

**FIRST FIVE-YEAR REVIEW REPORT  
CONSOLIDATED IRON AND METAL SUPERFUND SITE  
ORANGE COUNTY, NEW YORK**



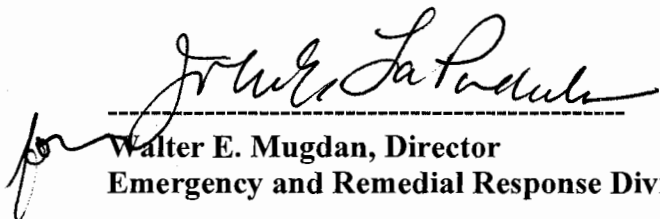
**Prepared by**

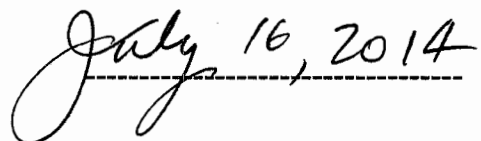
**U.S. Environmental Protection Agency  
Region 2  
New York, New York**

**JULY 2014**

**Approved by:**

**Date:**

  
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**Walter E. Mugdan, Director  
Emergency and Remedial Response Division**

  
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**July 16, 2014**

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## **Executive Summary**

This is the first five-year review for the Consolidated Iron and Metal Superfund site located in the City of Newburgh, Orange County, New York. The purpose of this five-year review is to review information to determine if the remedy is and will continue to be protective of human health and the environment. The triggering action for this statutory five-year review was the initiation of on-site construction at the site on July 6, 2009.

The remedy implemented at this site is protective of human health and the environment. There are no current exposure pathways. An environmental easement has been placed on the site property to address any future uses of the property which would impact contaminated soil left in place and to prohibit groundwater use unless groundwater quality standards are met. The site management plan requires continued monitoring of the site. There are no recommendations or follow-up actions identified in this five-year review.

## Five-Year Review Summary Form

SITE IDENTIFICATION		
<b>Site Name:</b> Consolidated Iron and Metal Site		
<b>EPA ID:</b> NY0002455756		
<b>Region:</b> 2	<b>State:</b> NY	<b>City/County:</b> Newburgh, Orange County
SITE STATUS		
<b>NPL Status:</b> Final		
<b>Multiple OUs?</b> No	<b>Has the site achieved construction completion?</b> Yes	
REVIEW STATUS		
<b>Lead agency:</b> EPA <i>[If “Other Federal Agency”, enter Agency name]:</i> <a href="#">Click here to enter text.</a>		
<b>Author name (Federal or State Project Manager):</b> Michael Negrelli		
<b>Author affiliation:</b> EPA		
<b>Review period:</b> 7/6/2009 - 7/6/2014		
<b>Date of site inspection:</b> 6/3/2014		
<b>Type of review:</b> Statutory		
<b>Review number:</b> 1		
<b>Triggering action date:</b> 7/6/2009		
<b>Due date (five years after triggering action date):</b> 7/6/2014		

Issues/Recommendations
------------------------

<b>OU(s) without Issues/Recommendations Identified in the Five-Year Review:</b>
01

Issues and Recommendations Identified in the Five-Year Review:	
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<b>OU(s):</b> 01	<b>Issue Category:</b> No Issue
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<b>Issue:</b> N/A				
<b>Recommendation:</b> None.				
<b>Affect Current Protectiveness</b>	<b>Affect Future Protectiveness</b>	<b>Party Responsible</b>	<b>Oversight Party</b>	<b>Milestone Date</b>
				Click here to enter a date.

Protectiveness Statement(s)		
<i>Operable Unit:</i> 01	<i>Protectiveness Determination:</i> Protective	<i>Addendum Due Date (if applicable):</i> Click here to enter a date.
<i>Protectiveness Statement:</i> The remedy is protective of human health and the environment.		

Sitewide Protectiveness Statement	
<i>Protectiveness Determination:</i> Protective	<i>Addendum Due Date (if applicable):</i> Click here to enter a date.
<i>Protectiveness Statement:</i> The implemented remedy for the site is protective of human health and the environment.	

## **Introduction**

The purpose of a five-year review 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 and is functioning as intended by the decision documents. The methods, findings, and conclusions of reviews are documented in the five-year review. In addition, five-year review reports identify issues found during the review, if any, and document recommendations to address them.

This is the first five-year review for the Consolidated Iron and Metal site, located in the City of Newburgh, Orange County, New York. This five-year review was conducted by the United States Environmental Protection Agency (EPA) Remedial Project Manager (RPM) Michael Negrelli. The review was conducted pursuant to Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. §9601 *et seq.* and 40 CFR 300.430(f)(4)(ii), and in accordance with the *Comprehensive Five-Year Review Guidance*, OSWER Directive 9355.7-03B-P (June 2001). This report will become part of the site file.

The triggering action for this statutory review is the on-site construction start date of July 6, 2009. A five-year review is required at this site due to the fact that hazardous substances, pollutants or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure. The site consists of one operable unit, which is addressed in this five-year review.

## **Site Chronology**

See Table 1 for the site chronology.

## **Background**

### *Physical Characteristics*

The Consolidated Iron and Metal site was an inactive car and scrap metal junk yard located at the foot of Washington Street, in the City of Newburgh, Orange County, New York. The site, which covers approximately eight acres, is bounded by a boat marina to the north, Conrail railroad tracks and South Water Street to the west, an inactive municipal incinerator and an active wastewater treatment plant to the south, and the Hudson River to the east. Downtown Newburgh is located approximately 500 feet west of South Water Street.

### *Site Geology/Hydrogeology*

Geologically, the site is underlain by a stratified clay, silt and sand unit with layers of sand and gravel at the land surface and below the water table. The unconsolidated deposits are underlain by the Martinsburg Formation, which consists of shale and carbonate rocks. The bedrock is cross-cut by faults near the site.

The unconsolidated water table aquifer, which overlies the low-permeability bedrock aquifer, is comprised of fill material underlain by native sand and gravel with localized silt lenses. The water table aquifer varies in thickness across the site, averaging approximately 20 feet thick. All of the site monitoring wells are installed within this aquifer. The water table at the site is generally flat, with steeper gradients present at the northern and southern ends of the site and a shallower gradient across the center of the site, with the direction of groundwater flow to the east/southeast toward the Hudson River. The average hydraulic conductivity measured in site wells is 18.9 feet/day.

### *Land and Resource Use*

The site occupies approximately eight acres of land bordering the Hudson River in a mixed industrial, commercial, and residential area of the City of Newburgh. From World War I until the early 1940s, the Eureka Shipyard operated at the site. Consolidated Iron and Metal Company began scrap metal processing and storage operations in the mid-1950s and continued at the site for approximately 40 years before the facility's closure in 1999. A smelter was operated on-site between approximately 1975 and 1995 and was used primarily to melt aluminum-containing materials to produce aluminum ingots. Other metallic materials also were smelted, creating a lead-contaminated ash and slag by-product. Other site operations included sorting ferrous and non-ferrous metal for processing, including automobile batteries. In addition, over the course of time, cars and other metal materials were burned, crushed, baled, sheared, and flattened.

Throughout the past 50 years, the site has been covered with piles of debris, scrap metal, numerous small and large mounds of dark-toned and light-toned materials, and numerous areas of dark-stained soil. From approximately 1960 to 1980, the area of land on which the facility operated increased by approximately 25 percent, as fill material was added to the Hudson River along the property's shoreline.

The potable water source for the City of Newburgh is surface water drawn from Washington Lake located west of the City in the Towns of New Windsor and Newburgh. Two additional sources of water are available to the City, including Brown's Pond (also known as Silver Stream Reservoir) and New York City's Catskill Aqueduct. According to the Newburgh Water Department, no potable water supply wells are active within the City of Newburgh.

The City of Newburgh is taking an active role in the revitalization of the Hudson River shoreline. The site is currently zoned for mixed use, including residential, recreational, and commercial uses; based on correspondence and discussions with the City of Newburgh, anticipated future use of the site may include commercial, recreational, and residential development.

### *History of Contamination*

From 1997 to 1999, the New York State Department of Environmental Conservation (NYSDEC) conducted several inspections at the facility and cited the owner for a number of violations. Subsequent inspections by NYSDEC noted that the owner had failed to adequately correct the violations and in the fall of 1999, the New York State Attorney General shut down operations at the site for various violations, including illegal discharges to surface water without a permit.



In September 1999, EPA conducted a preliminary study at the site to determine the horizontal and vertical extent of contamination. Surface and subsurface soil and groundwater samples were collected and analyzed, indicating the presence of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), and metals at concentrations greater than background in the surface and subsurface soils. Further, elevated concentrations of PCBs and metals were detected in Hudson River sediments, which is a fishery and ecologically sensitive environment. Accordingly, the site was proposed to the National Priorities List (NPL) on December 1, 2000, and placed on the NPL on June 14, 2001.

### *Initial Response*

In August 1998, EPA sampled an ash/slag pile at the site that was generated by the aluminum smelting operation and found it to be contaminated with lead and PCBs. The scrap metal in the pile was segregated out and the resulting fines pile, estimated at 6,600 tons, was removed from the site in 1999 and placed in an approved treatment, storage, and disposal facility (TSDF) for stabilization and landfilling. Also in 1999, EPA sampled other processed soil piles at the site which were also found to be contaminated with lead and PCBs; these soil piles were similarly transferred to an approved TSDF. Additionally, EPA constructed a berm from site soils to prevent storm water from carrying site contaminants into the Hudson River.

In 2002, EPA responded to local concerns about trespassing and scavenging taking place at the site and constructed a security fence around the site. Concurrently, EPA initiated the development of a work plan for the performance of the remedial investigation/ feasibility study (RI/FS). Prior to collecting samples for the RI, it was necessary to clear the site of the excessive debris and some of the site structures. Accordingly, from June to September 2003, EPA conducted a site clearing operation which included the following tasks:

- the removal of 32 truckloads of tires (approximately 30,000 tires total);
- the removal of 58 truckloads (1,450 tons) of scrap metal for recycling;
- the removal of 19 roll-offs (380 tons) of concrete for recycling;
- the disposal of 68 truckloads (1,962 tons) of lead-hazardous soil and debris;
- the demolition and removal of the office building and 3 process buildings;
- the pumping and removal of approximately 28,000 gallons of hydraulic oil from the basement of the metal shear building for recycling; and
- rough grading of the site surface.

Completion of the site clearing enabled the initiation of the RI sampling program.

### *Basis for Taking Action*

The RI sampling program began in June 2004. The RI determined site soils to be impacted site-wide with metals contamination, particularly lead, and VOC and PCB contamination in the soils of the former process area of the site (i.e., the area of the site where the smelting, shearing, and compacting occurred). Indicator contaminants were selected from analytical data collected during the RI based on frequency of detection and magnitude of exceedance of screening criteria, a review of the contaminants of potential concern from the Human Health Risk Assessment (HHRA), and historical activities to determine which contaminants were related to site

operations. Indicator contaminants selected for the site include benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, ideno (1,2,3-c,d)pyrene, dibenzo(a,h)anthracene, aroclor-1254, arsenic, cadmium, copper, iron, lead, mercury, vanadium, and zinc. Additionally, VOCs are considered indicator contaminants for groundwater.

As part of its studies, EPA evaluated the fate and transport of indicator contaminants at the site. Inorganics, PCBs, and PAHs, are relatively insoluble in water, and show high tendencies to adsorb to soil or organic matter in soil or sediment. Analytical results for the various media support this fate and transport scenario, since many of the contaminants detected in soils and sediment do not exceed screening criteria in surface water or groundwater. As stated, VOCs are considered indicator contaminants in groundwater; however, the application of soil cleanup objectives to VOCs and PCBs from a depth of six feet to the water table based on protection of groundwater eliminates this migration pathway.

A baseline HHRA and a Screening Level Ecological Risk Assessment (SLERA) were conducted by EPA to provide a quantitative assessment of the health risks to human receptors and a qualitative assessment of risk to ecological receptors under current and future land-use scenarios if no remedial action were taken at the site. Although the risk assessment evaluated all contaminants identified in the groundwater, soils, sediment, and surface water, the conclusions of the risk assessment indicate that the significant risks and hazards are associated with PAHs, PCBs, and lead in the soil at the site, primarily from direct contact by potential future site workers, construction workers, and residents.

The SLERA conducted for the site indicated a potential for ecological risk. Because a potential risk was established in the SLERA, a more thorough assessment was conducted based on more information, providing refinement to the evaluation criteria. Based on the more detailed evaluation, the ecological risk assessment determined that remediation of the sediments in the Hudson River adjacent to the site is not warranted.

## **Remedial Actions**

### *Remedy Selection*

A FS was developed in 2005 to evaluate potential alternatives to address the widespread soil contamination at the site. A preferred alternative was presented to the public for review and comment in July 2006 and the site remedy was selected and memorialized in the site Record of Decision (ROD) which was issued on October 4, 2006. The elements of the selected remedy are as follows:

- a remedial design program to provide the details necessary for the construction and monitoring of the remedial program;
- removal and off-site disposal of surface debris and demolition, removal, and off-site disposal of the foundations/basements of the former process area buildings and of the former garage in its entirety;

- excavation and off-site disposal of contaminated soil exceeding the residential preliminary remediation goal (PRG) for lead (400 parts per million (ppm)) down to six feet below ground surface (bgs);
- excavation and off-site disposal of contaminated soil exceeding the PRG for VOCs and PCBs in subsurface soils (10 ppm total for each) to the water table;
- placement of a readily-visible demarcation material at the interface between the excavations and backfill;
- backfilling the excavated soil with clean fill, meeting the PRG values, to grade;
- imposition of institutional controls in the form of an environmental easement and/or restrictive covenant that will at a minimum require: (a) restricting any excavation below the soil cover's demarcation layer of six feet unless the excavation activities are in compliance with an EPA-approved site management plan (SMP); (b) restricting new construction at the site unless an evaluation of the potential for vapor intrusion is conducted and mitigation, if necessary, is performed in compliance with an EPA-approved SMP; and (c) restricting the use of groundwater as a source of potable or process water unless groundwater quality standards are met;
- development of a site management plan that provides for the proper management of all site remedy components post-construction, such as institutional controls, and that shall also include: (a) monitoring of site groundwater to ensure that, following the soil excavation, the contamination is attenuating and groundwater quality continues to improve; (b) an inventory of any use restrictions on the site; (c) necessary provisions for ensuring the easement/covenant remains in place and is effective; (d) provision for any operation and maintenance required of the components of the remedy, and (e) the requirement that the owner or person implementing the remedy submit periodic certifications that the institutional and engineering controls are in place; and
- periodic reviews by EPA to ensure that the remedy continues to be protective of public health and the environment.

The ROD also established the remedial action objectives (RAOs) for the site for each medium evaluated. The following RAOs were established for site media:

#### Soils

The RAOs established for site soil are (1) prevent or minimize exposure to human and ecological receptors through ingestion and inhalation of or dermal contact with contaminated soils; and (2) minimize or eliminate contaminant migration from site soils to groundwater and surface water.

#### Groundwater

Due to the limited risks and exposure to the groundwater at this site, institutional controls are deemed adequate to address any potential future exposure. Specifically, deed restrictions have been imposed to prevent the use of groundwater as a source of potable or process water unless groundwater quality standards are met. As a result, no RAO is established for groundwater.

#### Surface Water

Results from the RI indicate that contamination at the site has not significantly impacted the surface water of the adjacent Hudson River. The HHRA and SLERA indicate the surface water

does not contribute to the site-specific risks or hazards. As a result, no RAO is established for surface water.

### Sediment

Results from the RI indicate that contamination at the site has not significantly impacted the sediment above background levels. The HHRA and SLERA indicate that sediment poses very low risks to human health and ecological receptors. As a result, no RAO is established for sediment.

### *Remedy Implementation*

In early 2007, EPA provided notice to the potentially responsible parties (PRPs) identified for the site, offering them the opportunity to undertake the work. Negotiations concluded in 2008 with a Consent Decree cashout settlement entered into by certain of the PRPs and EPA, with EPA performing the work with a combination of PRP and federal funding. The Consent Decree was entered by the Court in February 2009.

In spring 2008, EPA conducted a topographic survey, geophysical survey, geoprobe sampling program, and test pit excavations to develop a design document for the remedial construction. Also in 2008, EPA conducted certain preparatory activities at the site to facilitate the remedial construction. These activities included the demolition and removal of the garage, the demolition and removal of the remaining building foundations, the removal of scrap metal and debris, and the dismantling and removal of a truck frame and metal barges from the shoreline of the site. The RD report was completed in October 2009.

Following the preparatory activities, construction of the remedial action commenced on July 6, 2009. The work was done by EPA in two phases: Phase One involved the excavation and off-site disposal of 60,000 tons of site soils across the southern half of the site to a depth of six feet and backfilling with clean fill. Phase One was completed in October 2009. Phase Two involved the excavation and off-site disposal of approximately 30,000 tons of PCB and VOC impacted soils to the water table and the excavation and off-site disposal of remaining site soils, approximately 27,000 tons, covering the northern third of the site to a depth of six feet and backfilling with clean fill. Phase Two work was completed in August 2010.

Backfilling was performed concurrently with the excavation, maintaining an adequate buffer zone to avoid cross contamination. Backfill material was tested for suitability before placement, meeting the guidelines set by NYSDEC for restricted residential use and the screening values required by the ROD to be met for backfill. Prior to placement of the backfill, the base of the excavation was sampled on a 50-foot grid to characterize and document the soil remaining on site; samples were analyzed for VOCs, SVOCs, PCBs, and metals. Geotextile fabric was then placed to demarcate the interface between potentially contaminated soil and clean backfill material. Following reaching final grade with backfill soil, the entire site was covered with a minimum of six inches of topsoil and hydroseeded to provide a vegetative cover to ensure dust and erosion control.

In addition to the work performed on the site, at the request of the New York State Department of Health (NYSDOH), EPA removed soils just beyond the north and south property boundaries

to a depth of approximately two feet (where not hindered by utilities) and backfilled with clean fill. This was done to ensure that any contaminated soil that may have migrated beyond the site property was also mitigated.

EPA conducted a pre-final inspection with NYSDEC at the site on June 9, 2010 and a punch list was compiled. All of the punch list items were subsequently completed, confirmed at a final inspection of the site on August 18, 2010. EPA completed its Remedial Action Report (RAR) for the site on March 16, 2012. The RAR documented all the remedial activities conducted at the site and included as-built drawings to document site conditions at completion. The City of Newburgh, as current property owner, is responsible for management of the site in accordance with a site management plan (SMP) developed for post-remediation uses of the site. Site management responsibilities will be transferred to any future site owner.

#### *System Operations/Operation and Maintenance*

The ROD called for the development of a SMP to provide for the proper management of all post-construction remedy components. The SMP was completed in June 2014.

The SMP includes operation and maintenance (O&M) activities required for the site. Because there are no mechanical systems installed at the site, O&M activities consist of periodic inspections of the site property (minimally once per year and additionally following severe weather events) to note general site conditions and to ensure that the security fence and monitoring wells are in good repair. Groundwater sampling of the ten on-site monitoring wells is conducted in accordance with the schedule established in the SMP to verify that the low levels of contamination in site groundwater are attenuating and that groundwater quality improves as a result of the site remediation.

In addition to media monitoring, O&M activities include periodic certification that the institutional controls established in the environmental easement attached to the site property are unchanged and that nothing has occurred that would impair the ability to protect public health and the environment or otherwise constitute a violation or failure to comply with site controls. This certification is provided in the Periodic Review Report, to be submitted annually by the site owner.

#### **Progress Since Last Five-Year Review**

This is the first five-year review for this site.

#### **Five-Year Review Process**

##### *Administrative Components*

The five-year review team included Michael Negrelli (EPA-RPM), Michael Scorca (EPA-Hydrologist), Chloe Metz (EPA-Human Health Risk Assessor), Michael Clemetson (EPA-Ecological Risk Assessor) and Cecilia Echols (EPA-Community Involvement Coordinator). This is a mixed PRP- and Fund-lead site.

### *Community Involvement*

City of Newburgh officials have been notified that the five-year review is being conducted. Additionally, local community groups that have expressed interest in the site have similarly been notified. Once the five-year review is completed, the results will be made available at the local site repository, which is at the Newburgh Free Library at 124 Grand Street in Newburgh, New York. In addition, efforts will be made to reach out to local public officials to inform them of the results.

### *Document Review*

The documents, data and information which were reviewed in completing this five-year review are summarized in Table 3.

### *Data Review*

Data are collected and reviewed to ensure that RAOs are met following implementation of the remedial action. As previously stated, RAOs were only established for soil. The RAOs for soil are (1) prevent or minimize exposure to human and ecological receptors through ingestion and inhalation of or dermal contact with contaminated soils; and (2) minimize or eliminate contaminant migration from site soils to groundwater and surface water. These RAOs and the associated cleanup levels set forth in the ROD were met upon completion of the remedial construction, documented in the Remedial Action Report (RAR) for the site dated March 16, 2012.

### *Groundwater*

Due to the limited risks and exposure to the groundwater at this site, institutional controls are deemed adequate to address any potential future exposure. Specifically, deed restrictions have been imposed to prevent the use of groundwater as a source of potable or process water unless groundwater quality standards are met. As discussed below, an environmental easement was filed in the County Clerk's office on September 11, 2012, which restricts the use of groundwater as a source of potable or process water unless groundwater quality standards are met. Long-term monitoring will be conducted to ensure that the selected site remedy is protective of human health and the environment. The groundwater will be monitored as part of the post-construction response action to ensure that the contamination is attenuating and groundwater quality continues to improve.

In May 2013, groundwater samples were collected from the ten monitoring wells re-developed at the site following construction. Samples were analyzed for VOCs, SVOCs, PCBs, and inorganics. Results for the indicator contaminants reported in the ROD are provided in table format attached to this report (Attachment 2).

VOCs were detected above screening criteria in two samples. Benzene, toluene, ethylbenzene, and m,p-xylene exceeded screening criteria in the sample collected from MW-1, with values of 22 ug/L, 9.9 ug/L, 720 ug/L, and 73 ug/L respectively. The sample collected from upgradient monitoring well MW-9 contained benzene at 5 ug/L.

The inorganic elements iron, magnesium, manganese, sodium, and zinc exceeded the screening criteria in most wells. However, these metals occur in high concentrations naturally in New York State and the levels measured are comparable to levels measured in 2004. In addition, these screening criteria are secondary MCLs. They will continue to be monitored. The contaminant of concern, lead, was detected above the screening criterion in a single sample collected from MW-6, at 70 ug/L.

Groundwater data review indicates that the low levels of contamination in site groundwater are attenuating and groundwater quality has improved compared to baseline levels measured prior to remedial activities. The main contaminants of concern identified in the ROD were benzene and lead. In the 2013 sampling event, benzene was detected in both the background well and one on-site well. Lead was detected in only one well above federal drinking water standards. These data support the ROD assumption that the groundwater contamination is localized and the decrease in frequency indicates that limited residual groundwater contamination has attenuated. Groundwater quality will continue to be monitored in accordance with the SMP.

#### *Site Inspection*

The inspection of the site was conducted on June 3, 2014. In attendance were Michael Negrelli, EPA-RPM, Chloe Metz, EPA-Human Health Risk Assessor, and Carol Berns, EPA site attorney. Also attending was Jason Morris, the City Engineer for the City of Newburgh. No issues or adverse conditions were observed.

#### *Interviews*

During the five-year review process, no interviews were conducted. Interviews were not deemed necessary as the site is owned by the City of Newburgh which recently completed the SMP for the site. It is anticipated that the SMP will be a tool used by the City to market the site for development. The City has an affirmative obligation to ensure that the use restrictions placed on the site remain in place.

#### *Institutional Controls Verification*

The ROD called for the following with respect to institutional controls: imposition of institutional controls in the form of an environmental easement and/or restrictive covenant that will at a minimum require: (a) restricting any excavation below the soil cover's demarcation layer of six feet unless the excavation activities are in compliance with an EPA-approved SMP; (b) restricting new construction at the site unless an evaluation of the potential for vapor intrusion is conducted and mitigation, if necessary, is performed in compliance with an EPA-approved SMP; and (c) restricting the use of groundwater as a source of potable or process water unless groundwater quality standards are met. The restrictions are memorialized in an environmental easement filed with the Orange County Clerk on September 11, 2012.

## Technical Assessment

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

The remedy is functioning as intended by the 2006 ROD. Soils exceeding cleanup levels selected in the ROD have been excavated and disposed of at an off-site location. A demarcation layer has been placed at the bottom of the excavation as required by the ROD and remedial design. Post-excavation samples confirm that the ROD cleanup levels have been met and document the levels of contamination remaining on-site.

An institutional control, in the form of an environmental easement, has been placed on the property which a) restricts any excavation below the soil cover's demarcation layer of approximately six feet unless the excavation activities are in compliance with an EPA-approved SMP; b) restricts new construction at the site unless an evaluation of the potential for vapor intrusion is conducted and mitigation, if necessary, is performed in accordance with an EPA-approved SMP; and c) restricts the use of groundwater as a source of potable or process water unless groundwater quality standards are met.

Groundwater samples collected after the excavation confirm the ROD assumption that the groundwater contamination was localized and that soil remediation activities and institutional controls would prevent unacceptable use and exposure to residual contamination. Groundwater samples taken in 2013 show isolated exceedances of lead and benzene. Overall water quality, however, has improved since the RI/FS was conducted and it is concluded that residual contamination present in the groundwater is naturally attenuating.

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

There are no changes in the physical conditions of the site or site uses that would affect the protectiveness of the selected remedy. The exposure assumptions and the toxicity values that were used to estimate the potential risks and hazards to human health followed general risk assessment practice at the time the risk assessment was performed and are consistent with current practice.

Soils across the site were excavated to a depth of six feet or the water table if shallower than six feet. In the process area, excavation went to 10 feet. An additional excavation to two feet occurred to the north and south of the site until physical barriers, such as drainage pipes or paved roads, were encountered. The western boundary of the site is the Conrail railroad line. Therefore, there is no current exposure to contaminated soils. Future exposure to subsurface site soils is prevented by implementation of the SMP required by the environmental easement.

The evaluation of groundwater in this five-year review focused on two primary exposure pathways, direct ingestion (as a potable water source) and the possibility of vapor intrusion if buildings were to be constructed on site. Although there is no active remediation of groundwater, it is assumed that groundwater will eventually reach drinking water standards. Until that time, an environmental easement is in place to prevent the use of groundwater for potable purposes.



There are no residential or public supply wells in the contaminated area or downgradient. Therefore, the pathway is incomplete.

The easement also includes a prohibition on development on the site without a vapor intrusion investigation. Currently, benzene exceeds the vapor intrusion screening level of 1.4 ug/L in MW-1 at 22 ug/L. However, the IC will prevent the vapor intrusion pathway from becoming complete in the event that buildings are constructed at the site.

The RAOs remain valid.

With respect to ecological risk, although the ecological risk assessment screening values used to support the 2006 ROD may not necessarily reflect the current values, the exposure assumptions remain appropriate and thus the remedy remains protective of ecological resources. The terrestrial exposure pathway has been addressed by the removal of contaminated surface soil. As noted in the ROD, based on the conclusions of the Ecological Risk Assessment, remediation of the sediments in the Hudson River were not warranted.

*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 would call into question the protectiveness of the remedy.

#### *Technical Assessment Summary*

The remedy implemented at the site is functioning as intended. There are no current exposure pathways. An environmental easement has been placed on the site property to properly address contaminated soil left in place and to prohibit groundwater use until groundwater quality standards are met. The SMP requires continued monitoring of the site.

#### **Issues, Recommendations and Follow-Up Actions**

No issues, recommendations or follow-up actions have been identified during the five-year review.

#### **Protectiveness Statement**

Protectiveness Statement(s)		
<i>Operable Unit:</i> 01	<i>Protectiveness Determination:</i> Protective	<i>Addendum Due Date (if applicable):</i> N/A
<i>Protectiveness Statement:</i> The remedy is protective of human health and the environment.		

Sitewide Protectiveness Statement	
<i>Protectiveness Determination:</i> Protective	<i>Addendum Due Date (if applicable):</i> <a href="#">Click here to enter a date.</a>
<i>Protectiveness Statement:</i> The implemented remedy for the site is protective of human health and the environment.	

**Next Review**

The next five-year review report for the Consolidated Iron and Metal Superfund site is required five years from the completion date of this review.

## Tables

<b>Table 1: Chronology of Site Events</b>	
<b>Event</b>	<b>Date(s)</b>
Initial discovery of problem or contamination	1997
Pre-NPL responses	1998-1999
Final NPL listing	June 14, 2001
Removal actions	1999, 2002, 2004
Superfund State Contract	September 2006
Remedial Investigation/Feasibility Study complete	October 4, 2006
ROD signature	October 4, 2006
Remedial design start	April 2008
Enforcement documents (Consent Decree entry by the Court)	February 2009
On-site remedial action construction start	July 6, 2009
Remedial design complete	October 2009
RA Construction completion	August 2010
Construction completion date	September 2010
Final Remedial Action Report completion	March 2012
Site Management Plan completion	June 2014

<b>Table 2: Remediation Goals for Soil (all concentrations in mg/kg) From the OU1 ROD</b>			
<b>Contaminants of Concern</b>	<b>Soil - Protection of Groundwater</b>	<b>Human Health Risk</b>	<b>Remediation Goals</b>
Lead		400	400
PCBs	10	-	10
Total VOCs	10	-	10

**Table 3: Documents, Data and Information Reviewed in Completing the Five-Year Review**

<b>Document Title, Author</b>	<b>Date</b>
Record of Decision, Consolidated Iron and Metal Site	October 2006
Preliminary Site Close Out Report	September 2010
Final Remedial Action Report	March 2012
Groundwater Sampling Event Trip Report	May 2013
Site Management Plan	June 2014







## **Attachments**

### **Attachment 1: Figure**



Note: aerial photograph dated April 2001

#### LEGEND

- |   |   |
|---|---|
|  Former Ash/ Slag Pile           |  Former Tire Pile        |
|  Former Soil Pile                |  Former Scrap Metal Pile |
|  Former Underground Storage Tank |  Site Boundary           |



0 25 50 100 150 Feet

**Figure 2**  
**Site Map**

Consolidated Iron and Metal Superfund Site  
Newburgh, Orange County, New York

## Attachment 2: Data

### Consolidated Iron and Metal Site, Newburgh, New York Groundwater Sample Analysis May 2013

Chemical Name	Screening Criteria	MW -1	MW -2	MW -3	MW -4	MW -5	MW -6	MW -7	MW -8	MW -9	MW -10
VOCs											
MTBE	10	U	0.74	10	2.6	5.3	0.97	9.9	U	U	3
Benzene	1	22	U	U	U	U	U	U	U	5	U
Toluene	5	9.9	U	U	U	U	U	U	U	U	U
Ethylbenzene	5	720	U	U	U	U	U	U	U	U	U
m,p-Xylenes	5	73	U	U	U	U	U	U	U	U	U
INORGANICS											
Antimony	3	U	U	U	U	U	U	U	U	U	U
Iron	300	2900	23000	23000	10000	10000	12000	12000	14000	17000	18000
Lead	15	1.6	U	4.6	5.1	1.2	70	3.2	12	U	9.2
Magnesium	35000	11000	34000	51000	43000	30000	39000	68000	16000	15000	31000
Manganese	300	1500	1500	3400	3200	1300	1100	1100	84	590	1100
Sodium	20000	63000	80000	49000	56000	75000	68000	36000	55000	74000	89000
Thallium	0.5	U	U	U	U	U	U	U	U	U	U
Zinc	5	6.7	4.3	9.1	5.3	3.1	24	4.9	50	3.8	10

Notes:

All values are in micrograms per liter (ug/L)

Screening Criteria are most stringent of State or federal drinking water standards

Analytes reported on this table correspond to those reported on Table 5 of the 2006 Record of Decision

U = non-detected value