

**SECOND FIVE-YEAR REVIEW REPORT
ELLENVILLE SCRAP IRON AND METAL SUPERFUND SITE
VILLAGE OF ELLENVILLE, TOWN OF WAWARSING
ULSTER COUNTY, NEW YORK**



Prepared by

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TABLE OF CONTENTS

I. INTRODUCTION	
Site Background.....	1
FIVE-YEAR REVIEW SUMMARY FORM.....	2
II. RESPONSE ACTION SUMMARY	2
Basis for Taking Action.....	2
Response Actions.....	3
Status of Implementation	4
IC Summary Table.....	6
Operation, Maintenance and Monitoring.....	6
III. PROGRESS SINCE THE LAST REVIEW	8
IV. FIVE-YEAR REVIEW PROCESS.....	8
Community Notification, Involvement & Site Interviews.....	8
Data Review.....	9
Site Inspection.....	12
V. TECHNICAL ASSESSMENT	12
QUESTION A: <i>Is the remedy functioning as intended by the decision documents?</i>	12
QUESTION B: <i>Are the exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of the remedy selection still valid?</i>	13
QUESTION C: <i>Has any other information come to light that could call into question the protectiveness of the remedy?</i>	15
VI. ISSUES/RECOMMENDATIONS	15
VII. PROTECTIVNESS STATEMENT.....	16
VIII. NEXT REVIEW	16
 APPENDIX A – TABLES	 16
APPENDIX B – FIGURES	20

LIST OF ABBREVIATIONS & ACRONYMS

ACOE	Army Corps of Engineers
AOC	Area of Concern
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
EC	Engineering Control
EPA	United States Environmental Protection Agency
FYR	Five-Year Review
HHRA	Human Health Risk Assessment
ICs	Institutional Controls
MCL	Maximum Contaminant Level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
OM&M	Operation, Maintenance and Monitoring
PRR	Periodic Review Report
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethene
RAO	Remedial Action Objective
ROD	Record of Decision
RPM	Remedial Project Manager
SCO	Soil Cleanup Objective
SLERA	Screening-level Ecological Risk Assessment
SMP	Site Management Plan
VOC	Volatile Organic Compound
PFAS	Per- and polyfluoroalkyl substances

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 FYRs are documented in FYR reports, such as this one. In addition, FYR reports identify any issues that may have been found during the review period and document recommendations in order to address those issues.

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 second FYR for the Ellenville Scrap Iron and Metal Superfund site (Site). The triggering action for this statutory review is the completion date of the previous FYR. The FYR has been prepared due to the fact that hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure. This Site consists of one operable unit (OU1).

The EPA team for this Site FYR was led by Josiah Johnson, remedial project manager, and included John Mason, hydrogeologist, Lora Smith-Staines, human health risk assessor, Abby DeBofsky, ecological risk assessor, and Damian Duda, supervisor.

The review began on 8/26/2021. The Site was listed on the National Priorities List (NPL) on October 7, 2002 and was deleted from the NPL on September 24, 2019. Documents reviewed for this FYR are listed in **Table 1**.

Site Background

The Site (see **Figure 1**) is a 24-acre, former scrap iron and metal reclamation facility on Cape Road, *a.k.a.*, Cape Avenue, in the Village of Ellenville, Town of Wawarsing, Ulster County, New York. The Site also includes select residential properties in the vicinity, located on Cape Road and River Street. The Site is bound to the north by Cape Road; to the south and west by the Beer Kill, *a.k.a.*, Beer Kill Creek, and forested lands; and, to the east by residential properties. Approximately 10 acres of the Site had been used for a variety of scrap metal operations and, while operational, were also used for battery reclamation.

At the time of its active operations, the Site included an office building, a truck scale, a hydraulic baling machine and a compactor used for crushing metal cans and other small metal containers and car parts, abandoned automobiles and trucks, scrap metal piles, railroad ties, automobile batteries and emptied casings, waste oils, car and truck tire piles and assorted brush piles. Deteriorated drums were also found scattered throughout the Site property.

An existing landfill embankment, approximately 40 feet in height, runs in a crescent along a northwesterly to southeasterly axis dividing the Site into an upper and lower plateau. The landfill

is composed of construction and demolition debris, including finely shredded wastes, scrap brick, concrete, wood and metal-type debris. The adjacent residential property, located directly east of the Site entrance, was formerly part of the facility and was used to store heavy equipment and to dispose of automobile battery casings. Approximately 4,300 people live in the Village of Ellenville and are serviced by public water.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Ellenville Scrap Iron and Metal Superfund Site		
EPA ID: NYSFN0204190		
Region: 2	State: NY	City/County: Ulster County
SITE STATUS		
NPL Status: Deleted		
Multiple OUs? No	Has the site achieved construction completion? Yes	
REVIEW STATUS		
Lead agency: EPA <i>[If "Other Federal Agency", enter Agency name]:</i>		
Author name (Federal or State Project Manager): Josiah Johnson		
Author affiliation: EPA		
Review period: 11/20/2017 – 4/6/2022		
Date of site inspection: 4/6/2022		
Type of review: Statutory		
Review number: 2		
Triggering action date: 8/31/2017		
Due date (five years after triggering action date): 8/31/2022		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

In summary, a human health risk assessment (HHRA) was conducted and concluded that metals, PAHs, pesticides and PCBs in soils and leachate found at the Site contributed to unacceptable risks and hazards to on-site trespassers, construction/utility workers, on-site recreational users, and on-site future residents. There were also unacceptable hazards for off-property residents

from metals, specifically lead. In addition, exposure to groundwater for future on-site residents exceeded the acceptable risk range for two metals, arsenic and chromium.

A screening-level ecological risk assessment (SLERA) was conducted to evaluate the potential for ecological effects from exposure to surface soils, leachate, groundwater discharging to surface water, and surface water and sediment from Beer Kill. The SLERA concluded that there was a potential for adverse effects to terrestrial plants/soil invertebrates from direct exposure to chemicals in soils and sediments at the Site.

Based on the results of the human health and ecological risk assessments, the response action selected in the Record of Decision (ROD) is necessary to protect the human health and the environment from actual or threatened releases of contaminants into the environment.

Response Actions

In 2004 and 2005, EPA performed various removal actions in order to address: 1) lead contamination in soils that was caused by battery reclamation activities conducted at the adjacent Cape Road residential property and 2) the removal of approximately 20 leaking drums, an aboveground storage tank, abandoned dumpsters, cars, trucks, baling, shear and compactor units and other heavy equipment, various debris piles throughout the Site, including railroad ties and tires, and all buildings on the Site.

EPA's removal cleanup activities further reduced the sources of Site contamination and enabled EPA's contractor to investigate the Site completely and prepare a remedial investigation and feasibility study (RI/FS). Based on the RI/FS results, EPA issued a ROD in September 2010.

The following Remedial Action Objectives (RAOs) were established and are identified in the ROD as follows:

Groundwater

- Prevent ingestion of water with contaminant concentrations greater than 10 NYCRR Part 5 maximum contaminant levels (MCLs) and Federal MCLs.
- Restore groundwater contaminant concentrations to less than 6 NYCRR Part 703 Class GA water quality standards.
- Prevent discharge of groundwater with contaminant concentrations greater than 6 NYCRR Part 703 Class GA water quality standards to adjacent surface water, *i.e.*, Beer Kill.

Soils

- Prevent ingestion/direct contact to soils with contaminant concentrations greater than 6 NYCRR Part 375 Restricted Use Soil Cleanup Objectives (RSCOs)-Residential.
- Prevent inhalation of soil dust with contaminant concentrations greater than 6 NYCRR Part 375 RSCOs-Residential.
- Prevent migration of soils with contaminant concentrations greater than 6 NYCRR Part 375 RSCOs-Residential.
- Prevent or minimize impacts to groundwater and/or surface water resulting from soil contamination with concentrations greater than 6 NYCRR Part 375 RSCOs-Residential.

Solid Wastes

- Prevent ingestion/direct contact with solid wastes with contaminant concentrations greater than 6 NYCRR Part 375 RSCOs-Residential.
- Prevent migration of solid wastes with contaminant concentrations greater than NYCRR Part 375 RSCOs-Residential.
- Prevent or minimize impacts to groundwater and/or surface water resulting from solid wastes with concentrations greater than NYCRR Part 375 RSCOs-Residential.

Leachate

- Prevent ingestion of leachate with contaminant concentrations greater than the NYSDEC Class GA water quality standards.
- Prevent migration of leachate with contaminant concentrations greater than the NYSDEC Class GA water quality standards.

Air

- Prevent exposure to or inhalation of volatilized contaminants from the solid wastes.
- Prevent migration of landfill gas generated by the decomposition of solid waste.

In order to achieve the remedial action objectives (RAOs) for the various media for the Site, EPA selected the following remedy components:

- Excavation of selected contaminated soils in six Areas of Concern (AOCs), identified as AOCs 1-6, which include adjacent residential properties where contaminants in the surface soils exceed the cleanup criteria;
- Backfilling of the excavated areas with clean fill;
- Consolidation of the excavated soils from AOCs 1-6 in AOC 1, located in the upper and central portion of the Ellenville site with similarly-contaminated soils;
- Installation of a landfill cap system which meets the substantive requirements of NYS Part 360 over the existing landfill and the consolidated soils, including long-term groundwater monitoring; and,
- Development of a Site Management Plan (SMP), in accordance with NYS landfill closure requirements, which would include 1) long-term groundwater monitoring, 2) engineering controls with an operation and maintenance (O&M) plan, which may include periodic reviews and/or certifications and 3) a plan for implementing institutional controls (ICs).

Status of Implementation

On September 30, 2010, EPA entered into an Interagency Agreement with the Army Corps of Engineers for the remedial design and remedial action at the Site. Remedial action activities included the excavation of contaminated soils in the six AOCs, consolidation of non-hazardous excavated soils within the final landfill footprint, transport and off-site disposal of hazardous materials, installation of a landfill cap system and restoration of all disturbed areas. The AOCs also included the adjacent residential areas where contaminants in the surface soils exceeded the New York State (NYS) Soil Cleanup Objectives (SCOs).

Soil Excavation

In early May 2011, the major construction activities began which included excavation, backfilling and materials handling, primarily of soils. The overall depths of excavation varied from a minimum of about one foot up to a maximum depth of 11 feet. Special care was taken when excavating areas in the vicinity of known underground utilities, especially at the residential properties. During remediation of the Site, several different waste streams were generated and were either consolidated within the landfill cap area or were disposed of off-site.

Backfilling and compaction of excavations were performed. Uncontaminated excavated soils were used to backfill those areas of excavation. Imported clean fill was necessary to complete the backfill of all excavated areas.

Landfill Cap Construction

Capping was performed concurrent with the consolidation of excavated soils from both on-site locations and the remediated residential properties.

The landfill cap consists of the following components:

- Landfill subgrade including a 6-inch fine grade layer of imported select fill
- Anchor trench
- Double-sided gas vent geocomposite
- Passive gas vents
- 60-mil high density polyethylene (HDPE) textured geomembrane
- Double-sided drainage geocomposite
- 24-inch barrier protection layer
- 6-inch topsoil layer
- Vegetative layer

Residential Remediation

The two residential properties on River Street, just to the east of the Site, posed the greatest challenge due to the uncertainties in the existing conditions and restoration requirements. Close attention was given to the remediation activities on these two properties. Hence, the excavation, backfilling, compaction and restoration activities in these areas were closely monitored. Two feet of contaminated soils were excavated from the two yards, and two feet of clean backfill and six inches of topsoil were installed at both properties. The soils were determined to be non-hazardous and were subsequently excavated by a small excavator and loaded into the road dump truck that transported the soils to the on-site landfill area. Additional excavation work was also performed at the Cape Road residential property near the battery casing wall. All excavation and restoration work within the off-property residential areas was completed in June 2011.

Wetlands Restoration

Restoration and expansion of an on-site wetland were also performed with the installation of clay matting and a number of wetlands plantings to replace wetlands affected by the installation of the landfill cap.

Monitoring Well Installation

During construction activities, seven monitoring wells [MW-3B, MW-3R, MW-8, MW-8B, MW-10, MW-10B and MW-11] were installed in both the bedrock and the overburden as part of the remedial action in order to conform to the NYS requirements regarding the landfill cap installation and related groundwater monitoring. Monitoring well MW-9 had been previously installed. As a result, the NYSDEC monitoring well network consists of eight monitoring wells.

Site Restoration and Fence Installation

Site restoration activities included the installation of topsoil, slope stabilization materials, seeding and landfill infrastructure items, such as riprap swales, chain-link fencing and the east access road. These activities were scheduled concurrently with other Site activities in an effort to accelerate the schedule.

IC Summary Table

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)
Fenced landfill	Yes	Yes	Fenced landfill	Establishing ICs and engineering controls to ensure no disturbance of fenced landfill cap area and monitoring wells	Declaration of Covenants, Restrictions and Environmental Easements Map Successors-in-Title (August 2016)
Groundwater	Yes	Yes	Acreage outside fenced landfill	To prevent installation of groundwater production wells	Declaration of Covenants, Restrictions and Environmental Easements Map Successors-in-Title (August 2016)

Operation, Maintenance and Monitoring

NYSDEC manages the Operation, Maintenance and Monitoring (OM&M) responsibilities at the Site, as per the SMP, which specifies the methods necessary to ensure compliance with all ICs and Engineering Controls (ECs) for the Site.

The SMP identifies three separate plans: (1) an EC and an IC Plan for implementation and management of ICs and ECs; (2) a Monitoring Plan for the select groundwater monitoring wells; and, (3) an O&M Plan for the remedial containment system, *i.e.*, the landfill cap system. The SMP also requires submittal of annual Periodic Review Reports (PRRs).

The ICs place restrictions on Site use and mandate OM&M and reporting measures for all ECs and ICs. The ECs govern the remaining contaminated soils, *i.e.*, the fenced landfill, in order to control exposure and ensure protection of human health and the environment. An Environmental Easement, granted to the NYSDEC and recorded with the Ulster County Clerk, requires compliance with this SMP and all ECs and ICs placed on the Site. Also, as mentioned in the IC

Summary Table above, Successors in Title have been recorded with the Ulster County Clerk for two adjacent properties located outside of the fenced landfill cap.

Any revisions to the SMP will be proposed in writing to the NYSDEC. In accordance with the Environmental Easement for the Site, NYSDEC will provide a notice of any approved changes to the SMP and append these notices to the SMP. The previous FYR period had the following monitoring/inspection schedule:

Site Management Plan Monitoring/Inspection Schedule			
<i>Monitoring/Inspection Frequency</i>	<i>Frequency*</i>	<i>Matrix</i>	<i>Analysis</i>
Monitoring of the performance of the remedy	Once-a-year for five (5) years	Groundwater	Target Compound List (TCL) SVOCs, TCL VOCs, Target Analyte List (TAL) Metals/Hg and Cyanide.
Site Inspection	Once-a-year for five (5) years	N/A	N/A

NYSDEC approved a change to the SMP monitoring/inspection schedule during this FYR period, as shown in the table below:

Site Management Plan Monitoring/Inspection Schedule			
<i>Monitoring/Inspection Frequency</i>	<i>Frequency*</i>	<i>Matrix</i>	<i>Analysis</i>
Monitoring of the performance of the remedy (sampling data)	Once every five (5) quarters	Groundwater	TCL SVOCs, TCL VOCs, TAL Metals/Hg and Cyanide.
Site Inspection of the landfill cap and appurtenances	Once every five (5) quarters and any time after any emergency weather events	N/A	N/A
Site Management Reports	Once every five (5) quarters	N/A	N/A
Periodic Review Reports	Every three (3) years	N/A	N/A

* The frequency of events will be conducted, as specified, until otherwise modified/approved by NYSDEC, New York State Department of Health and EPA.

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

III. PROGRESS SINCE THE LAST REVIEW

Protectiveness Statement(s)	
<i>Operable Unit:</i> OU1	<i>Protectiveness Determination:</i> Protective
<i>Protectiveness Statement:</i> The remedy implemented at the Ellenville Scrap Iron and Metal site is protective of human health and the environment.	

Sitewide Protectiveness Statement (if applicable)	
<i>For sites that have achieved construction completion, enter a sitewide protectiveness determination and statement.</i>	
<i>Protectiveness Determination:</i> Protective	<i>Addendum Due Date (if applicable):</i> Click here to enter date.
<i>Protectiveness Statement:</i> The remedy implemented at the Ellenville Scrap Iron and Metal site is protective of human health and the environment.	

After reviewing the suggestions in the Other Findings section of the previous FYR and, after the recent Site inspection, EPA has determined the following:

- Monitoring wells MW-4, MW-5 and MW-6 are no longer viable. The historic data from these wells (as well as upgradient MW-07) have shown nothing of concern with respect to the various sample parameters. After reviewing these data and acknowledging that the remaining monitoring wells, that are part of the groundwater monitoring program, should provide sufficient groundwater data for the Site OM&M reviews, EPA and NYSDEC determined that these wells do not need to be replaced and
- Trees that had been previously planted on the private property would also not be replaced. Any future tree planting will be left up to the new property owner.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

On August 6, 2021, 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 and New Jersey, including the Ellenville Scrap Iron and Metal Superfund site. The announcement can be found at the following web address: <https://www.epa.gov/superfund/R2-fiveyearreviews>. During the FYR process, EPA prepared a public notice that indicated EPA would be conducting a FYR of the remedy for the Site to ensure that the implemented remedy remains protective of human health and the environment. The notice also indicated that once the FYR was completed, the results would be made available at the Ellenville Superfund Site webpage, www.epa.gov/superfund/ellenville-scrap. For public questions related to the Site or the FYR process, the notice also provided the contact information of the RPM for the Site.

On February 7, 2022, EPA supplied the Town of Wawarsing and the Village of Ellenville with the public notice and requested that they include it on any community webpage and/or post a flyer of the public notice in a public area. The flyer was printed and posted on public boards in the municipal building.

Data Review

The OM&M for the Site is managed by NYSDEC through TRC, its contractor. NYSDEC follows the SMP as the guide for implementing any media sampling and maintenance of the cap and its appurtenances.

Groundwater

Presently, the monitoring well network, as per the SMP and discussed above, consists of the following eight (8) wells as shown in **Figure 2**:

- EPA-03R downgradient overburden well at eastern property boundary, located west of the off-property residential area.
- EPA-03B downgradient bedrock well at eastern property boundary.
- EPA-08 upgradient overburden well.
- EPA-08B upgradient bedrock well.
- EPA-09 downgradient overburden well within 50 feet of landfill boundary.
- EPA-10 downgradient overburden well within 50 feet of landfill boundary.
- EPA-10B downgradient bedrock well within 50 feet of landfill boundary.
- EPA-11 downgradient overburden well within 50 feet of landfill boundary.

In 2016, NYSDEC elected not to include monitoring wells EPA-04, EPA-05, EPA-06 and EPA-07, since these monitoring wells were not required to be sampled in order to meet the substantive requirements of NYCRR Part 360. From the previous FYR, EPA suggested that, at least, one of the above identified monitoring wells be sampled during this FYR period; however, when NYSDEC was sampling wells during the 2021 PRR, NYSDEC indicated these wells could not be found and, hence, were not sampled. Wells EPA-04 through EPA-06 had been installed near the downgradient property boundary approaching Beer Kill, and well EPA-07 had been installed north-northwest of the landfill area. As a result, NYSDEC informed EPA that these wells could not be sampled during this review period. During this FYR period, NYSDEC collected four rounds of groundwater data in October 2017, November 2018, October 2019 and March 2021.

In 2021, the depth to groundwater was approximately eight feet below ground surface (bgs) on the upper plateau and 13 feet bgs on the lower plateau. The groundwater flow direction is generally to the south within the waste area and to the east on the lower plateau. Groundwater flow is not directly toward Beer Kill which flows east.

In October 2017, NYSDEC/TRC sampled the following monitoring wells:

- EPA-03B, EPA-08B, EPA-09, EPA-10, and EPA-10B.

In November 2018, NYSDEC/TRC sampled the following monitoring wells:

- EPA-03R, EPA-03B, EPA-08, EPA-08B, EPA-09, EPA-10, and EPA-10B.

In October 2019, NYSDEC/TRC sampled the following monitoring wells:

- EPA-03B, EPA-08B, EPA-09, EPA-10, and EPA-10B.

In March 2021, NYSDEC/TRC sampled the following monitoring wells:

- EPA-03B, EPA-08B, EPA-09, EPA-10, EPA-10B and EPA-11.

During this review period, the only metals detected above their respective NYSDEC GA standards were iron, manganese and sodium in the majority of the wells identified above. As documented in the previous FYR; however, elevated levels of these metals were found to be consistent with naturally occurring conditions.

In October 2017, November 2018, October 2019 and March 2021, tetrachloroethylene (PCE) was detected in EPA-10, at 5.1, 5.3, 3.4 and 7.9 µg/L, respectively. No other VOCs, SVOCs, PCBs or pesticides were detected.

In November 2018, as a part of its per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane sampling program, NYSDEC sampled EPA-08B, EPA-09 and EPA-10 for emerging contaminants 1,4-dioxane and PFAS. 1,4-dioxane was not detected above the specified quantitation limit, which was below the NYSDEC MCL of 1 µg/L established in 2021. Combined perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) did not exceed the USEPA health advisory level of 70 nanograms per liter (ng/L).

During two rounds of sampling, the most elevated readings of PFAS compounds were found in EPA-10. In November 2018, PFOA was detected at a concentration of 17 ng/L and PFOS was detected at 31 ng/L. In March 2021, PFOA was detected at 15 ng/L and PFOS at 25 ng/L. These PFOA and PFOS results exceeded the state MCL of 10 ng/L for each compound. No determination has been made as to the origins of the PFAS compounds although, considering the amorphous nature of the original contents of the landfill, this is not surprising.

As a result of low baseline concentrations and the installation of the landfill cap, groundwater contaminant concentrations at the Site are expected to reach the water quality RAOs for the Site contaminants over the next few years. The discharge RAO has been attained because current groundwater conditions do not indicate any contaminant discharge into Beer Kill.

Surface Water

In 2017, 2018, and 2021, surface water was sampled from the mitigated wetland. There are no surface water RAOs. In October 2017 and November 2018, surface water samples yielded exceedances for iron, manganese, and sodium. In March 2021, surface water samples yielded exceedances for sodium only. Iron, manganese, and sodium are not contaminants of concern and reflect naturally occurring background conditions at the site.

Site Inspections

From October 2017 through March 2021, NYSDEC and its contractor performed semi-annual Site inspections to ensure the remedial measures have not been compromised. Activities included inspection of the landfill cap, detention basin, perimeter drainage swales, monitoring wells, gas vents, constructed wetland area, access roads, guard rails and fence lines.

All entrances to the Site were noted as secure and the inner fence that surrounds the main landfill area was fully intact. The landfill cap was in good condition. The cap was dry and the soil stable, meaning no visible erosion, cracks, settlement, or seeps were observed. However, five animal burrows were noted in the 2018 and 2019 site inspections. These burrows were filled in during the 2019 site inspection.

The landfill cap has been mowed once during this time. The subcontractor agreement expired in 2019 and was not renewed. NYSDEC made no mention of mowing or the subcontractor agreement in the 2021 PRR. NYSDEC confirmed that the vegetation is at an acceptable height and roots are prevented from penetrating the landfill cap.

The landfill gas vents at the Site are in good condition. The swales, located on the perimeter of the Site, did not contain any water, and there are no areas of active erosion or excessive vegetation growth. The storm water outfall structure to the wetland was inspected and was functioning as designed. The mitigated wetland was also inspected and found to have no issue.

Inspection of the formerly forested wetland area on the lower plateau of the Cape Road residential property showed that some of the trees planted as part of the remedial action are in poor condition and appear to be no longer viable.

All monitoring wells were secure and concrete well pads were free of large cracks and signs of deterioration. Outside the fenced area, the condition of each monitoring well was inspected and the wellheads were screened with a photoionization detector (PID). The total well depth, depth to product (if any) and depth to water measurements were recorded as well. No product or elevated PID readings were observed at any of the monitoring wells inspected.

Site access roads around the perimeter of the Site are in good condition. A minor low spot along the north access road was reported in 2018. No action was taken, and no further erosion has been reported. The interior fence line is in good condition with a minor gap (less than 6-inches) in the exterior fence line in the northwest corner of the Site. The gates in the fence.

During the 2021 Site inspection, two empty 55-gallon drums were discovered in the northwestern corner of the Site. After further investigation, NYSDEC decided to leave them in place on the Site.

Institutional Controls Verification

Figure 2 shows the current configuration of the Site with the Declaration of Covenants, Restrictions and Environmental Easements Map which identifies the fenced capped landfill area that is maintained under specific ECs.

Site Inspection

A FYR Site visit and inspection was conducted on Wednesday, April 6, 2022. The inspection team included:

EPA – Damian Duda, supervisor, Josiah Johnson, RPM, Lora Smith, human health risk assessor, Abigail Debofsky, ecological risk assessor, and Chuck Nace, supervisor;
NYSDEC – Michael Squire, Project Manager
TRC Engineers (NYSDEC contractor) – Andrew Fishman.

The purpose of the Site inspection was to assess the protectiveness of the remedy. The team conducted a walk over of the landfill cap to ensure that the integrity of the cap and the associated drainage swales remain operational. Two groundhog burrows were discovered on the upper portion of the landfill cap. EPA and NYSDEC/TRC decided that, in order to ensure the integrity of the landfill cap, the groundhogs should be removed or relocated, and the burrows filled in. The team also inspected the monitoring wells throughout the Site, both inside the fenced area and outside the fenced area. EPA and NYSDEC/TRC confirmed that monitoring wells MW-04, MW-05 and MW-06 had been seriously vandalized and were no longer viable to sample. The wetland on the northwest side of the fenced landfill in the lower plateau was found to be flourishing. The three residential properties which had previously been remediated for lead were also inspected and found to be acceptable.

V. TECHNICAL ASSESSMENT

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

The landfill cap is intact and continues to operate as designed and installed. Leachate is not generated at the Site, because the waste is not in contact with groundwater, and the impermeable cap prevents surface water infiltration. Regular site inspections of the landfill cap and surrounding areas show that the remedial action is complete and continues to function as designed.

As a result of the low baseline groundwater concentrations and the installation of the landfill cap, groundwater contaminant concentrations at the Site should reach the water quality cleanup levels for the Site contaminants within several years.

Current groundwater conditions and the surface water sampling event do not indicate that there is any contaminant discharge into the Beer Kill. The wetlands area that was created as part of the remedial action continues to be a viable refuge for flora and fauna and migratory birds.

The Declaration of Covenants, Restrictions and Environmental Easements Map, Successors-in-Title and SMP are in place and functioning, as intended.

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

In the HHRA, trespassers were evaluated for exposure to surface soil and leachate; residents were evaluated for exposure to onsite and off-site surface soil as well as off-site indoor air; recreators were evaluated for exposure to surface soil and surface water and sediments of Beer Kill Creek; commercial/industrial workers were evaluated for exposure to surface soil, and construction/utility workers were evaluated for exposure to surface/subsurface soils.

Standard default exposure parameters were used, several of which have changed since the time of the risk assessment, including body weight, water ingestion rate and skin surface area. The changes would result in slightly lower risk and hazard estimates so the use of the new values would not impact the remedy decision that was made for the Site. Therefore, the exposure assumptions used at the time of the risk assessment remain valid.

In general, toxicity values have mostly remained the same. Only hexavalent chromium has become more stringent, but cancer risks were evaluated at the 10^{-6} level and non-cancer hazards at an HQ = 0.1 so the decisions made based on the former values would still be valid.

Since the time of the ROD, two emerging contaminants have been added to the groundwater monitoring program: 1,4-dioxane and PFAS compounds. In August 2020 NYS DEC adopted new drinking water standards (MCLs) for 1,4-dioxane at 1 µg/L and for PFOA and PFOS at 10 ng/L each. EPA has established health advisory levels at 70 ng/L for PFOA and PFOS, less stringent than the DEC standards. Prior to the NPL deletion, the last PRR indicated that 1,4-dioxane was not detected above the laboratory quantitation limit in any of the three wells sampled. As a result, 1,4-dioxane does not pose an unacceptable risk to human health. At the sampled wells, in 2018 and 2021, PFOA (up to 17 ng/L) and PFOS (up to 31 ng/L) were both detected above the current state MCLs; however, residents in the Village of Ellenville receive domestic water supplied by a municipal source so the drinking water pathway is incomplete. PFAS should continue to be monitored in groundwater over the next five years.

Cleanup goals selected for Site soils were the 6NYCRR Part 375 values for RSCO – residential. For groundwater, federal and state MCLs, as well as NYS Class GA standards, were used. These all remain appropriate for all compounds although the soil lead cleanup value requires additional discussion. At the time of the ROD, risks associated with exposure to lead in soils were evaluated using the EPA Integrated Exposure Uptake BioKinetic (IEUBK) model, which used a target blood lead level (BLL) of 10 micrograms per deciliter (µg/dL). However, recent toxicological evidence suggests that adverse health effects are associated with lower blood lead levels. To achieve a lead risk reduction goal consistent with more recent toxicological findings, EPA Region 2 currently evaluates lead using a target BLL of 5 µg/dL, which equates to a 200 mg/kg screening level in soil, using standard default inputs to the IEUBK model.

As part of the ROD, three residential properties, near the landfill, were remediated for lead contamination by excavation and offsite disposal. The property along Cape Road, closest to the landfill, had the battery casings. The cleanup goal chosen for these lead-contaminated residential areas was 400 mg/kg, identified in the NYS Part 375 RSCO, which was consistent with a BLL of 10 µg/dL. Portions of two of the properties were remediated by excavation and offsite disposal, showing an average post-excavation soil lead concentrations at 295 mg/kg and 318 mg/kg,

respectively. The highest lead concentration in the backfill soils was 33.6 mg/kg. So, by averaging the 33.6 mg/kg with the lead concentrations from the unremediated portions of these properties, the result would be even lower residual soil lead concentrations on the two properties.

The Cape Road property, adjacent to the landfill, had extensive excavation for lead in soils performed during the landfill capping period, as well as, during a previous excavation performed in 2004 under EPA's Removal Program. As a result of the extensive nature of the remedial action conducted at this location, soil areas outside of the demarcated 400 mg/kg boundary were also excavated and/or received clean fill or rip rap, resulting in lead concentrations in surface soils being below the remediation goal. Using the backfill soil lead data would result in the highest lead concentrations across the property at or below the 33.6 mg/kg (backfill soils.) Lead will continue to be evaluated in future FYRs as EPA's policy is updated.

These properties were observed by the team during the recent FYR Site inspection. One of the properties contained an above-ground pool that covered the entire area of the remediation, and the other property contained healthy vegetation over the entire remediated area. The rip rap appears to be stable at the Cape Road property.

As a result of the remediation performed at the Site, including excavation of contaminated soils and backfilling with clean fill, the direct contact pathways have been eliminated. According to the risk assessment, domestic water is supplied to nearby residences by a municipal source and distribution system. Private wells reportedly exist in the area of the Site; however, the nearest homes served by private wells exist across Beer Kill and had previously been tested by the New York State Department of Health. No impacts from the Site were identified in these wells. As a result, the remedy is protective of the drinking water pathway.

The RAOs selected for the Site focused on preventing exposure to, and migration of, contaminants in groundwater, soil, solid waste, leachate and air and remain valid currently and are expected to continue to be valid over the next five years.

The vapor intrusion pathway was evaluated as part of the preliminary design investigation. Soil gas data from nearby residential properties collected, as well as Site groundwater data, suggest that the vapor intrusion is incomplete. The only VOC detected in groundwater in the last reporting period was tetrachloroethane at 6.7 and 5.1 µg/L (standard = 5 µg/L) in well ESY-EPA-10, which is located along the southern property boundary, far removed from the Cape Road residences. As a result of the very limited VOC detections in groundwater, the vapor intrusion pathway remains unlikely.

Ecological – There was a screening level ecological risk assessment completed for the Site that evaluated ecological exposure to soils, leachate, groundwater discharge to sediments and surface water, sediment, and surface water, as well as ingestion of terrestrial prey items. The ecological risk assessment concluded there were unacceptable risks in the upper plateau, flood plain, and forested wetland, with minimal risk to ecological receptors in the Beer Kill and no risk from runoff or groundwater. However, leachate was identified as a viable transport mechanism for chemicals of potential ecological concern. The completed exposure pathways in the areas identified with unacceptable risk were eliminated through the implementation of the selected remedy. Soils and solid waste from the upper plateau, flood plains and forested wetland were excavated, consolidated, and capped. The leachate at the Site has been controlled through the

capping of the upper plateau, which controls water infiltration, and drainage control and rip rap placement at the toe of the landfill. No leachate was observed during the FYR Site inspection. The exposure pathways, assumptions and toxicity values that were used in the risk assessment were reviewed, and they are still valid. In addition, the cleanup values and the RAOs used at the time of the remedy selection are still valid and protective of the environment.

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

Two 55-gallon drums, identified in the most recent progress report on the Site, were found to be empty, not an issue and will remain on Site. These were noted during the recent FYR Site inspection, as well.

No other information has come to light that could call into question the protectiveness of the remedy; however, two observations that were made during the recent Site inspection are presented below in the Other Findings section.

VI. ISSUES/RECOMMENDATIONS

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

Other Findings

As a result of the observations made during the recent Site Inspection, as detailed above, the following suggestions are provided here to improve the accuracy of the data reporting for any Site investigatory and inspection activities and to ensure the integrity of the landfill cap:

- The groundhog burrows should be filled in, and the groundhogs removed. This may be accomplished after consultation with the Fish and Wildlife personnel at the NYSDEC. Such animal burrows should be flagged at the time of any Site inspection and remedied as soon as feasible.
- The team noted that a number of small trees and shrubs had taken root on various portions of the landfill cap and that some of the swales had become choked with undergrowth. EPA recommends that, sometime over the course of the upcoming regular NYSDEC/TRC Site inspections, this unwanted plant growth be removed; a bush hog or similar could be utilized on the landfill cap. The resulting debris may either be mulched or chipped for roadway maintenance around the cap. Maintaining the integrity of the landfill cap is a priority.

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)	
<i>Operable Unit:</i> OU1	<i>Protectiveness Determination:</i> Protective
<i>Protectiveness Statement:</i> The remedy implemented at the Ellenville Scrap Iron and Metal site is protective of human health and the environment.	

Sitewide Protectiveness Statement (if applicable)	
<i>For sites that have achieved construction completion, enter a sitewide protectiveness determination and statement.</i>	
<i>Protectiveness Determination:</i> Protective	<i>Addendum Due Date (if applicable):</i> Click here to enter date.
<i>Protectiveness Statement:</i> The remedy implemented at the Ellenville Scrap Iron and Metal site is protective of human health and the environment.	

VIII. NEXT REVIEW

The next FYR report for the Ellenville Scrap Iron and Metal Superfund site is required five years from the completion date of this review.

APPENDIX A

TABLES

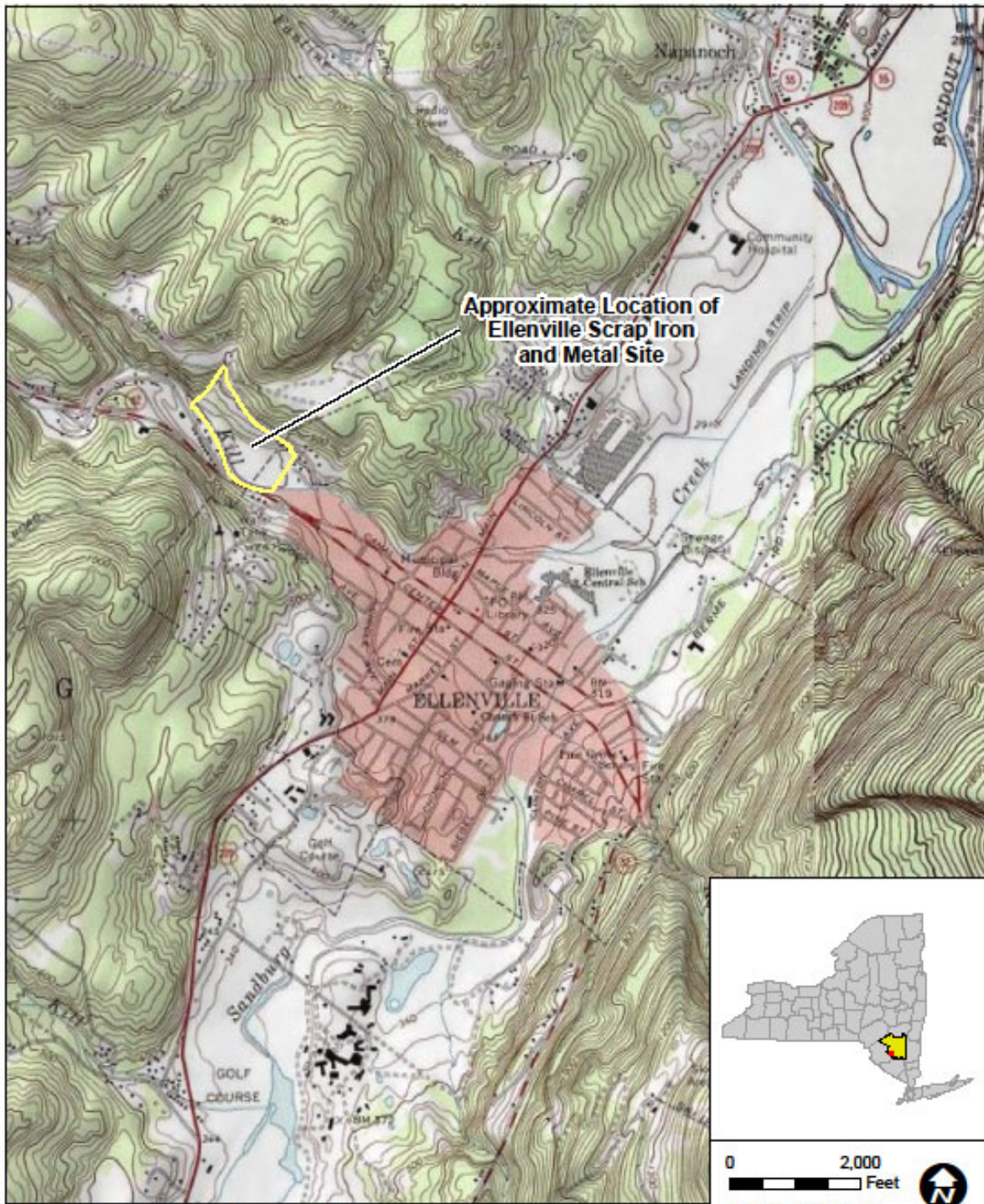
TABLE 1

Site-Related Documents

<u>Remedial Investigation Report – Ellenville Scrap Iron and Metal Site</u> , HDR, July 2010
<u>Feasibility Study Report – Ellenville Scrap Iron and Metal Site</u> , HDR, July 2010
<u>Conceptual Pre-Design Investigation Sampling Plan for Off-Site Residential Properties</u> , Ellenville Scrap Iron and Metal Site, HDR, September 15, 2010
<u>Record of Decision – Ellenville Scrap Iron and Metal Site</u> , EPA, September 30, 2010
<u>Final Pre-Design Investigation Report</u> , Ellenville Scrap Iron and Metal Superfund Site, U.S. Army Corps of Engineers, HDR/O'Brien & Gere Joint Venture (HDR/OBG KV), March 2011.
<u>Summary of Groundwater Monitoring Wells</u> , Ellenville Scrap Iron and Metal Site, HDR, May 24, 2011
<u>Preliminary Close-Out Report – Ellenville Scrap Iron and Metal Site</u> , EPA, September 30, 2011
<u>Final Remedial Action Report – Ellenville Scrap Iron and Metal Site</u> , U.S. Army Corps of Engineers, HDR/OBG JV), July 2012
<u>Groundwater Summary Report – Ellenville Scrap Iron and Metal Superfund Site</u> , HDR, September 12, 2012
<u>Site Management Plan – Ellenville Scrap Iron and Metal Site</u> , U.S. Army Corps of Engineers, HDR/OBG JV, August 2013
<u>Declaration of Covenants, Restrictions and Environmental Easements Survey and Map with the Engineering and Institutional Controls – Ellenville Scrap Iron and Metal Site</u> , Layout, Inc./Army Corps/HDR/OBG JV, March 2015
<u>Site Transfer Agreement between the U.S. Environmental Protection Agency, Region 2 and the New York State Department of Environmental Conservation – Ellenville Scrap Iron and Metal Site</u> , EPA/NYSDEC, March 2015
<u>Notice to Successors-in-Title to Property in Ellenville, New York owned by Catello Viviani – Ellenville Scrap Iron and Metal Site</u> , Recorded in Ulster County, August 18, 2016
<u>Notice to Successors-in-Title to Property in Ellenville, New York owned by Ellenville Scrap Iron & Metal Co. – Ellenville Scrap Iron and Metal Site</u> , Recorded in Ulster County, New York, August 11, 2016.
<u>Periodic Review Report – Ellenville Scrap Iron and Metal Superfund Site</u> , NYSDEC/TRC Engineers, Inc., June 2017.
<u>Data Usability Summary Report (PFAS Compounds)</u> , NYSDEC/TRC Engineers, Inc., December 2019.
<u>Periodic Review Reports – Ellenville Scrap Iron and Metal Superfund Site</u> , NYSDEC/TRC Engineers, Inc., December 2017, December 2018, October 2019 (partial), July 2021.

APPENDIX B

FIGURES



	Site Location Map Ellenville Scrap Iron and Metal Superfund Site	Job No.	Date	Figure No.
		146611	June 2012	1

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