a. Soil Cleanup Levels

For the Residential Use Area of the Site, the cleanup levels were set at a level that will be acceptable for residential exposure. For the OU1 cleanup areas within the former Callahan Mine property portion of the Site, the recreational use cleanup levels will be used to determine the clean soil level within the limits of the source area removal for the Ore Pad, Mine Operations Area, and WRP-3.

Table 57
Clean Levels for Soil

	Back-ground (mg/kg)	Soil Cleanup Level (mg/kg)	Basis	Risk at Cleanup Level HQ / ELCR
Residential Cleanup Level				
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 population should have a blood lead level that does not exceed 10 µg/dl based on this cleanup level.
Polychlorinated biphenyls	Not applicable	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 = n.a.
				HI = 1.6 Cumulative ELCR = 7.7×10^{-6}
Recreational Cleanup Level				
Arsenic	14	30	Risk-management decision to accept 1×10^{-5} ELCR for arsenic	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 population should have a blood lead level that does not exceed 10 µg/dl based on this cleanup level.
Polychlorinated biphenyls	Not applicable	1	TSCA and site-specific risk basis to allow for unrestricted future use	HQ = 0.1 ELCR = 0.8×10^{-6}
				HI = 0.3 Cumulative ELCR = 1.2×10^{-5}

Notes:
All concentrations = mg/kg
HI = hazard index,
HQ = hazard quotient;
ELCR = excess lifetime cancer risk
[1] Maine DEP, Implementation of Remedial Action Guidelines, Table 4 – Remedial Action Guidelines for Contaminated Soils

b. Sediment Cleanup Levels

The sediment cleanup levels were set at a level that will be protective of the Site biota based on the OU1 RI and BERA. The copper and lead cleanup levels were set using the food chain models. The cleanup level is a concentration that represents the lowest adverse effect level

(LOAEL). The cleanup level for zinc was based on the benthic community toxicity tests and pore water data.

Table 58
Sediment Cleanup Level

Chemical of Concern	Goose Pond Background Level (mg/kg)	Salt Marsh Background level (mg/kg)	Cleanup Level for Sediment (mg/kg)	Basis
Copper	21	18	790	Ecological Effect – Set at a level that would not exceed a LOAEL of 1. The lower of LOAELs for G.B. heron or S. sandpiper
Lead	27	26	710	Ecological Effect – Set at a level that would not exceed a LOAEL of 1.Ecological Effect - Lower of LOAELs for G.B. heron or S. sandpiper
Zinc	98	91	5100	Ecological Effect – Set at a level that would protect the Benthic Macroinvertebrate Community from acute effects (mortality) based on the Dose-Response Value – High

M. STATUTORY DETERMINATIONS

The remedial action for OU1 selected for implementation at the Callahan Mine Superfund Site is consistent with CERCLA and, to the extent practicable, the NCP. The selected remedy is protective of human health and the environment, will comply with ARARs, except for when waived, and is cost-effective. In addition, the selected remedy utilizes permanent solutions and alternate treatment technologies or resource recovery technologies to the maximum extent practicable. The selected remedy is not able to achieve the statutory preference for treatment as a principal element of the remedy (i.e., reduce the toxicity, mobility, or volume of materials comprising principal threats through treatment) due to site conditions and the balancing of all of the CERCLA criteria for selecting remedial alternatives. Some limited treatment of materials will occur as a result of the use of a wetland treatment system that will treat the discharge from horizontal drains, or other drainage methods, that will be used to facilitate the dewatering of the Tailings Impoundment.

1. The Selected Remedy is Protective of Human Health and the Environment

The selected remedy for OU1 at this Site will adequately protect human health and the environment by eliminating, reducing or controlling exposures to human and environmental receptors through treatment, engineering controls, monitoring, and institutional controls (i.e., land use restrictions).

The selected remedy will reduce potential human health risk levels such that they do not exceed EPA's acceptable risk range of 10^{-4} to 10^{-6} for incremental carcinogenic risk, and such that the non-carcinogenic hazard is below a level of concern. It will reduce potential human health risk levels to protective ARARs levels. Implementation of the selected remedy will not pose any unacceptable short-term risks or cause any cross-media impacts.

2. The Selected Remedy Complies With ARARs

The selected remedy will comply with all Federal and any more stringent State ARARs that pertain to the remedial actions (see Tables 59-61). In making this determination, EPA has made the following specific findings:

- Pursuant to regulations under the Federal Clean Water Act, 40 C.F.R. Part 230, Subpart B, EPA has made a determination that the remedy is the least damaging practicable alternatives with respect to potential wetland impacts and protecting wetland resources; and
- EPA has made a finding under the Toxic Substances Control Act (TSCA) PCB Regulations at 40 C.F.R. § 761.61 (c) that the cleanup level of 1 ppm established for PCBs at this Site will not pose an unreasonable risk of injury to health or the environment.

Location-Specific Applicable or Relevant and Appropriate Requirements

It is expected that the selected remedy can be designed and implemented to comply with all location-specific ARARs identified in Table 59. The most significant location specific ARARs are discussed below.

Section 404 of the CWA (33 U.S.C. § 1344), and regulations promulgated under the CWA, prohibit activities that adversely affect waters of the United States if a practicable alternative that has less adverse effect exists. If there is no other practicable alternative, adverse effects must be mitigated. Implementation of the selected remedy for OU1 (Alternative CMS2) would result in the dredging of subtidal sediment, excavation/dredging of salt marsh, and possibly the alteration of Federal jurisdictional freshwater wetlands. The temporary impacts on existing wetlands and aquatic habitats as part of this alternative is considered unavoidable. However, during remedial design, the effects of remedial activities on the wetlands and aquatic habitats will be evaluated to minimize damage consistent with Section 404(b) of the CWA and its promulgated regulations. The use of the submerged mine pit as a CAD cell is also regulated by these standards. Due to the size, depth, and hydoxic water quality within the pit, it provides a stable environment for the disposal of site wastes and can be filled and maintained so as to not impair wetland resources in the rest of Goose Pond. Furthermore, the removal of mine waste from Dyer and Goose Cove, as part of wetland mitigation for the Site, will meet mitigation standards established under Section 404(b) of the CWA.

In addition, freshwater wetlands that are regulated under Federal jurisdiction on Site may be affected by the remedial action. Freshwater wetlands that are contiguous to "waters of the United States" are Federal jurisdictional wetlands subject to Section 404 of the CWA. The extent of Federal jurisdictional wetlands that may be altered by the remedial action will be assessed and mitigation will be implemented, if necessary.

Additional Federal location-specific ARARs address coastal zone management, navigable waters, fish and wildlife habitat, and historic resources.

The Maine Natural Resource Protection Act (NRPA) (38 M.R.S.A. § 480-A *et seq.*) is one of the primary State location-specific ARARs for the Site. The NRPA establishes standards for the protection of the State's natural resources, including coastal wetlands, significant wildlife habitat, freshwater wetlands, and rivers, streams, or brooks. The Maine Wetlands Protection Rule (06-096 C.M.R. Chapter 310), promulgated under the NRPA, prohibits activities which would have an unreasonable impact on state-jurisdictional wetlands, with jurisdiction under the Wetland Rule extending for 75 feet upland of the upper edge of a protected wetland. Under the Wetland Rule, Wetlands of Special Significance include all coastal wetlands and certain freshwater wetlands which include: (a) significant wildlife habitat as defined by 38 M.R.S.A. § 480-B(10); (b) freshwater wetland areas located within 250 feet of a coastal wetland; (c) wetlands subject to flooding during a 100-year flood event; and (d) freshwater wetland areas located within 25 feet of a river, stream or brook. The Wetland Rule calls for the avoidance of activities that cause a loss in wetlands area, functions, and values if there is a practicable alternative that would be less damaging to the environment. If there is no practicable alternative, there must be minimal alteration of the wetland, and compensation (off-setting) may be required. As with the Federal wetland standards, mitigation to State wetland resources from the remedial action will be evaluated and implemented, if necessary. The removal of mine waste from Dyer and Goose Coves will be one of the activities implemented to meet State (as well as Federal) wetland mitigation standards.

Additional State location-specific ARARs address coastal zone management, facility siting requirements, shorelines, and submerged and intertidal lands.

Chemical-Specific Applicable or Relevant and Appropriate Requirements and To Be Considered Guidances

Chemical-specific ARARs and TBCs triggered by the selected remedy for OU1 are presented in Table 60. There are no Federal chemical-specific ARARs for the Callahan Mine Superfund Site, but there are TBCs that were used to develop risk-based cleanup numbers for contaminants at the Site. The only State chemical-specific ARAR for the Callahan Mine Superfund Site is the Maine Solid Waste, Lead Management Regulations (06-096 C.M.R. Chapter 424). These regulations establish a lead safe standard of 375 ppm in bare soil in potential play areas, which would be achieved in the Residential Use Area, but not in other areas of the Site that are not used residentially. For areas that are not play areas, a level above 1,000 ppm is considered a lead hazard. The selected remedy would attain chemical-specific ARARS and TBCs by removing all lead-contaminated soil exceeding lead-safe levels in the residential area and disposing of it in the CAD cell, and meeting recreational risk levels for all soil contaminants throughout the rest of the Site.

Because OU1 does not include cleanup of groundwater, National Primary Drinking Water Regulation MCLs, Maximum Contaminant Level Goals (MCLGs), EPA Health Advisories, and MEGs for Drinking Water are not chemical-specific ARARs or TBCs[6].

Action-Specific Applicable or Relevant and Appropriate Requirements and To Be Considered Guidances

Action-specific ARARs and TBCs that may be triggered by the selected remedy for OU1 are listed in Table 61.

Federal action-specific ARARs address the remediation of PCBs (Toxic Substances Control Act (TSCA), 40 C.F.R. § 761.61 (c)), discharge limits to surface waters, and monitoring standards for surface and groundwater. TSCA regulations provide cleanup and disposal options for PCB remediation waste based on the concentrations at which the PCBs are found and the risks the PCBs pose. USEPA has made a finding under the TSCA PCB Regulations at 40 C.F.R. § 761.61 (c), that the cleanup level of 1 ppm established for PCBs at this Site will not pose an unreasonable risk of injury to health or the environment.

It is expected that all components of the remedial action can be designed and implemented to comply with all Federal action-specific ARARs, including hazardous waste management and disposal, water discharge limits, and surface and groundwater monitoring requirements.

The primary State action-specific ARAR for the Site is the Maine Metallic Mineral Exploration, Advanced Explorations, and Mining regulation at 06-096 C.M.R. Chapter 200. In particular, Subchapter 5 - Mine Waste Treatment and Management, classifies mine waste and regulates the location, design, construction, operation, maintenance, closure, and long-term care for the treatment, storage, and disposal of mine wastes. USEPA has determined that these regulations, which were promulgated after Callahan Mine ceased operations, are not "applicable" to the Site, but are "relevant and appropriate." The following general performance standards are found at 06-096 C.M.R. Chapter 200, Section 32A:

- Meet the performance requirements for groundwater, surface water, air, and soils or surficial materials established under Section 26(I)
- Minimize acid generation and acid rock drainage
- Provide structural stability
- Protect public health and the environment
- Otherwise comply with applicable legal requirements

It is important to note that Subchapter 5 explicitly applies to mine waste in lieu of Maine Solid Waste Management Rules at 06-096 CMR 400-409 with the exception that land-clearing debris and wood waste are not considered mine waste for the purposes of the mining regulations.

[6] They are, however, cited as action-specific ARARs for groundwater monitoring of areas where waste will be capped in place.

U.S. ENVIRONMENTAL PROTECTION AGENCY
EPA NEW ENGLAND

RECORD OF DECISION

OPERABLE UNIT 1

CALLAHAN MINE SUPERFUND SITE

SEPTEMBER 2009