

**FOURTH FIVE-YEAR REVIEW REPORT FOR  
RIVER ROAD LANDFILL (WASTE MANAGEMENT, INC.) SUPERFUND SITE  
MERCER COUNTY, PENNSYLVANIA**



**AUGUST 2019**

**Prepared by**

**U.S. Environmental Protection Agency  
Region 3  
Philadelphia, Pennsylvania**

A handwritten signature in blue ink, appearing to read "P. Leonard".

**Paul Leonard, Acting Director  
Superfund and Emergency Management Division  
U.S. EPA, Region 3**

**AUG 29 2019**

**Date**

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## LIST OF ABBREVIATIONS AND ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
BTAG	EPA Region 3 Biological Technical Assistance Group
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EPA	United States Environmental Protection Agency
FYR	Five-Year Review
IC	Institutional Control
µg/L	Micrograms per Liter
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
NPL	National Priorities List
OU	Operable Unit
O&M	Operation and Maintenance
PADEP	Pennsylvania Department of Environmental Protection
PRP	Potentially Responsible Party
ROD	Record of Decision
RPM	Remedial Project Manager
UU/UE	Unlimited Use and Unrestricted Exposure
VOC	Volatile Organic Compound
WMPA	Waste Management of Pennsylvania

# I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy 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 (40 Code of Federal Regulations Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the fourth FYR for the River Road Landfill (Waste Management, Inc.) Superfund site (the Site). The triggering action for this statutory review is the completion date of the previous FYR. The FYR has been prepared because 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), which addresses soil, groundwater, surface water and sediment.

## **Site Background**

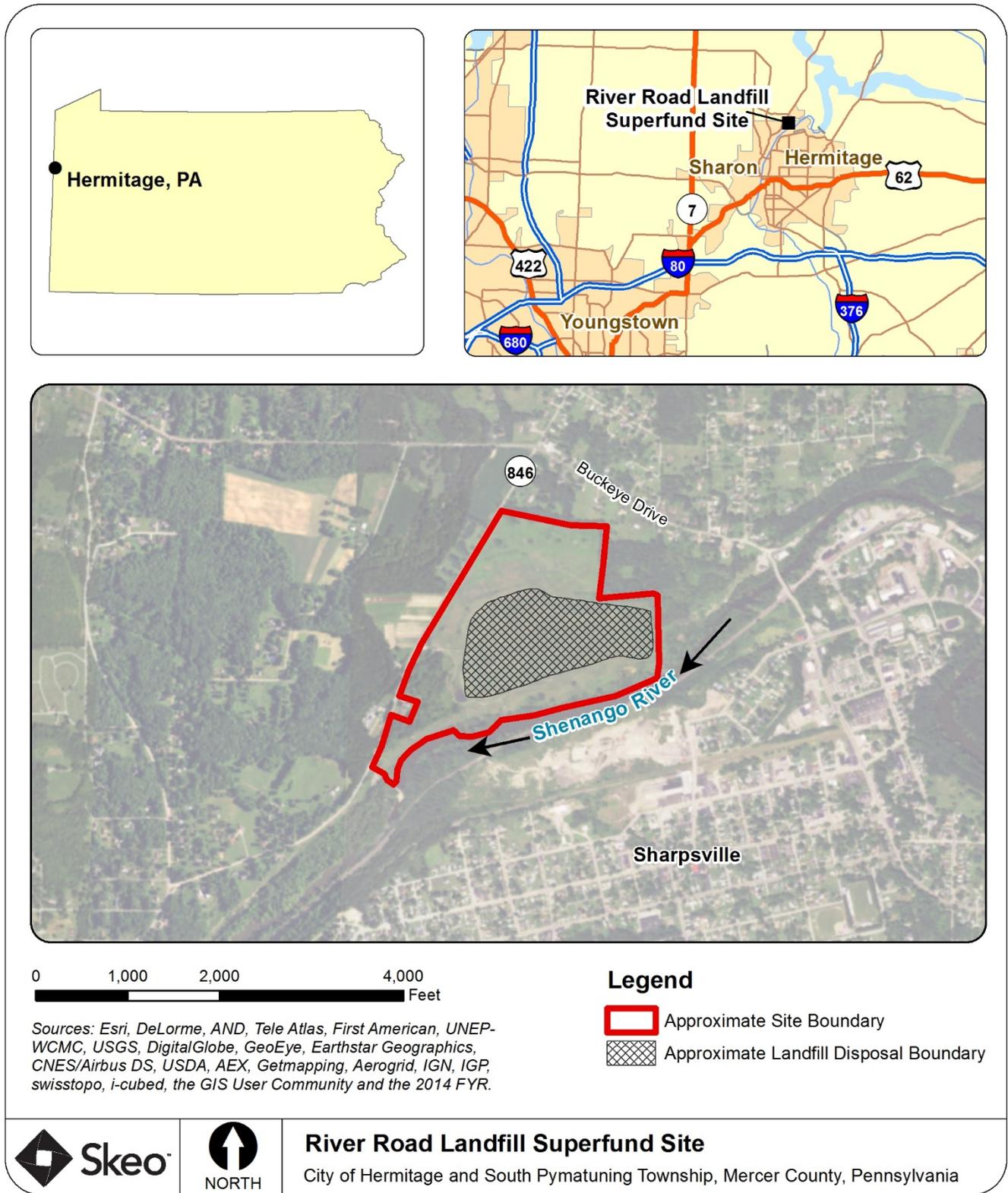
The 37.5-acre landfill is located in western Pennsylvania, just outside the cities of Hermitage, Sharon and Sharpsville (see Figure 1). The southern part of the Site is in the city of Hermitage; the northern part of the Site is in South Pymatuning Township (see Figure 2). The Site, a former sand and gravel mine, received waste for landfilling from 1963 to 1986. The Site is currently vacant and fenced and is expected to remain as such for the foreseeable future. Enervest Operating LLC of Austintown, Ohio, extracts natural gas at the property. The area surrounding the Site is expected to remain residential, agricultural and forested.

The southern portion of the Site, where the landfill is situated, is a slope covered with grass. The northern portion of the Site, which is relatively flat, was used as a soil borrow source during landfill closure activities. The undeveloped parts of the Site surrounding the landfill are vegetated with grasses and sparse trees. Precipitation runoff from the landfill is directed via surface drainage channels to sedimentation basins at the southwest and southeast corners of the landfill (see Figure 3). Both basins discharge to the Shenango River, which borders the Site to the south.

Groundwater at the Site flows south, toward the Shenango River. There are no drinking water wells between the Site and the river. The private wells near the Site are upgradient (west and northeast) of the Site. There is a public drinking water intake on the Shenango River about 1.5 miles downstream of the Site; the water supplied to users must meet water quality standards.

Refer to Appendix A for additional resources and to Appendix B for the Site's chronology of events.

**Figure 1: Site Vicinity Map**



0 1,000 2,000 4,000 Feet

Sources: Esri, DeLorme, AND, Tele Atlas, First American, UNEP-WCMC, USGS, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, i-cubed, the GIS User Community and the 2014 FYR.

**Legend**

-  Approximate Site Boundary
-  Approximate Landfill Disposal Boundary



**River Road Landfill Superfund Site**

City of Hermitage and South Pymatuning Township, Mercer County, Pennsylvania

*Disclaimer:* This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

**FIVE-YEAR REVIEW SUMMARY FORM**

<b>SITE IDENTIFICATION</b>		
<b>Site Name:</b> River Road Landfill (Waste Management, Inc.)		
<b>EPA ID:</b> PAD000439083		
<b>Region:</b> 3	<b>State:</b> PA	<b>City/County:</b> Hermitage / Mercer
<b>SITE STATUS</b>		
<b>NPL Status:</b> Deleted		
<b>Multiple OUs?</b> No	<b>Has the Site achieved construction completion?</b> Yes	
<b>REVIEW STATUS</b>		
<b>Lead agency:</b> EPA		
<b>Author name:</b> Mark Conaron, with additional support provided by Skeo		
<b>Author affiliation:</b> EPA Region 3		
<b>Review period:</b> 9/24/2018 - 9/26/2019		
<b>Date of site inspection:</b> 4/16/2019		
<b>Type of review:</b> Statutory		
<b>Review number:</b> 4		
<b>Triggering action date:</b> 9/26/2014		
<b>Due date (five years after triggering action date):</b> 9/26/2019		

**II. RESPONSE ACTION SUMMARY**

**Basis for Taking Action**

EPA listed the Site on the Superfund program’s National Priorities List (NPL) in October 1989. In 1990, EPA issued an Administrative Order by Consent to Waste Management of Pennsylvania (WMPA) to conduct the remedial investigation (RI) and feasibility study (FS). The RI was approved March 1995 and the FS was approved April 1995. The 1995 Final Baseline Risk Assessment performed by WMPA found an estimated non-cancer hazard above EPA’s threshold due to manganese and aluminum in groundwater. During the remedial investigation, a home water well survey was performed in 1992 to identify private well owners within a half-mile radius of the Site. Two private wells near the Site were sampled and results indicated these wells were not affected by the landfill.

Table 1 below presents the contaminants of concern, as identified by the 1995 Final Baseline Risk Assessment.

**Table 1: Contaminants of Concern, by Media**

Media	Contaminants of Concern	
	Human Health	Ecological
Soil	Aroclor-1248	None
Groundwater	Aluminum Barium Manganese Sulfur Ammonia Benzene Chloroethane 1,2-Dibromo-3-chloropropane 1,4-Dichlorobenzene 1,1-Dichloroethane 1,2-Dichloroethane cis-1,2-Dichloroethene 1,2-Dichloropropane Vinyl chloride	None
Surface Water	Aluminum Lead Ammonia Nitrate, nitrite	Aluminum Calcium Lead
Sediment	Arsenic Lead Vanadium	Aroclor-1248 Arsenic Cadmium Chromium 4,4'-DDD Dieldrin Mercury Nickel Zinc

**Response Actions**

In 1980, WMPA constructed a subsurface leachate collection system/groundwater dam on the south side of the landfill (see Figure 3). Until 1983, the landfill leachate was stored on site in a lagoon. WMPA closed the landfill leachate lagoon in 1983. Since 1983, WMPA has discharged the collected landfill leachate and groundwater to the sanitary sewer for treatment at the local wastewater treatment plant. Starting in 1982, WMPA began upgrading and remediating the Site with soil erosion and sediment control systems. In 1986 and 1987, WMPA placed a 3-foot cap on the landfill. Closure activities were completed and certified in 1988. PADEP approved the River Road Landfill Certification and Post-Closure Plan in November 1988. WMPA added further upgrades to the landfill leachate collection system through 1988.

EPA issued the Record of Decision (ROD) on December 29, 1995. The ROD established the following remedial action objectives:

- Prevent off-site migration of groundwater.
- Prevent ingestion of groundwater containing leachate constituents at concentrations creating an unacceptable health risk.
- Minimize the release of leachate constituents to groundwater that present unacceptable health risks.
- Prevent exposure to sediment contaminated by arsenic, Aroclor-1248 and chromium.

The ROD called for implementing institutional controls and continuing the landfill closure plan that was required under the Solid Waste Management Act of Pennsylvania. The ROD specified the following operation and maintenance (O&M) activities:

- Continued O&M of the existing groundwater/leachate collection system that removes contaminated leachate and groundwater from the Site.
- Continued maintenance of the PADEP-approved landfill cap and surface water drainage system.
- Continued maintenance of the groundwater dam.
- Continuance of the existing monitoring program developed in connection with the PADEP closure plan, or as modified by mutual approval of EPA and PADEP.
- Periodic assessment of the effectiveness of the existing groundwater/leachate collection system, and its upgrading, as necessary, to prevent contaminant migration.
- Performing FYRs to ensure that the remedy continues to protect human health and the environment.

The ROD specified the following institutional controls:

- Deed restrictions to prohibit disturbing the soil cap, installing new on-site wells for domestic purposes, and building residential construction on the Site (but allowing other beneficial reuse in consultation with EPA and PADEP).
- Zoning restrictions would be proposed to be implemented by the local zoning commission to prevent future zoning changes that would allow for residential development or other types of development that would be inappropriate for a former landfill.

The ROD stated that the remedy would not remove the contaminated sediments from the sedimentation basins, which had become established wetlands, because the contaminants posed a minimal ecological risk. The ROD also stated the remedy would require monitoring surface water quality in the basins to ensure that discharge from the basins complies with state requirements.

Table 2 presents the discharge limits from the Upper Shenango Valley Water Pollution Control Authority permit (as amended on March 12, 1985). Note that the Site also has an Industrial User Wastewater Discharge Permit, issued by the City of Sharon Sanitary Authority and effective on December 10, 2017, which in general contains more stringent discharge limits.

**Table 2: Discharge limits**

<b>Parameter</b>	<b>Maximum Loading from 1985 Permit (pounds per day)</b>
Total cyanide	0.042
Arsenic	0.292
Barium	0.417
Cadmium	0.083
Total chromium	0.417
Copper	0.292
Lead	0.125
Mercury	0.033
Nickel	0.417
Selenium	0.042
Silver	0.334
Zinc	0.417
Polychlorinated biphenyls	Detectable limit

On May 10, 1999, EPA issued an Explanation of Significant Differences to correct the cost estimate presented in the 1995 ROD.

**Status of Implementation**

In a Consent Decree entered on May 12, 2000 between EPA and WMPA, EPA sought cost reimbursement and required implementation of the PADEP-approved Post-Closure Plan, or any future modified plan approved by EPA and PADEP. Since 1987, WMPA has performed O&M at the Site based on the PADEP-approved Post-Closure Plan. See the O&M section below for more information. EPA deleted the Site from the NPL in January 2004.

**Institutional Control Review**

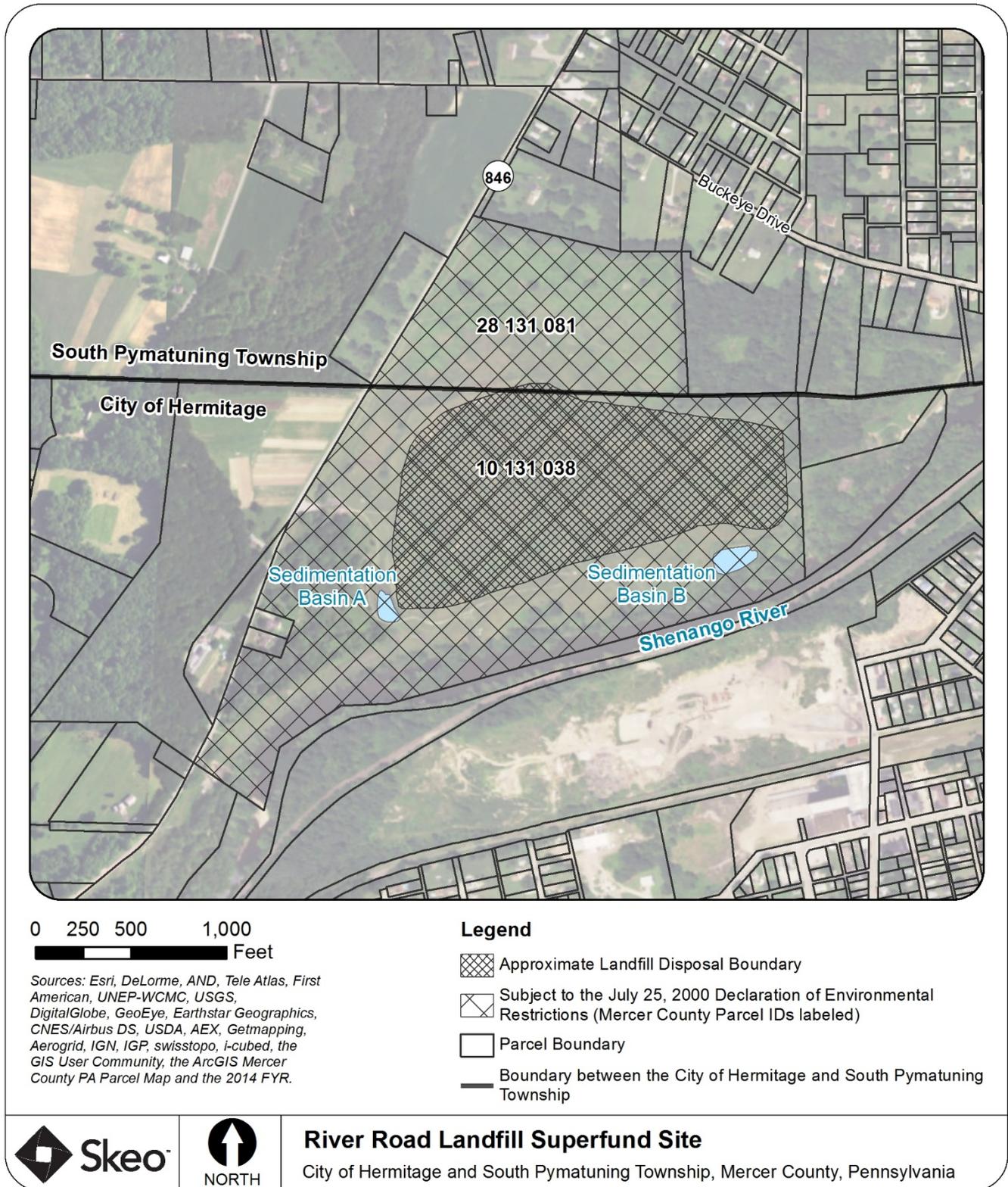
On July 25, 2000, the Mercer County Recorder’s Office recorded the Declaration of Environmental Restrictions (Book 330, Pages 2116-2120, see Appendix G), which allows beneficial reuse, with consultation with EPA and PADEP, of the property but prohibits construction of residential buildings, any disturbance of the soil cap or surface water drainage system that exposes contaminants, and the use and installation of wells for potable purposes. Table 3 summarizes the institutional controls. Figure 2 shows the parcels with institutional controls.

As required by the ROD, EPA has proposed that the local zoning authorities in the city of Hermitage and South Pymatuning Township rezone the site property to prevent residential development or other types of development that would be inappropriate for a former landfill. This FYR confirmed that the property’s zoning remains residential. EPA believes that, although the property has not been rezoned to prevent residential development, the July 2000 Declaration of Environmental Restrictions is sufficient to prevent inappropriate use of the Site.

**Table 3: Summary of Institutional Controls (ICs)**

<b>Media, Engineered Controls and Areas That Do Not Support UU/UE Based on Current Conditions</b>	<b>ICs Needed</b>	<b>ICs Called for in the Decision Documents</b>	<b>Impacted Parcels</b>	<b>IC Objective</b>	<b>Title of IC Instrument Implemented and Date</b>
Groundwater	Yes	Yes	10 131 038; 28 131 081	Prohibit installation of potable wells on site property.  Prohibit residential construction on site property.	July 25, 2000 Declaration of Environmental Restrictions
Soil	Yes	Yes	10 131 038; 28 131 081	Prohibit disturbing the soil cap and the surface water drainage system.  Prohibit residential construction on site property.	July 25, 2000 Declaration of Environmental Restrictions
Sediment	Yes	No	10 131 038	Prevent disturbance of existing wetlands that contain contaminants.	July 25, 2000 Declaration of Environmental Restrictions

**Figure 2: Institutional Control Map**



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## **Systems Operations/Operation and Maintenance (O&M)**

Since 1987, WMPA has performed O&M at the Site based on the PADEP-approved Post-Closure Plan (included in the ROD as Appendix C). O&M at the Site includes operating the groundwater and leachate collection system and maintaining the landfill cap, the surface water drainage system, and mowing the Site once a year and maintaining the security fence. WMPA conducts quarterly monitoring events, which includes sampling leachate, landfill gas and seven groundwater monitoring wells. WMPA measures groundwater levels at the Site, which are used to create a groundwater contour map. Figure H-1 in Appendix H is the most recent groundwater contour map. WMPA submits the quarterly monitoring reports to PADEP and EPA.

The groundwater and leachate collected by the collection system are discharged to the sanitary sewer for treatment at the local wastewater treatment plant. WMPA submits monthly effluent discharge volume data to the Upper Shenango Valley Water Pollution Control Authority. The Upper Shenango Valley Water Pollution Control Authority contracts with the Sharon Sanitary Authority to review WMPA's discharge data. The Sharon Sanitary Authority verifies that WMPA's discharge is in compliance with WMPA's current discharge permit issued by the Sharon Sanitary Authority.

Problems with the Site's O&M and recommended improvements are described below in the Site Inspection, Technical Assessment and Issues/Recommendations sections of this FYR.

WMPA has submitted a Demonstration Work Plan to EPA and PADEP that proposes to stop discharging leachate to the wastewater treatment plant and instead allow leachate to naturally discharge into the Shenango River. EPA is working with PADEP and the U.S. Fish and Wildlife Service to evaluate this work plan especially considering endangered species in the river.

## **III. PROGRESS SINCE THE PREVIOUS REVIEW**

This section includes the protectiveness determinations and statements from the previous FYR Report as well as the recommendations from the previous FYR Report and the status of those recommendations.

**Table 4: Protectiveness Determination/Statement from the 2014 FYR Report**

<b>OU #</b>	<b>Protectiveness Determination</b>	<b>Protectiveness Statement</b>
1	Short-term Protective	The remedy currently protects human health and the environment in the short term because the landfill is capped, contaminated groundwater is contained, the Site is fenced, and institutional controls prevent the use of contaminated groundwater and residential construction on the Site. However, in order for the remedy to be protective in the long term, the following actions need to be taken to ensure protectiveness: collect surface water and sediment samples from the sedimentation basins and the river as required by the ROD.

**Table 5: Status of Recommendations from the 2014 FYR Report**

OU #	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date
1	WMPA did not monitor surface water or sediment quality during the past five years, as required by the ROD.	Collect surface water and sediment samples from the sedimentation basins and the river.	Completed	PRP contractors collected surface water and sediment samples from the sedimentation basins and the river in November 2015. PRP contractors submitted the sampling results to EPA on March 11, 2016.	11/5/2015

## **IV. FIVE-YEAR REVIEW PROCESS**

### **Community Notification, Community Involvement and Site Interviews**

A public notice was made available by a newspaper posting in the *Sharon Herald* on May 20, 2019 (Appendix C). It stated that the FYR was underway and invited the public to submit any comments to EPA. The results of the review and the report will be made available at the Site's information repository, the Community Library of the Shenango Valley, located at 11 North Sharpville Avenue, Sharon, Pennsylvania 16148, and online at <https://www.epa.gov/superfund/riverroad>.

During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy that has been implemented to date. The City Manager of Hermitage Township and the Technical Director for WMPA were both interviewed for the FYR.

Overall, the City Manager was satisfied with the work that has taken place at the Site. There were no complaints reported by residents or elected officials. He did not have any additional comments or concerns, and believed EPA was effectively doing its job.

The representative of WMPA also mentioned that community interest in the Site has been minimal. The only issue that could have posed a concern for the community was a car dumping incident on the Site. Moreover, the Site continues to be low priority for the community since it is no longer in operation and EPA has done a good job in keeping the public informed.

### **Data Review**

Groundwater flow is generally southerly, toward its discharge to the Shenango River (see Figure H-1 in Appendix H for the Site's most recent groundwater contour map). The presence of the leachate collection system causes the formation of a localized flow system. Diversion of shallow groundwater flow into the landfill leachate collection system occurs both upgradient and downgradient of the landfill adjacent to the groundwater dam. Leachate is collected and discharged to the Upper Shenango Valley Water Pollution Control Authority sanitary sewer system and is treated at the City of Sharon's sewage treatment plant.

### **Surface Water and Sediment**

WMPA collected surface water and sediment samples in November 2015. Figure 3 depicts the locations of the samples. The samples were analyzed for metals, ammonia and chloride. The sampling results are presented in Tables G-1 and G-2 in Appendix G. Two surface water samples collected adjacent to the Site had estimated concentrations of total lead slightly above the BTAG screening level and the PADEP standard; lead was not detected in the other sampling locations (upstream and downstream of the landfill). Dissolved manganese and total and dissolved zinc concentrations were higher in surface water samples collected downstream of the Site, as

compared to surface water samples collected upstream of the Site; however, these analytes did not exceed the BTAG screening levels or the PADEP standards.

In a March 2016 letter to WMPA, EPA stated that porewater sampling should be performed to determine that the protection of the state-listed Pistolgrip mussel, which is documented to be present, and for the protection of two federally listed mussels the snuffbox (*Epioblasma triquetra*) and the rayed bean (*Villosa fabalis*) (unless an approved survey demonstrates that federally listed mussels are not present). WMPA has developed concentration screening values in there porewater but has not conducted porewater sampling. WMPA's draft Demonstration Work Plan includes porewater sampling. EPA has not approved the Demonstration Work Plan. EPA is working with PADEP, the U.S. Fish and Wildlife Service, and WMPA to develop a demonstration project that will be protective of the environment.

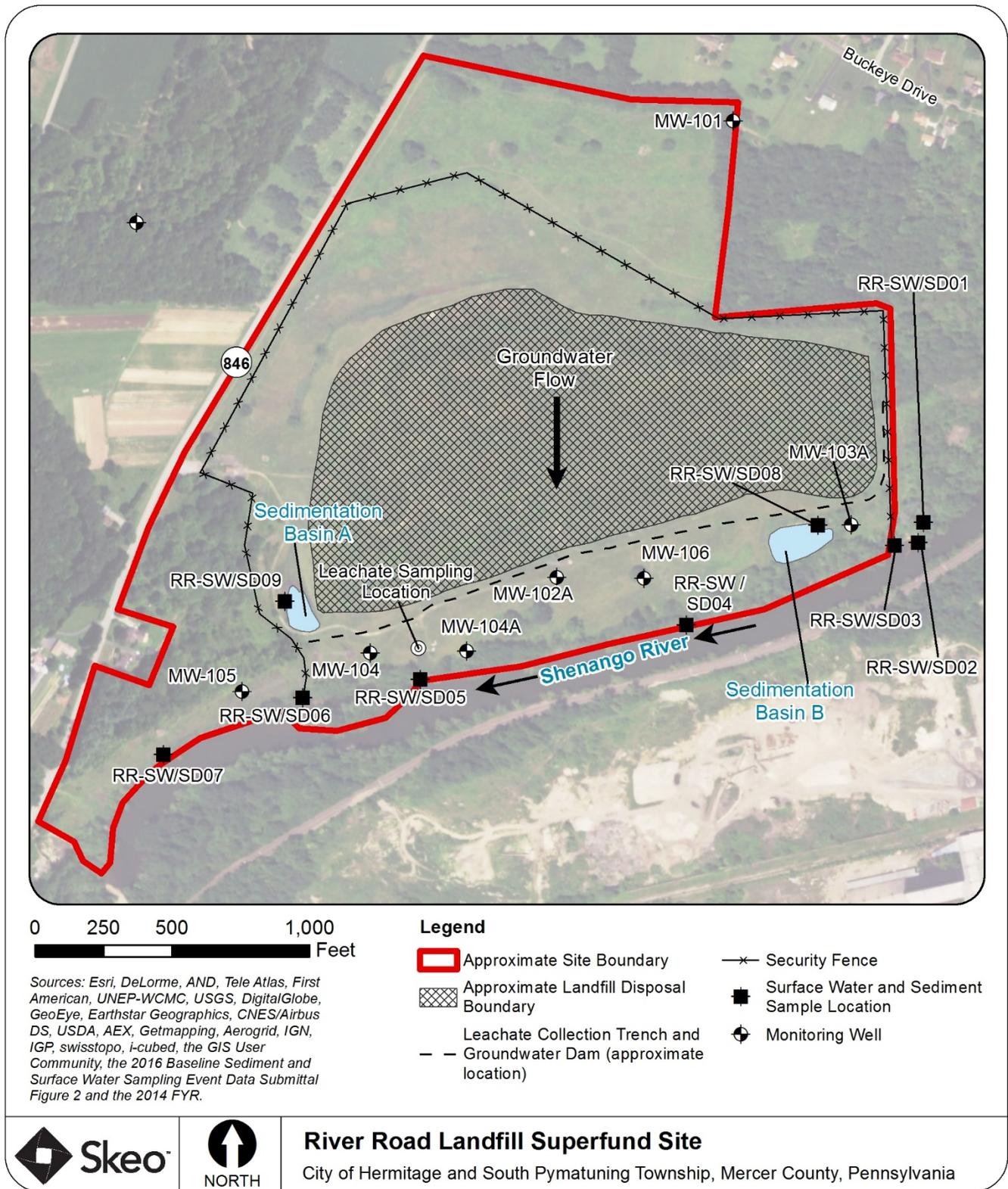
#### Leachate

Leachate is sampled by WMPA on a quarterly basis for metals and volatile organic compounds (VOC). This FYR reviewed leachate concentration data from WMPA's 2014-2018 quarterly monitoring reports. To compare the leachate concentration data against the maximum loading rates specified in the 1985 discharge permit, this FYR converted the reported concentrations (micrograms per liter [ $\mu\text{g/L}$ ] and milligrams per liter [ $\text{mg/L}$ ]) to loading rates (pounds per day) using the monthly discharge volumes measured by WMPA. As a conservative estimate, this FYR used the largest monthly discharge volume from each quarter to calculate that quarter's loading rate.

This FYR compared the calculated loading rates against the discharge limits from the Upper Shenango Valley Water Pollution Control Authority permit (as amended on March 12, 1985) (see Table 2). The Site has not exceeded its 1985 permit discharge limits over the past five years. This FYR also compared the leachate concentration data against WMPA's 2017 Industrial User Wastewater Discharge Permit issued by the City of Sharon Sanitary Authority. Over the past five years, the iron concentration in the discharge regularly exceeded its 2017 permit discharge limit (5 mg/L), with iron concentrations ranging from 1.1 mg/L to 23.9 mg/L. The Site's discharge did not exceed any of the other 2017 permit limits over the past five years.

During the past five years, VOCs were not detected in leachate.

**Figure 3: Detailed Site Map**



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### Groundwater

Seven groundwater monitoring wells are sampled by WMPA on a quarterly basis for metals and VOCs. During this FYR, EPA reviewed groundwater data from WMPA's 2014-2018 quarterly monitoring reports. The ROD did not establish groundwater cleanup goals, so the quarterly reports compare groundwater data against state standards (PADEP Statewide Health Standards for groundwater for residential and non-residential used aquifers). During the past five years, arsenic, iron and manganese concentrations in groundwater were regularly above their respective PADEP Statewide Health Standards. This is consistent with levels from previous FYRs and is expected due to geochemical conditions beneath the landfill. Release of these metals may occur from soils and bedrock as well as from on-site waste material.

Appendix H presents groundwater trend charts for the analytes most frequently detected at the Site (arsenic, iron and manganese; see Figures H-2 through H-4). This FYR finds that, in general, arsenic, iron and manganese concentrations in groundwater have declined or remained stable since the 1980s.

During the past five years, VOCs were not detected in groundwater at levels greater than the PADEP Statewide Health Standards.

### Landfill Gas

WMPA conducted quarterly landfill gas monitoring at 17 locations at the periphery of the site property during this FYR period. During all sampling events from 2014 to 2018, methane readings were 0 percent at each of the sampling locations.

### Vapor Intrusion

At some sites, vapors from impacted soil or groundwater beneath buildings can enter the buildings and cause potential health risk. Vapor intrusion is not a concern at the Site because the nearest buildings are over 500 feet away from the landfill's waste, in a side-gradient direction. In addition, during the past five years, VOCs were not detected at levels greater than EPA's vapor intrusion screening levels in the monitoring well (MW-105) closest to homes near the landfill.

### Site Inspection

The site inspection took place on April 16, 2019. Participants included the EPA RPM, EPA community involvement coordinator, EPA BTAG personnel, PADEP project manager, WMPA representatives, WMPA contractor Tetra Tech, and EPA FYR support contractor Skeo. The purpose of the inspection was to assess the protectiveness of the remedy. Appendix E provides the FYR site inspection checklist. Appendix F provides photographs from the FYR site inspection.

The landfill cap is well vegetated with grass. Site inspection participants observed some ponding on the top of the landfill. No groundhog burrows were observed; however, a few smaller burrows were present. Areas surrounding the landfill mound have shrubs and small trees. Site inspection participants observed birds and signs of deer and beaver on the Site; however, the Site is not actively managed as wildlife habitat. Natural gas production continues to occur at the Site outside the footprint of the landfill.

Site inspection participants observed leachate and/or groundwater overflowing from a leachate manhole located northwest of Sedimentation Basin B (LS-2), between the landfill and the Shenango River. An oily sheen was present on puddles next to the manhole and downgradient from the manhole. The adjacent leachate manhole (MH-4) to the west of LS-2 also had leachate and/or groundwater flowing out, leaving an orange stain on the ground. Site inspection participants opened the leachate manhole's lid, that was unlocked, and observed that the water level was at ground level, indicating that there is likely a blockage in the leachate pipeline downgradient of the two overflowing leachate manholes.

The Site is fenced on all sides, except for the side along the Shenango River. The main access gate is kept locked. Site inspection participants noted that one side gate was not locked and was standing open. The fence has holes

cut in it in various locations. There are also many tree limbs that have fallen onto the fence. Thick vegetation is growing through and adjacent to the fence. Warning signs on the fence are missing or illegible.

In 2018, a stolen pickup truck was driven through the fence and across the landfill. Site inspection participants observed the abandoned truck stuck in a ditch on the Site. WMPA has repaired the fence in spring 2019. Site inspection participants observed other signs of trespassing, such as a beer can, water bottle, shotgun shell and bullet holes in signs, but no signs of vandalism. Site inspection participants observed one all-terrain vehicle path on the site property but outside the site fence; participants did not see any all-terrain vehicle paths inside the site fence.

Site inspection participants observed that some leachate manholes are not secured against unauthorized opening, while others cannot be opened due to rusted locks or overgrown vegetation. Monitoring well LH03 was not locked and was recently repaired after being damaged by a mower.

As part of the FYR site inspection, Skeo staff visited the designated local information repository (Community Library of the Shenango Valley, 11 North Sharpsville Avenue, Sharon, Pennsylvania 16148) to check whether site documents are available for public viewing. The reference librarian provided printed instructions from EPA explaining how to access the Site's online Administrative Record (<https://semspub.epa.gov/src/collection/03/AR324>), which contains site documents from 1991 through the 1995 ROD. Members of the public can use a library computer to view the Administrative Record.

## V. TECHNICAL ASSESSMENT

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

Yes, the remedy is generally functioning as intended by the decision documents. The landfill's cap and surface water drainage system are in good condition and continue to function as intended. However, the Site's groundwater/leachate collection system needs to be repaired and better maintained during quarterly sampling events. During the April 2019 FYR site inspection, EPA observed that the groundwater/leachate collection system was overflowing from two manholes, indicating that there is likely a blockage in the leachate pipeline.

Over the past five years, the iron concentration in the discharge regularly exceeded the discharge limit in WMPA's 2017 Industrial User Wastewater Discharge Permit. The discharge did not exceed any of the other 2017 permit limits over the past five years. The discharge has not exceeded its 1985 permit discharge limits over the past five years.

WMPA has submitted a Demonstration Work Plan to EPA and PADEP that proposes to stop discharging leachate to the wastewater treatment plant and instead allow leachate to naturally discharge into the Shenango River. EPA is working with PADEP and the U.S. Fish and Wildlife Service to evaluate the workplan especially considering endangered species in the river.

The ROD did not establish groundwater cleanup goals or select groundwater ARARs because the ROD found that the groundwater remedial action objectives would be met by the existing treatment scheme with the addition of institutional controls. During the past five years, arsenic, iron and manganese concentrations in groundwater were regularly above their respective PADEP Statewide Health Standards. In general, arsenic, iron and manganese concentrations in groundwater have declined or remained stable since the 1980s. During the past five years, VOCs were not detected in groundwater at levels greater than the PADEP Statewide Health Standards.

A Declaration of Environmental Restrictions, recorded with the Mercer County Recorder's Office in 2000, prohibits building residences, disturbing the soil cap or surface water drainage system, and installing potable wells at the Site. The ROD stated that EPA would propose that the localities rezone the property to prevent residential and other inappropriate land uses; the localities have decided to retain the property's residential zoning but

understand the property’s environmental constraints. EPA believes that the 2000 Declaration of Environmental Restrictions is sufficient to prevent inappropriate use of the Site.

There are some signs of trespassing on the Site in the past five years but no evidence of vandalism except for a stolen vehicle that was driven through the site fence and abandoned on the Site. The section of fence damaged by the vehicle has been repaired; the vehicle caused no other visible damage to the Site. The rest of the site fence is largely intact, but some repairs and maintenance are needed to patch holes in the fence, ensure gates are kept locked, remove trees and limbs that have fallen onto the fence, remove vegetation that is growing under or through the fence, and install new warning signs. In addition, leachate manholes and monitoring wells need to be secured against unauthorized opening.

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

The exposure assumptions and remedial action objectives used at the time of remedy selection are still valid. The landfill cap prevents exposure to waste and the groundwater and leachate collection system prevents migration of and exposure to contaminated leachate and groundwater.

All sampling results are compared against current screening levels. The current Industrial User Wastewater Discharge Permit, effective December 10, 2017, was issued to WMPA by the City of Sharon Sanitary Authority. The 2017 permit, in general, contains more stringent limits than the 1985 permit. WMPA’s compliance with its current discharge permit is monitored by EPA’s FYRs and by the Sharon Sanitary Authority.

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

In 2012, the U.S. Fish and Wildlife Service listed the snuffbox mussel (*Epioblasma triquetra*) and the rayed bean (*Villosa fabalis*) as an endangered species. The Service’s mussel survey records indicate that this species lives in the Shenango River. These mussels require a more accurate understanding of the potential impacts of the proposal to shut off the leachate collection system and allow the leachate to discharge to the river.

## VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
<b>OU(s) without Issues/Recommendations Identified in the FYR:</b>
None

**Issues and Recommendations Identified in the FYR:**

OU: OU1	<b>Issue Category:</b> Remedy Performance			
	<b>Issue:</b> During the April 2019 FYR site inspection, the groundwater/leachate collection system was overflowing from two manholes, indicating that there is likely a blockage in the leachate pipeline.			
	<b>Recommendation:</b> Clear the leachate pipeline or upgrade the groundwater/leachate collection system in some other way to prevent discharge of leachate onto ground surface. Sample the leachate discharging and underlying soils and address any unacceptable residual contamination.			
<b>Affect Current Protectiveness</b>	<b>Affect Future Protectiveness</b>	<b>Party Responsible</b>	<b>Oversight Party</b>	<b>Milestone Date</b>
No	Yes	PRP	EPA	9/30/2020

OU: OU1	<b>Issue Category:</b> Site Access/Security			
	<b>Issue:</b> The site fence has several holes, fallen tree limbs, vegetation growing under and through it, an unlocked side gate, and illegible warning signs.			
	<b>Recommendation:</b> Conduct fence maintenance (repair holes, remove down limbs, clear vegetation growing under and through fence, lock gates) and install new signs.			
<b>Affect Current Protectiveness</b>	<b>Affect Future Protectiveness</b>	<b>Party Responsible</b>	<b>Oversight Party</b>	<b>Milestone Date</b>
No	Yes	PRP	EPA	3/31/2020

OU: OU1	<b>Issue Category:</b> Site Access/Security			
	<b>Issue:</b> Some leachate manholes are not secured against unauthorized opening, while others cannot be opened due to rusted locks or overgrown vegetation.			
	<b>Recommendation:</b> Repair and secure all manhole covers.			
<b>Affect Current Protectiveness</b>	<b>Affect Future Protectiveness</b>	<b>Party Responsible</b>	<b>Oversight Party</b>	<b>Milestone Date</b>
No	Yes	PRP	EPA	3/31/2020

**OTHER FINDINGS**

Two additional recommendations were identified during the FYR. These recommendations do not affect current and/or future protectiveness.

- WMPA will remove the abandoned pickup truck from the Site.
- In Table 2 of the 2015 Revised Surface Water and Sediment Investigation Work Plan, some of the surface water analytical parameters appear to have missing or incorrect EPA Region 3 BTAG screening levels (e.g., calcium, lead, magnesium, potassium, sodium and pH) or PADEP Chapter 93 Water Quality Standards (e.g., lead, manganese and chloride). EPA recommends that WMPA ensure that correct values are used for future sampling events.

## VII. PROTECTIVENESS STATEMENT

Protectiveness Statement	
<i>Operable Unit:</i> OU1	<i>Protectiveness Determination:</i> Short-term Protective
<i>Protectiveness Statement:</i> The remedy currently protects human health and the environment in the short term because the landfill is capped, the Site is fenced, institutional controls prevent the use of contaminated groundwater and residential construction on the Site, and surface water and sediment are monitored to ensure that there is no ecological risk. However, in order for the remedy to be protective over the long term, maintenance and repairs need to be performed on the leachate pipeline and collection system, the manholes, and the fence and signs.	

## VIII. NEXT REVIEW

The next FYR Report for the Site is required five years from the completion date of this review.

## APPENDIX A – REFERENCE LIST

Addendum to Agreement. Upper Shenango Valley Water Pollution Control Authority and WMPA. 1985.

Agreement. Upper Shenango Valley Water Pollution Control Authority and WMPA. 1983.

Baseline Sediment and Surface Water Sampling Event Data Submittal. River Road Landfill Site. Prepared by Tetra Tech for Waste Management of Pennsylvania. March 2016.

Explanation of Significant Differences, River Road Landfill Superfund Site. EPA. May 1999.

Final Baseline Risk Assessment: River Road Landfill. RUST Environment & Infrastructure. March 1995.  
<https://semspub.epa.gov/src/document/03/132794> and <https://semspub.epa.gov/src/document/03/132804>.

Industrial User Wastewater Discharge Permit. Permit Number PAD20126-003. City of Sharon Sanitary Authority. 2017.

Industrial Waste Discharge Permit. Permit No. 001. Upper Shenango Valley Water Pollution Control Authority. 1983.

Letter from David P. Turner, EPA RPM, to Glen Schultz of Waste Management RE: PADEP Comment on Issues Raised in Revised Surface Water/Sediment and Two-Year Equivalency Demonstration Work Plans Relating to Endangered Mussel, January 2016 and February 26, 2016 Agencies and PRP Call Summary. March 2016.

Quarterly Environmental Monitoring Reports. Tetra Tech, Inc. 2014-2018.

Record of Decision: River Road Landfill Site. EPA. December 1995.  
<https://semspub.epa.gov/src/document/03/132839>.

Revised Surface Water and Sediment Investigation Work Plan and Response to Agency Comments. Prepared by Tetra Tech for Waste Management of Pennsylvania. October 2015.

Second Addendum to Agreement. Upper Shenango Valley Water Pollution Control Authority and WMPA. 1986.

Third Five-Year Review Report for River Road Landfill (Waste Management, Inc.) Superfund Site for OU1, Mercer County, Pennsylvania. EPA. September 2014. <https://semspub.epa.gov/src/document/03/2198801>.

## APPENDIX B – SITE CHRONOLOGY

**Table B-1: Site Chronology**

Event	Date
Landfilling began at the Site	1963
PADEP granted technical approval for operation of the facility	January 25, 1978
Erie Disposal Company (now WMPA) entered into an Article of Agreement to purchase the site property	August 18, 1980
As part of WMPA’s acquisition, Todd Giddings and Associates investigated the Site and recommended the construction of a landfill leachate collection system, cover and vegetation on the sides of the landfill, and evaluation of the feasibility of landfill expansion	1980
WMPA constructed groundwater dam and southern portion of landfill leachate collection system	1980
WMPA constructed soil erosion and sediment control system	1982-1987
WMPA connected the groundwater/leachate collection system to the Upper Shenango Valley Water Pollution Control Authority wastewater treatment plant sewer line and closed the landfill leachate lagoon	1983
Upper Shenango Valley Water Pollution Control Authority and WMPA signed an agreement that defined loading limits for discharge to the municipal sewer	March 1, 1983
PADEP issued the final Solid Waste Disposal Permit for the landfill	November 30, 1984
EPA conducted site investigation to evaluate potential hazards posed by the Site	1985
Upper Shenango Valley Water Pollution Control Authority and WMPA signed an addendum to the discharge permit, which revised the discharge loading limits	March 12, 1985
WMPA completed construction of the landfill leachate collection system	1986
Landfill ceased receiving waste	May 31, 1986
WMPA covered the landfill portion of the Site with approximately 3 feet of cover material and vegetated it in accordance with existing PADEP regulations	1986-1987
WMPA completed landfill leachate collection system upgrades, including a 21,000-gallon landfill leachate storage tank	1987
WMPA constructed a berm limiting surface water run-on; improved erosion control by adding terraces on the landfill and diversion structures; and fenced the entire Site	1988
PADEP approved the Site Closure Certification and Post-Closure Plan	November 30, 1988
EPA listed the Site on the National Priorities List	October 4, 1989
EPA issued Administrative Order by Consent to WMPA to conduct remedial investigation and feasibility study	May 5, 1990
WMPA’s contractor conducted the remedial investigation	1991-1993
Bernard and Mary Ann David conveyed the deed for the site property to WMPA	March 9, 1994
WMPA completed the remedial investigation report and the human health and ecological risk assessments	March 1995
EPA issued the Site’s ROD and the Site attained the “construction complete” milestone	December 29, 1995
WMPA upgraded the landfill leachate collection system	1997
EPA issued an Explanation of Significant Differences to correct the cost estimate presented in the 1995 ROD	May 10, 1999
EPA and PRPs entered into a Consent Decree	May 25, 2000
WMPA recorded a Grant of Easement and a Declaration of Environmental Restrictions for the site property prohibiting installation of groundwater wells for potable purposes, excavation of soil cap that would expose contaminants and construction of residential dwellings	July 25, 2000

Event	Date
EPA approved the monitoring program, which includes adjustment of leachate elevation to be consistent with PADEP operating permit	2002
EPA deleted the Site from the National Priorities List	January 29, 2004
EPA issued the Site's first FYR Report	September 30, 2004
EPA issued the Site's second FYR Report	September 28, 2009
City of Sharon Sanitary Authority issued an Industrial User Wastewater Discharge Permit to WMPA	December 3, 2013
EPA issued the Site's third FYR Report	September 26, 2014
City of Sharon Sanitary Authority issued an Industrial User Wastewater Discharge Permit to WMPA	December 10, 2017

## APPENDIX C – PRESS NOTICE

# EPA PUBLIC NOTICE

## EPA REVIEWS CLEANUP RIVER ROAD LANDFILL SUPERFUND SITE

The U.S. Environmental Protection Agency (EPA) is reviewing the cleanup that was conducted at the River Road Landfill Superfund Site located in Hermitage, Pennsylvania. EPA inspects sites regularly to ensure that cleanups conducted remain protective of public health and the environment. EPA's previous review of the site in 2014 concluded that the remedy was working as designed and is protective. Findings from the current review will be available in September 2019.

**To access detailed site information, including the review report once finalized, visit:** <https://www.epa.gov/superfund/riverroad>

**For questions or to provide site-related information for the review, contact:** Lavar Thomas, EPA Community Involvement Coordinator, at 215-814-5535 or [thomas.lavar@epa.gov](mailto:thomas.lavar@epa.gov)

## APPENDIX D – SITE INSPECTION CHECKLIST

<b>FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST</b>																																																																			
<b>I. SITE INFORMATION</b>																																																																			
<b>Site Name:</b> <u>River Road Landfill (Waste Management, Inc.)</u>	<b>Date of Inspection:</b> <u>04/16/2019</u>																																																																		
<b>Location and Region:</b> <u>Hermitage, PA; Region 3</u>	<b>EPA ID:</b> <u>PAD000439083</u>																																																																		
<b>Agency, Office or Company Leading the Five-Year Review:</b> <u>EPA Region 3</u>	<b>Weather/Temperature:</b> <u>50°F, mostly cloudy</u>																																																																		
<b>Remedy Includes:</b> (Check all that apply) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Landfill cover/containment  <input checked="" type="checkbox"/> Access controls  <input checked="" type="checkbox"/> Institutional controls  <input type="checkbox"/> Groundwater pump and treatment  <input type="checkbox"/> Surface water collection and treatment  <input checked="" type="checkbox"/> Other: <u>collection of groundwater and leachate with treatment at local wastewater treatment plant</u> </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Monitored natural attenuation  <input checked="" type="checkbox"/> Groundwater containment  <input checked="" type="checkbox"/> Vertical barrier walls                 </td> </tr> </table>		<input checked="" type="checkbox"/> Landfill cover/containment <input checked="" type="checkbox"/> Access controls <input checked="" type="checkbox"/> Institutional controls <input type="checkbox"/> Groundwater pump and treatment <input type="checkbox"/> Surface water collection and treatment <input checked="" type="checkbox"/> Other: <u>collection of groundwater and leachate with treatment at local wastewater treatment plant</u>	<input type="checkbox"/> Monitored natural attenuation <input checked="" type="checkbox"/> Groundwater containment <input checked="" type="checkbox"/> Vertical barrier walls																																																																
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<b>Attachments:</b> <input checked="" type="checkbox"/> Inspection team roster attached <input type="checkbox"/> Site map attached																																																																			
<b>II. INTERVIEWS (check all that apply)</b>																																																																			
<b>1. O&amp;M Site Manager</b> _____ <div style="display: flex; justify-content: space-between; width: 80%; margin-left: 10%;"> <span>Name</span> <span>Title</span> <span>Date</span> </div> Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone    Phone: _____ Problems, suggestions <input type="checkbox"/> Report attached: _____																																																																			
<b>2. O&amp;M Staff</b> _____ <div style="display: flex; justify-content: space-between; width: 80%; margin-left: 10%;"> <span>Name</span> <span>Title</span> <span>Date</span> </div> Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone    Phone: _____ Problems/suggestions <input type="checkbox"/> Report attached: _____																																																																			
<b>3. Local Regulatory Authorities and Response Agencies</b> (i.e., state and tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices). Fill in all that apply.  <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">Agency _____</td> <td style="width: 15%;">Contact _____</td> <td style="width: 15%;">Name _____</td> <td style="width: 15%;">Title _____</td> <td style="width: 15%;">Date _____</td> <td style="width: 15%;">Phone No. _____</td> </tr> <tr> <td colspan="6">Problems/suggestions <input type="checkbox"/> Report attached: _____</td> </tr> <tr><td colspan="6"> </td></tr> <tr> <td>Agency _____</td> <td>Contact _____</td> <td>Name _____</td> <td>Title _____</td> <td>Date _____</td> <td>Phone No. _____</td> </tr> <tr> <td colspan="6">Problems/suggestions <input type="checkbox"/> Report attached: _____</td> </tr> <tr><td colspan="6"> </td></tr> <tr> <td>Agency _____</td> <td>Contact _____</td> <td>Name _____</td> <td>Title _____</td> <td>Date _____</td> <td>Phone No. _____</td> </tr> <tr> <td colspan="6">Problems/suggestions <input type="checkbox"/> Report attached: _____</td> </tr> <tr><td colspan="6"> </td></tr> <tr> <td>Agency _____</td> <td>Contact _____</td> <td>Name _____</td> <td>Title _____</td> <td>Date _____</td> <td>Phone No. _____</td> </tr> <tr> <td colspan="6">Problems/suggestions <input type="checkbox"/> Report attached: _____</td> </tr> </table>		Agency _____	Contact _____	Name _____	Title _____	Date _____	Phone No. _____	Problems/suggestions <input type="checkbox"/> Report attached: _____												Agency _____	Contact _____	Name _____	Title _____	Date _____	Phone No. _____	Problems/suggestions <input type="checkbox"/> Report attached: _____												Agency _____	Contact _____	Name _____	Title _____	Date _____	Phone No. _____	Problems/suggestions <input type="checkbox"/> Report attached: _____												Agency _____	Contact _____	Name _____	Title _____	Date _____	Phone No. _____	Problems/suggestions <input type="checkbox"/> Report attached: _____					
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Agency _____	Contact _____	Name _____	Title _____	Date _____	Phone No. _____																																																														
Problems/suggestions <input type="checkbox"/> Report attached: _____																																																																			
<b>4. Other Interviews (optional)</b> <input type="checkbox"/> Report attached: _____																																																																			

<b>III. ON-SITE DOCUMENTS AND RECORDS VERIFIED</b> (check all that apply)					
1.	<b>O&amp;M Documents</b>	<input checked="" type="checkbox"/> O&M manual	<input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input type="checkbox"/> N/A
		<input type="checkbox"/> As-built drawings	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
		<input checked="" type="checkbox"/> Maintenance logs	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
Remarks: _____					
2.	<b>Site-Specific Health and Safety Plan</b>		<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Contingency plan/emergency response plan		<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
Remarks: _____					
3.	<b>O&amp;M and OSHA Training Records</b>		<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
Remarks: _____					
4.	<b>Permits and Service Agreements</b>				
	<input type="checkbox"/> Air discharge permit		<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Effluent discharge		<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input checked="" type="checkbox"/> Waste disposal, POTW		<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
	<input type="checkbox"/> Other permits: _____		<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
Remarks: _____					
5.	<b>Gas Generation Records</b>		<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
Remarks: _____					
6.	<b>Settlement Monument Records</b>		<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
Remarks: _____					
7.	<b>Groundwater Monitoring Records</b>		<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
Remarks: _____					
8.	<b>Leachate Extraction Records</b>		<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
Remarks: _____					
9.	<b>Discharge Compliance Records</b>				
	<input type="checkbox"/> Air		<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
	<input type="checkbox"/> Water (effluent)		<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
Remarks: _____					
10.	<b>Daily Access/Security Logs</b>		<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
Remarks: _____					

**IV. O&M COSTS**

**1. O&M Organization**

- |  |  |
|--|--|
| <input type="checkbox"/> State in-house            | <input type="checkbox"/> Contractor for state            |
| <input type="checkbox"/> PRP in-house              | <input checked="" type="checkbox"/> Contractor for PRP   |
| <input type="checkbox"/> Federal facility in-house | <input type="checkbox"/> Contractor for Federal facility |
| <input type="checkbox"/> _____                     |  |

**2. O&M Cost Records**

- |   |   |
|---|---|
| <input type="checkbox"/> Readily available                    | <input type="checkbox"/> Up to date             |
| <input type="checkbox"/> Funding mechanism/agreement in place | <input checked="" type="checkbox"/> Unavailable |

Original O&M cost estimate: \_\_\_\_\_  Breakdown attached

Total annual cost by year for review period if available

From: _____	To: _____	_____	<input type="checkbox"/> Breakdown attached
Date	Date	Total cost	
From: _____	To: _____	_____	<input type="checkbox"/> Breakdown attached
Date	Date	Total cost	
From: _____	To: _____	_____	<input type="checkbox"/> Breakdown attached
Date	Date	Total cost	
From: _____	To: _____	_____	<input type="checkbox"/> Breakdown attached
Date	Date	Total cost	
From: _____	To: _____	_____	<input type="checkbox"/> Breakdown attached
Date	Date	Total cost	

**3. Unanticipated or Unusually High O&M Costs during Review Period**

Describe costs and reasons: \_\_\_\_\_

**V. ACCESS AND INSTITUTIONAL CONTROLS**     Applicable     N/A

**A. Fencing**

- 1. Fencing Damaged**     Location shown on site map     Gates secured     N/A  
 Remarks: fence has many holes; down limbs on fence; vegetation growing through fence; unlocked gate

**B. Other Access Restrictions**

- 1. Signs and Other Security Measures**     Location shown on site map     N/A  
 Remarks: signs are missing or illegible

<b>C. Institutional Controls (ICs)</b>			
<b>1. Implementation and Enforcement</b>			
Site conditions imply ICs not properly implemented	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
Site conditions imply ICs not being fully enforced	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
Type of monitoring (e.g., self-reporting, drive by): <u>FYR site inspections</u>			
Frequency: <u>every five years</u>			
Responsible party/agency: <u>EPA</u>			
Contact	<u>Mark Conaron</u>	<u>remedial project manager</u>	_____
	Name	Title	Date
Reporting is up to date	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Reports are verified by the lead agency	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Specific requirements in deed or decision documents have been met	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Violations have been reported	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
Other problems or suggestions: <input type="checkbox"/> Report attached			
<b>2. Adequacy</b>	<input checked="" type="checkbox"/> ICs are adequate	<input type="checkbox"/> ICs are inadequate	<input type="checkbox"/> N/A
Remarks: _____			
<b>D. General</b>			
<b>1. Vandalism/Trespassing</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No vandalism evident	
Remarks: <u>Stolen truck crashed through site fence, driven across site and abandoned in 2018; fence has been repaired; no evident damage to landfill cover or other remedial features.</u>			
<b>2. Land Use Changes On Site</b>	<input checked="" type="checkbox"/> N/A		
Remarks: _____			
<b>3. Land Use Changes Off Site</b>	<input checked="" type="checkbox"/> N/A		
Remarks: _____			
<b>VI. GENERAL SITE CONDITIONS</b>			
<b>A. Roads</b>	<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A	
<b>1. Roads Damaged</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Roads adequate	<input type="checkbox"/> N/A
Remarks: _____			
<b>B. Other Site Conditions</b>			
Remarks: _____			
<b>VII. LANDFILL COVERS</b>			
<input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
<b>A. Landfill Surface</b>			
<b>1. Settlement (low spots)</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Settlement not evident	
Area extent: _____		Depth: _____	
Remarks: _____			

2.	<b>Cracks</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Cracking not evident
	Lengths: _____	Widths: _____	Depths: _____
	Remarks: _____		
3.	<b>Erosion</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Erosion not evident
	Area extent: _____		Depth: _____
	Remarks: _____		
4.	<b>Holes</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Holes not evident
	Area extent: _____		Depth: _____
	Remarks: <u>No groundhog burrows were observed; a few smaller burrows were present.</u>		
5.	<b>Vegetative Cover</b>	<input checked="" type="checkbox"/> Grass	<input checked="" type="checkbox"/> Cover properly established
	<input checked="" type="checkbox"/> No signs of stress	<input type="checkbox"/> Trees/shrubs (indicate size and locations on a diagram)	
	Remarks: _____		
6.	<b>Alternative Cover</b> (e.g., armored rock, concrete)		<input checked="" type="checkbox"/> N/A
	Remarks: _____		
7.	<b>Bulges</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Bulges not evident
	Area extent: _____		Height: _____
	Remarks: _____		
8.	<b>Wet Areas/Water Damage</b>	<input type="checkbox"/> Wet areas/water damage not evident	
	<input checked="" type="checkbox"/> Wet areas	<input type="checkbox"/> Location shown on site map	Area extent: _____
	<input checked="" type="checkbox"/> Ponding	<input type="checkbox"/> Location shown on site map	Area extent: _____
	<input type="checkbox"/> Seeps	<input type="checkbox"/> Location shown on site map	Area extent: _____
	<input type="checkbox"/> Soft subgrade	<input type="checkbox"/> Location shown on site map	Area extent: _____
	Remarks: <u>Ponding was present on the landfill's plateau in April 2019.</u>		
9.	<b>Slope Instability</b>	<input type="checkbox"/> Slides	<input type="checkbox"/> Location shown on site map
	<input checked="" type="checkbox"/> No evidence of slope instability		
	Area extent: _____		
	Remarks: _____		
<b>B. Benches</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)			
1.	<b>Flows Bypass Bench</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> N/A or okay
	Remarks: _____		
2.	<b>Bench Breached</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> N/A or okay
	Remarks: _____		
3.	<b>Bench Overtopped</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> N/A or okay
	Remarks: _____		

<b>C. Letdown Channels</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
(Channel lined with erosion control mats, riprap, grout bags or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)			
1.	<b>Settlement</b> (Low spots)	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> No evidence of settlement
	Area extent: _____		Depth: _____
	Remarks: _____		
2.	<b>Material Degradation</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> No evidence of degradation
	Material type: _____		Area extent: _____
	Remarks: _____		
3.	<b>Erosion</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> No evidence of erosion
	Area extent: _____		Depth: _____
	Remarks: _____		
4.	<b>Undercutting</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> No evidence of undercutting
	Area extent: _____		Depth: _____
	Remarks: _____		
5.	<b>Obstructions</b>	Type: _____	<input checked="" type="checkbox"/> No obstructions
	<input type="checkbox"/> Location shown on site map	Area extent: _____	
	Size: _____		
	Remarks: _____		
6.	<b>Excessive Vegetative Growth</b>	Type: _____	
	<input checked="" type="checkbox"/> No evidence of excessive growth		
	<input type="checkbox"/> Vegetation in channels does not obstruct flow		
	<input type="checkbox"/> Location shown on site map	Area extent: _____	
	Remarks: _____		
<b>D. Cover Penetrations</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
1.	<b>Gas Vents</b>	<input type="checkbox"/> Active	<input type="checkbox"/> Passive
	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Needs maintenance	<input checked="" type="checkbox"/> N/A
	Remarks: _____		
2.	<b>Gas Monitoring Probes</b>		
	<input type="checkbox"/> Properly secured/locked	<input checked="" type="checkbox"/> Functioning	<input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition
	<input type="checkbox"/> Evidence of leakage at penetration	<input type="checkbox"/> Needs maintenance	<input type="checkbox"/> N/A
	Remarks: _____		

3.	<b>Monitoring Wells</b> (within surface area of landfill)	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled	<input type="checkbox"/> Good condition
		<input type="checkbox"/> Evidence of leakage at penetration		<input type="checkbox"/> Needs maintenance	<input checked="" type="checkbox"/> N/A
	Remarks: _____				
4.	<b>Extraction Wells Leachate</b>	<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled	<input type="checkbox"/> Good condition
		<input type="checkbox"/> Evidence of leakage at penetration		<input type="checkbox"/> Needs maintenance	<input checked="" type="checkbox"/> N/A
	Remarks: _____				
5.	<b>Settlement Monuments</b>	<input type="checkbox"/> Located	<input type="checkbox"/> Routinely surveyed	<input checked="" type="checkbox"/> N/A	
	Remarks: _____				
<b>E. Gas Collection and Treatment</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A		
1.	<b>Gas Treatment Facilities</b>	<input type="checkbox"/> Flaring	<input type="checkbox"/> Thermal destruction	<input type="checkbox"/> Collection for reuse	
		<input type="checkbox"/> Good condition	<input type="checkbox"/> Needs maintenance		
	Remarks: _____				
2.	<b>Gas Collection Wells, Manifolds and Piping</b>	<input type="checkbox"/> Good condition	<input type="checkbox"/> Needs maintenance		
	Remarks: _____				
3.	<b>Gas Monitoring Facilities</b> (e.g., gas monitoring of adjacent homes or buildings)	<input type="checkbox"/> Good condition	<input type="checkbox"/> Needs maintenance	<input type="checkbox"/> N/A	
	Remarks: _____				
<b>F. Cover Drainage Layer</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A		
1.	<b>Outlet Pipes Inspected</b>	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A		
	Remarks: _____				
2.	<b>Outlet Rock Inspected</b>	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A		
	Remarks: _____				
<b>G. Detention/Sedimentation Ponds</b>		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A		
1.	<b>Siltation</b>	Area extent: _____	Depth: _____	<input type="checkbox"/> N/A	
	<input checked="" type="checkbox"/> Siltation not evident				
	Remarks: _____				
2.	<b>Erosion</b>	Area extent: _____	Depth: _____		
	<input checked="" type="checkbox"/> Erosion not evident				
	Remarks: _____				
3.	<b>Outlet Works</b>	<input checked="" type="checkbox"/> Functioning	<input type="checkbox"/> N/A		
	Remarks: _____				

4.	<b>Dam</b>	<input checked="" type="checkbox"/> Functioning	<input type="checkbox"/> N/A
Remarks: _____			
<b>H. Retaining Walls</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	<b>Deformations</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Deformation not evident
Horizontal displacement: _____		Vertical displacement: _____	
Rotational displacement: _____			
Remarks: _____			
2.	<b>Degradation</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Degradation not evident
Remarks: _____			
<b>I. Perimeter Ditches/Off-Site Discharge</b>		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	<b>Siltation</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Siltation not evident
Area extent: _____		Depth: _____	
Remarks: _____			
2.	<b>Vegetative Growth</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Vegetation does not impede flow			
Area extent: _____		Type: _____	
Remarks: _____			
3.	<b>Erosion</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Erosion not evident
Area extent: _____		Depth: _____	
Remarks: _____			
4.	<b>Discharge Structure</b>	<input checked="" type="checkbox"/> Functioning	<input type="checkbox"/> N/A
Remarks: _____			
<b>VIII. VERTICAL BARRIER WALLS</b>		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	<b>Settlement</b>	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Settlement not evident
Area extent: _____		Depth: _____	
Remarks: _____			
2.	<b>Performance Monitoring</b>	Type of monitoring: _____	
<input checked="" type="checkbox"/> Performance not monitored			
Frequency: _____		<input type="checkbox"/> Evidence of breaching	
Head differential: _____			
Remarks: _____			
<b>IX. GROUNDWATER/SURFACE WATER REMEDIES</b>		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
<b>A. Groundwater Extraction Wells, Pumps and Pipelines</b>		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1.	<b>Pumps, Wellhead Plumbing and Electrical</b>		
<input type="checkbox"/> Good condition		<input type="checkbox"/> All required wells properly operating	<input type="checkbox"/> Needs maintenance
		<input checked="" type="checkbox"/> N/A	
Remarks: _____			

<p>2. <b>Extraction System Pipelines, Valves, Valve Boxes and Other Appurtenances</b></p> <p><input type="checkbox"/> Good condition      <input checked="" type="checkbox"/> Needs maintenance</p> <p>Remarks: <u>There seems to be a blockage in the leachate pipeline east of MHOL-1, causing leachate to overflow from two leachate collection manholes.</u></p>
<p>3. <b>Spare Parts and Equipment</b></p> <p><input type="checkbox"/> Readily available    <input type="checkbox"/> Good condition      <input type="checkbox"/> Requires upgrade      <input type="checkbox"/> Needs to be provided</p> <p>Remarks: _____</p>
<p><b>B. Surface Water Collection Structures, Pumps and Pipelines</b>      <input type="checkbox"/> Applicable      <input checked="" type="checkbox"/> N/A</p>
<p>1. <b>Collection Structures, Pumps and Electrical</b></p> <p><input type="checkbox"/> Good condition      <input type="checkbox"/> Needs maintenance</p> <p>Remarks: _____</p>
<p>2. <b>Surface Water Collection System Pipelines, Valves, Valve Boxes and Other Appurtenances</b></p> <p><input type="checkbox"/> Good condition      <input type="checkbox"/> Needs maintenance</p> <p>Remarks: _____</p>
<p>3. <b>Spare Parts and Equipment</b></p> <p><input type="checkbox"/> Readily available    <input type="checkbox"/> Good condition      <input type="checkbox"/> Requires upgrade      <input type="checkbox"/> Needs to be provided</p> <p>Remarks: _____</p>
<p><b>C. Treatment System</b>      <input checked="" type="checkbox"/> Applicable      <input type="checkbox"/> N/A</p>
<p>1. <b>Treatment Train</b> (check components that apply)</p> <p><input type="checkbox"/> Metals removal      <input type="checkbox"/> Oil/water separation      <input type="checkbox"/> Bioremediation</p> <p><input type="checkbox"/> Air stripping      <input type="checkbox"/> Carbon adsorbers</p> <p><input type="checkbox"/> Filters: _____</p> <p><input type="checkbox"/> Additive (e.g., chelation agent, flocculent): _____</p> <p><input checked="" type="checkbox"/> Others: <u>Leachate is collected and discharged to sanitary sewer for treatment at wastewater treatment plant.</u></p> <p><input checked="" type="checkbox"/> Good condition      <input type="checkbox"/> Needs maintenance</p> <p><input type="checkbox"/> Sampling ports properly marked and functional</p> <p><input type="checkbox"/> Sampling/maintenance log displayed and up to date</p> <p><input type="checkbox"/> Equipment properly identified</p> <p><input checked="" type="checkbox"/> Quantity of groundwater treated annually: <u>15 million gallons in 2018</u></p> <p><input type="checkbox"/> Quantity of surface water treated annually: _____</p> <p>Remarks: _____</p>
<p>2. <b>Electrical Enclosures and Panels</b> (properly rated and functional)</p> <p><input type="checkbox"/> N/A      <input checked="" type="checkbox"/> Good condition      <input type="checkbox"/> Needs maintenance</p> <p>Remarks: _____</p>

<p>3. <b>Tanks, Vaults, Storage Vessels</b></p> <p><input type="checkbox"/> N/A      <input checked="" type="checkbox"/> Good condition      <input type="checkbox"/> Proper secondary containment      <input type="checkbox"/> Needs maintenance</p> <p>Remarks: _____</p>
<p>4. <b>Discharge Structure and Appurtenances</b></p> <p><input type="checkbox"/> N/A      <input checked="" type="checkbox"/> Good condition      <input type="checkbox"/> Needs maintenance</p> <p>Remarks: _____</p>
<p>5. <b>Treatment Building(s)</b></p> <p><input type="checkbox"/> N/A      <input type="checkbox"/> Good condition (esp. roof and doorways)      <input checked="" type="checkbox"/> Needs repair</p> <p><input type="checkbox"/> Chemicals and equipment properly stored</p> <p>Remarks: <u>Electric building's locking clasp is rusted, needs to be replaced.</u></p>
<p>6. <b>Monitoring Wells</b> (pump and treatment remedy)</p> <p><input type="checkbox"/> Properly secured/locked      <input type="checkbox"/> Functioning      <input type="checkbox"/> Routinely sampled      <input type="checkbox"/> Good condition</p> <p><input type="checkbox"/> All required wells located      <input type="checkbox"/> Needs maintenance      <input checked="" type="checkbox"/> N/A</p> <p>Remarks: _____</p>
<p><b>D. Monitoring Data</b></p>
<p>1. <b>Monitoring Data</b></p> <p><input checked="" type="checkbox"/> Is routinely submitted on time      <input checked="" type="checkbox"/> Is of acceptable quality</p>
<p>2. <b>Monitoring Data Suggests:</b></p> <p><input checked="" type="checkbox"/> Groundwater plume is effectively contained      <input type="checkbox"/> Contaminant concentrations are declining</p>
<p><b>E. Monitored Natural Attenuation</b></p>
<p>1. <b>Monitoring Wells</b> (natural attenuation remedy)</p> <p><input type="checkbox"/> Properly secured/locked      <input type="checkbox"/> Functioning      <input type="checkbox"/> Routinely sampled      <input type="checkbox"/> Good condition</p> <p><input type="checkbox"/> All required wells located      <input type="checkbox"/> Needs maintenance      <input checked="" type="checkbox"/> N/A</p> <p>Remarks: _____</p>
<p style="text-align: center;"><b>X. OTHER REMEDIES</b></p>
<p>If there are remedies applied at the site and not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.</p>
<p style="text-align: center;"><b>XI. OVERALL OBSERVATIONS</b></p>
<p><b>A. Implementation of the Remedy</b></p> <p>Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is designed to accomplish (e.g., to contain contaminant plume, minimize infiltration and gas emissions).</p> <p><u>The remedy is intended to contain contaminated groundwater and leachate, and to prevent exposure to contaminated groundwater and sediment. The landfill's cap and surface water drainage system are in good condition and continue to function as intended. An institutional control prohibits using groundwater at the Site, residential use of the Site and disturbing the soil cap. The groundwater/leachate collection system needs to be repaired. During the April 2019 FYR site inspection, EPA observed that the groundwater/leachate collection system was overflowing from two manholes, indicating that there is likely a blockage in the leachate pipeline. Over the past five years, the iron concentration in the Site's discharge regularly exceeded the discharge limit in WMPA's 2017 Industrial User Wastewater Discharge Permit.</u></p> <p><u>It is not clear whether the extent of groundwater contamination has been fully delineated. Since the 1990s, the easternmost monitoring well (MW-103A) has regularly had elevated levels of arsenic, iron and</u></p>

<p><u>manganese. EPA will consider whether additional delineation of the extent of groundwater contamination is needed and/or whether an institutional control is needed to prevent use of groundwater on properties directly east of the landfill.</u></p> <p><u>WMPA collected surface water and sediment samples in November 2015. Various analytes exceeded EPA Region 3 BTAG screening levels and/or PADEP water quality standards. However, in general, concentrations detected in surface water and sediment adjacent and downstream of the Site were similar to concentrations detected upstream of the Site.</u></p>
<p><b>B. Adequacy of O&amp;M</b></p> <p>Describe issues and observations related to the implementation and scope of O&amp;M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.</p> <p><u>WMPA conducts O&amp;M activities, which include operating the groundwater/leachate collection system and maintaining the landfill cap, the surface water drainage system, and the security fence. WMPA conducts quarterly monitoring events, which include sampling groundwater, leachate and landfill gas.</u></p>
<p><b>C. Early Indicators of Potential Remedy Problems</b></p> <p>Describe issues and observations such as unexpected changes in the cost or scope of O&amp;M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.</p> <p><u>The groundwater/leachate collection system needs to be repaired. During the April 2019 FYR site inspection, EPA observed that the groundwater/leachate collection system was overflowing from two manholes, indicating that there is likely a blockage in the leachate pipeline.</u></p>
<p><b>D. Opportunities for Optimization</b></p> <p>Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.</p> <p><u>WMPA has submitted a Demonstration Work Plan to EPA and PADEP that proposes to stop discharging leachate to the wastewater treatment plant and instead allow leachate to naturally discharge into the Shenango River. EPA is working with PADEP and the U.S. Fish and Wildlife Service to determine whether revising the Site's remedy in this way would be protective of human health and the environment, including endangered species in the river.</u></p>

Site inspection participants:

Mark Conaron, EPA RPM  
Lavar Thomas, EPA community involvement coordinator  
Bruce Pluta, EPA BTAG  
Jacob Moore, PADEP project manager  
Glen Schultz, WMPA  
Erica Love, Tetra Tech (WMPA contractor)  
Hagai Nassau, Skeo (EPA FYR support contractor)

## APPENDIX E – SITE INSPECTION PHOTOS



Top of landfill



Ponding on top of landfill



Ponding on top of landfill



Oily sheen on puddles next to overflowing leachate manhole



High level of leachate/groundwater in leachate manhole (unlocked)



Orange staining adjacent to overflowing leachate manhole



Locked front entrance gate



Fence repaired after vehicle crashed through it



Unlocked side gate



One of several holes in fence



Vegetation growing adjacent and through fence



Sedimentation Basin B



Shenango River adjacent to the Site



Stolen pickup truck abandoned on site



Recently repaired monitoring well LH03 (unlocked)

# APPENDIX F – 2000 DECLARATION OF ENVIRONMENTAL RESTRICTIONS

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2000 JUL 25 A 10 26

00 DR 11117

## DECLARATION OF ENVIRONMENTAL RESTRICTIONS

This Declaration of Environmental Restrictions (the "Declaration") is made as of the 11<sup>th</sup> day of July, 2000 by WASTE MANAGEMENT OF PENNSYLVANIA, INC., a Pennsylvania corporation having an address of 1000 New Ford Mill Road, Morrisville, Pennsylvania, 19067 (hereinafter referred to as the "Owner").

### Background

Owner is the owner in fee simple of certain real property situate in the City of Hermitage and Pymatuning Township, Mercer County, Pennsylvania, being more particularly described on Exhibit "A" attached hereto and made a part hereof (the "Property"). The Property is commonly known as the "River Road Landfill Site".

The Property has been identified by the United States Environmental Protection Agency (together with any successor agency or department, the "Agency") as containing certain hazardous substances (the "Contaminants"), as more specifically detailed in the Remedial Investigation and Feasibility Study documents prepared by the Owner at the direction of the Agency and the Record of Decision issued by the Agency on December 29, 1995 pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, and as further modified and approved by the Agency and the Pennsylvania Department of Environmental Protection (the "ROD"). The ROD set forth certain measures which were designed to remediate contamination and reduce the potential for danger to humans and the environment arising from the presence of the Contaminants on the Property. With the approval of the Agency, the Owner implemented the ROD.

In accordance with the requirements of the ROD, the Owner has agreed to subject the Property to certain restrictions relating to the use thereof and activities permitted thereon, as is more specifically set forth below.

NOW, THEREFORE, Owner declares, for the benefit of the Agency, that the Property and any part thereof, is and shall hereafter be held, transferred, sold, conveyed and occupied subject to the restrictions hereinafter set forth, all of which shall run with the land and shall be binding upon all parties having or acquiring any interest whatsoever in the Property or any part thereof.

1. Restricted Uses. The Property may be used for any beneficial use, provided that: (a) such beneficial use would not pose a risk to human health or potential ecological receptors, and (b) the construction of residential buildings on the Property is prohibited. Such residential construction shall not be deemed to include any buildings not intended for human living space (i.e., barns, garages or the like are permitted).

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2. Restrictions on Excavation. Owner shall not make, nor allow to be made, any excavation or disturbance to the Soil Cap which results in the exposure of the Contaminants, without the prior approval of the regulatory agency(ies). As used herein, the term "Soil Cap" refers to the solid waste landfill cap and integrated surface water drainage system which is currently installed on the Property for the purpose of containing the Contaminants.

3. Restrictions on the Installation and Use of Wells. Owner shall not install, or permit the installation or use of, any well(s) at the Property, and specifically not within the area hydraulically downgradient of the landfill between the landfilled area and the Shenango River, from and after the date hereof, for domestic purposes including the supplying of drinking water for human or animal consumption; except, however, that wells may be installed for the purpose of obtaining water quality samples, gathering hydrogeologic information, for other investigatory purposes, or as otherwise approved by the regulatory agency(ies).

4. Notice to Subsequent Holders of Interest. Owner shall cause all leases, grants, and other written transfers of interest by the Owner in the Property to contain a provision expressly requiring the holder thereof, its successors and assigns, to take such interest subject to the provisions of this Declaration, and setting forth the deed book and page of recording of this Declaration.

5. Termination and Modification. This Declaration may be terminated or modified as to any portion of the Property only upon the filing of an instrument executed by the Owner of such portion in the Office of the Recorder of Deeds of Mercer County, Pennsylvania, expressly terminating or modifying this Declaration, and only after approval by the regulatory agency(ies).

6. Severability. Invalidation of any one of these restrictions by judgment or court order shall in no way affect any other provisions which shall remain in full force and effect.

7. No Third Party Benefit. This Declaration is made and entered into for the benefit of the Agency, and no other persons or entities will have any right of action under this Declaration or any right against the Owner by reason of this Declaration.

8. Liability of Owner after Transfer. Upon the transfer of all or any portion of the Property, the Owner so transferring shall not have any further liability for any violation of the restrictions contained herein on the portion sold which shall occur after the date of the conveyance.

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IN WITNESS WHEREOF, the Owner has executed this Declaration as of the date first written above.

WASTE MANAGEMENT OF PENNSYLVANIA, INC., a Pennsylvania corporation

Attest: Susan DeLande  
Print Name: Susan DeLande  
Print Title: \_\_\_\_\_

By: Stephen T. Joyce  
Print Name: Stephen T. Joyce  
Print Title: Area Director-Closed Sites

State of New Hampshire  
COMMONWEALTH OF PENNSYLVANIA  
COUNTY OF Rockingham

SS

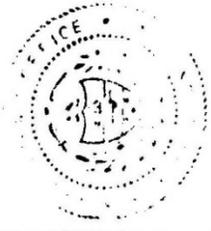
On this, the 17<sup>th</sup> day of July, 2000, before me, a Notary Public in and for the Commonwealth of Pennsylvania, personally appeared Stephen T. Joyce, known to me (or satisfactorily proven) to be the Area Director-Closed Sites of WASTE MANAGEMENT OF PENNSYLVANIA, INC., a Pennsylvania corporation and acknowledged that he/she as such officer, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the corporation by himself/herself as such officer.

In witness whereof, I hereunto set my hand and official seal.

Sandra Lee Nickerson  
Notary Public  
My commission expires: \_\_\_\_\_  
SANDRA LEE NICKERSON, Justice of the Peace  
My Commission Expires January 9, 2002



COMMONWEALTH OF PENNSYLVANIA  
COUNTY OF MERCER  
RECORDED ON THIS 25<sup>th</sup> DAY OF JULY A.D., 2000.  
IN THE RECORDER'S OFFICE OF MERCER COUNTY AT  
DOCUMENT NUMBER 00 DR 11117  
WITNESS MY HAND AND THE SEAL OF SAID OFFICE,  
THE DAY AND YEAR AFORSAID.  
Rhonda I. McClelland  
RHONDA I. MCCLELLAND, RECORDER



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17.00 Saul (EN)

## EXHIBIT "A"

Legal Description  
River Road Landfill Site  
The "Property"

ALL THAT CERTAIN piece or parcel of land situate partly in the City of Hermitage (formerly Hickory Township) and partly in South Pymatuning Township, Mercer County, Pennsylvania, and bounded and described as follows:

COMMENCING at a point in the center line of River Road a/k/a Pennsylvania Route 486 and a/k/a L.R. 43034 in South Pymatuning Township at the Southwest corner of land of Rose Katherine Polanski, which point is approximately 200 feet northeastwardly along the center line of said road from a 15" culvert crossing said road; thence by an approximate course of south 77 degrees east along the south line of land of Rose Katherine Polanski a distance of 765 feet, more or less, to the southwest corner of lands of John and Elizabeth Kantor; thence by an approximate course of north 89 degrees east along the south line of said land of Kantor a distance of 375 feet, more or less, to a point in the west line of Herbert and Ruth White; thence by an approximate course of south 1 degree east along the west line of said land of White a distance of 750 feet, more or less, to a point at the southwest corner of White and which point is in the dividing line between South Pymatuning Township and Hermitage; thence by an approximate course of north 89 degrees east along the said dividing line between South Pymatuning Township and Hermitage a distance of 615 feet, more or less, to a point; thence southwardly into Hermitage along the west line of lands of Dunham and the west line of lands of the Borough of Sharpsville Sewage Disposal Plant a distance of 870 feet, more or less, to a point in the north bank of the Shenango River; thence southwestwardly along the north bank of the Shenango River a distance of 3,250 feet, more or less, to a point where McCullough Run enters the Shenango River; thence westwardly along the center line of McCullough Run a distance of 350 feet, more or less to a point in the centerline of River Road in the middle of a bridge on said road crossing McCullough Run; thence northeastwardly along the center line of River Road, crossing the dividing line between South Pymatuning Township and Hermitage, a distance of 3,255 feet, more or less, to the place of beginning.

EXCEPTING THEREFROM: Lot 23 in Riverview Estates Plan, Section C, Plan Book 8, Page 12, Fronting 100 feet on River Road with a depth of 200 feet as conveyed to William Stigliano et ux by deed dated July 11, 1962 and recorded in 1962 D.R. 1372; and Lot 24 in Riverview Estates Plan, Section C, fronting 100 feet on River Road with a depth of 200 feet as conveyed to Joseph Teglo et ux dated March 28, 1966 and recorded in 1966 D.R. 800.

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ALSO

ALL THAT CERTAIN piece or parcel of land situate in South Pymatuning Township, Mercer County, Pennsylvania, bounded and described as follows:

BEING a strip of land 6 feet wide extending northward from a parcel of land of which Joseph McMurray, late of said township, died seized, about 618 feet to a public road leading from the Borough of Sharpsville to Byerly's Corners in said township; bounded on the east by land which G.C. Carnes conveyed to W.D. Lees by deed dated April 11, 1892, being the second parcel therein described, on the west by a strip which was heretofore used as a lane or alley for ingress and egress to and from other lands; and being the same lands that G.C. Carnes conveyed to the heirs of Joseph McMurray by deed dated April 13, 1892, and recorded in Deed Book V, Volume 5, page 214, in the Recorder's Office of Mercer County, Pennsylvania.

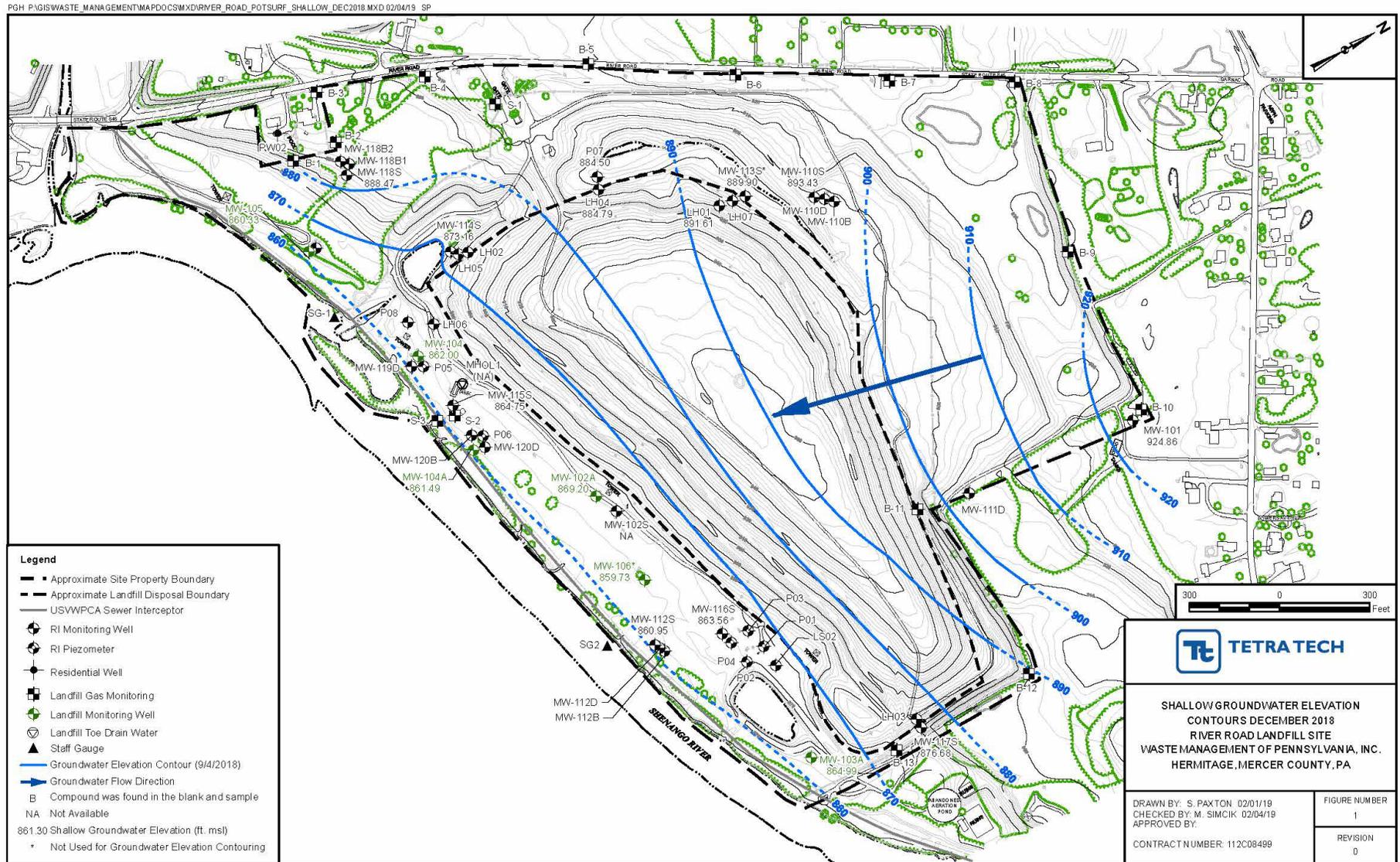
BEING the same premises referred to in the Article of Agreement between Bernard N. David and Mary Ann David and Erie Disposal Co. recorded with the Mercer County Recorder of Deeds on August 18, 1980 in 80 D.R. 2308.

SUBJECT TO: An Agreement for an easement and right of way to Upper Shenango Valley Water Pollution Control Authority dated July 15, 1974 and recorded in 74 DR 2597 which grants a permanent easement 20 feet in width for a sanitary sewer line in a location adjacent to and following the course of the Shenango River; an agreement for an easement to Pennsylvania Power Company dated December 31, 1974 and recorded in 75 DR 0054 which grants an easement for an electric power line erected on towers extending generally from the southwesterly corner of the above described land in a northeasterly direction to the eastern boundary thereof at the Borough of Sharpsville Sewage Disposal Plant.

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# APPENDIX G – DATA ANALYSIS SUPPORTING MATERIAL

Figure G-1: Shallow Groundwater Elevation Contour Map



**Table G-1: 2015 Surface Water Sampling Results**

	Reporting Limit <sup>a</sup>	EPA Region 3 BTAG Surface Water Screening Level <sup>b</sup>	PADEP Chapter 93 Water Quality Standard <sup>c</sup>	RR-SW01	RR-SW02	RR-SW03	RR-SW04	RR-SW05	RR-SW05 (dup)	RR-SW06	RR-SW07	RR-SW08	RR-SW09
				11/5/2015	11/5/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015
<b>Dissolved Metals (µg/L)</b>													
Aluminum	200	87	750	60 U	60 U	60 U	60 U	60 U	60 U				
Arsenic	10	5	150	1.4	1.4	1.4	1.4	1.3	1.3	1.4	1.7	1.3	0.52 J
Barium	200	4	4,100	<b>24</b>	<b>25</b>	<b>24</b>	<b>25</b>	<b>22</b>	<b>22</b>	<b>25</b>	<b>25</b>	<b>21</b>	<b>27</b>
Cadmium	5	0.25 <sup>d</sup>	0.25 <sup>d</sup>	0.071 U	0.11 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.08 J	0.071 U	0.071 U
Calcium	5,000	116,000	NA	23,600	24,100	24,300	25,100	24,100	24,400	28,400	25,100	26,300	76,200
Chromium	10	74 <sup>d,e</sup>	74 <sup>d,e</sup>	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Copper	25	9 <sup>d</sup>	9 <sup>d</sup>	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U				
Iron	100	300	1,500	19 U	19 U	19 U	19 U	55	19 U				
Lead	5	2.5 <sup>d</sup>	2.5 <sup>d</sup>	<b>3 U</b>	<b>3 U</b>	<b>3 U</b>	<b>3 U</b>	<b>3 U</b>	<b>3 U</b>				
Magnesium	5,000	82,000	NA	5,400	5,500	5,700	5,900	5,700	5,800	6,400	5,800	6,900	15,700
Manganese	15	120	1,000	0.73 J	0.68 J	2.6 J	10	1.7 J	1.7 J	6.7	28	2.2 J	6.7
Nickel	1.26	52 <sup>d</sup>	52 <sup>d</sup>	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U				
Potassium	5,000	53,000	NA	2,400	2,500	2,600	2,700	2,600	2,600	2,600	2,600	4,600	2,800
Selenium	10	1	4.6	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U				
Silver	25	3.2 <sup>d</sup>	3.2 <sup>d</sup>	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U				
Sodium	5,000	680,000	NA	9,800	9,700	9,900	10,300	9,900	10,000	12,000	9,900	9,000	40,000
Zinc	20	120 <sup>d</sup>	120 <sup>d</sup>	3 J	3.5 J	8.6 U	8.2 U	3.8 U	2.7 U	25	30	1.6 U	1.5 U
<b>Total Metals (µg/L)</b>													
Aluminum	200	87	750	<b>500</b>	<b>270</b>	<b>260</b>	<b>350</b>	<b>1400</b>	<b>1800</b>	<b>170</b>	<b>380</b>	<b>770</b>	60 U
Arsenic	10	5	150 <sup>f</sup>	2.7	2.2	2.1	2.1	3	3.8	2	2.2	2	0.54 J
Barium	200	4	4,100	<b>33</b>	<b>30</b>	<b>28</b>	<b>29</b>	<b>35</b>	<b>40</b>	<b>28</b>	<b>30</b>	<b>27</b>	<b>27</b>
Cadmium	5	0.25 <sup>d</sup>	0.28 <sup>d,f</sup>	0.071 U	0.071 U	0.12 U	0.079 U	0.098 U	0.18 U	0.092 U	0.11 U	0.14 U	0.11 U
Calcium	5,000	116,000	NA	24,900	25,100	24,100	23,900	24,700	24,800	28,600	24,900	26,900	77,700
Chromium	10	74 <sup>d,e</sup>	86 <sup>d,e,f</sup>	1 U	1 U	1 U	1 U	1.5 J	1.9 J	1 U	1 U	1 U	1 U
Copper	25	9 <sup>d</sup>	9.4 <sup>d,f</sup>	1.6 U	1.6 U	1.6 U	1.6 U	3.1 J	3.2 J	1.6 U	1.9 J	1.6 J	1.6 U
Iron	100	300	1,500	<b>890 J</b>	<b>540 J</b>	<b>480 J</b>	<b>570 J</b>	<b>1,900 J</b>	<b>3,000 J</b>	<b>340 J</b>	<b>560 J</b>	<b>1,200 J</b>	120 J

	Reporting Limit <sup>a</sup>	EPA Region 3 BTAG Surface Water Screening Level <sup>b</sup>	PADEP Chapter 93 Water Quality Standard <sup>c</sup>	RR-SW01	RR-SW02	RR-SW03	RR-SW04	RR-SW05	RR-SW05 (dup)	RR-SW06	RR-SW07	RR-SW08	RR-SW09
				11/5/2015	11/5/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015
Lead	5	2.5 <sup>d</sup>	3.16 <sup>d,f</sup>	<b>3 U</b>	<b>3 U</b>	<b>3 U</b>	<b>3.2 J</b>	<b>3 U</b>	<b>4 J</b>	<b>3 U</b>	<b>3 U</b>	<b>3 U</b>	<b>3 U</b>
Magnesium	5,000	82,000	NA	5,800	5,900	5,700	5,700	6,000	6,100	6,500	5,900	7,100	15,900
Manganese	15	120	1,000	<b>240</b>	<b>130</b>	100	110	<b>170</b>	<b>220</b>	88	100	31	28
Mercury	0.2	0.026	0.91 <sup>f</sup>	0.0017	0.0013	0.0037	0.0117	0.0029	0.0025	0.0021	0.0017	0.0028	0.0011
Nickel	1.26	52 <sup>d</sup>	52.2 <sup>d,f</sup>	1.3 U	1.3 U	1.3 U	1.3 U	1.9 J	3.3 J	1.3 U	1.3 U	1.3 U	1.3 U
Potassium	5,000	53,000	NA	2800	2,700	2,600	2,600	3,000	3,000	2,700	2,800	4,800	2,700
Selenium	10	1	5.0 <sup>f</sup>	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
Silver	25	3.2 <sup>d</sup>	3.8 <sup>d,f</sup>	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Sodium	5,000	680,000	NA	9,900	10,000	9,600	9,500	9,800	9,800	11,900	9,900	8,900	40,300
Zinc	20	120 <sup>d</sup>	122 <sup>d,f</sup>	14	18	20	14	28	36	39	42	7.3 J	2.6 J
<b>Miscellaneous Parameters (µg/L)</b>													
Ammonia-N	20	19	1,900 <sup>g</sup>	<b>270</b>	<b>280</b>	<b>220</b>	<b>280</b>	<b>240</b>	<b>230</b>	<b>220</b>	<b>240</b>	<b>21 F1</b>	<b>21</b>
Chloride	420	230,000	250,000	16,800	17,700 B	16,600	16,300	16,300	17,600	21,100	17,100	17,800	80,700
<b>Field Parameters</b>													
pH		6.5-9	6.0-9.0	7.93	7.76	8.03	8.03	8.25	--	7.83	7.9	8.13	8.37
Temperature (°C)				18.5	18.4	18.94	15.89	15.5	--	15.4	13.48	20.05	20.24
Turbidity (NTU)				18	14	15	17	44	--	5.3	12.3	0.3	1.5
Specific Conductance (mS/cm)				0.226	0.239	0.212	0.223	0.226	--	0.509	0.238	0.245	0.686

*Notes:*

Analytical data are from the March 2016 Baseline Sediment and Surface Water Sampling Event Data Submittal, prepared by Tetra Tech for WMPA.

Sampling locations are depicted on Figure 3 of this FYR Report.

**Bolded and shaded values exceeded the EPA Region 3 BTAG Screening Level and/or the PADEP Chapter 93 Water Quality Standard.**

U = The analyte was not detected.

J = The analyte was detected; the concentration reported is an estimated value.

B = Compound was found in the blank and sample.

F1 = Matrix spike and/or matrix spike duplicate recovery is outside acceptance limits.

a) Reporting limits are from Table 2 of the October 2015 Revised Surface Water and Sediment Investigation Work Plan.

b) EPA Region 3 BTAG Freshwater Surface Water Screening Levels were obtained at <https://www.epa.gov/risk/freshwater-screening-benchmarks>. Accessed 3/13/2019.

c) PADEP Chapter 93 Water Quality Standards for fish and aquatic life were obtained at <https://www.pacode.com/secure/data/025/chapter93/chap93toc.html>. Accessed 3/13/2019.

d) Based on hardness of 100 mg/L.

e) Standard for chromium (III).

	<b>Reporting Limit<sup>a</sup></b>	<b>EPA Region 3 BTAG Surface Water Screening Level<sup>b</sup></b>	<b>PADEP Chapter 93 Water Quality Standard<sup>c</sup></b>	<b>RR-SW01</b>	<b>RR-SW02</b>	<b>RR-SW03</b>	<b>RR-SW04</b>	<b>RR-SW05</b>	<b>RR-SW05 (dup)</b>	<b>RR-SW06</b>	<b>RR-SW07</b>	<b>RR-SW08</b>	<b>RR-SW09</b>
				11/5/2015	11/5/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015

f) The number shown here is a criterion for total concentration, which was calculated by dividing the dissolved criterion in Table 5 of §93.8c by the conversion factor in §93.8b.

g) State standard for ammonia is from Table 2 of the October 2015 Revised Surface Water and Sediment Investigation Work Plan.

**Table G-2: 2015 Sediment Sampling Results**

	Reporting Limit <sup>a</sup>	EPA Region 3 BTAG Freshwater Sediment Screening Level <sup>b</sup>	RR-SD01	RR-SD02	RR-SD03	RR-SD04	RR-SD05	RR-SD05 (dup)	RR-SD06	RR-SD07	RR-SD08	RR-SD09
			11/5/2015	11/5/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015	11/4/2015
<b>Metals (mg/kg)</b>												
Aluminum	10	25,500 <sup>c</sup>	8,700	10,700	13,100	8,780	5,950	8,400	7,570	8,240	12,500	6,960
Arsenic	2	9.8	8.9	<b>13</b>	<b>18</b>	8.3	5.7	7.5	<b>12.9</b>	9.7	<b>13.7</b>	9.2
Barium	0.5	130.1 <sup>c</sup>	70.7	80.9	111 J	56 J	33.5 J	35.8 J	29.3 J	51.7 J	75.9 J	38 J
Cadmium	0.2	0.99	0.36	0.59	0.53	0.11 J	0.097 J	0.036 U	0.085 J	0.18 J	0.089 J	0.052 J
Calcium	50	NA	1,860 J	1,460 J	13,100 J	702 J	830 J	446 J	9,380 J	1,070 J	2,550 J	10,600 J
Chromium	0.5	43.4	11.2	15.1	18.5	10.6	7.7	10.8	12.3	10.1	15.9	10.3
Copper	1	31.6	13.8	19.4	25.6	10.8	6.3	7.7	15.1	12.1	10.9	14.6
Iron	10	20,000	<b>20,800</b>	<b>34,800</b>	<b>38,600</b>	<b>20,100</b>	12,300	15,400	<b>21,700</b>	<b>28,000</b>	<b>25,100 F2</b>	18,000
Lead	1	35.8	34.9	<b>48.1</b>	<b>46.6</b>	19.1	7.9	6.7	11.1	30.8	13.8	11.6
Magnesium	20	NA	1,720	1,990	2,760	1,570	1,180	1,620	3,790	1,460	2,420	2,290
Manganese	0.2	460	<b>589</b>	391	<b>1,080</b>	211	279	176	358	166	298	324
Mercury	0.02	0.18	0.086	0.14	0.15	0.042	0.011 J	0.0098 U	0.011 U	0.049	0.025	0.0095 U
Nickel	2	22.7	14.2	18.6	18.8	14.3	8.7	10.7	19.3	12.6	16.6	17.2
Potassium	30	NA	1,110	1,330	1,630 J	984 J	666 J	893 J	1,540 J	1,050 J	1,540 J	1,560 J
Selenium	4	2	0.58 U	1.5 J	0.7 U	0.56 U	0.51 U	0.48 U	0.52 U	0.53 U	0.53 U	0.49 U
Silver	0.6	1	0.29 U	0.32 J	0.35 U	0.28 U	0.25 U	0.24 U	0.26 U	0.26 U	0.27 U	0.25 U
Sodium	140	NA	62.5 J	72.7 J	114 J	41.1 J	32.9 J	35.4 J	86.7 J	56.7 J	59.1 J	70.4 J
Zinc	2	121	82	<b>296</b>	<b>342</b>	63.1	37.8	35.9	59.3	107	62.4	55.9
<b>Miscellaneous Parameters</b>												
Ammonia (mg/kg)	5	NA	2.4 J	1.8 UJ	2.6 J	4 J	4 J	2.8 J	1.9 UJ	1.9 UJ	5.2 J	6.6 J
Chloride (mg/kg)	10	NA	16.4 U	19 U	26.4 J	23.6 J	27.1 J	17.8 U	32.8 J	35.3 J	24.1 J	52.5 J
Total Organic Carbon (mg/kg)	1,000	NA	12,800 J	17,200 J	30,100 J	23,400 J	7,920 J	1,390 J	5,740 J	8,410 J	11,800 J	6,670 J
pH	0.1	NA	7.05	6.5	6.86	6.55	6.55	6.92	7.23	6.71	6.78	7.39
<p><i>Notes:</i>                      Analytical data are from the March 2016 Baseline Sediment and Surface Water Sampling Event Data Submittal, prepared by Tetra Tech for WMPA.                      Sampling locations are depicted on Figure 3 of this FYR Report.</p>												

**Bolded and shaded values exceeded the EPA Region 3 BTAG Screening Level.**

mg/kg = milligrams per kilogram

U = The analyte was not detected.

J = The analyte was detected; the concentration reported is an estimated value.

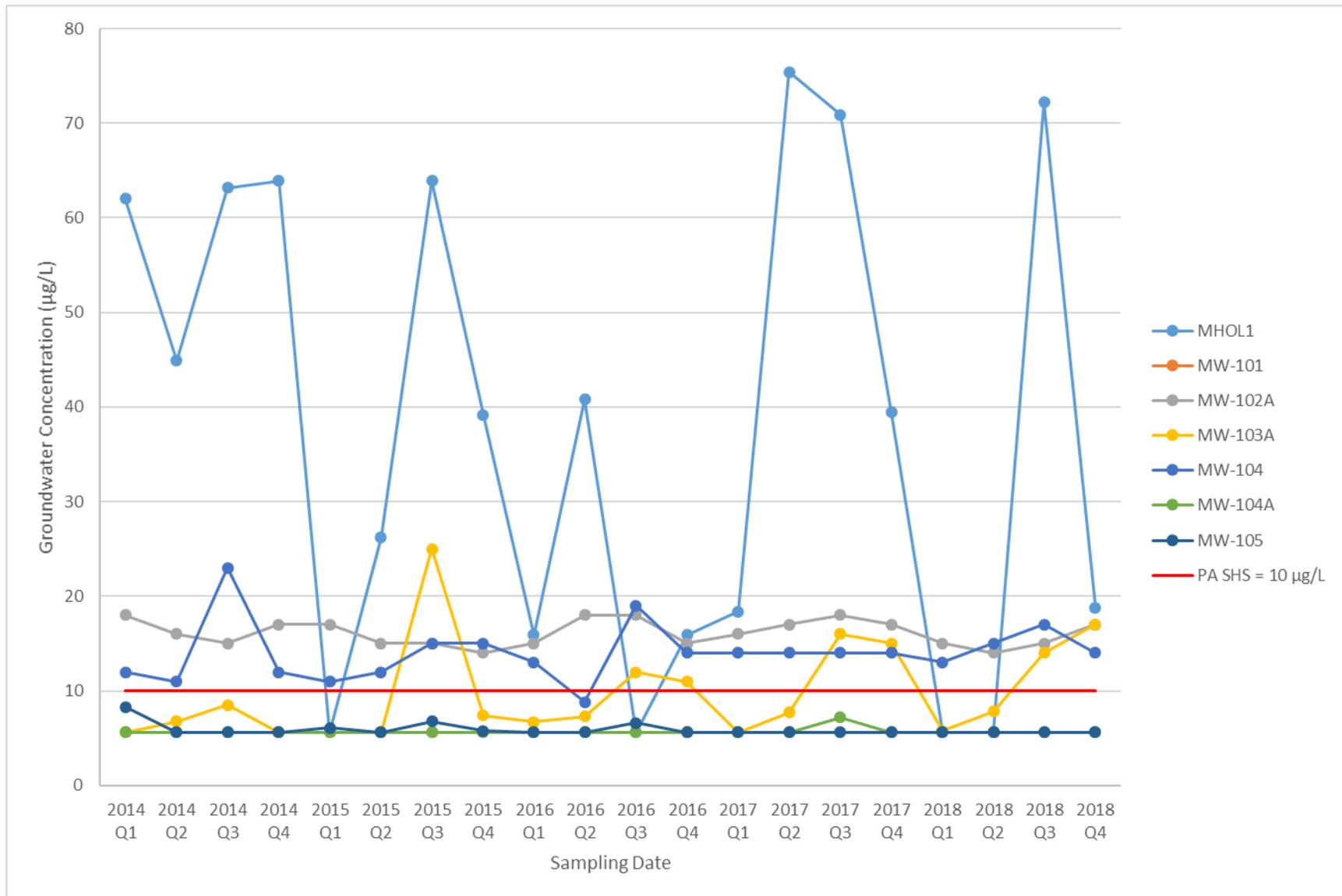
F2 = Matrix spike/matrix spike duplicate relative percent difference exceeds control limits.

a) Reporting limits are from Table 3 of the October 2015 Revised Surface Water and Sediment Investigation Work Plan.

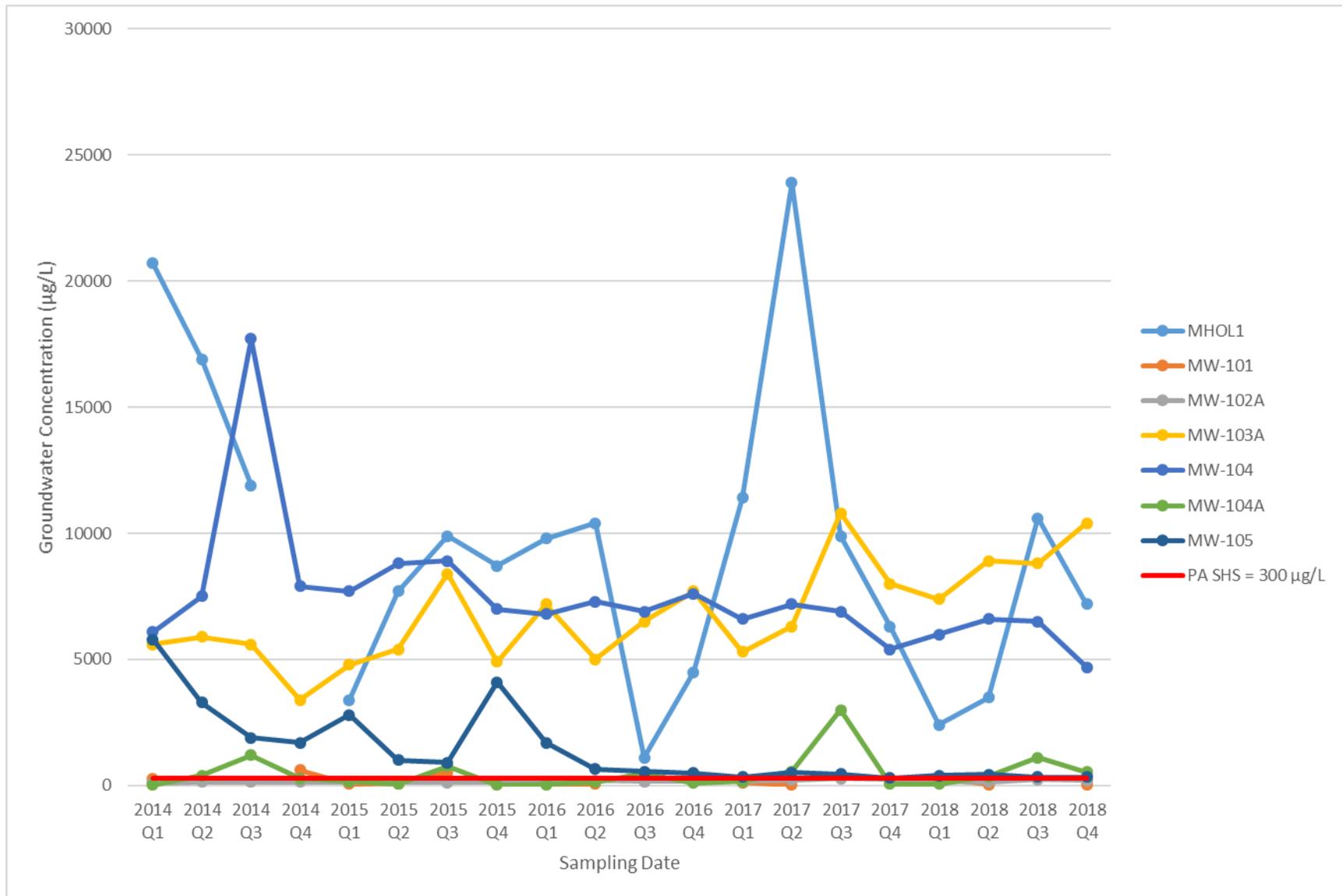
b) EPA Region 3 BTAG Freshwater Sediment Screening Levels were obtained at <https://www.epa.gov/risk/freshwater-sediment-screening-benchmarks>. Accessed 3/13/2019.

c) Aluminum and barium do not have EPA Region 3 BTAG Freshwater Sediment Screening Levels. The screening levels shown are National Oceanic and Atmospheric Administration values from Table 3 of the October 2015 Revised Surface Water and Sediment Investigation Work Plan.

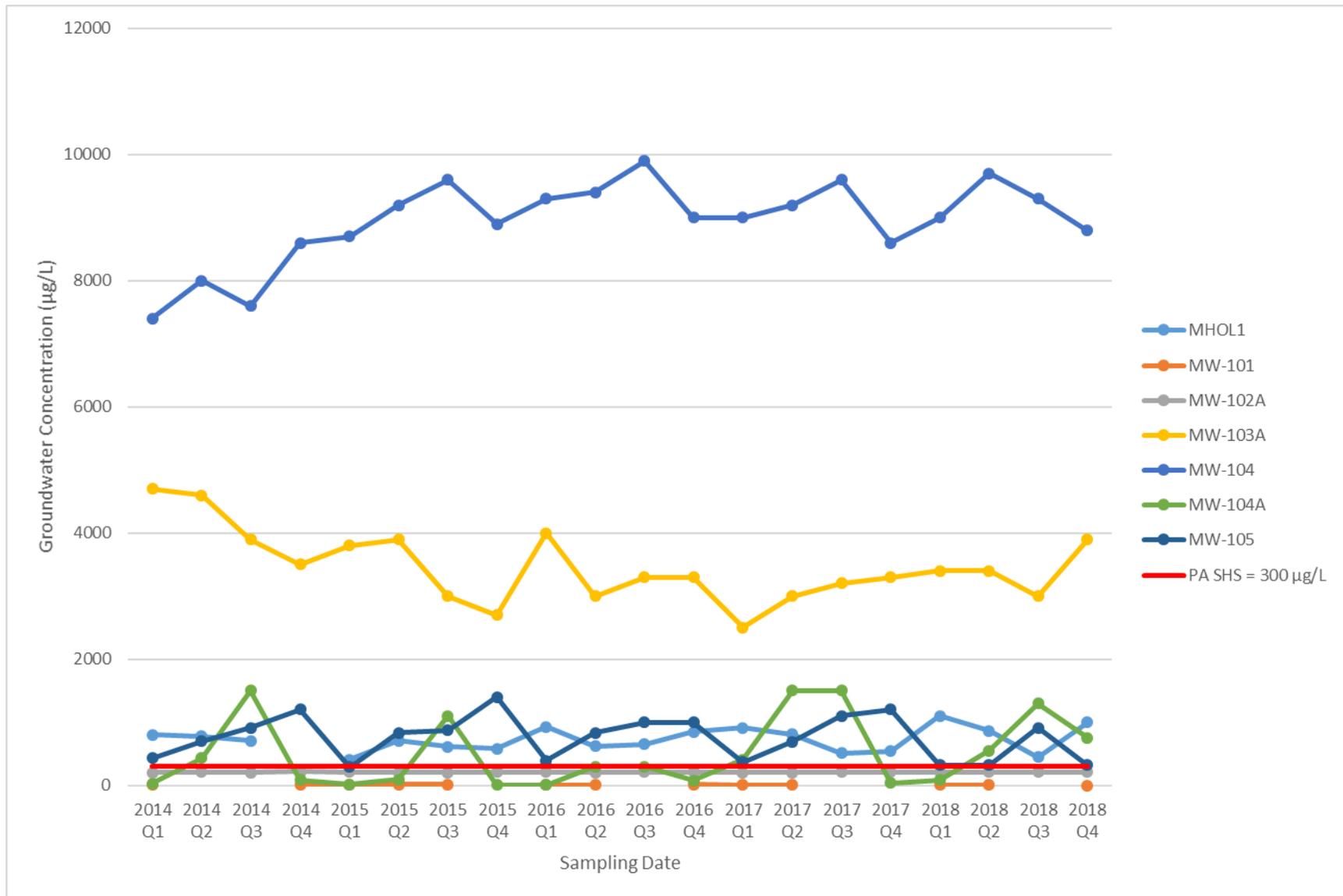
**Figure G-2: Total Arsenic Concentrations in Groundwater (2014-2018)**



**Figure G-3: Total Iron Concentrations in Groundwater (2014-2018)**



**Figure G-4: Total Manganese Concentrations in Groundwater (2014-2018)**



## **APPENDIX H – ARAR REVIEW**

CERCLA Section 121(d)(1) requires that Superfund remedial actions attain “a degree of cleanup of hazardous substance, pollutants and contaminants released into the environment and of control of further release at a minimum which assures protection of human health and the environment.” The remedial action must achieve a level of cleanup that at least attains those requirements that are legally applicable or relevant and appropriate.

### Groundwater ARARs

The 1995 ROD did not select groundwater ARARs because the ROD found that the groundwater remedial action objectives would be met by the existing groundwater treatment system with the addition of institutional controls.

### Leachate ARARs

The 1995 ROD states that the ARAR for leachate is the permit from the Upper Shenango Valley Water Pollution Control Authority. Table 2 in this FYR presents the discharge limits from the Upper Shenango Valley Water Pollution Control Authority permit (as amended on March 12, 1985). Note that the Site also has an Industrial User Wastewater Discharge Permit, issued by the City of Sharon Sanitary Authority and effective on December 10, 2017, which in general contains more stringent limits. However, EPA has not identified the 2017 permit as an ARAR. The Upper Shenango Valley Water Pollution Control Authority contracts with the Sharon Sanitary Authority to review the monthly discharge reports submitted by WMPA to the Upper Shenango Valley Water Pollution Control Authority. The Sharon Sanitary Authority verifies that WMPA’s discharge is in compliance with WMPA’s current discharge permit issued by the Sharon Sanitary Authority (effective 2017-2019). The Sharon Sanitary Authority does not verify whether the discharge is in compliance with the 1985 permit issued by the Upper Shenango Valley Water Pollution Control Authority.