FOURTH FIVE-YEAR REVIEW REPORT
CURCIO SCRAP METAL INC. SUPERFUND SITE
BERGEN COUNTY, NEW JERSEY

Prepared by

U.S. Environmental Protection Agency
Region 2
New York, New York
May 2017

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LIST OF ABBREVIATIONS & ACRONYMS

bgs	below ground surface
CEA	Classification Exception Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
FYR	Five-Year Review
GWQS	Groundwater Quality Standards
HHRA	Human-Health Risk Assessment
ICs	Institutional Controls
MCL	Maximum Contaminant Level
MW	Monitoring Well
NPL	National Priorities List
NJDEP	New Jersey Department of Environmental Protection
O&M	Operation and Maintenance
OU	Operable Unit
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objectives
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
TAGM	Technical and Administrative Guidance Memorandum
VI	Vapor Intrusion
VOCs	Volatile Organic Compounds

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Curcio Scrap Metal Inc. Superfund Site		
EPA ID: NJD 011713584		
Region: 2	**State:** NJ	**City/County:** Bergen County, New Jersey

SITE STATUS	
NPL Status: Final	
Multiple OUs? Yes	**Has the site achieved construction completion?** Yes

REVIEW STATUS
Lead agency: EPA ***[If "Other Federal Agency", enter Agency name]*:**
Author name (Federal or State Project Manager): Michelle Granger
Author affiliation: EPA
Review period: 2/2/2012 - 9/30/2016
Date of site inspection: 11/16/2016
Type of review: Policy
Review number: 4
Triggering action date: 3/1/2012
Due date *(five years after triggering action date)*: 3/1/2017

Executive Summary

This is the fourth five-year review (FYR) for the Curcio Scrap Metal Inc. Superfund Site. The site is located in Saddlebrook, Bergen County, New Jersey and has two operable units (OUs). The Operable Unit 1 (OU1) Record of Decision (ROD) and Explanation of Significant Differences (ESD) called for the excavation of contaminated soils and transportation off-site for incineration or landfill disposal. Operable Unit 2 addresses the groundwater. The OU2 ROD selected a "No Further Action" remedy. As part of the "No Further Action" remedial approach, a long-term groundwater monitoring program was required. This FYR addresses OU2.

The purpose of this FYR is to review information to determine if the remedies are and will continue to be protective of human health and the environment. The triggering action for this policy FYR is the signature date of the previous FYR.

This five-year review found that the OU2 remedial approaches are functioning as intended by the decision documentsand are protective.

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 pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the fourth FYR for the Curcio Scrap Metal Inc. Superfund Site. The triggering action for this policy review is the date of the previous review. The trigger for this FYR is March 1, 2012, the approval date of the last review.

The work at the site has been divided into two operable units. Operable Unit One (OU1) addressed soil and shallow groundwater contamination. The final remedy was designated as OU2 which addressed groundwater contamination. Long-term groundwater monitoring has been ongoing since March 2000.

The June 1991 OU1 ROD, as modified by the August 1992 ESD, selected excavation of soils contaminated with PCBs and heavy metals to residential cleanup levels. Upon completion of the OU1 remedy, contaminants were not left on site above Unlimited Use/Unlimited Exposure (UU/UE) levels. This OU is not being evaluated in this five-year review.

The September 30, 1997 OU2 ROD for groundwater selected a No Further Action remedy, which includes a long-term groundwater monitoring program and a Classification Exception Area (CEA). The ROD stated that the monitoring program and the CEA will remain in effect until "constituents in the groundwater do not exceed drinking water standards." Consequently, this Site is subject to "policy" five-year reviews because it will take longer than five years to complete. In summary, OU2 will be evaluated in this FYR.

The site's fourth FYR team was led by Michelle Granger, the EPA Remedial Project Manager (RPM). Participants included Katherine Mishkin (EPA hydrogeologist), Marian Olsen (EPA human-health risk assessor), Charles Nace (EPA ecological risk assessor), and Pat Seppi (EPA community involvement coordinator). The owner of the property, Curcio Realty 2 LLC, was notified of the initiation of the FYR. The FYR began in July 2016.

Site Background

The Curcio Scrap Metal, Inc. Site is located at 416 Lanza Avenue in Saddle Brook, New Jersey. The Site includes, but is not limited to, the real property where two active scrap metal recycling businesses operate; Curcio Scrap Metal, Inc., (CSMI) and Cirello Iron and Steel Company (CISC). The Site is approximately one acre in size and contains two single story buildings which are used primarily as warehouses. The Site is bordered by Lanza Avenue on the north, Walther Avenue on the south, a light industrial property on the east and Midland Avenue on the west. **Figure 1** presents the Site Layout. The area surrounding the Site is comprised of residential homes and industrial properties.

The Site is subdivided into the East, West and South Lots. The Site is used by CSMI and CISC to conduct their business. With the exception of two narrow passageways, the Site is paved. The Site has been in continued industrial use during remediation and post-remediation monitoring.

Salvaging operations began at the Site in the early 1950's. Prior to this time, the land was used for dairy farming. In 1952, Mr. Curcio purchased the East and West Lots and in 1981, he purchased the South Lot. Initially, only rags and paper were recycled. Later, aluminum and copper were stored and recycled at the Site. Today, CSMI and CISC collect and compact scrap iron, aluminum, and other ferrous and non-ferrous metals. In 1977, the original structures on the Site were demolished, the present main building was erected and sections of the West Lot were paved. In 1978, the truck scale and scale control shed were constructed on the northern edge of the East Lot. In 1982, CSMI received shipments of 50 electrical transformers and, while cutting the transformers, oil containing polychlorinated biphenyls (PCBs) spilled onto the ground.

The Site is situated above a fractured bedrock aquifer called the Passaic Formation of the Brunswick Group. This aquifer supplies water to public and private wells in the area. Geophysical logging of boreholes was performed to define the lithology and fractures and to help determine bedrock stratigraphy and structure. Three hydrogeologic zones were identified: the Overburden Water Bearing zone; transition zone; and the Upper Bedrock Aquifer zone.

Based on water level measurements, the direction of groundwater flow was determined to be northeasterly in both the Overburden Water Bearing zone and the Upper Bedrock Aquifer zone. Shallow groundwater, located at a depth ranging between approximately 5 feet to 15 feet below ground surface, is considered to be the Overburden Water Bearing zone. Changes in the stratigraphy in the easternmost portion of the Site cause a general upgradient flow from the Upper Bedrock Aquifer zone to the Overburden Water Bearing portion of the aquifer. This may limit the vertical migration of contaminants to the deeper bedrock zone. Because of the upward hydraulic head in the Upper Bedrock Aquifer zone in relation to the Overburden Water Bearing zone, there is limited potential for downward flow of water into the Upper Bedrock Aquifer zone within the eastern portion of the East Lot.

The New Jersey Department of Environmental Protection (NJDEP) conducted an initial investigation of the Site in October 1982. During this investigation, several disassembled transformers were observed on the Site. Puddles of oil also were observed on the ground beneath and adjacent to the transformers. Samples of the puddles were collected, analyzed and elevated concentrations of PCBs were detected. Further investigation revealed that transformers containing PCBs were purchased by SECO Corporation from Consolidated Edison Company of New York, Inc. (Con Ed) and subsequently sold to and transported to CSMI by SECO. At least three documented PCB spills have occurred on the Site.

At NJDEP's request, EPA conducted a Preliminary Assessment and Site Inspection in 1984 which revealed the presence of hazardous substances such as PCBs, trichloroethylene, copper, lead and nickel, among other substances, in Site soils. The Site was placed on the National Priorities List (NPL) in July 1987.

For more details related to site background, physical characteristics, geology/hydrogeology, land/resource use, and history related to the site, please refer to:

https://www.epa.gov/superfund/curcio

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

Following the listing of the site on the NPL in 1987, on May 27, 1988, EPA entered into an Administrative Order on Consent (ACO) with CSMI, SECO Corporation and Con Ed (collectively referred to as 'Respondents'). The ACO required the performance of a Remedial Investigation and Feasibility Study (RI/FS) at the Site in order to determine the nature and extent of contamination along with the development of alternatives to address that contamination.

The RI was conducted from July 1989 through October 1990 and addressed soil and shallow groundwater contamination. Based on the results of the investigation and the elevated risk posed by the contaminated soil, EPA determined that the cleanup of contaminated soil would be addressed on an expedited basis. Consequently, the Site was divided into two operable units (OUs). Operable Unit One (OU1) addressed soil contamination and Operable Unit Two (OU2) addresses groundwater contamination. The OU1 RI concluded that soils were contaminated with PCBs and heavy metals including lead. The results of the risk assessment indicated that contaminated soil posed an unacceptable risk to workers and trespasser. The OU2 RI for groundwater was performed from January 1996 to January 1997. The OU2 RI concluded that both the overburden and bedrock aquifer were contaminated with low levels of VOCs including vinyl chloride, trichloroethylene (TCE), and methyl chloride and low levels of inorganics including lead, arsenic and thallium. The results of the Human Health Risk Assessment (HHRA) indicate that overburden groundwater posed an unacceptable risk for potential future on-site residents. In addition, activities taken to remediate surface water and sediment in Schroeder's Brook during the OU1 remedial action were deemed to be protective. Remedial actions were conducted in Schroeder's Brook because the concentrations of PCBs in the sediment exceeded the Site remedial action criterion of 1 part per million (ppm). A baseline ecological risk assessment was conducted and concluded that there was no unacceptable ecological risk.

Response Actions

In June 1991, EPA issued a ROD for OU1 which called for excavation and off-site incineration of the contaminated soil. The cleanup level was established to be 1 ppm for PCBs. In September 1991, EPA issued an Administrative Order (Index No. II-CERCLA-10113) requiring the Respondents to remediate the soil in accordance with the ROD.

Because of a nationwide shortfall in incineration capacity for PCB-contaminated materials that occurred after the issuance of the ROD, EPA issued an Explanation of Significant Differences (ESD), dated August 1992, that allowed disposal of soils containing less than 1,000 ppm of PCBs at a landfill permitted under both the Resource Conservation and Recovery Act (RCRA) and the Toxic Substances Control Act (TSCA).

OU1 established the following remedial action objectives (RAOs):

- Excavation of soil contaminated with polychlorinated biphenyls (PCBs) and heavy metals above applicable cleanup standards, and

- Transportation of the excavated soil to an appropriate incineration facility for treatment and/or disposal.

OU2:

Remedial Investigation done from 1996 to 1997 summary of findings is presented in Appendix D.

After careful consideration of site-specific details and analysis of all data collected, in September 1997, EPA selected a No Further Action remedy, with long-term monitoring. The major components of the 1997 No Further Action remedy are:

- Implementation of a groundwater monitoring program to monitor contaminants in the groundwater. Groundwater samples will be collected and analyzed for Target Compound List (TCL) volatile organic compounds (VOCs) and Target Analyte List (TAL) inorganic compounds for the first year on approximately a quarterly basis. Special analytical services will be used, where appropriate, in the analytical procedures to minimize any variability of data. The monitoring program may be modified based upon sampling results collected during the first year. Currently, EPA and NJDEP do not believe that additional groundwater monitoring wells will be required for the purpose of the sampling program. However, if the results of the initial rounds of sampling indicate that additional wells are necessary, then they will be installed;

- A Classification Exception Area (CEA) will be established by NJDEP to provide information on contamination in the groundwater resulting from Site operations. The CEA will remain in effect until contaminant levels are below New Jersey Groundwater Quality Standards. NJDEP may establish a Well Restriction Area (WRA) if groundwater contamination associated with the Site should be determined to impact potential users. By establishing a WRA, NJDEP can assure that contaminants in the groundwater will not pose a threat to human health as a result of well installation and operations; and

- After five years, or less, if the sampling and analyses indicate the need for action, the potential risks to human health and the environment will be reassessed. The groundwater monitoring would then either continue for another five-year period, or some other action will be considered. If monitoring reveals that contamination at the Site increases so that an unacceptable risk to human health or the environment develops, an appropriate action can be initiated at any time during the five-year period to address the risks. The CEA will remain in effect until constituents in the groundwater do not exceed established drinking water standards.

Response Action Implementation

OU1 (Soil)

The Remedial Design (RD) was conducted by the Respondents in conformance with the ROD as modified by the ESD. The RD was approved by EPA in March 1993. The OU1 Remedial Action (RA) was performed during the period from September 1993 through January 1994. Approximately 3,000

tons of contaminated soil were excavated and removed from the Site. Approximately 500 tons of contaminated soil were transported off-site for disposal at the Aptus Incinerator in Coffeyville, Kansas. Approximately 2,500 tons of contaminated soil were transported off-site for disposal at the Chemical Waste Management Landfill facility in Model City, New York. When confirmatory sampling indicated that the soil cleanup level was achieved, the area was backfilled with clean soil and a ten-inch thick reinforced concrete slab was installed over the East Lot to provide a stable surface for site operations. EPA conducted a final inspection on January 19, 1994 and determined that all remedial actions were successfully implemented by the Respondents. A detailed description of the OU1 remedial action activities is included in the EPA approved March 1994 *Remedial Action Report for Operable Unit One: East Lot Soils,* which is included in the Administrative Record.

In June 1995, as part of the OU1 soil remediation Site activities, the Respondents remediated a small body of standing surface water (Area 1) and associated sediments (Area 2) of Schroeder's Brook, located approximately 300 feet to the east of the Site. A detailed description of the Area 1 and Area 2 remedial action activities is included in the EPA approved August 1995 *Remedial Action Report – Sediment Area,* which is included in the Administrative Record.

OU2 (Groundwater)

In September 1999, the Respondents entered into an Administrative Order on Consent (Index No. CERCLA-02-99-2026) (ACO) with EPA to conduct the groundwater monitoring program for OU2 for five years. In February 2000, EPA approved the Groundwater Monitoring Work Plan. The Groundwater Monitoring Program which initially included quarterly sampling of on-site monitoring wells, was conducted in 2000 and 2001. Bi-annual groundwater sampling was conducted in 2002, 2003, and 2004. In April 2005, the respondents entered into an Amendment to the September 1999 ACO to continue the groundwater monitoring program at the Site. Annual groundwater sampling was conducted in 2005, 2006, 2007 and 2008. In 2010, groundwater sampling began being conducted on a biennial basis. The first biennial sampling event was conducted in 2010.

In April 2011, the 1999 ACO was amended again (Second Amendment to the 1999 ACO) to extend the monitoring program for an additional five years. The next biennial groundwater sampling events took place in 2012, 2014, and 2016.

In August 2016, a Third Amendment to the 1999 ACO was executed to continue the groundwater monitoring program at the Site. This amendment includes groundwater sampling to occur every four years.

Residential Well Findings

As part of the groundwater investigation, the Respondents conducted an updated well record search. The updated well record search indicated that there are no private wells in a downgradient direction within one mile of the Site and within the Overburden Water Bearing zone or the Upper Bedrock Aquifer zone. There is one private well, located 25 feet upgradient from the Site, which was sampled in February 1997. No organic or inorganic contaminants were found to be present in this well at levels above established drinking water standards.

Remedial Action Pilot Study

Following a sampling event in August 2014 (TCE was 4.4 ppb), a focused remedial action pilot study was initiated in November 2014 in MW-4R to address low level detections of TCE. Slow release in-situ chemical oxidation (ISCO) cylinders (aka permanganate candles), containing potassium permanganate encapsulated in a paraffin wax, were strung together and installed in monitoring well MW-4R. They remained in this monitoring well for 5 ½ months, as NJDEP's permit by rule was approved for 180 days. On April 30, 2015, the permanganate candles were removed and the monitoring well was purged until water quality parameters were stabilized.

Institutional Controls

A CEA was established by NJDEP in 2008. The CEA lies within the boundaries of the CSMI Site and the adjacent Michelotti Realty Company properties, reaching an extent of 140 feet downgradient of monitoring well 4R (MW-4R). The CEA assures that there is no unacceptable future use of contaminated groundwater in the vicinity of the Site.

Table 1 Summarizes the status of the ICs.

Table 1: Summary of Implemented Institutional Controls

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)**
Groundwater	Yes	Yes	Site property	To restrict installation of groundwater wells and groundwater use	CEA established in October 2008

Systems Operations/Operation & Maintenance

Since March 2000, a Groundwater Monitoring Program has been ongoing to monitor contaminants in the groundwater. Ten detailed "Annual Groundwater Monitoring Reports" and the First, Second, and Third "Five-Year Groundwater Monitoring Reports" have been submitted to EPA by the Respondent. The details presented in these reports include a discussion of: the collection and analysis of groundwater samples from on-site wells; resurveying of monitoring wells; rehabilitation of outer flushmount protective road boxes of monitoring wells; obtaining additional concentration and flow data at routine points; water level measurements taken during each sampling event; and coordination of the disposal of purge water. These reports also provide information related to addressing identified problems. Routine maintenance includes inspection of the concrete slab over the East Lot portion of the Site and monitoring well integrity. Progress reports are also submitted at the completion of each round of sampling.

Seven groundwater monitoring wells are currently on-site. Four wells are installed in the Overburden Water Bearing zone at a depth of approximately 10 feet below ground surface and three wells are

installed in the Upper Bedrock Aquifer zone at depths ranging from approximately 50 feet to 68 feet below ground surface. The next groundwater sampling event is scheduled to be in 2020.

Potential impacts on the site from climate change were assessed. The performance of the remedy is currently not at risk due to the expected effects of climate change in the region near the site.

III. PROGRESS SINCE THE LAST REVIEW

The protectiveness determinations from the last FYR are summarized in **Table 2, below.**

Table 2: Protectiveness Determinations/Statements From 2012 Five-Year Review

OU	Protectiveness Determination	Protectiveness Statement
2 (Groundwater)	Protective	The OU2 remedy is expected to be protective upon completion of the groundwater monitoring requirement, and in the interim, exposure pathways are being controlled by the implementation of the NJ Classification Exception Area (CEA).
Sitewide	Protective	The 2012 FYR found that the OU1 and OU2 remedial approaches are functioning as intended by the decision documents. The OU2 remedy at this site is expected to be protective upon the completion of the groundwater monitoring program, and in the interim, exposure pathways that could result in unacceptable risksare being controlled by the implementation of the NJ Classification Exception Area (CEA).

No issues and recommendations were identified.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

On November 14, 2016, EPA Region 2 posted a notice on its website indicating that it would be reviewing site cleanups and remedies at 38 Superfund sites in New York and New Jersey, including the Curcio Scrap Metal Inc site, and inviting the public to submit any comments on the FYR to the EPA. The announcement can be found at the following web address:

https://www.epa.gov/sites/production/files/2016-11/documents/five_year_reviews_fy2017_final.pdf

In addition to this notification, a notice of the commencement of the FYR was posted on the EPA's Region 2 website and sent to local public officials. The notice was provided to the Town of Saddle Brook and was posted on the Town's website on April 25, 2017. The purpose of the public notice was to inform the community that EPA would be conducting a FYR to ensure that the remedy implemented at the site remains protective of public health and is functioning as designed. In addition, the notice included contact information, including addresses and telephone numbers, for questions related to the FYR. Once the FYR is completed, the results will be made available at the site information repositories and site profile page https://www.epa.gov/superfund/curcio through the link Additional Reports and Documents.The site repositories are located at EPA, 290 Broadway, 18th Floor, New York, New York and at the Saddle Brook Memorial Library, 340 Mayhill Street, Saddle Brook, New Jersey 07662. In addition, efforts will be made to reach out local public officials to inform them of the results.

Data Review

This review addresses groundwater data collected since the third FYR conducted in 2012. Groundwater is sampled from four overburden monitoring wells: MW-1R, MW-2, MW-3R, and MW-4R on a biennial basis and this FYR includes data from July 2012, August 2014, and August 2016. Following a focused remedial action pilot study in monitoring well MW-4R (discussed in Section II) between November 2014 and June 2015, additional groundwater samples were collected from this monitoring well in April and June of 2015. For the 2016 event, MW-1R was removed from the sampling program and MW-2 was not sampled for VOCs, but only for select metals including aluminum, arsenic, lead, and manganese. Thus, the only monitoring wells sampled in 2016 were MW-2 for select metals, and MW-3R and MW-4R for VOCs and select metals. Bedrock monitoring wells (BR-1, BR-2, BR-3) were eliminated from the groundwater sampling plan in 2010 and decommissioned in 2011.

Prior to decommissioning bedrock wells, groundwater samples from twenty groundwater sampling events showed no detections of VOCs above the NJDEP GWQS or federal MCLs. In 2008, metals data indicated exceedences of the NJDEP GWQS for iron and lead in BR-1, arsenic in BR-2, and lead in BR-3. In March 2010, two technical memoranda were submitted to the USEPA evaluating lead and arsenic concentrations found in the deep bedrock aquifer. Among multiple conclusions drawn from these studies, it was determined that lead and arsenic concentrations found in the bedrock aquifer at the site are consistent with concentrations detected in off-site regional wells and based on a relationship detected between iron and lead, it was suggested that elevated lead concentrations are related to the occurrence of iron bearing minerals in the Passaic formation that adsorb the lead.

Groundwater level elevations are collected concurrent with sampling events and synoptic events indicate groundwater in the overburden water bearing zone flows toward the north-northeast direction. The horizontal hydraulic gradient is low and ranges from 0.0011 ft/ft to 0.0058 ft/ft.

The last FYR showed exceedences of benzene above the NJDEP GWQS of 1 ppb. While the 2014 and 2016 data showed benzene levels were non-detect in all monitoring wells, the method detection limit of 1.7 ppb and 5 ppb are above the NJDEP GWQS of 1 ppb.

During this FYR period, no VOCs were detected above NJDEP GWQS in MW-1R, MW-2, and MW-3R. MW-3R and MW-4R are situated in the downgradient edge of the Site and prior to 2010, MW-3R showed consistently detected low levels of benzene above the NJDEP GWQS during each sampling event. During this FYR period, TCE is the only remaining VOC of concern and it has been most persistent in groundwater samples collected from MW-4R with concentrations ranging between 4.4 ppb and 8 ppb, while TCE degradation products (i.e. cis-1,2-DCE, vinyl chloride) have remained below the NJDEP GWQS.

Following a focused remedial action pilot study in MW-4R, the permanganate concentration in groundwater was determined using a field Hach test kit. Following well stabilization and confirmation that minimal oxidant remained in the monitoring well, a groundwater sample was collected and analyzed for TCE. Two rounds of data were collected following this pilot test in April 2015 and June 2015 and TCE concentrations were 5.4 ppb and 7.2 ppb, respectively. In August 2016, the TCE concentration in MW-4R was 7.3 ppb. Prior to the pilot study, TCE concentrations ranged from 4.4 ppb to 8 ppb between 2012 and 2014.

The slow release ISCO cylinders deployed in MW-4R created a temporary oxidative environment in the groundwater, as shown by an increase in redox from -73 to 555 millivolts and an increase in dissolved oxygen from 1.18 to 3.4 ppm. However, the oxidative conditions were short-lived following the removal of the permanganate candles and purging of remaining amendment. Perhaps the slight increase in TCE concentrations detected in the June 2015 sampling event is evidence of rebound from a clay layer. The low hydraulic conductivity and the presence of clays at this site, is likely why EPA has observed persistent low levels of TCE in groundwater over time.

While there has not been a considerable decrease in TCE concentrations, data collected during this FYR shows a lower range of TCE concentrations as compared to previous years. For example, from 2004 through 2010, TCE ranged from 10 to 17 ppb and since 2012 TCE has ranged from 4.4 to 8 ppb. While there was a slight increase in TCE from 2014 to 2016, the overall data could suggest that the source of TCE is slowly reducing in mass over time and groundwater conditions could meet NJDEP GWQS within a reasonable timeframe.

Site Inspection

An inspection of the site was conducted on November 16, 2016. In attendance were EPA RPM Michelle Granger and EPA risk assessors Marian Olsen and Charles Nace. In general, the inspection found the Site's concrete slab covering the East Lot to be well-maintained and functioning in accordance with the design. Scrap metal operations on the slab are currently ongoing. There was no evidence of settlement or cracks. The monitoring wells are operational and functional. The property, roadways, and monitoring wells were all in good repair at the time of the inspection. A cover was placed over part of the working area to limit potential groundwater infiltration at the request of NJDEP.

V. TECHNICAL ASSESSMENT

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

The remedy is functioning as intended. The contaminated soil has been excavated and disposed off-Site, and the groundwater monitoring program is currently being implemented on a biennial basis during this review period.

While the previous FYR showed benzene exceedences above the NJDEP GWQS, this is the first FYR where benzene has not been detected in all monitoring wells (although note the Method Detection Limit (MDL) exceeds the NJDEP GWQS). As a result of this FYR, it is recommended that consideration be given to running the VOC analytical method at a lower MDL to more accurately reflect the cleanup goal for benzene, which is slightly lower than the standard MDL. This recommendation does not affect current and/or future protectiveness. The only remaining COC of concern is TCE and concentrations remain low, but above NJDEP GWQS in only one well, MW-4R. The bedrock is no longer sampled and bedrock wells have been decommissioned.

A CEA was established by NJDEP in 2008. The CEA lies within the boundaries of the CSMI Site and the adjacent Michelotti Realty Company properties, reaching an extent of 140 feet downgradient of MW-4R. The CEA assures that there is no unacceptable future use of contaminated groundwater in the vicinity of the Site.

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

There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy. The Overburden Water Bearing zone cannot support potable use based on its low yield of and a CEA is in place to prevent potential use of the overburden groundwater as a drinking water source. In addition, residents in the area obtain their drinking water from public water supply wells which are operated by the municipalities of Garfield, Lodi and Fair Lawn. These actions prevent potential exposures to the groundwater, which was the basis for taking action at the site.

Changes in Standards and TBCs The ROD established MCLs as the cleanup criteria for COCs identified above. The MCL listed in the ROD for arsenic was 50 ppb and this value was subsequently updated in 2006 to 10 ppb. In addition, local background arsenic levels indicate that arsenic is naturally elevated in bedrock. The MCLs and NJDEP GWQS remain protective.

Changes in Toxicity and Other Contaminant Characteristics. There have been no changes in toxicity values since the last FYR that would affect the protectiveness of the remedy. Currently, arsenic and PCBs (non-cancer) are being re-evaluated for toxicity through the Integrated Risk Information System (IRIS) and any changes in toxicity values will need to be evaluated in the next FYR. The remedy for groundwater and soils remains protective as the pathways of exposure have been interrupted as stated above.

Changes in Risk Assessment Methods. There have been no changes in EPA's risk assessment methodologies that would change the protectiveness of the remedy. Vapor intrusion was evaluated at the residences abutting the facility in the previous FYR. The previous FYR concluded that further evaluation of soil vapor intrusion was not warranted. Based on an evaluation of the data generated during the review period for this fourth FYR (2012 – 2016), this conclusion is confirmed.

Since the last FYR exposure assumptions were updated with the release of the 2014 OSWER Directive # 9200.1-120. Updates included changes in exposure assumptions for bodyweight for the adult, skin surface area for the adult and child, drinking water ingestion rate for the young child, and other parameters. These changes do not change the conclusions of the risk assessment or the protectiveness of the remedy.

Changes in Exposure Pathways. The reasonably anticipated current and future land use for the site have not changed and other characteristics that may change the protectiveness of the remedy. A cover was placed over part of the working area to limit potential groundwater infiltration at the request of NJDEP.

The conclusions from the ecological risk assessment remain valid.

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

There is no new information that could call into question the protectiveness of the remedies implemented at the Curcio Scrap Metal Inc. Site.

VI. ISSUES/RECOMMENDATIONS

None.

OTHER FINDINGS

As a result of this FYR, it is recommended that the VOC analytical method use a lower MDL to more accurately reflect the cleanup goal for benzene, which is slightly lower than the standard MDL. This recommendation does not affect current and/or future protectiveness.

VII. PROTECTIVENESS STATEMENT

Table 3: Protectiveness Statements

Protectiveness Statement(s)	
Operable Unit:	*Protectiveness Determination:*
OU2 (Groundwater)	**Protective**
Protectiveness Statement:	
The OU2 remedy is protective of human health and the environment.	

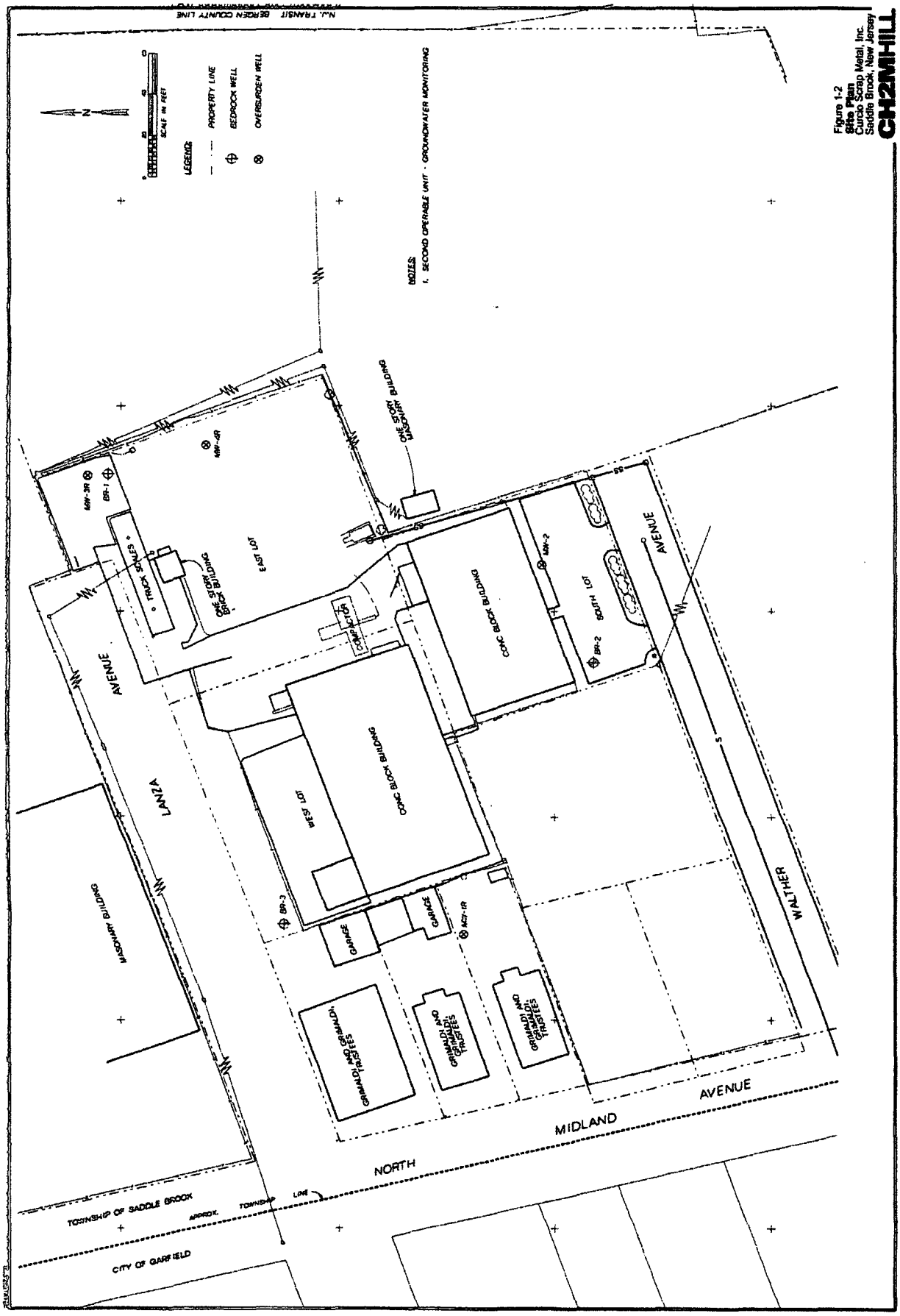
Sitewide Protectiveness Statement
Protectiveness Determination:
Protective
Protectiveness Statement:
The sitewide remedial actions are proective of human health and the environment.

VIII. NEXT REVIEW

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

APPENDIX A **Reference List:** ***Documents, Data, and Information Used in Completing Five-Year Review***
➢ Curcio Scrap Metal OU-1 Record of Decision, EPA, June 1991
➢ Curcio Scrap Metal Inc. Explanation of Significant Difference, EPA, August 1992
➢ Curcio Scrap Metal Site OU-1 Remedial Action Report, CH2M Hill, March 1994
➢ Curcio Scrap Metal Site OU-2 Final Groundwater Investigation Report, CH2M Hill, March 1997
➢ Curcio Scrap Metal Inc. OU-2 Record of Decision, EPA, September 1997
➢ CERCLIS Database Information, July 2002
➢ Annual Groundwater Monitoring Report, CH2M Hill, April 2001
➢ Annual Groundwater Monitoring Report, CH2M Hill, July 2002
➢ Annual Groundwater Monitoring Report, CH2M Hill, February 2003
➢ Annual Groundwater Monitoring Report CH2M Hill, March 2004
➢ First Five Year Groundwater Monitoring Report, CH2M Hill, January 2005
➢ Progress Report No. 16 – May 2005 Validated Groundwater Results, January 2007
➢ Progress Report No. 17 – October 2006 Validated Groundwater Results, January 2007
➢ Annual Groundwater Monitoring Report, CH2M Hill, March 2007
➢ Annual Groundwater Monitoring Report, CH2M Hill, September 2008
➢ Evaluation of Arsenic in Groundwater of Brunswick Aquifer at Curcio Scrap Metal Inc. Site, March 2010
➢ Evaluation of Lead in Groundwater of Brunswick Aquifer at Curcio Scrap Metal Inc. Site, May 2010
➢ Annual Groundwater Monitoring Report, CH2M Hill, June 2011
➢ Biennial Groundwater Monitoring Report, CH2M Hill, July 2011
➢ Second Five Year Groundwater Monitoring Report, CH2M Hill, July 2011
➢ Third Five Year Groundwater Monitoring Report, CH2M Hill, November 2016

APPENDIX B - Figure 1



APPENDIX C - Table 4: Chemicals above detection limits in the 2012, 2014 and 2016 rounds of sampling and their respective state and federal MCLs, and the wells where the detections exceeded these standards.

Chemical	EPA MCL (ug/l)	NJDEP Primary and Secondary Drinking Water Standards* (ug/l)	Max. Conc. Location (2012)	Max Conc. Location (2014)	Max. Conc. Location (2016)	Result from 2016
Benzene	5	1	0.25 ppb (all overburden wells)	5 ppb (MW-2)	5 ppb (MW-2)	Equal to NJDEP Primary MCL
Trichloroethylene	5	1	8 ppb (MW-4R)	4.4 ppb (MW-4R)	7.3 ppb (MW-4R)	Exceeds NJDEP Primary MCL and below federal MCL
Aluminum	50 – 200 (secondary standard)	200 (secondary standard)	100 ppb (all overburden wells)	200 ppb (MW-2)	596 ppb (MW-3R)	Exceeds NJDEP secondary standards
Arsenic	10	3	206 ppb (MW-3R)	52.4 ppb (MW-3R)	72.4 ppb (MW-3R)	Exceeds NJDEP Primary MCL and federal MCs
Lead	15 (action level)	15 (action level)	10.6 ppb (MW-4R)	95.9 ppb (MW-4R)	11.4 ppb (MW-4R)	Below EPA Action Level and state Action Level
Manganese	50 (secondary standard)	50 (secondary standard)	9,250 ppb (MW-2)	7,870 ppb (MW-2)	6,610 (MW-2)	Exceeds NJDEP and federal secondary standards

• Values from http://www.state.nj.us/dep/watersupply/standard.htm#inorganics.
• Values from http://www.epa.gov/safewater/contaminants/index.html#mcls.

APPENDIX D – Remedial Investigation (1996-1997) summary of findings:

The Respondents began the groundwater investigation field work in January 1996 and concluded it in January 1997. The purpose of the groundwater investigation was to determine the extent of groundwater contamination, identify the stratigraphy of deeper portions of the aquifer underlying the Site, and to determine the overall quality of the groundwater at the Site.

Seven monitoring wells were installed at the Site. In two of the three Upper Bedrock Aquifer zone monitoring wells, no volatile organic compounds (VOCs) were detected at levels exceeding the NJDEP Ground Water Quality Standards (GWQS) and/or federal Maximum Contaminant Levels (MCLs). In one bedrock monitoring well, only trichloroethylene (TCE) was detected at 1.1 part per billion (ppb) and 1.9 ppb. The GWQS for TCE is 1 ppb and the MCL is 5 ppb. The following inorganic compounds were detected in the Upper Bedrock Aquifer at concentrations exceeding the NJDEP GWQS and/or federal MCLs: aluminum, arsenic, lead and thallium.

The results of the sampling of the four wells in the Overburden Water Bearing zone indicated that three VOCs; vinyl chloride, benzene and trichloroethylene, were detected at concentrations exceeding state GWQS and/or federal MCLs. Vinyl chloride was detected in one well at concentrations ranging up to 7.3 ppb. Benzene was detected at concentrations of 2.9 ppb to 16 ppb. Trichloroethylene was detected at concentrations ranging from 2.7 ppb to 19 ppb. In addition, the sampling results indicated that the following inorganic compounds were detected at concentrations exceeding the GWQS and/or MCLs: aluminum, arsenic, iron, lead, manganese, sodium, and thallium.

It should be noted that the water in the Overburden Water Bearing zone is not currently being used as a potable water source. In the Overburden Water Bearing zone, the soil is characterized as unstratified with low permeability and low yields (less than two gallons per minute (gpm)). Aquifer yields of greater than two gpm are required for residential, agricultural or commercial use. Therefore, the Overburden Water Bearing zone portion of the aquifer does not produce sufficient quantities of water to readily serve as a reliable long-term potable source.

Residents and businesses in the vicinity of the Site receive their water from public water supply wells which are operated by the municipalities of Garfield, Lodi, and Fair Lawn. The township of Garfield operates two municipal wells, which are approximately one mile upgradient of the Site. The townships of Lodi and Fair Lawn operate municipals wells within two to three miles of the area of the Site. In addition, the water drawn from the public water supply wells that are operated by the municipalities of Garfield, Lodi, and Fair Lawn, is currently being treated, prior to distribution, for the presence of VOCs which are not related to the Site. The average depth of all of these municipal supply wells is approximately 400 feet below ground surface.