

**FOURTH FIVE-YEAR REVIEW REPORT FOR
ROBINTech, INC./NATIONAL PIPE CO. SITE
BROOME COUNTY, NEW YORK**



Prepared by

**U.S. Environmental Protection Agency
Region 2
New York, New York
May 2021**

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LIST OF ABBREVIATIONS & ACRONYMS

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DCA	Dichloroethane
DCE	Dichloroethene
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
FYR	Five-Year Review
GWQS	Groundwater Quality Standards
HHRA	Human-Health Risk Assessment
ICs	Institutional Controls
LTTD	low-temperature thermal desorption
MCL	Maximum Contaminant Level
µg/L	Micrograms per Liter
MW	Monitoring Well
NP&P	National Pipe & Plastics, Inc.
NPL	National Priorities List
NYSDEC	New York State Department of Environmental Conservation
O&M	Operation and Maintenance
OU	Operable Unit
PDB	Passive Diffusion Bag
PRP	Potentially Responsible Party
PW	Production Well
RAO	Remedial Action Objectives
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
SVI	Soil Vapor Intrusion
SPDES	State Pollutant Discharge Elimination System
TAGM	Technical and Administrative Guidance Memorandum
PCE	Tetrachloroethylene
TCA	Trichloroethane
TCE	Trichloroethene
UU/UE	Unlimited Use and Unrestricted Exposure
VC	Vinyl Chloride
VOCs	Volatile Organic Compounds

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR for the Robintech, Inc./National Pipe Co. site pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the fourth FYR for the site. The triggering action for this statutory FYR is the signature date of the last review, September 30, 2016. The FYR has been prepared due to the fact that hazardous substances, pollutants or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The work at the site has been divided into three operable units (OUs). OU1 is related to the bedrock groundwater. OU2 involved suspected elevated concentrations of lead in soil and sediment. Because “no-action” was selected in a 1993 Record of Decision (ROD),¹ OU2 is not discussed further in this FYR. OU3 addresses contamination in the overburden soil and groundwater. In summary, OU1 and OU3 will be evaluated in this FYR.

The site’s FYR team was led by Mark Granger, the EPA Remedial Project Manager (RPM). Participants included David Edgerton (EPA hydrogeologist), Abbey States (EPA human-health risk assessor), Abigail DeBofsky (EPA ecological risk assessor), and Donette Samuel (EPA community involvement coordinator).

The owner/operator of the property, National Pipe & Plastics, Inc. (NP&P),² was notified of the initiation of the FYR. The FYR began on October 28, 2020.

Site Background

The site is located in Vestal, a regionally-important industrial center adjacent to Binghamton, New York in the Susquehanna River basin. The site includes an approximately 12.7-acre parcel of property (hereinafter, “Property”) and areas affected by the release or threat of release of hazardous substances to the west of the Property (hereinafter, “Off-Property”). The Property is bordered by Commerce Road and several warehouses and light industrial buildings to the east, Old Vestal Road and several residences to the south, an amusement facility and fuel storage

¹ The investigation did not reveal elevated lead concentrations in any site media. Previously-identified elevated lead concentrations were determined to be a laboratory error.

² The Site property is owned by DTRT Vestal Pipe, LLC, an LLC affiliated with the past/current Site operator, NP&P. NP&P purchased the property from the PRP Group in 2006 and agreed to perform certain tasks as part of the purchase agreement.

tanks (the former Mobil Tank Farm, now owned by Buckeye) to the west, and Norfolk-Southern railroad tracks and the former Parkway-Vending building to the north. **Attachment A, Figure 1**, presents the site layout.

Eight production wells were drilled on-Property between 1983 and 1984. These six-inch diameter wells were installed with steel casing through the till overburden formation and then finished as open bedrock holes to an average depth of 300 feet below ground surface. The wells provided cooling water in a pipe-production process, which was then discharged to surface water at a permitted effluent discharge point.

An effluent sample collected at the Property by the New York State Department of Environmental Conservation (NYSDEC) in 1984 to verify discharge permit compliance found volatile organic compounds (VOCs) that were not covered under the permit. Further investigations resulted in the conclusion that the contamination was coming from the bedrock groundwater beneath the Property. NYSDEC also determined that there were soil source areas in the overburden affecting groundwater in both the overburden and bedrock geologic units.

Sampling was conducted by EPA in 1985 to evaluate the site for inclusion on the National Priorities List (NPL). Groundwater monitoring revealed elevated concentrations of VOCs in the overburden soil and bedrock groundwater. Based on the results of this monitoring, the site was placed on the NPL in 1986.

Appendix B, attached, summarizes the documents utilized to prepare this FYR.

Appendix C, attached, summarizes the site's surface drainage, geology/hydrogeology and land use. For more details related to site background, physical characteristics, geology/hydrogeology, land/resource use, and history related to the site, please refer to:

<https://semspub.epa.gov/src/collections/02/SC/NYD002232957>

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Robintech, Inc./National Pipe Co. Superfund Site		
EPA ID: NYD002232957		
Region: 2	State: NY	City/County: Vestal, New York
SITE STATUS		
NPL Status: Final		
Multiple OUs? Yes	Has the site achieved construction completion? Yes	
REVIEW STATUS		
Lead agency: EPA <i>[If "Other Federal Agency", enter Agency name]:</i>		
Author name (Federal or State Project Manager): Mark Granger		
Author affiliation: EPA		
Review period: 10/1/2016 - 6/30/2021		
Date of site inspection: 1/27/2021		
Type of review: Policy		
Review number: 4		
Triggering action date: 9/30/2016		
Due date (five years after triggering action date): 9/30/2021		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

Following the listing of the site on the NPL, an Administrative Order on Consent under Sections 104 and 122 of CERCLA for the performance of a remedial investigation and feasibility study (RI/FS) was entered into by EPA and a group of PRPs (PRP Group). The RI revealed numerous VOCs in the overburden and bedrock groundwater and in overburden soils. These contaminants included 1,1,1-trichloroethane (TCA), 1,1-dichloroethane (DCA), trichloroethene (TCE), 1,1-dichloroethene (DCE), vinyl chloride (VC), and toluene. The RI report, which included a human-health risk assessment (HHRA), and an FS report, was completed in 1991.

The HHRA concluded that an unacceptable risk existed for hypothetical future residents' consumption of groundwater from the overburden and bedrock aquifers, driven, primarily, by VOCs. The ecological risk assessment concluded that no habitats or species of special concern would likely be affected by site-related contaminants.

Response Actions

Following the completion of the RI/FS, a ROD (OU1) was signed in March 1992 (1992 ROD). The 1992 ROD addressed contamination present in the overburden and bedrock aquifers. The remedial action objectives (RAOs) specified in the 1992 ROD were:

- restore the aquifer as a potential source of drinking water by reducing contaminant levels to the New York State and federal Maximum Contaminant Levels (MCLs).
- reduce or eliminate the potential for Off-Property migration of contaminants.

The 1992 ROD remedy included:

- extraction and treatment *via* air stripping of contaminated bedrock and overburden groundwater.
- utilization of the treated water in the plant process or pumping it directly to a state pollutant discharge elimination system (SPDES) permitted effluent discharge point, depending on plant process requirements.
- long-term system-monitoring, which includes the collection analysis of extraction and monitoring wells and the SPDES effluent discharge to track the migration and concentrations of the contaminants of concern.
- institutional controls (ICs) in the form of deed restrictions will be recommended to the appropriate authorities (Property and Off-Property restrictions) to prevent the extraction of groundwater for potable purposes.
- evaluation of site conditions at least once every five years to determine if a modification to the remedy is necessary.

In September 1992, a Unilateral Administrative Order was issued by EPA to the PRP Group to design and implement the remedy selected in the 1992 ROD.

An investigation to assess suspected elevated lead concentrations in site soil and sediment (OU2) did not reveal elevated lead concentrations in any site media. Accordingly, a no action ROD was signed in 1993.

The results of a preliminary remedial design (RD) investigation indicated that overburden groundwater and subsurface soils were contaminated at levels much greater than those detected during the RI; the contaminated subsurface soils were subsequently determined to be source areas. In addition, the pre-RD investigation concluded that the overburden-formation till was of relatively low-permeability with an extremely low groundwater yield. Therefore, the extraction of contaminated groundwater from the overburden (the remedy selected for the overburden in the 1992 ROD) was determined not to be feasible. An alternative approach to address the contaminated groundwater was determined to be necessary. In addition, it was determined that

the source areas in the overburden soil needed to be addressed. A ROD (OU3) was signed in 1997 (1997 ROD). This ROD addressed source contamination present above and below the water table in the overburden in three areas of the Property. Additionally, based on the tight overburden formation, resulting in extremely low groundwater yields (approximately 0.1 gallon per minute), consistent with EPA and state guidance, the overburden aquifer is not usable. Therefore, the 1997 ROD also concluded that federal and state MCLs are not applicable with respect to the overburden aquifer. As the bedrock aquifer is usable, federal MCLs and New York State Class GA Groundwater Quality Standards (GWQS) remain applicable with respect to that aquifer.

The RAOs specified in the 1997 ROD were:

- mitigate the potential for contaminants to migrate from the soil into the overburden aquifer and reduce soil contamination in the PW-2, Paved-Pipe-Staging, and Warehouse areas of the Property (see **Appendix A, Figure 2**) to meet the NYSDEC soil cleanup objectives identified in the Technical and Administrative Guidance Memorandum (TAGM).³
- mitigate the potential for contaminants to migrate from the overburden aquifer into the bedrock aquifer.
- reduce or eliminate the threat to public health and the environment posed by groundwater contamination by remediating groundwater to MCLs for VOCs.
- reduce or eliminate the potential for Off-Property migration of contaminants.

The 1997 ROD included the following components:

- excavation of unsaturated- and saturated- overburden soils in three areas of the Property, and treatment for VOCs using low-temperature thermal desorption (LTTD).
- extraction of contaminated groundwater from the bedrock aquifer through the existing production-well network until MCLs are achieved. Provisions to periodically evaluate the entire system, and repair or upgrade, as necessary, will be included in an operation and maintenance plan.
- intrinsic remediation of contaminated overburden groundwater (natural attenuation processes, including chemical degradation, dilution, and dispersion) at the Property and in downgradient areas. These natural mechanisms will be monitored regularly to verify that the level and extent of contaminants in overburden groundwater are declining from baseline conditions and that conditions are protective of human health and the environment.
- taking steps to secure ICs, such as deed restrictions and contractual agreements, as well as local ordinances, laws, or other government action, for the purpose of, among other things, restricting the installation and use of groundwater wells on the Property and Off-Property until groundwater quality has been restored.
- long-term groundwater and production-well effluent discharge monitoring to evaluate the remedy's effectiveness.

³ Technical and Administrative Guidance Memorandum No. 94-HWR-4046

- reevaluation of site conditions at least once every five years to determine if a modification to the selected remedy is necessary.

Negotiations between EPA and the PRP Group to carry out the RD and construction of the remedy selected in the 1997 ROD resulted in an agreement embodied in a 1998 Consent Decree.

In 2018, an Explanation of Significant Differences (ESD) documented a determination by EPA to incorporate into the remedy for the site an informational IC to address vapor intrusion into indoor air in occupied/potentially occupied structures on the Property and in Off-Property areas.

Response Action Implementation

OUI (Bedrock Groundwater)

The 1997 ROD formalized a revised remedial strategy for the source areas and groundwater in the overburden and provided for the continued extraction and treatment of the contaminated bedrock groundwater. After preemptively eliminating a conduit of contamination from the overburden into the bedrock by abandoning and properly sealing production well PW-2 (see **Appendix A, Figure 1**) in 1996, the rebuilding and upgrade of the existing bedrock groundwater-extraction system was completed in 2001. This work included new pumps, piping, wiring, and instrumentation for the existing production-well system. It became evident shortly after this work was completed that the bedrock production wells themselves (originally installed in the 1980s) required redevelopment. This work was completed in 2002 and the system ran through 2003. A combination of logistical circumstances, primarily being the decision of the pipe-production facility to discontinue the use of the extracted groundwater in its manufacturing process, forced the system to shut down in 2003. In 2005, after successful negotiations were completed between EPA, the PRP Group, and NP&P, the bedrock groundwater-extraction system, which now included a carbon-treatment component, became operational. NP&P ran the system until 2014,⁴ when it relocated its pipe-production to a neighboring town. Because the bedrock groundwater contamination had established modest asymptotic contaminant levels, the extraction system required extensive repairs, and there were no remaining PRPs, EPA began exploring alternatives to the extraction and treatment of the bedrock groundwater.

OUI (Overburden Soil and Groundwater)

The source removal was conducted from 2000 to 2001, resulting in more than 10,000 cubic yards of VOC-contaminated soil being excavated from the PW-2, Paved-Pipe-Staging, and Warehouse areas of the Property, treated by LTDD to meet cleanup levels, and redeposited.

⁴ NP&P, while not considered a PRP, ran the system on behalf of the PRP Group until the last remaining member of the PRP Group went out of business around 2011. Thereafter, NP&P continued to run the system.

Partial Deletion

Because no further response actions other than groundwater monitoring, periodic IC verification, operation and maintenance (O&M) activities, as necessary, and FYRs are needed for the Property's overburden soil, overburden groundwater, and an approximately 9.7-acre portion of the bedrock aquifer underlying the Property, these portions of the Property were deleted from the NPL in 2019. The partial deletion from the NPL did not include the remaining 3-acre portion of the bedrock aquifer underlying the Property nor the overburden and bedrock aquifers in Off-Property areas. Groundwater monitoring, periodic IC verification, O&M activities, as necessary, and FYRs are also needed for the portions of the site that remain on the NPL.

Institutional Controls

The 1997 ROD called for the implementation of ICs to restrict the installation and use of groundwater wells at and downgradient of the site until groundwater quality has been restored.⁵ Property ICs were incorporated into a Declaration of Easements, Covenants and Restrictions (“Easement”) for the Property in March 2006. Because the bedrock groundwater-extraction system was removed from service in 2014 and the partial-deletion effort was completed in 2019, the Easement is currently being updated. It is anticipated that the Easement update will be completed by Fall 2021.

With respect to the Off-Property area, Town of Vestal code §24-73.d requires all development (residential, commercial, industrial, *etc.*) to connect to the public drinking-water supply system in all areas of the Town where the public supply is available. The site property and the plume downgradient of the site property are located in an area where the public drinking-water supply system is available. Further, the installation of any other groundwater-withdrawal well is restricted within areas of the Town designated as an “aquifer district” (Town of Vestal code §23-518.a-c). The Property and Off-Property areas are located within an “aquifer district.”

In addition, the 2018 ESD documented the determination to incorporate into the remedy for the site an informational IC to address vapor intrusion into indoor air in occupied/potentially occupied structures on the Property and in Off-Property areas.

Table 1, below, summarizes the status of the ICs.

⁵ The 1992 ROD also required the implementation of ICs in the form of deed restrictions to prevent the extraction of groundwater for potable purposes.

Table 1: Summary of Implemented Institutional Controls

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs needed?	ICs called for in the decision documents?	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Groundwater	Yes	Yes	Property	Restrict groundwater use on the Property.	Easement March 2006 (to be updated by Fall 2021).
Groundwater	Yes	Yes	Off-Property	Restrict groundwater use in Off-Property areas.	Code of the Town of Vestal §§ 24-73.d and 23-518.a-c ⁶
Soil Vapor	Yes	Yes	Property, Off-Property	Notification and evaluation of structures for VI with monitoring &/or mitigation, as appropriate.	Town agrees to notify EPA of status change of properties, EPA verifies status periodically.

Systems Operation/Operation & Maintenance

O&M for the long-term monitoring components of the overburden (OU3) and bedrock (OU1) aquifers began in 2001. The Property and related facilities are inspected at least annually and groundwater monitoring wells are inspected for ease of locating, damage/vandalism, and the condition of the surface seals. Groundwater is sampled annually in the fall for both OU1 and OU3.

As noted above, in 2014, after nine years of operation, the bedrock groundwater-extraction system stopped operating. EPA evaluated system data collected up until that time to explore whether an evaluation of alternatives to extraction and treatment of the bedrock groundwater would be appropriate. Based on the results of this evaluation, to evaluate the non-pumping effect on production well contaminant levels, following the collection of baseline water-level measurements in the system-related production wells, bedrock groundwater samples were collected from the system-related production wells bimonthly from August through November 2014. In addition, two full rounds of baseline VOC bedrock-groundwater sampling were completed on the Property and Off-Property in 2015. This effort included 16 bedrock wells (*i.e.*, the eight bedrock production wells and eight bedrock monitoring wells). To support the further evaluation of alternatives to bedrock groundwater extraction, this was followed by a focused

⁶ The Town of Vestal Code Book is available at www.vestalny.com/government/clerk/town_of_vestal_code_book.php

sample collection event for groundwater-quality parameters in 2016 and annual monitoring of bedrock and overburden groundwater for VOCs, thereafter.

Potential impacts on the site from climate change were assessed. The performance of the remedy is currently not at risk due to the expected effects of climate change in the region near the site.

III. PROGRESS SINCE THE LAST REVIEW

The protectiveness determinations from the last FYR, as well as a discussion of that FYR's recommendations and suggestions and the current status of the recommendations and suggestions, are summarized in **Tables 2, 3, and 4**, respectively, below.

Table 2: Protectiveness Determinations/Statements From 2016 Five-Year Review

OU	Protectiveness Determination	Protectiveness Statement
01	Short-term Protective	The remedy for the bedrock aquifer (OU1) is protective in the short-term. In order to be protective in the long-term, an ongoing evaluation of alternatives to bedrock groundwater extraction and treatment needs to be completed.
03	Short-term Protective	The remedy for the source control and overburden aquifer (OU3) is protective in the short-term. In order to be protective in the long term, a survey of existing downgradient wells for inclusion in future monitoring efforts needs to be conducted and, based upon the results, a decision as to whether additional soil vapor intrusion (SVI) sampling is necessary will need to be made.
Sitewide	Short-term Protective	The sitewide remedy is protective in the short-term. In order to be protective in the long-term, a survey of existing downgradient wells for inclusion in future monitoring efforts needs to be conducted and, based upon the results of this effort, a decision as to whether additional SVI sampling is necessary will need to be made. In addition, an ongoing evaluation of alternatives to bedrock groundwater extraction and treatment needs to be completed.

Table 3: Status of Recommendations From 2016 Five-Year Review

OU(s)	Issue	Recommendations	Current Status	Implementation Status
01	The ongoing evaluation of alternatives to bedrock groundwater extraction and treatment should be completed.	Complete the evaluation of alternatives to bedrock groundwater extraction and treatment and pilot-test any viable alternative(s). If viable alternatives are not identified, the groundwater extraction and treatment system may need to be reactivated.	Ongoing	Data from the evaluation of alternatives is currently being assessed. A technology to pilot is expected to be selected and to commence in summer 2021.
03	The overburden plume is not currently defined.	Conduct a survey of existing downgradient wells for inclusion in future monitoring efforts. In addition, based upon the results of this effort, a decision as to whether additional SVI sampling is necessary will need to be made.	Completed	Two full rounds of monitoring of 19 existing downgradient wells was completed. Based on the results of this effort, it was determined that SVI sampling of the subject downgradient properties was unnecessary.

Table 4: Status of Suggestions From 2016 Five-Year Review

Suggestion	Implementation Status
Resurvey the overburden and bedrock monitoring wells and collect water-level measurements to better understand groundwater-flow direction.	The monitoring well network was rehabilitated in 2019. Follow up survey work is scheduled for summer 2021. Water-level measurements continue to be collected as part of the annual groundwater-monitoring effort.
Establish a regular schedule for overburden and bedrock sampling.	The overburden and bedrock sampling has been conducted annually since 2015.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification and Involvement

On September 22, 2020, EPA Region 2 posted a notice on its website indicating that it would be reviewing site cleanups and remedies at Superfund sites in New York, New Jersey, Puerto Rico, and the U.S. Virgin Islands, including the Robintech, Inc./National Pipe Co. site. The

announcement can be found at the following web address: <https://www.epa.gov/superfund/R2-fiveyearreviews>.

In addition to this notification, a notice of the commencement of the FYR was posted on the EPA Region 2 website and sent to local public officials. The notice was provided to the Town of Vestal and was posted on the Town's website on March 30, 2021. The purpose of the public notice was to inform the community that EPA would be conducting a FYR to ensure that the remedy implemented at the site remains protective of public health and is functioning as designed. In addition, the notice included contact information, including addresses and telephone numbers, for questions related to the FYR process.

Once the FYR is completed, the results will be made available at the site information repositories and on the site website:

<https://www.epa.gov/superfund/robintech>. The site repositories are located at EPA, 290 Broadway, 18th Floor, New York, New York and at the Vestal Public Library, 320 Vestal Parkway East, Vestal, New York. In addition, efforts will be made to reach out to local public officials to inform them of the results.

Data Review

Overburden Groundwater (OU3)

Overburden monitoring wells MW-7, MW-8, MW-11, and MW-19 were sampled annually during the review period. Please see **Appendix A, Figure 1** for monitoring well locations. The data indicates that total VOC concentrations during the review period in monitoring wells MW-7 and MW-8 are declining, while the concentrations in monitoring wells MW-11 and MW-19 were relatively stable.

TCA, 1,1-DCA, TCE, and cis-1,2-DCE are the compounds with the highest concentrations in the overburden wells and represent two separate primary VOC constituents (TCA and TCE), and their breakdown products. The breakdown chains for these primary VOCs is as follows:

- *TCA → 1,1-DCA → chloroethane → ethane*
- *TCE → cis-1,2-DCE → VC → ethene*

Monitoring wells MW-7, MW-8, and MW-19 have all four of these compounds present, suggesting a localized mixed VOC source. Monitoring well MW-11 does not exhibit TCE or cis-1,2-DCE, suggesting that only a TCA source is contributing to this groundwater flow pathway. Monitoring well MW-19 does not exhibit TCA, suggesting the TCA source is depleted from this groundwater flow pathway, but natural attenuation continues as 1,1-DCA degrades to ethane. PCE was only observed in monitoring wells MW-7 and MW-8, but most likely the breakdown products originated from a mixed PCE/TCE source. See **Appendix A, Figure 3 and Figure 4** for overburden concentration trends of TCA and TCE, respectively. See **Appendix A, Figure 5** for overburden concentration trends of 1,1-DCA.

VOC sample data from a non-site-related well network located immediately downgradient and slightly to the southwest of monitoring well MW-19 appears to illustrate the downgradient extent of the plume in that direction; chlorinated VOCs in the wells in this network were either not detected or detected well below their respective MCLs of 5 micrograms per liter (µg/L). Regional studies show that overburden groundwater beyond monitoring well MW-19 moves westward and then northwestward towards a Town of Vestal drinking-water supply well field. This well field is located approximately 2,200 feet downgradient of monitoring well MW-19, and includes supply-well numbers 4-2,⁷ 4-3, and 4-4. The four wells immediately downgradient (west) of monitoring well MW-19, located on the tank-farm property, were sampled in 2018 and 2019 as part of the downgradient plume-delineation effort; site-related VOCs were not detected. A tank-farm located further downgradient of monitoring well MW-19 and to the northwest (toward Vestal 4-2) had low levels of TCE in four of fifteen wells. It is, however, strongly suggested that the TCE detections in these wells are not site-related. The reasons for this include the presence of wells absent site-related contaminants located on the property between monitoring well MW-19 and the further-downgradient tank-farm property, as well as the fact that the complex-VOC signature relative to site-related contaminants does not match the TCE-only signature relative to the further-downgradient property. Further, a review of the supply-well data from the review period shows that the Town of Vestal well field remains unaffected by site-related groundwater contamination.

With respect to the “intrinsic remediation” aspect of the selected remedy, the continued strong presence of degradation products and the increasing ratio of degradation products to parent compounds indicate that natural-attenuation processes are occurring in the overburden aquifer.

Bedrock Groundwater (OUI)

The eight on-site PW-series bedrock monitoring wells include production wells PW-1 through PW-6, and also PW-8 and PW-9. The eight upgradient and downgradient MW-series bedrock wells include monitoring wells MW-3A, MW-4, MW-4A, MW-5, MW-6, MW-6A, MW-13A, and MW-15A. All of the PW-series wells and the five A-series monitoring wells (monitoring wells 3A, 4A, 6A, 13A, and 15A) are six-inch-diameter deep-bedrock wells that are cased through approximately 50 feet of the overburden and finished in the bedrock as open holes to an average depth of approximately 300 feet. Monitoring wells MW-4, MW-5, and MW-6 are four-inch-diameter shallow-bedrock wells finished in the upper-weathered fracture zone. Please refer to **Appendix A, Figure 1** for well locations.

For context, production wells PW-2R, PW-4, and PW-5, part of the original pipe-production cooling water supply, comprised the post-construction treatment system.⁸

Starting in 2015, the 16 bedrock-aquifer wells were sampled annually using passive diffusion bags (PDBs). The PDB data showed elevated concentrations of VOCs in nine of the 16 bedrock wells. VOCs included 1,1-DCA, cis-1,2-DCE, TCA, and TCE, with 1,1-DCA consistently being

⁷ Supply well 4-2 is the Vestal 4-2 NPL site; the site has been deleted from the NPL.

⁸ Production wells PW-1, PW-3, PW-6, PW-8, and PW-9 were part of the original pipe-production cooling water supply, but were not utilized for the post-construction treatment system.

present at significantly higher concentrations than the other constituents. The data from the past five years indicates that VOC contamination persists in production wells PW-2R, PW-4, and PW-5. While VOC contamination also persists in production wells PW-1, PW-3, PW-6, and PW-8, these four production wells are close to achieving MCLs. Detections of 1,1-DCA are highest in production well PW-2R, where the concentrations were reported up to 120 µg/L. See **Appendix A, Figure 6** for bedrock concentration trends of 1,1-DCA. Please see **Appendix A, Figure 7** for baseline bedrock-groundwater concentrations from the beginning of this FYR period.

With one exception, VOC concentrations were not detected in the two upgradient and seven downgradient/sidegradient bedrock wells at multiple depths. Specifically, samples from upgradient bedrock monitoring wells MW-13A and MW-15A did not exhibit site-related VOCs. Production well PW-9, bedrock monitoring wells MW-3A, MW-4A, and MW-6A, and intermediate monitoring wells MW-4, and MW-6 also do not exhibit site-related contamination. The lone exception is a concentration of 8 µg/L of 1,1-DCA in intermediate monitoring well MW-5. Please see **Appendix A, Figure 2** for the locations of these monitoring wells.

Site Inspection

An inspection of the site was conducted on January 27, 2021. In attendance were EPA RPM Mark Granger and hydrogeologist David Edgerton. The Property, former treatment areas, roadways, monitoring wells, and other closure-related facilities were all in good repair at the time of the inspection.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

The purpose of the overburden soil-excavation component of the remedy was to reduce the risk to human health and the environment due to contaminants leaching from the soil into the overburden and bedrock groundwater. The purpose of bedrock groundwater extraction and treatment was to control groundwater migration and assure that the downgradient groundwater meets cleanup goals in the shortest possible time. Following is a discussion of the remedial components related to the overburden (glacial tills and outwash deposits) and the fractured-bedrock (shale).

Overburden (OU3)

Implementation of the OU3 remedy in 2000 and 2001 involved the excavation of approximately 10,000 cubic yards of both vadose- and saturated-zone VOC-contaminated source-area overburden soils down to bedrock, primarily in the production well PW-2 area. The completion of this effort resulted in lower levels of VOCs in the overburden and bedrock groundwater. While lower, VOC concentrations remain above MCLs in overburden monitoring wells both on the Property and Off-Property. In particular, overburden monitoring wells located downgradient of the former production well PW-2 source area (monitoring wells MW-7 and MW-19) continue

to have contaminant concentrations above MCLs, likely due, in part, to residual contamination in the till. The furthest overburden site-related monitoring well downgradient of the former production-well PW-2 source area is monitoring well MW-19.

There are, however, numerous non-site-related monitoring wells that can inform the understanding of the plume further downgradient. VOC data from a non-site-related well network, located immediately downgradient across Old Vestal Road and slightly to the southwest of monitoring well MW-19, appears to illustrate the downgradient extent of the plume in that direction; most of these wells were non-detect for site-related VOCs and none had site-related VOCs above MCLs. Furthermore, regional studies show that overburden groundwater beyond monitoring well MW-19 moves generally toward the Town of Vestal drinking-water-supply well field located approximately 2,200 feet downgradient of monitoring well MW-19. The four wells immediately downgradient (west) of monitoring well MW-19, located on another tank-farm property, were sampled in 2018 and 2019 as part of the downgradient plume-delineation effort; site-related VOCs were not detected. A third tank farm further downgradient of monitoring well MW-19 and to the northwest (toward Vestal 4-2) was also sampled in 2018 and 2019 as part of the downgradient plume-delineation effort. Four of fifteen wells had low levels of a chlorinated VOC (only TCE). It is, however, strongly suggested that the TCE detections in these wells are not site-related. The reasons for this include the presence of wells absent site-related contaminants located on the Property between monitoring well MW-19 and the further-downgradient tank-farm property, as well as the fact that the complex-VOC signature relative to site-related contaminants does not match the TCE-only signature relative to the further-downgradient property. Further, a review of the supply-well data from the review period shows that the Town of Vestal well field remains unaffected by site-related groundwater contamination.

With respect to the “intrinsic remediation” aspect of the selected remedy, the continued strong presence of degradation products and increasing ratio of degradation products to parent compounds indicate that natural-attenuation processes are occurring in the overburden aquifer.

Bedrock (OU1)

In 1996, to eliminate the conduit of contamination from the overburden into the bedrock, production well PW-2 was abandoned, properly sealed, and replaced with a new well (PW-2R). After the excavation of the contaminated soil in the production well PW-2 area (OU3), the OU1 bedrock groundwater extraction and treatment system ran from 2005 to 2014. System-related production well data was collected monthly during this time for production wells PW-2R, PW-4, and PW-5.

Of production wells PW-2R, PW-4, and PW-5, all in close proximity to the former production well PW-2 excavation/treatment area on the Property, PDB data indicates that the highest VOC was reported at 110 µg/L (1,1-DCA). PDB data indicates that contamination in the vicinity of production wells PW-3, PW-6, and PW-8 is close to achieving MCLs. VOCs were not detected in the remaining bedrock wells (two upgradient and eight downgradient) through multiple depths and through both low-flow and PDB samples collected during the FYR period; specifically, production well PW-9, bedrock monitoring wells MW-3A, MW-4A, MW-6A, and MW-15A,

and intermediate monitoring wells MW-4, MW-5, and MW-6 do not show site-related contamination. Further, VOC concentrations in the downgradient bedrock wells were historically not detected while the bedrock groundwater-extraction system was operating and were still not detected more than five years after the system was turned off, indicating that the plume is not migrating. The lone exception is a concentration of 8 µg/L in intermediate monitoring well MW-5.

In summary, the bedrock groundwater monitoring data collected during the review period indicate that the highest concentrations of VOCs are found in bedrock groundwater near the former production well PW-2 source area, but site-related contamination is not detected in the downgradient wells. In addition, samples collected from the public drinking-water supply well located Off-Property continue to show that site-related contamination is not affecting the public drinking-water supply. The OU1 remedy is not, however, functioning as intended by the decision documents because the OU1 bedrock groundwater-extraction system is not currently operating. EPA is exploring viable alternatives to remediate the contaminated groundwater in the bedrock.

QUESTION B: *Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?*

There have been no physical changes to the site that would adversely affect the protectiveness of the remedy. The exposure assumptions and the toxicity values that were used to estimate the potential risks and hazards to human health followed the general risk-assessment practice at the time the risk assessment was performed. Although the risk assessment process has been updated and specific parameters and toxicity values may have changed, the risk-assessment process that was used is still consistent with current practice and the need to implement a remedial action remains valid.

The RAOs (see “Response Actions” section, above) are still valid. In addition, the cleanup levels for soils (TAGM soil cleanup objectives) are also protective for direct contact exposures for workers or residents on the Property.

Because the overburden is of such low permeability, the overburden aquifer is not considered to be a viable source of groundwater; therefore, achievement of the state and federal drinking water standards in this aquifer is not considered relevant or appropriate. The yield of the overburden is still extremely low, hence this non-potable groundwater classification is still valid. The bedrock aquifer meets the classification requirements of a current or future drinking water source and federal MCLs and New York State Class GA GWQS remain applicable.

The SVI pathway was evaluated as part of the 2011 FYR, and elevated concentrations of site-related VOCs were detected at high levels in the slab of an adjacent commercial property. While VOCs were also detected in indoor air, the contaminants and concentrations suggested that they were not attributable to a slab source. Nonetheless, a slab mitigation system was offered to the property owner. When the system and follow-up sampling were declined, EPA recommended that the fresh-air intake to the building be increased to address the elevated indoor air concentrations; this was completed during the FYR period.

Overburden groundwater data from the review period were compared to EPA's SVI screening levels. Concentrations of TCE in monitoring wells MW-7 and MW-8, located upgradient of the commercial property, continue to exceed upper bound commercial screening levels for groundwater set at a cancer risk of 10^{-4} and hazard index of 1. Based on the site visit, there have been no changes to the slab of the building. Additionally, the groundwater trends would not suggest an increased potential for SVI during the review period. To ensure protectiveness, SVI sampling should continue to be offered to the downgradient commercial property owner as long as elevated groundwater concentrations remain in the upgradient overburden wells. The results of subslab and indoor air sampling conducted in nearby residential properties to the south of the Property during the 2011 FYR period were below SVI screening levels for site-related contaminants. Because there is no indication of increased overburden contamination or migration of contamination to the south of the site (sidegradient), further evaluation of the residential properties is not necessary at this time.

Although an ecological risk assessment was not conducted at the time of the 1992, 1993 and 1997 RODs, the majority of the Property is paved or covered with a gravel layer and, thus, there are no complete exposure pathways to ecological receptors. The Property is primarily light industrial with limited vegetation and offers little to no viable habitat to support ecological receptors. Therefore, the Property does not appear to provide any appreciable ecological attractiveness and no ecological function is expected. All of these findings indicate that ecological risks at the Property are negligible. The assumptions used at the time of the remedy remain valid and no further ecological investigation is warranted to evaluate the potential risks to ecological receptors from exposure to contaminants at this site.

QUESTION C: *Has any other information come to light that could call into question the protectiveness of the remedy?*

Based on the evaluation of the potential human exposures at the site, there is no new information that could call into question the protectiveness of this remedy.

VI. ISSUES/RECOMMENDATIONS

Table 5, below, presents the recommendations and follow-up actions for this FYR

Table 5: Issues/Recommendations

Issues/Recommendations	
OU(s) without Issues/Recommendations Identified in the Five-Year Review:	
OU3 (Overburden Soil and Groundwater)	
Issues and Recommendations Identified in the Five-Year Review:	
OU(s): OU1	Issue Category: Remedy Performance

(Bedrock Groundwater)	Issue: The ongoing evaluation of alternatives to bedrock groundwater extraction and treatment should be completed.			
	Recommendation: Complete the evaluation of alternatives to bedrock groundwater extraction and treatment and pilot test any viable alternative(s).			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	EPA	EPA	12/31/2022

OTHER FINDINGS

There are no other findings for this FYR.

VII. PROTECTIVENESS STATEMENT

Table 6, below, presents the OU and Sitewide protectiveness statements.

Table 6: Protectiveness Statements

Protectiveness Statement(s)	
<i>Operable Unit:</i>	<i>Protectiveness Determination:</i>
OU1 (Bedrock Groundwater)	Short-term Protective
<i>Protectiveness Statement:</i> The remedy for OU1 is protective of human health and the environment in the short-term because all exposure pathways have been eliminated. To be protective in the long-term, the ongoing evaluation of alternatives to bedrock groundwater extraction and treatment needs to be completed and the pilot testing of any viable alternative(s) performed.	
Protectiveness Statement(s)	
<i>Operable Unit:</i>	<i>Protectiveness Determination:</i>
OU3 (Overburden Soil and Groundwater)	Protective
<i>Protectiveness Statement:</i> The remedy for OU3 is protective of human health and the environment.	

Sitewide Protectiveness Statement

Protectiveness Determination:

Short-term Protective

Protectiveness Statement:

The **sitewide remedy** is protective in the short-term because all exposure pathways have been eliminated. To be protective in the long-term, the ongoing evaluation of alternatives to bedrock groundwater extraction and treatment needs to be completed and the pilot testing of any viable alternative(s) performed.

VIII. NEXT REVIEW

The next FYR report for the Robintech, Inc./National Pipe Co. Superfund site is required five years from the completion date of this review.

APPENDIX A: FIGURES

Figure 1: Site Layout

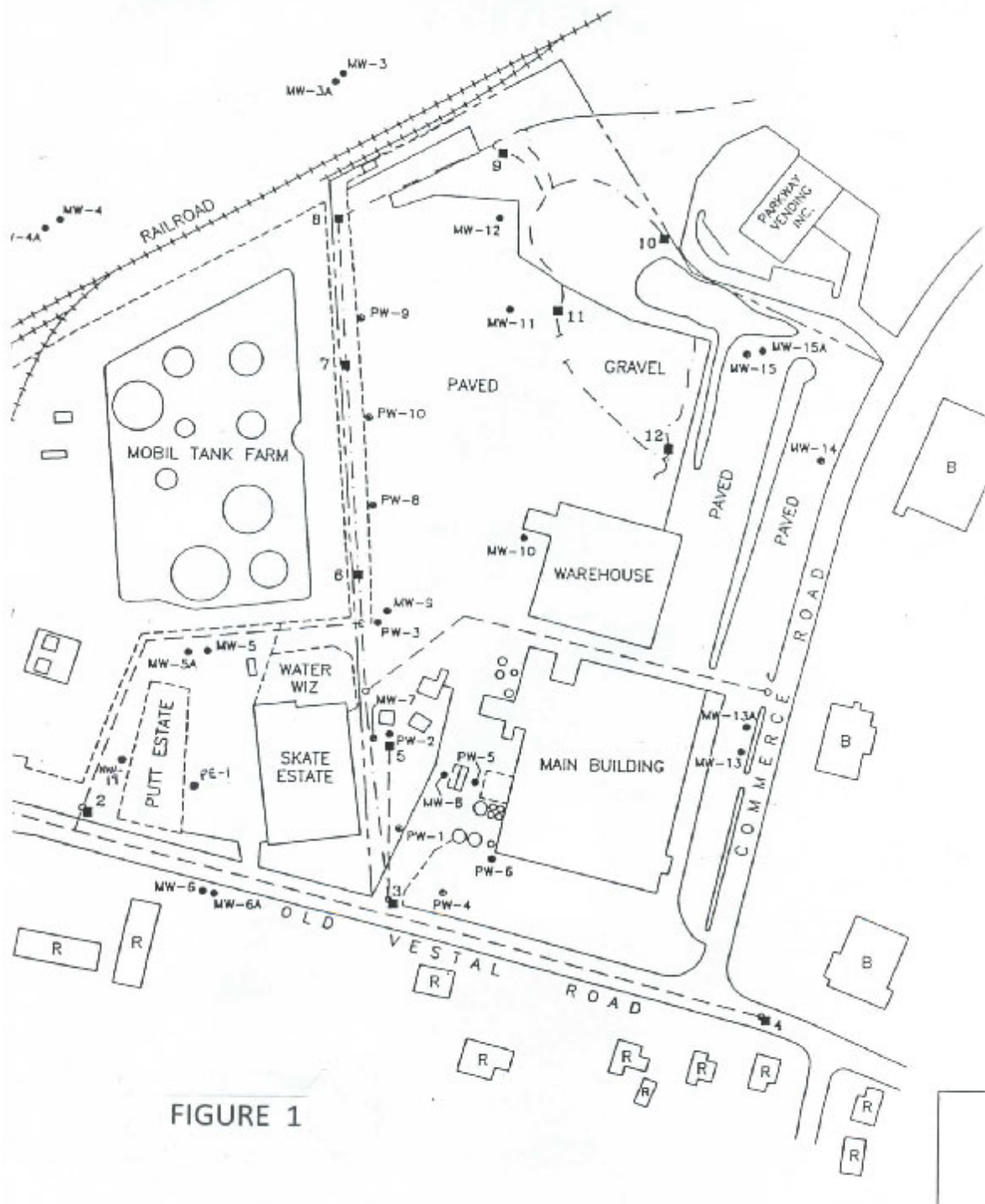


Figure 2: Referenced Areas of the Property

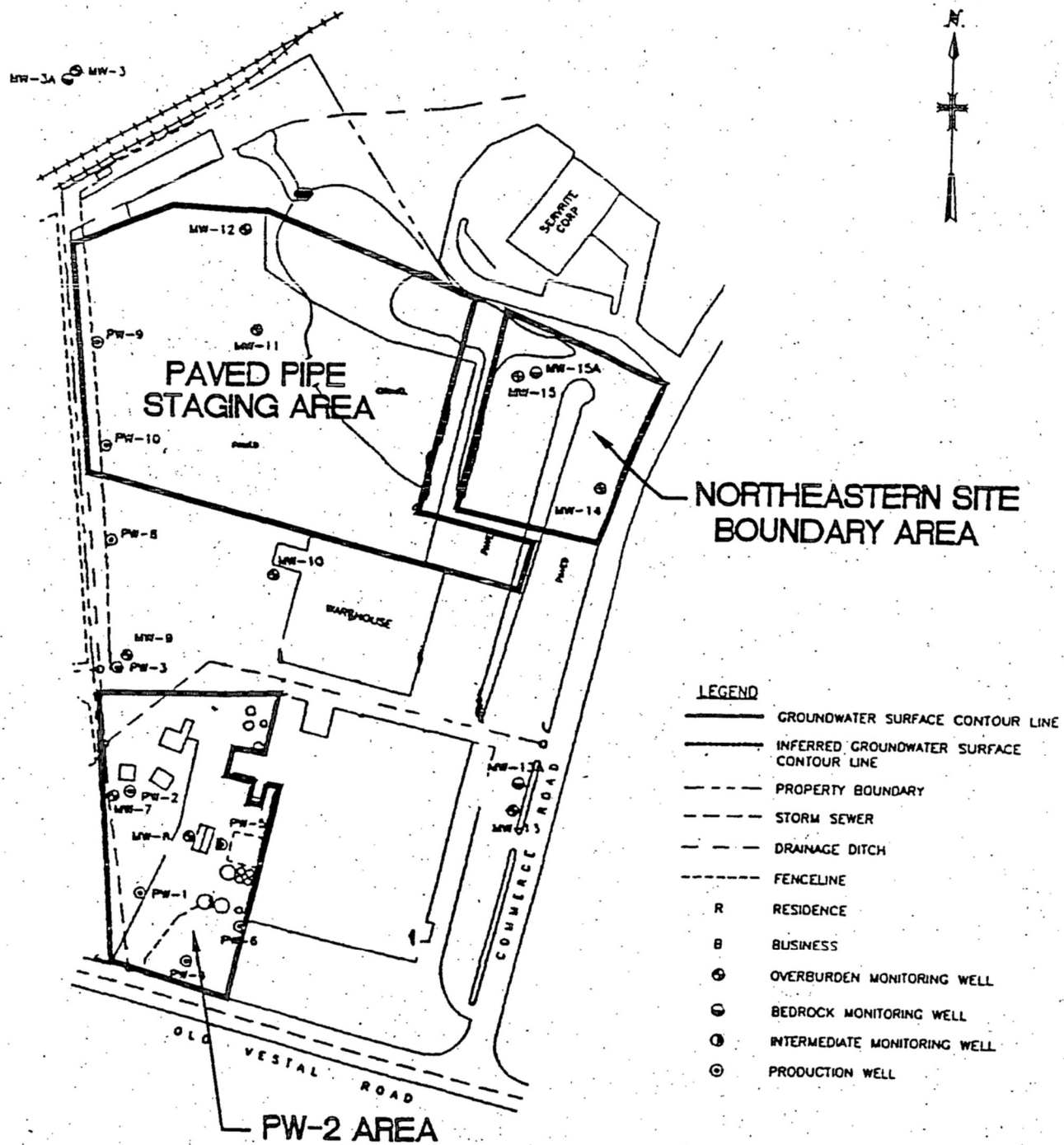


Figure 3: Overburden Wells TCA Sample Results (2004-2020)

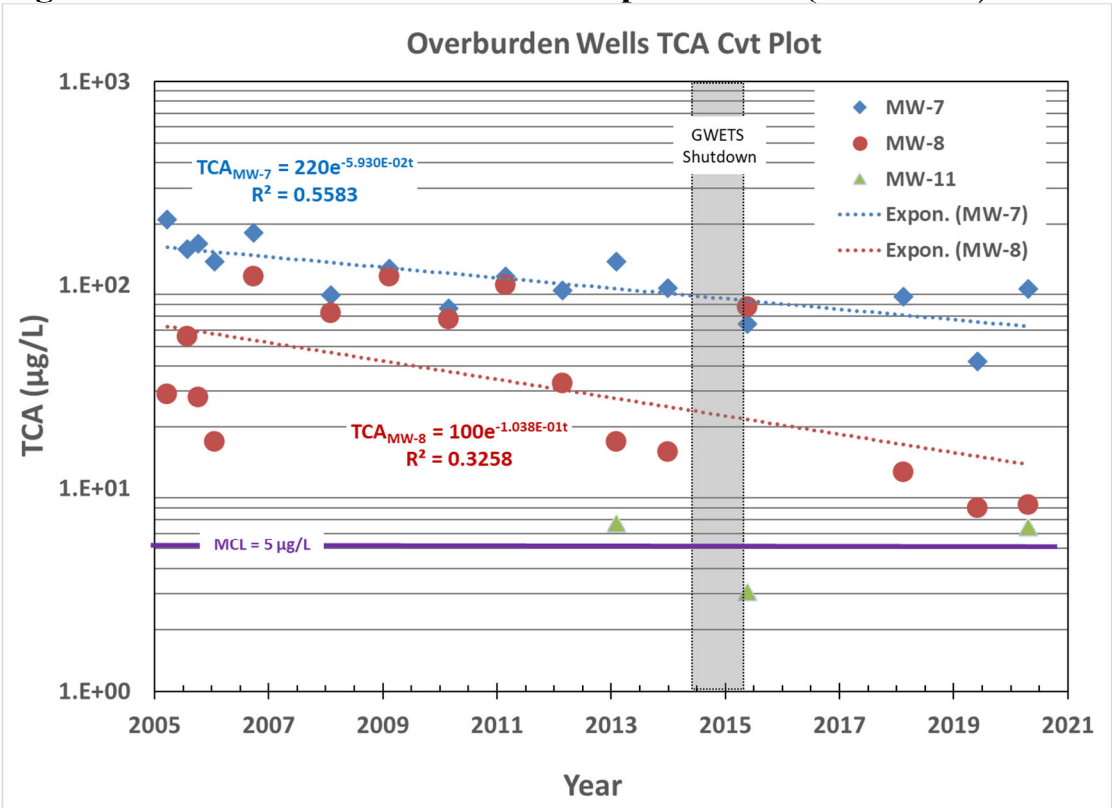


Figure 4: Overburden Wells TCE Sample Results (2004-2020)

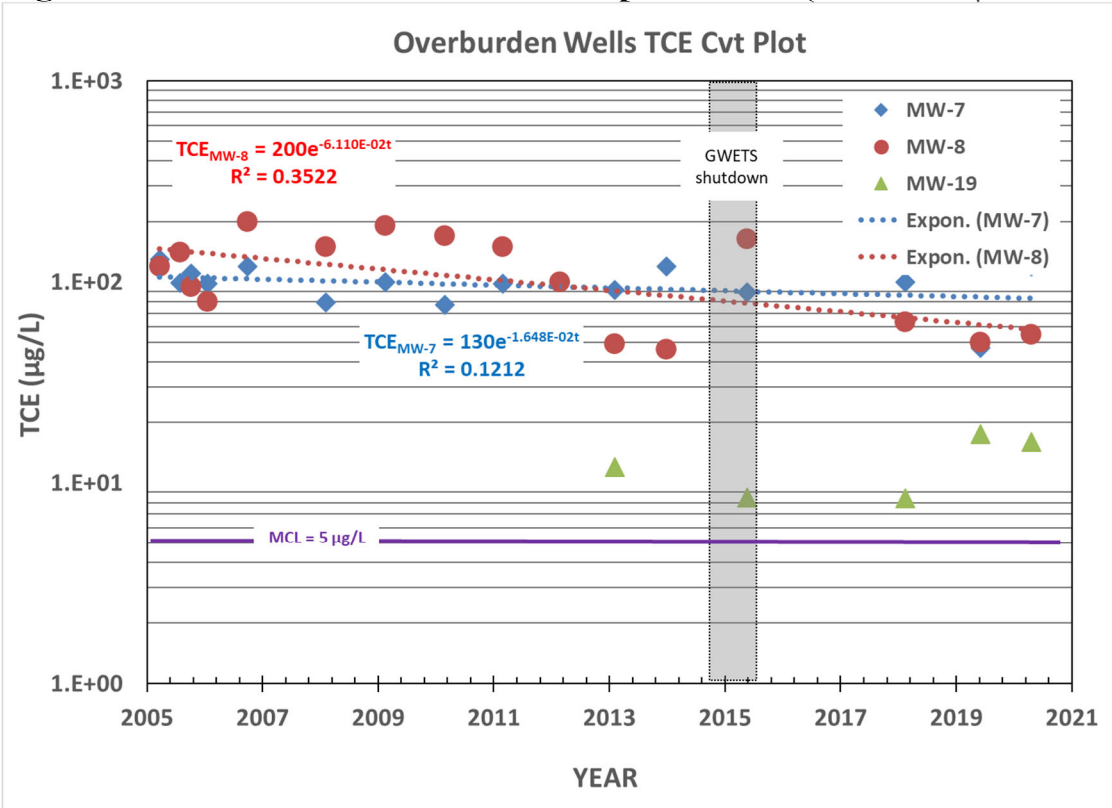


Figure 5: Overburden Wells 1,1-DCA Sample Results (2015-2019)

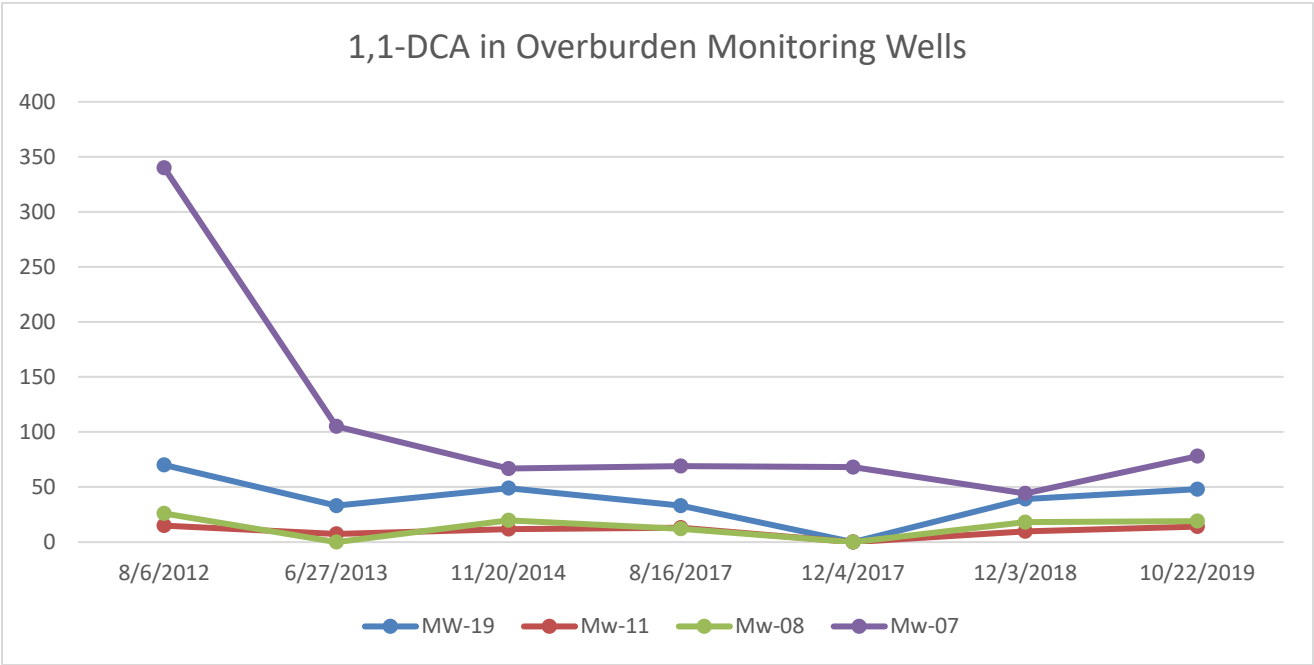


Figure 6: Bedrock Wells 1,1-DCA Sample Results (2015-2019)

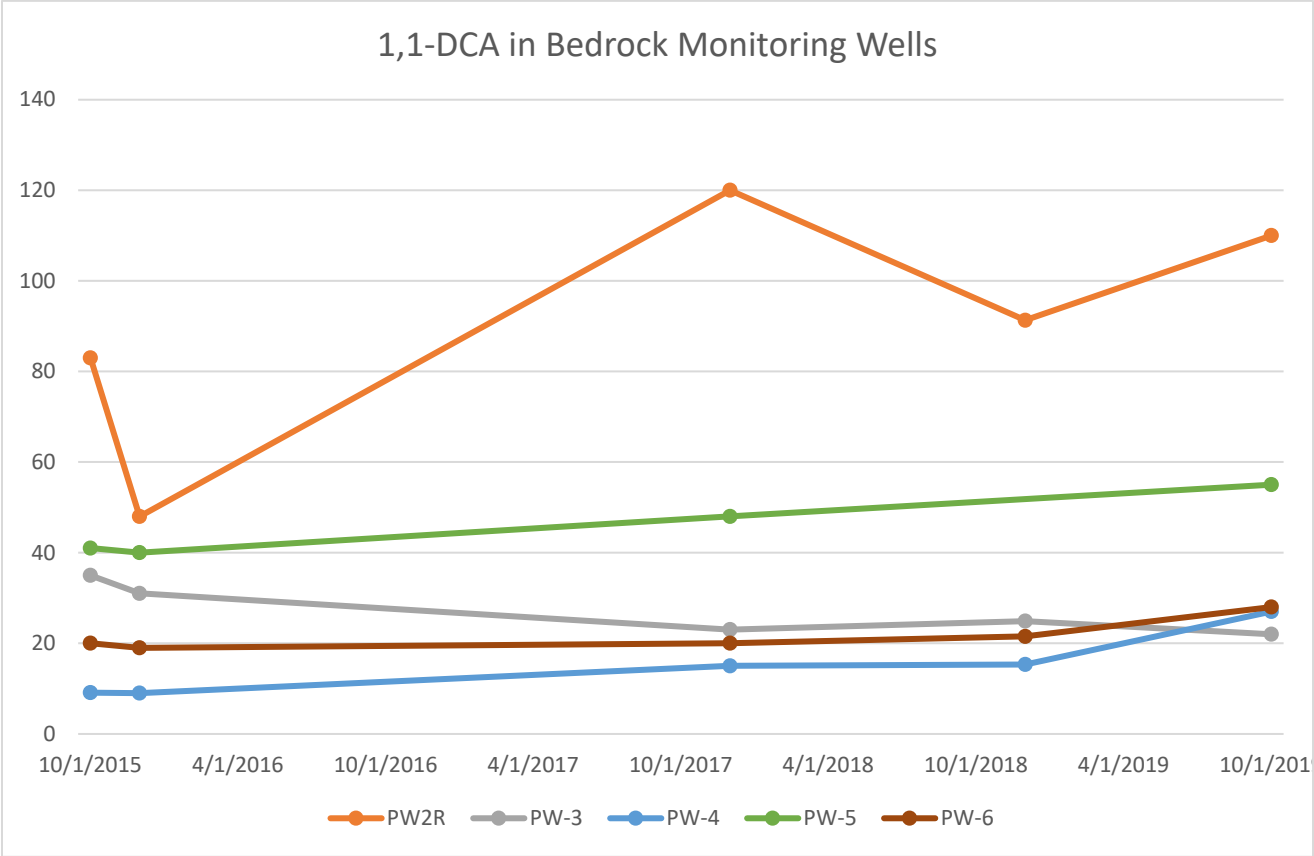
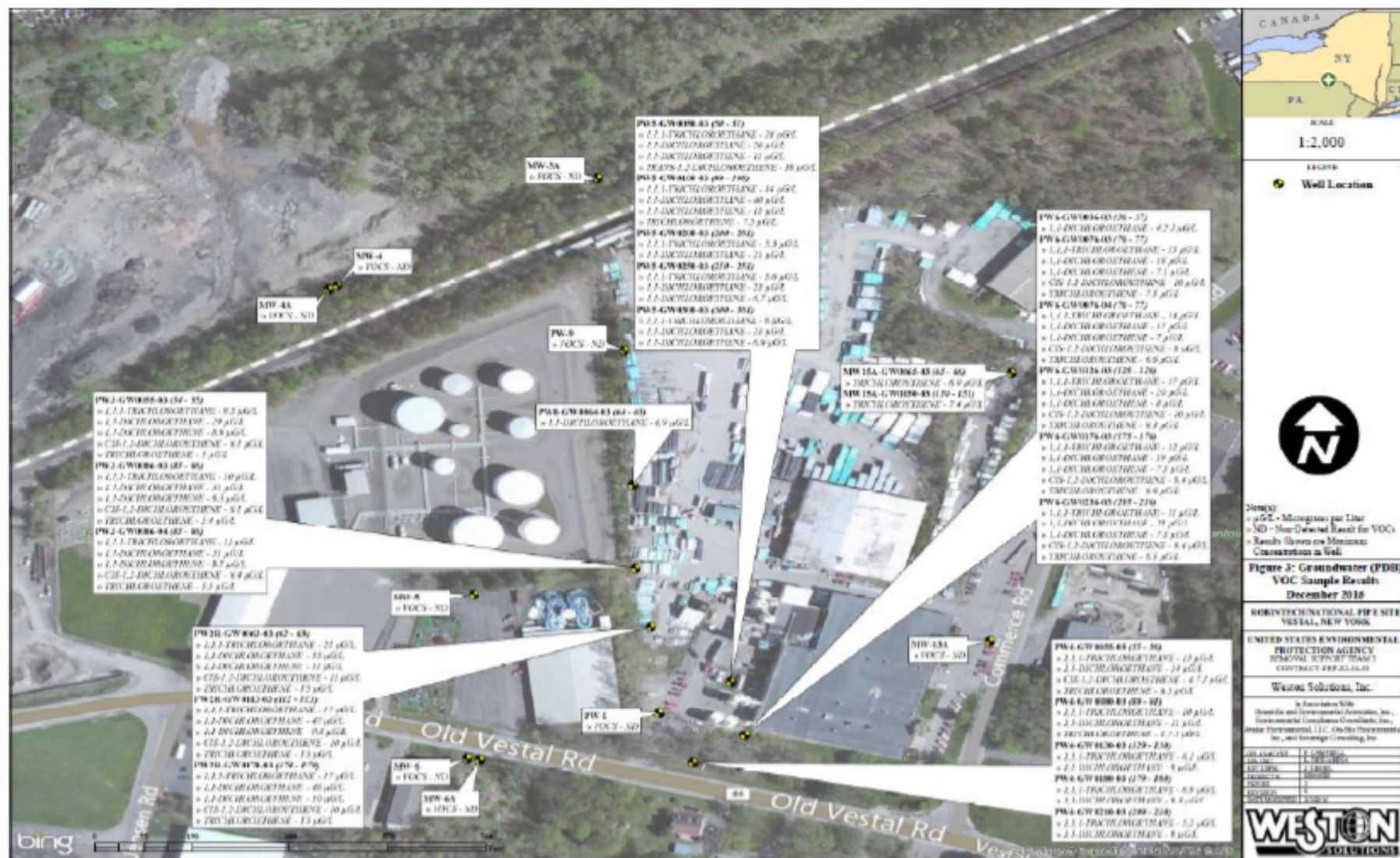


Figure 7: Baseline Bedrock VOC Sample Results (December 2015 PDB Event)



APPENDIX B: REFERENCE LIST

Documents, Data, and Information Reviewed in Completing the Five-Year Review	
Document Title, Author	Date
Remedial Investigation/Feasibility Study (McLaren/Hart)	1992
Baseline Risk Assessment (McLaren/Hart)	1992
OU-1 Record of Decision	1993
Remedial Design Investigation Report (McLaren/Hart)	1996
OU-3 Record of Decision	1997
RD/RA Consent Decree	1998
OU-3 Remedial Design (McLaren/Hart)	1999
Remedial Construction Report (Vertex)	2001
Stipulation and Order	2005
O&M Manual (Ground Water Treatment & Technology, Inc.)	2005
First Five-Year Review Report for Robintech, Inc./National Pipe Co. Site, Broome County, New York	2006
Second Five-Year Review Report for Robintech, Inc./National Pipe Co. Site, Broome County, New York	2011
Third Five-Year Review Report for Robintech, Inc./National Pipe Co. Site, Broome County, New York	2016
Annual Groundwater Sampling Reports	2015 - 2020
Partial Deletion from the NPL, Robintech, Inc./National Pipe Co. Site, Broome County, New York	2019

**APPENDIX C: PHYSICAL CHARACTERISTICS, EOLOGY/HYDROGEOLOGY,
AND LAND USE**

The 12.7-acre parcel of property (hereinafter, "Property") is located approximately half-way down the westerly face of a hill that slopes gently toward the Susquehanna River. Consistent with this, EPA field observations and examination of topographic contours indicate that the overland flow of surface water across the Property is to the west, controlled by a series of conduits and drainage ditches that direct the flow to the river, located approximately a half mile to the north and west. The area where the site is located is not known to contain or impact any ecologically-significant habitat, wetlands, agricultural land, or historic or landmark sites.

The area has two distinct aquifers. The upper aquifer is comprised of overburden material consisting mainly of gray and brown till that becomes harder with depth. This till unit is approximately 20 to 40 feet thick. In addition, fill material associated with extensive grading on the Property for storage and parking spaces ranges from zero to six feet in thickness. Groundwater is encountered within the upper aquifer unit six to 20 feet below ground surface. The lower aquifer is shale bedrock with a weathered zone seven to 10 feet thick. The primary permeability of this material is low, but the secondary permeability is much higher. Fractures along the horizontal bedding planes and vertical joints in the shale allow for groundwater flow.

Groundwater flow in the study area is primarily toward the west, with minor components trending to the northwest and southwest. There are no private drinking water wells in the vicinity of the site. All residents are supplied with drinking water by the Vestal well fields. One of these well fields is located Off-Property near the river. None of the wells in the Vestal well fields are affected by site-related contamination.

The Property and much of the surrounding area (with the exception of the residential area to the south) is zoned industrial/commercial. With the strong presence of commercial and industrial infrastructure, future land use is anticipated to remain industrial/commercial.