# SIXTH FIVE-YEAR REVIEW REPORT ASBESTOS DUMP SUPERFUND SITE OPERABLE UNIT 1 AND OPERABLE UNIT 2 Millington/Meyersville, Morris County, New Jersey



# Prepared by

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## LIST OF ABBREVIATIONS & ACRONYMS

ACM Asbestos-containing material

ARAR Applicable or Relevant and Appropriate Requirement

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act

CFR Code of Federal Regulations

EPA United States Environmental Protection Agency

FYR Five-Year Review ICs Institutional Controls

LSRP Licensed Site Remediation Professional

MCL Maximum Contaminant Level

MFL million fibers per liter

NCP National Oil and Hazardous Substances Pollution Contingency Plan

NGC National Gypsum Company

NJDEP New Jersey Department of Environmental Protection

NPL National Priorities List
O&M Operation and Maintenance

OU Operable Unit

RAO Remedial Action Objectives

ROD Record of Decision

RPM Remedial Project Manager

UU/UE Unlimited use and unrestricted exposure

#### I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the sixth FYR for the Asbestos Dump Superfund Site (Site). The triggering action for this statutory review is the July 29, 2020 completion date of the previous FYR for the Site. This FYR has been prepared due to the fact that hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of three remedial phases, or operable units (OUs). Operable Unit 1 (OU1) and Operable Unit 2 (OU2), which are evaluated in this FYR, address contaminated soil, groundwater, surface water and sediments. The FYR for Operable Unit 3 (OU3) is being prepared by the Department of the Interior's U.S. Fish and Wildlife Service (USFWS) as a separate report.

The Site's sixth FYR team included Joe Gowers, EPA (remedial project manager); Liana Agrios, EPA (hydrologist); Marian Olsen, EPA (human health risk assessor); Abigail DeBofsky, EPA (ecological risk assessor); Amelia Wagner, EPA (attorney); and Steve Petrucelli, EPA (community involvement coordinator). The New Jersey Department of Environment Protection (NJDEP) and OU1's Licensed Site Remediation Professional (LSRP), EWMA, were notified of the initiation of the FYR. The review began on 8/7/2024.

#### Site Background

The Site is located in Millington and Meyersville, Morris County, New Jersey. OU1 consists of the "Millington property" which is an 11-acre commercial property located at 50 Division Avenue in Millington, New Jersey. OU2 includes the "New Vernon Road" and "White Bridge Road" properties. The OU2 New Vernon Road property is located at 237 New Vernon Road in Meyersville, Long Hill Township, New Jersey. It consists of approximately 30 acres of land and is currently bounded by the Great Swamp National Wildlife Refuge (GSNWR) to the north, tracts of wooded and wetland areas to the east and south, and New Vernon Road to the west. The OU2 White Bridge Road property is located at 651 White Bridge Road in Long Hill Township, New Jersey. It is approximately two miles away from the New Vernon Road property and consists of approximately 12 acres of land, as well as the adjoining property, which is part of the GSNWR, in Meyersville, New Jersey. Maps of OU1 and OU2 with sampling locations may be found in Appendix A.

Manufacturing of asbestos-containing material (ACM) began at the Millington property in 1927 by Asbestos, Ltd., which engaged in the fiberization and sale of asbestos until 1946. While the property had changed ownership over the years, ACM continued to be produced until 1975 when the plant was closed by the National Gypsum Company (NGC), the owner at the time. During the period in which the asbestos manufacturing facility was in operation, asbestos-containing waste was disposed of on the Millington property. This included a 330-foot by 75-foot area (referred to as the asbestos mound) where predominantly asbestos fibers, siding and roofing material were disposed. When the Millington property reached its capacity for on-site disposal, asbestos-containing waste materials were disposed of at the New Vernon Road, White Bridge Road, and the Dietzman Tract (OU3) properties.

Asbestos was found in the form of broken tiles, siding and fibers at the Site. Asbestos was not detected above the current federal Maximum Contaminant Level (MCL) of 7 million fibers per liter (MFL) in the surface water and groundwater samples at OU1 and OU2.

More details related to the Site background, physical characteristics, geology/hydrogeology, and land/resource can be found in documents contained in the Site repositories or at <a href="https://www.epa.gov/superfund/asbestos-dump">https://www.epa.gov/superfund/asbestos-dump</a> (see section on webpage titled Site Documents and Data).

#### FIVE-YEAR REVIEW SUMMARY FORM

	SITE I	DENTIFICATION					
Site Name: ASBESTOS DUMP SUPERFUND SITE							
EPA ID: NJD980	654149						
Region: 2	State: NJ	City/County: Millington, Meyersville/Morris County					
	S	TE STATUS					
NPL Status: Deleted							
Multiple OUs? Yes	Has the Yes	e site achieved construction completion?					
REVIEW STATUS							
Lead agency: EPA							
Author name (Federal o	or State Project Ma	nager): Joe Gowers					
Author affiliation: United States Environmental Protection Agency							
Review period: 8/7/2024	4 – 4/7/2025						
Date of site inspection:	10/31/2024						
Type of review: Statutory							
Review number: 6							
Triggering action date: 7/29/2020							
Due date (five years afte	er triggering action o	late): 7/29/2025					

# II. RESPONSE ACTION SUMMARY

#### **Basis for Taking Action**

The 1988 OU1 Record of Decision (ROD) qualitative risk assessment was written at a time when risk assessment guidance was still being developed. The risk summary indicated that remedial actions, such as capping ACM, was necessary to prevent exposure to potential airborne asbestos.

The 1991 OU2 ROD quantitative risk assessment indicated that the cumulative upper bound risks associated with potential exposures to maximum asbestos concentrations in air at the New Vernon Road and White Bridge Road properties were  $1 \times 10^{-2}$  or a cancer risk of one in one hundred and  $3 \times 10^{-3}$  (one in a thousand), respectively. This exceeded the acceptable risk range of  $10^{-4}$  to  $10^{-6}$  (one in ten thousand to one in a million). Therefore, remedial actions were warranted.

Based on the risk assessments for OU1 and OU2, airborne asbestos was identified as the primary source of asbestos exposure. Therefore, the main objectives of the remedies for OU1 and OU2 were to contain the migration of asbestos-containing material, to eliminate exposure pathways that could present unacceptable risks and to conduct long-term monitoring of groundwater, surface water and sediments.

An ecological risk assessment was also conducted and indicated that ecological risks associated with sediment and surface water were not significant.

#### **Response Actions**

#### OUI Response Selection

EPA issued the OU1 ROD on September 30, 1988, selecting the remedial actions (RAs) for the "Millington site" portion of the Site. The OU1 remedial action objectives (RAOs) are to contain the migration of asbestos and prevent potential exposure to airborne asbestos through the consolidation and capping of asbestos-containing material.

The major components of the OU1 remedy are:

- Installation of a two-foot soil cover on areas of exposed or minimally covered asbestos;
- Installation of a chain-link security fence to restrict access to the asbestos mound;
- Construction of slope protection/stabilization measures along the asbestos mound embankment;
- Construction of surface runoff diversion channels on top of the asbestos mound;
- Operation and maintenance of the remedy;
- Long-term monitoring;
- Institutional controls to restrict on-site groundwater usage and limit development on the asbestos fill areas; and,
- Treatability studies of technologies for permanent destruction or immobilization of asbestos.

#### OU2 Response Selection

EPA issued the OU2 ROD on September 27, 1991, selecting the RAs for both the New Vernon Road property and the White Bridge Road property. The RAOs are to contain; through consolidation, solidification and capping; the migration of asbestos and prevent potential exposure to airborne asbestos.

The major components of the OU2 remedy are:

- In-situ solidification/stabilization of asbestos-contaminated soils;
- Appropriate environmental monitoring to confirm the effectiveness of the remedy; and,
- Implementation of institutional controls to restrict future subsurface activities and assure the integrity of the treated waste.

On October 20, 1993 EPA issued an explanation of significant differences (ESD) which modified the OU2 remedy by changing the solidification/stabilization depth. The ESD also required the solidified/stablized mass to be constructed above the groundwater table.

## **Status of Implementation**

#### OU1 Millington

On June 17, 1999 EPA began mobilization activities for the OU1 remedy, which included the delivery of general materials, initiation of soil erosion and sediment control measures, and clearing and grubbing activities. The primary remedial construction activities included, but were not limited to, the following:

- Access road construction completed in November 1999;
- Retaining wall construction for slope stabilization completed in May 2000; and,
- Cap construction operations and site restoration completed in May 2000.

The final RA Report for OU1 was issued by EPA in September 2001. EPA also conducted treatability studies to fulfill the OU1 ROD requirement for evaluating innovative treatment technologies that may be effective in permanently remediating asbestos. EPA elected to keep the containment remedy and not pursue options for solidification/stabilization at OU1.

#### OU2 New Vernon Road

In August 1994 remedial activities began. The activities included consolidation of ACM, *in-situ* solidification/stabilization of ACM, and emplacement of an impermeable cover, and protective cap. This effort was completed in December 1994. A second phase of work, which included further site restoration and final grading, was completed in March 1999. In 1998 EPA acquired the New Vernon Road property and in January 2002 EPA transferred a portion of the property to the USFWS. The remaining 5-acre portion of the property, which contains the ACM, was later transferred to New Jersey. NJDEP is responsible for conducting O&M activities on their five-acre parcel.

#### OU2 White Bridge Road

In June 1994 remedial activities began, which included excavation and solidification of ACM, and construction of an impermeable cover. Topsoil was then placed on the property and monitoring wells were installed. Work was completed in 1995.

The White Bridge Road portion of the site was deleted from the NPL in February 2002, the remaining portions of the Site, including OU1, OU2-New Vernon Road and OU3 were deleted in July 2010.

#### **IC Summary Table**

Table 1: Summary of Planned and/or Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soil	Yes	Yes	OU1 & OU2	Maintain structural integrity of OU1 landfill cap, limited subsurface use for OU2	OU1 Deed Notice October 2019 Deed Notice July 2002 for OU2 New Vernon Rd., Deed Notice January 2001 for OU2 Whitebridge Rd.

#### **Systems Operations/Operation & Maintenance**

#### OUI

In September 2001, EPA approved the 30-Year Operation and Management (O&M) Plan, which was provided to NJDEP, which is responsible for O&M activities. In November 2017, NJDEP transferred the responsibility for O&M activities to the new owner of the property, Prism Millington, LLC. The O&M activities include periodic inspections of all OU1 design components including the retaining wall, perimeter access fence, capped area, surface water runoff controls and monitoring wells.

Mowing/pruning of the ACM cover and surrounding areas are performed regularly. In addition, the O&M Plan calls for groundwater sampling to be conducted once every five years and surface water and sediment sampling of the Passaic River to be conducted twice every five years. O&M activities are ongoing and are performed by PRISM through their LSRP with NJDEP oversight.

#### OU2 New Vernon Road

The O&M Plan for the New Vernon Road property was finalized in June 2001 and is implemented by NJDEP. The overall objective of the O&M Plan is to provide for periodic inspection, maintenance, and monitoring to evaluate and maintain the effectiveness of the remedy implemented at this property. The maintenance of the landfill cap and perimeter infiltration trench, and environmental monitoring, are the key components of the O&M Plan. The 2002 Deed Notice does not permit any disturbance of the surface or subsurface of the capped area including, but not limited to filling, drilling, excavation, or the removal of topsoil, sediments, rock or minerals, or by construction, planting anything other than grass or wildflowers, or changing the topography in any manner; however, topsoil may be added to make repairs in accordance with the Deed Notice. Changing, damaging or removing the perimeter trench around the solidified mass, the manholes or the monitoring wells is also prohibited. Environmental monitoring includes the collection and analysis of groundwater which is conducted once every five years.

#### OU2 White Bridge Road

An O&M Plan was developed for the White Bridge Road property in July 2001. The O&M Plan includes the maintenance and monitoring of property features including the landfill cap, perimeter infiltration trench, and environmental monitoring. Details of the O&M obligations are outlined in the January 2001 Deed Notice. Part of the White Bridge Road property was sold to new owners and recorded in a September 2018 Deed. Consequently, NJDEP and the property owner now share responsibility for mowing and maintaining the capped area, while NJDEP is responsible for environmental monitoring.

#### Remedy Resilience

Potential impacts from severe weather have been assessed, and the performance of the remedy is currently not at risk due to the expected effects (Appendix B).

## III. PROGRESS SINCE THE LAST REVIEW

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

**Table 2:** Protectiveness Determinations/Statements from the 2020 FYR

OU#	Protectiveness Determination	Protectiveness Statement
1	Protective	The remedy at OU1 is protective of human health and the environment.
2	Protective	The remedy at OU2 is protective of human health and the environment.
Sitewide	Protective	The remedy at OU1 and OU2 is protective of human health and the environment.

There were no issues and recommendations identified in the 2020 FYR. However, the following follow-up action was identified which does not affect the current protectiveness of the remedy:

• EPA recommended the collection of surface water samples from five locations at OU1 once within the next five-year period.

These surface water samples were collected on April 25, 2022. Asbestos was not detected in surface water during this sampling event.

#### IV. FIVE-YEAR REVIEW PROCESS

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

On August 7, 2024, the EPA Region 2 posted a notice on its website indicating that it would be reviewing site cleanups and remedies at Superfund sites in New York, New Jersey, and Puerto Rico, including the Asbestos Dump site. The announcement can be found at the following web address: <a href="https://www.epa.gov/superfund/R2-fiveyearreviews">https://www.epa.gov/superfund/R2-fiveyearreviews</a>.

In addition to this notification, the EPA Community Involvement Coordinator (CIC) for the site, Steve Petrucelli, posted a public notice on the EPA site webpage: <a href="https://www.epa.gov/superfund/asbestos-dump">https://www.epa.gov/superfund/asbestos-dump</a> and provided the notice to Long Hill Township by email on April 15, 2025. This notice was posted on the Long Hill Township webpage on April 17, 2025. The notice indicated that a FYR would be conducted at the Asbestos Dump site to ensure that the cleanup at the site continues to be protective of human health and the environment. Once the FYR is completed, the results will be made available at the following repositories: Community Bulletin Board in the Town Hall located at 915 Valley Road, Gillette, New Jersey and the EPA Region 2 office, 290 Broadway, New York, New York 10007-1866. In addition, the final report will be posted on the following website: <a href="https://www.epa.gov/superfund/asbestos-dump">https://www.epa.gov/superfund/asbestos-dump</a>. Efforts will be made to reach out to local public officials to inform them of the results.

#### **Data Review**

Groundwater, surface water and sediment monitoring activities were conducted since the previous five-year review. In April and May 2022, the LSRP collected groundwater samples from seven OU1 monitoring wells (MW-901, MW-902, MW-903, MW-904, MW-905, MW-906 and MW-907). In June 2024, NJDEP collected groundwater samples from six monitoring wells at OU2 New Vernon Road (MW-A, MW-B, and MW-C) and at OU2 White Bridge Road (MW-D, MW-E, and MW-F). In addition, in April 2022, five sediment samples and five surface water samples were collected from the Passaic River in the vicinity of SED-1, SED-2, SED-3, SED-4 and SED-5. The groundwater, surface water, and sediment samples were analyzed for asbestos. Results are discussed below.

#### Groundwater

Asbestos was not detected above the New Jersey Groundwater Quality Standard (GWQS) of 7 MFL in any groundwater sample collected from OU1 and OU2 monitoring wells. Samples from two monitoring wells (MW-904 and MW-905) showed increased asbestos concentrations (from 0.69 to 0.88 MFL and from Non-Detect to 0.81 MFL, respectively), while a sample from one monitoring well (MW-906) decreased from 6.3 to 1.1 MFL. Overall, since 2008, concentrations of asbestos in groundwater in OU1 and OU2 have consistently been reported below the GWQS.

#### Surface Water

In the previous FYR, EPA recommended that five surface water samples in OU1 be sampled one time within next five-year period for asbestos because detections of asbestos ranged from non-detects to 0.4% chrysotile in sediment during the 2020 sampling event. Surface water samples were collected by the LSRP at five locations (SW-1, SW-1), SW-1, SW-1,

2, SW-3, SW-4, SW-5) along the Passaic River adjacent to the OU1 asbestos mound in April 2022. Asbestos was not detected above the NJDEP surface water quality standard of 7 MFL and has consistently been below 7 MFL in all surface water samples collected since 2008.

#### Sediment

In April 2022, sediment samples were collected by the LSRP at five locations (SED-1, SED-2, SED-3, SED-4, SED-5) along the Passaic River adjacent to the OU1 asbestos mound. These five sediment samples had detections of chrysotile asbestos less than 0.1%. Based on the results of the April 2022 sampling event, EPA continues to support sediment sample collection from five locations at OU1 at least once within the next five-year period since these sediments are consistently submerged. Because the asbestos material is submerged, the threat of friability is reduced.

#### **Site Inspection**

The OU1 inspection and the inspections of the OU2 New Vernon Road and White Bridge Road properties were conducted on 10/31/2024. In attendance for the OU2 inspections were Joe Gowers (EPA RPM) and Eugene Giardino (NJDEP O&M Manager). Attendees for the OU1 inspection included Joe Gowers and MaryBeth Jakubowski (LSRP). The purpose of the inspections was to assess the protectiveness of the remedies. Inspection findings for each area are presented below.

#### OUI

Upon arrival at the property, the access gate to the asbestos mound was locked and the perimeter fencing was found to be in good condition. The inspection team walked across the asbestos mound and inspected the integrity and grade of the cap, as well as the condition of the surface water runoff controls and the groundwater monitoring wells. The cap had recently been mowed and appeared to be in good condition with no evidence of subsidence. The surface water runoff controls appeared to be free of vegetation and were unobstructed. The inspection team proceeded to evaluate the condition of the retaining wall located at the foot of the mound (western edge) and determined that it was also in good condition. During the inspection, all seven of the monitoring wells located on the property (MW-901, MW-902, MW-903, MW-904, MW-905, MW-906, and MW-907) were inspected and found to be locked.

#### OU2 New Vernon Road

Upon arrival the property was found to be secured with a chain link fence which was in good condition. The inspection team walked around the perimeter and across the cap and found the cap and surface water drainage controls to be maintained and in good condition. One landfill vent had been damaged but was temporarily repaired with duct tape. The NJDEP O&M manager planned to permanently repair the vent in the near future. Three groundwater monitoring wells are located at the OU2 New Vernon Road property (MW-A, MW-B and MW-C). All monitoring wells at this location were locked. These wells were redeveloped by NJDEP in 2020 due to turbidity issues detected in monitoring well MW-A during previous sampling events. The NJDEP O&M manager is considering redeveloping the wells once again due to the detection of elevated turbidity in wells MW-A and MW-B during the 2024 sampling event.

## OU2 White Bridge Road

Upon arriving at the property, the inspection team walked the cap perimeter and across the cap. The cap appeared to be well maintained with no signs of erosion. The drainage swale across the cap appeared to have been maintained and was free of significant vegetation. The three groundwater monitoring wells located on the OU2 White Bridge Road property (MW-D, MW-E, and MW-F) were locked.

#### V. TECHNICAL ASSESSMENT

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

The remedy is functioning as intended as it has eliminated the potential of direct human exposure to asbestos through inhalation, ingestion and dermal contact as well as the potential for exposure of ecological receptors to asbestos. This has been achieved by capping ACM with a geotextile and geogrid material and two feet of soil cover, along with installation of a retaining wall for slope stabilization at OU1; and excavation and consolidation of ACM, solidification/stabilization of ACM, and installation of a cover consisting of a synthetic liner, clean fill and topsoil for the OU2 properties. Based upon the property inspections, it appears that the caps are in good condition, and minor damage to the caps by burrowing animals at OU1 is routinely repaired by the LSRP.

Institutional controls, in the form of deed notices, are in place for OU1 and OU2. The deed notices are intended to prevent unacceptable use of ACM landfill areas and solidified material remaining at depth and to prohibit the use of groundwater. The Institutional Controls are functioning as intended. EPA continues to work with NJDEP and the property owners to ensure adherence to Institutional Controls. Surface water and sediment samples continue to be collected and analyzed for asbestos. It should be noted that there are no asbestos values for the protection of flora and fauna. All samples collected at OU1 and OU2 during the 2022 and 2024 sampling events show asbestos below action levels for sediment, surface water and groundwater.

The Site O&M Plan calls for groundwater monitoring at OU1, OU2 New Vernon Road, and OU2 White Bridge Road every five years and surface water and sediment sampling at OU1 every five years. Based upon the results of the 2022 sampling event, EPA continues to support surface water and sediment sampling at least once in a five-year period.

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

The RAOs used at the time of the remedy remain valid. There have been no changes in the physical conditions of the Site or land use that would affect the protectiveness of the remedy. In addition, land and resource use in the area has not changed and is not expected to change in the future. All exposure pathways at the site have been interrupted. The OU1 and OU2 remedies continue to provide a barrier to direct human exposure to soil containing asbestos through inhalation, ingestion and dermal contact. Soils which exceeded remediation goals were capped. Institutional controls are in place in order to prevent potential damage to the landfill caps that may result in potential exposures. No exceedances of asbestos above the GWQS in groundwater were noted during this FYR period and the area surrounding the OU1 property is served by a public water supply system. There are no downgradient potable wells within the vicinity of OU1 or OU2. In addition, asbestos was not detected in any of the surface water samples collected and the sediment results do not indicate exposure concerns. There have been no changes to the toxicity values for asbestos since the last FYR.

There are no ecological-based toxicity values for asbestos, however, the exposure pathways for terrestrial organisms have been eliminated through implementation of the OU1 and OU2 remedies which provide a barrier to ecological receptors from exposure to soil. Aquatic organisms may have some exposure to asbestos in surface water and sediment, however, there are no ecological-based values for comparison. Given that the primary health effect related to asbestos exposure is from inhalation of fibers, it is not anticipated that aquatic receptors would be impacted.

**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

#### Issues/Recommendations

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

OU1, OU2

# VII. PROTECTIVENESS STATEMENT

# **Protectiveness Statement(s)**

Operable Unit: Protectiveness Determination:

OU1 Protective

Protectiveness Statement:

The remedy at OU1 is protective of human health and the environment.

#### **Protectiveness Statement(s)**

Operable Unit: Protectiveness Determination:

OU2 Protective

Protectiveness Statement:

The remedy at OU2 is protective of human health and the environment.

#### **Sitewide Protectiveness Statement**

Protectiveness Determination:

Protective

Protectiveness Statement:

The remedies at OU1 and OU2 are protective of human health and the environment.

# VIII. NEXT REVIEW

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

# APPENDIX A – FIGURES

FIGURE 1 - ASBESTOS DUMP SITE OU1 - MILLINGTON, NJ

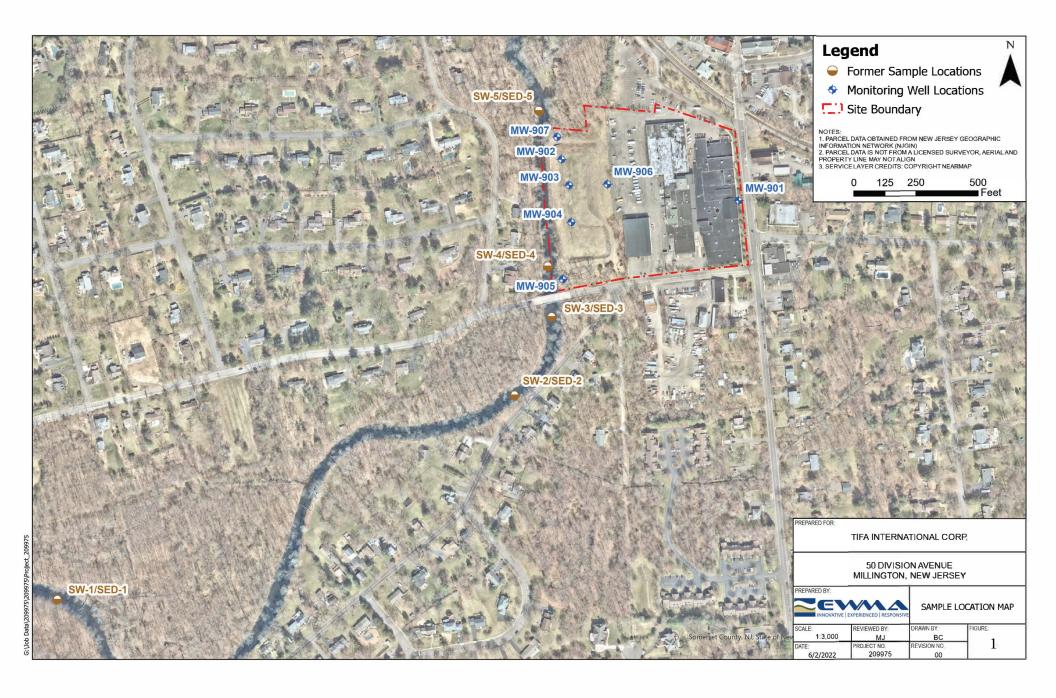


FIGURE 2 - Asbestos Dump - OU2 - New Vernon Road, NJ



FIGURE 3 - Asbestos Dump OU2 - White Bridge Road, NJ



#### APPENDIX B – REMEDY RESILIENCE ASSESSMENT

Two tools were utilized to assess remedy resilience and the potential impacts of severe weather at the site. Screenshots from each of the tools assessed are included below.

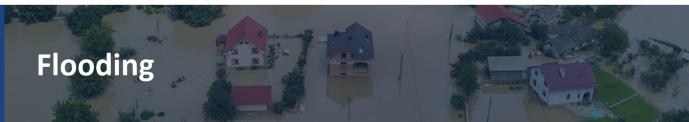
The first tool used to assess the site is the CMRA Assessment Tool. The tool examined five hazards for the county which the site falls within. According to this tool, the National Risk Index Rating for flooding is "Relatively High." As shown on Figure B-1, the annual average total precipitation over the next 75 years is expected to increase, as are the annual days with total precipitation > 1 inch, and the annual days that exceed the 99th percentile for precipitation. However, given the proximity of the OU1 site to the Passaic River, the OU1 remedy was constructed with a large concrete retaining wall along the Passaic River. This retaining wall has and will continue to mitigate the potential for flooding damage to the OU1 remedy. Flooding issues have not been observed on the OU2 properties. Potential high risks were not identified for the four other hazards evaluated by this tool – drought, extreme heat, wildfire, and coastal flooding. The site is situated inland, not near the coast.

The second tool utilized is called the USGS U.S. Landslide Inventory & Susceptibility Map. As shown by Figures B-6 and 7, the OU2 properties are not expected to be impacted by landslides. As indicated on Figure B-8, the OU1 property shows a moderate risk of being impacted by landslides. However, this risk is greatly reduced through the ongoing maintenance of the concrete retaining wall.

Based on this information, potential impacts from severe weather have been assessed, and the performance of the remedy is currently not at risk due to the expected effects.

Figure B-1





Future Climate Indicators								
Indicator	Modeled History	Early Century (2015 - 2044)		Mid Century (2035 - 2064)		Late Century (2070 - 2099)		
marcator	(1976 - 2005)	Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions	
	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	
Precipitation:								
Annual average total precipitation	50"	52"	53"	53"	54"	54"	56"	
	48 - 52	48 - 58	47 - 57	49 - 60	50 - 58	49 - 59	49 - 63	
Days per year with precipitation (wet days)	188 days	187 days	187 days	186 days	185 days	186 days	184 days	
	185 - 193	178 - 199	173 - 198	176 - 197	170 - 199	174 - 198	158 - 202	
Maximum period of consecutive wet days	11 days	12 days	12 days	12 days	12 days	12 days	12 days	
	10 - 13	10 - 13	10 - 13	10 - 13	10 - 14	10 - 13	9 - 15	
Annual days with:								
Annual days with total precipitation > 1inch	7 days	8 days	8 days	8 days	9 days	9 days	10 days	
	6 - 8	6 - 9	7 - 10	6 - 10	7 - 11	7 - 10	7 - 12	
Annual days with total precipitation > 2 inches	1 days	1 days	1 days	1 days	1 days	1 days	1 days	
	0 - 1	1-1	1-1	0 - 2	1 - 1	1 - 2	1 - 2	
Annual days with total precipitation > 3 inches	0 days	0 days	0 days	0 days	0 days	0 days	0 days	
	0 - 0	0 - 0	0 - 0	0 - 1	0 - 0	0 - 1	0 - 1	
Annual days that exceed 99th percentile	6 days	7 days	8 days	8 days	9 days	9 days	10 days	
precipitation	6 - 7	7 - 8	7 - 8	8 - 8	8 - 9	9 - 10	10 - 11	
Days with maximum temperature below 32 °F	24 days	17 days	17 days	14 days	12 days	12 days	6 days	
	22 - 28	7 - 23	9 - 24	5 - 20	6 - 20	3 - 19	1 - 13	
						N/A = Data Not Avail	able for the selected area	

Figure B-2



# Extreme Heat

		<b>Future Cli</b>	mate Indica	ators			
Indicator	Modeled History (1976 - 2005)	Early Century (2015 - 2044)		Mid Century (2035 - 2064)		Late Century (2070 - 2099)	
marcate.	(1976 - 2003)	Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions
	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max
Temperature thresholds:							
Annual days with maximum temperature > 90°F	7 days	19 days	20 days	25 days	33 days	33 days	62 days
	7 - 10	10 - 28	11 - 29	13 - 41	15 - 48	15 - 57	21 - 87
Annual days with maximum temperature > 95°F	1 days	5 days	5 days	7 days	11 days	11 days	31 days
	1 - 2	1 - 11	2 - 9	2 - 17	3 - 19	3 - 26	5 - 57
Annual days with maximum temperature > 100°F	0 days	1 days	1 days	1 days	3 days	3 days	11 days
	0 - 0	0 - 2	0 - 3	0 - 5	0 - 8	0 - 5	1 - 33
Annual days with maximum temperature > 105°F	0 days	0 days	0 days	0 days	0 days	0 days	3 days
	0 - 0	0 - 0	0 - 0	0 - 1	0 - 3	0 - 3	0 - 16
Annual temperature:							
Annual single highest maximum temperature °F	95 °F	98 °F	98 °F	100 °F	101 °F	101 °F	106 °F
	94 - 96	96 - 101	96 - 101	96 - 105	97 - 106	97 - 107	97 - 112
Annual highest maximum temperature averaged	89 °F	93 °F	93 °F	94 °F	95 °F	95 °F	100 °F
over a 5-day period °F	89 - 90	90 - 96	91 - 95	91 - 98	92 - 99	92 - 101	93 - 107
Cooling degree days (CDD)	600 degree-days	857 degree-days	887 degree-days	1,000 degree-days	1,138 degree-days	1,156 degree-days	1,716 degree-days
	552 - 662	666 - 1,102	709 - 1,102	756 - 1,305	823 - 1,441	785 - 1,586	1,061 - 2,332

N/A = Data Not Available for the selected area

Figure B-3





Future Climate Indicators							
Indicator	Modeled History	Early Century (2015 - 2044)		Mid Century (2035 - 2064)		Late Century (2070 - 2099)	
mateuto	(1976 - 2005)	Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions	Lower Emissions	Higher Emissions
	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max	Min - Max
Precipitation:							
Days per year with no precipitation (dry days)	177 days	178 days	178 days	179 days	180 days	179 days	182 days
	173 - 180	166 - 187	167 - 192	168 - 189	167 - 196	167 - 191	163 - 208
Maximum number of consecutive dry days	11 days	12 days	12 days	12 days	12 days	12 days	12 days
	10 - 12	10 - 13	10 - 14	10 - 14	10 - 14	10 - 14	10 - 15
Days per year with precipitation (wet days)	188 days	187 days	187 days	186 days	185 days	186 days	184 days
	185 - 193	178 - 199	173 - 198	176 - 197	170 - 199	174 - 198	158 - 202
Temperature thresholds:							
Annual days with maximum temperature > 90°F	7 days	19 days	20 days	25 days	33 days	33 days	62 days
	7 - 10	10 - 28	11 - 29	13 - 41	15 - 48	15 - 57	21 - 87
Annual days with maximum temperature > 100°F	0 days	1 days	1 days	1 days	3 days	3 days	11 days
	0 - 0	0 - 2	0 - 3	0 - 5	0 - 8	0 - 5	1 - 33
N/A= Data Not Available for the selected area							

Figure B-4





Future Climate Indicators								
Indicator	Modeled History	Early Century (2015 - 2044)		Mid Century (2035 - 2064)		Late Century (2070 - 2099)		
	(1976 - 2005) Min - Max	Lower Emissions Min - Max	<b>Higher Emissions</b> Min - Max	Lower Emissions Min - Max	<b>Higher Emissions</b> Min - Max	Lower Emissions Min - Max	Higher Emissions Min - Max	
Precipitation:								
Average annual total precipitation	<b>50"</b> 48 - 52	<b>52</b> " 48 - 58	<b>53"</b> 47 - 57	<b>53"</b> 49 - 60	<b>54"</b> 50 - 58	<b>54"</b> 49 - 59	<b>56"</b> 49 - 63	
Days per year with precipitation (wet days)	188 days	187 days	187 days	186 days	185 days	186 days	184 days	
	185 - 193	178 - 199	173 - 198	176 - 197	170 - 199	174 - 198	158 - 202	
Days per year with no precipitation (dry days)	177 days	178 days	178 days	179 days	180 days	179 days	182 days	
	173 - 180	166 - 187	167 - 192	168 - 189	167 - 196	167 - 191	163 - 208	
Maximum number of consecutive dry days	11 days	12 days	12 days	12 days	12 days	12 days	12 days	
	10 - 12	10 - 13	10 - 14	10 - 14	10 - 14	10 - 14	10 - 15	
Temperature thresholds:								
Annual days with maximum temperature > 90 °F	<b>7 days</b> 7 - 10	<b>19 days</b> 10 - 28	<b>20 days</b> 11 - 29	<b>25 days</b> 13 - 41	<b>33 days</b> 15 - 48	<b>33 days</b> 15 - 57	<b>62 days</b> 21 - 87	
Annual days with maximum temperature > 100 °F	<b>0 days</b> 0 - 0	<b>1 days</b> 0 - 2	<b>1 days</b> 0 - 3	<b>1 days</b> 0 - 5	<b>3 days</b> 0 - 8	<b>3 days</b> 0 - 5	<b>11 days</b> 1 - 33	
						N/A = Data Not Avail	able for the selected area	

Figure B-5

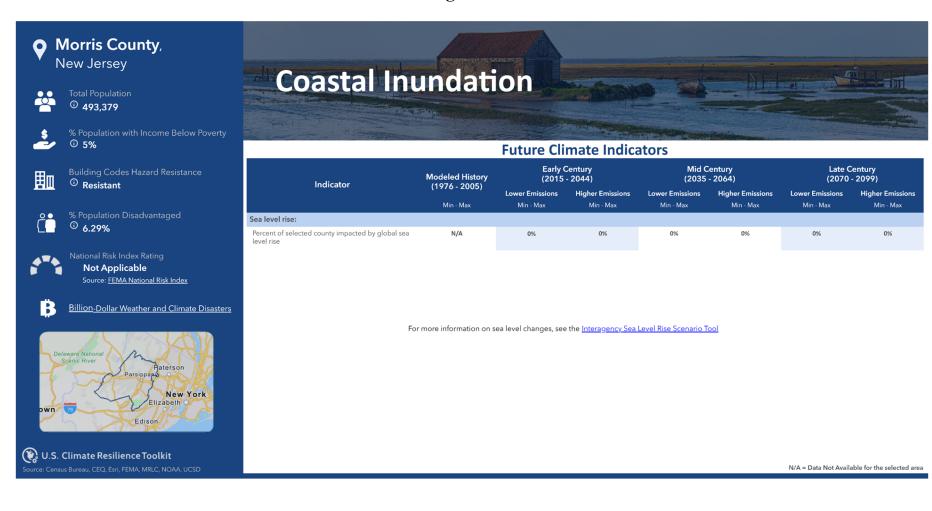


Figure B-6 OU2 White Bridge Road



Figure B-7
OU2 New Vernon Road

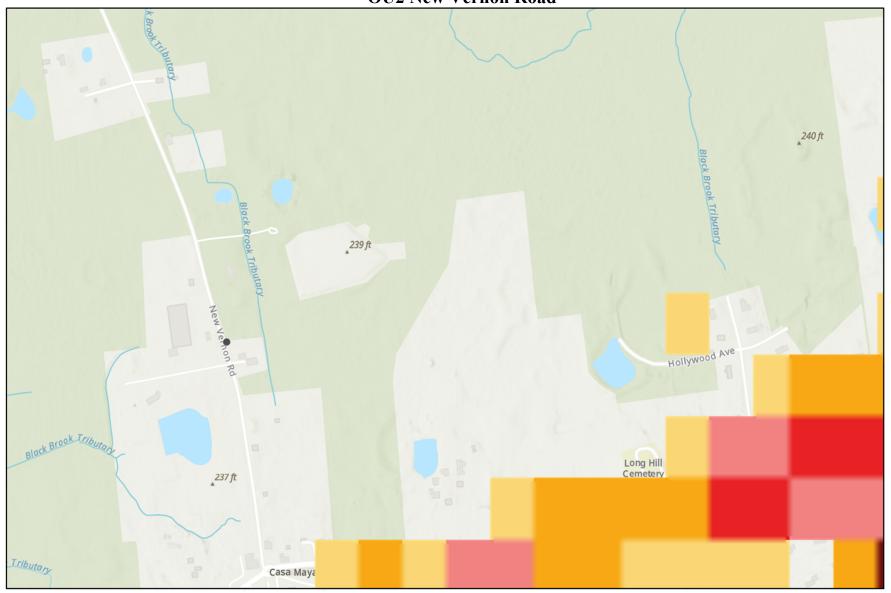


Figure B-8 OU1 Division Avenue

