ● [✓ Top of Casing] ● Other (specify):

Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 6.8-16.8

Well Casing: Diameter: 2" Material: PVC

Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 7/6/17 Time: 10:05

Weather Conditions: 80° Cloudy

Depth to groundwater at time of deployment: 9.04

Total well depth at time of deployment: 16.00'

Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75

Deployment Method/Position of Weight:

PID: 0.0

- ● Bottom Anchor: Weight attached to bottom of HydraSleeve™. Weight rests on well bottom.
- ● [✓ Top-Down] Weight attached to bottom of HydraSleeve™. Weight suspended in well.
- ● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~8.0

Retrieval

Date and Time of Retrieval: Date: 7/7/17 Time: 1035

Total # of days deployed: 1

Weather Conditions: 65° Rain

Depth to groundwater at time of retrieval: 9.02'

Total well depth at time of retrieval: 16.00'

Downhole Field Parameters Upon Retrieval:

Temp: 20.59 **(°C)** **ORP:** -27.1 **(mV)** **Water quality meter:** 556 MPS

pH: 6.70 **DO:** 1.68 **(mg/L)** **Serial #:** 14F100059

Notes/Observations:

MS/MSD + Dup – Diss. Metals

Turb: 18.61 SC: 1556 us/cm

Field Sampling Technician: Name(s) and Company

Name	Company
Matthew Kossace	Arcadis
Ryan Malone	O&M

ARCADIS

Attachment A
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington CT
Well ID: MWL-304

Well Type: [✓ Monitoring] • Other:
Well Finish: [✓ Stick Up] • Flush Mount
Measuring Pt: [✓ Top of Casing] • Other (specify):
Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 1.0 – 11.0
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 7/6/17 Time: 0930
Weather Conditions: 80° Cloudy
Depth to groundwater at time of deployment: 8.91
Total well depth at time of deployment: 16.01'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

PID: 0.0

- Bottom Anchor: Weight attached to bottom of HydraSleeve™. Weight rests on well bottom.
- [✓ Top-Down:] Weight attached to bottom of HydraSleeve™. Weight suspended in well.
- Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~9.5'

Retrieval

Date and Time of Retrieval: Date: 7/7/17 Time: 0935
Total # of days deployed: 1
Weather Conditions: Rain ~65°
Depth to groundwater at time of retrieval: 8.92
Total well depth at time of retrieval: 16.01
Downhole Field Parameters Upon Retrieval: ~~906~~ ~~35.50~~
Temp: 21.29 (°C) **ORP:** -98.4 (mV) **Water quality meter:** 556 MPS
pH: 6.50 **DO:** 2.73 (mg/L) **Serial #:** 14F100059

Notes/Observations:
Perform MS/MSD + DUP on VOC
Turb: 35.50 Cus/cm: 906

Field Sampling Technician: Name(s) and Company

Name	Company
Matt Kissane	Arcadis
Ryan Malone	O&M

ARCADIS

Attachment A
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-J413

Well Type: ● [✓ Monitoring] ● Other:
Well Finish: ● [✓ Stick Up] ● Flush Mount
Measuring Pt: ● [✓ Top of Casing] ● Other (specify):
Total Depth As Constructed (ftbgs): **Screened Interval (ftbgs):** 14.8 – 19.8
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 7/6/17 Time: 0945
Weather Conditions: 80 Cloudy
Depth to groundwater at time of deployment: 9.12
Total well depth at time of deployment: 24.59'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

- ● Bottom Anchor: Weight attached to bottom of HydraSleeve™. Weight rests on well bottom.
- ● [✓ Top-Down]: Weight attached to bottom of HydraSleeve™. Weight suspended in well.
- ● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

PID: 0.0

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~15.5

Retrieval

Date and Time of Retrieval: Date: 7/7/17 Time: 1005
Total # of days deployed: 1
Weather Conditions: 65° Rain
Depth to groundwater at time of retrieval: 9.10'
Total well depth at time of retrieval: 24.59'
Downhole Field Parameters Upon Retrieval:
Temp: 19.41 **(°C)** **ORP:** -78.4 **(mV)** **Water quality meter:** 556 MPS
pH: 6.38 **DO:** 1.17 **(mg/L)** **Serial #:** 14F100059

Notes/Observations:

MS/MSD + DUP of TOC
Turb: 27-31 SC: 1973 us/cm

Field Sampling Technician: Name(s) and Company

Name	Company
Ryan Malone	O+M
Matt [illegible]	Arcadis

ARCADIS

Attachment A
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-446

Well Type: [✓ Monitoring] ● Other: ____
Well Finish: [✓ Stick Up] ● Flush Mount
Measuring Pt: [✓ Top of Casing] ● Other (specify): ____
Total Depth As Constructed (ftbgs): 49.4 **Screened Interval (ftbgs):** 29.4 - 49.4
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 7/6/17 Time: 11:20
Weather Conditions: 80° Cloudy
Depth to groundwater at time of deployment: 11.09
Total well depth at time of deployment: ~~11.09~~ 51.87'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

- Bottom Anchor: Weight attached to bottom of HydraSleeve™. Weight rests on well bottom.
- [✓ Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.]
- Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

PID: 0.0

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~39.0

Retrieval

Date and Time of Retrieval: Date: 7/7/17 Time: 1145
Total # of days deployed: 1
Weather Conditions: 65 Rain
Depth to groundwater at time of retrieval: 11.12
Total well depth at time of retrieval: 51.87'
Downhole Field Parameters Upon Retrieval:
Temp: 18.32 (°C) **ORP:** -8.5 (mV) **Water quality meter:** 556 MPS
pH: 7.82 **DO:** 2.24 (mg/L) **Serial #:** 14F100059

Notes/Observations:

MS/MSD + DuP - SO4, Cl, NO2, NO3
C: 423 Turb: 80.27

Field Sampling Technician: Name(s) and Company

Name	Company
Ryan Malone	O&M, Inc.
Matt Kissane	Arcadis

ARCADIS

Attachment A
HydraSleeve™ Field Form

Site: SRSNE
Location: Southington, CT
Well ID: MW-902D
Well Type: [✓ Monitoring] ● Other: ____
Well Finish: [✓ Stick Up] ● Flush Mount
Measuring Pt: [✓ Top of Casing] ● Other (specify): ____
Total Depth As Constructed (ftbgs): 17.5 **Screened Interval (ftbgs):** 12.5 - 17.5
Well Casing: Diameter: 2" Material: PVC
Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 7/6/17 Time: 12:35
Weather Conditions: 82° Cloudy
Depth to groundwater at time of deployment: 12.02'
Total well depth at time of deployment: 23.50'
Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75
Deployment Method/Position of Weight:

P-ID: 0.0

- ● Bottom Anchor: Weight attached to bottom of HydraSleeve™. Weight rests on well bottom.
- [✓ ● Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.]
- ● Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~15.0

Retrieval

Date and Time of Retrieval: Date: 7/7/17 Time: 1245
Total # of days deployed: 1
Weather Conditions: 65° Rain
Depth to groundwater at time of retrieval: 12.00'
Total well depth at time of retrieval: 23.50'
Downhole Field Parameters Upon Retrieval:
Temp: 17.77 **(°C)** **ORP:** -741 **(mV)** **Water quality meter:** 556 MPS
pH: 6.40 **DO:** 1.46 **(mg/L)** **Serial #:** ____

Notes/Observations:

DUP, MS, MSD - Alk
C: 1498 Turb: 43.86

Field Sampling Technician: Name(s) and Company

Name	Company
Ryan Malone	O&M, Inc.
Matt Kissane	Arcadis

ARCADIS

Attachment A
HydraSleeve™ Field Form

Site: SRSNE

Location: MWL - 307

Well ID: Southington, CT

Well Type: [✓ Monitoring] • Other: ____

Well Finish: [✓ Stick Up] • Flush Mount

Measuring Pt: [✓ Top of Casing] • Other (specify): ____

Total Depth As Constructed (ftbgs): ____ **Screened Interval (ftbgs):** 1.0 - 11.0

Well Casing: Diameter: 2" Material: PVC

Well Screen: Diameter: 2"

Deployment

Date and Time of Deployment: Date: 7/6/17 Time: 10:45

Weather Conditions: 80° Cloudy

Depth to groundwater at time of deployment: 8.75

Total well depth at time of deployment: 15.91'

Dimensions of HydraSleeve™: Length (in.) 36 Diameter (in.) 1.75

Deployment Method/Position of Weight:

- Bottom Anchor: Weight attached to bottom of HydraSleeve™. Weight rests on well bottom.
- [✓ Top-Down: Weight attached to bottom of HydraSleeve™. Weight suspended in well.]
- Top-Down: Weight attached to top of HydraSleeve™. Weight suspended in well.

PID: 0.0

Deployment Depth (Top of HydraSleeve™) (ftbgs): ~ 8.0

Retrieval

Date and Time of Retrieval: Date: 7/7/17 Time: 1110

Total # of days deployed: 1

Weather Conditions: Rain 70°

Depth to groundwater at time of retrieval: 8.74

Total well depth at time of retrieval: 15.91'

Downhole Field Parameters Upon Retrieval:

Temp: 20.27 (°C) **ORP:** -8.2 (mV) **Water quality meter:** YSI 556 MPS

pH: 6.91 **DO:** 2.30 (mg/L) **Serial #:** 14F100059

Notes/Observations:

MS/MSD + Dup - Total metals
Turb: 23.45 C: 1522 uS/cm

Field Sampling Technician: Name(s) and Company

Name	Company
Ryan Malone	O&M, Inc.
Matt Kirsane	Arcadis

APPENDIX B

Equipment Calibration Logs

ARCADIS
Infrastructure, environment, facilities

YSI & Turbidity Meter Calibration Log

DATE: 6/8/17

INSTRUMENT IDENTIFICATION

Brand: YSI	Model: 556 MDS	Serial Number: 15D101631
Brand: MicroTPW	Model: 20000	Serial Number: 2016 05531

CALIBRATION RECORD

Morning Calibration		Afternoon Check		Evening Check	
Standard	Calibration Successful	Standard	Reading	Standard	Reading
pH (S.I. units)					
4.00 4.02	4.00	4.00		4.00	4.05
7.00 6.98	7.00	7.00		7.00	6.95
10.00 10.11	10.00	10.00		10.00	10.12
Turbidity (NTUs)					
0.02	0.02	0		0	0.56
10.0	10.0	10		10	9.87
1000	1000			1000	987.1
Conductivity ~~(umhes/cm)~~ us/cm					
1000 912	1000	10		1000	1015
Dissolved Oxygen (mg/L)					
Zero DO Solution 747.7	9.08/9.54	Not Applicable		Not Applicable	
REDOX (mV)		Chart ¹		Chart ¹	
(Zobel Solution)	202.3/200.6				201.1
(Light's Solution)	447.2				447.5
Temperature (C)	17.52				16.98

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[1] The REDOX of the Zobel solution is temperature dependent, a chart is provided with the meter to check the reading for the appropriate temperature. REDOX must be calibrated by the manufacturer.

ARCADIS
Infrastructure, environment, facilities

YSI & Turbidity Meter Calibration Log

DATE: 6/7/17

INSTRUMENT IDENTIFICATION

Brand: YSI	Model: 556 MDS	Serial Number: 14F100062
Brand: MicroTPW	Model: 20000	Serial Number: 201605531

CALIBRATION RECORD

Morning Calibration		Afternoon Check		Evening Check	
Standard	Calibration Successful	Standard	Reading	Standard	Reading
pH (S.I. units)					
4.00 4.07	4.00	4.00		4.00	4.11
7.00 7.04	7.06	7.00		7.00	7.06
10.00 10.01	10.00	10.00		10.00	10.08
Turbidity (NTUs)					
0.02	0.02	0		0	0.31
100	10.0	10		10	9.72
1000	1000			1000	991.4
Conductivity (~~µmhos/cm~~) µS/cm					
1000 951	1000	10		1000	1012
Dissolved Oxygen (mg/L) 747.7 9.47		**Not Applicable**		**Not Applicable**	
Zero DO Solution	9.54				
REDOX (mV)		Chart [1]		Chart [1]	
(Zobel Solution)	201.7 (200.0				201.2
(Light's Solution)	446.1				446.8
Temperature (C)	17.21				17.51

---

[1] The REDOX of the Zobel solution is temperature dependent, a chart is provided with the meter to check the reading for the appropriate temperature. REDOX must be calibrated by the manufacturer.

ARCADIS
Infrastructure, environment, facilities

YSI & Turbidity Meter Calibration Log

DATE: 6/6/17

INSTRUMENT IDENTIFICATION

Brand: HF Scientific	**Model:** Micro TPW	**Serial Number:** 201404348
Brand: YSI	**Model:** 556 MPS	**Serial Number:** 14F100058

CALIBRATION RECORD

Morning Calibration		**Afternoon Check**		**Evening Check**	
Standard	Calibration Successful	Standard	Reading	Standard	Reading
pH (S.I. units)					
4.00	4.01 → 4.0	4.00		4.00	3.96
7.00	7.03 → 7.0	7.00		7.00	7.04
10.00	10.05 → 10.01	10.00		10.00	10.13
Turbidity (NTUs)					
0.2	✓	0		0.02	0.02
10	✓	10		10	9.96
1000	✓				
Conductivity (µmhos/cm)					
10	989 → 1000	10		10	997
Dissolved Oxygen (~~mg/L~~) %					
Zero DO Solution	98.9	Not Applicable		Not Applicable	
REDOX (mV) 200 mV		Chart ¹		Chart ¹	204.2
(Zobel Solution)					
(Light's Solution)					
Temperature (C)					
202.9 → 200					

---

[1] The REDOX of the Zobel solution is temperature dependent, a chart is provided with the meter to check the reading for the appropriate temperature. REDOX must be calibrated by the manufacturer.

ARCADIS
Infrastructure, environment, facilities

YSI & Turbidity Meter Calibration Log

DATE: 6/6/17

INSTRUMENT IDENTIFICATION

Brand: HF Scientific	**Model:** Micro TPW	**Serial Number:** 201404348
Brand: YSI	**Model:** 556MPS	**Serial Number:** 15D101637

CALIBRATION RECORD

Morning Calibration		**Afternoon Check**		**Evening Check**	
Standard	Calibration Successful	Standard	Reading	Standard	Reading
pH (S.I. units)					
4.00 ✓	4.14 → 4.04	4.00		4.00	3.89
7.00 ✓	6.91 → 7.04	7.00		7.00	7.07
10.00 ✓	9.89 → 10.09	10.00		10.00	10.04
Turbidity (NTUs)					
0.02	✓	0		0 0.02	0.2
10	✓	10		10	9.96
1000	✓				
Conductivity (µmhos/cm)					
10	997 → 1000	10		10	999
Dissolved Oxygen ([illegible]) %		**Not Applicable**		**Not Applicable**	
Zero DO Solution	105.9 → 99.4				
REDOX (mV) 200 mV ✓		Chart[1]		Chart[1]	204.0
(Zobel Solution)					
(Light's Solution)					
Temperature (C)					
202.9 → 200.0					

---

[1] The REDOX of the Zobel solution is temperature dependent, a chart is provided with the meter to check the reading for the appropriate temperature. REDOX must be calibrated by the manufacturer.

ARCADIS
Infrastructure, environment, facilities

YSI & Turbidity Meter Calibration Log

DATE: 6/7/17

INSTRUMENT IDENTIFICATION

Brand: HF Scientific **Brand:** YSI	**Model:** MicroTPW **Model:** 556 MPS	**Serial Number:** 201503440 **Serial Number:** 15D101637

CALIBRATION RECORD

Morning Calibration		**Afternoon Check**		**Evening Check**	
Standard	Calibration Successful	Standard	Reading	Standard	Reading
pH (S.I. units)					
4.00	4.04 → 4.0	4.00		4.00	4.01
7.00	6.82 → 7.0	7.00		7.00	7.02
10.00	10.26 → 10.4	10.00		10.00	9.97
Turbidity (NTUs)					
0.02	✓	0		0.02	0.02
10	✓	10		10	10.04
1000	✓				
Conductivity (µmhos/cm)					
10	994 → 1000	10		10	1002
Dissolved Oxygen (~~mg/L~~) %					
Zero DO Solution	100.2 → 99.5	**Not Applicable**		**Not Applicable**	
REDOX (mV) 200 mV ✓		Chart[1]		Chart[1]	199.6
(Zobel Solution)					
(Light's Solution)					
Temperature (C)					
199.4 → 200.0					

---

[1] The REDOX of the Zobel solution is temperature dependent, a chart is provided with the meter to check the reading for the appropriate temperature. REDOX must be calibrated by the manufacturer.

ARCADIS
Infrastructure, environment, facilities

YSI & Turbidity Meter Calibration Log

DATE: 6/7/17

INSTRUMENT IDENTIFICATION

Brand: HF Scientific	Model: – Micro TPW	Serial Number: 201404348
Brand: YSI	Model: 556 MPS	Serial Number: 14F10058

CALIBRATION RECORD

Morning Calibration		Afternoon Check		Evening Check	
Standard	Calibration Successful	Standard	Reading	Standard	Reading
pH (S.I. units)					
4.00	3.99 → 4.00	4.00		4.00	3.96
7.00	6.97 → 7.00	7.00		7.00	6.96
10.00	10.07 → 10.00	10.00		10.00	9.97
Turbidity (NTUs)					
0.02	✓	0		0 .02	0.02
10	✓	10		10	9.97
1000	✓				
Conductivity (µmhos/cm)					
10	1000	10		10	998
Dissolved Oxygen (~~mg/L~~) %					
Zero DO Solution	97.9 → 99.6	**Not Applicable**		**Not Applicable**	
REDOX (mV)	200 mV	Chart [1]		Chart [1]	199.4
(Zobel Solution)					
(Light's Solution)					
Temperature (C)					
202.6 → 200					

---

[1] The REDOX of the Zobel solution is temperature dependent, a chart is provided with the meter to check the reading for the appropriate temperature. REDOX must be calibrated by the manufacturer.

ARCADIS
Infrastructure, environment, facilities

YSI & Turbidity Meter Calibration Log

DATE: 6/8/17

INSTRUMENT IDENTIFICATION

Brand: YSI	**Model:** 556 MPS	**Serial Number:** 14F100062
Brand: Scientific Inc.	**Model:** — Micro TPW	**Serial Number:** 201503440

CALIBRATION RECORD

Morning Calibration		**Afternoon Check**		**Evening Check**	
Standard	Calibration Successful	Standard	Reading	Standard	Reading
pH (S.I. units)					
4.00	3.88 → 4.00	4.00		4.00	4.00
7.00	6.95 → 7.00	7.00		7.00	7.02
10.00	10.07 → 10.00	10.00		10.00	10.06
Turbidity (NTUs)					
0.07	✓	0		0.02	0.02
10	✓	10		10	10.04
1000	✓				
Conductivity (µmhos/cm)					
10	987 → 1000	10		10	991
Dissolved Oxygen (~~mg/L~~) %					
Zero DO Solution	99.5 → 99.9	Not Applicable		Not Applicable	
REDOX (mV) 200		Chart [1]		Chart [1]	201.4
(Zobel Solution)					
(Light's Solution)					
Temperature (C)					
204.6 → 200					

---

[1] The REDOX of the Zobel solution is temperature dependent, a chart is provided with the meter to check the reading for the appropriate temperature. REDOX must be calibrated by the manufacturer.

ARCADIS
Infrastructure, environment, facilities

YSI & Turbidity Meter Calibration Log

DATE: 6/8/17

INSTRUMENT IDENTIFICATION

Brand: YSI	Model: 556 MPS	Serial Number: 14F100058
Brand: Scientific Inc.	Model: Micro TPW	Serial Number: 201404348

CALIBRATION RECORD

Morning Calibration		Afternoon Check		Evening Check	
Standard	Calibration Successful	Standard	Reading	Standard	Reading
pH (S.I. units)					
4.00	4.00 → 4.00	4.00		4.00	3.94
7.00	6.89 → 7.00	7.00		7.00	7.14
10.00	10.10 → 10.02	10.00		10.00	10.06
Turbidity (NTUs)					
0.02	✓	0		0.02	0.02
1.0	✓	10		10	10.04
10.00	✓				
Conductivity (µmhos/cm)					
~~10~~	997 → 1000	10		10	998
Dissolved Oxygen ~~(mg/L)~~ %					
Zero DO Solution	103.6 → 99.7	Not Applicable		Not Applicable	
REDOX (mV)	200 mV	Chart ¹		Chart ¹	203.2
(Zobel Solution)					
(Light's Solution)					
Temperature (C)	197.4 → 200.0				

---

[1] The REDOX of the Zobel solution is temperature dependent, a chart is provided with the meter to check the reading for the appropriate temperature. REDOX must be calibrated by the manufacturer.

ARCADIS
Infrastructure, environment, facilities

YSI & Turbidity Meter Calibration Log

DATE: 6/9/17

INSTRUMENT IDENTIFICATION

Brand: YSI	Model: 556 MPS	Serial Number: 15D101637
Brand: Scientific Inc.	Model: Micro TPW	Serial Number: 201605531

CALIBRATION RECORD

Morning Calibration		Afternoon Check		Evening Check	
Standard	Calibration Successful	Standard	Reading	Standard	Reading
pH (S.I. units)					
4.00 3.99 →	4.00	4.00		4.00	4.06
7.00 7.26 →	7.00	7.00		7.00	7.09
10.00 9.83 →	9.97	10.00		10.00	10.13
Turbidity (NTUs)					
0.02	✓	0		0.02	0.02
10	✓	10		10	10.40
1000	✓				
Conductivity (µmhos/cm)					
864 →	1000	10		10	987
Dissolved Oxygen ([illegible]) %		Not Applicable		Not Applicable	
Zero DO Solution 77.7 →	98.7				
REDOX (mV) 200mV		Chart [1]		Chart [1]	
(Zobel Solution)					202.4
(Light's Solution)					
Temperature (C) 210.1 →	200.0				

---

[1] The REDOX of the Zobel solution is temperature dependent, a chart is provided with the meter to check the reading for the appropriate temperature. REDOX must be calibrated by the manufacturer.

ARCADIS
Infrastructure, environment, facilities

YSI & Turbidity Meter Calibration Log

DATE: 3/13/17

INSTRUMENT IDENTIFICATION

Brand: Horiba	**Model:** U52	**Serial Number:** RWU5THH8
Brand:	**Model:**	**Serial Number:**

CALIBRATION RECORD

Morning Calibration		**Afternoon Check**		**Evening Check**	
Standard	Calibration Successful	Standard	Reading	Standard	Reading
pH (S.I. units)					
4.00 3.98	4.00	4.00		4.00	4.11
7.00 7.04	7.00	7.00		7.00	6.89
10.00 10.08	10.00	10.00		10.00	10.06
Turbidity (NTUs)					
0.02	0.02	0		0.02	0.08
10	10	10		10	13.11
1000	1000			1000	977.6
Conductivity (µmhos/cm)					
1000	1000/1000	10		1000	1077
Dissolved Oxygen (mg/L)		**Not Applicable**		**Not Applicable**	
Zero DO Solution					
REDOX (mV)		Chart [1]		Chart [1]	
(Zobel Solution)	250.8/200				209
(Light's Solution)	482.7				479.7
Temperature (C)	16.17				12.88

---

[1] The REDOX of the Zobel solution is temperature dependent, a chart is provided with the meter to check the reading for the appropriate temperature. REDOX must be calibrated by the manufacturer.

ARCADIS
Infrastructure, environment, facilities

YSI & Turbidity Meter Calibration Log

DATE: 3/16/17

INSTRUMENT IDENTIFICATION

Brand: Horiba	Model: U52	Serial Number: RWU5THH8
Brand:	Model:	Serial Number:

CALIBRATION RECORD

Morning Calibration		Afternoon Check		Evening Check	
Standard	Calibration Successful	Standard	Reading	Standard	Reading
pH (S.I. units)					
4.00 3.82	4.00	4.00		4.00	4.21
7.00 7.11	7.00	7.00		7.00	7.08
10.00 9.97	10.00	10.00		10.00	10.12
Turbidity (NTUs)					
0.02	0.02	0		0.02	0.11
10	10	10		10	9.71
1000	1000			1000	952.1
Conductivity (µmhos/cm)					
1000	1000/1000	10		1000	1089
Dissolved Oxygen (mg/L)		Not Applicable		Not Applicable	
Zero DO Solution					
REDOX (mV)		Chart[1]		Chart[1]	
(Zobel Solution)	250.8/200				211
(Light's Solution)	469.7				469.5
Temperature (C)	15.11				14.99

---

[1] The REDOX of the Zobel solution is temperature dependent, a chart is provided with the meter to check the reading for the appropriate temperature. REDOX must be calibrated by the manufacturer.

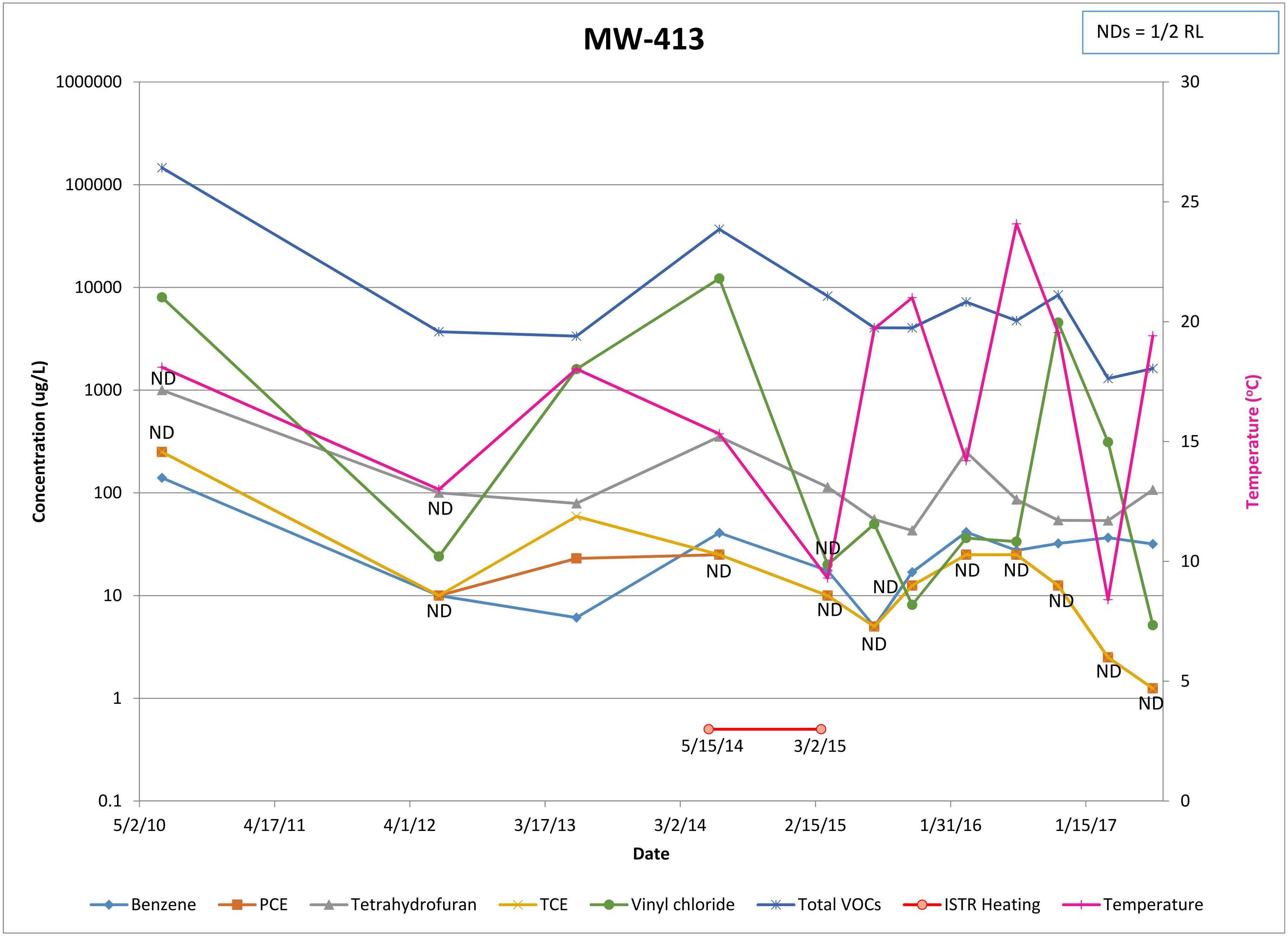
APPENDIX C

Post-Thermal Treatment Trend Graphs

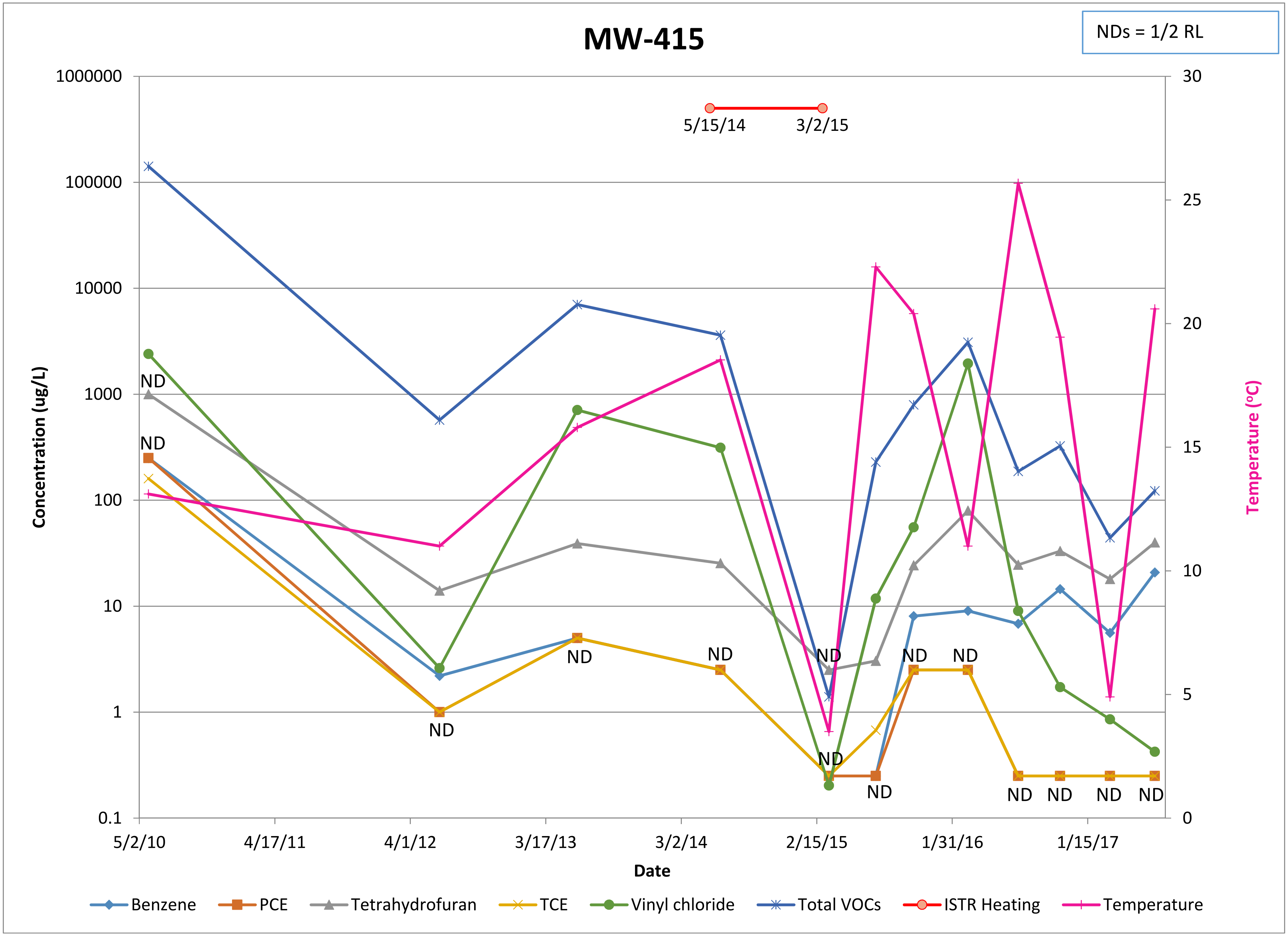
Groundwater Sampling Summary - Post-Thermal Treatment Sampling (N Wells)

SRSNE Superfund Site

Southington, Connecticut

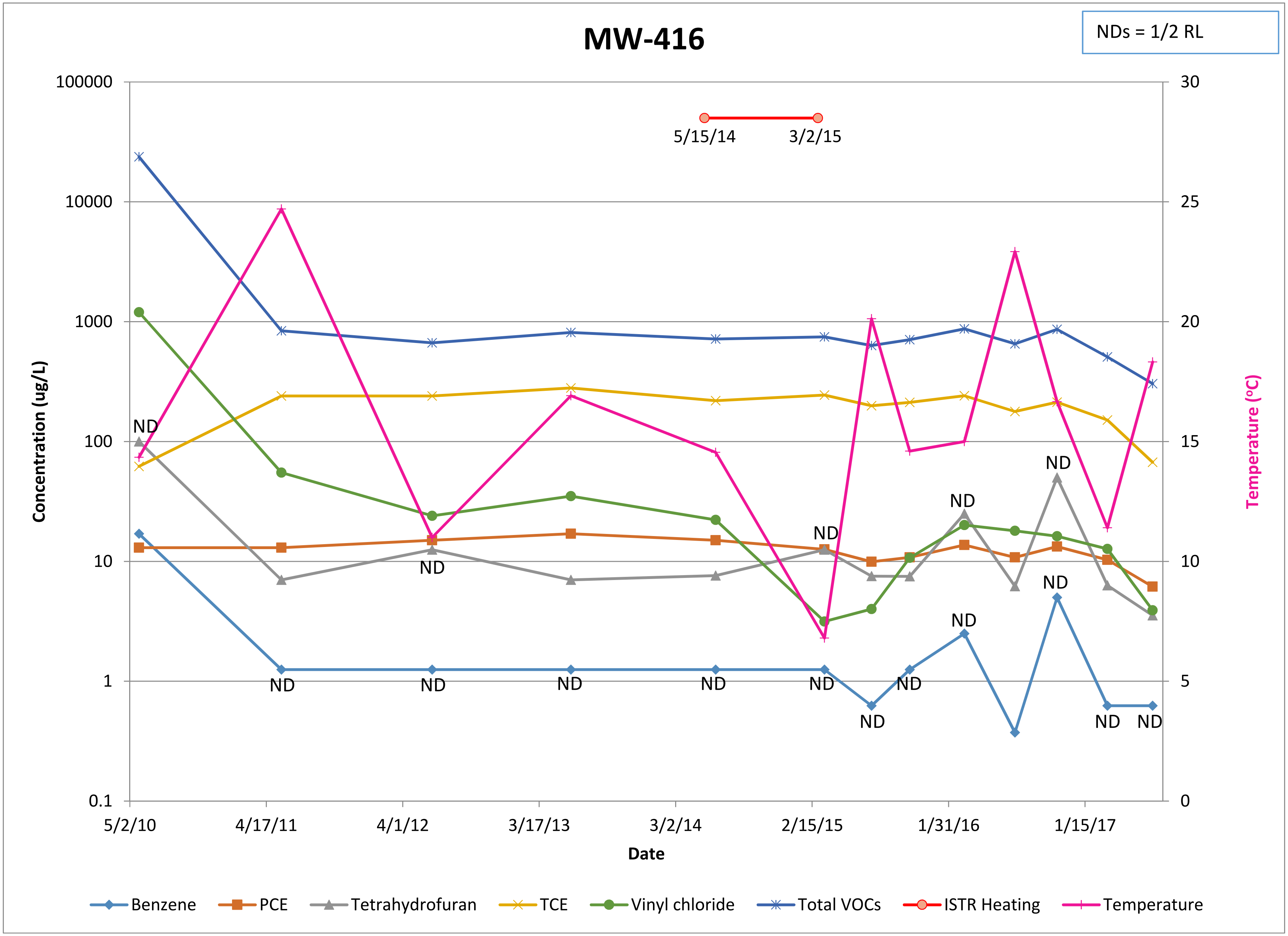


Groundwater Sampling Summary - Post-Thermal Treatment Sampling (N Wells)
SRSNE Superfund Site
Southington, Connecticut



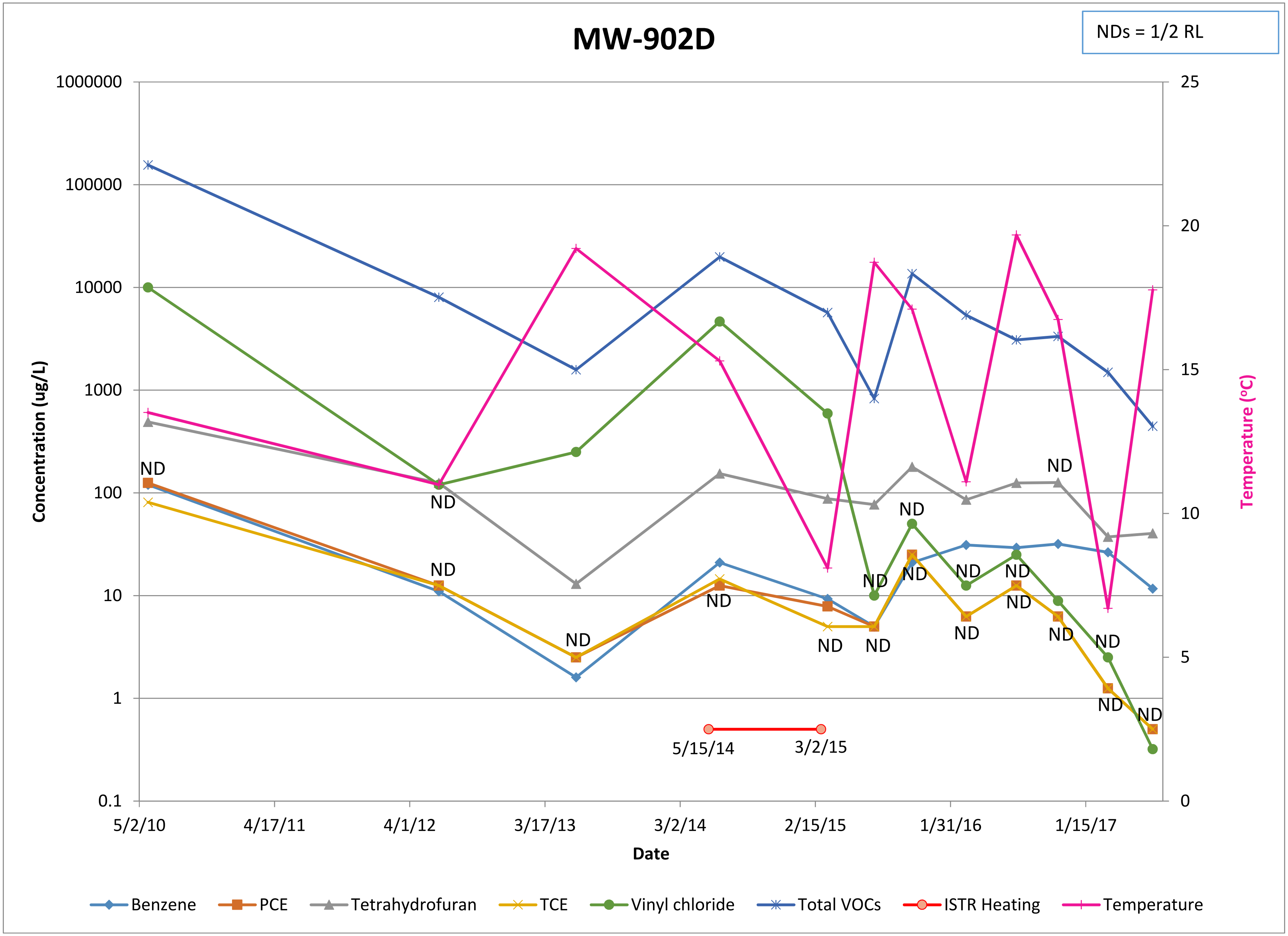
Groundwater Sampling Summary - Post-Thermal Treatment Sampling (N Wells)

SRSNE Superfund Site
Southington, Connecticut

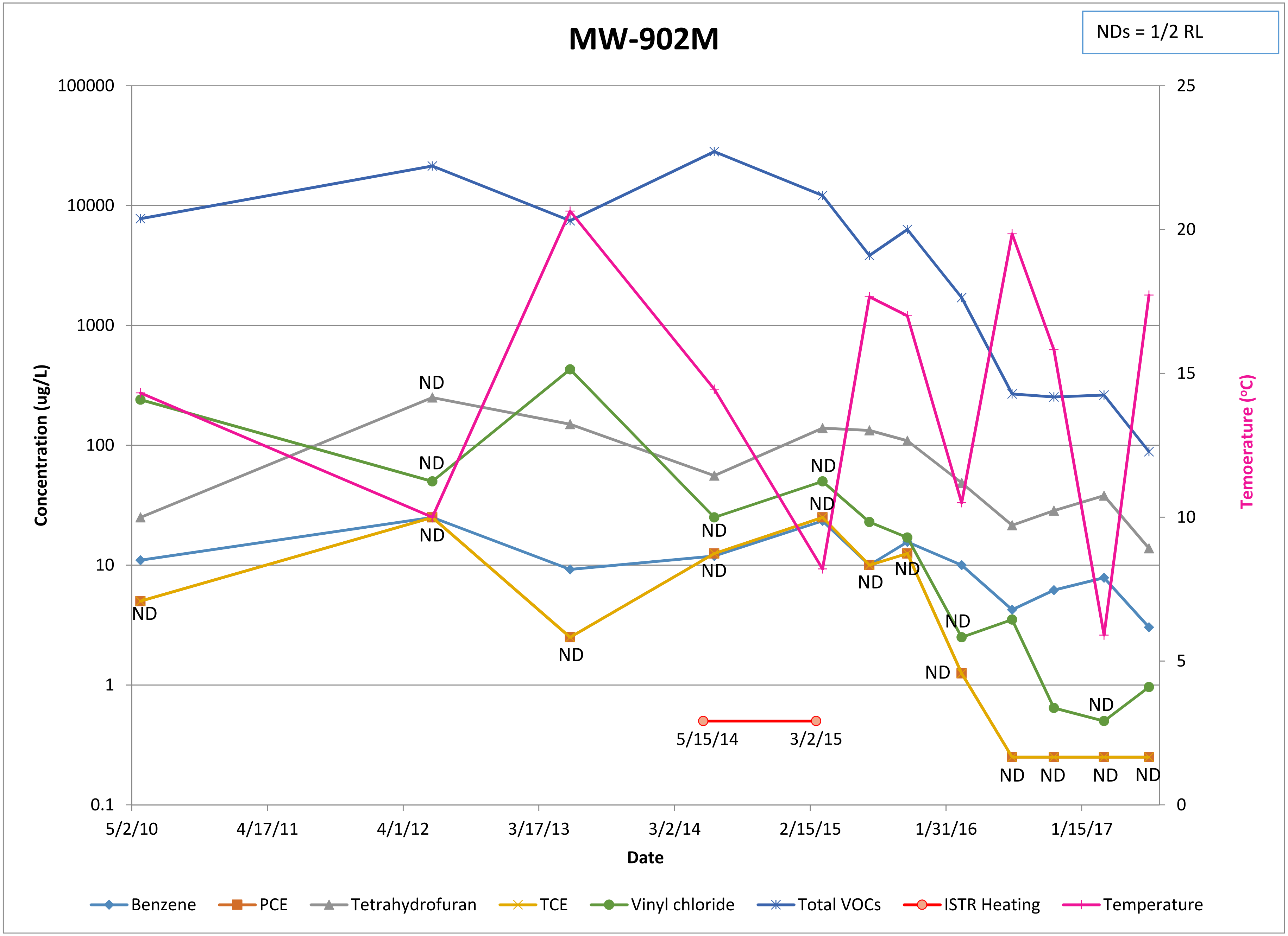


Groundwater Sampling Summary - Post-Thermal Treatment Sampling (N Wells)

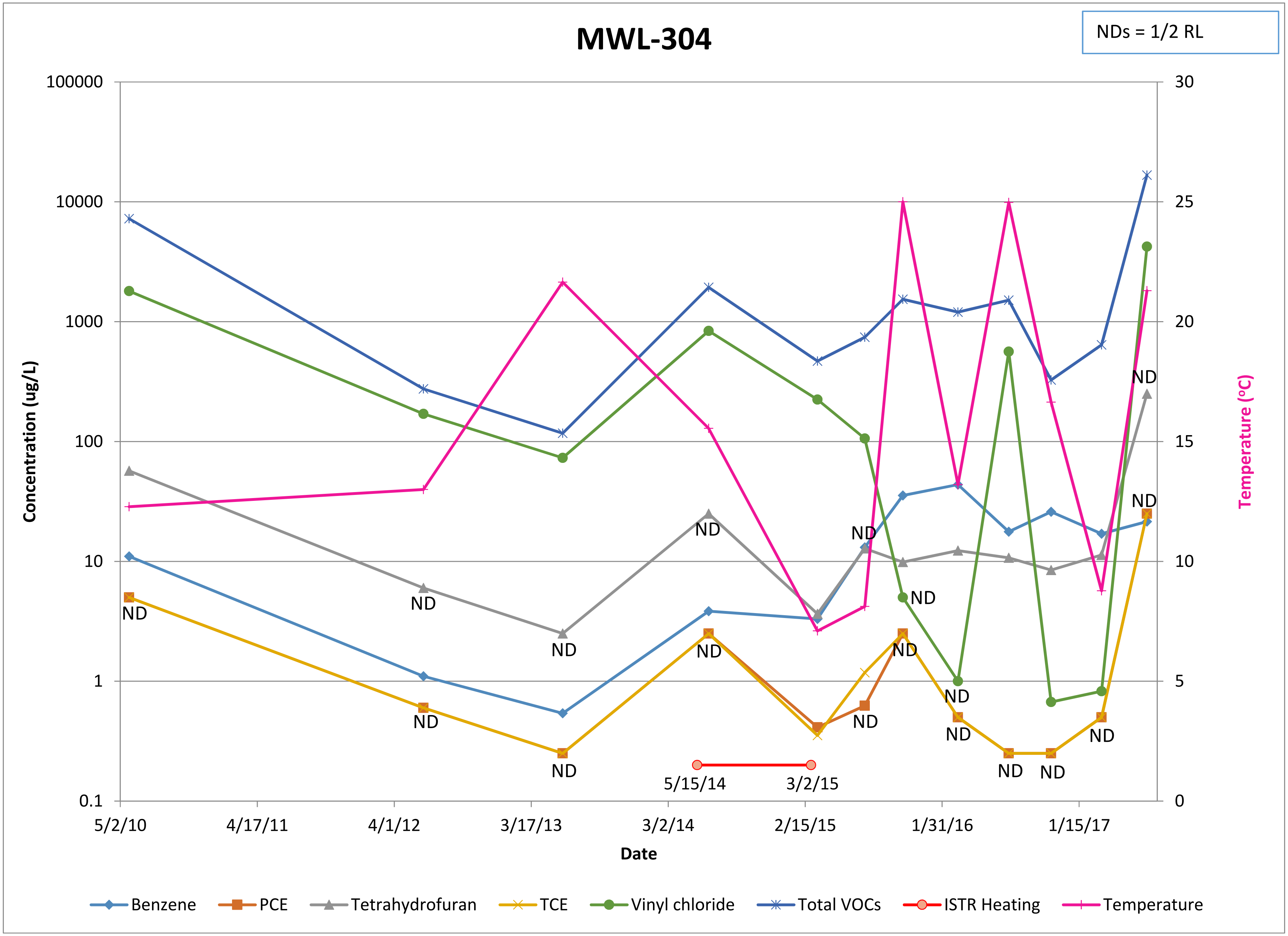
SRSNE Superfund Site
Southington, Connecticut



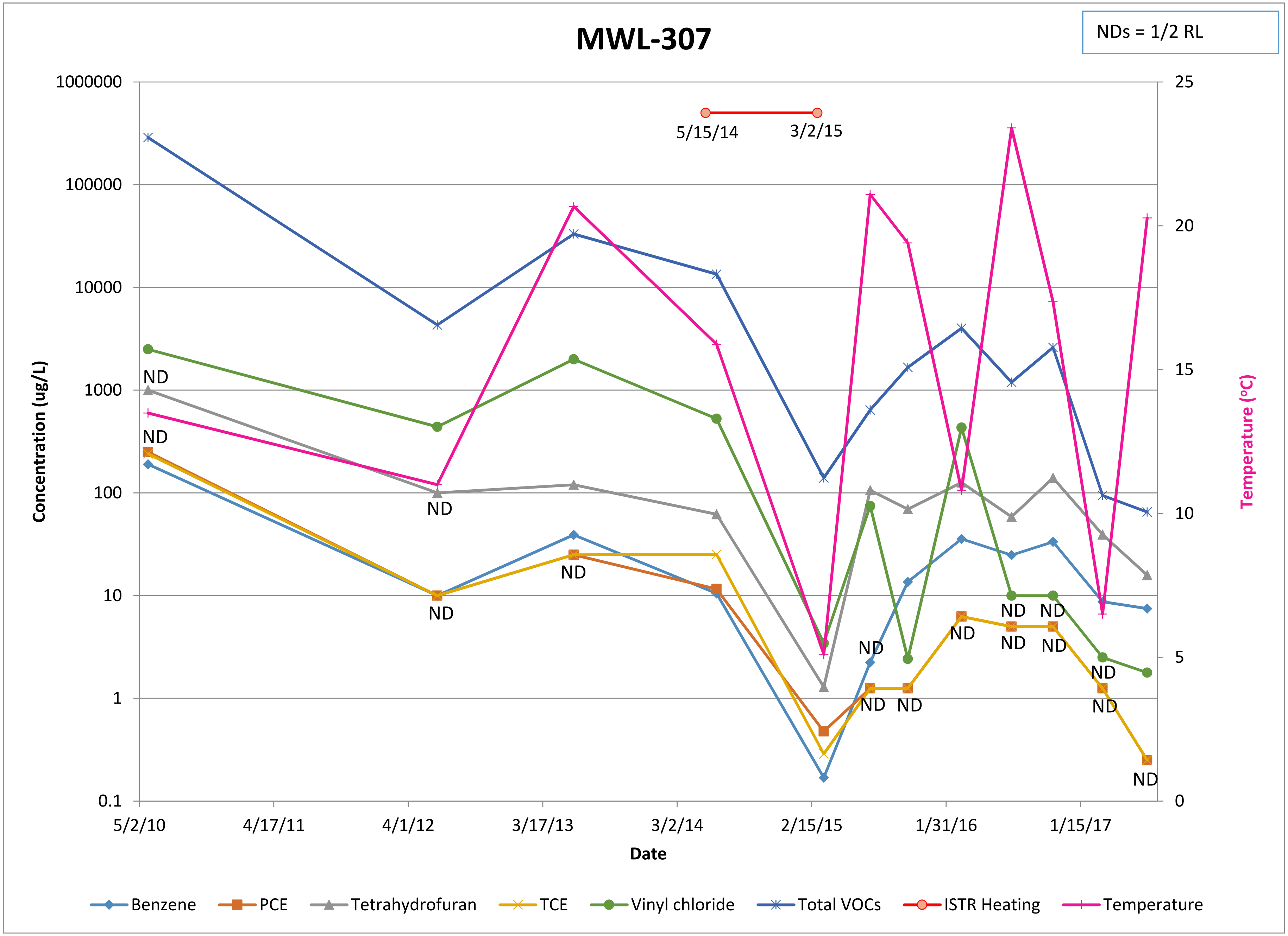
Groundwater Sampling Summary - Post-Thermal Treatment Sampling (N Wells)
SRSNE Superfund Site
Southington, Connecticut



Groundwater Sampling Summary - Post-Thermal Treatment Sampling (N Wells)
SRSNE Superfund Site
Southington, Connecticut



Groundwater Sampling Summary - Post-Thermal Treatment Sampling (N Wells)
SRSNE Superfund Site
Southington, Connecticut



APPENDIX D

2017 Microbiological Survey Technical Memorandum Update

DRAFT

MEMO

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Date:

December 2017

Arcadis Project No.:

B0054634.0001.02200

Subject:

2017 Microbiological Survey Technical Memorandum
Solvents Recovery Service of New England, Inc.
(SRSNE) Superfund Site, Southington, Connecticut

Arcadis U.S. Inc. (Arcadis) has prepared this *2017 Microbiological Survey Technical Memorandum* (memo) on behalf of the Solvents Recovery Service of New England, Inc. (SRSNE) Site Group. This memo summarizes the scope, results, and data evaluation associated with the use of Bio-Trap® samplers and DNA-based analyses to assess groundwater microbiological characteristics at four groundwater monitoring wells in the affected groundwater zone downgradient from the former SRSNE Operations Area. This includes one well (CPZ-7R) where quantitative polymerase chain reaction (qPCR) was performed on individual gene targets, three wells (ISTR-1, ISTR-5, and TW-08D) where qPCR was performed using the QuantArray-Chlor gene suite, and one well (ISTR-5) where qPCR was performed using the QuantArray-Petro gene suite. The objectives of this survey were to:

1. Evaluate the capacity for microbial biodegradation of 1,4-dioxane in the NTCRA 1 containment area within the area bounded by the sheet pile wall
2. Compare pre- and post-thermal treatment microbial communities at select wells.

BACKGROUND

Bio-Trap® samplers are a passive sampling tool used to survey subsurface microbial communities. These samplers consist of a plastic housing filled with Bio-Sep® beads. These beads are approximately 2 to 4 millimeters in diameter, and are a composite of an inert structural material (Nomex®) covered with powdered activated carbon. Together, these form a suitable surface for colonization by microbes. Bio-Trap® samplers are typically deployed for approximately 30 days.

Following retrieval, the Bio-Trap® samplers are submitted to Microbial Insights of Knoxville, Tennessee. Deoxyribonucleic acid (DNA) is extracted from the Bio-Sep® beads, and qPCR analysis is applied to enumerate copy numbers of phylogenetic and functional genes of interest. Phylogenetic genes are genes that identify specific species of interest, while functional genes code for enzymes used in specific metabolic pathways. Phylogenetic genes are used to enumerate specific microorganisms that are known to mediate specific degradation reactions, while functional genes provide confirmation that the microbial community has the capacity to produce the enzymes necessary to complete specific reactions in known degradation pathways (Interstate Technology & Regulatory Council [ITRC] 2011).

CENSUS analysis is a method by which qPCR is used to enumerate gene targets selected for a specific project application. This method was used for the analysis of 1,4-dioxane and tetrahydrofuran (THF) biodegradation potential, and functional gene targets were selected that encode for enzymes that mediate metabolic and cometabolic 1,4-dioxane and THF biodegradation. When a substrate is degraded metabolically, it is used for cell maintenance and growth. Microorganisms able to metabolically oxidize 1,4-dioxane, using a combination of dioxane monooxygenase (DXMO) and aldehyde dehydrogenase (ALDH) enzymes, have been discovered (Gedalanga et al. 2014; Li et al. 2014). DXMO mediates the first step in biodegradation of 1,4-dioxane and THF. When enzymes produced for catalyzing metabolic degradation have relaxed substrate specificity, as many monooxygenase enzymes do, they may cometabolize compounds that the microorganisms who produced the enzyme are not capable of deriving energy or the building blocks of biomass from (Hazen 2010). Mahendra and Alvarez-Cohen (2006) presented evidence that the following groups of microorganisms have the capacity to mediate 1,4-dioxane cometabolism:

- Propane oxidizing bacteria (propanotrophs) producing propane monooxygenase (PPO)
- Methane oxidizing bacteria (methanotrophs) producing soluble methane monooxygenase (SMMO)
- Phenol degrading bacteria producing phenol hydroxylase (phenol 2-monooxygenase, PHE)
- Toluene oxidizing bacteria producing toluene monooxygenases (RMO and RDEG)

There is also evidence that some of these groups, including propanotrophs and potentially toluene oxidizing bacteria, have the capability to cometabolize THF. More recently, Hatzinger et al. (2017) found strong evidence of ethane-mediated cometabolism of 1,4-dioxane, but were unable to reproduce evidence for methane-linked 1,4-dioxane cometabolism. Genetic targets to evaluate ethane-linked 1,4-dioxane cometabolism currently are not commercially available from Microbial Insights. Notably, each of the enzymes that have been linked to 1,4-dioxane and THF metabolism and cometabolism are monooxygenase enzymes. These enzymes require oxygen as a substrate, and therefore their activity is likely limited under the reducing to strongly reducing conditions present at the Site. However, even small amounts of dissolved oxygen may stimulate activity and result in 1,4-dioxane biodegradation.

QuantArray analysis is a method by which qPCR is used to simultaneously enumerate gene copy numbers for a range of phylogenetic and functional gene targets that have been identified as characteristic of specific degradation processes. The QuantArray-Chlor analysis provides a tool for assessing the potential for anaerobic reductive dechlorination of CVOCs as well as aerobic cometabolism of CVOCs. Many of the enzymes that mediate cometabolism of 1,4-dioxane also mediate cometabolism of chlorinated compounds. The QuantArray-Petro analysis provides a tool for assessing the potential for aerobic and anaerobic degradation of benzene, toluene, ethylbenzene, xylenes (BTEX), methyl *tert*-butyl ether (MTBE), polycyclic aromatic hydrocarbons (PAHs), and alkanes. In addition to providing enumeration of gene copy numbers for microorganisms and enzymes relevant to the degradation of CVOCs and petroleum hydrocarbons, QuantArray analyses enumerate methanogenic organisms, sulfate-reducing bacteria, and total bacteria to provide additional context for results.

For some gene targets in the QuantArray, Microbial Insights presents a qualitative ranking of the abundance, from low to high, and a quantitative percentile relative to numbers observed across a wide range of samples analyzed from different sites. For some CENSUS gene targets Microbial Insights also provides percentile rankings for the abundance detected relative to other samples analyzed.

CENSUS survey results for 1,4-dioxane biodegradation potential are presented on Figure 1. These results, along with percentile rankings for gene abundance, are also presented in Table 1. QuantArray survey results, including qualitative and quantitative rankings, are presented in Tables 2 and 3 and Figures 2 through 5.

1,4-DIOXANE BIODEGRADATION POTENTIAL

On March 3, 2017, a Bio-Trap® sampler was deployed at shallow bedrock monitoring well CPZ-7R. This monitoring well was selected as a replacement for monitoring at TW-08B because TW-08B was damaged and was abandoned in March 2017.On April 4, 2017 the Bio-Trap® sampler was retrieved from monitoring well CPZ-7R and shipped overnight to Microbial Insights. Microbial Insights extracted DNA from the sampler and used qPCR analyses to quantify selected CENSUS gene targets (Table 1). Figure 1 presents gene target counts for seven of the eight enzymes indicated above that are capable of metabolizing or cometabolizing 1,4-dioxane and/or THF. As indicated in the previous section, gene targets for ethane-mediated 1,4-dioxane cometabolism are currently not commercially available from Microbial Insights. Results indicate that quantifiable numbers of the genes that encode propane monooxygenase and soluble methane monooxygenase, and robust numbers of genes that encode phenol hydroxylase and toluene monooxygenases are present. The two gene targets that together are indicative of metabolic 1,4-dioxane biodegradation (DXMO and ALDH) were not detected. It is possible that metabolic biodegradation of 1,4-dioxane may be mediated by microorganisms and/or genetic pathways that have not yet been identified.

Both gene presence and substrate presence are relevant for an assessment of biodegradation potential. For 1,4-dioxane metabolism, the relevant substrates are 1,4-dioxane and oxygen. For 1,4-dioxane cometabolism, the relevant substrates are THF, propane, methane, phenol, toluene, ethane, and oxygen. For THF metabolism and cometabolism, 1,4-dioxane is a relevant substrate. Monitoring well CPZ-7R is in the “C” well group, indicating that it is sampled during comprehensive sampling rounds only, and thus recent data are not available. For the purposes of this evaluation, concentrations of potential substrates for 1,4-dioxane metabolism and cometabolism measured at monitoring well TW-08B prior to its abandonment are presented on Figure 1. These results suggest that there are multiple carbon substrates that have the potential to support cometabolic and/or 1,4-dioxane biodegradation in the NTCRA 1 monitoring area when dissolved oxygen is available. Dissolved oxygen concentrations in site groundwater are typically low; however, where the other required substrates are present, even a relatively small amount of oxygen may stimulate biodegradation.

These results, along with results presented in the *2016 Microbiological Survey Technical Memorandum* (Arcadis 2016) indicate that the subsurface microbial community at the Site has the capability to biodegrade 1,4-dioxane and THF via multiple pathways. To evaluate the extent to which biodegradation is occurring, additional lines of evidence will be necessary, including an evaluation of the expression of the gene targets discussed here. An evaluation of gene expression can be completed with a messenger ribonucleic acid (mRNA) survey of the same genetic targets. Demonstrated expression of the relevant gene targets with an mRNA survey provides a strong line of evidence that not only are the necessary organisms present, but that they are also active. This line of evidence is especially important in environments where some necessary substrates may be present only at low-levels (e.g., oxygen, propane, phenol). Another valuable line of evidence for the efficacy of 1,4-dioxane and THF biodegradation is the demonstration of decreasing concentrations over time.

PRE- AND POST-THERMAL TREATMENT COMPARISON

On February 6, 2017 Bio-Trap® samplers were deployed at three wells, ISTR-1, ISTR-5, and TW-08D, and a duplicate sampler was deployed at ISTR-5. These samplers were retrieved on March 8, 2017 and shipped overnight to Microbial Insights, where DNA was extracted and QuantArray qPCR analyses were used to enumerate a variety of organisms capable of biodegradation of chlorinated compounds (ISTR-1, ISTR-5, and TW-08D) and petroleum hydrocarbons (ISTR-5). Results from this sampling event build upon those from the baseline sampling event in June and July 2014 (prior to thermal treatment, Arcadis 2014) and the post-thermal treatment sampling event in June 2016. Thermal treatment was performed between May 2014 and March 2015 (Arcadis 2016).

QuantArray-Chlor results from well ISTR-1 are presented in Figure 2. Interpretations between the 2014 baseline microbiological survey and the 2016 and 2017 microbiological surveys are somewhat confounded because of the difference in incubation periods. In 2014, the Bio-Trap® sampler deployed at ISTR-1 was removed after an approximately one-week incubation because this well was within the active thermal treatment zone, and the Bio-Trap® needed to be removed before elevated groundwater temperatures affected the results. In 2016 and 2017, Bio-Trap® samplers at this well incubated for approximately one-month. ISTR-1 results from the 2016 and 2017 surveys indicate a diversity of microorganisms capable of reductive dechlorination of chlorinated compounds and indicate that the community has the capability to mediate aerobic cometabolic biodegradation. A comparison of 2016 results with 2017 results indicates increased microbial diversity and abundance over time. While vinyl chloride reductase genes BVC and VCR were not detected in 2016, a moderate abundance of VCR was documented in 2017. This observation provides a line of evidence that the microbial community has the capacity to mediate full reductive dechlorination, through vinyl chloride, to innocuous end-products.

A comparison of 2014 baseline (pre-thermal treatment) and 2017 QuantArray-Chlor results from well TW-08D are presented in Figure 3. These results indicate increased diversity in the microbial community and provide a strong line of evidence that the microbial community is capable of mediating biodegradation of a variety of chlorinated compounds via multiple pathways under variable oxidation-reduction conditions. However, the combination of increased populations of sulfate reducers and methanogens and the increased diversity of organisms capable of reductive dechlorination suggest that strongly reducing conditions persist, and that although a variety of aerobic microorganisms are present, limited availability of dissolved oxygen may preclude substantial aerobic biodegradation in this area of the Site.

A comparison of 2014 baseline (pre-thermal treatment), 2016, and 2017 QuantArray-Chlor results from well ISTR-5 are presented in Figure 4. These results indicate increased microbial diversity over time and increased abundance of key microbial groups with the capacity to mediate anaerobic reductive dechlorination and aerobic cometabolism of a variety of chlorinated compounds. While vinyl chloride reductase genes BVC and VCR were not detected in 2016, a moderate to high abundance was observed in 2017, providing a strong line of evidence that the microbial community has the capacity to mediate full reductive dechlorination to innocuous end-products. Similar to results at monitoring well TW-08D, results at ISTR-5 indicate substantial populations of sulfate reducers and methanogens and increasing diversity of organisms capable of reductive dechlorination over time. These observations continue to suggest that strongly reducing conditions persist, and that although a variety of aerobic microorganisms are present, limited availability of dissolved oxygen may preclude substantial aerobic biodegradation in this area of the Site.

QuantArray-Petro results from well ISTR-5 are presented in Figure 5. A comparison of results between 2014, 2016, and 2017 illustrates decreased abundance and diversity of anaerobic petroleum hydrocarbon degraders and increasing diversity and abundance of aerobic petroleum hydrocarbon degraders. This result is somewhat contradictory with results from the QuantArray-Chlor analysis, which indicates increasing diversity and abundance of anaerobic organisms. It is possible that the microorganisms responsible for anaerobic biodegradation of petroleum hydrocarbons use genetic pathways that are not identified with the gene targets available with QuantArray-Petro. It is also possible that limited oxygen that may be available is rapidly utilized for biodegradation of petroleum hydrocarbons and that this process supports ongoing reductive dechlorination of chlorinated compounds.

SUMMARY AND CONCLUSIONS

Results indicate a broad range of capabilities within the site microbial community, with organisms capable of aerobic and anaerobic degradation present. A comparison of results between the 2014 pre-thermal treatment sampling event and the post-thermal treatment events in 2016 and 2017 indicates increased microbial diversity and abundance at the three locations sampled in 2017. The assessment of 1,4-dioxane biodegradation potential at monitoring well CPZ-7R indicates the potential for multiple biodegradation mechanisms in this area of the site. Because groundwater conditions are generally reducing to strongly reducing, it is likely that aerobic biodegradation is limited. However, it is possible that even small amounts of dissolved oxygen stimulate processes that may include the metabolism and/or cometabolism of 1,4-dioxane.

TABLES

FIGURES

REFERENCES

Arcadis. 2014. 2014 Baseline Microbiological Survey Technical Memorandum. September 15, 2014.

Gedalanga, P.B., Pornwongthong, P., Mora, R., Chiang, S.D., Baldwin, B., Ogles, D., Mahendra, S. 2014. Identification of Biomarker Genes to predict Biodegradation of 1,4-Dioxane. Applied and Environmental Microbiology. 80(10):3209-3218.

Hatzinger, P.B., Banerjee, R., Rezes, R., Streger, S.H., McClay, K., Schaefer, C.E. 2017. Potential for cometabolic biodegradation of 1,4-dioxane in aquifers with methane or ethane as primary substrates. Biodegradation. Published online ahead of print October 11, 2017.

Hazen, T.C. 2010. Cometabolic Bioremediation. Handbook of Hydrocarbon and Lipid Microbiology. 2505-2514.

Interstate Technology & Regulatory Council. 2011. Technology Overview Environmental Molecular Diagnostics Fact Sheets. November

Li, M., Mathieu, J., Liu, Y., Van Orden, E.T., Yang, Y., Fiorenza, S., Alvarez, P.J.J. 2014. The Abundance of Tetrahydrofuran/Dioxane monooxygenase Genes 9thmA/sxmA) and 1,4-Dioxane Degradation Activity Are Significantly Correlated at Various Impacted Aquifers. Environmental Science and Technology. 1:122-127.

Mahendra, S. and Alvarez-Cohen, L. 2006. Kinetics of 1,4-Dioxane Biodegradation by Monooxygenase-Expressing Bacteria. Environmental Science and Technology. 40:5435.

TABLES

Table 1 - 1,4-Dioxane and Tetrahydrofuran Biodegradation Potential - April 2017
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

Sample Location			CPZ-7R		
Sample Date			4/4/2017		
Well Group			C		
Layer			SBR		
Gene Target		**Gene Type**	**Cells per Bead**	**Laboratory Flag**	**Percentile Ranking**
Dioxane Monooxygenase	DXMO	F	2.50E+02	U	--
Aldehyde Dehydrogenase	ALDH	F	2.50E+02	U	--
Propane Monooxygenase	PPO	F	**4.05E+01**	J	--
Soluble Methane Monooxygenase	SMMO	F	**1.94E+03**		8
Phenol Hydroxylase	PHE	F	**3.02E+04**		56
Toluene Monooxygenase 2	RDEG	F	**2.97E+04**		62
Toluene Monooxygenase	RMO	F	**2.45E+04**		64

Notes:

U = Gene not detected at a copy number above the value indicated

J = Estimated gene copy number below practical quantitation limit, but above lower quantitation limit.

F= Functional gene

NA = percentile not applicable due to result below reporting limit

-- = percentile not calculated due to insufficient data in Microbial Insights Database

Bold = Analyte detected above the laboratory reporting limit

MOB = Middle Overburden

DOB = Deep Overburden

SBR = Shallow Bedrock

DBR = Deep Bedrock

Table 2 - QuantArray-Chlor Summary Table - March 2017
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

		Sample Location	ISTR-1			ISTR-5			ISTR-5 DUP			TW-08D		
		Sample Date	3/8/2017			3/8/2017			3/8/2017			3/8/2017		
		Layer	MOB/DOB			MOB/DOB			MOB/DOB			DOB		
Gene Target		**Gene Type**	**Cells per Bead**	**Laboratory Flag**	**Percentile Ranking**	**Cells per Bead**	**Laboratory Flag**	**Percentile Ranking**	**Cells per Bead**	**Laboratory Flag**	**Percentile Ranking**	**Cells per Bead**	**Laboratory Flag**	**Percentile Ranking**
Reductive Dechlorination														
Dehalococcoides spp.	DHC	P	**7.85E+03**		61	**3.70E+04**		71	**2.08E+04**		68	**5.16E+04**		73
Dehalobacter spp.	DHBt	P	**5.64E+05**		89	**3.34E+05**		86	**3.39E+05**		86	**1.87E+04**		57
Desulfitobacterium spp.	DSB	P	**4.21E+04**		NA	**7.86E+03**		NA	**6.03E+03**		NA	**2.02E+03**		NA
Desulfuromonas spp.	DSM	P	**1.13E+07**		95	**9.83E+06**		95	**3.97E+06**		94	**1.54E+06**		91
BAV1 Vinyl Chloride Reductase	BVC	F	2.50E+01	U	--	2.50E+01	U	--	2.50E+01	U	--	**3.39E+04**		86
Vinyl Chloride Reductase	VCR	F	**4.05E+03**		49	**2.86E+04**		64	**1.50E+04**		60	**2.94E+03**		46
tce Reductase	TCE	F	**1.43E+02**		23	**7.76E+03**		57	**6.68E+03**		56	**7.96E+03**		57
Dehalogenimonas spp.	DHG	P	**4.68E+03**		83	**2.69E+03**		51	**1.95E+03**		52	2.50E+02	U	57
1,1-Dichloroethane Reductase	DCA	F	2.50E+02	U		2.50E+02	U		2.50E+02	U		2.50E+02	U	
1,2-Dichloroethane Reductase	DCAR	F	2.50E+02	U		2.50E+02	U		2.50E+02	U		2.50E+02	U	
Dehalobacter DCM	DCM	P	**1.29E+03**		NA	**9.62E+03**		NA	**6.63E+03**		NA	**5.11E+02**		NA
Chloroform reductase	CFR	F	2.50E+02	U		2.50E+02	U		2.50E+02	U		2.50E+02	U	
Dehalobium chlorocoercia	DECO	P	**2.99E+04**			**1.38E+03**			**2.14E+03**			**7.37E+02**		
Aerobic Cometabolism														
Soluble Methane Monooxygenase	SMMO	F	**4.94E+05**		51	**6.52E+04**		35	**3.32E+04**		30	**2.56E+04**		28
Particulate Methane Monooxygenase	PMMO	F	**2.10E+05**		NA	**1.50E+04**		NA	**7.28E+03**		NA	**2.05E+03**		NA
Toluene Dioxygenase	TOD	F	**9.52E+02**		26	**4.36E+03**		59	**5.68E+03**		64	**3.80E+02**		7
Phenol Hydroxylase	PHE	F	**1.09E+05**		78	**4.42E+04**			**1.48E+04**			**4.46E+04**		63
Toluene Monooxygenase 2	RDEG	F	**2.45E+05**		91	**2.06E+04**		56	**1.71E+04**		53	**3.86E+03**		25
Toluene Monooxygenase	RMO	F	**1.72E+04**		58	**7.05E+04**		82	**2.59E+04**		94	**2.67E+05**		65
Epoxyalkane Transferase	EtnE	F	2.50E+02	U	--	2.50E+02	U	--	2.50E+02	U	--	**7.90E+02**		NA
Ethene Monooxygenase	EtnC	F	2.50E+02	U	--	2.50E+02	U	--	2.50E+02	U	--	**5.32E+02**		NA
Trichlorobenzene Dioxygenase	TCBO	F	**2.61E+03**			**4.68E+02**			**1.24E+02**	J		**2.64E+03**		
Dichloromethane Dehalogenase	DCMA		2.50E+02	U		2.50E+02	U		2.50E+02	U		2.50E+02	U	
Other														
Methanogens	MGN	F	**4.89E+04**		NA	**4.23E+03**		NA	**2.41E+03**		NA	**8.92E+01**	J	NA
Sulfate Reducing Bacteria	APS	F	**3.86E+05**		67	**2.91E+04**		45	**3.54E+04**		47	**4.82E+03**		28
Total Eubacteria	EBAC	P	**5.62E+07**		91	**6.99E+06**		35	**8.15E+06**		40	**1.66E+06**		<4

Notes:

U = Gene not detected at a copy number above the value indicated
J = Estimated gene copy number below practical quantitation limit, but above lower quantitation limit.
F= Functional gene
P = Phylogenetic gene
ug/L = micrograms per liter
mg/L = milligrams per liter
NA = percentile not applicable due to result below reporting limit
-- = percentile not calculated due to insufficient data in Microbial Insights Database
Bold = Analyte detected above the laboratory reporting limit
MOB = Middle Overburden
DOB = Deep Overburden
SBR = Shallow Bedrock
DBR = Deep Bedrock

Relative abundance indicated by microbial insights in comparison with other sites

🟥	Low
🟧	Medium-Low
🟨	Medium
🟩	Medium-High
🟩	High

Table 3 - QuantArray-Petro Summary Table - March 2017
Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site
Southington, Connecticut

		Sample Location	ISTR-5			ISTR-5 DUP		
		Sample Date	3/8/2017			3/8/2017		
		Layer	MOB/DOB			MOB/DOB		
Gene Target		**Gene Type**	**Cells per Bead**	**Laboratory Flag**	**Percentile Ranking**	**Cells per Bead**	**Laboratory Flag**	**Percentile Ranking**
Anaerobic BTEX								
Benzoyl Coenzyme A Reductase	BCR	F	**9.43E+01**	J	--	**1.12E+01**	J	--
Benzylsuccinate synthase	bssA	F	2.50E+02	U	NA	2.50E+02	U	NA
Benzene Carboxylase	abcA	F	2.50E+02	U	--	2.50E+02	U	--
Anaerobic PAHs and Alkanes								
Naphthalene Carboxylase	ANC	F	2.50E+02	U	--	2.50E+02	U	--
Naphthylmethylsuccinate Synthase	mnssA	F	2.50E+02	U	--	2.50E+02	U	--
Alklysuccinate Synthase	assA	F	2.50E+02	U	NA	2.50E+02	U	NA
Aerobic BTEX and MTBE								
Toluene/Benzene Dioxygenase	TOD	F	**4.36E+03**		59	**5.68E+03**		64
Phenol Hydroxylase	PHE	F	**4.42E+04**		63	**1.48E+04**		42
Toluene 2 Monooxygenase/Phenol Hydroxylase	RDEG	F	**2.06E+04**		56	**1.71E+04**		53
Toluene Ring Hydroxylating Monooxygenases	RMO	F	**7.05E+04**		82	**2.59E+04**		65
Xylene/Toluene Monooxygenase	TOL	F	2.50E+02	U	--	2.50E+02	U	--
Ethylbenzene/Isopropylbenzene Dioxygenase	EDO	F	2.50E+02	U	--	2.50E+02	U	--
Biphenyl/Isopropylbenzene Dioxygenase	BPH4	F	2.50E+02	U	--	2.50E+02	U	--
Methylibium petroliphilum	PM1	P	**4.83E+04**		14	**1.95E+04**		<6
TBA Monooxygenase	TBA	F	2.50E+02	U	--	2.50E+02	U	--
Aerobic PAHs and Alkanes								
Naphthalene Dioxygenase	NAH	F	**3.07E+02**		<4	**1.76E+02**	J	<4
Napthalene-inducible Dioxygenase	NidA	F	2.50E+02	U	--	2.50E+02	U	--
Phenanthrene Dioxygenase	PHNA	F	2.50E+02	U	--	2.50E+02	U	--
Alkane Monooxygenase	ALKB	F	2.50E+02	U	--	2.50E+02	U	--
Alkane Monooxygenase	ALMA	F	2.50E+02	U	--	2.50E+02	U	--
Other								
Sulfate Reducing Bacteria	APS	F	**2.91E+04**		45	**3.54E+04**		47
Total Eubacteria	EBAC	P	**6.99E+06**		35	**8.15E+06**		40

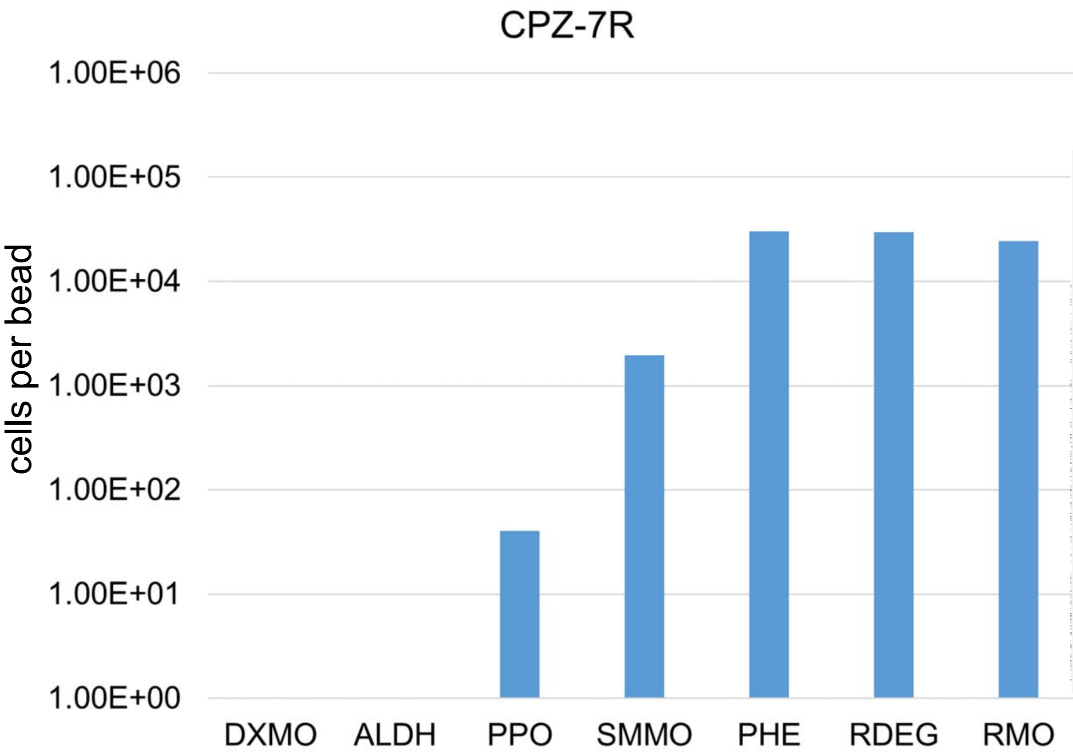
Notes:

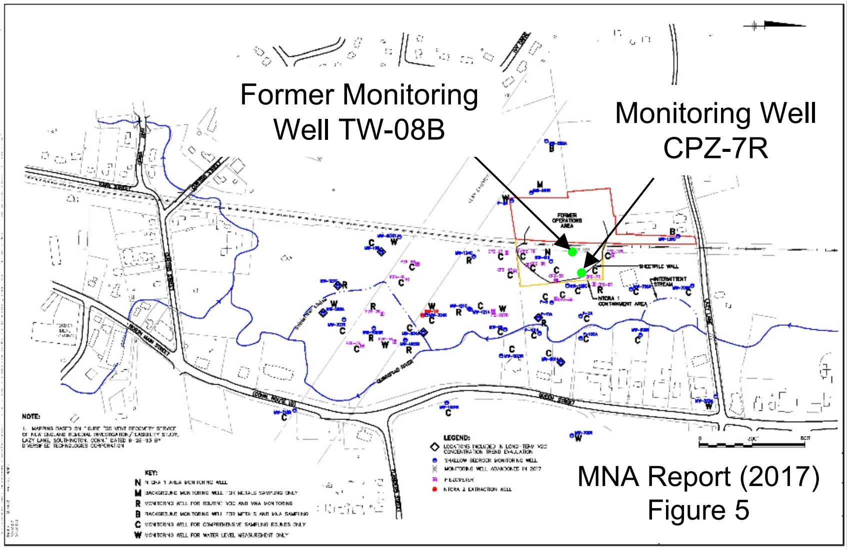
U = Gene not detected at a copy number above the value indicated
J = Estimated gene copy number below practical quantitation limit, but above lower quantitation limit.
F= Functional gene
P = Phylogenetic gene
ug/L = micrograms per liter
mg/L = milligrams per liter
NA = percentile not applicable due to result below reporting limit
-- = percentile not calculated due to insufficient data in Microbial Insights Database
Bold = Analyte detected above the laboratory reporting limit
MOB = Middle Overburden
DOB = Deep Overburden
SBR = Shallow Bedrock
DBR = Deep Bedrock

Relative abundance indicated by microbial insights in comparison with other sites

🟥	Low
🟧	Medium-Low
🟨	Medium
🟩	Medium-High
■	High

FIGURES





Concentrations of Potential Substrates at Former Monitoring Well TW-08B

Sampling Date	Ethane (µg/L)	Methane (µg/L)	Tetrahydrofuran (µg/L)	Toluene (µg/L)	1,4-Dioxane (µg/L)
3/18/2015	66	2,700	ND<5,000	44,900	--
7/17/2015	58	2,000	ND<10,000	ND<38,300	--
10/22/2015	--	--	ND<25,000 [ND<25,000]	41,000 [40,000]	140 [160]
11/23/2015	62 [68]	2,000 [2,200]	--	--	--
3/11/2016	80 [70]	2,500 [2,100]	ND<10,000 [ND<10,000]	42,900 [46,200]	131 [138]
7/20/2016	59 [61]	1,900 [2,100]	ND<50,000 [ND<50,000]	33,800 [36,700]	--
11/3/2016	68 [70]	2,200 [2,300]	ND<25,000 [ND<25,000]	41,100 [41,600]	--
3/9/2017	--	--	ND<12,500 [ND<12,500]	46,400 [46,600]	128 [131]

Notes:

DXMO: dioxane monooxygenase
ALDH: aldehyde dehydrogenase
PPO: propane monooxygenase
SMMO: soluble methane monooxygenase
PHE: phenol hydroxylase
RDEG and RMO: toluene monooxygenases
µg/L: micrograms per liter
ND<: non-detect less than concentration shown
[ ]: Duplicate result

SRSNE SUPERFUND SITE
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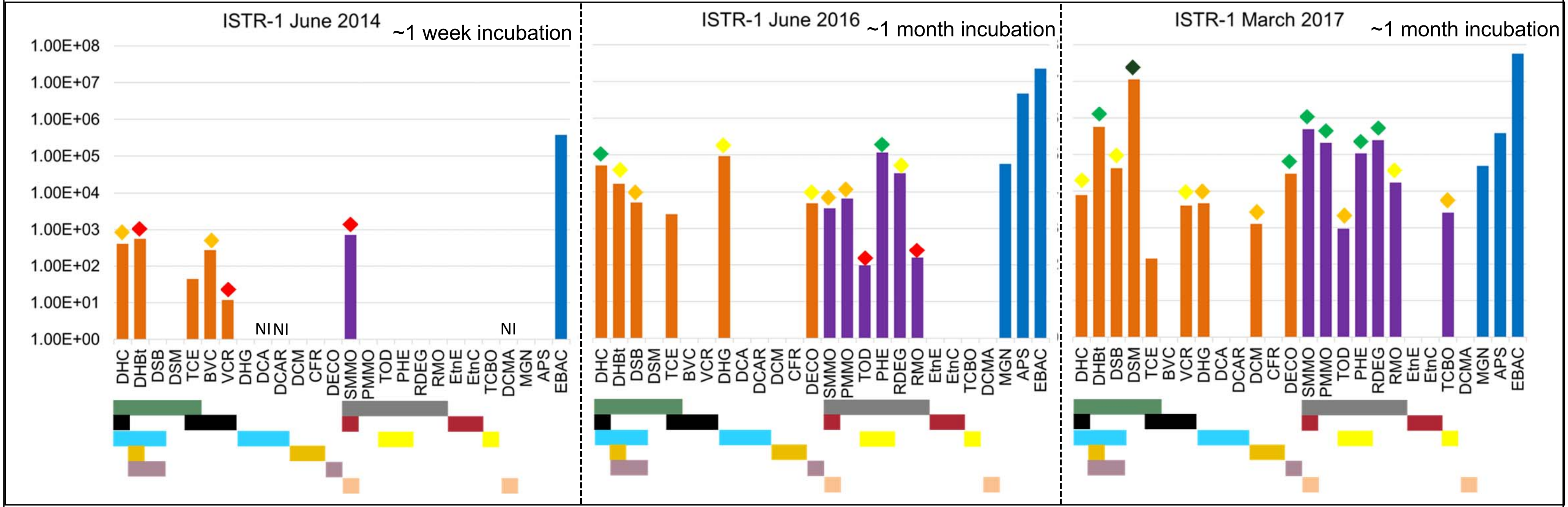
MONITORED NATURAL ATTENUATION (MNA) REPORT
APPENDIX D – 2017 MICROBIAL SURVEY

1,4-DIOXANE AND TETRAHYDROFURAN
BIODEGRADATION POTENTIAL – CPZ-7R – March 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1



Anaerobic Degradation
🟩 Parent Chlorinated Ethenes
⬛ Daughter Chlorinated Ethenes
🟦 Chlorinated Ethanes
🟨 Chlorinated Methanes
🟪 Chlorinated Benzenes

Aerobic Degradation
⬜ Chlorinated Ethenes
🟥 Vinyl Chloride
🟨 Chlorinated Benzenes
🟧 Chlorinated Methanes

🟧 Anaerobic Reductive Dechlorination
🟪 Aerobic Cometabolism
🟦 Methanogens, sulfate reducers, total Bacteria

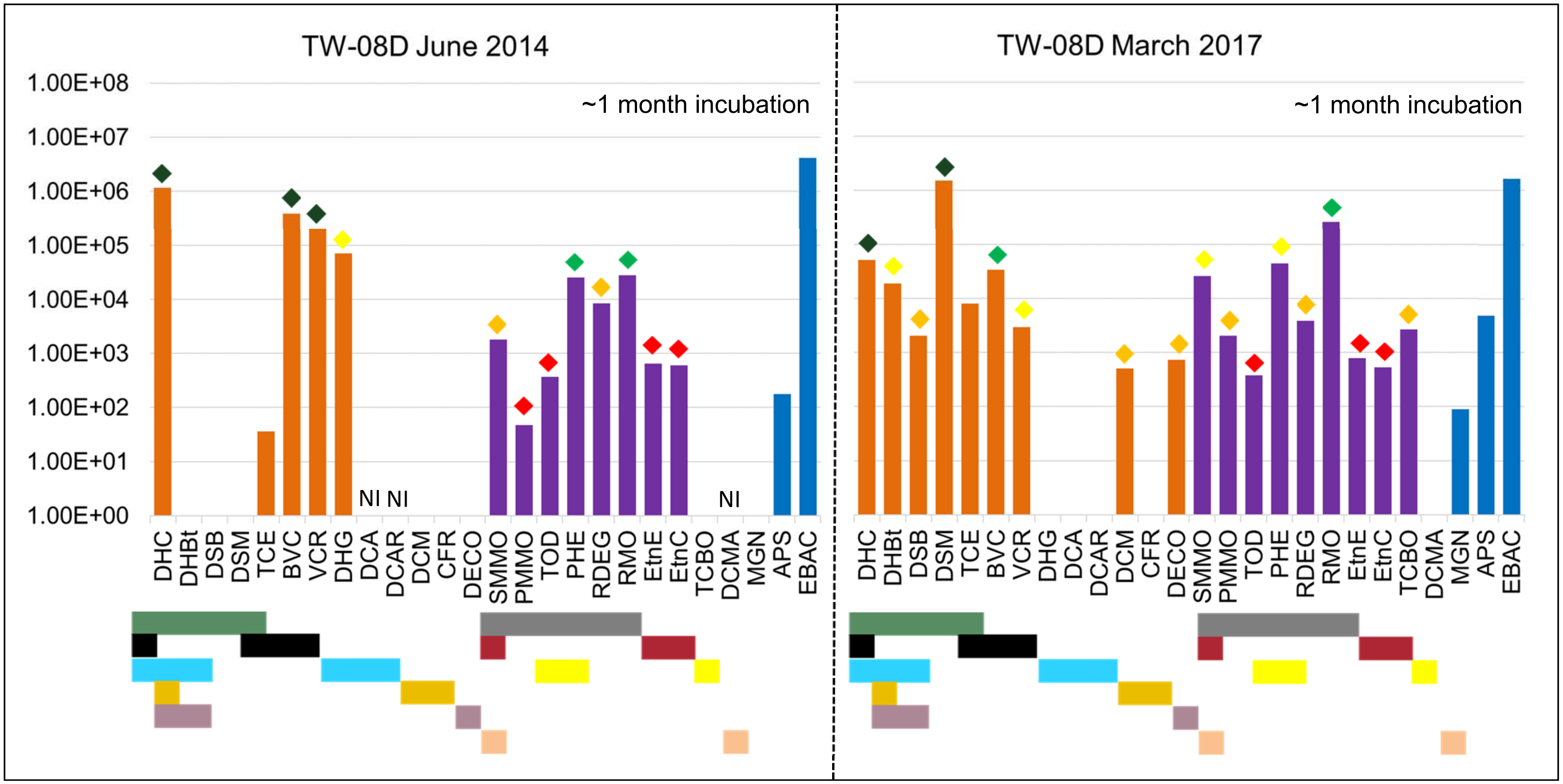
Abundance
◆ Low
◆ Medium-Low
◆ Medium
◆ Medium-High
◆ High

NI=Not included in earlier QuantArray

SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT
APPENDIX D – 2017 MICROBIAL SURVEY

2014, 2016, AND 2017 QUANTARRAY-CHLOR RESULTS ISTR-1

FIGURE
2



Anaerobic Degradation

- 🟩 Parent Chlorinated Ethenes
- ■ Daughter Chlorinated Ethenes
- 🟦 Chlorinated Ethanes
- 🟨 Chlorinated Methanes
- ▬ Chlorinated Benzenes

Aerobic Degradation

- ▬ Chlorinated Ethenes
- 🟥 Vinyl Chloride
- 🟨 Chlorinated Benzenes
- ▬ Chlorinated Methanes

- 🟧 Anaerobic Reductive Dechlorination
- 🟪 Aerobic Cometabolism
- 🟦 Methanogens, sulfate reducers, total Bacteria

Abundance

- ◆ Low
- ◆ Medium-Low
- ◆ Medium
- ◆ Medium-High
- ◆ High

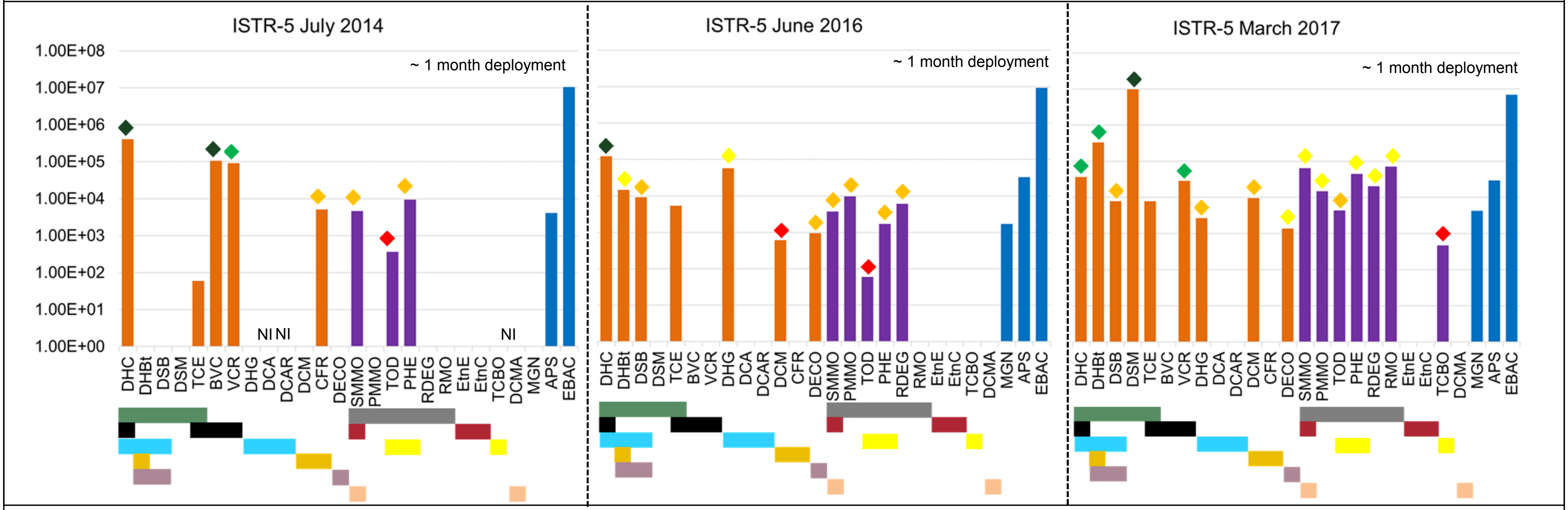
NI=Not included in earlier QuantArray

SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT
APPENDIX D – 2017 MICROBIAL SURVEY

2014 AND 2017 QUANTARRAY-CHLOR RESULTS
TW-08D

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3



Duplicate results presented in Table 2

<u>Anaerobic Degradation</u>
🟩 Parent Chlorinated Ethenes
⬛ Daughter Chlorinated Ethenes
🟦 Chlorinated Ethanes
🟨 Chlorinated Methanes
🟪 Chlorinated Benzenes

<u>Aerobic Degradation</u>
⬜ Chlorinated Ethenes
🟥 Vinyl Chloride
🟨 Chlorinated Benzenes
🟧 Chlorinated Methanes

🟧 Anaerobic Reductive Dechlorination
🟪 Aerobic Cometabolism
🟦 Methanogens, sulfate reducers, total Bacteria

<u>Abundance</u>
◆ Low
◆ Medium-Low
◆ Medium
◆ Medium-High
◆ High

NI=Not included in earlier QuantArray

SRSNE SUPERFUND SITE
SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT
APPENDIX D – 2017 MICROBIAL SURVEY

2014, 2016, AND 2017 QUANTARRAY-CHLOR RESULTS ISTR-5

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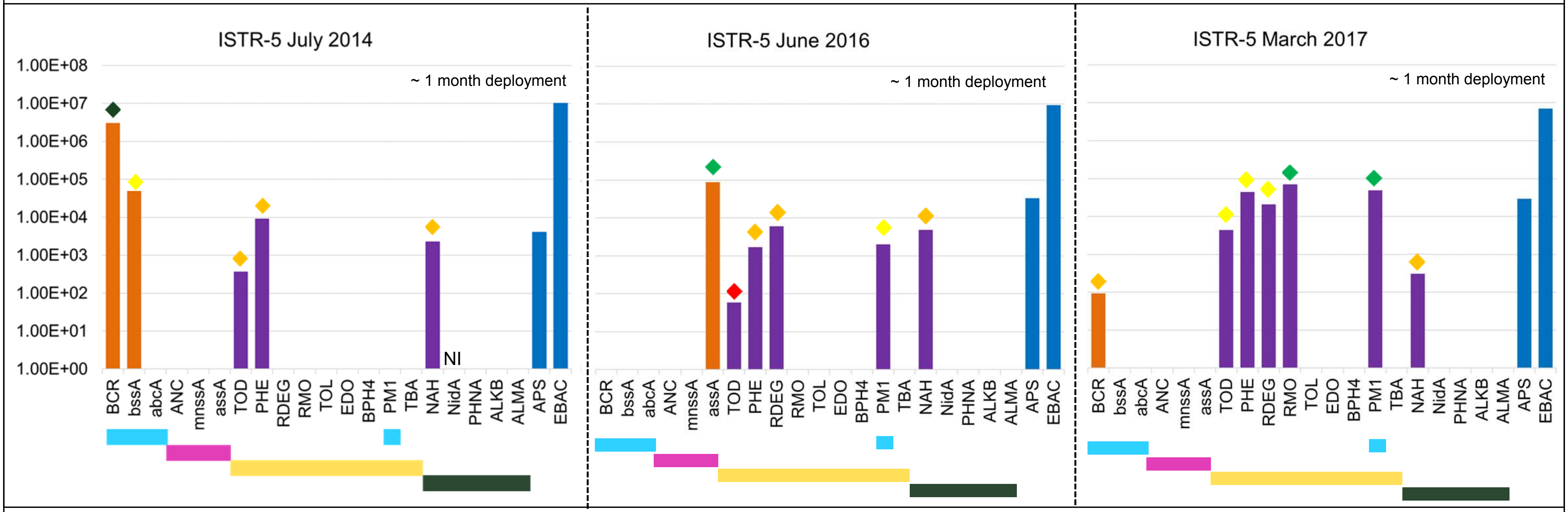
FIGURE
4



Duplicate results presented in Table 2

Anaerobic Degradation
🟦 BTEX and MTBE
🟪 PAH and Alkanes

Aerobic Degradation
🟨 BTEX
⬛ PAH and Alkanes

🟧 Anaerobic Reductive Dechlorination
🟪 Aerobic Cometabolism
🟦 Methanogens, sulfate reducers, total Bacteria

Abundance
◆ Low
◆ Medium-Low
◆ Medium
◆ Medium-High
◆ High

NI=Not included in earlier QuantArray

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SOUTHINGTON, CONNECTICUT
MONITORED NATURAL ATTENUATION REPORT
APPENDIX D – 2017 MICROBIAL SURVEY

2014, 2016, AND 2017 QUANTARRAY-PETRO RESULTS ISTR-5

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5

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Attachment 3

2017 Groundwater Sampling and Monitored Natural Attenuation Report

Hydraulic Containment and Treatment System Annual Demonstration of Compliance Report
No. 9

31 October 2016
Through
30 October 2017

Solvents Recovery Service of New England, Inc.
Superfund Site
Southington, Connecticut

Prepared for:

SRSNE PRP Group

Prepared by:

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(860) 368-3200

March 2018

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Title

LIST OF ACRONYMS

BBL	Blasland, Bouck & Lee, Inc.
CTDEEP	Connecticut Department of Energy & Environmental Protection
DCP	Demonstration of Compliance Plan
DCR	Demonstration of Compliance Report
EPA	United States Environmental Protection Agency
ft	feet
gpm	gallons per minute
HCTS	Hydraulic Containment and Treatment System
NTCRA	Non-Time-Critical Removal Action
O&M	operations and maintenance
RCRA	Resource Conservation and Recovery Act
SOW	Statement of Work
SRSNE	Solvents Recovery Service of New England, Inc.
UV	ultraviolet oxidation
VFD	Variable Frequency Drive
VOC	volatile organic contaminants
WESTON®	Weston Solutions, Inc.

SECTION 1

INTRODUCTION

1. INTRODUCTION

This Demonstration of Compliance Report (DCR) was prepared by Weston Solutions, Inc. (WESTON®) on behalf of the Solvents Recovery Service of New England, Inc. (SRSNE) Site Group. The DCR documents the effectiveness of the Non-Time-Critical Removal Action No. 1 and 2 (NTCRA-1 and NTCRA-2) hydraulic containment and treatment system at the SRSNE Superfund Site in Southington, Connecticut. This DCR has been prepared and submitted in accordance with Section VII, Paragraph G of the Remedial Design/Remedial Action Statement of Work (SOW) that accompanied the Record of Decision (ROD) for the site. The data presented in this DCR were obtained in accordance with the United States Environmental Protection Agency (EPA) approved Demonstration of Compliance Plans (DCP) for NTCRA-1 and NTCRA-2 (Blasland, Bouck & Lee (BBL), June 1995 and November 1999, respectively). The data acquisition schedule, reporting, and evaluation requirements for this and future DCRs were described in these DCPs.

This is the ninth annual DCR prepared following lodging of the Consent Decree in 2008, and reflects performance data collected from the period of October 31, 2016 through October 31, 2017. This DCR follows 60 previously submitted DCRs prepared initially on a quarterly basis and changed to annual submissions in 2003.

1.1 NTCRA-1 BACKGROUND

The NTCRA-1 hydraulic containment system is installed in the NTCRA-1 containment area (Figure 1), which was defined in the NTCRA-1 DCP The containment system originally included an array of 12 overburden groundwater extraction wells (RW-1 through RW-12) and a downgradient barrier (steel sheet piling) that hydraulically and physically contains overburden groundwater leaving the SRSNE operations area.

The pre-design investigation results and the designs of the hydraulic barrier wall, extraction wells, and treatment system are described in detail in the NTCRA-1 *100% Groundwater Containment and Treatment System Design Report* (*100% Design Report*, BBL, January 1994). The NTCRA-1 system was constructed between February and July 1995 and brought online in accordance with the EPA-approved schedule on 19 July 1995.

The NTCRA-1 hydraulic containment and monitoring network remained as originally constructed until November 2009, when specific recovery wells, monitoring wells, and piezometers were abandoned in accordance with the Monitoring Well Network Evaluation, included as Attachment N to the *Remedial Design Work Plan* (Arcadis, April 2009). EPA was notified that the abandoned wells and piezometers would be removed from the NTCRA-1 monitoring program and DCP on 1 November 2009 (WESTON, December 2009). The second annual DCR (31 October 2009 to 30 October 2010) summarizes the recovery wells, monitoring wells, and piezometers abandoned under this program and the rationale for abandonment of each well. As indicated in the second annual DCR, abandonment of the targeted monitoring wells and piezometers was performed in November and December 2009, with exception to former recovery wells RW-5 and RW-6. These recovery wells were permanently taken out of service in November 2009, but not abandoned until December 2010. As a result of the 2010 recovery well abandonment activities discussed above, the NTCRA-1 containment system consists of ten overburden groundwater extraction wells (RW-1 through RW-4, and RW-7 through RW-12).

The NTCRA-1 hydraulic containment system was not further modified until construction of a Resource Conservation and Recovery Act (RCRA) Subtitle C cap (RCRA cap) over the former Operations Area of the site between November 2016 and September 2017. As summarized in the Final RCRA Cap 100% Design Report (Arcadis, October 2016), NTCRA-1 system infrastructure modifications were concurrently implemented with the cap construction that allow for the future cessation of pumping at the NTCRA-1 recovery wells. As part of the NTCRA-1 modifications, the ground surface elevation in the NTCRA-1 area was raised requiring both select monitoring and recovery well elevations to be raised. In addition drainage trenches were constructed on both the upgradient (west side) and downgradient (east side) of the NTCRA-1 sheet pile wall to create a drainage pathway for the flow of groundwater. At three locations on the sheet pile wall, penetrations were installed and equipped with valves to enable future control of the groundwater flow through the wall. These wall penetrations will remain closed until such time the NTCRA-1 hydraulic containment system is shut down.

All ten NTCRA-1 recovery wells (RW-1 through RW-4, and RW-7 through RW-12) continued to operate between November 2009 and March 2017. The SRSNE Group requested (demaximis, March 2017) the shutdown of five NTCRA-1 recovery wells (RW-1, 4, 8, 9 and 10). These five wells were proposed to be shut down because these wells produced lower groundwater yield and the construction of the drainage trenches along the sheet pile wall will promote the flow of groundwater to the remaining wells. The EPA subsequently approved this request and these wells were turned off on 29 March 2017. EPA also approved abandonment and removal of monitoring wells (MWL-305 and MWL-308) from the NTCRA-1 DCP (demaximis, March 2017). In addition, P-5A was also abandoned and removed from the NTCRA-1 monitoring program at the same time as MWL-305 and MWL-308.

As a result of the 2017 recovery well shutdown, the NTCRA-1 containment system now consists of five operational overburden groundwater extraction wells (RW-2, 3, 7, 11 and 12). The other five recovery wells are still being monitored as part of the DCP, but the pumps and equipment have been removed.

1.2 NTCRA-2 BACKGROUND

The NTCRA-2 hydraulic containment system is installed south (hydraulically downgradient) of the NTCRA-1 containment area (Figure 1), as shown in the NTCRA-2 DCP. The NTCRA-2 containment area encompasses the majority of the northern portion of the Town of Southington’s well field property and includes the shallow and deep bedrock, extending to a depth of 100 feet (ft) below the top of bedrock in the northern portion of this property (Figure 1). Further upgradient (north), the NTCRA-2 containment area extends over 170 ft below the top of bedrock and over 200 ft below ground surface (BBL, November 1999).

The NTCRA-2 hydraulic containment system initially included two groundwater extraction wells (RW-13 and RW-1R) that, in combination with the NTCRA-1 containment system, contain bedrock groundwater migrating from the SRSNE operations area (Figure 1). The design of the overburden and bedrock extraction wells RW-13 and RW-1R are described in the NTCRA-2 *100% Design Report* (BBL, November 1999). Overburden recovery well RW-13 has been on-line since 14 July 1999, and bedrock recovery well RW-1R has been operating since 5 September 2001.

A third groundwater extraction well (RW-14) was added to the NTCRA-2 containment system (Figure 1) to further enhance long-term hydraulic containment of the overburden and bedrock groundwater in the NTCRA-2 well field. The design of the additional overburden extraction well is described in the RW-14 *Completion Report* (WESTON, November 2007). This overburden recovery well has been operating since 24 September 2007.

A fourth groundwater extraction well (RW-15) was also added to the NTCRA-2 well field to provide additional redundancy and ensure NTCRA-2 performance objectives can be maintained with one NTCRA-2 overburden recovery well out of service in the future. The design of the additional overburden extraction well is described in the RW-15 *Completion Report* (WESTON, January 2015). This overburden recovery well has been operating since 12 November 2014. As part of the well installation work, a second electrical service was extended to the NTCRA-2 well field and one of the two installed spare NTCRA-2 forcemains was connected to RW-15 and placed into service. As part of the forcemain extension, a valve vault was installed between the NTCRA-2 wells and the treatment system. The valve vault allows for selection of which forcemain will be used to convey groundwater to the Hydraulic Containment and Treatment System (HCTS). It is also equipped with cleanouts to allow for maintenance on each active forcemain.

1.3 GROUNDWATER TREATMENT SYSTEM

The groundwater extracted by the NTCRA-1 and -2 containment systems is pumped directly to the groundwater treatment facility (Figure 1). The treatment system consists of: influent equalization, metals pretreatment, filtration, ultraviolet oxidation (UV), and granular activated carbon adsorption. Vapor phase carbon adsorption is also used to capture contaminants that volatize during treatment. The system precipitates and extracts metals, reduces suspended solids, and destroys and captures volatile organic compounds (VOC). Treated water is discharged to the Quinnipiac River in accordance with the Connecticut Department of Energy & Environmental Protection (CTDEEP) *Revised Substantive Requirements for Discharge of Pre-Treated Groundwater* issued 6 November 1995.

1.4 REPORT ORGANIZATION

Section 2 of this report summarizes the acquisition and evaluation of field data used to verify the effectiveness of the hydraulic containment and treatment system, and Section 3 provides an overview of operations and maintenance (O&M) activities conducted at the site during this O&M period.

SECTION 2

DATA ACQUISITION AND RESULTS

2. DATA ACQUISITION AND RESULTS

The data required to demonstrate the effectiveness of the hydraulic containment and treatment system were obtained in the form of hydraulic head measurements from wells and piezometers installed in the area of the containment system, flow measurements from the extraction well array, treatment system flow rates, and analytical results.

2.1 NTCRA-1 CONTAINMENT SYSTEM MONITORING

The satisfactory performance of the NTCRA-1 containment system is verified through two reversal-of-gradient tests that determine whether groundwater flow is controlled by the system. These tests are demonstrated by comparing hydraulic head measurements at several monitoring locations. The specific wells and piezometers used for these comparisons are discussed in Subsections 2.1.1 and 2.1.2. The gradient tests are:

- **Reversal of Gradient Test No. 1 (RGT-1)**: Confirms that overburden groundwater east and downgradient of the operations area is flowing in the direction of the groundwater extraction wells.

- **Reversal of Gradient Test No. 2 (RGT-2)**: Confirms that overburden groundwater flow is reversed and maintained in the direction of the groundwater extraction wells within the area enclosed by the hydraulic divide installed adjacent to the hydraulic containment system. RGT-2 is more crucial to a demonstration of compliance as it requires that overburden groundwater elevations within the barrier are at least 0.3 ft lower than those outside the wall in NTCRA-1.

2.1.1 RGT-1 Results

To confirm that overburden groundwater east and downgradient of the operations area and within the containment area is flowing in the direction of the groundwater extraction wells, hydraulic head measurements were collected at the following overburden wells/piezometers located in the vicinity of the groundwater containment system:

- Extraction Wells RW-1 through RW-4 and RW-7 through RW-12
- Monitoring Wells MW-415, MWL-304, MWL-305, MWL-307, and MWL-308. Monitoring Wells MWL-305 and MWL-308 were only monitored between November 2016 and February 2017. These wells were abandoned in March 2017 and are removed from the NTCRA-1 DCP going forward.

Overburden groundwater elevations were also measured at the following wells to assess the hydraulic response in the area between the hydraulic barrier wall and the Quinnipiac River:

- Monitoring Wells MWL-302, MWL-306, MWL-309, MWL-311, and TW-7A.

Monthly overburden hydraulic head data measured at the specified wells and compliance monitoring points from 31 October 2016 through 30 October 2017 are presented in Table 1. The resulting groundwater contour maps are presented as Figures 1A through 12A. The contours indicate the horizontal hydraulic gradient between the SRSNE operations area and the extraction wells was eastward toward the extraction wells, fulfilling RGT-1.

The vertical hydraulic gradient between the overburden and bedrock in the vicinity of the hydraulic containment system is also evaluated to confirm satisfactory recovery well operation. Groundwater elevations were compared between bedrock well MW-416 and the adjacent overburden well MWL-307 on the same dates. This comparison indicates that the vertical component of the hydraulic gradient between the bedrock and the overburden was generally downward from the overburden to the bedrock within the containment area.

Hydraulic head data is also compared at overburden compliance piezometers CPZ-1, CPZ-3, CPZ-5, CPZ-7, and CPZ-9 and adjacent bedrock piezometers CPZ-1R, CPZ-3R, CPZ-5R, CPZ-7R, and CPZ-9R. Monitoring indicates that the gradient was generally upward from the bedrock to the overburden in the vicinity of the pumping wells and the hydraulic barrier wall throughout the period covered by this DCR.

2.1.2 RGT-2 Results

To confirm that groundwater flow is reversed and maintained in the direction of the groundwater extraction wells, hydraulic head measurements were collected weekly at eight fully penetrating overburden compliance piezometers (CPZ-1, 2A, 3, 4A, 5, 6, 7, and 8). Compliance piezometers CPZ-9 and -10 were removed from RGT-2 when CPZ-9 was abandoned in December 2009. As stated in the DCP, the hydraulic gradient is considered reversed and inward across the hydraulic barrier wall when the hydraulic head data measured at each compliance piezometer located inside the hydraulic barrier wall (CPZ-1, CPZ-3, CPZ-5, and CPZ-7) is at least 0.3 ft lower than the head measured at the corresponding compliance piezometer located outside the hydraulic barrier wall (CPZ-2A, CPZ-4A, CPZ-6, and CPZ-8, respectively).

Based on weekly hydraulic head measurements, the required 0.3-ft head differential was achieved in all four pairs (CPZ-1/CPZ-2A, CPZ-3/CPZ-4A, CPZ-5/CPZ-6, and CPZ-7/CPZ-8) for 15 of the 53 weekly monitoring rounds during the monitoring period. Compliance piezometer pairs CPZ-5/CPZ-6 and CPZ-7/CPZ-8 met the 0.3-ft head differential during the entire monitoring period. Compliance piezometer pairs CPZ-1/2A and CPZ-3/CPZ-4A did not achieve the required 0.3-ft differential on seven (7) and thirty-eight (38) weekly gauging rounds, respectively, during the monitoring period. Table 2 provides a summary of RGT-2 test results and highlights the weeks the required head differential was not maintained between CPZ-1/2A and CPZ-3/4A.

The cause of the loss of hydraulic gradient reversal at compliance pair CPZ-1/2A and CPZ-3/4A is believed to be a result of excessively dry site conditions due to low precipitation, and a substantial localized elevation decrease in the overburden water table outside of the sheet pile wall. This same loss of hydraulic gradient reversal has been documented in prior DCR reports when excessively dry conditions have occurred. In addition, compliance piezometers CPZ-1 and CPZ-3, which are located on the inside of the hydraulic barrier wall, have poor hydraulic connectivity to the adjacent recovery wells (RW-7 and RW-12, respectively). The distance from each piezometer to the closest recovery well is less than 11 ft, and the recovery wells have very little drawdown influence on the groundwater elevation in the piezometer. These loss of hydraulic gradient reversals are consistent with prior monitoring periods in these pairs when dry meteorological conditions are encountered in the central Connecticut region.

Recovery well redevelopment typically occurs when groundwater recovery performance has diminished or compliance piezometer head differential is less than 0.3-ft. Recovery wells (RW-1, 7, 8, 9, and 12) were previously redeveloped in July and August 2015. The other five NTCRA-1 recovery wells (RW-2, 3, 4, 10, and 11) were previously redeveloped in November 2015. Historically, redevelopment activities are successful in improving groundwater extraction production; however, they have not been successful in improving hydraulic connectivity to the nearby piezometers and hydraulic gradient reversal during dry conditions. The November 2015 redevelopment work was not successful in improving hydraulic connectivity and hydraulic gradient remained out of compliance until precipitation raised the groundwater levels outside the containment area (see table below). Because of this historical data and acceptable recovery well flow, the NTCRA-1 recovery wells were not redeveloped during this performance period.

To verify the continuity of gradient reversal, daily hydraulic head measurements are also recorded by a data logger at compliance piezometers CPZ-5 and CPZ-6. These measurements are collected in 8-hour intervals or three times a day. These measurements demonstrated compliance for the entire monitoring period with exception of 26 and 27 April 2017 when the entire HCTS system was down following local power quality issues that caused the failure of 3-phase electrical fuses and Variable Frequency Drives (VFD). A hydrograph of the data logger measurements from compliance pair CPZ-5 and CPZ-6 is presented as Figure 13 for the monitoring period.

A summary of NTCRA-1 non-compliance occurrences between 31 October 2016 and 30 October 2017 is presented below, along with an explanation of the cause and corrective measures taken in response to the non-compliance issue.

NTCRA-1 – Non-Compliance Summary – 31 October 2016 to 30 October 2017

Dates & (No. of Days)	Cause	Corrective Actions
28 December 2016 to 26 February 2017 (61 days)	Hydraulic gradient reversal between compliance piezometers CPZ-3/4A was not maintained. For portions of the non-compliance period, piezometers CPZ-1/2A may also not have demonstrated hydraulic gradient reversal. In addition to noted periods when hydraulic gradient reversal was not maintained at compliance piezometers CPZ-3/4A, the HCTS was down on 26 and 27 April 2017 because of electrical damage to facility fuses and VFDs as a result of local power quality issues. This caused a concurrent loss of hydraulic gradient reversal at CPZ-5/6	No corrective action. Root cause is believed to be excessively dry site conditions due to low precipitation, and a substantial localized elevation decrease in the overburden water table outside of the sheet pile wall. Compliance was restored when rain increased the overburden water table. To resolve the electrical damage both the damaged fuses and VFDs were replaced.
2 April to 7 May 2017 (36 days)		
26 May to 29 October 2017 (127 days)		

2.2 NTCRA-2 CONTAINMENT SYSTEM MONITORING

The satisfactory performance of the NTCRA-2 hydraulic containment system is verified through two containment tests that compare hydraulic head measurements in NTCRA-2. The specific locations used for hydraulic head comparisons are presented in Subsections 2.2.1 and 2.2.2. The containment tests are:

- **Containment Test Part 1 (CT-1)**: Confirms that within the NTCRA-2 containment area, bedrock groundwater east and downgradient of the operations area is flowing in the direction of the hydraulic containment system.
- **Containment Test Part 2 (CT-2)**: Confirms that bedrock groundwater flow downgradient of the NTCRA-2 extraction system within the containment area is reversed and maintained in the direction of the hydraulic containment system.

2.2.1 CT-1 Results

To confirm that VOC-impacted bedrock groundwater east and downgradient of the operations area and within the containment area is flowing in the direction of the extraction wells, hydraulic head measurements were obtained at the following pairs of wells/piezometers located upgradient of the hydraulic containment system:

- Shallow bedrock – MW-704R and MW-121A
- Deep Bedrock – MW-704DR and MW-705DR

The hydraulic gradient is considered to be towards the extraction wells when the hydraulic head measured at the shallow (MW-704R) and deep (MW-704DR) bedrock monitoring wells, located adjacent to extraction wells RW-13, RW-1R, RW-14, and RW-15, is lower than hydraulic head measurements at wells MW-121A and MW-705DR, respectively.

Monthly rounds of hydraulic head data measurements collected from 31 October 2016 to 30 October 2017 are presented in Table 1. The resulting contour maps for shallow bedrock and deep bedrock monitoring wells and piezometers are presented as contours on Figures 1B through 12B and Figures 1C through 12C, respectively. The contours indicate that groundwater flow in the shallow and deep bedrock is inward toward the NTCRA-2 extraction wells, fulfilling Containment Test Requirement No.1.

2.2.2 CT-2 Results

To confirm that bedrock groundwater flow downgradient of the extraction system within the containment area is reversed and maintained in the direction of the extraction wells, hydraulic head measurements were obtained at the following locations:

- Shallow bedrock – MW-704R, MW-204A, PZR-2R, and PZR-4R
- Deep Bedrock – MW-704DR, PZR-2DR, and PZR-4DR

The hydraulic gradient is considered reversed and inward toward the containment area when the hydraulic head measured at the shallow and deep bedrock monitoring wells MW-704R and MW-704DR, which are located adjacent to extraction wells RW-13, RW-1R, RW-14, and RW-15, is lower than the hydraulic head measurements at the remaining shallow and deep bedrock monitoring wells and piezometers listed above. Measurements taken at these locations are presented in Table 1 and as groundwater contours in Figures 1B through 12B and 1C through 12C.

To verify the continuity of gradient reversal, daily hydraulic head measurements are recorded via a data logger at the following locations:

- Shallow bedrock – MW-704R and PZR-2R
- Deep Bedrock – MW-704DR and PZR-2DR

Daily hydraulic head measurements indicated that the NTCRA-2 containment system met CT-2 for the entire monitoring period.

Hydrographs of the data logger measurements obtained for shallow and deep bedrock compliance points between 31 October 2015 and 30 October 2016 are included as Figures 14A and 14B, respectively.

2.3 TREATMENT SYSTEM MONITORING

HCTS influent and effluent flow measurements and laboratory analytical data were obtained during the monitoring period. The analytical and flow data are presented and discussed in Subsections 2.3.1 and 2.3.2, respectively.

2.3.1 HCTS Influent and Effluent Analytical Data

Samples of groundwater treatment system influent and effluent were collected twice per month and analyzed for metals, VOCs, alcohols, and total suspended solids. For the process effluent, the first round each month was also analyzed for total polychlorinated biphenyls. Once every quarter, additional effluent samples were collected and tested for dioxins/furans. Analytical results from the influent and effluent sampling are summarized in Tables 3 and 4, respectively. In Table 4, the effluent sampling results are compared with the discharge limits established by CTDEP in the Substantive Requirements for Discharge, dated 6 November 1995. As shown in Table 4, the treatment system effluent water quality was below discharge limits for the monitoring period.

In addition to the analyses discussed previously, effluent samples were collected and submitted for acute and chronic toxicity analysis in January, April, July, and October 2016. The submitted effluent samples passed the acute and chronic toxicity test for both Daphnia Pulex and fathead minnows. This data is submitted to CT DEEP on a quarterly basis.

To collect additional data concerning the presence of 1,4-dioxane in the groundwater treated via the HCTS, process influent and effluent was also monitored quarterly for this compound during the monitoring period. Currently, no discharge limit exists for 1,4-dioxane. Quarterly sample results for the year are presented below.

SRSNE - 1,4-Dioxane Sampling Summary		
Date	**Influent (ppb)**	**Effluent (ppb)**
3-Jan-2017	32	11
4-Apr-2017	40	22
4-Jul-2017	38	26
3-Oct-2017	47	40

Notes:
ppb – parts per billion

2.3.2 HCTS Influent and Effluent Flow Data

The influent and effluent flow rates of the groundwater treatment system were each recorded continuously using an in-line totalizing flow meter and strip chart recorder. The NTCRA-1 and NTCRA-2 recovery wells ran continuously throughout the monitoring period, with the exception of minor shutdowns during maintenance, individual recovery well failures, or HCTS alarm shutdowns.

Approximately 20,084,000 gallons of groundwater were extracted, treated, and discharged during the monitoring period. Refer to Table 5 for a summary of influent and effluent flow rates and totals. Throughout the period covered in this report, the system treated and discharged an average of 38.2 gallons per minute (gpm).

SECTION 3

HYDRAULIC CONTAINMENT AND TREATMENT SYSTEM (HCTS) OPERATIONS AND MAINTENANCE SUMMARY

3. HYDRAULIC CONTAINMENT AND TREATMENT SYSTEM (HCTS) OPERATIONS AND MAINTENANCE SUMMARY

The HCTS O&M summary is divided into two sections. Subsection 3.1 highlights the major O&M-related activities performed between 31 October 2016 and 30 October 2017, and Subsection 3.2 discusses O&M issues that are on-going or anticipated during future activities at the site.

3.1 OPERATIONS AND MAINTENANCE SUMMARY

The following briefly describes highlighted HCTS O&M activities or capital improvements conducted during the reporting period.

1. **NTCRA-1 Recovery Well Maintenance**: The following NTCRA-1 recovery well maintenance was performed during the monitoring period.

   - **December 2016 – Recovery Well RW-1:** The Warrick level control relay for recovery well pump in RW-1 stopped working and the pump was not turning on/off based on well level. The level control relay was replaced to restore its operation.

   - **March 2017 Recovery Wells RW-1, 4, 8, 9 and 10:** All five NTCRA-1 recovery wells (RW-1, 4, 8, 9, and 10) were turned off.

   - **March/April 2017 NTCRA-1 Recovery Well Modifications:** – As a result of grading changes associated with the RCRA Cap construction the NTCRA-1 recovery wells also underwent modifications to raise the vaults, well casings, and electrical controls. Four (4) recovery wells (RW-2, RW-3, RW-7, and RW-12) had; the vault/manhole, the top of casing/well, the electrical controls, and the internal vault piping raised so they would be accessible and operable with the higher ground elevation. The vault and well elevation for recovery well RW-11 did not require to be raised, but the Electrical controls were relocated to a higher elevation. For the five recovery wells that were recently shut down, the pumping and electrical control equipment were removed and placed into spare parts inventory. The vaults for recovery wells RW-1, 8, 9 and 10 were raised, but no modifications were done to the internal casings. No modifications for RW-4 were required because the grade was not changed in the area of this recovery well.

   - **March 2017 – Recovery Well No. 7:** This recovery well required replacement of the pump with a new clean pump to improve its yield.

   - **April 2017 – Recovery Well No. 3:** The controls for recovery well RW-3 were upgraded from level switch type control to a level transducer to improve well reliability and reduce excessive cycling.

- **August 2017 – Recovery Well No. 2:** The recovery well required replacement of the pump control box (Capacitor and Run Relay) to restore its operation to normal.

2. **NTCRA-2 Well Maintenance**: The following NTCRA-2 recovery well maintenance was performed:

    - **Recovery Well No. 13 Regular Maintenance:** In order to maintain acceptable hydraulic performance (yield) from this recovery well, the well pump was removed and replaced with a clean pump a total of 7 times during the reporting period in December 2016 and February, April, May, August September and October 2017.

    - **Recovery Well No. 14 Regular Maintenance:** In order to maintain acceptable hydraulic performance (yield) from this recovery well, the well pump was removed and replaced with a clean pump a total of 7 times during the reporting period in February, April, June, July, August September and October 2017.

    - **Recovery Well No. 15 Regular Maintenance:** In order to maintain acceptable hydraulic performance (yield) from this recovery well, the well pump was removed and replaced with a clean pump a total of 2 times during the reporting period in April, and September 2017.

    - **April 2017 – RW-14 Motor Replacement:** Following a power quality issue at the site, recovery well RW-14 was confirmed to no longer be operable. The pump motor required replacement to restore its operation.

3. **November 2016 – Air Compressor Relief valve:** The east air compressor, pressure relief valve was intermittently leaking high volumes of air, causing the compressors to operate excessively. The compressor system was shut down and the valve replaced to restore operations to normal.

4. **December 2016 – Clarifier Feed Pump P-100:** The check valve was no longer operating correctly and allowing water to leak back when pump P-101 was running. A new check valve was purchased and installed.

5. **December 2016 – Sludge Transfer Pump (P-900):** The diaphragm was leaking. The pump was removed from position and both the diaphragms and center shaft were replaced.

6. **December 2016 – UV-2 Influent Isolation Solenoid Valve:** The air operated control valve would not close when UV-2 was taken off line. Troubleshooting confirmed that the solenoid that controls this valve stopped working. The solenoid was replaced to restore valve operation to normal.

7. **February 2017 – Sludge Transfer Pump (P-900):** Continued operating problems were occurring with this pump during the month of January 2017. A new replacement pump was installed in lieu of continued maintenance on the existing pump.

8. **March 2017 - Flash Mix and Flocculation Tank Cleaning**: Excessive solids in the Flash Mix and Flocculation tanks were also restricting gravity flow though the metals pre-treatment system. Both tanks had to be dewatered and solids removed to allow water to be process through these tanks. During tank cleaning the mixers were also cleaned.

9. **March/April/July/September and October 2017 – Clarifier Feed Pump Cleaning:** The Clarifier Feed Pump capacity for both P100 and P-101 has been slowly diminishing. The suction and discharge piping were cleaned each month to maintain acceptable pump capacity. P-100 has recovered somewhat, but P-101 capacity continues to be a concern. In October the P-101 pump internals were inspected and cleaned to further remove accumulated solids.

10. **April 2017 – Oxidation Feed Pump (P-300 and P-301) VFD Replacement:** A power quality issue caused both Oxidation Feed Pump Variable Frequency Drives (VFDs) to fail. Both VFDs required replacement to restore the pump operation.

11. **April 2017 – Clarifier Feed Tank and Mixer Cleaning**: The Clarifier Feed tank was dewatered and manway removed to gain access to the tank and mixer. Settled solids and scale were removed from both the tank and mixer. Approximately one drum of solids was removed from the three tanks during the maintenance event.

12. **May 2017 - Gravity Line Cleaning:** The gravity piping between the; Clarifier Feed Tank and Flash Mix/Flocculation Tank, Clarifier and Sand Filter were dismantled and cleaned as part of scheduled preventive maintenance.

13. **June 2017 – Clarifier Feed Tank pH Probe:** The pH probe was no longer accurately reporting process tank pH. The probe was replaced to correct this issue.

14. **July 2017 – Sodium Hydroxide Pump Replacement:** A replacement sodium hydroxide chemical feed pump was installed to replace an older metering pump. This new pump has a higher capacity to enable use of either 25% or 50% sodium hydroxide in the future.

15. **July 2017 – HCTS Effluent pH sensor**: The HCTS effluent pH sensor was not working properly. The salt bridge was replaced to restore its operation to normal.

16. **September 2017 – NTCRA-2 Recovery Well Failure Alarm:** The NTCRA-2 Recovery Well Failure Alarm was no longer functional. The spare NTCRA-2 alarm wire that was installed when the electrical service was upgraded was placed into service to restore this alarm circuit to normal.

17. **October 2017 – NTCRA-2 Security Fence:** A security fence was installed around all three recovery wells, and the Electrical/control distribution center to improve security in this remote area of the site.

18. **October 2017 – Filter Press Feed Pump:** The north filter press feed pump was no longer operational. A new replacement pump was installed to restore its operation.

19. **Ultraviolet Oxidation System**: The following summarizes the major maintenance performed on the UV equipment during the monitoring period:

    - Four (5) UV lamps were replaced during the reporting period. All lamps were removed or replaced due to failure, excessive amperage draw, or excessive hours.

    - Two (2) quartz tubes were replaced during the reporting period.

During the monitoring period, no additional UV reactor circuits failed. At the end of this monitoring period, UV-1 has 8 of 12 functional reactor circuits, and UV- 2 has 6 of 12 functional circuits.

As noted on the previous DCR, Calgon Carbon Corporation (UV Manufacturer), is no longer offering replacement parts for the older Perox-Pure UV units. The SRSNE Site Group purchased extra replacement parts in the fall of 2016 and placed them into inventory to enable continued short term operation. WESTON estimates approximately 1-2 years of additional operation could likely be achieved if operations and parts replacement conditions remain consistent with recent usage rates.

3.2 FUTURE HCTS OPERATIONS AND MAINTENANCE ACTION ITEMS

- Future long-term water treatment upgrades and alternate discharge options have been and continue to be considered for the site. Following the thermal remedial action, a significant decline in influent VOC loading has been and continues to be observed from NTCRA-1 extraction system. This loading rate decline could result in future requests for modifications to the NTCRA-1 hydraulic containment system.

- WESTON will continue to evaluate the overall HCTS and make recommendations for process improvements or modifications in the coming year. These recommendations will be summarized in the monthly O&M HCTS report submissions.

SECTION 4

REFERENCES

4. REFERENCES

Arcadis. 2009. *Remedial Design Work Plan*. April.

BBL. 1994. *100% Groundwater Containment and Treatment System Design Report*. January.

BBL. 1995. NTCRA-1 Demonstration of Compliance Plan (DCP). June

BBL. 1999. NTCRA-2 DCP. November

CTDEEP (Connecticut Department of Energy & Environmental Protection). 1995. *Revised Substantive Requirements for Discharge of Pre-Treated Groundwater*. November.

WESTON. 2007. *RW-14 Completion Report*. November.

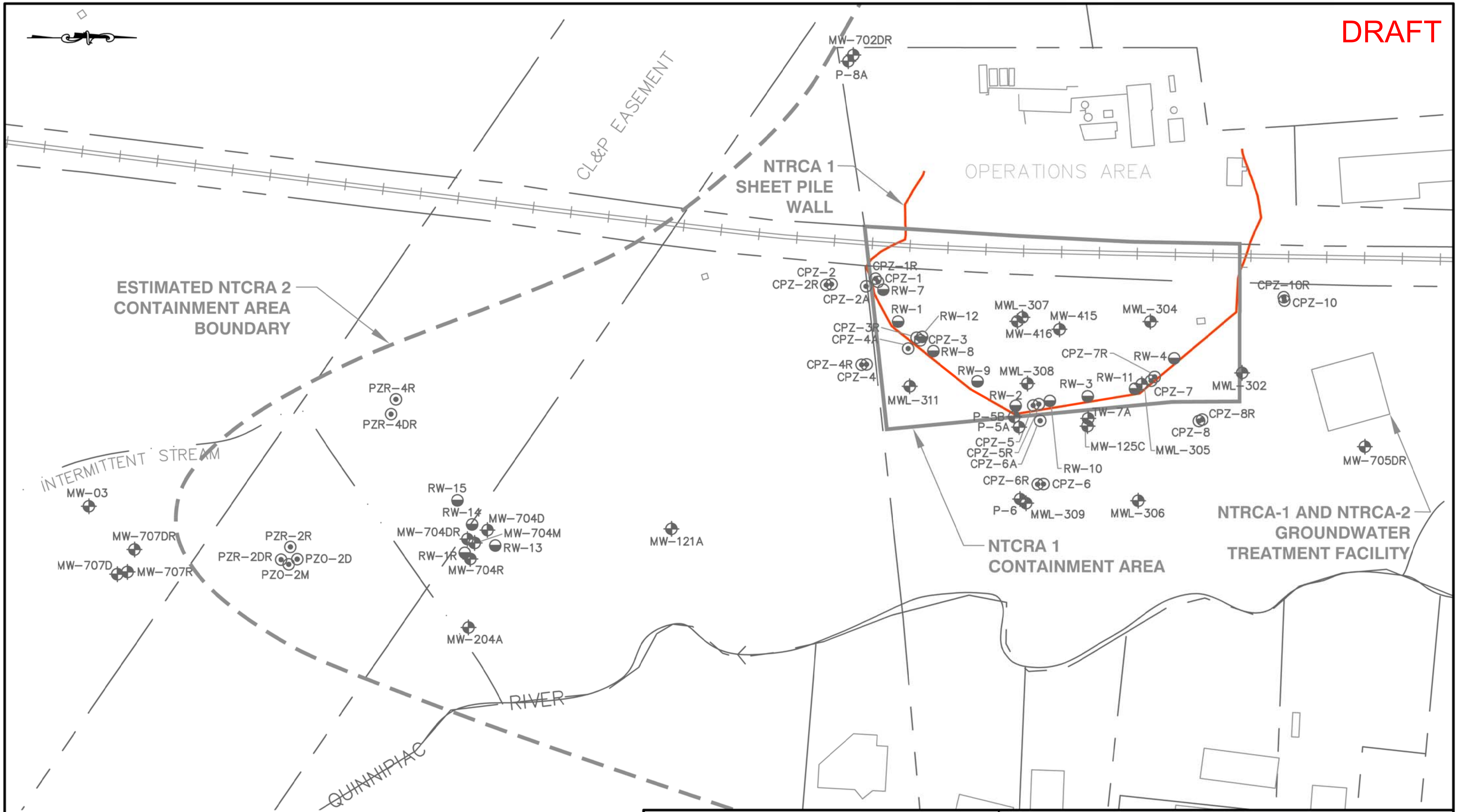
WESTON. 2009. NTCRA-1 DCP Modifications. December.

WESTON. 2015. RW-15 *Completion Report*. January.

Arcadis. 2016. Final RCRA Cap 100% Design Report. October

demaximis. 2017. SRSNE NTCRA-1 Modifications – Proposed Monitoring Plan

FIGURES



LEGEND

RW–2 ◓	RECOVERY WELL
CPZ–4 ⦿	PIEZOMETER
MWL–307 ⊕	MONITORING WELL

GRAPHIC SCALE
120 60 0 60 120
APPROXIMATE SCALE IN FEET

NTCRA–1 & 2
HYDRAULIC CONTAINMENT
SYSTEM SITE PLAN

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

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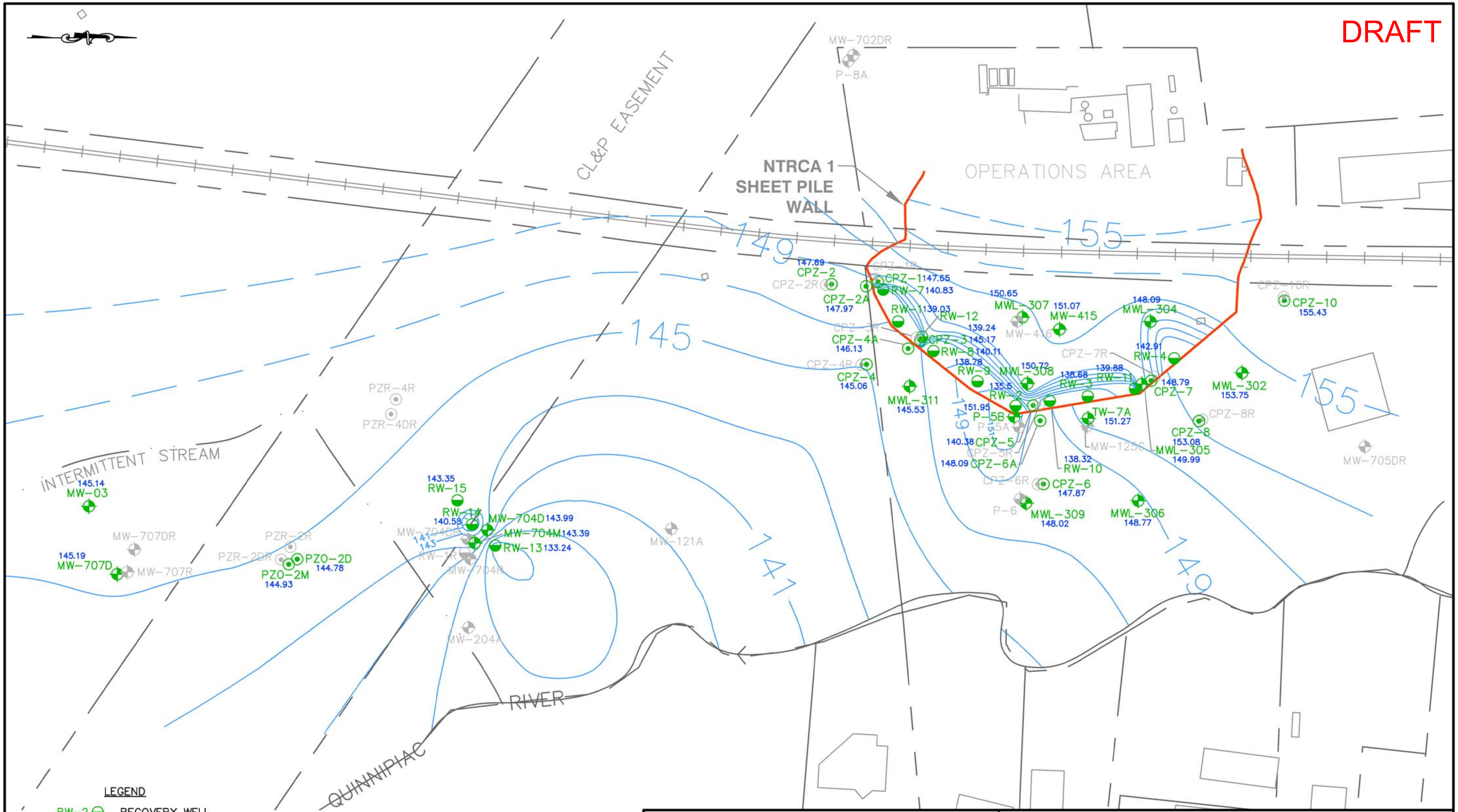

LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⊙	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

GRAPHIC SCALE
120 60 0 60 120
APPROXIMATE SCALE IN FEET

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

OVERBURDEN
HYDRAULIC HEAD CONTOURS
NOVEMBER 28, 2016

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

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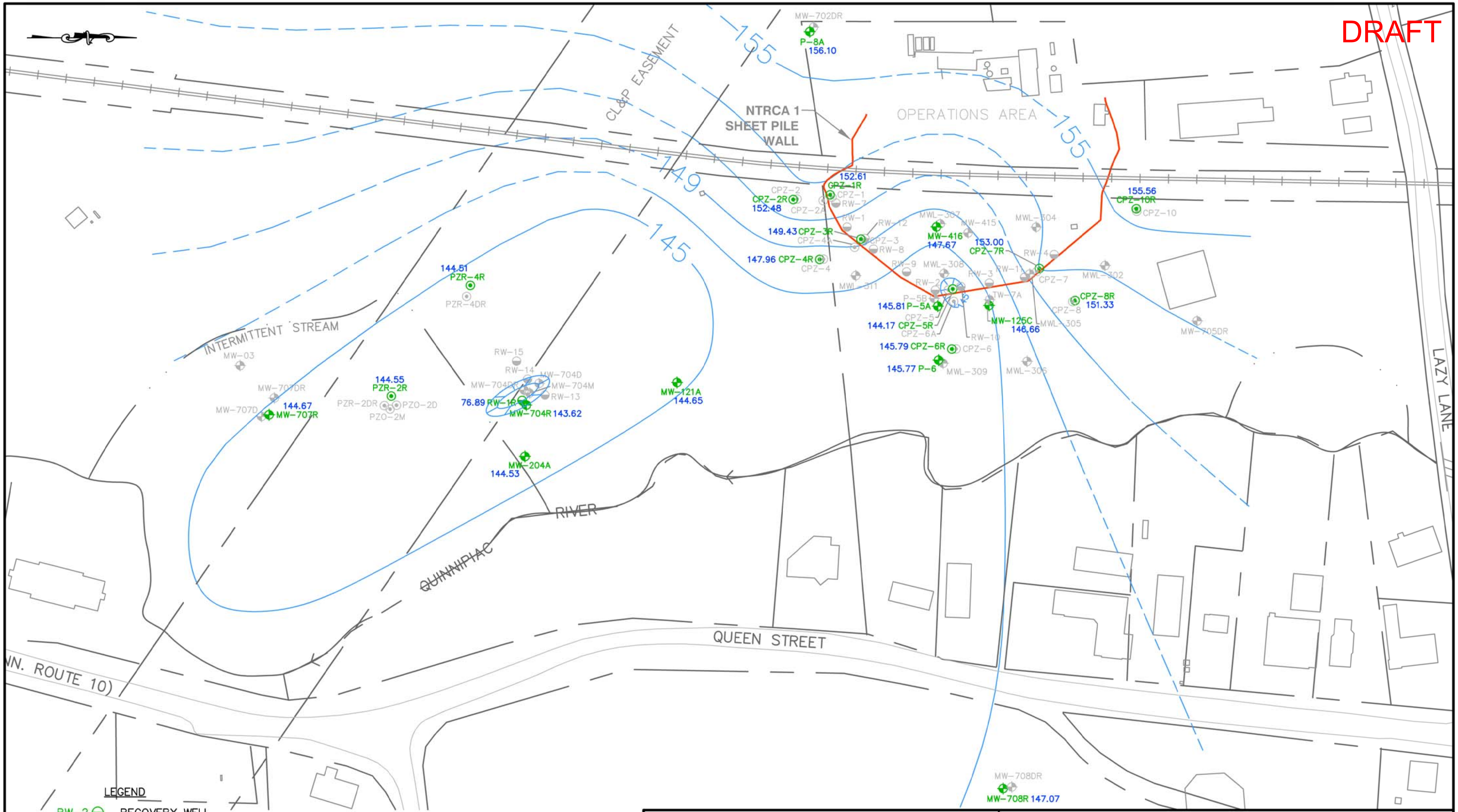

LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⊙	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
───	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE
160 80 0 80 160
APPROXIMATE SCALE IN FEET

SHALLOW BEDROCK
HYDRAULIC HEAD CONTOURS
NOVEMBER 28, 2016

SRSNE
SOUTHINGTON, CONNECTICUT

CONCORD
WESTON SOLUTIONS
NEW HAMPSHIRE

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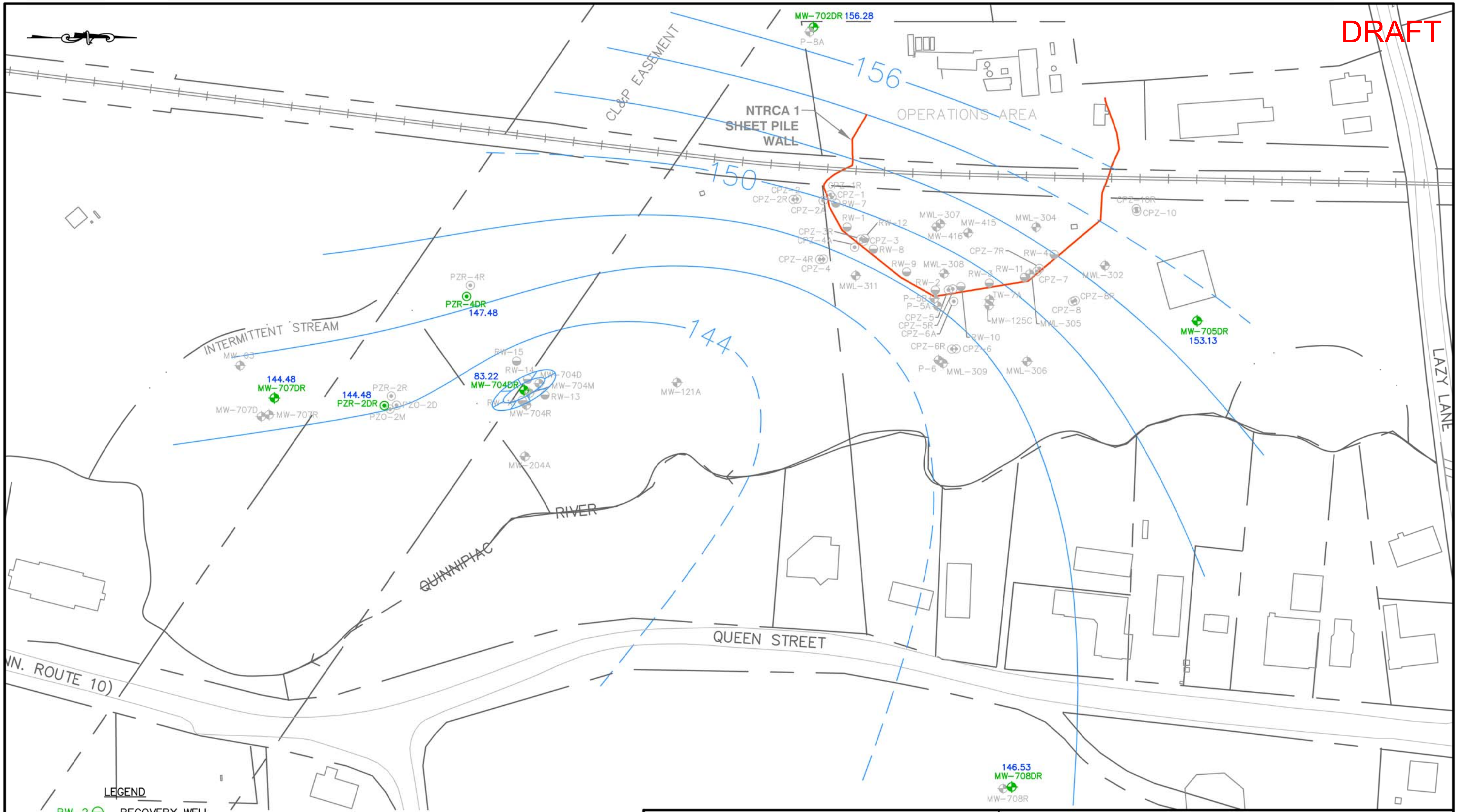

LEGEND

RW-2 ◓ RECOVERY WELL

CPZ-4 ⊙ PIEZOMETER

MWL-307 ⊕ MONITORING WELL

146.06 GROUNDWATER ELEVATION

—— GROUNDWATER CONTOUR

— — — APPROXIMATE GROUNDWATER CONTOUR

GRAPHIC SCALE

160 80 0 80 160

APPROXIMATE SCALE IN FEET

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

DEEP BEDROCK
HYDRAULIC HEAD CONTOURS
NOVEMBER 28, 2016

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS

CONCORD NEW HAMPSHIRE

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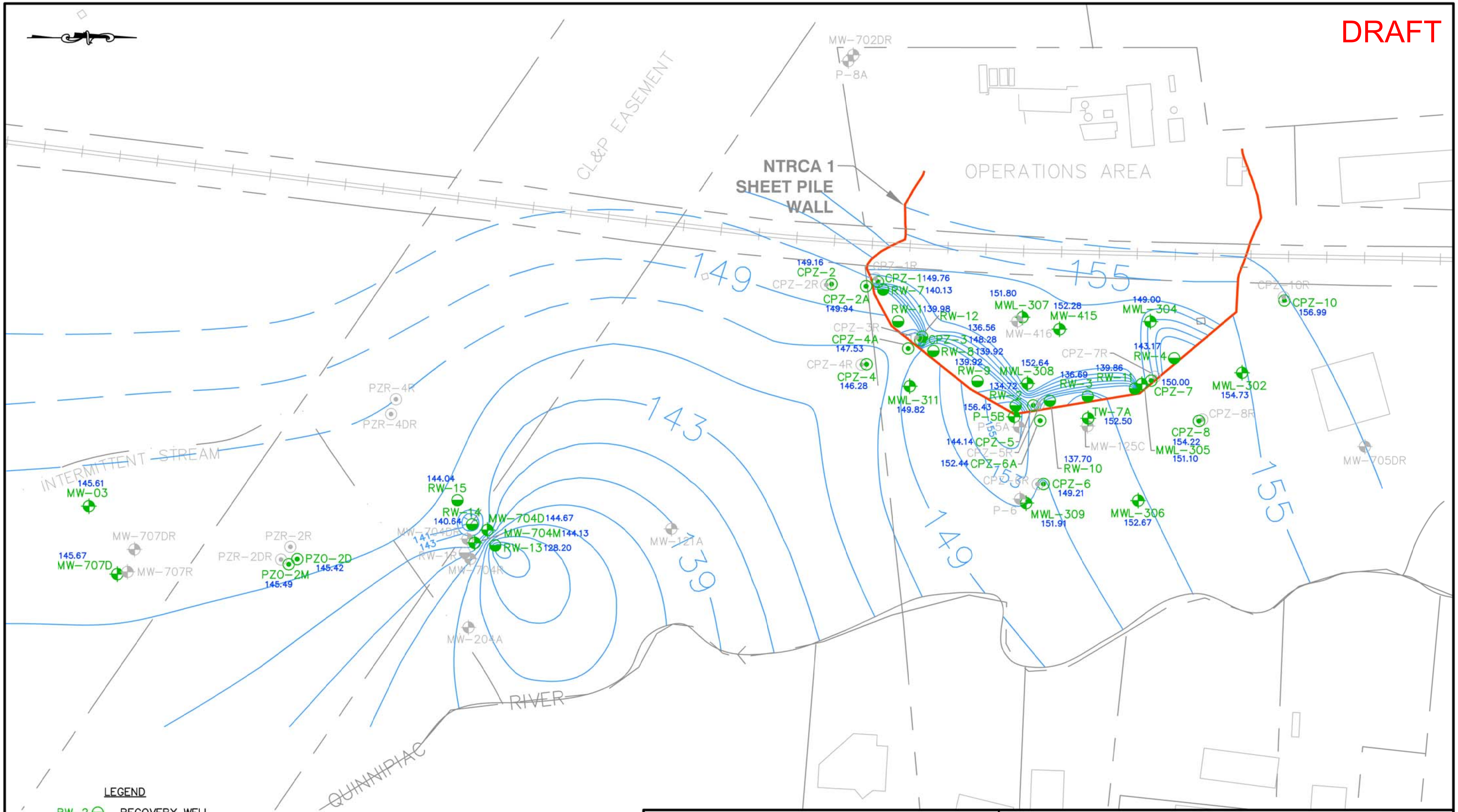

LEGEND

RW-2 ◐ RECOVERY WELL
CPZ-4 ⊙ PIEZOMETER
MWL-307 ⊕ MONITORING WELL
146.06 GROUNDWATER ELEVATION
—— GROUNDWATER CONTOUR
— — APPROXIMATE GROUNDWATER CONTOUR

GRAPHIC SCALE
120 60 0 60 120
APPROXIMATE SCALE IN FEET

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

OVERBURDEN HYDRAULIC HEAD CONTOURS DECEMBER 28, 2016

SRSNE
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CONCORD NEW HAMPSHIRE

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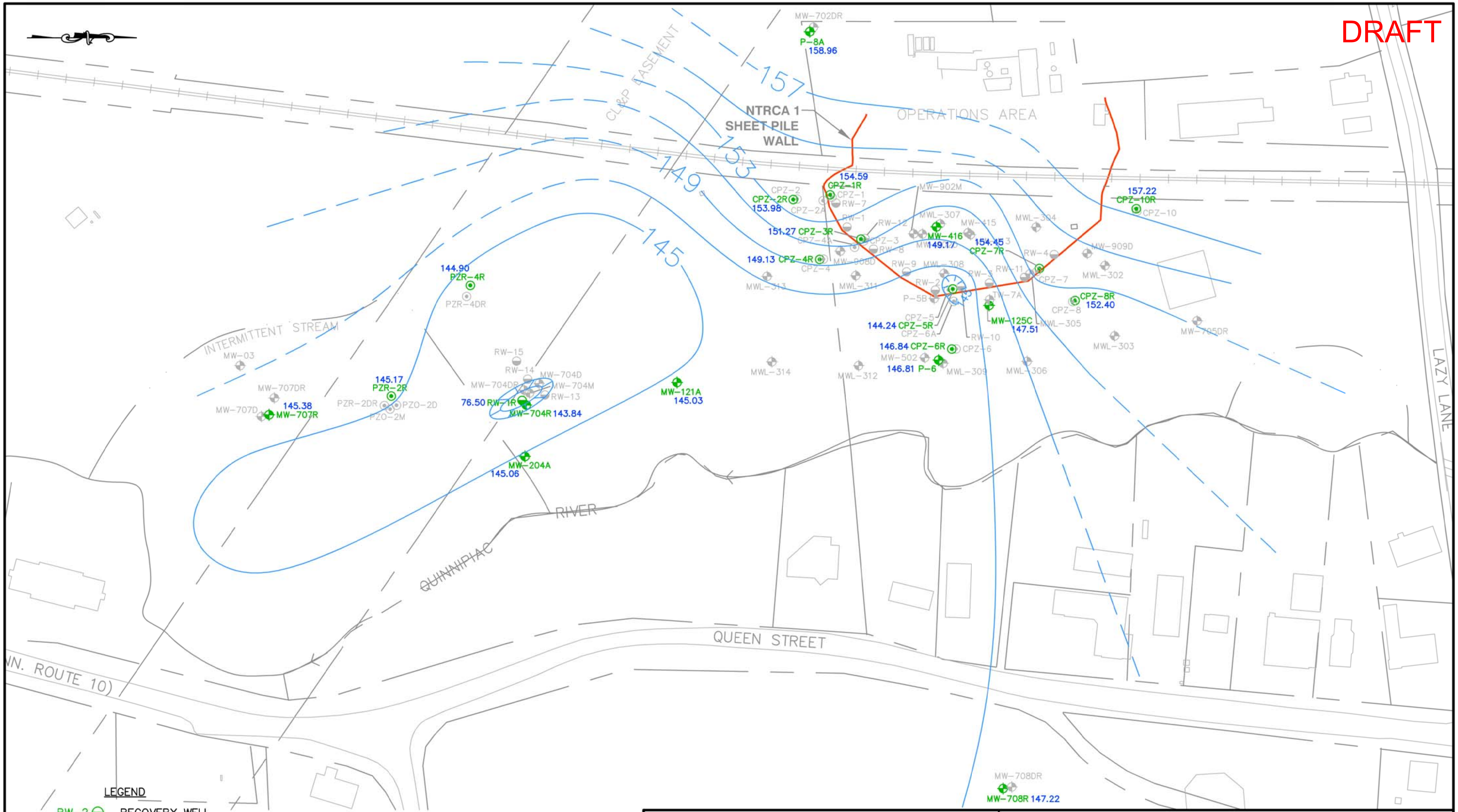

LEGEND

RW–2 ◒	RECOVERY WELL
CPZ–4 ⊙	PIEZOMETER
MWL–307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

GRAPHIC SCALE
160 80 0 80 160
APPROXIMATE SCALE IN FEET

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

SHALLOW BEDROCK
HYDRAULIC HEAD CONTOURS
DECEMBER 28, 2016

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

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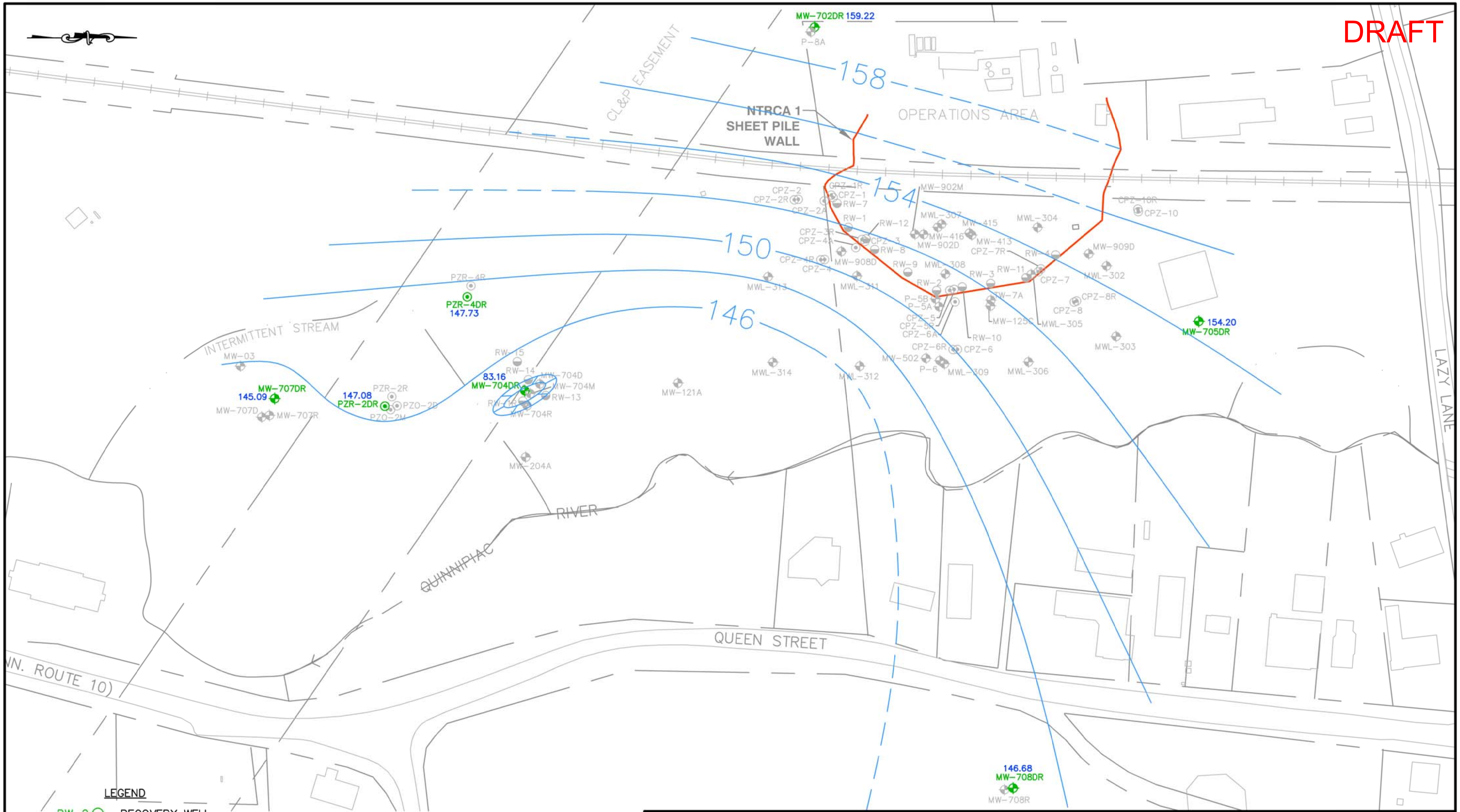

LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⦿	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE

160 80 0 80 160

APPROXIMATE SCALE IN FEET

DEEP BEDROCK HYDRAULIC HEAD CONTOURS DECEMBER 28, 2016

SRSNE
SOUTHINGTON, CONNECTICUT

CONCORD WESTON SOLUTIONS NEW HAMPSHIRE

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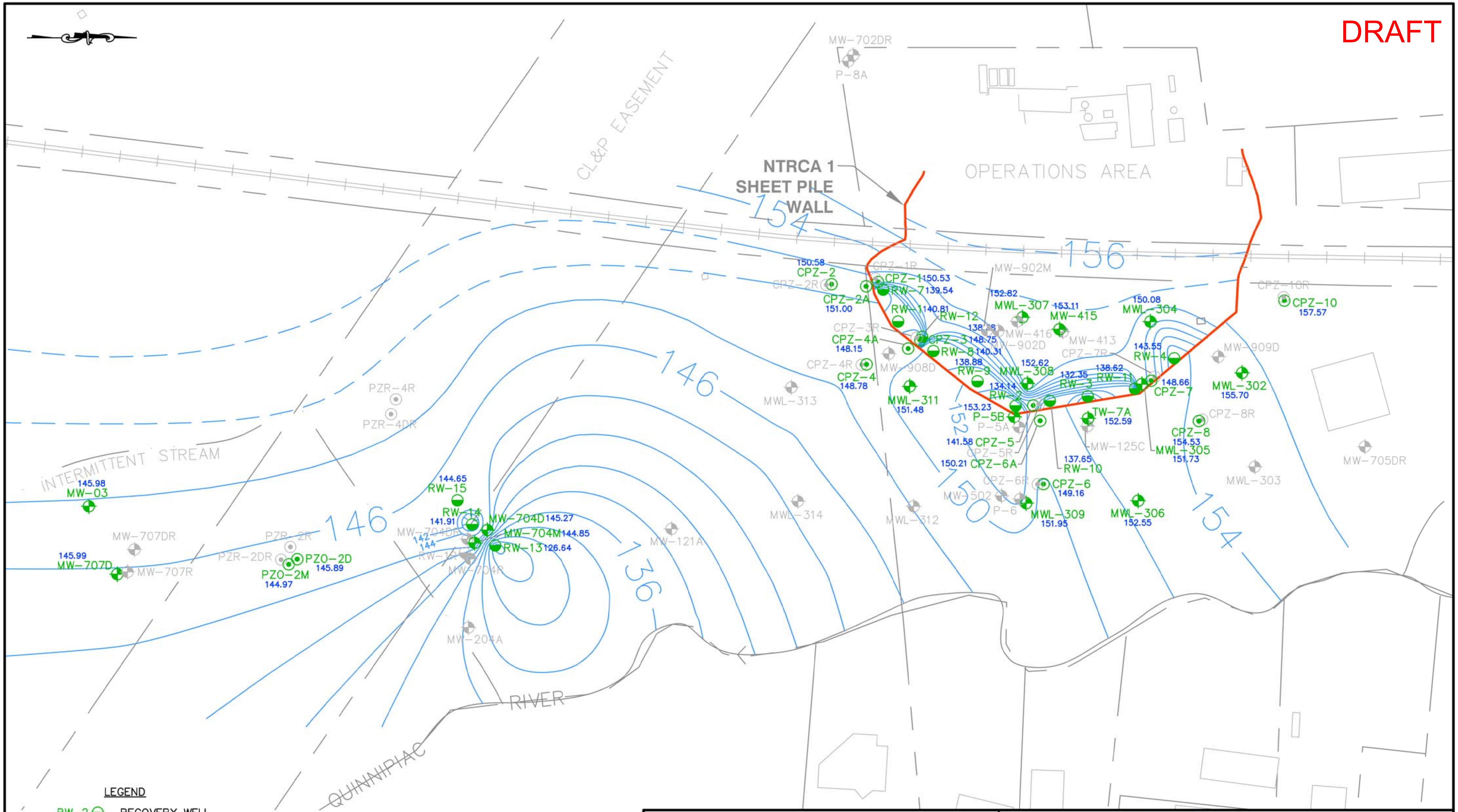
DRAFT



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⊙	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE

120 60 0 60 120

APPROXIMATE SCALE IN FEET

OVERBURDEN
HYDRAULIC HEAD CONTOURS
JANUARY 25, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

CONCORD WESTON SOLUTIONS NEW HAMPSHIRE

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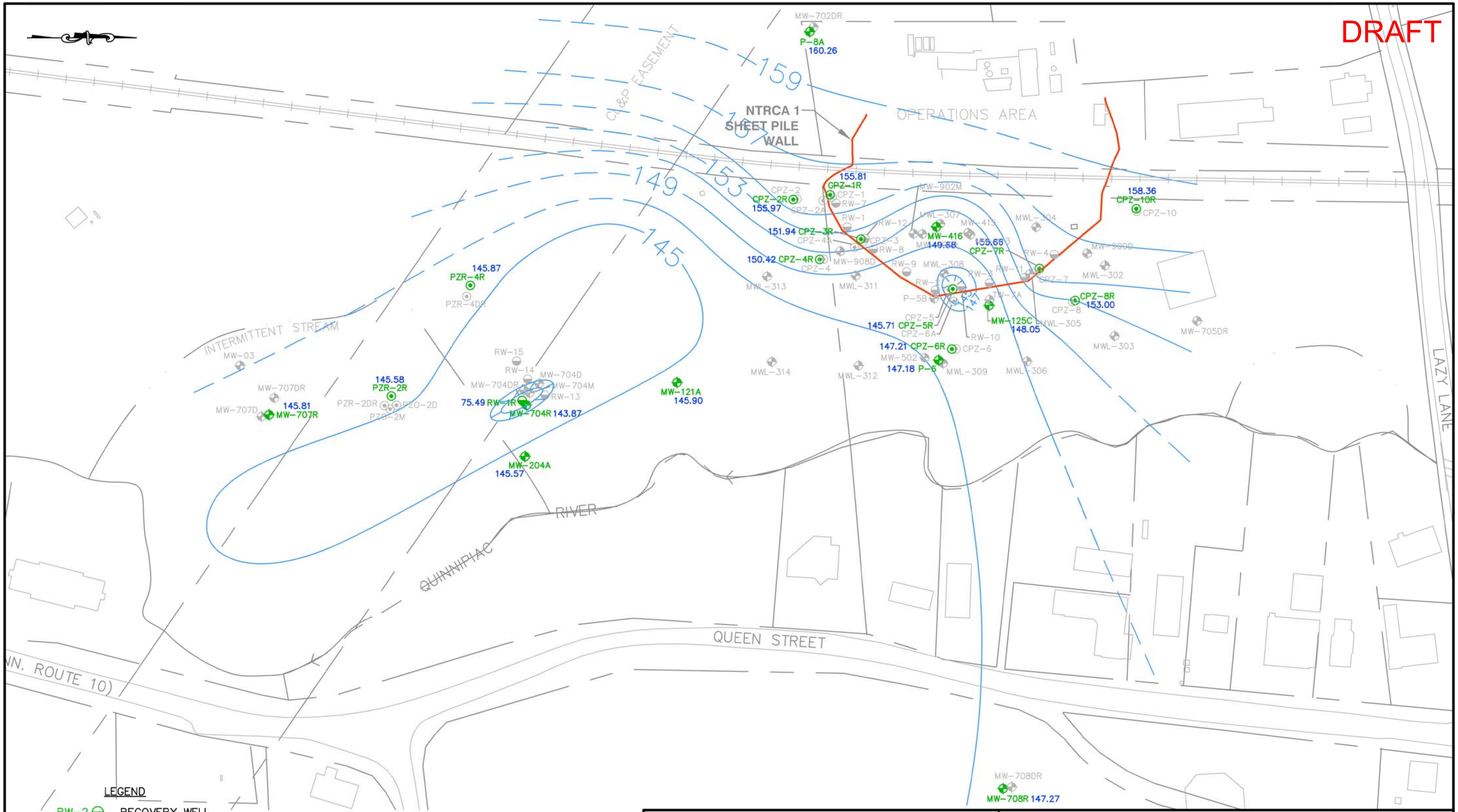

LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⊙	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

GRAPHIC SCALE

160 80 0 80 160

APPROXIMATE SCALE IN FEET

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

SHALLOW BEDROCK HYDRAULIC HEAD CONTOURS JANUARY 25, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

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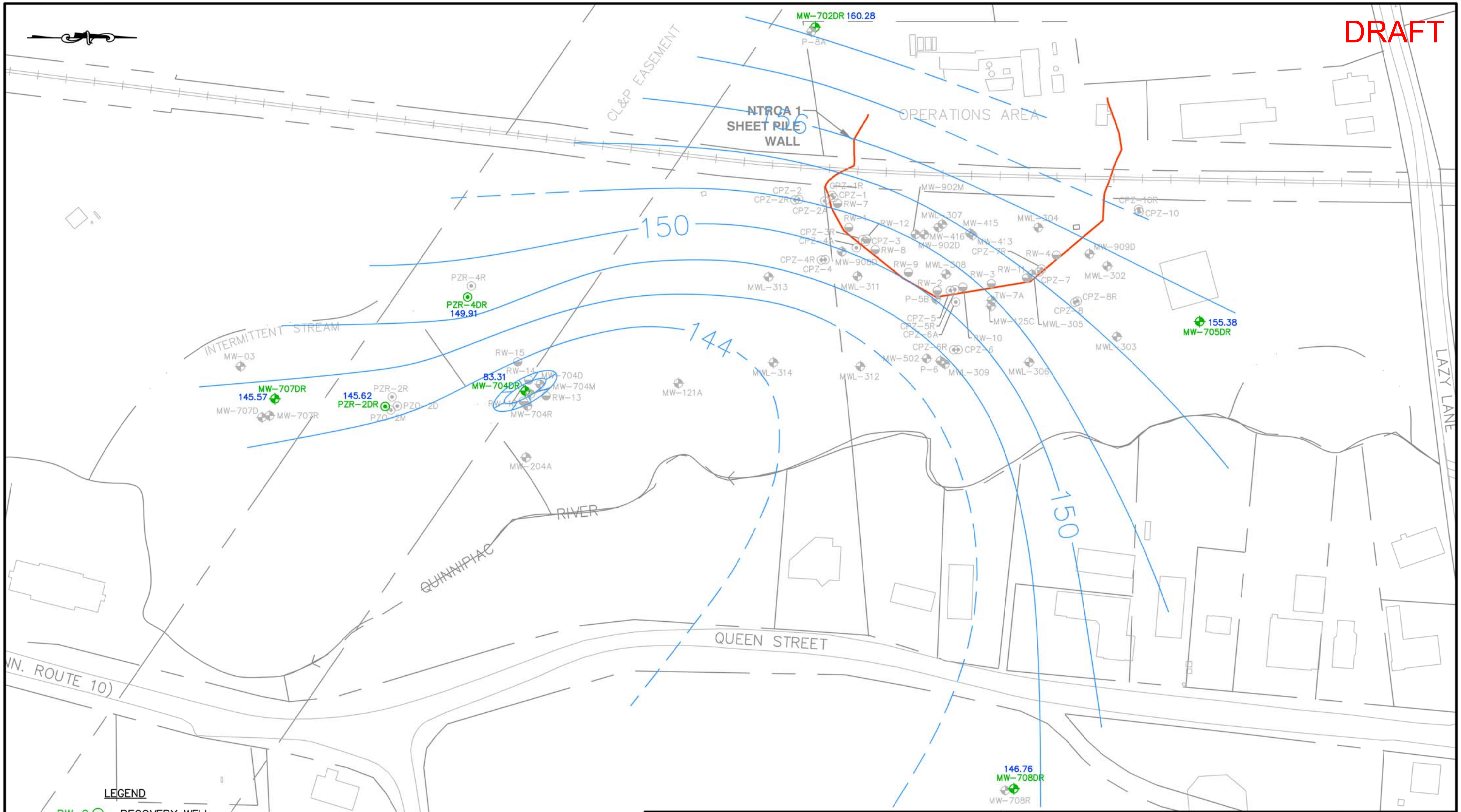

LEGEND

RW–2 ◒	RECOVERY WELL
CPZ–4 ⊙	PIEZOMETER
MWL–307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

GRAPHIC SCALE

160 80 0 80 160

APPROXIMATE SCALE IN FEET

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

DEEP BEDROCK
HYDRAULIC HEAD CONTOURS
JANUARY 25, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

CONCORD WESTON SOLUTIONS NEW HAMPSHIRE

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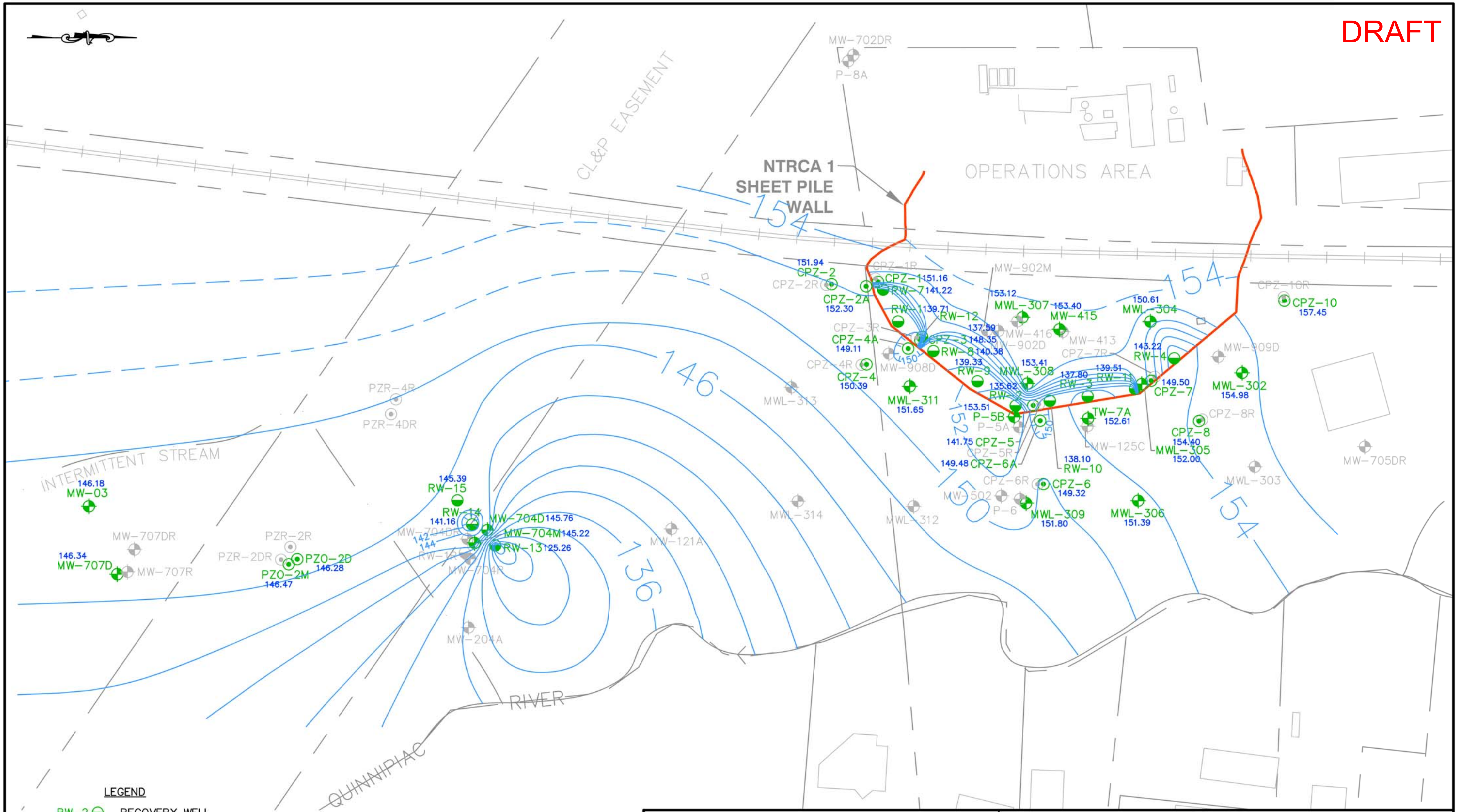

LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⊙	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
──	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE
120 60 0 60 120
APPROXIMATE SCALE IN FEET

OVERBURDEN
HYDRAULIC HEAD CONTOURS
FEBRUARY 27, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
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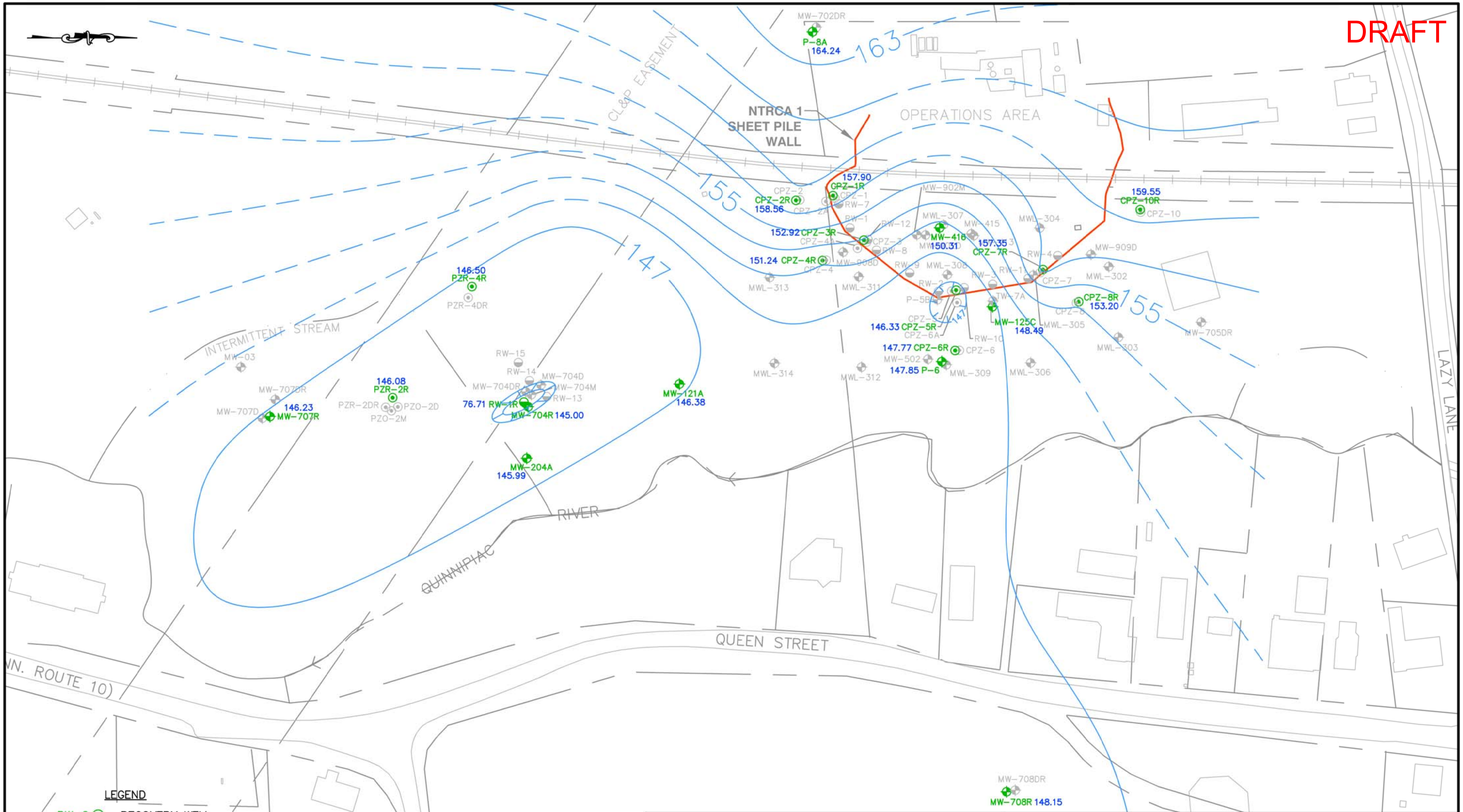


LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ◉	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE

160 80 0 80 160

APPROXIMATE SCALE IN FEET

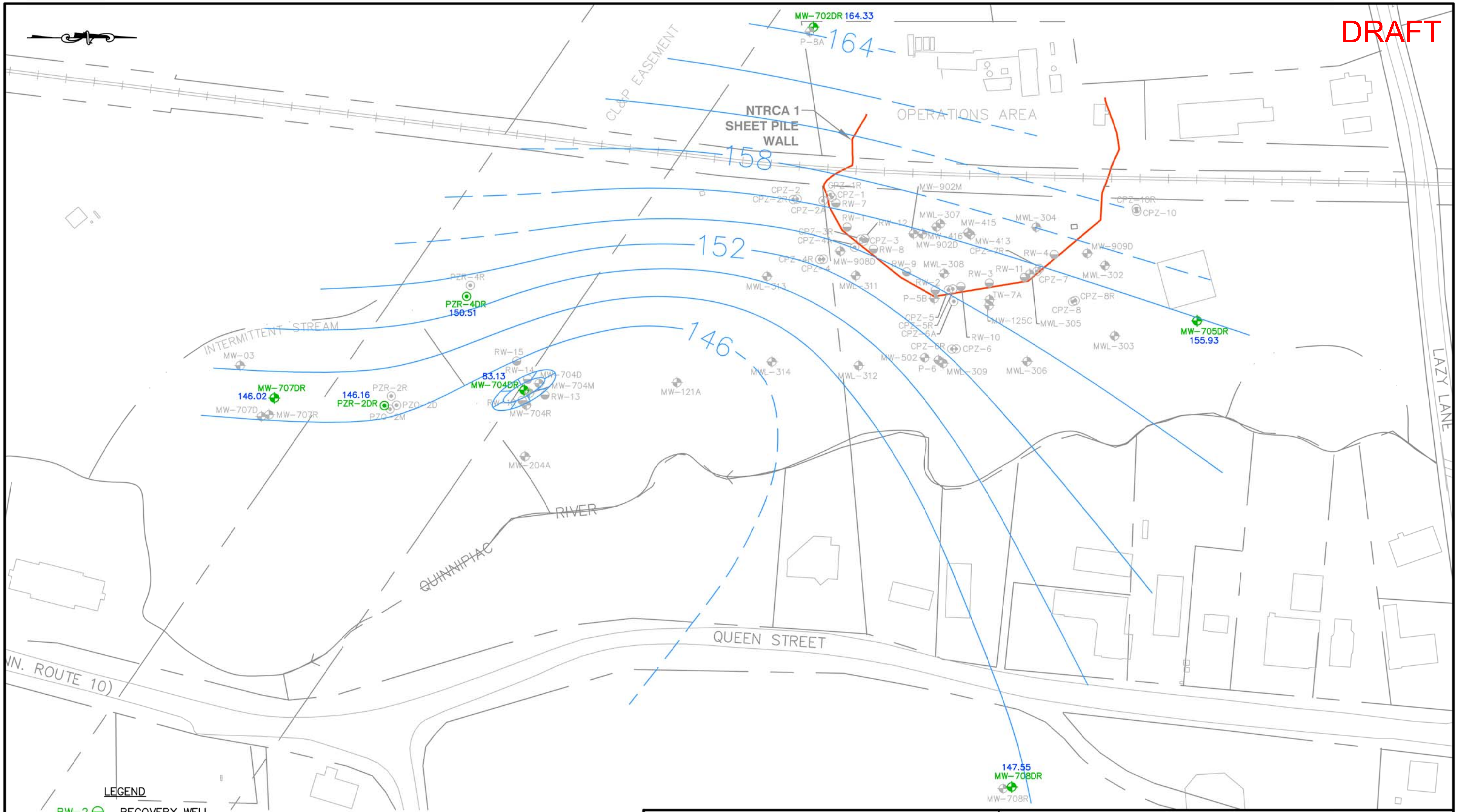
SHALLOW BEDROCK
HYDRAULIC HEAD CONTOURS
FEBRUARY 27, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

CONCORD
WESTON SOLUTIONS
NEW HAMPSHIRE

DRAWN	DATE	DES. ENG.	DATE	W.O. NO.
BJF	MAR 2018			13056.001.022
CHECKED	DATE	SCALE	REVISION	FIGURE NO.
		AS SHOWN		4B

DRAFT



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ◉	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
——	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE

160 80 0 80 160

APPROXIMATE SCALE IN FEET

DEEP BEDROCK
HYDRAULIC HEAD CONTOURS
FEBRUARY 27, 2017

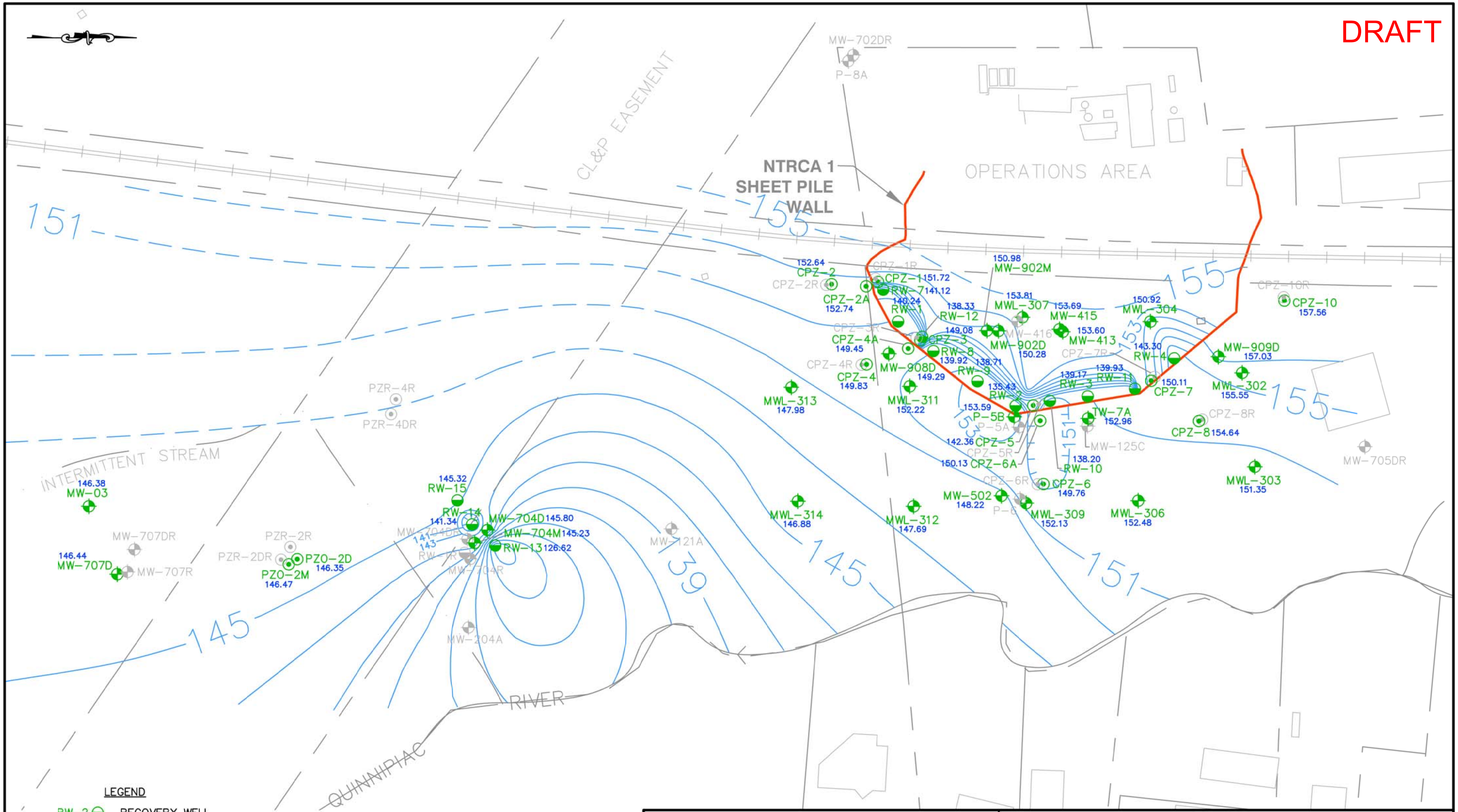
SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS

CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 4C

DRAFT



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⊙	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

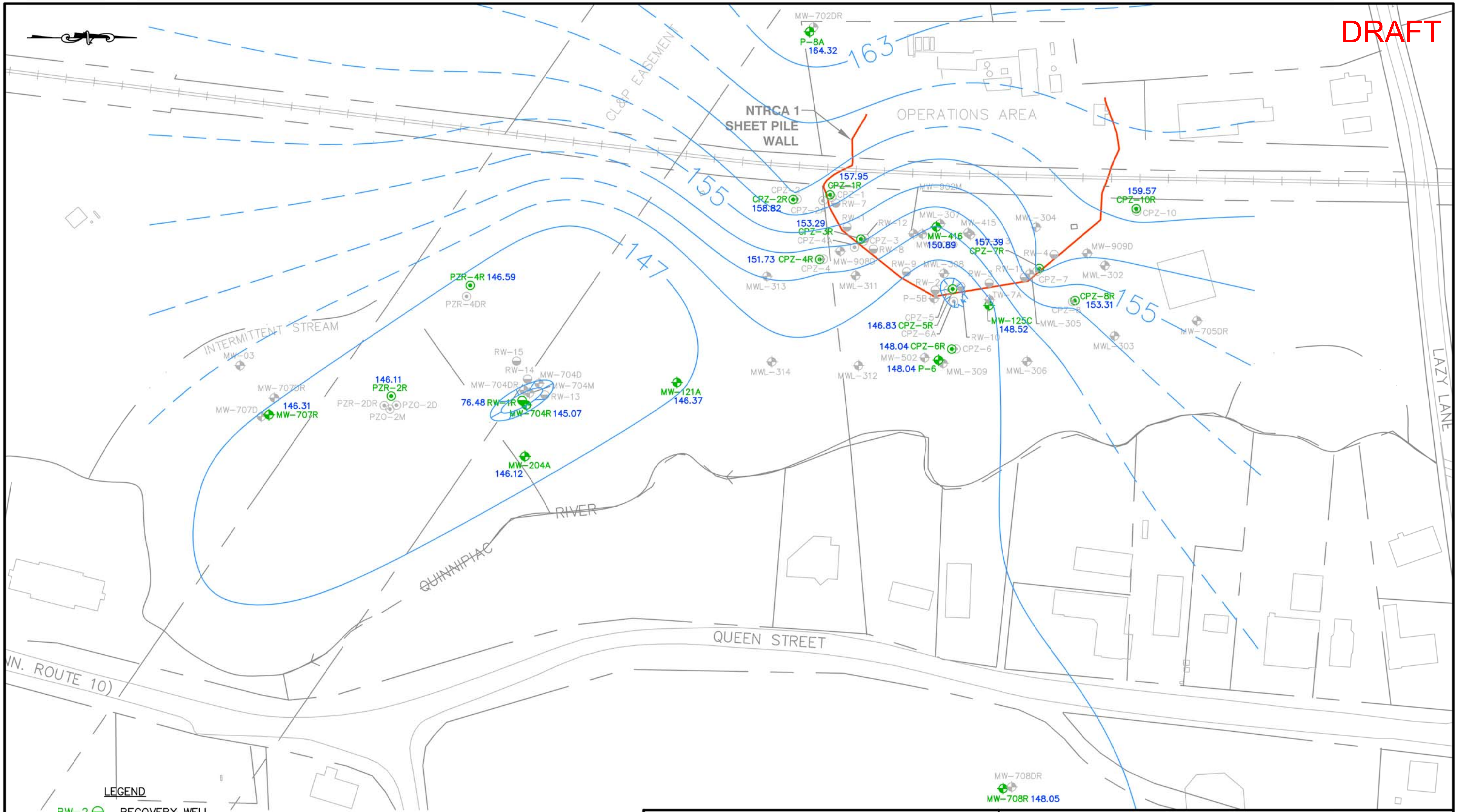
GRAPHIC SCALE
120 60 0 60 120
APPROXIMATE SCALE IN FEET

OVERBURDEN
HYDRAULIC HEAD CONTOURS
MARCH 27, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

CONCORD WESTON SOLUTIONS NEW HAMPSHIRE

DRAWN	DATE	DES. ENG.	DATE	W.O. NO.
BJF	MAR 2018			13056.001.022
CHECKED	DATE	SCALE	REVISION	FIGURE NO.
		AS SHOWN		5A



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⊙	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE

160 80 0 80 160

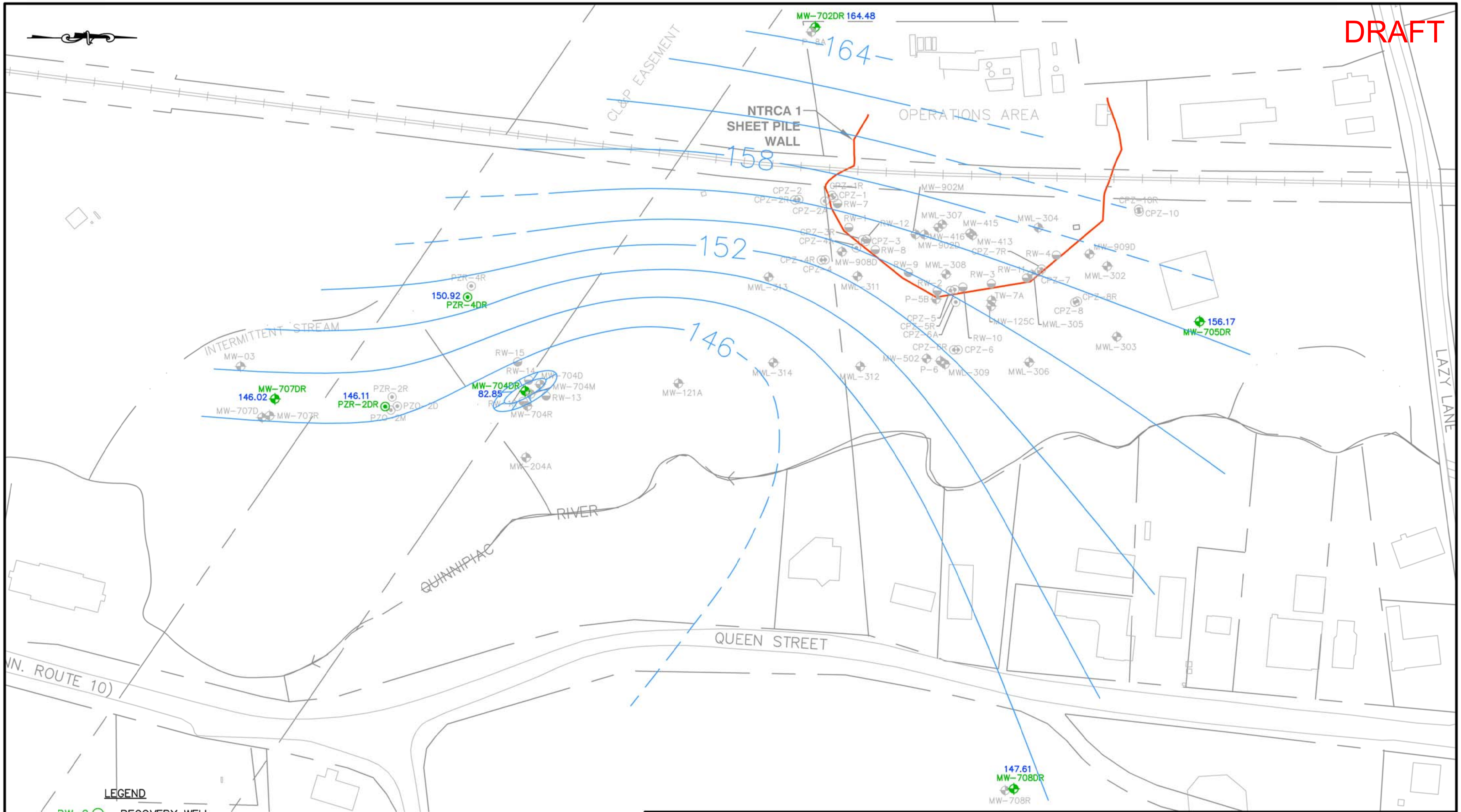
APPROXIMATE SCALE IN FEET

SHALLOW BEDROCK HYDRAULIC HEAD CONTOURS MARCH 27, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 5B



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⊙	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

GRAPHIC SCALE

160 80 0 80 160

APPROXIMATE SCALE IN FEET

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

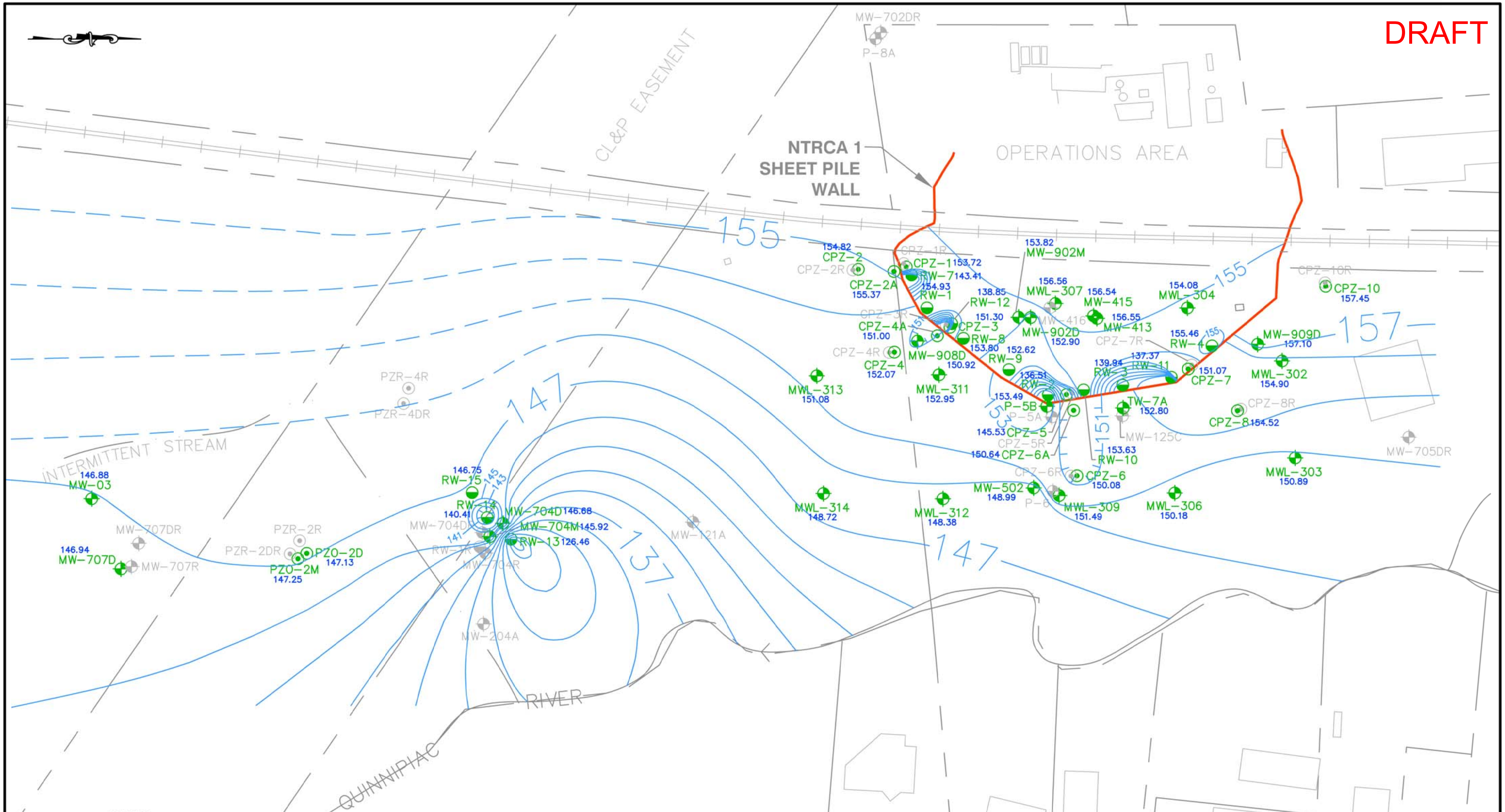
DEEP BEDROCK HYDRAULIC HEAD CONTOURS MARCH 27, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 5C

DRAFT



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⊙	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
——	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

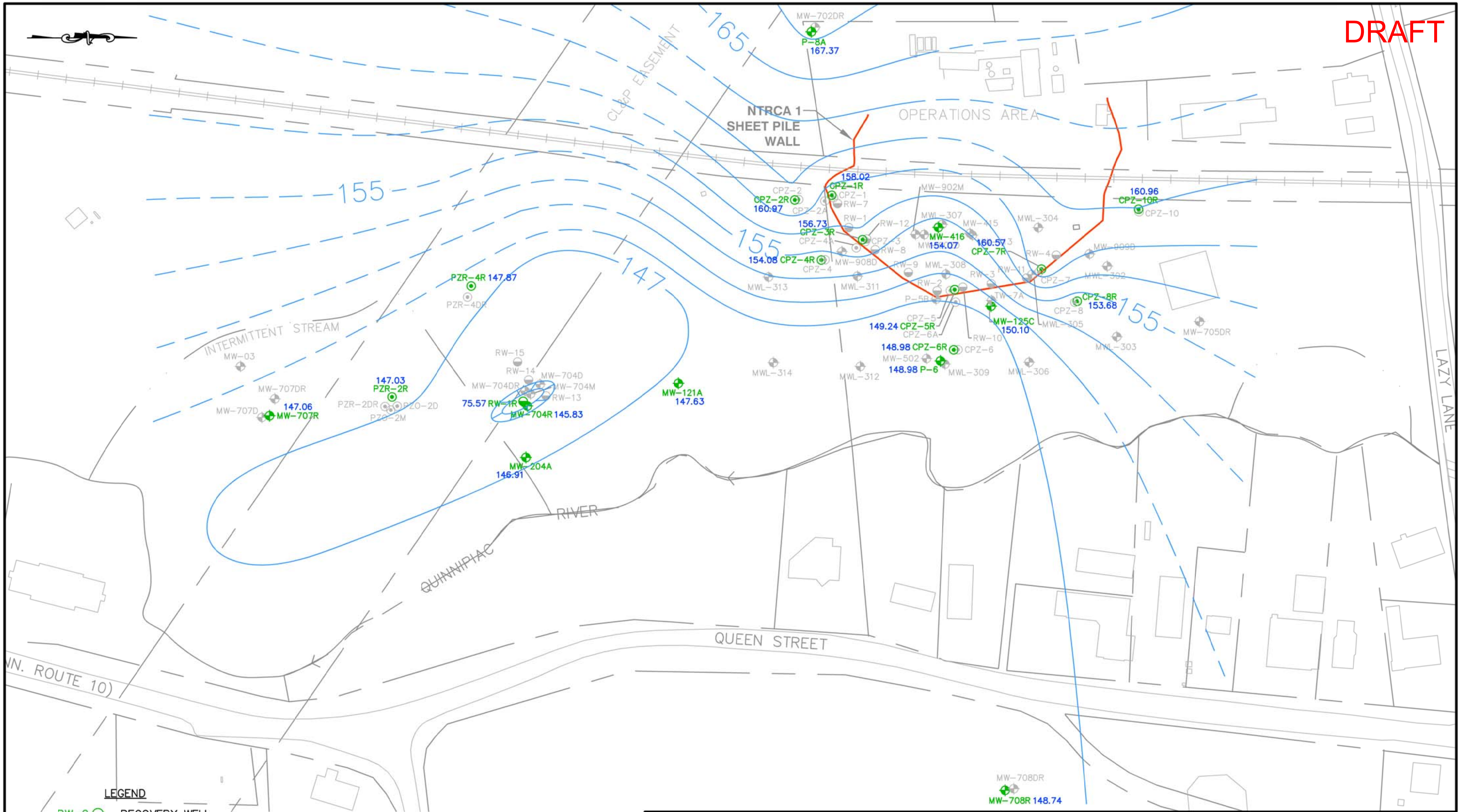
GRAPHIC SCALE
120 60 0 60 120
APPROXIMATE SCALE IN FEET

OVERBURDEN
HYDRAULIC HEAD CONTOURS
APRIL 24, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD
NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 6A



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ◉	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

GRAPHIC SCALE

160 80 0 80 160

APPROXIMATE SCALE IN FEET

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

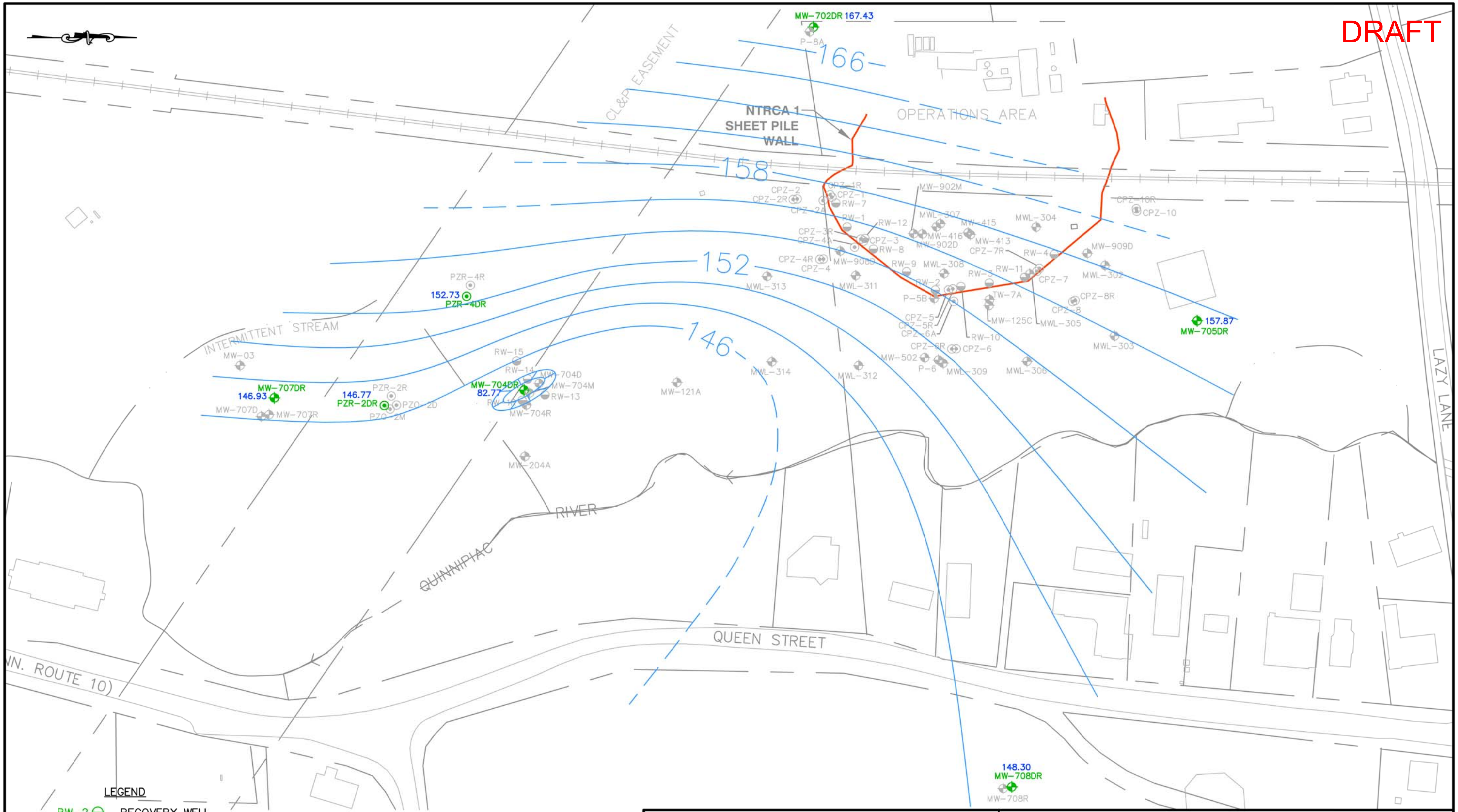
SHALLOW BEDROCK
HYDRAULIC HEAD CONTOURS
APRIL 24, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 6B

DRAFT



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⊙	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE
160 80 0 80 160
APPROXIMATE SCALE IN FEET

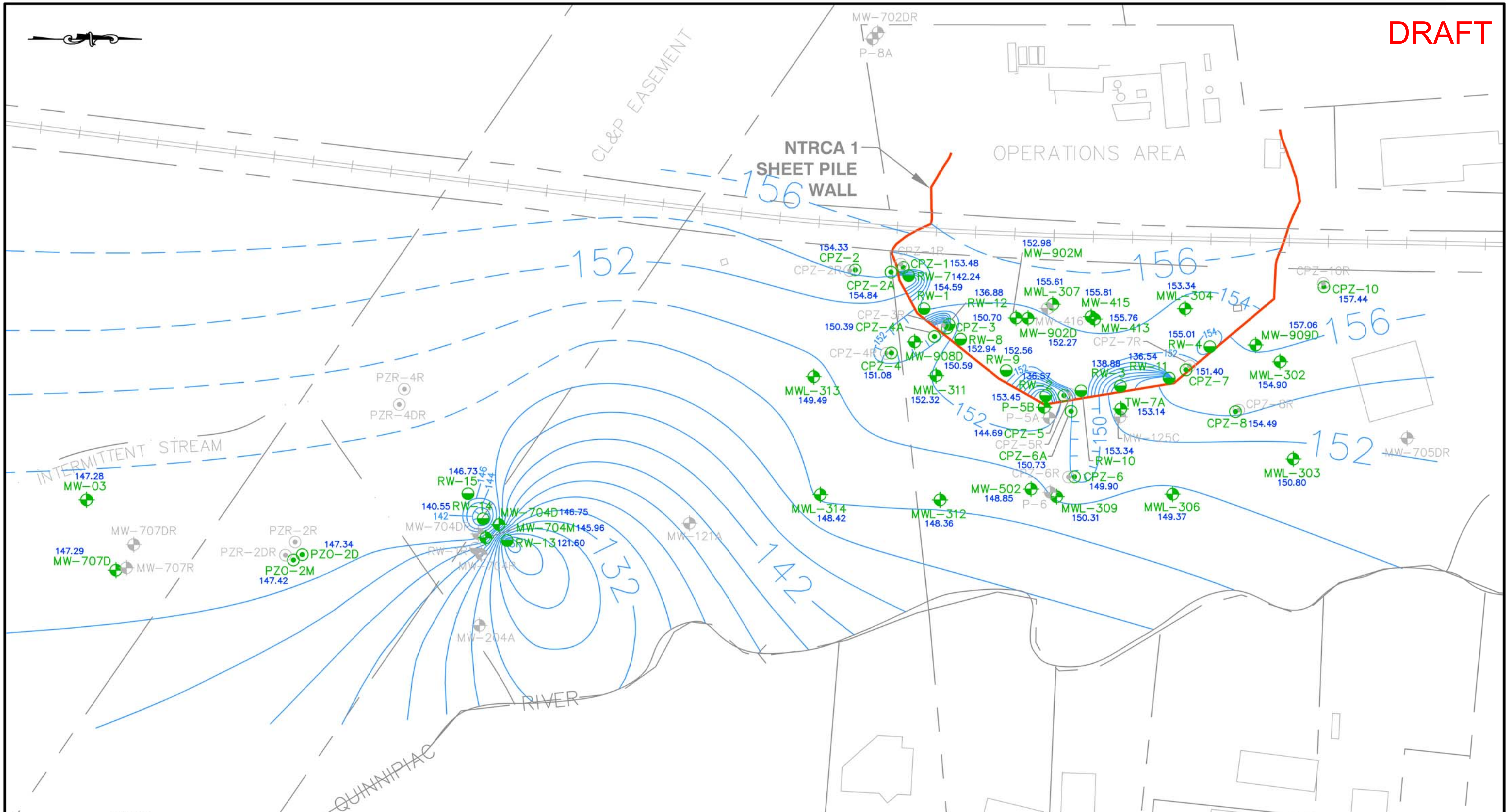
DEEP BEDROCK
HYDRAULIC HEAD CONTOURS
APRIL 24, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 6C

DRAFT



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⊙	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
───	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE

120 60 0 60 120

APPROXIMATE SCALE IN FEET

OVERBURDEN
HYDRAULIC HEAD CONTOURS
MAY 27, 2017

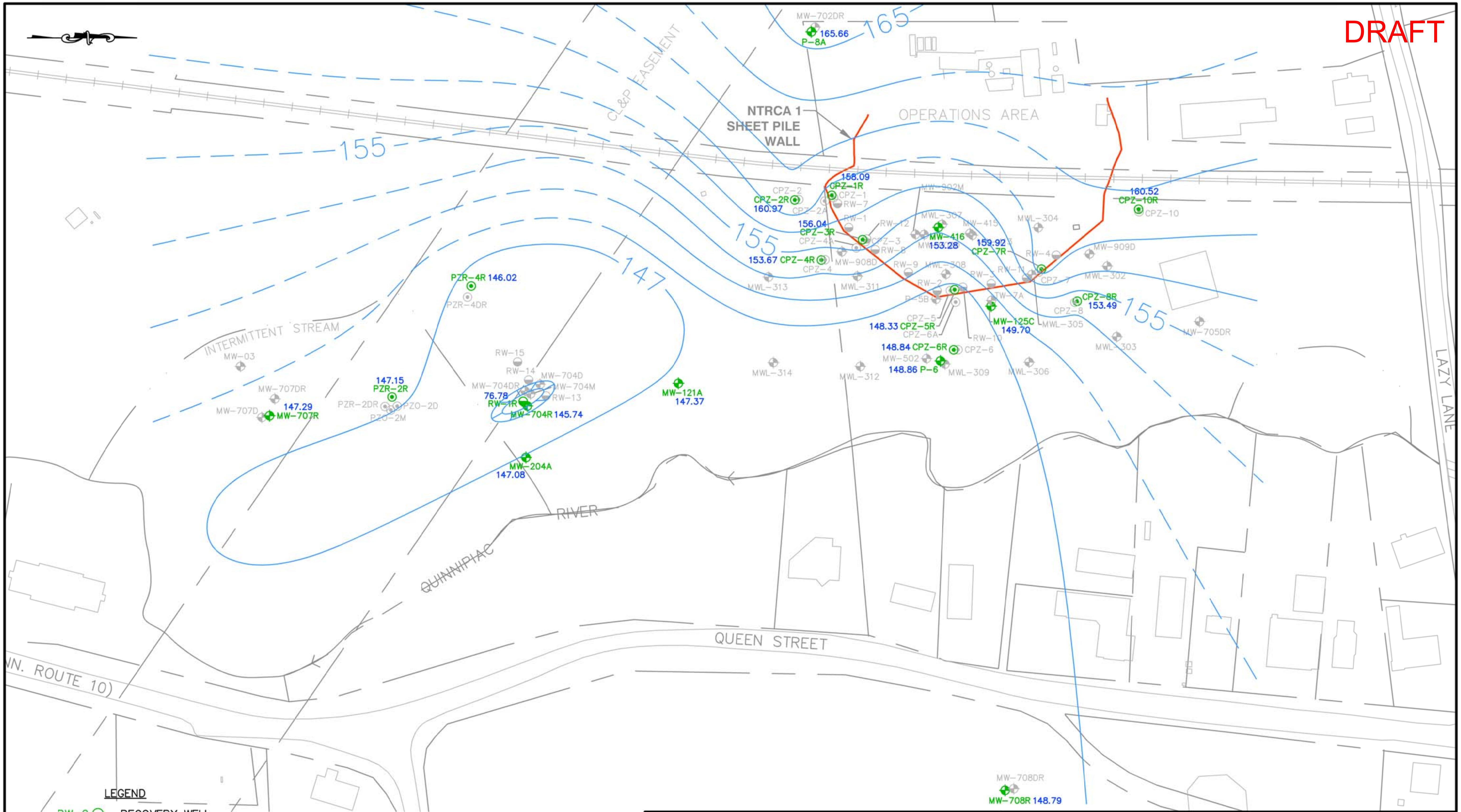
SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS

CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 7A

DRAFT



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⊙	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
───	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE
160 80 0 80 160
APPROXIMATE SCALE IN FEET

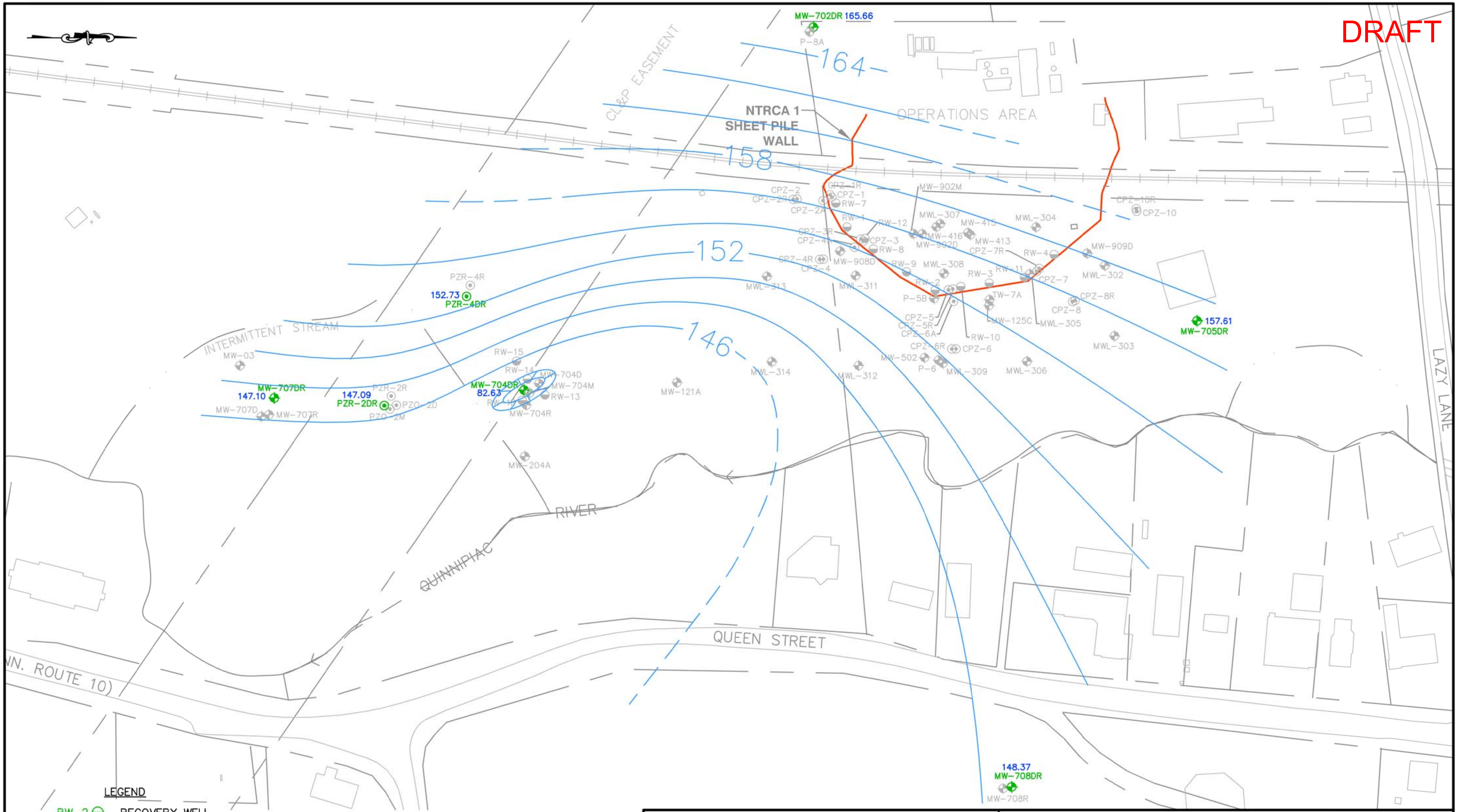
SHALLOW BEDROCK
HYDRAULIC HEAD CONTOURS
MAY 26, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 7B

DRAFT



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ◎	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

GRAPHIC SCALE

160 80 0 80 160

APPROXIMATE SCALE IN FEET

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

DEEP BEDROCK
HYDRAULIC HEAD CONTOURS
MAY 26, 2017

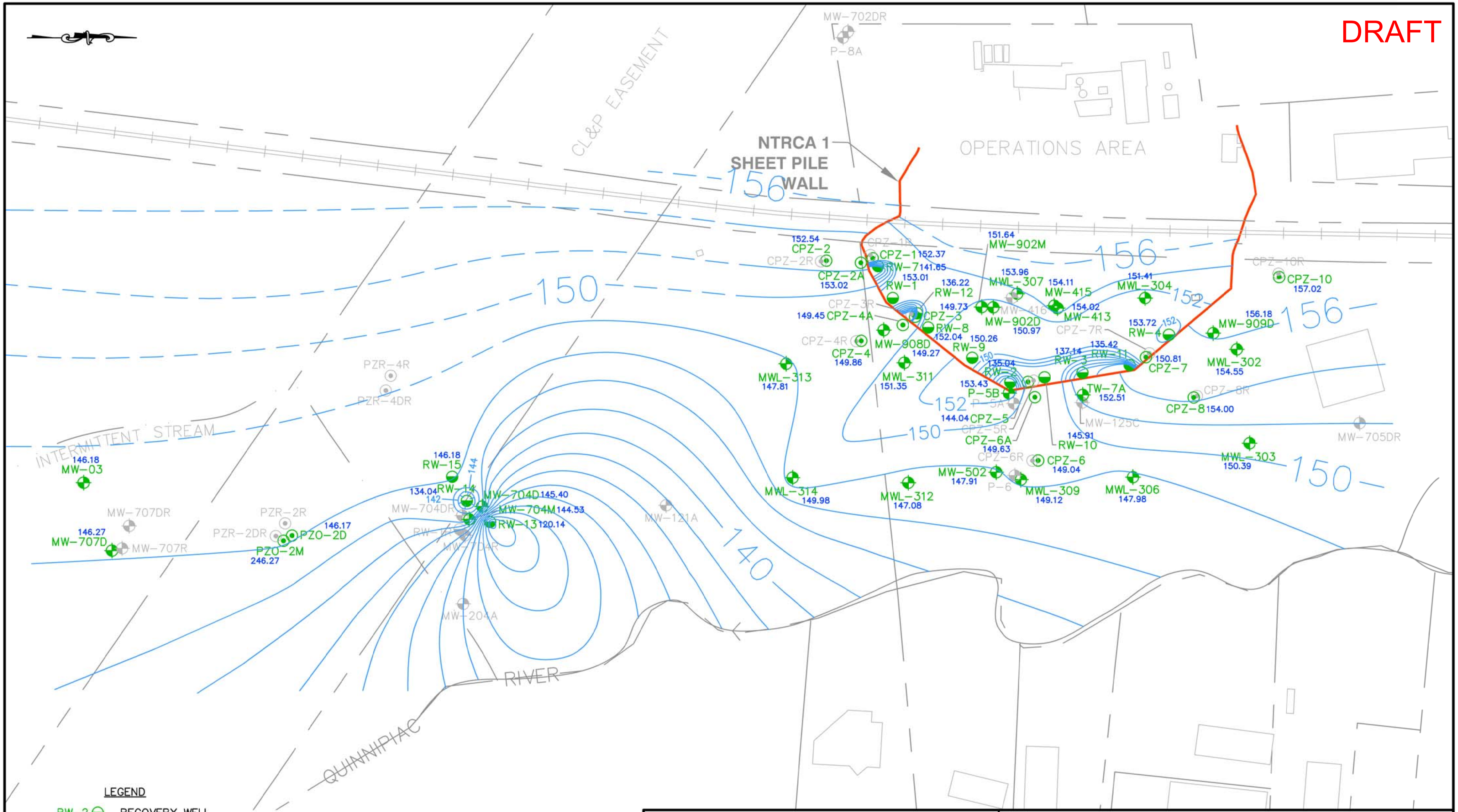
SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS

CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 7C

DRAFT



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⊙	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

GRAPHIC SCALE

120 60 0 60 120

APPROXIMATE SCALE IN FEET

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

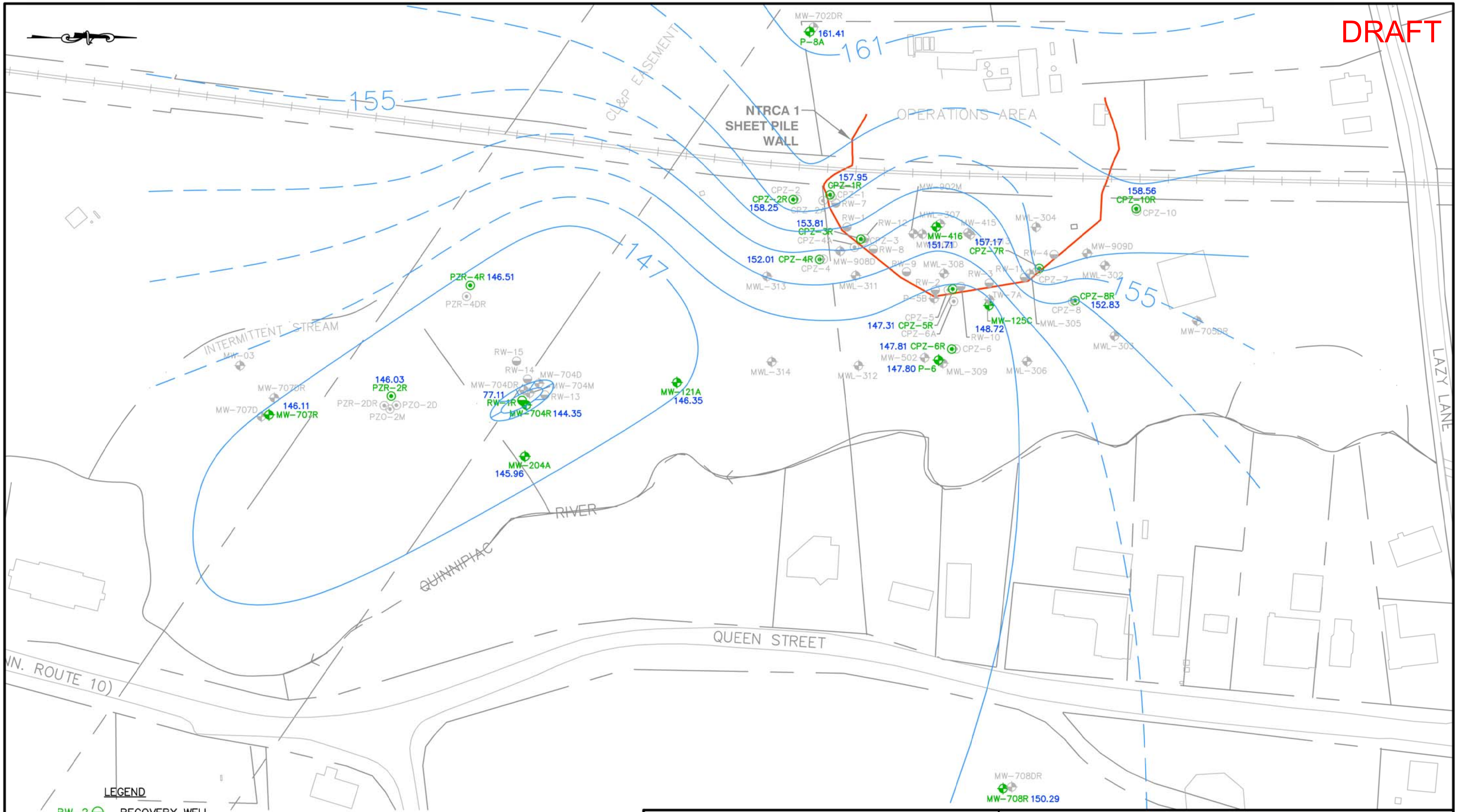
OVERBURDEN
HYDRAULIC HEAD CONTOURS
JUNE 27, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS

CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 8A



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⦿	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE
160 80 0 80 160
APPROXIMATE SCALE IN FEET

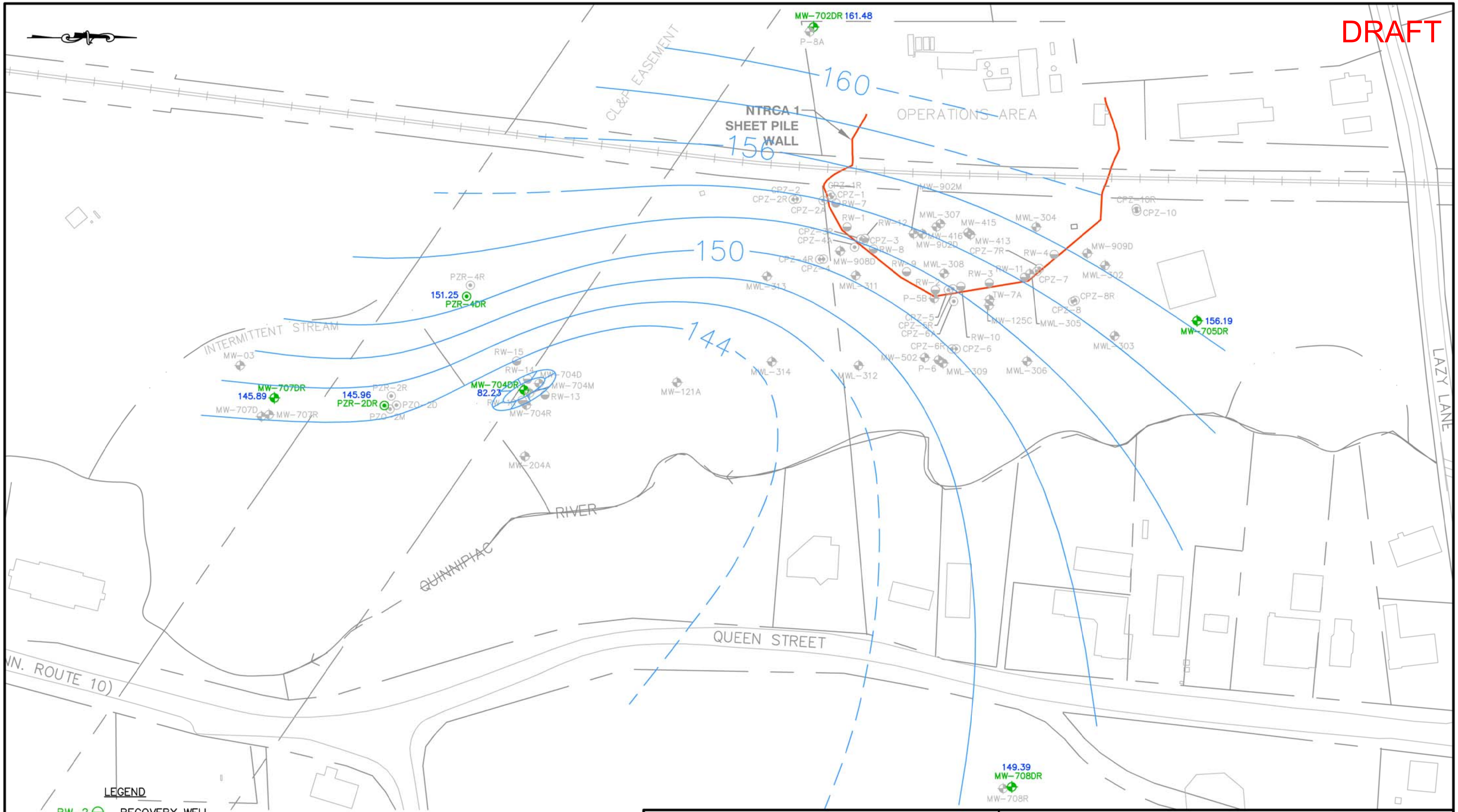
SHALLOW BEDROCK
HYDRAULIC HEAD CONTOURS
JUNE 27, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 8B

DRAFT



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⊙	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
——	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE
160 80 0 80 160
APPROXIMATE SCALE IN FEET

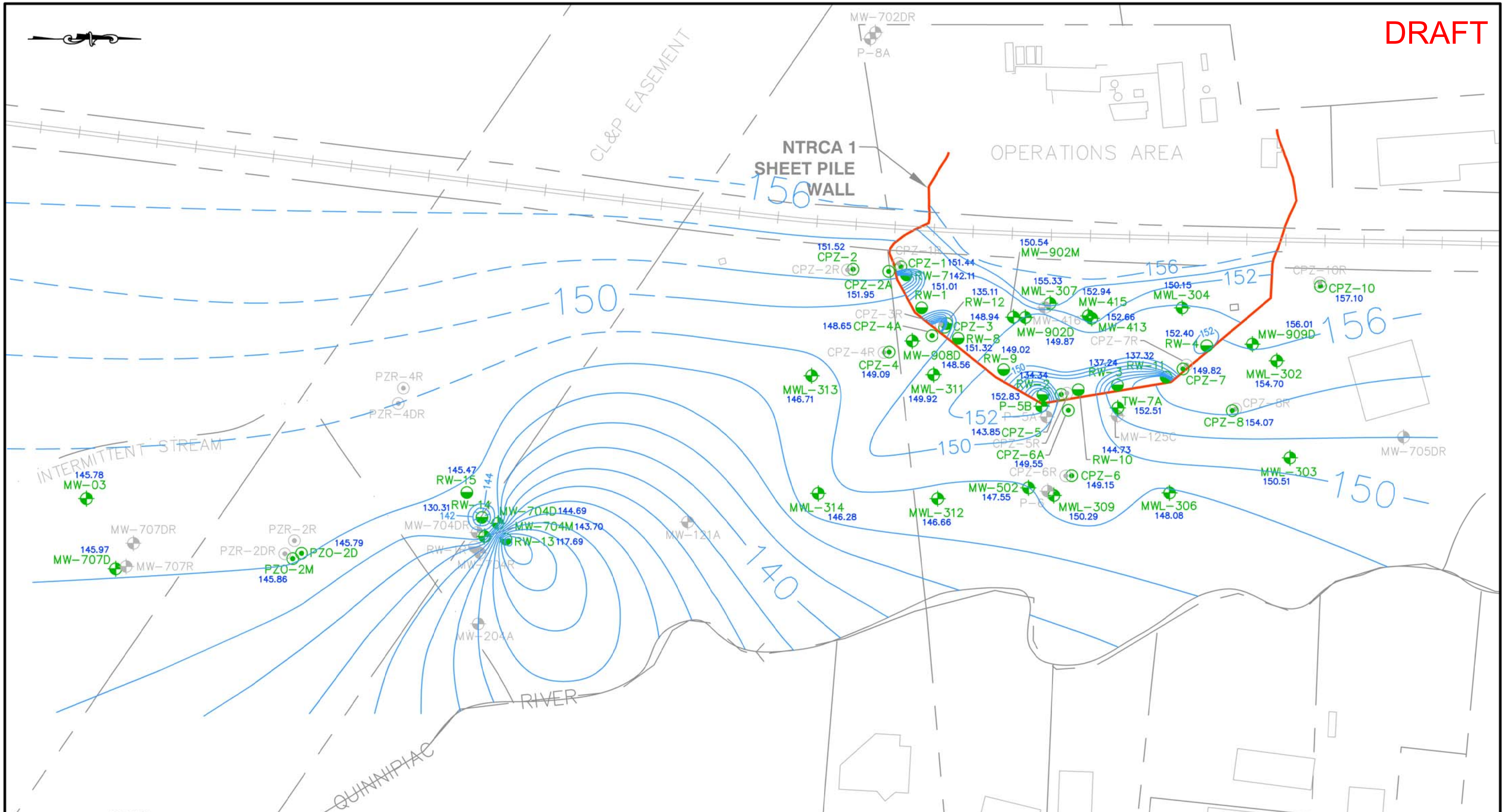
DEEP BEDROCK
HYDRAULIC HEAD CONTOURS
JUNE 27, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 8C

DRAFT



LEGEND

RW-2 ◒ RECOVERY WELL
CPZ-4 ⊙ PIEZOMETER
MWL-307 ⊕ MONITORING WELL
146.06 GROUNDWATER ELEVATION
——— GROUNDWATER CONTOUR
— — — APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

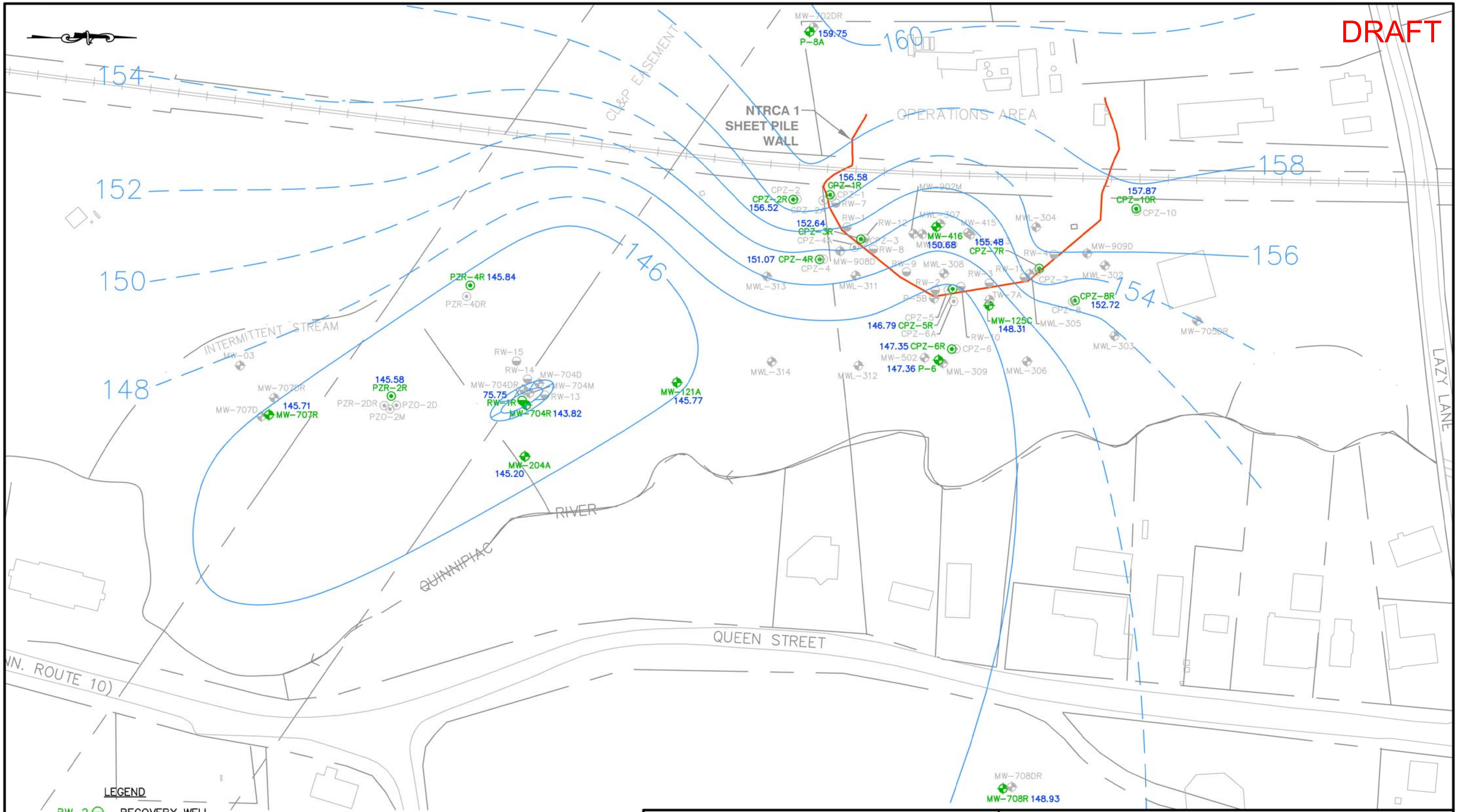
GRAPHIC SCALE
120 60 0 60 120
APPROXIMATE SCALE IN FEET

OVERBURDEN
HYDRAULIC HEAD CONTOURS
JULY 28, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 9A



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ◉	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

GRAPHIC SCALE

160 80 0 80 160

APPROXIMATE SCALE IN FEET

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

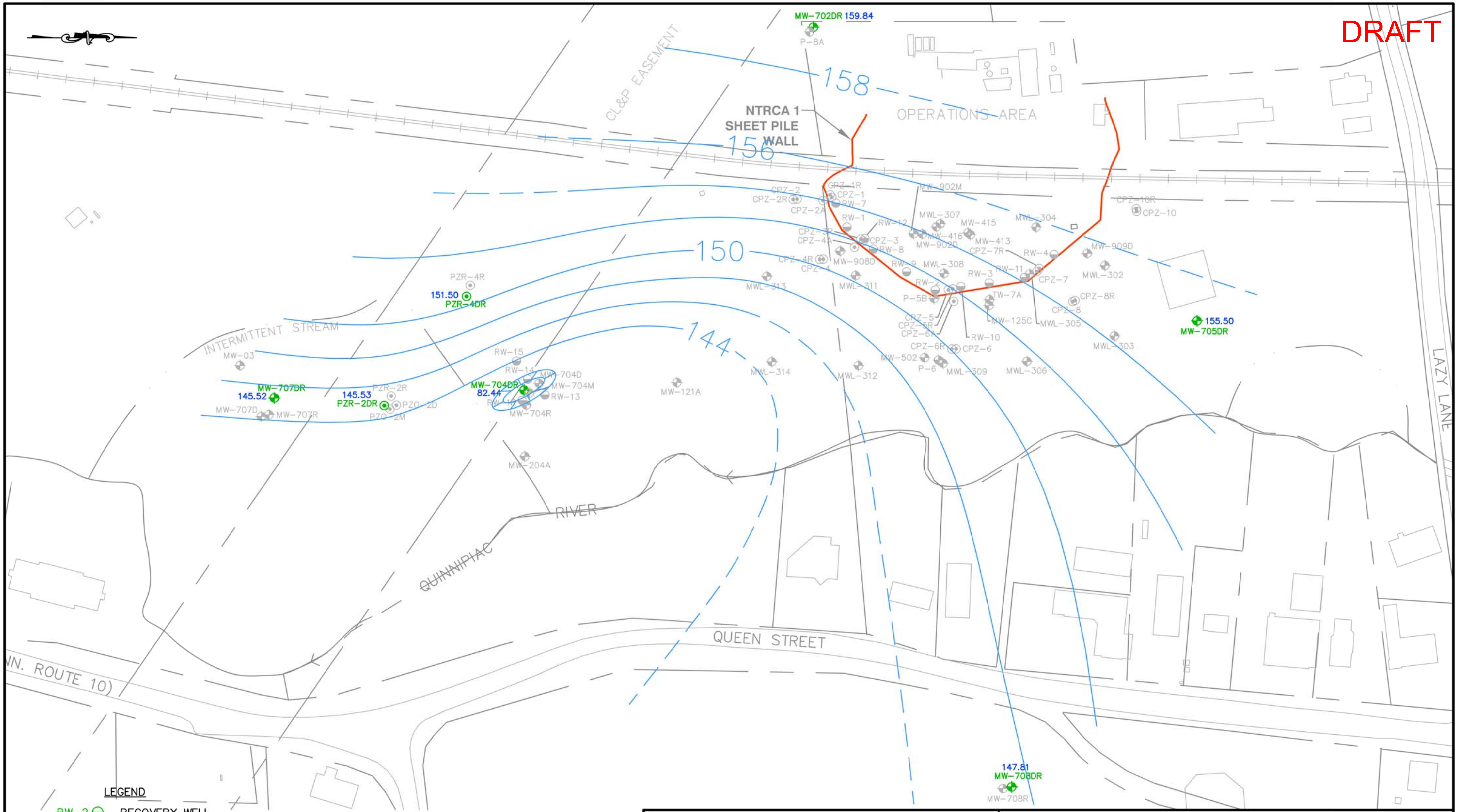
SHALLOW BEDROCK
HYDRAULIC HEAD CONTOURS
JULY 28, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS

CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 9B



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ◉	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE

160 80 0 80 160

APPROXIMATE SCALE IN FEET

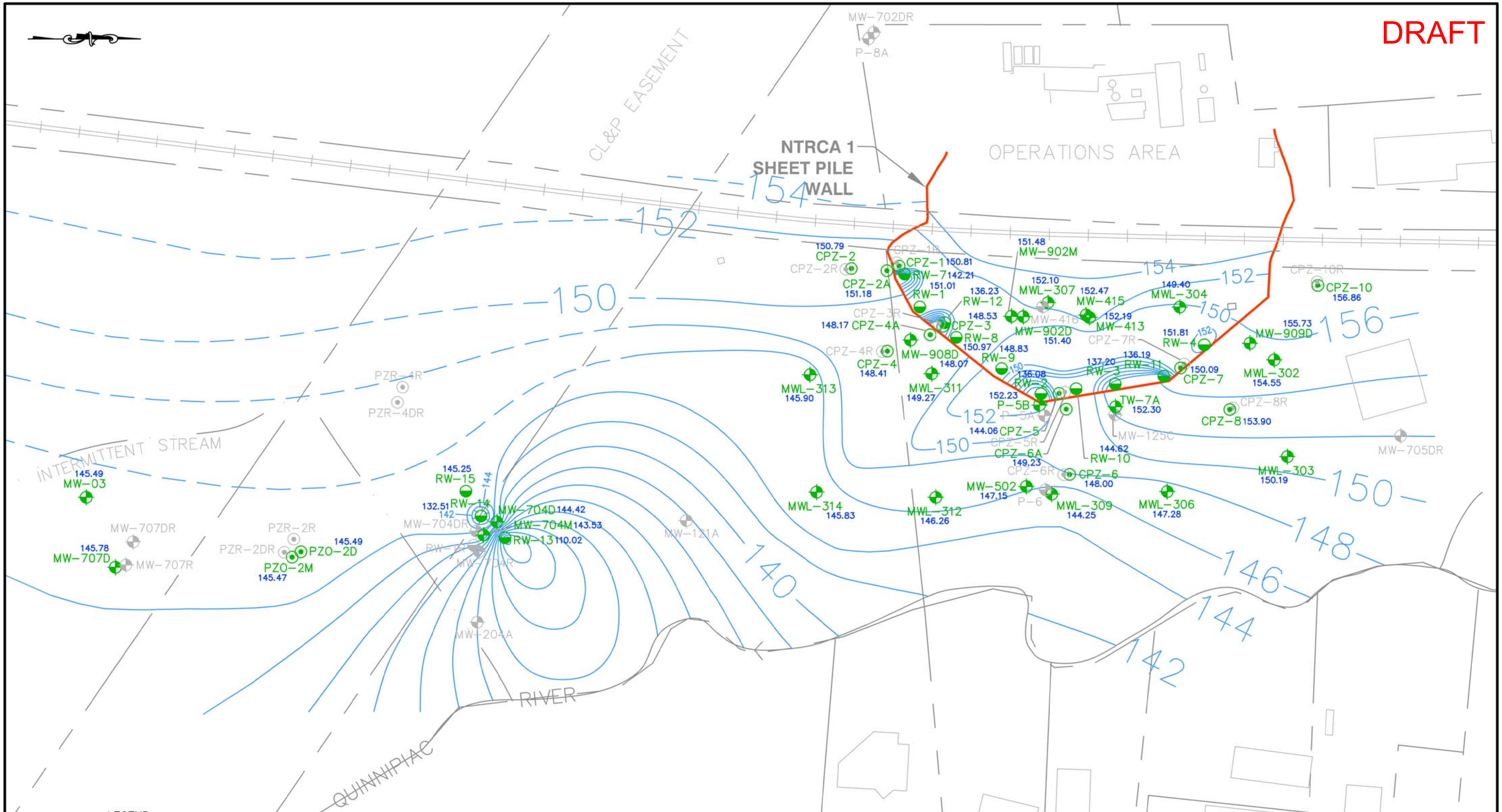
DEEP BEDROCK HYDRAULIC HEAD CONTOURS JULY 28, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 9C

DRAFT



LEGEND

RW-2 ● RECOVERY WELL
CPZ-4 ◉ PIEZOMETER
MWL-307 ⊕ MONITORING WELL
146.06 GROUNDWATER ELEVATION
—— GROUNDWATER CONTOUR
— — APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE
120 60 0 60 120
APPROXIMATE SCALE IN FEET

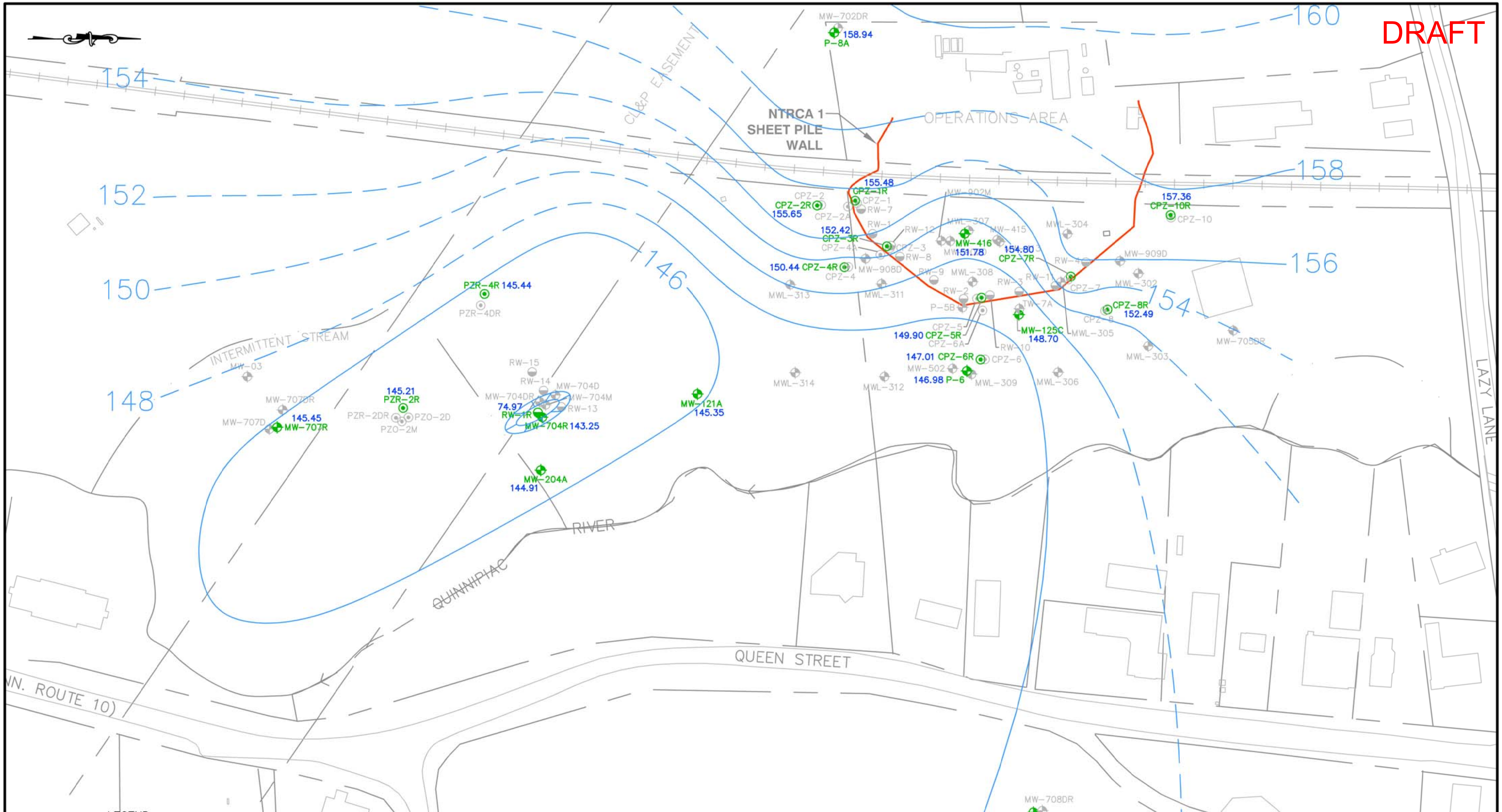
OVERBURDEN HYDRAULIC HEAD CONTOURS AUGUST 29, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

DRAWN	DATE	DES. ENG.	DATE	W.O. NO.
BJF	MAR 2018			13056.001.022
CHECKED	DATE	SCALE	REVISION	FIGURE NO.
		AS SHOWN		10A

DRAFT



LEGEND

RW-2 ◒ RECOVERY WELL

CPZ-4 ⊙ PIEZOMETER

MWL-307 ⊕ MONITORING WELL

146.06 GROUNDWATER ELEVATION

—— GROUNDWATER CONTOUR

— — APPROXIMATE GROUNDWATER CONTOUR

GRAPHIC SCALE

160 80 0 80 160

APPROXIMATE SCALE IN FEET

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

SHALLOW BEDROCK HYDRAULIC HEAD CONTOURS AUGUST 29, 2017

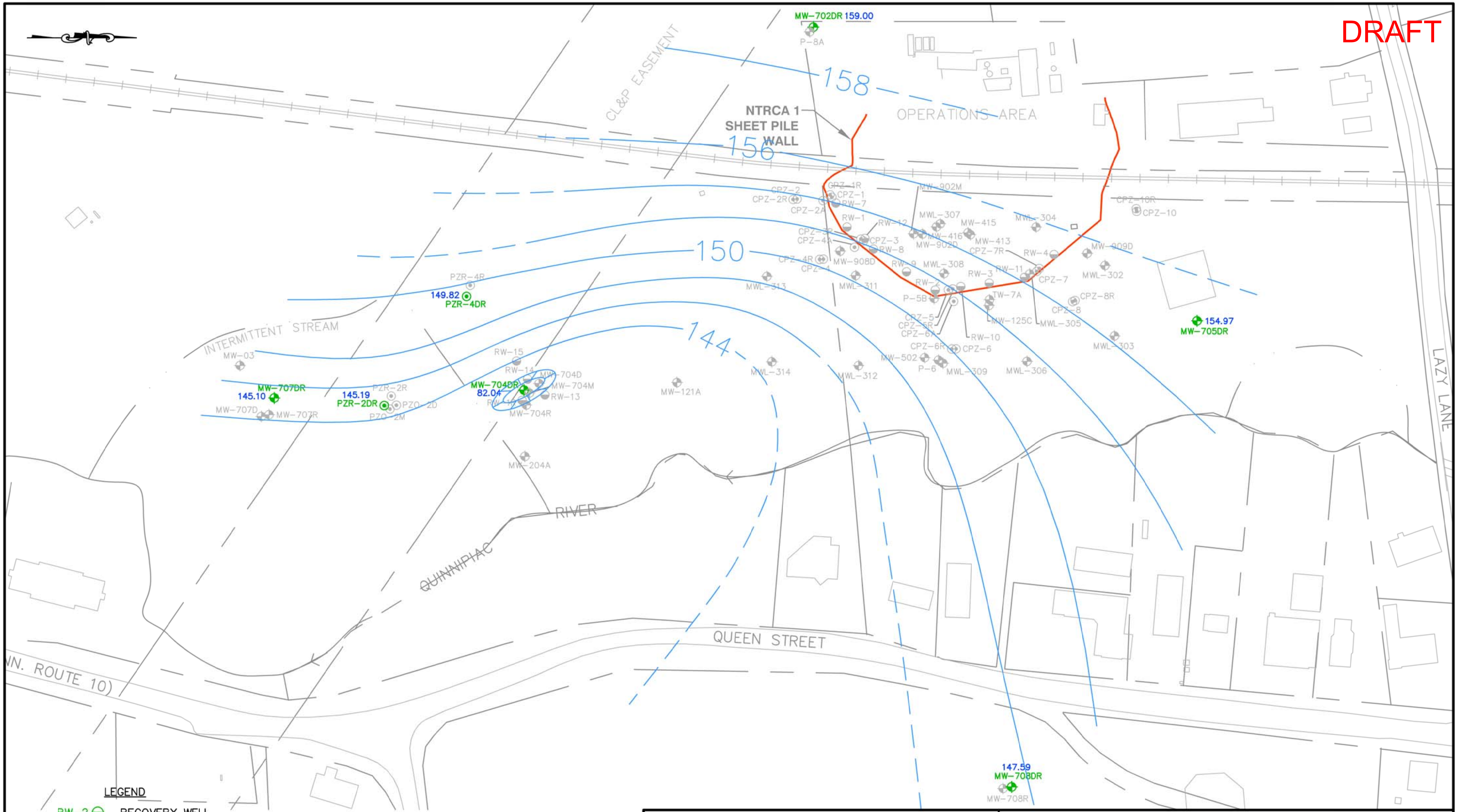
SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS

CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 10B

DRAFT



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⊙	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE
160 80 0 80 160
APPROXIMATE SCALE IN FEET

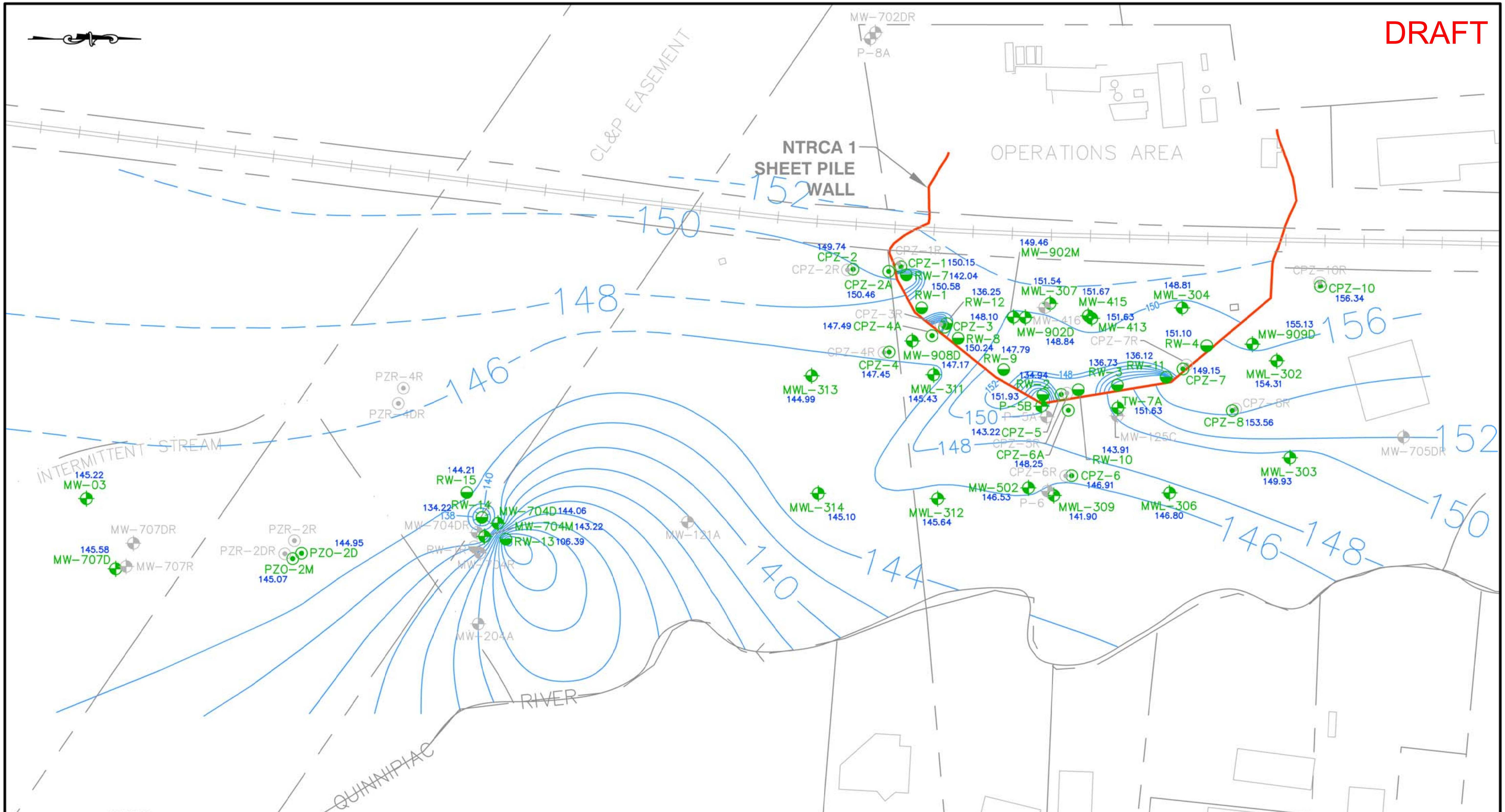
DEEP BEDROCK HYDRAULIC HEAD CONTOURS AUGUST 29, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

DRAWN	BJF	DATE	MAR 2018	DES. ENG.		DATE		W.O. NO.	13056.001.022
CHECKED		DATE		SCALE	AS SHOWN	REVISION		FIGURE NO.	10C

DRAFT



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⊙	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

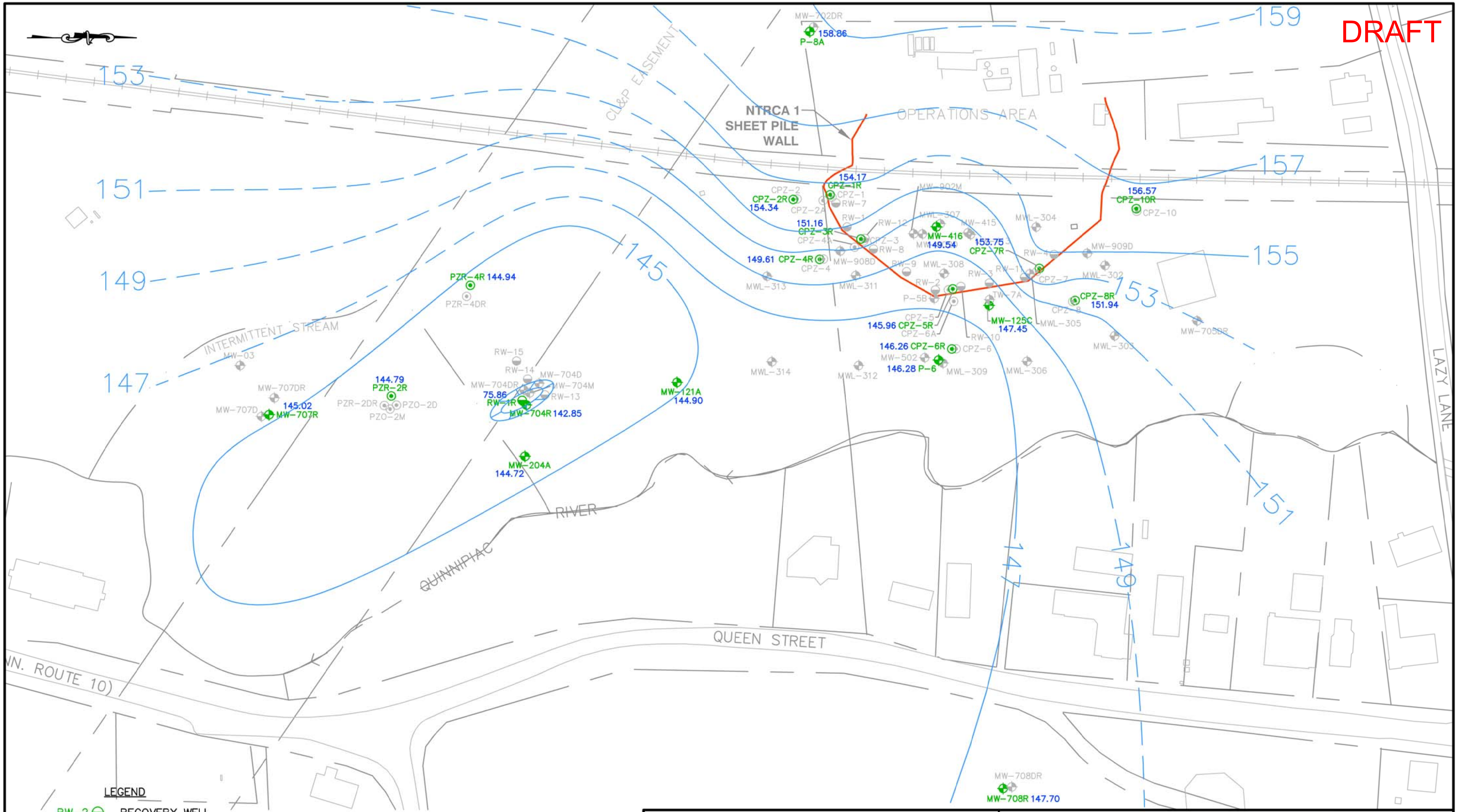
GRAPHIC SCALE
120 60 0 60 120
APPROXIMATE SCALE IN FEET

OVERBURDEN
HYDRAULIC HEAD CONTOURS
SEPTEMBER 27, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 11A



LEGEND

RW-2 ◒ RECOVERY WELL

CPZ-4 ◉ PIEZOMETER

MWL-307 ⊕ MONITORING WELL

146.06 GROUNDWATER ELEVATION

—— GROUNDWATER CONTOUR

– – – APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE

160 80 0 80 160

APPROXIMATE SCALE IN FEET

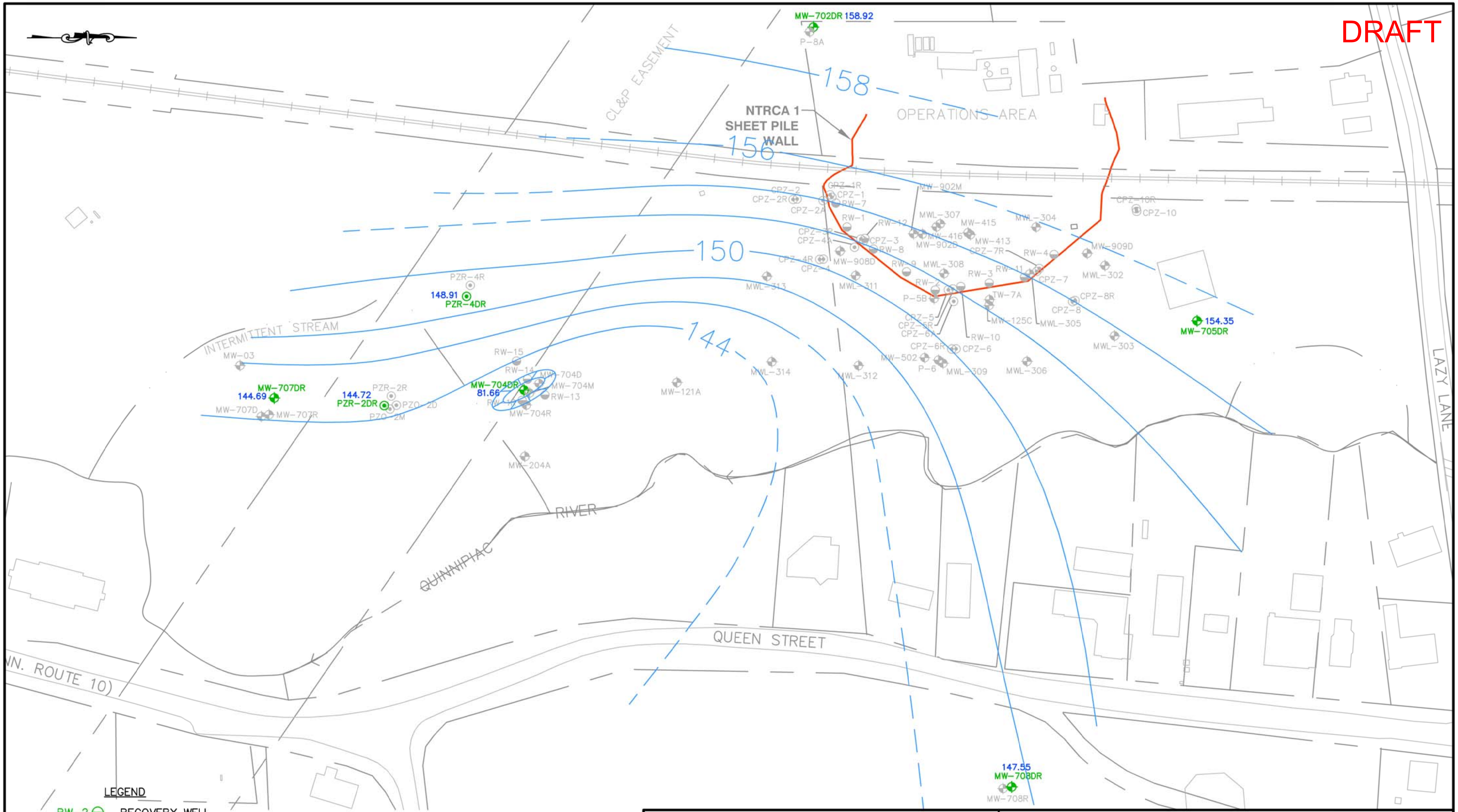
SHALLOW BEDROCK
HYDRAULIC HEAD CONTOURS
SEPTEMBER 27, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS

CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 11B



LEGEND

RW-2	RECOVERY WELL
CPZ-4	PIEZOMETER
MWL-307	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

GRAPHIC SCALE
160 80 0 80 160
APPROXIMATE SCALE IN FEET

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

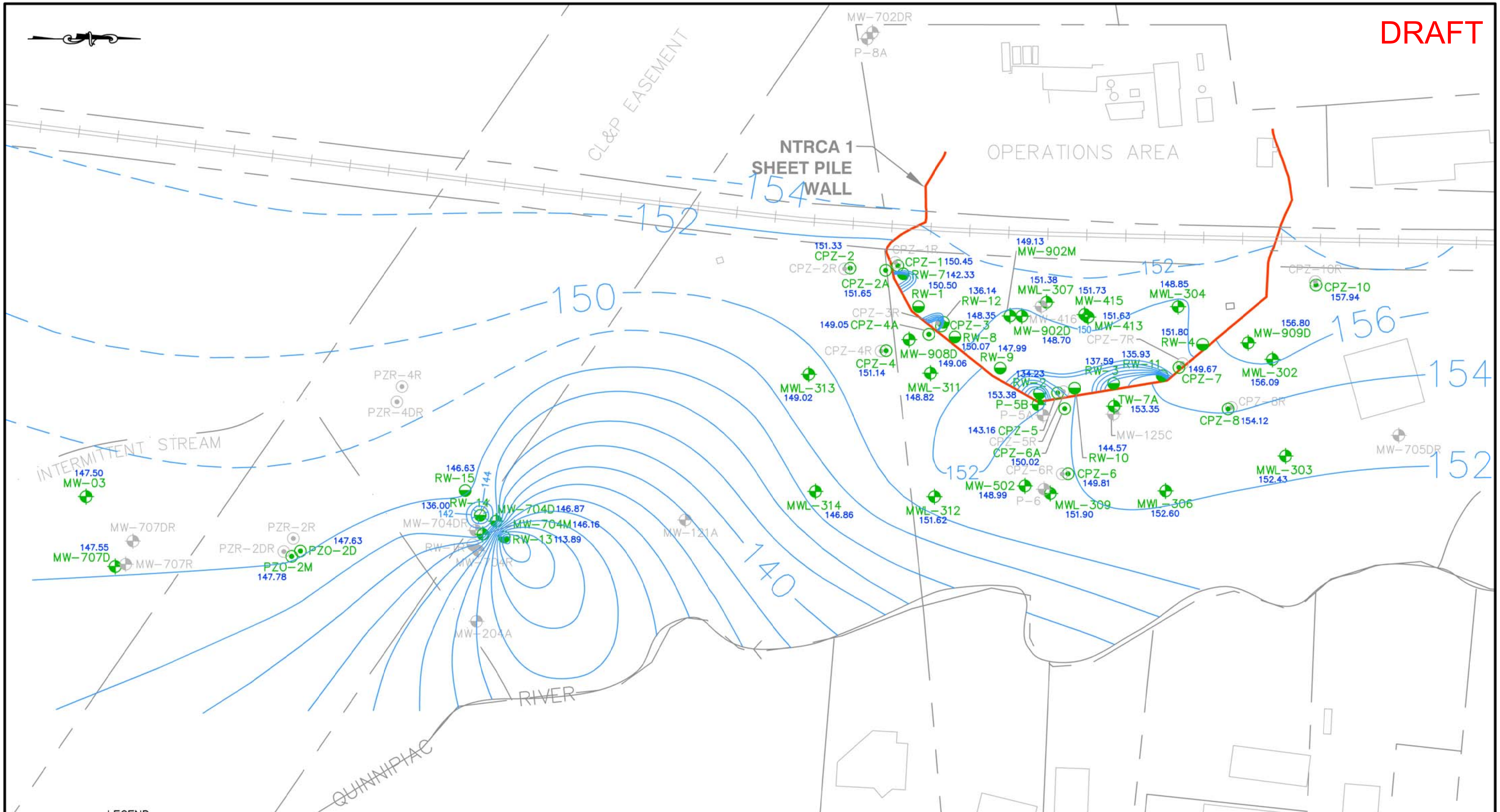
DEEP BEDROCK
HYDRAULIC HEAD CONTOURS
SEPTEMBER 27, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

DRAWN	DATE	DES. ENG.	DATE	W.O. NO.
BJF	MAR 2018			13056.001.022
CHECKED	DATE	SCALE	REVISION	FIGURE NO.
		AS SHOWN		11C

DRAFT



LEGEND

RW-2 ◒	RECOVERY WELL
CPZ-4 ⊙	PIEZOMETER
MWL-307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE
120 60 0 60 120
APPROXIMATE SCALE IN FEET

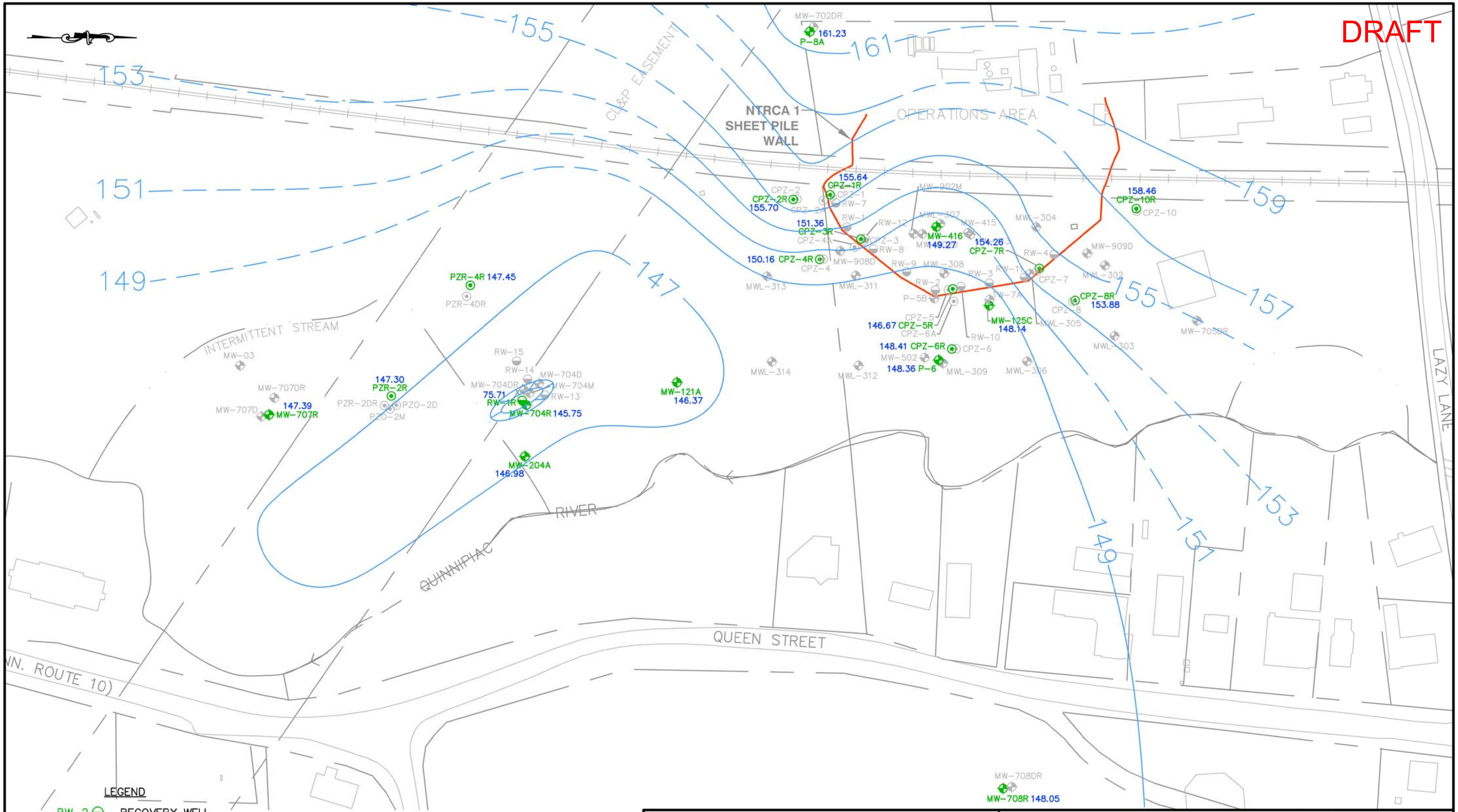
OVERBURDEN HYDRAULIC HEAD CONTOURS OCTOBER 30, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

CONCORD
WESTON SOLUTIONS
NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 12A

DRAFT



LEGEND

RW-2 ◓ RECOVERY WELL

CPZ-4 ⊙ PIEZOMETER

MWL-307 ⊕ MONITORING WELL

146.06 GROUNDWATER ELEVATION

—— GROUNDWATER CONTOUR

— — APPROXIMATE GROUNDWATER CONTOUR

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

GRAPHIC SCALE
160 80 0 80 160
APPROXIMATE SCALE IN FEET

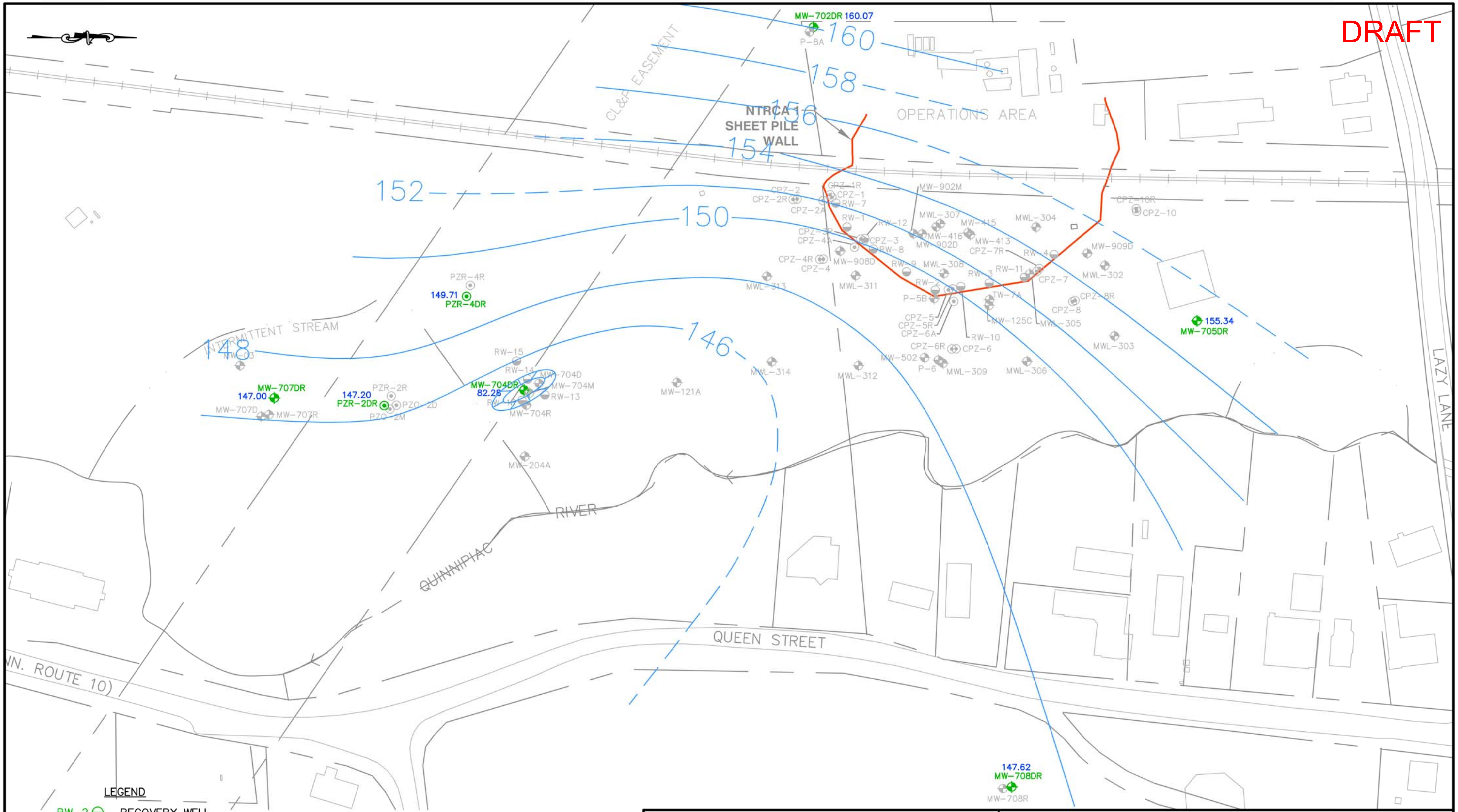
SHALLOW BEDROCK
HYDRAULIC HEAD CONTOURS
OCTOBER 30, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

DRAWN BJF	DATE MAR 2018	DES. ENG.	DATE	W.O. NO. 13056.001.022
CHECKED	DATE	SCALE AS SHOWN	REVISION	FIGURE NO. 12B

DRAFT



LEGEND

RW–2 ◓	RECOVERY WELL
CPZ–4 ⊙	PIEZOMETER
MWL–307 ⊕	MONITORING WELL
146.06	GROUNDWATER ELEVATION
———	GROUNDWATER CONTOUR
— — —	APPROXIMATE GROUNDWATER CONTOUR

GRAPHIC SCALE
160 80 0 80 160
APPROXIMATE SCALE IN FEET

NOTE: ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

DEEP BEDROCK
HYDRAULIC HEAD CONTOURS
OCTOBER 30, 2017

SRSNE
SOUTHINGTON, CONNECTICUT

WESTON SOLUTIONS
CONCORD NEW HAMPSHIRE

DRAWN	BJF	DATE	MAR 2018	DES. ENG.		DATE		W.O. NO.	13056.001.022
CHECKED		DATE		SCALE	AS SHOWN	REVISION		FIGURE NO.	12C

DRAFT

FIGURE 13

31 Oct. 2016 through 30 Oct. 2017

Hydraulic Gradient Between CPZ-05 and CPZ-06
NTCRA-1 Overburdern Compliance Pair

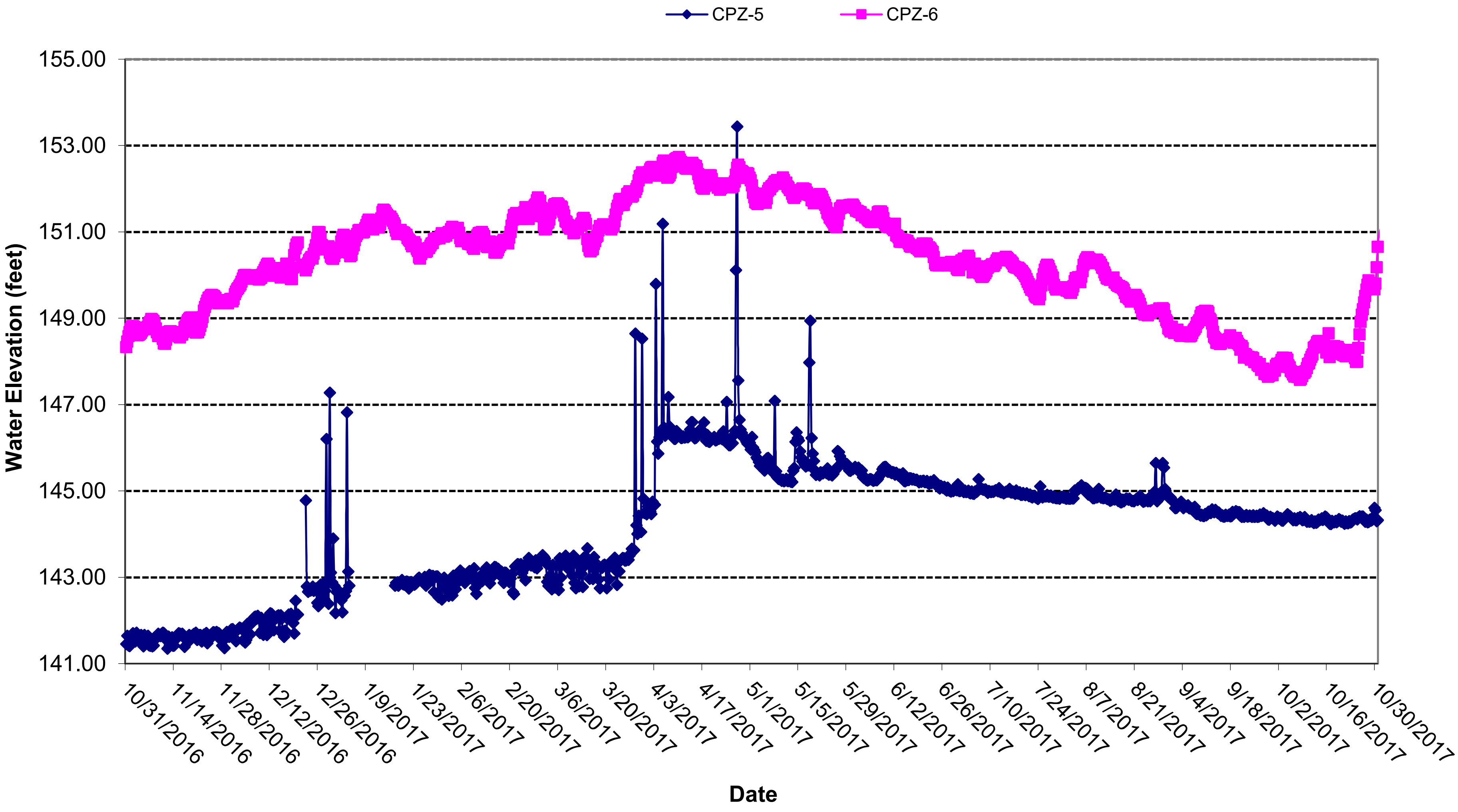
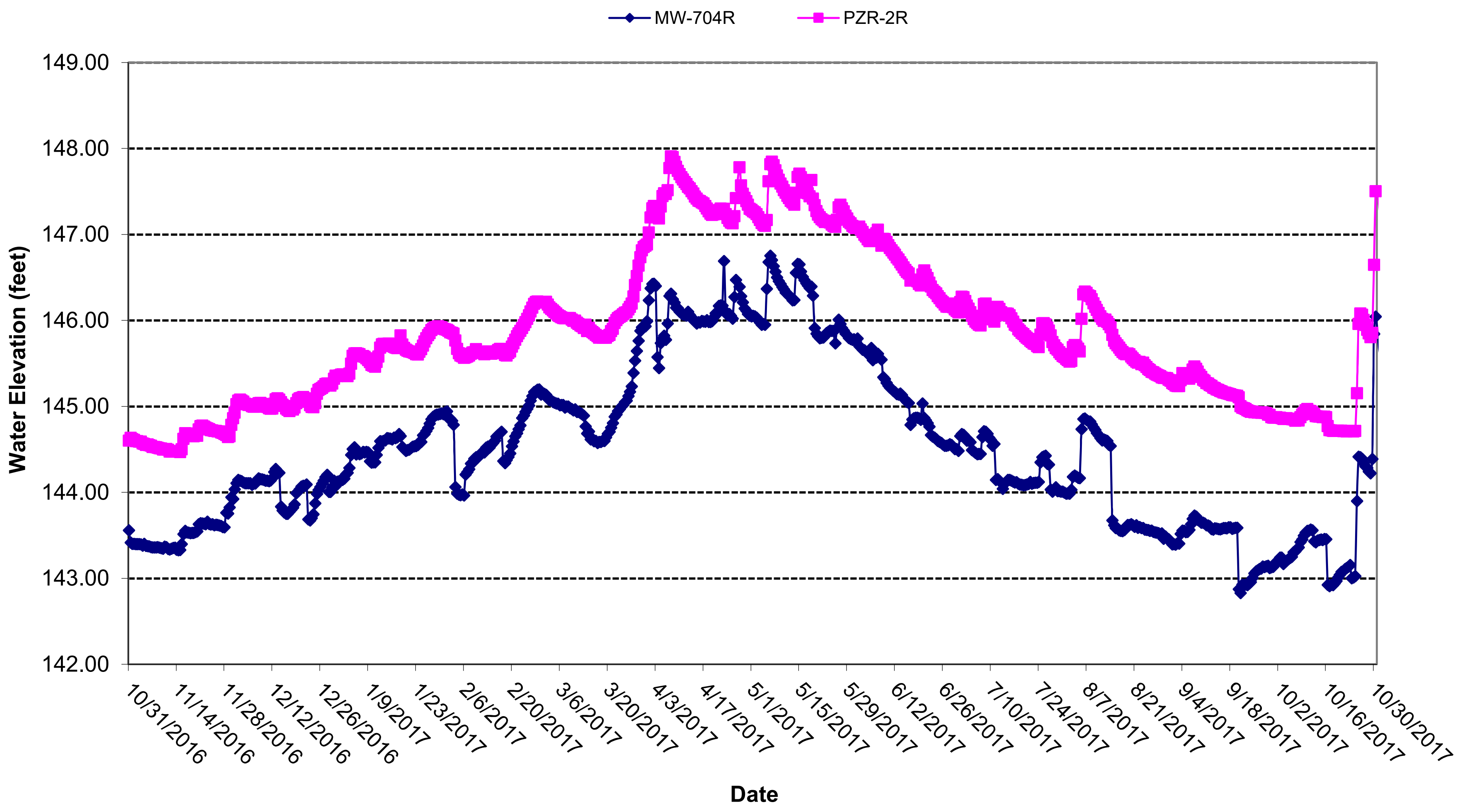


FIGURE 14A

31 Oct. 2016 through 30 Oct. 2017

Hydraulic Gradient Between MW-704R and PZR-2R
NTCRA-2 Shallow Bedrock Compliance Pair

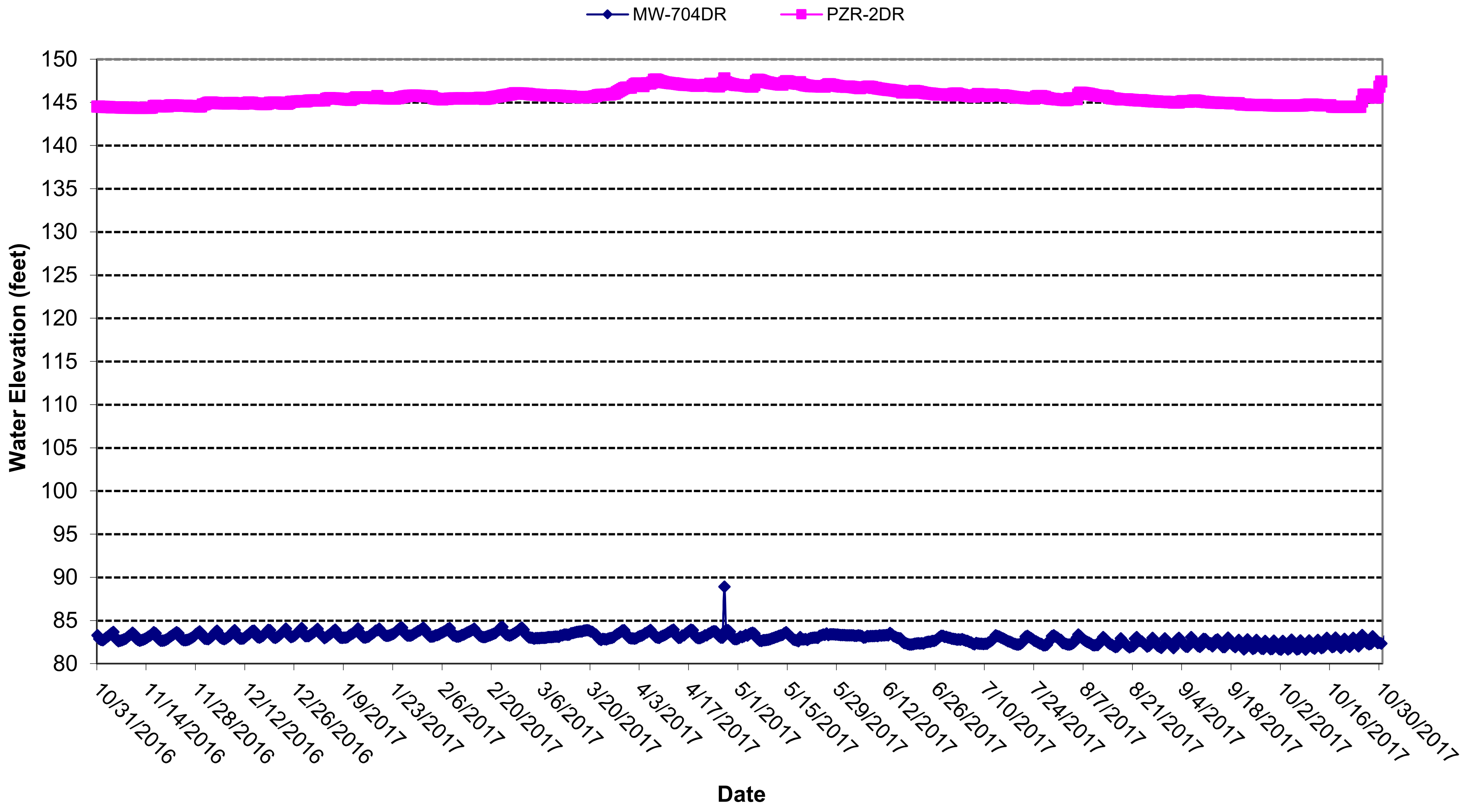


DRAFT

FIGURE 14B

31 Oct. 2016 through 30 Oct. 2017

Hydraulic Gradient Between MW-704DR and PZR-2DR
NTCRA-2 Deep Bedrock Compliance Pair



TABLES

TABLE 1 DRAFT **31 October 2016 through 30 October 2017**

Hydraulic Head Measurements End of Month Gauging

[redacted]

Measuring Location	Location Elevation Nov. 2016	Location Elevation Dec. 2016 to Mar. 2017	Location Elevation Apr. 2017 to Oct 2017	28-Nov-16		28-Dec-16		25-Jan-17		27-Feb-17	
				Depth to Water	*Water Elevation*	*Depth to Water*	*Water Elevation*	*Depth to Water*	*Water Elevation*	*Depth to Water*	*Water Elevation*
CPZ-1	159.64	162.13	162.13	11.99	147.65	12.37	149.76	11.60	150.53	10.97	151.16
CPZ-1R	161.12	161.96	161.96	8.51	152.61	7.37	154.59	6.15	155.81	4.06	157.90
CPZ-2	158.64	158.64	158.64	10.95	147.69	9.48	149.16	8.06	150.58	6.70	151.94
CPZ-2A	158.82	161.19	161.19	10.85	147.97	11.25	149.94	10.19	151.00	8.89	152.30
CPZ-2R	160.97	160.97	160.97	8.49	152.48	6.99	153.98	5.00	155.97	2.41	158.56
CPZ-3	159.21	162.86	162.86	14.04	145.17	14.58	148.28	14.11	148.75	14.51	148.35
CPZ-3R	160.70	161.74	161.74	11.27	149.43	10.47	151.27	9.80	151.94	8.82	152.92
CPZ-4	158.80	158.80	158.80	13.74	145.06	12.52	146.28	10.02	148.78	8.41	150.39
CPZ-4A	159.44	160.75	160.75	13.31	146.13	13.22	147.53	12.60	148.15	11.64	149.11
CPZ-4R	158.76	158.76	158.76	10.80	147.96	9.63	149.13	8.34	150.42	7.52	151.24
CPZ-5	158.68	160.96	160.96	18.30	140.38	16.82	144.14	19.38	141.58	19.21	141.75
CPZ-5R	158.30	161.35	161.35	14.13	144.17	NS	NS	15.64	145.71	15.02	146.33
CPZ-6	154.48	154.48	154.48	6.61	147.87	5.27	149.21	5.32	149.16	5.16	149.32
CPZ-6A	158.05	160.83	160.83	9.96	148.09	8.39	152.44	10.62	150.21	11.35	149.48
CPZ-6R	154.39	154.39	154.39	8.60	145.79	7.55	146.84	7.18	147.21	6.62	147.77
CPZ-7	159.40	161.89	161.89	10.61	148.79	11.89	150.00	13.23	148.66	12.39	149.50
CPZ-7R	158.58	161.77	161.77	5.58	153.00	7.32	154.45	6.11	155.66	4.42	157.35
CPZ-8	160.11	160.11	160.11	7.03	153.08	5.89	154.22	5.58	154.53	5.71	154.40
CPZ-8R	160.62	160.62	160.62	9.29	151.33	8.22	152.40	7.62	153.00	7.42	153.20
CPZ-10	163.44	163.44	163.44	8.01	155.43	6.45	156.99	5.87	157.57	5.99	157.45
CPZ-10R	162.98	162.98	162.98	7.42	155.56	5.76	157.22	4.62	158.36	3.43	159.55
MW-121A	152.96	152.96	152.96	8.31	144.65	7.93	145.03	7.06	145.90	6.58	146.38
MW-125A	157.87	157.87	157.87	4.41	153.46	3.05	154.82	2.78	155.09	2.77	155.10
MW-125C	156.30	156.30	156.30	9.64	146.66	8.79	147.51	8.25	148.05	7.81	148.49
MW-204A	150.78	150.78	150.78	6.25	144.53	5.72	145.06	5.21	145.57	4.79	145.99
MW-415	160.75	162.72	162.72	9.68	151.07	10.44	152.28	9.61	153.11	9.32	153.40
MW-416	159.98	161.79	161.79	12.31	147.67	12.62	149.17	12.11	149.68	11.48	150.31
MW-704D	150.98	150.98	150.98	6.99	143.99	6.31	144.67	5.71	145.27	5.22	145.76
MW-704M	152.34	152.34	152.34	8.95	143.39	8.21	144.13	7.49	144.85	7.12	145.22
MW-704R	153.23	153.23	153.23	9.61	143.62	9.39	143.84	9.36	143.87	8.23	145.00
MW-704DR	152.84	152.84	152.84	69.62	83.22	69.68	83.16	69.53	83.31	69.71	83.13
MW-705DR	160.99	160.99	160.99	7.86	153.13	6.79	154.20	5.61	155.38	5.06	155.93
MWL-302	161.60	161.60	161.60	7.85	153.75	6.87	154.73	5.90	155.70	6.62	154.98
MWL-304	159.90	159.90	159.90	11.81	148.09	10.90	149.00	9.82	150.08	9.29	150.61
MWL-305	159.01	159.01	159.01	9.02	149.99	7.91	151.10	7.28	151.73	7.01	152.00
MWL-306	155.39	155.39	155.39	6.62	148.77	2.72	152.67	2.84	152.55	4.00	151.39
MWL-307	159.14	162.23	162.23	8.49	150.65	10.43	151.80	9.41	152.82	9.11	153.12
MWL-308	158.63	158.63	158.63	7.91	150.72	5.99	152.64	6.01	152.62	5.22	153.41
MWL-309	155.20	155.20	155.20	7.18	148.02	3.29	151.91	3.25	151.95	3.40	151.80
MWL-311	157.33	157.33	157.33	11.80	145.53	7.51	149.82	5.85	151.48	5.68	151.65
P-5A	157.61	160.81	160.81	11.80	145.81	10.59	150.22	NS	NS	NS	NS
P-5B	158.39	161.03	161.03	6.44	151.95	4.60	156.43	NS	NS	7.52	153.51
P-6	153.78	153.78	153.78	8.01	145.77	6.97	146.81	6.60	147.18	5.93	147.85
PZR-2R	153.78	153.78	153.78	9.23	144.55	8.61	145.17	8.20	145.58	7.70	146.08
PZR-2DR	154.67	154.67	154.67	10.19	144.48	7.59	147.08	9.05	145.62	8.51	146.16
PZR-4R	153.72	153.72	153.72	9.21	144.51	8.82	144.90	7.85	145.87	7.22	146.50
PZR-4DR	152.73	152.73	152.73	5.25	147.48	5.00	147.73	2.82	149.91	2.22	150.51
RW-1	157.61	157.61	157.61	18.58	139.03	17.63	139.98	16.80	140.81	17.90	139.71
RW-2	156.49	156.49	158.24	20.99	135.50	21.77	134.72	22.35	134.14	20.87	135.62
RW-3	157.35	157.35	159.09	18.67	138.68	20.66	136.69	25.00	132.35	19.55	137.80
RW-4	158.21	158.21	158.21	15.30	142.91	15.04	143.17	14.66	143.55	14.99	143.22
RW-7	157.09	157.09	158.91	16.26	140.83	16.96	140.13	17.55	139.54	15.87	141.22
RW-8	156.95	156.95	156.95	16.84	140.11	17.03	139.92	16.64	140.31	16.57	140.38
RW-9	156.72	156.72	156.72	17.94	138.78	16.80	139.92	17.84	138.88	17.39	139.33
RW-10	156.13	156.13	156.13	17.81	138.32	18.43	137.70	18.48	137.65	18.03	138.10
RW-11	157.82	157.82	157.82	17.94	139.88	17.96	139.86	19.20	138.62	18.31	139.51
RW-12	158.36	158.36	159.10	19.12	139.24	21.80	136.56	19.98	138.38	20.77	137.59
RW-13	151.64	151.64	151.64	18.40	133.24	23.44	128.20	25.00	126.64	26.38	125.26
RW-14	151.71	151.71	151.71	11.13	140.58	11.07	140.64	9.80	141.91	10.55	141.16
RW-15	151.28	151.28	151.28	7.93	143.35	7.24	144.04	6.63	144.65	5.89	145.39
RW-1R	149.77	149.77	149.77	72.88	76.89	73.27	76.50	74.28	75.49	73.06	76.71
TW-7A	158.72	158.72	158.72	7.45	151.27	6.22	152.50	6.13	152.59	6.11	152.61
MW-702DR	181.38	181.38	181.38	25.10	156.28	22.16	159.22	21.10	160.28	17.05	164.33
P-8A	181.26	181.26	181.26	25.16	156.10	22.30	158.96	21.00	160.26	17.02	164.24
MW-707D	156.09	156.09	156.09	10.90	145.19	10.42	145.67	10.10	145.99	9.75	146.34
MW-707R	156.01	156.01	156.01	11.34	144.67	10.63	145.38	10.20	145.81	9.78	146.23
MW-707DR	156.80	156.80	156.80	12.32	144.48	11.71	145.09	11.23	145.57	10.78	146.02
PZ-02D	154.14	154.14	154.14	9.36	144.78	8.72	145.42	8.25	145.89	7.86	146.28
PZ-O2M	154.77	154.77	154.77	9.84	144.93	9.28	145.49	9.80	144.97	8.30	146.47
MW-3	153.79	153.79	153.79	8.65	145.14	8.18	145.61	7.81	145.98	7.61	146.18
MW-708R	224.95	224.95	224.95	77.88	147.07	77.73	147.22	77.68	147.27	76.80	148.15
MW-708DR	224.19	224.19	224.19	77.66	146.53	77.51	146.68	77.43	146.76	76.64	147.55
PZ-906DR	155.85	155.85	155.85	5.77	150.08	5.28	150.57	5.19	150.66	4.19	151.66

NS - No Depth to Water Collected

TABLE 1

31 October 2016 through 30 October 2017

Hydraulic Head Measurements End of Month Gauging

Measuring Location	Location Elevation Nov. 2016	Location Elevation Dec. 2016 to Mar. 2017	Location Elevation Apr. 2017 to Oct 2017	27-Mar-17		24-Apr-17		26-May-17		27-Jun-17	
				Depth to Water	*Water Elevation*	*Depth to Water*	*Water Elevation*	*Depth to Water*	*Water Elevation*	*Depth to Water*	*Water Elevation*
CPZ-1	159.64	162.13	162.13	10.41	151.72	8.41	153.72	8.65	153.48	9.76	152.37
CPZ-1R	161.12	161.96	161.96	4.01	157.95	3.94	158.02	3.87	158.09	4.01	157.95
CPZ-2	158.64	158.64	158.64	6.00	152.64	3.82	154.82	4.31	154.33	6.10	152.54
CPZ-2A	158.82	161.19	161.19	8.45	152.74	5.82	155.37	6.35	154.84	8.17	153.02
CPZ-2R	160.97	160.97	160.97	2.15	158.82	0.00	160.97	0.00	160.97	2.72	158.25
CPZ-3	159.21	162.86	162.86	13.78	149.08	11.56	151.30	12.16	150.70	13.13	149.73
CPZ-3R	160.70	161.74	161.74	8.45	153.29	5.01	156.73	5.70	156.04	7.93	153.81
CPZ-4	158.80	158.80	158.80	8.97	149.83	6.73	152.07	7.72	151.08	8.94	149.86
CPZ-4A	159.44	160.75	160.75	11.30	149.45	9.75	151.00	10.36	150.39	11.30	149.45
CPZ-4R	158.76	158.76	158.76	7.03	151.73	4.68	154.08	5.09	153.67	6.75	152.01
CPZ-5	158.68	160.96	160.96	18.60	142.36	15.43	145.53	16.27	144.69	16.92	144.04
CPZ-5R	158.30	161.35	161.35	14.52	146.83	12.11	149.24	13.02	148.33	14.04	147.31
CPZ-6	154.48	154.48	154.48	4.72	149.76	4.40	150.08	4.58	149.90	5.44	149.04
CPZ-6A	158.05	160.83	160.83	10.70	150.13	10.19	150.64	10.10	150.73	11.20	149.63
CPZ-6R	154.39	154.39	154.39	6.35	148.04	5.41	148.98	5.55	148.84	6.58	147.81
CPZ-7	159.40	161.89	161.89	11.78	150.11	10.82	151.07	10.49	151.40	11.08	150.81
CPZ-7R	158.58	161.77	161.77	4.38	157.39	1.20	160.57	1.85	159.92	4.60	157.17
CPZ-8	160.11	160.11	160.11	5.47	154.64	5.59	154.52	5.62	154.49	6.11	154.00
CPZ-8R	160.62	160.62	160.62	7.31	153.31	6.94	153.68	7.13	153.49	7.79	152.83
CPZ-10	163.44	163.44	163.44	5.88	157.56	5.99	157.45	6.00	157.44	6.42	157.02
CPZ-10R	162.98	162.98	162.98	3.41	159.57	2.02	160.96	2.46	160.52	4.42	158.56
MW-121A	152.96	152.96	152.96	6.59	146.37	5.33	147.63	5.59	147.37	6.61	146.35
MW-125A	157.87	157.87	157.87	2.67	155.20	2.02	155.85	2.59	155.28	3.39	154.48
MW-125C	156.30	156.30	156.30	7.78	148.52	6.20	150.10	6.60	149.70	7.58	148.72
MW-204A	150.78	150.78	150.78	4.66	146.12	3.87	146.91	3.70	147.08	4.82	145.96
MW-415	160.75	162.72	162.72	9.03	153.69	6.18	156.54	6.91	155.81	8.61	154.11
MW-416	159.98	161.79	161.79	10.90	150.89	7.72	154.07	8.51	153.28	10.08	151.71
MW-704D	150.98	150.98	150.98	5.18	145.80	4.30	146.68	4.23	146.75	5.58	145.40
MW-704M	152.34	152.34	152.34	7.11	145.23	6.42	145.92	6.38	145.96	7.81	144.53
MW-704R	153.23	153.23	153.23	8.16	145.07	7.40	145.83	7.49	145.74	8.88	144.35
MW-704DR	152.84	152.84	152.84	69.99	82.85	70.07	82.77	70.21	82.63	70.61	82.23
MW-705DR	160.99	160.99	160.99	4.82	156.17	3.12	157.87	3.38	157.61	4.80	156.19
MWL-302	161.60	161.60	161.60	6.05	155.55	6.70	154.90	6.70	154.90	7.05	154.55
MWL-304	159.90	159.90	159.90	8.98	150.92	5.82	154.08	6.56	153.34	8.49	151.41
MWL-305	159.01	159.01	159.01	NS	NS	NS	NS	NS	NS	NS	NS
MWL-306	155.39	155.39	155.39	2.91	152.48	5.21	150.18	6.02	149.37	7.41	147.98
MWL-307	159.14	162.23	162.23	8.42	153.81	5.67	156.56	6.62	155.61	8.27	153.96
MWL-308	158.63	158.63	158.63	NS	NS	NS	NS	NS	NS	NS	NS
MWL-309	155.20	155.20	155.20	3.07	152.13	3.71	151.49	4.89	150.31	6.08	149.12
MWL-311	157.33	157.33	157.33	5.11	152.22	4.38	152.95	5.01	152.32	5.98	151.35
P-5A	157.61	160.81	160.81	NS	NS	NS	NS	NS	NS	NS	NS
P-5B	158.39	161.03	161.03	7.44	153.59	7.54	153.49	7.58	153.45	7.60	153.43
P-6	153.78	153.78	153.78	5.74	148.04	4.80	148.98	4.92	148.86	5.98	147.80
PZR-2R	153.78	153.78	153.78	7.67	146.11	6.75	147.03	6.63	147.15	7.75	146.03
PZR-2DR	154.67	154.67	154.67	8.56	146.11	7.90	146.77	7.58	147.09	8.71	145.96
PZR-4R	153.72	153.72	153.72	7.13	146.59	5.85	147.87	7.70	146.02	7.21	146.51
PZR-4DR	152.73	152.73	152.73	1.81	150.92	0.00	152.73	0.00	152.73	1.48	151.25
RW-1	157.61	157.61	157.61	17.37	140.24	2.68	154.93	3.02	154.59	4.60	153.01
RW-2	156.49	156.49	158.24	21.06	135.43	21.73	136.51	21.67	136.57	23.20	135.04
RW-3	157.35	157.35	159.09	18.18	139.17	19.15	139.94	20.21	138.88	21.95	137.14
RW-4	158.21	158.21	158.21	14.91	143.30	2.75	155.46	3.20	155.01	4.49	153.72
RW-7	157.09	157.09	158.91	15.97	141.12	15.50	143.41	16.67	142.24	17.26	141.65
RW-8	156.95	156.95	156.95	17.03	139.92	3.15	153.80	4.01	152.94	4.91	152.04
RW-9	156.72	156.72	156.72	18.01	138.71	4.10	152.62	4.16	152.56	6.46	150.26
RW-10	156.13	156.13	156.13	17.93	138.20	2.50	153.63	2.79	153.34	10.22	145.91
RW-11	157.82	157.82	157.82	17.89	139.93	20.45	137.37	21.28	136.54	22.40	135.42
RW-12	158.36	158.36	159.10	20.03	138.33	20.25	138.85	22.22	136.88	22.88	136.22
RW-13	151.64	151.64	151.64	25.02	126.62	25.18	126.46	30.04	121.60	31.50	120.14
RW-14	151.71	151.71	151.71	10.37	141.34	11.30	140.41	11.16	140.55	17.67	134.04
RW-15	151.28	151.28	151.28	5.96	145.32	4.53	146.75	4.55	146.73	5.10	146.18
RW-1R	149.77	149.77	149.77	73.29	76.48	74.20	75.57	72.99	76.78	72.66	77.11
TW-7A	158.72	158.72	158.72	5.76	152.96	5.92	152.80	5.58	153.14	6.21	152.51
MW-702DR	181.38	181.38	181.38	16.90	164.48	13.95	167.43	15.72	165.66	19.90	161.48
P-8A	181.26	181.26	181.26	16.94	164.32	13.89	167.37	15.60	165.66	19.85	161.41
MW-707D	156.09	156.09	156.09	9.65	146.44	9.15	146.94	8.80	147.29	9.82	146.27
MW-707R	156.01	156.01	156.01	9.70	146.31	8.95	147.06	8.72	147.29	9.90	146.11
MW-707DR	156.80	156.80	156.80	10.78	146.02	9.87	146.93	9.70	147.10	10.91	145.89
PZ-02D	154.14	154.14	154.14	7.79	146.35	7.01	147.13	6.80	147.34	7.97	146.17
PZ-O2M	154.77	154.77	154.77	8.30	146.47	7.52	147.25	7.35	147.42	8.50	146.27
MW-3	153.79	153.79	153.79	7.41	146.38	6.91	146.88	6.51	147.28	7.61	146.18
MW-708R	224.95	224.95	224.95	76.90	148.05	76.21	148.74	76.16	148.79	74.66	150.29
MW-708DR	224.19	224.19	224.19	76.58	147.61	75.89	148.30	75.82	148.37	74.80	149.39
PZ-906DR	155.85	155.85	155.85	4.11	151.74	3.51	152.34	3.66	152.19	4.20	151.65

NS - No Depth to Water Collected

TABLE 1

DRAFT

31 October 2016 through 30 October 2017

Hydraulic Head Measurements End of Month Gauging

[redacted]

Measuring Location	Location Elevation Nov. 2016	Location Elevation Dec. 2016 to Mar. 2017	Location Elevation Apr. 2017 to Oct 2017	28-Jul-17		29-Aug-17		27-Sep-17		30-Oct-17	
				Depth to Water	*Water Elevation*	*Depth to Water*	*Water Elevation*	*Depth to Water*	*Water Elevation*	*Depth to Water*	*Water Elevation*
CPZ-1	159.64	162.13	162.13	10.69	151.44	11.32	150.81	11.98	150.15	11.68	150.45
CPZ-1R	161.12	161.96	161.96	5.58	156.38	6.48	155.48	7.79	154.17	6.32	155.64
CPZ-2	158.64	158.64	158.64	7.12	151.52	7.85	150.79	8.90	149.74	7.31	151.33
CPZ-2A	158.82	161.19	161.19	9.24	151.95	10.01	151.18	10.73	150.46	9.54	151.65
CPZ-2R	160.97	160.97	160.97	4.45	156.52	5.32	155.65	6.63	154.34	5.27	155.70
CPZ-3	159.21	162.86	162.86	13.92	148.94	14.33	148.53	14.76	148.10	14.51	148.35
CPZ-3R	160.70	161.74	161.74	9.10	152.64	9.32	152.42	10.58	151.16	10.38	151.36
CPZ-4	158.80	158.80	158.80	9.71	149.09	10.39	148.41	11.35	147.45	7.66	151.14
CPZ-4A	159.44	160.75	160.75	12.10	148.65	12.58	148.17	13.26	147.49	11.70	149.05
CPZ-4R	158.76	158.76	158.76	7.69	151.07	8.32	150.44	9.25	149.51	8.60	150.16
CPZ-5	158.68	160.96	160.96	17.11	143.85	16.90	144.06	17.74	143.22	17.80	143.16
CPZ-5R	158.30	161.35	161.35	14.56	146.79	11.45	149.90	15.39	145.96	14.68	146.67
CPZ-6	154.48	154.48	154.48	5.33	149.15	6.48	148.00	7.57	146.91	4.67	149.81
CPZ-6A	158.05	160.83	160.83	11.28	149.55	11.60	149.23	12.58	148.25	10.81	150.02
CPZ-6R	154.39	154.39	154.39	7.04	147.35	7.38	147.01	8.13	146.26	5.98	148.41
CPZ-7	159.40	161.89	161.89	12.07	149.82	11.80	150.09	12.74	149.15	12.22	149.67
CPZ-7R	158.58	161.77	161.77	6.29	155.48	6.97	154.80	8.02	153.75	7.51	154.26
CPZ-8	160.11	160.11	160.11	6.04	154.07	6.21	153.90	6.55	153.56	5.99	154.12
CPZ-8R	160.62	160.62	160.62	7.90	152.72	8.13	152.49	8.68	151.94	6.74	153.88
CPZ-10	163.44	163.44	163.44	6.34	157.10	6.58	156.86	7.10	156.34	5.50	157.94
CPZ-10R	162.98	162.98	162.98	5.11	157.87	5.62	157.36	6.41	156.57	4.52	158.46
MW-121A	152.96	152.96	152.96	7.19	145.77	7.61	145.35	8.06	144.90	6.59	146.37
MW-125A	157.87	157.87	157.87	3.49	154.38	3.79	154.08	4.11	153.76	2.25	155.62
MW-125C	156.30	156.30	156.30	7.99	148.31	7.60	148.70	8.85	147.45	8.16	148.14
MW-204A	150.78	150.78	150.78	5.58	145.20	5.87	144.91	6.06	144.72	3.80	146.98
MW-415	160.75	162.72	162.72	9.78	152.94	10.25	152.47	11.05	151.67	10.99	151.73
MW-416	159.98	161.79	161.79	11.11	150.68	10.01	151.78	12.25	149.54	12.52	149.27
MW-704D	150.98	150.98	150.98	6.29	144.69	6.56	144.42	6.92	144.06	4.11	146.87
MW-704M	152.34	152.34	152.34	8.64	143.70	8.81	143.53	9.12	143.22	6.18	146.16
MW-704R	153.23	153.23	153.23	9.41	143.82	9.98	143.25	10.38	142.85	7.48	145.75
MW-704DR	152.84	152.84	152.84	70.40	82.44	70.80	82.04	71.18	81.66	70.56	82.28
MW-705DR	160.99	160.99	160.99	5.49	155.50	6.02	154.97	6.64	154.35	5.65	155.34
MWL-302	161.60	161.60	161.60	6.90	154.70	7.05	154.55	7.29	154.31	5.51	156.09
MWL-304	159.90	159.90	159.90	9.75	150.15	10.50	149.40	11.09	148.81	11.05	148.85
MWL-305	159.01	159.01	159.01	NS	NS	NS	NS	NS	NS	NS	NS
MWL-306	155.39	155.39	155.39	7.31	148.08	8.11	147.28	8.59	146.80	2.79	152.60
MWL-307	159.14	162.23	162.23	6.90	155.33	10.13	152.10	10.69	151.54	10.85	151.38
MWL-308	158.63	158.63	158.63	NS	NS	NS	NS	NS	NS	NS	NS
MWL-309	155.20	155.20	155.20	4.91	150.29	10.95	144.25	13.30	141.90	3.30	151.90
MWL-311	157.33	157.33	157.33	7.41	149.92	8.06	149.27	11.90	145.43	8.51	148.82
P-5A	157.61	160.81	160.81	NS	NS	NS	NS	NS	NS	NS	NS
P-5B	158.39	161.03	161.03	8.20	152.83	8.80	152.23	9.10	151.93	7.65	153.38
P-6	153.78	153.78	153.78	6.42	147.36	6.80	146.98	7.50	146.28	5.42	148.36
PZR-2R	153.78	153.78	153.78	8.20	145.58	8.57	145.21	8.99	144.79	6.48	147.30
PZR-2DR	154.67	154.67	154.67	9.14	145.53	9.48	145.19	9.95	144.72	7.47	147.20
PZR-4R	153.72	153.72	153.72	7.88	145.84	8.28	145.44	8.78	144.94	6.27	147.45
PZR-4DR	152.73	152.73	152.73	1.23	151.50	2.91	149.82	3.82	148.91	3.02	149.71
RW-1	157.61	157.61	157.61	6.57	151.04	6.60	151.01	7.03	150.58	7.11	150.50
RW-2	156.49	156.49	158.24	23.90	134.34	22.16	136.08	23.30	134.94	24.01	134.23
RW-3	157.35	157.35	159.09	21.85	137.24	21.89	137.20	22.36	136.73	21.50	137.59
RW-4	158.21	158.21	158.21	5.81	152.40	6.40	151.81	7.11	151.10	6.41	151.80
RW-7	157.09	157.09	158.91	16.80	142.11	16.70	142.21	16.87	142.04	16.58	142.33
RW-8	156.95	156.95	156.95	5.63	151.32	5.98	150.97	6.71	150.24	6.88	150.07
RW-9	156.72	156.72	156.72	7.70	149.02	7.89	148.83	8.93	147.79	8.73	147.99
RW-10	156.13	156.13	156.13	11.40	144.73	11.51	144.62	12.22	143.91	11.56	144.57
RW-11	157.82	157.82	157.82	20.50	137.32	21.63	136.19	21.70	136.12	21.89	135.93
RW-12	158.36	158.36	159.10	23.99	135.11	22.87	136.23	22.85	136.25	22.96	136.14
RW-13	151.64	151.64	151.64	33.95	117.69	41.62	110.02	45.25	106.39	37.75	113.89
RW-14	151.71	151.71	151.71	21.40	130.31	19.20	132.51	17.49	134.22	15.71	136.00
RW-15	151.28	151.28	151.28	5.81	145.47	6.03	145.25	7.07	144.21	4.65	146.63
RW-1R	149.77	149.77	149.77	74.02	75.75	74.80	74.97	73.91	75.86	74.06	75.71
TW-7A	158.72	158.72	158.72	6.21	152.51	6.42	152.30	7.09	151.63	5.37	153.35
MW-702DR	181.38	181.38	181.38	21.54	159.84	22.38	159.00	22.46	158.92	21.31	160.07
P-8A	181.26	181.26	181.26	21.51	159.75	22.32	158.94	22.40	158.86	20.03	161.23
MW-707D	156.09	156.09	156.09	10.12	145.97	10.31	145.78	10.51	145.58	8.54	147.55
MW-707R	156.01	156.01	156.01	10.30	145.71	10.56	145.45	10.99	145.02	8.62	147.39
MW-707DR	156.80	156.80	156.80	11.28	145.52	11.70	145.10	12.11	144.69	9.80	147.00
PZ-02D	154.14	154.14	154.14	8.35	145.79	8.65	145.49	9.19	144.95	6.51	147.63
PZ-O2M	154.77	154.77	154.77	8.91	145.86	9.30	145.47	9.70	145.07	6.99	147.78
MW-3	153.79	153.79	153.79	8.01	145.78	8.30	145.49	8.57	145.22	6.29	147.50
MW-708R	224.95	224.95	224.95	76.02	148.93	76.13	148.82	77.25	147.70	76.90	148.05
MW-708DR	224.19	224.19	224.19	76.38	147.81	76.60	147.59	76.64	147.55	76.57	147.62
PZ-906DR	155.85	155.85	155.85	4.20	151.65	4.45	151.40	4.71	151.14	4.01	151.84

NS - No Depth to Water Collected

TABLE 2

31 October 2016 through 30 October 2017

Weekly NTCRA-1 Compliance Piezometer Pair Summary

Date	CPZ-1/CPZ-2A	CPZ-3/CPZ-4A	CPZ-5/CPZ-6	CPZ-7/CPZ-8
01-Nov-16	0.34	0.69	7.21	4.15
07-Nov-16	0.32	0.64	7.14	4.20
13-Nov-16	0.35	0.62	7.15	4.19
21-Nov-16	0.31	0.40	7.44	4.09
28-Nov-16	0.32	0.96	7.49	4.29
05-Dec-16	0.31	0.35	8.15	4.33
13-Dec-16	0.45	0.52	7.94	4.45
22-Dec-16	0.32	1.32	7.28	4.44
28-Dec-16	0.18	-0.74	5.07	4.22
05-Jan-17	0.18	-0.69	5.54	4.34
11-Jan-17	0.19	-0.62	5.86	4.26
19-Jan-17	0.43	0.19	7.60	5.49
25-Jan-17	0.47	-0.59	7.58	5.87
02-Feb-17	0.79	-0.08	7.40	5.25
06-Feb-17	0.87	0.01	7.59	5.31
16-Feb-17	0.94	0.18	7.80	5.79
21-Feb-17	0.38	-0.25	7.73	5.51
27-Feb-17	1.14	0.77	7.57	4.90
07-Mar-17	1.37	0.33	7.22	4.97
12-Mar-17	1.40	0.34	7.12	5.01
20-Mar-17	1.37	0.37	7.08	4.77
27-Mar-17	1.02	0.38	7.40	4.53
02-Apr-17	2.38	0.22	7.15	3.83
10-Apr-17	2.26	0.27	5.01	2.75
18-Apr-17	1.25	-0.64	4.63	2.43
24-Apr-17	1.65	-0.29	4.55	3.45
01-May-17	1.45	-0.61	5.27	2.46
08-May-17	1.89	0.34	6.05	2.80
15-May-17	2.05	0.34	5.38	2.82
26-May-17	1.36	-0.30	5.21	3.09
01-Jun-17	1.27	-0.06	5.30	3.03
06-Jun-17	1.11	-0.07	5.64	3.33
13-Jun-17	0.58	-0.46	5.10	3.07
20-Jun-17	0.92	-0.38	5.07	3.30
27-Jun-17	0.65	-0.27	5.00	3.19
05-Jul-17	0.52	-0.50	4.92	3.90
12-Jul-17	0.59	-0.35	5.32	3.76
17-Jul-17	0.50	-0.44	5.20	3.89
28-Jul-17	0.51	-0.28	5.30	4.25
01-Aug-17	0.31	-1.15	5.32	4.27
07-Aug-17	0.89	0.08	5.32	4.31
15-Aug-17	0.69	-0.06	5.34	4.32
23-Aug-17	0.50	-0.30	4.81	4.29
29-Aug-17	0.37	-0.35	3.94	3.81
07-Sep-17	0.34	-0.44	4.48	4.54
12-Sep-17	0.32	-0.51	4.49	4.41
18-Sep-17	0.32	-0.57	4.15	4.49
27-Sep-17	0.31	-0.60	3.69	4.41
02-Oct-17	-0.06	-0.96	3.42	4.35
12-Oct-17	0.07	-0.89	3.79	4.37
17-Oct-17	-0.02	-0.99	3.75	4.39
23-Oct-17	-0.16	-1.06	3.70	4.30
30-Oct-17	1.20	0.71	6.65	4.45

Highlighted Cells - are weeks that the 0.30-foot hydraulic gradient reversal standard for a specific Compliance Piezometer Pair was not maintained during weekly gauging.

Table 3

SRSNE HCTS - Influent Results

Parameter/ Concentration (mg/L)	Sample Dates	
	11/3/2016	11/15/2016
A. ORGANIC PARAMETERS		
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	<0.001	<0.001
Tetrachloroethene (mg/L)	<0.001	<0.001
Toluene (mg/L)	0.186	0.130
Ethylbenzene (mg/L)	0.130	0.088
Xylenes, Total (mg/L)	0.203	0.136
Vinyl chloride (mg/L)	0.046	0.029
1,1-Dichloroethene (mg/L)	<0.001	<0.001
Tetrahydrofuran (mg/L)	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	0.014	0.007
1,2-Dichloroethane (mg/L)	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	<0.001	<0.001
Methylene chloride (mg/L)	<0.001	<0.001
Styrene (mg/L)	<0.001	<0.001
Alcohols		
Ethanol (mg/L)	<5.0	<5.0
Methanol (mg/L)	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	<5.0	<5.0
Ketones		
Acetone (mg/L)	<0.50	<0.50
2-Butanone (Methyl Ethyl Ketone) (mg/L)	<0.50	<0.50
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	<0.50	<0.50
Total VOCs[2]	**0.58**	**0.39**
B. INORGANIC PARAMETERS		
Metals		
Copper, Total (mg/L)	<0.01	<0.01
Iron, Total (mg/L)	2.43	10.60
Lead, Total (mg/L)	<0.005	<0.005
Nickel, Total (mg/L)	<0.05	<0.05
Zinc, Total (mg/L)	<0.05	<0.05

NOTES:

mg/L = Milligrams per liter unless otherwise noted.

[1] = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

[2] = Total VOCs is the total sum of detected compounds (mg/l)

Table 3

December 2016

SRSNE HCTS - Influent Results

Parameter/ Concentration (mg/L)	Sample Dates	
	12/1/2016	12/15/2016
A. ORGANIC PARAMETERS		
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	<0.001	0.001
Tetrachloroethene (mg/L)	<0.001	<0.001
Toluene (mg/L)	<0.001	0.02
Ethylbenzene (mg/L)	<0.001	0.011
Xylenes, Total (mg/L)	<0.001	0.016
Vinyl chloride (mg/L)	<0.001	0.006
1,1-Dichloroethene (mg/L)	<0.001	<0.001
Tetrahydrofuran (mg/L)	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	<0.001	0.002
1,2-Dichloroethane (mg/L)	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	<0.001	<0.001
Methylene chloride (mg/L)	<0.001	<0.001
Styrene (mg/L)	<0.001	<0.001
Alcohols		
Ethanol (mg/L)	<5.0	<5.0
Methanol (mg/L)	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	<5.0	<5.0
Ketones		
Acetone (mg/L)	<0.50	<0.50
2-Butanone (Methyl Ethyl Ketone) (mg/L)	<0.50	<0.50
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	<0.50	<0.50
Total VOCs[2]	**0.00**	**0.05**
B. INORGANIC PARAMETERS		
Metals		
Copper, Total (mg/L)	<0.01	<0.01
Iron, Total (mg/L)	3.26	2.8
Lead, Total (mg/L)	<0.005	<0.005
Nickel, Total (mg/L)	<0.05	<0.05
Zinc, Total (mg/L)	<0.05	<0.05

NOTES:

mg/L = Milligrams per liter unless otherwise noted.

[1] = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

[2] = Total VOCs is the total sum of detected compounds (mg/l)

Table 3

January 2017

SRSNE HCTS - Influent Results

Parameter/ Concentration (mg/L)	Sample Dates	
	1/3/2017	1/19/2017
A. ORGANIC PARAMETERS		
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	<0.001	0.009
Tetrachloroethene (mg/L)	<0.001	<0.001
Toluene (mg/L)	0.053	0.004
Ethylbenzene (mg/L)	0.063	0.004
Xylenes, Total (mg/L)	0.097	0.006
Vinyl chloride (mg/L)	0.070	0.005
1,1-Dichloroethene (mg/L)	<0.001	<0.001
Tetrahydrofuran (mg/L)	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	0.052	0.007
1,2-Dichloroethane (mg/L)	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	<0.001	<0.001
Methylene chloride (mg/L)	<0.001	<0.001
Styrene (mg/L)	<0.001	<0.001
Alcohols		
Ethanol (mg/L)	<5.0	<5.0
Methanol (mg/L)	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	<5.0	<5.0
Ketones		
Acetone (mg/L)	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	<0.050	<0.050
Total VOCs[2]	**0.34**	**0.04**
B. INORGANIC PARAMETERS		
Metals		
Copper, Total (mg/L)	<0.01	<0.01
Iron, Total (mg/L)	28.0	11.6
Lead, Total (mg/L)	<0.005	<0.005
Nickel, Total (mg/L)	<0.05	<0.05
Zinc, Total (mg/L)	<0.05	<0.05

NOTES:

mg/L = Milligrams per liter unless otherwise noted.

[1] = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

[2] = Total VOCs is the total sum of detected compounds (mg/l)

Table 3

February 2017

SRSNE HCTS - Influent Results

Parameter/ Concentration (mg/L)	Sample Dates	
	2/2/2017	**2/16/2017**
A. ORGANIC PARAMETERS		
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	<0.001	0.001
Tetrachloroethene (mg/L)	<0.001	<0.001
Toluene (mg/L)	0.024	<0.001
Ethylbenzene (mg/L)	0.026	<0.001
Xylenes, Total (mg/L)	0.045	<0.001
Vinyl chloride (mg/L)	0.046	<0.001
1,1-Dichloroethene (mg/L)	<0.001	<0.001
Tetrahydrofuran (mg/L)	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	0.017	<0.001
1,2-Dichloroethane (mg/L)	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	<0.001	<0.001
Methylene chloride (mg/L)	<0.001	<0.001
Styrene (mg/L)	<0.001	<0.001
Alcohols		
Ethanol (mg/L)	<5.0	<5.0
Methanol (mg/L)	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	<5.0	<5.0
Ketones		
Acetone (mg/L)	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	<0.050	<0.050
Total VOCs[2]	**0.158**	**0.001**
B. INORGANIC PARAMETERS		
Metals		
Copper, Total (mg/L)	<0.01	<0.01
Iron, Total (mg/L)	5.14	10.1
Lead, Total (mg/L)	<0.005	<0.005
Nickel, Total (mg/L)	<0.05	<0.05
Zinc, Total (mg/L)	<0.05	<0.05

NOTES:

mg/L = Milligrams per liter unless otherwise noted.

[1] = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

[2] = Total VOCs is the total sum of detected compounds (mg/l)

Table 3

March 2017

SRSNE HCTS - Influent Results

Parameter/ Concentration (mg/L)	Sample Dates	
	3/2/2017	**3/16/2017**
A. ORGANIC PARAMETERS		
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	<0.001	<0.001
Tetrachloroethene (mg/L)	<0.001	<0.001
Toluene (mg/L)	0.038	<0.001
Ethylbenzene (mg/L)	0.051	<0.001
Xylenes, Total (mg/L)	0.088	<0.001
Vinyl chloride (mg/L)	0.066	<0.001
1,1-Dichloroethene (mg/L)	<0.001	<0.001
Tetrahydrofuran (mg/L)	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	0.038	<0.001
1,2-Dichloroethane (mg/L)	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	<0.001	<0.001
Methylene chloride (mg/L)	<0.001	<0.001
Styrene (mg/L)	<0.001	<0.001
Alcohols		
Ethanol (mg/L)	<5.0	<5.0
Methanol (mg/L)	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	<5.0	<5.0
Ketones		
Acetone (mg/L)	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	<0.050	<0.050
Total VOCs[2]	**0.281**	**0.000**
B. INORGANIC PARAMETERS		
Metals		
Copper, Total (mg/L)	<0.01	<0.01
Iron, Total (mg/L)	7.12	2.90
Lead, Total (mg/L)	<0.005	<0.005
Nickel, Total (mg/L)	<0.05	<0.05
Zinc, Total (mg/L)	<0.05	<0.05

NOTES:

mg/L = Milligrams per liter unless otherwise noted.

[1] = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

[2] = Total VOCs is the total sum of detected compounds (mg/l)

Table 3

April 2017

SRSNE HCTS - Influent Results

Parameter/ Concentration (mg/L)	Sample Dates	
	4/4/2017	4/20/2017
A. ORGANIC PARAMETERS		
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	0.001	<0.001
Tetrachloroethene (mg/L)	<0.001	<0.001
Toluene (mg/L)	0.024	0.020
Ethylbenzene (mg/L)	0.031	0.026
Xylenes, Total (mg/L)	0.050	0.045
Vinyl chloride (mg/L)	0.067	0.030
1,1-Dichloroethene (mg/L)	<0.001	<0.001
Tetrahydrofuran (mg/L)	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	0.036	0.015
1,2-Dichloroethane (mg/L)	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	<0.001	<0.001
Methylene chloride (mg/L)	<0.001	<0.001
Styrene (mg/L)	<0.001	<0.001
Alcohols		
Ethanol (mg/L)	<5.0	<5.0
Methanol (mg/L)	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	<5.0	<5.0
Ketones		
Acetone (mg/L)	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	<0.050	<0.050
Total VOCs[2]	**0.209**	**0.136**
B. INORGANIC PARAMETERS		
Metals		
Copper, Total (mg/L)	<0.01	<0.01
Iron, Total (mg/L)	10.0	7.8
Lead, Total (mg/L)	<0.005	<0.005
Nickel, Total (mg/L)	<0.05	<0.05
Zinc, Total (mg/L)	<0.05	<0.05

NOTES:

mg/L = Milligrams per liter unless otherwise noted.

[1] = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

[2] = Total VOCs is the total sum of detected compounds (mg/l)

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Table 3

May 2017

SRSNE HCTS - Influent Results

Parameter/ Concentration (mg/L)	Sample Dates	
	5/3/2017	5/16/2017
A. ORGANIC PARAMETERS		
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	<0.001	<0.001
Tetrachloroethene (mg/L)	<0.001	<0.001
Toluene (mg/L)	0.015	0.015
Ethylbenzene (mg/L)	0.019	0.045
Xylenes, Total (mg/L)	0.032	0.065
Vinyl chloride (mg/L)	0.060	0.072
1,1-Dichloroethene (mg/L)	<0.001	<0.001
Tetrahydrofuran (mg/L)	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	0.022	0.029
1,2-Dichloroethane (mg/L)	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	<0.001	<0.001
Methylene chloride (mg/L)	<0.001	<0.001
Styrene (mg/L)	<0.001	<0.001
Alcohols		
Ethanol (mg/L)	<5.0	<5.0
Methanol (mg/L)	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	<5.0	<5.0
Ketones		
Acetone (mg/L)	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	<0.050	<0.050
Total VOCs[2]	**0.148**	**0.226**
B. INORGANIC PARAMETERS		
Metals		
Copper, Total (mg/L)	0.02	<0.01
Iron, Total (mg/L)	6.06	8.60
Lead, Total (mg/L)	<0.005	<0.005
Nickel, Total (mg/L)	<0.05	<0.05
Zinc, Total (mg/L)	<0.05	<0.05

NOTES:

mg/L = Milligrams per liter unless otherwise noted.

[1] = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

[2] = Total VOCs is the total sum of detected compounds (mg/l)

Table 3

June 2017

SRSNE HCTS - Influent Results

Parameter/ Concentration (mg/L)	Sample Dates	
	6/1/2017	6/15/2017
A. ORGANIC PARAMETERS		
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	<0.001	<0.001
Tetrachloroethene (mg/L)	<0.001	<0.001
Toluene (mg/L)	0.018	0.035
Ethylbenzene (mg/L)	0.035	0.039
Xylenes, Total (mg/L)	0.038	0.041
Vinyl chloride (mg/L)	0.112	0.135
1,1-Dichloroethene (mg/L)	<0.001	<0.001
Tetrahydrofuran (mg/L)	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	0.045	0.136
1,2-Dichloroethane (mg/L)	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	<0.001	<0.001
Methylene chloride (mg/L)	<0.001	<0.001
Styrene (mg/L)	<0.001	<0.001
Alcohols		
Ethanol (mg/L)	<5.0	<5.0
Methanol (mg/L)	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	<5.0	<5.0
Ketones		
Acetone (mg/L)	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	<0.050	<0.050
Total VOCs[2]	**0.248**	**0.386**
B. INORGANIC PARAMETERS		
Metals		
Copper, Total (mg/L)	<0.01	<0.01
Iron, Total (mg/L)	9.4	11.0
Lead, Total (mg/L)	<0.005	<0.005
Nickel, Total (mg/L)	<0.05	<0.05
Zinc, Total (mg/L)	<0.05	<0.05

NOTES:

mg/L = Milligrams per liter unless otherwise noted.

[1] = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

[2] = Total VOCs is the total sum of detected compounds (mg/l)

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Table 3

July 2017

SRSNE HCTS - Influent Results

Parameter/ Concentration (mg/L)	Sample Dates	
	7/4/2017	7/18/2017
A. ORGANIC PARAMETERS		
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	<0.001	<0.001
Tetrachloroethene (mg/L)	<0.001	<0.001
Toluene (mg/L)	0.005	0.014
Ethylbenzene (mg/L)	0.011	0.051
Xylenes, Total (mg/L)	0.016	0.052
Vinyl chloride (mg/L)	0.019	0.051
1,1-Dichloroethene (mg/L)	<0.001	<0.001
Tetrahydrofuran (mg/L)	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	0.006	0.015
1,2-Dichloroethane (mg/L)	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	<0.001	<0.001
Methylene chloride (mg/L)	<0.001	<0.001
Styrene (mg/L)	<0.001	<0.001
Alcohols		
Ethanol (mg/L)	<5.0	<5.0
Methanol (mg/L)	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	<5.0	<5.0
Ketones		
Acetone (mg/L)	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	<0.050	<0.050
Total VOCs[2]	**0.057**	**0.183**
B. INORGANIC PARAMETERS		
Metals		
Copper, Total (mg/L)	<0.01	<0.01
Iron, Total (mg/L)	11.5	6.91
Lead, Total (mg/L)	<0.005	<0.005
Nickel, Total (mg/L)	<0.05	<0.05
Zinc, Total (mg/L)	<0.05	<0.05

NOTES:

mg/L = Milligrams per liter unless otherwise noted.

[1] = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

[2] = Total VOCs is the total sum of detected compounds (mg/l)

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Table 3

August 2017

SRSNE HCTS - Influent Results

Parameter/ Concentration (mg/L)	Sample Dates	
	8/2/2017	**8/15/2017**
A. ORGANIC PARAMETERS		
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	<0.001	<0.001
Tetrachloroethene (mg/L)	<0.001	<0.001
Toluene (mg/L)	0.030	0.012
Ethylbenzene (mg/L)	0.047	0.041
Xylenes, Total (mg/L)	0.050	0.040
Vinyl chloride (mg/L)	0.229	0.020
1,1-Dichloroethene (mg/L)	<0.001	<0.001
Tetrahydrofuran (mg/L)	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	0.118	0.007
1,2-Dichloroethane (mg/L)	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	<0.001	<0.001
Methylene chloride (mg/L)	<0.001	<0.001
Styrene (mg/L)	<0.001	<0.001
Alcohols		
Ethanol (mg/L)	<5.0	<5.0
Methanol (mg/L)	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	<5.0	<5.0
Ketones		
Acetone (mg/L)	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	<0.050	<0.050
Total VOCs[2]	**0.474**	**0.120**
B. INORGANIC PARAMETERS		
Metals		
Copper, Total (mg/L)	<0.01	<0.01
Iron, Total (mg/L)	0.50	12.0
Lead, Total (mg/L)	<0.005	<0.005
Nickel, Total (mg/L)	<0.05	<0.05
Zinc, Total (mg/L)	<0.05	<0.05

NOTES:

mg/L = Milligrams per liter unless otherwise noted.

[1] = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

[2] = Total VOCs is the total sum of detected compounds (mg/l)

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Table 3

September 2017

SRSNE HCTS - Influent Results

Parameter/ Concentration (mg/L)	Sample Dates	
	9/1/2017	**9/14/2017**
A. ORGANIC PARAMETERS		
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	<0.001	<0.001
Tetrachloroethene (mg/L)	<0.001	<0.001
Toluene (mg/L)	0.039	0.006
Ethylbenzene (mg/L)	0.060	0.018
Xylenes, Total (mg/L)	0.068	0.018
Vinyl chloride (mg/L)	0.254	0.051
1,1-Dichloroethene (mg/L)	<0.001	<0.001
Tetrahydrofuran (mg/L)	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	0.170	0.023
1,2-Dichloroethane (mg/L)	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	<0.001	<0.001
Methylene chloride (mg/L)	<0.001	<0.001
Styrene (mg/L)	<0.001	<0.001
Alcohols		
Ethanol (mg/L)	<5.0	<5.0
Methanol (mg/L)	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	<5.0	<5.0
Ketones		
Acetone (mg/L)	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	<0.050	<0.050
Total VOCs[2]	**0.591**	**0.116**
B. INORGANIC PARAMETERS		
Metals		
Copper, Total (mg/L)	<0.01	<0.01
Iron, Total (mg/L)	23.0	13.6
Lead, Total (mg/L)	<0.005	<0.005
Nickel, Total (mg/L)	<0.05	<0.05
Zinc, Total (mg/L)	<0.05	<0.05

NOTES:

mg/L = Milligrams per liter unless otherwise noted.

[1] = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

[2] = Total VOCs is the total sum of detected compounds (mg/l)

Table 3

October 2017

SRSNE HCTS - Influent Results

Parameter/ Concentration (mg/L)	Sample Dates	
	10/3/2017	10/19/2017
A. ORGANIC PARAMETERS		
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	<0.001	<0.001
Tetrachloroethene (mg/L)	<0.001	<0.001
Toluene (mg/L)	0.010	0.014
Ethylbenzene (mg/L)	0.065	0.080
Xylenes, Total (mg/L)	0.068	0.083
Vinyl chloride (mg/L)	0.033	0.100
1,1-Dichloroethene (mg/L)	<0.001	<0.001
Tetrahydrofuran (mg/L)	<0.050	0.012
1,2-Dichloroethene[1] (mg/L)	0.012	0.039
1,2-Dichloroethane (mg/L)	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	<0.001	<0.001
Methylene chloride (mg/L)	<0.001	<0.005
Styrene (mg/L)	<0.001	<0.001
Alcohols		
Ethanol (mg/L)	<5.0	<2.5
Methanol (mg/L)	<5.0	<2.5
2-Butanol (sec-Butanol) (mg/L)	<5.0	<2.5
2-Propanol (Isopropanol) (mg/L)	<5.0	<2.5
Ketones		
Acetone (mg/L)	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	<0.050	<0.025
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	<0.050	<0.025
Total VOCs[2]	**0.188**	**0.328**
B. INORGANIC PARAMETERS		
Metals		
Copper, Total (mg/L)	<0.01	<0.04
Iron, Total (mg/L)	7.6	13.0
Lead, Total (mg/L)	<0.005	<0.013
Nickel, Total (mg/L)	<0.05	<0.05
Zinc, Total (mg/L)	<0.05	<0.02

NOTES:

mg/L = Milligrams per liter unless otherwise noted.

[1] = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

[2] = Total VOCs is the total sum of detected compounds (mg/l)

Table 4

November 2016

SRSNE HCTS - Effluent Results

Parameter/ Concentration (mg/L)	Substantive Requirement Discharge Limits	Sample Dates	
		11/3/2016	11/15/2016
A. ORGANIC PARAMETERS			
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	**0.973**	<0.001	<0.001
Tetrachloroethene (mg/L)	**0.106**	<0.001	<0.001
Toluene (mg/L)	**4.000**	<0.001	<0.001
Ethylbenzene (mg/L)	**1.000**	<0.001	<0.001
Xylenes, Total (mg/L)	**0.500**	<0.001	<0.001
Vinyl chloride (mg/L)	**4.500**	<0.001	<0.001
1,1-Dichloroethene (mg/L)	**0.058**	<0.001	<0.001
Tetrahydrofuran (mg/L)	**0.500**	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	**5.000**	<0.001	<0.001
1,2-Dichloroethane (mg/L)	**0.250**	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	**4.000**	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	**0.250**	<0.001	<0.001
Methylene chloride (mg/L)	**15.000**	<0.001	<0.001
Styrene (mg/L)	**0.500**	<0.001	<0.001
Alcohols			
Ethanol (mg/L)	**20.0**	<5.0	<5.0
Methanol (mg/L)	**10.0**	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	**30.0**	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	**10.0**	<5.0	<5.0
Ketones			
Acetone (mg/L)	**35.0**	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	**10.0**	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	**2.0**	<0.050	<0.050
Total VOCs[2]		**0**	**0**
B. INORGANIC PARAMETERS			
Metals	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*
Copper, Total (g/day)[3]	**15.8 g/day**	<0.01 mg/l or <1.88 g/day	<0.01 mg/l or <1.88 g/day
Iron, Total (mg/l)	**5.0**	0.11	0.09
Lead, Total (g/day)[3]	**3.2 g/day**	<0.005 mg/l or <0.94 g/day	<0.005 mg/l or <0.94 g/day
Nickel, Total (mg/l)	**0.5**	<0.05	<0.05
Zinc, Total (g/day)[3]	**40.3 g/day**	<0.05 mg/l or <9.4 g/day	<0.05 mg/l or <9.4 g/day
OTHER			
Hydrogen Peroxide (mg/L)	**1.0**	<0.2	<0.2
Total PCBs (µg/L)	**NL**	<1	NS
pH (s.u.)	**6.0 - 9.0 s.u.**	6.84	6.82
Total Suspended Solids (mg/L)	**30**	<1	<1
Dioxins (pg/L)	**NL**	NS	NS
Furans (pg/L)	**NL**	NS	NS

NOTES:

1 = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

2 = Total VOCs is the total sum of detected compounds (mg/l)

3 = Inorganic results reported in grams per day are based on average monthly effluent flow

NL = no limit specified.

NS = not sampled (total PCBs analysis required monthly; dioxin/furan analysis required quarterly).

mg/L = Milligrams per liter

µg/L = micrograms per liter

pg/L = picograms per liter

g/day = grams per day

s.u. = Standard pH units

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Table 4

December 2016

SRSNE HCTS - Effluent Results

Parameter/ Concentration (mg/L)	Substantive Requirement Discharge Limits	Sample Dates	
		12/1/2016	12/15/2016
A. ORGANIC PARAMETERS			
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	**0.973**	<0.001	<0.001
Tetrachloroethene (mg/L)	**0.106**	<0.001	<0.001
Toluene (mg/L)	**4.000**	<0.001	<0.001
Ethylbenzene (mg/L)	**1.000**	<0.001	<0.001
Xylenes, Total (mg/L)	**0.500**	<0.001	<0.001
Vinyl chloride (mg/L)	**4.500**	<0.001	<0.001
1,1-Dichloroethene (mg/L)	**0.058**	<0.001	<0.001
Tetrahydrofuran (mg/L)	**0.500**	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	**5.000**	<0.001	<0.001
1,2-Dichloroethane (mg/L)	**0.250**	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	**4.000**	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	**0.250**	<0.001	<0.001
Methylene chloride (mg/L)	**15.000**	<0.001	<0.001
Styrene (mg/L)	**0.500**	<0.001	<0.001
Alcohols			
Ethanol (mg/L)	**20.0**	<5.0	<5.0
Methanol (mg/L)	**10.0**	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	**30.0**	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	**10.0**	<5.0	<5.0
Ketones			
Acetone (mg/L)	**35.0**	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	**10.0**	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	**2.0**	<0.050	<0.050
Total VOCs[2]		**0**	**0**
B. INORGANIC PARAMETERS			
Metals	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*
Copper, Total (g/day)[3]	**15.8 g/day**	<0.01 mg/l or <1.88 g/day	<0.01 mg/l or <1.88 g/day
Iron, Total (mg/l)	**5.0**	0.09	0.25
Lead, Total (g/day)[3]	**3.2 g/day**	<0.005 mg/l or <0.94 g/day	<0.005 mg/l or <0.94 g/day
Nickel, Total (mg/l)	**0.5**	<0.05	<0.05
Zinc, Total (g/day)[3]	**40.3 g/day**	<0.05 mg/l or <9.39 g/day	<0.05 mg/l or <9.39 g/day
OTHER			
Hydrogen Peroxide (mg/L)	**1.0**	<0.2	<0.2
Total PCBs (µg/L)	**NL**	<1	NS
pH (s.u.)	**6.0 - 9.0 s.u.**	6.86	6.73
Total Suspended Solids (mg/L)	**30**	1	1
Dioxins (pg/L)	**NL**	NS	NS
Furans (pg/L)	**NL**	NS	NS

NOTES:

1 = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

2 = Total VOCs is the total sum of detected compounds (mg/l)

3 = Inorganic results reported in grams per day are based on average monthly effluent flow

NL = no limit specified.

NS = not sampled (total PCBs analysis required monthly; dioxin/furan analysis required quarterly).

mg/L = Milligrams per liter

µg/L = micrograms per liter

pg/L = picograms per liter

g/day = grams per day

s.u. = Standard pH units

Table 4

January 2017

SRSNE HCTS - Effluent Results

Parameter/ Concentration (mg/L)	Substantive Requirement Discharge Limits	Sample Dates	
		1/4/2017	1/19/2017
A. ORGANIC PARAMETERS			
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	**0.973**	<0.001	<0.001
Tetrachloroethene (mg/L)	**0.106**	<0.001	<0.001
Toluene (mg/L)	**4.000**	<0.001	<0.001
Ethylbenzene (mg/L)	**1.000**	<0.001	<0.001
Xylenes, Total (mg/L)	**0.500**	<0.001	<0.001
Vinyl chloride (mg/L)	**4.500**	<0.001	<0.001
1,1-Dichloroethene (mg/L)	**0.058**	<0.001	<0.001
Tetrahydrofuran (mg/L)	**0.500**	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	**5.000**	<0.001	<0.001
1,2-Dichloroethane (mg/L)	**0.250**	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	**4.000**	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	**0.250**	<0.001	<0.001
Methylene chloride (mg/L)	**15.000**	<0.001	<0.001
Styrene (mg/L)	**0.500**	<0.001	<0.001
Alcohols			
Ethanol (mg/L)	**20.0**	<5.0	<5.0
Methanol (mg/L)	**10.0**	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	**30.0**	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	**10.0**	<5.0	<5.0
Ketones			
Acetone (mg/L)	**35.0**	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	**10.0**	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	**2.0**	<0.050	<0.050
Total VOCs[2]		0	0
B. INORGANIC PARAMETERS			
Metals	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*
Copper, Total (g/day)[3]	**15.8 g/day**	<0.01 mg/l or <1.98 g/day	<0.01 mg/l or <1.98 g/day
Iron, Total (mg/l)	**5.0**	0.16	0.11
Lead, Total (g/day)[3]	**3.2 g/day**	<0.005 mg/l or <0.99 g/day	<0.005 mg/l or <0.99 g/day
Nickel, Total (mg/l)	**0.5**	<0.05	<0.05
Zinc, Total (g/day)[3]	**40.3 g/day**	<0.05 mg/l or <9.88 g/day	<0.05 mg/l or <9.88 g/day
OTHER			
Hydrogen Peroxide (mg/L)	**1.0**	<0.2	<0.2
Total PCBs (µg/L)	**NL**	<1	NS
pH (s.u.)	**6.0 - 9.0 s.u.**	6.71	6.75
Total Suspended Solids (mg/L)	**30**	<1	2
Dioxins (pg/L)	**NL**	<36	NS
Furans (pg/L)	**NL**	<51	NS

NOTES:

1 = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

2 = Total VOCs is the total sum of detected compounds (mg/l)

3 = Inorganic results reported in grams per day are based on average monthly effluent flow

NL = no limit specified.

NS = not sampled (total PCBs analysis required monthly; dioxin/furan analysis required quarterly).

mg/L = Milligrams per liter

µg/L = micrograms per liter

pg/L = picograms per liter

g/day = grams per day

s.u. = Standard pH units

Table 4

February 2017

SRSNE HCTS - Effluent Results

Parameter/ Concentration (mg/L)	Substantive Requirement Discharge Limits	Sample Dates	
		2/2/2017	2/16/2017
A. ORGANIC PARAMETERS			
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	**0.973**	<0.001	<0.001
Tetrachloroethene (mg/L)	**0.106**	<0.001	<0.001
Toluene (mg/L)	**4.000**	<0.001	<0.001
Ethylbenzene (mg/L)	**1.000**	<0.001	<0.001
Xylenes, Total (mg/L)	**0.500**	<0.001	<0.001
Vinyl chloride (mg/L)	**4.500**	<0.001	<0.001
1,1-Dichloroethene (mg/L)	**0.058**	<0.001	<0.001
Tetrahydrofuran (mg/L)	**0.500**	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	**5.000**	<0.001	<0.001
1,2-Dichloroethane (mg/L)	**0.250**	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	**4.000**	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	**0.250**	<0.001	<0.001
Methylene chloride (mg/L)	**15.000**	<0.001	<0.001
Styrene (mg/L)	**0.500**	<0.001	<0.001
Alcohols			
Ethanol (mg/L)	**20.0**	<5.0	<5.0
Methanol (mg/L)	**10.0**	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	**30.0**	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	**10.0**	<5.0	<5.0
Ketones			
Acetone (mg/L)	**35.0**	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	**10.0**	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	**2.0**	<0.050	<0.050
Total VOCs[2]		**0**	**0**
B. INORGANIC PARAMETERS			
Metals	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*
Copper, Total (g/day)[3]	**15.8 g/day**	<0.01 mg/l or <2.05 g/day	<0.01 mg/l or <2.05 g/day
Iron, Total (mg/l)	**5.0**	0.61	0.11
Lead, Total (g/day)[3]	**3.2 g/day**	<0.005 mg/l or <1.03 g/day	<0.005 mg/l or <1.03 g/day
Nickel, Total (mg/l)	**0.5**	<0.05	<0.05
Zinc, Total (g/day)[3]	**40.3 g/day**	<0.05 mg/l or <10.25 g/day	<0.05 mg/l or <10.25 g/day
OTHER			
Hydrogen Peroxide (mg/L)	**1.0**	<0.2	<0.2
Total PCBs (µg/L)	**NL**	NS	NS
pH (s.u.)	**6.0 - 9.0 s.u.**	6.71	6.71
Total Suspended Solids (mg/L)	**30**	1	<1
Dioxins (pg/L)	**NL**	NS	NS
Furans (pg/L)	**NL**	NS	NS

NOTES:

1 = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

2 = Total VOCs is the total sum of detected compounds (mg/l)

3 = Inorganic results reported in grams per day are based on average monthly effluent flow

NL = no limit specified.

NS = not sampled (total PCBs analysis required monthly; dioxin/furan analysis required quarterly).

mg/L = Milligrams per liter

µg/L = micrograms per liter

pg/L = picograms per liter

g/day = grams per day

s.u. = Standard pH units

Table 4

March 2017

SRSNE HCTS - Effluent Results

Parameter/ Concentration (mg/L)	Substantive Requirement Discharge Limits	Sample Dates	
		3/2/2017	**3/16/2017**
A. ORGANIC PARAMETERS			
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	**0.973**	<0.001	<0.001
Tetrachloroethene (mg/L)	**0.106**	<0.001	<0.001
Toluene (mg/L)	**4.000**	<0.001	<0.001
Ethylbenzene (mg/L)	**1.000**	<0.001	<0.001
Xylenes, Total (mg/L)	**0.500**	<0.001	<0.001
Vinyl chloride (mg/L)	**4.500**	<0.001	<0.001
1,1-Dichloroethene (mg/L)	**0.058**	<0.001	<0.001
Tetrahydrofuran (mg/L)	**0.500**	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	**5.000**	0.001	0.001
1,2-Dichloroethane (mg/L)	**0.250**	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	**4.000**	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	**0.250**	<0.001	<0.001
Methylene chloride (mg/L)	**15.000**	<0.001	<0.001
Styrene (mg/L)	**0.500**	<0.001	<0.001
Alcohols			
Ethanol (mg/L)	**20.0**	<5.0	<5.0
Methanol (mg/L)	**10.0**	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	**30.0**	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	**10.0**	<5.0	<5.0
Ketones			
Acetone (mg/L)	**35.0**	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	**10.0**	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	**2.0**	<0.050	<0.050
Total VOCs[2]		**0.001**	**0.001**
B. INORGANIC PARAMETERS			
Metals	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*
Copper, Total (g/day)[3]	**15.8 g/day**	<0.01 mg/l or <2.08 g/day	<0.01 mg/l or <2.08 g/day
Iron, Total (mg/l)	**5.0**	0.14	0.20
Lead, Total (g/day)[3]	**3.2 g/day**	<0.005 mg/l or <1.04 g/day	<0.005 mg/l or <1.04 g/day
Nickel, Total (mg/l)	**0.5**	<0.05	<0.05
Zinc, Total (g/day)[3]	**40.3 g/day**	<0.05 mg/l or <10.38 g/day	<0.05 mg/l or <10.38 g/day
OTHER			
Hydrogen Peroxide (mg/L)	**1.0**	<0.2	<0.2
Total PCBs (µg/L)	**NL**	<1	NS
pH (s.u.)	**6.0 - 9.0 s.u.**	6.69	6.77
Total Suspended Solids (mg/L)	**30**	4	<1
Dioxins (pg/L)	**NL**	NS	NS
Furans (pg/L)	**NL**	NS	NS

NOTES:

1 = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

2 = Total VOCs is the total sum of detected compounds (mg/l)

3 = Inorganic results reported in grams per day are based on average monthly effluent flow

NL = no limit specified.

NS = not sampled (total PCBs analysis required monthly; dioxin/furan analysis required quarterly).

mg/L = Milligrams per liter

µg/L = micrograms per liter

pg/L = picograms per liter

g/day = grams per day

s.u. = Standard pH units

Table 4

April 2017

SRSNE HCTS - Effluent Results

Parameter/ Concentration (mg/L)	Substantive Requirement Discharge Limits	Sample Dates	
		4/4/2017	4/20/2017
A. ORGANIC PARAMETERS			
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	**0.973**	<0.001	<0.001
Tetrachloroethene (mg/L)	**0.106**	<0.001	<0.001
Toluene (mg/L)	**4.000**	<0.001	<0.001
Ethylbenzene (mg/L)	**1.000**	<0.001	<0.001
Xylenes, Total (mg/L)	**0.500**	<0.001	<0.001
Vinyl chloride (mg/L)	**4.500**	<0.001	0.012
1,1-Dichloroethene (mg/L)	**0.058**	<0.001	<0.001
Tetrahydrofuran (mg/L)	**0.500**	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	**5.000**	0.002	0.008
1,2-Dichloroethane (mg/L)	**0.250**	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	**4.000**	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	**0.250**	<0.001	<0.001
Methylene chloride (mg/L)	**15.000**	<0.001	<0.001
Styrene (mg/L)	**0.500**	<0.001	<0.001
Alcohols			
Ethanol (mg/L)	**20.0**	<5.0	<5.0
Methanol (mg/L)	**10.0**	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	**30.0**	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	**10.0**	<5.0	<5.0
Ketones			
Acetone (mg/L)	**35.0**	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	**10.0**	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	**2.0**	<0.050	<0.050
Total VOCs[2]		**0.002**	**0.02**
B. INORGANIC PARAMETERS			
Metals	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*
Copper, Total (g/day)[3]	**15.8 g/day**	<0.01 mg/l or <2.4 g/day	<0.01 mg/l or <2.4 g/day
Iron, Total (mg/l)	**5.0**	0.14	<0.05
Lead, Total (g/day)[3]	**3.2 g/day**	<0.005 mg/l or <1.2 g/day	<0.005 mg/l or <1.2 g/day
Nickel, Total (mg/l)	**0.5**	<0.05	<0.05
Zinc, Total (g/day)[3]	**40.3 g/day**	<0.05 mg/l or <11.98 g/day	<0.05 mg/l or <11.98 g/day
OTHER			
Hydrogen Peroxide (mg/L)	**1.0**	<0.2	<0.2
Total PCBs (µg/L)	**NL**	<1	NS
pH (s.u.)	**6.0 - 9.0 s.u.**	6.75	6.81
Total Suspended Solids (mg/L)	**30**	<1	2
Dioxins (pg/L)	**NL**	<77	NS
Furans (pg/L)	**NL**	<67	NS

NOTES:

1 = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

2 = Total VOCs is the total sum of detected compounds (mg/l)

3 = Inorganic results reported in grams per day are based on average monthly effluent flow

NL = no limit specified.

NS = not sampled (total PCBs analysis required monthly; dioxin/furan analysis required quarterly).

mg/L = Milligrams per liter

µg/L = micrograms per liter

pg/L = picograms per liter

g/day = grams per day

s.u. = Standard pH units

Table 4

May 2017

SRSNE HCTS - Effluent Results

Parameter/ Concentration (mg/L)	Substantive Requirement Discharge Limits	Sample Dates	
		5/3/2017	5/16/2017
A. ORGANIC PARAMETERS			
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	**0.973**	<0.001	<0.001
Tetrachloroethene (mg/L)	**0.106**	<0.001	<0.001
Toluene (mg/L)	**4.000**	<0.001	<0.001
Ethylbenzene (mg/L)	**1.000**	<0.001	<0.001
Xylenes, Total (mg/L)	**0.500**	<0.001	<0.001
Vinyl chloride (mg/L)	**4.500**	0.010	0.012
1,1-Dichloroethene (mg/L)	**0.058**	<0.001	<0.001
Tetrahydrofuran (mg/L)	**0.500**	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	**5.000**	0.009	0.009
1,2-Dichloroethane (mg/L)	**0.250**	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	**4.000**	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	**0.250**	<0.001	<0.001
Methylene chloride (mg/L)	**15.000**	<0.001	<0.001
Styrene (mg/L)	**0.500**	<0.001	<0.001
Alcohols			
Ethanol (mg/L)	**20.0**	<5.0	<5.0
Methanol (mg/L)	**10.0**	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	**30.0**	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	**10.0**	<5.0	<5.0
Ketones			
Acetone (mg/L)	**35.0**	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	**10.0**	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	**2.0**	<0.050	<0.050
Total VOCs[2]		**0.019**	**0.021**
B. INORGANIC PARAMETERS			
Metals	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*
Copper, Total (g/day)[3]	**15.8 g/day**	0.02 mg/l or 5.18 g/day	<0.01 mg/l or <2.59 g/day
Iron, Total (mg/l)	**5.0**	<0.05	<0.05
Lead, Total (g/day)[3]	**3.2 g/day**	<0.005 mg/l or <1.29 g/day	<0.005 mg/l or <1.29 g/day
Nickel, Total (mg/l)	**0.5**	<0.05	<0.05
Zinc, Total (g/day)[3]	**40.3 g/day**	<0.05 mg/l or <12.94 g/day	<0.05 mg/l or <12.94 g/day
OTHER			
Hydrogen Peroxide (mg/L)	**1.0**	<0.2	<0.2
Total PCBs (µg/L)	**NL**	<1	NS
pH (s.u.)	**6.0 - 9.0 s.u.**	6.74	6.73
Total Suspended Solids (mg/L)	**30**	1	<1
Dioxins (pg/L)	**NL**	NS	NS
Furans (pg/L)	**NL**	NS	NS

NOTES:

1 = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

2 = Total VOCs is the total sum of detected compounds (mg/l)

3 = Inorganic results reported in grams per day are based on average monthly effluent flow

NL = no limit specified.

NS = not sampled (total PCBs analysis required monthly; dioxin/furan analysis required quarterly).

mg/L = Milligrams per liter

µg/L = micrograms per liter

pg/L = picograms per liter

g/day = grams per day

s.u. = Standard pH units

Table 4

June 2017

SRSNE HCTS - Effluent Results

Parameter/ Concentration (mg/L)	Substantive Requirement Discharge Limits	Sample Dates	
		6/1/2017	6/15/2017
A. ORGANIC PARAMETERS			
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	**0.973**	<0.001	<0.001
Tetrachloroethene (mg/L)	**0.106**	<0.001	<0.001
Toluene (mg/L)	**4.000**	<0.001	<0.001
Ethylbenzene (mg/L)	**1.000**	<0.001	<0.001
Xylenes, Total (mg/L)	**0.500**	<0.001	<0.001
Vinyl chloride (mg/L)	**4.500**	0.010	0.003
1,1-Dichloroethene (mg/L)	**0.058**	<0.001	<0.001
Tetrahydrofuran (mg/L)	**0.500**	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	**5.000**	0.011	0.007
1,2-Dichloroethane (mg/L)	**0.250**	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	**4.000**	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	**0.250**	<0.001	<0.001
Methylene chloride (mg/L)	**15.000**	<0.001	<0.001
Styrene (mg/L)	**0.500**	<0.001	<0.001
Alcohols			
Ethanol (mg/L)	**20.0**	<5.0	<5.0
Methanol (mg/L)	**10.0**	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	**30.0**	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	**10.0**	<5.0	<5.0
Ketones			
Acetone (mg/L)	**35.0**	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	**10.0**	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	**2.0**	<0.050	<0.050
Total VOCs[2]		**0.021**	**0.010**
B. INORGANIC PARAMETERS			
Metals	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*
Copper, Total (g/day)[3]	**15.8 g/day**	<0.01 mg/l or< 4.53 g/day	<0.01 mg/l or <2.26 g/day
Iron, Total (mg/l)	**5.0**	<0.05	0.24
Lead, Total (g/day)[3]	**3.2 g/day**	<0.005 mg/l or <1.13 g/day	<0.005 mg/l or <1.13 g/day
Nickel, Total (mg/l)	**0.5**	<0.05	<0.05
Zinc, Total (g/day)[3]	**40.3 g/day**	<0.05 mg/l or <11.32 g/day	<0.05 mg/l or <11.32 g/day
OTHER			
Hydrogen Peroxide (mg/L)	**1.0**	<0.2	<0.2
Total PCBs (µg/L)	**NL**	<1	NS
pH (s.u.)	**6.0 - 9.0 s.u.**	6.78	6.68
Total Suspended Solids (mg/L)	**30**	<1	<1
Dioxins (pg/L)	**NL**	NS	NS
Furans (pg/L)	**NL**	NS	NS

NOTES:

1 = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

2 = Total VOCs is the total sum of detected compounds (mg/l)

3 = Inorganic results reported in grams per day are based on average monthly effluent flow

NL = no limit specified.

NS = not sampled (total PCBs analysis required monthly; dioxin/furan analysis required quarterly).

mg/L = Milligrams per liter

µg/L = micrograms per liter

pg/L = picograms per liter

g/day = grams per day

s.u. = Standard pH units

Table 4

July 2017

SRSNE HCTS - Effluent Results

Parameter/ Concentration (mg/L)	Substantive Requirement Discharge Limits	Sample Dates	
		7/4/2017	**7/18/2017**
A. ORGANIC PARAMETERS			
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	**0.973**	<0.001	<0.001
Tetrachloroethene (mg/L)	**0.106**	<0.001	<0.001
Toluene (mg/L)	**4.000**	<0.001	<0.001
Ethylbenzene (mg/L)	**1.000**	<0.001	<0.001
Xylenes, Total (mg/L)	**0.500**	<0.001	<0.001
Vinyl chloride (mg/L)	**4.500**	0.003	0.002
1,1-Dichloroethene (mg/L)	**0.058**	<0.001	<0.001
Tetrahydrofuran (mg/L)	**0.500**	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	**5.000**	0.009	0.008
1,2-Dichloroethane (mg/L)	**0.250**	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	**4.000**	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	**0.250**	<0.001	<0.001
Methylene chloride (mg/L)	**15.000**	<0.001	<0.001
Styrene (mg/L)	**0.500**	<0.001	<0.001
Alcohols			
Ethanol (mg/L)	**20.0**	<5.0	<5.0
Methanol (mg/L)	**10.0**	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	**30.0**	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	**10.0**	<5.0	<5.0
Ketones			
Acetone (mg/L)	**35.0**	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	**10.0**	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	**2.0**	<0.050	<0.050
Total VOCs[2]		**0.012**	**0.010**
B. INORGANIC PARAMETERS			
Metals	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*
Copper, Total (g/day)[3]	**15.8 g/day**	<0.01 mg/l or <2.1 g/day	<0.01 mg/l or <2.1 g/day
Iron, Total (mg/l)	**5.0**	<0.05	0.08
Lead, Total (g/day)[3]	**3.2 g/day**	<0.005 mg/l or <1.05 g/day	<0.005 mg/l or <1.05 g/day
Nickel, Total (mg/l)	**0.5**	<0.05	<0.05
Zinc, Total (g/day)[3]	**40.3 g/day**	<0.05 mg/l or <10.51 g/day	<0.05 mg/l or <10.51 g/day
OTHER			
Hydrogen Peroxide (mg/L)	**1.0**	<0.2	<0.2
Total PCBs (µg/L)	**NL**	<1	NS
pH (s.u.)	**6.0 - 9.0 s.u.**	6.57	7.40
Total Suspended Solids (mg/L)	**30**	<1	1
Dioxins (pg/L)	**NL**	<37	NS
Furans (pg/L)	**NL**	<67	NS

NOTES:

1 = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

2 = Total VOCs is the total sum of detected compounds (mg/l)

3 = Inorganic results reported in grams per day are based on average monthly effluent flow

NL = no limit specified.

NS = not sampled (total PCBs analysis required monthly; dioxin/furan analysis required quarterly).

mg/L = Milligrams per liter

µg/L = micrograms per liter

pg/L = picograms per liter

g/day = grams per day

s.u. = Standard pH units

Table 4

August 2017

SRSNE HCTS - Effluent Results

Parameter/ Concentration (mg/L)	Substantive Requirement Discharge Limits	Sample Dates	
		8/2/2017	8/15/2017
A. ORGANIC PARAMETERS			
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	**0.973**	<0.001	<0.001
Tetrachloroethene (mg/L)	**0.106**	<0.001	<0.001
Toluene (mg/L)	**4.000**	<0.001	<0.001
Ethylbenzene (mg/L)	**1.000**	<0.001	<0.001
Xylenes, Total (mg/L)	**0.500**	<0.001	<0.001
Vinyl chloride (mg/L)	**4.500**	<0.001	<0.001
1,1-Dichloroethene (mg/L)	**0.058**	<0.001	<0.001
Tetrahydrofuran (mg/L)	**0.500**	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	**5.000**	0.009	0.008
1,2-Dichloroethane (mg/L)	**0.250**	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	**4.000**	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	**0.250**	<0.001	<0.001
Methylene chloride (mg/L)	**15.000**	<0.001	<0.001
Styrene (mg/L)	**0.500**	<0.001	<0.001
Alcohols			
Ethanol (mg/L)	**20.0**	<5.0	<5.0
Methanol (mg/L)	**10.0**	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	**30.0**	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	**10.0**	<5.0	<5.0
Ketones			
Acetone (mg/L)	**35.0**	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	**10.0**	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	**2.0**	<0.050	<0.050
Total VOCs[2]		**0.009**	**0.008**
B. INORGANIC PARAMETERS			
Metals	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*
Copper, Total (g/day)[3]	**15.8 g/day**	<0.01 mg/l or <1.97 g/day	<0.01 mg/l or <1.97 g/day
Iron, Total (mg/l)	**5.0**	0.06	0.07
Lead, Total (g/day)[3]	**3.2 g/day**	<0.005 mg/l or <0.98 g/day	<0.005 mg/l or <0.98 g/day
Nickel, Total (mg/l)	**0.5**	<0.05	<0.05
Zinc, Total (g/day)[3]	**40.3 g/day**	<0.05 mg/l or <9.84 g/day	<0.05 mg/l or <9.84 g/day
OTHER			
Hydrogen Peroxide (mg/L)	**1.0**	<0.2	<0.2
Total PCBs (µg/L)	**NL**	<1	NS
pH (s.u.)	**6.0 - 9.0 s.u.**	7.19	7.10
Total Suspended Solids (mg/L)	**30**	1	<1
Dioxins (pg/L)	**NL**	NS	NS
Furans (pg/L)	**NL**	NS	NS

NOTES:

1 = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

2 = Total VOCs is the total sum of detected compounds (mg/l)

3 = Inorganic results reported in grams per day are based on average monthly effluent flow

NL = no limit specified.

NS = not sampled (total PCBs analysis required monthly; dioxin/furan analysis required quarterly).

mg/L = Milligrams per liter

µg/L = micrograms per liter

pg/L = picograms per liter

g/day = grams per day

s.u. = Standard pH units

Table 4

September 2017

SRSNE HCTS - Effluent Results

Parameter/ Concentration (mg/L)	Substantive Requirement Discharge Limits	Sample Dates	
		9/1/2017	9/14/2017
A. ORGANIC PARAMETERS			
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	**0.973**	<0.001	<0.001
Tetrachloroethene (mg/L)	**0.106**	<0.001	<0.001
Toluene (mg/L)	**4.000**	<0.001	<0.001
Ethylbenzene (mg/L)	**1.000**	<0.001	<0.001
Xylenes, Total (mg/L)	**0.500**	<0.001	<0.001
Vinyl chloride (mg/L)	**4.500**	<0.001	<0.001
1,1-Dichloroethene (mg/L)	**0.058**	<0.001	<0.001
Tetrahydrofuran (mg/L)	**0.500**	<0.050	<0.050
1,2-Dichloroethene[1] (mg/L)	**5.000**	0.008	0.008
1,2-Dichloroethane (mg/L)	**0.250**	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	**4.000**	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	**0.250**	<0.001	<0.001
Methylene chloride (mg/L)	**15.000**	<0.001	<0.001
Styrene (mg/L)	**0.500**	<0.001	<0.001
Alcohols			
Ethanol (mg/L)	**20.0**	<5.0	<5.0
Methanol (mg/L)	**10.0**	<5.0	<5.0
2-Butanol (sec-Butanol) (mg/L)	**30.0**	<5.0	<5.0
2-Propanol (Isopropanol) (mg/L)	**10.0**	<5.0	<5.0
Ketones			
Acetone (mg/L)	**35.0**	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	**10.0**	<0.050	<0.050
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	**2.0**	<0.050	<0.050
Total VOCs[2]		**0.008**	**0.008**
B. INORGANIC PARAMETERS			
Metals	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*
Copper, Total (g/day)[3]	**15.8 g/day**	<0.01 mg/l or <1.94 g/day	<0.01 mg/l or <1.94 g/day
Iron, Total (mg/l)	**5.0**	<0.05	<0.05
Lead, Total (g/day)[3]	**3.2 g/day**	<0.005 mg/l or <0.97 g/day	<0.005 mg/l or <0.97 g/day
Nickel, Total (mg/l)	**0.5**	<0.05	<0.05
Zinc, Total (g/day)[3]	**40.3 g/day**	<0.05 mg/l or <9.7 g/day	<0.05 mg/l or <9.7 g/day
OTHER			
Hydrogen Peroxide (mg/L)	**1.0**	<0.2	<0.2
Total PCBs (µg/L)	**NL**	<1	NS
pH (s.u.)	**6.0 - 9.0 s.u.**	7.02	6.91
Total Suspended Solids (mg/L)	**30**	6	5
Dioxins (pg/L)	**NL**	NS	NS
Furans (pg/L)	**NL**	NS	NS

NOTES:

1 = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

2 = Total VOCs is the total sum of detected compounds (mg/l)

3 = Inorganic results reported in grams per day are based on average monthly effluent flow

NL = no limit specified.

NS = not sampled (total PCBs analysis required monthly; dioxin/furan analysis required quarterly).

mg/L = Milligrams per liter

µg/L = micrograms per liter

pg/L = picograms per liter

g/day = grams per day

s.u. = Standard pH units

Table 4

October 2017

SRSNE HCTS - Effluent Results

Parameter/ Concentration (mg/L)	Substantive Requirement Discharge Limits	Sample Dates	
		10/3/2017	10/19/2017
A. ORGANIC PARAMETERS			
Volatile Organic Compounds	*(mg/L)*	*(mg/L)*	*(mg/L)*
Trichloroethene (mg/L)	**0.973**	<0.001	<0.001
Tetrachloroethene (mg/L)	**0.106**	<0.001	<0.001
Toluene (mg/L)	**4.000**	<0.001	<0.001
Ethylbenzene (mg/L)	**1.000**	<0.001	<0.001
Xylenes, Total (mg/L)	**0.500**	<0.001	<0.001
Vinyl chloride (mg/L)	**4.500**	<0.001	<0.0016
1,1-Dichloroethene (mg/L)	**0.058**	<0.001	<0.001
Tetrahydrofuran (mg/L)	**0.500**	<0.050	<0.005
1,2-Dichloroethene[1] (mg/L)	**5.000**	0.008	0.011
1,2-Dichloroethane (mg/L)	**0.250**	<0.001	<0.001
1,1,1-Trichloroethane (mg/L)	**4.000**	<0.001	<0.001
1,1,2-Trichloroethane (mg/L)	**0.250**	<0.001	<0.001
Methylene chloride (mg/L)	**15.000**	<0.001	<0.005
Styrene (mg/L)	**0.500**	<0.001	<0.001
Alcohols			
Ethanol (mg/L)	**20.0**	<5.0	<2.5
Methanol (mg/L)	**10.0**	<5.0	<2.5
2-Butanol (sec-Butanol) (mg/L)	**30.0**	<5.0	<2.5
2-Propanol (Isopropanol) (mg/L)	**10.0**	<5.0	<2.5
Ketones			
Acetone (mg/L)	**35.0**	<0.050	<0.050
2-Butanone (Methyl Ethyl Ketone) (mg/L)	**10.0**	<0.050	<0.025
4-Methyl-2-pentanone (Methyl Isobutyl Ketone) (mg/L)	**2.0**	<0.050	<0.025
Total VOCs[2]		**0.008**	**0.011**
B. INORGANIC PARAMETERS			
Metals	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*	*(mg/L) or (g/day)*
Copper, Total (g/day)[3]	**15.8 g/day**	<0.01 mg/l or <1.87 g/day	<0.04 mg/l or <7.46 g/day
Iron, Total (mg/l)	**5.0**	<0.05	<0.10
Lead, Total (g/day)[3]	**3.2 g/day**	<0.005 mg/l or <0.93 g/day	<0.013 mg/l or <2.42 g/day
Nickel, Total (mg/l)	**0.5**	<0.05	<0.05
Zinc, Total (g/day)[3]	**40.3 g/day**	<0.05 mg/l or <9.33 g/day	<0.02 mg/l or <3.73 g/day
OTHER			
Hydrogen Peroxide (mg/L)	**1.0**	<0.2	<0.2
Total PCBs (µg/L)	**NL**	<1	NS
pH (s.u.)	**6.0 - 9.0 s.u.**	6.84	6.89
Total Suspended Solids (mg/L)	**30**	<1	<5
Dioxins (pg/L)	**NL**	<11.3	NS
Furans (pg/L)	**NL**	<14.7	NS

NOTES:

1 = 1,2-Dichloroethene represents total cis and trans 1,2-Dichloroethene.

2 = Total VOCs is the total sum of detected compounds (mg/l)

3 = Inorganic results reported in grams per day are based on average monthly effluent flow

NL = no limit specified.

NS = not sampled (total PCBs analysis required monthly; dioxin/furan analysis required quarterly).

mg/L = Milligrams per liter

µg/L = micrograms per liter

pg/L = picograms per liter

g/day = grams per day

s.u. = Standard pH units

TABLE 5

31 October 2016 through 30 October 2017

Influent and Effluent GWCT System Flow Data Summary

Date	Influent Flow Summary (NCTRA 1 and 2 Combined)			NCTRA-1 Flow Summary	NCTRA-2 Flow Summary			Effluent Flow Summary (NTCRA 1 and 2 Combined)		
	Total Cumulative Flow (gallons)	*Total Flow Since Previous (gallons)*	*Avg. Rate Since Prev. (GPM)*	*Avg. Rate Since Prev. (GPM)*	*Total Cumulative Flow (gallons)*	*Total Flow Since Previous (gallons)*	*Avg. Rate Since Prev. (GPM)*	*Total Cumulative Flow (gallons)*	*Total Flow Since Previous (gallons)*	*Avg. Rate Since Prev. (GPM)*
10/31/2016	307,057,000				180,188,310			324,007,000		
11/30/2016	308,480,000	1,423,000	32.9	1.3	181,555,610	1,367,300	31.7	325,497,000	1,490,000	34.5
12/30/2016	309,961,000	1,481,000	34.3	2.6	182,925,210	1,369,600	31.7	326,985,000	1,488,000	34.4
1/31/2017	311,607,000	1,646,000	35.7	3.9	184,391,210	1,466,000	31.8	328,655,000	1,670,000	36.2
2/28/2017	313,098,000	1,491,000	37.0	4.6	185,697,710	1,306,500	32.4	330,172,000	1,517,000	37.6
3/31/2017	314,774,000	1,676,000	37.5	5.7	187,119,689	1,421,979	31.9	331,872,000	1,700,000	38.1
4/28/2017	316,544,000	1,770,000	43.9	12.9	188,367,610	1,247,921	31.0	333,644,000	1,772,000	43.9
5/31/2017	318,730,000	2,186,000	46.0	14.1	189,883,710	1,516,100	31.9	335,900,000	2,256,000	47.5
6/30/2017	320,464,000	1,734,000	40.1	8.4	191,254,600	1,370,890	31.7	337,694,000	1,794,000	41.5
7/31/2017	322,170,000	1,706,000	38.2	7.3	192,636,910	1,382,310	31.0	339,415,000	1,721,000	38.6
8/31/2017	323,712,000	1,542,000	34.5	3.4	194,029,210	1,392,300	31.2	341,027,000	1,612,000	36.1
9/29/2017	325,165,000	1,453,000	34.8	2.8	195,364,510	1,335,300	32.0	342,514,000	1,487,000	35.6
10/31/2017	326,723,000	1,558,000	33.8	2.8	196,795,210	1,430,700	31.0	344,091,000	1,577,000	34.2
Yearly Averages [(1)]			**37.4**	**5.8**			**31.6**			**38.2**
Cumulative Totals:	**326,723,000**	**19,666,000**			**196,795,210**	**16,606,900**		**344,091,000**	**20,084,000**	

Notes:

1: The average yearly flows are calculated by dividing the total cumulative annual flow by the duration in minutes.