Milltown Reservoir Sediments Operable Unit

of the Milltown Reservoir/Clark Fork River Superfund Site

Record of Decision

Appendix A:
Identification and Description of Applicable or Relevant and Appropriate Requirements

U.S. Environmental Protection Agency Region 8

10 West 15th Street
Suite 3200
Helena, Montana 59626

December 2004

APPENDIX A

Identification and Description of Applicable or Relevant and Appropriate Requirements for the Record of Decision

MILLTOWN RESERVOIR / CLARK FORK RIVER SUPERFUND SITE RESERVOIR SEDIMENTS OPERABLE UNIT (OU 3)

DECEMBER 2004

List of Acronyms

ARAR	Applicable or Relevant and Appropriate Requirements
ATSDR	Agency of Toxic Substances and Disease Registry
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BPCTCA	Best Practicable Control Technology Currently Available
BPJ	Best Professional Judgment
BTCA	Best Technology Currently Available
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended
DEQ	State of Montana Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
HWM	Hazardous Waste Management
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MGWPCS	Montana Groundwater Pollution Control System
MPDES	Montana Pollutant Discharge Elimination System
NCP	National Contingency Plan, as amended
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NPL	National Priorities List
NPDES	National Pollutant Discharge Elimination System
POTW	Public Owned Treatment Works
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
RD/RA	Remedial Design and Remedial Action
ROD	Record of Decision
SHPO	State Historic Preservation Officer (Montana)
SIP	State Implementation Plan
TBC	To Be Considered
TU	Turbidity Unit
UIC	Underground Injection Control
WQB-7	Circular WQB-7, Montana Numeric Water Quality Standards

Contents

Section **Page**

List of Acronyms ..... **A-iii**

Introduction **A-1**

Federal ARARS **A-5**

I. Federal Contaminant Specific Requirements A-5

A. Groundwater Standards—Safe Drinking Water Act (Relevant and Appropriate) A-5

B. Surface Water—Ambient and Point Source Discharges—Clean Water Act (Applicable) A-7

C. Surface Water—Ambient and Point Source Discharges—Temporary Standards (Applicable) A-7

D. Air Standards—Clean Air Act (Applicable) A-8

II. Federal Location Specific Requirements A-8

A. Fish and Wildlife Coordination Act (Applicable) A-8

B. Floodplain Management Order (Applicable) A-8

C. Protection of Wetlands Order (Applicable) A-9

D. The Endangered Species Act (Applicable) A-9

E. The National Historic Preservation Act (Applicable) A-10

F. Archaeological and Historic Preservation Act (Applicable) A-11

G. Historic Sites, Buildings, and Antiquities Act (Applicable) A-11

H. Migratory Bird Treaty (Applicable) A-11

I. Bald Eagle Protection Act (Applicable) A-11

J. Resource Conservation and Recovery Act (Relevant and Appropriate) A-11

K. Native American Grave Protection and Repatriation Act, 25 U.S.C. § 3001 et seq.; 43 CFR §§ 10.1 - 10.17 (Applicable or Relevant and Appropriate) A-11

III. Federal Action Specific Requirements A-12

A. Solid Waste (Applicable), Surface Mining Control and Reclamation (Relevant and Appropriate), and RCRA (Relevant and Appropriate) Requirements A-12

B. Air Standards—Clean Air Act (Applicable) A-13

C. Point Source Controls—Clean Water Act (Applicable) A-14

D. Dredge and Fill Requirements (Applicable) A-14

E. Underground Injection Control (Applicable) A-14

F. Transportation of Hazardous or Contaminated Waste (Relevant and Appropriate) A-14

G. Federal Energy and Regulatory Commission Requirements, and Corresponding State of Montana Department of Natural Resources Requirements Regarding Dam Stability, Safety, and Maintenance A-15

Section **Page**

State of Montana ARARS A-17
I. Montana Contaminant Specific Requirements A-17
A. Water Quality A-17
B. Air Quality A-22
II. Montana Location Specific Requirements A-22
A. Floodplain and Floodway Management Act, Sections 76-5-401 et seq., and Implementing Regulations (Applicable) A-22
B. Solid Waste Management Regulations (Applicable) A-24
C. Natural Streambed and Land Preservation Standards (Applicable) A-25
III. Montana Action Specific Requirements A-26
A. Water Quality Statute and Regulations (Applicable) A-26
B. Montana Pollutant Discharge Elimination System (MPDES)—Stormwater and Other Point Sources (Applicable or Relevant and Appropriate) A-27
C. Air Quality A-28
D. Solid Waste Management Regulations (Applicable) A-29
E. Reclamation Requirements A-31
F. Montana Dam Safety Act and Implementing Regulations A-35
IV. To Be Considered Documents (TBCs) A-36
V. Other Laws (Non-Exclusive List) A-36
A. Other Federal Laws A-37
B. Other Montana Laws A-37

Introduction

Section 121(d) of CERCLA, 42 U.S.C. § 9621(d), certain provisions of the current National Contingency Plan (the NCP), 40 CFR Part 300, and guidance and policy issued by the Environmental Protection Agency (EPA) require that remedial actions taken pursuant to Superfund authority shall require or achieve compliance with substantive provisions of applicable or relevant and appropriate standards, requirements, criteria, or limitations from state environmental and facility siting laws, and from federal environmental laws, at the completion of the remedial action, during the implementation of the remedial action, or both, depending on the nature of the requirements, unless a waiver is granted[1]. If contaminant or location specific ARARs are not being met before the commencement of a remedial action, it is not necessary to invoke a waiver to justify their non-attainment during the action, although they must be attained (or appropriately waived) for remedial action to be complete and the remedy to be successful[2]. These requirements are threshold standards that any selected remedy must meet, unless adequate basis for a waiver is present. See Section 121 (d) (4) of CERCLA, 42 U.S.C. § 9621 (d) (4); 40 CFR § 300.430 (f) (1). EPA calls standards, requirements, criteria, or limitations identified pursuant to section 121 (d) "ARARs," or applicable or relevant and appropriate requirements.

ARARs are either applicable or relevant and appropriate. Applicable requirements are those standards, requirements, criteria, or limitations promulgated under federal or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, or contaminant, remedial action, location, or other circumstance found at a CERCLA site. 40 CFR § 300.5. Relevant and appropriate requirements are those standards, requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to hazardous substances, pollutants, contaminants, remedial actions, locations, or other circumstances found at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site such that their use is well suited to the particular site. Id. Factors which may be considered in making this determination are presented in 40 CFR 300.§ 400(g) (2). Compliance with both applicable and relevant and appropriate requirements is mandatory, unless compliance is waived. 42 U.S.C. § 121(d)(4); 40 CFR § 300.430(f)(ii)(B).

Each ARAR or group of related ARARs identified here is followed by a specific statutory or regulatory citation, a classification describing whether the ARAR is applicable or relevant and appropriate, and a description which summarizes the requirements, and addresses how and when compliance with the ARAR will be measured (some ARARs will govern the conduct of the remedial action, some will define the measure of success of the remedial

[1] See 55 Fed.Reg. 8666, 8755 (March 8, 1990)

[2] EPA CERCLA Compliance with Other Laws Manual 1-8 (OSWER # 9234.1-01, August 1988)

action, and some will do both)[3]. The descriptions given here are provided to allow the user a reasonable understanding of the requirements without having to refer constantly to the statute or regulation itself. However in the event of any inconsistency between the law or regulations and the summary provided in this document, the applicable or relevant and appropriate requirement is ultimately the requirement as set out in the law or regulation, rather than any paraphrase provided here.

Also contained in this list are policies, guidance or other sources of information which are "to be considered" in the design and implementation of the Record of Decision (ROD). Although not enforceable requirements, these documents are important sources of information which EPA and the State of Montana Department of Environmental Quality (DEQ) may consider during implementation of the remedy, especially in regard to the evaluation of the remedy's success in addressing public health and environmental risks.

Finally, this list contains a non-exhaustive list of other legal provisions or requirements which should be complied with during the implementation of the ROD[4].

ARARs are divided into contaminant specific, location specific, and action specific requirements, as described in the NCP and EPA guidance. For contaminant specific ARARs, ARARs are listed according to the appropriate media.

Contaminant specific ARARs include those laws and regulations governing the release to the environment of materials possessing certain chemical or physical characteristics or containing specific chemical compounds. Contaminant specific ARARs generally set health or risk based numerical values or methodologies which, when applied to site-specific conditions, result in the establishment of numerical values. These values establish the acceptable amount or concentration of a chemical that may be found in, or discharged to, the ambient environment. Location specific ARARs are restrictions placed on the concentration of hazardous substances or the conduct of cleanup activities because they are in specific locations. Location specific ARARs relate to the geographic or physical position of the site, rather than to the nature of site contaminants. Action specific ARARs are usually technology or activity based requirements or limitations on actions taken with respect to hazardous substances.

Only the substantive portions of the requirements are ARARs[5]. Administrative requirements are not ARARs and thus do not apply to actions conducted entirely on-site. Administrative requirements are those which involve consultation, issuance of permits, documentation, reporting, record keeping, and enforcement. The CERCLA program has its own set of administrative procedures which assure proper implementation of CERCLA. The application of additional or conflicting administrative requirements could result in delay or

[3] 40 CFR § 300.435(b)(2); Preamble to the Proposed NCP, 53 Fed.Reg. 51440 (December 21, 1988); Preamble to the Final NCP, 55 Fed.Reg. 8755-8757 (March 8, 1990)

[4] 40 CFR § 300.400(g)(3); 40 CFR § 300.515(h)(2); Preamble to the Final NCP, 55 Fed.Reg. 8744-8746 (March 8, 1990)

[5] 40 CFR § 300.5. See also Preamble to the Final NCP, 55 Fed.Reg. 8756-8757 (March 8, 1990)

confusion[6]. Provisions of statutes or regulations which contain general goals that merely express legislative intent about desired outcomes or conditions but are non-binding are not ARARs.[7]

Many requirements listed here are promulgated as identical or nearly identical requirements in both federal and state law, usually pursuant to delegated environmental programs administered by both EPA and the states, such as many of the requirements of the federal Clean Water Act and the Montana Water Quality Act. The Preamble to the final NCP states that such a situation results in citation to the state provision as the appropriate standard, but treatment of the provisions as a federal requirement. ARARs and other laws which are unique to state law are identified separately by the State of Montana.

This list constitutes EPA's and DEQ's detailed description of ARARs for use in the implementation of the Milltown Reservoir / Clark Fork River Site, Milltown Reservoir Sediments operable unit (MRSOU), and resulting remedial design and remedial action decisions.

An ARAR waiver of water quality standards is identified in this document, and this waiver applies during construction activities as a temporary waiver. Replacement water quality standards are identified to govern the project during the time the temporary, construction waiver is in effect. Additionally, the document acknowledges the waiver of in stream copper standards at the upstream Clark Fork River operable unit and the effect of that waiver at the MRSOU. ARAR waivers can be invoked after the ROD is issued if necessary and appropriate, and these waivers, if granted, will be documented separately.

The ARAR analysis is based on section 121(d) of CERCLA, 42 U.S.C. § 9621 (d); CERCLA Compliance with Other Laws Manual, Volumes I and II; OSWER Directives 9234.1-01 and -02 (August 1988 and August 1989 respectively; various CERCLA ARARs Fact Sheets issued as OSWER Directives; the Preamble to the Proposed NCP, 53 Fed.Reg. 51394 et seq. (December 21, 1988); the Preamble to the Final NCP, 55 Fed.Reg. 8666-8813 (March 8, 1990); and the NCP, 40 CFR Part 300; other applicable guidances; and the substantive provisions of law discussed in this document.

[6] Preamble to the Final NCP, 55 Fed.Reg. 8756-8757 (March 8, 1990); Compliance with Other Laws Manual, Vol.1, pp. 1-11 - 1-12

[7] Preamble to the Final NCP, 55 Fed.Reg. 8746 (March 8, 1990)

Federal ARARS

I. Federal Contaminant Specific Requirements

A. Groundwater Standards—Safe Drinking Water Act (Relevant and Appropriate)[8]

The National Primary Drinking Water Standards (40 CFR Part 141), better known as maximum contaminant levels and maximum contaminant level goals (MCLs and MCLGs), are not applicable to the MRSOU because the affected, contaminated aquifer underlying the area is not a current public water system, as defined in the Safe Drinking Water Act, 42 U.S.C. § 300f(4). These standards are relevant and appropriate standards, however, because the groundwater in the area is a potential source of drinking water and was once used as a drinking water source, and because the NCP directs EPA to seek ground water cleanup and restoration within reasonable time frames if practicable any time the ground water is classified by the State as a usable groundwater aquifer. Groundwater use through private wells occurred extensively in the area, especially in the town of Milltown, until a replacement water supply was established in an early EPA remedial action at this site. Because that alternative water supply may not be permanent, the aquifer remains a potential drinking water source. In addition, the aquifer discharges to the Clark Fork River, which is designated as a potential source of drinking water. Since the Clark Fork River is also a potential source of drinking water in the areas at and downstream of the Milltown Reservoir, these standards are relevant and appropriate for that surface water as well.

Use of these standards for this action is fully supported by EPA regulations and guidance. The Preamble to the NCP clearly states that MCLs are relevant and appropriate for groundwater that is a current or potential source of drinking water (55 Fed.Reg. 8750, March 8, 1990), and this determination is further supported by requirements in the regulations governing conduct of the RI/FS studies found at 40 CFR § 300.430(e)(2)(i)(B). EPA's guidance on Remedial Action for Contaminated Groundwater at Superfund Sites states that "MCLs developed under the Safe Drinking Water Act generally are ARARs for current or potential drinking water sources." MCLGs which are above zero are relevant and appropriate under the same conditions (55 Fed.Reg. 8750-8752, March 8, 1990). See also, State of Ohio v. EPA, 997 F.2d 1520 (D.C. Cir. 1993), which upholds EPA's application of MCLs and non-zero MCLGs as ARAR standards for groundwater which is a potential drinking water source.

As noted earlier, standards such as the MCL and MCLG standards are promulgated pursuant to both federal and state law. Under the Safe Drinking Water Act, EPA has granted the State of Montana primacy in implementation of the Safe Drinking Water Act. The State has promulgated its own public water supply ground water standards through the Public Water Supply Act for most contaminants of concern, primarily through

[8] 42 U.S.C. §§ 300f et seq.

incorporation by reference of the federal standard. These standards, when the same or more stringent than the federal standard, are also identified here.

Chemical	MCLG	MCL
Arsenic	NA	10 ug/l[9]
Cadmium	5 ug/l[10]	5 ug/l[11]
Copper	1300 ug/l[12]	1300 ug/l[13]
Lead	NA [14]	15 ug/l[15]

All ground water standards are measured as dissolved constituents[16]. All are identified as key Performance Standards in the ROD.

These standards incorporate potentially relevant and appropriate Resource Conversation Act (RCRA) standards for groundwater found at 40 CFR Part 264, Subpart F, which is incorporated pursuant to state law at ARM 17.53.801. The RCRA standards are the same or less stringent than the MCLs or MCLGs identified above. These standards would also be applicable to the Clark Fork River ambient surface water, if State water quality standards are less stringent for human health protection or are not present. In such a case, they would be measured as dissolved standards for ambient surface water.

For ground water in compliance with standards in and downstream of the MRSOU, including the Missoula sole source aquifer, the State's non-degradation standard applies. That standard is described in the State ground water ARAR section, infra.

The groundwater ARARs are also important for determining when the contingency plan for replacement of water supplies is triggered under the ROD. As noted in section 12 of the ROD, uncontaminated ground water in and near the MRSOU area will be monitored, and if contamination unexpectedly spreads during the implementation of the remedial action such that these ARAR standards are exceeded in a domestic water supply well for a statistically significant period of time, a new water supply shall be provided to the well user.

---

[9] 40 CFR §§ 141.11(b) and 141.62

[10] 40 CFR § 141.51

[11] 40 CFR § 141.62

[12] 40 CFR § 141.51

[13] 40 CFR § 141.80(c)(2) The requirement is an action level rather than a simple numerical standard.

[14] The MCLG for arsenic and lead is zero, which is not an appropriate standard for Superfund site cleanups.

[15] 40 CFR § 141.80(c)(1). The requirement is an action level rather than a simple numerical standard.

[16] If water is measured at the tap, then total methodologies are necessary for measurement of these standards.

B. Surface Water—Ambient and Point Source Discharges—Clean Water Act (Applicable)

CERCLA and the NCP provide that federal water pollution criteria (FWQC) developed pursuant to the federal Clean Water Act, 33 U.S.C. §§ 1251 et seq., that match designated or anticipated surface water uses are the usual surface water standards to be used at Superfund cleanups, as relevant and appropriate standards, unless the state has promulgated surface water quality standards pursuant to the delegated state water quality act. The State of Montana has designated uses for the Clark Fork River, and has promulgated specific numeric water quality standards accordingly. Those standards as well as other surface water standards are included in the State ARARs identified in Section IV.A. below.

If State standards for the contaminants listed in Section IV.A. below are changed to be less stringent than existing FWQC, then FWQC will be identified as the appropriate ARARs. At the upstream Clark Fork River operable unit, federal FWQC for copper was identified as a replacement standard for copper. The application of the in stream standards for the upstream Clark Fork River operable unit, including the replacement FWQC standard for copper, is discussed in Section IV.A.1. below. The FWQC standards are not specifically identified here.

C. Surface Water—Ambient and Point Source Discharges—Temporary Standards (Applicable)

As described in the ROD, the removal of sediments and the dam will unavoidably cause conditions in which surface water ARAR standards will be exceeded.

EPA, in consultation with the State DEQ, hereby invokes a waiver of surface water ARARs for the MRSOU, based on section 121(d)(4)(A) of CERCLA. This provision of CERCLA allows EPA to waive standards on an interim basis. Further explanation of this waiver is found in the ROD. This waiver is being applied consistent with the substantive requirements of sections 308 and 318 of the State's Clean Water Act, §§ 75-5-308, 75-5-318, MCA, as described below.

The temporary construction standards, which apply to point sources and as in-stream ambient standards, are:

Cadmium-Acute FWQC (dissolved)	2 µg/L	Short-term (1 hour)
Copper-80% of the TRV (dissolved) (at hardness of 100 mg/L)	25 µg/L	Short-term (1 hour)
Zinc-Acute FWQC (dissolved)	117 µg/L	Short-term (1 hour)
Lead-Acute FWQC (dissolved) -DWS (dissolved)	65 µg/L 15 µg/L	Short-term (1 hour) Long-term (30-day average)
Arsenic-Acute FWQC (dissolved) -DWS (dissolved)	340 µg/L 10 µg/L	Short-term (1 hour) Long-term (30-day average)
Iron-FWQC (dissolved)	1,000 µg/L	Short-term (1 hour)

Total Suspended Solids (TSS)	550 mg/L	Short-term (day)
	170 mg/L	Mid-term (week)
	86 mg/L	Long-term (season)

All hardness related FWQC values assume a hardness of 100 mg/L
TRV = Toxicity Reference Value, developed in the Ecological Risk Assessment for the Clark Fork River Operable Unit
FWQC = Federal Ambient Water Quality Criteria
DWS = Federal Drinking Water Standard

D. Air Standards—Clean Air Act (Applicable)

Federal air quality standards are not currently exceeded in the MRSOU. Limitations on air emissions resulting from cleanup activities or emissions resulting from wind erosion of exposed hazardous substances are set forth in the action specific requirements, below, in Sections III.B. and VI.C. Certain OSHA standards for protection of workers would be monitored for during construction activities to ensure protection of workers' health.

II. Federal Location Specific Requirements

A. Fish and Wildlife Coordination Act (Applicable)

These standards are found at 16 U.S.C. §§ 661 et seq. and 40 CFR § 6.302(g). They require that federally funded or authorized projects ensure that any modification of any stream or other water body affected by a federally funded or authorized action provide for adequate protection of fish and wildlife resources. Compliance with this ARAR necessitates EPA consultation with the U.S. Fish and Wildlife Service (USFWS) and the State of Montana Department of Fish, Wildlife, and Parks. Extensive consultation occurred with these agencies during the selection of the MRSOU ROD, and further consultation with these agencies will occur during cleanup implementation, and specific mitigative or other measures may be identified to achieve compliance with this ARAR as the MRSOU ROD is implemented. The purpose of consultation is to develop measures to prevent, mitigate, or compensate for project-related losses to fish and wildlife. Mitigative measures must be performed by the persons who implement any selected remedy.

B. Floodplain Management Order (Applicable)

This requirement (40 CFR Part 6, Appendix A, Executive Order No. 11,988) mandates that federally funded or authorized actions within the 100 year floodplain avoid, to the maximum extent possible, adverse impacts associated with development of a floodplain. Compliance with this requirement is detailed in EPA's August 6, 1985, "Policy on Floodplains and Wetlands Assessments for CERCLA Actions."

The ROD, as supplemented by the natural resource damage trustees' Restoration Plan, is expected to improve the floodplain at the MRSOU substantially. Findings relative to adverse impacts on floodplain are not required for this project. EPA will ensure coordination of this project with state and local floodplain management authorities during design, and appropriate mapping of the floodplain after completion of the ROD and Restoration Plan. Any other substantive provisions of applicable federal or state floodplain management regulations will be complied with.

C. Protection of Wetlands Order (Applicable)

This requirement (40 CFR Part 6, Appendix A, Executive Order No. 11,990) mandates that federal agencies and potentially responsible parties (PRPs) avoid, to the extent possible, the adverse impacts associated with the destruction or loss of wetlands and to avoid support of new construction in wetlands if a practicable alternative exists. Section 404(b)(1), 33 U.S.C. § 1344(b)(1), also prohibits the discharge of dredged or fill material into waters of the United States. Together, these requirements create a "no net loss" of wetlands standard. This ARAR is not a ban on wetland destruction, but is instead a mandate for no net loss of wetlands, with a preference for avoiding wetland destruction if practicable.

Compliance with this ARAR will be achieved through EPA consultation with the U.S. Fish and Wildlife Service, to determine the existence and category of wetlands present at the site, and any avoidance or mitigation and replacement which may be necessary. Avoidance, mitigation, or replacement activities will be done by the persons who implement any selected remedy. Avoidance of wetland destruction is not feasible for this project. Mitigation of lost wetlands through compliance with the no net loss standard is a specific requirement of the MRSOU selected remedy, and will be further examined and detailed during remedy implementation. In February 1999, ARCO published a draft report titled "Wetlands and Threatened / Endangered Species Inventory with Determination of Effective Wetland Area." This document establishes the value and extent of wetlands within the MRSOU, and found jurisdictional wetlands over 297 acres and 125 acres of shallow water habitat, divided into 83 jurisdictional wetland acres and 60 shallow pool acres found in the reservoir pool area, and 213.7 jurisdictional wetland acres and 64 shallow pool acres found in the braided river area. These equate to a functionally effective wetland area (FEWA) of 126 acres in the reservoir pool area and 253 FEWA in the braided river area. EPA approved ARCO's August 1992 Evaluation Form for Determining Wetland Functional Value and Effective Wetland Area in Upper Clark Fork River Superfund Sites for use in wetland evaluations. EPA has also approved of a Clark Fork Basin wide system of accounting for wetland destruction and replacement. The February 1999 draft report is currently being supplemented by ARCO.

D. The Endangered Species Act (Applicable)

This statute and implementing regulations (16 U.S.C. §§ 1531 - 1544, 50 CFR Part 402, and 40 CFR § 6.302(h)) require that any federal activity or federally authorized activity may not jeopardize the continued existence of any threatened or endangered species known to live or to have lived in the affected environment or destroy or adversely modify a critical habitat. This ARAR requires EPA to ensure that the selected remedy is sufficiently protective of the environment containing the threatened or endangered species, with an emphasis on reducing the risks from the contaminants of concern to the listed species described in the EPA risk assessment to an acceptable level, with consideration given to the special status of the listed or threatened species - see 40 CFR Sections 300.430(d)(2)(vii) and (e)(2)(i)(G) and EPA Guidance Document OSWER Dir. No. 9285.7-28P, Ecological Risk Assessment and Risk Management principles for Superfund Sites (October, 1999) page 3; and to ensure that the selected remedy is implemented in a manner such that effects on any existing threatened or endangered species from the active remedy implementation activities are avoided or mitigated - see page 4-12 of the CERCLA Compliance with Other Laws Manual: Volume II (EPA August 1989).

In February 1999 ARCO submitted a draft report titled "Wetlands and Threatened/Endangered Species Inventory with Determination of Effective Wetland Area." The MRSOU Feasibility Studies provide additional information about threatened or endangered species in the MRSOU area. These reports document the occurrence of bull trout, a threatened species, upstream, downstream and within the reservoir. The bald eagle, the peregrine falcon, and the water howellii, a listed plant, frequent or occur at the Reservoir.

EPA produced a biological assessment (BA) regarding the action proposed in the May 2004 Proposed Plan on August 17, 2004, and a BA supplement addressing the bald eagle and other protected species on October 22, 2004. The decision to perform the BA itself, rather than require the PRP to perform the study, is a site specific decision related to the nature of ARCO's objections to EPA's risk assessment and the schedule associated with this project. These documents also addressed related actions - the State of Montana's Restoration Plan, the interim operation of the Milltown Dam by NorthWestern Energy Corporation, and the removal of the Stimson Dam by the US DOI. The US FWS will issue a biological opinion (BO) on the project prior to or near the time of the Record of Decision. Continued consultation with the USFWS and the Montana Department of Fish, Wildlife, and Parks will be required as remedial designs are completed. Mitigation measures identified in the BO must be implemented by persons performing the MRSOU selected remedy, for those BO provisions applicable to it, or by the persons implementing the related actions, for those provisions applicable to those projects.

E. The National Historic Preservation Act (Applicable)

This statute and implementing regulations (16 U.S.C. § 470 et seq, 40 CFR § 6.301(b), 36 CFR Part 800) require federal agencies or federal projects to take into account the effect of any federally assisted undertaking or licensing on any district, site building, structure, or object that is included in, or eligible for, the Register of Historic Places. If effects cannot be avoided reasonably, measures should be implemented to minimize or mitigate the potential effect. In addition, Indian cultural and historical resources must be evaluated, and effects avoided, minimized, or mitigated.

In order to comply with this ARAR, EPA, DEQ, and the PRPs may consult with the appropriate federal agency, the State Historic Preservation Officer (SHPO), and the Salish-Kootenai Tribes. ARCO submitted a cultural resource inventory for the RS OU dated November 5, 1990. The Salish and Kootenai Tribe is currently cataloguing protected Indian resources, in partial compliance with this ARAR.

EPA and FERC have worked cooperatively on preparing appropriate findings and notices under the NHPA for the remediation and the restoration components of the Milltown cleanup. EPA and FERC issued a notice of effects to SHPO on August 4, 2004, which was concurred on by SHPO. Certain areas of Tribal interest will be avoided during remedial design. Mitigation activities for adverse effects which are unavoidable, and ongoing monitoring and reporting requirements, are to be described in the historical MOA and mitigation plan submitted to FERC as part of the Surrender Application for the Milltown Project.

F. Archaeological and Historic Preservation Act (Applicable)

The statute and implementing regulations (16 U.S.C. § 469 et seq., 40 CFR § 6.301(c)) establish requirements for evaluation and preservation of historical and archaeological data, including Indian cultural and historic data, which may be destroyed through alteration of terrain as a result of federal construction projects or a federally licensed activity or program. If eligible scientific, prehistorical, or archaeological data are discovered during site activities, they must be preserved in accordance with these requirements. Compliance with these requirements is also addressed in the monitoring and notice provisions of the MOA and historical mitigation plan described above.

G. Historic Sites, Buildings, and Antiquities Act (Applicable)

This statute and implementing regulations (16 U.S.C. § 461 et seq., 40 CFR § 6.310(a)) state that "in conducting an environmental review of an EPA action, the responsible official shall consider the existence and location of natural landmarks using information provided by the National Park Service pursuant to 36 CFR § 62.6(d) to avoid undesirable impacts upon such landmarks. Compliance with these requirements is also addressed in the monitoring and notice provisions of the MOA and historical mitigation plan described above.

H. Migratory Bird Treaty (Applicable)

This requirement (16 U.S.C.§§ 703 et seq.) establishes a federal responsibility for the protection of the international migratory bird resource and requires continued consultation by EPA with the USFWS during remedial design and remedial construction to ensure that the cleanup of the site does not unnecessarily impact migratory birds. Specific mitigative measures may be identified for compliance with this requirement as appropriate for performance by the persons who implement the remedy.

I. Bald Eagle Protection Act (Applicable)

This requirement (16 U.S.C. §§ 668 et seq.) establishes a federal responsibility for protection of bald and golden eagles, and requires continued consultation by EPA with the USFWS during remedial design and remedial construction to ensure that any cleanup of the site does not unnecessarily adversely affect the bald and golden eagle. Specific mitigative measures may be identified for compliance with this requirement as appropriate, and will be done by the persons who implement any selected remedy.

J. Resource Conservation and Recovery Act (Relevant and Appropriate)

Any discrete waste units created or actively managed at the MRSOU site cleanup must comply with the siting restrictions and conditions at 40 CFR § 264.18 (a) and (b). These sections require management units to be designed, constructed, operated, and maintained to avoid washout, if they are within or near the current 100 year flood plain.

K. Native American Grave Protection and Repatriation Act, 25 U.S.C. § 3001 et seq.; 43 CFR §§ 10.1 - 10.17 (Applicable or Relevant and Appropriate)

NAGPRA and its implementing regulations provide for the disposition of Native American remains and objects inadvertently discovered on federal or tribal lands after November, 1990. 25 U.S.C. Section 3002(d). If the response activities result in the discovery of Native

American human remains or related objects, the activity must stop while the head of the federal land management agency (if federal lands are involved) and appropriate Indian tribes are notified of the discovery. After the discovery, the response activity must cease and a reasonable effort must be made to protect the Native American human remains or related objects. The response activity may later resume. 42 CFR Section 10.4. Accordingly, depending on the facts of the discovery and the location of the response action, NAGPRA could be applicable or relevant and appropriate to the response action.

III. Federal Action Specific Requirements

A. Solid Waste (Applicable), Surface Mining Control and Reclamation (Relevant and Appropriate), and RCRA (Relevant and Appropriate) Requirements[17]

The contamination at the MRSOU is primarily mining waste from mining mills and smelters in Butte and Anaconda. This waste may not be RCRA hazardous waste, although EPA reserves its rights to make a more formal determination in this regard at a later date. For any active management (i.e., treatment, storage, disposal, grading, or in-situ treatment) or removal of tailings or mixed tailings and soils[18] contamination, the following requirements are ARARs. At the MRSOU remediation project, all of these requirements apply to on-site disposal of contaminated sediments retained at the site. Debris waste which is disposed of on site must comply with applicable solid waste requirements and the identified relevant and appropriate RCRA requirement.

1. Requirements described at 40 CFR §§ 257.3-1(a), 257.3-3, and 257.3-4, governing waste handling, storage, and disposal, including retention of the waste, in general[19], and 257.3-5, relating to precautions necessary to ensure that cadmium is not taken up into

[17] If any hazardous wastes as defined by RCRA or the Montana Hazardous Waste Act are encountered or generated during implementation of the remedy, substantive provisions of the Montana Hazardous Waste Act, §§ 75-10-401 et seq., MCA, and its implementing regulations at ARM 17.54.101 et seq., would be applicable to the handling, management, treatment, storage, disposal, and transportation of such wastes. In addition, other laws, such as substantive provisions of the federal Toxic Substances Control Act, are applicable to materials governed by that statute encountered or wastes governed by that statute generated during the remedial action. All off site handling of regulated RCRA or TSCA wastes must comply with all legal requirements, including the requirements of those laws.

[18] Federal and State solid waste requirements may also be relevant and appropriate for contaminated soils in certain circumstances. Generally, if soils materials are determined by the agencies to be able to be used in conjunction with other removal or remedial measures such as deep plowing, topsoil, or capping, these requirements are not considered relevant and appropriate, and such soils may remain in the floodplain.

[19] Solid waste regulations are promulgated pursuant to the federal Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901 et seq. They are applicable regulations, although the State of Montana has the lead role in regulating solid waste disposal in the State of Montana.

crops, including pasture grasses that may enter the food chain, at levels which may be a risk to human health.

2. For any discrete waste units containing sediments which are created or retained and actively managed by the MRSOU cleanup, reclamation and closure regulations found at 30 CFR Parts 816 and 784, governing coal and to a lesser extent, non-coal mining, are relevant and appropriate requirements[20].

3. Portions of RCRA regulations found at 40 CFR §§ 264.116 and .119(a) and (b) (governing notice and deed restrictions) are relevant and appropriate requirements for the waste management units created or actively managed at the MRSOU[21].

B. Air Standards—Clean Air Act (Applicable)

These standards, promulgated pursuant to section 109 of the Clean Air Act[22], are applicable to releases into the air from any MRSOU cleanup activities.

1. Lead: No person shall cause or contribute to concentrations of lead in the ambient air which exceed 1.5 micrograms per cubic meter (ug/m^3) of air, measured over a 90-day average. These standards are promulgated at ARM 17.8.222 as part of a federally approved State Implementation Plan (SIP), pursuant to the Clean Air Act of Montana, § 75-2-101 et seq., MCA. Corresponding federal regulations are found at 40 CFR § 50.12[23].

2. Particulate matter that is 10 microns in diameter or smaller (PM-10): No person shall cause or contribute to concentrations of PM-10 in the ambient air which exceed:

---

[20] The Surface Mining Control and Reclamation Act is promulgated at 30 U.S.C. §§ 1201 - 1326.

[21] As noted earlier, federal RCRA regulations are incorporated by reference into applicable State Hazardous Waste Management Act regulations. See ARM 17.53.801. Use of select RCRA regulations for mining waste cleanups is appropriate when discrete units are addressed by a cleanup and site conditions are distinguishable from EPA generic determination of low toxicity/high volume status for mining waste. See Preamble to the Final NCP, 55 Fed.Reg. 8763 - 8764 (March 8, 1990), CERCLA Compliance with Other Laws Manual, Volume II (August 1989 OSWER Directive #9234.1-02) p. 6-4; Preamble to the Proposed NCP, 53 Fed.Reg. 51447 (Dec. 21, 1988); and guidance entitled Consideration of RCRA Requirements in Performing CERCLA Responses at Mining Wastes Sites, August 19, 1986 (OSWER).

[22] 42 U.S.C. §§ 7401 et seq.

[23] Ambient air standards established as part of Montana's approved State Implementation Plan in many cases provide more stringent or additional standards. The federal standards by themselves apply only to major sources, while the State standards are fully applicable throughout the state and are not limited to major sources. See ARM 17.8.205 and 17.8.212-223. As part of an EPA approved State Implementation Plan, the state standards are also federally enforceable. Thus, the state standards which are equivalent to the federal standards are identified in this section. A more detailed list of State standards, which include standards which are not duplicated in federal regulations, is contained in the State ARAR identification section.

- 150 ug / m^3 of air, 24 hour average, no more than one expected exceedance per calendar year;
- 50 ug / m^3 of air, annual average.

These regulations are promulgated at ARM 17.8.223 as part of a federally approved SIP, pursuant to the Clean Air Act of Montana, §§ 75-2-101 et seq., MCA. Corresponding federal regulations are found at 40 CFR § 50.6.

Ambient air standards under section 109 of the Clean Air Act are also promulgated for carbon monoxide, hydrogen sulfide, nitrogen dioxide, sulfur dioxide, and ozone. If emissions of these compounds were to occur at the site in connection with any cleanup action, these standards would also be applicable. See ARM 17.8.222 and .223, and 40 CFR Part 50.

C. Point Source Controls—Clean Water Act (Applicable)

If point sources of water contamination are retained or created by any MRSOU remediation activity, applicable Clean Water Act standards would apply to those discharges. The regulations are discussed in the contaminant specific ARAR section, above, and in the State of Montana identification of ARARs. These regulations would include storm water runoff regulations found at 40 CFR Parts 121, 122, and 125 (general conditions and industrial activity conditions). These would also include requirements for best management practices and monitoring found at 40 CFR §§ 122.44(i) and 440.148, for point source discharges.

D. Dredge and Fill Requirements (Applicable)

Regulations found at 40 CFR Part 230 address conditions of or prohibitions against depositing dredge and fill material into water of the United States. If remediation activities would result in an activity subject to these regulations, they would be applicable. The scope of these regulations has been altered significantly in a 1998 court decision and regulatory responses found at 66 Fed.Reg. 4549 (January 17, 2001 - effective date temporarily suspended pending further review, 66 FR 10367 [February 15, 2001]). Compliance with this requirement will be achieved at the site of dredge and fill activity within the MRSOU during construction activities through the use of best management practices.

E. Underground Injection Control (Applicable)

Requirements found at 40 CFR Part 144, promulgated pursuant to the Safe Drinking Water Act, allow the re-injection of treated groundwater into the same formation from which it was withdrawn for aquifers such as the aquifer at the MRSOU, and addresses injection well construction, operation, maintenance, and capping / closure. These regulations would be applicable to any reinjection of treated groundwater.

F. Transportation of Hazardous or Contaminated Waste (Relevant and Appropriate)

40 CFR Part 263 establishes regulations for the transportation of hazardous waste. These regulations would govern any on-site transportation of contaminated material. Any off-site transportation would be fully subject to applicable regulations and permitting.

G. Federal Energy and Regulatory Commission Requirements, and Corresponding State of Montana Department of Natural Resources Requirements Regarding Dam Stability, Safety, and Maintenance

Currently, the Milltown Dam is regulated by the Federal Energy Regulatory Commission, which requires dams which fall within its authority to obtain permits and meet certain safety, stability, and maintenance standards. Because the Milltown Dam is operated by NorthWestern Corporation under a separate and long running permit, EPA will defer to FERC authority on these specific issues while the dam remains in place. If FERC authority ceases and is subsequently transferred to a corresponding State program administered by the State of Montana Department of Natural Resources and Conservation, EPA would defer to this authority as well. That authority is described in section III.G. of the State ARAR identification below.

However, if for any reason neither FERC nor the State DNRC regulates or enforces the appropriate standards, the following standards would become important relevant and appropriate Superfund requirements, imposed on the Superfund responsible parties. EPA notes that FERC recently classified the dam as a high hazard dam, and EPA would apply safety, stability, and maintenance.

16 U.S.C. Section 797, 799, and 803(a) and accompanying regulations which require dam stability and maintenance, especially regulations found at 18 CFR Part 12.

Northwestern will also seek to surrender the license for the Milltown Dam. EPA believes that all remediation decisions and actions, including restoration activities done in lieu of certain remedial actions, are not subject to federal or state permitting actions, pursuant to section 121(e)(1) of CERCLA, 42 U.S.C. § 9621(e)(1). EPA also believes that the combined remediation and restoration plans meet all substantive requirements for FERC license surrender. The surrender application will present the combined remediation and restoration plans to FERC, so that FERC may end its regulation of the Milltown Dam in an orderly way.

State of Montana ARARS

As provided by Section 121 of CERCLA, 42 U.S.C. § 9621, only those state standards that are more stringent than any federal standard and that have been identified by the state in a timely manner are appropriately included as ARARs.

I. Montana Contaminant Specific Requirements

A. Water Quality

1. Surface Water Quality Standards—Ambient and Point Source—Montana Water Quality Act (Applicable)

Under the Montana Water Quality Act, §§ 75-5-101 et seq., MCA, the state has promulgated water quality standards to protect, maintain, and improve the quality and potability of the state's surface water for water supplies, wildlife, fish and aquatic life, agricultural, industry, recreation, and other beneficial uses. Except as waived during construction activities by EPA as described in Section I.C. above, and except as explained below concerning the in-stream standards, the requirements listed below are applicable water quality standards with which any remedial action must comply. These requirements must be met upon completion of the remedial action (although operation and maintenance may continue after compliance).

ARM 17.30.607 (1)(a)-(n) (Applicable) classifies the waters of the MRSOU as follows:

Clark Fork River from Little Blackfoot River to Milltown Reservoir	B-1
Clark Fork River downstream of the Milltown Reservoir	B-1
Blackfoot River	B-1

The B-1 classification standards are contained in ARM 17.30.623 (Applicable) of the Montana water quality regulations. This section states:

Waters classified B-1 are suitable for drinking, culinary and food processing purposes, after conventional treatment; bathing, swimming, and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl, and furbearers; and agricultural and industrial water supply.

The B-1 classification standards at ARM 17.30.623 include the following criteria: 1) dissolved oxygen concentration must not be reduced below the levels given in department circular WQB-7; 2) the maximum allowable increase above naturally occurring turbidity is 5 nephelometric turbidity units; 3) temperature increases must be kept within prescribed limits; 4) no increases above naturally occurring concentrations of sediment or suspended sediment, settleable solids, oils, floating solids, which will or are likely to create a nuisance or render the waters harmful, detrimental, or injurious to public health, recreation, safety, welfare, livestock, wild animals, birds, fish, or other wildlife are allowed; 5) true color must be kept within specified limits; and 6) induced variation of hydrogen ion concentration (pH) within the range of 6.5 to 8.5 must be less than 0.5 pH unit. Natural pH outside this range must be maintained without change. Natural pH above 7.0 must be maintained above 7.0.

ARM 17.30.623 (applicable) also provides that concentrations of carcinogenic, bioconcentrating, toxic, or harmful parameters which would remain in the water after conventional water treatment may not exceed the applicable standards set forth in the current version of circular WQB-7. Discharges shall conform with ARM Title 16, Chapter 20, subchapter 7 (the nondegradation rules) and may not cause receiving water concentrations to exceed the applicable standards specified in WQB-7 when stream flows equal or exceed the design flows specified in ARM 17.30.635(4).

If these standards are violated due to hazardous substances or Superfund response action, they must be complied with as part of any selected remedial action.

For the primary contaminants of concern, the WQB-7 levels are listed below. WQB-7 provides that "whenever both Aquatic Life Standards and Human Health Standards exist for the same analyte, the more restrictive of these values will be used as the numeric Surface Water Quality Standard."

Chemical	WQB-7 Standard (total recoverable standards)	
Arsenic	Acute	340 µg/l
	Chronic	150 µg/l
	Human Health	18 µg/l
Cadmium	Acute	2.1 µg/l @ 100 mg/l hardness
	Chronic	0.27 µg/l @ 100 mg/l hardness
Copper	Acute	18 µg/l @ 100 mg/l hardness
	Chronic	12 µg/l @ 100 mg/l hardness
	Human Health	1300 µg/l
Lead	Acute	82 µg/l @ 100 mg/l hardness
	Chronic	3.2 µg/l @ 100 mg/l hardness
	Human Health	15 µg/l
Zinc	Acute	119 µg/l @ 100 mg/l hardness
	Chronic	119 µg/l @ 100 mg/l hardness
	Human Health	2,000 µg/l

Except as temporarily waived by EPA for construction activities as described in the ROD and Section I.C. above, and except for exceedances resulting from upstream sources as described below, these standards will be applied to all contaminants of concern identified in the MRSOU ROD, both to point sources affected or created by the MRSOU cleanup and to ambient water in the MRSOU.

The Clark Fork River upstream of the MRSOU is being addressed under the Clark Fork River operable unit ROD. The in-stream standards identified for the CFROU are identical to the standards identified above, except that the CFROU ROD included a waiver of the State WQB-7 copper standard. The CFROU substitute standard for copper, based on the Federal

Water Quality Criteria and measured only on the dissolved portion of the sample, is as follows:

Copper	Acute	13 µg/l
	Chronic	9 µg/l
	Human Health	1,300 µg/l

Consequently, the surface water coming into the MRSOU may not meet the WQB-7 standard for copper.

The Milltown remedy is to address the contaminant loading from the MRSOU in a manner that prevents this OU from contributing directly to exceedances of the water quality standards. Thus, the number of exceedances of the WQB-7 standards at the MRSOU is expected to be similar to the number seen directly upstream of the operable unit. If contamination in the MRSOU were to cause exceedances of the CFROU standards or otherwise caused in-stream levels to worsen as the water passed through the OU, the MRSOU remedy may require that that contaminant loading be addressed.

Section 75-5-308, MCA, allows DEQ to grant short-term exemptions from the water quality standards or short-term use that exceeds the water quality standards for the purpose of allowing certain emergency remediation activities. Such exemptions typically extend for a period of 30-60 days. However, any exemption must include conditions that minimize to the extent possible the magnitude of the violation and the length of time the violation occurs. In addition, the conditions must maximize the protection of state waters by ensuring the maintenance of beneficial uses immediately after termination of the exemption. Water quality and quantity monitoring and reporting may also be included as conditions. Also, pursuant to 75-5-318, MCA, of the State Clean Water Act, an exemption from surface water quality standards may be authorized by the department under certain conditions, and this may apply to construction and dredging activities associated with sediment removal options. EPA has waived standards during construction and substituted temporary standards, using its CERCLA waiver authority. This application of the CERCLA waiver is consistent with the conditions specified in these sections.

Additional restrictions on any discharge to surface waters are included in:

- ARM 17.30.637 (Applicable) which prohibits discharges containing substances that will: (a) settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines; (b) create floating debris, scum, a visible oil film (or be present in concentrations at or in excess of 10 milligrams per liter) or globules of grease or other floating materials; (c) produce odors, colors or other conditions which create a nuisance or render undesirable tastes to fish flesh or make fish inedible; (d) create concentrations or combinations of materials which are toxic or harmful to human, animal, plant or aquatic life; (e) create conditions which produce undesirable aquatic life.
- ARM 17.30.637 also states that no waste may be discharged and no activities conducted which, either along or in combination with other waste activities, will cause violation of surface water quality standards.

2. Montana Pollutant Discharge Elimination System (MPDES)—Stormwater and Other Point Sources (Applicable)

ARM 17.30.1203 (Applicable), adopts and incorporates the provisions of 40 CFR Part 125 for criteria and standards for the imposition of technology-based treatment requirements in MPDES permits. Although the permit requirement would not apply to on-site discharges, the substantive requirements of Part 125 are applicable, i.e., for toxic and nonconventional pollutants treatment must apply the best available technology economically achievable (BAT); for conventional pollutants, application of the best conventional pollutant control technology (BCT) is required. Where effluent limitations are not specified for the particular industry or industrial category at issue, BCT/BAT technology based treatment requirements are determined on a case by case basis using best professional judgment (BPJ). See CERCLA Compliance with Other Laws Manual, Vol. I, August 1988, p. 3-4 and 3-7. These State standards would apply to point source discharges created within the MRSOU. This requirement does not change the waiver of WQB-7 standards during construction and the substitution of temporary standards.

Under ARM 17.30.601, ARM 17.30.1101 et seq., and ARM 17.30.1301 et seq., the Montana Department of Environmental Quality has issued general stormwater permits for certain activities. The substantive requirements of the following permits are applicable for the following activities:

- For construction activities: General Permit for Storm Water Discharges Associated with Construction Activity, Permit No. MTR 100000 (June 8, 2002);
- For mining activities: General Permit for Storm Water Discharges Associated with Mining and with Oil and Gas Activities, Permit No. MTR300000 (November 17, 2002)[24];
- For industrial activities: General Permit for Storm Water Discharges Associated with Industrial Activity, Permit No. MTR000000 (October 1, 2001).

Generally, the permits listed above require the permittee to implement Best Management Practices (BMP) and to take all reasonable steps to minimize or prevent any discharge which has a reasonable likelihood of adversely affecting human health or the environment.[25] However, if there is evidence indicating potential or realized impacts on water quality due to any storm water discharge associated with the activity, the substantive standards associated with an individual MPDES permit or alternative general permit may be required.

A related mine reclamation requirement is set out in ARM 17.24.633 (relevant and appropriate), which requires that all surface drainage from disturbed areas that have been graded, seeded or planted must be treated by the best technology currently available (BTCA) before discharge. Sediment control through BTCA practices must be maintained until the disturbed area has been reclaimed, the revegetation requirements have been met, and the area meets state and federal requirements for the receiving stream.

---

[24] This permit covers point source discharges of storm water from mining and milling activities (including active, inactive, and abandoned mine and mill sites) including activities with Standard Industrial Code 14 (metal mining).

[25] For further explanation of storm water applications, see the letter from EPA to Chuck Stilwell, ARCO, dated February 2, 1999, which describes that treatment, in addition to BMPs, may be necessary if in-stream standards are not met after implementation of BMPs.

3. Groundwater Standards (Applicable)

ARM 17.30.1006 (Applicable) classifies groundwater into Classes I through IV based upon its specific conductance and establishes the groundwater quality standards applicable with respect to each groundwater classification.

Based upon its specific conductance, the majority of the groundwater in the MRSOU is considered Class I groundwater, with the remainder of the groundwater Class II[26].

Concentrations of dissolved substances in Class I or II groundwater (or Class III groundwater which is used as a drinking water source) may not exceed the human health standards listed in department Circular WQB-7. For the primary contaminants of concern these levels are listed below. Ground water is measured in dissolved form, according to WQB-7.

Chemical	WQB-7 Human Health Standard (January 2004 edition)	
Arsenic	20	ug/1
Cadmium	5	ug/1
Copper	1300	ug/1
Lead	15	ug/1
Zinc	**2000**	**ug/1**

Zinc is not addressed under federal groundwater standards. Therefore, the State zinc standard is a Performance Standard for the MRSOU ROD. Other state standards listed above are not as stringent or are duplicative of federal standards previously identified as Performance Standards.

For concentrations of parameters for which human health standards are not listed in WQB-7, ARM 17.30.1006 allows no increase of a parameter to a level that renders the waters harmful, detrimental or injurious to listed beneficial uses.

For Class I and II groundwaters, ARM 17.30.1006 allows no increase of a parameter that causes a violation of the nondegradation provisions of § 75-5-303, MCA. ARM 17.30.1011 also provides that groundwater whose existing quality is higher than the standard for its classification must be maintained at that high quality unless degradation may be allowed under the principles established in § 75-5-303, MCA, and the nondegradation rules at ARM 17.30.701 et seq.

An additional concern with respect to ARARs for groundwater is the impact of groundwater upon the surface water. If significant loadings of contaminants from groundwater sources to the Clark Fork River contribute to the inability of the stream to meet its water quality standards, then alternatives to alleviate such groundwater loading must be evaluated and, if appropriate, implemented. Groundwater in certain areas may need to be

[26] ARM 17.30.1006 provides that Class I groundwaters are those with specific conductance of less than 1000 microSiemens per centimeter at 25B C; Class II groundwaters: 1000 to 2500; Class III groundwaters: 2500 to 15,000; and Class IV groundwaters: over 15,000.

remediated to levels more stringent than the groundwater classification standards in order to achieve the standards for affected surface water. See Compliance with Federal Water Quality Criteria, OSWER Publication 9234.2-09/FS (June 1990) ("Where the ground water flows naturally into the surface water, the ground-water remediation should be designed so that the receiving surface-water body will be able to meet any ambient water-quality standards (such as State WQSs or FWQC) that may be ARARs for the surface water.").

B. Air Quality

In addition to the standards identified in the federal action specific ARARs above, the State of Montana has identified certain air quality standards in the action-specific section of the State ARARs below.

II. Montana Location Specific Requirements

A. Floodplain and Floodway Management Act, Sections 76-5-401 et seq., and Implementing Regulations (Applicable)

The Floodplain and Floodway Management Act and regulations specify types of uses and structures that are allowed or prohibited in the designated 100-year floodway[27] and floodplain[28]. Since the MRSOU lies almost entirely within the 100-year floodplain of the Clark Fork River, these standards are applicable to all actions contemplated for this site within the floodplain.

1. Allowed Uses: The law recognizes certain uses as allowable in the floodway and a broader range of uses as allowed in the floodplain. Residential use is among the possible allowed uses expressly recognized in both the floodway and floodplain. "Residential uses such as lawns, gardens, parking areas, and play areas," as well as certain agricultural, industrial-commercial, recreational and other uses are permissible within the designated floodway, provided they do not require structures other than portable structures, fill or permanent storage of materials or equipment. 76-5-401, MCA; ARM 36.15.601. In addition, in the flood fringe (i. e., within the floodplain but outside the floodway), residential, commercial, industrial, and other structures may be permitted subject to certain conditions relating to placement of fill, roads, floodproofing, etc. § 76-5-402, MCA; ARM 36.15.701. Domestic water supply wells may be permitted, even within the floodway, provided the well casing is watertight to a depth of 25 feet and the well meets certain conditions for floodproofing, sealing, and positive drainage away from the well head. ARM 36.15.602(6).

[27] The floodway is the channel of a watercourse or drainway and those portions of the floodplain adjoining the channel which are reasonably required to carry and discharge the floodwater of the water course or drainway. ARM 36.15.101(13).

[28] The floodplain is the area adjoining the water course or drainway which would be covered by the floodwater of a base (100-year) flood except for sheet flood areas that receive less than one foot of water per occurrence. The floodplain consists of the floodway and flood fringe. ARM 36.15.101.

2. Prohibited Uses: Uses prohibited anywhere in either the floodway or the floodplain are:

   a. solid and hazardous waste disposal; and
   b. storage of toxic, flammable, hazardous, or explosive materials.

ARM 36.15.605(2) and 36.15.703.

In the floodway, additional prohibitions apply, including prohibition of:

   a. a building for living purposes or place of assembly or permanent use by human beings;

   b. any structure or excavation that will cause water to be diverted from the established floodway,[29] cause erosion, obstruct the natural flow of water, or reduce the carrying capacity of the floodway; and

   c. the construction or permanent storage of an object subject to flotation or movement during flood level periods.

Section 76-5-403, MCA.

1. Applicable Considerations in Use of Floodplain or Floodway

Applicable regulations also specify factors that must be considered in allowing diversions of the stream, changes in place of diversion of the stream, flood control works, new construction or alteration of artificial obstructions, or any other nonconforming use within the floodplain or floodway. Many of these requirements are set forth as factors that must be considered in determining whether a permit can be issued for certain obstructions or uses. While permit requirements are not directly applicable to remedial actions conducted entirely on site, the substantive criteria used to determine whether a proposed obstruction or use is permissible within the floodway or floodplain are applicable standards. Factors which must be considered in addressing any obstruction or use within the floodway or floodplain include:

1. the danger to life and property from backwater or diverted flow caused by the obstruction or use;

2. the danger that the obstruction or use will be swept downstream to the injury of others;

3. the availability of alternate locations;

[29] Use of a diversion channel to control sediment scour and erosion as part of the remedy will cause water to be diverted from the established floodway. However, § 76-5-405 allows variances for an obstruction or nonconforming use in certain instances. EPA and DEQ have determined that the proposed diversion channel fully satisfies the criteria for such a variance under § 76-5-406. The diversion will be temporary and will best serve the purposes of the floodplain protection requirements. Moreover, ARM 36.15.603 specifies certain criteria which are to be met in approving a change in place of water diversion in a floodway. The use of the diversion channel for this project is consistent with those criteria as well. That regulation also specifies that any diversion structure crossing the full width of the stream channel must be designed and constructed to safely withstand up to a base (100-year) flood.

4. the construction or alteration of the obstruction or use in such a manner as to lessen the danger;

5. the permanence of the obstruction or use; and

6. the anticipated development in the foreseeable future of the area which may be affected by the obstruction or use.

See 76-5-406, MCA; ARM 36.15.216 (substantive provisions only).

Conditions or restrictions that generally apply to specific activities within the floodway or floodplain are:

1. the proposed activity, construction, or use cannot increase the upstream elevation of the 100-year flood a significant amount (one-half foot or as otherwise determined by the permit issuing authority) or significantly increase flood velocities, ARM 36.15.604 (Applicable, substantive provisions only); and

2. the proposed activity, construction, or use must be designed and constructed to minimize potential erosion from a base (100-year) flood, see ARM 36.15.603.

For the substantive conditions and restrictions applicable to specific obstructions or uses, see the following applicable regulations:

Excavation of material from pits or pools- ARM 36.15.602 (1).
Water diversions or changes in place of diversion- ARM 36.15.603.
Flood control works - ARM 36.15.606.
Roads, streets, highways and rail lines (must be designed to minimize increases in flood heights) - ARM 36.15.701(3) (c).
Structures and facilities for liquid or solid waste treatment and disposal (must be floodproofed to ensure that no pollutants enter flood waters and may be allowed and approved only in accordance with DEQ regulations, which include certain additional prohibitions on such disposal) - ARM 36.15.701(3) (d).
Residential structures - ARM 36.15.702(1).
Commercial or industrial structures - ARM 36.15.702(2).

B. Solid Waste Management Regulations (Applicable)

Regulations promulgated under the Solid Waste Management Act, §§ 75-10-201 et seq., MCA, specify requirements that apply to the location of any solid waste management facility. At the MRSOU, that includes existing sediment disposal areas, newly created debris disposal areas, and the area where wastes will be left in place. Under ARM 17.50.505, a facility for the treatment, storage or disposal of solid wastes:

(a) must be located where a sufficient acreage of suitable land is available for solid waste management;
(b) may not be located in a 100-year floodplain;
(c) may be located only in areas which will prevent the pollution of ground and surface waters and public and private water supply systems;
(d) must be located to allow for reclamation and reuse of the land;

(e) drainage structures must be installed where necessary to prevent surface runoff from entering waste management areas; and
(f) where underlying geological formations contain rock fractures or fissures which may lead to pollution of the ground water or areas in which springs exist that are hydraulically connected to a proposed disposal facility, only Class III disposal facilities may be approved[30].

Even Class III landfills may not be located on the banks of or in a live or intermittent stream or water saturated areas, such as marshes or deep gravel pits which contain exposed ground water. ARM 17.54.505(2)(j).

In addition, § 75-10-212 prohibits dumping or leaving any debris or refuse upon or within 200 yards of any highway, road, street, or alley of the State or other public property, or on privately owned property where hunting, fishing, or other recreation is permitted. However, the restriction relating to privately owned property does not apply to the owner, his agents, or those disposing of debris or refuse with the owner's consent.

C. Natural Streambed and Land Preservation Standards (Applicable)

Sections 87-5-502 and 504, MCA, (substantive provisions only) provide that a state agency or subdivision shall not construct, modify, operate, maintain or fail to maintain any construction project or hydraulic project which may or will obstruct, damage, diminish, destroy, change, modify, or the natural existing shape and form of any stream or its banks or tributaries in a manner that will adversely affect any fish or game habitat. The requirement that any such project must eliminate or diminish any adverse effect on fish or game habitat is applicable to the state in concurring upon any remedial actions to be conducted. The Natural Streambed and Land Preservation Act of 1975, §§ 75-7-101 et seq., MCA, includes substantive requirements and is applicable to private parties as well as government agencies.

While the administrative/ procedural requirements including the consent and approval requirement set forth in these statutes and regulations are not ARARs, the party designing and implementing the remedial action for the MRSOU should continue to consult with the Montana Department of Fish, Wildlife and Parks and any conservation district or board of county commissioners (or consolidated city/county government) as provided in the referenced statutes, to assist in the evaluation of factors discussed above.

ARM 36.2.410 establishes minimum standards which would be applicable if a remedial action alters or affects a streambed, including any channel change. Projects must be

[30] Group III consists of primarily inert wastes, including industrial mineral wastes which are essentially inert and non-water soluble and do not contain hazardous waste constituents. ARM 17.50.503(1)(b).

designed and constructed using methods that minimize adverse impacts to the stream (both upstream and downstream) and future disturbances to the stream. All disturbed areas must be managed during construction and reclaimed after construction to minimize erosion. Temporary structures used during construction must be designed to handle high flows reasonably anticipated during the construction period. Temporary structures must be completely removed from the stream channel at the conclusion of construction and the area must be restored to a natural or stable condition. Channel alternation must be designed to retain original stream length or otherwise provide hydrologic stability. Streambank vegetation must be protected except where removal of such vegetation is necessary for the completion of the project. When removal of vegetation is necessary, it must be kept to a minimum. Riprap, rock, and other material used in a project must be of adequate size, shape and density and must be properly placed to protect the streambank from erosion. The placement of road fill material in a stream, the placement of debris or other materials in a stream where it can erode or float into the stream, projects that permanently prevent fish migration, operation of construction equipment in a stream, and excavation of streambed gravels are prohibited unless specifically authorized. Such projects must also protect the use of water for any useful or beneficial purpose. See 75-7-102, MCA.

III. Montana Action Specific Requirements

A. Water Quality Statute and Regulations (Applicable)

Causing of pollution: Section 75-5-605 of the Montana Water Quality Act prohibits the causing of pollution of any state waters. Pollution is defined as contamination or other alteration of physical, chemical, or biological properties of state waters which exceeds that permitted by the water quality standards. The temporary waiver of certain water quality standards and their replacement with temporary standards, as described above, also applies to this requirement. Best Management Practices described in the ROD and further developed during remedial design and restoration design are intended to meet this requirement.

Placement of Wastes: Section 75-5-605, MCA, states that it is unlawful to place or cause to be placed any wastes where they will cause pollution of any state waters. Placement of waste is not prohibited if the authorization for placement contains provisions for review of the placement of materials to ensure it will not cause pollution to state waters.

Nondegradation: Section 75-5-303, MCA, states that existing uses of state waters and the level of water quality necessary to protect the uses must be maintained and protected. Section 75-5-317, MCA, and ARM 17.30.708 provide an exemption from nondegradation requirements which allows changes of existing water quality resulting from an emergency or remedial activity that is designed to protect the public health or the environment and that is approved, authorized, or required by the department. Changes determined to meet these requirements may be considered nonsignificant. In determining that remedial actions are protective of public health and the environment and in approving, authorizing, or requiring such remedial activities, no significant degradation should be approved, considering the criteria for a determination of non-significance set out in 75-5-301(5)(c), which (i) equate significance with the potential for harm to human health, a beneficial use or the environment, (ii) consider both the quantity and strength of the pollutant, (iii) consider the

length of time the degradation will occur, and (iv) consider the character of the pollutant so that greater significance is associated with carcinogens and toxins that bioaccumulate or biomagnify and lesser significance is associated with substances that are less harmful or less persistent. Under ARM 17.30.715(1)(b), concentrations of carcinogenic parameters or parameters with a bioconcentration factor greater than 300 cannot exceed the concentration in the receiving water in order for a discharge to be considered nonsignificant and thus exempt from nondegradation requirements under § 75-5-317.

ARM 17.30.705 provides that for all state waters, existing and anticipated uses and the water quality necessary to protect these uses must be maintained and protected.

ARM 17.30.1011 provides that any groundwater whose existing quality is higher than the standard for its classification must be maintained at that high quality unless degradation may be allowed under the principles established in § 75-5-303, MCA, and the nondegradation rules at ARM 17.30.701 et seq.

B. Montana Pollutant Discharge Elimination System (MPDES)—Stormwater and Other Point Sources (Applicable or Relevant and Appropriate)

ARM 17.30.1342 - .1344 set forth the substantive requirements applicable to all MPDES permits. The substantive requirements, including the requirement to properly operate and maintain all facilities and systems of treatment and control are applicable requirements.

Under ARM 17.30.601, ARM 17.30.1101 et seq., and ARM 17.30.1301 et seq., the Montana Department of Environmental Quality has issued general stormwater permits for certain activities. The substantive requirements of the following permits are applicable for the following activities:

- For construction activities: General Permit for Storm Water Discharges Associated with Construction Activity, Permit No. MTR 100000 (June 8, 2002);
- For mining activities: General Permit for Storm Water Discharges Associated with Mining and with Oil and Gas Activities, Permit No. MTR300000 (November 17, 2002)[31];
- For industrial activities: General Permit for Storm Water Discharges Associated with Industrial Activity, Permit No. MTR000000 (October 1, 2001).

Generally, the permits listed above require the permittee to implement Best Management Practices (BMP) and to take all reasonable steps to minimize or prevent any discharge which has a reasonable likelihood of adversely affecting human health or the environment.[32] However, if there is evidence indicating potential or realized impacts on water quality due

[31] This permit covers point source discharges of storm water from mining and milling activities (including active, inactive, and abandoned mine and mill sites) including activities with Standard Industrial Code 14 (metal mining).

[32] For further explanation of storm water applications, see the letter from EPA to Chuck Stilwell, ARCO, dated February 2, 1999, which describes that treatment, in addition to BMPs, may be necessary if in-stream standards are not met after implementation of BMPs. This letter was issued under the Butte Priority Soils operable unit, but similar reasoning applies to this site.

to any storm water discharge associated with the activity, the substantive standards associated with an individual MPDES permit or alternative general permit may be required.

A related mine reclamation requirement is set out in ARM 17.24.633 (relevant and appropriate), which requires that all surface drainage from disturbed areas that have been graded, seeded or planted must be treated by the best technology currently available (BTCA) before discharge. Sediment control through BTCA practices must be maintained until the disturbed area has been reclaimed, the revegetation requirements have been met, and the area meets state and federal requirements for the receiving stream.

C. Air Quality

1. Air Quality Regulations (Applicable)

Dust suppression and control of certain substances likely to be released into the air as a result of earth moving, transportation and similar actions related to remedial activity at the MRSOU may be necessary to meet air quality requirements. Certain ambient air standards for specific contaminants and particulates are set forth in the federal action specific section above. Additional air quality regulations under the state Clean Air Act, §§ 75-2-101 et seq., MCA, are discussed below.

ARM 17.8.604 (Applicable) lists certain wastes that may not be disposed of by open burning, including oil or petroleum products, RCRA hazardous wastes, chemicals, and treated lumber and timbers. Any waste which is moved from the premises where it was generated and any trade waste (material resulting from construction or operation of any business, trade, industry or demolition project) may be open burned only in accordance with the substantive requirements of ARM 17.8.611 or 612.

ARM 17.8.308 (Applicable) provide that no person shall cause or authorize the production, handling, transportation or storage of any material, cause or authorize the use of any street, road, or parking lot, or operate a construction site or demolition project, unless reasonable precautions to control emissions of airborne particulate matter are taken. Normally, emissions of airborne particulate matter must be controlled so that they do not “exhibit an opacity of twenty percent (20%) or greater averaged over six consecutive minutes.” See also ARM 17.8.304 (Applicable).

In addition, state law provides an ambient air quality standard for settled particulate matter. Particulate matter concentrations in the ambient air shall not exceed the following 30-day average: 10 grams per square meter. ARM 17.8.220 (Applicable). Whenever this standard is exceeded, the activity resulting in such exceedance shall be suspended until such time as conditions improve.

ARM 17.24.761 (Relevant and Appropriate) specifies a range of measures for controlling fugitive dust emissions during mining and reclamation activities. Some of these measures could be considered relevant and appropriate to control fugitive dust emissions in connection with excavation, earth moving and transportation activities conducted as part of the remedy at the site. Such measures include, for example, paving, watering, chemically stabilizing, or frequently compacting and scraping roads, promptly removing rock, soil or other dust-forming debris from roads, restricting vehicle speeds, revegetating, mulching, or

otherwise stabilizing the surface of areas adjoining roads, restricting unauthorized- vehicle travel, minimizing the area of disturbed land, and promptly revegetating regraded lands.

D. Solid Waste Management Regulations (Applicable)

As noted above, the Solid Waste Management Regulations are applicable to the disposal or active management of the tailings, construction debris, and similar wastes within the MRSOU. Certain of these regulations are identified in the state location specific ARARs above. Action specific solid waste regulations are discussed below:

ARM 17.50.505(2) specifies standards for solid waste management facilities, including the requirements that:

1. Class II[33] landfills must confine solid waste and leachate to the disposal facility. If there is the potential for leachate[34] migration, it must be demonstrated that leachate will only migrate to underlying formations which have no hydraulic continuity with any state waters;
2. adequate separation of group II wastes from underlying or adjacent water must be provided[35]; and
3. no new disposal units or lateral expansions may be located in wetlands.

ARM 17.50.506 specifies design requirements for landfills[36]. Landfills must either be designed to ensure that MCLs are not exceeded or the landfill must contain a composite liner and leachate collection system which comply with specified criteria.

ARM 17.50.511 sets forth general operational and maintenance and design requirements for solid waste management systems. Specific operational and maintenance requirements specified in ARM 17.50.511[37] that are relevant and appropriate are requirements for run-on and runoff control systems, requirements that sites be fenced to prevent unauthorized access, and prohibitions of point source and nonpoint source discharges which would violate Clean Water Act requirements.

---

[33] Generally Class II landfills are licensed to receive Group II and Group III waste, but not regulated hazardous waste. Class III landfills may only receive Group III waste. Class IV landfills may receive Group III or IV waste.

[34] Leachate is defined as a liquid which has contacted passed through, or emerged from solid waste and contains soluble, suspended, or miscible materials removed from the waste. ARM 17.50.502(29).

[35] The extent of separation shall be established on a case-by-case basis, considering terrain and the type of underlying soil formations, and facility design. The Waste Management Section of DEQ has generally construed this to require a 10 to 20 foot separation from groundwater.

[36] A landfill is defined as an area of land or an excavation where wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile. ARM 17.50.502(27).

[37] ARM 17.50.511(1)(j), 17.50.511(l)(k) and 17.50.511(1)(l)

ARM 17.50.523 specifies that solid waste must be transported in such a manner as to prevent its discharge, dumping, spilling or leaking from the transport vehicle.

ARM 17.50.530 sets forth the closure[38] requirements for landfills. Class II landfills must meet the following criteria:

1. install a cover that is designed to minimize infiltration and erosion.
2. design and construct the final cover system to minimize infiltration through the closed unit by the use of an infiltration layer that contains a minimum 18 inches of earthen material and has a permeability less than or equal to the permeability of any bottom liner, barrier layer, or natural subsoils or a permeability no greater than 1 X 10-5 cm/sec, whichever is less;
3. minimize erosion of the final cover by the use of a seed bed layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth and protecting the infiltration layer from frost effects and rooting damage; and
4. revegetate the final cover with native plant growth within one year of placement of the final cover.

ARM 17.50.530(1)(b) allows an alternative final cover design if the infiltration layer achieves reduction in infiltration at least equivalent to the stated criteria and the erosion layer provides protection equivalent to the stated criteria.

ARM 17.50.531 sets forth post closure care requirements for Class II landfills. Post closure care must be conducted for a period sufficient to protect human health and the environment. Post closure care requires maintenance of the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the cover and comply with the groundwater monitoring requirements found at ARM Title 17, chapter 50, subchapter 7.

Disposal of construction and demolition debris[39] is addressed in regulations for Class III or Class IV landfills. Requirements applicable to the design of Class IV landfills, including plans for construction quality control and construction quality assurance, are found in ARM 17.50.506. Specific operational requirements for Class III and IV facilities are found in ARM 17.50.511, and require, inter alia, that conditionally exempt small generator wastes must be removed to the greatest extent practicable and all liquid paints, solvents, glues, resins, dyes,

[38] Closure means the process by which the operator closes all or part of the facility.

[39] ARM 17-50-503 provides, “Group III wastes include wood wastes and non-water soluble solids. These wastes are characterized by their general inert nature and low potential for adverse environmental impacts. Examples include, but are not limited to... inert solid waste such as unpainted brick, dirt, rock and concrete ... clean, untreated, unglued wood materials, brush, unpainted or untreated lumber, and vehicle tires; and ... industrial mineral wastes which are essentially inert and non-water soluble and do not contain hazardous waste constituents. ...Group IV wastes include construction and demolition wastes, and asphalt, except regulated hazardous wastes.”

oils, pesticides, and other household hazardous waste must be removed from buildings prior to demolition.

Section 75-10-206, MCA, allows variances[40] to be granted from solid waste regulations if failure to comply with the rules does not result in a danger to public health or safety or compliance with specific rules would produce hardship without producing benefits to the health and safety of the public that outweigh the hardship. In certain circumstances relating to waste nature and volume and the provisions of the Superfund law regarding ongoing maintenance and review, certain of the Solid Waste regulations regarding design of landfills, operational and maintenance requirements, and landfill closure and post-closure care may appropriately be subject to variance for the MRSOU. For example, the barrier layer and leachate collection and removal system requirements of ARM 17.50.506 may be subject to variance as long as the design ensures that concentration values listed in Table 1, ARM 17.50.506, will not be exceeded in the uppermost aquifer, measured at the appropriate location. Similarly, the ground water monitoring requirements of ARM 17.50.701 et seq. can be considered and coordinated with any other monitoring requirements under CERCLA.

E. Reclamation Requirements

1. Noxious Weed Control Act, Section 7-22-2101 et seq., MCA, and ARM 4.5.201 et seq. (Applicable)

These requirements mandate careful weed control planning for identified noxious weeds in projects such as the Milltown revegetation project.

The Strip and Underground Mine Reclamation Act, §§ 82-4-201 through 254, MCA, technically applies to coal and uranium mining, but that statute and the regulations promulgated under that statue and discussed in this section set out the standards that mine reclamation should attain. Those requirements identified here have been determined to be relevant and appropriate requirements for this action. Section 82-4-231 (Relevant and Appropriate) requires the reclamation and revegetation of the land as rapidly, completely, and effectively as the most modern technology and the most advanced state of the art will allow. In developing a method of operation and plans of backfilling, water control, grading, topsoiling and reclamation, all measures shall be taken to eliminate damages to landowners and members of the public, their real and personal property, public roads, streams, and all other public property from soil erosion, subsidence, landslides, water pollution, and hazards dangerous to life and property. Sections 82-4-231(10)(j) and (10(k)(i) and ARM 17.24.751 (Relevant and Appropriate) provide that reclamation of mine waste materials shall, to the extent possible using the best technology currently available, minimize disturbances and adverse impacts of the operation on fish, wildlife, and related environmental values and achieve enhancement of such resources where practicable, and shall avoid acid or other toxic mine drainage by such measures as preventing or removing water from contact with toxic producing deposits. ARM 17.24.315 sets forth standards for ponds and embankments. Section 82-4-233, MCA, requires vegetation as is necessary to

[40] See the letter from EPA to Chuck Stilwell, ARCO, dated May 21, 2002, which describes the application of variances to solid waste management rules for the Railroad Bed Time Critical Removal Action (TCRA) at the BPSOU.

establish a diverse, effective, and permanent vegetative cover of the same seasonal variety native to the area of land to be affected and capable of self-regeneration and plant succession at least equal in extent of cover to the natural vegetation of the area except that introduced species may be used in the revegetation process where desirable and necessary to achieve the approved postmining land use plan. ARM 17.24.641 (Relevant and Appropriate) also provides that drainage from acid forming or toxic-forming spoil into ground and surface water must be avoided by preventing water from coming into contact with such spoil. ARM 17.24.505 (Relevant and Appropriate) similarly provides that acid, acid forming, toxic, toxic-forming or other deleterious materials must not be buried or stored in proximity to a drainage course so as to cause or pose a threat of water pollution.

Reclamation Activities - Hydrology Regulations (Relevant and Appropriate)

The hydrology regulations promulgated under the Strip and Underground Mine Reclamation Act, §§ 82-4-201 et seq., MCA, provide detailed guidelines for addressing the hydrologic impacts of mine reclamation activities and earth-moving projects and are relevant and appropriate for addressing these impacts in the MRSOU.

ARM 17.24.631 (Relevant and Appropriate) provides that long-term adverse changes in the hydrologic balance from mining and reclamation activities, such as changes in water quality and quantity, and location of surface water drainage channels shall be minimized. Water pollution must be minimized and, where necessary, treatment methods utilized. Diversions of drainage to avoid contamination must be used in preference to the use of water treatment facilities. Other pollution minimization devices must be used if appropriate, including stabilizing disturbed areas through land shaping, diverting runoff, planting quickly germinating and growing stands of temporary vegetation, regulating channel velocity of water, lining drainage channels with rock or vegetation, mulching, and control of acid-forming and toxic-forming waste materials.

ARM 17.24.633 (Relevant and Appropriate) provides water quality performance standards that may be invoked in the event that runoff from the treated areas threatens water quality or sediments in the stream, including the requirement that all surface drainage from a disturbed area must be treated by the best technology currently available (BTCA). Treatment must continue until the area is stabilized.

ARM 17.24.634 (Relevant and Appropriate) provides that, in reclamation of drainages, drainage design must emphasize channel and floodplain dimensions that approximate the pre-mining configuration and that will blend with the undisturbed drainage above and below the area to be reclaimed. The average stream gradient must be maintained with a concave longitudinal profile. This regulation provides specific requirements for designing the reclaimed drainage to:

1. approximate an appropriate geomorphic habit or characteristic pattern;
2. remain in dynamic equilibrium with the system without the use of artificial structural controls;
3. improve unstable premining conditions;
4. provide for floods and for long term stability of the landscape; and
5. establish a premining diversity of aquatic habitats and riparian vegetation.

ARM 17.24.635 through 26.4.637 (Relevant and Appropriate) set forth requirements for temporary and permanent diversions.

ARM 17.24.638 (Relevant and Appropriate) specifies sediment control measures to be implemented during operations.

ARM 17.24.639 (Relevant and Appropriate) sets forth requirements for temporary and permanent sedimentation ponds.

ARM 17.24.640 (Relevant and Appropriate) provides that discharge from sedimentation ponds, permanent and temporary impoundments, and diversions shall be controlled by energy dissipaters, riprap channels, and other devices, where necessary, to reduce erosion, prevent deepening or enlargement of stream channels, and to minimize disturbance of the hydrologic balance.

ARM 17.24.643 (Relevant and Appropriate) requires protection of groundwater resources.

ARM 17.24.645 (Relevant and Appropriate) sets forth requirements for groundwater monitoring.

ARM 17.24.646 (Relevant and Appropriate) sets forth requirements for surface water monitoring.

Reclamation and Revegetation Requirements (Relevant and Appropriate)

ARM 17.24.501 (Relevant and Appropriate) gives general backfilling and final grading requirements. Backfill must be placed so as to minimize sedimentation, erosion, and leaching of acid or toxic materials into waters, unless otherwise approved. Final grading must be to the approximate original contour of the land and final slopes must be graded to prevent slope failure, may not exceed the angle of repose, and must achieve a minimum long term static safety factor of 1:3. The disturbed areas must be blended with surrounding and undisturbed ground to provide a smooth transition in topography.

ARM 17.24.519 (Relevant and Appropriate) provides that an operator may be required to monitor settling of regraded areas.

ARM 17.24.702(4), (5), and (6) (Relevant and Appropriate) requires that during the redistributing and stockpiling of soil (for reclamation):

1. regraded areas must be deep-tilled, subsoiled, or otherwise treated to eliminate any possible slippage potential, to relieve compaction, and to promote root penetration and permeability of the underlying layer; this preparation must be done on the contour whenever possible and to a minimum depth of 12 inches;

2. redistribution must be done in a manner that achieves approximate uniform thicknesses consistent with soil resource availability and appropriate for the postmining vegetation., land uses, contours, and surface water drainage systems; and

3. redistributed soil must be reconditioned by subsoiling or other appropriate methods.

ARM 17.24.703 (Relevant and Appropriate) requires that when using materials other than, or along with, soil for final surfacing in reclamation, the operator must demonstrate that the material (1) is at least as capable as the soil of supporting the approved vegetation and

subsequent land use, and (2) the medium must be the best available in the area to support vegetation. Such substitutes must be used in a manner consistent with the requirements for redistribution of soil in ARM 17.24.701 and 702.

ARM 17.24.711 (Relevant and Appropriate) requires that a diverse, effective, and permanent vegetative cover of the same seasonal variety native to the area of land to be affected shall be established except on road surfaces and below the low-water line of permanent impoundments. See also § 82-4-233, MCA (Relevant and Appropriate). Vegetative cover is considered of the same seasonal variety if it consists of a mixture of species of equal or superior utility when compared with the natural vegetation during each season of the year (See also ARM 17.24.716 and .719 below regarding substitution of introduced species for native species). This requirement may not be appropriate where other cover is more suitable for the particular land use or another cover is requested by the landowner.

ARM 17.24.713 (Relevant and Appropriate) provides that seeding and planting of disturbed areas must be conducted during the first appropriate period for favorable planting after final seedbed preparation.

ARM 17.24.714 (Relevant and Appropriate) requires use of a mulch or cover crop or both until an adequate permanent cover can be established. Use of mulching and temporary cover may be suspended under certain conditions.

ARM 17.24.716 (Relevant and Appropriate) establishes the required method of revegetation, and provides that introduced species may be substituted for native species as part of an approved plan.

ARM 17.24.717 (Relevant and Appropriate) relates to the planting of trees and other woody species if necessary, as provided in § 82-4-233, MCA, to establish a diverse, effective, and permanent vegetative cover of the same seasonal variety native to the affected area and capable of self-regeneration and plan succession at least equal to the natural vegetation of the area, except that introduced species may be used in the revegetation process where desirable and necessary to achieve the approved land use plan.

ARM 17.24.718 (Relevant and Appropriate) requires the use of soil amendments and other means such as irrigation, management, fencing, or other measures, if necessary to establish a diverse and permanent vegetative cover.

ARM 17.24.721 (Relevant and Appropriate) specifies that rills or gullies in reclaimed areas must be filled, graded or otherwise stabilized and the area reseeded or replanted if the rills and gullies are disrupting the reestablishment of the vegetative cover or causing or contributing to a violation of water quality standards for a receiving stream.

ARM 17.24.723 (Relevant and Appropriate) sets forth requirements for vegetation, soils, wildlife, and other monitoring.

ARM 17.24.724 (Relevant and Appropriate) specifies that revegetation success must be measured against approved unmined reference areas or by comparison with technical standards from historic data. More than one reference area or historic record must be established for vegetation types with significant variation due to a number of factors.

ARM 17.24.726 (Relevant and Appropriate) sets forth vegetation production, cover, diversity, density, and utility requirements.

ARM 17.24.733 (Relevant and Appropriate) sets forth standards for trees, shrubs, and half shrubs.

F. Montana Dam Safety Act and Implementing Regulations

In the absence of FERC nonpower use license, pursuant to 16 U.S.C. 808(b), or a FERC power use license, the structural safety and maintenance of dam and reservoir for a nonpower project is governed by the laws and regulations of the State in which the project is located. The dam is classified as a high hazard dam. The substantive and procedural requirements under the Dam Safety Act, § 85-15-101 et seq., MCA, and implementing regulations at ARM 36.14.101 et seq. would be implemented by the State should FERC authority and permitting not be done. The requirements would be independently applicable if the dam was no longer exempt under 85-15-107, MCA, as licensed and supervised under FERC authority. Below is a description of the State dam standards which are applicable and contain safety, stability, maintenance, and removal requirements. As noted, EPA would defer to independent State authority regarding these issues - the substantive provisions of these requirements would become ARARs only if the State did not implement or enforce these provisions.

Section 85-15- 207, MCA, states that no person may fill or procure to be filled with water any dam or reservoir that is not so thoroughly and substantially constructed as to safely hold any water that may be turned therein.

Section 85-15- 208, MCA, states that no person may construct or cause to be constructed a dam or reservoir for the purpose of accumulating, storing, appropriating, or diverting any of the waters of this state, except in a thorough, secure, and substantial manner.

ARM 36.14.501 sets forth high hazard dam criteria. An earthfill dam must be safe and stable during all phases of construction and operation of the reservoir. To accomplish this, the following criteria must be met: (a) the embankment must be safe against overtopping during occurrence of the inflow design flood by the provision of sufficient spillway and outlet works capacity; (b) the slopes of the embankment must be stable during construction and under all conditions of reservoir operation, including rapid drawdown of the reservoir; (c) the embankment must be designed so as not to impose excessive stresses upon the foundation; (d) seepage flow through the embankment, foundation, and abutments must be controlled so that no internal erosion or piping takes place and so there is no sloughing in the area where the seepage emerges; (e) the embankment must be safe against overtopping by wave action; (f) the upstream slope must be protected against erosion by wave action, and the crest and downstream slope must be protected against erosion due to wind and rain; (g) the design must be such that the most severe earthquake that can be reasonably anticipated will not cause catastrophic failure and loss of life; and (h) the dam and its appurtenants must be constructed utilizing proper methods and control.

Earth dams greater than 12,500 acre-feet or a total capacity of less than 25,000 acre-feet measured to the primary emergency spillway must be designed and constructed at least equivalent to the United States Bureau of Reclamation Design of Small Dams to its limit of a 50-feet dam height, and to the Corps standard beyond a 50-feet dam height. Designs for

construction of high-hazard dams must conform to accepted practices and procedures of the engineering profession. Design as well as preparation of the construction plans and specifications must be prepared by or under the direction of an engineer experienced in dam design and construction.

ARM 36.14.502 sets forth the hydrologic standard for emergency and principal spillways. The regulation sets forth minimum inflow design flood and the minimum inflow design flood recurrence interval for reservoirs and spillways.

ARM 36.14.503 sets forth certain monitoring instrumentation requirements. All dams must have an adequate seepage monitoring and collection system.

ARM 36.14.504 sets forth requirements for the breach or removal of an earthen dam. The breach of an earth dam must be excavated down to the level of the natural ground and be able to pass the 100-year, 24-hour flood at a depth and velocity equivalent to the natural channel. However, the maximum width required may be the total removal of the dam. The sides of the breach must be excavated to a slope that is stable and consistent with the natural angle of repose of adjacent material abutting the dam or as determined by the engineer.

ARM 36.14.301-312 sets forth dam construction applications and permits. ARM 36.14.306 requires that repair work include specific measures to be taken to reasonably ensure the problem will not recur or the solution is the most reasonable and will not impact the safety of the dam. ARM 36.14.309 requires notification and immediate action to correct a dangerous condition if a dangerous or emergency condition including but not limited to flood during construction, slope failure, or earthquake, develops during construction.

ARM 36.14.401-407 sets forth operation applications and permits. ARM 36.14.404 requires a safe drawdown rate for the reservoir. ARM 36.14.405 requires the removal and prevention of the accumulation of deleterious materials from upstream face of the dam and the spillway system and the maintenance of adequate and suitable vegetation to prevent the erosion of the embankment and earth spillway for the dam.

IV. To Be Considered Documents (TBCs)

The use of documents identified as TBCs is addressed in the Introduction, above. A list of TBC documents is included in the Preamble to the NCP, 55 Fed. Reg. 8765 (March 8, 1990). Those documents, plus any additional similar or related documents issued since that time, will be considered by EPA and DEQ during the conduct of the remedy implementation.

V. Other Laws (Non-Exclusive List)

CERCLA defines as ARARs only federal environmental and state environmental and siting laws. Remedial design, implementation, and operation and maintenance must nevertheless comply with all other applicable laws, both state and federal, if the remediation work is done by parties other than the federal government or its contractors.

The following “other laws” are included here to provide a reminder of other legally applicable requirements for actions being conducted at the MRSOU. They do not purport to be an exhaustive list of such legal requirements, but are included because they set out

related concerns that must be addressed and, in some cases, may require some advance planning. They are not included as ARARs because they are not "environmental or facility siting laws." As applicable laws other than ARARs, they are not subject to ARAR waiver provisions.

Section 121(e) of CERCLA exempts removal or remedial actions conducted entirely on-site from federal, state, or local permits. This exemption is not limited to environmental or facility siting laws, but applies to other permit requirements as well.

A. Other Federal Laws

1. Occupational Safety and Health Regulations

The federal Occupational Safety and Health Act regulations found at 29 CFR § 1910 are applicable to worker protection during conduct of all remedial activities.

B. Other Montana Laws

1. Groundwater Act

Section 85-2-505, MCA, (Applicable) precludes the wasting of groundwater. Any well producing waters that contaminate other waters must be plugged or capped, and wells must be constructed and maintained so as to prevent waste, contamination, or pollution of groundwater.

Section 85-2-516, MCA, states that within 60 days after any well is completed, a well log report must be filed by the driller with the DNRC and the appropriate county clerk and recorder.

2. Public Water Supply Regulations

If remedial action at the site requires any reconstruction or modification of any public water supply line or sewer line, the construction standards specified in ARM 17.38.101 (Applicable) must be observed.

3. Water Rights

Section 85-2-101, MCA, declares that all waters within the state are the state's property, and may be appropriated for beneficial uses. The wise use of water resources is encouraged for the maximum benefit to the people and with minimum degradation of natural aquatic ecosystems.

Parts 3 and 4 of Title 85, Chapter 2, MCA, set out requirements for obtaining water rights and appropriating and utilizing water. All requirements of these parts are laws which must be complied with in any action using or affecting waters of the state. Some of the specific requirements are set forth below.

Section 85-2-301, MCA, of Montana law provides that a person may only appropriate water for a beneficial use.

Section 85-2-302, MCA, specifies that a person may not appropriate water or commence construction of diversion, impoundment, withdrawal or distribution works therefor except by applying for and receiving a permit from the Montana Department of Natural Resources

and Conservation. While the permit itself may not be required under federal law, appropriate notification and submission of an application should be performed and a permit should be applied for in order to establish a priority date in the prior appropriation system.

Section 85-2-306, MCA, specifies the conditions on which groundwater may be appropriated, and, at a minimum, requires notice of completion and appropriation within 60 days of well completion.

Section 85-2-311, MCA, specifies the criteria which must be met in order to appropriate water and includes requirements that:

1. there are unappropriated waters in the source of supply;
2. the proposed use of water is a beneficial use; and
3. the proposed use will not interfere unreasonably with other planned uses or developments.

Section 85-2-402, MCA, specifies that an appropriator may not change an appropriated right except as provided in this section with the approval of the DNRC.

Section 85-2-412, MCA, provides that, where a person has diverted all of the water of a stream by virtue of prior appropriation and there is a surplus of water, over and above what is actually and necessarily used, such surplus must be returned to the stream.

4. Controlled Ground Water Areas

Pursuant to § 85-2-507, MCA, the Montana Department of Natural Resources and Conservation may grant either a permanent or a temporary controlled ground water area. The maximum allowable time for a temporary area is two years, with a possible two-year extension.

Pursuant to § 85-2-506, MCA, designation of a controlled ground water area may be proposed if: (i) excessive ground water withdrawals would cause contaminant migration; (ii) ground water withdrawals adversely affecting ground water quality within the ground water area are occurring or are likely to occur; or (iii) ground water quality within the ground water area is not suited for a specific beneficial use.

5. Occupational Health Act, §§ 50-70-101 et seq., MCA

ARM § 17.74.101 addresses occupational noise. In accordance with this section, no worker shall be exposed to noise levels in excess of the levels specified in this regulation. This regulation is applicable only to limited categories of workers and for most workers the similar federal standard in 29 CFR 1910.95 applies.

ARM § 17.74.102 addresses occupational air contaminants. The purpose of this rule is to establish maximum threshold limit values for air contaminants under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse health effects. In accordance with this rule, no worker shall be exposed to air contaminant levels in excess of the threshold limit values listed in the regulation.

This regulation is applicable only to limited categories of workers and for most workers the similar federal standard in 29 CFR § 1910.1000 applies.

6. Montana Safety Act

Sections 50-71-201, 202 and 203, MCA, state that every employer must provide and maintain a safe place of employment, provide and require use of safety devices and safeguards, and ensure that operations and processes are reasonably adequate to render the place of employment safe. The employer must also do every other thing reasonably necessary to protect the life and safety of its employees. Employees are prohibited from refusing to use or interfering with the use of safety devices.

7. Employee and Community Hazardous Chemical Information

Sections 50-78-201, 202, and 204, MCA, state that each employer must post notice of employee rights, maintain at the work place a list of chemical names of each chemical in the work place, and indicate the work area where the chemical is stored or used. Employees must be informed of the chemicals at the work place and trained in the proper handling of the chemicals.