

ADMINISTRATIVE RECORD

1119270 - R8 SDMS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 8

\_\_\_\_\_) )  
 IN THE MATTER OF: ) )  
 ) )  
 SILVER BOW CREEK/ ) )  
 BUTTE AREA (ORIGINAL ) )  
 PORTION) SUPERFUND SITE; ) )  
 WARM SPRINGS PONDS INACTIVE AREA ) )  
 OPERABLE UNIT: ) )  
 SITE NO. 22. ) )  
 OPERABLE UNIT NO. 12. ) )  
 ) )  
 ATLANTIC RICHFIELD COMPANY, ) ) EPA Docket No.  
 and/or ATLANTIC RICHFIELD COMPANY, ) ) CERCLA-VIII-93-23  
 INCORPORATED, ) )  
 RESPONDENT. ) )  
 ) )  
 PROCEEDING UNDER SECTION 106(a) ) )  
 OF THE COMPREHENSIVE ENVIRONMENTAL ) )  
 RESPONSE, COMPENSATION, AND ) )  
 LIABILITY ACT, AS AMENDED, ) )  
 42 U.S.C. § 9606(a). ) )  
 \_\_\_\_\_) )

ADMINISTRATIVE ORDER  
FOR REMEDIAL DESIGN/REMEDIAL ACTION

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ATTACHMENTS

- Exhibit 1. Map of the Warm Springs Ponds Inactive Area
- Exhibit 2. Statement of Work
- Exhibit 3. Schedule
- Exhibit 4. Performance Standards

## I. INTRODUCTION AND JURISDICTION

1. The United States Environmental Protection Agency (EPA) selected a remedy for the Silver Bow Creek/Butte Area (original portion) Superfund Site, Warm Springs Ponds Inactive Area operable unit (hereinafter "WSPIA"), which is described in the Record of Decision dated June 30, 1992 (hereinafter "ROD"). This Order directs Respondent to perform a remedial design for the WSPIA ROD, and to implement the design by performing a remedial action and related operation and maintenance activities. This Order is issued to the Respondent by the EPA under the authority vested in the President of the United States by section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. § 9606(a). This authority was delegated to the Administrator of EPA on January 23, 1987, by Executive Order 12,580, 52 Fed. Reg. 2,923, and was further delegated to EPA Regional Administrators on September 13, 1987, by EPA Delegation No. 14-14-B. This authority has been further delegated to the Director of the Hazardous Waste Management Division, EPA Region 8.

## II. FINDINGS OF FACT

1. The Respondent, the Atlantic Richfield Company and/or the Atlantic Richfield Company, Incorporated, is a corporation doing business in the State of Montana. It is currently organized under the laws of the State of Delaware, with its corporate headquarters in Los Angeles, California.

2. The Warm Springs Ponds are a series of three large settling basins, known as Pond 1, Pond 2, and Pond 3, located near Warm Springs, Montana. The Ponds cover approximately 2600 acres of land, and are bordered by the Mill-Willow Bypass to the west, marsh lands to the north, hills to the east, and marsh lands and incoming streams to the south.

3. The Anaconda Copper Mining Company and/or its subsidiaries and related corporations and businesses (Anaconda) built Pond 1 and Pond 2 in or around 1911 and 1916 respectively, for the express purpose of trapping and managing mining wastes from Anaconda mining operations in Butte and Anaconda, Montana. The Ponds operate by directing Silver Bow Creek into the Ponds for elementary treatment prior to release of water. Pond 3 was built by Anaconda in or around 1959, for the same purpose. The ponds are used as large settling basins, where some of the dissolved and suspended waste material is trapped and settled to the bottom of the basins. Currently, treated but still contaminated water is then discharged from the Ponds, into the nearby Mill-Willow Bypass. Anaconda owned and operated the Warm Springs Ponds from the creation of the ponds until its merger with the Respondent in 1977. The Respondent has

owned and operated the Warm Springs Ponds from 1977 until the present.

4. In the 1950's, Anaconda built the Mill-Willow Bypass, immediately to the west of the three ponds. The Mill-Willow Bypass was used to divert normal flows from Mill and Willow Creeks and high flows from Silver Bow Creek around the Pond system. The Mill-Willow Bypass was built through contaminated soils and tailings, and/or became contaminated through deposition of upstream wastes.

5. A map of the Warm Springs Ponds area, including the Warm Springs Ponds Inactive Area operable unit (WSPIA), is attached as Exhibit 1. The Warm Springs Ponds area consists of the three settling ponds, three smaller wildlife refuge areas, dry and wet areas of contaminated soil and tailings within Ponds 2 and 3, dry areas of contaminated soil and tailings outside of Ponds 2 and 3, the Mill-Willow Bypass, engineered devices such as lime treatment facilities and inflow and outflow points which are located within or near Ponds 2 and 3, and areas of contamination north of Pond 1.

6. Contaminated waste materials at the WSPIA originated with mining operations in Butte and Anaconda, Montana. Among the major smelters and mills operated in and around Butte adjacent to Silver Bow Creek by predecessors-in-interest to the Respondent were the Colorado Smelter, the Butte and Boston Smelter, the Montana Ore Purchasing Company Smelter, the Parrott Smelter, and the Butte Reduction Works Mill and Smelter. These smelters and associated operations, as well as several other mines, mills, and smelters operated by Respondent and Respondent's predecessors-in-interest, processed hundreds of tons of ore each day and disposed of large quantities of tailings, slimes, and other extraction, beneficiation, and processing wastes into and along the banks of Silver Bow Creek. These wastes entered into the creek and were carried downstream, to, among other places, the Warm Springs Ponds area. Wastes disposed of from these Butte operations, including wastes in ponds built near these establishments, have continued to periodically leach or wash out into Silver Bow Creek. These smelters and associated operations came under the control of Amalgamated Copper Mining Company and/or Anaconda, predecessors-in-interest to the Respondent, as a result of various mergers, restructurings, transfers of assets, continuation of business activity, or other corporate action. After such mergers, restructurings, transfers of assets, continuation of business activity, or other corporate actions, Anaconda owned these properties, and the Respondent currently owns many of these properties, from which arsenic and heavy metals are leaching into Silver Bow Creek, and eventually enter, among other places, the Warm Springs Ponds area.

7. As a result of one or more mergers, restructurings, transfers of assets, continuation of business activities, or other corporate action, the Respondent is the successor-in-interest to,

and has assumed the liabilities incurred by, Anaconda and its subsidiaries. As a result of one or more mergers, restructurings, transfers of assets, continuation of business activities, or other corporate action, Anaconda was the successor-in-interest to, and assumed the liabilities incurred by, the Amalgamated Copper Mining Company and its subsidiaries. Additionally, the Amalgamated Copper Mining Company and Anaconda were the successor in interest to, and assumed the liabilities incurred by, several persons who owned and operated mines, mills, and smelters in and around Butte and Anaconda, Montana, including the mills and smelter described above.

8. Anaconda and its subsidiaries also owned and operated the New Works Smelter and associated facilities in Anaconda, Montana. Activities at the New Works smelter and associated facilities also led to the disposal of mining waste into Warm Springs Ponds, either directly from Anaconda and Opportunity Ponds or via Silver Bow Creek.

9. As a result of the activities described in paragraphs 3, 6, and 8 of this Order, over 19 million cubic yards of contaminated sediments exist in the Warm Springs Ponds, and a substantial volume of contaminated soils and tailings exist in areas surrounding the Warm Springs Ponds, including the Mill-Willow Bypass and the area north of Pond 1.

10. Pursuant to section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Silver Bow Creek Superfund Site on the National Priorities List set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on September 3, 1983 (48 Fed. Reg. 4065). This listing included the areas in and around Silver Bow Creek, including the Warm Springs Ponds area. The Superfund site was amended to include large areas in and around Butte, Montana on July 22, 1987 (52 Fed. Reg. 27627), and the name of the Superfund site became the Silver Bow Creek/Butte Area Superfund Site. For administrative purposes, the Superfund site is divided into the original portion (abbreviated as the SBCO Site) and the Butte portion (abbreviated as the SBCB Site). The WSPIA is part of the SBCO Site.

11. EPA has divided the SBCO Site into operable units for response. The operable units are interim Warm Springs Ponds Active Area, interim Warm Springs Ponds Inactive Area, Streamside Tailings, Rocker Timber Framing and Treating Plant, Lower Area One (Expedited Response Action), and Final Warm Springs Ponds. This Order addresses the interim remedy for the Warm Springs Ponds Inactive Area operable unit.

12. From on or about October 1984 to on or about May 1987, the State of Montana Department of Health and Environmental Sciences (MDHES), operating under a cooperative agreement from EPA, undertook a Phase I Remedial Investigation (RI) for the SBCO Site. EPA conducted a Supplemental Study to the Phase I RI in 1986 and

1987. MDHES subsequently conducted a Phase II RI and a Feasibility Study (FS) for the Warm Springs Ponds area including the WSPIA. All of these activities were done pursuant to CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300 (NCP).

13. In accordance with section 117 of CERCLA, 42 U.S.C. § 9617, MDHES and EPA published notice of the completion of the FS and of the proposed plan for remedial action for the Warm Springs Ponds area in October 1989 and provided an opportunity for public comment on the proposed remedial action.

14. EPA's remedial action decision for the Warm Springs Ponds Active Area operable unit, located near the WSPIA, is embodied in a ROD, executed on September 27, 1990, as amended by the ESD dated June 1991, including the ESD's errata sheets. The ROD and ESD are being implemented currently by the Respondent pursuant to a unilateral administrative order, Docket Number CERCLA VIII-91-25, and an administrative order on consent, Docket Number CERCLA VIII-90-15, both issued by EPA pursuant to section 106 of CERCLA, 42 U.S.C. § 9606. The Warm Springs Ponds Active Area ROD and ESD deferred action on the Warm Springs Ponds Inactive Area until further investigation and public involvement could be conducted.

15. At EPA's request, additional sampling and alternative analysis regarding the WSPIA were conducted by the Respondent in 1991 and 1992. EPA issued an Alternative Analysis and a Proposed Plan for the Warm Springs Ponds Inactive Area operable unit in March, 1992. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the proposed plan for interim remedial action for the WSPIA operable unit on March 3, 1992, in a major local newspaper of general circulation. EPA provided an opportunity for written and oral comment from the public on the proposed plan for remedial action.

16. The decision by EPA on the remedial action to be implemented at the WSPIA operable unit is embodied in a interim Record of Decision (ROD), executed on June 30, 1992, on which the State has given its concurrence. The ROD includes a responsiveness summary to public comments. Notice of the final plan was published in accordance with Section 117(b) of CERCLA, 42 U.S.C. § 9617(b). The WSPIA ROD is supported by an administrative record upon which the Regional Administrator of EPA Region 8 based the ROD decision.

17. EPA issued special notice to the Respondent to negotiate a consent decree for performance of the WSPIA ROD on December 1, 1992, pursuant to section 120 of CERCLA, 42 U.S.C. § 9620. These efforts were unsuccessful, and negotiation moratorium ended on April 6, 1993.

18. Various investigations, some of which are described above, at the WSPIA have shown the presence, release, and threat of

release of arsenic, cadmium, copper, iron, lead, manganese, mercury, zinc, and other hazardous substances, pollutants, and contaminants.

19. Large areas of surface contamination, located within the WSPIA, and composed of contaminated soils and tailings, may subject humans and wildlife to risks from exposure. In particular, run-off from copper and zinc in soils and tailings may cause acute fish kills in and around the Warm Springs Ponds area and chronic damage. The WSPIA area also presents the possibility of a catastrophic release of contaminated material, due to a flood or an earthquake. The area is also the source of releases or threats of releases of hazardous substances, pollutants, or contaminants into the ground water beneath and surrounding the WSPIA. Additional information on the human health and environmental risks at the Warm Springs Ponds Inactive Area are presented in the Warm Springs Ponds operable unit Public Health and Environmental Assessment, which is Appendix A to the 1989 Warm Springs Ponds Feasibility Study, and in EPA's Warm Springs Ponds Inactive Area Alternative Analysis.

20. The ROD for the WSPIA requires the following summarized activities. This summary amplifies the summary given in the ROD, based on preliminary design work done to date:

(a) Remove all contaminated soils from the adjacent portion of the bypass channel and from the area below Pond 1 not planned for wet-closure. Consolidate the wastes over existing dry tailings within the western portion of Pond 1.

(b) Modify, or enlarge if necessary, the adjacent portion of the bypass channel to safely route flood flows up to 70,000 cubic feet per second (CFS) which is one-half the estimated probable maximum flood (PMF) for the combined flows of Silver Bow, Willow, and Mill creeks. Soils and gravels that have copper concentrations below 500 milligrams per killogram (mg/kg) and meet geotechnical requirements will be used for raising and strengthening the existing berms and constructing new berms.

(c) Raise, strengthen, and armor the north-south aspect of the Pond 1 berm. In accordance with specified state safety standards for high hazard dams and for the protection of human health and the environment, the reconstructed berm must withstand the estimated maximum credible earthquake (MCE) for this area. In addition, the reinforced berm must be constructed to withstand flood flows up to 70,000 cfs (0.5 PMF) in the enlarged bypass channel.

(d) Stabilize the east-west aspect of the Pond 1 berm. The reconstructed berm must withstand a maximum credible earthquake for this area, thus protecting against the movement of contained pond bottom sediments or tailings into the uncontaminated or wet closed areas below Pond 1 in accordance with specified state dam safety

standards, and for the protection of human health and the environment.

(e) Extend and armor the north-south aspect of the Pond 1 berm approximately 2,400 feet in a north-northeasterly direction. This extended berm will be constructed to provide maximum credible earthquake protection and the ability to withstand one-half the estimated probable maximum flood (70,000 cfs) in the adjacent bypass channel.

(f) Relocate the lowermost portion of the bypass channel and convert the present channel into a ground water interception trench. The relatively straight reach of the bypass channel, from the apex of the existing Pond 1 berm to the historic Silver Bow Creek channel, will be relocated north of the extended berm. The entire reach of the bypass channel that is adjacent to the inactive area will be reconstructed, reclaimed, and restored to a more natural, meandering condition. Other excavated areas will be reclaimed and restored to their natural condition.

(g) The converted ground water interception trench will be deepened and pumps will be installed to allow for a pump back system. Intercepted water that fails to meet specified standards will be pumped back to the active area for treatment. While the pumpback system is in place, a hydraulic gradient standard will be attained. The pumpback system is meant to be a temporary system to contain contaminated ground water for a limited time until the chemical fixation described below addresses the ground water contamination through source control. See subparagraph i below. The pumpback system may be shut off if appropriate performance standards are met. Monitoring wells and surface water quality monitoring stations will be placed at strategic locations. Surface water performance standards will be met.

(h) Construct wet-closure berms to enclose the submerged and partially submerged tailings and contaminated soils. Within the eastern portion of Pond 1 and along the historic Silver Bow Creek channel below Pond 1, these smaller berms will create a series of cells, which when flooded will vary in depth from a minimum of one foot to a maximum of six feet.

(i) Chemically fix (immobilize) the tailings and contaminated soils, now enclosed by smaller berms, by incorporating lime and lime slurry onto or into them. The combination of chemical fixation and wet closure of contaminated soils and tailings is intended to be the primary component of the remedy. It is expected that ground water will be intercepted and pumped back to the active area for treatment until such time as the combination of chemical fixation and wet closure demonstrates its effectiveness in terms of preventing the continued mobilization of metals from their sources into the ground water.

(j) Flood the wet-closure cells with water adjusted to a pH greater than 8.5 and maintain proper water surface elevations in the wet-closure cells.

(k) Cover the dry tailings and contaminated soils within the western portion of Pond 1 with 2 inches of limestone, 12 inches of fill, and 6 inches of suitable soils cap. This dry-closed area will be contoured to control runoff and seeded with native vegetation.

(l) Construct a runoff collection and outflow system within Pond 1. This system will allow floods originating in the eastern hills to flow into Pond 1, but not compromise the integrity of the wet and dry closures. It will be designed to receive one-half the probable maximum flood, which is estimated to be 8,500 cfs at its peak.

(m) Install toe drains along the armored berms and construct a collection manifold for both the active and inactive area north of station 164, as determined in remedial design. The water collected will be pumped to either Pond 2 or Pond 3 for treatment if it exceeds final point source discharge standards specified in Attachment 5 to the Warm Springs Ponds Active Area Unilateral Administrative Order, as determined by EPA in accordance with the remedial design documents.

(n) Implement long-term ecological monitoring. By means of an unbiased set of measurements, this monitoring effort will concentrate on the effects of biological systems living in contact with metals in the water and substrate of ponds and wetlands environments. The results will validate or invalidate the decision to chemically fix, wet-close, and contain in place the exposed and submerged tailings and contaminated soils.

(o) Implement institutional controls to prevent residential development, domestic well construction, disruption of dry-closure caps, and swimming.

21. a. Respondent is now, and has been since on or about 1977, the owner and operator of the Warm Springs Ponds facility, including the WSPIA, and some of the Butte and Anaconda facilities.

b. The Respondent's predecessors-in-interest were, from on or about 1911 until 1977, the owner and operator of the Warm Springs Ponds facility, including the WSPIA, and the Butte and Anaconda facilities, and the Respondent expressly or otherwise assumed liability incurred by the predecessors-in-interest. During that time, hazardous substances, including some or all of those described in this section, were released to

and/or disposed of at the Site, including the WSPIA.

- c. Alternatively, Respondent and Respondent's predecessors-in-interest, arranged, by contract or agreement or otherwise, for the disposal or treatment of hazardous substances owned or possessed by Respondent, Respondent's predecessors-in-interest, and others from Butte and Anaconda facilities at the Site. Hazardous substances of the same kind as those owned or possessed by the Respondent and the Respondent's predecessors-in-interest are present at the Site.

### III. CONCLUSIONS OF LAW AND DETERMINATIONS

22. Based on the preceding Findings of Fact and the administrative record for the Site, EPA has made the following conclusions of law and determinations:

- a. The Site, and the Butte, Montana and Anaconda, Montana facilities described in the Findings of Fact, are "facilities" as defined in section 101(9) of CERCLA, 42 U.S.C. § 9601(9);
- b. Respondent is a "person" as defined in section 101(21) of CERCLA, 42 U.S.C. § 9601(21);
- c. Respondent is a liable party under sections 104 and 107 of CERCLA, 42 U.S.C. §§ 9604 and 9607, and is subject to this Order under section 106(a) of CERCLA, 42 U.S.C. § 9606(a);
- d. Substances found at the Site are "hazardous substances", pollutants, and contaminants as defined in section 101(14) of CERCLA, 42 U.S.C. § 9601(14);
- e. The presence of hazardous substances at the Site and the past, present, or potential future spilling, leaking, pumping, emitting, discharging, escaping, leaching, or disposing of hazardous substances, pollutants, and contaminants described in Section II of this Order constitutes an actual or threatened "release" as defined in section 101(22) of CERCLA, 42 U.S.C. § 9601(22);
- f. The actual or threatened release of one or more hazardous substances, pollutants, and contaminants from the facilities and at the Site may present an

imminent and substantial endangerment to public health or welfare or the environment; and

- g. The actions required by this Order are necessary to protect the public health and welfare and the environment.

#### IV. NOTICE TO THE STATE

23. EPA has notified the State of Montana, through MDHES, of this action pursuant to section 106(a) of CERCLA, 42 U.S.C. § 9606(a), and provided for state involvement in the initiation, development, and selection of the remedial action, and will continue to provide for State involvement in design and implementation of the remedy, in accordance with section 121(f) of CERCLA, 42 U.S.C. § 9621(f). EPA is the lead agency for coordinating, overseeing, and enforcing the response action required by this Order.

#### V. ORDER

24. Respondent is hereby ordered to comply with this Order, including but not limited to, all Exhibits attached to this Order and all documents incorporated by reference into this Order. The Order includes, but is not limited to, an order to implement the WSPIA ROD, which is incorporated into this Order by reference, an order to perform activities described in the Statement of Work, Exhibit 2 to this Order, an order to perform activities according to the schedule given in Exhibit 3 to this Order, and an order to comply with all Performance Standards, described in Exhibit 4 to this Order. The Order also includes an order to perform all activities described in the Comprehensive Work Plan, upon approval by EPA, and to perform all remedial action activities as described in the Technical Design Memoranda, Final Design Report and the Construction Quality Assurance Plan and Construction Quality Assurance Plan Updates in accordance with the schedules therein, upon approval by EPA, and to perform all Operation and Maintenance activities described in the O&M Plans, upon approval by EPA.

#### VI. DEFINITIONS

25. Unless otherwise expressly provided herein, terms used in this Order which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or such regulations. Whenever terms listed below are used in this Order or in the documents attached to this Order or incorporated by reference into this Order, the following definitions shall apply:

"Contractor" means any person, including the attorneys, contractors, subcontractors, consultants, or agents retained or hired by Respondent to undertake any Work under this Order.

"Day" means calendar day. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the end of the next working day. Time will be computed in accordance with Rule 6 of the Federal Rules of Civil Procedure, unless otherwise specified.

"Deliverable" means any written product, including but not limited to, plans, reports, memoranda, data, and other documents that Respondent does or must submit to EPA under this Order.

"NCP" means the National Oil and Hazardous Substances Pollution Contingency Plan promulgated under Section 105 of CERCLA, 42 U.S.C. § 9605, and codified at 40 C.F.R. Part 300, including any amendments thereto.

"Operation and Maintenance" or "O&M" means all activities required under the Operation and Maintenance Plans developed by Respondent pursuant to this Order and approved by EPA.

"Order" means this Order, the Exhibits attached to this Order, and all documents incorporated into this Order by reference or according to the procedures set forth herein.

"Performance Standards" means those cleanup standards, standards of control, and other substantive requirements, criteria or limitations, identified in the June, 1992 ROD as further explained in Exhibit 4 to this Order, and which are listed in Exhibit 4 to this Order, that the remedial action and other Work performed under this Order must comply with, attain, and maintain.

"ROD" means the EPA Record of Decision for the for Operable Unit No. 12 of the SBCO Superfund Site, signed on June 30, 1992 by the Regional Administrator, EPA Region 8, and all attachments thereto.

"Remedial Action" or "RA" means those activities, except for operation and maintenance, to be undertaken by Respondent to implement the final plans and specifications submitted by Respondent pursuant to the this Order and the SOW, including any additional activities required under Sections X, XI, XII, XIII, and XIV of this Order. Remedial Action does not include cleanup activities undertaken by the Respondent pursuant to Administrative Order on Consent Docket No. CERCLA-VIII-90-15 or Unilateral Administrative Order Docket No. CERCLA-VIII-91-25.

"Remedial Design" or "RD" means those activities to be undertaken by Respondent to develop the final plans and

specifications for the remedial action pursuant to this Order and the SOW.

"**Response Costs**" means all costs, including direct costs, indirect costs, and accrued interest incurred by the United States to perform or support response actions at the Site. Response costs include, but are not limited to, the costs of overseeing the Work, such as the costs of reviewing or developing plans, reports, and other items pursuant to this Order, and costs associated with verifying the Work.

"**Respondent**" means the Atlantic Richfield Company and/or the Atlantic Richfield Company, Incorporated.

"**Statement of Work**" or "**SOW**" means the statement of work attached hereto as Exhibit 2 and incorporated herein by reference.

"**Site**" means the Warm Springs Ponds Inactive Area operable unit of the Silver Bow Creek/Butte Area (original portion) Superfund Site, located near Warm Springs, Montana, as described in the ROD, and all areas in close proximity to, but not necessarily contiguous with, the areas described above that EPA determines to be necessary for implementation of the Work. The Site is depicted generally in Exhibit 1 to this Order.

"**Work**" means all activities Respondent is required to perform under this Order, including remedial design, remedial action, operation and maintenance, and any other activities necessary to fulfill the requirements of this Order.

#### **VII. NOTICE OF INTENT TO COMPLY**

26. Respondent shall provide, not later than 5 days after the effective date of this Order, written notice to EPA stating whether it will comply with this Order. If Respondent does not unequivocally commit to perform the RD and RA as provided by this Order, it shall be deemed to have violated this Order and to have failed or refused to comply with this Order. Respondent's written notice shall describe, based on facts that exist on or prior to the effective date of this Order, any "sufficient cause" defenses asserted by Respondent under sections 106(b) and 107(c)(3) of CERCLA, 42 U.S.C. §§ 9606(b) and 9607(c)(3). The absence of a response by EPA to the notice required by this paragraph shall not be deemed to be acceptance of Respondent's assertions.

#### **VIII. PARTIES BOUND**

27. This Order shall apply to and be binding upon the Respondent and its directors, officers, employees, agents, successors, and assigns. No change in the ownership, corporate

status, or other control of the Respondent, nor any transfer of assets or real or personal property by the Respondent, shall alter any of the Respondent's responsibilities and obligations under this Order.

28. During the period in which this Order is in effect, Respondent shall provide a copy of this Order to any prospective owners or successors before a controlling or majority interest in Respondent's assets or stock is transferred to the prospective owner or successor. Respondent shall provide a copy of this Order to each contractor and laboratory retained to perform any Work under this Order, within 15 days after the effective date of this Order or on the date such services are retained. Respondent shall also provide a copy of this Order to each person representing Respondent with respect to the Work. Respondent shall condition all contracts and subcontracts entered into hereunder upon performance of the Work in conformity with this Order. Each contractor retained to perform Work shall be deemed to be related by contract to Respondent within the meaning of section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3). Notwithstanding the terms of any contract, Respondent is responsible for compliance with this Order and for ensuring that its contractors comply with this Order, and perform any Work in accordance with this Order.

29. Within 15 days after the effective date of this Order, Respondent shall record a copy or copies of this Order in the appropriate governmental office where land ownership and transfer records are filed or recorded, and shall ensure, if possible, that the recording of this Order is indexed to the titles of each and every property at the Site so as to provide notice to third parties of the issuance and terms of this Order with respect to those properties. Respondent shall, within 21 days after the effective date of this Order, send notice of such recording and indexing to EPA.

30. Not later than 30 days prior to any transfer of any real or personal property interest in any property included within the Site, Respondent shall submit a true and correct copy of the transfer document(s) to EPA, and shall identify the transferee by name and principal business address, and shall specify the effective date of the transfer. Respondent shall provide a copy of this Order to any such transferee, prior to the transfer of real or personal property at the Site.

#### **IX. WORK TO BE PERFORMED**

31. Respondent shall plan, implement, perform, and complete all actions required by this Order, including actions required by Exhibits to this Order, in accordance with the standards, criteria, specifications, requirements, and schedules set forth herein and in the attached Exhibits. All Work under this Order is subject to oversight by and the prior approval of EPA. Undertaking any on-

Site physical activity without prior approval of EPA is a violation of this Order, with the exception that ongoing work undertaken according to Administrative Order on Consent Docket No. CERCLA-VIII-90-15 or Unilateral Administrative Order Docket No. CERCLA-VIII-91-25 may proceed pursuant to the terms of those orders.

### 32. Comprehensive Work Plan Development

a. The Respondent shall submit a final Comprehensive Work Plan and Preliminary Design Package (WP), according to the schedule set forth in Exhibit 3. The WP shall describe the design of the Remedial Action at the Site, the performance of Remedial Action at the Site, and the performance of Operation and Maintenance at the Site, and other related plans and activities specified in the SOW. The WP shall comply with and include all activities described in the SOW, Exhibit 2, and provide for design of the remedy set forth in the WSPIA ROD.

b. The WP shall include or reference a Site Health and Safety Plan for all field activities which conforms to the applicable Occupational Safety and Health Administration and EPA requirements including, but not limited to, 29 C.F.R. § 1910.120 or appropriately reference existing plans. The WP shall also include the Respondent's designation of the RD/RA Project Manager, the RD/RA Professional, and the Independent Quality Assurance Team, and relevant information sufficient to aid EPA's review and approval of these personnel. The WP shall also include a Sampling and Analysis Plan (SAP) if necessary, as described in Exhibit 2.

c. Upon approval by EPA, the Final WP is incorporated into this Order as a requirement of this Order, and shall be an enforceable part of this Order. Upon approval by EPA, the Respondent shall implement the Final WP according to the schedules contained therein and in Exhibit 3.

### 33. Remedial Design

a. The WP shall include plans and schedules for implementation of all remedial design and pre-design tasks identified in the SOW, including, but not limited to, plans and schedules for the completion of: (1) All subtasks required to successfully complete RD/RA objectives; (2) Any activities necessary for obtaining any necessary permits for Work conducted off-Site and governmental approvals; (3) Draft and Final Technical Design Memoranda; (4) The Draft Final Design Report; (5) The Final Design Report (FDR); (6) Any activities necessary for the procurement of responsible contractor(s) to perform the Remedial Action; (7) The monitoring plans with specific performance criteria to determine the effectiveness of implemented remedy; (8) Submittal of an updated HSP prior to beginning on-Site Work; (9) Submittal of an updated SAP, if necessary; (10) Activities necessary to develop a description of the responsibilities of the Independent Quality

Assurance Team, including the Construction Quality Assurance Officer; (11) the draft and Final Construction Quality Assurance Plans or Updates; (12) the Institutional Control Compliance Demonstration Report; (13) the draft and Final Performance Standard Report; and (14) the draft and Final Operation and Maintenance Plan (O&MP). The schedule for submittal of these reports shall be in compliance with Exhibit 3 unless modified by the Schedule in the WP.

b. The draft and final Technical Design Memoranda, the draft Final Design Report, and the Final Design Report shall include for each phase of Work as appropriate, at a minimum, the following: (1) final plans and specifications; (2) reference to an updated HSP and SAP if necessary ; (3) a complete description and updated schedule of Remedial Action tasks and document deliverables and a detailed construction schedule, which includes start and stop dates for construction of all required remedial activities, and reclamation, restoration, and/or reconstruction of portions of the Mill-Willow Bypass; (4) an analysis of compliance with all Performance Standards; and (5) if appropriate, a description of the name and qualifications of the Remedial Action Contractor(s) required for this action.

#### 34. Remedial Action

a. Within 30 days after receipt of EPA comments on the draft Final Design Report or on draft Technical Design Memoranda, Settling Defendant shall submit to EPA and MDHES Final Technical Design Memoranda or a Final Design Report. Draft Construction Quality Assurance Plan or Updates for the performance of the Remedial Action at the Site ("CQAP") shall also be submitted. The Final CQAP or CQAP Updates shall be submitted within 20 days after receipt of EPA comments on the draft CQAP or CQAP Updates. The CQAP or CQAP Updates shall, among other things, detail the approach to quality assurance during construction activities at the Site, and shall describe the responsibilities of the Construction Quality Assurance Officer and other members of the IQAT. The CQAP, CQAP Updates, Technical Design Memoranda, and the Final Design Report shall provide for construction of the remedy, in accordance with the SOW and the WP, as set forth in the design plans and specifications in the approved WP or FDR.

b. Upon approval by EPA, the Technical Design Memoranda and Final Design Report, including the detailed schedules, and the Final CQAP and CQAP Updates, are incorporated into this Order as requirements of this Order, and shall be enforceable parts of this Order. Upon approval by EPA of the Technical Design Memoranda, FDR, the CQAP, the CQAP Updates and the Remedial Action Contractor, as appropriate for each phase of Work, the Respondent shall implement the Technical Design Memoranda, FDR, the CQAP, and/or the CQAP Updates according to the schedules contained therein and in Exhibit 3.

35. Operation and Maintenance

a. A draft O&M Plan, which describes both Phase I and Phase II of O&M, shall be submitted by the Respondent 90 days after receipt of EPA approval on the Final Design Report. A Final O&M Plan shall be submitted by the Respondent 30 days after receipt of EPA comments on the draft O&M Plan.

b. Upon approval of the O&M Plan, and, for Phase I O&M, upon approval of the certification of completion of initial construction, and for Phase II O&M, upon approval of the certification of completion of remedial action, the Respondent shall implement all O&M activities. Upon approval by EPA, the O&M Plan, is incorporated into this Order as a requirement of this Order, and shall be an enforceable part of this Order.

36. Unless otherwise directed by EPA, Respondent shall not commence physical on-Site activities described in the Work Plan at the Site prior to approval of the appropriate Technical Design Memoranda, CQAP Updates, Final Design Report, and/or the CQAP. This limitation upon physical on-Site activities shall not apply to response actions previously approved by EPA under the Mill-Willow Bypass Expedited Response (Removal) Action Consent Order, Docket No. CERCLA VIII-90-15, and amendments thereto or Unilateral Administrative Order Docket No. CERCLA-VIII-92-15.

37. All Work shall be conducted and completed in accordance with CERCLA, the NCP, pertinent EPA guidance, and any amendments thereto which become effective prior to the date of completion of Work under this Order. Respondent shall be responsible for identifying and using other guidelines, policies, procedures, and information that may be appropriate for performing Work.

38. All Work shall be consistent with the ROD and the Performance Standards set forth and described in Exhibit 4, including all applicable or relevant and appropriate requirements (ARARs) identified therein. Nothing in this Order, nor in EPA's approval of any document prepared by the Respondent under this Order, shall be deemed to constitute a warranty or representation of any kind by EPA that full performance of the RD or RA will achieve Performance Standards. Respondent's compliance with such approved documents does not foreclose EPA from seeking additional Work to achieve Performance Standards. Respondent remains fully responsible for achievement of the Performance Standards.

39. Respondent shall employ sound scientific, engineering, and construction practices in performing Work under this Order. All tasks shall be under the direction and supervision of qualified personnel with experience in the types of tasks required for implementation of the Work.

40. All Work shall be under the direction and supervision of a qualified RD/RA Project Manager, RD/RA Professional, Remedial Action Contractor, and Independent Quality Assurance Team, as those terms are defined in the SOW. On the dates specified in Exhibit 3 and as described in this Order, or as directed by EPA, Respondent shall notify EPA in writing of the name, address, telephone number, and qualifications of the RD/RA Project Manager, RD/RA Professional, Independent Quality Assurance Team, and Remedial Action Contractor(s), and the identity and qualifications of any other primary support entities, staff, and contractors proposed to be used in carrying out Work under this Order. If at any time Respondent proposes to use a different RD/RA Project Manager, RD/RA Professional, Independent Quality Assurance Team, or Remedial Action Contractor(s), or support entities, staff, or contractors, Respondent shall notify EPA and provide similar information at least 14 days before such persons perform any Work under this Order.

41. EPA will review Respondent's selection of, and changes to, the RD/RA Project Manager, RD/RA Professional, Independent Quality Assurance Team, and Remedial Action Contractor(s), and support entities, staff, or contractors according to the terms of this Section and Section XIV of this Order. If EPA disapproves of the selection of a RD/RA Project Manager, RD/RA Professional, Independent Quality Assurance Team, or Remedial Action Contractor(s), or support entities, staff, or contractors, Respondent shall submit to EPA within 14 days after receipt of EPA's disapproval, a list of project managers, support entities, staff, or contractors that would be acceptable to Respondent. EPA will thereafter provide written notice to Respondent of the names that are acceptable to EPA. Respondent may then select any approved name or names from that list and shall notify EPA of their selection(s) within 14 days of receipt of EPA's written notice.

42. Certification of Completion of Initial Construction

a. Immediately after Respondent concludes that the Initial Construction activities have been fully performed, Respondent shall schedule and conduct a pre-certification inspection to be attended by Respondent, EPA, and the MDHES, and shall then so certify to EPA. For purposes of this Paragraph, Completion of Initial Construction shall mean the completion of the initial on-site physical actions required for the construction of the remedial activities described in the ROD. Completion of Construction does not include activities required under Sections X and XII of this Order. If, after the pre-certification inspection, the Respondent believes that the Initial Construction has been fully performed, it shall submit a written report to EPA and MDHES for approval by EPA, in consultation with the State, pursuant to Section XIV. In the report, a registered professional engineer and the Respondent's RD/RA Project Manager shall certify that the Initial Construction has been completed in full satisfaction of the

requirements of this Order. The written report shall include as-built drawings signed and stamped by a professional engineer. The report shall also contain the following statement, signed by a responsible official of the Respondent and by the Respondent's RD/RA Project Manager:

"To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations".

For purposes of this Order, a responsible official is a corporate official who is in charge of a principal business function. Upon receipt of the Report, EPA may request a final inspection and meeting, at EPA's discretion. If, after completion of the pre-certification inspection and receipt and review of the written report, EPA determines that the Initial Construction activities or any portion thereof has not been completed in accordance with this Order, EPA may require appropriate Work actions, or invoke the provisions of Sections X or XII of this Order, or take any other action authorized by law. If EPA concludes, following the initial or subsequent certification of completion of Initial Construction by Respondent that the Initial Construction activities have been fully performed in accordance with this Order, EPA may notify Respondent that the Initial Construction activities have been fully performed. Upon such notice, Phase I O&M shall be implemented. EPA's notification shall be based on present knowledge and Respondent's certification to EPA. The notification shall not limit EPA's right to perform periodic reviews pursuant to section 121(c) of CERCLA, 42 U.S.C. § 9621(c), or to take or require any actions that in the judgment of EPA are appropriate at the Site, in accordance with provisions of this Order or 42 U.S.C. §§ 9604, 9606, or 9607, including selection and implementation of a final remedy for the Site.

#### 43. Completion of the Remedial Action

a. As described in Exhibits 2 and 3 and when Respondent concludes that the Remedial Action has been fully performed and the Performance Standards have been attained for a period as described in the SOW, Respondent shall schedule and conduct a precertification inspection to be attended by Respondent, EPA, and the MDHES, and shall then so certify to EPA. This certification shall contain a detailed report on Respondent's compliance with all Performance Standards. For purposes of this Paragraph, compliance with Performance Standards shall mean compliance with Performance Standards described in Exhibit 4 for a twenty-four (24) month time frame. If, after the precertification inspection and according to the schedule contained in Exhibit 3, the Respondent believes that the Remedial Action has been fully performed and the Performance

Standards have been attained, it shall submit a written report to EPA and the State for approval by EPA, in consultation with the State, pursuant to Section XIV. In the report, a registered professional engineer and the Respondent's RD/RA Project Manager shall certify that the Remedial Action has been completed in full satisfaction of the requirements of this Order. The written report shall include as-built drawings signed and stamped by a professional engineer. The report shall also contain the following statement, signed by a responsible official of the Respondent and by the Respondent's RD/RA Project Manager:

"To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations".

For purposes of this Order, a responsible official is a corporate official who is in charge of a principal business function. Upon receipt of the Report, EPA may request a final inspection and meeting, at EPA's discretion. If, after completion of the pre-certification inspection and receipt and review of the written report, EPA, determines that the Remedial Action or any portion thereof has not been completed in accordance with this Order or that the Performance Standards have not been achieved, EPA may require that appropriate Work be performed or may invoke the provisions of Sections X or XII, or take any other action authorized by law. If EPA concludes, following the initial or subsequent certification of completion of Remedial Action by Respondent that the Remedial Action has been fully performed in accordance with this Order, EPA may notify Respondent that the Remedial Action has been fully performed. Upon receipt of such notice, the Phase II O&M shall be implemented. EPA's notification shall be based on present knowledge and Respondent's certification to EPA. The notification shall not limit EPA's right to perform periodic reviews pursuant to section 121(c) of CERCLA, 42 U.S.C. § 9621(c), or to take or require any actions that in the judgment of EPA are appropriate at the Site, in accordance with provisions of this Order or 42 U.S.C. §§ 9604, 9606, or 9607, including selection and implementation of a final remedy for the Site.

44. Respondent shall, no later than 5 days prior to any off-Site (meaning off of the Clark Fork Basin Superfund Sites) shipment of hazardous substances from the Site to an out-of-state waste management facility, provide written notification of such shipment of hazardous substances to MDHES, to the appropriate state environmental official in the receiving state, and to EPA. However, the notification of shipments shall not apply to any off-Site (meaning off of the Clark Fork Basin Superfund Sites) shipments when the total volume of all shipments from the Site to the state will not exceed 10 cubic yards.

- a. The notification shall be in writing, and shall include the following information: (1) the name and location of the facility to which hazardous substances are to be shipped; (2) the type and quantity of hazardous substances to be shipped; (3) the expected schedule for the shipment of the hazardous substances; and (4) the method of transportation. Respondent shall notify EPA and the receiving state of major changes in the shipment plan, such as a decision to ship the hazardous substances to another facility within the same state or to a facility in another state.
- b. The identity of the receiving facility will be determined by Respondent at the earliest possible time. Respondent shall provide all relevant information, including the information noted above, as soon as practicable after a decision is reached, but in no event later than the time specified in this paragraph.

45. Respondent shall cooperate with EPA in providing information regarding the Work to the public. If requested by EPA, Respondent shall participate in the preparation of such information for distribution to the public and in public meetings which may be held or sponsored by EPA to explain activities at or relating to the Site.

#### **X. FAILURE TO ATTAIN PERFORMANCE STANDARDS**

46. In the event that EPA determines at any time during which this Order is in effect, including during O&M, that additional response activities are necessary to attain Performance Standards, EPA may notify Respondent that additional response actions are necessary. Respondent shall notify EPA of its intent to perform such additional response activities within 7 days after receipt of EPA's request for additional response activities.

47. Unless otherwise stated by EPA, within 30 days of receipt of notice from EPA that additional response activities are necessary to meet Performance Standards, Respondent shall submit for approval by EPA a work plan for the additional response activities. The plan shall conform to the applicable requirements of Sections IX, XVI, and XVII of this Order. Upon EPA's approval of the plan pursuant to Section XIV, Respondent shall implement the plan for additional response activities in accordance with the provisions and schedule contained therein.

#### **XI. EPA PERIODIC REVIEW**

48. Under section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and any applicable regulations, EPA may review the remedial action to

assure that the Work performed pursuant to this Order adequately protects human health and the environment. Respondent shall conduct the studies, investigations, or other response actions determined necessary by EPA for EPA to conduct its review. As a result of any review performed under this paragraph, Respondent may be required to perform additional Work or to modify Work previously performed.

### **XII. ADDITIONAL RESPONSE ACTIONS**

49. At any time, including during O&M, EPA may determine that Work, in addition to that identified in this Order, may be necessary to protect human health or the environment or to implement the WSPiA ROD. If EPA determines that additional response activities are necessary, EPA may require Respondent to submit a work plan for additional response activities. EPA may also require Respondent to modify any plan, design, or other deliverable required by this Order, including any approved deliverable. Respondent shall notify EPA of their intent to perform such additional response activities within 7 days after receipt of EPA's request for additional response activities.

50. Not later than 30 days after receiving EPA's notice that additional response activities are required pursuant to this Section, Respondent shall submit a Work Plan for the response activities to EPA for review and approval. Upon approval by EPA, the plan is incorporated into this Order as a requirement of this Order and shall be an enforceable part of this Order. Upon approval of the plan by EPA, Respondent shall implement the plan according to the standards, specifications, and schedule in this Order and the approved plan.

### **XIII. ENDANGERMENT AND EMERGENCY RESPONSE**

51. In the event of any action or occurrence during the performance of the Work which causes or threatens to cause a release of a hazardous substance that constitutes an emergency situation or which may present an immediate threat to public health or welfare or the environment, Respondent shall immediately take all appropriate action to prevent, abate, or minimize the threat, and shall immediately notify EPA. Immediately upon such an occurrence, Respondent shall notify the EPA Remedial Project Manager, or the Alternate Remedial Project Manager. If neither the EPA Remedial Project Manager nor the Alternate Remedial Project Manager is available, Respondent shall notify the EPA Emergency Response Branch, EPA Region 8. Respondent shall take such action in consultation with the EPA Remedial Project Manager and in accordance with all applicable provisions of law and of this Order. In the event that Respondent fails to take appropriate response action as required by this Section, and EPA takes action instead, Respondent shall reimburse the United States for all costs of the

response action. Respondent shall pay the response costs in the manner described in Section XXII of this Order.

52. Nothing in the preceding paragraph shall be deemed to limit any authority of the United States to take, direct, or order any action to protect human health and the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances on, at, or from the Site.

#### XIV. EPA REVIEW OF DELIVERABLES

53. After review of any deliverable which must be submitted for review and approval pursuant to this Order, EPA may: (a) approve the submission, (b) approve the submission with its own modifications, (c) comment on the submission and direct changes and corrections, (d) disapprove the submission and direct Respondent to re-submit the document after incorporating EPA's comments and directions, or (e) disapprove the submission and assume responsibility for performing all or any part of the response action. As used in this Order, the terms "approval by EPA," "EPA approval," or similar term means the action described in phrases (a) or (b) of this paragraph.

54. In the event of approval or approval with modifications by EPA, Respondent shall proceed to take any action required by the deliverable, as approved or modified by EPA.

55. Upon receipt of a notice of comments with directions for changes and corrections, or disapproval with directions for modifications, Respondent shall, within 7 days or such time as specified by EPA in its comment letter or notice of disapproval and direction for modification or within such time as indicated in Exhibit 3, make all requested changes and correct the noted deficiencies, and not make any additional changes without prior approval of EPA, and resubmit the deliverable for approval. Notwithstanding the notice of disapproval, or approval with modification, Respondent shall proceed, at the direction of EPA, to take any action required by any non-deficient portion of the deliverable.

56. Any failure of Respondent to obtain full approval of a deliverable when required is a violation of this Order.

#### XV. REPORTING REQUIREMENTS

57. Until EPA's acceptance of the certification of completion of remedial action, Respondent shall submit to EPA and MDHES monthly progress reports containing, at a minimum, the following information:

- a. A description of actions taken to comply with this Order, including plans and actions completed, during the previous month;
- b. A description of problems encountered and any anticipated problems, any actual or anticipated delays, and solutions developed and implemented to mitigate any problems or delays;
- c. Any change orders, nonconformance reports, claims made, and actions taken to rectify problems;
- d. Work planned for the next 60 days with schedules relating such Work to the overall project schedule for RD/RA completion, and
- e. Except for information previously submitted, copies of inspection logs and results of all sampling, tests, and other data (including validated analytical data with supporting documentation on Contract Laboratory Program Form I's or in a similar format) received or produced by Respondent during the course of Work during the previous month.

These reports shall be submitted on or before the 10th day of each month from the effective date of the Order and each month thereafter until EPA determines that reports are no longer required.

58. During any on-Site construction activity, Respondent shall prepare daily reports on construction activities discussing, at a minimum, the daily activities, field adjustments, change orders, summaries of problems and actions to rectify problems, and such information as is customary in the industry. The daily reports shall be compiled and delivered to EPA and MDHES monthly on the day specified by the EPA Remedial Project Manager.

59. Upon commencement of O&M activities, Respondent shall prepare and submit to EPA and MDHES O&M reports that include, at a minimum, the following elements:

- a. A description of O&M activities performed during the reporting period;
- b. A description of the performance of each component of the remedial action requiring O&M, including a summary of any monitoring data demonstrating the performance of the remedy and its effectiveness in meeting Performance Standards;

- c. A description and summary of the results of all monitoring performed in connection with the remedy;
- d. A statistical evaluation of the monitoring data and a conclusion as to whether the results exceed Performance Standards, and whether the exceedences necessitate the implementation of contingency measures;
- e. Identification of any problems or potential problems and a description of all steps taken or to be taken to rectify the problems;
- f. An appendix containing all validated data and supporting documentation on Contract Laboratory Program Form I's or in a similar format collected during the reporting period and not previously submitted; and
- g. Copies of any O&M training materials and a record of employee attendance at training sessions.

O&M reports shall be submitted quarterly on or before the 10th day of January, April, July, and October, commencing upon approval of the Phase I O&M Plan, as described in Exhibit 2, and continuing until EPA notifies Respondent that the frequency of reporting may be reduced.

60. Respondent shall prepare and submit the periodic review reports described in the SOW.

#### XVI. QUALITY ASSURANCE, SAMPLING, AND DATA ANALYSIS

61. Respondent shall ensure that Work performed, samples taken, and analyses conducted conform to the requirements of this Order and the EPA-approved sampling and analysis plan. Respondent will ensure that its field personnel are properly trained in the use of field equipment and chain-of-custody procedures. If relevant to the proceeding, validated sampling data generated in accordance with the approved SAP and reviewed and approved by EPA shall be admissible as evidence, without objection, in any enforcement proceeding by EPA or the MDHES.

62. To provide quality assurance and maintain quality control, Respondent shall:

- a. Use only laboratories which have a documented Quality Assurance Program;
- b. Ensure that any laboratory used performs analyses according to a method or methods deemed satisfactory by EPA and submits all protocols to be

used for analyses to EPA at least 30 days before beginning analysis, unless previously approved;

- c. Ensure that EPA personnel or authorized representatives are allowed access to the laboratory and personnel used by Respondent for analyses; and
- d. Upon EPA request, have such laboratories analyze samples submitted by EPA for quality-assurance monitoring.

63. Respondent shall notify EPA and MDHES in writing not less than 14 days prior to any sample collection activity. At the request of EPA, Respondent shall allow split or duplicate samples to be taken by EPA or MDHES or their respective authorized representatives, of any samples collected by Respondent with regard to the Site or pursuant to the implementation of this Order. In addition, EPA, MDHES, and/or their respective authorized representatives shall have the right to take any other samples that EPA or MDHES deems necessary.

#### XVII. COMPLIANCE WITH APPLICABLE LAWS

64. All Work shall be performed in accordance with the requirements of all federal and state laws and regulations. As provided in section 121(e) of CERCLA, 42 U.S.C. § 9621(e), and the NCP, no permit shall be required for any portion of the Work conducted entirely on-Site. Where any portion of the Work requires a federal or state permit or approval, Respondent shall submit timely and complete applications and take all other actions necessary to obtain and to comply with all such permits or approvals.

65. This Order is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation. To ensure that implementation of the remedy does not cause injury to vested water rights or decreed conditional water rights, consistent with Montana water law, the State has determined that the Respondent shall apply for and receive appropriate state water right permits and otherwise comply with all applicable provisions of state water law, where on-site remedial actions constitute the beneficial use of water under State law. For such permits or where any portion of the Work requires a federal or state permit or approval, Respondent shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals. EPA may in its unreviewable discretion waive by written notice to Respondent the obligation to obtain water rights permits for on-site Work. Nothing in this Unilateral Administrative Order shall alter any obligation Respondent may have under state law to provide compensation or payment for the use of water.

66. All materials removed from the Clark Fork Basin Superfund Sites shall be disposed of or treated at a facility approved by EPA and in accordance with section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3); with EPA's "Revised Off-Site Policy," (OSWER Directive 9834.11 Nov. 3, 1987); and with all other applicable federal, state, and local requirements.

**XVIII. REMEDIAL PROJECT MANAGER**

67. The EPA Remedial Project Manager is:

D. Scott Brown, 8MO  
EPA Region 8 Montana Office  
301 South Park  
Drawer 10096  
Helena, Montana 59624  
(406) 449-5414

EPA's Alternate Remedial Project Manager is:

Robert Fox, 8MO  
EPA Region 8 Montana Office  
301 South Park  
Drawer 10096  
Helena, Montana 59624  
(406) 449-5414

EPA's lead attorney is:

D. Henry Elsen, 8RCMO  
Assistant Regional Counsel  
EPA Region 8 Montana Office  
301 South Park  
Drawer 10096  
Helena, Montana 59624  
(406) 449-5414

MDHES's Project Officer is:

Neil Marsh  
State of Montana  
Department of Health and Environmental Sciences  
Solid and Hazardous Waste Bureau  
Cogswell Building  
Helena, Montana 59620  
(406) 444-1420

MDHES's Lead Attorney is:

James Madden  
Special Assistant Attorney General  
State of Montana  
Department of Health and Environmental Sciences  
Solid and Hazardous Waste Bureau  
Cogswell Building  
Helena, Montana 59620  
(406) 444-1420

EPA and MDHES have the non-reviewable right to change their respective Remedial Project Manager or Alternate Project Manager or Project Officer or Lead Attorney at any time and will inform Respondent of such changes.

68. The EPA Remedial Project Manager and Alternate Project Manager shall have the authority lawfully vested in a Remedial Project Manager and On-Scene Coordinator by the NCP. The EPA Remedial Project Manager and Alternate Project Manager shall have authority, consistent with the NCP, to halt any Work required by this Order, and to take any necessary response action.

69. Within fifteen (15) days of Respondent's receipt of the Order, if not already done in the WP, Respondent shall designate an RD/RA Project Manager, including the name, address, and telephone number of this person. Respondent's RD/RA Project Manager shall be responsible for overseeing Respondent's implementation of this Order. Respondent shall submit the qualifications of this person with the WP, as described in Paragraphs 40 - 41. Respondent's selection of the RD/RA Project Manager is subject to approval by EPA, as described in Paragraphs 40 - 41. If Respondent wishes to change the RD/RA Project Manager, Respondent shall provide written notice to EPA at least five (5) days prior to changing the Project Coordinator, with the name and qualifications of the new RD/RA Project Manager. Respondent's selection shall be subject to EPA approval, as described in Paragraph 41.

70. All written communications from Respondent to EPA shall be directed from Respondent's RD/RA Project Manager to the each of the names listed in paragraph 67. Respondent shall submit to EPA's Project Manager three copies, to MDHES's Project Officer three copies, and to EPA's and MDHES's Lead Attorneys one copy each of all documents, including plans, reports, and other correspondence, which are developed pursuant to this Order, and shall hand-deliver or send these documents by certified mail, return receipt requested, or overnight mail. Oral communications shall be directed from Respondent's RD/RA Project Manager to EPA's Remedial Project Manager.

#### **XIX. ACCESS AND DATA/DOCUMENT AVAILABILITY**

71. Respondent shall allow EPA, MDHES, and their respective authorized representatives at all times to enter and move freely about any and all property owned or controlled by Respondent at the Site and off-Site areas subject to or affected by the Work under this Order or where documents required to be prepared or maintained by this Order are located, for the purposes of: inspecting conditions, activities, the results of activities, records, operating logs, and contracts related to the Site or Respondent and its representatives or contractors pursuant to this Order; reviewing the progress of Respondent in carrying out the terms of this Order; conducting tests as EPA or its authorized

representatives deem necessary; using a camera, sound recording device or other documentary type equipment; and verifying the data submitted to EPA by Respondent. Respondent shall allow EPA, MDHES, and their respective authorized representatives to enter the Site and off-Site areas subject to or affected by the Work under this Order or where documents required to be prepared or maintained by this Order are located, to inspect and copy all records, files, photographs, documents, sampling and monitoring data, and other writings related to Work undertaken in carrying out this Order. Nothing herein shall be interpreted as limiting or affecting EPA's right of entry or inspection authority under federal law.

72. If the Site or any off-Site area that is subject to or effected by the Work, or property where documents required to be prepared or maintained by this Order are located, or other property subject to or affected by the RD or RA, is owned in whole or in part by parties other than those bound by this Order, Respondent will obtain, or use its best efforts to obtain, Site access agreements from the present owner(s) within 30 days of the effective date of this Order.

- a. Respondent's best efforts shall include providing reasonable compensation to any off-Site property owner.
- b. Access agreements shall provide access for EPA, MDHES, and their respective authorized representatives and Respondent and its contractors and representatives, and shall specify that Respondent is not EPA's or MDHES's representatives with respect to the Site or Site activities.
- c. Copies of such agreements shall be provided to EPA prior to Respondent's initiation of field activities. If access agreements are not obtained within the time referenced above, Respondent shall immediately notify EPA of its failure to obtain access, and shall include in that notification a summary of the steps the Respondent has taken to attempt to obtain access or use.
- d. Respondent shall not seek to negotiate general releases from tort or other liability unrelated to the Work required by this Order as part of the access agreement. When working on property owned by third parties, Respondent shall provide the opportunity for the third party to request and obtain split samples. Respondent shall submit written evidence to EPA documenting that such an opportunity was provided.

Subject to the United States' non-reviewable discretion, EPA may use its legal authorities to obtain access for Respondent, may perform response actions with EPA contractors, may modify the Order or the Schedule, or may terminate the Order, if Respondent cannot obtain access agreements. Respondent shall reimburse EPA, pursuant to Section XXII of this Order, for all response costs (including attorney fees) incurred by the United States to obtain access for Respondent. If EPA performs tasks or activities with contractors and does not terminate the Order, Respondent shall perform all other activities not requiring access to that property, and shall reimburse EPA, pursuant to Section XXII of this Order, for all costs incurred in performing such activities. Respondent shall integrate the results of any such tasks undertaken by EPA into the Work it performs under this Order.

73. Respondent shall provide to EPA, upon request, copies of all documents and information within its possession and/or control or that of its contractors or representatives relating to activities at the Site or to the implementation of this Order, including but not limited to, sampling, analysis, chain-of-custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Respondent shall also make available to EPA upon request for purposes of investigation, information gathering, or testimony, its employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

74. Respondent may assert a claim of business confidentiality covering part or all of the information submitted to EPA pursuant to the terms of this Order under 40 C.F.R. § 2.203, provided such claim is not inconsistent with section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), or other provisions of law. This claim shall be asserted in the manner described by 40 C.F.R. § 2.203(b) and substantiated by Respondent at the time the claim is made. Information determined to be confidential by EPA will be given the protection specified in 40 C.F.R. Part 2. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA without further notice to Respondent. No claim shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, or engineering data, or any other documents or information evidencing conditions at or around the Site.

#### **XX. RECORD PRESERVATION**

75. For a period of 10 years after Work is completed under this Order, Respondent shall preserve and retain all records and documents in its possession or control and in the possession or control of its contractors, on and after the date of signature of this Order, that relate in any manner to the Site, Respondent's potential liability under CERCLA, or performance of Work under this

Order. At the conclusion of this document-retention period, Respondent shall notify EPA at least 90 days prior to the destruction of any such records or documents, and upon request by EPA, Respondent shall deliver any such records or documents to EPA at no cost to EPA. Any records or documents not requested by EPA may be requested by MDHES, and Respondent shall deliver any such records or documents to MDHES at no cost to MDHES.

#### **XXI. ASSURANCE OF ABILITY TO COMPLETE WORK**

76. Respondent shall demonstrate its ability to complete the Work required by this Order and to pay all claims that arise from the performance of the Work by obtaining and presenting to EPA, within 30 days after the effective date of this Order, one of the following: (1) a performance bond; (2) a letter of credit; (3) a guarantee by a third party; or (4) internal financial information consistent with 40 CFR § 264.143(f), to allow EPA to determine that Respondent has sufficient assets available to perform the Work. Respondent shall demonstrate financial assurance in an amount no less than nineteen (19) million dollars. If Respondent seeks to demonstrate the ability to complete the remedial action by means of internal financial information, or by guarantee of a third party, it shall re-submit such information annually, on the anniversary of the effective date of this Order. If EPA determines that such financial information is inadequate, Respondent shall, within 30 days after receipt of EPA's notice of determination, obtain and present to EPA for approval one of the other three forms of financial assurance listed above.

77. At least 7 days prior to commencing any physical on-Site activity at the Site pursuant to this Order, Respondent shall submit to EPA a certification that Respondent or its contractors have adequate insurance coverage, which may include self-insurance, or have indemnification for liabilities for injuries or damages to persons or property which may result from the activities to be conducted by or on behalf of Respondent pursuant to this Order. In addition, for the duration of this Order, Respondent shall satisfy, and shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Respondent in furtherance of this Order. Respondent shall ensure that such insurance or indemnification is maintained for the duration of the Work required by this Order. Prior to commencement of on-Site physical Work under this Order, Respondent shall provide to EPA certification of the insurance described in this paragraph, and any insurance policies required by this paragraph. Respondent shall resubmit such certification each year on the anniversary of the effective date of this Order.

## XXII. REIMBURSEMENT OF RESPONSE COSTS

78. Respondent shall reimburse EPA, upon written demand, for all response costs incurred by the United States in connection with this Order. EPA may submit to Respondent on a periodic basis an accounting and a bill of such costs. Within 30 days of receipt of each EPA accounting and bill, Respondent shall remit a certified or cashier's check for the amount set forth in the accounting, plus interest. Interest shall accrue from the later of the date that payment of a specified amount is demanded in writing or the date of the expenditure. The interest rate is the rate established by the Department of the Treasury pursuant to 31 U.S.C. § 3717 and 4 C.F.R. § 102.13.

79. Checks shall be made payable to the "Hazardous Substance Superfund" and shall be forwarded to:

Mellon Bank  
EPA Region VIII  
Attn: Superfund Accounting  
Post Office Box 360859M  
Pittsburgh, Pennsylvania 15251

or other such address as EPA may designate in writing. Payments must be designated as "Response Costs--Silver Bow Creek/Butte Area (original portion) Superfund Site, Warm Springs Ponds Inactive Area operable unit remedial action, Site #22, OU #12" and include the payor's name and address and the docket number of this Order. Respondent shall send copies of each transmittal letter and check to the EPA Remedial Project Manager at the time of payment.

## XXIII. UNITED STATES NOT LIABLE

80. The United States including EPA, by EPA's issuance of this Order, assumes no liability for any injuries or damages to persons or property resulting from acts or omissions by Respondent, or its directors, officers, employees, agents, representatives, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to this Order. Neither EPA nor the United States may be deemed to be a party to any contract entered into by Respondent or its directors, officers, employees, agents, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to this Order.

81. Respondent shall save and hold harmless the United States and its officials, agents, employees, contractors, subcontractors, or representatives for or from any and all claims or causes of action or other costs incurred by the United States, including but not limited to, attorneys fees and other expenses of litigation and settlement arising from or on account of acts or omissions of Respondent, its officers, directors, employees, agents, contractors, subcontractors, and any persons acting on its behalf

or under its control, in carrying out activities pursuant to this Order, including any claims arising from any designation of Respondent as EPA's authorized representative(s) under section 104(e) of CERCLA, 42 U.S.C. § 9604(e). Respondent shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between Respondent and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays. Respondent shall reimburse EPA for any costs incurred arising from or on account of claims made against the United States based on the activities described in this paragraph, pursuant to Section XXII.

#### XXIV. ENFORCEMENT AND RESERVATIONS

82. EPA reserves the right to bring an action against Respondent under section 107 of CERCLA, 42 U.S.C. § 9607, for recovery of any response costs incurred by the United States related to the Site and not reimbursed by Respondent. This reservation shall include but not be limited to past costs, direct costs, indirect costs, the costs of oversight, the costs of compiling the cost documentation to support the oversight cost demand, as well as accrued interest as provided in section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

83. Notwithstanding any other provision of this Order, at any time during the response action, EPA may perform its own studies, complete the response action (or any portion of the response action), as provided in CERCLA and the NCP, and seek reimbursement from Respondent for its costs, or seek any other appropriate relief. Respondent shall be liable under section 107(a) of CERCLA, 42 U.S.C. § 9607(a), for the costs of any such additional action.

84. Nothing in this Order shall preclude EPA from taking any additional enforcement actions at this Site or any other site, including modification of this Order or issuance of additional Orders, and/or additional remedial or removal actions as EPA may deem necessary, or from requiring Respondent in the future to perform additional activities pursuant to CERCLA or any other applicable law.

85. Notwithstanding any provision of this Order, the United States hereby retains all of its information gathering, inspection, and enforcement authorities and rights under CERCLA, RCRA, and any other applicable statutes or regulations.

86. Respondent shall be subject to civil penalties under section 106(b) of CERCLA, 42 U.S.C. § 9606(b), of not more than \$25,000 for each day in which Respondent willfully violates, or fails or refuses to comply with this Order without sufficient cause. In addition, failure to provide response action properly

under this Order, or any portion hereof, without sufficient cause, may result in liability under section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3), for punitive damages in an amount equal to three times the amount of any costs incurred by the Fund as a result of such failure to take proper action.

87. Nothing in this Order shall constitute or be construed as a release from any claim, cause of action or demand in law or equity, including but not limited to a claim for natural resource damages, against any person for any liability it may have arising out of or relating in any way to the Site, or to any portion of the Silver Bow Creek/Butte Area Superfund Site, or any other area within the Clark Fork Basin Superfund Sites.

88. If a court issues an order that invalidates any provision of this Order or finds that Respondent has sufficient cause not to comply with one or more provisions of this Order, Respondent shall remain bound to comply with all provisions of this Order not invalidated by the court's order.

#### **XXV. EFFECTIVE DATE AND COMPUTATION OF TIME**

89. This Order shall be effective 30 days after the Order is signed. All times for performance of ordered activities shall be calculated from this effective date.

#### **XXVI. OPPORTUNITY TO CONFER**


90. Respondent may, within 10 days after the date this Order is received, request a conference with EPA to discuss this Order. The conference shall be limited to discussion of issues involving the implementation of the response actions required by this Order and the extent to which Respondent intends to comply with this Order. This conference is not an evidentiary hearing, and does not constitute a proceeding to challenge this Order. It does not give Respondent a right to seek review of this Order, or to seek resolution of potential liability, and no official stenographic record of the conference will be made. At any conference held pursuant to Respondent's request, Respondent may appear in person or by an attorney or other representative.

91. The conference shall be held at EPA's offices in Helena, Montana. Requests for a conference must be by telephone followed by written confirmation mailed that day to:

D. Henry Elsen, 8RCMO  
EPA Region 8 Montana Office  
301 South Park  
Drawer 10096  
Helena, Montana 59620  
(406) 449-5414

IT IS SO ORDERED

BY:

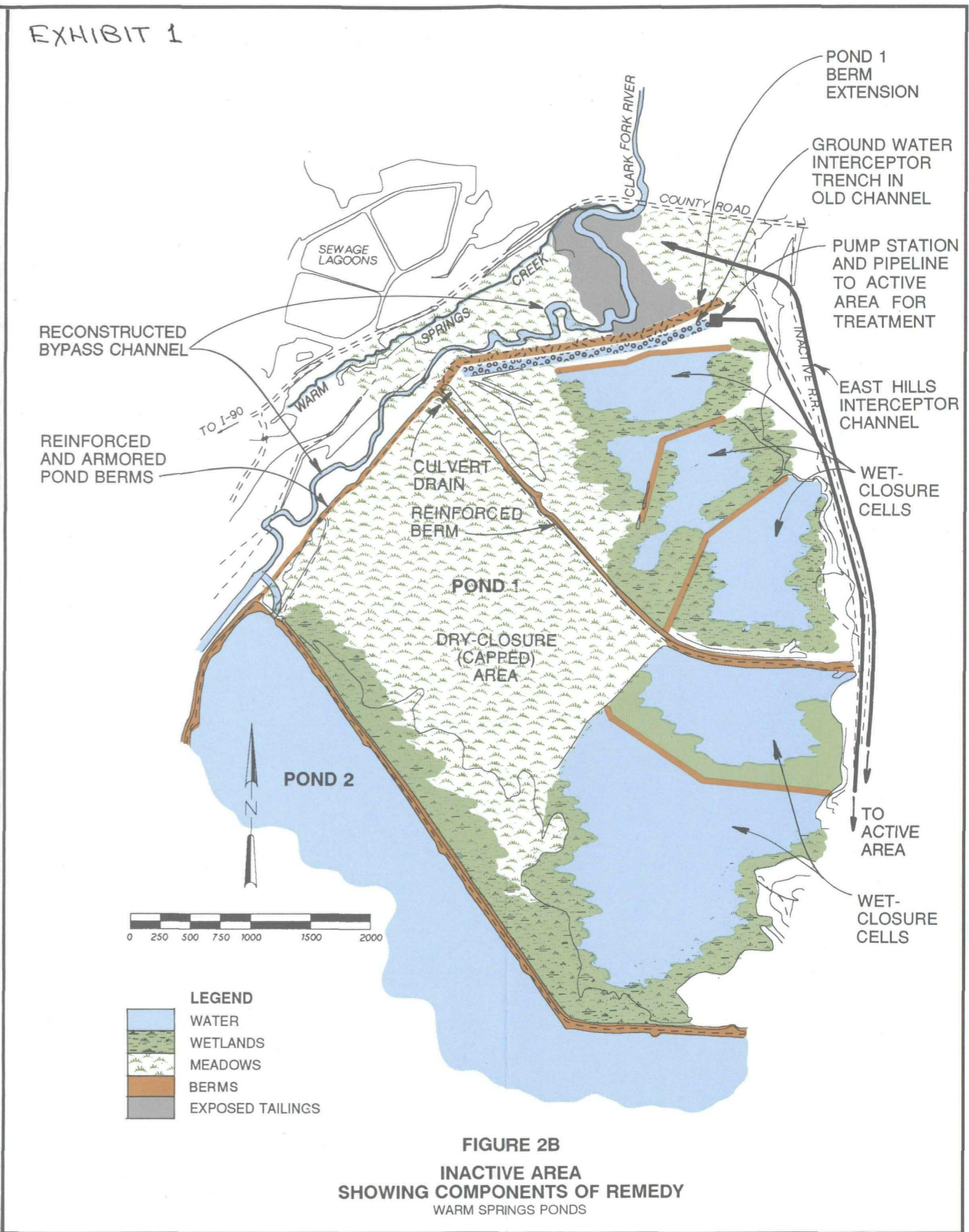
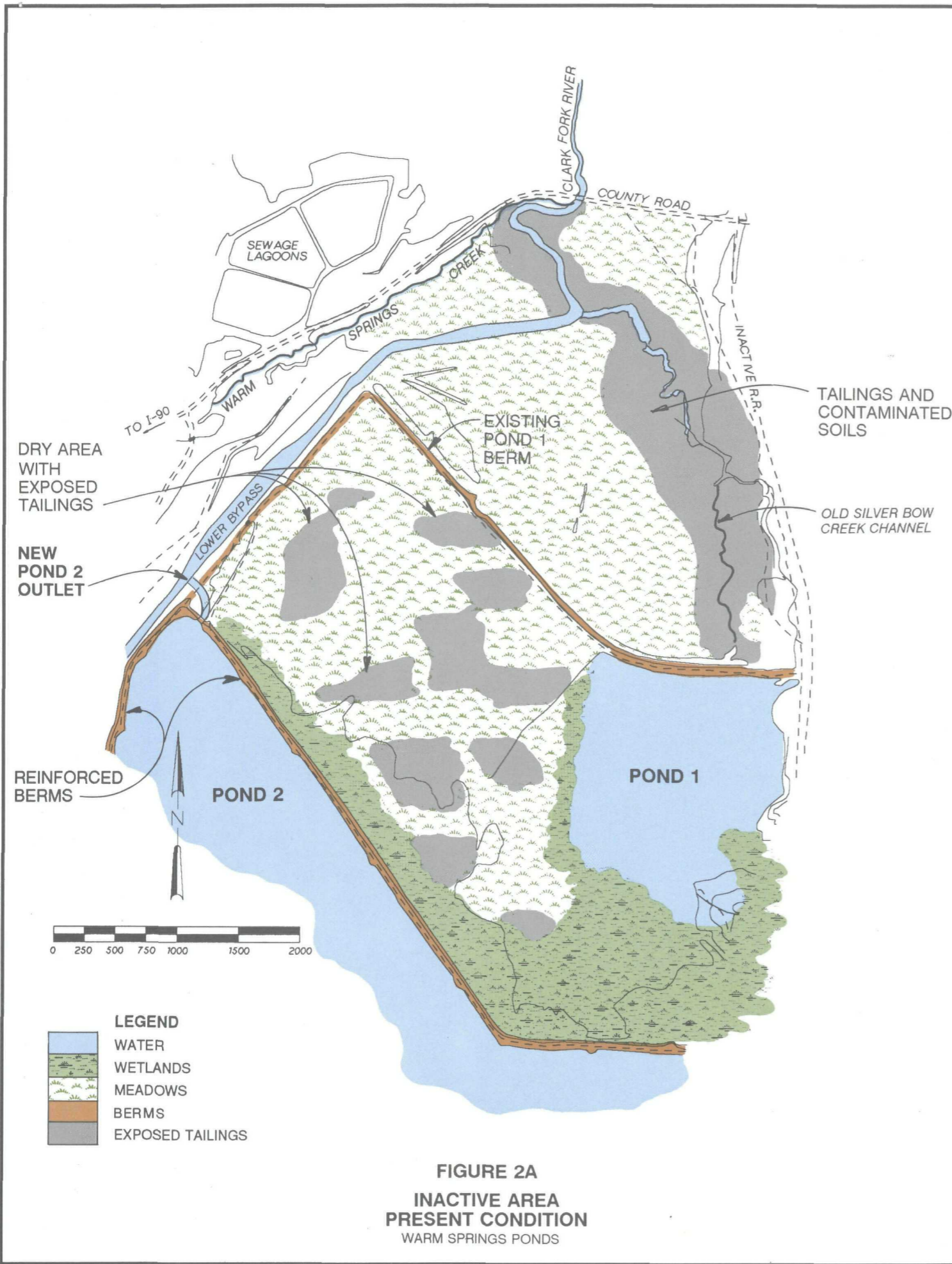
  
Robert L. Duprey, Director  
Hazardous Waste Management Division  
U.S. Environmental Protection Agency  
Region 8

DATE:

6/17/93

EFFECTIVE DATE:

7/19/93



**EXHIBIT 2**

**STATEMENT OF WORK  
FOR  
REMEDIAL DESIGN AND REMEDIAL ACTION**

**WARM SPRINGS PONDS INACTIVE AREA OPERABLE UNIT (OU12)  
SILVER BOW/BUTTE AREA SUPERFUND SITE (original portion)  
CLARK FORK RIVER BASIN, MONTANA**

**I. INTRODUCTION**

This Statement of Work outlines the procedures, tasks, and requirements, for preparing the remedial design (RD), and implementing and carrying out the remedial action (RA) and Operation and Maintenance (O and M) for the Warm Springs Ponds Inactive Area Operable Unit, Silver Bow Creek/Butte Area (original portion) Superfund Site ("Inactive Area"). The remedial action, when completed, must fulfill the requirements set forth in the Record of Decision for the Inactive Area, issued on June 30, 1992, by the United States Environmental Protection Agency (EPA).

This Statement of Work includes the requirements for the Comprehensive RD/RA Work Plan. The Work Plan shall detail the necessary deliverables and technical requirements for remedial design, remedial action, operation and maintenance, and performance monitoring for the Inactive Area. The Work Plan may include preliminary remedial design plans and specifications, if available. In addition, this Statement of Work includes EPA's requirements for the deliverables, milestones, schedule, and approach to the cleanup activities, as guidelines for the liable party, the Atlantic Richfield Company (ARCO). The Work Plan will be prepared by ARCO for review and approval by EPA.

This Statement of Work provides: (1) a description of the scope of the remedial action, as set forth in the Record of Decision and as further developed during remedial design; (2) an outline of the requirements of the remedial design, remedial action, and operation and maintenance process, and performance monitoring, including the specific plans, reports, and activities that must be conducted; (3) a description of the relationship of the Statement of Work to the Work Plan and Unilateral Administrative Order; and (4) a schedule for completion of the required work (Exhibit 3).

**II. SCOPE OF REMEDIAL ACTION**

This portion of the Statement of Work describes the selected response action presented in the Record of Decision for the Inactive Area. The Record of Decision describes (1) the technologies that will be used to treat and contain the

contaminated ground and surface water, and contaminated tailings, sediments, and soils present, as well as the necessary measures for monitoring the effectiveness of the remedy; (2) the extent to which the pond berms must be raised, extended, and strengthened; (3) institutional controls that are necessary for the Inactive Area; and (4) other necessary activities.

The selected remedy for the Inactive Area may be summarized as follows:

1. Remove all contaminated soils from the adjacent portion of the bypass channel and from the area below Pond 1 not planned for wet-closure. Consolidate the wastes over existing dry tailings within the western portion of Pond 1.
2. Modify, or enlarge if necessary, the adjacent portion of the bypass channel to safely route flood flows up to 70,000 cubic feet per second (CFS) which is one-half the estimated probable maximum flood (PMF) for the combined flows of Silver Bow, Willow, and Mill creeks. Soils and gravels that have copper concentrations below 500 milligrams per killogram (mg/kg) and meet geotechnical requirements will be used for raising and strengthening the existing berms and constructing new berms.
3. Raise, strengthen, and armor the north-south aspect of the Pond 1 berm. In accordance with specified state safety standards for high hazard dams and for the protection of human health and the environment, the reconstructed berm must withstand the estimated maximum credible earthquake (MCE) for this area. In addition, the reinforced berm must be constructed to withstand flood flows up to 70,000 cfs (0.5 PMF) in the enlarged bypass channel.
4. Stabilize the east-west aspect of the Pond 1 berm. The reconstructed berm must withstand a maximum credible earthquake for this area, thus protecting against the movement of contained pond bottom sediments or tailings into the uncontaminated or wet closed areas below Pond 1 in accordance with specified state dam safety standards, and for the protection of human health and the environment.
5. Extend and armor the north-south aspect of the Pond 1 berm approximately 2,400 feet in a north-northeasterly direction. This extended berm will be constructed to provide maximum credible earthquake protection and the ability to withstand one-half the estimated probable maximum flood (70,000 cfs) in the adjacent bypass channel.
6. Relocate the lowermost portion of the bypass channel and convert the present channel into a ground water interception trench. The relatively straight reach of the bypass channel, from the apex of the existing Pond 1 berm to the historic

Silver Bow Creek channel, will be relocated north of the extended berm. The entire reach of the bypass channel that is adjacent to the inactive area will be reconstructed, reclaimed, and restored to a more natural, meandering condition. Other excavated areas will be reclaimed and restored to their natural condition.

7. The converted ground water interception trench will be deepened and pumps will be installed to allow for a pump back system. Intercepted water that fails to meet specified standards will be pumped back to the active area for treatment. While the pumpback system is in place, a hydraulic gradient standard will be attained. The pumpback system is meant to be a temporary system to contain contaminated ground water for a limited time until the chemical fixation described below addresses the ground water contamination through source control. See subparagraph i below. The pumpback system may be shut off if appropriate performance standards are met. Monitoring wells and surface water quality monitoring stations will be placed at strategic locations. Surface water performance standards will be met.
8. Construct wet-closure berms to enclose the submerged and partially submerged tailings and contaminated soils. Within the eastern portion of Pond 1 and along the historic Silver Bow Creek channel below Pond 1, these smaller berms will create a series of cells, which when flooded will vary in depth from a minimum of one foot to a maximum of six feet.
9. Chemically fix (immobilize) the tailings and contaminated soils, now enclosed by smaller berms, by incorporating lime and lime slurry onto or into them. The combination of chemical fixation and wet closure of contaminated soils and tailings is intended to be the primary component of the remedy. It is expected that ground water will be intercepted and pumped back to the active area for treatment until such time as the combination of chemical fixation and wet closure demonstrates its effectiveness in terms of preventing the continued mobilization of metals from their sources into the ground water.
10. Flood the wet-closure cells with water adjusted to a pH greater than 8.5 and maintain proper water surface elevations in the wet-closure cells.
11. Cover the dry tailings and contaminated soils within the western portion of Pond 1 with 2 inches of limestone, 12 inches of fill, and 6 inches of suitable soils cap. This dry-closed area will be contoured to control runoff and seeded with native vegetation.

12. Construct a runoff collection and outflow system within Pond 1. This system will allow floods originating in the eastern hills to flow into Pond 1, but not compromise the integrity of the wet and dry closures. It will be designed to receive one-half the probable maximum flood, which is estimated to be 8,500 cfs at its peak.
13. Install toe drains along the armored berms and construct a collection manifold for both the active and inactive area north of station 164, as determined in remedial design. The water collected will be pumped to either Pond 2 or Pond 3 for treatment if it exceeds final point source discharge standards specified in Attachment 5 to the Warm Springs Ponds Active Area Unilateral Administrative Order, as determined by EPA in accordance with the remedial design documents.
14. Implement long-term ecological monitoring. By means of an unbiased set of measurements, this monitoring effort will concentrate on the effects of biological systems living in contact with metals in the water and substrate of ponds and wetlands environments. The results will validate or invalidate the decision to chemically fix, wet-close, and contain in place the exposed and submerged tailings and contaminated soils.
15. Implement institutional controls to prevent residential development, domestic well construction, disruption of dry-closure caps, and swimming.

The above summary of the remedy selected for the Inactive Area describes only the major actions required. A complete description of all the remedy requirements is contained in the Record of Decision.

### III. WORK PLAN DEVELOPMENT AND OTHER PLANS

The plans and actions discussed in the following sections will be completed or executed according to the schedule found in the attached schedule.

The Work Plan shall be comprehensive and include a discussion of all of the deliverables and activities identified below, with a clear plan described for producing the deliverables and tasks described in an acceptable manner. It shall also include preliminary design information, as necessary.

#### COMPREHENSIVE RD/RA WORK PLAN

A comprehensive Work Plan, encompassing all aspects of remedial design, remedial action, operation and maintenance, and performance monitoring for the remedy as summarized above, will be developed by ARCO and approved or modified by EPA, in consultation

with MDHES. The Work Plan will serve as the overall planning document for remedial design, remedial action, operation and maintenance implementation, and monitoring. The Work Plan shall set forth the schedule and task-specific methods by which ARCO will accomplish each task required by this Statement of Work, and the Record of Decision, and the Unilateral Administrative Order.

All of the related plans described in the following subsections will be included in the Work Plan, and will ultimately be attached to the Work Plan as appendices, or clearly referenced, as appropriate.

The Work Plan shall document the responsibilities and authority of all key persons and organizations working on the project. It shall also include a description of the qualifications of key personnel or organizations involved in the remedial design development and remedial action implementation, including the Remedial Design/Remedial Action Project Manager (Project Manager), the Remedial Design/Remedial Action Professional, the Remedial Action Contractor, and the Independent Quality Assurance Team (IQAT).

The Project Manager must be qualified to carry out the overall coordination and management of all activities required under the Unilateral Administrative Order. The Project Manager may be a member of ARCO's staff, an independent contractor, or a member of the Remedial Design/Remedial Action Professional's staff. The Project Manager shall have sufficient experience and training to ensure that the project can proceed according to the attached schedule.

The Remedial Design/Remedial Action Professional must be qualified to fulfill all appropriate obligations, as demonstrated by the person's project-specific qualifications and professional competence. The Professional may come from within ARCO's own staff or through a contractual relationship with a private consulting entity. In either case, the factors to be considered in EPA approval will include professional and ethical reputation, professional registration, demonstrated design experience, qualifications specifically required for the project, sufficient capacity (professional, technical, and support staff) to accomplish the project within the required schedule, and sufficient business background and financial resources to provide uninterrupted services throughout the life of the project.

The Remedial Action Contractor must be qualified to perform the construction activities required in the Remedial Action. The proposal for the Contractor shall be submitted at least 10 days prior to the preconstruction inspection and meeting. The qualifications shall include enough information to allow EPA evaluation and approval based on professional and ethical

reputation, previous experience in the type of construction activities to be implemented, and demonstrated capability to perform the required construction activities.

The IQAT is used to provide confidence to ARCO that the selected remedy is constructed to meet project requirements. The IQAT implements the Construction Quality Assurance Plan by selectively testing and inspecting the work of the Remedial Action Contractor. The IQAT is required to be "independent" and autonomous from the Remedial Action Contractor, and may come from within the ranks of ARCO's organization, the RD/RA Professional, or through a separate contractual relationship with a private consulting entity. EPA approval will be based on the requirement for independence between the IQAT and the Remedial Action Contractor. The submitted information about the IQAT contractor will include a written statement of qualification in sufficient details to allow EPA and the State to make a full and timely evaluation of the contractor's qualifications and facilities.

The Work Plan shall also describe any sampling activities which are needed for remedial design or remedial action. The Work Plan may incorporate by reference project activities which have or will be implemented under the Unilateral Administrative Order for the Active Area or the Administrative Order on Consent for the Mill-Willow Bypass. Because specific planning requirements may vary for each component, some of the required plans may be submitted as part of the remedial design activities.

A comprehensive schedule of all site activities, consistent with Exhibit 3, will be prepared by ARCO as part of the Work Plan submittal. When approved, the Work Plan and the comprehensive schedule shall be an enforceable part of the Unilateral Administrative Order. The schedule will reflect important activity dates, deliverable due dates, contractor procurement dates, and other necessary items to display the time requirements of all components of this project. Critical path elements will be highlighted. The schedule will be based on the overall planning schedule attached. The Work Plan may also include preliminary design information.

#### **SITE HEALTH AND SAFETY PLAN**

ARCO shall prepare an operable unit specific health and safety plan for protecting the health and safety of individuals who will be involved in remedial design, implementation of the remedial action, operation and maintenance activities, and performance monitoring. The Health and Safety Plan will also address, as necessary, protection of the surrounding communities during all phases of remedial action. Included in the Health and Safety Plan will be the actions to be taken during an emergency, including a telephone notification list of key individuals. This emergency plan will be developed in coordination with appropriate Deer Lodge

County officials. No response activity, other than ongoing removal or Active Area activities, will be allowed without a completed Health and Safety Plan that has been reviewed by the EPA. The draft Health and Safety Plan shall be submitted as part of the draft Work Plan. After EPA reviews and comments on the draft Health and Safety Plan, the final Health and Safety Plan shall be included as part of the final Work Plan. The Health and Safety Plan may be patterned after other Clark Fork Basin Health and Safety Plans previously developed by ARCO and reviewed by the EPA.

#### **SAMPLING AND ANALYSIS PLAN**

As necessary, ARCO shall prepare a Sampling and Analysis Plan that includes a Field Sampling Plan, and includes or appropriately references a Quality Assurance Project Plan, Laboratory Analytical Protocols (LAPs), Standard Operating Procedures (SOPs), and a Data Management/Data Validation Plan. These documents shall be consistent with or incorporate by reference previously approved plans for other Clark Fork Basin Superfund sites. These and all other field documents must be reviewed and approved by EPA prior to initiation of any field work described as RD/RA work. The draft Sampling and Analysis Plan, including the Field Sampling Plan shall be submitted or appropriately referenced as part of the draft Work Plan. After EPA review and comment, and approval, the final Sampling and Analysis Plan shall be included as part of the final Work Plan.

The Field Sampling portion of this plan is described in more detail below.

#### **FIELD SAMPLING PLAN**

The Field Sampling Plan shall address environmental sampling locations, procedures and protocols, analytical techniques, and quality assurance and quality control procedures. This document will serve as a companion to the referenced QAPP, LAP, SOP, and DM/DMV, and shall document any deviations from those plans. The Field Sampling Plan shall cover any environmental sampling, or laboratory or field testing, which will be conducted for remedial design, remedial action, or performance monitoring. The Field Sampling Plan will describe the procedures to be used by ARCO to keep EPA and MDHES informed of environmental sample results and data problems or needs in a timely fashion.

#### **ADDITIONAL STUDIES/PLANS/REPORTS**

If EPA, in consultation with the State, or ARCO determines that additional studies or reports, or additional Field Sampling Plans, are necessary, ARCO shall submit a Work Plan amendment to the EPA for review in accordance with the provisions of the Unilateral Administrative Order. Any amendment submitted must be approved by EPA before work described by the amendment may be

initiated, as described in the Unilateral Administrative Order.

#### **IV. REMEDIAL DESIGN PLANS, REPORTS AND SPECIFICATIONS**

The following subsections describe the various reporting needs during remedial design for the major components of the remedy. Remedial Design is defined as those activities to be undertaken by the Respondent to develop the final plans, drawings, specifications, general provisions, and special requirements necessary to translate the Record of Decision into the remedy pursuant to the Unilateral Administrative Order. The final products of the Remedial Design process are technical packages that contain or address all the elements necessary to accomplish the Remedial Action including, in addition to technical elements, all design support activities, permitting and access requirements, and institutional controls.

##### **PRELIMINARY DESIGN PACKAGE**

ARCO shall submit a Preliminary Design Package which shall describe the design criteria and constraints, key design parameters, and design concepts for the major elements of the project to be implemented under RD/RA. The primary objective of this report will be to present the technical requirements of the overall project, so that they may be reviewed to determine if the final design will be consistent with the Record of Decision and Unilateral Administrative Order. Supporting data and documentation shall be provided with, or in the case of completed work, referenced, in the Preliminary Design Package, to define the functional aspects of the project, including sedimentation controls during construction. For the remaining elements to be implemented under RD/RA, this may include preliminary design calculations and component sizing, schematics, layouts, and similar documents. In addition, the proposed operation of the system will be described. Design shall include a proposal for performance monitoring. The design criteria, conceptual designs, supporting documentation and discussion of system operation during the construction period and following completion of construction should be presented for early feedback from the reviewing agencies. Presentation of this material at regular technical meetings is encouraged to discuss and resolve any questions or problems that reviewers find with the preliminary design.

##### **DRAFT FINAL DESIGN REPORT/TECHNICAL DESIGN MEMORANDA**

ARCO shall prepare Draft Final Design Report or Technical Design Memoranda (TDM) containing construction plans and specifications reflecting 100 percent completion of design for each appropriate Phase. The Draft TDM and Draft Final Design Report will present the design rationale and calculations. The Draft

Final Design Report or Draft TDMs will include, but will not be limited to:

Discussion of the design strategy and design basis, including efforts used to minimize environmental and human health impacts;

Discussion of potential environmental impacts and mitigative measures during construction;

Detailed drawings of the proposed design;

Technical specifications of the proposed design;

Tables listing equipment and their key specifications;

Geotechnical and hydrology reports or design memoranda;

Construction schedules; and

Laboratory and field test results will be included as appendices.

The Draft Final Design Report or Draft TDMs shall also contain a clear and detailed description of tasks and deliverables necessary for implementation of remedial action activities, including a clear and detailed schedule.

Submitted with the Draft Final Design Report or Draft TDMs will be additional Field Sampling Plans, if needed, and the revised Health and Safety Plan if needed. A draft Performance Standards report (see below) shall also be submitted with the Draft Final Design Report.

The Draft TDMs shall be submitted at least 60 days prior to Phase I, II, and III construction. The Draft Final Design Report shall be submitted within 300 days after receipt of EPA's comments on the draft Work Plan and construction Preliminary Design Package and a minimum of 60 days prior to initiation of Phase IV. The Draft Final Design Report shall comply with all requirements of the Unilateral Administrative Order.

#### **FINAL DESIGN REPORT/TDM**

ARCO shall submit Final Design Reports or TDMs consisting of the final design plans and specifications at 100 percent completion, approved ancillary plans as noted above for each Phase. ARCO shall correlate and cross-check the bid form, specifications, plans, and drawings. The Final Design Report or TDM and associated documents should be of the quality necessary to include in a package for contractors who will be submitting bids for the construction activities. Reproducible drawings and specifications

will be submitted to the EPA as part of the design package for project files.

The Final Design Report and TDMs shall contain a clear and detailed description of tasks and deliverables necessary for implementation of remedial action activities, including a clear and detailed schedule. The report shall conform with all requirements of the Unilateral Administrative Order.

The Final Design Report and TDMs shall be submitted within 30 days after receipt of EPA's comments on the Draft Final Design Report. A Final Design Report and the TDMs is subject to the approval of EPA, in consultation with the State.

#### **INSTITUTIONAL CONTROL COMPLIANCE DEMONSTRATION**

Appropriate institutional control measures for the Inactive Area are identified in Attachment 1 to Part II of the Record of Decision. ARCO shall demonstrate compliance with these requirements by producing a compliance report. The report shall include copies of deed notices, leases, enacted zoning provisions, water well bans, evidence of sign posting, and any other required activities. The draft Institutional Control Compliance Demonstration shall be submitted 90 days after the receipt of the Unilateral Administrative Order. After EPA's review and comment, the final Institutional Control Compliance Demonstration shall be submitted 30 days after final receipt of EPA comments.

#### **PERFORMANCE STANDARDS REPORT**

All applicable or relevant and appropriate requirements (ARARs), as well as other standards and requirements, identified in the ROD, shall be incorporated into the design and documented in a Performance Standards Report. The report shall include a detailed description of how the plans and specifications for the Inactive Area will meet the contaminant-, location-, and action-specific ARARs and all other specified cleanup criteria. The report shall specifically address compliance with section 404 of the Clean Water Act and the Executive Order regarding wetlands, and the Endangered Species Act. The Draft Final Design Report and Final Design Report will be submitted concurrently with the draft and final Performance Standards Report, and shall describe how contaminant-specific ARARs will be met at the Completion of Remedial Action, and document compliance with location-specific ARARs, at the completion of remedial action activities, as defined by the Unilateral Administrative Order and Section V of this Statement of Work. Each Performance Standard required will be analyzed and addressed separately in the Performance Standards Report.

To ensure that ARARs associated with wetlands evaluation and damage mitigation or restoration, and ARARs associated with the Endangered Species Act are complied with, the ARARs compliance

report shall also include a Wetland Evaluation and Restoration Plan. This plan will address the exact amount and location of wetlands located within the Inactive Area; evaluate whether any planned remedial activities, or other cleanup activities taken at the Warm Springs Ponds under the prior removal Administrative Order on Consent or Unilateral Administrative Order, resulted, or will result, in any destruction, loss or injury to wetlands, and describe any efforts which will be necessary to restore, replace, rehabilitate, or acquire wetlands equivalent to those wetlands which were or will be destroyed, lost or injured, to ensure that no net loss of wetlands will occur as a result of the Superfund cleanup activities (past and present) at Warm Springs Ponds. The plan should also describe any activities which may be necessary to comply with the Endangered Species Act. Any such activities, upon approval by EPA, in consultation with the United States Department of the Interior and the State, shall be included in the Final Design Report, and shall be implemented by ARCO pursuant to the Unilateral Administrative Order.

The draft Performance Standards Report shall be submitted with the Draft Final Design Report. After review and comment, the final Performance Standards Report shall be submitted with the Final Design Report, and is subject to EPA approval, in consultation with the State.

#### **OPERATIONS AND MAINTENANCE PLAN**

ARCO shall prepare an operations and maintenance plan (O&M Plan) that sets forth the requirements for operations and maintenance of the remedial action. The O&M plan is expected to vary between components of the activities required pursuant to this Unilateral Administrative Order. The O&M for the Inactive Area shall be conducted in two phases. Phase I shall address O&M for the berms, disposal areas, and any reclaimed or restored areas. Phase II shall address all other aspects of remedial activities, including operation and monitoring of the wet-closure cells, ground water interception trenches, toe drains, flood runoff collection systems, and all other components of the remedy not covered under Phase I. The Work Plan should describe the generic elements of O&M that will be required and specific component needs as necessary. Section 3.5.2 of OSWER Directive 9355.0-4A contains a list of basic elements of an O&M plan that should be followed, with additional site-specific elements.

The draft O&M plan shall be submitted 90 days after EPA's approval of the Final Design Report. After EPA review and comment, the final O&M plan shall be submitted 30 days after EPA review and comment on the draft O&M Plan, and is subject to approval by EPA, in consultation with the State.

#### **V. REMEDIAL ACTION ACTIVITIES**

This section describes the required remedial action activities, reports, and requirements. Remedial action is the actual construction (including procurement) of the remedy, or implementation phase of cleanup. The Remedial Action is based on the Remedial Design to achieve cleanup results specified in the Record of Decision and the Unilateral Administrative Order. All construction for Remedial Action shall be completed no later than December 1, 1995.

#### **CONSTRUCTION QUALITY ASSURANCE PLAN**

ARCO shall develop and implement a Construction Quality Assurance Plan or CQAP updates to ensure that the completed remedial measures will meet or exceed all design criteria, plans, and specifications in conjunction with development of TDMs and PDR. The Construction Quality Assurance Plan must be submitted to and reviewed by the EPA prior to the start of construction. Upon approval of the Construction Quality Assurance Plan or CQAP updates, ARCO shall construct and implement the remedial measures in accordance with the reviewed design, project schedule, Construction Quality Assurance Plan or CQAP updates, and O&M plan. The Construction Quality Assurance Plan or CQAP updates shall include, at a minimum, an explanation of the Construction Authorities and Construction Inspection Activities as discussed below:

#### **Construction Authorities**

The responsibility and authority of the Independent Quality Assurance Team and all other organizations and persons involved in the construction or operation and maintenance of the remedial measures shall be described fully. The following members of the Independent Quality Assurance Team must be specifically identified:

Construction Quality Assurance Officer: Individual in charge of overall Site operations.

Inspection Staff: Individuals assigned to conduct inspections of equipment, personnel, activities, etc.

Persons on the inspection staff, such as the Site health and safety officer, quality assurance officer, etc., should also be noted in the appropriate supporting plans.

#### **Construction Inspection Activities**

The observations and tests that will be used to monitor the construction or installation of the components of the remedial measures shall be summarized in the Construction Quality Assurance Plan. The plan shall include the scope and frequency of each type of inspection. Inspections shall verify compliance with all environmental requirements. The inspection should also ensure

compliance with all health and safety procedures. Other inspections to be conducted include the preconstruction inspection and meeting, prefinal construction completion conferences and inspection, and final construction completion inspection, and the prefinal completion of remedial action inspection and meeting, prefinal completion of remedial action inspection and meeting, and final completion of remedial action inspection.

The draft Construction Quality Assurance Plan or CQAP updates shall be submitted in conjunction with draft RDMS and the FDR. The final Construction Quality Assurance Plan or CQAP updates shall be submitted 20 days after receipt of EPA comments on the draft Construction Quality Assurance Plan. The plans are subject to approval of EPA, in consultation with the State.

#### **PRECONSTRUCTION INSPECTION AND MEETING**

ARCO shall conduct a preconstruction inspection and meeting with contractors, EPA and State officials; to discuss any appropriate modifications to the construction quality assurance plan to ensure that site-specific considerations are addressed; and conduct a site walk-around to verify that the design criteria plans and specifications are understood, and to review material and equipment storage locations.

The preconstruction inspection and meeting shall occur no later than 45 days after approval of the Phase I, II, and III TDMs or FDR. ARCO shall bid the project and select a Remedial Action Contractor during this 45 day period. The preconstruction inspection and meeting shall occur after final approval of the Construction Quality Assurance Plan or CQAP update.

#### **MONITORING**

Monitoring of the effectiveness of the remedial actions will be conducted throughout the lifetime of the treatment activities associated with both the Inactive and Active areas. An appropriate monitoring plan shall be included in the draft and final Construction Quality Assurance Plan. The O&M Plan shall also contain or incorporate performance monitoring plans. A separate ecological monitoring plan for both the active and inactive areas will be required.

#### **PRECERTIFICATION COMPLETION OF INITIAL CONSTRUCTION INSPECTION AND MEETING**

ARCO shall hold a completion conference upon preliminary completion of key initial remedial action construction activities, which include the initial physical actions required for excavation and construction, the flooding or dry closure of contaminated areas, the raising, extending and strengthening of berms, and all activities necessary for reconstruction, reclamation, and

restoration of the lower Mill-Willow Bypass. The conference agenda will include at least: project status, cleanup and demobilization activities, review of project successes and failures, Phase I O&M initiation and schedule, and other items as necessary. At this time, the EPA and MDHES will conduct a prefinal inspection of the construction site. This inspection will be conducted to assure ARCO compliance with all project plans and to assure cleanup consistency with the Record of Decision for those activities in initial construction. If outstanding construction items remain, such items will be identified and documented, and a compliance schedule will be established. ARCO shall produce a prefinal inspection report to document the inspection, outstanding items, and a compliance schedule, 10 days after the conference is held.

#### **FINAL INITIAL CONSTRUCTION COMPLETION INSPECTION**

Upon completion of any outstanding construction items, ARCO shall notify the EPA and MDHES for the purposes of conducting a final inspection. ARCO shall demonstrate during the final inspection that all problems identified in the prefinal inspection report have been resolved. If any problem is unresolved or a new discrepancy is noted, this inspection shall be considered a prefinal inspection, and another final inspection will be conducted.

#### **INITIAL CONSTRUCTION COMPLETION REPORT AND CERTIFICATION**

At the completion of the initial construction project, after a final inspection has been conducted, ARCO shall submit a construction completion report. This report shall contain, at a minimum:

Notification that the project was conducted consistent with design specifications as documented in monthly progress reports, and a detailed accounting of any deviations from the design;

A narrative description of the work performed, including modifications reviewed by the EPA;

As-built drawings showing the final construction area configuration as well as details of the structures, facilities, and appurtenances installed as part of the construction activities;

The actual construction schedule;

A listing of criteria used to judge the success of remedial measures;

An evaluation of the success of remedial measures as judged against the evaluation criteria;

Quality control inspection reports, test results, and quality assurance reports;

Validated sampling results;

Prefinal inspection reports; and

Narrative, detailed descriptions of significant activities conducted in the Inactive Area during construction.

This report shall be submitted fifteen days after the Final Inspection is held.

#### **REMEDIAL ACTION COMPLETION CONFERENCE AND INSPECTION**

ARCO shall hold a prefinal remedial action completion conference upon preliminary completion of the remaining key remedial action construction activities. The conference agenda will include at least: project status, cleanup and demobilization activities, review of project successes and failures, Phase II O&M initiation and schedule, and other items as necessary. At this time, the EPA and MDHES will conduct a prefinal inspection of the site. This inspection will be conducted to assure ARCO compliance with all project plans and to assure cleanup consistency with the Record of Decision. If outstanding construction items remain, such items will be identified and documented, and a compliance schedule will be established. ARCO shall produce a pre-final inspection report to document the inspection, outstanding items, and a compliance schedule, 10 days after the conference is held.

#### **FINAL INSPECTION**

Upon completion of any outstanding construction items, ARCO shall notify the EPA and MDHES for the purposes of conducting a final inspection. ARCO shall demonstrate during the final inspection that all problems identified in the prefinal inspection report have been resolved. If any problem is unresolved or a new discrepancy is noted, this inspection shall be considered a prefinal inspection, and another final inspection will be conducted.

#### **REMEDIAL ACTION COMPLETION REPORT**

At the completion of the construction project, after a final inspection has been conducted, and after 24 months of consistent compliance with required performance standards, ARCO shall submit a remedial action completion report. This report shall contain, at a minimum:

Notification that the project was conducted consistent with design specifications and a detailed accounting of any deviations from the design;

A narrative description of the work performed, including modifications reviewed by the EPA and the State;

As-built drawings showing the final construction area configuration as well as details of the structures, facilities, and appurtenances installed as part of the construction activities;

The actual construction schedule;

A listing of criteria used to judge the success of remedial measures, and a detailed report documenting compliance with all performance standards;

An evaluation of the success of remedial measures as judged against the evaluation criteria;

Quality control inspection reports, test results, and quality assurance reports;

Validated sampling results;

Prefinal inspection report(s); and

Narrative, detailed descriptions of significant activities conducted in the Inactive Area during construction.

This report shall comply with all requirements of the Unilateral Administrative Order.

#### **OPERATIONS AND MAINTENANCE**

ARCO shall operate and maintain the remedy in accordance with the approved, detailed O&M plan. Phase I of O&M, regarding inspection and maintenance of the berms, the disposal areas, and the reclaimed or restored areas, shall commence after acceptance of the certification of initial completion of construction. Phase II of O&M, regarding all other aspects of O&M, including monitoring and operation of the wet-closure cells, interception trenches, toe drains, runoff collection systems and all other components of the remedy shall commence upon acceptance of the Certification of Completion of Remedial Action.

## FIVE-YEAR REVIEW REPORTS

In accordance with Section 121(c) of CERCLA, and as set forth in the Record of Decision, a review of the remedial actions implemented at the Inactive Area will be conducted no less than once every 5 years. To facilitate these reviews, every 5 years, or more frequently, as deemed necessary by EPA, in consultation with the State, ARCO shall prepare a Five-Year Review Report. These reports shall include, but shall not be limited to, the following elements:

Overall assessment of the performance of the remedy, including attainment of Performance Standards;

Performance of the berm systems, with a discussion of any maintenance undertaken, and other factors necessary to evaluate performance;

Performance of the wet-closure cells, with emphasis on contaminant concentration reductions, residual concentrations, and other factors necessary to evaluate performance;

Performance of the containment of sediment and soil within dry closure areas, with emphasis on control of contaminant migration from those areas, and success of revegetation;

Performance of the reconstructed, reclaimed, and restored lower Mill-Willow Bypass, with emphasis on channel stability and fish and wildlife habitat restoration success, and any other wetlands mitigation implementation;

Sampling and analysis of surface and ground water to determine whether contaminant concentrations remain at levels protective of human health and the environment;

A discussion of any remedy modifications made during the previous review period and the necessity for those modifications;

A review of long-term O&M activities, and recommendations for modifications to maximize remedy effectiveness (if necessary);

An assessment of whether the overall remedy is achieving the objectives of the Site cleanup as presented in the Work Plan, Record of Decision, Remedial Design and other controlling documents.

If the EPA, in consultation with the State , determines that the remedy does not sufficiently protect human health or the environment, the EPA shall require ARCO to take appropriate action, as described in the Unilateral Administrative Order.

#### **SCHEDULE**

The schedule attached represents the order of occurrence of various milestones in the remedial design and remedial action process. The dates and activities are mandatory and represent the maximum time allowable for ARCO to submit the requisite plans, reports, surveys, etc. necessary for the EPA and MDHES to oversee remedial design, remedial action, operation and maintenance, and performance monitoring.

#### **EPA APPROVAL**

EPA "Approval" of the Project Coordinator, the Remedial Design/Remedial Professional, the Remedial Action Constructor, and the Independent Quality Assurance Team, plans, specifications, processes, and other submittals within the context of this Unilateral Administrative Order is administrative in nature to allow ARCO to proceed to the next step. It does not imply any warranty of performance that the remedy, when constructed, will meet performance standards or will function properly and be accepted.

FCD:September 3, 1992:scott:sow.2

**EXHIBIT 3**

**MILESTONE/DELIVERABLE SCHEDULE**  
**June 17, 1993**

<u>Deliverable/Milestone/Event</u>	<u>Due Date</u>
<b>Remedial Design</b>	
RD/RA Work Plan/PDP	Final Work Plan/PDP due 15 days after effective date of Unilateral Administrative Order (UAO)
Draft Phase I, II and III Technical Design Memoranda (TDMs). See footnote for brief description of construction activities planned for each phase.	Minimum of 30 days prior to initiation of Phase I, II or III construction
Final Phase I, II and III Technical Design Memoranda	30 days from receipt of EPA comments on Draft TDMs
Draft Phase I Construction Quality Assurance Plan (CQAP), and Draft Phase I, II III and IV CQAP Updates, including monitoring plan(s), and name and qualifications of the Remedial Action Contractor(s)	Minimum of 30 days prior to initiation of Phase I, II, III or IV construction
Final Phase I CQAP and CQAP Updates	30 days from receipt of EPA comments on Draft Phase I CQAP and CQAP Updates
Draft Final Design Report incorporating Phase I, II and III TDMs including draft Performance Standards Report	150 days from submittal of Final RD/RA Work Plan/PDP and minimum of 60 days prior to initiation of Phase IV construction
Final Design Report and Final Performance Standards Report; including detailed description and detailed schedule for remedial action	30 days from receipt of EPA comments on the Draft FDR
Draft Institutional Control Compliance Demonstration Report (ICCDR)	90 days after the effective date of the UAO
Final Institutional Control Compliance Demonstration Report	30 days after receipt of EPA comments on the Draft ICCDR

Draft Detailed Operation and Maintenance (O&M) Plan

90 days after EPA approval of the Final Design Report

Final Detailed O&M Plan

30 days after receipt of EPA comments on the draft O&M Plan

### Remedial Action

Preconstruction Inspection and Meeting

Within 45 days after EPA approval of the Phase I, II or III TDM or Final Design Report

Begin Remedial Action activities

Pursuant to the approved schedule and plan contained in the Work Plan/PDP and/or the Phase I, II or III TDM or Final Design Report; and after EPA approval of the TDMs or FTR, the CQAP or CQAP Updates, and the Remedial Action Contractor(s), and the effective date of the UAO, RA Construction to be completed by December 1, 1995.

Precertification Completion of Initial Construction Inspection and Meeting

Immediately upon Respondent's determination of completion of initial RA construction activities

Prefinal Inspection Report (if necessary)

10 days after precertification initial inspection

Final Inspection and Meeting (if necessary)

After receipt by EPA of the Prefinal Inspection Report, on a date to be determined by EPA

Initial Construction Completion Report and Certification

60 days after Final Inspection and Meeting, or Precertification Inspection and Meeting, if no final inspection is necessary

Precertification Inspection and Meeting for Completion of Remedial Action

24 months after consistent compliance with Performance Standards

Prefinal Inspection Report (if necessary)

10 days after Precertification Inspection

Final Inspection and Meeting (if necessary)

Upon completion of outstanding items, on a date to be determined by EPA

Remedial Action Completion  
Report and Certification

60 days after Final Inspection  
and Meeting, or  
Precertification Inspection and  
Meeting, if no final inspection  
is necessary

Operation and Maintenance

Begin approved O&M activities

Pursuant to the schedule in the  
Final Detailed O&M Plan; Phase  
I O&M to begin after acceptance  
of the Certification of  
Completion of Initial  
Construction; Phase II O&M to  
begin after acceptance of the  
Certification of Completion of  
Remedial Action

Five Year Review Reports

As specified by the UAO

Other Activities

As specified by the UAO

NOTE: EPA comments will include MDHES comments, to the extent practicable. MDHES may submit comments to ARCO separately on any document or deliverable. EPA approval shall be in consultation with MDHES. The time periods in the schedule indicated for EPA deliverables, review, comment, and approval are estimates, and are not binding or enforceable dates.

The attached bar chart shows approximate duration and scheduling of activities. The narrative table above is the enforceable schedule - the attached bar chart is for planning and informational purposes only.

FOOTNOTE: Construction activities planned for each phase are briefly described below.

Phase I: Three sediment collecting basins in lower bypass; manifold for toe drains.

Phase II: Relocate and reconstruct lower bypass channel from Pond 2 outflow to old Silver Bow Creek channel; tailings removal where necessary; sediment controls.

Phase III: Construct dry closure areas within Pond 1; mass grading and preparations for floods from east hills.

Phase IV: Interception trench and pump back system; foundations for existing and newly constructed berms; wet closure dikes; lime addition; wet closure (flood cells); complete manifold for toe drains.

#### EXHIBIT 4

APPLICABLE OR RELEVANT AND APPROPRIATE  
REQUIREMENTS, STANDARDS, CONTROLS, CRITERIA, OR LIMITATIONS  
AND OTHER PERFORMANCE STANDARDS  
FOR THE  
WARM SPRINGS PONDS INACTIVE AREA OPERABLE UNIT  
SILVER BOW CREEK/BUTTE AREA (ORIGINAL PORTION) SUPERFUND SITE  
CLARK FORK RIVER BASIN, MONTANA

Section 121(d) of CERCLA, 42 U.S.C. Section 9621(d), certain provisions of the current National Contingency Plan (the NCP), 40 CFR Part 300 (1990), and guidance and policy issued by the Environmental Protection Agency (EPA) require that remedial actions taken pursuant to Superfund authority shall require 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 (commonly referred to as ARARs) at the completion of the remedial action, and/or during the implementation of the remedial action, unless a waiver is granted. ARARs are the first type of performance standard applicable to Superfund cleanups.

Each ARAR or group of related ARARs is identified by a specific statutory or regulatory citation, and a compliance description which addresses how and when compliance with the ARAR will be measured (some ARARs will govern the conduct of the implementation of the remedial action, some will govern the measure of success of the remedial action, and some will do both). Contaminant specific ARARs are followed by a description of the point of compliance, which describes where compliance with the ARAR will be measured.

Only substantive portions of the listed requirements are ARARs. Administrative and procedural requirements are not ARARs, and need not be attained during or after site cleanups. Administrative and procedural requirements are those which involve consultation, issuance of permits, documentation, reporting, recordkeeping, 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 or procedure requirements could result in delay and confusion. The only exception to this involves the application of State of Montana water use law to activities contemplated at the site. Because the substantive provisions of those laws are closely tied to procedural rights, EPA has recommended that the potentially responsible party, ARCO, apply for any necessary water right permit or otherwise comply with State water right law, where water rights are implicated by the cleanup activities contemplated by this ROD. This is a narrow exception to the general principle described above, and EPA has reserved its right to review this decision if significant delay is caused by separate water rights proceedings.

Beside ARARs, performance standard can consist of standards determined by EPA to be necessary for ensuring the protection of human health and the environment. Soils standards and the hydraulic gradient standard identified below are examples of these types of standards.

Also listed are non-environmental State laws, which the State of Montana has identified as potentially applicable to this action.

CERCLA authorized actions which are conducted on-site are exempt from permit requirements, pursuant to section 121(e) of CERCLA, 42 U.S.C. § 9621(e). This exemption applies to all activities contemplated by this Record of Decision. However, as noted in the paragraph above, EPA has recommended to the potentially responsible party that a narrow exception to this rule be observed for water rights issues.

#### The scope of this Interim Record of Decision

EPA guidance establishes that interim actions, such as removal actions or interim remedial actions, need not meet all ARARs potentially implicated at an operable unit. Rather, removals or interim actions must comply with ARARs which address the specific scope of the removal or interim action.

The Warm Springs Ponds Inactive Area Remedial Action is an interim action, in that it will be reviewed after implementation of upstream cleanup activities and cleanup activities at the Ponds. Nevertheless, the action is meant to be a permanent action which addresses site conditions comprehensively. Accordingly, all of the ARARs listed here are within the scope of this interim action.

Final action levels in soils and contaminated materials for protection of human health and the environment for the various contaminants found at the Warm Springs Ponds Inactive Area are not identified in this Record of Decision. Ongoing risk assessment work at other operable units within the Clark Fork Basin and ecological monitoring required under this action will determine those action levels. Compliance with any final action level is expected to be achieved with this cleanup. This issue will be reviewed before a final cleanup is selected or declared for the entire Warm Springs Ponds area.

1. CONTAMINANT SPECIFIC ARARS AND PERFORMANCE STANDARDS

I. Groundwater

A. Maximum Contaminant Levels and non-zero Maximum Contaminant Limit Goals for contaminants of concern at the site, promulgated pursuant to the Safe Drinking Water Act, 42 U.S.C. §§ 300f et seq. and the Montana Public Water Supplies Act, MCA §§ 75-6-100 et seq. Regulations establishing specific limits are found at 40 CFR §§ 141.11 - .16 and ARM §§ 16.20.203 - .205, .1002, .1003, and .1011. These standards in part are also required by the Resource Conversation and Recovery Act, 42 U.S.C. §§ 6901 et seq. and 40 CFR § 264.94, and corresponding State of Montana statutes and regulations.

Specific levels are:

Arsenic	0.050 milligrams per liter (mg/l)
Cadmium	0.010 mg/l
Chromium	0.050 mg/l
Lead	0.050 mg/l
Mercury	0.002 mg/l
Nitrate	
(as N)	10.000 mg/l

Both the time and point of compliance with these standards is influenced by the presence of the temporary pumpback system. While the interception trench and pumpback system is operating, the standards must be met immediately north of the ground water interception trench. Immediately prior to shutting down the interception trench and pumpback system, and thereafter, these standards must be met immediately south of the ground water interception trench. See also related standards regarding implementation of the interception trench and pumpback system and shut off of the interception trench and pumpback system. Completion of Remedial Action Completion can be certified for this Performance Standard upon a demonstration of consistent compliance with ground water standards immediately south of the ground water interception trench for a period of twenty four months.

B. Hydraulic Gradient Performance

A controlled hydraulic gradient shall be maintained by means of grading along and within the western portion of Pond 1 and a ground water interception trench and pump-back system immediately south of the proposed Pond 1 berm extension. This controlled hydraulic gradient shall be constructed and operated such that all ground water flow in the affected aquifer or aquifers is toward the interception trench, from all directions. ARCO shall use best efforts to ensure that all of the necessary components of the controlled hydraulic gradient are monitored to demonstrate their effectiveness. Further, ARCO shall use best efforts to ensure that the hydraulic gradient standard is a temporary standard. It is intended to temporarily supplement, not supplant, metals

immobilization by means of chemical fixation and wet and dry closures.

The controlled hydraulic gradient performance standard is applicable during implementation of remedial action, and shall become effective immediately upon completion of construction of the interception trench and pump-back system, and continue so long as the interception trench and pumpback system are operating. The interception trench and pumpback system shall not be terminated until ARCO demonstrates and EPA determines that (a) ground water performance standards identified above have been consistently complied with for a period of at least 24 months at a point or points immediately south of the interception trench, and (b) flow of ground water from the operable unit, after the pump back system is discontinued, will not adversely affect surface water in the lower bypass or the Clark Fork River.

Compliance with this Performance Standard shall be determined based upon monitoring of water levels in: (a) piezometers to be constructed both north and south of the interception trench and along the Pond 1 berm, (b) the ground water interception trench itself, and (3) the lower bypass channel.

Compliance with the standards identified in I.A. and I.B. will also achieve compliance with the State of Montana non-degradation standard for ground water, ARM § 16.20.1011.

#### C. Ground water well construction criteria.

Additional contamination of ground water through construction of ground water wells is prohibited. Ground water wells must be constructed and maintained so as to prevent waste, contamination, or pollution of ground water. Activities cannot result in the degradation of ground water, in accordance with ARM §§ 16.20.203, .204, .206, .207, .1002, .1003, and .1011. To the extent these regulation identify numeric limits for contaminants in the ground water other than those substances which are listed in Section I.A. above, numeric limits for other substances are not Performance Standards for the WSPIA remedy.

This performance standard must be met during construction or maintenance of any ground water well, both during implementation of the remedial action and upon completion of remedial action.

## II. Surface Water

### A. Ambient Standards

State of Montana surface water quality standards and federal water quality criteria, or appropriate replacement values for those standards and criteria which are waived, must be met for in-stream ambient water at or near the site (that is, water within the reconstructed Lower Bypass, and the water entering the Clark Fork River). These standards are enacted pursuant to the section 304 of

the Clean Water Act, 42 U.S.C. § 1314 and the "Gold Book" (aka Water Quality Criteria for Water, 1986); and the Montana Water Quality Act, MCA §§ 75-5-101 et seq. and ARM §§ 16.20.618(2) and 16.20.622(2) (the Clark Fork River is class C-2 River and the Mill and Willow rivers are class B-1 rivers - see ARM §§ 16.20.604, .618, and .622).

Specific limits are:

	<u>Acute</u>	<u>Chronic</u>
Arsenic (III)	0.36 mg/l	0.19 mg/l
Arsenic (V)	0.85 mg/l	0.048 mg/l
Arsenic (Total)	-	0.02 mg/l*
Cadmium	0.0039 mg/l**	0.0011 mg/l**
Copper	0.018 mg/l**	0.012 mg/l**
Iron	-	1.0 mg/l
Lead	0.082 mg/l**	0.0032 mg/l**
Mercury	-	0.2 ug/l*
Zinc	0.12 mg/l**	0.11 mg/l**

\* indicates that the standard is a replacement standard for a standard which is waived, pursuant to section 121(d)(4)(A) and (C) of CERCLA. See Warm Springs Ponds Active Area Record of Decision (EPA, 1990).

\*\* indicates that the value is based on an assumed hardness of 100 mg/l. If average hardness can be demonstrated to occur at different levels at monitoring points or at the compliance point, the standards will be adjusted appropriately.

Dissolved Oxygen - Dissolved oxygen concentration may not be reduced below 7.0 mg/l.

pH - Induced variation of pH within the range of 6.5 to 9.5 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.

Turbidity - The maximum allowable increase above naturally occurring turbidity is 5 nephelometric turbidity units except for short-term construction or hydraulic projects, game fish population restoration, as allowed in ARM s§ 16.20.633.

Temperature - A 1 degree F maximum increase above naturally occurring water temperature is allowed within the range of 32 degrees to 66 degrees F; within the naturally occurring range of 66 degrees F to 66.5 degrees F, no discharge is allowed which will cause the water temperature to exceed 67 degrees F; and where the naturally occurring water temperature is 66.5 degrees F or greater, the maximum allowable increase in water temperature is 0.5 degrees F. A 2 degree F-per-hour maximum decrease below naturally occurring water temperature is allowed when the water temperature is above 55 degrees F, and a 2 degree F maximum decrease below naturally occurring water temperature is allowed within the range of 55 degrees F to 32 degrees F.

Sediment, etc. - No increases are allowed above naturally occurring concentrations of sediment, settleable solids, oils, or 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, or other wildlife.

Color - True color must not be increased more than 5 units above naturally occurring color.

These standards must be met at the point of compliance, which will be within the reconstructed bypass channel immediately upstream of the confluence with Warm Springs Creek. This point will be further defined in design documents developed for implementation of the Warm Springs Ponds Inactive Area remedy. These standards must be met at the conclusion of the remedial action implementation, or at the conclusion of the Active Area remediation including the shakedown period, whichever comes later.

Appropriate in-stream monitoring must be implemented to measure in-stream values, if such monitoring is not already implemented as part of the Active Area remediation or the Clark Fork Basin monitoring effort.

If exceedences of the in-stream standards can be demonstrated by the potentially responsible party to be caused by conditions which are unrelated to the Warm Springs Ponds Active and Inactive Area operable units and unrelated to the operation of the Warm Springs Ponds Inactive and Active Area operable units or the Warm Springs Ponds treatment system, these ARARs and Performance Standards will not be considered to be violated.

Compliance with these standards will constitute compliance with the State of Montana's non-degradation standards, promulgated pursuant to the Montana Water Quality Act, MCA § 75-5-303, and ARM § 16.20.702.

### III. Air Standards

Standards related to air pollution are promulgated pursuant to the Clean Air Act, 42 U.S.C. §§ 7401 et seq. and the Clean Air Act of Montana, MCA §§ 75-2-102 et seq. Specific standards are identified below.

A. ARM § 16.8.1401(2), (3), and (4). Airborne particulate matter. There shall be no production, handling, transportation, or storage of any material, use of any street road or parking lot, or operation of a construction site or demolition project unless precautions are taken to control emissions of airborne particles. Emissions shall not exhibit an opacity exceeding 20% or greater averaged over 6 consecutive minutes. This provision must be complied with at the site during remedial action implementation activities, at the construction activity.

B. ARM § 16.8.1404(2). Visible Air Contaminants. Emissions into the outdoor atmosphere shall not exhibit an opacity of 20% or greater averaged over 6 consecutive minutes. This provision must be complied with at the site during remedial action implementation activities, at the source of the emission.

C. ARM § 16.8.1427. Nuisance or odor bearing gases. Certain gases (excluding diesel gases from vehicles), vapors, and dusts must be controlled such that no public nuisance is caused. This provision must be complied with at the site during remedial action implementation activities, within the confines of the Site. Compliance with this provision at the site will assure that no public nuisance occurs.

D. ARM § 26.4.761. Fugitive dust control. Practicable fugitive dust control measures must be planned, through description of appropriate measures in design documents subject to EPA approval, and implemented during excavation activities. This provision must be complied with at the site during remedial action implementation activities, at the source of the emission.

E. ARM § 16.8.815. Lead. The concentration of lead in ambient air shall not exceed a 90 day average of 1.5 micrograms per cubic meter of air. This provision must be complied with at the conclusion of the remedial action implementation.

F. ARM § 16.8.818. Settled particulate. Settled particulate shall not exceed a 30 day average of 10 grams per square meter. This provision must be complied with at the conclusion of the remedial action implementation, measured within the confines of the Site.

G. ARM § 16.8.821. PM-10. The concentration of PM-10 in ambient air shall not exceed a 24 hour average of 150 micrograms per cubic meter of air and an annual average of 50 micrograms per cubic meter of air. This provision must be complied with at the conclusion of the remedial action implementation, measured within the confines of the Site.

#### IV. Soils and Contaminated Material and Mining Waste

Contaminated soils and other mining waste found within the Warm Springs Ponds Inactive Area will be remediated through excavation, dry closure and capping, or wet closure and flooding, as described in the ROD text. All such material which meets or exceeds the following criteria shall be addressed through the Warm Springs Pond Inactive area remediation, in a manner consistent with the Warm Springs Ponds Inactive Area ROD and as approved by EPA.

Color shall be used as the primary criteria. Discolored materials shall be remediated. Discolored materials are readily identified visually by discoloration compared to the natural color of adjacent materials.

Texture shall be used as a secondary criterion for remediation. Soils or waste materials which are fine grained shall be remediated. Fine grained materials can be distinguished from coarse grained materials by identifying coarse sand, gravel, or cobbles (Refer to section 2.1 of the Mill-willow Bypass Removal Work Plan).

Following remediation of the above identified materials, the contaminant concentrations of soils and waste material remaining unremediated are expected to exhibit the range of concentrations shown in the table addressing this issue in the Record of Decision. If this range is not exhibited, remediation shall continue until the range is exhibited, in a manner to be approved by EPA. These standards are further clarified and explained in the Record of Decision.

## 2. LOCATION SPECIFIC ARARS AND PERFORMANCE STANDARDS

### I. Floodplain and Floodway Management Act Standards

- A. Structures such as parks and wildlife management areas are permitted within floodplains, in accordance with the substantive provisions of MCA § 76-5-402.
- B. Flood control works are permitted in the floodplain and floodway, if they are protective to the 100 year flood frequency flow, in accordance with the substantive provisions of ARM § 36.15.606.
- C. Construction and remediation activities must minimize potential harm to the floodplain and improve natural and beneficial values of the floodplain, in accordance with the substantive provisions of 40 CFR § 6.302(b) and Executive Order No. 11,988.
- D. The Pond 1 and Area Below Pond 1 facilities must be designed, constructed, operated, and maintained to avoid washout to the 100 year floodplain, in accordance with ARM § 16.44.702, as that section incorporates 40 CFR § 264.18(a) and (b).

### II. Natural Streambed and Land Preservation Act Standards

- A. Soil erosion and sedimentation to Montana rivers must be kept to a minimum, in accordance with MCA §§ 75-7-102, -104, -105, and -111, and ARM § 36.2.404. This ARAR is particularly important during construction activities, and must be met through adequate design and implementation practices.

### III. Historic Preservation Standards

- A. Identified or eligible cultural resources shall be identified and the impact of the Warm Springs Ponds Inactive Area remediation on those resources must be avoided or mitigated. Performance Standards for notification and documentation of cultural and historic resources are those procedures established by the Programmatic Agreement, in accordance with the substantive provisions of 40 CFR § 6.301(b) and 36 CFR Part 800.
- B. If significant scientific, prehistorical, historic, or archaeological data is found at the Warm Springs Ponds Inactive area, it must be preserved in an appropriate manner, in accordance with the substantive provisions of 40 CFR § 6.301(c).

### IV. Wetlands Protection Standards

An inventory of wetlands at the Warm Springs Ponds Inactive area as they existed prior to any cleanup activities must be compiled and approved. Activities must be conducted so as to avoid or minimize destruction of wetlands. If destruction is not avoidable, wetlands must be replaced and/or restored to ensure that no net loss of wetlands will occur as a result of the cleanup activities (past and present) at the Warm Springs Ponds Inactive area, in accordance with the substantive provisions of 40 CFR § 6.302(a) and 40 CFR Part 6, Appendix A and Executive Order No. 11,990.

It is the current belief of EPA and the consulting agencies that previous cleanup of the Mill Willow Bypass and other areas of the Warm Springs Ponds active area has and will continue to have adverse impacts on wetland habitats. Therefore, all efforts and reconstruction, reclamation, restoration, or other similar activities planned by the Respondent must be done as part of the remedial action implementation process, to ensure compliance with this standard.

### V. Endangered Species Protection Standards

Bald eagles and peregrine falcons have been identified as users of the Warm Springs Ponds Inactive Area. Appropriate mitigative measures during construction activities must be followed, and additional biological surveys or other studies may be required, in accordance with the substantive provisions of the Endangered Species Act, 16 U.S.C. § 1531 et seq., and 50 CFR Parts 17 and 402, and 40 CFR § 6.302(h).

## VI. Fish and Wildlife Coordination

In accordance with the Fish and Wildlife Coordination Act, 16 U.S.C. § 1531 et seq., and 40 CFR § 6.302(g), remediation activities at the Warm Springs Ponds Inactive Area shall provide adequate protection of fish and wildlife resources. This requirement must be met during implementation of the remedial activities and at the conclusion of the remedial action activities. EPA will consult with the U.S. Fish and

Wildlife Service and the State of Montana Department of Fish, Wildlife and Parks to ensure that design plan and remedial activities comply with this ARAR.

## VII. Waste Disposal Siting Restrictions

Relevant and appropriate RCRA siting requirements, found at ARM § 16.44.702, which incorporates by reference 40 CFR § 264.18(a) and (b), prohibit disposal of wastes within 200 feet of a fault, and impose certain conditions on waste disposed of within a flood plain. Relevant and appropriate solid waste siting requirements, found at ARM §§ 16.14.505 and .523, prohibit disposal of solid waste within the 100 year flood plain. Because the berming and other remedial activities will ensure that the Pond 1 area and the wetlands closure area below Pond 1 will be outside of a re-engineered flood plain, these ARARs are satisfied through implementation of the Record of Decision activities, and through appropriate design, construction, operation, and maintenance of the remediated area. If it is determined that the remediated areas are within the flood plain, EPA invokes an ARAR waiver pursuant to section 121(d)(4)(A) of CERCLA, 42 U.S.C. § 9621(d)(4)(A) which applies to ARM § 16.14.505(c).

### 3. ACTION SPECIFIC ARARS AND PERFORMANCE STANDARDS

The Warm Springs Ponds Inactive Area remedy requires the excavation and reconstruction, reclamation, and restoration Lower Bypass Channel which includes creation of a connector stream in the lowermost portion of the Bypass channel, creation of wet closure cells which will function as wetlands within Pond 1 and below Pond 1, creation of a dry closure cell for dry portion of Pond 1, strengthening of existing Pond berms and construction of a new berm, development of a ground water intercept system at the boundary of the area below Pond 1, and implementation of necessary surface water monitoring. Following are ARARs and Performance Standards for these aspects of the remedial action.

#### I. Reconstruction/Reclamation/Restoration of the Lower Bypass Channel

The Warm Springs Ponds Inactive Area remediation involves and has involved the excavation and reconstruction, reclamation, and/or

restoration of the Mill-Willow Bypass from the Pond 2 discharge point to the current northern end of the Mill Willow Bypass (the Mill-Willow Bypass from the southern boundary of the Bypass to the end of Pond 2 is addressed in the Warm Springs Ponds Active Area action). In addition to the contaminant specific and location specific standards identified above, further cleanup work in the Bypass and any following reconstruction, restoration, and/or reclamation work must comply with the following requirements:

- A. Substantive provisions of the dredge and fill requirements must be met, in accordance with 40 CFR Parts 230 and 231 and 33 CFR Parts 323 and 330.
- B. Reclaimed drainages must be designed to emphasize channel and floodplain dimensions that will blend with the undisturbed drainage above and below the area to be reclaimed. The channel must be restored to a more natural habitat or characteristic pattern with a geomorphically acceptable gradient. Reclamation must provide for long-term stability of the landscape, establishment or restoration of the stream to include a diversity of aquatic habitats (generally a series of riffles and pools), and restoration enhancements, or maintenance of natural riparian vegetation, in accordance with the substantive provisions of ARM § 26.4.634.
- C. Temporary diversion structures at the Bypass or nearby creeks must be constructed to safely pass the peak run-off from a precipitation event with a 10-year, 24-hour recurrence interval. Channel lining must be designed using standard engineering practices such as riprap, to safely pass designed velocity. Free board must be no less than 0.3 feet, all in accordance with the substantive provisions of ARM § 26.4.636.
- D. Reclamation and revegetation requirements described below in Section III. must be met.

As noted above, reconstruction, reclamation, and restoration measures are required for the Lower Bypass area pursuant to this action, in part to ensure compliance with the standards regrading no net loss of wetlands at the Warm Springs Ponds area.

## II. General Reclamation and Revegetation Standards

The Warm Springs Ponds Inactive Area remediation requires excavation of contaminated areas at the existing Lower Bypass channel and possibly in the area below Pond 1, and the consolidation and dry capping of contaminated areas, which will result in the creation and maintenance of a disposal area within the Pond 1 berm. All of these areas must be reclaimed and revegetated. For those activities, the following standards apply:

- A. The disposal unit and other reclaimed areas must be covered with clean soil and revegetated in an appropriate manner, consistent with the Timber Butte removal action and work plan, in accordance with the substantive provisions of 30 CFR § 816.111.
- B. Revegetation of any excavated, capped in place area, disposal area, or other land area disturbed or addressed by this action must comply with the substantive standards of  
  
ARM §§ 26.4.501(3)(a), .501(A)(1)(a), .520(4), .631, .638, .640(1), .644(1), and .761, and MCA §§ 82-4-231 and -233.

### III. Dry Disposal Area within Pond 1 Standards.

The Warm Springs Ponds Inactive Area remediation requires the creation and maintenance of a dry disposal area within the Pond 1 berm. The construction and maintenance of these areas must comply with the following standards:

- A. All waste placed within the disposal areas must be drained of free liquids, and stabilized appropriately, in accordance  
  
with the substantive provisions of 40 CFR § 264.228(a)(2)(i), which is incorporated by reference into ARM § 16.44.702.
- B. Closure of the disposal areas must be done in such a manner as to minimize the need for further maintenance and to control, minimize, or eliminate, to the extent necessary to protect public health and the environment, post-closure escape of hazardous substances, hazardous constituents, leachate, contaminated run-off or hazardous substance decomposition products to the ground water or surface waters or to the atmosphere, all in accordance with the substantive provisions of 40 CFR § 264.111, which is incorporated by reference into ARM § 16.44.702. This standard does not require an impermeable cap or liners.
- C. Disposal facility covers for the unit must function with minimum maintenance, promote drainage, and minimize erosion or abrasion of the final cover, and accommodate settling and subsidence, in accordance with 40 CFR § 264.228(a)(2)(iii)(B), (C), and (D), and 40 CFR § 264.251(c), (d), and (f) which are incorporated by reference into ARM § 16.44.702.
- D. The Respondent must submit to the local land use or zoning authority a survey plat indicating the location and dimensions of waste disposed of in each unit. Additionally, the Respondent must record a deed restriction, in accordance with State law, that will in perpetuity notify potential purchasers that the property has been used for waste disposal and that its use is restricted, in accordance with the substantive provisions of 40 CFR §§ 264.116 and .119, which is incorporated by reference into ARM § 16.44.702.

- E. The disposal area must be constructed in such a manner so as to comply with the general handling, storage, and disposal requirements of 40 CFR §§ 257.3-1(a), 257.3-2, 257.3-3, and 257.3-4, which are incorporated by reference into ARM § 16.44.702..
- F. The Respondent's waste can be disposed of on its own property, but the disposal areas must not create a nuisance or a public hazard. Additionally, the waste must be disposed of outside of the 100 year flood plain, must be disposed of in a manner which prevents pollution of the ground or surface water, must contain adequate drainage structures, and must prevent run-off from entering disposal areas; and waste must be transported to the disposal areas in such a manner as to prevent its discharge, dumping, spillage, or leaking, in accordance with the substantive provisions of ARM §§ 16.14.505 and .523, and MCA § 75-10-214.

#### IV. Wet closure cell standards

- A. The wet closure cells must be designed and operated so as to comply with the structural integrity requirements of 40 CFR § 264.221(g), which are incorporated by reference into ARM § 16.44.702.
- B. The Respondent must submit to the local land use or zoning authority a survey plat indicating the location and dimensions of waste disposed of in each unit. Additionally, the Respondent must record a deed restriction, in accordance with State law, that will in perpetuity notify potential purchasers that the property has been used for waste disposal and that its use is restricted, in accordance with the substantive provisions of 40 CFR §§ 264.116 and .119, which is incorporated by reference into ARM § 16.44.702.
- C. The disposal area must be constructed in such a manner so as to comply with the general handling, storage, and disposal requirements of 40 CFR §§ 257.3-1(a), 257.3-2, 257.3-3, and 257.3-4.
- D. The Respondent's waste can be disposed of on its own property, but the disposal areas must not create a nuisance or a public hazard. Additionally, the waste must be disposed of outside of the 100 year flood plain, must be disposed of in a manner which prevents pollution of the ground or surface water, must contain adequate drainage structures, and must prevent run-off from entering disposal areas; and waste must be transported to the disposal areas in such a manner as to prevent its discharge, dumping, spillage, or leaking, in accordance with the substantive provisions of ARM §§ 16.14.505 and .523, and MCA § 75-10-214.

## V. Berm Strengthening Standards

The berms within the Warm Springs Ponds Inactive Area will be remediated by strengthening the berms against floods or earthquakes. The berm strengthening actions must comply with the following standards:

- A. The North South berm adjacent to Pond 1 and the new berm extension
  1. The berm, which is a high hazard dam and berm, must comply with the criteria given in ARM § 36.14.501, including compliance with the Maximum Credible Earthquake standards.
  2. The berm, which is a high hazard dam, must be able to safely pass the flood calculated from the inflow design flood, to the extent of safely managing the 0.5 Probable Maximum Flood, in accordance with the substantive provisions of ARM § 36.14.502. The reconstructed Mill Willow Bypass next to this berm must be designed to meet this standard as well.
- B. The Existing Pond 1 Berm
  1. The berm must store water in a secure, thorough, and substantial and safe manner, in accordance with the substantive provisions of MCA §§ 85-15-207 and 208.
  2. The berm, which is a high hazard dam and berm, must comply with the criteria given in ARM § 36.14.501, including compliance with the Maximum Credible Earthquake standards.

## VI. Ground Water Monitoring Standards

The Warm Springs Ponds Inactive Area remediation requires the monitoring of ground water at and around the ground water interception trench, to ensure compliance with the ground water standards described in the Contaminant Specific ARARs and Performance Standards Section. Such activities must comply with the following standards:

- A. Standards established in 40 CFR § 264.97, which is incorporated by reference into ARM § 16.44.702, must be complied with. Only contaminants for ground water identified in this ROD must be monitored.

## VII. Surface Water Monitoring and Collection Standards

Ambient surface water standards are required to be met by this remedial action, in the manner described above. Adequate surface water monitoring, to the extent such monitoring does not exist as part of the Active Area monitoring program or the Clark Fork Basin monitoring program, must be implemented to measure compliance with those standards.

To the extent that the toe drains create point source discharges, some of those discharges will be collected and pump backed into the Active Area for appropriate treatment, in compliance with water quality discharge standards identified in the original Warm Springs Ponds ROD and ESD. Some discharges will not be collected. These discharges either do not violate point source discharge standards or their collection and treatment is waived, pursuant to section 121(d)(4)(C) of CERCLA.

4.

#### OTHER LAWS

In addition to the environmental or siting standards identified above, the State of Montana has identified a list of other State laws which should be complied with during the conduct of site remediation and maintenance activities. These are:

- I. To the extent applicable, noise levels for protection of on-site workers must be met, as described in ARM § 16.42.101.
- II. The Occupational Health and Safety Act, 20 U.S.C. §§ 651 - 678, and implementing regulations must be complied with. Particularly, 29 CFR Part 1926 and 29 CFR §§ 1910.120 and .132 must be complied with. The Respondent is required to submit and follow a site specific Health and Safety Plan for conduct of activities at the Warm Springs Ponds Inactive Area.
- III. To the extent it is applicable, substantive provisions of the Montana Safety Act, MCA § 50-71-201 must be complied with.
- IV. To the extent applicable, the Employee and Community Hazardous Chemical Information Act must be complied with, in accordance with the substantive provisions of MCA §§ 50-78- -202, -203, -204, and -305.

#### Ground Water Well Drilling and Monitoring

- V. If ground water wells are determined to be necessary, well drillers must be licensed and registered as stated in ARM §§ 36.21.402, .403, .405, .406, .411, .701, and .703.
- VI. Ground water wells must be logged and reported to the Department of Natural Resources Conversation, as stated in MCA § 85-2-516.

#### Water use rights

- VII. To the extent applicable, any remedial activities at the Warm Springs Ponds active area must comply with the substantive provisions of MCA §§ 85-2-301, -306, -311, and -402, and MCA §§ 75-7-104 and 87-5-506, and implementing regulations found at ARM §§ 36.16.104 - .106, and 26.4.648.

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