

**FOURTH FIVE-YEAR REVIEW REPORT FOR  
MODERN SANITATION LANDFILL SUPERFUND SITE  
WINDSOR AND LOWER WINDSOR TOWNSHIPS  
YORK COUNTY, PENNSYLVANIA**



**FEBRUARY 2020**

**Prepared by**

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

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

*Feb 24, 2020*

**Date**

## Table of Contents

LIST OF ABBREVIATIONS AND ACRONYMS .....	3
I. INTRODUCTION.....	4
Site Background.....	4
FIVE-YEAR REVIEW SUMMARY FORM .....	8
II. RESPONSE ACTION SUMMARY.....	9
Status of Implementation .....	11
System Operations .....	14
III. PROGRESS SINCE THE PREVIOUS REVIEW.....	14
IV. FIVE-YEAR REVIEW PROCESS.....	15
Community Notification, Community Involvement and Site Interviews .....	15
Data Review.....	16
Site Inspection.....	22
V. TECHNICAL ASSESSMENT .....	23
QUESTION A: Is the remedy functioning as intended by the decision documents? .....	23
QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels and remedial action objectives used at the time of the remedy selection still valid? .....	23
QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?.....	24
VI. ISSUES/RECOMMENDATIONS .....	24
OTHER FINDINGS.....	24
VII. PROTECTIVENESS STATEMENTS .....	25
VIII. GOVERNMENT PERFORMANCE AND RESULTS ACT MEASURES.....	25
IX. NEXT REVIEW.....	25
APPENDIX A – REFERENCE LIST .....	A-1
APPENDIX B – SITE CHRONOLOGY .....	B-1
APPENDIX C – PRESS NOTICE .....	C-1
APPENDIX D – MONITORING SYSTEM SUMMARY .....	D-1
APPENDIX E – MONITORING FREQUENCY AND PARAMETER SUMMARY.....	E-1
APPENDIX F – 2018 SUMMARY OF TOTAL VOC CONCENTRATIONS.....	F-1
APPENDIX G – SITE INSPECTION CHECKLIST.....	G-1
APPENDIX H – SITE INSPECTION PHOTOS .....	H-1

## LIST OF ABBREVIATIONS AND ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CD	Consent Decree
CFR	Code of Federal Regulations
CIC	Community Involvement Coordinator
COC	Contaminant of Concern
CQAP	Construction Quality Assurance Plan
EGES	Eastern Groundwater Extraction System
EWGCS	Enhanced Western Groundwater Control System
EPA	U.S. Environmental Protection Agency
ESD	Explanation of Significant Differences
FDR	Final Design Report
FYR	Five-Year Review
GES	Groundwater Extraction System
GPM	Gallons per Minute
GPRA	Government Performance and Results Act
HRS	Hazard Ranking System
HDPE	High-density polyethylene
IC	Institutional Control
MCL	Maximum Contaminant Level
NCP	National Contingency Plan
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O&M	Operation and Maintenance
PADEP	Pennsylvania Department of Environmental Protection
PADER	Pennsylvania Department of Environmental Resources
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objectives
RD	Remedial Design
ROMP	Remedial Operations and Maintenance Plan
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
SWRAU	Site-wide Ready for Anticipated Use
µg/L	microgram per liter
VOC	Volatile Organic Compound
WGES	Western Groundwater Extraction System

## 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 Section 121, consistent with the National Contingency Plan (40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the fourth FYR for the Modern Sanitation Landfill Superfund Site (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 including the landfill cap and groundwater remedy, all of which is addressed in this FYR.

The EPA remedial project manager (RPM) led the FYR. Participants included the EPA community involvement coordinator, EPA hydrogeologist, EPA toxicologist, and representatives from the Pennsylvania Department of Environmental Protection (PADEP). Republic Services of Pennsylvania, L.L.C. (Republic) is the company managing the cleanup. Republic was notified of the initiation of the FYR. The review began on May 2, 2019.

### **Site Background**

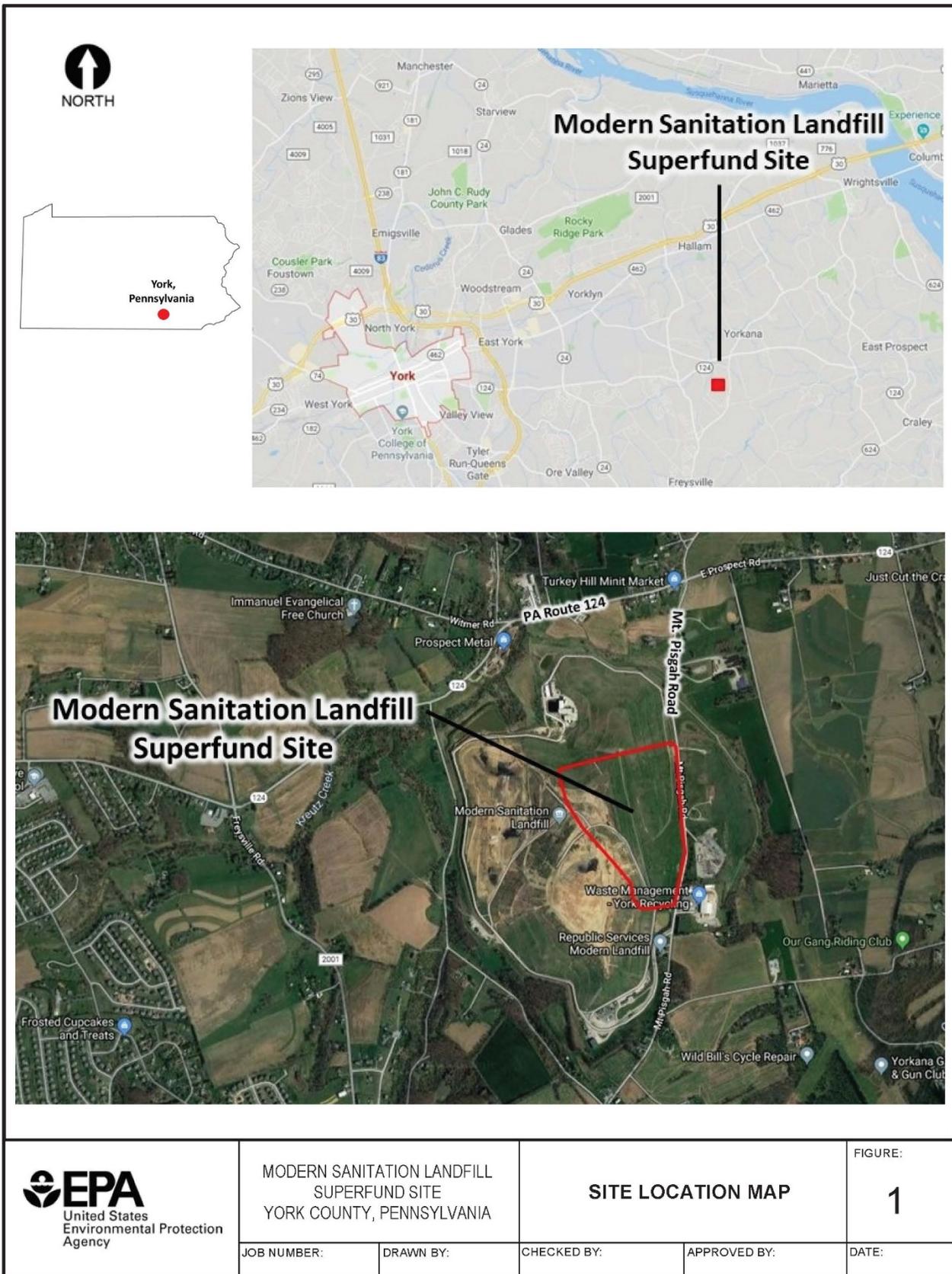
The Site is a portion of what is commonly referred to as the Modern Landfill (Modern), an active municipal solid waste landfill (PADEP Solid Waste Permit #100113) near York, Pennsylvania. The Site consists of the original 66-acre unlined landfill together with all other property that as a whole is bounded on the east and west by the respective groundwater extraction and monitoring systems. The Site is a portion of the 372-acre permitted area of the Modern Landfill, which is owned and operated by Republic Services, Inc. The total property area of Modern Landfill is approximately 742 acres.

The Site is located southwest of the Borough of Yorkana in the Townships of Windsor and Lower Windsor, York County, Pennsylvania. The entrance to the Modern Landfill is on Mt. Pisgah Road, approximately one-half mile south of Pennsylvania Route 124. The Site location is shown on Figure 1. The Site boundary and Modern Landfill property boundary map is shown on Figure 2.

Because the Site is part of an active landfill permitted by PADEP, PADEP is responsible for reviewing and issuing permits, performing inspections, and enforcing PA's solid waste regulations at Modern. The landfill is made up of four contiguous disposal areas that are partially overlain on one another and now make up a single landfill area. The four disposal areas are summarized below and are depicted on Figure 3, Detailed Site Map.

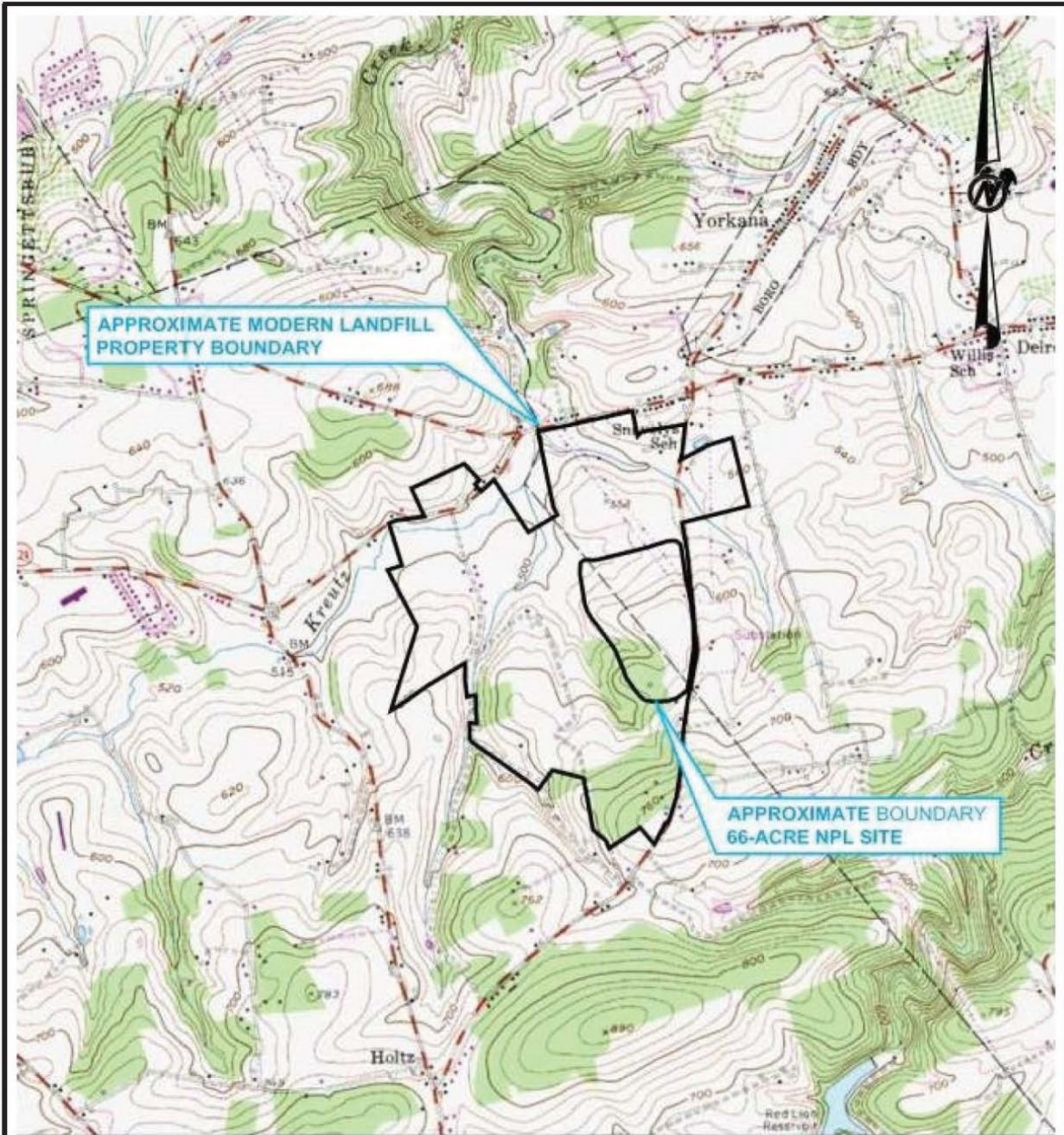
- An inactive, unlined 66-acre landfill (original landfill) that was included on the National Priorities List (NPL) on June 10, 1986 as the "Modern Sanitation Landfill Superfund Site. (i.e. the Site)";
- An inactive, contiguous 34-acre double lined Northern Expansion area;
- An inactive, PADEP-approved, non-contiguous 67-acre double-lined (60-mil HDPE) landfill area (Southwest Expansion); and,
- An active, currently under construction, PADEP-approved, contiguous 60-acre double-lined landfill area (Northwest Expansion).

**Figure 1: Site Location Map**



*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.

**Figure 2: Site Boundary and Modern Landfill Property Boundary Map**



**REFERENCE**

1.) MAP TAKEN FROM U.S.G.S. 7.5 MINUTE QUADRANGLE OF RED LION, PENNSYLVANIA, DATED 1953 (PHOTOREVISED 1968 AND 1973).



 <p><b>EPA</b> United States Environmental Protection Agency</p>	<p>MODERN SANITATION LANDFILL SUPERFUND SITE YORK COUNTY, PENNSYLVANIA</p>		<p><b>SITE BOUNDARY AND MODERN LANDFILL PROPERTY BOUNDARY MAP</b></p>		<p>FIGURE: <b>2</b></p>
	JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:

*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.

The Modern Landfill also includes:

- PADEP-approved low permeability final cover systems over the inactive landfill areas;
- PADEP-approved borrow areas;
- A PADEP-approved wastewater treatment plant;
- An EPA and PADEP-approved Eastern Groundwater Extraction System (EGES) consisting of 12 active extraction wells;
- An EPA and PADEP-approved Enhanced Western Groundwater Control System (EWGCS);
- A PADEP-approved landfill gas extraction system with enclosed flares; and
- A PADEP-approved erosion and sedimentation control system.

The area immediately surrounding the Site is primarily agricultural and residential, with some recreational and commercial properties. A convenience store lies north of the Site. An auto junkyard located north of the Site was decommissioned in 2003 and replaced by an automobile reclamation company. A recreational area (baseball field), transformer substation, cultivated fields, and an automobile shredding operation lie east of the Site. Residences lie south and west of the Site. There are no residences within 650 feet from the landfill boundaries.

The York Water Company supplies public water to homes in the northern portion of Windsor and Lower Windsor Township along PA Route 124 corridor, including the Boroughs of East Prospect and Yorkana. However, groundwater use immediately adjacent to the Site area is generally restricted to private wells for a limited number of homes as public water is not available. The nearest homes with private wells are located west of the Site along Riddle Road. These private wells are not impacted by Site contamination as groundwater flow is to the north. Further south of the Site, the Red Lion Municipal Authority supplies water to Red Lion Borough, portions of Chanceford Township, Windsor Township and York Township. No large industrial plants or municipal water intakes are located near the Site. There is no sanitary sewage in the area surrounding the Site.

Appendix A lists the documents reviewed for this FYR. Appendix B is a chronology of significant site events.



## FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Modern Sanitation Landfill		
EPA ID: PAD980539068		
Region: 3	State: PA	City/County: York /York County
SITE STATUS		
NPL Status: Final		
Multiple OUs? No	Has the Site achieved construction completion? Yes	
REVIEW STATUS		
Lead agency: EPA		
Author name: EPA RPM		
Author affiliation: EPA Region 3		
Review period: 5/2/2019 - 2/28/2020		
Date of site inspection: 10/10/2019		
Type of review: Statutory		
Review number: 4		
Triggering action date: 3/4/2015		
Due date (five years after triggering action date): 3/4/2020		

## II. RESPONSE ACTION SUMMARY

### Basis for Taking Action

Prior to the Site being included on the National Priorities List (NPL) in 1986, the Commonwealth of Pennsylvania was mainly responsible for directing corrective actions at the Site, which were implemented by Modern.

The results of the RI/FS conducted from 1990 to 1991 indicated a total of twenty-six (26) VOCs of potential concern in the groundwater, surface water and sediment to be considered in the risk assessment. Additionally, 15 inorganic and radioactive compounds of potential concern in the groundwater, surface water and sediment were detected, and these compounds were also considered in the risk assessment. It was determined that the actual or threatened releases of hazardous substances from this Site may present an imminent and substantial endangerment to public health, welfare, or the environment, and therefore remediation of VOCs in the groundwater was warranted.

The primary conclusion of the risk assessment was:

- Federal and state drinking water standards were exceeded in groundwater for six VOCs (benzene; carbon tetrachloride; 1,2-dichloroethene; 1,1-dichloroethene; trichloroethene; and vinyl chloride).

## **Response Actions**

On June 28 1991, EPA issued the Record of Decision (ROD) regarding the selected remedial action for the 66-acre NPL Site. The ROD acknowledged that Modern had performed substantial remedial activities, under the supervision of PADEP, which had approved the following remedial activities as part of PADEP's permitting of the landfill expansions at the Site:

- Construction of a PADEP-approved low permeability cap (62 of 66 acres);
- Construction of groundwater extraction systems on the eastern and western perimeters of the Site with groundwater restoration as the goal of remediation;
- Construction of Site fencing around the portions of the Site both west and east of Prospect Road;
- Construction of the on-site wastewater treatment facility;
- Construction of the on-site landfill gas (i.e. vapor) extraction system; and,
- Development of a surface water and groundwater monitoring network.

The ROD determined that, based on the remedial activities previously performed at the Site, the following additional remedial activities were required:

- Continued operation and maintenance of all previous remedial actions conducted on-site, including the landfill cap, groundwater extraction systems, on-site wastewater treatment facility, gas extraction system (for removal and destruction of landfill generated methane gas), and groundwater and surface water monitoring;
- Completion of the landfill cap system and final cover for the 66-acre landfill;
- Maintenance of site fencing and all access restriction;
- The addition of extraction wells to the eastern and western extraction systems to prevent contaminated groundwater from bypassing those systems;
- The completion of additional monitoring and/or extraction wells as needed to ensure protectiveness and to control groundwater flow, respectively; and,
- As a goal, restore contaminated groundwater to background quality.

The groundwater extraction system was originally expected to operate until background levels of contaminants are reached. The attainment area for this remediation is located between the NPL Site boundary and the groundwater compliance monitoring and assessment points, all of which are located within the property boundary owned or leased by Modern Landfill.

On February 25, 2015, EPA issued an Explanation of Significant Differences (ESD) which modified the Groundwater Remediation Goals for individual contaminants at the Site from “background” to the applicable Maximum Contaminant Level (MCL) of the Safe Drinking Water Act. For contaminants that did not have an MCL, the revised Groundwater Remediation Goal is now the Medium Specific Concentration (MSC) established in Pennsylvania Land Recycling and Environmental Remedial Standards Act (Act 2). This ESD also set the requirement for a cumulative risk evaluation for groundwater. Finally, the 2015 ESD added institutional controls to protect the integrity of remedial measures onsite as a component of the selected remedy. The Revised Groundwater Remediation Goals are provided in Table 1.

**Table 1: Revised Remediation Goals for Groundwater**

<b>Table 1 Revised Remediation Goals for Groundwater</b>				
<b>Compound</b>	<b>Target Concentration</b> <small>(taken from Table 3 in the 1991 ROD)</small>	<b>Federal MCL</b>	<b>PADEP Act 2 Medium Specific Concentrations (Used Aquifers)</b>	<b>Revised Groundwater Remediation Goals</b>
Benzene	5	5	5	<b>5</b>
Carbon Tetrachloride	5	5	5	<b>5</b>
Chloroform	13 <sup>a</sup>	N/A	80	<b>80</b>
1,4-Dichlorobenzene	75	75	75	<b>75</b>
Total Dichlorobenzene	75	75	75	<b>75</b>
1,1-Dichloroethane	5 <sup>b</sup>	N/A	31	<b>31</b>
1,2-Dichloroethene	5	5	5	<b>5</b>
1,1-Dichloroethene	7	7	7	<b>7</b>
Trans-1,2-Dichloroethene	100	100	100	<b>100</b>
1,2-Dichloroethenes (total)	70	70	70	<b>70</b>
Methylene Chloride	11 <sup>a</sup>	5	5	<b>5</b>
Tetrachloroethene	5	5	5	<b>5</b>
Trichloroethene	5	5	5	<b>5</b>
Vinyl Chloride	2	2	2	<b>2</b>
<sup>a</sup> - remediation goal based on risk <sup>b</sup> - remediation goal based on quantitation limit all units in µg/L (parts per billion) N/A - not applicable				

Remedial Action Objectives

Based on the data collected and the risk assessment results of the RI/FS, EPA established the following Remedial Action Objectives (RAOs) in the 1991 ROD for groundwater only including:

- Reduce leachate production and migration to groundwater;
- Reduce the amount of groundwater degradation on the NPL Site;
- Decrease the potential for migration of degraded groundwater from the Modern Landfill property;
- Minimize migration of leachate constituents into surface water;
- Prevent exposure of contaminated groundwater;
- Restore contaminated groundwater to beneficial uses where practical; and,
- As a goal, restore contaminated groundwater to background quality.

Status of Implementation

On June 10, 1993, EPA, PADEP, and Modern entered into a Consent Decree (CD) for remedial action and cost recovery. The CD acknowledged that since the date of the signing of the ROD, Modern had accomplished the design for the final four (4) acres of the landfill cap and final cover system (with PADEP approval), and construction of additional groundwater extraction wells.

As outlined in the CD, EPA determined that the **remaining** work required by the ROD consisted of the following:

- Completion of the construction of the final four (4) acres of the landfill cap (i.e. the highwall area), and;
- Operation and maintenance of the remedial actions previously completed, and those to be completed under the CD, including, the entire landfill cap and final cover system; the entire groundwater extraction system; on-site wastewater treatment facility; landfill gas extraction system; and the surface water and groundwater monitoring network.

#### Capping and Cover Systems

The cap and cover system placed over the 66-acre landfill include the following components:

- Landfill slope cap/vertical expansion area (completed in 1989): a slope cap was placed to separate the 66-acre landfill from a 30-acre vertical expansion area;
- 20-acre plateau cap (completed in 1990);
- 42-acre landfill side slope cap (completed in 1991); and,
- 4-acre highwall area cap covered by cells 12A, 12B, 13A, and 13B of the Northwest Expansion (completed 1991 through 2000).

#### Groundwater Control Systems

##### *General*

The overall groundwater control system at Modern was designed to collect impacted groundwater from beneath the original 66-acre unlined landfill area. The current groundwater control system at Modern consists of two separate groundwater extraction systems and an onsite wastewater treatment plant. The groundwater extraction systems include the original Eastern Groundwater Extraction System (EGES) and the Enhanced Western Groundwater Control System (EWGCS) that was installed in 1999 to replace the original western system. Both current systems use wells to pump impacted groundwater to the onsite wastewater treatment plant. A description of each system is presented below.

##### ***Eastern Groundwater Extraction System (EGES)***

The EGES began operation on November 22, 1986 and is currently comprised of 12 extraction wells (W21, W35, W36, W37, W38, W39, W40, W41, W43, W44, W45 and W60R). These wells are designed to control impacted groundwater on the eastern side of the landfill. The location of each extraction well currently in operation is presented in Figure 3.

##### ***Enhanced Western Groundwater Control System (EWGCS)***

The EWGCS was constructed in 1999 and replaced the original western perimeter groundwater collection system. The EWGCS is comprised of a 2,825 ft long subsurface blast trench with four extraction wells (ESW-1, ESW-2, ESW-3, and ESW-4) placed at the downgradient end (northern end) of the trench. Extraction Well ESW-4 came online in August 1999, and the remaining three wells (ESW-1, 2, and 3) became operational in March 2000. The EWGCS is oriented parallel to the direction of groundwater flow and passively collects groundwater due to the natural horizontal and induced upward vertical gradient. The EWGCS collects impacted groundwater and provides a preferential pathway for groundwater flow (Golder, 2000).

##### ***Wastewater Treatment Plant***

The wastewater treatment plant has been in operation since April 1987 and is permitted under the National Pollutant Discharge Elimination System (NPDES) Permit No. PA0046680 and PADEP Title V Permit No. 67-05047. The plant treats impacted groundwater from both the EWGCS and EGES and also treats the leachate generated from the entire landfill. As approved under the NPDES permit, the treated effluent generated by the plant is discharged to Kretz Creek.

### Landfill Gas Extraction System

A landfill gas extraction system has been in operation at Modern since 1989 and has undergone several upgrades to accommodate the various landfill expansions. The purpose of the system is to prevent landfill gas migration. The extraction system includes a blower/flare station that pulls landfill gas from horizontal trenches and vertical wells where the gas is destroyed by a state of the art enclosed flare. All condensate from the gas extraction system is treated at the onsite wastewater treatment plant.

### Groundwater and Surface Water Monitoring System

As a permitted solid waste landfill, and as part of the requirements identified in the 1991 ROD, Modern Landfill maintains a comprehensive groundwater and surface water monitoring system. This system is made up of 66 monitoring points including:

- 33 groundwater monitoring wells;
- 8 constituent assessment wells;
- 16 active extraction wells; and
- 9 surface water monitoring points

The primary purpose of this monitoring system at Modern is to:

1. Determine and track the groundwater chemistry in the vicinity of the landfill
2. Provide the means to evaluate the effectiveness of the groundwater control systems

The locations of each of the above monitoring points are depicted on Figure 3, Detailed Site Map and the monitoring frequency and list of parameters analyzed are summarized in Appendices D and E. Generally, the groundwater monitoring wells and surface water sampling points are sampled on a quarterly basis. However, the groundwater extraction wells and groundwater constituent assessment wells are sampled once annually during the third calendar quarter of each year (Appendix E).

The laboratory results from the analyses conducted on each sample are submitted to PADEP in quarterly reports with water quality data reported on the PADEP Form 19, Municipal Waste Landfills – Quarterly and Annual Water Quality Analyses.

### Institutional Control Review

Institutional controls required to ensure the protectiveness of the site remedy have been implemented as summarized in Table 2.

**Table 2: Summary of Planned and/or Implemented 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 Parcel(s)</b>	<b>IC Objective</b>	<b>Title of IC Instrument Implemented and Date (or planned)</b>
Landfill cap and groundwater extraction and treatment system	Yes	Yes	Modern Landfill Properties (See PADEP Solid Waste Permit #100113)	Protect integrity of existing remedy.	25 Pa. Code § 273, Municipal Waste Landfills (operating requirements for landfills in Pennsylvania) 25 Pa. Code §§ 273.191 and 273.192 (landfill closure provisions)

<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 Parcel(s)</b>	<b>IC Objective</b>	<b>Title of IC Instrument Implemented and Date (or planned)</b>
Groundwater	Yes	Yes	Sitewide	Prevent the use of contaminated groundwater.	Lower Windsor Township Ordinance 2014-04 (amended on December 11, 2014)
Groundwater	Yes	Yes	Sitewide	Prevent the use of contaminated groundwater.	Windsor Township Ordinance 2015-9-02 (adopted September 21, 2015)

### **System Operations**

Republic Services, Inc. operates Modern Landfill, including the groundwater extraction systems, on-site wastewater treatment plant, and the landfill gas extraction system, and performs groundwater and surface water monitoring. A perimeter fence is maintained around the property and access is restricted to authorized personnel and contractors.

As part of permit conditions, PADEP requires the implementation of specific O&M activities for the cover systems, groundwater extraction systems, wastewater treatment plant, landfill gas extraction system, and groundwater monitoring system. The O&M activities are reported to PADEP and EPA as part of the groundwater annual assessment reports (i.e., operational data for the extraction systems, wastewater treatment plant, and integrity of the groundwater monitoring system).

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

Table 3 includes the protectiveness determination and statement from the previous FYR. There were no issues or recommendations identified in the 2015 FYR.

**Table 3: Protectiveness Determinations/Statements from the 2015 FYR**

OU #	Protectiveness Determination	Protectiveness Statement
00	Short-term Protective	<p>The assessment of this Five-Year Review found that the remedy was constructed in accordance with the ROD and is functioning as designed. The groundwater plumes at the Site are controlled by the groundwater extraction systems.</p> <p>A vapor intrusion (VI) evaluation was performed for the on-Site treatment plant building during this Five-Year Review. EPA determined that unacceptable risks via the vapor intrusion pathway would not be expected in the building. In addition, there are no residences or businesses within 100 feet of the groundwater plumes. As a result, EPA concludes that there are no sources of vapor intrusion within 100 feet of residences, businesses, or on-Site buildings.</p> <p>EPA issued an Explanation of Significant Differences (ESD) on February 25, 2015 to include the requirement for Institutional Controls (ICs) to protect the remedies that have been constructed (groundwater extraction and treatment system, and landfill cap) and prevent the use of contaminated groundwater. The ESD also revised the Groundwater Remediation Goals for the groundwater plume between the 66-acre landfill and the groundwater compliance monitoring and assessment points.</p> <p>ICs are currently in place for the Site via the operating requirements for landfills in Pennsylvania contained in 25 Pa. Code § 273, Municipal Waste Landfills. Modern Landfill is an active municipal waste landfill operating under PADEP Solid Waste Permit No. 100113. This permit covers the Modern Landfill, including the Site. Under a permit modification in April 1999, double-lined landfill cells were constructed on top of a portion of the Site. The integrity of that action, as well as the remedial systems and security measures at the Site, will be protected in the future by implementation of the Phase II Application Requirements - Closure Provisions, specifically 25 Pa. Code §§ 273.191 and 273.192 which addresses the Postclosure Land Use Plan and Closure Plan for a facility. These plans contain a detailed description of the proposed use following closure of a facility and describe activities that will occur in preparation for closure and after closure. The plans are reviewed and approved by PADEP.</p> <p>The Subdivision and Land Development Ordinances for both Lower Windsor Township (adopted on October 11, 2012 as Ordinance 2012-05) and Windsor Township (1989 Revision) require connection to public water where there is an existing public water supply system on or within one-thousand (1,000) feet of a proposed development/subdivision. Public water is supplied to residences near the Site by the York Water Company and the Red Lion Municipal Authority. These township ordinances provide effective ICs to prohibit well drilling in the area near the Site.</p> <p>The remedy is protective in the short-term because all exposure pathways that could result in unacceptable risks are being controlled. The Site will be protective in the long-term when the Revised Groundwater Remediation Goals and risk-based cleanup standards have been achieved throughout the attainment area.</p>

## IV. FIVE-YEAR REVIEW PROCESS

### Community Notification, Community Involvement and Site Interviews

A public notice was published in the the *York Daily Record* and *York Dispatch* newspapers on January 20, 2020 (Appendix C). It stated that the FYR review was underway and findings would be available in March 2020. Contact information for questions or site-related information was provided. The FYR report will be made available online at: <https://www.epa.gov/superfund/search-superfund-five-year-reviews>.

The Modern Landfill is a highly visible commercial business in the local community. The administrative office for Modern Landfill is located on Mt. Pisgah Road, just outside the operating landfill. Trash hauling trucks are frequently seen on the roads leading to the facility during hours of operation. As part of this FYR, EPA reached out to the township managers in Windsor and Lower Windsor Townships to find out if they had any issues or concerns with the NPL Site. Neither township manager expressed any real issues or concerns related to the NPL Site. However, Lower Windsor Township communicated there is concern lately because of the potential for landfill expansion in their community. The township was having a meeting in January to discuss their host community agreement with Republic Services. Both townships agree that Modern Landfill provides an open line of communication with the community. An observation from speaking to the townships is that the local community does not generally recognize the NPL Site from the operating landfill. The Modern Landfill is a

prominent feature in the community and any concerns would be the results of current operations or because of potential future plans for expansion.

**Data Review**

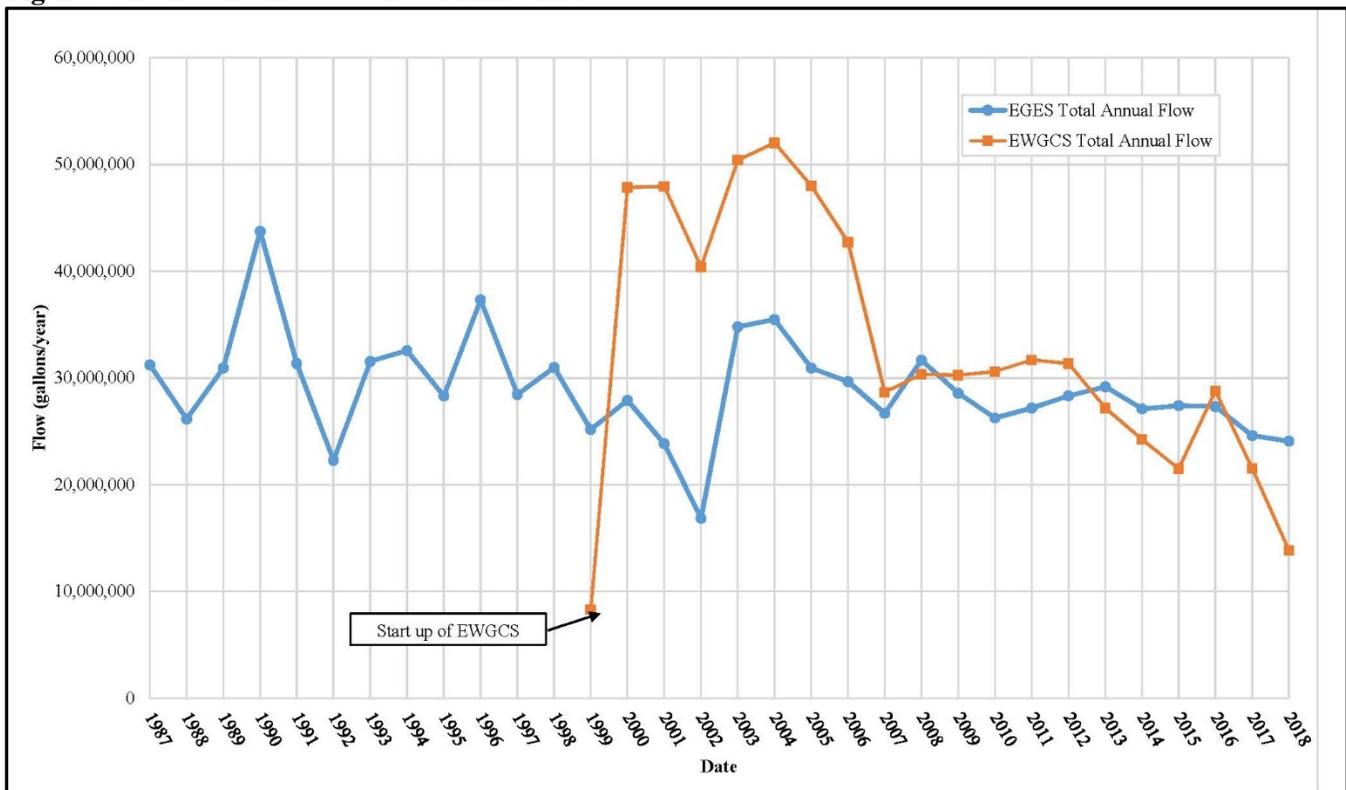
Groundwater Extraction Volumes

Each groundwater extraction well is equipped with a flow totalizing meter. Flow volumes from these totalizers are recorded on a weekly basis and the monthly and annual flow volumes are calculated from the weekly flow meter readings.

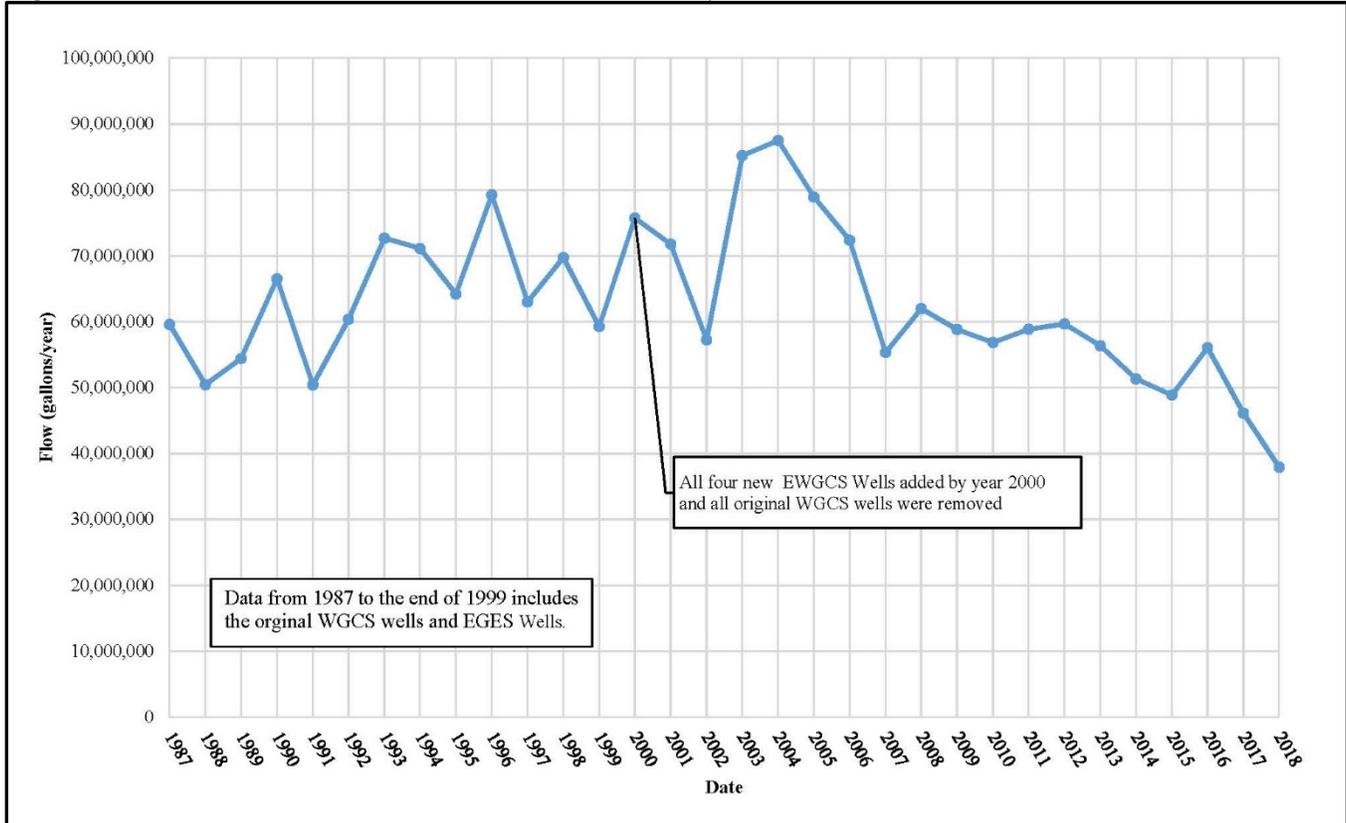
- Total annual flow volume for the combined extraction systems (EGES and EWGCS) for 2018 was 37,913,715 gallons,
  - Approximate 17.8% decrease in flow from 2017 (46,114,790 gals).
- Total annual flow volume from the EGES in 2018 was 24,072,584 gallons,
  - Approximate 2.2% decrease from 2017 (24,602,108 gallons).
- Total annual flow volume from the EWGCS in 2018 was 13,841,131 gallons
  - Approximate 35.7% decrease in flow from 2017 (21,512,682 gallons).

Figures 4 and 5 present graphs of the annual flow volumes from the extraction wells. Figure 4 depicts the flows from the EGES system since its start up in 1987 as well as the flows from the four new EWGCS wells since their startup in 1999. Figure 5 depicts total flow volumes from the combined two systems and shows a decline in flow since 2004. As depicted on Figure 4, most of the decline in flow volume is associated with the EWGCS. Reduced flow from the EWGCS is largely attributed to the development of the lined disposal cells over top of the western groundwater collection area that has resulted in the elimination of surface recharge to the capture area of the western system.

**Figure 4: EGES and EWGCS Total Annual Flow**



**Figure 5: Total Annual Flow for Combined Extraction Systems**



Groundwater Levels and Groundwater Contour Maps

The groundwater level and flow pattern at Modern Landfill demonstrates that groundwater is effectively intercepted by the EGES and the EWGES. The interpreted groundwater contour map for August 2018 is presented on Figure 6. There is little change in the groundwater contours from the September 2013 groundwater contour map (previous FYR Report) to the August 2018 map.

Groundwater Quality

***Inorganic Compounds and General Chemistry Parameters***

The analytical results of the groundwater and surface water quarterly sampling during this review cycle demonstrate that the concentration of inorganic parameters in the vicinity of Modern landfill is consistent with background levels. Upgradient wells, MU101, MU127, and MU427 have historically exhibited concentrations similar to those detected from other wells within the vicinity of Modern Landfill. This situation has been maintained since 1987.

***Volatile Organic Compounds***

To evaluate the effectiveness of the EGES and EWGCS with respect to VOC concentrations at the Site, groundwater data from 2018 was tabulated and compared with data obtained from previous years. Appendix F (Table 9 from 2018 Annual Groundwater Assessment Report) presents the average total VOC concentrations between 1987 and 2018 for individual wells. The change in concentrations between 2017 and 2018 are also shown. Figure 7 shows the total VOC concentrations for wells in 2018. Figure 8 depicts the VOC plume map for 2018.

## ***VOC Trend***

### **Groundwater Extraction System Wells (EGES and EWGCS)**

The overall trend of VOCs in both the EGES and three of the four EWGCS wells exhibit a declining trend in total VOC concentrations. Specific observations from monitoring data in 2018 include the following:

- Wells W38 and W60R of the EGES have exhibited overall decreasing trends with some fluctuation.
- Well ESW-1 had a slight increase in trend from 2001 to 2016, but the trend has changed to decreasing in both 2017 and 2018.

### **Wells Located Between Landfill and Eastern Extraction System (EGES)**

There are seven wells located between the EGES and the landfill (upgradient of the EGES)

- MD120, MDR122S, MD123I, MD125, MD128, W23, and W34.

- Four of the wells have had no VOC detections for the past several years.
  - MD125; since 2003
  - MD128; since 2008
  - W23; since 2004
  - W34; since 2001
- Three of the wells (MD120, MDR122S, MD123I) continue to have low level detections of VOCs, with concentrations of benzene and 1,4-dichlorobenzene in MD120 and trichloroethene (TCE) in MDR122S and MD123I above the revised groundwater remediation goals. Overall total VOC trends in MD120 and MD123I are relatively stable, but both wells had slightly increased total VOCs in 2018. The trend in MDR122S has been decreasing since 2011.

### **Wells Located Outside the Eastern Extraction System (EGES)**

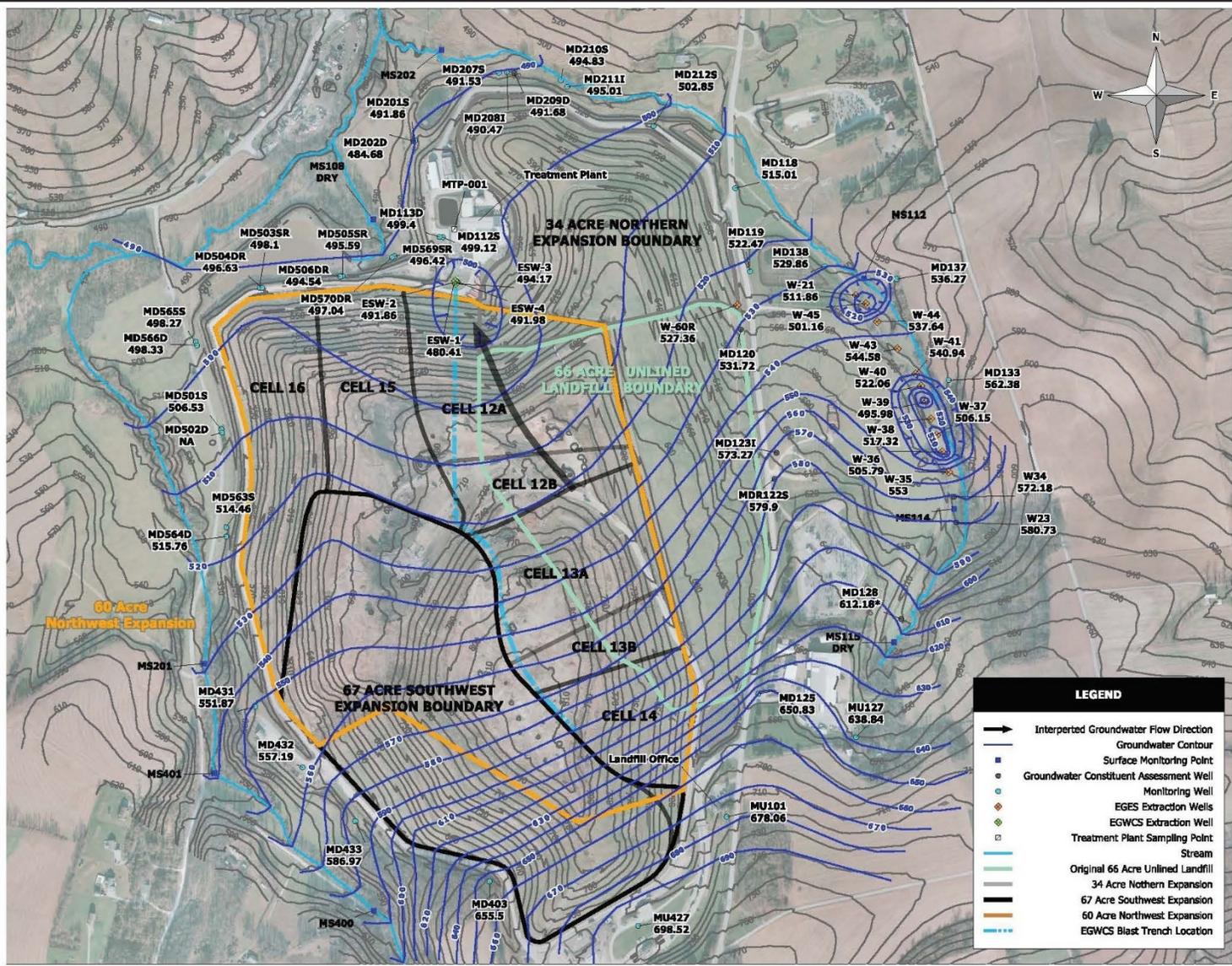
There are five wells located on the east side of the landfill outside (side gradient/downgradient of the EGES, (MD118, MD119, MD133, MD137, and MD138).

- Four of these wells (MD118, MD133 and MD137) show no detected VOC concentrations.
- MD138 had a low level (estimated J-value) detection of 0.53 ug/L of benzene during the fourth quarter 2018 sampling event.
- Well MD119 has exhibited fluctuating concentrations since 2009 but no VOC detections exceeded the groundwater remediation goals over time. VOCs were first detected in 2009 with the trend in total VOCs exhibiting an increase through 2014. A sharp decrease occurred in 2015 and continued through 2017. Total VOCs in 2018 exhibit a slight increase but are lower than the historic highs observed in 2013-14. 1,4-dichlorobenzene has the highest concentrations and is the primary constituent making up the overall total VOCs.

### **Wells Located Outside the Western Extraction System (EWGCS)**

Low concentrations of VOCs have been detected in four wells near the EWGCS (MD-112S, MD113D, MD505SR and MD569SR). The concentrations of VOCs detected in these wells are below the groundwater remediation goals with no increasing trend. These four wells are located near the EWGCS extraction wells and are within the area of pumping influence. Continuous pumping from the EWGCS limits potential migration of VOCs downgradient and is evident as monitoring wells located further downgradient have had no detectable concentrations of VOCs.

Figure 6: Groundwater Contour Map -2018



**NOTES:**

1. Base aerial and topography from Cooper Aerial Surveys Co. flown in December 2018
2. Pennsylvania South State Plane, NAD 83
3. Landfill boundaries taken from AECOM AutoCAD and Golder drawings
4. Water elevation data collected on 8/7/18, 8/8/18, 8/9/18, 8/15/18, and 8/21/18
5. 60-acre Northwest Expansion overlays portions of all other disposal areas
6. \* Well MD-128 was flowing artesian at time of sampling

**LEGEND**

- Interpreted Groundwater Flow Direction
- Groundwater Contour
- Surface Monitoring Point
- Groundwater Constituent Assessment Well
- Monitoring Well
- ◇ EGES Extraction Well
- ◇ EGWCS Extraction Well
- Treatment Plant Sampling Point
- Stream
- Original 66 Acre Unlined Landfill
- 34 Acre Northern Expansion
- 67 Acre Southwest Expansion
- 60 Acre Northwest Expansion
- EGWCS Blast Trench Location



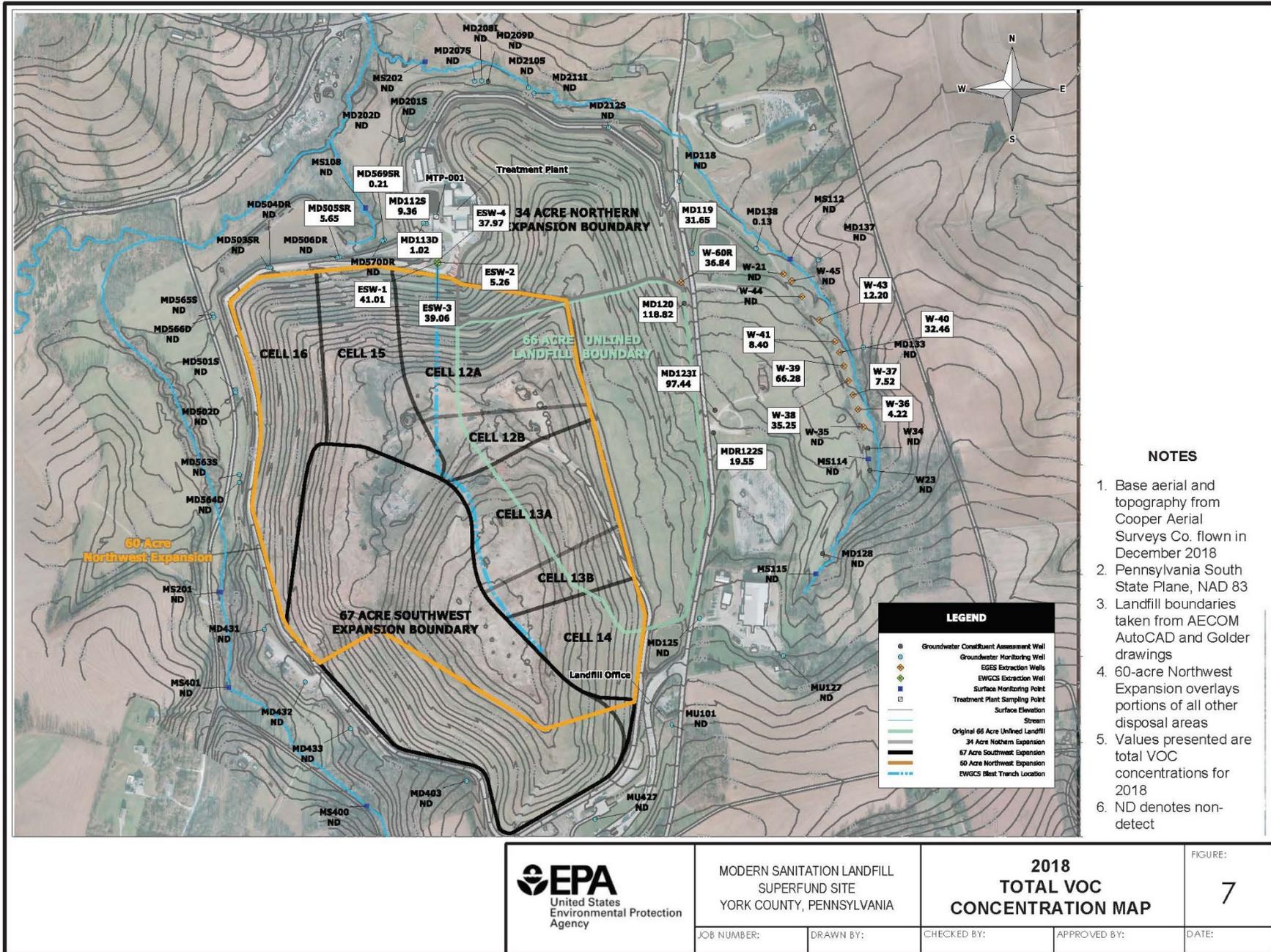
MODERN SANITATION LANDFILL  
SUPERFUND SITE  
YORK COUNTY, PENNSYLVANIA

**GROUNDWATER  
CONTOUR MAP  
August 2018**

FIGURE:  
**6**

JOB NUMBER:      DRAWN BY:      CHECKED BY:      APPROVED BY:      DATE:

Figure 7: Total VOC Concentration Map – 2018



20



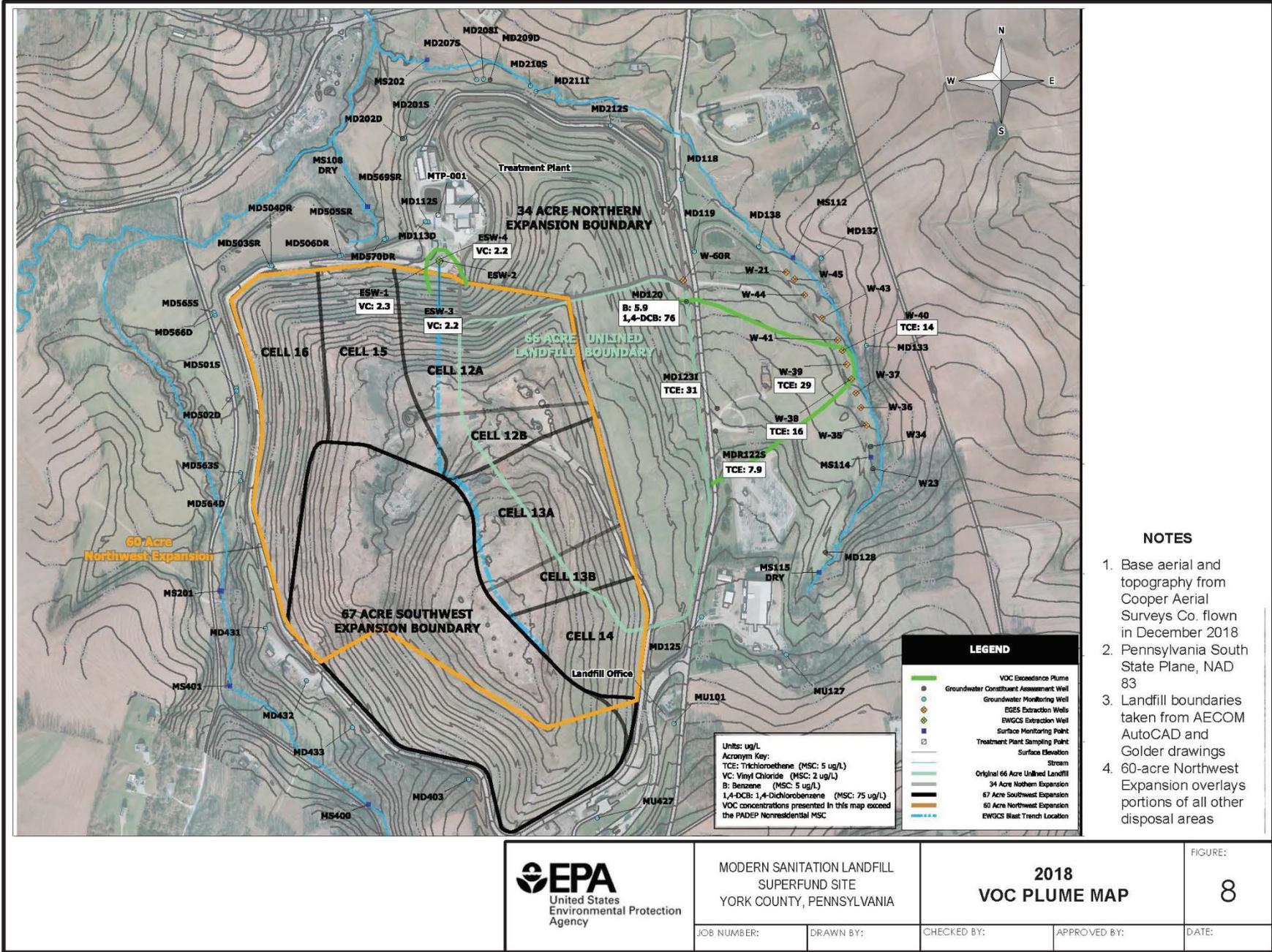
MODERN SANITATION LANDFILL  
SUPERFUND SITE  
YORK COUNTY, PENNSYLVANIA

2018  
TOTAL VOC  
CONCENTRATION MAP

FIGURE:  
7

JOB NUMBER: DRAWN BY: CHECKED BY: APPROVED BY: DATE:

Figure 8: VOC Plume Map - 2018



MODERN SANITATION LANDFILL  
 SUPERFUND SITE  
 YORK COUNTY, PENNSYLVANIA

2018  
 VOC PLUME MAP

FIGURE:  
 8

JOB NUMBER:      DRAWN BY:      CHECKED BY:      APPROVED BY:      DATE:

### ***VOC Mass Removal***

The percent of VOC mass removed by the combined extraction systems is estimated using the total annual flow volumes and the total VOC concentrations from the individual extraction wells. For the EGES in 2018, four wells (W39, W40, W43, and W60R) extracted the major portion of the combined total VOC mass. For the EWGCS, four wells (ESW-1, ESW-2, ESW-3, and ESW-4) extracted the major portion of the combined total VOC mass. Table 3 shows mass loading removal estimates by well in 2018.

**Table 3: Mass Loading Removal Estimates by Well in 2018**

<b>Well</b>	<b>Percent of Combined VOC Mass Removed (%)</b>
W36	1.18
W37	1.27
W38	1.16
W39	8.52
W40	4.57
W41	1.14
W43	3.51
W60R	7.82
ESW-1	54.26
ESW-2	3.35
ESW-3	10.20
ESW-4	3.02
<b>TOTAL</b>	<b>100.00</b>

The mass removed in 2018 decreased by 40% from that removed in 2017, and the overall mass of VOCs detected also decreased by 42%. The decreases are attributed to reduced extraction volumes in 2018 coupled with lower total VOC concentrations in a few wells.

### **Surface Water**

Surface water samples are collected quarterly from 4 points along the eastern stream, 4 points along the western stream, and from the the treatment plant outfall. All sample results were non-detect during this FYR period.

### **Site Inspection**

The FYR Site Inspection took place on October 10, 2019. Participants included an EPA RPM; EPA hydrogeologist; PADEP project officer; representatives from Republic Services, Inc.; and Taylor GeoServices (Modern’s technical consultant). The purpose of the inspection was to assess the protectiveness of the remedy. Appendix G provides the completed FYR site inspection checklist.

A meeting was held in the conference room at the Modern Landfill office. Taylor GeoServices provided a detailed presentation about the background and current status of the Modern Landfill, components of the remedial action in the ROD, and operation and maintenance activities. Site inspection participants then traveled onto operating landfill which included the Site.

Site Inspection participants inspected the 66-acre Site, the treatment facility, extraction and monitoring wells, and toured the operating Modern Landfill. The operating landfill encompasses the 66-acre Site and is surrounded by an eight-foot high chain link fence. Several areas around the perimeter of the operating landfill have much higher fence to keep garbage from blowing off the property. Access is controlled by locking gates to the operating landfill.

At the time of the Site Inspection, the extraction well network systems and treatment plant were operating as designed. The landfill cap on the eastern face of the 66-acre Site was well vegetated and no erosion was present.

The remainder of the Site was capped by various expansions of the operating landfill. The groundwater monitoring wells were in good condition as they are sampled quarterly. It was noted that extraction well W-60 had become clogged in 2017 and a replacement extraction well, W-60R, was installed that same year. Extraction well W-60R was operating until September 2019 when it was taken off-line due to iron fouling. A new replacement well was installed in late October 2019. No significant issues were noted during the Site Inspection. These systems are operated and maintained by Republic Services, Inc. and their contractors. Photographs from the Site inspection are included in Appendix H.

As part of the FYR, EPA contacted the Kaltreider-Benfer Library (Site repository) located in Red Lion, Pennsylvania on January 17, 2020. No Site documents were available at the library. After this FYR is complete, EPA will provide information to the library for public access to the 2020 FYR Report.

## V. TECHNICAL ASSESSMENT

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

The remedy is functioning as intended by the decision documents. The cap and cover systems installed over the 66-acre Site is functioning properly and prevents direct exposure to landfill waste. The groundwater extraction systems at Modern Landfill continue to intercept impacted groundwater flowing beneath the 66-acre unlined landfill. The overall trend continues to show that extraction wells and monitoring wells located on the eastern side of the 66-acre unlined landfill are decreasing in total VOC concentrations. The EWGCS also exhibits a decrease in VOC trend over time with no VOC detections in monitoring wells located outside the extraction system area of influence. The overall mass of VOC capture and the non-detect results in wells located outside the influence of the extraction systems demonstrate that both the EWGCS and the EGES continue to control and recover impacted groundwater as designed. Modern continues to maintain the systems and evaluate operations as necessary.

Modern Landfill and their contractors conduct O&M activities. Per the solid waste permit for Modern Landfill (Permit #100113), quarterly progress reports and an Annual Groundwater Assessment Report are submitted to PADEP. EPA is copied on all reports.

Institutional Controls are in place for the Site that both protect the integrity of remedial components and prevent drilling of groundwater wells within impacted areas.

The operating Modern Landfill is secured with a locked fence; trespassing and vandalism have not been a problem.

**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, remedial action objectives, data, and cleanup levels specified in the 1991 ROD, as modified by the February 2015 ESD, are still valid and protective. There have been updates to risk assessment guidance (e.g., vapor intrusion) and toxicity values (e.g., IRIS risk assessments/toxicity values TCE and PCE have been updated since the RODs were implemented); however, these changes do not call into question the protectiveness of the remedy as presented below.

This FYR conducted a review of the Site's ARAR values to determine whether any of the ARAR values have become more stringent since the 2015 ESD was issued. No changes to ARARs were identified.

No new human health or ecological routes of exposure or receptors have been identified or changed in a way that could affect the protectiveness of the remedy. There have been no newly identified contaminants, contaminant sources, or unanticipated toxic byproducts of the remedy that were not previously addressed by the decision

documents. The 2015 ESD requires that once the Revised Groundwater Remediation Goals are met, EPA will evaluate data from the periodic groundwater monitoring and develop a trend analysis and risk assessment. The remediation of groundwater at the Site will continue until the risk-based cleanup standards ( $1.0 \times 10^{-4}$  and Hazard Index less than or equal to 1) are achieved throughout the attainment area.

Land use near the Site has not changed significantly since the 2015 FYR, and still remains a mixture of agricultural and residential. Although municipal solid waste disposal operations at the Site have continued throughout the Site's history, this does not affect the protectiveness of the remedy, and the groundwater remediation systems are being fully maintained. No physical changes to Site conditions have been made that would affect the protectiveness of the remedy.

As part of this FYR, EPA performed a vapor intrusion re-evaluation for the groundwater treatment plant building at the Modern Landfill. The 2015 FYR assessed the potential for VI to be a concern in the treatment plant building from contaminated groundwater as very low. EPA's re-evaluation was based on 2018 groundwater data from shallow monitoring well MD112S, the closest shallow well to the building. VOC detections in 2018 included benzene, chlorobenzene, 1,4-dichlorobenzene, 1,1-dichloroethane, 1,2-dichloroethane, cis-1,2-dichloroethene, methylene chloride, and vinyl chloride. The risk results demonstrate that none of groundwater concentrations for the VOCs detected would generate indoor air concentrations above the commercial/industrial regional screening levels (RSLs). As a result, the potential for VI to be a concern in the treatment plant building remains very low. The other nearby shallow monitoring wells (MD201S, MD207S, MD210S, and MD 212S) had no detections of VOCs in 2018, as they have for more than a decade.

In addition, EPA's 2010 VI evaluation for residences or businesses near the Site remains valid. The groundwater plumes are controlled by the groundwater extraction system and there are no residences or businesses within 100 feet of the groundwater impacts. Therefore, the potential for VI is unlikely.

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

No other information has come to light that could call into question the protectiveness of the remedy.

## **VI. ISSUES/RECOMMENDATIONS**

<b>Issues/Recommendations</b>
<b>OU(s) without Issues/Recommendations Identified in the FYR:</b>
OU01

### **OTHER FINDINGS**

One finding was identified during the FYR. This recommendation does not affect protectiveness.

- No Site documents were available at the site repository. After this FYR is complete, EPA will provide information to the library for public access to the 2020 FYR Report.

## VII. PROTECTIVENESS STATEMENTS

Protectiveness Statement	
<i>Operable Unit:</i> OU1	<i>Protectiveness Determination:</i> Protective
<i>Protectiveness Statement:</i> The remedy is protective of human health and the environment. The cap and cover systems installed over the 66-acre Site is functioning properly and prevents direct exposure to landfill waste. The groundwater remedy is functioning as intended by the decision documents and intercepts impacted groundwater flowing beneath the 66-acre unlined landfill. Institutional controls are in place to protect the integrity of remedial components and prevent drilling of groundwater wells within impacted areas. All exposure pathways that could result in unacceptable risks are being controlled.	

## VIII. GOVERNMENT PERFORMANCE AND RESULTS ACT MEASURES

As part of this FYR, the Government Performance and Results Act (GPRA) Measures have been reviewed. The GPRA Measures and their status are as follows:

### Environmental Indicators

Human Health: Human Exposure Controlled and Protective Remedy in Place

Groundwater Migration: Contaminated Groundwater Migration Under Control

### Sitewide Ready for Anticipated Use (SWRAU)

The Site achieved SWRAU (6/27/2008)

## IX. NEXT REVIEW

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

## **APPENDIX A – REFERENCE LIST**

EPA, October 20, 2000. Preliminary Close Out Report, Modern Sanitary Landfill.

EPA, June 10, 1993. Modern Landfill Superfund Site Consent Decree.

EPA, June 2001. Comprehensive Five-Year Guidance Document, Office of Emergency and Remedial Response, EPA 540-R-01-007/OSWER No. 9355.7-03B-P.

EPA, June 28, 1991. Record of Decision, Modern Landfill, York, Pennsylvania.

EPA, February 25, 2015. Explanation of Significant Differences, Modern Sanitation Landfill Superfund Site, Windsor and Lower Windsor Townships, York County, Pennsylvania.

EPA, March 4, 2015. Third Five-Year Review Report, Modern Sanitation Landfill Superfund Site, Windsor and Lower Windsor Townships, York County, Pennsylvania.

Lower Windsor Township, Subdivision and Land Development Ordinance amended December 11, 2014 as Ordinance No. 2014-04.

Taylor Geoservices, revised August 2017. 2016 Annual Groundwater Assessment Report, Modern Landfill, York, Pennsylvania.

Taylor Geoservices, June 2018. 2017 Annual Groundwater Assessment Report, Modern Landfill, York, Pennsylvania.

Taylor Geoservices, June 2019. 2018 Annual Groundwater Assessment Report, Modern Landfill, York, Pennsylvania.

Windsor Township, Subdivision and Land Development Ordinance adopted on September 21, 2015 as Ordinance No. 2015-9-02.

## APPENDIX B – SITE CHRONOLOGY

**Table B-1: Site Chronology**

Event	Date
Excavation for two iron ore mines	Pre-1800s
On-Site disposal of municipal/residual wastes in central area of original unlined 66-acre landfill	Early 1940s until 1952
Original landfill extended to south, southeast, east and west; waste disposal permit application submitted 1971	1952 to 1971
Original landfill extended to the south and northeast	1972 to 1979
First study for remedial activity	1975
Groundwater interceptor trench and surface impoundment treatment system installed	1977
Capping and landfill expansion activities	1980s
VOCs detected in groundwater and surface water samples by PADER	1981
EPA Field Investigation Team conducts Preliminary Assessment and Site Investigation; makes recommendations	1982
Quarterly sampling of monitoring wells initiated	August 1983
Consent Order and Agreement with PADER	September 1984
Western Groundwater Extraction System (WGES) operational	January 1985
Site placed on NPL	June 1986
Eastern Groundwater Extraction System (EGES) operational	November 1986
PADEP issues NPDES Permit PA0046680	November 1986
Consent Order and Agreement with PADEP (supersedes 1984 agreement)	December 1986
Construction of Landfill Gas Management System	1987 to 1989
New wastewater treatment plant constructed	April 1987
Consent Order and Agreement with PADEP	November 1987
Cap construction on 66-acre landfill	1988 to 1994
Permit Modification to construct Northern Expansion granted by PADEP	December 1990
Remedial Investigation completed	1990
Feasibility Study completed	1991
Record of Decision issued by EPA	June 28, 1991
Southwest Expansion permit granted by PADEP	May 1993
Consent Decree for Remedial Action and cost recovery signed by EPA, PADEP, and Modern Landfill	June 1993
Redesign of the 4-acre highwall cap conditionally approved by EPA	September 1995
EPA agrees to defer construction of the 4-acre highwall cap pending results of the Demonstration Project and PADEP review	July 1996
Demonstration Project for the Enhanced Western Groundwater Groundwater Control System (EWGCS) installed and tested	February to October 1997
EPA concludes that EWGCS is equivalent to the Western Groundwater Extraction System and issued approval to construct the EWGCS	July 1998
PADEP approves Northwest Expansion permit application	April 1999
EWGCS constructed	May to December 1999

<b>Event</b>	<b>Date</b>
Construction of Cells 12A, 12B, 13A, and 13B of Northwest Expansion	May 1999 to August 2000
EPA accepted the Northwest Expansion design as meeting or exceeding the 4-acre highwall cap redesign	September 2000
Preliminary Close-Out Report (PCOR) signed by EPA	October 20, 2000
EPA and PADEP conduct final inspection of remediation to the 66-acre landfill	February 2001
EPA issues the 1 <sup>st</sup> Five-Year Review Report for the Site	March 4, 2005
Site determined to be Site-Wide Ready for Anticipated Use	June 27, 2008
EPA issues the 2 <sup>nd</sup> Five-Year Review Report for the Site	March 4, 2010
Vapor Intrusion (VI) pathway at the Site evaluated by EPA	August 16, 2013
EPA conducts the Site Inspection for the 3 <sup>rd</sup> Five-Year Review	October 7, 2014
ESD issued by EPA for Institutional Controls and Revised Groundwater Remediation Goals	February 25, 2015
EPA issues the 3 <sup>rd</sup> Five-Year Review Report	March 4, 2015

## APPENDIX C – PRESS NOTICE

# EPA PUBLIC NOTICE

## EPA REVIEWS CLEANUP MODERN SANITATION LANDFILL SUPERFUND SITE

The U.S. Environmental Protection Agency (EPA) is reviewing the cleanup that was conducted at the Modern Sanitation Landfill Superfund Site located in the townships of Windsor and Lower Windsor, York County, Pennsylvania. EPA conducts five-year reviews to ensure that cleanups protect public health and the environment. EPA conducted the previous five-year review in 2015 and concluded that the cleanup was protective in the short-term. Findings from the current review will be available in March 2020.

**To access site information, including the five-year review report once finalized, visit: <https://www.epa.gov/superfund/modernsanitation>**

**For questions or to provide site-related information for the review, contact:**  
Alex Mandell, EPA Community Involvement Coordinator  
215-814-5517 or [mandell.alexander@epa.gov](mailto:mandell.alexander@epa.gov)



## APPENDIX D – MONITORING SYSTEM SUMMARY

### MODERN LANDFILL MONITORING SYSTEM SUMMARY

<b>Groundwater Monitoring Wells (33 Total)</b>						
MU101	MD112S	MD133	MD208I	MD431	MD503SR	MD564D
MU127	MD113D	MD137	MD210S	MD432	MD504DR	MD565S
MU427	MD118	MD138	MD211I	MD433	MD505SR	MD566D
	MD119	MD201S	MD212S	MD501S	MD506DR	MD569SR
	MD125	MD207S	MD403	MD502D	MD563S	MD570DR

<b>Groundwater Constituent Assessment Wells (8 Total)</b>			
W23	MD120	MD123I	MD202D
W34	MDR122S	MD128	MD209D

Key to well designation system:

Position:	Depth:
M=Modern	S=Shallow
D=Downgradient	I=Intermediate
U=Upgradient	D=Deep

<b>Groundwater Extraction Wells (16 Active)</b>			
Enhanced Western Groundwater Control System (EWGCS)	Eastern Groundwater Extraction System (EGES)		
ESW-1	W21	W38	W43
ESW-2	W35	W39	W44
ESW-3	W36	W40	W45
ESW-4	W37	W41	W60R

Notes:

Well W60R was installed in November 2015 and replaced Well W60

<b>Surface Water Sampling Points (9 Total)</b>				
Western Stream		Eastern Stream		Treatment Plant
MS108	MS400	MS112	MS115	MTP-001
MS201	MS401	MS114	MS202	

Key to surface water sampling point designation system

M=Modern TP=Treatment Plant (outfall) S=Stream

**MODERN LANDFILL  
MONITORING FREQUENCY AND PARAMETER SUMMARY**

<b>2018 Sampling Event</b>	<b>Groundwater Monitoring Wells</b>	<b>Surface Water Sampling Points</b>	<b>Groundwater Extraction Wells</b>	<b>Groundwater Constituent Assessment Wells</b>
First Quarter	PADEP Form 19 Quarterly Parameters	PADEP Form 19 Quarterly Parameters	Not Sampled	Not Sampled
Second Quarter	PADEP Form 19 Quarterly Parameters	PADEP Form 19 Quarterly Parameters	Not Sampled	Not Sampled
Third Quarter (Annual Event)	PADEP Form 19 Annual and Quarterly Parameters			
Fourth Quarter	PADEP Form 19 Quarterly Parameters	PADEP Form 19 Quarterly Parameters	Not Sampled	Not Sampled

# APPENDIX F – 2018 SUMMARY OF TOTAL VOC CONCENTRATIONS

## MODERN LANDFILL 2018 ANNUAL GROUNDWATER ASSESSMENT REPORT SUMMARY OF HISTORIC ANNUAL TOTAL VOLATILE ORGANIC COMPOUND CONCENTRATIONS

Eastern Groundwater Extraction System (EGES) [Sampled Annually]																																		
Well Name	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Change 2017 vs 2018	
W21	14.2	12.4	0.0	0.0	0	0	0	0.5	0	0.0	0	0	0	0	0	0	0	1.1	0	0	0	0	0	0	0	0	0	0	16.6/0.0*	0	0	0		
W35	40.2	18.7	17.4	29.0	52.0	25.5	19.0	14.0	14.5	10.0	7.0	6.0	2.2	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
W36	455.2	417.4	361.9	360.0	437.0	148.0	134.0	100.9	107.0	112.0	93.9	77.9	76.1	62.4	45.0	65.1	51.4	29.8	18.9	23.1	20.5	17.5	15.7	7.8	9.8	7.2	7.8	5.5	5.1	5.3	6.2	4.22	-1.98	
W37	98.4	58.1	42.0	55.0	104.0	133.0	112.8	69.0	53.9	83.0	35.7	26.0	45.1	22.3	29.4	12.0	50.5	24.6	17.7	12.8	15.8	13.3	11.9	11.9	12.0	4.5	7.8	7.0	3.7	3.5	6.0	7.52	1.52	
W38	130.0	70.8	23.2	24.0	100.0	81.6	127.8	25.6	37.2	85.0	33.0	26.7	23.3	36.7	32.8	42.3	73.4	30.7	17.2	19.4	25.3	58.3	47.3	4.8	12.7	3.3	8.5	13.8	17.8	19.1	9.1	35.25	26.15	
W39	312.3	433.0	261.3	176.0	384.0	304.0	291.0	266.0	296.0	300.0	305.0	272.0	346.0	283.7	153.0	327.3	244.4	205.1	239.5	212.2	201.9	185.6	199.3	180.9	133.2	148.3	156.7	125.5	114.7	128.9	110.4	66.28	-44.12	
W40	301.1	259.3	227.7	260.0	326.0	244.0	300.0	268.0	315.0	220.0	262.0	200.0	270.5	215.6	193.9	268.5	152.0	150.0	206.4	197.2	185.6	8.7	146.2	159.0	76.1	114.8	93.8	97.4	71.9	71.2	63.8	32.46	-31.34	
W41	378.7	702.7	249.4	141.0	469.0	263.0	338.0	303.0	287.0	212.0	311.0	244.0	317.1	213.5	228.7	288.4	129.5	144.2	235.1	193.7	195.8	125.5	117.7	163.9	32.9	75.0	79.7	57.6	49.0	52.0	33.9	8.40	-25.50	
W43	223.3	347.1	43.6	133.0	199.0	255.0	156.0	201.0	164.0	118.0	158.0	94.0	135.4	122.9	134.6	143.2	134.7	83.1	132.0	82.7	84.0	79.7	67.9	67.6	33.0	40.5	30.9	29.8	25.5	20.9	16.9	12.20	-4.70	
W44	76.3	22.6	11.2	7.0	450.0	16.0	16.1	99.0	8.0	6.9	6.8	3.8	7.4	4.8	3.8	10.5	8.8	13.6	2.0	1.8	1.6	1.5	1.1	0	0	0	0	0	0	0	0	0	0	0
W45	46.7	19.9	0.0	0.0	0	1.5	0	0.5	0.5	0.0	7.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
W60/W60R	176.4	ND	ND	8.0	182.0	132.0	170.0	176.5	96.0	76.0	77.6	79.8	81.0	52.5	114.0	60.1	60.0	33.7	30.0	31.4	29.2	35.2	28.2	24.9	26.9	45.3	22.5	28.1	42.2	43.0	30.4	36.84	6.44	

Enhanced Western Groundwater Control System (EWGCS) [Sampled Annually]																																	
ESW-1	---	---	---	---	---	---	---	---	---	---	---	---	---	60.4	59.5	85.5	79.0	73.1	65	70.0	62.4	56.4	58.1	ND	53.1	56.5	70.1	65.0	66.7	82.7	61.9	41.01	-20.89
ESW-2	---	---	---	---	---	---	---	---	---	---	---	---	---	78.6	92.7	91.9	73.3	68.5	63.9	53.5	46.1	37.1	33.0	24.2	31.8	43.9	37.1	24.7	32.9	42.1	44.1	5.26	-38.84
ESW-3	---	---	---	---	---	---	---	---	---	---	---	---	---	120.7	130.4	171.8	45.8	103.8	96.8	94.6	82.1	73.0	70.6	53.6	49.8	47.4	44.0	47.6	41.9	74.6	31.0	39.06	8.06
ESW-4	---	---	---	---	---	---	---	---	---	---	---	---	---	39.8	47.8	106	120.2	42.1	30.4	25.9	27.3	28.1	26.3	40.4	23.3	26.5	38.1	24.7	46.5	52.8	53.0	37.97	-15.03

Groundwater Constituent Assessment Well Located on East Side of the Landfill Between Landfill and the Eastern Groundwater Extraction System Wells [Sampled Annually]																																			
MD120	787.3	1,199.9	986	1,543	3,000	4,216	1,115	810	924	540	256	239	327.3	376.4	383.2	371.7	283.4	247.5	339.7	314.4	277.2	266.1	291.4	250.0	209.3	180.3	77.2	100.7	114.6	107.2	115.8	118.82	3.02		
MD1228/MDR1228	2,582.02	2,949	2,584.38	1,560	2,130	ND	1,217	717	634	488	354	270	436	255.2	204.8	218.2	246.8	207.7	216.2	287.8	194.8	73.9	ND	161.4	182.3	160.5	70.8	84.1	74.8	45.0	40.1	19.55	-20.55		
MD123I	ND	587.6	0	376	ND	ND	ND	24.0	53.0	60.5	51.0	62.0	81.7	85.8	74.3	107.7	80.6	87.9	93.2	110.4	116.5	112.7	126.9	101.3	103.8	81.8	65.6	85.2	86.1	82.9	81.6	97.44	15.84		
MD128	0	6.4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
MD202D	---	ND	ND	ND	0	0	0	ND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ND	0	0	0	0	0	0	0	0	0	
MD209D	---	---	---	---	0	0	0	ND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
W23	22.4	12.1	12.8	6.0	8.3	19.3	24.0	24.3	14.0	12.0	8.0	6.0	2.3	2.3	0	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
W34	34.7	32.5	18.0	12.0	21.6	10.0	10.8	13.2	9.0	2.1	7.0	6.0	2.4	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Surface Water Sampling Points (Sampled Quarterly)																																						
MS108	ND	ND	ND	ND	0	0.3	0	0	0	0	0	0	0	0.3	1.7	7.2	1.0	0.9	0	0	DRY	DRY	0	0	DRY	0	0											
MS112	ND	ND	ND	ND	0	0	0	0	0	0	0	0	0	0	0	0	ND	0.7	0.8	0.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
MS114	ND	ND	ND	ND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
MS115	ND	ND	ND	ND	0	0	0	0	0	0	0	0	0	0	0	0	ND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
MS201	ND	ND	ND	ND	0	28.7	0	0	0	0	0	0	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
MS202	ND	ND	ND	ND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
MS400	ND	ND	ND	ND	ND	ND	ND	ND	0	0	0	0	0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
MS401	ND	ND	ND	ND	ND	ND	ND	ND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MTP001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.2	0	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	0	0	0.9	0.75	2.2	0	0	0

ND No Data      --- Well Not Installed

\*The results for W-21 for 2016 presented in this table are from both the 2016 annual sample and a confirmation sample that was collected on June 21, 2017. The VOC results from the annual sample collected in the 3rd quarter of 2016 are considered suspect as VOCs have not been detected in this well for more than 12 years. The results from the 6/21/17 are non-detect, which agree with historic data. Although considered suspect, the 3rd quarter 2016 results and the 6/21/17 sample results are reported here for completeness.

Well MDR1228 replaced well MD1228 in 2010

Well W60R replaced well W-60 in December 2015

**MODERN LANDFILL**  
**2018 ANNUAL GROUNDWATER ASSESSMENT REPORT**  
**SUMMARY OF HISTORIC ANNUAL TOTAL VOLATILE ORGANIC COMPOUND CONCENTRATIONS**

Wells Located Outside of the Extraction Systems (Sampled Quarterly)																														Change					
Well Name	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2017 vs 2018		
MD112S	0	1.6	1.3	0	0	0.8	0.9	0.4	0.2	0	0	0	0	0	1.0	0.7	1.4	1.5	4.1	12.7	17.3	6.7	8.6	17.0	5.3	4.0	9.3	14.3	16.2	11.2	12.7	9.36	-3.31		
MD113D	7.6	3.3	2.1	0	0	2.0	2.8	2.7	3.2	3.9	3.4	3.4	2.1	2.3	2.1	2.4	0.0	3.1	3.3	5.3	1.9	1.1	1.6	1.6	1.3	1.0	0	0.6	0	0	1.02	1.02			
MD118	1.5	0.8	2.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
MD119	0.7	0.7	3.1	0	0	0.6	0.6	0.1	0	0	0	0	0	0	0	0	12.0	0	0	0	0	0	0.0	4.4	11.6	29.9	22.2	43.5	47.0	12.6	16.6	6.95	31.65	24.70	
MD125	34.36	48.4	120.3	180.8	133.3	134.4	116.6	57.5	50.7	34.0	18.6	12.9	11.6	6.1	6.0	2.2	1.3	13.1	12.6	25.6	17.5	14.5	16.3	8.0	3.5	1.4	0.9	0	0	0	0	0	0		
MD133	2.3	2.4	2.7	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MD137	23.6	17.3	1.6	0	0	0.9	0	0.9	0	0.3	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MD138	32.83	6.4	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9	0	0	1.8	0	0	3.5	0	0	0.13	0.13		
MD201S	---	ND	ND	ND	0	0	0	0	0	0.6	2.2	0.7	0.9	0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MD207S	---	---	---	---	0	0	0	0.7	0.1	0.7	0.9	1.2	1.0	2.3	3.8	2.5	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MD208I	---	---	---	---	0	0	0	0	0	0	0	0.2	0	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MD210S	---	---	---	---	0	0	0	0	0	0.2	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MD211H	---	---	---	---	0	0	0	1.0	0	0	0	0	0	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MS212S	---	---	---	---	0	0	0	0	0	0	0	0	0	0	0	0	0	33.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MD403	ND	ND	ND	ND	ND	ND	ND	ND	0.2	0	0	0	0	0	0	0.7	0	0	0	0	0	0.8	0	0	0	0	0	0	0	0	0	0	0	0	
MD431	---	---	---	---	---	---	---	---	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD432	---	---	---	---	---	---	---	---	0	0	0	0	0	0	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD433	---	---	---	---	---	---	---	---	---	0	0	0	0	0	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD501S	---	---	---	---	---	---	---	---	0	0	ND	ND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD502D	---	---	---	---	---	---	---	---	0	0	ND	ND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD503S/R	---	---	---	---	---	---	---	---	0	0	ND	ND	0	0	0	0	0	0	0	0	0	1.1	1.8	0	0	0	0	0	0	0	0	0	0	0	0
MD504D/R	---	---	---	---	---	---	---	---	0	0	ND	ND	0	0	0	0.6	0	0	0	0	0	3.3	0	0	1	0	0	0	0	0	0	0	0	0	0
MD505S/R	---	---	---	---	---	---	---	---	0	0	ND	ND	0	0	0	0	0	0	1.7	2.2	1.7	0	0	0	0	0	0	0	1.70	3.13	4.80	5.65	0.85	0.85	
MD506D/R	---	---	---	---	---	---	---	---	0	0	ND	ND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD563S	---	---	---	---	---	---	---	---	ND	ND	ND	ND	0	0	0	0	0	0	0	0	0	0.7	0	0	0	0	0	0	0	0	0	0	0	0	0
MD564D	---	---	---	---	---	---	---	---	ND	ND	ND	ND	0	0	0	0	0	0	0	0	0	0.8	0	0	0	0	0	0	0	0	0	0	0	0	0
MD565S	---	---	---	---	---	---	---	---	ND	ND	ND	ND	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0	0	0	0	0	0	0	0	0	0
MD566D	---	---	---	---	---	---	---	---	ND	ND	ND	ND	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD569S/R	---	---	---	---	---	---	---	---	ND	ND	ND	ND	0	0	0	0.7	11.2	6.0	4.5	2.8	3.1	2.1	1.0	1.1	0.8	0.6	0	0	0	0	0.60	0.21	-0.39	-0.39	
MD570D/R	---	---	---	---	---	---	---	---	ND	ND	ND	ND	0	0	0	0	11.4	7.6	4.7	2.8	2.8	2.0	0.7	0.7	0.8	0	0	0	0	0	0	0	0	0	0

Wells Located Upgradient of the Landfill (Sampled Quarterly)																																		
MU101	0	1.3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.0	2.0	1.9	1.3	0	0	0	0	0	0	0	0	0.28	0	0	0	
MU127	10.9	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	0	0	0	0	0	0	0	0	0	0	0	0	0	
MU427	---	---	---	---	---	---	---	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.1	0	0	0	0	0	0	0	0	0

ND No Data      --- Well Not Installed

For monitoring points sampled annually, the total VOC concentrations presented in this table are the total VOC results from the annual sampling event.  
 For monitoring points sampled quarterly, the total VOC concentrations presented in this table are the average of the four quarterly total VOC results.

**APPENDIX G – SITE INSPECTION CHECKLIST**

<b>FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST</b>															
<b>I. SITE INFORMATION</b>															
<b>Site Name:</b> Modern Sanitation Landfill		<b>Date of Inspection:</b> October 10, 2019													
<b>Location and Region:</b> York, PA, Region 3		<b>EPA ID:</b> PAD980539068													
<b>Agency, Office or Company Leading the Five-Year Review:</b> EPA		<b>Weather/Temperature:</b> partly cloudy, 70°F													
<b>Remedy Includes:</b> (Check all that apply) <table style="width: 100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Landfill cover/containment</td> <td><input type="checkbox"/> Monitored natural attenuation</td> </tr> <tr> <td><input checked="" type="checkbox"/> Access controls</td> <td><input type="checkbox"/> Groundwater containment</td> </tr> <tr> <td><input checked="" type="checkbox"/> Institutional controls</td> <td><input type="checkbox"/> Vertical barrier walls</td> </tr> <tr> <td><input checked="" type="checkbox"/> Groundwater pump and treatment</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Surface water collection and treatment</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Other: landfill gas extraction</td> <td></td> </tr> </table>				<input checked="" type="checkbox"/> Landfill cover/containment	<input type="checkbox"/> Monitored natural attenuation	<input checked="" type="checkbox"/> Access controls	<input type="checkbox"/> Groundwater containment	<input checked="" type="checkbox"/> Institutional controls	<input type="checkbox"/> Vertical barrier walls	<input checked="" type="checkbox"/> Groundwater pump and treatment		<input type="checkbox"/> Surface water collection and treatment		<input checked="" type="checkbox"/> Other: landfill gas extraction	
<input checked="" type="checkbox"/> Landfill cover/containment	<input type="checkbox"/> Monitored natural attenuation														
<input checked="" type="checkbox"/> Access controls	<input type="checkbox"/> Groundwater containment														
<input checked="" type="checkbox"/> Institutional controls	<input type="checkbox"/> Vertical barrier walls														
<input checked="" type="checkbox"/> Groundwater pump and treatment															
<input type="checkbox"/> Surface water collection and treatment															
<input checked="" type="checkbox"/> Other: landfill gas extraction															
<b>Attachments:</b> <input checked="" type="checkbox"/> Inspection team roster attached <input type="checkbox"/> Site map attached															
<b>II. INTERVIEWS</b> (check all that apply)															
1. <b>O&amp;M Site Manager</b>	<u>Randy Deardorff</u> Name	<u>Env. Manager, Modern Landfill</u> Title	<u>10/10/2019</u> Date												
Interviewed <input checked="" type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone    Phone: <u>717-356-1949</u> Problems, suggestions <input type="checkbox"/> Report attached: _____															
2. <b>O&amp;M Staff</b>	<u>Karl Schmit</u> Name	<u>Area Environmental Manager</u> Title	<u>10/10/2019</u> Date												
Interviewed <input checked="" type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone    Phone: <u>610-223-0922</u> Problems/suggestions <input type="checkbox"/> Report attached: _____															

3. **Local Regulatory Authorities and Response Agencies** (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.

Agency PADEP  
 Contact Larry Smith Licensed PG 10/10/2019 717-705-4852  
 Name Title Date Phone No.  
 Problems/suggestions  Report attached: \_\_\_\_\_

Agency \_\_\_\_\_  
 Contact \_\_\_\_\_  
 Name Title Date Phone No.  
 Problems/suggestions  Report attached: \_\_\_\_\_

Agency \_\_\_\_\_  
 Contact \_\_\_\_\_  
 Name Title Date Phone No.  
 Problems/suggestions  Report attached: \_\_\_\_\_

Agency \_\_\_\_\_  
 Contact \_\_\_\_\_  
 Name Title Date Phone No.  
 Problems/suggestions  Report attached: \_\_\_\_\_

Agency \_\_\_\_\_  
 Contact \_\_\_\_\_  
 Name Title Date Phone No.  
 Problems/suggestions  Report attached: \_\_\_\_\_

4. **Other Interviews** (optional)  Report attached: \_\_\_\_\_

**III. ON-SITE DOCUMENTS AND RECORDS VERIFIED** (check all that apply)

1. **O&M Documents**
- |   |   |  |                              |
|---|---|--|------------------------------|
| <input checked="" type="checkbox"/> O&M manual        | <input checked="" type="checkbox"/> Readily available | <input checked="" type="checkbox"/> Up to date | <input type="checkbox"/> N/A |
| <input checked="" type="checkbox"/> As-built drawings | <input checked="" type="checkbox"/> Readily available | <input checked="" type="checkbox"/> Up to date | <input 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. **Site-Specific Health and Safety Plan**  Readily available  Up to date  N/A  
 Contingency plan/emergency response plan  Readily available  Up to date  N/A

Remarks: \_\_\_\_\_

3. **O&M and OSHA Training Records**  Readily available  Up to date  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 type="checkbox"/> Waste disposal, POTW	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" 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: <u>PADEP Soild Waste Permit No. 100113</u>					
5.	<b>Gas Generation Records</b>		<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" 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 type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" 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 checked="" type="checkbox"/> Water (effluent)	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input 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: _____					
<b>IV. O&amp;M COSTS</b>					
1.	<b>O&amp;M Organization</b>				
		<input type="checkbox"/> State in-house	<input type="checkbox"/> Contractor for state		
		<input checked="" type="checkbox"/> PRP in-house	<input type="checkbox"/> Contractor for PRP		
		<input type="checkbox"/> Federal facility in-house	<input type="checkbox"/> Contractor for Federal facility		
		<input type="checkbox"/> _____			



<b>C. Institutional Controls (ICs)</b>			
<b>1. Implementation and Enforcement</b>			
Site conditions imply ICs not properly implemented	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Site conditions imply ICs not being fully enforced	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Type of monitoring (e.g., self-reporting, drive by): <u>self-reporting</u>			
Frequency: <u>daily</u>			
Responsible party/agency: <u>PRP</u>			
Contact	<u>Karl Schmit</u>	<u>Area Env. Mgr.</u>	
	Name	Title	
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 type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Violations have been reported	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" 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: <u>The integrity of actions completed for this Site will be protected in the future by implementation of the PADEP-approved Closure Plan and Postclosure Land Use Plan for the facility under PADEP Solid Waste Permit No. 100113.</u>			
<b>D. General</b>			
<b>1. Vandalism/Trespassing</b> <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> No vandalism evident			
Remarks: _____			
<b>2. Land Use Changes On Site</b> <input checked="" type="checkbox"/> N/A			
Remarks: <u>The Site is part of an active landfill facility and the property is zoned as industrial use.</u>			
<b>3. Land Use Changes Off Site</b> <input checked="" type="checkbox"/> N/A			
Remarks: <u>No changes to land use off Site during this FYR period.</u>			
<b>VI. GENERAL SITE CONDITIONS</b>			
<b>A. Roads</b> <input 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> Lengths: _____ Widths: _____ Depths: _____ Remarks: _____	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Cracking not evident
3.	<b>Erosion</b> Area extent: _____ Remarks: _____	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Erosion not evident Depth: _____
4.	<b>Holes</b> Area extent: _____ Remarks: _____	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Holes not evident Depth: _____
5.	<b>Vegetative Cover</b> <input checked="" type="checkbox"/> No signs of stress Remarks: _____	<input checked="" type="checkbox"/> Grass <input type="checkbox"/> Trees/shrubs (indicate size and locations on a diagram)	<input checked="" type="checkbox"/> Cover properly established
6.	<b>Alternative Cover</b> (e.g., armored rock, concrete) Remarks: _____		<input checked="" type="checkbox"/> N/A
7.	<b>Bulges</b> Area extent: _____ Remarks: _____	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Bulges not evident Height: _____
8.	<b>Wet Areas/Water Damage</b> <input type="checkbox"/> Wet areas <input type="checkbox"/> Ponding <input type="checkbox"/> Seeps <input type="checkbox"/> Soft subgrade Remarks: _____	<input checked="" type="checkbox"/> Wet areas/water damage not evident <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Location shown on site map	Area extent: _____ Area extent: _____ Area extent: _____ Area extent: _____
9.	<b>Slope Instability</b> <input checked="" type="checkbox"/> No evidence of slope instability Area extent: _____ Remarks: _____	<input type="checkbox"/> Slides	<input type="checkbox"/> Location shown on site map
<b>B. Benches</b> <input type="checkbox"/> Applicable <input checked="" 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> Remarks: _____	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay
2.	<b>Bench Breached</b> Remarks: _____	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay

3.	<b>Bench Overtopped</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay
Remarks: _____			
<b>C. Letdown Channels</b> <input type="checkbox"/> Applicable <input checked="" 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 type="checkbox"/> No evidence of settlement
Area extent: _____		Depth: _____	
Remarks: _____			
2.	<b>Material Degradation</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of degradation
Material type: _____		Area extent: _____	
Remarks: _____			
3.	<b>Erosion</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of erosion
Area extent: _____		Depth: _____	
Remarks: _____			
4.	<b>Undercutting</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> No evidence of undercutting
Area extent: _____		Depth: _____	
Remarks: _____			
5.	<b>Obstructions</b>	Type: _____	<input type="checkbox"/> No obstructions
<input type="checkbox"/> Location shown on site map		Area extent: _____	
Size: _____			
Remarks: _____			
6.	<b>Excessive Vegetative Growth</b>	Type: _____	
<input 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 checked="" type="checkbox"/> Active	<input type="checkbox"/> Passive
<input type="checkbox"/> Properly secured/locked		<input checked="" type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled
<input type="checkbox"/> Evidence of leakage at penetration		<input type="checkbox"/> Needs maintenance	<input type="checkbox"/> Good condition
			<input type="checkbox"/> N/A
Remarks: _____			
2.	<b>Gas Monitoring Probes</b>		
<input type="checkbox"/> Properly secured/locked		<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled
<input type="checkbox"/> Evidence of leakage at penetration		<input type="checkbox"/> Needs maintenance	<input checked="" 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 type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A		
1.	<b>Siltation</b>	Area extent: _____	Depth: _____	<input type="checkbox"/> N/A	
	<input type="checkbox"/> Siltation not evident				
Remarks: _____					
2.	<b>Erosion</b>	Area extent: _____	Depth: _____		
	<input type="checkbox"/> Erosion not evident				
Remarks: _____					
3.	<b>Outlet Works</b>	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A		
Remarks: _____					

4.	<b>Dam</b>	<input 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 type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	<b>Siltation</b>	<input type="checkbox"/> Location shown on site map	<input 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 type="checkbox"/> Vegetation does not impede flow			
Area extent: _____		Type: _____	
Remarks: _____			
3.	<b>Erosion</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Erosion not evident
Area extent: _____		Depth: _____	
Remarks: _____			
4.	<b>Discharge Structure</b>	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A
Remarks: _____			
<b>VIII. VERTICAL BARRIER WALLS</b>		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1.	<b>Settlement</b>	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Settlement not evident
Area extent: _____		Depth: _____	
Remarks: _____			
2.	<b>Performance Monitoring</b>	Type of monitoring: _____	
<input 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 checked="" type="checkbox"/> Good condition <input type="checkbox"/> All required wells properly operating <input type="checkbox"/> Needs maintenance <input type="checkbox"/> N/A
Remarks: _____	
2. <b>Extraction System Pipelines, Valves, Valve Boxes and Other Appurtenances</b>	<input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance
Remarks: _____	
3. <b>Spare Parts and Equipment</b>	<input checked="" type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided
Remarks: _____	
<b>B. Surface Water Collection Structures, Pumps and Pipelines</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A	
1. <b>Collection Structures, Pumps and Electrical</b>	<input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance
Remarks: _____	
2. <b>Surface Water Collection System Pipelines, Valves, Valve Boxes and Other Appurtenances</b>	<input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance
Remarks: _____	
3. <b>Spare Parts and Equipment</b>	<input type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided
Remarks: _____	
<b>C. Treatment System</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A	
1. <b>Treatment Train</b> (check components that apply)	<input type="checkbox"/> Metals removal <input type="checkbox"/> Oil/water separation <input checked="" type="checkbox"/> Bioremediation
	<input checked="" type="checkbox"/> Air stripping <input type="checkbox"/> Carbon adsorbers
	<input checked="" type="checkbox"/> Filters: _____
	<input type="checkbox"/> Additive (e.g., chelation agent, flocculent): _____
	<input type="checkbox"/> Others: _____
	<input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance
	<input checked="" type="checkbox"/> Sampling ports properly marked and functional
	<input checked="" type="checkbox"/> Sampling/maintenance log displayed and up to date
	<input checked="" type="checkbox"/> Equipment properly identified
	<input checked="" type="checkbox"/> Quantity of groundwater treated annually: <u>40 million gallons</u>
	<input type="checkbox"/> Quantity of surface water treated annually: _____
Remarks: _____	

2.	<b>Electrical Enclosures and Panels</b> (properly rated and functional)
	<input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance Remarks: _____
3.	<b>Tanks, Vaults, Storage Vessels</b>
	<input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Proper secondary containment <input checked="" type="checkbox"/> Needs maintenance Remarks: _____
4.	<b>Discharge Structure and Appurtenances</b>
	<input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance Remarks: _____
5.	<b>Treatment Building(s)</b>
	<input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair <input type="checkbox"/> Chemicals and equipment properly stored Remarks: _____
6.	<b>Monitoring Wells</b> (pump and treatment remedy)
	<input checked="" 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"/> All required wells located <input type="checkbox"/> Needs maintenance <input type="checkbox"/> N/A Remarks: _____
<b>D. Monitoring Data</b>	
1.	<b>Monitoring Data</b>
	<input checked="" type="checkbox"/> Is routinely submitted on time <input checked="" type="checkbox"/> Is of acceptable quality
2.	<b>Monitoring Data Suggests:</b>
	<input checked="" type="checkbox"/> Groundwater plume is effectively contained <input checked="" type="checkbox"/> Contaminant concentrations are declining
<b>E. Monitored Natural Attenuation</b>	
1.	<b>Monitoring Wells</b> (natural attenuation remedy)
	<input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input type="checkbox"/> Needs maintenance <input checked="" type="checkbox"/> N/A Remarks: _____
<b>X. OTHER REMEDIES</b>	

<b>XI. OVERALL OBSERVATIONS</b>	
<b>A.</b>	<b>Implementation of the Remedy</b>
	<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>The remedy for the Site is to reduce infiltration of precipitation into the landfill and thereby reduce the quantity of leachate generated at the landfill and restore groundwater to the revised groundwater remediation goals (2015 ESD). The attainment area for this remediation is located between the NPL Site and the groundwater compliance monitoring and assessment points, all of which are located within the property boundary owned or leased by Modern. The remedy was considered complete when EPA signed the Preliminary Close-Out Report in October 2000. The remedy is functioning as designed and continues to intercept degraded groundwater containing leachate constituents flowing from beneath the 66-acre unlined landfill. Overall trends continue to show that monitoring wells located near the eastern side of the 66-acre landfill have shown significant decreases in VOC concentrations.</p>
<b>B.</b>	<b>Adequacy of O&amp;M</b>
	<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>No issues were observed related to O&amp;M.</p>
<b>C.</b>	<b>Early Indicators of Potential Remedy Problems</b>
	<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>No issues are anticipated.</p>
<b>D.</b>	<b>Opportunities for Optimization</b>
	<p>Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.</p> <p>There were no opportunities for system optimization observed during this review. Modern Landfill and their technical consultant, Taylor GeoServices, evaluate the performance of existing systems annually. Any opportunities for system optimization would be provided in the Annual Assessment Report. PADEP is the lead agency in review of the Annual Assessment Report and any recommendations for optimization would be assessed by EPA and PADEP.</p>

Site Inspection participants:

Frank Klanchar, EPA RPM  
 Ryan Bower, EPA hydrogeologist  
 Larry Smith, PADEP geologist  
 Karl Schmit, Republic Services  
 Randy Deardorff, Republic Services  
 Rusty Frey, Republic Services  
 Andy Sokol, Taylor GeoServices (Republic's technical consultant)  
 Alyssa Schell, Taylor GeoServices

## APPENDIX H – SITE INSPECTION PHOTOS



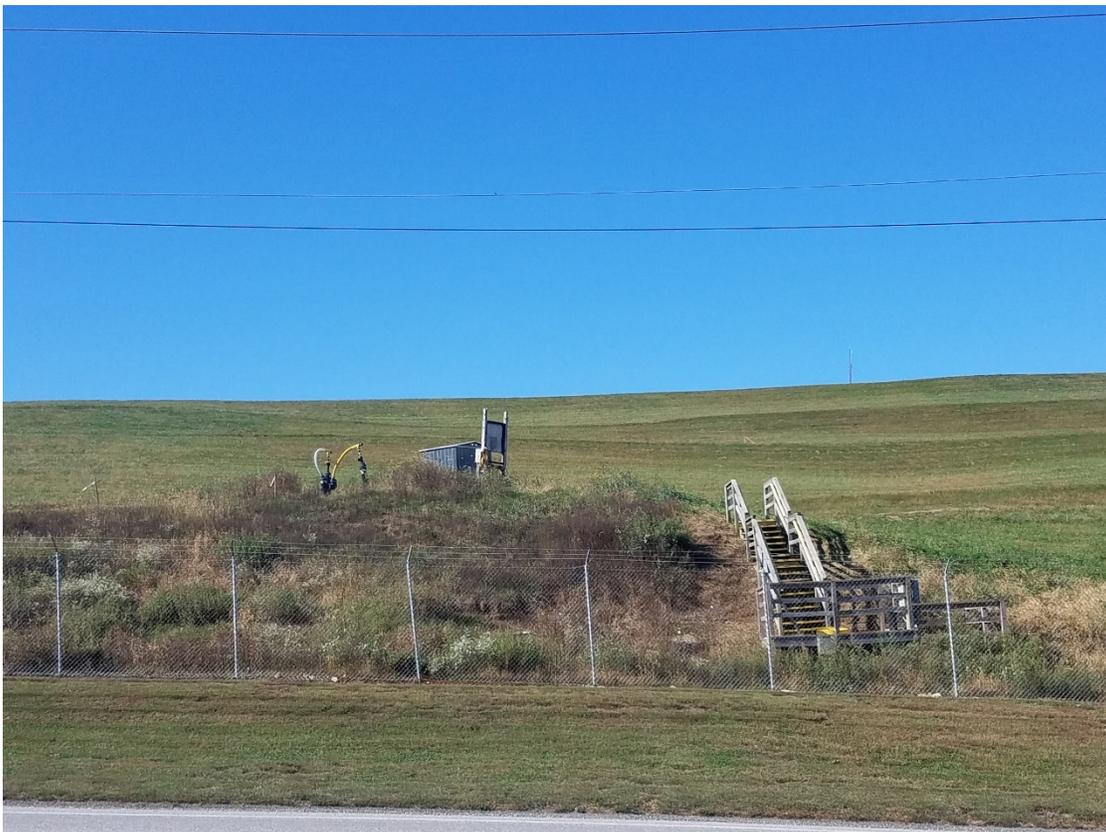
View of the 66-acre NPL Site looking north from Modern Landfill office parking lot



View of the 66-acre NPL Site looking southwest from the access road to the EGES along Mt. Pisgah Road



Looking north along Mt. Pisgah Road towards monitoring well MD119



Replacement extraction well W-60R



View of the 66-acre NPL Site looking south from northern access road



EWGCS extraction wells ESW-1, ESW-2, ESW-3, and ESW-4



Enclosed flares and a candle flare outside treatment plant



Biological reactor tanks inside treatment plant building