

First Five-Year Review Report

for

Callahan Mine Superfund Site

Brooksville, Maine

Hancock County

April 2016

Prepared by:

The United States Environmental Protection Agency

Region 1 - New England

Boston, Massachusetts



A handwritten signature in black ink, appearing to read "Bryan Olson", written over a horizontal line.

Bryan Olson, Director
Office of Site Remediation and Restoration
U.S. EPA, New England

4/18/16

Date



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ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
BERA	Baseline Ecological Risk Assessment
BOD	Basis of Design
CAD	Confined Aquatic Disposal call
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DOT	Department of Transportation
FS	Feasibility Study
FT	Feet
HI	Hazard Index
HHRA	Human Health Risk Assessment
IAG	Inter-Agency Agreement
IC	Institutional Control
IEUBK	Integrated Exposure Uptake Biokinetic Model
IRIS	Integrated Risk Information System
MEDEP	Maine Department of Environmental Protection
MEDOT	Maine Department of Transportation
mg/kg	milligram/Kilogram
NCEA	National Center for Environmental Assessment
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OSWER	Office of Solid Waste and Emergency Response
OU	Operable Unit
ppm	Parts Per Million
PPRTV	Provisional Peer Reviewed Toxicity Value
RA	Remedial Action
RAO	Response Action Objective
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
RSL	Regional Screening Levels
SF	Square Feet
TBCs	Criteria to Be Considered
TSCA	Toxic Substances Control Act
ug/dl	microgram/deciliter
ug/L	micrograms per liter
UU/UE	Unlimited Use or Unrestricted Exposure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tanks
XRF	X-Ray Florescence

EXECUTIVE SUMMARY

This is the first Five-Year Review for the Callahan Mine Superfund Site (Site) located in Brooksville, Maine. The review was conducted in accordance with the United States Environmental Protection Agency (USEPA) Office of Solid Waste and Emergency Response (OSWER) Directive 9355.7-03B-P Comprehensive Five-Year Review Guidance. This statutory review is required because hazardous substances, pollutants, or contaminants remain on-site above levels that allow for unlimited use and unrestricted exposure.

The Site was proposed for inclusion on the National Priorities List (NPL) in September 2001 and finalized on the NPL on September 5, 2002 (USEPA Identification number MED980524128; Federal Register Vol. 67, No. 172, pages 56757-56765). This Five-Year Review is for the Site's first Operable Unit (OU1) which was delineated in the 2009 Record of Decision (OU1 ROD) as modified by the 2013 Explanation of Significant Differences (OU1 and OU3 ESD). The remedial Action for OU1 was initiated April 21, 2011, and was completed in September 2013.

Based on information reviewed for this Five-Year Review, the remedy for the OU1 Remedial Action is functioning as intended by the decision documents. No changes in the exposure assumptions, toxicity data, or ARARs call into question the selection of the remedy, the RAOs or cleanup goals. The remedy currently protects human health and the environment because direct contact with and incidental ingestion of arsenic, lead, and thallium contaminated soil in the Residential Use Area has been prevented by excavation of the soil above cleanup levels allowing the Residential Use Areas to achieve unrestricted use. The remedy also currently protects human health and the environment because direct contact and incidental ingestion of PCB contaminated soil in the former Mine Operations Area above cleanup levels has been prevented by excavation and off-site disposal for the PCB contamination above 10 mg/kg or on-site consolidation and capping at the Tailings Impoundment of the PCB contamination below 10 mg/kg.

The OU3 remedy was initiated in 2015. The OU3 remedy is expected to be protective of human health and the environment upon completion. The only component of the OU3 remedy that has been completed is the installation of a horizontal drain to facilitate the removal of water from the tailings impoundment. The horizontal drain and an associated passive treatment system were successfully installed in 2015.

Five-Year Review Summary Form

SITE IDENTIFICATION				
Site Name: Callahan Mine				
USEPA ID: MED980524128				
Region: 1	State: ME	City/County: Brooksville/Hancock		
SITE STATUS				
NPL Status: Final				
Multiple OUs? Yes	Has the site achieved construction completion? No			
REVIEW STATUS				
Lead agency: USEPA				
Author name (Federal or State Project Manager): Edward Hathaway				
Author affiliation: USEPA				
Review period: September 29, 2015 – March 22, 2016				
Date of site inspection: October 15, 2015				
Type of review: Statutory				
Review number: 1				
Triggering action date: April 21, 2011				
Due date (five years after triggering action date): April 21, 2016				
Protectiveness Statement(s)				
<table style="width: 100%; border: none;"> <tr> <td style="width: 35%; vertical-align: top;"><i>Operable Unit:</i> 1</td> <td style="vertical-align: top;"><i>Protectiveness Determination:</i> Protective</td> </tr> </table>			<i>Operable Unit:</i> 1	<i>Protectiveness Determination:</i> Protective
<i>Operable Unit:</i> 1	<i>Protectiveness Determination:</i> Protective			
<i>Protectiveness Statement:</i> The remedy protects human health and the environment because direct contact with and incidental ingestion of arsenic, lead, and thallium contaminated soil in the Residential Use Area has been prevented by excavation of the soil above cleanup levels such allowing the Residential Use Areas to achieve unrestricted use. The remedy also currently protects human health and the environment because direct contact and incidental ingestion of PCB contaminated soil in the former Mine Operations Area above cleanup levels has been prevented by excavation and off-site disposal for the PCB contamination above 10 mg/kg or on-site consolidation and capping at the Tailings Impoundment of the PCB contamination below 10 mg/kg.				
<table style="width: 100%; border: none;"> <tr> <td style="width: 35%; vertical-align: top;"><i>Operable Unit:</i> 3</td> <td style="vertical-align: top;"><i>Protectiveness Determination:</i> Will be Protective</td> </tr> </table>			<i>Operable Unit:</i> 3	<i>Protectiveness Determination:</i> Will be Protective
<i>Operable Unit:</i> 3	<i>Protectiveness Determination:</i> Will be Protective			
<i>Protectiveness Statement:</i> The remedy for OU3 at the Callahan Mine site is expected to be protective of human health and the environment upon completion. All current human risks were addressed by the implementation of the OU1 remedy.				

1.0 INTRODUCTION

The U.S. Environmental Protection Agency-Region 1 (USEPA) has conducted the first Five-Year Review of the Callahan Mine Superfund Site (Site). The purpose of a Five-Year Review is to determine whether a remedial action at a site is protective of human health and the environment. The methods, findings, and conclusions of these reviews are documented in Five-Year Review reports. In addition, Five-Year Review reports identify issues found during the review, if any, and recommendations to address them.

The USEPA is preparing this Five-Year Review report pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §121 and the National Contingency Plan (NCP). CERCLA §121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

The agency interpreted this requirement further in the NCP. 40 CFR §300.430(f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

The Five-Year Review of the Operable Unit 1 (OU1) Remedial Action (RA) and Operable Unit 3 (OU3) RA implemented at the Site was conducted between September 2015 and March 2016. The United States Army Corps of Engineers (USACE) New England District (NAE) supported USEPA in completion of the review under USEPA Inter-Agency Agreement (IAG) No. DW96957990-105.

This Five-Year Review is the first Five-Year Review for the Site. This statutory review is required because hazardous substances, pollutants, or contaminants remain on-site above levels that allow for unlimited use and unrestricted exposure (UU/UE). This Five-Year Review report is for OU1 and OU3. Figure 1-2 shows the extent of OU1 and OU3. The OU1 RA was completed in 2013. The OU3 RA was initiated in 2015 and only a limited amount of the RA have been completed. Operable Unit 2 (OU2) will address all areas not included in OU1 or OU3, which includes the groundwater at the Site and waste/soil located outside the OU1 and OU3 defined source areas. The triggering action for this Five-Year Review is the April 21, 2011 initiation of the OU1 cleanup action. The cleanup action and restoration for the Residential Use

of Area Soil was completed during the summer of 2011 (CES, 2013). The cleanup action for PCB contamination as well as the entire OU1 Remedial Action was completed in 2013.

The Callahan Mine Superfund Site is located on the northwestern side of Cape Rosier on Penobscot Bay in Brooksville, Maine (see Figure 1-1). The Site includes the former Mine Operations Area, three Waste Rock Piles, a Tailings Impoundment (a.k.a. Tailings Pile), a Residential Use Area, Goose Pond (including the submerged former Mine Pit), and Goose Cove. There are three operable units for the Site.

The OU1 RA for the Site is based upon September 2009 Record of Decision (ROD; EPA, 2009) as revised by the September 2013 Explanation of Significant Differences (OU1 and OU3 ESD; USEPA, 2013) for OU1 and OU3. The OU1 and OU3 ESD redefined OU1 to include only the components of the OU1 ROD associated with the cleanup of the arsenic, lead, and thallium contamination in the Residential Use Area and the PCB contamination in the former Mine Operations Area. In addition, the ESD also redefined OU1 to include the removal of the waste rock from the Ore Pad Area in order to limit the contaminated run-off that drains into the former Mine Operations Area. OU1 also includes the consolidation of the contaminated material removed from the Ore Pad, Mine Operations Area, and Residential Use Area to the Tailings Impoundment for placement under the Tailings Impoundment cover system. The remaining components of the OU1 ROD, including the Institutional Controls, became OU3. OU3 includes stabilizing the Tailing Impoundment and excavation and removal of sediments and soils from the salt marsh and southern portion of Goose Pond and placement in an on-site confined aquatic disposal (CAD) cell (former Mine Open Pit).

2.0 SITE CHRONOLOGY

**Table 2-1
Chronology of Site Events
Callahan Mine Superfund Site
Brooksville, Maine**

Date	Event Description
September 2001	Callahan Mine Site placed on NPL.
2004	USEPA began RI/FS
2005	USEPA signed Administrative Order by Consent to allow State of Maine to complete the RI/FS
2005	MEDOT Phase I A 2005 Remedial Investigation
2006	MEDOT Phase I A 2006 Remedial Investigation
2007	MEDOT Phase I B 2007 Remedial Investigation
2008	MEDOT Clam Tissue/Sediment Bioavailability Study
July 2009	OU1 RI/FS completed
2009	USEPA established OU2 to address and investigate groundwater and waste/soil outside OU1 defined source areas
September 2009	USEPA signed ROD for OU1
2010	OU1 separated into two OUs by segregating and establishing OU3
2010	Superfund State Contract for OU1 and OU3 signed
2010	Settlement Agreement with State of Maine for performance of OU1 and OU3 Remedial Design completed
2010	OU1 Remedial Design Completed
2011	OU1 Remedial Action construction activities begin
2013	OU1 Remedial Action completed
2013	ESD for OU1 and OU3
2015	OU3 Remedial Design for Tailings Impoundment completed, OU3 Remedial Design for sediment and waste rock placement in CAD cell continues
2015	OU3 Remedial Action begins with installation of horizontal drain

Notes:

USEPA = United State Environmental Protection Agency
NPL = National Priorities List
RI/FS = Remedial Investigation and Feasibility Study
MEDOT = Maine Department of Transportation
OU = Operable Unit
ROD = Record of Decision
ESD = Explanation of Significant Differences

3.0 BACKGROUND

The Callahan Mine Superfund Site is located on the northwestern side of Cape Rosier on Penobscot Bay in Brooksville, Maine (Figure 1-1).

3.1 Physical Characteristics

The Site's former Callahan Mine property is an elongated 120 acre property oriented north-south along the east side of Goose Falls Road. The Site also includes the Goose Pond estuary (approximately 75 acres) and private properties that abut the former Callahan Mine property to the north, west, and south. The Site is situated at 44° 21' 05.9" north latitude and 68° 48' 35.5" west longitude. Goose Pond and Holbrook Island Sanctuary State Park are located immediately east of the former Callahan Mine property. A number of private residences and seasonal homes are located adjacent to the former Callahan Mine property on Goose Falls Road, Cape Rosier Road, and Old Mine Lane. Privately held properties border the Site's former Callahan Mine property to the north, west and the south.

The Site currently consists of a submerged open pit, the former mine operations area, a series of waste rock piles, and a tailings impoundment. The three waste rock piles contain about 1.7 million cubic yards of waste rock that was removed to access the ore in the open pit. The former mine operations area including the crushing and flotation operations as well as the administrative and maintenance facilities. The tailings impoundment has a 21 acre footprint, including the rock buttress, and contains about 700,000 cubic yards of tailings. Portions of the Site that include waste rock, tailings, access roads, ore, or mine operations remnants encompass approximately 75 acres. The areas with waste rock or tailings are for the most part un-vegetated and barren. The Goose Pond estuary was drained during mining operations. Portions of the estuary were used as a settling basin for flotation mill effluent. The former open pit mine now resides within the estuary. Refer to Figure 1-1 for the Site Location Plan, and Figure 3-1 for the Mining Operations Areas.

3.2 Land and Resource Use

The former Callahan Mine property portion of the Site is currently abandoned and unoccupied. Access is unrestricted, and the former Callahan Mine property is used for recreation (e.g., hiking, rock collecting, and ATV riding). The remaining areas of the Site include the current Residential Use Area, where contamination was detected in the yards along Old Mine Lane, and the wetland/aquatic areas of Goose Cove, Dyer Cove, Goose Pond, and the impacted areas of salt marsh. There is no current use of, or exposure to, groundwater within the former Callahan Mine property portion of the Site. There are no plans to redevelop this Site property or neighboring upland area to the west, although, in the absence of institutional controls, this cannot be ruled out. There are five seasonal homes in the Residential Use Area along the mine entrance road connecting the former Callahan Mine property to Goose Falls Road.

3.3 History of Contamination

Zinc-copper sulfide ore deposits at the Site were discovered in 1880. The mine operated from the late 1800s until its closure in 1972 when the Callahan Mining Corporation (Callahan) divested the property to individual landowners. The ore exploration from the 1940s to 1950s found the ore contained zinc, copper, lead, arsenic and cadmium. In the 1960s, the State of Maine passed legislation which permitted creating and constructing two dams in 1967 that were used to drain the 75 acre Goose Pond estuary and thereby allow open pit mining. The main period of operation was from 1968 to 1972.

A limited reclamation program was performed by Callahan after the mining and milling operations ceased in 1972. The reclamation included seeding and plantings on the Waste Rock Piles and the Tailings Pile; these were largely unsuccessful due to lack of suitable soil in these areas. At that time, there were no State standards requiring reclamation of mine sites. The current State law requiring full reclamation and environmental cleanup (i.e., Maine Metallic Mineral Exploration, Advanced Explorations, and Mining Regulation; 06-096 CMR Chapter 200) was not in existence when the mine was closed.

The State performed several investigations at the Site in 1974, 1975, 1987, 1995, and 1999. A study completed by the Maine Department of Marine Resources in 1975 examined bioaccumulation of trace elements in selected marine organisms located in Goose Cove. Levels of cadmium, copper, lead, and zinc were detected at several times to several orders of magnitude higher in Goose Cove biota and sediments than in samples collected from other Maine mid-coastal and river locations. MEDEP conducted sampling in 1999. Soil samples, tailings pond samples, tailings pile samples, waste rock pile samples, sediment samples, and surface water samples were collected. The analytical results for these samples were used to associate hazardous substances with their sources and attribute hazardous substances to the Site.

Four underground storage tanks (USTs) located near the metal shop were removed from the Site in 1987. The USTs were removed by a contractor working for the property owner under the oversight of MEDEP. The action was documented in a MEDEP Oil and Hazardous Material Response Form, B-241-97.

In 2004, EPA began the Remedial Investigation (RI) and Feasibility Study (FS) at the Site. EPA initially began the RI/FS as a fund-lead activity. In 2005, EPA signed an Administrative Order by Consent (AOC) to allow the State of Maine to complete the RI/FS. Prior to the issuance of a Proposed Plan for OU1 in July 2009, the OU1 RI/FS was completed. On September 30, 2009, EPA signed the OU1 Record of Decision (ROD) selecting the cleanup remedy for OU1. At the time of the OU1 ROD in 2009, EPA determined that additional investigation would be necessary to finalize a cleanup plan for the groundwater and the waste/soil located outside of the OU1 ROD defined source areas and created Operable Unit 2 (OU2). The OU2 RI/FS will continue until sufficient data are collected to develop a cleanup plan for those areas. The OU2 RI/FS is being performed by the State of Maine in accordance with the 2005 RI/FS AOC.

In 2010, EPA separated the OU1 ROD components into two operable units. The cleanup actions relating to the Residential Use Area soil and the PCB contamination in the Mine Operations Area

along with any other associated activities remained as part of OU1. The remaining components of the OU1 ROD are to be performed as part of OU3

In August 2010, EPA entered into a Settlement Agreement with the State of Maine Department of Transportation (MEDOT) for the implementation of the remedial design of OU1 and OU3. The OU1 Remedial Design was completed in September 2010. The Tailings Impoundment component of the OU3 Remedial Design was completed in August 2015. The sediment, waste rock, and CAD cell component of the OU3 Remedial Design is ongoing.

In August 2010, EPA and MEDEP entered into a State Superfund Contract for the OU1 selected remedy, including both the OU1 and OU3. In September 2010, EPA entered into a Cooperative Agreement with MEDEP to allow them to become the lead for the implementation of the OU1 Remedial Action. The Cooperative Agreement was amended in July 2012, December 2012, and May 2013 to provide additional funding for the OU1 Remedial Action. In 2015, EPA entered into a Cooperative Agreement with MEDEP to allow them to become the lead for the installation of the horizontal drain and passive treatment system.

The OU1 remedial action began in September 2010, with start of on-site construction on April 21, 2011. The cleanup of the Residential Use Area was completed in 2011. The cleanup of the PCB contamination in the Mine Operations Area was completed in September 2013. The entire OU1 Remedial Action was completed by September 30, 2013.

The remedial design for the tailings impoundment component of the OU3 remedy was completed in August 2015. The first component of the tailings impoundment component of the OU3 remedy was the installation of a horizontal drain to lower the water level within the tailings impoundment and a passive treatment system to remove contaminants from the discharge from the horizontal drain. The horizontal drain and associated passive treatment system were completed in fall 2015. The remedial design for the sediment and waste rock excavation and placement in the CAD cell is ongoing.

3.4 Initial Response

No initial response actions were performed at the Site by EPA.

3.5 Basis for Taking Action

The results of the 2009 Human Health Risk Assessment (HHRA) (MACTEC, 2009), which is a component of the RI, provide the basis for taking action and identify the contaminants and exposure pathways the remedial actions need to address. The 2009 OU1 RI and HHRA evaluated all Site media, including source area soil/waste, surface water, sediment, ambient air, biota tissue, groundwater, and residential soil. For the OU1 areas, the only pathways associated with unacceptable adverse human health effects were current and future exposure to contaminated soil in the Residential Use Area soil and current and future exposure to soil contamination in the former Mine Operations Area. Surface water, sediment, and biota were not identified as representing a threat to human health based on the data and assumptions in the OU1 RI and HHRA. The final evaluation of groundwater across the entire Site, soil/waste outside

OU1 areas, and shellfish consumption from Goose Cove and Goose Pond will be included as part of the OU2 RI and HHRA.

The HHRA for OU1 identified areas with estimated cancer, non-cancer, and/or lead exposure risks in excess of USEPA's risk management criteria (i.e., excess lifetime cancer risk [ELCR] outside the range of 10^{-4} to 10^{-6} , hazard index [HI] greater than 1, and/or 5 percent or more of exposed population with a geometric mean blood lead level of 10 micrograms per deciliter [$\mu\text{g}/\text{dl}$] or greater). One or more of these risks were identified in the following areas:

- o Residential Use Area lot A: Lead concentrations in soil represent an unacceptable threat under current and future residential land use.
- o Residential Use Area lot C: Lead concentrations in soil represent an unacceptable threat under current and future residential land use.
- o Residential Use Area lot D: Lead and thallium concentrations in soil represent an unacceptable threat under current and future residential land use.
- o Former Callahan Mine property (Source Area) soil in the former Mine Operations Area: PCBs concentrations in soil represent an unacceptable threat under current recreational and future residential land use.
- o Former Callahan Mine property (Source Area) soil in the former Mine Operations Area: Lead concentrations in soil represent an unacceptable threat under future residential land use.

The HHRA for OU1 revealed that an unacceptable human health risk would exist as a result of ingestion and direct contact with PCB contaminated soil in the former Mine Operations Area. The lifetime excess cancer risk for a recreational visitor (current exposure pathway) exposed to PCBs at the Site was estimated at 1.2×10^{-3} and the non-cancer hazard quotient was 166 for a child. Three residential properties in current use also had concentrations of lead in excess of the USEPA policy threshold for a response, which is to protect 95% of the sensitive population against blood lead levels in excess of 10 $\mu\text{g}/\text{dl}$ in blood. Locations in the Residential Use Area of the Site identified as Lots A, C, and D in the HHRA all had lead concentrations that are predicted to result in a blood lead level in excess of the USEPA policy threshold. For Lot A, 29% of the sensitive population would have a blood lead level above 10 $\mu\text{g}/\text{dl}$. For Lot C, 30% of the sensitive population would have a blood lead level above 10 $\mu\text{g}/\text{dl}$. For Lot D, 31% of the sensitive population would have a blood lead level above 10 $\mu\text{g}/\text{dl}$. Lot D also had a level of thallium that resulted in a non-cancer hazard quotient of 1.4.

The 2009 Baseline Ecological Risk Assessment (BERA) (MACTEC, 2009) revealed unacceptable risk for benthic organisms, fish communities, and birds from sediment in Southern Goose Pond and the adjacent salt marsh and water discharging from the seeps. The ecological risks will be addressed through the completion of the OU3 remedy.

4.0 REMEDIAL ACTION

This section describes the Remedial Action (RA) selected for and implemented at the Site for OU1. Since OU3 has only recently been initiated, the description and evaluation of OU3 will take place in the next Five-Year Review.

4.1 Remedial Action Objectives (RAOs)

Based on information relating to the types of contaminants, environmental media of concern and potential exposure pathways, Remedial Action Objectives (RAOs) were developed as part of the 2009 OU1 ROD and reaffirmed in the 2013 OU1 and OU3 ESD.

The RAOs listed in the 2009 OU1 ROD for the Site that apply to OU1 and OU3 are listed below:

- 1) Protect current and future recreational visitors by preventing direct contact and incidental ingestion of Site soils and waste material containing PCBs that represent a non-cancer threat with a hazard quotient (HQ) greater than 1 and a cancer risk greater than 1×10^{-6} using the Site-specific risk assessment assumptions for current and future recreational use.
- 2) Protect current residents by preventing direct contact and incidental ingestion of Site soils and waste material in the current Residential Use Area of the Site containing lead that would result in greater than 5 percent of the exposed population with a blood lead level above 10 ug/dl, or the Maine Solid Waste Lead Remediation Regulations, whichever is lower, using the Site-specific risk assessment assumptions for current and future residential use.
- 3) Protect current residents by preventing direct contact and incidental ingestion of Site soils and waste material in the current Residential Use Area of the Site containing arsenic above background levels that represent a non-cancer threat with a HQ greater than 1 and a cancer risk greater than 1.4×10^{-5} using the Site-specific risk assessment assumptions for current and future residential use.
- 4) Prevent exposure of biota to sediments, including the sediment/soil in the salt marsh, with concentrations of copper, lead, or zinc that may represent a threat to insectivorous and piscivorous birds, fish, and other aquatic organisms.
- 5) Minimize acid rock drainage from mineralized waste rock and tailings that may act as a continuing source of copper, lead, and zinc to groundwater, surface water, and sediment.
- 6) Stabilize the Tailings Impoundment berm to achieve acceptable stability criteria.
- 7) Comply with all Federal and State applicable or relevant and appropriate requirements (ARARs), including achieving closure standards under State mining regulations.

The 2013 ESD redefined OU1 by separating several of the 2009 OU1 components into a newly established OU3, to be performed later. Only RAOs which pertain to the redefined OU1 were evaluated in this Five-Year Review. The pertinent RAOs for the redefined OU1 remedy include RAOs 1-3 and 7 listed above. OU1 did contribute to RAO 5 regarding the minimization of acid rock drainage, but this RAO will not be completely addressed until the completion of OU3.

4.1.1

Soil Cleanup Levels

Soil cleanup levels were established for residential and recreation use in the 2009 ROD. While thallium was not explicitly addressed in a RAO, a residential cleanup goal was established (USEPA, 2009; Table 57). Table 4-1 is summary of the residential and recreational soil cleanup levels established in the 2009 ROD. For the Residential Use Area of the Site, the cleanup levels for soil were set at a level acceptable for residential exposure. For the OU1 cleanup areas within the former Callahan Mine property portion of the Site, the recreational use cleanup levels for soil were set for the soil within the limits of the source area removal for the Ore Pad and Mine Operations Area, and Waste Rock Pile 3. The cleanups of the Ore Pad and Mine Operations Area are included in the redefined OU1 remedy and Waste Rock Pile 3 will be handled under OU3.

Table 4-1
Soil Cleanup Levels
Callahan Mine Superfund Site OU1

	Background (mg/kg)	Soil Cleanup Level (mg/kg)	Basis	Risk at Cleanup Level HQ / ELCR
Residential Cleanup levels				
Arsenic	14	14	Background	HQ = 0.2 ELCR = 5.8×10^{-6}
Lead	37	375	Maine State Safe Lead level and Site-specific IEUBK model output	Using this level as the maximum concentration, then 95% of exposed residential population should have a blood lead level that does not exceed 10 µg/dl based on this cleanup level.
Polychlorinated biphenyls	NA	1	TSCA and Site-specific risk basis to allow for unrestricted future use	HQ = 0.4 ELCR = 1.9×10^{-6}
Thallium	0.12	15	Site-specific risk basis for noncancer exposure	HQ = 1 ELCR = NA.
Total cancer risk for all contaminants of concern. Non-cancer risk is summed by target endpoint				HI = 1.0 – liver (Thallium) HI= 0.4 – immune system (PCB) HI=0.2 skin (arsenic) Cumulative ELCR = 7.7×10^{-6}
Recreational Cleanup Level				
Arsenic	14	30	Risk management decision to accept 1×10^{-5} ELCR	HQ = 0.2 ELCR = 1.2×10^{-5}
Lead	37	700	Maine Remedial Action Guideline [1] and Site-specific IEUBK model output	95% of exposed recreational population should have a blood lead level < 10 µg/dl based on this cleanup level.
Polychlorinated biphenyls	NA	1	TSCA and Site-specific risk to allow for unrestricted future use	HQ = 0.1 ELCR = 0.8×10^{-6}
Total cancer risk for all contaminants of concern. Non-cancer risk is summed by target endpoint				HI = 0.2 skin (arsenic) HI=0.1 immune system (PCBs) Cumulative ELCR = 1.2×10^{-5}

Notes:

HQ = hazard quotient

HI = hazard index

ELCR = excess lifetime cancer risk

IEUBK = Integrated Exposure, Uptake and Biokinetic Lead Model

mg/kg = milligram/Kilogram

µg/dl = microgram/deciliter

NA = not applicable

TSCA = Toxic Substances Control Act

[1] MEDEP, Implementation of Remedial Action Guidelines, Table 4 - Remedial Action Guidelines for Contaminated Soils

4.2 Remedy Description

The 2009 OU1 ROD along with the 2013 OU1 and OU3 ESD set forth the selected remedy for the redefined OU1. The following list is for OU1 as redefined in the 2013 ESD:

- o Pre-design investigations and studies.
- o Excavation and off-site disposal of soil contaminated with PCBs exceeding Site-specific PCB cleanup levels. PCBs with a concentration below 10 parts per million (ppm) may remain on-site and be placed beneath the cover system to be installed for the Tailings Impoundment.
- o Excavation and off-site or on-site disposal of any petroleum-contaminated soil commingled with CERCLA waste (PCB-contaminated soil exceeding Site-specific PCB cleanup levels).
- o Excavation of soil containing arsenic, lead, and thallium exceeding Site-specific cleanup levels in the Residential Use Area of the Site. The Residential Use Area of the Site is expanded to include one additional property. The excavated material may be placed at the Tailings Impoundment. The OU3 remedial design will determine whether the material will be placed beneath the Tailings Impoundment cover system or placed in the CAD cell.
- o Excavation and consolidation of Ore Pad and Mine Operations waste material at the Tailings Impoundment. The OU3 remedial design will determine whether the material will be placed beneath the Tailings Impoundment cover system or placed in the CAD cell.
- o Installation of monitoring wells, if necessary, to assess Residential Use Area cleanup. Monitoring well locations and installation will be covered under the OU2 which addresses groundwater at the Site.
- o Long-term operation and maintenance and monitoring.
- o Five-Year Reviews.

In 2010, an Addendum to the OU1 Final Basis of Design Report (CES, 2010) was completed to refine the OU1 Remedial Action defined in the OU1 Final Basis of Design Report (MACTEC, 2010). The results of the characterization showed no evidence of petroleum contaminated soil above MEDEP Remedial Action Guidelines. Therefore, no further remediation is necessary in this area.

4.3 Remedy Implementation

4.3.1 OU1 Remedial Action

Pre-design investigations and studies

The initial in-situ delineation of the PCB and metal contamination was performed as part of the RI. To support the development of the RA work plans, a pre-excavation characterization was completed in November 2010 by USEPA, MEDEP, and CES, Inc. (MEDEP's quality assurance contractor) to better delineate the contaminants of concern above cleanup goals within the

Residential Use Area and the former Mine Operations Area. Surface and subsurface samples were collected along the western portion of the former Mine Operations Area and analyzed by USEPA mobile laboratory for PCBs. During the in-situ pre-excavation characterization, an additional area of PCB contaminated soils was identified in the eastern portion of the former Mine Operations Area along the edge of Dyer Cove. Further sampling was completed in this area to refine the extent of the PCB contaminated soils. Surface soil samples were collected in the Residential Use Area and analyzed using X-Ray Florescence (XRF) to determine concentrations of arsenic, lead, and thallium. QA/QC samples were submitted to an off-site fixed laboratory to confirm the mobile laboratory and XRF results. An Addendum to the OU1 Final Basis of Design Report (CES, 2010) was prepared to document the pre-excavation characterization results.

PCB excavation, off-site disposal, Tailings Impoundment and PCB cap

Excavation of PCB contaminated soils from the former Mine Operations Area began in April 2011 and was completed in 2013. Comprehensive confirmation sampling and analyses were performed to delineate the extent and concentrations of PCB contaminated soils. Soils with PCB concentrations ranging from 1 ppm to 10 ppm were initially stockpiled then moved to the Tailings Impoundment (Figure 4-1). Soils with PCB contamination in the range of 10 ppm to 50 ppm were disposed of in an off-site landfill permitted to accept PCB contaminated soil with a concentration below 50 ppm while soils contaminated with greater than 50 ppm of PCBs were disposed of in a hazardous waste/TSCA landfill. The OU1 Remedial Action Completion Report delineates the volume of soils removed from the Site (CES, 2013).

Excavation and off-site/on-site disposal of any petroleum-contaminated soil commingled with CERCLA waste

As documented in the Addendum to the OU1 Final Basis for Design (CES, 2010), excavation and disposal of petroleum contaminated soil was not necessary because petroleum concentrations in soil were less than the applicable Maine Remediation Action Guidelines.

Excavation and consolidation of Ore Pad and Mine Operations waste material at the Tailings Impoundment and on-site placement of metal contaminated soils

Excavation of the waste rock from the Ore Pad was completed in September 2011. Visible waste rock and highly oxidized soils were excavated from the Ore Pad and transported to the Tailings Impoundment for placement. Excavation of metal contaminated soil was completed up to twelve feet below ground surface and continued until native soils or bedrock was encountered. Confirmation surface soil samples were collected to confirm that the remaining soil contained levels of arsenic and lead below the Site-specific cleanup goals for recreational exposure. Confirmation samples were analyzed using the on-site mobile laboratory and off-site fixed laboratories. Confirmation sampling confirmed that the 95% upper confidence limit of the mean for surface soils at the Ore Pad were below the recreational cleanup levels for arsenic and lead.

Installation of monitoring wells, if necessary, to assess Residential Use Area cleanup

Groundwater is being handled through OU2, so while no monitoring wells were installed as part of OU1, the OU2 RI/FS will investigate and evaluate potential locations for future monitoring wells.

Residential Use Area

Remediation of five seasonal residences was completed during the summer of 2011. The remediation included three properties located to the west of Old Mine Road (Lots A-C), one property to the east of Old Mine Road (Lot D), one property to north of Harborside Road (Lot E), as well as the remediation of Old Mine Road. Soil with levels of arsenic, lead, or thallium above cleanup goals was excavated from the five properties located within the Residential Use Area and transported to the Tailings Impoundment for placement. Bedrock was encountered within the first six inches of excavation in most locations. Confirmation surface soil samples were collected from the bottom and sidewalls of excavations to confirm that cleanup levels had been met at the limits of the excavations. Analyses confirmed cleanup goals were met for arsenic, lead, and thallium.

The affected areas of the residential lots were repaired and restored. A Pre-Final Inspection was performed by MEDEP, USEPA, Charter Environmental (MEDEP's on-site cleanup contractor) and CES, Inc. (MEDEP's quality assurance contractor) on September 4, 2013. A Pre-final construction punch list was developed and approved by all parties present. USEPA agreed that the punch list items were minor and that a joint USEPA-MEDEP final inspection was not necessary.

A Final Inspection was performed by MEDEP on September 26, 2013, to document that all punch list items had been completed and that the OU1 Remedial Action was operational and functional.

4.4 Institutional Controls

Institutional controls (ICs) are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for exposure to contamination and protect the integrity of the remedy. Compliance with ICs is required to assure long-term protectiveness for any areas that do not allow for unlimited use and unrestricted exposure (UU/UE). The OU1 and OU3 ESD moved the institutional controls (ICs) that were identified in the 2009 ROD into the newly created OU3. These ICs will implemented as part of the OU3 RA.

The 2009 ROD did not identify the need for ICs for the Residential Use Area. Based on the successful implementation of the OU1 RA, the Residential Use Area achieves UU/UE further supporting the OU1 ROD conclusion that ICs would not be necessary for this area.

ICs will be required at the Site to ensure the protectiveness of the remedy for OU2 and OU3. This would include any ICs necessary for the Ore Pad, former Mine Operations Area, or capped PCB contaminated soils. The implementation of ICs to prevent disturbance to the components of

the remedial activities and long-term monitoring of compliance with restrictions will be completed as part of OU3 Remedial Action.

4.5 Operations and Maintenance (O&M)

The soil cleanup for the Residential Use Area is completed. No operation and maintenance (O&M) activities are required for the Residential Use Area. The cleanup of the Ore Pad and Mine Operations Area along with the disposal area in the Tailings Impoundment will require inspections and maintenance. MEDEP is responsible for periodic inspections to document that the sediment and erosion control measures are meeting best management practices. MEDEP is also responsible for periodic inspections of the disposal area for the soil containing PCB contamination greater than 1 ppm but less than 10 ppm. Inspections will be performed to document that the cover integrity has not been compromised. MEDEP is responsible for prompt repairs to the cover system or sediment and erosion control measures. The last MEDEP inspection was completed on September 17, 2014 (see Appendix A). The inspection report found only three minor concerns:

- Minor surface erosion in the Ore Pad Area
- Run-off to the Tailing Impoundment plunge pool had cut a channel around the existing stone check dam
- Site southern gate removed by vandals

5.0 PROGRESS SINCE LAST FIVE-YEAR REVIEW

This is the first Five-Year Review for the Site.

6.0 FIVE-YEAR REVIEW PROCESS

This section provides a summary of the Five-Year Review process and the actions taken by USEPA to complete the review.

6.1 Administrative Components

The USEPA, the lead regulatory agency for this Five-Year Review, notified both MEDOT and MEDEP that it was conducting a five-year review with a report to be completed by April 21, 2016. The Five-Year Review team was led by Edward Hathaway, Remedial Project Manager, of USEPA's Office of Site Remediation and Restoration. Kate Melanson is the USEPA Community Involvement Coordinator for the Site. Components of this review included:

- o Project planning and support
- o Community involvement
- o Document review
- o Data review
- o Site inspection

- o Local interviews
- o Five-Year Review report development

6.2 Community Notification and Involvement

USEPA issued a press release on January 5, 2015, to provide notice of the Five-Year Review for the Callahan Mine Superfund Site. Copies of this press releases are included in Appendix B. A news article mentioning the Five-Year Review was contained in the August 27, 2015 edition of the Weekly Packet, a weekly newspaper with general circulation in the Site area. USEPA also held a public information meeting on August 19, 2015, to provide an update of Site activities and discuss the Five-Year Review with the community. The notice of the public meeting was posted on the Town of Brooksville website.

6.3 Document Review

The Five-Year Review includes a review of documents containing information relevant to assessing the protectiveness of the Site. Documents such as the OU1 ROD and OU1 and OU3 ESD provide the RAOs and selected RAs for the Site. Other documents, such as the Remedial Action Completion Report and Addendum to the Final Basis of Design Report, detail specific actions taken at the Site. A complete bibliography of documents reviewed for this Five-Year Review can be found in the Reference List at the end of this Five-Year Review.

6.4 Data Review

Soil data were reviewed as part of this Five-Year Review. In particular, soil sampling and analyses to define the extent of contamination during excavation as well as confirmation sampling and analyses were reviewed. Data reviewed supports the conclusion that contaminated soil excavation and proper off-site disposal or on-site stockpiling of those soils met the RAOs.

6.5 Site Inspection

The Five-Year Review Site Inspection to assess the protectiveness of the remedial action was performed on October 15, 2015. The inspection was conducted by Edward Hathaway of USEPA, accompanied by the following USACE Staff: Stephen Dunbar, Casey Haskell, Jeffery Gaeta, Drew Clemens, Daniel Groher, and Cynthia Colquitt. The inspection teams walked the OU1 areas of the Site, inspecting the following components of the OU1:

- o Residential Use Area
- o Ore Pad
- o Former Mine Operations Area and PCB Cap.

The inspections documented that the completed cleanup actions associated with OU1 are in good condition and no issues were identified. The residential lots where excavation was completed are now landscaped and appear healthy. The following are Site inspection observations of the OU1 Mine Operations Area and cover system over the low concentration PCB contaminated soil:

- Cap is in good condition. Cap remains vegetated with appropriate grasses. No large vegetation (trees, shrubs, etc.) were observed growing on the Cap.
- No rutting or erosional features observed during the Site inspection.
- Cap toe drainage area(s) appeared in good condition during the Site inspection.
- Cap fence and signage appeared in good condition during the Site inspection.

The Site Inspection Report and Photographs documenting the Site conditions from the October 15, 2015 Site Visit are provided in Appendix C.

6.6 Interviews

The USEPA sought feedback from the community and public officials (local and state) by sending an interview form via email to state and local officials. The USEPA received feedback from:

- o Town of Brooksville, ME
- o MEDEP
- o MEDOT
- o Several residents

Overall, the State, Town, and local residents were satisfied with the work completed to date and did not identify any concerns with respect to the protectiveness of OU1. One comment requested that there was some remaining pipe and other materials left behind by the response contractors that should be removed. Another comment requested more frequent updates of the cleanup activities. Another comment raised a concern regarding the discharge from the horizontal drain pipe installed as part of OU3. A copy of the interviews is provided in Appendix D. EPA will make sure that any debris on-site is properly stored. EPA will also make sure that all stakeholders are kept informed of site activities, including the performance of the treatment system for the horizontal drain discharge.

7.0 TECHNICAL ASSESSMENT

As outlined in the Comprehensive Five-Year Review Guidance, this section provides a technical assessment of the OU1 Remedial Action implemented at the Site (USEPA, 2001a). This section presents the evaluation of any changes to the risk assessment assumptions (e.g., toxicity factors, data and exposure scenarios used in the HHRA) as well as any other information that could have affected or might affect the remedy's protectiveness of human health and the environment.

7.1 **Question A: Is the Remedy Functioning as Intended by the Decision Documents?**

Yes. The following components of the remedy are complete and functioning in accordance with the ROD and ESD:

- o Excavation and off-site disposal of PCB contaminated soil exceeding the site-specific cleanup level of 10 ppm was completed. In addition, excavation and on-site consolidation of PCB contaminated soil below 10 ppm was completed. The on-site PCB

contaminated soil was consolidated in a fenced area of the Tailings Impoundment and stabilized with a vegetative cover. PCB contaminated soil was primarily excavated from the Mine Operations Area.

- o Excavation of contaminated soil containing arsenic, lead, and thallium, above Site-specific cleanup levels in the residential area consisting of 5 properties was completed. Confirmation samples were collected and analyzed to ensure cleanup goals were met. Restoration of those 5 properties was also completed.
- o Excavation of waste rock from the Ore Pad and Mining Operations Area and placement of the material at the Tailings Impoundment Area. Excavation was considered complete when native soils or bedrock were encountered. Preliminary restoration of the Ore Pad area for OU1 included creation of a positive drainage area to stop soil transport to Dyer Cove. Final restoration of the Ore Pad will be completed as part of OU3.
- o Former Mine Operations Area and Tailings Impoundment were stabilized in 2013.

7.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives Used at the Time of the Remedy Selection Still Valid?

No. USEPA changed recommendations for a few exposure factor assumptions used in the 2009 HHRA. One toxicity factor has also changed since the HHRA supporting the 2009 RI was completed. The cleanup levels and RAOs remain valid.

This Five-Year Review evaluated the exposure assumptions, toxicity data, cleanup levels, applicable or relevant and appropriate requirements (ARARs) and RAOs used at the time of the 2009 ROD. Sections 7.2.1 through 7.2.5 discuss the evaluation of the exposure assumptions, toxicity data, cleanup levels, and RAOs. There have been no changes in land use or expected land use. Therefore, there have been no new routes of exposure. Vapor intrusion has not been identified as an issue at the Site due to the absence of volatile organic compounds in the groundwater.

7.2.1 Are the 2009 OU1 ROD exposure assumptions for the Remedial Action still valid?

Yes. The exposure assumptions used in the 2009 OU1 ROD are still valid even though EPA has revised several of the exposure assumptions since the OU1 ROD. The exposure assumptions remain protective of human health. On December 31, 2012, the USEPA issued new guidance on relative bioavailability of arsenic (USEPA, 2012a). The relative bioavailability (RBA) of 60% (instead of 100%) is now to be applied during soil ingestion calculations of risk/cleanup levels. Use of the lower RBA value would result in lower risks of arsenic, therefore, the cleanup levels (see Table 4-1) remain protective. On February 6, 2014, the USEPA issued new guidance for updated standard default exposure factors (USEPA, 2014). Slight changes in child surface area were posted to the EPA Regional Screening Level (RSL) website in November 2015. In general, the assumptions in USEPA's 2014 guidance applicable to the Site's HHRA serve to lower risks, so the assumptions used in the HHRA are more protective.

Relevant changes in exposure assumptions include the following:

- o Surface area exposed (adult changed from 5,700 to 6,032 cm²/day and child changed from 2,800 to 2,373 cm²/day).
- o Adult body weight changed from 70 to 80 kilograms.
- o Residential exposure duration changed from 30 to 26 years (child resident exposure duration remained at 6 years, but adult resident exposure duration changed from 24 to 20 years).

Therefore, even though some of the exposure assumptions used in the OU1 HHRA have been updated, the risk estimates based on those exposure assumptions are still protective of human health because they are generally more conservative than the currently recommended exposure factors.

7.2.2 Are the toxicity data used at the time of the remedy selection still valid?

No. Table 7-1 summarizes the review of toxicity factors used to estimate risks pertinent to the chemicals with cleanup goals for the OU1 remedy. The toxicity factors applicable to the redefined OU1 and used in the HHRA calculations have not changed, but currently USEPA is in the process of reevaluating the thallium noncancer toxicity factors. In 2012 a Provisional Peer-Reviewed Toxicity Value (PPRTV) for thallium compounds was finalized by USEPA and provides reference doses, but these values are not currently included in USEPA's Integrated Risk Information System (IRIS; USEPA, 2012b). The OU1 ROD thallium cleanup levels are based on toxicity factors that are currently under reevaluation and no longer listed in USEPA's IRIS. The USEPA RSL for residential soil for thallium soluble salts is based on the 2012 PPRTV recommended reference dose, and that RSL is 0.78 mg/kg and for a residential exposure based HQ of 1 (USEPA, 2015). This is the currently (November, 2015) recommended residential soil RSL for thallium soluble salts, although the lowest and highest RSLs, respectively, are 0.47 mg/kg for both thallium acetate and thallium chloride and 1.6 mg/kg for both thallium carbonate and thallium sulfate. Since the Site contamination is derived from a mineral deposit containing carbonate and sulfide, which converts to sulfate as part of the weathering process, the most likely form of thallium at the Site would be either thallium carbonate or thallium sulfate.

Thallium was also not detected above a detection limit of 3 mg/kg in any of the 17 pre-excavation delineation samples that were analyzed at an off-site lab. During the 2011 OU1 residential cleanup, thallium was not detected above the laboratory detection limit of 1.5 mg/kg in any of the off-site soil confirmation samples. The revised toxicity data does not call into question the protectiveness of human health for OU1 because the OU1 Residential Use Area cleanup is complete, the conformation sampling confirmed that thallium was not present in the residential areas above the OU1 cleanup level, and the confirmation samples had a detection limit at or below the current RSL of 1.6 mg/kg for thallium carbonate or thallium sulfate.

Table 7-1
Toxicity Factor Review

2015 Five Year Review				
	Soil Cleanup Level*	Risk at Clean up Level HQ / ELCR	Cancer Toxicity	Non-cancer Toxicity
Residential Use Cleanup Levels				
Arsenic	14	HQ = 0.2 ELCR = 5.8×10^{-6}	No change	No change
Lead	375	Using this level as the maximum concentration, then 95% of exposed population should have a blood lead level that does not exceed 10 µg/dl based on this cleanup level.	No change	No change
PCBs	1	HQ = 0.4 ELCR = 1.9×10^{-6} ; Based on Aroclor 1254 (HQ) and PCBs (ELCR)	No change	No change
Thallium	15	HQ = 1 ELCR = NA.	Currently under EPA review for reevaluation: 2012 PPRTV ²⁰¹² RSL ²⁰¹⁵ = 0.78 mg/kg for thallium salts, 1.6 mg/kg for thallium sulfate or thallium carbinatate	
Recreational Use Cleanup Level				
Arsenic	30	HQ = 0.2 ELCR = 1.2×10^{-5}	No change	No change
Lead	700	95% of exposed population should have a blood lead level < 10 µg/dl based on this cleanup level.	No change	No change
PCBs	1	HQ = 0.1 ELCR = 0.8×10^{-6} ; Based on Aroclor 1254 (HQ) and PCBs (ELCR)	No change	No change

Notes:

* = presented in milligrams/kilogram or mg/kg
 µg/dl = micrograms/deciliter
 HQ = Hazard Quotient (non-cancer toxicity risk estimate)
 ELCR = Excess Lifetime Cancer Risk (cancer toxicity risk estimate)
 PCBs = Polychlorinated biphenyls (Aroclor is a specific mixture of PCBs)
 PPRTV = Provisional Peer Reviewed Toxicity Values
 RSL = Regional Screening Level – published by the United State Environmental Protection Agency biannually

7.2.3 Are the cleanup levels used at the time of the Remedy Selection still valid?

Yes. The arsenic, lead, thallium and PCB soil cleanup levels for the OU1 Remedial Action remain valid.

7.2.4 Are there changes in ARARs, Standards, or Other Criteria To Be Considered (TBCs) that would call into question the protectiveness of the Remedial Action?

No. As part of the Five-Year Review, the standards on which the soil cleanup levels were established in the OU1 ROD and subsequent 2013 OU1 and OU3 ESD were reviewed for changes that might affect the protectiveness of the OU1 remedy. Based on this review, there have not been any changes to ARARs, Standards, or TBCs that would call into question the protectiveness of the OU1 RA.

7.2.5 Are the Remedial Action Objectives used at the time of the remedy selection still valid?

Yes. The RAOs for OU1 as described in the OU1 ROD and redefined through the 2013 OU1 and OU3 ESD remain valid.

For the residential areas, all soil excavation is complete, and the OU1 RA has met the cleanup goals. The residential areas have also been restored in accordance with the RAOs. Also in accordance with the RAOs, PCB contaminated soil in the Ore Pad and Mine Operations Area was excavated and either disposed of off-site (i.e., soils with concentrations > 10 ppm) or moved to the Tailings Impoundment area and capped with a vegetative cover (i.e., soils with concentrations < 10 ppm).

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

No. This Five Year Review which included a Site visit, interviews and document review did not find any other information which might call into question the protectiveness of the remedy.

In June 2011, EPA issued a Policy Statement on Climate-Change Adaptation which recognized that climate change can pose significant challenges to EPA's ability to fulfill its mission. It calls for the Agency to anticipate and plan for future changes in climate and incorporate considerations of climate change into its activities. The Policy Statement also requires the development of an Agency-wide adaptation strategy that would integrate climate adaptation into the Agency's programs, policies, rules and operations. In addition to the Agency strategy, the Policy Statement also directed every EPA Program and Regional Office to develop an Implementation Plan that provides more detail on how it will meet the priorities and carry out the work called for in the agency-wide plan.

Potential Site impacts from climate change have been assessed as part of this FYR, and the performance of the remedy is currently not at risk due to the expected effects of climate change in the region and near the Site. The cleanup of the arsenic, lead, and thallium mine waste in the Residential Use Area and the PCBs in the former Mine Operations Area have resulted in the complete removal of the soil contamination of the OU1 ROD cleanup levels. As a result, these components of the cleanup action are not vulnerable to any Site impacts from climate change. The on-site PCB cover system is located in an area that should not experience any additional risk as a result of climate change.

7.4 Technical Assessment Summary

According to the data reviewed, the Site inspections, and interviews performed for this Five-Year Review, the OU1 RA achieved the intentions of the 2009 OU1 ROD as modified by the 2013 OU1 and OU3 ESD. There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy with respect to these cleanup actions. While toxicity data for thallium are not available and some of the exposure assumptions have changed since the OU1 remedy was selected, none of these changes would significantly affect the remedy

or RAOs. ARARs have not changed in any way that would call into question the protectiveness of the cleanup performed to date.

In summary, there is no information that calls into question the protectiveness of the OU1 Remedial Action.

8.0 ISSUES

There are no issues that affect the short-term or long-term protectiveness of human health and the environment for the OU1 Remedial Action because the OU1 Remedial Action has been completed and meets the RAOs. In addition, the RAOs are still valid.

9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Since there are no issues, no recommendations or follow-up actions are recommended.

10.0 PROTECTIVENESS STATEMENT

Protectiveness statements are provided for the completed OU1 Remedial Action and the ongoing OU3 Remedial Action at the Callahan Mine Superfund Site.

Protectiveness of the OU1 Remedial Action – Protective: The remedy protects human health and the environment because direct contact with and incidental ingestion of arsenic, lead, and thallium contaminated soil in the Residential Use Area has been prevented by excavation of the soil above cleanup levels such allowing the Residential Use Areas to achieve unrestricted use. The remedy also protects human health and the environment because direct contact and incidental ingestion of PCB contaminated soil in the former Mine Operations Area above cleanup levels has been prevented by excavation and off-site disposal for the PCB contamination above 10 mg/kg or on-site consolidation and capping at the Tailings Impoundment of the PCB contamination below 10 mg/kg.

Protectiveness of the OU3 Remedial Action – Will Be Protective: The remedy for OU3 at the Callahan Mine site is expected to be protective of human health and the environment upon completion. All current human risks were addressed by the implementation of the OU1 remedy.

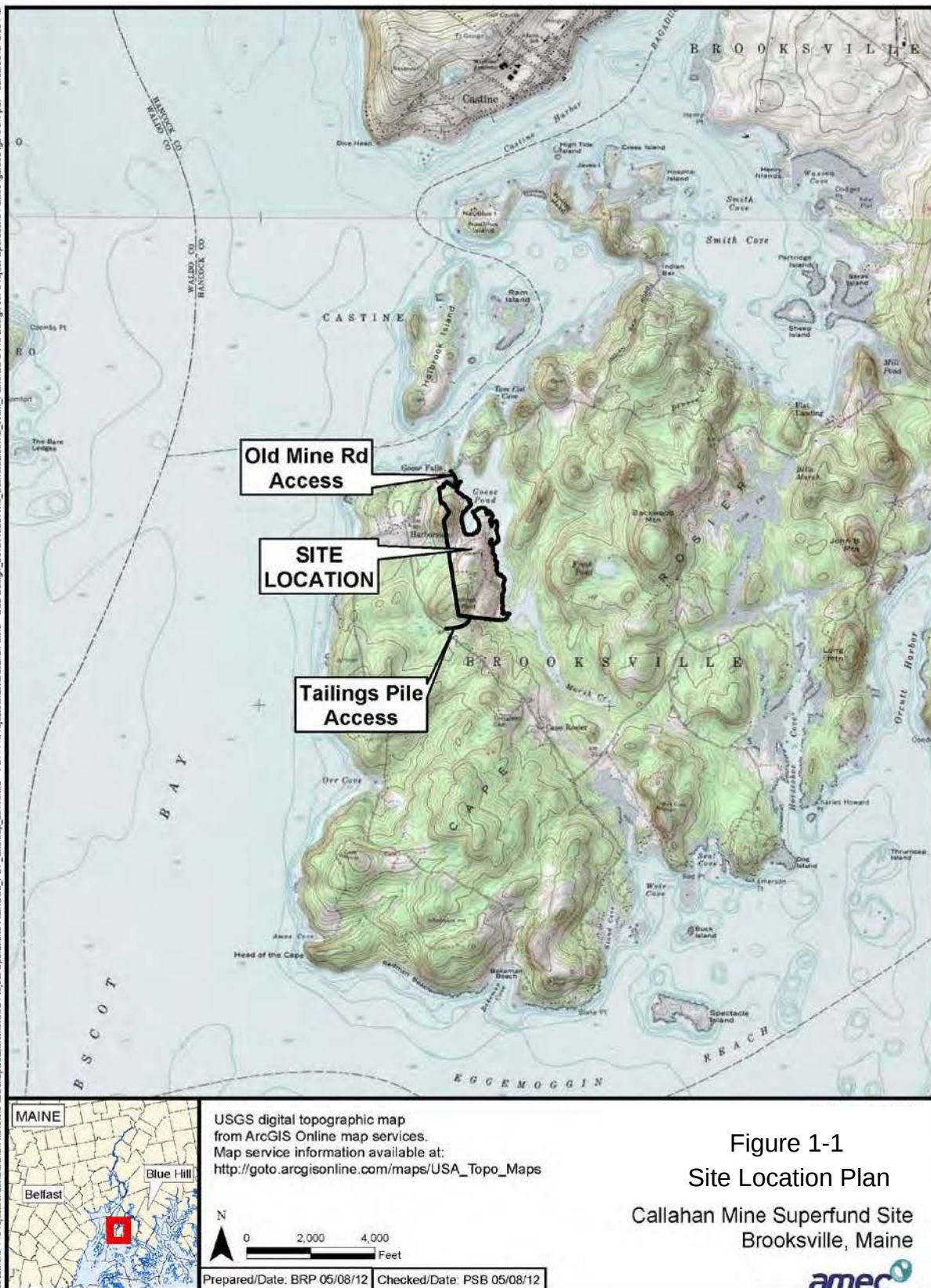
11.0 NEXT REVIEW

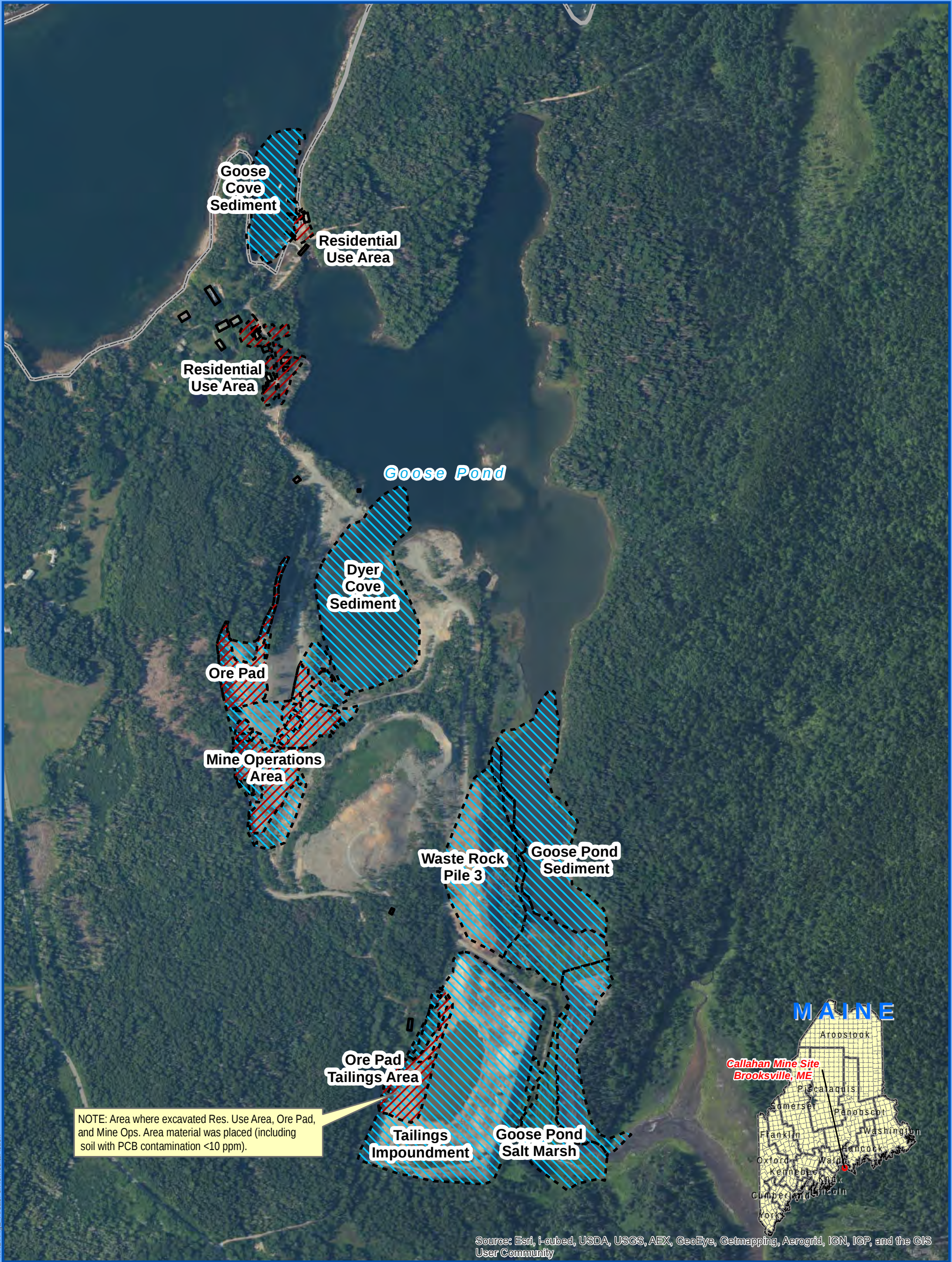
The second/next Five-Year Review for the Callahan Mine Superfund Site is required five years from the approval of this first Five-Year Review.

12.0 REFERENCES

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- MACTEC, 2010. Final Basis of Design, Report, Callahan Mine Superfund Site, Brooksville, Maine. 2010.

Figures





Legend

-  Revised Areas for OU1 Remedial Action
-  Revised Areas for OU3 Remedial Action
-  Structures

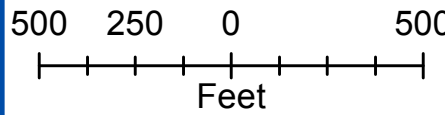


Figure 2-1
OU-1 Cleanup Areas

Document: P:\Projects\mdot\Callahan Mine\6.0 GIS\MapDocuments\2009 RI Executive Summary\ES_History\Features_11x17P.mxd PDF: P:\Projects\mdot\Callahan Mine\6.0 GIS\Figures\2009 Executive Summary\Figure ES-2.pdf 03/30/2009 10:19 AM bnpeters

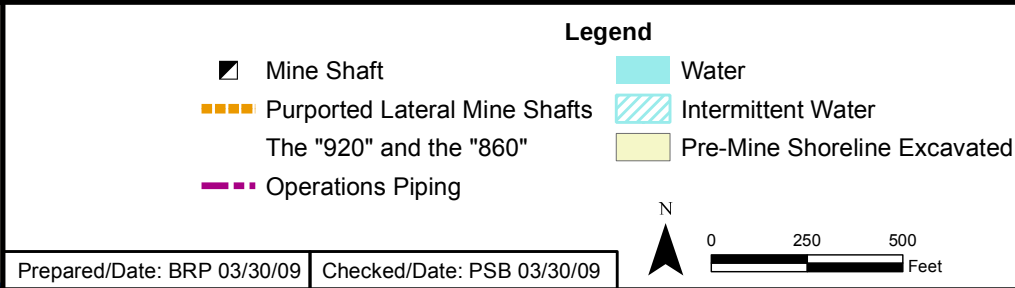
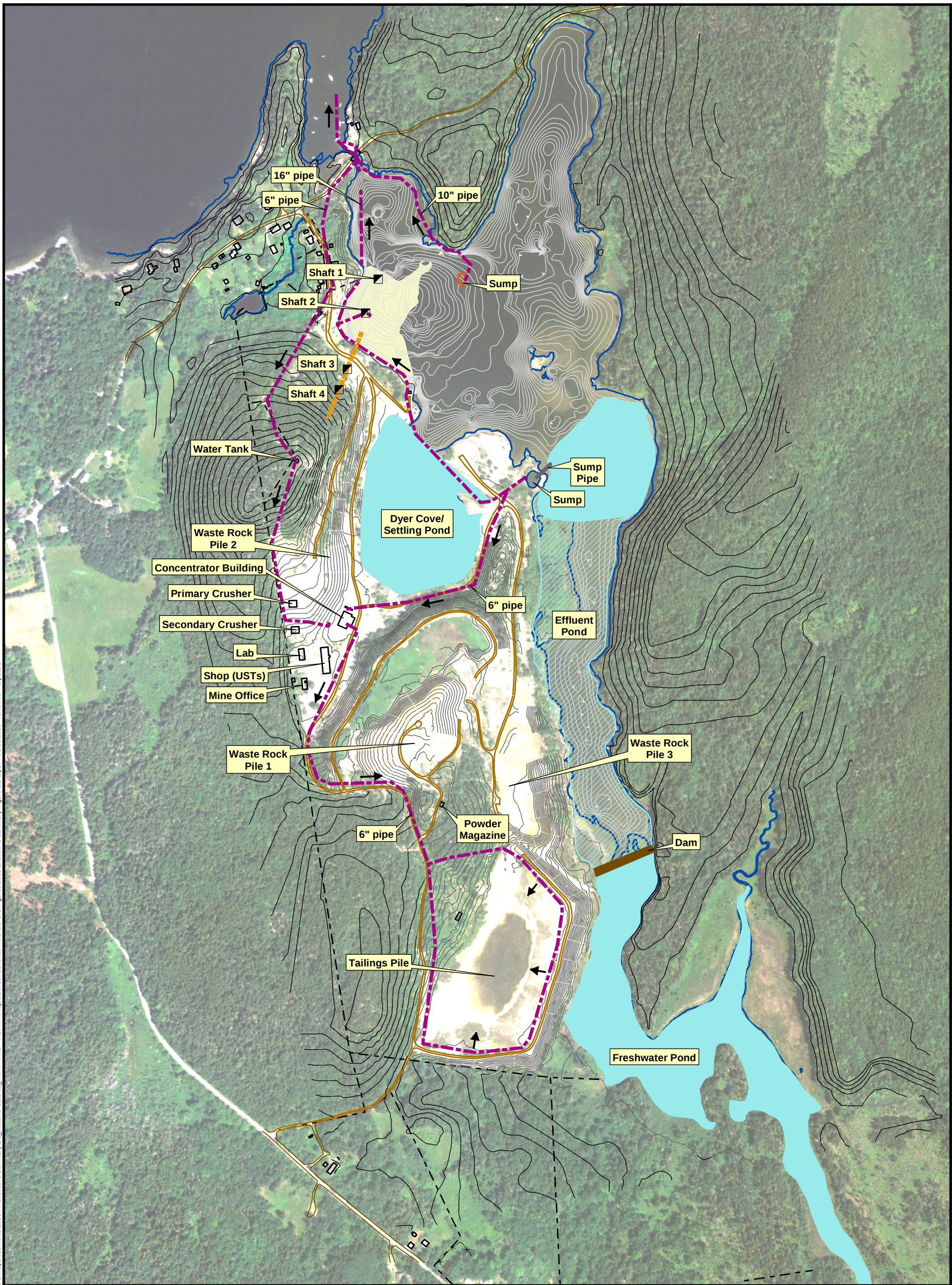
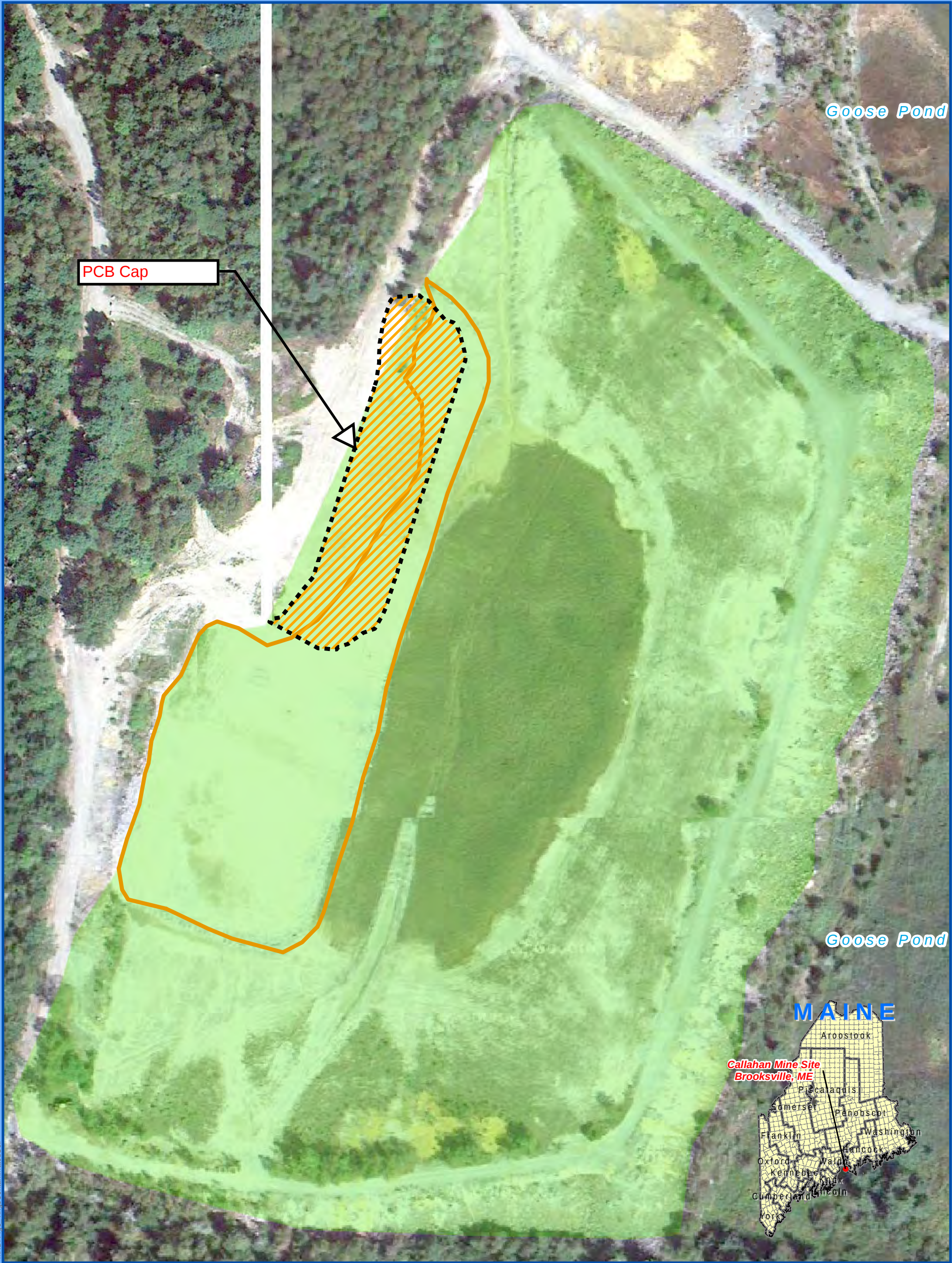


Figure 3-1
Mining Operation Areas
Callahan Mine Superfund Site
Brooksville, Maine
MACTEC, Inc.



MYD: Fig8_ThysContaminatedSal

MAPAUTHOR: lldd



100 50 0 100
Feet

Legend

-  General Location of Soils with PCB Concentraion <10 ppm that have been placed below Temporary Cover System
-  General Location of Material from Ore Pad, Residential Use Area, & Mine Ops Area (not including PCB contaminated Soil)
-  Tailings Impoundment (OU1 ROD)



Figure 4-1
Tailing Impoundment & PCB Cap

Appendix A
State of Maine 2014 Inspection Report



OPERATIONS AND MAINTENANCE INSPECTION REPORT

Facility:			
Owner:			
Inspector:		Inspection Date:	
Other People Present:			

MINE OPERATIONS AREA VEGETATION, DRAINAGE, AND SURFACE WATER

1	Condition of vegetative growth: ☐ Excellent (thick growth) ☐ Did not inspect ☐ Good ☐ Poor (thin growth, bare soil, mosses)	Remarks:
2	Dead spots present? ☐ Did not inspect ☐ Yes ☐ No	Remarks:
3	Conditions/stability of swales/ditches: ☐ Excellent (unobstructed) ☐ Did not inspect ☐ Good ☐ Poor (overgrown or sediment filled)	Remarks:
4	Condition of geomembrane lining within swales/ditches: ☐ Excellent ☐ Did not inspect ☐ Good ☐ Poor	Remarks:
5	Condition of level spreader at south end of Mine Operations Area: ☐ Excellent ☐ Did not inspect ☐ Good ☐ Poor (requires maintenance)	Remarks:
6	Condition of stone check dams along access road at south end of Mine Operations Area: ☐ Excellent ☐ Did not inspect ☐ Good ☐ Poor (requires maintenance)	Remarks:
7	Is there evidence of siltation in Dyer Cove? ☐ Yes ☐ Did not inspect ☐ No	Remarks:
Other Comments:		



MINE OPERATIONS AREA STORMWATER POND

8	Is there evidence of settlement on the pond embankment? ☐ Yes ☐ Did not inspect ☐ No		Remarks:
9	Is there evidence of slope erosion on the pond embankment? ☐ Yes ☐ Did not inspect ☐ No		Remarks:
10	Is there evidence of internal piping in the pond embankment? ☐ Yes ☐ Did not inspect ☐ No		Remarks:
11	Condition/stability of inlet and depth of sediment accumulation: ☐ Excellent(unobstructed) ☐ Good ☐ Poor	☐ Did not inspect ☐ < 50% ☐ ≥ 50%	Remarks:
12	Condition/stability of outlet structure: ☐ Excellent(unobstructed) ☐ Did not inspect ☐ Good ☐ Poor (overgrown or sediment filled)		Remarks:
13	Is there evidence of broken seals on the outlet control structure? ☐ Yes ☐ Did not inspect ☐ No		Remarks:
14	Is there evidence of obstructed orifices on the outlet control structure? ☐ Yes ☐ Did not inspect ☐ No		Remarks:
15	Is there evidence of plugged trash rack on the outlet control structure? ☐ Yes ☐ Did not inspect ☐ No		Remarks:
16	Is there evidence of piping along the outlet barrel? ☐ Yes ☐ Did not inspect ☐ No		Remarks:
17	Is there evidence of any rips or tears in the pond liner? ☐ Yes ☐ Did not inspect ☐ No		Remarks:
18	Gates and fence condition: ☐ Excellent ☐ Good ☐ Poor	☐ Did not inspect ☐ Locked upon arrival ☐ Unlocked upon arrival	Remarks:
Other Comments:			



MINE OPERATIONS AREA/ORE PAD AREA GENERAL CONDITIONS

19	Is there evidence of erosion within the Mine Operations Area? ☐ Yes ☐ Did not inspect ☐ No	Remarks:				
20	Is there evidence of erosion within the Ore Pad Area? ☐ Yes ☐ Did not inspect ☐ No	Remarks:				
21	Is there evidence of excessive settlement within backfilled areas and former foundations? ☐ Yes ☐ Did not inspect ☐ No	Remarks:				
22	Access road condition: ☐ Excellent ☐ Did not inspect ☐ Good ☐ Poor	Remarks:				
23	Is there evidence of settlement along access road? ☐ Yes ☐ Did not inspect ☐ No	Remarks:				
24	Condition of monitoring wells: ☐ Excellent ☐ Did not inspect ☐ Good ☐ Poor (missing covers, missing locks, deteriorated seals, frost heaved, etc.)	Remarks:				
25	Condition of rock barriers over catch basins and hatch within foundation: ☐ Present ☐ Did not inspect ☐ Not present	Remarks:				
26	<table border="1"> <tr> <td colspan="2">Northern Gate of Mine Operations Area:</td> </tr> <tr> <td> ☐ Did not inspect ☐ Present ☐ Not present ☐ Excellent Condition ☐ Good Condition ☐ Poor Condition </td> <td> ☐ Unlocked upon arrival ☐ Locked upon arrival ☐ NA </td> </tr> </table>	Northern Gate of Mine Operations Area:		☐ Did not inspect ☐ Present ☐ Not present ☐ Excellent Condition ☐ Good Condition ☐ Poor Condition	☐ Unlocked upon arrival ☐ Locked upon arrival ☐ NA	Remarks:
Northern Gate of Mine Operations Area:						
☐ Did not inspect ☐ Present ☐ Not present ☐ Excellent Condition ☐ Good Condition ☐ Poor Condition	☐ Unlocked upon arrival ☐ Locked upon arrival ☐ NA					
27	<table border="1"> <tr> <td colspan="2">Southern Gate of Mine Operations Area:</td> </tr> <tr> <td> ☐ Did not inspect ☐ Present ☐ Not present ☐ Excellent Condition ☐ Good Condition ☐ Poor Condition </td> <td> ☐ Unlocked upon arrival ☐ Locked upon arrival ☐ NA </td> </tr> </table>	Southern Gate of Mine Operations Area:		☐ Did not inspect ☐ Present ☐ Not present ☐ Excellent Condition ☐ Good Condition ☐ Poor Condition	☐ Unlocked upon arrival ☐ Locked upon arrival ☐ NA	Remarks:
Southern Gate of Mine Operations Area:						
☐ Did not inspect ☐ Present ☐ Not present ☐ Excellent Condition ☐ Good Condition ☐ Poor Condition	☐ Unlocked upon arrival ☐ Locked upon arrival ☐ NA					
Other Comments:						



MINE OPERATIONS AREA/ORE PAD AREA CORRECTIVE ACTIONS (CA)

CA Description - Describe any corrective actions planned or taken as a result of conditions noted during the inspection:		Target CA Follow-up Date	CA Completion Date
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			



VEGETATIVE COVER, STOCKPILE CONDITION, AND DRAINAGE AT TAILINGS IMPOUNDMENT

28	Condition of growth at PCB Placement Area: ☐ Excellent (thick growth) ☐ Did not inspect ☐ Good ☐ Poor (thin growth, bare soil, mosses)	Remarks:
29	Condition of growth at Concrete Placement Area: ☐ Excellent (thick growth) ☐ Did not inspect ☐ Good ☐ Poor (thin growth, bare soil, mosses)	Remarks:
30	Woody plants present at PCB Placement Area? ☐ Yes ☐ Did not inspect ☐ No	Remarks:
31	Dead spots present at PCB or Concrete Placement Areas? ☐ Yes ☐ Did not inspect ☐ No	Remarks:
32	Is there damage to the cover or vegetation at the PCB or Concrete Placement Areas? ☐ Yes ☐ Did not inspect ☐ No	Remarks:
33	Is there any evidence of water ponding on the PCB Placement Area? ☐ Yes ☐ Did not inspect ☐ No	Remarks:
34	Is there any evidence of water ponding on the Ore Pad Placement Area? ☐ Yes ☐ Did not inspect ☐ No	Remarks:
35	Is there any evidence of water ponding on the Concrete Placement Area? ☐ Yes ☐ Did not inspect ☐ No	Remarks:
36	Are there signs of burrowing animals at the Ore Pad, PCB, or Concrete Placement Areas? ☐ Yes ☐ Did not inspect ☐ No	Remarks:
37	Is there any evidence of cracks or heaving along the eastern toe of Ore Pad and PCB placement areas? ☐ Yes ☐ Did not inspect ☐ No	Remarks:
38	Is there any evidence of excessive settlement at the Ore Pad, PCB, or Concrete placement areas? ☐ Yes ☐ Did not inspect ☐ No	Remarks:
Other Comments:		



GENERAL SITE CONDITIONS

39	Is there evidence of erosion? ☐ Yes ☐ Did not inspect ☐ No	Remarks:
40	Condition of monitoring wells located within the placement areas: ☐ Excellent ☐ Did not inspect ☐ Good ☐ Poor (missing covers, missing locks, deteriorated seals, frost heaved, etc.)	Remarks:
41	Condition of decant pipe located within the Ore Pad placement area: ☐ Excellent ☐ Did not inspect ☐ Good ☐ Poor	Remarks:
42	Condition of rock barriers over catch basins and hatch within foundation: ☐ Present ☐ Did not inspect ☐ Not present	Remarks:
43	Gate and fence surrounding PCB Placement Area: ☐ Did not inspect ☐ Present ☐ Not present ☐ Excellent Condition ☐ Good Condition ☐ Poor Condition ☐ Unlocked upon arrival ☐ Locked upon arrival ☐ NA	Remarks:
44	Conditions/stability of swales/ditches etc.: ☐ Excellent (unobstructed) ☐ Did not inspect ☐ Good ☐ Poor (overgrown or sediment filled)	Remarks:
45	Condition of stone check dams located in swales along the western edge of Tailings Impoundment: ☐ Excellent ☐ Did not inspect ☐ Good ☐ Poor (requires maintenance)	Remarks:
46	Condition of plunge pool at north end of Tailings Impoundment: ☐ Excellent ☐ Did not inspect ☐ Good ☐ Poor (requires maintenance)	Remarks:
47	Condition of stone check dams located in channel along the northern portion of Tailings Impoundment: ☐ Excellent ☐ Did not inspect ☐ Good ☐ Poor (requires maintenance)	Remarks:
Other Comments:		



TAILINGS IMPOUNDMENT CORRECTIVE ACTIONS (CA)

CA Description - Describe any corrective actions planned or taken as a result of conditions noted during the inspection:		Target CA Follow-up Date	CA Completion Date
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			



GENERAL SITE CONDITIONS

48	Access road condition (including all areas except through Mine Operations Area): ☐ Excellent ☐ Did not inspect ☐ Good ☐ Poor	Remarks:										
49	Is there evidence of erosion at the impacted Stink Cove borrow area? ☐ Yes ☐ Did not inspect ☐ No	Remarks:										
50	Access road condition leading to Stink Cove borrow area: ☐ Excellent ☐ Did not inspect ☐ Good ☐ Poor	Remarks:										
51	Northern Site Gate:	Remarks:										
	<table border="1"> <tr> <td>☐ Did not inspect</td><td>☐ Unlocked upon arrival</td></tr> <tr> <td>☐ Present</td><td>☐ Locked upon arrival</td></tr> <tr> <td>☐ Not present</td><td>☐ NA</td></tr> <tr> <td>☐ Excellent Condition</td><td></td></tr> <tr> <td>☐ Good Condition</td><td></td></tr> <tr> <td>☐ Poor Condition</td><td>☐ Rock Barriers Present</td></tr> </table>		☐ Did not inspect	☐ Unlocked upon arrival	☐ Present	☐ Locked upon arrival	☐ Not present	☐ NA	☐ Excellent Condition		☐ Good Condition	
☐ Did not inspect	☐ Unlocked upon arrival											
☐ Present	☐ Locked upon arrival											
☐ Not present	☐ NA											
☐ Excellent Condition												
☐ Good Condition												
☐ Poor Condition	☐ Rock Barriers Present											
52	Southern Site Gate:	Remarks:										
	<table border="1"> <tr> <td>☐ Did not inspect</td><td>☐ Unlocked upon arrival</td></tr> <tr> <td>☐ Present</td><td>☐ Locked upon arrival</td></tr> <tr> <td>☐ Not present</td><td>☐ NA</td></tr> <tr> <td>☐ Excellent Condition</td><td></td></tr> <tr> <td>☐ Good Condition</td><td></td></tr> <tr> <td>☐ Poor Condition</td><td>☐ Rock Barriers Present</td></tr> </table>		☐ Did not inspect	☐ Unlocked upon arrival	☐ Present	☐ Locked upon arrival	☐ Not present	☐ NA	☐ Excellent Condition		☐ Good Condition	
☐ Did not inspect	☐ Unlocked upon arrival											
☐ Present	☐ Locked upon arrival											
☐ Not present	☐ NA											
☐ Excellent Condition												
☐ Good Condition												
☐ Poor Condition	☐ Rock Barriers Present											
53	Is there litter present? ☐ Yes ☐ Did not inspect ☐ No	Remarks:										
54	Is there evidence of unauthorized dumping? ☐ Yes ☐ Did not inspect ☐ No	Remarks:										
55	Is there evidence of vandalism? ☐ Yes ☐ Did not inspect ☐ No	Remarks:										
Other Comments:												



GENERAL SITE CORRECTIVE ACTIONS (CA)

CA Description - Describe any corrective actions planned or taken as a result of conditions noted during the inspection:		Target CA Follow-up Date	CA Completion Date
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			
Item No.			



Project Name: Callahan Mine OU1 Post-Remediation Inspection

Location: Brooksville, ME

Inspection Date: September 17, 2014

Photographs Taken By: Naji Akladiss, P.E.



Stormwater pond outlet structure at Mine Ops Area



Stormwater pond inlet at Mine Ops Area



Ore pad surface, view looking north



Vegetation re-establishing at Stink Cove borrow area



Vegetation re-establishing at Stink Cove borrow area



Vegetation re-establishing at Stink Cove borrow area

GENERAL SITE PHOTOS AROUND MINE OPS AREA



Project Name: Callahan Mine OU1 Post-Remediation Inspection
Location: Brooksville, ME
Inspection Date: September 17, 2014
Photographs Taken By: Naji Akladiss, P.E.



Grass growth in former Zone 3 work area



Grass growth in former Zone 4 work area



Access road surface dividing Zones 3 & 4



Sideslope of Waste Rock Pile #2



Panoramic view of former Mine Operations Area – view from the ore pad area
MINE OPERATIONS AREA



Project Name: Callahan Mine OU1 Post-Remediation Inspection
Location: Brooksville, ME
Inspection Date: September 17, 2014
Photographs Taken By: Naji Akladiss, P.E.



Drainage swale along tailings access road



Western drainage swale by PCB storage area



Grass growth on top of PCB storage area



Western backslope adjacent to PCB storage area



Concrete and rock storage areas at tailings



Surface of ore pad material at tailings impoundment

TAILINGS IMPOUNDMENT ORE PAD AND PCB STORAGE AREAS

Appendix B

Press Release



Newsroom

News Releases By Date

EPA Will Review 24 Hazardous Site Cleanups during 2015

Release Date: 01/05/2015

Contact Information: Emily Bender, 617-918-1037

EPA will review site clean ups and remedies at 20 Superfund Sites and oversee reviews at 4 Federal Facilities across New England this year by doing scheduled Five-Year Reviews at each site.

EPA conducts evaluations every five years on previously-completed clean up and remediation work performed at Superfund sites and Federal Facilities listed on the "National Priorities List" (aka Superfund sites) to determine whether the implemented remedies at the sites continue to be protective of human health and the environment. Further, five year review evaluations identify any deficiencies to the previous work and, if called for, recommend action(s) necessary to address them.

The Superfund Sites where EPA will begin Five Year Reviews in FY' 2015 (October 1, 2014 through September 30, 2015) are below. Please note, the Web link provided after each site provides detailed information on the site status and past assessment and cleanup activity. The web link also provides contact information for the EPA Project Manager and Community Involvement Coordinator at each site. Community members and local officials are invited to contact EPA with any comments or current concerns about a Superfund Site or about the conclusions of the previous Five Year Review.

The Superfund Sites at which EPA is performing Five Year Reviews over the following several months include the following sites.

Connecticut

Durham Meadows, Durham

<http://www.epa.gov/region1/superfund/sites/durham>

Old Southington Landfill, Southington

<http://www.epa.gov/region1/superfund/sites/oldsouthington>

Raymark Industries, Stratford

<http://www.epa.gov/region1/superfund/sites/raymark>

Solvents Recovery Services of New England, Southington

<http://www.epa.gov/region1/superfund/sites/srs>

Maine

Brunswick Naval Air Station (Federal Facility), Brunswick

<http://www.epa.gov/region1/superfund/sites/brunswick>

Callahan Mining Corp., Brooksville

<http://www.epa.gov/region1/superfund/sites/callahan>

Eastland Woolen Mill, Corinna

<http://www.epa.gov/region1/superfund/sites/eastland>

Loring Air Force Base (Federal Facility), Limestone

<http://www.epa.gov/region1/superfund/sites/loring>

Pinette's Salvage Yard, Washburn

<http://www.epa.gov/region1/superfund/sites/pinette>

Saco Municipal Landfill, Saco

<http://www.epa.gov/region1/superfund/sites/sacolandfill>

Massachusetts

Atlas Tack Corp., Fairhaven

<http://www.epa.gov/region1/superfund/sites/atlas>

Cannon Engineering Corp., Bridgewater

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View selected historical press releases from 1970 to 1998 in the EPA History website.

Recent additions

- 01/26/2016 [Obama Administration Partnering with Dallas, TX, and Other Communities to Boost Local Foods, Neighborhood Revitalization: Local Foods, Local Places encourages creative economic development in rural and urban communities in 22 states](#)
- 01/26/2016 [Obama Administration Partnering with Lake Village, AR, and Other Communities to Boost Local Foods, Neighborhood Revitalization: Local Foods, Local Places encourages creative economic development in rural and urban communities in 22 states](#)
- 01/26/2016 [EPA Response Activities - Update 1/26/16](#)
- 01/25/2016 [Obama Administration Partnering with 27 Communities to Include Winder, Georgia to Boost Local Foods, Neighborhood Revitalization: Local Foods, Local Places encourages creative economic development in rural and urban communities in 22 states](#)
- 01/25/2016 [Obama Administration Partnering with 27 Communities to Include Jackson, Tennessee to Boost Local Foods, Neighborhood Revitalization: Local Foods, Local Places encourages creative economic development in rural and urban communities in 22 states](#)

<http://www.epa.gov/region1/superfund/sites/cannon>

Charles-George Reclamation Trust Landfill, Tyngsborough

<http://www.epa.gov/region1/superfund/sites/charlesgeorge>

Fort Devens (Federal Facility), Ayer, Harvard, Lancaster & Shirley

<http://www.epa.gov/region1/superfund/sites/devens>

Groveland Wells No. 1 & 2 Site, Groveland

<http://www.epa.gov/region1/superfund/sites/groveland>

Materials Technology Laboratory (US ARMY, Federal Facility), Watertown

<http://www.epa.gov/region1/superfund/sites/aml>

New Bedford Harbor, New Bedford

www.epa.gov/nbh

PSC Resources, Palmer

<http://www.epa.gov/region1/superfund/sites/psc>

New Hampshire

Somersworth Sanitary Landfill, Somersworth

<http://www.epa.gov/region1/superfund/sites/somersworth>

South Municipal Water Supply Well (Five Year Review Addendum), Peterborough

<http://www.epa.gov/region1/superfund/sites/southmuni>

Troy Mills Landfill, Troy

<http://www.epa.gov/region1/superfund/sites/troymills>

Rhode Island

Stamina Mills Inc., North Smithfield

<http://www.epa.gov/region1/superfund/sites/stamina>

West Kingston Town Dump/URI Disposal Area, South Kingstown

<http://www.epa.gov/region1/superfund/sites/wkingston>

Vermont

Burgess Brothers Landfill, Woodford and Bennington

<http://www.epa.gov/region1/superfund/sites/burgess>

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Last updated on Tuesday, January 26, 2016

<http://yosemite.epa.gov/opa/admpress.nsf/0/FF4AB719CA46F31385257DC4005889FD>

Appendix C
Site Inspection Checklist
& Site Condition Photos

Five-Year Review Site Inspection Checklist

Callahan Mine Superfund Site, Brooksville, Maine

("N/A" refers to "not applicable")

I. SITE INFORMATION	
TASK 1 - Site name: Callahan Mine Superfund Site	TASK 2 - Date of inspection: 15 October 2015
TASK 3 - Location and Region: Brooksville, Maine, USEPA Region I	TASK 4 - EPA ID: MED980524128
TASK 5 - Agency, office, or company leading the five-year review: United States Army Corps of Engineers New England District	TASK 6 - Weather/temperature: Cool, Sunny, 55°F, light breeze ~ 8mph, Barometric pressure: 29.86 inHg
Remedy Includes: (Check all that apply) ☒ Landfill cover/containment ☒ Access controls ☐ Institutional controls ☐ Ground water pump and treatment ☐ Surface water collection and treatment ☒ Other <u>soil removal</u> ☐ Monitored natural attenuation ☐ Ground water containment ☐ Vertical barrier walls	
Attachments: ☒ Inspection team roster attached (in report) ☒ Site map attached (in report)	
II. INTERVIEWS (Check all that apply)	
1. O&M site manager Name Title Date Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____ Problems, suggestions; Y Report attached _____ _____	
2. O&M staff Name Title Date Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____ Problems, suggestions; Y Report attached _____ _____	
3. Local regulatory authorities and response agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply. Agency <u>USEPA, Region 1</u> Contact <u>Ed Hathaway</u> Name _____ <u>Remedial Project Manager</u> Title _____ <u>617-918-1372</u> Date _____ Phone no. _____ Problems; suggestions; ☐ Report attached	

4.	Other interviews (optional) ☐ Reports attached.			
III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	O&M Documents ☐ O&M manual ☐ Readily available ☐ Up to date ■ N/A ☐ As-built drawings ☐ Readily available ☐ Up to date ■ N/A ☐ Maintenance logs ☐ Readily available ☐ Up to date ■ N/A Remarks _____			
2.	Site-Specific Health and Safety Plan ☐ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date ■ N/A Remarks _____			
3.	O&M and OSHA Training Records ☐ Readily available ☐ Up to date ■ N/A Remarks _____			
4.	Permits and Service Agreements ☐ Air discharge permit ☐ Readily available ☐ Up to date ■ N/A ☐ Effluent discharge ☐ Readily available ☐ Up to date ■ N/A ☐ Waste disposal, POTW ☐ Readily available ☐ Up to date ■ N/A ☐ Other permits Dumpster for the City ☐ Readily available ☐ Up to date ■ N/A Remarks _____ _____			
5.	Gas Generation Records ☐ Readily available ☐ Up to date ■ N/A Remarks _____ _____			
6.	Settlement Monument Records ☐ Readily available ☐ Up to date ■ N/A Remarks _____ _____			
7.	Ground water Monitoring Records ☐ Readily available ☐ Up to date ■ N/A Remarks <u>Available in Status Reports</u>			
8.	Leachate Extraction Records ☐ Readily available ☐ Up to date ■ N/A Remarks _____ _____			
9.	Discharge Compliance Records ☐ Air ☐ Readily available ☐ Up to date ■ N/A ☐ Water (effluent) ☐ Readily available ☐ Up to date ■ N/A Remarks <u>Air discharge memo</u>			
10.	Daily Access/Security Logs ☐ Readily available ☐ Up to date ■ N/A Remarks _____ _____			

IV. O&M COSTS	
1.	O&M Organization ☒ State in-house ☐ Contractor for State ☐ PRP in-house ☐ Contractor for PRP ☐ Federal Facility in-house ☐ Contractor for Federal Facility ☐ Other _____
2.	O&M Cost Records ☐ Readily available ☐ Up to date ☐ Funding mechanism/agreement in place Original O&M cost estimate _____ ☐ Breakdown attached ☒ <u>Other: Not Reviewed - Total annual cost by year for review period not available</u>
3.	Unanticipated or Unusually High O&M Costs During Review Period Not Reviewed - Total annual cost by year for review period not available
V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A	
A. Fencing	
1.	Fencing ☒ Location shown on site map ☒ Gates secured ☐ N/A Remarks <u>Fence surrounding PCB cap area is in good condition, 8' tall.</u>
B. Other Access Restrictions	
1.	Signs and other security measures ☒ Location shown on site map ☐ N/A Remarks. <u>Signs surrounding PCB cap area is in good condition</u>

C. Institutional Controls (ICs)				
1.	Implementation and enforcement Site conditions imply ICs not properly implemented Site conditions imply ICs not being fully enforced Type of monitoring (<i>e.g.</i>, self-reporting, drive by) Frequency Institutional Controls exist in the form Responsible party/agency _____ Contact _____ ☐ Yes ☐ No ☒ N/A ☐ Yes ☐ No ☒ N/A Reporting is up-to-date Reports are verified by the lead agency Specific requirements in deed or decision documents have been met Violations have been reported Other problems or suggestions: ☐ Report attached ☐ Yes ☐ No ☒ N/A ☐ Yes ☐ No ☒ N/A			
2.	Adequacy ☐ ICs are adequate ☐ ICs are inadequate ☒ N/A Remarks _____			
D. General				
1.	Vandalism/trespassing ☐ Location shown on site map ☒ No vandalism evident Remarks _____			
2.	Land use changes on site ☒ N/A Remarks _____ 			
3.	Land use changes off site ☒ N/A Remarks _____ 			
VI. GENERAL SITE CONDITIONS				
A. Roads ☒ Applicable ☐ N/A				
1.	Roads damaged ☒ Location shown on site map ☒ Roads adequate ☐ N/A Remarks: None			

B. Other Site Conditions

Remarks _____

VII. LANDFILL COVERS ☒ Applicable ☐ N/A CAP**A. Landfill Surface**

1. **Settlement** (Low spots) ☐ Location shown on site map ☒ Settlement not evident
Areal extent _____ Depth _____
Remarks _____

2. **Cracks** ☐ Location shown on site map ☒ Cracking not evident
Lengths _____ Widths _____ Depths _____
Remarks _____

3. **Erosion** ☐ Location shown on site map ☒ Erosion not evident
Areal extent _____ Depth _____
Remarks _____

4. **Holes** ☐ Location shown on site map ☒ Holes not evident
Areal extent _____ Depth _____
Remarks _____

5. **Vegetative Cover** ☐ Grass ☒ Cover properly established ☐ No signs of stress
☐ Trees/Shrubs (indicate size and locations on a diagram)
Remarks _____

6. **Alternative Cover (armored rock, concrete, etc.)** ☒ N/A
Remarks _____

7. **Bulges** ☐ Location shown on site map ☒ Bulges not evident
Areal extent _____ Height _____
Remarks _____

8. **Wet Areas/Water Damage** ☒ Wet areas/water damage not evident
☐ Wet areas ☐ Location shown on site map Areal extent _____
☐ Ponding ☐ Location shown on site map Areal extent _____
☐ Seeps ☐ Location shown on site map Areal extent _____
☐ Soft subgrade ☐ Location shown on site map Areal extent _____
Remarks _____

9.	Slope Instability	☐ Slides	☐ Location shown on site map	☒ No evidence of slope instability
Areal extent _____ Remarks _____ _____				
B. Benches ☐ Applicable ☒ N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)				
1.	Flows Bypass Bench	☐ Location shown on site map	☒ N/A or okay	
Remarks _____ _____				
2.	Bench Breached	☐ Location shown on site map	☒ N/A or okay	
Remarks _____ _____				
3.	Bench Overtopped	☐ Location shown on site map	☒ N/A or okay	
Remarks _____ _____				
C. Letdown Channels ☐ Applicable ☒ N/A (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)				
1.	Settlement	☐ Location shown on site map	☐ No evidence of settlement	
Areal extent _____ Depth _____ Remarks _____ _____				
2.	Material Degradation	☐ Location shown on site map	☐ No evidence of degradation	
Material type _____ Areal extent _____ Remarks _____ _____				
3.	Erosion	☐ Location shown on site map	☐ No evidence of erosion	
Areal extent _____ Depth _____ Remarks _____ _____				
4.	Undercutting	☐ Location shown on site map	☐ No evidence of undercutting	
Areal extent _____ Depth _____ Remarks _____ _____				
5.	Obstructions	Type _____	☐ No obstructions	
☐ Location shown on site map Areal extent _____ Size _____ Remarks _____ _____				

6.	Excessive Vegetative Growth ☐ No evidence of excessive growth ☐ Vegetation in channels does not obstruct flow ☐ Location shown on site map	Type _____ Areal extent _____ Remarks _____ _____
D. Cover Penetrations ☐ Applicable ☒ N/A		
1.	Gas Vents ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☒ N/A Remarks _____ _____	☐ Active ☐ Passive
2.	Gas Monitoring Probes ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☒ N/A Remarks _____ _____	
3.	Monitoring Wells (within surface area of landfill) ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☒ N/A Remarks <u>Wells inside Site – are unlocked, wells outside – are locked</u>	
4.	Leachate Extraction Wells ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☒ N/A Remarks _____ _____	
5.	Settlement Monuments ☐ Located ☐ Routinely surveyed ☒ N/A Remarks _____ _____	

E. Gas Collection and Treatment ☐ Applicable ☒ N/A		
1.	Gas Treatment Facilities ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse ☐ Good condition ☐ Needs Maintenance Remarks _____ _____	
2.	Gas Collection Wells, Manifolds and Piping ☐ Good condition ☐ Needs Maintenance Remarks _____ _____	
3.	Gas Monitoring Facilities (<i>e.g.</i> , gas monitoring of adjacent homes or buildings) ☐ Good condition ☐ Needs Maintenance ☐ N/A Remarks _____ _____	
F. Cover Drainage Layer ☒ Applicable ☐ N/A		
1.	Outlet Pipes Inspected ☐ Functioning ☒ N/A Remarks _____ _____	
2.	Outlet Rock Inspected ☒ Functioning ☐ N/A Remarks _____ _____	
G. Detention/Sedimentation Ponds ☐ Applicable ☒ N/A		
1.	Siltation Areal extent _____ Depth _____ ☐ N/A ☐ Siltation not evident Remarks _____ _____	
2.	Erosion Areal extent _____ Depth _____ ☐ Erosion not evident Remarks _____ _____	
3.	Outlet Works ☐ Functioning ☒ N/A Remarks _____ _____	
4.	Dam ☐ Functioning ☒ N/A Remarks _____ _____	

H. Retaining Walls ☐ Applicable ☒ N/A		
1.	Deformations ☐ Location shown on site map ☐ Deformation not evident Horizontal displacement _____ Vertical displacement _____ Rotational displacement _____ Remarks _____ _____	
2.	Degradation ☐ Location shown on site map ☐ Degradation not evident Remarks _____ _____	
I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☒ N/A		
1.	Siltation ☐ Location shown on site map ☐ Siltation not evident Areal extent _____ Depth _____ Remarks _____ _____	
2.	Vegetative Growth ☐ Location shown on site map ☐ N/A ☐ Vegetation does not impede flow Areal extent _____ Type _____ Remarks _____ _____	
3.	Erosion ☐ Location shown on site map ☐ Erosion not evident Areal extent _____ Depth _____ Remarks _____ _____	
4.	Discharge Structure ☐ Functioning ☒ N/A Remarks <u>Head wall at River Meadow Brook</u>	
VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A		
1.	Settlement ☐ Location shown on site map ☐ Settlement not evident Areal extent _____ Depth _____ Remarks _____ _____	
2.	Performance Monitoring Type of monitoring _____ ☐ Performance not monitored Frequency _____ ☐ Evidence of breaching Head differential _____ Remarks _____ _____	
IX. GROUND WATER/SURFACE WATER REMEDIES ☐ Applicable ☒ N/A		
A. Ground water Extraction Wells, Pumps, and Pipelines ☐ Applicable ☒ N/A		

1.	Pumps, Wellhead Plumbing, and Electrical ☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☒ N/A Remarks <u>Well sampling scheduled for 2014.</u>
2.	Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances ☐ Good condition ☐ Needs Maintenance Remarks _____
3.	Spare Parts and Equipment ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks <u>Parts for potential optimization, many spare parts available. Preventative maintenance is performed.</u>
B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☒ N/A	
1.	Collection Structures, Pumps, and Electrical ☐ Good condition ☐ Needs Maintenance Remarks _____
2.	Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances ☐ Good condition ☐ Needs Maintenance Remarks _____
3.	Spare Parts and Equipment ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks _____

C. Treatment System ☐ Applicable ☒ N/A	
1.	Treatment Train (Check components that apply) ☐ Metals removal ☐ Oil/water separation: ☐ Bioremediation ☐ Air stripping ☐ Carbon absorbers: ☐ Filters ☐ Additive (<i>e.g.</i> , chelation agent, flocculent) ☐ Others ☐ Good condition ☐ Needs Maintenance ☐ Sampling ports properly marked and functional ☐ Sampling/maintenance log displayed and up to date ☐ Equipment properly identified Quantity of ground water treated annually Quantity of surface water treated annually Remarks
2.	Electrical Enclosures and Panels (properly rated and functional) ☒ N/A ☐ Good condition ☐ Needs Maintenance Remarks _____ _____
3.	Tanks, Vaults, Storage Vessels ☒ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance Remarks _____ _____
4.	Discharge Structure and Appurtenances ☒ N/A ☐ Good condition ☐ Needs Maintenance Remarks _____ _____
5.	Treatment Building(s) ☒ N/A ☐ Good condition ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks <u>There is an odor in the GWTP that may need to be identified and properly vented</u>
6.	Monitoring Wells (pump and treatment remedy) ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ All required wells located ☐ Needs Maintenance ☒ N/A Remarks _____
D. Monitoring Data	
a.	1. Monitoring Data ☐ Is routinely submitted on time ☐ Is of acceptable quality
b.	2. Monitoring data suggests:
c.	_____
d.	☐ Ground water plume is effectively contained ☐ Contaminant concentrations are declining

D. Monitored Natural Attenuation			
1.	Monitoring Wells (natural attenuation remedy) ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ All required wells located ☐ Needs Maintenance ☒ N/A Remarks _____		
X. OTHER REMEDIES			
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.			
XI. OVERALL OBSERVATIONS			
A. Implementation of the Remedy			
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.). The remedies executed for OU1 are effective and functioning as designed.			
B. Adequacy of O&M			
Not Reviewed - Total annual cost by year for review period not available			
C. Early Indicators of Potential Remedy Problems			
Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. No early indicators of potential remedy problems have been noted.			
D. Opportunities for Optimization			
Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. No opportunities for optimization were observed during the site visit.			



Photo 1 Goose Pond & Residential Area looking N



Photo 2 - Ore Pad & Mine Operations Area looking N/NE



Photo 3 - Mine Operations Area looking S



Photo 4 - Ore Pad looking N



Photo 5 - Ore Pad Building Foundation looking NE



Photo 6 - PCB Cap Looking SW



Photo 7 - PCB Cap Looking NW



Photo 8 - PCB Cap Sign



Photo 9 – PCB Cap Cover

Appendix D

Interview Summary

Callahan Mine Superfund Site

Five Year Review

Community Interview Questions:

Background: The U.S. Environmental Protection Agency (EPA) conducts regular checkups, called five-year reviews, on certain Superfund sites to make sure the cleanup continues to protect people and the environment. At any site where protection of the community and environment is dependent upon maintenance of engineering controls, EPA will inspect the site to make sure these engineering controls (cover systems, surface water diversion channels) are not damaged and are working properly. EPA will review completed, planned, and activity still in progress.

During the review, EPA studies information on the site, including the cleanup and the laws that apply, and inspects the site to make sure it continues to be protective. EPA seeks input from the local community and Town officials. As someone living close to the site, you may know about things that can help the review team decide if the remedy is still protective. Information about the Callahan Mine Site can be found at: www.epa.gov/superfund/callahan

1. Do you have any concerns about the contamination at the Callahan Mine site that are not being addressed by the current or planned cleanup actions?

I am somewhat concerned by – although not surprised by – the amount of time it has taken to work through the process. That said, I believe the current and planned cleanup activities represent rational adaptive actions focused on using the increasing knowledge of how the site is responding to management activities to protect surrounding landowners and potential site users from harm.

2. Do you know of any Callahan Mine site conditions that may impact the protectiveness of the completed and planned cleanup activities?

I am not aware of any site conditions that would negatively affect future goals, given the altered planning for containment area drainage.

3. Do you feel well informed about the Callahan Mine site activities? If not, what would be the best way to keep you informed?

I believe that the meetings held, periodic contacts made, and information presented via the meetings and available through the various reporting activities are adequate to keep those in the public who are interested in the process well-informed of cleanup and remediation progress.

4. Do you have any other comments to offer regarding the cleanup actions at the Callahan Mine Superfund site.

I have no additional comments to offer at this time.

Callahan Mine Superfund Site Five Year Review Community Interview Questions:

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1. Do you have any concerns about the contamination at the Callahan Mine site that are not being addressed by the current or planned cleanup actions?

No

2. Do you know of any Callahan Mine site conditions that may impact the protectiveness of the completed and planned cleanup activities?

No

3. Do you feel well informed about the Callahan Mine site activities? If not, what would be the best way to keep you informed?

I appreciated the periodic updates and invitations to attend public hearings. I wish that results from testing done on my well and property was shared with me automatically.

4. Do you have any other comments to offer regarding the cleanup actions at the Callahan Mine Superfund site.

No

Callahan Mine Superfund Site

Five Year Review

Community Interview Questions:

Background: The U.S. Environmental Protection Agency (EPA) conducts regular checkups, called five-year reviews, on certain Superfund sites to make sure the cleanup continues to protect people and the environment. At any site where protection of the community and environment is dependent upon maintenance of engineering controls, EPA will inspect the site to make sure these engineering controls (cover systems, surface water diversion channels) are not damaged and are working properly. EPA will review completed, planned, and activity still in progress.

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1. Do you have any concerns about the contamination at the Callahan Mine site that are not being addressed by the current or planned cleanup actions?

The only concern I have is the horizontal drain coming from the tailings area and the filter that will be used. From what I understand the filtered water will be going to a retention pond and then let into Dyer Cove. Will this water be tested? I wonder how fullproof the locally made organic filter will work and I'm a little worried that bad water will be dumped back in the pond/cove. The tailings area seems to be quite polluted at this time.

2. Do you know of any Callahan Mine site conditions that may impact the protectiveness of the completed and planned cleanup activities?

No

3. Do you feel well informed about the Callahan Mine site activities? If not, what would be the best way to keep you informed?

I do actually. When we have had a question about our property clean-up, I have never had any qualms about contacting Ed Hathaway or Dwight Doughty in seeking an answer. The best way to keep me informed is an annual visit to the property, in the summer, with an update as to what is going on. Of course an informative email is always welcome along with the August meetings at the townhouse.

4. Do you have any other comments to offer regarding the cleanup actions at the Callahan Mine Superfund site.

There is a good bit of non-biodegradable debris-pvc pipes, etc, that has been left behind by the work crews. Would be nice to get this removed.

Callahan Mine Superfund Site

Five Year Review

State and Local Authority Interview Questions:

Response by MEDEP

Background: The U.S. Environmental Protection Agency (EPA) conducts regular checkups, called five-year reviews, on certain Superfund sites to make sure the cleanup continues to protect people and the environment. At any site where protection of the community and environment is dependent upon maintenance of engineering controls, EPA will inspect the site to make sure these engineering controls (cover systems, surface water diversion channels) are not damaged and are working properly. EPA will review completed, planned, and activity still in progress.

During the review, EPA studies information on the site, including the cleanup and the laws that apply, and inspects the site to make sure it continues to be protective.

1. Do you have any concerns about the contamination at the Callahan Mine site that are not being addressed by the current or planned cleanup actions?

No

2. Do you know of any Callahan Mine site conditions that may impact the protectiveness of the completed and planned cleanup activities?

No

3. Do you feel well informed about the site activities? If not, what would be the best way to keep you informed?

I am will informed

4. Has EPA adequately addresses any concerns identified by your office (state or local government)?

Yes

5. Are there any issues other that have not been addressed to your satisfaction? If so, please clarify?

Issues of concern have been addressed.

6. Do you have any other comments to offer regarding the cleanup actions at the Callahan Mine Superfund site?

We do appreciate the honesty and the good leadership of EPA project manager for Callahan mine. His Leadership, technical knowledge and his good communication skills made it possible to maintain very good relationship with the town officials and members of the public.

Callahan Mine Superfund Site
Five Year Review
State and Local Authority Interview Questions:
Response by Maine DOT

Background: The U.S. Environmental Protection Agency (EPA) conducts regular checkups, called five-year reviews, on certain Superfund sites to make sure the cleanup continues to protect people and the environment. At any site where protection of the community and environment is dependent upon maintenance of engineering controls, EPA will inspect the site to make sure these engineering controls (cover systems, surface water diversion channels) are not damaged and are working properly. EPA will review completed, planned, and activity still in progress.

During the review, EPA studies information on the site, including the cleanup and the laws that apply, and inspects the site to make sure it continues to be protective.

1. Do you have any concerns about the contamination at the Callahan Mine site that are not being addressed by the current or planned cleanup actions?

The actions that have been implemented and those planned appear to adequately address the identified areas of concern at the Callahan Mine Site.

2. Do you know of any Callahan Mine site conditions that may impact the protectiveness of the completed and planned cleanup activities?

No. We believe the involved parties have worked collaboratively to sufficiently address the unique and interesting environmental issues associated with the Callahan Mine Site

3. Do you feel well informed about the site activities? If not, what would be the best way to keep you informed?

It would be appreciated if more consistent and frequent updates on implementation of the remedial design actions were received.

4. Has EPA adequately addresses any concerns identified by your office (state or local government)?

Yes. We have found EPA to be receptive to our input and comments.

5. Are there any issues other that have not been addressed to your satisfaction? If so, please clarify?

No.

6. Do you have any other comments to offer regarding the cleanup actions at the Callahan Mine Superfund site?

No.

Five Year Review

State and Local Authority Interview Questions:

Background: The U.S. Environmental Protection Agency (EPA) conducts regular checkups, called five-year reviews, on certain Superfund sites to make sure the cleanup continues to protect people and the environment. At any site where protection of the community and environment is dependent upon maintenance of engineering controls, EPA will inspect the site to make sure these engineering controls (cover systems, surface water diversion channels) are not damaged and are working properly. EPA will review completed, planned, and activity still in progress.

During the review, EPA studies information on the site, including the cleanup and the laws that apply, and inspects the site to make sure it continues to be protective.

1. Do you have any concerns about the contamination at the Callahan Mine site that are not being addressed by the current or planned cleanup actions?

From what we know about the planned clean up it seems to be going fine at this time.

2. Do you know of any Callahan Mine site conditions that may impact the protectiveness of the completed and planned cleanup activities?

We do not know of any

Callahan Mine Superfund Site

Five Year Review

Community Interview Questions:

Background: The U.S. Environmental Protection Agency (EPA) conducts regular checkups, called five-year reviews, on certain Superfund sites to make sure the cleanup continues to protect people and the environment. At any site where protection of the community and environment is dependent upon maintenance of engineering controls, EPA will inspect the site to make sure these engineering controls (cover systems, surface water diversion channels) are not damaged and are working properly. EPA will review completed, planned, and activity still in progress.

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1. Do you have any concerns about the contamination at the Callahan Mine site that are not being addressed by the current or planned cleanup actions?
Am I eligible for my well water to be tested regularly, via EPA or State funding?

2. Do you know of any Callahan Mine site conditions that may impact the protectiveness of the completed and planned cleanup activities?
Yes. I have observed incidents and evidence of illegal dumping, primarily construction debris, along the tailings pond impoundment.

3. Do you feel well informed about the Callahan Mine site activities? If not, what would be the best way to keep you informed?

Yes

4. Do you have any other comments to offer regarding the cleanup actions at the Callahan Mine Superfund site.

Am interested in the planned dredging activities, and how they will impact the pond and marsh, both short and long term. Am interested in the procedure for reducing and stabilizing the tailings pond. Will the reduction in water be observable at some point, due to the horizontal well that has recently been added? Am interested in what will become of the property in the future, in terms of its use.

3. Do you feel well informed about the site activities? If not, what would be the best way to keep you informed?

yes. what we have put in for input seems
to have been ~~answered~~ answered.

4. Has EPA adequately addresses any concerns identified by your office (state or local government)?

yes.

5. Are there any issues other that have not been addressed to your satisfaction? If so, please clarify?

No

6. Do you have any other comments to offer regarding the cleanup actions at the Callahan Mine Superfund site?

NOT at this time.

Mr. W. Gray
Richard D. Bahamon
Hal Snow

} Selectmen of Brooksville