



# Milltown Reservoir Sediments Operable Unit

of the Milltown Reservoir/Clark Fork River Superfund Site

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## ***Record of Decision***

### Part 1: Declaration



## **U.S. Environmental Protection Agency Region 8**

10 West 15th Street  
Suite 3200  
Helena, Montana 59626

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# 1 Declaration

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## 1.1 Site Name and Location

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Site Name: Milltown Reservoir Sediments Operable Unit of the Milltown Reservoir/Clark Fork River Superfund Site

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CERCLIS Identification Number: MTD980717565

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Site Location: Missoula County, Montana

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## 1.2 Statement of Basis and Purpose

This decision document presents the Selected Remedy for the Milltown Reservoir Sediments Operable Unit (MRSOU) of the Milltown Reservoir/Clark Fork River Superfund Site, near Milltown, Montana. The Selected Remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, and, to the extent practicable, the National Contingency Plan (NCP). This decision is based on the Administrative Record file for this site.

The State of Montana concurs with the Selected Remedy. The U.S. Fish and Wildlife Service (USFWS) of the U.S. Department of the Interior (DOI) and the Confederated Salish and Kootenai Tribes also concur with the Selected Remedy.

## 1.3 Assessment of Site

The response action selected in this *Record of Decision* is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment. Specifically, significant risks at the MRSOU are posed to human health through ingestion of hazardous substances in potable groundwater underlying the Milltown/Bonner area. Additionally, aquatic life in the Clark Fork River is exposed to significant risks of hazardous substances during ice-induced scouring events, high flows, and the potential contaminated sediment release that would accompany a catastrophic dam failure.

## 1.4 Description of Selected Remedy

The MRSOU is a portion of the Milltown Reservoir/Clark Fork River Superfund Site. A related operable unit (OU) is the Water Supply OU, under which EPA provided a temporary alternative water supply to affected residents in the Milltown, Montana area. The Clark Fork River OU is located upstream of the MRSOU and covers the remainder of the Milltown Reservoir/Clark Fork River Superfund Site.

The main features of the MRSOU are the Milltown Dam and the contaminated sediments behind the dam. The Milltown Dam is located just east of Missoula, Montana (Exhibit 1-1, *Milltown Reservoir Sediments Operable Unit Site Map*), at the confluence of the Clark Fork and Blackfoot rivers. The MRSOU is adjacent to the small, unincorporated communities of Milltown and Bonner. During the past century, mine waste materials have washed downstream, creating some 6.6 million cubic yards (mcy) of contaminated sediment accumulation behind the Milltown Dam. The Milltown Reservoir/Clark Fork River Superfund Site was listed on the National Priority List (Superfund) in 1983.



EXHIBIT 1-1  
*Milltown Reservoir Sediments Operable Unit Map*  
 Showing Approximate Boundaries

The primary objectives of the Selected Remedy, as described in this *Record of Decision*, are as follows:

1. Reduce concentrations of contaminants of concern to levels at or below groundwater performance standards or eliminate the contaminated groundwater plume entirely.
2. Reduce the threat of contaminated sediment transport downstream.

These objectives will be accomplished by removing the primary source of contaminated sediment in the reservoir, removing the dam to prevent future impoundment of new sediments, and changing hydrologic conditions to accelerate natural attenuation of groundwater contamination. This approach allows natural attenuation processes to restore the aquifer over time, and ensures that remaining contaminated material is secured from uncontrolled release.

Only those sediments shown to be contributing directly to existing groundwater degradation (sediments with the highest pore water contaminant concentrations) and with

the potential to contribute to future surface water degradation will be removed to meet remedial objectives. The reservoir sediments are divided into two sections, the upper and lower reservoir sediment areas, with the Duck Bridge dike and abutments forming the dividing line. These sections are further delineated into subareas based on sediment accumulation features. As shown on Exhibit 1-2, *Key Sediment Accumulation Areas* (page 1-6), the lower reservoir is comprised of Areas 1, 2, and 3. The upper reservoir encompasses Areas 4 and 5. The sediments in Area 1 (lower reservoir adjacent to Milltown) will be isolated from the Clark Fork River channel through use of a bypass channel, removed, and then transported by rail to the Opportunity Ponds. Sediment Areas 2, 3, 4, and 5 will be mostly left in place. A new river channel with flood plains for lateral stability will be designed and implemented through Areas 1 and 2, constructed, and vegetated to provide adequate stability against erosion. Highly contaminated sediments in Area 3 will be isolated from the flood plain and armored to ensure that they are not eroded into the stream. Areas 4 and 5 will be left in place unless additional work to meet Performance Standards is needed, but the streambanks will be stabilized, and the flood plain contoured, to reduce any contaminant releases from these areas to surface water, such that releases should not exceed surface water performance standards.

EPA and the Trustees have agreed to integrate remediation with State restoration activities during implementation of the remedy. Certain restoration actions—channel alignment, flood plain and streambank contouring, revegetation, and stabilization—will be done in lieu of certain remedial actions. Remedial and restoration activities of significance in this remedy include the following:

- Remedial elements:
  - Construct a bypass channel on the Clark Fork River arm of the reservoir capable of containing a 24-hour, 100-year peak flow event. Complete the channel before the dam is removed to isolate the sediments from the active river and eliminate significant scouring and downstream discharge of contaminated sediment from this portion of the reservoir. The bypass channel will be designed with the objective of fish passage during low flow through bankfull discharge (3,500 cfs).
  - Lower the pool level of the Milltown Reservoir to the lowest level possible to drain water from sediments impounded behind the reservoir. Operation of the dam shall continue by the dam operator until the dam is removed, in a manner that is consistent with the Selected Remedy.
  - Build a rail road spur to allow loading of sediments from Area 1. Locate the spur away from any residential area.
  - Remove the sediments from the bypass channel footprint and transport to Opportunity Ponds (near Anaconda, Montana) by rail.
  - Remove spillway and radial gate portion of the Milltown Dam.
  - Remove the highly contaminated sediment from Area 1, load on rail cars, and transport the sediment to Opportunity Ponds.
  - Build a new Clark Fork River channel and flood plain. Stabilize the new channel and flood plain through re-vegetation and other measures.

- Secure most sediments containing elevated levels of metals and arsenic found in the lower arm of the existing Clark Fork River channel (Area 3) or left behind the I-90 embankment from erosion, including a 100-year peak flow event. One small portion of Area 3 will be excavated.
- Monitor surface and groundwater quality during and after remedial action.
- Monitor impacts on aquatic life during implementation of remedial action.
- Dispose of debris onsite in appropriate repositories. Off-site disposal of regulated waste, such as polychlorinated biphenyls (PCBs), will be done in accordance with the laws governing that waste.
- Continue the replacement water supply program and implementation of temporary groundwater institutional controls (ICs) until the Milltown aquifer recovers using monitored natural recovery, which is expected to take about 4 to 10 years after dam and contaminated sediment removal.
- Conduct long-term operation and maintenance of the remedial action and monitor the pre-existing waste repositories, any newly created repositories, and wastes left in place.
- Wetlands mitigation will be accomplished to ensure that there is no net loss of wetlands.
- EPA will work with the Federal Energy Regulatory Commission and the Confederated Salish and Kootenai Tribes to ensure that protected historic and cultural resources are addressed in accordance with the National Historic Preservation Act.
- Replacement of any drinking water supply which exceeds groundwater performance standards as a result of remedial action implementation.
- Replacement or retrofitting of domestic wells that are found to be unusable by EPA because of the lowering of the groundwater.
- Cleanout of any downstream irrigation intakes if constricted by sediments released during remedial action.
- Best management practices (BMPs) and engineering controls will be implemented. If temporary surface water standards are exceeded, BMPs or other engineering controls, including treatment if necessary, will be re-evaluated and implemented, as determined by EPA in consultation with the State.
- Implement requirements for protection of listed species established in the USFWS Biological Opinion, as they pertain to interim dam operation or conduct of remedial action.
- Preserve the structural integrity of the five bridges located between Milltown Dam and Stimson Dam, and the Interstate 90 embankment adjacent to Milltown Reservoir, to Montana Department of Transportation requirements.



- Restoration elements coordinated with the remedy:
  - Remove the divider block/power house/north (right) abutment.
  - Match remedial channel design with the restoration flood plain and channel alignment.
  - Implement soft stabilization techniques and appropriate revegetation activities to stabilize the new channel.
  - Conduct short-term maintenance and monitoring of the revegetated streambank.
- Other related elements:
  - Although not part of the remedy, the Stimson Dam (located approximately 1 mile upstream on the Blackfoot River) will be removed prior to removal of the Milltown Dam. This is being done through a cooperative effort under the USFWS National Fish Passage Program.
  - Restoration actions will be taken by the State outside of the primary remedial action area to facilitate flood plain and channel transition into and out of the primary remedial action area and to provide additional habitat and streambank improvements.

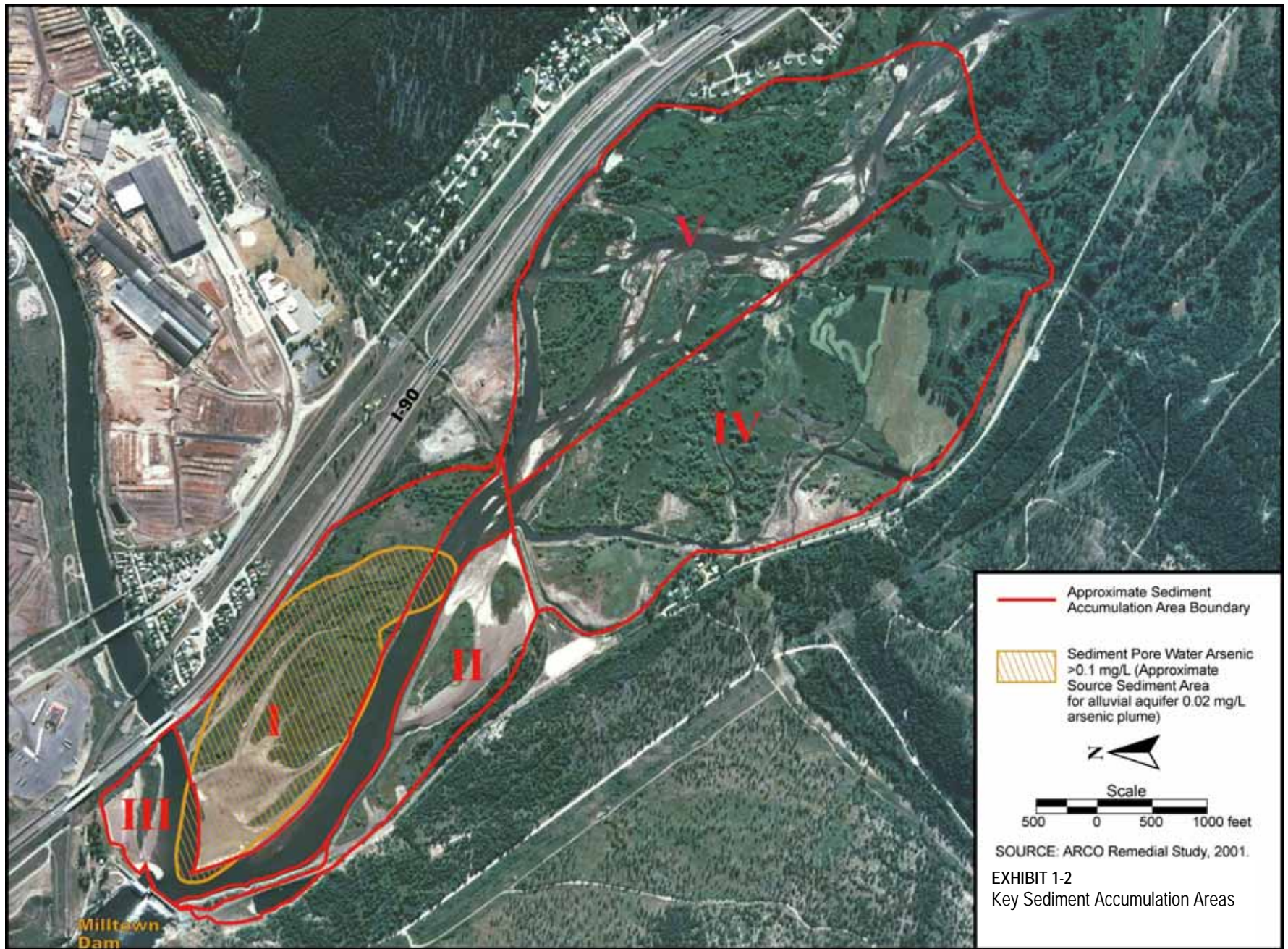
The Selected Remedy is similar to Combined Feasibility Study Alternative 7A2 modified. Four to five construction seasons are estimated to implement the Selected Remedy.

## 1.5 Statutory Determinations

The Selected Remedy is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial action, except for those standards that are waived and replaced with temporary construction standards, is cost-effective, and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

This remedy reduces the toxicity, mobility, and volume of the contaminated substances through removal of the most heavily contaminated material from the flood plain where it is mobile. The material will be disposed in an existing waste repository (Opportunity Ponds) and used as a vegetative capping media, where appropriate. The remedy in this OU does not satisfy the statutory preference for treatment as a principal element of the remedy because feasible treatment options are not available for the waste and site conditions at the Milltown Site, and because the waste can be effectively remediated through removal of the worst waste and in-place stabilization of the remainder.

Because this remedy will result in some contaminants remaining onsite above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within 5 years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment.




## 1.6 Data Certification Checklist

The following information is included in the *Decision Summary* section of this *Record of Decision*. Additional information can be found in the Administrative Record file for this site.

Information Item	Page Numbers in <i>Record of Decision</i>
Contaminants of concern and their respective concentrations	2-15 to 2-17, 2-24, 2-25 to 2-29, 2-31 to 2-43
Baseline risk represented by the contaminants of concern	2-15 to 2-19, 2-55 to 2-59, 2-135
Cleanup levels established for contaminants of concern and the basis for these levels	2-61 to 2-64, 2-118 to 2-120, 2-127 to 2-129, 2-136
How source materials constituting principal threats are addressed	2-97, 2-100 to 2-116
Current and reasonably anticipated future land use assumptions and current and potential future beneficial uses of groundwater in the baseline risk assessment and the Record of Decision	2-49 to 2-53, 2-134
Potential land and groundwater use that will be available at the site as a result of the Selected Remedy	2-49 to 2-53, 2-133 to 2-134
Estimated capital, annual operation and maintenance (O&M), and total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected	2-133
Key factor(s) that led to selecting the remedy	2-78, 2-85 to 2-95, 2-99 to 2-100, 2-124 to 2-126

## 1.7 Authorizing Signatures

The U.S. Environmental Protection Agency (EPA), as the Lead Agency for the MRSOU of the Milltown Reservoir/Clark Fork River Superfund Site (MTD980717565), formally authorizes this *Record of Decision*.



12/15/04

Max H. Dodson  
Assistant Regional Administrator  
Ecosystems Protection and Remediation  
EPA Region 8

Date

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The State of Montana Department of Environmental Quality (DEQ), as the Supporting Agency for the MRSOU of the Milltown Reservoir/Clark Fork River Superfund Site (MTD980717565), formally concurs with this *Record of Decision*.



12/14/04

Jan Sensibaugh, Director  
State of Montana  
Department of Environmental Quality

Date