FIFTH FIVE-YEAR REVIEW REPORT FOR THE REICH FARM SUPERFUND SITE OCEAN COUNTY, NEW JERSEY

Prepared by

U.S. Environmental Protection Agency
Region 2
New York, New York

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Pat Evangelista, Director
Superfund and Emergency Management Division

March 30, 2023

Date

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LIST OF ABBREVIATIONS & ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
CACCCC	Citizens Action Committee on Childhood Cancer Cluster
CEA	Classification Exception Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CIC	Community Involvement Coordinator
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FYR	Five-Year Review
GAC	Granulated Activated Carbon
NCP	National Contingency Plan
NJGWQS	New Jersey Ground Water Quality Standards
NJDEP	New Jersey Department of Environmental Protection
NPL	National Priorities List
OU	Operable Unit
PCE	Tetrachloroethylene
Ppb	Parts per billion
Ppm	Parts per million
Ppt	Parts per trillion
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
PFNA	perfluoronanonanoic acid
PRP	Potentially Responsible Party
RAO	Remedial Action Objectives
RPM	Remedial Project Manager
ROD	Record of Decision
RPM	Remedial Project Manager
SAN Trimer	Styrene Acrylonitrile Trimer
SVOCs	Semi-volatile organic compounds
TCA	1,1,1-trichloroethane
TCE	Trichloroethylene
UCC	Union Carbide Corporation/Dow
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 pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)) and considering EPA policy.

This is the fifth FYR for the Reich Farm Superfund Site (site). The original triggering action for this policy review was the September 1998 Preliminary Close-Out Report. This FYR has been prepared due to the fact that the remedial action will not leave hazardous substances, pollutants or contaminants on site above levels that allow for unlimited use and unrestricted exposure, but the remedy required five or more years to complete.

The site consists of one operable unit (OU). The OU addresses the site's soil and groundwater remedies.

The site's fifth FYR team included Jon Gorin the EPA Remedial Section Chief, Malek Shami Remedial Project Manager (RPM), Rachel Griffiths the EPA hydrogeologist, Marian Olsen the EPA human-health risk assessor, Abby DeBofsky the EPA ecological risk assessor, and Natalie Loney the EPA community involvement coordinator (CIC) for the site. The site's potentially responsible party (PRP), Union Carbide Corporation/Dow (UCC), was notified of the initiation of the FYR. The FYR began on October 31, 2022.

Site Background

The site is located in Toms River, a residential community in coastal New Jersey. The three-acre Reich Farm property (Property), which comprises part of the overall site, is located on Lakewood Road in the Pleasant Plains section of Toms River. The Property is zoned commercial/residential, and is currently being used solely for commercial purposes. The property is surrounded by commercial and residential areas.

In the early 1970s, drums containing wastes from the PRP's Bound Brook chemical manufacturing facility were disposed on the Property. UCC removed the drums and some contaminated soil in 1971. Residual wastes leaked from the drums contaminating the soil and eventually the underlying groundwater with organic chemicals.

In September 1983, EPA included the site on its National Priorities List of Superfund sites (NPL). In September 1988, EPA issued a Record of Decision (ROD) for the site, which was subsequently revised in 1995, 1998 and 2015 through a series of Explanations of Significant Differences (ESD).

In September 2021, the site was removed from the NPL.

For more details related to site background, physical characteristics, geology/hydrogeology, and land/resource use, please see the documents found at www.epa.gov/superfund/reich-farm (see section on webpage titled Site Documents and Data).

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Reich Farm		
EPA ID: NJD980529713		
Region: 2	**State:** NJ	**County:** Toms River/Ocean County

SITE STATUS	
NPL Status: Deleted	
Multiple OUs? No	**Has the site achieved construction completion?** Yes

REVIEW STATUS
Lead agency: EPA
Author name (Federal or State Project Manager): Jon Gorin
Author affiliation: US EPA
Review period: 10/31/2022 - 9/11/2023
Date of site inspection: 2/13/2023
Type of review: Policy
Review number: 5
Triggering action date: 9/11/2018
Due date *(five years after triggering action date)*: 9/11/2023

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

During the remedial investigation phase, a Public Health Evaluation was performed to determine if there were unacceptable risks to human health due to either direct contact with site soils, or consumption of site-contaminated groundwater. The Public Health Evaluation found that while there was no direct contact risk from the soil, the soil did present a source of contamination to the underlying groundwater. In addition, the evaluation found that there was a potential increased risk to human health if the site-contaminated groundwater was consumed due to the presence of 1,1,1-trichloroethane (TCA), trichloroethene (TCE), and tetrachloroethylene (PCE).

EPA determined that the site did not pose a significant risk to the local flora or fauna, therefore no full-scale ecological risk assessment was performed for the site.

Response Actions

EPA issued the Record of Decision (ROD) in September 1988. The ROD selected the following objectives for the remedy:

- removal of TCA, TCE and PCE from groundwater until federal and state cleanup levels are attained; and
- treatment of soils contaminated with total Volatile Organic Compounds (VOCs) above one part per million (ppm) and total semi-VOCs (SVOCs) above 10 ppm.

The remedy described in the ROD called for the following:

- additional groundwater and soil sampling to further delineate contamination related to the site;
- excavation and treatment of contaminated soil by enhanced volatilization (thermal desorption) to remove VOCs and SVOCs; and
- installation and operation of a groundwater pumping, treatment and reinjection system to remove VOCs from groundwater at the site.

In 1995, after additional groundwater sampling showed the site's plume was impacting the Parkway Well Field (Well Field), EPA issued the site's first ESD. This ESD allowed for the Well Field's existing treatment system (*i.e.,* an air stripper) to be used as the site's groundwater remedy.

In 1998, in response to the discovery of a previously unknown contaminant, the styrene-acrylonitrile trimer, now called "SAN Trimer", EPA issued the second ESD. This ESD required the installation of a granulated activated carbon (GAC) system to remove SAN Trimer from the treated groundwater to below analytical detection levels. The PRPs had installed the GAC system prior to this ESD.

In 2015, EPA issued the third ESD, which set site-specific cleanup levels for SAN Trimer in soils and groundwater, 185 ppm and 48 parts per billion (ppb) respectively. These new SAN Trimer cleanup levels were then used at the site, rather than analytical detection levels.

Status of Implementation

The remedy has been implemented by UCC pursuant to a judicial Consent Decree. By June 1998, the PRP had:

- treated 15,000 cubic yards of contaminated soil using thermal desorption technologies,
- backfilled and restored the Reich Farm property,
- added activated carbon treatment to the air stripper treatment system at the Well Field,
- diverted treated water to a re-charge area,
- installed an additional containment well (Well 26b) at the Well Field to further control the plume, and
- performed groundwater monitoring.

The soil remedy was completed in 1995 and documented in a 1995 Remedial Action Report. In 2005, to support the assessment of SAN Trimer in soil, additional samples were collected from the treated and backfilled soil on the Property. San Trimer was detected in 33 of the 76 samples analyzed, with levels

ranging from 0.019 ppm to 14 ppm. These concentrations are below the SAN Trimer cleanup level EPA established in 2015. Therefore, EPA determined that no additional soils remediation was necessary.

The groundwater remedy's construction was completed in 1998 as documented in a 1998 Remedial Action Report. While the pump and treat remedy was operational, as an added protective measure, the New Jersey Department of Environmental Protection (NJDEP) recommended that treated water from the Well Field not be used as a public water supply unless needed to meet demand for potable water. Therefore, the treated water from the site's Well Field recovery wells (i.e., 26, 26b and 28 (Figure 1)) was discharged to the ground surface on an area close to the intersection of Route 9 and the Garden State Parkway (discharge area).

In a 2011 letter to EPA, the PRP requested permission to remove the air stripper portion of the groundwater treatment train. The air stripper had been installed to remove the VOCs but was ineffective in removing SAN Trimer. EPA approved this request based on the fact that the three recovery wells had been meeting applicable groundwater standards for over five years and the up-gradient monitoring wells were near or below groundwater standards for VOCs. The air stripper was removed from the treatment system in 2015.

In 2016, the PRP sent EPA a "Notice of Completion" letter, in which they asserted that the requirements for the groundwater remedy at the site had been achieved, meaning the cleanup levels from the 1988 ROD and the 2015 ESD have been met. In January 2018, EPA approved the Notice of Completion. Contingent on approving the Notice of Completion, EPA directed the PRP to develop a post-remediation monitoring program to alert EPA and the water company if the groundwater contamination rebounds and to ensure that wells in the Parkway Well Field remain unimpacted by residual site contamination. In September 2018, EPA confirmed that the post-remediation monitoring program met the requirements of EPA's 2014 Groundwater RA Completion Guidance. This allowed the PRPs to remove the GAC system and the three recovery wells from service.

The post-remediation monitoring program, which began in 2019, includes six monitoring wells located on the site, four monitoring wells located in the center of the former plume area, three wells located in the southern portion of the former plume area, seven sentinel wells close to the Parkway Well Field, and four municipal supply wells at the Parkway Well Field. The recovery wells, 26, 26b and 28, are not part of the post-remediation monitoring as they were shut down by the well operator, with EPA approval, in 2019.

Based upon the extensive data collected and evaluated over two decades, EPA determined that the remedy functioned as intended by the ROD and the ESDs. As a result, the site was deleted from the NPL in 2021. The 2021 Final Close Out Report for the site stated, "Despite the fact that cleanup levels had been achieved, as post-remediation samples were still being collected, EPA chose to perform at least one more five-year review by September 2023." As stated under Section VIII, this will be the final FYR for the site.

Systems Operations/Operation & Maintenance

Operation and Maintenance of the site's treatment systems have ceased. The groundwater and soil treatment systems performed as expected, allowing for the achievement of the cleanup goals set by the ROD and the 2015 ESD. The soil treatment was completed in 1995 and the groundwater treatment was completed and turned off in 2019.

Groundwater monitoring results from 2022 showed no exceedance of ROD levels and ESD levels. EPA will no longer require the PRPs to perform groundwater monitoring for the site. The monitoring wells will be abandoned by the PRP once they are no longer required for UCC and the water company's monitoring

program. A decision to abandon the Parkway Well Field wells is up to the owners of those wells, the water company.

Climate Change

Potential site impacts from climate change have been assessed. The site is located in Toms River, which is a coastal community that may be vulnerable to flooding from increased storm frequency or sea level rise in the future. However, since the remedy has been completed, the site would not be at risk due to the expected effects of climate change in the region and near the site.

Institutional Control Verification

There are no institutional controls for this site.

III. PROGRESS SINCE THE LAST REVIEW

Protectiveness Determinations/Statements from the 2018 FYR

Protectiveness Determination	Protectiveness Statement
Protective	The remedy at the Reich Farm Superfund Site is protective of human health and the environment.

There were no issues or recommendations in the 2018 FYR.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

On August 15, 2022, 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 and Puerto Rico, including the Reich Farm Superfund Site. The announcement can be found at the following web address: https://www.epa.gov/superfund/R2-fiveyearreviews.

In addition to this notification, the EPA Community Involvement Coordinator (CIC) for the site, Natalie Loney, posted a public notice on the EPA site webpage www.epa.gov/superfund/reich-farm and provided the notice to the township by email on March 24, 2023 with a request that the notice be posted on the town's webpage. This notice indicated that a Five-Year Review (FYR) would be conducted at the Reich Farm site to ensure that the cleanup at the site continues to be protective of human health and the environment. Once the FYR is completed, the results will be posted on the following website: www.epa.gov/superfund/reich-farm. Efforts will be made to reach out to local public officials to inform them of the results.

Data Review

The PRP collected and analyzed samples from monitoring wells, Well Field wells and, until the system was discontinued, from treated groundwater. EPA periodically analyzed split samples from the PRP to ensure analytical results were accurate. Monitoring wells in the sampling program have been sampled at least biannually during this review period, though certain wells are sampled on a more frequent basis (Table 1). This review evaluated data beginning with the June 2018 sampling event. Nevertheless, groundwater data collected since December 2016 (from the previous FYR period) show that cleanup levels for site contaminants have been achieved, meaning the ROD and ESD cleanup levels have not been exceeded in any of the samples collected over the last eight years (Figures 1 and 2).

VOCs
Since December 2016, VOCs have not been detected above ROD or ESD cleanup levels in any well sampled (see Figure 3). The highest VOC detection during the review period was a TCE concentration of 0.88 ppb at MW-Swain in the June 2021 sampling event. This well was sampled monthly, and the detection was followed by a non-detect concentration in July 2021.

SAN Trimer
SAN trimer has not been detected above the 48 ppb cleanup level in any well since 1997. During the review period, SAN trimer has been sporadically detected. The maximum detected SAN trimer concentration of 0.93 ppb in MW-14S remains far below its cleanup level (48 ppb) (Figure 4).

Emerging Contaminants
Due to the earlier presence of 1,1,1-TCA, groundwater samples have been periodically analyzed for 1,4-dioxane. In 1997, samples collected from recovery wells #26 and #28 were analyzed for 1,4-dioxane, which wasn't detected. In 2003, samples from six monitoring wells as well as from recovery wells #26, #26b and #28 were analyzed for 1,4-dioxane. The recovery wells had no detections, however two of the monitoring wells (CHMW-4 and MP13) had detections of less than 1.0 ppb and 3.0 ppb respectively. Those concentrations were less than the concentration associated with the acceptable risk level at that time. In 2011, water from CHMW-4 was again analyzed for 1,4-dioxane, which was not found at a detection level of 0.21 ppb. In August 2016, samples from four monitoring wells (including CHMW-4) and two recovery wells (#26 and #28) were sampled for 1,4-dioxane. Well #26 had a detection of 0.217 ppb and well MP-13 had a detection of 0.614 ppb. The MP-13 detection is above the NJGWQS of 0.4 ppb. All other wells sampled in 2016 had no detection at a reporting limit of 0.15 ppb (see Figure 5). Well MP-13 was sampled for 1,4-dioxane 5 times during this review period with a maximum detection estimated at 0.111 ppb in December 2019 which is below the NJGWQS of 0.4 ppb.

While there was no indication that they were a site related contaminant, as a precautionary measure, in 2016 EPA directed the PRP to collect water from four wells to be analyzed for perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS) and perfluorononanoic acid (PFNA). PFNA was undetected, however detections of PFOA were found in two wells (maximum detection 9.29 parts per trillion [ppt]) and PFOS in one well (maximum detection 6.41 ppt). The detections were orders of magnitude less than EPA's Drinking Water Health Advisory for PFOA and PFOS at that time (see Figure 5). Since the 2016 PFAS sampling, NJDEP has adopted GWQS for PFOA, PFOS, and PFNA of 14 ppt, 13 ppt, and 13 ppt, respectively. The 2016 analytical results do not exceed their respective NJGWQS.

Site Inspection
The inspection of the site was conducted on 02/13/2023. In attendance were Jon Gorin, US EPA RPM, Malek Shami, US EPA RPM and Matt Clark of AECOM (the PRP's consultant). The Property is currently being used by a local commercial operation to store construction and fencing material. The former recovery wells 26, 26b and 28 remained in place but were not operating. The GAC unit and air stripper, which had treated water from these wells, were turned off and "mothballed." The former discharge area appears to have reverted to its previous condition now that the discharge of treated water has ended.

V. TECHNICAL ASSESSMENT

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

The remedy functioned as intended by the ROD signed on September 30, 1988, and the ESDs issued in 1995, 1998 and 2015. EPA determined that the ROD cleanup levels were achieved for groundwater, so the operation of the groundwater remedy was shut down in 2019. The post-remediation monitoring results have successfully demonstrated cleanup levels have been met. There have been no exceedances of ROD cleanup levels since 2016, and all results during this review period remain non-detect or below cleanup levels.

The soil treatment, which was initiated to protect the underlying groundwater, has addressed the source area of groundwater contamination, meeting the goals of the ROD. In addition, in 2004, EPA collected and tested site soil for SAN Trimer. The highest concentration detected (14 ppm) was over an order of magnitude less than the site-specific cleanup level of 185 ppm.

Since the ROD and ESD cleanup levels for soil and groundwater have been achieved, EPA deleted the site from the NPL in 2021.

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 changes in the physical conditions at the site, cleanup standards, ARARs or EPA's risk assessment guidance and methods that would change the protectiveness of the remedy. The land is zoned commercial/residential, and it is currently being used for commercial purposes. The assumptions in the Public Health Evaluation assessment are consistent with the zoning and current use.

Since the third FYR, a toxicity value was developed for the SAN Trimer and discussed at length in the 2015 ESD. This non-cancer toxicity value was used to calculate cleanup goals for soil and groundwater for the SAN Trimer and remains valid.

Vapor intrusion was evaluated in the second FYR to determine the need for further sampling. The evaluation did not identify the need for further sampling. Since that time, the concentrations of VOCs in water have decreased so further evaluation of this pathway is not necessary.

An ecological risk assessment was never conducted. However, there is no unacceptable risk to ecological receptors from this site as there is no pathway of contamination to ecological receptors. Thus, the remedial action objectives used at the time of the ROD are still valid.

Evaluating Changes in Standards and TBCs

The exposure assumptions that were used to estimate the potential cancer risks and noncancer hazards in the risk assessment supporting the ROD and ESD for human health are consistent with current exposure assumptions. In order to protect groundwater, the ROD selected cleanup levels of 1 ppm for all VOCs and 10 ppm for all SVOCs and the ESD selected a cleanup level of 185 ppm for SAN Trimer. Table 3 provides an updated comparison of the current residential regional screening levels (RSLs) associated with specific risk levels and also NJDEP Soil Cleanup Criteria for residential direct soil contact. In addition, data collected post remediation to evaluate SAN Trimer concentrations in backfill determined that the residual concentrations were well below the risk-based cleanup level established in the ESD. This update confirmed that the RAO for soil cleanup of the Chemicals of Concern (COCs) has been met and remains protective.

For groundwater, the ROD established cleanup goals consistent with the state and federal MCLs in place at that time. A comparison of the 1988 MCLs to present MCLs and NJGWQS (for TCE and PCE, the only COCs remaining at detectable levels in the groundwater (Table 2)) shows no changes in values. In

addition, the SAN Trimer risk-based cleanup level for groundwater has been met and concentrations of SAN Trimer in the most recent rounds of groundwater sampling are below the detection level. No COCs from the 1988 ROD or ESD have been detected above the cleanup goals since 2015, indicating the RAO for groundwater has been achieved.

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

No new information has called into question the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
OU 01

VII. PROTECTIVENESS STATEMENT

Sitewide Protectiveness Statement
Protectiveness Determination: Protective
Protectiveness Statement: The remedy at the Reich Farm Superfund site is protective of human health and the environment.

VIII. NEXT REVIEW

EPA evaluated the available site data and the remedial efforts undertaken at the site. Based on all available evidence, the site cleanup has achieved unlimited use and unrestricted exposure. Therefore, in accordance with CERCLA Section 121, the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300.430(f)(4)(ii) and consistent with the 2001 Comprehensive FYR Guidance, this will be the final FYR for the site.

APPENDIX A – Table & Figures
Figure 1: Groundwater Monitoring Well Network

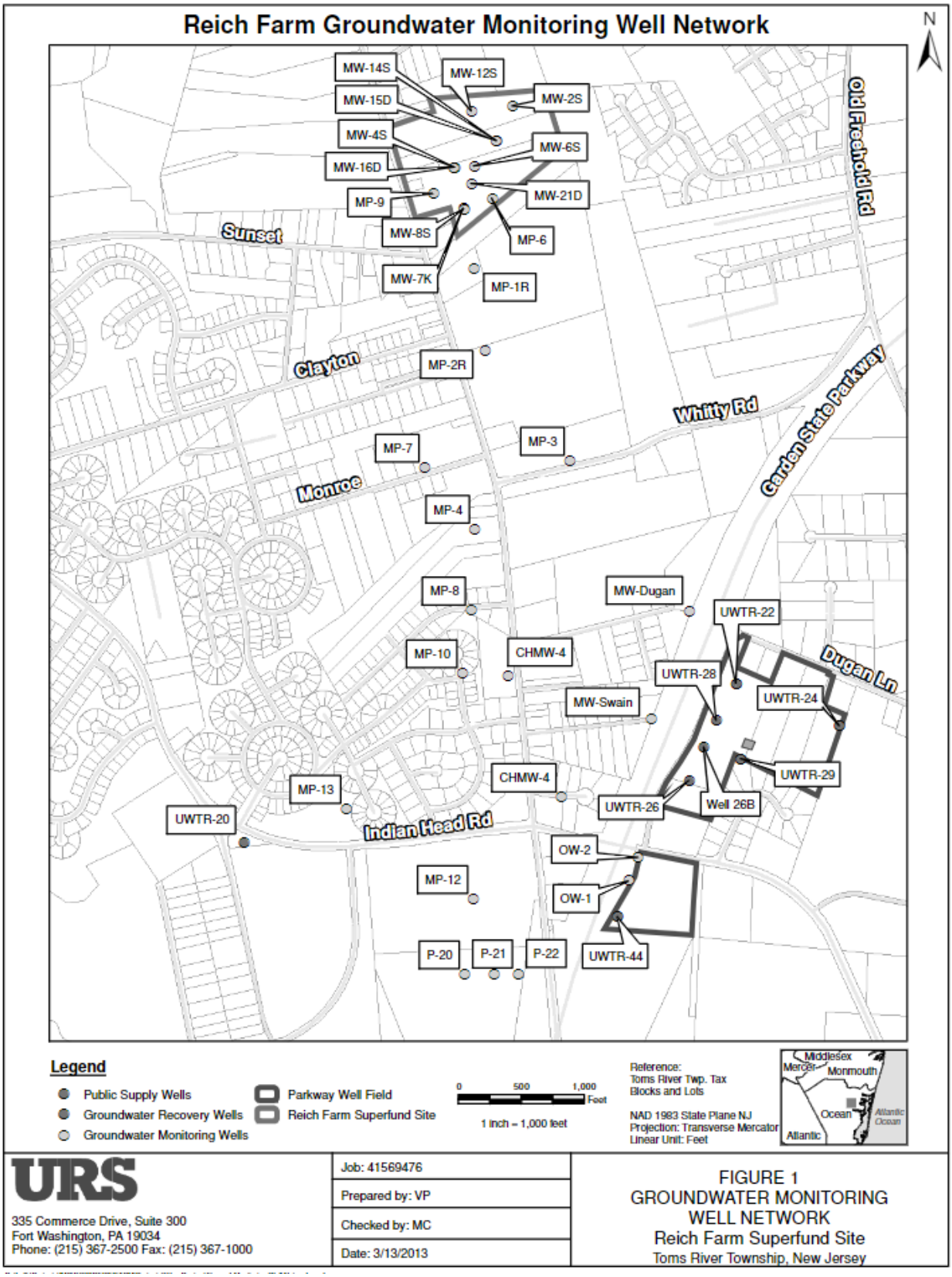
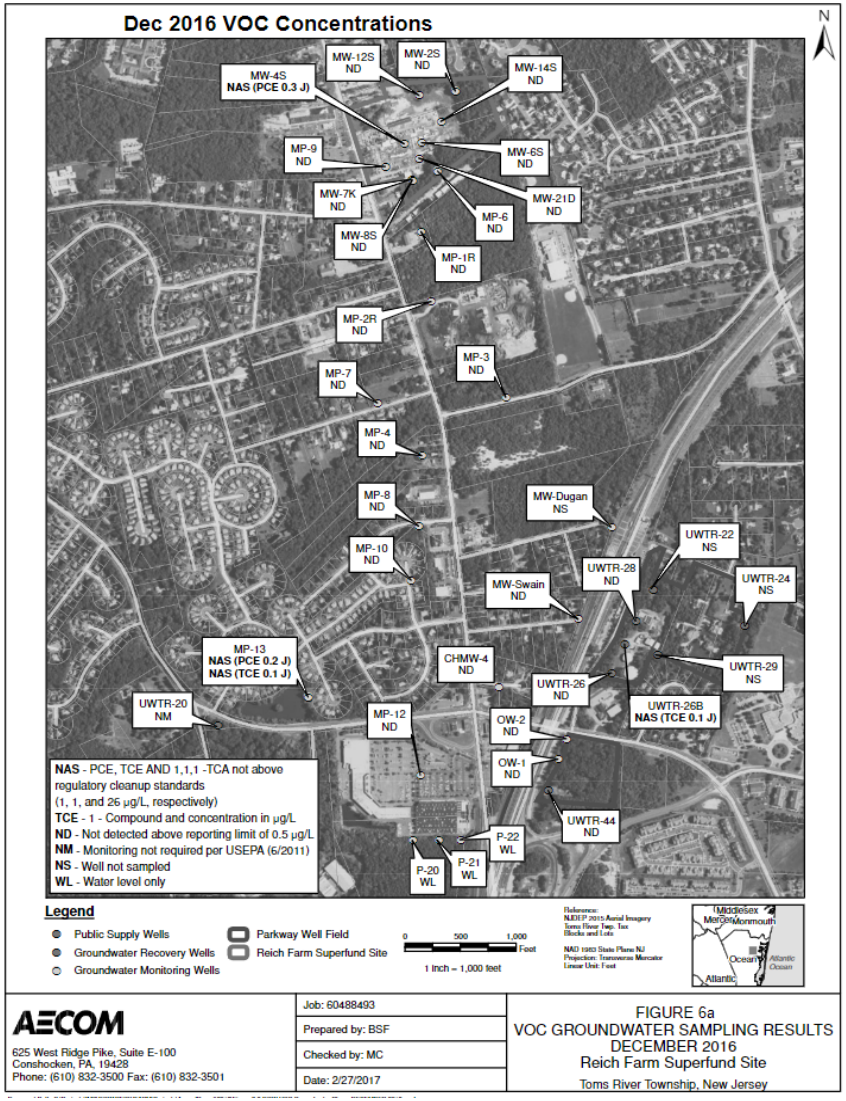

Reich Farm Groundwater Monitoring Well Network
N
MW-14S
MW-12S
MW-15D
MW-2S
MW-4S
MW-6S
MW-16D
MW-21D
MP-9
MW-8S
MP-6
MW-7K
MP-1R
MP-2R
MP-3
MP-7
MP-4
MP-8
MW-Dugan
UWTR-22
MP-10
CHMW-4
UWTR-28
UWTR-24
MW-Swain
UWTR-29
CHMW-4
MP-13
UWTR-26
Well 26B
UWTR-20
OW-2
MP-12
OW-1
P-20
P-21
P-22
UWTR-44
Sunset
Clayton
Monroe
Whitty Rd
Indian Head Rd
Old Freehold Rd
Garden State Parkway
Dugan Ln
Legend
Public Supply Wells
Groundwater Recovery Wells
Groundwater Monitoring Wells
Parkway Well Field
Reich Farm Superfund Site
0
500
1,000
Feet
1 inch = 1,000 feet
Reference:
Toms River Twp. Tax
Blocks and Lots
NAD 1983 State Plane NJ
Projection: Transverse Mercator
Linear Unit: Feet
Middlesex
Mercer
Monmouth
Ocean
Atlantic
Atlantic Ocean
URS
335 Commerce Drive, Suite 300
Fort Washington, PA 19034
Phone: (215) 367-2500 Fax: (215) 367-1000
Job: 41569476
Prepared by: VP
Checked by: MC
Date: 3/13/2013
FIGURE 1
GROUNDWATER MONITORING
WELL NETWORK
Reich Farm Superfund Site
Toms River Township, New Jersey

Figure 2: 2016 Groundwater Contaminant Concentrations



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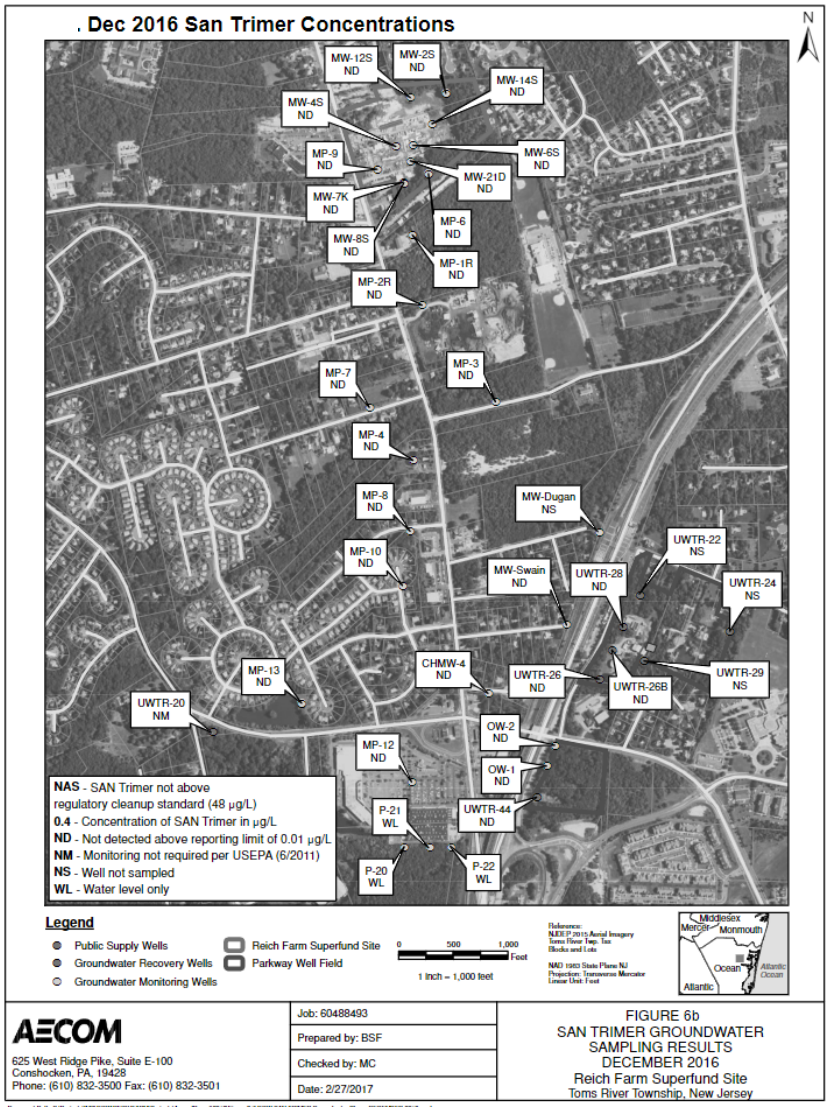
Job:	60488493
Prepared by:	BSF
Checked by:	MC
Date:	2/27/2017

FIGURE 6a
VOC GROUNDWATER SAMPLING RESULTS
DECEMBER 2016
Reich Farm Superfund Site
Toms River Township, New Jersey



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Job:	60488493
Prepared by:	BSF
Checked by:	MC
Date:	2/27/2017

FIGURE 6b
SAN TRIMER GROUNDWATER
SAMPLING RESULTS
DECEMBER 2016
Reich Farm Superfund Site
Toms River Township, New Jersey

Figure 3: 2021 Groundwater VOC Concentrations

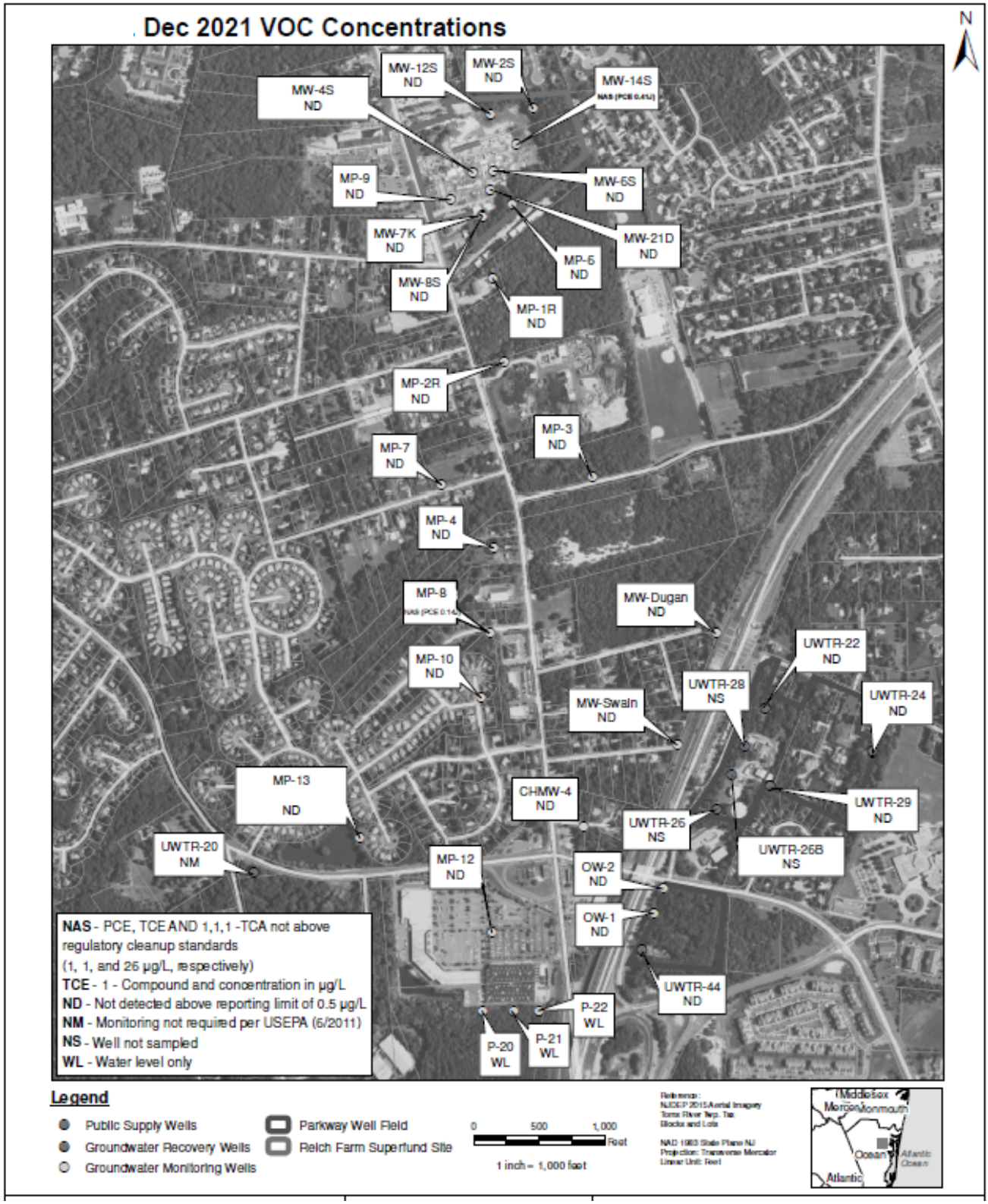


Figure 4: 2021 SAN Trimer Concentrations

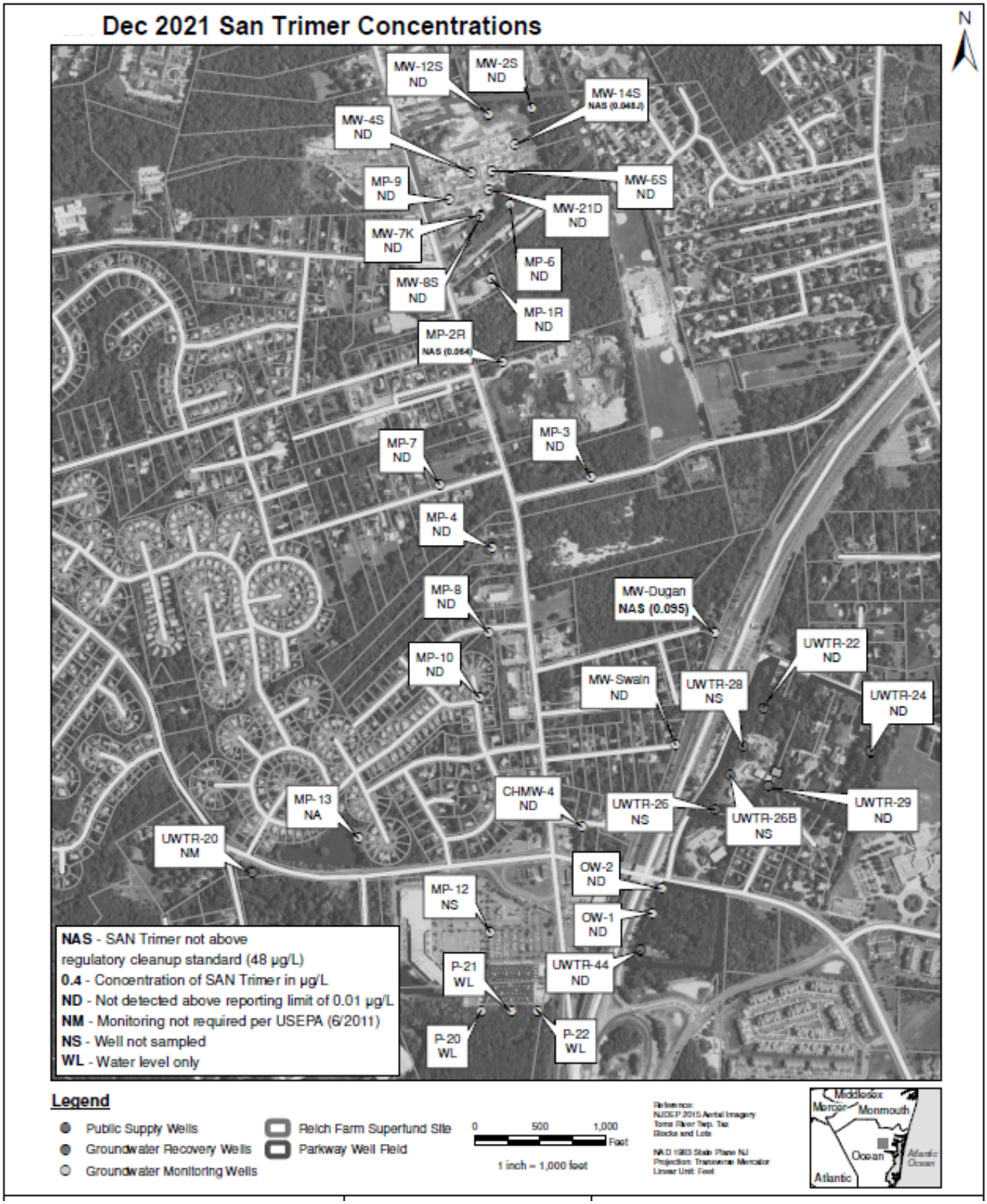
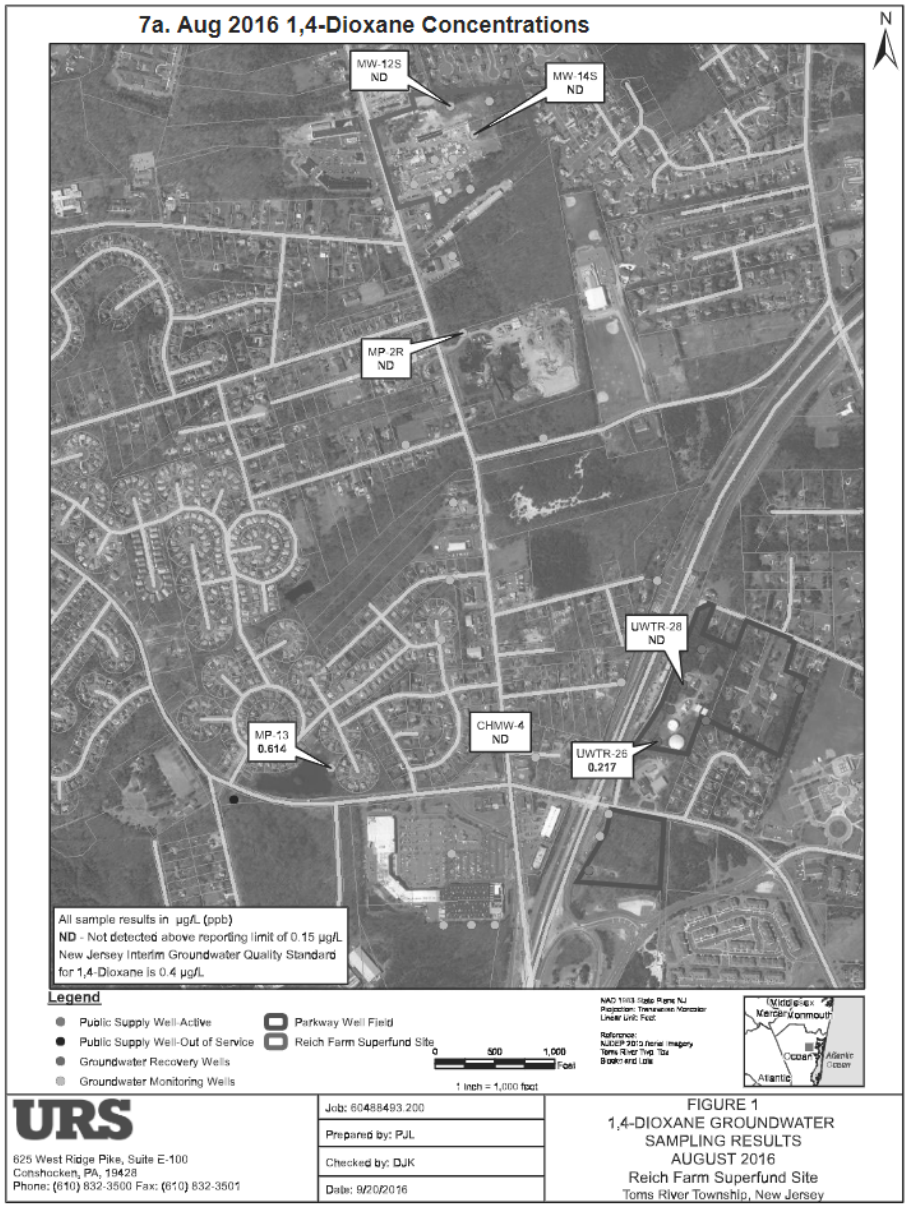


Figure 5: 2016 Emerging Contaminants Groundwater Concentration



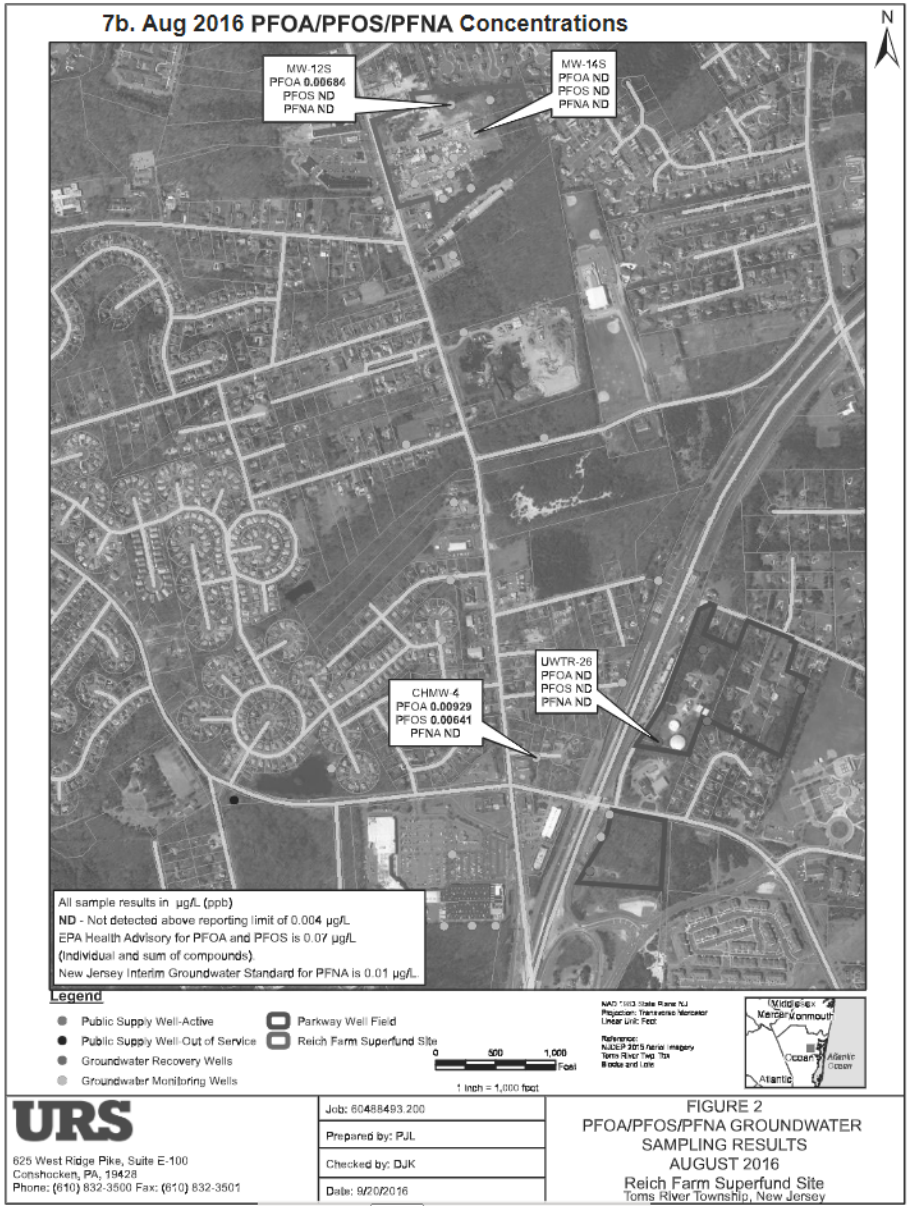


Table 1
Post-Remediation Groundwater Sampling Locations and Frequency (September 2022 Revision) Reich Farm Superfund Site
Toms River Township, New Jersey

Well ID	Number of Consecutive Rounds of No Exceedances	Sample Frequency (Per 2001 O&M Plan)	Time Period that Well has not exceeded any ROD/ESD Cleanup Level [PCE and TCE - 1 ug/L; 1,1,1-TCA - 26 ug/L; SAN Trimer - 48 ug/L]	Proposed Sample Frequency (Post-Remediation Monitoring Program)	Actual Sample Frequency through Sept 2022, and Proposed for Years 4 and 5 (Post-Remediation Monitoring Program)
Upgradient Wells					
MW-2S	9	Biennial	June 1986 - December 2016	None unless on-site well exceeds	Not sampled
MW-12S	9	Biennial	Jan 1999 - December 2016	None unless on-site well exceeds	Not sampled
On-Site Plume Wells (See Note 1)					
MW-4S	13	Annual	Dec 2005 - Dec 2017	Annual for Yrs 1, 2, 3 then biennial	Annual for Yrs 1, 2, 3. Maintain Annual for Years 4 and 5
MW-6S	6 + 8	Annual	May 1997- Dec 2002, Jan 2010 - Dec 2016	Biennial	Biennial
MW-8S	20	Annual	Sept 1997 - Dec 2016	Biennial	Biennial
MW-14S	7	Annual	Dec 2011 - Dec 2017	Annual for Yrs 1, 2, 3 then biennial	Annual for Yrs 1, 2, 3. Maintain Annual for Years 4 and 5
MP-6	9	Annual	Dec 2009 - Dec 2017	Annual for Yrs 1, 2, 3 then biennial	Annual for Yrs 1, 2, 3. Maintain Annual for Years 4 and 5
MP-9	8	Annual	Dec 2009 - Dec 2016	Biennial	Biennial
On-Site Vertical Migration Wells					
MW-7K	9	Biennial	Dec 2000 - Dec 2016	None unless on-site well exceeds	Not sampled
MW-21D	9	Biennial	June 1998 - Dec 2016	None unless on-site well exceeds	Not sampled
Center Area Wells (See Note 2)					
MP-1R	18	Annual	Nov 2000 - Dec 2017	Annual for Yrs 1, 2, 3 then biennial	Annual for Yrs 1, 2, 3. Maintain Annual for Years 4 and 5
MP-2R	5	Annual	Dec 2013 - Dec 2017	Annual for Yrs 1, 2, 3 then biennial	Annual for Yrs 1, 2, 3. Maintain Annual for Years 4 and 5
MP-3	21	Annual	May 1997 - Dec 2017	Annual for Yrs 1, 2, 3 then biennial	Annual for Yrs 1, 2, 3. Maintain Annual for Years 4 and 5
MP-7	21	Annual	May 1997 - Dec 2017	Annual for Yrs 1, 2, 3 then biennial	Annual for Yrs 1, 2, 3. Maintain Annual for Years 4 and 5
Southern Area Wells (see Note 3)					
MP-4	21	Annual	May 1997 - Dec 2017	Semi-Annual for Yrs 1, 2 then biennial	Semi-Annual for Yrs 1, 2 then Annual for Years 3,4,5
MP-8	17	Annual	Dec 2001 - Dec 2017	Semi-Annual for Yrs 1, 2 then biennial	Semi-Annual for Yrs 1, 2 then Annual for Years 3,4,5
MP-10	19	Annual	Jan 1999 - Dec 2017	Semi-Annual for Yrs 1, 2 then biennial	Semi-Annual for Yrs 1, 2 then Annual for Years 3,4,5
Sentinel Wells (see Note 4)					
MP-12	40	Semi-Annual	May 1997 - Dec 2016	Quarterly for Yr 1, Semi-Annual for Yr 2, then annual	Quarterly for Yr 1, Semi-Annual for Yr 2, then annual
MP-13	26	Semi-Annual	April 2005 - Dec 2017	Quarterly for Yr 1, Semi-Annual for Yr 2, then annual	Quarterly for Yr 1, Semi-Annual for Yr 2, then annual
MW-Dugan	27	Semi-Annual	May 1997 - Dec 2010	Quarterly for Yr 1, Semi-Annual for Yr 2, then annual	Quarterly for Yr 1, Semi-Annual for Yr 2, then annual
MW-Swain	17	Semi-Annual	Dec 2009 - Dec 2017	Quarterly for Yr 1, Semi-Annual for Yr 2, then annual	Quarterly for Yr 1, Monthly between June 2021 and March 2022 (Year 2-3), resumed quarterly in June 2022. Maintain quarterly for Years 4 and 5
CHMW-4	20	Semi-Annual	June 2008 - Dec 2017	Quarterly for Yr 1, Semi-Annual for Yr 2, then annual	Quarterly for Yr 1, Semi-Annual for Yr 2, then annual
OW-1	17	Semi-Annual	Oct 2008 - Dec 2017	Quarterly for Yr 1, Semi-Annual for Yr 2, then annual	Quarterly for Yr 1, Semi-Annual for Yr 2, then annual
OW-2	32	Semi-Annual	Nov 2000 - Dec 2017	Quarterly for Yr 1, Semi-Annual for Yr 2, then annual	Quarterly for Yr 1, Semi-Annual for Yr 2, then annual
Parkway Supply Wells (see Note 5)					
UWTR-22	*	Quarterly	Previously sampled by UWTR	Monthly for Yr 1, semi-annual for Yrs 2& 3, annual for Yrs 4 & 5	Monthly for Yr 1, reverted to monthly during Year 2 (July 2021-March 2022), resumed quarterly in June 2022 (Year 3), stay quarterly for Yrs 4 & 5
UWTR-24	*	Quarterly	Previously sampled by UWTR	Monthly for Yr 1, semi-annual for Yrs 2& 3, annual for Yrs 4 & 5	Monthly for Yr 1, reverted to monthly during Year 2 (July 2021-March 2022), resumed quarterly in June 2022 (Year 3), stay quarterly for Yrs 4 & 5
UWTR-29	*	Quarterly	Previously sampled by UWTR	Monthly for Yr 1, semi-annual for Yrs 2& 3, annual for Yrs 4 & 5	Monthly for Yr 1, reverted to monthly during Year 2 (July 2021-March 2022), resumed quarterly in June 2022 (Year 3), stay quarterly for Yrs 4 & 5
UWTR-44	40	Semi-Annual	Aug 1998 - Dec 2017	Monthly for Yr 1, semi-annual for Yrs 2& 3, annual for Yrs 4 & 5	Monthly for Yr 1, reverted to monthly during Year 2 (July 2021-March 2022), resumed quarterly in June 2022 (Year 3), stay quarterly for Yrs 4 & 5
UWTR-26	63	Quarterly	March 2002 - Dec 2017	None - Recovery well shutdown	None - Recovery well shutdown
UWTR-28	60	Quarterly	Mar 2003 - Dec 2017	None - Recovery well shutdown	None - Recovery well shutdown
Well 26B	49	Quarterly	Dec 2005 - Dec 2017	None - Recovery well shutdown	None - Recovery well shutdown

ug/L = micrograms per liter
Consecutive rounds of no exceedances at the specified frequency: e.g. MW-12S has had no exceedances for 9 biennial rounds, MP-1R for 18 annual rounds, MP-13 for 26 semi-annual rounds, etc.

Note 1 - After Year 3, all on-site wells will go to biennial unless groundwater elevation at MW-4S rises above a depth of 21 feet below ground (maximum which only occurred one year [2010] since 2000).

Note 2 - After Year 3, all center area wells will go to biennial so long as on-site wells are below standards and on-site groundwater elevation does not exceed 2010 level.

Note 3 - After Year 2, all southern area wells will go to biennial so long as center area wells are $\leq$ 0.5 ppb for TCE or PCE or 10 ppb SAN Trimer, and on-site groundwater elevation does not exceed 2010 level.

Note 4 - After Year 2, all sentinel wells will go to annual so long as southern area wells are below $\leq$ 0.5 ppb for TCE or PCE or 10 ppb SAN Trimer, and on-site groundwater elevation does not exceed 2010 level.

Note 5 - After Year 1, all Parkway wells will go to semi-annual for Years 2 and 3 and Annual for Years 4 and 5 so long as sentinel wells and Parkway wells are $\leq$ 0.5 ppb for TCE or PCE or 10 ppb SAN Trimer and on-site groundwater elevation < 2010 level

Notes 1 through 5 from the original 2018 Plan are superseded by Sept 2022 recommendations.

Year 1 = December 2019 - November 2020

Year 2 = December 2020 - November 2021

Year 3 = December 2021 - November 2022

Year 4 = December 2022 - November 2023

Year 5 = December 2023 - November 2024

Table 2
Reich Farm Superfund Site Groundwater Sampling Data (2018-2022) Recovery Wells Shut Down November 2019

On-Site Wells

MP-6					
Sample Date	Cleanup Standard	12/12/2018	12/10/2019	12/21/2020	12/16/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND

MP-9				
Sample Date	Cleanup Standard	12/12/2018	12/10/2019	12/22/2021
Units	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND
Trichloroethene	1	ND	ND	ND
SAN Trimer	48	ND	ND	ND

MW-4S					
Sample Date	Cleanup Standard	12/12/2018	12/11/2019	12/21/2020	12/15/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND
Tetrachloroethene	1	0.2 J	0.3 J	ND	ND
Trichloroethene	1	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND

MW-6S				
Sample Date	Cleanup Standard	12/13/2018	12/11/2019	12/15/2021
Units	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND
Trichloroethene	1	ND	ND	ND
SAN Trimer	48	ND	ND	ND

On-Site Plume Wells (continued)

MW-8S

Sample Date	Cleanup Standard	12/12/2018	12/10/2019	12/15/2021
Units	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND
Trichloroethene	1	ND	ND	ND
SAN Trimer	48	ND	ND	ND

MW-14S

Sample Date	Cleanup Standard	12/13/2018	12/10/2019	12/21/2020	12/22/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND
Tetrachloroethene	1	0.4 J	0.4 J	0.1 J	0.41 J
Trichloroethene	1	ND	ND	ND	ND
SAN Trimer	48	ND	0.93	0.12	0.048 J

Center Area Wells

MP-1R

Sample Date	Cleanup Standard	12/12/2018	12/10/2019	12/21/2020	12/14/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND

MP-2R

Sample Date	Cleanup Standard	12/11/2018	12/10/2019	12/21/2020	12/14/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND
Tetrachloroethene	1	ND	0.2 J	0.11 J	ND
Trichloroethene	1	0.1 J	0.5	0.19 J	ND
SAN Trimer	48	ND	ND	ND	0.064

Center Area Wells (continued)

MP-3					
Sample Date	Cleanup Standard	12/11/2018	12/10/2019	12/18/2020	8/11/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND

MP-7					
Sample Date	Cleanup Standard	12/13/2018	12/12/2019	12/21/2020	12/14/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND

Southern Area Wells

CHMW-4											
Sample Date	Cleanup Standard	6/14/2018	12/10/2018	6/25/2019	12/9/2019	6/9/2020	7/10/2020	9/21/2020	12/15/2020	6/17/2021	12/14/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	1	0.1 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MP-4							
Sample Date	Cleanup Standard	12/13/2018	6/27/2019	12/12/2019	6/10/2020	12/21/2020	12/14/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND	0.12 J
SAN Trimer	48	ND	ND	ND	ND	ND	ND

Southern Area Wells (continued)

MP-8

Sample Date	Cleanup Standard	12/12/2018	6/27/2019	12/12/2019	6/9/2020	12/18/2020	12/15/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	0.14 J
Trichloroethene	1	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND

MP-10

Sample Date	Cleanup Standard	12/12/2018	6/26/2019	12/12/2019	6/10/2020	12/15/2020	12/16/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND

MP-12

Sample Date	Cleanup Standard	6/13/2018	12/12/2018	6/27/2019	12/11/2019	1/15/2020	6/10/2020	7/9/2020	9/22/2020	12/15/2020	6/17/2021	12/15/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND J,I	ND	ND	ND	ND	ND	ND	ND

MP-13

Sample Date	Cleanup Standard	6/13/2018	12/12/2018	6/26/2019	12/12/2019	6/10/2020	7/9/2020	9/22/2020	12/14/2020	6/18/2021	12/14/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	0.1 J	ND	0.1 J	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	0.4	NA	NA	NA	0.111 J	ND	NA	ND	0.04 J	ND	NA

Southern Area Wells (continued)

MW-Dugan-R

Sample Date	Cleanup Standard	4/10/2019	6/26/2019	12/9/2019	6/9/2020	7/9/2020	9/22/2020	12/18/2020	6/17/2021	12/14/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND	ND	ND	0.095

MW-Swain

Sample Date	Cleanup Standard	6/14/2018	12/10/2018	6/25/2019	12/9/2019	6/9/2020	7/10/2020	9/22/2020	12/18/2020	1/19/2021	3/16/2021	6/17/2021	7/30/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	0.1 J	ND	ND	ND	0.15 J	ND	ND	0.12 J	ND	0.1 J	0.14 J	ND
Trichloroethene	1	0.2 J	ND	ND	0.1 J	0.55	ND	0.29 J	0.53	ND	0.52	0.88	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MW-Swain (continued)

Sample Date	Cleanup Standard	8/11/2021	9/21/2021	10/27/2021	11/19/2021	12/14/2021	1/27/2022	2/17/2022	3/17/2022	6/28/2022
Units	µg/l	µg/l	µg/l		µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	0.11 J	0.12 J	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	0.16 J	0.11 J	0.11 J	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND	ND	0.097 J	ND

OW-1

Sample Date	Cleanup Standard	6/13/2018	12/11/2018	6/26/2019	12/11/2019	6/10/2020	7/9/2020	9/22/2020	12/15/2020	6/17/2021	12/15/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Southern Plume Wells (continued)

OW-2											
Sample Date	Cleanup Standard	6/13/2018	12/11/2018	6/26/2019	12/11/2019	6/10/2020	7/9/2020	9/22/2020	12/15/2020	6/17/2021	12/15/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Parkway Supply Wells

UWTR-22													
Sample Date	Cleanup Standard	12/11/2019	1/15/2020	2/26/2020	3/24/2020	4/24/2020	5/15/2020	6/9/2020	7/9/2020	8/21/2020	9/23/2020	10/15/2020	11/12/2020
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

UWTR-22 (continued)													
Sample Date	Cleanup Standard	12/14/2020	1/19/2021	3/16/2021	6/18/2021	7/30/2021	8/11/2021	9/21/2021	10/27/2021	11/19/2021	12/15/2021	1/27/2022	2/17/2022
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l					
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

UWTR-22 (continued)			
Sample Date	Cleanup Standard	3/17/2022	6/29/2022
Units	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND
Tetrachloroethene	1	ND	ND
Trichloroethene	1	ND	ND
SAN Trimer	48	ND	ND

UWTR-24													
Sample Date	Cleanup Standard	12/11/2019	1/15/2020	2/26/2020	3/24/2020	4/24/2020	5/15/2020	6/9/2020	7/9/2020	8/21/2020	9/23/2020	10/15/2020	11/12/2020
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

UWTR-24 (continued)													
Sample Date	Cleanup Standard	12/14/2020	1/19/2021	3/16/2021	6/18/2021	7/30/2021	8/11/2021	9/21/2021	10/27/2021	11/19/2021	12/15/2021	1/27/2022	2/17/2022
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l					
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

UWTR-24 (continued)			
Sample Date	Cleanup Standard	3/17/2022	6/28/2022
Units	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND
Tetrachloroethene	1	ND	ND
Trichloroethene	1	ND	ND
SAN Trimer	48	ND	ND

UWTR-29													
Sample Date	Cleanup Standard	12/11/2019	1/15/2020	2/26/2020	3/24/2020	4/24/2020	5/15/2020	6/9/2020	7/9/2020	8/21/2020	9/23/2020	10/15/2020	11/12/2020
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

UWTR-29 (continued)													
Sample Date	Cleanup Standard	12/14/2020	1/19/2021	3/16/2021	7/30/2021	8/11/2021	9/21/2021	10/27/2021	11/19/2021	12/15/2021	1/27/2022	2/17/2022	3/17/2022
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l						
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

UWTR-29 (continued)		
Sample Date	Cleanup Standard	6/29/2022
Units	µg/l	µg/l
1,1,1-Trichloroethane	26	ND
Tetrachloroethene	1	ND
Trichloroethene	1	ND
SAN Trimer	48	ND

UWTR-44													
Sample Date	Cleanup Standard	6/13/2018	12/11/2018	6/26/2019	12/11/2019	1/15/2020	2/26/2020	3/24/2020	4/24/2020	5/15/2020	6/8/2020	7/9/2020	8/21/2020
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

UWTR-44 (continued)													
Sample Date	Cleanup Standard	9/23/2020	10/15/2020	11/12/2020	12/14/2020	1/19/2021	3/16/2021	6/17/2021	7/30/2021	9/21/2021	10/27/2021	11/19/2021	12/15/2021
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l			
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	0.03 J	ND	ND	ND	ND	ND	ND	ND

UWTR-44 (continued)					
Sample Date	Cleanup Standard	1/27/2022	2/17/2022	3/17/2022	6/29/2022
Units	µg/l				µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND

Recovery Wells

UWTR-26							
Sample Date	Cleanup Standard	3/14/2018	6/14/2018	9/26/2018	12/11/2018	3/12/2019	6/26/2019
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND

UWTR-26B						
Sample Date	Cleanup Standard	3/14/2018	9/26/2018	12/11/2018	3/12/2019	6/26/2019
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND
Trichloroethene	1	0.1 J	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND

UWTR-28							
Sample Date	Cleanup Standard	3/14/2018	6/14/2018	9/26/2018	12/11/2018	3/12/2019	6/26/2019
Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
1,1,1-Trichloroethane	26	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1	ND	ND	ND	ND	ND	ND
Trichloroethene	1	ND	ND	ND	ND	ND	ND
SAN Trimer	48	ND	ND	ND	ND	ND	ND

Note: Shaded values are above the cleanup standards

µg/l Micrograms per liter

J Estimated value below the limit of quantitation

NA Not Analyzed

ND Not Detected above limit of quantitation (0.5 µg/l for VOCs and 0.01 µg/l for SAN Trimer)

Cleanup Standard Standards listed for 1,1,1-Trichloroethane, Tetrachloroethene, and Trichloroethene are New Jersey State Groundwater Quality Standards as listed in the 1988 Record of Decision.

These standards are still the current State standards except 1,1,1-TCA which is 30 µg/l

Standard listed for SAN Trimer was established by USEPA in an Explanation of Significant Difference (ESD) to the ROD on October 15, 2015

Table 3
List of Chemicals of Concern and EPA Regional Screening Levels, and
NJDEP Soil Remediation Standards (Updated 1/11/2023)

Chemicals of Concern	Residential Regional Screening Levels (mg/kg) in Soil at Risk Level of 1 x 10^{-6}	Residential Regional Screening Levels (mg/kg) in Soil at Risk Level of Hazard Quotient = 1	NJDEP Soil Remediation Standards for Direct Contact (mg/kg)
Volatile Organic Compounds			
Acetone		70,000	70,000
Methyl Ethyl Ketone		27,000	47,000
Tetrachloroethylene	24	81	330
1,1,1-Trichloroethane		8,100	160,000
1,2-Dichloroethene Cis Trans		63 70	780 1,300
Toluene		4,900	6,300
Ethylbenzene	5.8	2,400	7,800
Total Xylenes		580	12,000
Chlorobenzene		280	510
Semi-volatile organic compounds			
Bis-2-ethyl hexyl phthalates	39	1,300	39
Di-N-octyl phthalate		630	630
Dibutylphthalate		6,300	6,300
Butylbenzylphthalate	290	13,000	290
Fluoroanthene		2,400	2,400
Pyrene		1,800	1,800
San Trimer		190	NA

Sources of Data

EPA Regional Screening Levels – November 2022

(available at: https://semspub.epa.gov/work/HQ/403632.pdf

NJAC 7:26D Remediation Standards - REMEDIATION STANDARDS TABLES dated May 17, 2021.

Appendix 1. Table 1 – Soil Remediation Standards for the Ingestion-Dermal Exposure Pathway - Residential (mg/kg) (dated: May 17, 2021). Available at: https://www.nj.gov/dep/rules/rules/njac7_26d.pdf .

Changes in Non-cancer toxicity values:

Updates to EPA residential soil values are listed below .

Chemical	2018 Concentration (mg/kg)	2023 Concentration (mg/kg)
Acetone	61,000	70,000
cis 1,2-dichloroethene trans 1,2-dichloroethene	160 1,600	63 70
Ethyl benzene	3,400	2,400
Total Xylenes	550	580
San Trimer	185	190

Updates in NJDEP Soil Remediation Standards are listed below.

Chemical	2018 Concentration (mg/kg)	2023 Concentration (mg/kg)
Methyl Ethyl Ketone	3,100	47,000
Tetrachloroethylene	43	330
cis 1,2-dichloroethene trans 1,2-dichloroethene	230 300	780 1,300
Bis-2-ethylhexyl-phthalate	35	39
Di-n-octyl-phthalate	6,100	6,300
Butylbenzyl phthalate	1,200	290
Fluoroanthene	2,300	2,400
Pyrene	1,700	1,800