FOURTH FIVE-YEAR REVIEW REPORT
BROOK INDUSTRIAL PARK SUPERFUND SITE
SOMERSET COUNTY, NEW JERSEY

Prepared by

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

Pat Evangelista, Acting Director
Superfund & Emergency Management Division

6/18/19
Date

568955

Table of Contents

LIST OF ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
CEA	Classification Exception Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIC	Community Involvement Coordinator
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FYR	Five-Year Review
JFC	Jamie Fine Chemical
NJGWQS	New Jersey Ground Water Quality Standards
NJDEP	New Jersey Department of Environmental Protection
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
PCB	Polycyclic biphenyls
POTW	Publicly Owned Treatment Works
ppb	parts per billion
ppm	parts per million
PRP	Potentially Responsible Party
RAO	Remedial Action Objectives
RI/FS	Remedial Investigation/Feasibility Study
RD/RA	Remedial Design/Remedial Action
ROD	Record of Decision
RPM	Remedial Project Manager
UU/UE	Unlimited use/unrestricted exposure
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 United States Environmental Protection Agency (EPA) is preparing this FYR review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the fourth FYR for the Brook Industrial Park Superfund Site (site). The triggering action for this statutory review is the February 7, 2014 approval date of the previous FYR. 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 site consists of one operable unit (OU). The OU addresses the site's buildings, soil, sediment and groundwater remedies.

The site's fourth FYR team included Mark Austin - EPA Remedial Project Manager (RPM), Kathyrn Flynn - EPA hydrogeologist, Charles Nace - EPA human-health and ecological risk assessor and Pat Seppi - EPA community involvement coordinator (CIC) for the site. The site's potentially responsible party (PRP), Jamie Fine Chemical (JFC), was notified of the initiation of this FYR. The FYR began on June 6, 2018.

Site Background

The site is located in the Borough of Bound Brook, nearby the Raritan River in central New Jersey, Figure #1. The 4.5 acre site consists of a complex of warehouse buildings where light industries and offices are located on 100 West Main Street. There are three buildings in the industrial park and the property is currently zoned for light industrial use, Figure #2.

Various industrial, chemical, electoplating and pesticide production, usage and storage operations began at the site in 1971. Pesticides handled at the site included a variety of pesticides, dioxin, and arsenic compounds. Although pesticide production ceased in 1982, chemical and small scale electroplating production continued at the site.

During the 1980s, environmental inspections by both EPA and New Jersey Department of Environmental Protection (NJDEP) resulted in the discovery of leaking drums and illegal discharges to surface soil, groundwater, and the Raritan River. Subsequent sampling and laboratory analysis of the groundwater, surface soils, and impacted buildings found the presence of volatile organic compounds (VOCs), pesticides, metals, and dioxin.

On October 4, 1989, EPA included the site on its National Priorities List (NPL) of Superfund sites. In September 1994, EPA issued a Record of Decision (ROD) for the site, which was subsequently revised in 2013 through an Explanation of Significant Differences (ESD).

See Table #1 for the Chronology of site events. For further details, related to site background, physical characteristics, geology/hydrogeology, and land/resource use, please see the documents found in the site repositories or at https://www.epa.gov/superfund/brook-industrial-park.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Brook Industrial Park		
EPA ID: NJD078251675		
Region: 2	**State:** NJ	**City/County: : Bound Brook/Somerset**
SITE STATUS		
NPL Status: Final		
Multiple OUs? No	**Has the site achieved construction completion?** Yes	
REVIEW STATUS		
Lead agency: EPA		
Author name (Federal or State Project Manager): Mark Austin		
Author affiliation: US EPA		
Review period: 6/6/2018 - 4/1/2019		
Date of site inspection: 2/14/2019		
Type of review: Statutory		
Review number: 4		
Triggering action date: 2/7/2014		
Due date *(five years after triggering action date)*: 2/7/2019		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

In April 1989, EPA began a remedial investigation and feasibility study (RI/FS) to determine the nature and extent of contamination at the site. A human health risk assessment concluded that for the current industrial land-use conditions, the dominant health risk was posed by the ingestion of on-site soil and inhalation of fugitive dust emissions by an on-site worker. The risk was primarily due to heavy metals

and the pesticides aldrin and dieldrin. Elevated concentrations of lead were also detected in on-site soils at concentrations above EPA's non-residential cleanup policy number of 500 ppm established in the 1994 ROD. Under future land-use conditions, the dominant health risk was posed by incidental ingestion and dermal absorption of soil from one of the buildings on site (the Stirling Center basement) by a future worker and ingestion of groundwater by future workers. These ingestion and dermal risks were primarily due to the PCB Aroclor-1248 and arsenic. The risks due to potential future ingestion of groundwater in the overburden and bedrock aquifers were primarily due to the presence of benzene, vinyl chloride, tetracholoroethylene, arsenic, beryllium and dieldrin.

An ecological risk assessment concluded that the potential exposure pathway for ecological receptors at the site was associated with chemicals in the sediments and surface water of an unnamed tributary, a drainage ditch, and wetlands adjacent to the Raritan River.

Response Actions

EPA issued a ROD in September 1994 selecting the following objectives for the remedy:

- Reduce risks associated with incidental ingestion of and direct contact with contaminated soils in Area One, Area Two, basements and sediments (wetland area).
- Reduce risks associated with direct contact with contaminated building interiors.
- Reduce potential risks associated with ingestion of the overburden and bedrock ground water.

The remedy described in the ROD called for the following:

Soils - Excavation of contaminated soil in Area One (soil contamination in the eastern portion of the site) and Area Two (soil contamination in the southwestern portion of the site), the soil beneath the Blue Spruce and Stirling Center buildings, sediment in the two subsurface pits in the National Metal Finishings building, and sediment in the wetland; off-site treatment and disposal of the contaminated soil and sediment; backfilling of the excavated areas with clean fill; and mitigation of the wetland area as appropriate. The ROD limited the excavation of contaminated soils to the water table (approximately ten feet below ground surface). See Table #3 for specific soil cleanup goals.

Building Interiors - Demolition and off-site disposal of the dioxin-contaminated material from the Blue Spruce building; sealing of the common walls if demolition compromised the structural integrity of the adjacent facilities; and maintenance of the sealed walls over the lifetime of the adjacent buildings.

Groundwater - Installation of groundwater extraction wells (see Figure#2); treatment of the contaminated groundwater by chemical precipitation and air stripping; reinjection of the treated groundwater into the aquifer; and long-term monitoring. Table #2 includes the ROD cleanup goals for the site contaminants of concern.

In 2013, EPA issued an ESD, which documented the need for institutional controls and the following changes to the ROD:

- Pursuant to a September 2000 Consent Decree, the landowner PRP filed a Declaration of Restrictive Covenants on the site to maintain the protectiveness of the remedy.
- In lieu of reinjecting the treated groundwater into the aquifer, discharging the treated extracted groundwater to the Publicly Owned Treatment Works (POTW) is acceptable.
- Due to the post-excavation sampling results exceeding the soil clean-up criteria adjacent to the building foundations and the potential to undermine the structural integrity of the adjacent

buildings by excavating contaminants, these areas were allowed to be backfilled with clean fill and capped with asphalt.

- Post-excavation sampling in the Stirling Center Building crawl space indicated exceedances of the soil clean-up criteria. Excavation of this area would have compromised the structural integrity of the building and a concrete cap was installed in the crawl space instead.
- Post-excavation sampling indicated the soil surrounding two pits in the National Metals building exceeded soil clean-up criteria. Additional excavation of the pits would have compromised the structural integrity of the building. As a result, concrete pads were installed at the base of the pits and the electroplating pit walls were lined with steel plates.

Status of Implementation

In September 1999, EPA completed the demolition of the Blue Spruce building, off-site disposal of the demolition debris, and sealing of the adjacent building walls. Approximately 400 tons of brick/concrete and 500 cubic yards of wood were transported off site for disposal. The two common walls that support the adjacent buildings were also sealed with cement stucco.

Also in September 1999, EPA began the remedial action for the soil component of the remedy. Eighteen thousand tons of contaminated soil were excavated and transported off site for treatment and disposal, resulting in the completion of the Area #2 remedial action and most of Area #1. Following the removal and off-site treatment and disposal of contaminated soil from the Stirling Center basement, a concrete cap was installed to prevent direct contact to remaining residual soil contamination.

The last action for the remedy's soil component required coordination with the Green Brook Flood Control Project conducted by the U.S. Army Corps of Engineers (USACE). As part of this project, a floodwall and levee was constructed on the Brook Industrial Park along the Raritan River banks. In September 2006, EPA completed excavation of the remaining 11,300 tons of soil and sediment from the site.

The groundwater remedial design/remedial action (RD/RA) activities were taken over by a group of PRPs in 2001. The PRPs completed the construction of a groundwater extraction/treatment facility in September 2006. This extraction system, which operates today, consists of six overburden extraction wells, and one bedrock groundwater extraction well, the JFC production well. Although the JFC production well is part of the extraction well network, it is not connected to the treatment system and is discharged directly to the POTW. The treatment process for the extracted water from the overburden aquifer consists of ion exchange and granular activated carbon.

Institutional Controls Summary & Table

A restrictive covenant was applied to the Brook Industrial Park property in December 2008. The covenant restricts the use of groundwater, disturbance of contaminated soils and demolition of the former Blue Spruce building walls except where EPA may deem necessary and approve. An ESD in 2013 changed the selected remedy to add an institutional control for groundwater, which includes the establishment of a Classification Exception Area (CEA), as required by NJDEP. The CEA, once approved by NJDEP, will ensure that the uses of the aquifer are restricted until standards are achieved.

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)
Site-wide Groundwater	Yes	Yes	Entire Site	To establish an institutional control for groundwater by restricting installation of groundwater wells and groundwater use	CEA planned to be in place by January 2020

Systems Operations/Operation & Maintenance

The *Operation and Maintenance (O&M) Plan* includes maintenance of the two common walls of the former Blue Spruce building, the asphalt caps, and the concrete cap in the Stirling Center basement.

The *October 2004 Monitoring Plan and Sampling Analysis Plan* provides the basis for gathering groundwater data used to evaluate the effectiveness of the groundwater treatment remedy. The program was changed from semiannual to annual monitoring in 2016. Groundwater level measurements and samples are collected from monitoring and extraction wells. The analytes are volatile organic compounds and metals, including hexavalent chromium.

Potential site impacts from climate change have been assessed, and the performance of the remedy is currently not at risk due to the expected effects of climate change in the region and near the site.

III. PROGRESS SINCE THE LAST REVIEW

Protectiveness Determinations/Statements from the 2014 FYR

Protectiveness Determination	Protectiveness Statement
Short-term Protective	The remedies implemented at the site are protective of human health and the environment in the short-term due to the removal of contaminated soils, installation of asphalt and concrete caps, and implementation of deed restrictions to control exposure pathways that could result in unacceptable risks. The groundwater extraction and treatment system is effectively containing the plume. In order for the groundwater remedy to be protective in the long-term, a CEA must be established for groundwater.

Status of Recommendations from the 2014 FYR

Issue	Recommendations	Current Status	Completion Date (if applicable)
The need for an institutional control for groundwater was documented in an ESD. An institutional control for groundwater has not yet been applied.	Establish a CEA for the groundwater contaminated by the site.	Ongoing	N/A

Other Notes

In the previous FYR, it was recommended that MW101, MW103 and MW107 be repaired or replaced. Groundwater monitoring wells MW101, MW106, and MW107 were replaced in 2014. MW103 was installed in ballast adjoining the railroad tracks. Due to railroad reconstructon of the rails, MW103 was buried by additional ballast and could not be found. MW103 was located and has been included in the sampling/monitoring program. The overburden recovery wells were redeveloped due to fouling in 2014. Pumps and controllers in the overburden extraction wells were replaced in 2015. A new meter was installed at the JFC production well in 2015. Extraction well MW-2 was not in operation for an unknown period in 2018 and extraction well MW204 was redeveloped due to fouling at this time. Also, the CEA has not yet been implemented due to concerns raised by the PRP. Once resolution has been reached in the next few months, the PRP is expected to submit a CEA application to NJDEP in order to establish the CEA.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

On October 1, 2018, EPA Region 2 posted a notice on its website indicating that it would be reviewing site cleanups and remedies at 42 Superfund sites in New York and New Jersey, including the Brook Industrial Park site. The announcement can be found at the following web address: https://www.epa.gov/aboutepa/fiscal-year-2019-five-year-reviews. The results of the review and the report will be made on the website for Brook Industrial Park (https://www.epa.gov/superfund/brook-industrial-park), as well as the site information repositories located at the Bound Brook Library located on East High Street in Bound Brook, New Jersey and at EPA Region 2 offices, 290 Broadway, New York, New York 10007-1866. In addition, a public notice was made available to the Borough of Bound Brook on June 14, 2019 to inform them that a link to the FYR will be available on the Bound Brook webpage and inviting the public to submit any comments to the U.S. EPA.

Data Review

Groundwater elevation data and VOC and metal results from the 2014 to 2018 monitoring events was evaluated for this review. Also see Table #2 for the groundwater contaminant concentrations trends over the past 3 FYRs.

Benzene was observed above the standard at multiple overburden wells in this period. MW6, MW102-RW5, and MW-5 showed benzene detections in 2018, following non-detect concentrations in 2017. The greatest concentration observed in 2018 was 8.9 ug/l at MW5. Cis-1,2-Dichloroethene and vinyl chloride exceedences were detected in wells on the east side of the site, and the highest concentrations in 2018 were 120 ug/l and 3.1 ug/l respectively.

There are fewer detections and exceedences of VOCs in the bedrock wells. Benzene and chlorobenzene are only detected at EW1RS and their concentrations are below standards. PCE is elevated only at the JFC production well and slightly exceeds the standard at MW2RS. TCE is slightly elevated at MW2RS, and vinyl chloride and cis-1,2-dichlorethene levels were stable but exceed the standards at EW1RS in this period. The wells showing elevated VOCs in the deep groundwater are within the same area of elevated VOCs in the shallow groundwater.

The previous FYR showed decreasing arsenic concentrations in the overburden wells and elevated concentrations at only three of these wells. In this review period, elevated arsenic concentrations were stable or increasing at overburden wells MW6, MW-102-RW5, MW-5, MW204-RW4, EW1-RW3, and EW2-RW-2. In 2018, the maximum concentration of 622 ug/l occurred at MW-5. Arsenic was detected only once in the bedrock wells during this period, at MW5RS.

Total chromium concentrations in the overburden wells fluctuated at some wells in this period. MW6 decreased to a non-detect value in 2018 after concentrations above 800 ug/l since 2015. MW102-RW5 increased over three years to 164 ug/l in 2018, from non-detect concentrations in 2015. Chromium concentrations have been consistently high at the north well MW207-RW6 and the 2018 concentration was 1560 ug/l. The overburden wells with elevated chromium have non-detect concentrations of hexavalent chromium, except for MW207-RW6 where the hexavalent chromium concentrations also exceed the standard at 138 ug/l.

In the bedrock groundwater wells, arsenic was only elevated once in this period, to 49.8 ug/l at MW5RS in 2017. The chromium contamination is limited to the JFC production well and MW109RS, and the maximum concentration in 2018 was 290 ug/l at MW109RS. The hexavalent chromium and total chromium concentrations are similar at the JFC well, but only total chromium is detected at MW109RS.

The direction of groundwater flow in the overburden and the bedrock is consistent with previous years. In the overburden, the groundwater flows south toward the Raritan River but is influenced by the shallow pumping wells. There are fewer measurements in the bedrock wells, but the bedrock groundwater flow in the area is also generally toward the river. Bedrock flow in the immediate area of site is toward the JFC production well.

There are no records of the pumping rates in the overburden wells, therefore the effect of pumping on contaminant concentrations cannot be determined. In the bedrock, only the JFC production well rate is recorded. The reported average pumping rate at this well in 2018 was 52 gpm, but pumping rates vary with site operations.

Of the overburden wells, MW103 is the most downgradient well near the Raritan River. In 2018, MW103 had exceedences of arsenic, PCE, and TCE. This well was only sampled once in the five year period, so it is unknown how long the contamination has existed downgradient of the extraction system. The bedrock well in this location, MW107RR, did not detect site contaminants in 2018.

The variable concentrations of VOCs and metals in the overburden aquifer may be related to intermittent pumping and maintenance at the overburden pumping wells in the past five years. The recent data does not show decreasing trends in contaminant concentrations, but consistent pumping and more elevation data could show if is there is hydraulic control over the contamination.

Figures #3, #4, #5 and #6 provide additional information on the groundwater sampling results from 2015 to 2018 on a well and aquifer basis.

Site Inspection

The inspection of the site was conducted on February 14, 2019. In attendance were Mark Austin, RPM, Kathryn Flynn Hydrogeologist, Jack Heely, PRP Consultant, and Jamie Schleck, PRP (Site Owner). The purpose of the inspection was to assess the integrity of the remedy.

The site remains occupied by several small businesses. The groundwater treatment system was inspected along with the bedrock extraction well. The asphalt capped areas on site and the encapsulated walls on the outside of the Blue Spruce building were also inspected and found in good condition.

V. TECHNICAL ASSESSMENT

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

Based on the implementation of the remedies, the exposure pathways that existed for soil exposure have been eliminated using caps (i.e., asphalt cap on former Blue Spruce building footprint and concrete cap in the basement of the Stirling Center). During the site visit, the asphalt cap located over the former Blue Spruce building's footprint and the cement stucco on the two common exterior walls of the former Blue Spruce building appeared weathered, but functioning as intended. The areas where soil excavation occurred remained in good condition.

The groundwater extraction and treatment system was operating as designed with no signs of wear. However, issues with performance over the five-year period have resulted in variability of contamination in various wells throughout the site. As previously noted in the data review section, there were no records of the pumping rates in the overburden wells, therefore the effect of pumping on contaminant concentrations cannot be accurately determined. Better maintenance of the groundwater sytem, along with efforts to obtain pumping rates and water elevation data will significantly improve the ability to evaluate remedy effectiveness in the future.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Human Health – (a) Previous five-year reviews indicated that the exposure assumptions were still valid and the findings during this review period concur that the exposure assumptions used at the time of the remedy are still valid. (b) Previous five-year reviews also indicated that the small changes in toxicity values would not affect the protectiveness of the remedy. This conclusion is still valid. (c) The soil remediation goals were based on risk-based calculations. The soil cleanup goals were compared to the current NJDEP soil cleanup criteria and some values identified in the ROD are greater than current NJDEP criteria. Although there are some differences, the contaminated soil was capped, therefore the exposure to soil has been eliminated. Given this, the cleanup values used are still protective. The groundwater cleanup values were identified as the lower of the state and federal MCLs. These values remain valid. (d) The RAOs that are presented in the ROD are to reduce risks associated with incidental ingestion of and direct contact with contaminated soils in Area #1, Area #2, basements and sediments (wetland area), reduce risks associated with direct contact with contaminated building materials, and reduce potential risks associated with ingestion of the overburden and bedrock groundwater. The RAOs listed in the ROD are still valid at this time.

Ecological – The previous five-year review concluded that the exposure pathways that were identified in the ecological risk assessment have been eliminated and that the remedy is protective for ecological receptors and the environment. Based upon review of the current and site conditions, this conclusion is still valid.

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

protectiveness of the remedy?

There were no issues that were identified during the review of the documents listed in Table #4, or during the site inspection that would call into question the protectiveness of the implented remedies.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
None

Issues and Recommendations Identified in the Five-Year Review:

OU(s): No operable units have been designated for this site.	**Issue Category: Institutional Controls**			
	Issue: The need for an institutional control for groundwater was documented in an ESD in the form of a CEA which has not yet been established.			
	Recommendation: Establish a CEA at the site.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA/State	1/1/2020
OU(s): No operable units have been designated for this site.	**Issue Category: Remedy Performance**			
	Issue: Pumping in all extraction wells is not consistent and pumping rates and water elevation data for most wells are not available, which makes a comprehensive evaluation of the effectiveness of the system difficult.			
	Recommendation: Ensure future sampling events include data on pumping rates and groundwater elevation.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA/State	1/1/2020

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)		
Operable Unit: No operable units have been designated for this site.	*Protectiveness Determination:* Short-term Protective	*Planned Addendum Completion Date:* Click here to enter a date
Protectiveness Statement: The remedy implemented at the site is protective of human health and the environment in the short-term. In order for the groundwater remedy to be protective in the long-term, a Classification Exception Area must be established for groundwater, and future sampling events should include data on pumping rates and groundwater elevation.		

Sitewide Protectiveness Statement	
Protectiveness Determination: Protective	*Planned Addendum Completion Date:* Click here to enter a date
Protectiveness Statement: The remedy implemented at the site is protective of human health and the environment in the short-term. In order for the groundwater remedy to be protective in the long-term, a Classification Exception Area must be established for groundwater, and future sampling events should include data on pumping rates and groundwater elevation.	

VIII. NEXT REVIEW

The next FYR report for the Brook Industrial Park Superfund Site is required five years from the completion date of this review.

Appendix A - Figures

Figure #1 – SITE LOCATION

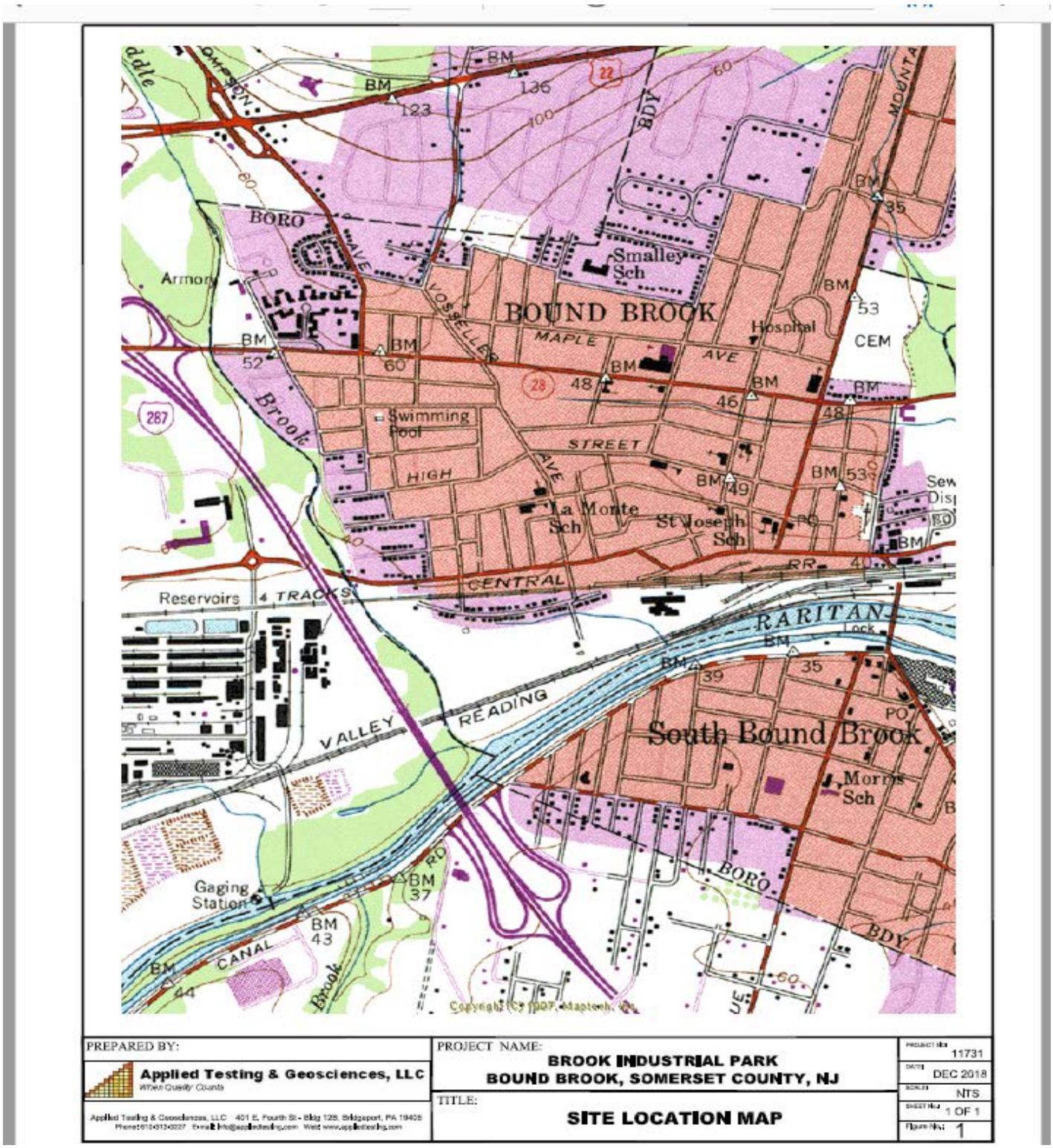


Figure #2 – FACILITY LAYOUT and GROUNDWATER MONITORING WELL LOCATIONS

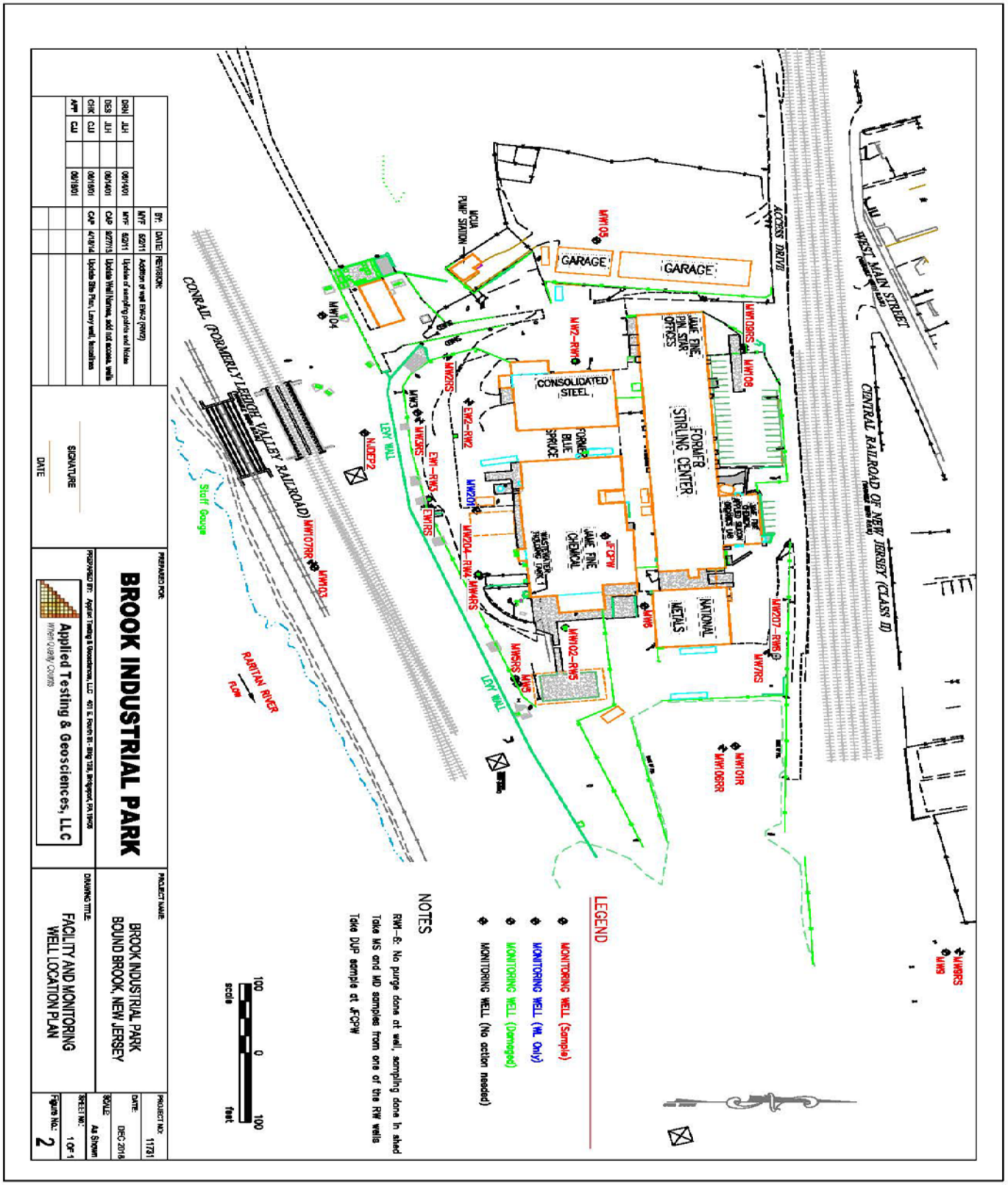


Figure #3 – VOC TRENDS in OVERBURDEN GROUNDWATER

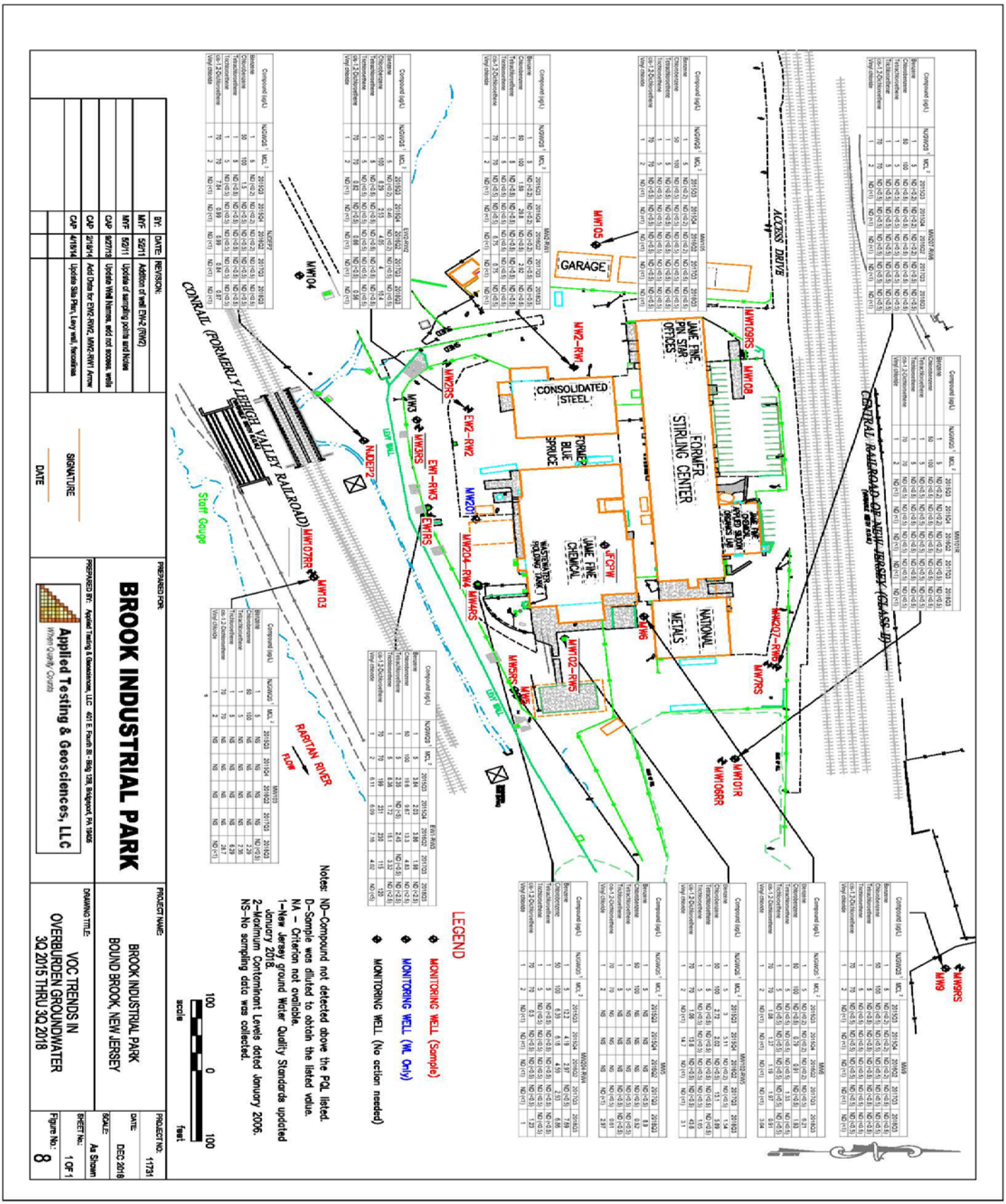


Figure #4 – VOC TRENDS in BEDROCK GROUNDWATER

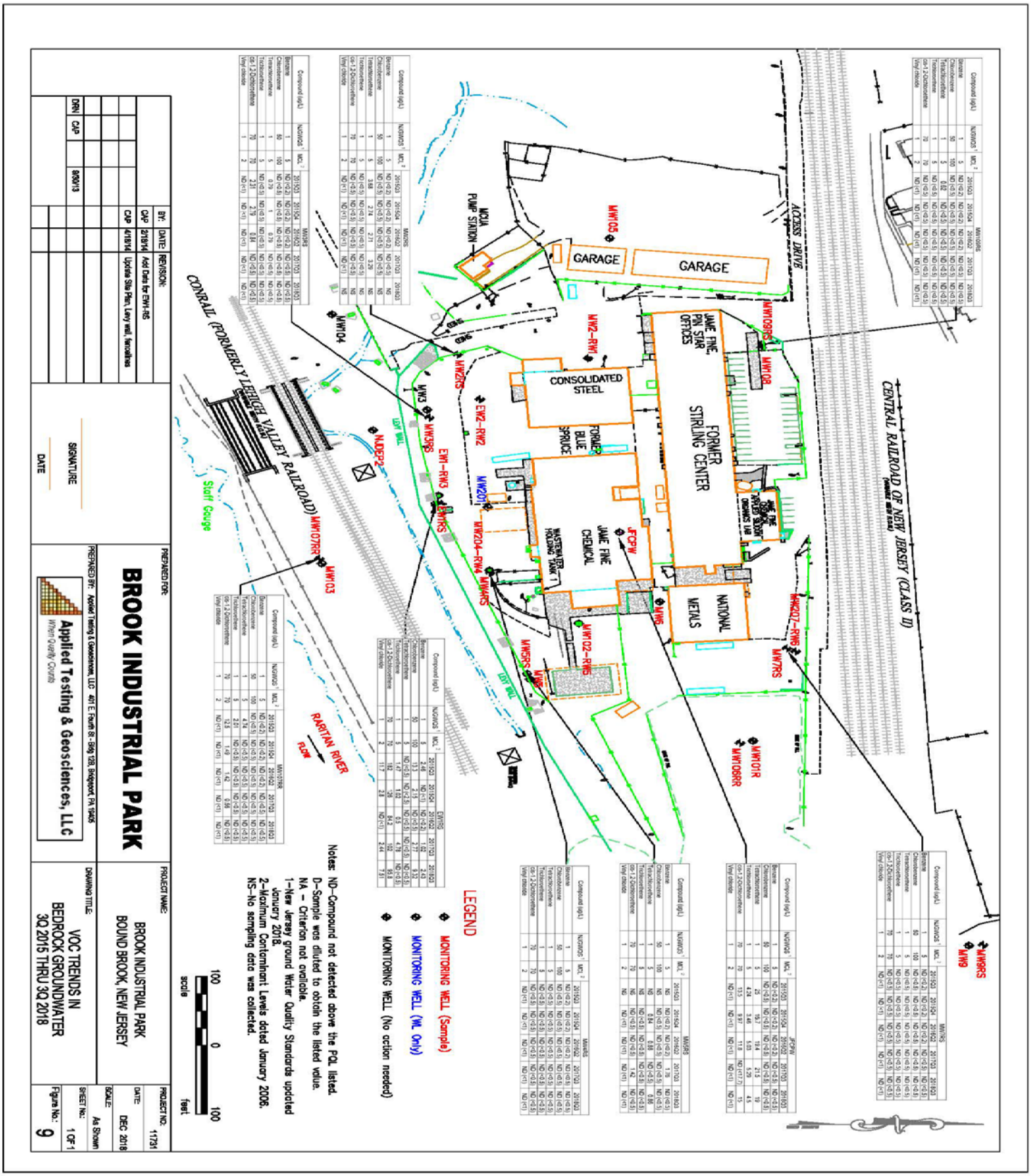


Figure #5 - METAL TRENDS in OVERBURDEN GROUNDWATER

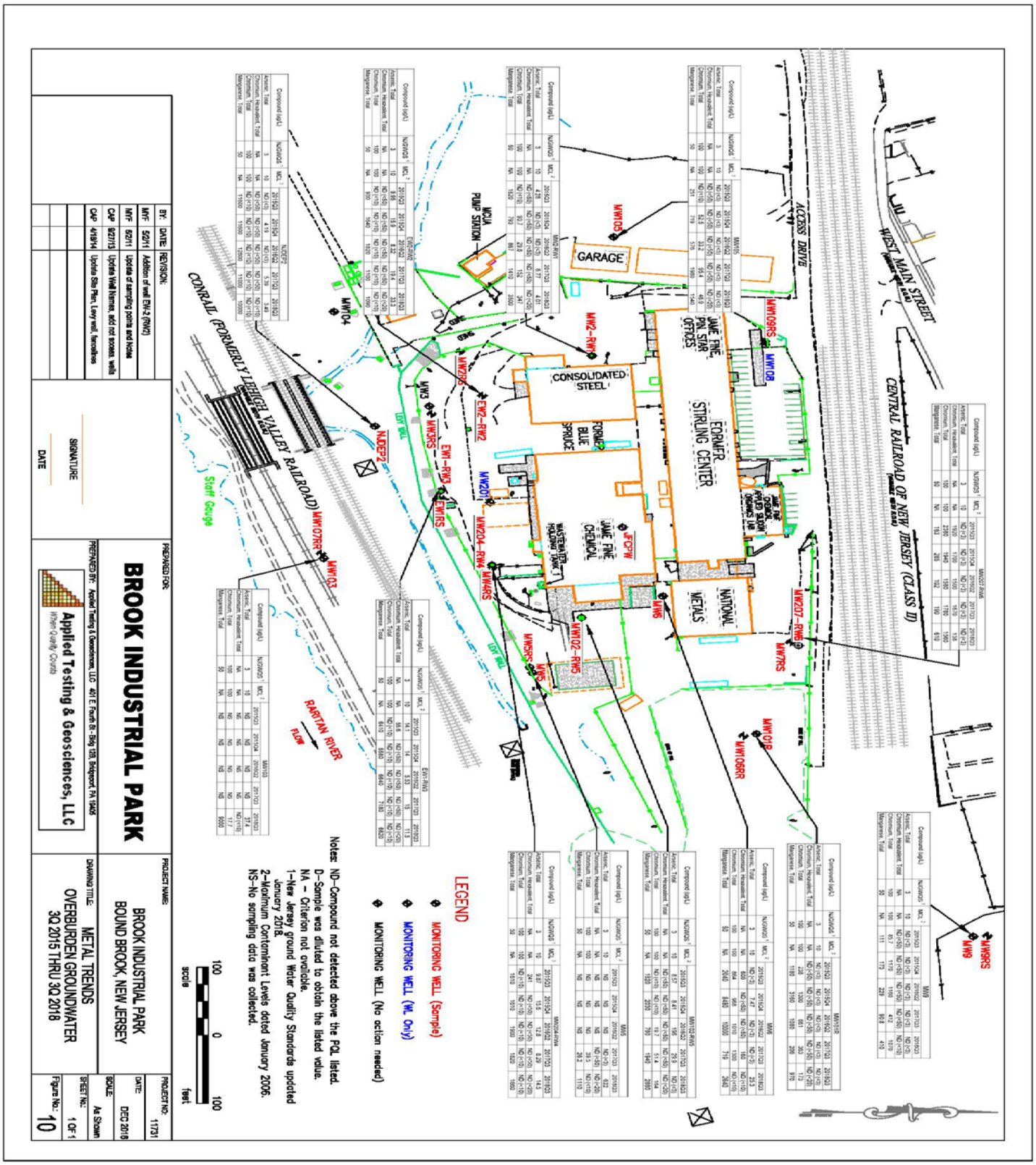
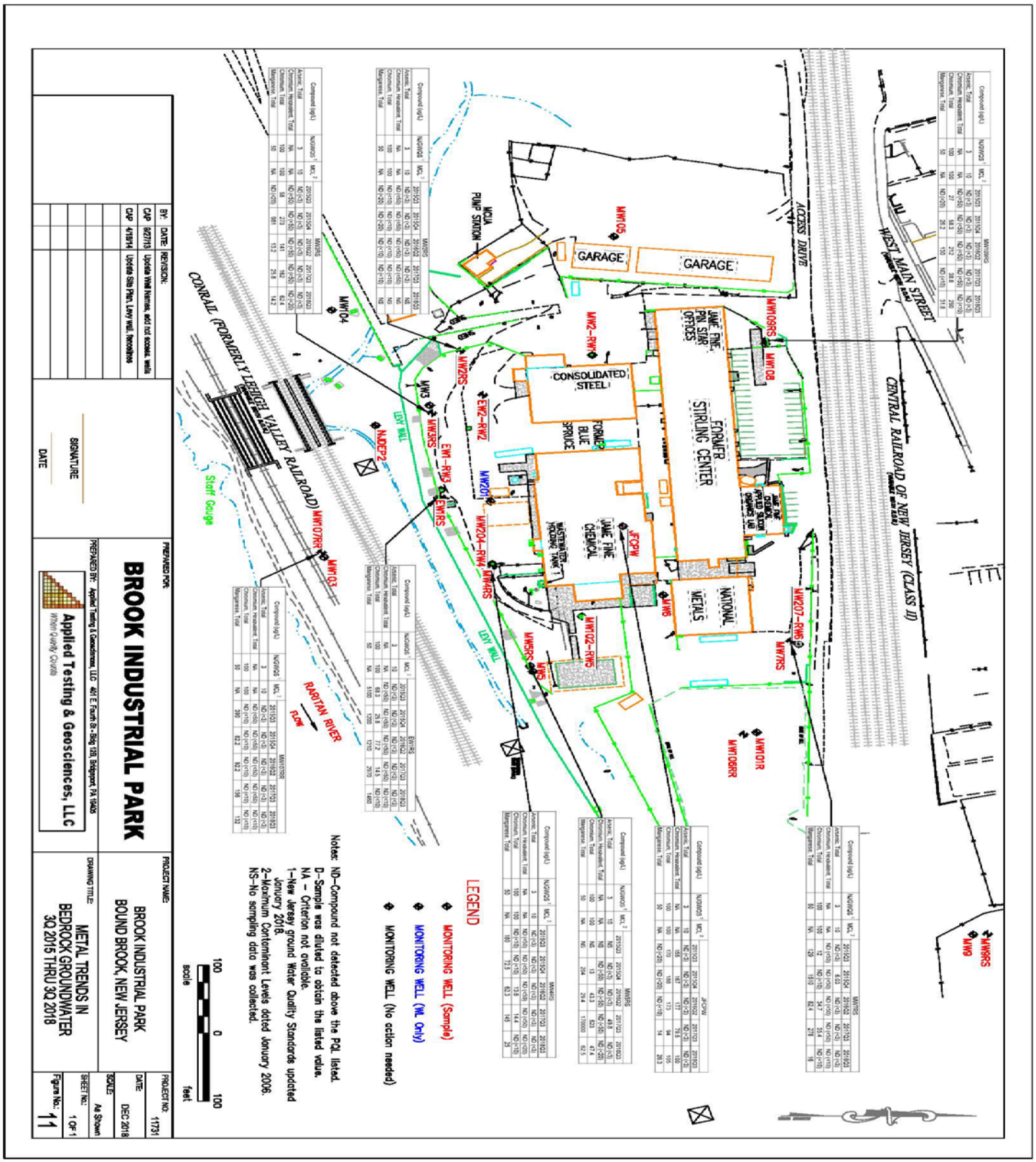


Figure #6 - METAL TRENDS in BEDROCK GROUNDWATER



Appendix B - Tables

Table #1 – CHRONOLOGY of SITE EVENTS

Event	Date
Blue Spruce Corporation was fined by NJDEP for illegal storage of lindane.	1977
Sampling performed by NJDEP reveals arsenic and lindane in soil behind the Blue Spruce building.	1980
NJDEP issues an Administrative Order and Notice of Civil Administrative Penalty against Jame Fine Chemicals, Inc. To cease discharge of wastewater to the Raritan River.	1980
Employees at the Brook Industrial Park file a complaint with the MBRHC. Employees complained of nausea, dizziness, and headaches.	1980
NJDEP inspection of two pits inside the National Metal Finishings Corp. building suggest that waste from grinding and polishing operations are discharged directly to the groundwater.	1981
NJDEP conducts extensive soil and groundwater sampling at the Brook Industrial Park	1982
NJDEP announces that 2,3,7,8-TCDD was found in soil samples collected at the Blue Spruce building	1983
The Blue Spruce building is secured against trespassers and a dioxin-contaminated area is capped with asphalt.	1983
Site was placed on the National Priorities List.	1989
The Remedial Investigation and Feasibility Study was initiated by ICF Technology, Inc.	1989
Record of Decision for the site was issued.	1994
The remedial design for the soil, groundwater, and Blue Spruce remedies is initiated.	1997
The design of the Blue Spruce building demolition is completed.	1998
The design of the soil excavation is completed.	1999
The remedial action for the Blue Spruce building is initiated.	1998
The demolition of the Blue Spruce building is completed.	1999
The remedial action for the soil component of the remedy is initiated.	1999
The soil remedial action for the Stirling Center basement, Area 1 and Area 2 is completed.	2000

Five Year Review Completed.	2004
The remedial action for the groundwater component of the remedy is initiated.	2006
The soil remedial action for the National Metals pits and the wetlands area is initiated.	2006
The soil remedial action for the National Metals pits and the wetlands area is completed.	2006
The remedial action for the groundwater component of the remedy is completed.	2006
2nd Five Year Review is completed.	2009
Green Brook Flood Control Project is completed.	2010
3rd Five Year Review is completed.	2014

Table #2 – GROUNDWATER CONTAMINANTS of CONCERN COMPARISON to CLEANUP GOALS

Contaminant	ROD Cleanup Goal (ppb)	Maximum Plume Concentration Detected 9/04 to 9/09 (ppb)	Maximum Plume Concentration Detected 9/09 to 4/13 (ppb)	Maximum Plume Concentration Detected 9/15 to 12/18 (ppb)
benzene	1	29	7.4	12.2
chlorobenzene	4	250	47.8	29.8
tetrachloroethene	1	110	54.1	25
trichloroethene	1	110	18.7	15.1
cis-1,2-dichloroethene	70	830	48.9	230
arsenic	8	310	621	622
chromium	100	9770	5000	2380

Table #3 –SOIL CONTAMINANTS of CONCERN COMPARED to CLEANUP GOALS

Contaminant	Maximum Concentration Detected* (ppm)	ROD Remediation Goal (ppm)
Arsenic	500	20
Beryullium	23.5	1.3
Chromium	3,540	50/500**
Lead	2,060	500
PCBs	10	1
Aldrin	7.4	0.33
DDT	26	17
Dieldrin	6.3	0.35
Dioxin***	6.1	1

* Maximum concentration detected during the Remedial Investigation and/or the Remedial Design.

** The Remediation Goal for chromium is 50 ppm for soils at the surface to 5 feet below grade and 500 ppm for soils from 5 feet below grade to the water table.

*** Dioxin concentrations are in parts per billion (ppb).

Table 4 – DOCUMENTS, DATA, and INFORMATION REVIEWED in COMPLETING the FYR

Record of Decision for Brook Industrial Park Superfund Site, dated September 30, 1994
Consent Decree (multiple parties) for the Brook Industrial Park Site, dated September 27, 2000
Consent Decree (Arnold Livingston) for Brook Industrial Park Site, dated January 11, 2001
Remedial Action Report for Blue Spruce Building Remedial Action, dated September 1999
100% Remedial Design Report for Groundwater at Brook Industrial Park Site, dated June 2004
Remedial Action Work Plan for Soil at Brook Industrial Park Site, dated September 1998

O&M Plan for Brook Industrial Park Site, dated May 2001
Soil Remedial Action Report, dated May 2007
Draft Groundwater O&M Plan, dated June 2009
Explanation of Significant Differences dated March 8, 2013
Draft Groundwater Monitoring Report, dated September 30, 2013
3RD Five Year Review, dated February 7, 2014
Groundwater Monitoring Reports from 2014 to 2018, Applied Testing & Geosciences, LLC