

10.0 Statutory Determinations

This section describes how the selected remedy meets statutory requirements and complies with CERCLA and NCP requirements.

10.1 Consistency with the Statutory Requirements of CERCLA in Section 121

The selected remedy complies with Section 121 of CERCLA as described below.

10.1.1 Protection of Human Health and the Environment

The selected remedy will result in the remediation of the On-Post Operable Unit contaminated groundwater, structures, and soil consistent with the RAOs established for these media. It will eliminate, reduce, or control risks posed through each exposure pathway by engineering controls, treatment, or institutional controls so that cumulative site risks are reduced to acceptable levels. All human health, principal threat, and biota risk is being addressed by the selected remedy, thus resolving the risks at the On-Post Operable Unit. Additional biota studies are being performed in support of design refinement in areas (termed the Area of Dispute) where the potential risks to biota have not been agreed upon. There will be no unacceptable short-term risks or cross-media impacts caused by implementation of the remedy.

10.1.1.1 Groundwater

The groundwater remedial actions proposed under Alternative 4 will address the potential risks to human health and the environment by continuing treatment of groundwater at the boundary systems (NWBCS, NBCS, and ICS) as well as the on-post groundwater IRA systems (Basin A Neck, Motor Pool/Rail Yard, and North of Basin F IRAs), and through construction of a new groundwater extraction system northeast of the Army Complex Trenches (in the Section 36 Bedrock Ridge area). The toxicity, mobility, and volume of contaminated groundwater will be reduced through activated carbon (primarily) and air stripping treatment technologies. The extent of NDMA groundwater contamination and potential design refinements to achieve the remediation goals are currently being evaluated (see Section 7.2.2).

Contaminant concentrations at the RMA boundary will be reduced to meet or surpass the CSRGs, which represent applicable federal or state standards and are consistent with the ROD for the Off-Post Operable Unit. Consumption of groundwater or surface water on post will be restricted by institutional controls in accordance with the FFA. Nonpotable uses of on-post groundwater were not anticipated and risk was therefore not considered in the HHRC for such uses. A risk evaluation would be performed prior to any future nonpotable use to ensure that such use would be protective of human health and the environment. Continued monitoring of shallow (unconfined aquifer) and deeper (confined aquifer) groundwater and 5-year reviews of the site will be used to evaluate the effectiveness of the remedy. Water levels in Lake Ladora, Lake Mary, and Lower Derby

Lake will be maintained to support aquatic ecosystems. The biological health of the ecosystems will continue to be monitored. Lake-level maintenance or other means of hydraulic containment or plume control will be used to prevent South Plants plumes from migrating into the lakes at concentrations exceeding CBSGs in groundwater at the point of discharge. Groundwater monitoring will be used to demonstrate compliance.

10.1.1.2 Structures

The structures remedial actions proposed under Alternative 2 will address the potential risks to human health and the environment by demolishing and disposing of all No Future Use structures (approximately 94 percent of all remaining structures at RMA, which include all contaminated and potentially contaminated structures). As the structural debris is removed, materials are segregated for purposes of recycling and waste classification. Economically recyclable materials such as scrap metals are collected for salvage. Demolition debris from structures in the Significant Contamination History Group will be placed in the on-post hazardous waste landfill. Structures in the Agent History Group will be monitored following demolition, and any debris showing agent contamination will be treated; all debris from this group will then be placed in the on-post hazardous waste landfill. Debris from structures in the Other Contamination History Group will be used as fill under the cover in Basin A. Chemical process-related equipment, ACM, and PCB contamination not addressed during IRAs will be segregated during demolition and disposed in the on-post hazardous waste landfill (see Section 7.3.3).

These remedial actions achieve the structures remedial action objectives and reduce the mobility of contaminants through containment in the on-post hazardous waste landfill or under the Basin A cover. The potential for exposure to humans or biota is thereby controlled. Toxicity is reduced through treatment of agent-contaminated structural debris by caustic washing.

10.1.1.3 Soil

The soil remedial actions proposed under Alternative 4 will address the potential risks to human health and the environment using a combination of containment (as a principal element) and treatment technologies. A discussion of the human health and ecological risks is presented in Section 6.1 and Section 6.2, respectively. Approximately 180,000 BCY of principal threat soil at the Former Basin F site will be treated to a depth of 10 ft below the base of the overburden by in situ solidification/stabilization and the site will be contained with a RCRA-equivalent cap. All soil/sludge from the Buried M-1 Pits will be treated by ex situ solidification/stabilization, followed by placement in the on-post hazardous waste landfill. Approximately 1,000 BCY of principal threat soil from the Hex Pit will be treated using an innovative thermal technology. Solidification/stabilization will become the selected remedy for the Hex Pit if all evaluation criteria for the innovative thermal technology are not met. These treatment actions, in addition to the more than 11 million

gallons of contaminated liquids from the Former Basin F already treated by incineration as part of the Basin F IRA, will achieve permanent reductions in the toxicity, mobility, or volume of some highly contaminated soil. Although the selected remedy in large part is a containment remedy, these treatment components satisfy CERCLA statutory preference for treatment. The large volume of contaminated soil present on the site precludes a remedy in which all contaminants could be excavated and cost-effectively treated.

Approximately 1.7 million BCY of contaminated soil from a number of soil medium groups at RMA (Basin F Wastepile, Section 36 Lime Basins, South Plants Central Processing Area, South Plants Ditches, South Plants Balance of Areas, Secondary Basins, Munitions Testing, Chemical Sewers, Sanitary Landfills, Lake Sediments, Surficial Soil, Buried Sediments, Sand Creek Lateral, Section 36 Balance of Areas, and Burial Trenches) will be contained in the on-post hazardous waste landfill. Another 1.5 million BCY of soil that may pose a risk to biota will be excavated and used as fill under the Basin A and South Plants soil covers and Basin F RCRA-equivalent cap. The Army and Shell Trenches will be contained in place with slurry walls and RCRA-equivalent caps. Soil covers will be constructed over all of the South Plants area; the processing areas of the North Plants; all of Basins A, B, C and D; and the Section 36 Balance of Areas. PCB-contaminated soil will be remediated as described in Section 9.3. These containment actions, in conjunction with institutional controls, will prevent exposure of humans to contaminants, reduce exposure of biota to contaminants, and reduce contaminant mobility.

10.1.1.4 Additional Components of the Remedy

Additional actions described in Section 9.4 that contribute to protection of human health and the environment and are an integral part of the on-post remedy are the following:

- Provision of \$48.8 million held in trust to provide for the acquisition and delivery of 4,000 acre-feet of potable water to SACWSD and the extension of water-distribution lines from an appropriate municipal water supply distribution system to all existing well owners within the DIMP plume footprint north of RMA as defined by the detection limit for DIMP of 0.392 parts per billion. The Army and Shell have reached an Agreement in Principle with SACWSD, enclosed as Appendix B of this ROD, regarding this matter.
- In compliance with NEPA, PMRMA will separately evaluate the potential impacts to the environment of both the acquisition of a replacement water supply for SACWSD and for the extension of water-distribution lines.
- The Army and Shell will fund ATSDR to conduct an RMA Medical Monitoring Program in coordination with CDPHE. The primary goals of the Medical Monitoring Program are to monitor any off-post impact on human health due to the remediation and provide mechanisms for evaluation of human health on an individual and community basis until such time as the soil remedy is completed. Elements of the program could include medical monitoring, environmental monitoring, health/community education, or other tools. The program design will be determined through an analysis of community needs, feasibility, and effectiveness.
- Trust Fund – During the formulation and selection of the remedy, members of the public and some local governmental organizations expressed keen interest in the creation of a Trust Fund to help ensure

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the long-term operation and maintenance of the remedy once the remedial structures and systems have been installed. In response to this interest, the Parties have committed to good-faith best efforts to establish a Trust Fund for the operation and maintenance of the remedy, including habitat and surficial soil. Such operation and maintenance activities will include those related to the new hazardous waste landfill; the slurry walls, caps, and soil and concrete covers; all existing groundwater pump-and-treat systems; the groundwater pump-and-treat system to intercept the Section 36 Bedrock Ridge Plume; the maintenance of lake levels or other means of hydraulic containment; all monitoring activities required for the remedy; design refinement for areas that may pose a potential risk to biota as described in Section 9.4; and any revegetation and habitat restoration required as a result of remediation.

These activities are estimated to cost approximately \$5 million per year (in 1995 dollars). The principal and interest from the Trust Fund would be used to cover these costs throughout the lifetime of the remedial program.

The Parties recognize that establishment of such a Trust Fund may require special legislation and that there are restrictions on the actions federal agencies can take with respect to proposing legislation and supporting proposed legislation. In addition to the legislative approach, the Parties are also examining possible options that may be adapted from trust funds involving federal funds that exist at other remediation sites. Because of the uncertainty of possible legislative requirements and other options, the precise terms of the Trust Fund cannot now be stated.

A trust fund group will be formed to develop a strategy to establish the Trust Fund. The strategy group may include representatives of the Parties (subject to restrictions on federal agency participation), local governments, affected communities, and other interested stakeholders, and will be convened within 90 days of the signing of the ROD.

Notwithstanding these uncertainties, it is the intent of the Parties that if the Trust Fund is created it will include the following:

- A clear statement that will contain the reasons for the creation of the Trust Fund and the purposes to be served by it.
 - A definite time for establishing and funding the Trust Fund, which the Parties believe could occur as early as 2008, when the remedial structures and systems may have been installed.
 - An appropriate means for competent and reliable management of the Trust Fund, including appropriate criteria for disbursements from the Trust Fund to ensure that the money will be properly used for the required purposes.
- Restrictions on land use or access are incorporated as part of this ROD. The Rocky Mountain Arsenal National Wildlife Refuge Act of 1992 and the FFA restrict future land use, and prohibit certain activities such as agriculture, use of on-post groundwater as a drinking source, and consumption of fish and game taken at RMA. Continued restrictions on land use or access are included as an integral component of all on-post alternatives. Long-term management includes access restrictions to capped and covered areas to ensure the integrity of the containment systems.
 - Continued operation of the CERCLA Wastewater Treatment Plant to support the remediation activities.
 - Stored, drummed waste identified in the waste management element of the CERCLA Hazardous Wastes IRA may be disposed in the on-post hazardous waste landfill in accordance with the CDD (Harding Lawson Associates 1996).
 - Continued monitoring as part of remedial design to refine the remediation of surficial soil and lake sediments that may pose a potential risk to wildlife (see Section 6.2.4.3).

10.1.2 Compliance with ARARs

A comprehensive listing of chemical-, location-, and action-specific ARARs and TBCs that are pertinent to the selected remedy were developed and are presented in Appendix A. The identified ARARs and TBCs address the water, soil, and structures at RMA. A summary of location- and chemical-specific ARARs for the selected remedy is presented in Tables 10.1-1 and 10.1-2, respectively. A summary of action-specific ARARs related to the selected remedy is presented in Table 10.1-3. Not every action specified in the summary of action-specific ARARs (Table 10.1-3) will apply to every activity in the selected remedy. For example, ARARs regarding air emissions during demolition do not apply to GAC adsorption of contaminants from groundwater.

The identified ARARs and TBCs comply with Section 121(d) of CERCLA. ARARs were identified according to the procedures outlined in the most recent EPA guidance (OERR-EPA 1988a, b; OSWER-EPA 1989b, c) and the NCP.

10.1.2.1 Chemical-Specific ARARs

RMA chemical-specific ARARs set concentration limits or ranges in various environmental media for specific hazardous substances, pollutants, or contaminants. Such ARARs either set protective cleanup levels for the COCs in the designated media or indicate an appropriate level of discharge based on health- and risk-based analyses and technological considerations. Chemical-specific ARARs were established for individual groundwater treatment systems, surface water, soil, and structures and are presented in Appendix A and are summarized in Table 10.1-2. The selected remedy will comply with all chemical-specific ARARs, which are described below by medium.

Water

RMA groundwater and surface water ARARs include federal standards based on the following regulatory programs:

- Safe Drinking Water Act (SDWA) MCLs: 40 CFR 141 Subparts B and G, 40 CFR 143.3
- SDWA Maximum Contaminant Level Goals: 40 CFR 141 Subpart F
- Clean Water Act (CWA) Water Quality Criteria: 33 USC Section 1313
- RCRA MCLs: 40 CFR Section 264.94

With respect to state standards, ARARs cited include any state provisions that are equivalent to or more stringent than federal requirements:

- Colorado Rules and Regulations Pertaining to Hazardous Waste
- Colorado Basic Standards for Groundwater
- Colorado Primary Drinking Water Regulations
- Colorado Basic Standards and Methodologies for Surface Water

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ARARs and TBCs for groundwater and surface water were identified by evaluating the current lists of target contaminants addressed by the groundwater and surface water monitoring programs and identifying corresponding standards, regulations, or requirements.

Structures

TSCA establishes cleanup levels for PCB spills occurring after May 4, 1987 and EPA (OERR-EPA 1990) presents cleanup standards that may serve as TBCs for PCB-contaminated structural surfaces and debris. The LDR Best Demonstrated Available Technology (BDAT) levels are ARARs for structural debris if placement occurs. Placement considerations are detailed in Section 7.1.1.

Soil

The proposed RCRA Corrective Action Rule example action levels (55 FR 30798, July 27, 1990), LDR Universal Treatment Standard (UTS) and TSCA PCB Spill Cleanup Policy (40 CFR Part 761 Subpart G), are TBC values for soil and sediments at RMA. LDR BDAT levels (40 CFR Part 268) are cited ARARs if placement occurs. Several other Colorado and federal laws and regulations set specific values for certain contaminants in specific media, but no laws other than TSCA, Clean Air Act, and RCRA set specific values that are likely ARARs or TBCs for RMA soil and sediments. EPA proposed soil treatment standards in the UTS rule on September 14, 1993, but deferred action on soil LDRs when that rule was finalized; consequently, UTSs are TBCs with respect to soil at RMA. In addition, there are no chemical-specific standards set by SDWA or CWA or the state equivalents for soil and sediments. TSCA establishes guidance on action levels for PCBs in soil.

Air

RMA chemical-specific ARARs for air include the following: National Ambient Air Quality Standards (40 CFR 50) and National Emission Standards for Hazardous Air Pollutants (40 CFR 61). State standards that are equivalent or more stringent than federal requirements are also considered ARARs, specifically the Colorado Ambient Air Standards (5 CCR 1001-5 Regulation 3 and 5 CCR 1001-14) and Control of Hazardous Air Pollutants (5 CCR 1001-8).

10.1.2.2 Location-Specific ARARs

RMA location-specific ARARs are those requirements that restrict, depending upon the location or characteristics of the site and the requirements that apply to it, remedial activities or limit allowable contaminant levels. Examples of such regulations include siting laws for hazardous waste facilities, laws regarding activities in wetlands or floodplains, and laws regarding preservation of historic or cultural sites. The selected remedy will comply with all location-specific ARARs, which are listed in Appendix A and summarized in Table 10.1-1.

10.1.2.3 Action-Specific ARARs

RMA action-specific ARARs and TBCs are standards that restrict or control specific remedial activities related to the management of hazardous substances or pollutants. These requirements are triggered by a particular remedial activity, not by specific chemicals or the location of the activity. There may be several ARARs for any specific action. These action-specific ARARs do not in themselves determine the appropriate remedial alternative, but indicate performance levels to be achieved by an alternative. The selected remedy will comply with all action-specific ARARs, which are listed in Appendix A and summarized in Table 10.1-3.

10.1.2.4 Other Requirements

In addition to the chemical-, location-, and action-specific ARARs and TBCs cited above, there are a number of other requirements and potential requirements that constrain or direct remedial actions at RMA. These additional items are detailed in Appendix A and include the following:

- Federal Facility Agreement
- Endangered Species Act
- Migratory Bird Treaty Act
- Bald and Golden Eagle Protection Act
- Army UXO and agent management and disposal requirements
- Chemical Weapons Convention

10.1.3 Cost Effectiveness

Cost effectiveness is determined by evaluating three of the five balancing criteria to determine overall effectiveness: long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; and short-term effectiveness. Overall effectiveness is then compared to cost to ensure that the remedy is cost effective.

Proportional to cost, the selected remedy for groundwater, structures, and soil provides the best overall effectiveness of all the alternatives considered. The selected remedy will achieve the remedial action objectives for the contaminated media and greatly reduce the toxicity, mobility, or volume of contamination. The remedy makes use of proven technologies that will be protective over the long term and minimize or mitigate short-term impacts during remediation. The selected remedy is therefore cost effective in mitigating risks posed at the site by contaminated groundwater, structures and soil.

10.1.4 Utilization of Permanent Solutions to the Maximum Extent Practicable

The selected remedy for the On-Post Operable Unit makes use of proven treatment and containment technologies for the most highly contaminated soil and structures at RMA, and makes use of reliable groundwater treatment technologies. Approximately 207,000 BCY of contaminated soil will be treated, and

more than 1.8 million BCY of soil and structural debris will be contained in a new RCRA- and TSCA-compliant hazardous waste landfill to be constructed on post. Groundwater treatment will continue at a rate of several hundred million gallons per year until shut-off criteria are met, at which time pumping rates may be reduced.

Although the selected remedy in large part is a containment remedy, this remedy provides the best balance of tradeoffs in terms of long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability; and cost. The remedy uses permanent solutions and alternative treatment technologies to the maximum extent practicable. Components of the selected remedy satisfy the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element. The large volume of contaminated soil present on the site precludes a remedy in which all contaminants could be excavated and cost effectively treated. The selected remedy has received state and community acceptance.

10.2 State and Community Acceptance

10.2.1 State Acceptance

The state of Colorado concurs with the selected remedy for RMA as providing the best balance of the nine criteria. The state also concurs with the selected ARARs.

10.2.2 Community Acceptance

Based on comments to the Proposed Plan, community members view the remedy as an acceptable approach to reduce risks at a reasonable cost, with the proviso that an additional water supply, Medical Monitoring Program, and Trust Fund be established as described in Section 9.4. Some community members feel that additional treatment of soil should be performed.

10.3 Consistency with NCP

The process used to select the remedy for RMA is consistent with the NCP. Specifically, alternatives were first identified and screened from a broad range of alternatives that achieved the RAOs and then evaluated against the nine evaluation criteria presented in the NCP (see Section 8). Also in accordance with the NCP, the selected remedy fulfills the following requirements:

- It will be protective of human health and the environment.
- It will attain ARARs or provide grounds for invoking a waiver.
- It will be cost effective (provided that it first satisfies the threshold criteria).
- It will use permanent solutions to the maximum extent practicable.

10.4 Consistency with NEPA

Implementation of the selected remedy is in compliance with NEPA. Numerous studies conducted in support of the FS process have indicated that there are no likely significant environmental impacts. Therefore, in accordance with the procedures contained in Army Regulation 200-2, PMRMA is advising the public that the remediation program is in compliance with NEPA and that no further documentation is necessary. However, PMRMA will separately evaluate the potential impacts to the environment of both the acquisition of a replacement water supply by SACWSD and for the extension of water-distribution lines.

10.5 Summary

The preferred remedy for the On-Post Operable Unit includes Groundwater Alternative 4, Structures Alternative 2, and Soil Alternative 4. The remedy was selected in accordance with the requirements of CERCLA and the NCP. The remedial actions that comprise the selected remedy will reduce the toxicity, mobility, or volume of contamination and address the risks to human health and the environment through treatment and institutional controls for contaminated groundwater; demolition, treatment (as necessary for Army agent), and containment for all No Future Use structures; and a combination of containment (as a principal element) and treatment technologies for contaminated soil.

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Table 10.1-1 Summary of Location-Specific ARARs for the Selected Alternatives

ARAR/TBC	Requirement	Citation	Description
Location-Specific	Protection of Wetlands	Executive Order 11990 42 USC Section 1344 40 CFR Part 230, Subpart H 33 CFR Parts 320-330 40 CFR 6.302(a) 40 CFR 6, Appendix A, Sections 3(a) and 3(a)	Requires consideration of impacts to wetlands in order to minimize their destruction, loss, or degradation, and to preserve/enhance wetland values. Potentially applicable to activities which would impact wetlands
	Protection of Floodplains	Executive Order 11988 40 CFR 257.3-1(a) 40 CFR 264.18(b) 6 CCR 1007-3, 264.18(b) 40 CFR 6, Appendix A 40 CFR 6.302(b) Section 3(a), 3(b), and 3(b)(4) 44 FR 43239 (July 24, 1979)	Potentially applicable to activities occurring within the 100-year floodplain.
	Endangered Species Act	16 USC 1531	Establishes requirements for the protection of federally listed threatened and endangered species and their habitat. Potentially applicable to activities which could affect threatened or endangered species or their habitat. Note: the Endangered Species Act, along with the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act, are not ARARs, but independently apply to remedial activities.
	RCRA Subtitle C - Location Standards	40 CFR 264.18(a) 6 CCR 1007-3, 264.18(a) 6 CCR 1007-2, Part 2	New treatment facilities, storage facilities, or hazardous waste disposal facilities should not be within 200 ft of a fault. Facilities should not be located in areas prone to earthquakes, floods, fire, or other disasters that could cause a breakdown of the public water system.
	Fish and Wildlife Coordination Act and Wild and Scenic Rivers Act	16 USC Part 661-663 40 CFR 6.302 (e) and (g) 16 USC 1274 <u>et seq.</u>	Fish or wildlife resources that may be affected by actions resulting in control or structural modification of any natural stream or body of water should be protected. Federal agencies taking such actions must consult with USFWS. The Wild and Scenic Rivers Act established requirements for water resource projects affecting wild, scenic or recreational rivers in the National Wild and Scenic Rivers system. Applicable to area(s) affecting stream or river.

Table 10.1-1 Summary of Location-Specific ARARs for the Selected Alternatives

ARAR/TBC	Requirement	Citation	Description
	National Historic Preservation Act	16 USC 470 aa <u>et seq.</u> 36 CFR 800 44 FR 6068	The National Historic Preservation Act identifies procedures for protection of Historically and Culturally Significant Properties, including Colorado's delegated responsibilities under the act. Applicable to historically or culturally significant properties.
	Prehistoric, historic, or archeological sites owned or controlled by a federal agency	36 CFR 60 36 CFR 63 Proposed 36 CFR 66	Department of Interior regulations for determining site eligibility for the National Register of Historic Places and standards for data recovery should be complied with.
	Historical, prehistoric, and archeological resources and State register of Historic Places Act	CRS § 24-80-401 <u>et seq.</u> CRS §24-80.1-101 <u>et seq.</u>	Consultation with the Colorado Historic Society, the State Archaeologist, and State Register of Historic Places is required before an action is taken.
	Cultural resource owned or controlled by a federal agency	35 FR 8921	Executive Order 11593: Any federal agency controlling culturally significant resources is the designated leader in the preservation of those resources. This order ensures that all culturally significant resources located on an agency's property are protected. The federal agencies are responsible for identifying, evaluating, and nominating (where appropriate) to the National Register of Historic Places all culturally significant resources found on their land.
	Archeological or historic site owned or controlled by a federal agency	16 USC 469 <u>et seq.</u>	The Archeological and Historic Preservation Act of 1974 requires that a federal agency notify the Secretary of Interior regarding any agency project that will destroy a significant archeological site. The Secretary of the notifying agency may support data recovery programs to preserve the resource.

Table 10.1-1 Summary of Location-Specific ARARs for the Selected Alternatives

ARAR/TBC	Requirement	Citation	Description
Historically significant property owned and managed by the U.S. Army		Army Regulation 420 32 CFR 650.181 to 193 Technical Manual 5-801-1 Technical Note 78-17 32 CFR 229	<p>U.S. Department of the Army has procedures and standards for preserving historically significant properties and procedures for implementing the Archeological Resources Protection Act. Department of the Army Regulations 420 prescribe Army policy procedures and responsibilities for compliance with the National Historic Preservation Act of 1966, as amended, for maintaining the preservation of historically significant sites, the hiring of qualified personnel to manage the sites, and the conduct of state-of-the-art preservation standards regarding personnel and projects for accomplishment of the historic preservation program.</p> <p>This regulation also requires that each installation prepare a historic preservation plan or have documentation on file indicating that no resources appropriate for such management planning exist.</p>
Archaeological resources on U.S. Department of the Army installations		16 USC 470 aa <u>et seq.</u>	<p>The Archeological Resources Protection Act of 1979 establishes criminal and civil penalties for anyone damaging archeological resources. This act also allows the Secretary of the Army to issue excavation permits for archeological resources.</p>
Prehistoric, historic, or archeological sites owned or controlled by the U.S. Army		16 USC 470a 36 CFR 800	<p>The National Historic Preservation Act of 1966 requires the Secretary of the Interior to inventory, evaluate, and nominate (where appropriate) significant properties to the National Register of Historic Places.</p>
Prehistoric, historic, or archeological sites owned or controlled by the U.S. Army		43 CFR 3	<p>Preservation of American antiquities: Provides for the protection of historic or prehistoric remains of any object of any antiquity on federal lands.</p>
Prehistoric, historic, or archeological sites owned or controlled by the U.S. Army		43 CFR 7 36 CFR 296	<p>Protection of archeological resources: Provides for the protection of archeological resources located on public lands.</p>
Prehistoric, historic, or archeological sites owned or controlled by the U.S. Army		Executive Order No. 11593, May 13, 1971, 36 FR 8921, Section 2(b)	<p>According to Executive Order No. 11593, each federal agency shall exercise caution to ensure that any such property that might qualify for inclusion is not inadvertently transferred, sold, demolished, substantially altered, or allowed to deteriorate significantly.</p>

Table 10.1-1 Summary of Location-Specific ARARs for the Selected Alternatives

ARAR/TBC	Requirement	Citation	Description
		16 USC 470 aa <u>et seq.</u> 36 CFR 60.6	Based on the historical and field inventory information, the significance of all identified sites should be evaluated following criteria set forth in 36 CFR 60.6 and in accordance with guidelines from the Colorado State Historic Preservation Office before conducting any ground-altering activity. The act also requires the Army agency to consult with the Advisory Council on historic issues that may affect those significant properties. A federal agency should take into account the effect of the project on any National Register-listed or eligible property and is directed to complete an appropriate data recovery program before such a site is damaged or destroyed.
	National Historic Landmark Program	36 CFR 65	The National Historic Landmark Program was established to identify and designate National Historic Landmarks and encourage the long range preservation of nationally significant properties that illustrate or commemorate the history and prehistory of the United States.
	Colorado Requirements for Siting of Hazardous Waste Disposal Sites	CCR 1007-2, Part 2	State siting requirements control the location, design, and design performance of hazardous waste disposal sites. Such disposal sites must be located and designed in a manner that ensures long-term protection of human health and the environment. Disposal sites must be designed to prevent adverse effects on: <ul style="list-style-type: none"> • Groundwater • Surface water • Air quality • Public health and the environment
	National Wildlife Refuge System Administration Act	16 USC 668dd <u>et seq.</u>	The National Wildlife Refuge Administration Act prohibits the taking or possessing any fish, bird, mammal, or other wild vertebrate or invertebrate animals or part or nest or egg thereof within any such area; or enter, use, or otherwise occupy any such area for any purpose; unless such activities are performed by persons authorized to manage such area or unless such activities are permitted.

Table 10.1-2 Summary of Chemical-Specific ARARs for the Selected Alternatives

ARAR/TBC	Requirement	Citation	Description	
Chemical Specific	Safe Drinking Water Act	40 CFR 141	Drinking water standards that apply to specific contaminants and have been determined to have an adverse effect on human health. These standards, expressed as MCLs and MCLGs, are potential ARARs for groundwater and/or surface water cleanup and replacement standards	
	Colorado Primary Drinking Water Regulations	5 CCR 1003-1		
	Clean Water Act Ambient Water Quality Criteria	Guidance Criteria 33 USC Sections 1313-1314		Federal Water Quality Criteria established for the protection of human health and or aquatic organisms are not enforceable; however, Section 121(d)(2)(A) of CERCLA states that remedial actions must attain FWQC where they are relevant and appropriate under the circumstances of a release or threatened release.
	RCRA MCLs	40 CFR Section 264.94		Concentration limits for hazardous constituents in groundwater used for the protection of groundwater.
	Colorado Rules and Regulations Pertaining to Hazardous Waste	6 CCR 1007-3		Provides definitions and the general and specific standards necessary for the storage, treatment, and disposal of hazardous waste.
	Colorado Basic Standards for Groundwater	5 CCR 1002-8		Statewide standards and a system of classifying groundwater and adopting water quality standards for such classifications to protect existing and potential uses of groundwater.
	Colorado Basic Standards and Methodologies for Surface Water	5 CCR 1002-8		Basic standards and an antidegradation rule for maintaining and improving the quality of surface waters in Colorado.
	RCRA Corrective Action Rule	40 CFR Part 264 Subpart S 6 CCR 1007-3, Part 264, Subpart(s) 55 FR 30798, July 27, 1990 (TBC)		Corrective action standards proposed to establish a comprehensive regulatory framework for implementing the EPA's corrective action program under RCRA. The proposed standards include constituent-specific concentration levels for the protection of groundwater and soil.
	PCB Remedial Action Guidance	Guidance on Remedial Actions for Superfund Sites with PCB Contamination 40 CFR 761 Subpart G (TBC)		Provides recommended approach for evaluating and remediating Superfund sites with PCB contamination. Provide spill cleanup requirements for PCB spills that occurred after May 4, 1987.
	National Ambient Air Quality Standards	40 CFR 50		Sources cannot cause or contribute to an exceedance of a national ambient air quality standard.

Table 10.1-2 Summary of Chemical-Specific ARARs for the Selected Alternatives

ARAR/TBC	Requirement	Citation	Description
	National Emissions Standards for Hazardous Air Pollutants	40 CFR 61, Subpart M	No visible emissions allowed unless alternative waste management procedures followed.
	Colorado Ambient Air Quality Standard	5 CCR 1001-5, Regulation 3 5 CCR 1001-14	Sources cannot cause or contribute to an exceedance of a national or Colorado ambient air quality standard.
	Colorado Standards for Control of Hazardous Air Pollutants	5 CCR 100 1-8	Standard for hazardous air pollutants not to be exceeded.

Table 10.1-3 Summary of Action-Specific ARARs for the Selected Alternatives

ARAR/TBC	Requirement	Citation	Description
Action-Specific	<u>Worker Protection</u>		
	Health and safety protection	29 CFR Part 1910	29 CFR 1910 provides guidelines for workers engaged in activities requiring protective health and safety measures regulated by OSHA. Requirements provided in 29 CFR 1910.120 apply specifically to the handling of hazardous waste/materials at uncontrolled hazardous waste sites. Note: OSHA regulations are independently applicable regulatory requirements, not ARARs.
		29 CFR 1910.120 (b) to (j)	29 CFR 1910.120 (b) through (j) provides guidelines for workers involved in hazardous waste operations and emergency response actions on sites regulated under RCRA and CERCLA.
		29 CFR 1926 Subpart P	29 CFR 1926 Subpart P provides guidelines for workers engaged in activities related to construction and utilization of trenches and ditches.
	Worker exposure	ACGIH 1991-1992 (TBC) NIOSH 1990 (TBC) 29 CFR 1910.1000	Chemical-specific worker exposure guidelines established by OSHA, ACGIH, and NIOSH.
	<u>Air Emissions</u>		
	Particulate emissions	5 CCR 100 1–3, Regulation 1, Section III (D) 5 CCR 1001-5, Regulation 3 5 CCR 1001-2, Section II	Colorado air pollution regulations require owners or operators of sources that emit fugitive particulates to minimize emissions through use of all available practical methods to reduce, prevent, and control emissions. In addition, no off-site transport of particulate matter is allowed. Fugitive dust-control measures will be written into workplans in consultation with the state. Estimated emissions from the proposed remedial activity per Colorado APEN requirements.

Table 10.1-3 Summary of Action-Specific ARARs for the Selected Alternatives

ARAR/TBC	Requirement	Citation	Description
	Emission of hazardous air pollutants	5 CCR 1001-10, Regulation 8 40 CFR Part 61 42 USC Section 7412	Emission of certain hazardous air pollutants is controlled by NESHAPs. Remediation activities could potentially cause emission of hazardous air pollutants. National standards for site remediation sources that emit hazardous air pollutants are scheduled for promulgation by the year 2000. Standards will be developed for 189 listed hazardous air pollutants.
	Volatile organic chemical emissions	5 CCR 1001-9, Regulation 7	VOC regulations apply to ozone nonattainment areas. The air quality control area for RMA is currently nonattainment for ozone. Storage and transfer of VOCs and petroleum liquids are controlled by these requirements. Disposal of VOCs is regulated for all areas, including ozone nonattainment. The regulations control the disposal of VOCs by evaporation or spilling unless reasonable available control technologies are utilized.
	Odor emissions	5 CCR 1001-4, Regulation 2	Colorado odor emission regulations require that no person shall allow emission of odorous air contaminants that result in detectable odors that are measured in excess of the specified limits.
	Air emissions from diesel-powered vehicles associated with excavation and backfill operations	5 CCR 1001-15, Regulation 12	Colorado Diesel-Powered Vehicle Emission Standards for Visible Pollutants apply to motor vehicles intended, designed, and manufactured primarily for use in carrying passengers or cargo on roads, streets, and highways, and state.
	Standards for asbestos waste disposal	40 CFR 61 Subpart M	Prevents discharge of visible emissions during collection, processing, packaging, or transporting any asbestos-containing waste; requires disposal of asbestos-containing waste as soon as possible at disposal site; requires transport vehicles be marked appropriately during loading and unloading operations.
	PM/CO Emissions	42 USC Section 7502-7503	New or modified major stationary sources in a nonattainment area are required to comply with the lowest achievable emission rate.

Table 10.1-3 Summary of Action-Specific ARARs for the Selected Alternatives

ARAR/TBC	Requirement	Citation	Description
	Visibility protection	40 CFR 51.300-307 40 CFR 52.26-29	Remediation activities must be conducted in a manner that does not cause adverse impacts on visibility. Visibility impairment interferes with the management, protection, preservation, or enjoyment of federal Class I areas.
		5 CCR 1001-14 CRS Section 42-4-307(8)	The Colorado Ambient Air Quality Standard for the AIR Program area is a standard visual range of 32 miles. The averaging time is 4 hours. The standard applies during an 8-hour period from 8:00 a.m. to 4:00 p.m. each day (Mountain Standard Time or Mountain Daylight Time, as applicable). The visibility standard applies only during hours when the hourly average humidity is less than 70 percent.
	Design/installation of caps/covers	Final Covers on Hazardous Waste Landfills and Surface Impoundments (EPA/530/SW-89/047) (TBC)	Caps and covers must be designed and installed to prevent wind dispersal of hazardous wastes. They should be designed, constructed, and installed as specified in this EPA report.
	Smoke and opacity	5 CCR 100 1-3, Regulation 1, Section II.A	Remedial activities must be conducted in a manner that will not allow or cause the emission into the atmosphere of any air pollutant that is in excess of 20% opacity.
	<u>Waste Characterization</u>		
	Solid waste determination	40 CFR 260 6 CCR 1007-3 Part 260 40 CFR 260.30-31 6 CCR 1007-3 Section 260.30-31 40 CFR 261.2 6 CCR 1007-3 Section 261.2 40 CFR 261.4 6 CCR 1007-3 Section 261.4	A solid waste is any discarded material that is not excluded by a variance granted under 40 CFR 260.30 and 260.31. Discarded material includes abandoned, recycled, and waste-like materials. These materials may have any of the following qualities: <ul style="list-style-type: none"> • Abandoned material may be <ul style="list-style-type: none"> – Disposed – Burned or incinerated

ARAR/TBC	Requirement	Citation	Description
			<ul style="list-style-type: none"> – Accumulated, stored, or treated before or in lieu of being abandoned by being disposed, burned, or incinerated • Recycled material that is <ul style="list-style-type: none"> – Used in a manner constituting disposal – Burned for energy recovery – Reclaimed – Speculatively accumulated • Waste-like material is material that is considered inherently waste-like.
	Solid waste classification	6 CCR 1007-2, Section 1	If a generator of wastes has determined that the wastes do not meet the criteria for hazardous wastes, they are classified as solid wastes. The Colorado solid waste rules contain five solid waste categories: industrial wastes, community wastes, commercial wastes, special wastes, and inert material.
	Determination of hazardous waste	40 CFR 262.11 6 CCR 1007-3 Section 262.11 40 CFR Part 261 6 CCR 1007-3 Part 261	<p>Wastes generated during remedial activities must be characterized and evaluated according to the following method to determine whether the waste is hazardous:</p> <ul style="list-style-type: none"> • Determine whether the waste is excluded from regulation under 40 CFR 261.4 • Determine whether the waste is listed under 40 CFR 261 • Determine whether the waste is identified in 40 CFR 261 by testing the waste according to specified test methods or by applying knowledge of the hazardous characteristics of the waste in light of the materials or the process used.
	<u>Waste Management</u>		
	Discharge of liquid wastes	40 CFR Part 122 40 CFR Part 125 40 CFR Part 129 40 CFR 262 40 CFR 264	Any wastewater generated during remedial activities will be routed to the on-post CERCLA Wastewater Treatment Plant if it is not hazardous waste and will not interrupt the existing treatment system. If wastewater is routed to the on-post treatment plant, it must be treated in accordance with NPDES requirements.

Table 10.1-3 Summary of Action-Specific ARARs for the Selected Alternatives

ARAR/TBC	Requirement	Citation	Description
	Asbestos waste handling management	40 CFR 61, Subpart M	Prevents discharge of visible emissions during collection, processing, packaging, or transporting any asbestos-containing wastes; requires disposal of asbestos-containing waste as possible at disposal site; requires transport vehicles be marked appropriately during loading and unloading operations.
		5 CCR 1001-10, Regulation Part B, Section 8. B.III.c.8	Asbestos waste will be managed according to applicable substantive requirements for asbestos handling, transportation, and storage.
	Asbestos waste storage management	6 CCR 1007-2, Part B, Section 5.4	Asbestos waste will be managed according to applicable substantive requirements for asbestos storage.
	PCB storage	40 CFR 761.65	Storage facilities must be constructed with adequate roofs and walls; have impervious floors with curbs (no floor drains expansion joints or other openings); and be located above 100-year floodplain (applies to PCBs at concentrations of 50 ppm or greater) Temporary storage (<30 days) of PCB containers containing nonliquid PCBs, such as contaminated soil, rags, debris, need not comply with above requirements. Containers must be dated when they are placed in storage. All storage areas must be properly marked and stored articles must be checked for leaks every 30 days.
	PCB decontamination standards	40 CFR 761.79	PCB containers to be decontaminated by triple rinsing of internal surfaces with solvent containing <50 ppm PCB.

Table 10.1-3 Summary of Action-Specific ARARs for the Selected Alternatives

ARAR/TBC	Requirement	Citation	Description
PCB chemical waste landfilling standards	40 CFR 761.75	<p>Landfill must be located in thick, relatively impermeable soil formation or on soil with high clay and silt content; synthetic membranes must be used when these conditions cannot be met. In addition, other structural requirements include avoidance of location in a floodplain; required runoff structures if below the 100-year floodplain; and ground/surface water monitoring for specified parameters. PCB wastes must be segregated from wastes not chemically compatible with PCBs.</p> <p>The landfill must include a leachate monitoring system.</p>	
PCB incineration standards	40 CFR 761.70	<p>Incineration requirements for nonliquid PCB apply to PCB concentrations >50 ppm and include specified dwell times; combustion efficiency of 99.9999 percent; process record/monitoring requirements; automatic shut-off standards; a maximum mass air emission of 0.001 g PCB per kg of PCB entering the incinerator.</p>	
TSCA-PCB design standards	40 CFR 761 Subpart D	<p>On-post hazardous waste landfills shall be designed and operated in compliance with applicable substantive requirements of 40 CFR 761 Subpart D.</p>	
Treatment, storage, or disposal of RCRA hazardous waste.	Part 264.100 (e)(2) 6 CCR 1007-3 Section 264.100(e)(2)	Corrective action program.	
	Part 264 Subpart I 6 CCR 1007-3 Part 264 Subpart I	Applicability of the requirements of containers.	
	Part 264 Subpart F 6 CCR 1007-3 Part 264 Subpart F	Corrective action for solid waste management units.	
	Part 264 Subpart J 6 CCR 1007-3 Part 264 Subpart J	Applicability of the requirements for tanks or tank systems.	

Table 10.1-3 Summary of Action-Specific ARARs for the Selected Alternatives

ARAR/TBC	Requirement	Citation	Description
		Part 264 Subpart L 6 CCR 1007-3 Part 264 Subpart L	Design and operating requirements for waste piles.
		Part 264 Subpart M 6 CCR 1007-3 Part 264 Subpart M	Design and operating requirements for land treatment.
		Part 264 Subpart N 6 CCR 1007-3 Part 264 Subpart N	Design and operating requirements for landfills.
		Part 264 Subpart O 6 CCR 1007-3 Part 264 Subpart O	Applicability of incinerator requirements.
		Part 264.16 (a)(1) 6 CCR 1007-3 Section 264.16(a)(1)	Personnel training.
		Part 264.31 (a) 6 CCR 1007-3 Section 264.31(a)	Facility design and operation requirements.
		Part 264.51 (a) 6 CCR 1007-3 Section 264.51(a)	Purpose and implementation of contingency plans.
		Part 264.52 (a) 6 CCR 1007-3 Section 264.52(a)	Content of contingency plans.
		Part 264 Subpart cc 6 CCR 1007-3 Part 264 Subpart cc	Air emission standards for tanks.

Table 10.1-3 Summary of Action-Specific ARARs for the Selected Alternatives

ARAR/TBC	Requirement	Citation	Description
	<u>Management of Remediation Wastes</u>		
Corrective action management units	40 CFR 264, Subpart S 6 CCR 1007-3, Part 264 Subpart S 6 CCR 1007-2, Part 2	The CAMU regulations allow for exceptions from otherwise generally applicable LDRs-UTS and minimum technology requirements for remediation wastes managed at CAMUs. These regulations provide flexibility and allow for expedition of remedial decisions in the management of remediation wastes. One or more CAMUs may be designated at a facility. Placement of hazardous remediation wastes into or within the CAMU does not constitute land disposal of hazardous wastes so the LDRs-UTS are not triggered.	
Temporary Units	6 CCR 1007-3 Section 264.553 40 CFR 264.553	Design, operating, or closure standards for temporary tanks and container storage areas may be replaced by alternative requirements. The TU must be located within the facility boundary, used only for the treatment/storage of remediation waste, and will be limited to one year of operation with a one year extension upon approval by the regulatory authority.	
	<u>Detonation of UXO Containing High Explosives</u>		
	AR 75-15 AR-385-10 AR 385-64 AMC-R 385-100	If UXO is encountered during excavation, workers must comply with the substantive requirements of AMC-R 385-100, AR 75-15, AR 385-10, and AR 385-64.	
UXO detonation	AR 75-15	HE UXO will be detonated in compliance with the substantive requirements of AR 75-15 regarding demilitarization of class V materials.	
On-post detonation of UXO	40 CFR 264 Subpart X 6 CCR 1007-3 Section 264 Subpart X	On-post detonation of UXO must comply with the substantive requirements of the environmental performance standards described in 40 CFR 264 Part 264, including 264.601 (6 CCR 1007-3 Section 264.601) and substantive portions of the monitoring, analysis, reporting, and corrective action requirements of 40 CFR 264.602 (6 CCR 1007-3, Section 264.602).	

Table 10.1-3 Summary of Action-Specific ARARs for the Selected Alternatives

ARAR/TBC	Requirement	Citation	Description
<u>Chemical Agent Decontamination</u>			
Agent decontamination	AR 385-61 AR 50-6	Decontamination of chemical agent-contaminated material must comply with the requirements of AR 385-61 and AR 50-6.	
Decontamination and Disposal Standards for Chemical Agents	AR 385-61 AR 50-6	Army regulations provide standards for decontamination of items exposed to chemical agents. Material, equipment, and clothing that has been decontaminated to the 3X level may be landfilled in a RCRA-approved hazardous waste landfill.	
Treatment and disposal of hazardous debris	40 CFR 268.45 6 CCR 1007-3, Part 268.45	Hazardous debris generated during remedial activities must be treated using specific technologies to extract, destroy, or immobilize hazardous constituents on or in the debris if placement occurs. In certain cases, the debris may no longer be subject to RCRA Subtitle C regulation after treatment.	
On-post land disposal of hazardous wastes	40 CFR Part 264 6 CCR 1007-3 Part 264 40 CFR Part 268 6 CCR 1007-3 Part 268 EPA/540/G-89/006 (TBC)	Based upon a determination of whether the disposal technique constitutes placement, LDRs-UTS may be applicable. If placement occurs, the on-site disposal facility must comply with the substantive requirements of 40 CFR Part 264 (6 CCR 1007-3 Part 264) and 40 CFR Part 268 (6 CCR 1007-3 Part 268).	
Treatment, storage, or disposal of hazardous waste	40 CFR Part 264 6 CCR 1007-3 Part 264 40 CFR Part, Subpart L 6 CCR 1007-3 Section 264, Subpart L 40 CFR Part 268 6 CCR 1007-3 Part 268 40 CFR Part 264, Subpart I 6 CCR 1007-3, Section 264, Subpart I Section 264.171-173	If remedial activities at RMA generates hazardous wastes, the wastes must be treated and stored in accordance with RCRA regulations. Wastes stored in stockpiles that are determined to be RCRA hazardous wastes must be stored, treated, and disposed in compliance with RCRA regulations, including LDRs-UTS if placement occurs. Applicability of the requirements for containers.	

Table 10.1-3 Summary of Action-Specific ARARs for the Selected Alternatives

ARAR/TBC	Requirement	Citation	Description
<u>Stormwater Management</u>			
	Discharge of stormwater to on-post surface waters	40 CFR Parts 122-125	Stormwater runoff, snow melt runoff, and surface runoff and drainage associated with industrial activity (as defined in 40 CFR 122) from RMA remedial actions that disturb 5 acres or more and that discharge to surface waters must be conducted in compliance with the stormwater management regulations.
<u>Dredged Material Management</u>			
	Discharge of Dredged Materials	40 CFR 230 Subpart B	Dredging operations in wetland areas must be managed in accordance with the applicable requirements based on the impacts resulting from specific dredged material discharges associated with sediment removal activities.
	Certification of Federal Licenses and Permits (401 Certification)	33 USC Section 1341 Section 401 of Clean Water Act	Provides for state review of facility operations for the purposes of ensuring that applicable effluent limitations or other limitations or other applicable water quality requirements will not be violated.
<u>Wastewater Treatment/Disposal</u>			
	Discharge of wastewater to the treatment plant	40 CFR Part 122	Any wastewater generated during cleanup or remedial actions will be directed to the on-post RMA wastewater treatment plant and treated in accordance with NPDES requirements.
		40 CFR Part 125	
		40 CFR Part 129	Wastewater that is determined to be a hazardous waste must be treated in accordance with the provisions of RCRA.
		40 CFR Part 262 6 CCR 1007-3 Part 262	
		40 CFR Part 264 6 CCR 1007-3 Part 264	Some of the Colorado standards for owners and operators of hazardous waste management, storage, and disposal facilities are more stringent than the equivalent federal regulations. These standards are detailed on Appendix A, Table A-12.
		40 CFR Part 144.13(c) 40 CFR Part 146	Injection trenches and wells must be constructed per the requirements of EPA's Underground Injection Control Program.

Table 10.1-3 Summary of Action-Specific ARARs for the Selected Alternatives

ARAR/TBC	Requirement	Citation	Description
	Monitoring		
	Groundwater monitoring	40 CFR 264 Subpart F 6 CCR 1007-3 Part 264 Subpart F 2 CCR 402-2, Rule 10 RCRA Groundwater Monitoring TEGD (TBC) 6 CCR 1007-3	Groundwater monitoring will be conducted for the presence of hazardous constituents in the groundwater downgradient from solid waste management units. Monitoring wells should be constructed and installed according to the requirements of 2 CCR 402-2, Rule 10 and the guidance in the RCRA Groundwater Monitoring TEGD. Colorado groundwater regulations specify requirements for determining background groundwater quality.
	Noise abatement	Colorado Revised Statute, Section 25-12-103	The Colorado Noise Abatement Statute provides that “Applicable activities shall be conducted in a manner so any noise produced is not objectionable due to intermittence, beat frequency, or shrillness. Noise is defined to be a public nuisance if sound levels radiating from a property line at a distance of twenty-five feet or more exceed the sound levels established for the specified time periods and zones.”