SIXTH FIVE-YEAR REVIEW REPORT FOR
MID-ATLANTIC WOOD PRESERVERS, INC. SUPERFUND SITE
ANNE ARUNDEL COUNTY, MARYLAND

August 2023

Prepared by

U.S. Environmental Protection Agency
Region III
Philadelphia, Pennsylvania

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Paul Leonard, Director
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Date

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LIST OF ABBREVIATIONS & ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
CCA	Chromated Copper Arsenate
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	Contaminant of Concern
EPA	United States Environmental Protection Agency
FYR	Five-Year Review
IC	Institutional Control
LMS	Local Machine Service, Inc.
MAWP	Mid-Atlantic Wood Preservers, Inc.
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MDE	Maryland Department of the Environment
µg/L	Micrograms per Liter
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
MWRA	Maryland Water Resources Administration
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
PRP	Potentially Responsible Party
PPA	Prospective Purchasers Agreement
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation and Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
RSL	Regional Screening Level
UAO	Unilateral Administrative Order
UU/UE	Unlimited Use and Unrestricted Exposure

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy 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 Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii)) and considering EPA policy.

This is the sixth FYR for the Mid-Atlantic Wood Preservers, Inc. Superfund Site (the Site). The triggering action for this statutory review is the completion date of the previous FYR. The FYR has been prepared because hazardous substances, pollutants or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of one operable unit (OU), which is addressed in this FYR. OU1 addresses the sitewide remedy.

The Mid-Atlantic Wood Preservers Inc. Superfund Site Five-Year Review was led by the EPA remedial project manager (RPM). Additional participants from EPA included the community involvement coordinator, human health and ecological risk assessors, hydrogeologist, and legal counsel. The Maryland Department of Environment (MDE) also participated in the review.

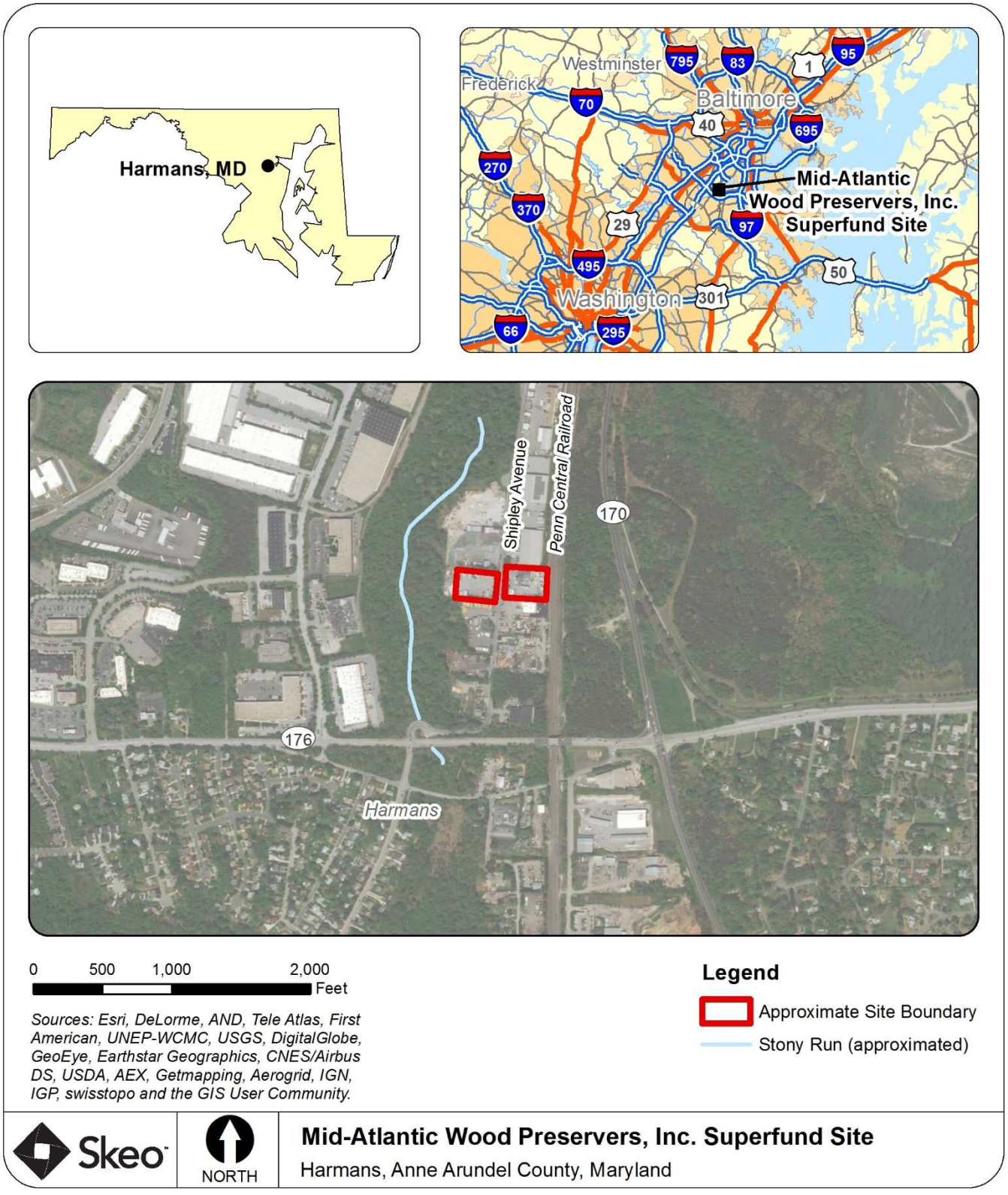
Site Background

The approximately three-acre Site is located at 7457 and 7460 Shipley Avenue in Harmans, Anne Arundel County, Maryland, in a mixed commercial/industrial area. It is about 17 miles south of Baltimore (see Figure 1). The Site is divided into two areas – the Treatment Yard (7457 Shipley Avenue) east of Shipley Avenue and the Storage Yard (7460 Shipley Avenue) west of Shipley Avenue (Figure 2). The entire site surface was paved with asphalt as part of a response action in 1993. The Storage Yard is surrounded by chain link fence and is used by MBG Enterprises for vehicle storage, particularly school buses. The Treatment Yard is not fenced off, and still has the former treatment building which is currently leased by MBG Refuse.

From 1974 to February 1993, Mid-Atlantic Wood Preservers, Inc. (MAWP) operated a wood treatment facility on the property. The facility used chromated copper arsenate (CCA) to treat lumber. The wood was treated in the former treatment building on the Treatment Yard and then sent to the Storage Yard. Wood treating resulted in the release of CCA, which contaminated groundwater in the upper Patapsco aquifer.

Appendix A provides a list of references used during this FYR and Appendix B provides a chronology of Site events.

Figure 1: Site Vicinity Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.
Note: Penn Central Railroad is now Conrail

Figure 2: Site Detail Map

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Note: Penn Central Railroad is now Conrail

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Mid-Atlantic Wood Preservers, Inc.		
EPA ID: MDD064882889		
Region: 3	**State:** Maryland	**City/County:** Harmans/ Anne Arundel
SITE STATUS		
NPL Status: Deleted		
Multiple OUs? No	**Has the Site achieved construction completion?** Yes	
REVIEW STATUS		
Lead agency: EPA		
Author name: Matthew Paris		
Author affiliation: EPA Region 3		
Review period: 3/3/2023 - 5/30/2023		
Date of Site inspection: 3/13/2023		
Type of review: Statutory		
Review number: 6		
Triggering action date: 8/30/2018		
Due date *(five years after triggering action date)*: 8/30/2023		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

In July 1986, MAWP signed a Consent Order and Agreement with EPA and the Maryland Department of the Environment (MDE) under which MAWP agreed to perform a remedial investigation and feasibility study (RI/FS). MAWP conducted a remedial investigation (RI) in 1990 and identified arsenic, chromium and copper in soils and slightly elevated levels of chromium in groundwater. Concentrations of copper, chromium and arsenic in Stony Run surface water were in the normal range for a freshwater stream. The risk assessment associated with the 1990 RI concluded that arsenic and chromium were contaminants of concern (COCs) (Table 1) and that the potential carcinogenic risk at the Site was driven by incidental ingestion and inhalation of on-Site surface soil by workers. Chromium concentrations in soils did not drive the remedial action. MAWP submitted the final RI/FS Report in August 1990.

Table 1: COCs, by Media

COC	Media
Chromium	surface soil, groundwater
Arsenic	surface soil

Response Actions

In August 1978, the Anne Arundel County Health Department found that water in a residential well was contaminated with hexavalent chromium. Additionally, the Maryland Water Resources Administration (MWRA) tested this well and found chromium levels above the drinking water standards. Based on these findings, a public water line was extended to all properties in the area. In June 1986, EPA listed the Site on the National Priorities List (NPL).

In December 1990 EPA signed the Record of Decision (ROD). The remedy was modified based on design sampling and closing the wood treating operation:

- Capping of those portions of the Treatment Yard that were not covered by the treatment plant and enlarged drip pad or paved parking area with an asphalt/concrete cap. Contaminated soil areas in the Storage Yard exceeding 10 mg/kg of arsenic were also to be paved with an asphalt/concrete cap.
- Excavation of any off-Site soils containing arsenic above 10 mg/kg (i.e., background concentration of arsenic in area soil) and consolidation of those soils on the Site prior to paving with the asphalt/concrete cap. Excavation of arsenic-contaminated soil (>10 mg/kg arsenic) from the adjacent Number One Supply property, followed by backfilling with clean fill, topsoil and revegetation.
- Environmental monitoring to ensure the effectiveness of the remedy.
- Implementation of a deed restriction to preclude future land use that might compromise the effectiveness of the remedy.
- Consolidation of this material on the Site areas to be capped.
- Grading and proof rolling of the Treatment and Storage Yards, followed by covering the areas with compacted gravel and a compacted asphalt layer.
- As a result of pre-design sampling the following part of the remedy was not implemented: Excavation, stabilization and off-Site disposal of “hot spots” of contaminated soils with arsenic concentrations greater than 1,000 milligrams per kilogram (mg/kg) and construction of an enlarged roofed drip pad that complies with Resource Conservation and Recovery Act (RCRA) Subpart W wood treating regulations.

The remedial action objectives are to:

- Prevent direct contact (i.e., inadvertent ingestion and/or inhalation of contaminated dust) with soil containing greater than 10 mg/kg arsenic by consolidating and containing it beneath an asphalt cap.
- Prevent leaching of arsenic and chromium contamination from contaminated areas to the groundwater.

Soil and groundwater cleanup goals are listed in Table 2.

Table 2: Soil and Groundwater COC Cleanup Goals

COC	Medium	ROD Cleanup Goal
Arsenic	surface soil	10 mg/kg**
Hexavalent chromium	surface soil	2.0 mg/kg**
Chromium	groundwater	0.1 mg/L*

COC	Medium	ROD Cleanup Goal
Notes: mg/L = milligrams per liter * MCLs under the Safe Drinking Water Act, 40 CFR Part 141 ** EPA risk-based performance standard		

Status of Implementation

In December 1991, EPA issued a Unilateral Administrative Order (UAO) requiring MAWP to implement the remedy. The PRP conducted predesign sampling in April and June 1992 that indicated no soil on or off Site contained arsenic greater than 1,000 mg/kg. Therefore, excavation, stabilization, and off-Site disposal of "hot spots" performed by the PRP was not necessary. Predesign sampling did find that soil on the adjacent Number One Supply property (immediately north of the Treatment Yard) was contaminated by stormwater runoff from the Site at concentrations greater than 10 mg/kg.

In February 1993, MAWP informed EPA that it was ceasing business operations and closing the facility. Because MAWP was ceasing its wood treating operations, there was no longer a need to expand the drip pad to prevent potential future releases of CCA, as outlined in the ROD. The remedial objectives were satisfied by extending the asphalt cap to all areas of the Treatment Yard that were not already paved or covered by existing buildings, including those areas previously planned to be covered by the expanded drip pad. EPA agreed to the "paving only" approach by letter dated February 18, 1993.

EPA approved the Remedial Action Work Plan and Remedial Design in May 1993. Remedial action began in June 1993. Construction activities progressed in a manner consistent with the ROD and the Remedial Design and Remedial Action Work Plans. Because of MAWP's decision to discontinue wood treatment operations and the predesign sampling, the final remedy implemented was an asphalt cap over the drip pad areas.

In August 1993, EPA conducted the final inspection and confirmed that all significant items had been satisfactorily completed. In September 1993, EPA signed the Final Close-Out Report documenting completion of the remedial action. In July 2000, EPA deleted the Site from the NPL.

Institutional Control (IC) Review

EPA will continue to check on the ownership of the Site. As of 2023, the Site is owned by 7457 Shipley Avenue LLC.

Table 3: Summary of Implemented Institutional Controls (ICs)

Media, Engineered Controls and Areas That Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Soils	Yes	Yes	Map 0008, Grid 0017, Parcel 0618, Lot 1A (Treatment Yard area) and Parcel 392 (Storage Yard area)	Prevent agricultural or residential use; prevent removal, permanent penetration or alteration of asphalt caps without prior approval from EPA	Restrictions on Land Use, July 5, 1994

Figure 3: Institutional Control Map

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Systems Operations/Operation & Maintenance

The Site owners' continuing O&M obligations are to maintain the integrity of the asphalt cap. The O&M Plan had been implemented by the Site property owner under the Remedial Action Work Plan and subsequently in accordance with the 1994 Agreement and Covenant Not to Sue.

The O&M Plan requires inspection of the paved areas in the Treatment Yard and Storage Yard on a weekly basis if the facility is in use or monthly if the facility is only in caretaker (dormant) status. Since the facility is currently in use, weekly inspections are required. The areas will be inspected to ensure that the paving is not deteriorating or cracking that would expose underlying soils. Results of each weekly inspection will be maintained in a Facility Operating Log. Any cracks or deterioration of the asphalt paving that are detected are to be repaired immediately. Repairs may consist of patching holes or recoating the surface area with asphalt. The date of any repairs to the paving will also be recorded in the Facility Operating Log. The Agreement and Covenant Not to Sue allows Site owners to make minor repairs (defined as actions covering less than 1,000 square feet) without advance approval from EPA. The document further requires that Site owners prepare a work plan for EPA's approval prior to implementing major repairs (defined as actions covering more than 1,000 square feet).

EPA is not aware of the status of weekly inspections or repairs of the paved areas of the Site during the previous five years; findings during the FYR Site inspection indicate that the weekly inspections and needed repairs may not have been occurring. In accordance with the Compliance Plan with the site owner the requirement to submit semi-annual status reports to EPA expired in 1999.

III. PROGRESS SINCE THE PREVIOUS REVIEW

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

Table 4: Protectiveness Determinations/Statements from the 2018 FYR Report

OU #	Protectiveness Determination	Protectiveness Statement
1	Short-term Protective	The remedial action continues to be protective of human health and the environment. The constructed remedy is functioning as intended by the ROD. The asphalt cap prevents any potential for direct contact with arsenic-contaminated soil. The asphalt cap successfully supports the vehicular traffic inherent to its productive reuse with no adverse wear apparent. Institutional controls protecting the integrity of the remedial action are in place.

The previous FYR Report listed one issue and recommendation (Table 5).

Table 5: Status of Recommendations from the 2018 FYR Report

OU #	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date (if applicable)
1	Unauthorized digging through capped area.	Place a warning sign and evaluate placing the Site on the State of Maryland One Call Notification System.	Ongoing	There are not warning signs regarding digging in the capped area. Site inspection participants indicated that the Site is not on the State of Maryland One Call Notification System.	N/A

IV. FIVE-YEAR REVIEW PROCESS

Community Notification & Involvement

A public notice was made available in the *Maryland Gazette* on May 17, 2023. It stated that the FYR was underway and invited the public to submit any comments to the EPA. The press notice is in Appendix C. No comments were received. The results of the review and the report will be made available at the Site's information repository, Severn Community Library, located in the Severn Square Shopping Center at 2624 Annapolis Road in Severn, Maryland and online at: **www.epa.gov/superfund/midatlanticwoodpreservers.**

Data Review

Groundwater, surface water and sediment monitoring data was collected in 1993, 1996 and 1999. Based on the monitoring data EPA in consult with MDE determined in 1999 that the environmental monitoring met its objectives and could be discontinued. Considering that the remedy was constructed, and performance standards were achieved, EPA deleted the Site from the NPL in 2000. There is no data for this FYR period to review. Historical groundwater, surface water and sediment data are provided in Appendix F.

Groundwater monitoring

As stated in the 2018 FYR, the groundwater monitoring program demonstrated that groundwater quality met maximum contaminant levels (MCLs) for chromium, the primary COC. The concentration trends remained stable or decreasing, indicating that the cap prevents leaching of contaminants. The groundwater monitoring program was discontinued in 1999.

Surface water and sediment monitoring in Stony Run

As stated in the 2018 FYR, the stream monitoring program demonstrated to EPA's and MDE's satisfaction that surface water and sediment quality met performance standards and the program was discontinued in 1999.

Site Inspection

The Site inspection took place on March 13, 2023. In attendance were representatives from EPA and MDE. The purpose of the inspection was to assess the protectiveness of the remedy. Site inspection photographs are included in Appendix D.

The Site inspection started on the Treatment Yard property at 7457 Shipley Avenue. MBG Refuse currently leases this property and uses the former treatment building for its operations. There were many parked trucks and vehicles throughout the Treatment Yard property. During the previous site inspection associated with the 2018 FYR, participants observed a large propane tank (about 30 feet in length) as well as many smaller empty propane tanks on the Treatment Yard. These tanks were installed in 2017 not in accordance with the O&M Plan and then the tanks were removed from the Treatment Yard in November 2019 according to site owner.

Inspection participants noted that there were small holes in the asphalt cap on the Treatment Yard, approximately 1 square foot each, where the large propane tank was formerly mounted. The remaining portions of the cap on the Treatment Yard was intact but showing signs of minor deterioration. Areas of concerns were documented with pictures and sent to the site owner via email on March 14, 2023, with a request to repair immediately. Asphalt repairs were completed in April 2023 by the site owner and a follow-up site visit by EPA on May 2, 2023, confirmed repair completion.

Site inspection participants moved across Shipley Avenue to the Storage Yard property (7460 Shipley Avenue). MBG Enterprises uses the Storage Yard property for vehicle storage, particularly school buses. The property has a small guard shack at the entrance. The asphalt cap on the Storage Yard property was in good shape though there were some small, shallow cracks evident.

V. TECHNICAL ASSESSMENT

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

The remedy is functioning as intended by decision documents. The asphalt cap is preventing exposure to contaminated soils and preventing surface water from leaching contaminants out of contaminated soil and into the groundwater under the Site. Institutional controls are in place to prevent damage to the cap; however, inspection participants in 2023 noted several locations on the Treatment Yard area where the cap has deteriorated. The Treatment Yard property owner subsequently repaired the damaged cap areas in April 2023.

Warning signs regarding digging in the capped area and having the Site on the State of Maryland One Call Notification System have not been implemented and the status of weekly inspections or repairs of the paved areas of the Site have been deficient during this FYR review cycle. The previous FYR identified an operation and maintenance issue where the cap was cut. Since this cap repair continued to be an issue in this FYR period, EPA is evaluating the provisions of the Prospective Purchase Agreement (PPA) associated with the 1994 Agreement and Covenant Not to Sue to determine appropriate follow-up actions.

The post-construction groundwater sampling demonstrated attainment of the ARARs, including the revised MCL of 10 μg/L for arsenic in groundwater (Appendix F).

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

Yes. Although some of the exposure assumptions and toxicity values have changed, the cleanup levels and RAOs remain valid, and the changes are not believed to affect the protectiveness of the remedy.

This FYR reviewed the Site's groundwater and surface water applicable or relevant and appropriate requirements (ARARs) (see Appendix E) and determined that the ARARs remain valid. Although the 1990 ROD listed chromium as the only groundwater COC, this FYR evaluated arsenic due to the ARAR change, which reduced the groundwater MCL for arsenic to 10 micrograms per liter (μg/L) in 2006. This FYR compared the Site's arsenic and chromium soil cleanup goals against the current EPA soil screening levels (see Appendix G). This comparison found that the soil cleanup goals are below or within EPA's range of acceptable risk for both residential and commercial/industrial exposures. Therefore, the soil cleanup goals are still valid.

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

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

VI. ISSUES/RECOMMENDATIONS

Issues and Recommendations Identified in the FYR:

OU(s): 1	Issue Category: Operations and Maintenance
	Issue: There have been continued instances of unauthorized cutting and removal of the asphalt cap and the status of weekly inspections or repairs of the paved areas of the Site have been deficient during this FYR review cycle.
	Recommendation: EPA will conduct regular inspections of the cap and Site. EPA will evaluate placing the Site on the State of Maryland One Call Notification System. Also, EPA will notify the property owners of cap restrictions and O&M requirements under the PPA. EPA will evaluate the PPA to determine if changes are needed. The site owner should adhere to the land use restrictions and PPA to protect the cap.

Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA/State	8/30/2024

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)		
Operable Unit: OU1 (sitewide)	*Protectiveness Determination:* Short-term Protective	*Planned Addendum Completion Date:* Click here to enter a date
Protectiveness Statement: The remedy at OU1 currently protects human health and the environment because the asphalt cap prevents exposure to contaminated soils, and groundwater cleanup goals have been met. Institutional controls are in place to protect the integrity of the cap in the form of land use restrictions and the PPA. In order for the remedy to be protective in the long term, the site owner should adhere to the land use restrictions and PPA to protect the cap.		

VIII. NEXT REVIEW

The next FYR Report for the Mid-Atlantic Wood Preservers, Inc. Superfund Site is required five years from the completion date of this review.

APPENDIX A – REFERENCE LIST

1986. Administrative Order on Consent in the Matter of: Mid-Atlantic Wood Preservers Site. U.S. EPA Docket No. III-86-13-DC.

1990. Remedial Investigation: Mid-Atlantic Wood Preservers Site. Dames & Moore. January 15, 1990.

1990. Draft Feasibility Study Report: Mid-Atlantic Wood Preservers Site. Dames & Moore. July 20, 1990.

1990. Record of Decision: Mid-Atlantic Wood Preservers Site. U.S. EPA. December 31, 1990. https://semspub.epa.gov/src/document/03/101533.

1993. Closeout Report: Mid-Atlantic Wood Preservers Superfund Site. U.S. EPA. September 23, 1993. https://www.epa.gov/superfund/midatlanticwoodpreservers.

1994. Restrictions on Land Use. Book 6700, Pages 507-510A. Anne Arundel County Circuit Court Land Records. https://mdlandrec.net/main.

1998. Five-Year Review Report: Mid-Atlantic Wood Preservers Superfund Site. U.S. EPA. August 20, 1998. https://www.epa.gov/superfund/midatlanticwoodpreservers.

2013. Fourth Five-Year Review Report for Mid-Atlantic Wood Preservers Superfund Site. U.S. EPA. September 12, 2013. https://www.epa.gov/superfund/midatlanticwoodpreservers.

2018. Fifth Five-Year Review Report for Mid-Atlantic Wood Preservers Superfund Site. U.S. EPA. August 30, 2018. https://www.epa.gov/superfund/midatlanticwoodpreservers.

APPENDIX B – SITE CHRONOLOGY

Table B-1: Site Chronology

Event	Date
MAWP (also known as Fort McHenry Lumber Company) began operating a facility on the Site that pressure treated wood with CCA	1974-Febrary 1993
Anne Arundel County Health Department sampled a residential well northwest of the Site and found a high concentration of chromium, a substance used by MAWP	August 15, 1978
MAWP entered into an Administrative Order on Consent with MWRA requiring MAWP to take action to address groundwater contamination	October 1979
EPA listed the Site on the NPL	June 10, 1986
MAWP entered into an administrative consent order with EPA that required MAWP to perform an RI/FS	July 11, 1986
EPA issued a ROD selecting an asphalt cap over arsenic-contaminated surface soil as well as environmental monitoring and institutional controls	December 31, 1990
EPA issued a Unilateral Administrative Order directing MAWP to implement the ROD	December 30, 1991
EPA approved the Remedial Design Work Plan	March 18, 1992
MAWP notified EPA that it was ceasing business operations and closing the facility	February 4, 1993
EPA approved the final remedial design developed by MAWP	May 14, 1993
Contractors mobilized to the Site to begin construction	June 17, 1993
EPA signed Final Close-Out Report documenting the completion of remedial action	September 23, 1993
Department of Justice approved an Agreement and Covenant Not to Sue negotiated between EPA and the new Site property owner	January 24, 1994
The new Site property owner filed land use restrictions on the Site land records for Anne Arundel County, Maryland	July 5, 1994
EPA issued the first FYR Report for the Site	August 26, 1998
EPA deleted the Site from the NPL	July 18, 2000
EPA issued the second FYR Report for the Site	August 26, 2003
EPA issued the third FYR Report for the Site	September 26, 2008
EPA issued the fourth FYR Report for the Site	September 12, 2013
Deed recorded for transfer of the Site property from the Site property owner to G&G Ventures, Inc.	November 10, 2016
Deed recorded for transfer of the Storage Yard Site property from G&G Ventures, Inc. to 7457 Shipley Avenue LLC	June 21, 2017
EPA issued the fifth FYR Report for the Site	September 12, 2018
EPA issued the sixth FYR Report for the Site	September 12, 2023

APPENDIX C – PRESS NOTICE

EPA PUBLIC NOTICE

EPA REVIEWS CLEANUP

MID-ATLANTIC WOOD PRESERVERS, INC. SUPERFUND SITE

The U.S. Environmental Protection Agency (EPA) is reviewing the cleanup that was conducted at the Mid-Atlantic Wood Preservers, Inc. Superfund Site located in Harmans, Maryland. EPA conducts Five-Year Reviews to ensure that cleanups continue to protect public health and the environment. EPA conducted the previous Five-Year Review in 2018 and concluded that the remedy was working as designed and was protective in the short-term. EPA will make the findings from this Five-Year Review available in August 2023.

To access site information, including the Five-Year Review, visit:
www.epa.gov/superfund/midatlanticwoodpreservers

For questions or to provide site-related information for the review, contact:
Katie Page, EPA Community Involvement Coordinator
215-814-2409 or page.katherine@epa.gov

APPENDIX D – SITE INSPECTION PHOTOS

Asphalt cap in Treatment Yard – 3/13/2023

Asphalt cap in Treatment Yard after repairs were made to cap - 5/2/2023

Small holes where propane tank was removed in Treatment Yard – 3/13/2023

Asphalt repair where propane tank was removed in Treatment Yard - 5/2/2023

Small hole where propane tank was removed in Treatment Yard – 3/13/2023

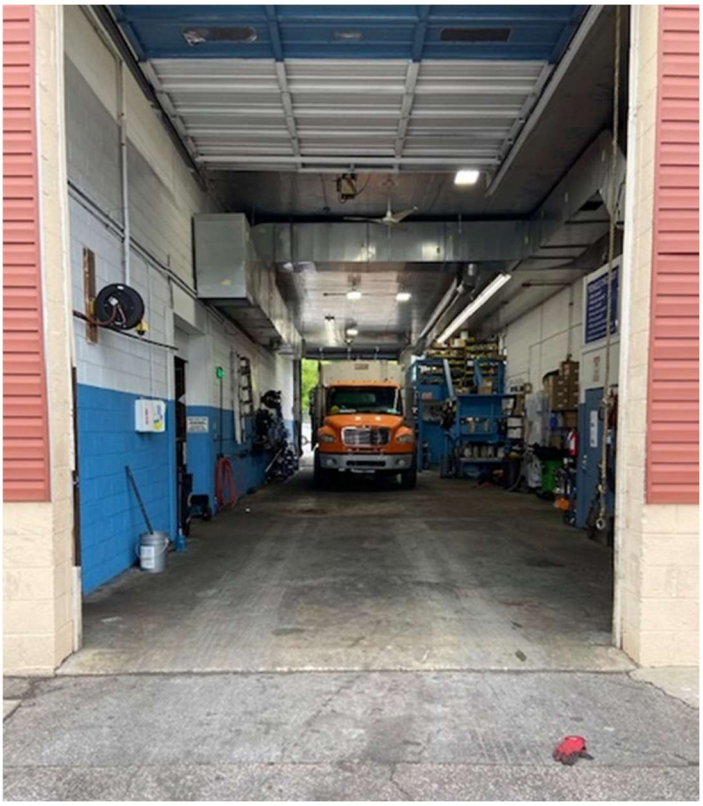
Asphalt repair where propane tank was removed in Treatment Yard - 5/2/2023

Asphalt cap at Treatment Yard – 5/2/2023

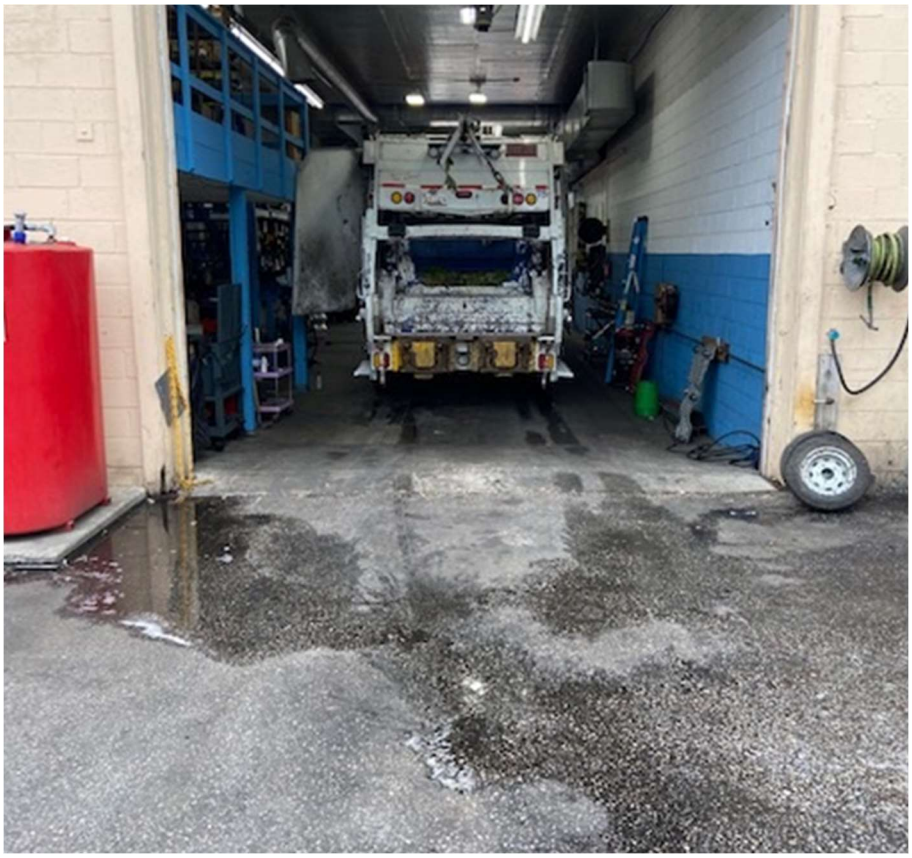
Asphalt cap at Treatment Yard – 5/2/2023

Cracks in the asphalt cap beginning to form around former treatment building – 3/13/2023

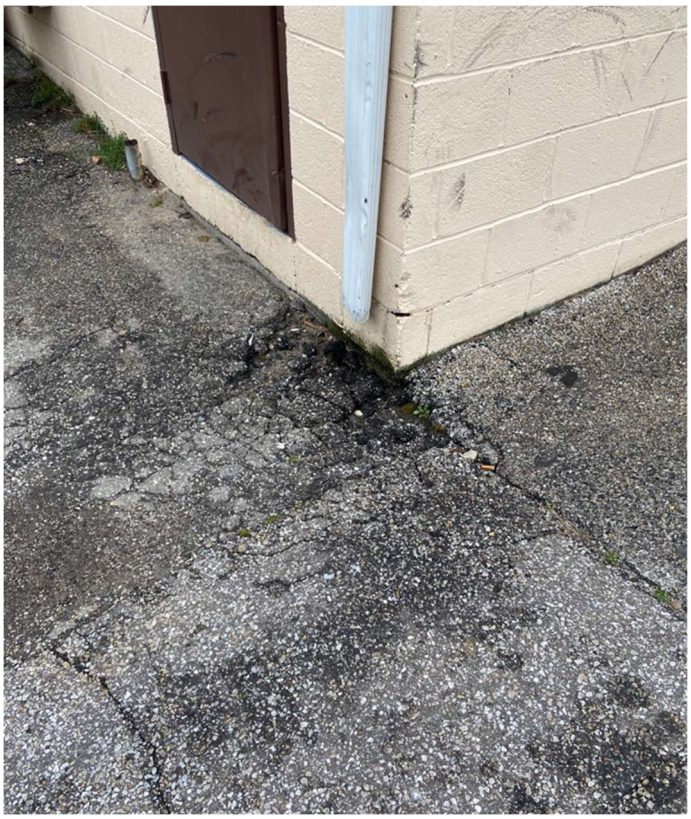
Asphalt repair around former treatment building - 5/2/2023



Front interior of former treatment building - 5/2/2023

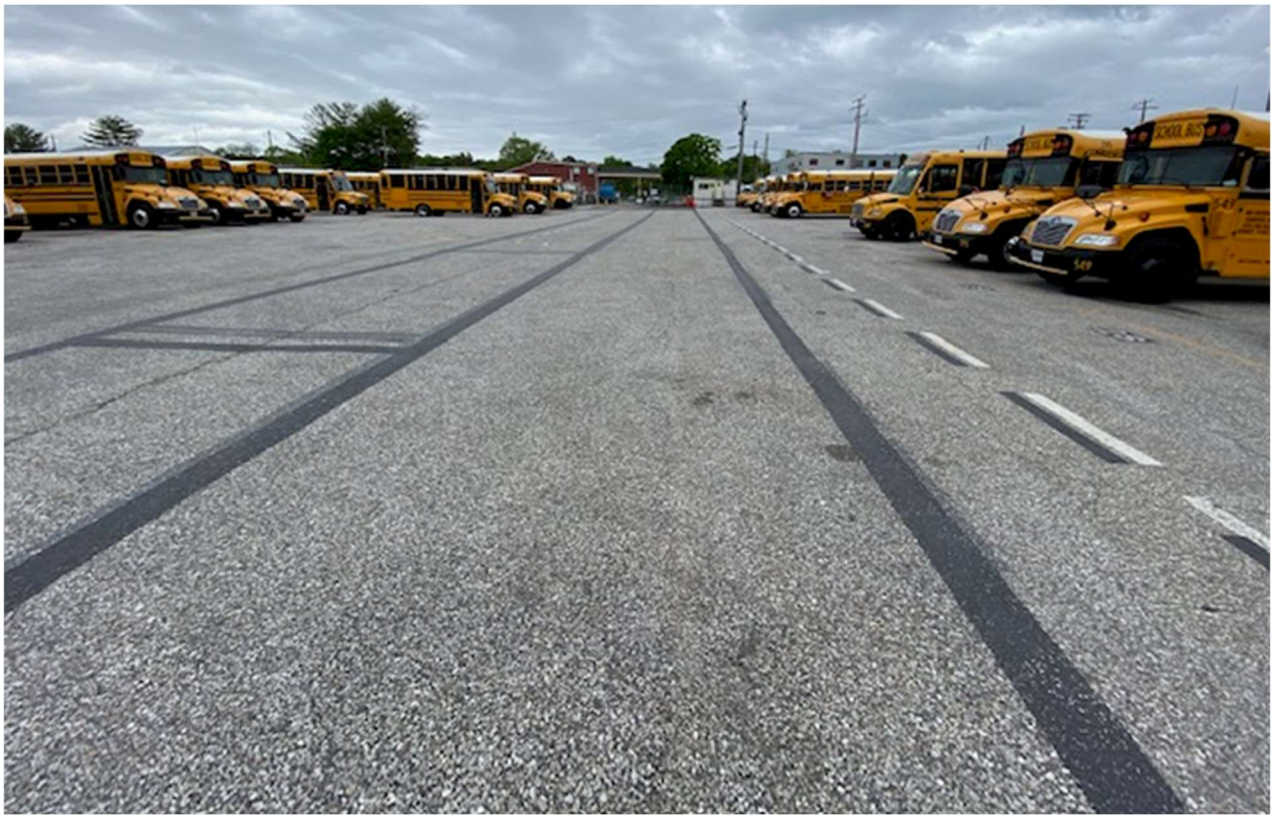


Rear interior of former treatment building - 5/2/2023



Erosion of the asphalt cap from gutter around former treatment building – 3/13/2023

Asphalt repair at gutter around former treatment building - 5/2/2023



Storage yard asphalt cap - 5/2/2023

Storage yard asphalt cap - 5/2/2023

APPENDIX E – DETAILED ARARs REVIEW TABLES

CERCLA Section 121(d)(1) requires that Superfund remedial actions attain "a degree of cleanup of hazardous substance, pollutants, and contaminants released into the environment and control of further release at a minimum which assures protection of human health and the environment." The remedial action must achieve a level of cleanup that at least attains those requirements that are legally applicable or relevant and appropriate. In performing the FYR for compliance with ARARs, only those ARARs that address the protectiveness of the remedy are reviewed.

Groundwater ARARs
The 1990 ROD identified the following ARARs for groundwater:

- Federal MCLs and non-zero maximum contaminant level goals (MCLGs).
- State of Maryland requirements contained in Code of Maryland Regulations 26.04.01 pertaining to drinking water quality standards.

Table E-1 compares the current values of the groundwater ARARs against their values at the time of the 1990 ROD. Although the 1990 ROD listed chromium as the only groundwater COC, this ARAR review evaluates arsenic and copper. These contaminants were excluded as COCs because their concentrations were below the 1990 ARARs. Since the 1990 ROD, the ARAR for arsenic has become more stringent and the ARAR for chromium has become less stringent. The ARAR for copper has not changed.

Table E-1: Previous and Current ARARs for Groundwater

Contaminant	1990 ARAR (µg/L)		Current ARAR (µg/L)		ARAR Change
	Federal[a]	State[a]	Federal[b]	State[c]	
Arsenic	50	50	10	10	More stringent
Chromium	50	50	100[d]	100	Less stringent
Copper	1,300 proposed	NA	1,300	N/A	No change

Notes:
a. 1990 ROD, pages 10 and 12
b. Current federal standards can be found at: https://www.epa.gov/ground-water-and-drinking-water/table-regulated-drinking-water-contaminants (accessed 3/14/2023).
c. Current state standards can be found at: http://www.mde.state.md.us/programs/Water/Water_Supply/Pages/Regulations.aspx (accessed 3/14/2023). The standards for arsenic and chromium can be found at http://www.dsd.state.md.us/comar/comarhtml/26/26.04.01.06.htm. The state regulation for copper (at http://www.dsd.state.md.us/comar/comarhtml/26/26.04.01.06-2.htm) requires water suppliers to comply with the federal standard.
d. ARAR is for total chromium
NA = not available

Soil ARARs
The 1990 ROD did not specify ARARs for soil. EPA developed soil cleanup goals to protect human health based on ingestion of soil.

Surface Water ARARs
The 1990 ROD identified the following surface water ARARs:

- Federal Ambient Water Quality Criteria.
- State of Maryland requirements contained in Code of Maryland Regulations 26.08.01 through 26.08.04 pertaining to water pollution regulations.

The 1990 RI analyzed three surface water samples. All three samples were below the detection limits for arsenic, chromium and copper. Table E-2 compares the current values of the surface water ARARs against the detection limits from the RI. As shown in Table E-2, some of the current surface water ARARs are more stringent than the detection limits achieved during the 1990 RI.

Table E-2: Current ARARs for Surface Water

Contaminant	1990 RI Detection Limits (µg/L)[a]	Current ARAR (µg/L)			
		Federal[b]		State[c]	
		Aquatic life (freshwater, chronic)	**Human health** (water + organism)	**Aquatic life** (freshwater, chronic)	**Human health** (water + organism)
Arsenic	10	150	0.018	150	0.18
Chromium	10	74[d] (Cr III) 11 (Cr VI)	100 (total Cr)[e]	74 (Cr III) 11 (Cr VI)	100 (total Cr)
Copper	4.0	9[f]	1,300	9	1,300

Notes:

a. RI Report, page 4-1. All three surface water samples were below these detection limits.
b. National Recommended Water Quality Criteria can be found at: https://www.epa.gov/wqc/national-recommended-water-quality-criteria (accessed 3/14/2023). This table presents the more stringent values (aquatic life chronic, human health water + organism) rather than the less stringent values (aquatic life acute, human health organism only).
c. Maryland's surface water standards can be found at: http://www.dsd.state.md.us/comar/comarhtml/26/26.08.02.03-2.htm (accessed 3/14/2023). This table presents the more stringent values (aquatic life chronic, human health water + organism) rather than the less stringent values (aquatic life acute, human health organism only).
d. Based on hardness of 100 mg/L.
e. Based on MCL.
f. EPA's aquatic life criteria for copper can be found at https://www.epa.gov/wqc/aquatic-life-criteria-copper and in "Aquatic Life Ambient Freshwater Quality Criteria – Copper," February 2007, EPA-822-R-07-001, page 19, https://nepis.epa.gov/Exe/ZyPDF.cgi/P1000PXC.PDF?Dockey=P1000PXC.PDF.

mg/L = milligrams per liter

APPENDIX F – REVIEW OF HISTORICAL DATA

Table F-1: Groundwater Sampling Data

Sample Location	Groundwater Concentration (mg/L)								
	First Round (December 1993)			Second Round (November 1996 and February 1997)			Third Round (February 1999)		
	Arsenic	Chromium (III)	Copper	Arsenic (dissolved)	Chromium (dissolved)	Copper (dissolved)	Arsenic (dissolved)	Chromium (dissolved)	Copper (dissolved)
MW-1	ND	ND	ND	ND	0.0074	ND	ND	ND	ND
MW-20 (MW-1 duplicate)	NS	NS	NS	NS	NS	NS	ND	ND	ND
MW-2	ND	0.08	ND	NS	NS	NS	NS	NS	NS
MW-3	ND	ND	ND	NS	NS	NS	NS	NS	NS
MW-4	ND	ND	ND	NS	NS	NS	NS	NS	NS
MW-5	ND	ND	ND	NS	NS	NS	NS	NS	NS
MW-6	ND	ND	ND	NS	NS	NS	NS	NS	NS
MW-7	ND	ND	ND	NS	NS	NS	NS	NS	NS
MW-8	ND	0.14	ND	NS	NS	NS	NS	NS	NS
MW-9	ND	ND	ND	NS	NS	NS	NS	NS	NS
MW-10	ND	0.06	ND	NS	NS	NS	NS	NS	NS
GW-1	NS	NS	NS	ND	0.014	0.0074	ND	0.008	0.006
GW-2	NS	NS	NS	ND	0.0082	0.0078	0.028	0.063	0.009
GW-5 (GW-2 duplicate)	NS	NS	NS	ND	0.018	0.0057	NS	NS	NS
Detection limit	0.005	0.06	0.03	0.005	0.005	0.005	0.005	0.005	0.005

Notes:
The groundwater cleanup goal for chromium is 0.1 mg/L.
mg/L = milligrams per liter
NS = not sampled
ND = concentration was below detection limit

Table F-2: Surface Water Sampling Data

Sample Location	Surface Water Concentration (mg/L)								
	First Round (December 1993)			Second Round (November 1996)			Third Round (February 1999)		
	Arsenic	Chromium (III)	Copper	Arsenic (total)	Chromium (total)	Copper (total)	Arsenic (total)	Chromium (total)	Copper (total)
SW-1	0.007	ND	ND	ND	ND	ND	ND	ND	ND
SW-2	ND	ND	ND	ND	ND	ND	ND	ND	ND
SW-3	ND	ND	ND	ND	ND	ND	ND	ND	ND
SW-4 (SW-2 duplicate)	NS	NS	NS	NS	NS	NS	ND	ND	ND
Detection limit	0.005	0.06	0.03	0.005	0.005	0.005	0.005	0.005	0.005

Notes:
mg/L = milligrams per liter
NS = not sampled
ND = concentration was below detection limit

Table F-3: Sediment Sampling Data

Sample Location	Sediment Concentration (mg/kg)								
	First Round (December 1993)			Second Round (November 1996)			Third Round (February 1999)		
	Arsenic	Chromium (III)	Copper	Arsenic (total)	Chromium (total)	Copper (total)	Arsenic (total)	Chromium (total)	Copper (total)
SD-1	0.70	ND	ND	ND	ND	6.5	ND	ND	4.0
SD-2	1.1	ND	ND	ND	ND	3.9	ND	ND	3.3
SD-3	7.1	9.3	8.4	ND	ND	6.2	ND	ND	3.0
SD-4 (SD-2 duplicate)	NS	NS	NS	NS	NS	NS	ND	ND	7.4
Detection limit	0.25	4.0	2.0	15	4.0	3.0	15	4.0	3.0

Notes:
mg/kg = milligrams per kilogram
NS = not sampled
ND = concentration was below detection limit

APPENDIX G – TOXICITY REVIEW

This FYR compared the Site's arsenic and chromium soil cleanup goals against the current EPA soil screening levels. As shown in Table G-1, this comparison found that the soil cleanup goals are below or within EPA's range of acceptable risk for residential exposures. Screening levels for commercial/industrial exposures are less stringent than screening levels for residential exposures, so the Site's soil cleanup goals are also below or within EPA's range of acceptable risk for commercial/industrial exposures.

Table G-1: Health Evaluation of Soil Cleanup Levels

COC	1990 ROD Cleanup Level (mg/kg)	2023 EPA Residential Screening Level[a] (mg/kg)		Cancer Risk[b]	Noncancer HQ[c]
		1×10^{-6} Risk	HQ=1.0		
Arsenic	10	0.68	35	1.5×10^{-5}	0.3
Hexavalent chromium	2.0	0.3	230	6.7×10^{-6}	0.01

Notes:

a. Current EPA Regional Screening Levels (RSLs), are available at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-november-2017 (accessed 3/14/2023).

b. The cancer risks were calculated using the following equation, based on 1 x 10^{-6} risk: cancer risk = (cleanup level ÷ cancer-based RSL) × 10^{-6}.

c. The noncancer hazard quotients (HQs) were calculated using the following equation: HQ = cleanup level ÷ noncancer-based RSL.

mg/kg – milligrams per kilogram