THIRD FIVE-YEAR REVIEW REPORT FOR MYERS PROPERTY SUPERFUND SITE HUNTERDON COUNTY, NEW JERSEY

Prepared by

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Region 2
New York , New York

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Date

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LIST OF ABBREVIATIONS & ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
CEA/WRA	Classification Exception Area/Well Restriction Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
EPA	United States Environmental Protection Agency
FYR	Five-Year Review
ICs	Institutional Controls
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NJDEP	New Jersey Department of Environmental Protection
NJGWQS	New Jersey Groundwater Quality Standards
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
PRP	Potentially Responsible Party
RI/FS	Remedial Investigation and Feasibility Study
RAO	Remedial Action Objective
ROD	Record of Decision
RPM	Remedial Project Manager
TBC	To be considered

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 Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the third FYR for the Myers Property Superfund Site (the "Site"). The triggering action for this **statutory** review is the completion 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 2 operable units (OUs), and both will be addressed in this FYR. OU1 involved implementation of a remedy to address contaminated soil, sediment and buildings at the Site. An interim remedy to address contaminated groundwater was also implemented as part of OU1. OU2 involved implementing a final remedy for the groundwater at the Site.

The Myers Property Superfund Site FYR was led by Anne Rosenblatt, EPA Remedial Project Manager (RPM) for the Site. Participants included Rachel Griffiths (hydrologist), Natalie Loney (community involvement coordinator), Marian Olsen (human health risk assessor), and Michael Clemetson (ecological risk assessor). The Potentially Responsible Party (PRP) was notified of the initiation of the five-year review. The review began on November 7, 2017.

Site Background

The Myers Property site is located on Lower Kingtown Road in Franklin Township, Hunterdon County, in a rural part of western New Jersey (Figure 1). The Site includes approximately five acres of land currently owned by Arkema Inc. (Arkema), a potentially responsible party (PRP) for the Site, and approximately two acres of land on the east side of Lower Kingtown Road which is owned by the State of New Jersey and is mostly a wetland area. The Site is vacant except for a barn-like structure on the privately owned portion of the Site which is used to house a groundwater treatment system. The structure was built on part of the foundation of a mill dating to 1827. In addition, an actively used walking/horseback riding trail runs through the Site. Cakepoulin Creek, a trout production stream used for recreational fishing, runs adjacent to the Site and eventually drains to the South Branch of the Raritan River. Springs surface on the property and drain into the creek and through a wetland adjacent to the creek. The population of Franklin Township is approximately 3,000 people. The bedrock water-bearing zone at the Site is the sole source of the water supply for the local community, and residents in the area obtain potable water from private wells. On-going sampling of these wells has found that no drinking water wells have been impacted by site-related contamination.

The land use in the vicinity of the site is residential. The State of New Jersey has classified the aquifer as Class II-A, a current source of drinking water. EPA also classified the aquifer as a Sole Source Aquifer in a June 1988 decision in accordance with the Safe Drinking Water Act because it is the only viable source of drinking water for the local community.

Portions of the Myers property have historically been used for chemical manufacturing by a number of companies. The W. A. Allen Company owned the property from 1928 to 1932 and may have operated on the Site, formulating fertilizer-pesticide mixtures for residential use. Elko Chemical Works operated a pesticide production plant at the Site from 1942 to 1945. The Pennsylvania Salt Manufacturing Company, a predecessor to Arkema, bought the property in 1945 and operated the plant for two years, producing the pesticide dichloro-diphenyl-trichloroethane (DDT). In 1947, the Site was sold to Associated Terminal, Inc., which then leased the Site from 1953 to 1959 to the Clinton Chemical Company, which became Witco Corporation. Mr. and Mrs. Cornelius Myers purchased the property in 1971 and used it as a residence. They sold it to Atochem North America, Inc. (now called Arkema) in 1993.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Myers Property		
EPA ID: NJD980654198		
Region: 2	**State:** NJ	**City/County:** Franklin Township, Hunterdon County
SITE STATUS		
NPL Status: Final		
Multiple OUs? Yes	**Has the Site achieved construction completion?** Yes	
REVIEW STATUS		
Lead agency: EPA *[If "Other Federal Agency", enter Agency name]*:		
Author name (Federal or State Project Manager): Anne Rosenblatt		
Author affiliation: EPA		
Review period: 11/7/2017 – 5/1/2018		
Date of site inspection: 11/7/2017		
Type of review: Statutory		
Review number: 3		

Triggering action date: 9/27/2013
Due date *(five years after triggering action date)*: 9/27/2018

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

EPA completed a study of the nature and extent of contamination at the Site in 1989 and prepared a remedial investigation and feasibility study (RI/FS) report based on this investigation. The primary contaminants found in site soil and sediment were the pesticides DDT and its breakdown products, dichloro-diphenyl-dichloroethane (DDD) and dichloro-diphenyl-dichloroethylene (DDE), chlorinated benzenes, particularly hexachlorobenzene, and arsenic. In the groundwater, high concentrations of benzene, chlorinated benzenes, and other volatile organic compounds (VOCs) were detected. Some inorganic compounds, particularly arsenic, were also found to be present at elevated concentrations.

A baseline human health risk assessment was conducted as part of the RI/FS and risks associated with exposure to surface soil, sediment (from the spring and spring drainage area), building surfaces and groundwater at the Site were calculated. Risks from exposure to subsurface soil were not quantified because the primary exposure route was to surface soil. The current and future land use at this site is considered to be residential, even though it is not used for that purpose at this time. The cancer risk from exposure to surface soil and sediment at the Site was 1×10^{-3} for current residents (one in a thousand cancer risk) and between 1×10^{-2} and 1×10^{-3} for children (one in 100 and one in a thousand, respectively). Potential future risks to residents using the affected groundwater as a drinking water source were estimated to be 4×10^{-1} (four in ten). The main chemicals contributing to these risks were DDT and its breakdown products, and other chemicals including hexachlorobenzene, arsenic and lead.

Noncancer health hazards due to exposure to soils were also found to be elevated, above the goal of protection of a Hazard Quotient (HQ) of 1 primarily due to exposure to antimony, barium, cadmium and silver. Lead exceeded the residential screening level of 400 ppm which was in place at the time of the Record of Decision (ROD).

The noncancer Hazard Indices were calculated to be 289 for an adult and 659 for a child, for the groundwater ingestion pathway. Both of these values exceed the acceptable noncancer Hazard Index (the sum of individual HQs) of one. These noncancer hazards were primarily associated with exposure to benzene and chlorobenzenes.

In November 1988, EPA's Environmental Response Team (ERT) collected small mammals in order to evaluate the concentration of DDT being accumulated in the species. While elevated concentrations of DDT were found in the animals, the concentrations were not as high as had been predicted. A natural resource risk assessment performed by New Jersey Department of Environmental Protection (NJDEP) did not identify significant ecological risk to higher predators as a result of exposure to site contamination. An initial round of biota sampling was

completed in 1986 prior to the comprehensive RI/FS. In March 1989, ERT collected additional fish samples from the creek to test for the presence of chlorinated dioxins and dibenzofurans and to better characterize the natural resource impact of the Site. This second study found similar concentrations of DDT, dioxins and other chemicals in fish samples collected from the stream as had been found previously. NJDEP conducted a natural resource risk assessment for the local aquatic populations, and the assessment did not identify significant risks to local aquatic populations as a result of exposure to site contaminants either.

Response Actions

EPA entered into a Consent Decree (CD) with Atochem North America, Inc. (now called Arkema) in February 1992 to implement the selected remedy under EPA supervision and to reimburse EPA for a portion of its past response costs. Witco Corporation and several other parties agreed to pay additional response costs under a CD in September 1996.

An interim groundwater remedy began operation in October 1999 and in 2005 the PRP completed an updated FS for the site groundwater.

OU 1 Remedy Selection

Based on the results of the RI/FS, EPA signed a ROD to address soils, sediments, contaminated buildings, and selected an interim remedy for contaminated groundwater. After the 1990 ROD was completed, treatability studies conducted during the design demonstrated the need to modify the contaminated building and soils component of the remedy. The ROD was amended in July 2005.

The remedial action objectives (RAOs) for OU1 are:

- *Soil and Sediment*: eliminate the risk of inadvertent contact with or ingestion of contaminated soil and sediment;
- *Contaminated Buildings*: prevent human contact with contaminated building surfaces and dust; and
- *Groundwater*: prevent exposure to contaminated groundwater above maximum contaminant levels (MCLs).

The final OU1 remedy components are:

Soil and Sediment:

- Excavation of soil and sediment contaminated with organic and inorganic compounds exceeding action levels above the water table.
- Off-site disposal of excavated material with treatment as necessary to meet disposal requirements.
- Backfilling of the excavated area with clean fill similar in type to the native soil.
- Restoration of designated wetland areas subsequent to backfilling with clean fill.

- Appropriate environmental monitoring to ensure the effectiveness of the remedy.

The primary contaminants of concern (COC) in the soil and sediment at the Site included total VOCs, hexachlorobenzene, total DDT and arsenic. Appendix D lists the cleanup goals for soil and sediment at the Site, as outlined in the 1990 ROD.

Buildings:

- Off-site disposal of on-site buildings with the exception of a portion of the mill.

Groundwater Remedy:

- Extraction and on-site treatment of groundwater from the bedrock aquifer contaminated above health-based drinking water standards in the areas of highest contamination, with reinjection of the treated water into the bedrock groundwater aquifer or discharge into Cakepoulin Creek, coupled with additional study to evaluate a long-term response for groundwater.
- Shallow and bedrock groundwater monitoring to identify the threat to potable wells in the area and provision of point-of-use treatment for these wells should they become contaminated by the Site.

OU2 Remedy Selection

A final groundwater remedy was selected for OU2 in a September 2005 ROD.

The RAOs were to prevent exposure to contaminated groundwater above MCLs established pursuant to the federal and state Safe Drinking Water Acts (i.e., drinking water standards).

The final groundwater remedy components included:

- Continued operation of the existing groundwater extraction wells in the bedrock aquifer for containment of the source area and restoration of the shallow and bedrock groundwater downgradient of the source area.
- Continued operation of the existing treatment plant.
- Continued use of reinjection wells for discharge of treated groundwater.
- Groundwater use restrictions, in the form of well restrictions or the establishment of a Classification Exception Area (CEA), within the area where contaminants are present above cleanup criteria.
- Continuation of the on-site shallow and bedrock groundwater monitoring program.
- Continuation of the residential well sampling program.
- Annual review of the well monitoring program and groundwater treatment system.

Status of Implementation

Soil and Sediment:

A design report for the soil and sediment portion of the work was prepared by Arkema and approved by EPA in July 2002.

Soil excavation depths varied from six inches in some areas down to the water table in others. The mean seasonal water table varies from less than one foot to approximately four feet below the ground surface. Contamination below the water table was generally left in place, though soil was removed from certain areas where the water table was particularly shallow.

Field work was initiated in the spring of 2003. All work was conducted in accordance with an approved site management plan. The total volume of soil and sediment excavated and disposed of off-site was 22,190 cubic yards. All contaminated material was disposed of as non-hazardous waste at approved landfills. After the excavation was completed, the affected areas of the Site were restored. A final report for remedial construction and notice of completion, which provides a detailed description of the soil and sediment cleanup, was approved by EPA in June 2005.

Buildings:

All contaminated buildings were removed from the Site in 1997 and 1998 except for a portion of the foundation wall of the 1827 mill which was the only structural component of the buildings that could be decontaminated and reused. The foundation wall was decontaminated and incorporated into a new building which was built to house the groundwater treatment system.

Groundwater:

A design report for construction of the interim groundwater remediation system was prepared by Arkema and approved by EPA in December 1998. The extraction and treatment system, which addresses both shallow and bedrock groundwater contamination, has been in operation since October 1999, and a notice of completion and final report for remedial construction for the system was approved by EPA in July 2000.

IC Summary Table

Table 1: Summary of Planned and/or Implemented ICs

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	NJDEP Program Interest Number: PI# G000004875 NJDEP Subject Item ID: CEAI00000001	Restrict installation of groundwater wells and groundwater use	Classification Exception Area Implemented 10/16/2017
Soils	Yes	Yes	Block 16 Lot 19, Block 17 Lot 1, Block 24 Lot 32.03	Specify that the impacted areas of soil and sediment cannot be disturbed without prior written approval	Deed Restriction Implemented 05/06/2009

Systems Operations/Operation & Maintenance:

Soil and Sediment:

A post-remediation restoration monitoring plan was included as Appendix K of the EPA-approved remedial design for OU1; the plan was updated by the remedial action contractor in January 2004. It specified that long-term monitoring and maintenance of the restored areas of the Site be conducted. The overall goal of the restoration plan was to establish 85 percent areal coverage and 85 percent survival of mitigation plantings by the end of 2008.

The restoration was monitored qualitatively annually and quantitatively (through such measures as percent survival) semiannually. Annual mitigation monitoring reports were submitted by the PRP. In 2008, the overall success of the restoration was assessed against the performance criteria stipulated in the remedial design, as well as relevant NJDEP standards. On November 23, 2009 NJDEP notified the PRP that all wetland mitigation permit conditions had been met and monitoring could be discontinued. The overall restoration was determined to be successful according to the design criteria.

General maintenance of the Site, including the retained overstory trees, is ongoing.

Groundwater:

The groundwater treatment system continues to operate. In accordance with a discharge to groundwater permit equivalency issued by NJDEP, the system is sampled on a monthly basis. Quarterly groundwater quality monitoring has been ongoing at the Site since 1999. Data as far back as 1996 (i.e., prior to operation of the groundwater extraction and treatment system) are available for many of the wells. The current water quality assessment program includes 12 groundwater monitoring wells (located in eight clusters), plus the extraction wells. As of March 2011, the sampling frequency at five of these wells plus the extraction wells was reduced to biannually. The groundwater is analyzed for the presence of VOCs during every sampling round, and metals, pesticides and semi-volatile organic compounds annually. Water level measurements are taken monthly to evaluate the capture zone of the extraction system.

In addition, water from nearby private residential wells is tested semiannually to assure that they remain unaffected by the Site. The entire groundwater treatment system undergoes routine maintenance, as necessary.

Climate Change:

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

This section includes the protectiveness determinations and statements from the **last** FYR as well as the recommendations from the **last** FYR and the current status of those recommendations.

Table 2: Protectiveness Determinations/Statements from the 2013 FYR

OU #	Protectiveness Determination	Protectiveness Statement
1	Protective	The soil, sediment and buildings remedy at OU1 is protective of human health and the environment.
2	Short-term Protective	The groundwater remedy at OU2 protects human health and the environment in the short-term because the remedy has been completed and there are no known exposure pathways. In order for the remedy to be protective in the long-term, institutional controls, in the form of well restrictions or a CEA, need to be implemented at the Site.
Sitewide	Short-term Protective	The remedies at the Site protect human health and the environment in the short-term because they have been completed and there are no known exposure pathways. In order for the remedies to be protective in the long-term, institutional controls, in the form of well restrictions or a CEA, need to be implemented at the Site.

Table 3: Status of Recommendations from the 2013 FYR

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
2	Institutional Controls	Implement a CEA or well restriction	Completed	CEA was implemented at the Site.	10/16/2017

The PRP submitted a Classification Exception Area/Well Restriction Area (CEA/WRA) application with relevant information in May 2017. The State sent an approval letter on October 16, 2017.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

On October 2, 2017, EPA Region 2 posted a notice on its website indicating that it would be reviewing site cleanups and remedies at 31 Superfund sites in New York and New Jersey, including the Myers Property site. The announcement can be found at the following web address: https://wcms.epa.gov/sites/production/files/2017-10/documents/five_year_reviews_fy2018_final.pdf. The results of the review and the report will be made available at the Site information repository located at North County Branch Library, 65 Halstead Street, Clinton, New Jersey.

Data Review

The documents, data, and information which were reviewed in completing the five-year review are summarized at the end of this document.

Soil and Sediment:

The restored areas of the Site include four distinct wetland areas covering a total area of about 2.57 acres. Since November 23, 2009, NJDEP advised the PRP that compensatory wetland mitigation at the Site, as per the terms of the permit equivalency, was complete and monitoring at the site is limited to routine operation and maintenance.

No significant changes in site conditions have occurred and no significant maintenance activities have been needed.

Groundwater:

The groundwater monitoring program includes sampling of water from the treatment system, collection of water levels and groundwater quality samples from on-site wells, and collection of potable well samples from private residential wells in the area.

Treatment System Monitoring:

As of the end of 2017, approximately 299 million gallons of water have been extracted and treated on-site since the system began operation in 1999, and approximately 20 million gallons were extracted and treated in 2017. The treatment system is currently processing water at a typical rate of between 30 and 35 gallons/minute (gpm) and has resulted in a consistent zone of capture. All discharge permit limits are consistently met, and removal of the monitored constituents is consistently at nearly 100 percent.

Groundwater Quality Monitoring:

The data shows that groundwater quality has improved significantly since implementation of the remedy and that the system is effectively controlling the spread of contamination farther down-gradient of the Site. Concentrations detected in monitoring wells located outside of the capture zone, other than those at the MW-12TR (replaced by MW-22TR) and MW-10DR, have generally been below the New Jersey Groundwater Water Quality Standards (NJGWQS) since at least 2004 and no off-site impacts have been detected or are anticipated. The extraction wells continue to remove contaminated groundwater from the bedrock for treatment. Figure 3 shows the contaminant concentrations in the extraction wells over time, Figure 4 shows the contaminant concentrations over time at downgradient monitoring well cluster MW-11 and Table 2 shows data from the most recent round of sampling.

Concentrations of COCs at MW-12TR and MW-10DR (see Figure 5 and Figure 6) have regularly exceeded the NJGWQS during the review period. The overall trend at MW-12TR shows concentrations have been fluctuating since the remedy was implemented, though they have still decreased significantly since the remedy was implemented as shown on Figure 5. Prior to implementation of the remedy, chlorobenzene concentrations exceeded 100,000 ug/L at MW-12TR, and fluctuated around 10,000 ug/L since extraction began. During the review period, a fluctuating but overall increasing trend was observed for chlorobenzene at MW-12TR. The overall concentration trend at MW-10DR has been fluctuating since 2010, but has significantly decreased since the remedy was implemented as shown on Figure 6. Specifically, chlorobenzene concentrations at MW-10DR were originally over 15,000 ug/L prior to the remedy implementation, and dropped to below 100 ug/L by 2010. During the review period, chlorobenzene concentrations have fluctuated around 1,000 ug/L.

A downgradient monitoring well situated along Cakepoulin Creek, MW-12TR, was deemed unusable due to significant erosion during storm events affecting the Site. MW-12TR had historically elevated concentrations of site-related contaminants, particularly benzene and chlorobenzene, and was decommissioned in 2015 and a replacement well, MW-22TR, was installed in 2016. The replacement well also continues to display elevated concentrations of site-related contaminants that fluctuate throughout the year, though the overall concentrations have decreased significantly since the remedy was implemented in 1999 as shown on Figure 5. The 2005 ROD specified that the remedy be reviewed annually to determine if additional actions in the vicinity of this well or elsewhere can be taken to expedite the cleanup. Both groundwater data downgradient of MW-22TR and residential well monitoring (discussed below) indicate that the plume has not migrated off site and the impacts at MW-22TR appear to be localized.

An optimization review for the Site was completed in February 2018 by EPA's Office of Land and Emergency Management (OLEM). The review was focused on evaluating downgradient contaminant detections in groundwater in the vicinity of MW-22TR. Initial recommendations from the review suggest enhancements to source control efforts could have a direct impact on the downgradient contamination.

Residential Well Monitoring:

Residential wells that are sampled have not been impacted by site-related contamination. Currently, eight wells are sampled twice per year, the closest of which is located less than 400 feet from the contaminant plume and all of the wells are located within a mile of the Site. The most recent sampling event was conducted in December 2017. There have been virtually no detections of non-metal contaminants in any of the potable wells sampled over the course of this project, and metal concentrations are consistent with naturally occurring background levels.

Cakepoulin Creek:

Concurrent with the MW-22TR installation activities in 2016, five porewater samples were collected from the bank of Cakepoulin Creek adjacent to the new well location. No site-related constituents were detected in any of the porewater samples. Historic water level data from nearby wells and surface water gauging from the stream indicate that, locally, Cakepoulin Creek is a losing stream with regard to the bedrock water-bearing zones, but receives limited discharge from the overburden groundwater. Since hydraulic gradients are downward from the creek to the bedrock zones and no site constituents are detected in the shallow overburden groundwater, it has been concluded that the stream is not being impacted by site contaminants. Additionally, VOCs have never been detected in the creek, even prior to implementation of the remedy.

Site Inspection

The inspection of the Site was conducted on November 7, 2017. In attendance were Anne Rosenblatt, EPA; Bob McKnight, EPA; Diana Cutt, EPA; Rachel Griffiths, EPA; Mike Pinto, Legacy Site Services LLC on behalf of the PRP; and Tim Roeper, Cornerstone, on behalf of the PRP. The purpose of the inspection was to assess the protectiveness of the remedy.

Conditions observed indicate that the Site is being properly operated and maintained and that the wetland restoration remains satisfactory. No concerns have been raised by the local community since the last five-year review was completed and interviews of nearby residents were not conducted as part of this five-year review.

V. TECHNICAL ASSESSMENT

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

Question A Summary:

Yes, the remedy is functioning as intended by the OU1 and OU2 RODs, and the OU1 ROD amendment.

Remedial Action Performance

- The restoration of the excavated portions of the Site is complete.
- The groundwater treatment system has prevented the migration of contamination off-site and continues to reduce the concentration of contaminants on-site. Overall, exceedances of NJGWQS are limited to MW-4S on site and trends are decreasing since extraction system operation began.
- For downgradient wells, a replacement monitoring well for MW-12TR was installed in 2016. The replacement well and another monitoring well, MW-22TR and MW-10DR, respectively, continue to show elevated concentrations of site-related contaminants outside of the capture zone. Based on recommendations of an optimization review, adjustments to the current monitoring regime and extraction system should be pursued.

System Operations/O&M

- The groundwater remediation system will continue to be modified, as necessary, to maximize its effectiveness and facilitate contaminant removal.
- The residential well sampling program continues to ensure residents are not exposed to groundwater contamination.
- Based on 2016 sampling of the Cakepoulin Creek, the remedy has reduced the potential for exposure to ecological receptors by the efforts to control the source of contamination.

Implementation of Institutional Controls and Other Measures

- A CEA/WRA was implemented in 2017 to prevent use of groundwater on the Site in the near future.
- A deed restriction requiring approval before disturbing subsurface soil and sediment on the Site was implemented in 2009 since residual contamination was left at the water table. This restriction also prevents exposure to shallow contaminated groundwater.

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?

Yes, the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the baseline human health risk assessment and the remedy selection are still valid, further explanation is provided below. Although the ecological risk assessment screening values used to support the RODs may not necessarily reflect the current values, the remedy remains protective as the contaminated soil and sediment were removed and the current data indicates that Cakepoulin Creek has not been adversely impacted by the Site.

Changes in Standards and TBCs (Cleanup Levels and RAOs)

- Soil and Sediment. The selected remedy for the soil and sediment was intended to prevent exposure to contaminated material. The 1990 ROD established

remediation goals for a number of chemicals. Appendix D provides the remediation goals from the 1990 ROD and current NJDEP soil remediation goals. Many of the current NJDEP remediation goals are lower than those established in the 1990 ROD. However, none of these new goals were exceeded at the limits of excavation.

- Groundwater. The 1990 ROD established the federal and state MCLs as the remediation goals for groundwater. Appendix E provides a comparison of the original values listed in Table 15 of the 1990 ROD with current EPA and NJDEP MCLs. As indicated in the tables, one of the federal and several of the state MCLs have changed since 1990. However, there is no current exposure pathway to the contaminated portions of the groundwater

Changes in Risk Assessment Methods

- Several chemicals of concern are being evaluated through the Integrated Risk Information System process that provides EPA's consensus toxicity values used in human health risk assessments. These chemicals include arsenic (inorganic), chromium-6, copper, polynuclear aromatic hydrocarbons, and dichlorobenzene. The soil and sediment portion of the remedy is complete and the risk of inadvertent contact with and/or ingestion of these contaminants in the soil and sediment has been eliminated. As such, changes to the toxicity values are not of concern for these media. Any future changes in the toxicity values for contaminants with remediation goals in groundwater (arsenic, chromium-6 and dichlorobenzene) will need to be re-evaluated in the next FYR.
- The lead remedial action level in soil identified in the ROD was 250 -1,000 mg/kg (NJ State Action Level) and soil was remediated through excavation to the water table. Since the ROD was finalized EPA issued a lead memorandum in December 2016 (OLEM Directive 9200.2-167) that indicates a blood lead level (BLL) of 10 micrograms/deciliter (ug/dL) is no longer considered health-protective. Current scientific information indicates that adverse health effects are evident with blood lead levels (BLLs) between 2 and 8 ug/dL. A target BLL of 5 ug/dL reflects current scientific literature on lead toxicology and epidemiology that provides evidence that the adverse health effects of lead exposure do not have a threshold. The Soil Delineation Report includes a summary of chemical concentrations at the limits of excavation (Table 2b). The detected lead concentrations in Table 2b indicates a maximum concentration of 26.2 mg/kg and this concentration is below the residential lead concentration of 200 mg/kg.[1] The removal of soil down to the water table and the deed restrictions preventing residential development of the property have interrupted potential exposures to lead in soil.

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[1] Based on this evidence summarized in OLEM Directive 9200.2-167, and consultation with the EPA Lead and Bioavailability Technical Review Workgroups (TRWs), the blood lead level used to evaluate risks is 5 µg/dL. Therefore, a residential soil lead screening level of 200 mg/kg is selected to reflect IEUBK modeling results based on a target blood lead level of 5 µg/dL.

Changes in Exposure Pathways

Since the ROD was developed, EPA issued updated standard default exposure assumptions in 2014 (OSWER Directive 9200.1-120). The changes in the exposure parameters e.g., groundwater ingestion rate, bodyweight, etc. do not change the protectiveness of the remedy.

- Soil and Buildings. The exposure assumptions and toxicity values that were used to estimate the potential cancer risks and non-cancer hazards in the risk assessment for human health supporting the 1990 ROD followed the risk assessment guidance for Superfund used by EPA. The process that was used in the human health risk assessment is still valid. Now that the remedy has been implemented, the human exposure pathways to contamination remaining in the soil and sediment below the water table have been interrupted. As such, the site-related risks from exposure to soil and buildings are below levels of concern.
- Groundwater. The treatment system is effectively containing and reducing the size of the plume of contamination from the Site. Overall, concentrations of site-related contaminants present in the groundwater are decreasing. Residents in the area use wells as their source of drinking water and an ongoing monitoring program is in place to assure their wells do not become affected by the Site. This sampling activity has not identified any detections in these wells.
- Vapor Intrusion. Currently the only building on Site is the groundwater treatment facility. The available groundwater data were compared to the screening levels identified in the Vapor Intrusion Screening Level Calculator available at: https://epa-visl.ornl.gov/cgi-bin/visl_search. The groundwater screening level for chlorobenzene identified using the VISL calculator was 410 ug/l and the commercial screening value was 1,720 ug/l. As discussed above, during the review period, chlorobenzene concentrations have fluctuated around 1,000 ug/L. This concentration (1,000 ug/l) exceeds the residential screening level but is below the commercial screening level. Since an operator does not work full-time in the building and the maximum chlorobenzene concentration falls below the commercial screening level there is no current cause of concern for workers. In the future, if the Site were developed for non-commercial purposes, further evaluation of vapor intrusion as a potential pathway of exposure needs to be considered.

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 and ecological exposures at the Site there is no new information that has been developed that could call into question the protectiveness of this remedy.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
OU1, OU2

OTHER FINDINGS

In addition, the following are recommendations that were identified during the FYR and may improve performance of the remedy, reduce costs and improve management of O&M but do not affect current and/or future protectiveness:

- *Implement recommendations for adjustments to the current monitoring and extraction system as described in the optimization report.*

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)	
Operable Unit: *OU1*	*Protectiveness Determination:* Protective
Protectiveness Statement: The soil, sediment and buildings remedy at OU1 is protective of human health and the environment.	

Protectiveness Statement(s)	
Operable Unit: *OU2*	*Protectiveness Determination:* Protective
Protectiveness Statement: The groundwater remedy at OU2 is protective of human health and the environment.	

Sitewide Protectiveness Statement
Protectiveness Determination: Protective
Protectiveness Statement: The remedies at the Site protect human health and the environment.

VIII. NEXT REVIEW

The next FYR report for the Myers Property Superfund Site is required five years from the completion date of this review.

APPENDIX A – Reference List

- Record of Decision, EPA, September 1990
- Record of Decision Amendment, EPA, July 2000
- Record of Decision, EPA, September 2005
- Superfund Preliminary Close Out Report, EPA, September 2005
- First Five-Year Review for the Myers Property site, EPA, May 2008
- Second Five-Year Review for the Myers Property site, EPA, September 2013
- Monthly progress reports for the Site prepared by the PRP
- Soil Delineation Report, prepared by Environmental Liability Management, Inc. on behalf of the PRP, May 2001
- Bi-annual Domestic Well Sampling Reports prepared by the PRP
- Final (100%) Design Report, prepared by ERM on behalf of the PRP, June 2002
- Final Report for Remedial Construction and Notice of Completion, prepared by ERM on behalf of the PRP, June 2005
- Battelle, 2016. Final Technical Memorandum: Installation of Replacement Groundwater Monitoring Well Cluster at the Myers Property Site, Franklin Township, New Jersey. Prepared by Battelle on behalf of the U.S. Environmental Protection Agency Site Characterization and Monitoring and Technical Support Center. September 1.
- Cornerstone, 2017. Email Letter to Anne Rosenblatt. Installation of MW-22TR, Prepared by Cornerstone Environmental Group, Inc. on behalf of Legacy Site Services, February 2.
- Cornerstone, 2015. Email Letter to Stephanie Vaughn, RPM, EPA Region 2. Abandonment of MW-12 Well Cluster and Installation of MW-20TR and MW-21TR. Prepared by Cornerstone Environmental Group, Inc. on behalf of Legacy Site Services. November 4.
- Cornerstone, 2014-2017. Myers Property Site Groundwater Monitoring and Annual Reports.

APPENDIX B - Chronology of Site Events

Event	Date(s)
The land now known as the Myers Property site was owned by a series of companies and used primarily for pesticide production.	1928 to 1959
The property was purchased by Mr. and Mrs. Myers and used as their residence.	1971
The Site was listed on the NPL.	1983
The property was sold to Atochem North America, Inc. (now called Arkema).	1987
The OU1 ROD was signed.	1990
EPA entered into a CD with Arkema to implement the selected remedy.	1992
The building portion of the remedy was completed.	1997 to 1998
The PRP began operation of the interim groundwater treatment system.	1999
Based on additional investigations completed by Arkema, an OU1 ROD amendment was signed.	2000
The final OU1 remedial design prepared by the PRP was approved by EPA.	2002
The OU1 remedy was implemented by the PRP group pursuant to the CD.	2002 to 2005
The OU2 FS (groundwater) was submitted by the PRP.	2005
The OU2 ROD was signed.	2005
The PCOR for the Site was signed by EPA.	2005
The first five-year review for the Site was signed.	2008
The final OU1 post-construction annual mitigation monitoring report was submitted.	2008
The deed restriction for OU1 was filed with Hunterdon County, New Jersey.	2009
The second Five-Year Review was completed.	2013
Wells MW-12S, MW-12TR, and MW-12DR were abandoned due to stream bank encroachment.	2015
MW-22TR was installed to replace MW-12TR.	2016
Groundwater Classification Exception Area approved by NJDEP.	2017

APPENDIX C – Monitoring Data

December 2017 Groundwater Quality Monitoring Data

Table II
Myers Groundwater Quality Data
VOCs
December 2017
(All Values ug/L)

SAMPLE NAME	SCREENED INTERVAL	SAMPLE DATE	Acetone	Benzene	Bromo dichloro methane	Bromoform	Bromo methane	Butanone-2	Carbon disulfide	Carbon tetrachloride	Chloro benzene	Chloro ethane	Chloro methane
GWQS N.J.A.C. 7:9C: µg/L			6000	1	1	4	10	300	700	1	50	5	NA
MW-4S-12062017	S	12/6/2017	1.5 U	0.38 J	0.19 U	0.25 U	0.26 U	1.9 U	0.3 U	0.13 U	46	0.13 U	0.2 U
MW-10DR-12062017	UB	12/6/2017	15 U	**50**	1.9 U	2.5 U	2.6 U	19 U	3 U	1.3 U	**560**	1.3 U	2 U
MW-10XDR-12062017	LB	12/6/2017	1.5 U	0.21 J	0.19 U	0.25 U	0.26 U	1.9 U	0.3 U	0.13 U	18	0.2 J	0.2 U
MW-11DR-12062017	LB	12/6/2017	1.5 U	0.16 U	0.19 U	0.25 U	0.26 U	1.9 U	0.3 U	0.13 U	0.18 U	0.13 U	0.2 U
DUP-01-12062017(MW-11DR)	LB	12/6/2017	1.5 U	0.16 U	0.19 U	0.25 U	0.26 U	1.9 U	0.3 U	0.13 U	0.18 U	0.13 U	0.2 U
MW-11TR-12062017	UB	12/6/2017	1.5 U	0.16 U	0.19 U	0.25 U	0.26 U	1.9 U	0.3 U	0.13 U	0.18 U	0.13 U	0.2 U
MW-13 DR-12052017	LB	12/5/2017	1.5 U	0.16 U	0.19 U	0.25 U	0.26 U	1.9 U	0.3 U	0.13 U	0.18 U	0.13 U	0.2 U
MW-14 DR-12052017	UB	12/5/2017	1.5 U	0.16 U	0.19 U	0.25 U	0.26 U	1.9 U	0.3 U	0.13 U	0.18 U	0.13 U	0.2 U
MW-14 XDR-12052017	L	12/5/2017	1.5 U	0.16 U	0.19 U	0.25 U	0.26 U	1.9 U	0.3 U	0.13 U	0.18 U	0.13 U	0.2 U
MW-15XDR-12062017	LB	12/6/2017	1.5 U	0.16 U	0.19 U	0.25 U	0.26 U	1.9 U	0.3 U	0.13 U	0.23 J	0.13 U	0.2 U
MW-18 XDR-12052017	LB	12/5/2017	1.5 U	0.16 U	0.39 J	0.25 U	0.26 U	1.9 U	0.3 U	0.13 U	0.18 U	0.13 U	0.2 U
MW-20TR-12062017	UB	12/6/2017	1.5 U	0.16 U	0.19 U	0.25 U	0.26 U	1.9 U	0.3 U	0.13 U	0.18 U	0.13 U	0.2 U
MW-21TR-12062017	UB	12/6/2017	1.5 U	0.16 U	0.19 U	0.25 U	0.26 U	1.9 U	0.3 U	0.13 U	0.18 U	0.13 U	0.2 U
MW-22TR-12062017	UB	12/6/2017	3.6 U	**21**	0.48 U	0.62 U	0.64 U	4.8 U	0.75 U	0.34 U	**200**	0.34 U	0.5 U
TRIP BLANK-12052017		12/4/2017	1.5 U	0.16 U	0.19 U	0.25 U	0.26 U	1.9 U	0.3 U	0.13 U	0.18 U	0.13 U	0.2 U
TRIP BLANK-12062017		12/6/2017	1.5 U	0.16 U	0.19 U	0.25 U	0.26 U	1.9 U	0.3 U	0.13 U	0.18 U	0.13 U	0.2 U
FIELD BLANK-12052017		12/5/2017	1.5 U	0.16 U	0.19 U	0.25 U	0.26 U	1.9 U	0.3 U	0.13 U	0.18 U	0.13 U	0.2 U

Legend:
Screened Interval:
UB=Upper Bedrock
LB=Lower Bedrock
S=Overburden
Data Qualifiers
U=Not Detected Above Detection Limit
D=Diluted Sample
J=Reported Value is Above Detection Limit but Below
Practical Quantitation Limit, Value is Estimated
B=Analyte is Found in Blank
E= Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument
Bold Exceeds Groundwater Quality Standards

Table II
Myers Groundwater Quality Data
VOCs
December 2017
(All Values ug/L)

SAMPLE NAME	Dibromo chloro methane	Dichloro benzene-1,2	Dichloro benzene-1,3	Dichloro benzene-1,4	Dichloro ethane-1,1	Dichloro difluoro methane	Dichloro ethene-1,1	Dichloro ethene-cis-1,2	Dichloro ethene-trans-1,2	Dichloro propene-cis-1,3	Dichloro propene-trans-1,3	Ethyl benzene	Methyl-2-pentanone-4	Naphthalene
GWQS N.J.A.C. 7:9C: µg/L														
	1	600	600	75	50	1,000	1	70	100	1	1	700	NA	300
MW-4S-12062017	0.15 U	25	14	48	0.26 J	0.24 U	0.17 U	0.19 U	0.16 U	0.14 U	0.16 U	0.17 U	0.42 U	0.22 U
MW-10DR-12062017	1.5 U	160	3.6 J	50	2.1 U	2.4 U	1.7 U	1.9 U	1.6 U	1.4 U	1.6 U	1.7 U	4.2 U	2.2 U
MW-10XDR-12062017	0.15 U	2.8 J	0.19 U	3.9	0.21 U	0.24 U	0.17 U	0.19 U	0.16 U	0.14 U	0.16 U	0.17 U	0.42 U	0.22 U
MW-11DR-12062017	0.15 U	0.18 U	0.19 U	0.19 U	0.21 U	0.24 U	0.17 U	0.19 U	0.16 U	0.14 U	0.16 U	0.17 U	0.42 U	0.22 U
DUP-01-12062017(MW-11DR)	0.15 U	0.18 U	0.19 U	0.19 U	0.21 U	0.24 U	0.17 U	0.19 U	0.16 U	0.14 U	0.16 U	0.17 U	0.42 U	0.22 U
MW-11TR-12062017	0.15 U	0.18 U	0.19 U	0.19 U	0.21 U	0.24 U	0.17 U	0.19 U	0.16 U	0.14 U	0.16 U	0.17 U	0.42 U	0.22 U
MW-13 DR-12052017	0.15 U	0.18 U	0.19 U	0.19 U	0.21 U	0.24 U	0.17 U	0.19 U	0.16 U	0.14 U	0.16 U	0.17 U	0.42 U	0.22 U
MW-14 DR-12052017	0.15 U	0.18 U	0.19 U	0.19 U	0.21 U	0.24 U	0.17 U	0.19 U	0.16 U	0.14 U	0.16 U	0.17 U	0.42 U	0.22 U
MW-14 XDR-12052017	0.15 U	0.18 U	0.19 U	0.19 U	0.21 U	0.24 U	0.17 U	0.19 U	0.16 U	0.14 U	0.16 U	0.17 U	0.42 U	0.22 U
MW-15XDR-12062017	0.15 U	0.18 U	0.19 U	0.19 U	0.21 U	0.24 U	0.17 U	0.19 U	0.16 U	0.14 U	0.16 U	0.17 U	0.42 U	0.22 U
MW-18 XDR-12052017	0.15 U	0.18 U	0.19 U	0.19 U	0.21 U	0.24 U	0.17 U	0.19 U	0.16 U	0.14 U	0.16 U	0.17 U	0.42 U	0.22 U
MW-20TR-12062017	0.15 U	0.18 U	0.19 U	0.19 U	0.21 U	0.24 U	0.17 U	0.19 U	0.16 U	0.14 U	0.16 U	0.17 U	0.42 U	0.22 U
MW-21TR-12062017	0.15 U	0.18 U	0.19 U	0.19 U	0.21 U	0.24 U	0.17 U	0.19 U	0.16 U	0.14 U	0.16 U	0.17 U	0.42 U	0.22 U
MW-22TR-12062017	0.37 U	2.8 J	0.46 U	6.3	0.52 U	0.61 U	0.42 U	0.47 U	0.41 U	0.35 U	0.41 U	0.42 U	1 U	0.54 U
TRIP BLANK-12052017	0.15 U	0.18 U	0.19 U	0.19 U	0.21 U	0.24 U	0.17 U	0.19 U	0.16 U	0.14 U	0.16 U	0.17 U	0.42 U	0.22 U
TRIP BLANK-12062017	0.15 U	0.18 U	0.19 U	0.19 U	0.21 U	0.24 U	0.17 U	0.19 U	0.16 U	0.14 U	0.16 U	0.17 U	0.42 U	0.22 U
FIELD BLANK-12052017	0.15 U	0.18 U	0.19 U	0.19 U	0.21 U	0.24 U	0.17 U	0.19 U	0.16 U	0.14 U	0.16 U	0.17 U	0.42 U	0.22 U

Legend:

Screened Intervals:

UB=Upper Bedrock

LB=Lower Bedrock

S=Overburden

Data Qualifiers

U=Not Detected Above Detection Limit

D=Diluted Sample

J=Reported Value is Above Detection Limit but Below Practical Quantitation Limit, Value is Estimated

B=Analyte is Found in Blank

E= Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument

Bold Exceeds Groundwater Quality Standards

Table II
Myers Groundwater Quality Data
VOCs
December 2017
(All Values ug/L)

SAMPLE NAME	Methylene chloride	Styrene	Tetrachloro ethene	Toluene	Trichloro benzene-1,2,3	Trichloro benzene-1,2,4	Trichloro ethane-1,1,1	Trichloro ethane-1,1,2	Trichloro ethene	Vinyl chloride	Trichloro fluoro methane	Chloroform	Dichloro ethane-1,2	Dichloro propane-1,2	Hexanone-2	Tetrachloro ethane-1,1,2,2	Xylene (O)
GWQS N.J.A.C. 7:9C: µg/L																	
	3	100	1	600	NA	9	30	3	1	1	2,000	70	2	1	NA	1	NA
MW-4S-12062017	0.68 U	0.36 U	0.18 U	0.2 U	0.41 J	27	0.16 U	0.14 U	0.18 U	0.07 U	0.16 U	0.92	0.13 U	0.14 U	0.52 U	0.17 U	0.39 U
MW-10DR-12062017	6.8 U	3.6 U	1.8 U	2 U	2.3 U	3.7 J	1.6 U	1.4 U	1.8 U	0.71 U	1.6 U	28	1.3 U	1.4 U	5.2 U	1.7 U	3.9 U
MW-10XDR-12062017	0.68 U	0.36 U	0.4 J	0.2 U	0.23 U	0.58 J	0.16 U	0.14 U	0.18 U	0.07 U	0.16 U	4.1	0.13 U	0.14 U	0.52 U	0.17 U	0.39 U
MW-11DR-12062017	0.68 U	0.36 U	0.18 U	0.2 U	0.23 U	0.22 U	0.16 U	0.14 U	0.18 U	0.07 U	0.16 U	2	0.13 U	0.14 U	0.52 U	0.17 U	0.39 U
DUP-01-12062017(MW-11DR)	0.68 U	0.36 U	0.18 U	0.2 U	0.23 U	0.22 U	0.16 U	0.14 U	0.18 U	0.07 U	0.16 U	2	0.13 U	0.14 U	0.52 U	0.17 U	0.39 U
MW-11TR-12062017	0.68 U	0.36 U	0.18 U	0.2 U	0.23 U	0.22 U	0.16 U	0.14 U	0.18 U	0.07 U	0.16 U	0.61 J	0.13 U	0.14 U	0.52 U	0.17 U	0.39 U
MW-13 DR-12052017	0.68 U	0.36 U	0.18 U	0.2 U	0.23 U	0.22 U	0.16 U	0.14 U	0.18 U	0.07 U	0.16 U	1.1	0.13 U	0.14 U	0.52 U	0.17 U	0.39 U
MW-14 DR-12052017	0.68 U	0.36 U	0.18 U	0.2 U	0.23 U	0.22 U	0.16 U	0.14 U	0.18 U	0.07 U	0.16 U	1.4	0.13 U	0.14 U	0.52 U	0.17 U	0.39 U
MW-14 XDR-12052017	0.68 U	0.36 U	0.18 U	0.2 U	0.23 U	0.22 U	0.16 U	0.14 U	0.18 U	0.07 U	0.16 U	2.3	0.13 U	0.14 U	0.52 U	0.17 U	0.39 U
MW-15XDR-12062017	0.68 U	0.36 U	0.18 U	0.2 U	0.23 U	0.22 U	0.16 U	0.14 U	0.18 U	0.07 U	0.16 U	0.22 U	0.13 U	0.14 U	0.52 U	0.17 U	0.39 U
MW-18 XDR-12052017	0.68 U	0.36 U	0.18 U	0.2 U	0.23 U	0.22 U	0.16 U	0.14 U	0.18 U	0.07 U	0.16 U	3	0.13 U	0.14 U	0.52 U	0.17 U	0.39 U
MW-20TR-12062017	0.68 U	0.36 U	0.18 U	0.2 U	0.23 U	0.22 U	0.16 U	0.14 U	0.18 U	0.07 U	0.16 U	0.22 U	0.13 U	0.14 U	0.52 U	0.17 U	0.39 U
MW-21TR-12062017	0.68 U	0.36 U	0.18 U	0.2 U	0.23 U	0.22 U	0.16 U	0.14 U	0.18 U	0.07 U	0.16 U	0.22 U	0.13 U	0.14 U	0.52 U	0.17 U	0.39 U
MW-22TR-12062017	1.7 U	0.9 U	0.45 U	0.51 U	0.58 U	0.55 U	0.4 U	0.36 U	0.44 U	0.18 U	0.4 U	0.67 J	0.33 U	0.34 U	1.3 U	0.42 U	0.98 U
TRIP BLANK-12052017	0.68 U	0.36 U	0.18 U	0.2 U	0.23 U	0.22 U	0.16 U	0.14 U	0.18 U	0.07 U	0.16 U	0.22 U	0.13 U	0.14 U	0.52 U	0.17 U	0.39 U
TRIP BLANK-12062017	0.68 U	0.36 U	0.18 U	0.2 U	0.23 U	0.22 U	0.16 U	0.14 U	0.18 U	0.07 U	0.16 U	0.22 U	0.13 U	0.14 U	0.52 U	0.17 U	0.39 U
FIELD BLANK-12052017	0.68 U	0.36 U	0.18 U	0.2 U	0.23 U	0.22 U	0.16 U	0.14 U	0.18 U	0.07 U	0.16 U	0.22 U	0.13 U	0.14 U	0.52 U	0.17 U	0.39 U

Legend:
Screened Interval:
UB=Upper Bedrock
LB=Lower Bedrock
S=Overburden
Data Qualifiers
U=Not Detected Above Detection Limit
D=Diluted Sample
J=Reported Value is Above Detection Limit but Below Practical Quantitation Limit, Value is Estimated
B=Analyte is Found in Blank
E= Concentration of analyte exceeds the range of the calibration curve and/or lower range of the instrument
Bold: Exceeds Groundwater Quality Standards

APPENDIX D – Soil Remediation Goals

Comparison of Remediation Goals in 1990 ROD to Current NJDEP Soil Cleanup Criteria

Comparison of 1990 ROD Remediation Goals to Current NJDEP Soil Cleanup Criteria				
Chemical	1990 ROD (mg/kg)	NJDEP Residential	NJDEP Non-Residential	Impact to Ground Water
Total base neutral/extractable	10	Toxicity values not available for this grouping of chemicals		
Hexachlorobenzene	10	0.66	2	100
Total DDT	10	A value for total DDT is not provided so the components and their respective values are listed below.		
4,4'-DDD		3	12	Site-specific
4,4'-DDE		2	9	Site-specific
4,4"-DDT		2	9	Site-specific
Total VOCs	1			
PAHs	10	A value for PAHs is not available for comparative screening.		
2,3,7,8-TCDD	0.001	Risk based concentration is 51 ppt.		
Antimony	10	14	340	Values are based on site-specific considerations.
Arsenic	20	20 (based on natural background)	20 (based on natural background)	Values are based on site-specific considerations.
Barium	400	7000	47,000	Values are based on site-specific considerations.
Cadmium	3	39	100	Values are based on site-specific considerations.
Chromium	100	A value for chromium is not available for comparative screening.		
Copper	170	600	600	Values are based on site-specific considerations.
Lead	250-1000	400	600	Values are based on site-specific considerations.
Silver	5	110	4,100	Values are based on site-specific considerations.
Zinc	350	1,500	1,500	Values are based on site-specific considerations.

Reference: http://www.nj.gov/dep/srp/guidance/scc/#f

APPENDIX E – Groundwater Remediation Goals

Comparison of 1990 ROD Remediation Goals for Groundwater Contamination to Current Federal and State MCLs

Comparison of 1990 ROD Remediation Goals for Ground Water Contamination to Current Federal and State MCLs						
Chemical	1990 Fed. MCL (ug/l)	As of 2013 MCL (ug/l)	Current MCL (ug/l)	1990 State MCL (ug/l)	As of 2013 State MCL (ug/l)	Current State MCL (ug/l)
Benzene	5	5	5	1	1	1
Chlorobenzene		100	100	4	50	50
1,2-DCB		600	600	600	600	600
1,3-DCB		600	600	600	600	600
1,4-DCB		75	75	75	75	75
Lindane		0.2	0.2	4	0.2	0.2
Methoxychlor		40	40	100	40	40
1,2,4-trichlorobenzene		70	70	8	9	9
Arsenic	50	10	10	50	5	5
Chromium	50	100	100	50	100	100
Lead	50	15	15	50	15	15
Silver	50			50	100	100

Figure 1: Site Location Map

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

1:577,791

0 5 10 20 mi

0 10 20 40 km

Figure 2: Monitoring Well Location Map

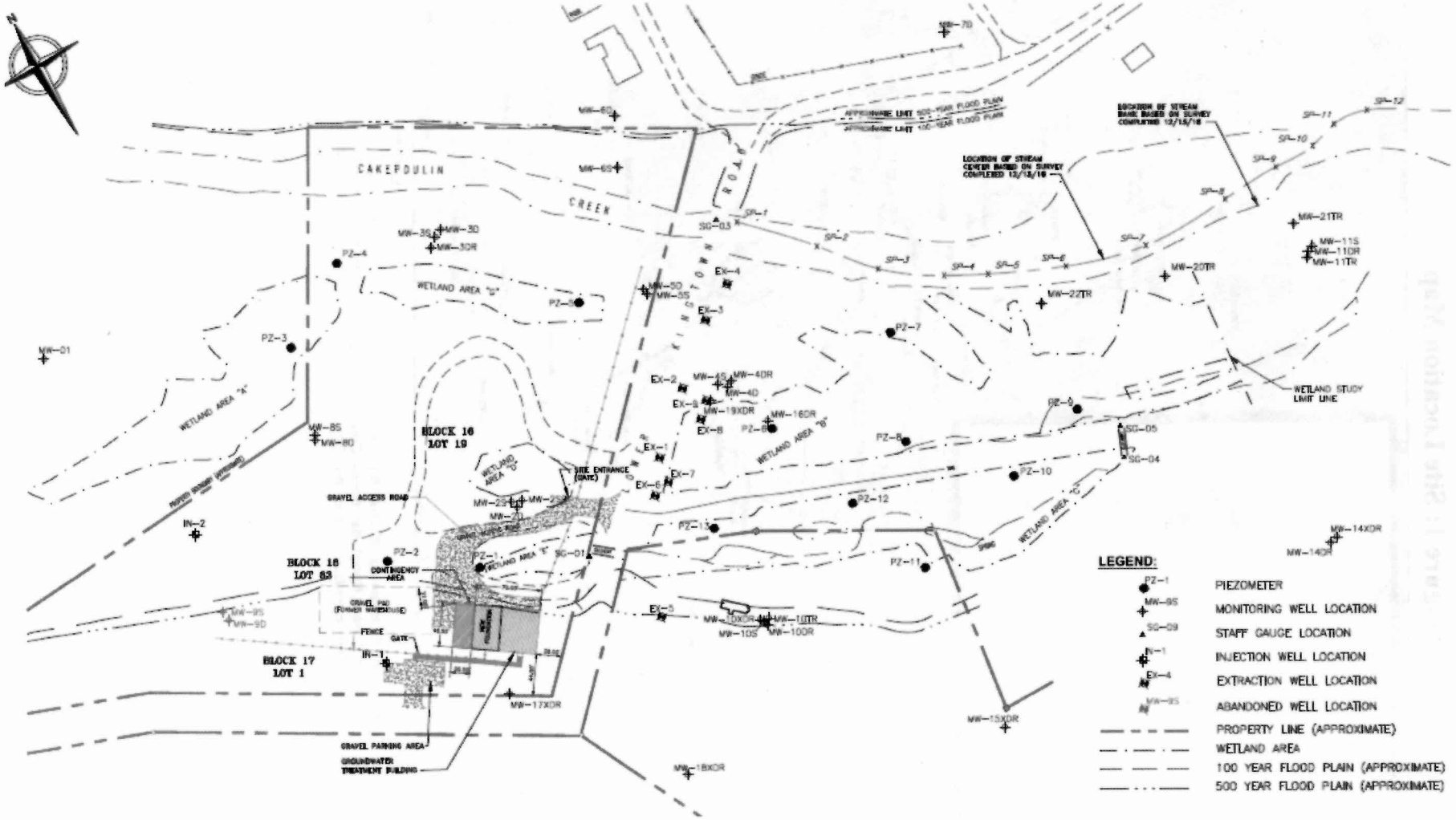


Figure 3: Total Volatile Organics in Extraction Wells versus Time

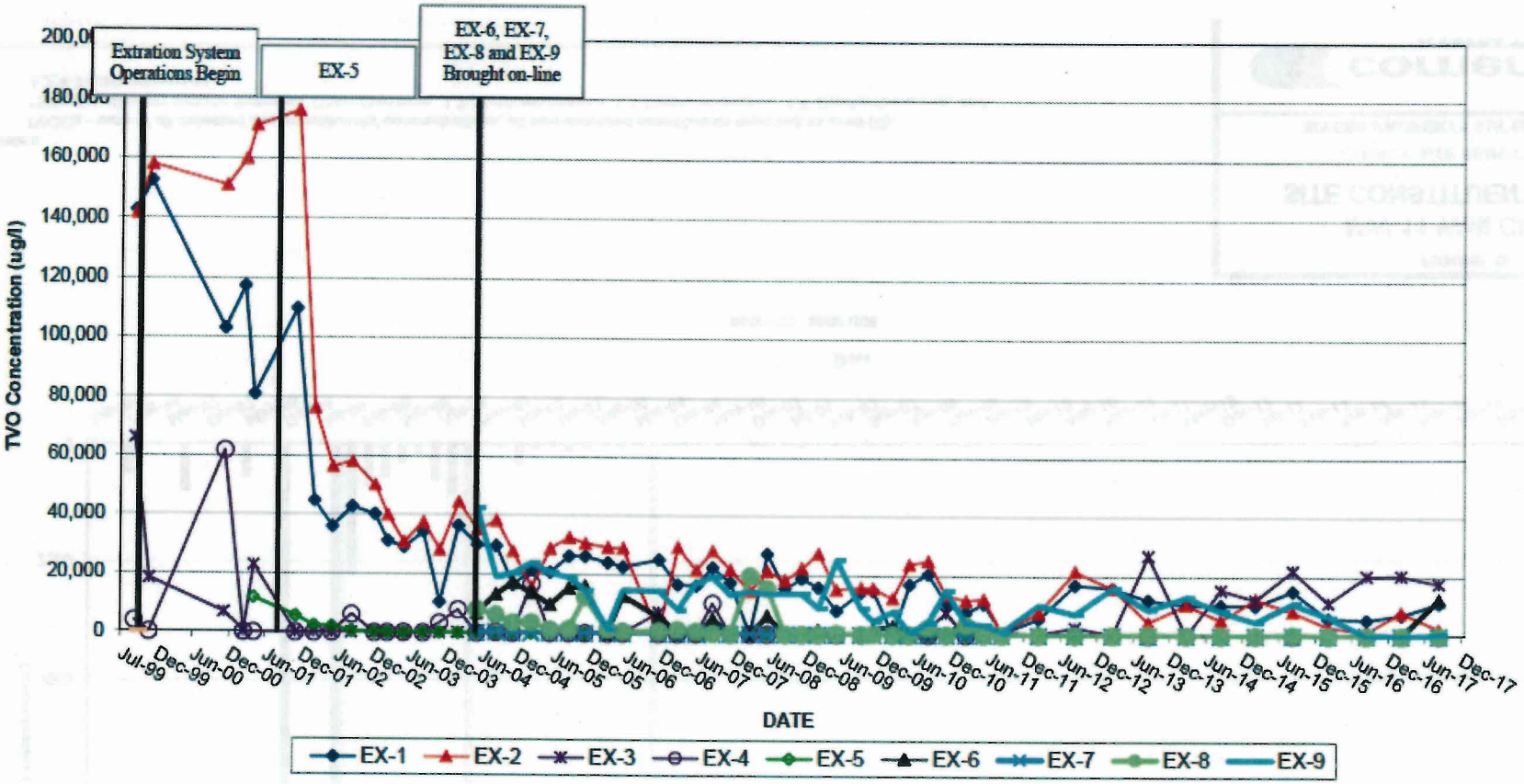


FIGURE 13

TOTAL VOLATILE ORGANICS IN EXTRACTION WELLS

LEGACY SITE SERVICES, LLC
MYERS PROPERTY SUPERFUND SITE

cornerstone
A TETRA TECH COMPANY

Note: As of December 2011 Extraction wells are monitored semi-annually.

Figure 4: Total Volatile Organics in MW-11 Well Cluster versus Time

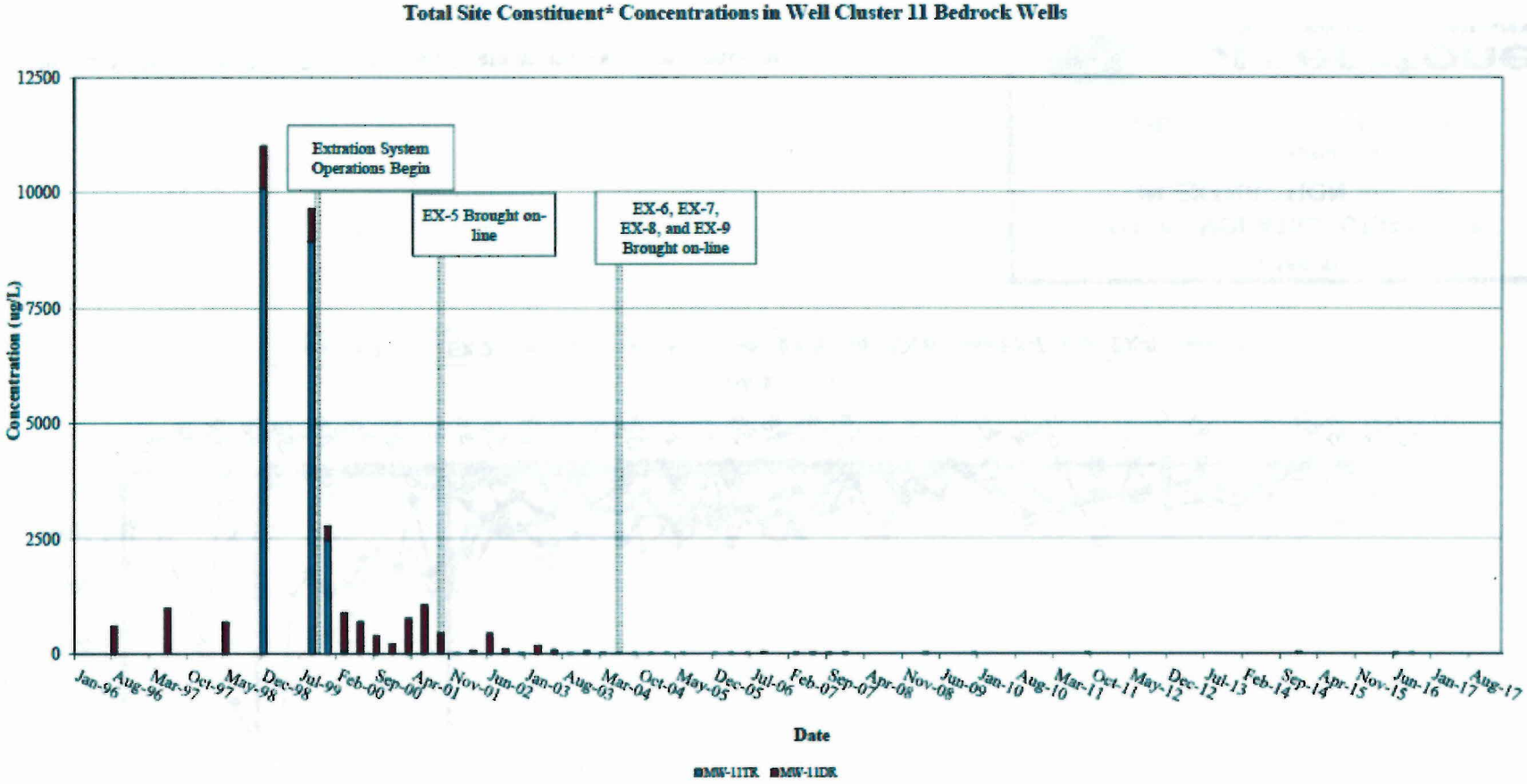


FIGURE 15

MW-11 Well Cluster
SITE CONSTITUENT TRENDS

LEGACY SITE SERVICES, LLC

MYERS PROPERTY SUPERFUND SITE

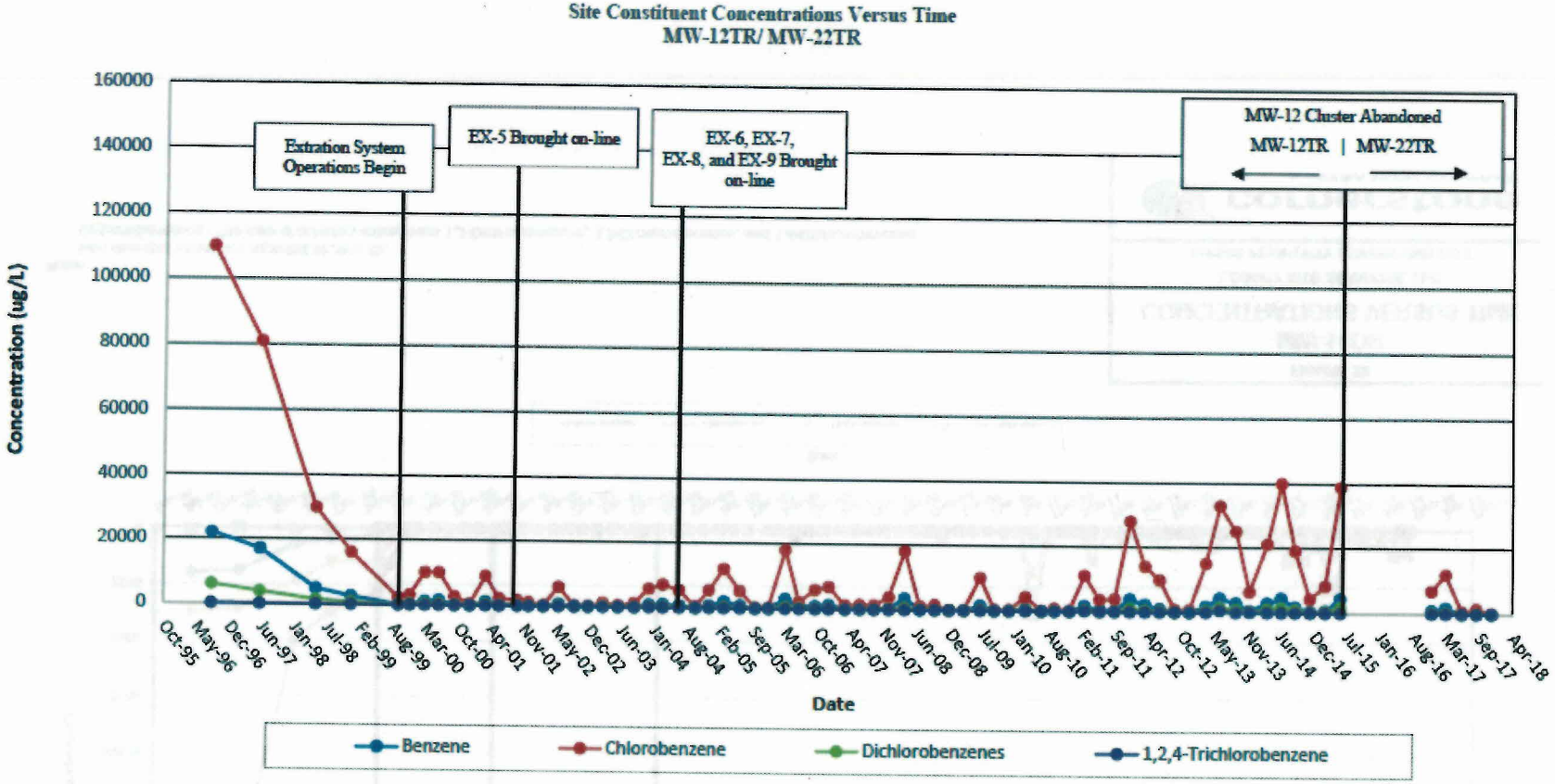
cornerstone
A TETRA TECH COMPANY

Notes:

TVOCs - sum of all detected site constituents' concentrations, all non-detected constituents reported as zero (0).

*Site Constituents include Benzene, Chlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, and 1,2,4-Trichlorobenzene.

Figure 5: Total Volatile Organics in MW-12TR/MW-22TR versus Time



Notes:
Non-detected values are reported as zero (0).
Dichlorobenzenes - The sum of detected values from 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, and 1,4-Dichlorobenzene

FIGURE 26
MW-12TR/MW-22TR CONCENTRATIONS VERSUS TIME
LEGACY SITE SERVICES, LLC
MYERS PROPERTY SUPERFUND SITE
cornerstone
A TETRA TECH COMPANY

Figure 6: Total Volatile Organics in MW-10DR versus Time

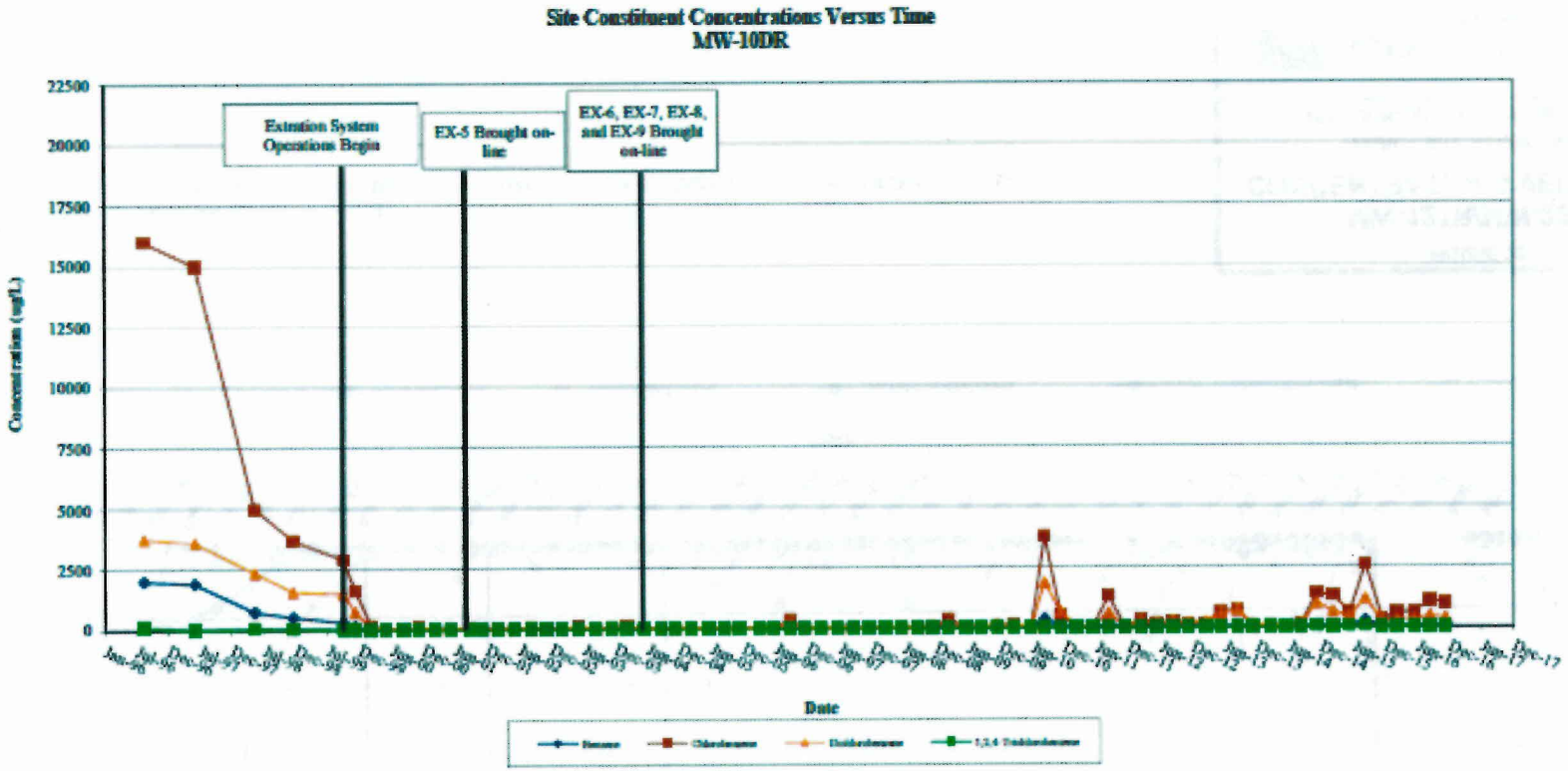


FIGURE 22

MW-10DR

CONCENTRATIONS VERSUS TIME

LEGACY SITE SERVICES, LLC

MYERS PROPERTY SUPERFUND SITE

cornerstone
A TETRA TECH COMPANY

Notes:

Non-detected values are reported as zero (0).

Dichlorobenzenes - The sum of detected values from 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, and 1,4-Dichlorobenzene