Introduction

In response to comments received, the U.S. Environmental Protection Agency (EPA) and the Montana Department of Environmental Quality (DEQ) are issuing a revision to the Milltown Reservoir Sediments Operable Unit (Milltown Site) Proposed Cleanup Plan released by EPA and DEQ in April 2003. The cleanup proposed last year has been revised for the Milltown Site and is described in this document.

The public is invited to comment on this Revised Proposed Plan by June 21, 2004. EPA and DEQ will consider and respond to all public comments received on this proposal and on the April 2003 Proposed Plan for the Milltown Site (the Original Proposed Plan) when making a final cleanup decision for the Milltown Site.

During the 90-day public comment period on the Original Proposed Plan, EPA received a significant number of comments that opposed disposing of the removed sediments at Bandman Flats, the proposed local waste repository.

Under this Revised Proposed Cleanup Plan, EPA and DEQ are now proposing to remove the Milltown Dam and the most contaminated reservoir sediments, and then haul the contaminated sediments by rail to Anaconda for disposal in the existing Opportunity Ponds waste repository (part of the Anaconda Smelter Superfund Site).

You're invited to review and comment on this Revised Proposed Cleanup Plan!

The **public comment period** runs from **May 19, 2004,** to **June 21, 2004.** Please send written comments to:

Milltown Comments
Russ Forba
EPA, Region 8, Montana Office
10 West 15th Street, Suite 3200
Helena, MT 59626

Send comments by e-mail to:
milltown@epa.gov

You are also encouraged to comment in person "for the record" at the public meetings:

June 9, 2004, Open House, 6:00-7:00 pm;
Public Meeting, 7:00-10:00 pm
Bonner School Gym
9045 Hwy 200
Bonner, Montana

June 10, 2004, Open House, 6:00-7:00 pm;
Public Meeting, 7:00-10:00 pm
Opportunity Community Center
201 Erickson
Opportunity, Montana

For more information, please call Diana Hammer, EPA, 406-457-5040; or toll-free at 1-866-457-2690

EPA also received comment from the Atlantic Richfield Company, which presented new information and outlined a proposal to remove the sediments in a manner different than that described in the Original Proposed Plan. The Atlantic Richfield Company comment, developed in conjunction with Missoula contractor Envirocon, Inc., proposed to excavate sediments using conventional mechanical excavation equipment instead of hydraulic cutterhead dredges and proposed to haul

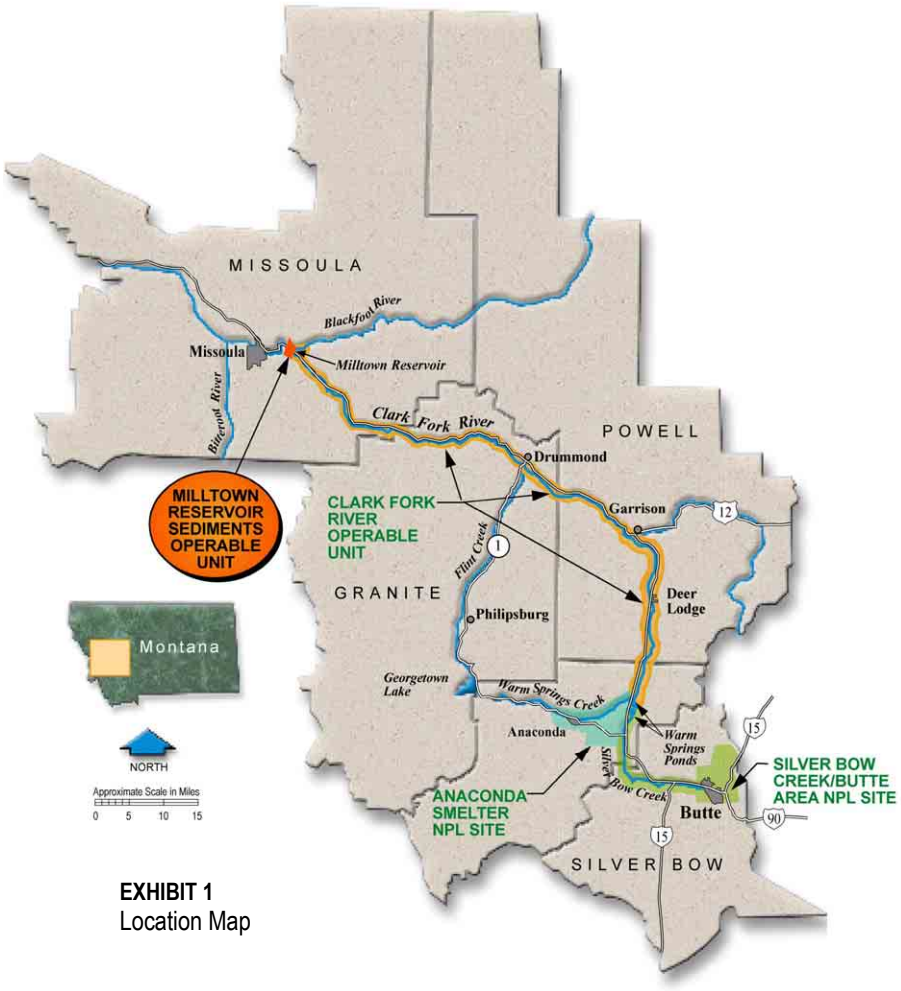

EXHIBIT 1
Location Map

the removed sediments by rail to and dispose of them at Opportunity Ponds rather than placing the materials in the Bandman Flats repository. EPA and DEQ evaluated this new information, required the Atlantic Richfield Company to produce additional information regarding potential scouring of sediment associated with the proposal, and brought in scientific peer reviewers from across the country to examine the modeling results. **The agencies' conclusion after evaluating the new information is that the dry sediment removal and Opportunity Ponds disposal can be done safely and effectively. The Revised Proposed Plan would allow consolidation of waste and the potential beneficial use of the sediment as a plant growth media at the Opportunity Ponds while allowing future multiple beneficial uses in the currently unimpacted land in Bandman Flats. This plan also has other advantages as discussed later in this document.** Scouring concerns raised by the new proposal can be addressed by the addition of a bypass channel and other Best Management Practices (BMPs) to the Atlantic Richfield/Envirocon proposal. The Revised Proposed Plan presented here incorporates this new information.

Because this new information changes the scope, performance, and cost of the cleanup described in the Original Proposed Plan and could not have been reasonably anticipated by the public, EPA is issuing this Revised Proposed Plan for additional public comment in accordance with section 430(f)(3)(ii) of the National Contingency Plan (40 CFR Section 300.430(f)(3)(ii)).

Background

The Milltown Dam is located just east of Missoula, Montana (Exhibit 1), at the confluence of the Clark Fork and Blackfoot rivers. The Milltown Site is adjacent to the small, unincorporated communities of Milltown and Bonner (Exhibit 2). During the past century, mine waste materials have washed downstream, creating some 6.6 million cubic yards (mcy) of

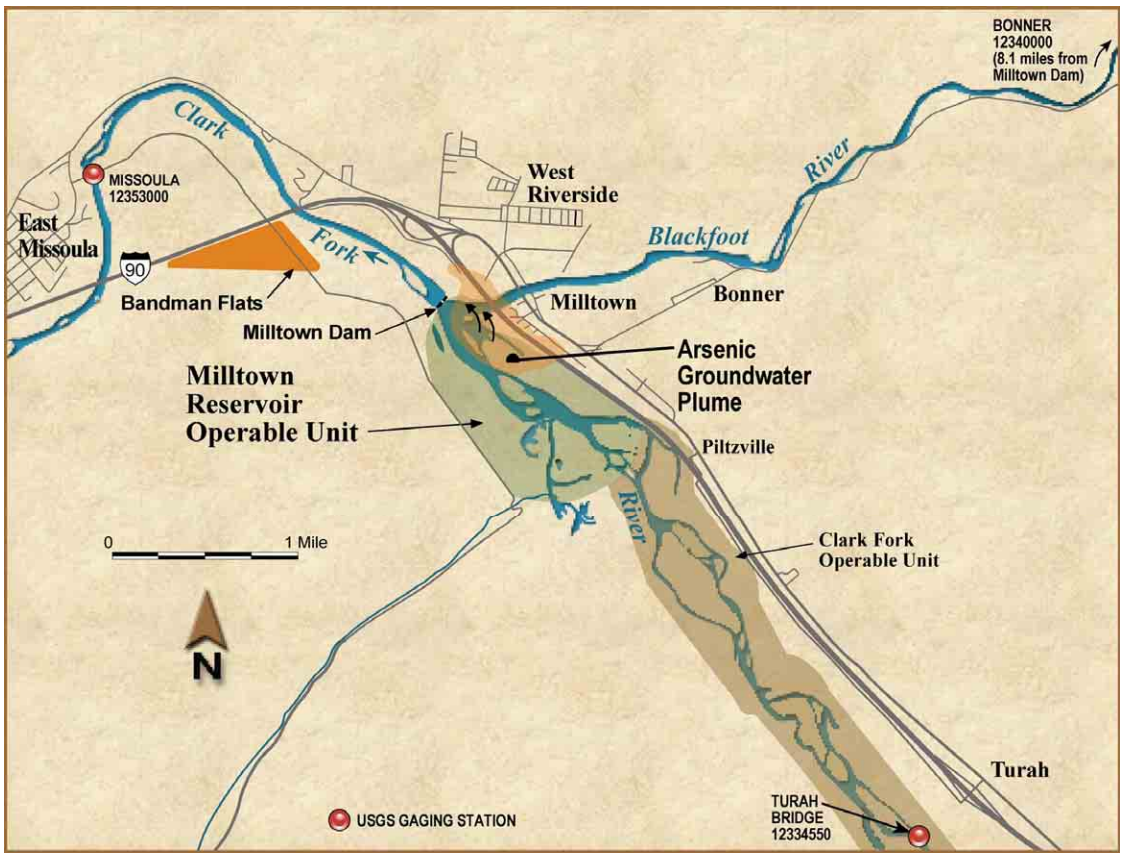

EXHIBIT 2
Milltown Reservoir Sediments
Operable Unit Site Map

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.

In the Original Proposed Plan (April 2003), EPA and DEQ proposed to address the risks to public health and the environment, regulatory compliance, and other issues posed by the contaminated sediments behind the Milltown Dam through the following measures:

- Removing the most heavily contaminated sediments—approximately 2.6 mcy—from the Milltown Reservoir. The majority of these sediments (85 percent) would have been removed hydraulically using cutterhead suction dredge technology.
- Placing removed sediments away from the river in a lined, solid waste disposal facility (outside the 100-year floodplain) less than 1 mile downstream from the dam (Bandman Flats).
- Removing the spillway and radial gate section of the Milltown Dam. (The powerhouse would not be removed under EPA's cleanup plan but may be removed as part of restoration activities.)
- Redesigning the Clark Fork River channel and banks to ensure that contaminated sediments left in place are secured and adequately vegetated.
- Continuing the replacement water supply program and implementing temporary groundwater institutional controls until the Milltown aquifer recovers using monitored natural

recovery, which is expected to take about 4 to 10 years after dam removal.

- Conduct long-term operation and maintenance for the sediment repository and one smaller waste repository previously established by the owner of the dam.

Revised Proposed Plan

In the Original Proposed Plan, EPA noted that changes may result from public comments or during the remedial process. In fact, the Revised Proposed Plan has changed the proposed cleanup in response to public comment on the Original Proposed Plan.

Reason for Revision

Specific reasons for changing the Proposed Plan include the following:

- Testimony at the two public meetings for the Original Proposed Plan and written comments (letters, postcards, and e-mails) received during the public comment period showed strong support for relocating the sediment repository to a location other than Bandman Flats. The testimony showed clear concern about using uncontaminated land for a waste repository, thereby restricting future beneficial uses in this area. Most commenters suggested taking the dredged sediments to the Opportunity Ponds.
- Beneficial use of organic-rich reservoir sediments would occur if the sediments were redirected to Opportunity Ponds. Although some treatment may be necessary, the sediments could likely assist with cleanup efforts by serving as a cover on an existing waste repository (Opportunity Ponds Operable Unit [OU] of the Anaconda Smelter Superfund Site).
- Use of an existing solid waste repository instead of creating a new repository area is preferable. Consolidation of wastes reduces loss of productive lands and allows for more effective and efficient long-term management of wastes.
- A reduction of short-term risk to local groundwater quality would occur compared to the Original Proposed Plan. The cleanup approach described in the Original Proposed Plan had the potential to temporarily expand the groundwater contamination under the

Acronyms

ARAR: Applicable or Relevant and Appropriate Requirements for cleanup, such as regulatory requirements.

ARCO: Atlantic Richfield Company

BDG: Bonner Development Group

BMPs: Best Management Practices

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act; also known as the Federal Superfund law

CFR: Code of Federal Regulations

DEQ: Montana Department of Environmental Quality

EPA: U.S. Environmental Protection Agency

ESA: Endangered Species Act

FERC: Federal Energy Regulatory Commission

FS: Feasibility Study

mcy: million cubic yards

mg/L: milligrams per liter

NHPA: National Historic Preservation Act

NPV: net present value

SAA: Sediment Accumulation Area

TSS: total suspended solids

µg/L: micrograms per liter

USACE: U.S. Army Corps of Engineers

USFWS: U.S. Fish and Wildlife Service

USGS: U.S. Geological Survey

Milltown community beyond the current boundary by using hydraulic dredges while operating the reservoir at full pool level. By lowering the reservoir to a minimum pool level under a mechanized excavation option, there is less chance of temporarily expanding the groundwater contamination.

- Loading of rail cars with contaminated sediments and subsequent transport to the Opportunity Ponds repository for disposal becomes economically feasible when contracted by a private party (Atlantic Richfield Company).

Benefits of the Revised Proposed Plan

- Easier implementability
- Shorter construction time
- Use of an existing waste repository
- No loss of undisturbed productive land
- Better long term waste management
- Less risk to local groundwater supply
- Fewer impacts to local community
- Stronger public support

Key Revisions

The key changes between the Original Proposed Plan and this revision are as follows:

- The disposal location for the sediments changes from a repository in Bandman Flats to the Opportunity Ponds near Anaconda. Sediments would be transported to the ponds by rail.
- The method of sediment removal changes from primarily hydraulic dredging to mechanical excavation.
- The reservoir pool level will be lowered to the lowest possible level during removal of the sediments. This is in contrast to conducting the removal at full pool levels proposed in the initial plan.
- The proposed rail loading area has been relocated from the area between Interstate 90 and existing rail line to the the river side of Interstate 90, thereby moving the loading area farther from a residential area.
- A bypass channel will be constructed on the Clark Fork River arm of the reservoir. This will be done 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 Revised Proposed Plan, if implemented, would still result in the following:

- Permanent, long-term protection of public health and the environment.
- Recovery of a drinking water aquifer and the ability to meet groundwater Applicable or Relevant and Appropriate Requirements (ARARs) in a reasonable amount of time (4 to 10 years after sediment and dam removal).
- Elimination of the potential for negative impacts to downstream aquatic life from contaminant release associated with ice scouring, high flow rates, and catastrophic events.

Benefits

Other related and important benefits from this Revised Proposed Plan are as follows:

- Return of the Clark Fork River to a free-flowing state; allowing fish passage between the Clark Fork River below the dam, and the Clark Fork River above the dam and the Blackfoot River to Stimson Dam.
- Substantial improvement in the native and recreational fisheries, especially for trout.

- Laying the groundwork for future restoration and redevelopment of the project area and adjoining areas.

Montana DEQ concurs with the Revised Proposed Plan. There is also strong support of this revised proposed remedy from the natural resource trustees (State of Montana, the Confederated Salish and Kootenai Tribe, and the U.S. Fish and Wildlife Service [USFWS]).

The cost of the proposed cleanup is estimated to be about $106 million in comparison to EPA's Original Proposed Plan estimate of $95 million. These figures represent the net present value (NPV) for the EPA and the U.S. Army Corps of Engineers (USACE) estimated costs of the project (discounted by 3 percent per year for the estimated life of the project). It should be noted these costs assume that the project is implemented by EPA and the USACE and include a construction contingency of 15 to 20 percent. The cost of implementation to a private party with no contingency may be significantly lower.

EPA has worked closely with the State and other natural resource trustees to integrate the remediation and restoration designs.

Recovery of a drinking water aquifer is one of the benefits of the Revised Proposed Plan

EPA will continue to work closely with the natural resource trustees and the community to attempt to meet future redevelopment goals as the project is implemented.

Based on information currently available, EPA believes the Revised Proposed Plan continues to meets the threshold criteria and provides the best balance of trade-offs with respect to balancing and modifying criteria as compared to the other alternatives (see the *Summary and Evaluation of Alternatives* section of the initial Proposed Plan, April 2003).

EPA expects the Revised Proposed Plan to satisfy the following statutory requirements of CERCLA Section 121(b):

1. Be protective of human health and the environment
2. Comply with ARARs or justify a waiver
3. Be cost effective
4. Utilize permanent solutions and alternative treatment technologies to the maximum extent practicable
5. Satisfy the preference for treatment as a principal element, or explain why the preference for treatment will not be met

Evaluation of Proposed Cleanup

EPA's Revised Proposed Plan remains a derivation of Alternative 7A2, which was described in the Original Proposed Plan.

The most highly contaminated sediments (2.6 million cubic yards) within SAA-1 would still be removed. The extent of the sediment accumulation areas (SAAs) is shown on Exhibit 3, *Key Sediment Accumulation Areas*. Removal of the primary contaminant source area contributing to the

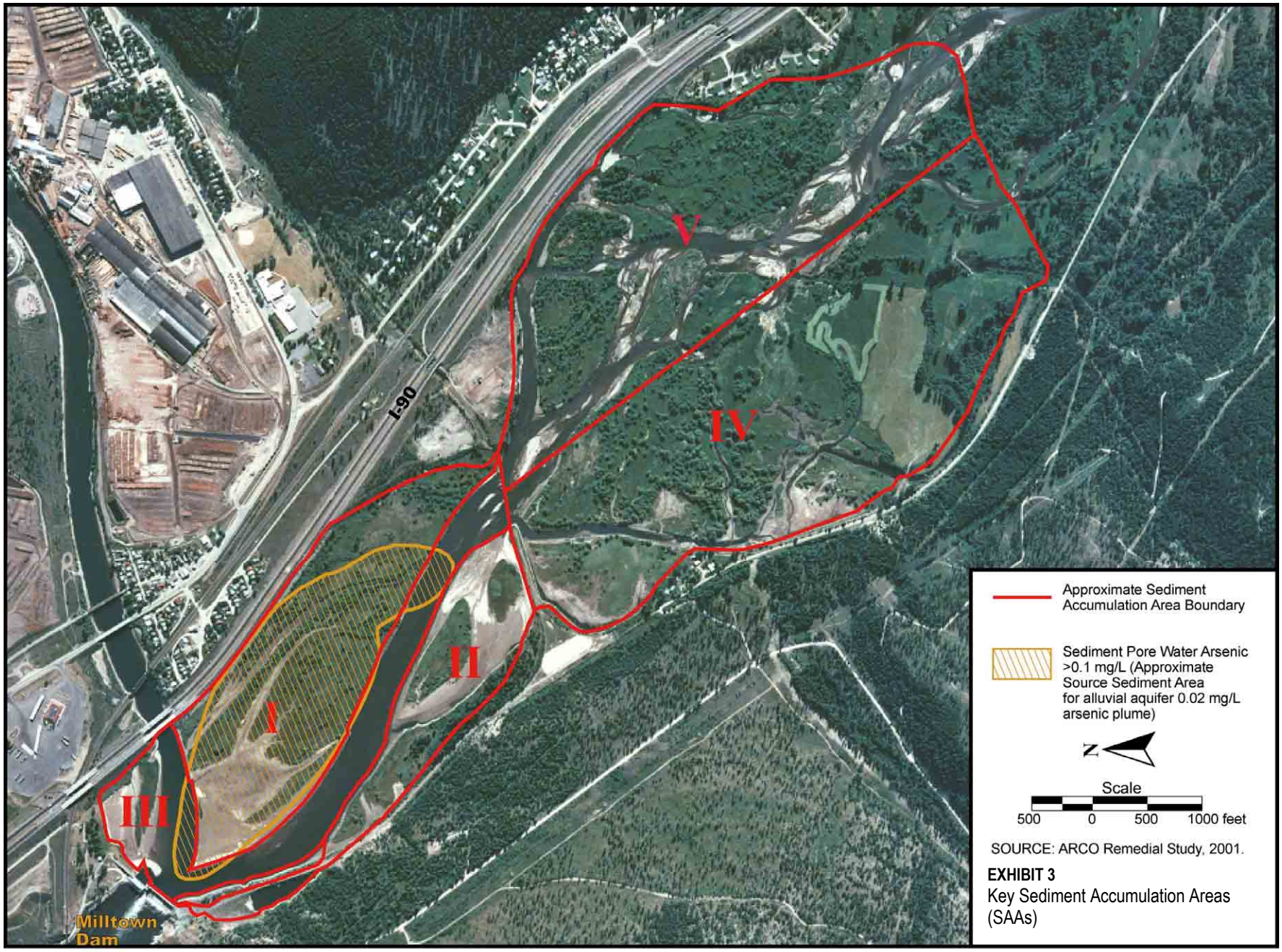

EXHIBIT 3
Key Sediment Accumulation Areas (SAAs)

groundwater arsenic plume and removal of the dam would reduce the hydraulic head pushing the contaminants into the aquifer, and would allow the aquifer to recover 4 to 10 years after dam removal.

The replacement water supply program and implementation of temporary groundwater institutional controls are necessary to protect human health until the recovery of the aquifer is complete.

Downstream impacts on aquatic life during ice scouring events would also be reduced by removing the most highly contaminated sediments and by installing erosion control measures (such as revegetation, other engineered controls, bank protection, and grade control). The potential for catastrophic dam failure and sediment release, and the associated impacts on aquatic life, would also be eliminated by the dam removal.

Under the Revised Proposed Plan, the sediments would be mechanically excavated (after using a pre-load and natural dewatering approach) and transported by rail car to the Opportunity Ponds (the Ponds) located about 90 miles upstream of the reservoir near Anaconda. The Ponds are out of the 100-year floodplain, are owned and managed by the Atlantic Richfield Company, and currently receive similar waste from other sites. The sediment, which contains significant amounts of organic matter, will likely be used as an engineered cover and plant growth media for reclamation of the tailings ponds that are part of the Anaconda Smelter Superfund Site. These materials will be treated to the degree necessary to meet standards for such uses that have been established at the Anaconda Site by the responsible agencies.

EPA expects that most of the clean fill materials for the channel and floodplain reconfiguration described in this plan would come from the Sheriff Posse and the Bonner Development Group (BDG) properties located between Interstate 90 and the Clark Fork River adjacent to the site.

A bypass channel in the Clark Fork arm of the reservoir, sheet piling, and coffer dams would be used as the primary engineering controls to prevent sediment resuspension during implementation of this project. The spillway and radial gate portion of the dam would be removed as a remedial activity. The remainder of the facility would be removed concurrently as one of the proposed restoration activities. The dam would be removed after the installation of the bypass channel and sheet pile system and the Clark Fork River is diverted into the proposed bypass channel. Grade control will be necessary early in the construction process to protect bridges and prevent unacceptable upstream headcutting.

After the sediments are removed and the new channel and floodplain constructed, the Clark Fork River would be rerouted into the final channel and the bypass channel would be backfilled and graded to become part of the floodplain.

Comparison and Key Differences between Plans

For easy comparison, primary differences between the Original Proposed Plan (hydraulic dredging) and the Revised Proposed Plan (mechanical dredging) are presented in Exhibit 4.

EXHIBIT 4
Key Comparisons between Implementation of Plans Using Hydraulic Dredging and Mechanical Excavation

Project Feature	Hydraulic Dredging	Mechanical Excavation
Sediment removal volume	2.6 mcy removed	2.6 mcy removed
Sediment removal method	Physical isolation of SAA-I by sheet piling; mechanical excavation of top 3 feet of sediment followed by hydraulic dredging of remaining sediment.	Physical isolation of SAA-I by bypass channel and sheet piling; soil preloading to consolidate sediments, followed by mechanical excavation
New disposal repository required?	Yes	No
Disposal area	Bandman Flats	Opportunity Ponds
Fate of excavated sediments	Contained within Bandman Repository	Potential beneficial use as organic-rich engineered cover
Sediment disposal transport	Slurry pipeline and rail (new rail spur and loading area between interstate highway and existing rail line and unloading area at Bandman Repository)	Rail (new rail spur and loading area between interstate and river and new rail spur and unloading area in Opportunity Ponds)
Likelihood of additional short-term local groundwater contamination	Slightly higher; construction implemented under full pool with increased communication with aquifer during construction	Slightly lower; reservoir pool is drawn down (driving head is significantly reduced)
Estimated downstream loading of total suspended solids (TSS) during construction due to channel scouring	Estimated to increase over life of the project by between 290,000 and 390,000 tons over expected background load (115,000 tons/year)	Estimated to increase over the life of the project by 472,000 tons over expected background load (115,000 tons/year)
Maximum estimated downstream concentrations due to scouring	TSS not modeled Arsenic not modeled Copper not modeled	TSS 1,850 mg/L Arsenic 14 µg/L Copper 23 µg/L
End of major scouring events and start of free fish passage	June 2009	June 2006
Date for construction completion (remediation and restoration)	2011	2009
EPA/USACE Estimated Remediation Cost	$95.1 million	$106 million

Evaluation for EPA's Nine Criteria

The evaluation of the nine criteria for the Revised Proposed Plan results in some changes to the analyses given in the Original Proposed Plan. There are differences in the evaluation of short-term risks, implementability, cost effectiveness, and community acceptance between the two plans. The nine criteria were fully explained in the Original Proposed Plan. This discussion focuses on the changes from the Original Proposed Plan.

Under the Original Proposed Plan, there was the short-term risk of additional groundwater contamination in the immediate Milltown area during construction before the dam was

removed. EPA discussed the need for contingency and monitoring programs to address this risk. Under the Revised Proposed Plan, this short-term risk and potential need for mitigation measures to address local groundwater problems are greatly reduced.

Under the Original Proposed Plan, sediment release during construction was addressed by use of BMPs and maintenance of the reservoir at full pool level during the hydraulic dredging of the sediment. Under the Revised Proposed Plan, cost-effective rail haul requires the mechanical removal of sediments, so the reservoir level must be drawn down to provide for this mechanical dredging.

EPA and DEQ believe the actual long-term benefits of reducing public health and environmental threats outweigh any potential short-term risks.

Because the reservoir must be drawn down to cost effectively excavate and transport the sediments in SAA-1, there is a greater risk of materials being scoured out of the channel and transported downstream. EPA has addressed this problem by including a bypass channel in this Revised Proposed Plan. Excavating a bypass channel on the Clark Fork arm of the reservoir significantly reduces scouring of sediments containing elevated levels of metals. EPA proposes to construct the bypass channel before the dam is removed and before the water level in the reservoir is lowered to minimum elevation. EPA proposes to use additional BMPs, as necessary throughout the implementation of the project, to minimize sediment release. The project will also be sequenced to minimize the downstream impacts of sediment release.

Considering these issues, EPA believes the short-term risks are different for the Revised Proposed Plan, but that, given the tradeoffs identified here, the overall weight of the short-term criteria remains the same.

In considering the implementability criteria, EPA sees significant advantages for the Revised Proposed Plan. The time for implementation is shorter under this proposal by at least 2 years. Additionally, this plan disposes of the excavated material at a site owned by ARCO, and avoids the need to purchase the Bandman Flats area and associated road rebuilding and utility line disruption. It also reduces impacts to the local community, which also makes the project more implementable.

For the cost effectiveness criteria, there is an increased expense for transport of the sediments to Opportunity Ponds. EPA/USACE estimates indicate that the increased transportation costs slightly outweigh the savings from not constructing the local Bandman Repository. This comparison of costs does not include the value of the material for reclamation activities at Opportunity Ponds or other potential cost savings if a private entity implemented this Revised Proposed Plan.

Under the community acceptance criteria, EPA believes that the Revised Proposed Plan has a much higher rating. EPA received considerable public opposition to the Bandman Repository during the public comment period on the Original Proposed Plan. EPA also received considerable public opposition to the location of the rail loading area in the Original Proposed Plan. The Revised Proposed Plan places the rail loading area on the reservoir site, which is much more isolated from the community.

EPA, in consultation with DEQ, compared this analysis of the nine criteria applied to the Revised Proposed Plan option against the analysis of the Original Proposed Plan

option and all other Feasibility Study (FS) options. EPA concluded that the Revised Proposed Plan described in this document meets the threshold protectiveness and ARAR compliance criteria, and presented the best trade-offs among the remaining balancing and modifying criteria. The Revised Proposed Plan continues to provide for a long-term effective cleanup and a reduction in mobility at the site. It provides a more implementable and publicly supported remedy by altering the disposal location and lessening community impacts. The Revised Proposed Plan is strongly supported by the State, the Confederated Salish and Kootenai Tribes, and the USFWS.

Consideration of the other criteria—protection of human health and the environment, compliance with ARARs, long-term effectiveness and permanence, reduction of toxicity, mobility or volume, and state acceptance—remain relatively the same between the two plans and do not, therefore, significantly weigh into the decision to amend the Proposed Plan.

EPA and DEQ concluded that this Revised Proposed Plan offers a protective, permanent remedy with substantial public health and environmental benefits with strong public support.

The ARARs and ARAR waivers identified in the Original Proposed Plan remain the same. Importantly, the temporary construction Standards identified in Exhibit 12 of the Original Proposed Plan and repeated here in Exhibit 5 still apply to this cleanup plan. There should not be any violations of the temporary metals and arsenic standards. The temporary TSS standard should be met throughout 99 percent of the construction period. The TSS standard may be violated in the initial drawdown period and immediately following the dam removal, but should be met following the initial high flow period.

EXHIBIT 5
Milltown Reservoir Sediments Site Proposed Temporary Construction Related Water Quality Standards*

Cadmium—Acute AWQC	2 µg/L	short-term (1 hour)
Copper—80% of the TRV (dissolved) (at hardness of 100 mg/L)	25 µg/L	short-term (1 hour)
Zinc—Acute AWQC (dissolved)	117 µg/L	short-term (1 hour)
Lead—Acute AWQC (dissolved) DWS (dissolved)	65 µg/L 15 µg/L	short-term (1 hour) long-term (30-day average)
Arsenic— Acute AWQC (dissolved) DWS (dissolved)	340 µg/L 10 µg/L	short-term (1 hour) long-term (30-day average)
Iron—AWQC (dissolved)	1,000 µg/L	short-term (1 hour)
Total Suspended Solids (TSS)	550 mg/L 170 mg/L 86 mg/L	short-term (day) mid-term (week) long-term (season)

*All hardness related AWQC values assume a hardness of 100 mg/L
TRV = Toxicity Reference Value, used in Proposed Plan for the Clark Fork River Operable Unit
AWQC = Federal Ambient Water Quality Criteria
DWS = Federal Drinking Water Standard

EPA received significant public comment on the Original Proposed Plan about the loss of wetlands associated with the removal of the dam and sediments under that proposal. EPA wants to emphasize that the ARARs for the Milltown site require lost wetlands to be replaced according to valuation methods developed by the USFWS. EPA expects that wetlands will be created through the construction of riparian areas adjacent to the new channel and off channel wetlands within the 100-year floodplain. The created wetlands will have to match the functional value of the destroyed wetlands, or, if that does not occur, additional wetlands will have to be developed to comply with the ARAR.

Protection or mitigation for loss of historic resources under the National Historic Preservation Act (NHPA) is also required. Four prehistoric sites were discovered and recorded during the Milltown Reservoir Sediments Site Cultural Resources Survey. These sites may be potentially eligible for protection on the NHPA. The dam, and related facilities, including the powerhouse, are also eligible for listing as protected historic resources under that act. EPA and the Trustee's decision to remove the dam and related facilities, and construct the natural channel, will adversely affect this resource. EPA and the Trustees will work cooperatively with interested parties to ensure that the NHPA's requirements avoid or mitigate damage to these resources are met.

Remediation – Restoration Coordination

Since the release of the Original Proposed Plan, the Natural Resource Trustees (USFWS, Confederated Salish and Kootenai Tribes, State of Montana) via the lead trustee, the State of Montana, have released and taken public comment on their restoration plan (*Draft Conceptual Restoration Plan*, May 2003). A significant portion of the restoration project encompasses the area where the Milltown Reservoir has slowed the flow of the river and created areas of sediment deposition. Restoration needs to be closely coordinated with the proposed remediation plan, specifically the Blackfoot River from the Milltown Dam up to the Stimson Dam and the Clark Fork River from the I-90 bridge below the Milltown Dam up to the high reservoir level above Duck Bridge.

EPA has worked with the trustees to provide close coordination between the remediation and restoration plans within the remediation project area (the area from the dam to Duck Bridge on the Clark Fork River arm of the reservoir and to the Interstate Bridge on the Blackfoot River arm). Because the remediation and restoration plans must be closely integrated within the remediation project area, the restoration aspects of the project are reflected in the figures presented in this document. The coordinated restoration elements include the following:

- Removal of the divider block/power house/north (right) abutment
- Changes in the floodplain and channel alignment
- Implementation of soft stabilization/ revegetation techniques to stabilize the channel

Another element of this entire project is the removal of the Stimson Dam, which is being planned as a cooperative effort through the USFWS National Fish Passage Program with matching funds.

Detailed Description of Preferred Remedy

Exhibit 6, (page 19) *Major Features of the Revised Proposed Plan Integrated With the Restoration Plan,* depicts the major features of the revised proposed cleanup plan.

Dam and Sediment Removal

Prior to sediment and dam removal activities, sediment in SAA-I will be isolated from the active Clark Fork and Blackfoot Rivers by a temporary bypass channel and a wall of interlocking sheet piling driven into the underlying alluvium (Exhibit 7). The bypass channel will be constructed adjacent to Interstate 90. Before the construction of the bypass begins, the reservoir water level would be lowered using the existing radial gate. Conventional excavation equipment (excavators and draglines) would be used to excavate this channel. The excavated materials would be stacked on the south side of the channel and allowed to drain. These materials would be loaded into rail cars and hauled to Opportunity Ponds after the bypass and the rail spur is completed.

Sediment removal will use an approach called "pre-loading." Pre-loading means bringing and placing a layer of clean fill material (up to 9 feet thick) over the sediments in SAA-I. The purpose of the pre-load is to force the underlying sediment to consolidate and release excess water to the previously lowered reservoir channel areas. This makes soft material, such as sediment, more stable for the operation of large equipment that will be needed for the excavation. EPA expects the clean fill will come from a local source.

Sheet piling will be used to contain sediment

Reduction of the reservoir pool level would be done in three phases to minimize scouring:

- Phase 1: Use the existing radial gate to lower the water level.
- Phase 2: Modify the powerhouse inlets to low level outlets by removing the turbines.
- Phase 3: Remove the spillway, radial gate, divider block, power house, and north (right) abutment.

Coffer dams will be used to isolate portions of the dam during this removal sequencing.

EPA, DEQ, and the Trustees believe that the timing of the dam removal is very important in minimizing the impact to downstream aquatic life and users. To minimize downstream impacts and allow the earliest possible fish passage and recovery from impacts, EPA is proposing removal of the dam during the winter and spring months immediately after the SAA-1 sediments are isolated and the

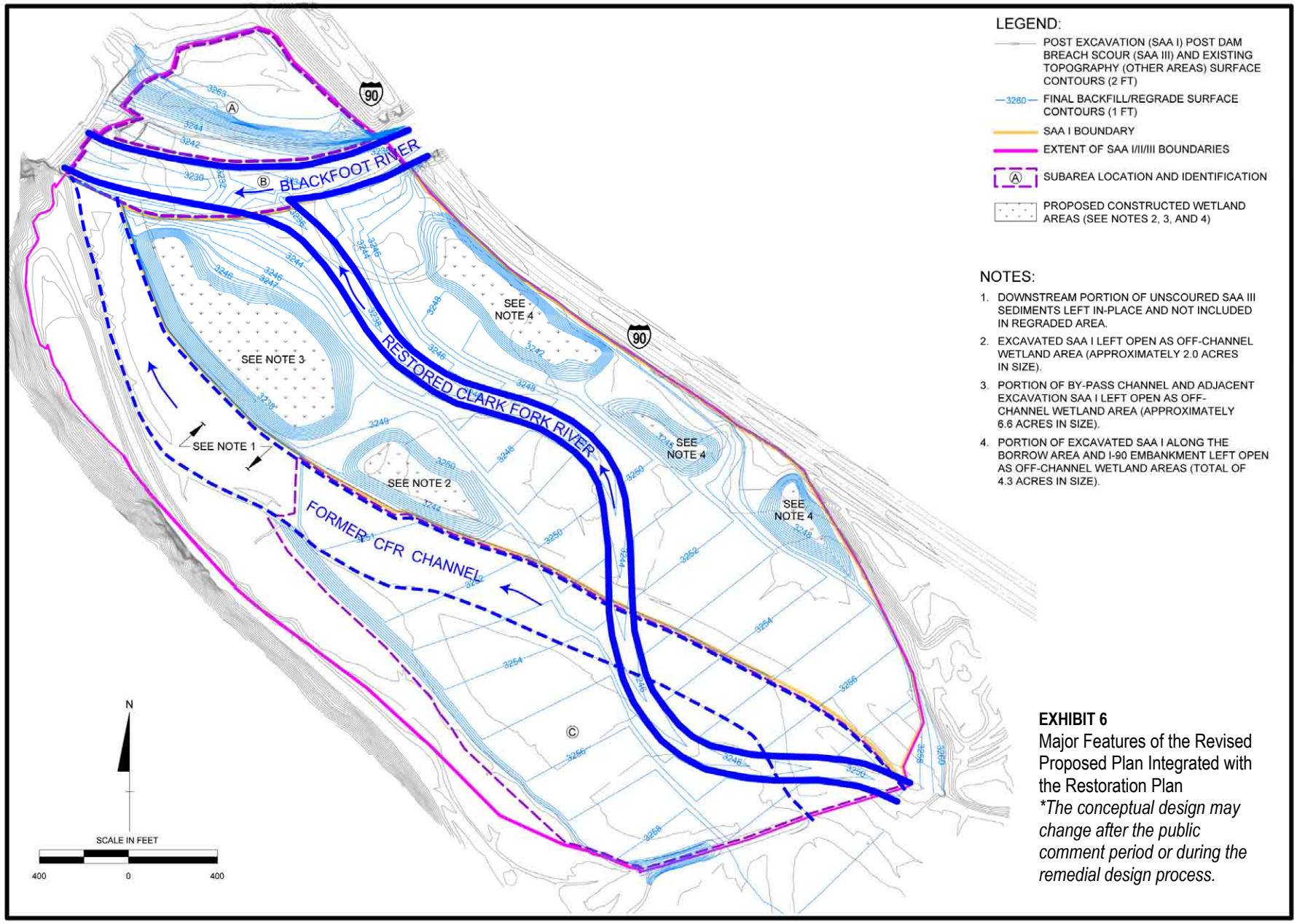

EXHIBIT 6
Major Features of the Revised Proposed Plan Integrated with the Restoration Plan
**The conceptual design may change after the public comment period or during the remedial design process.*

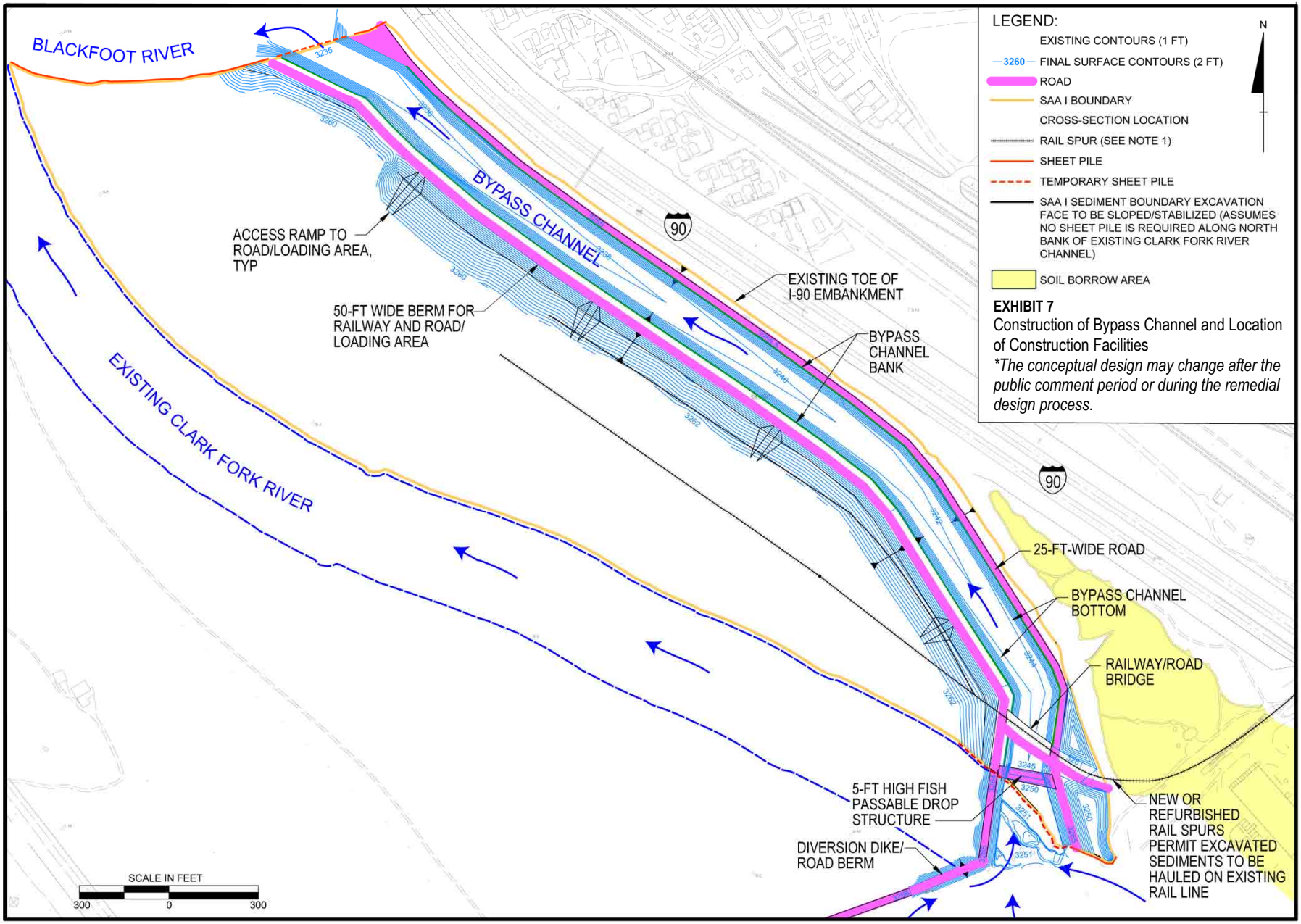

EXHIBIT 7
Construction of Bypass Channel and Location of Construction Facilities
**The conceptual design may change after the public comment period or during the remedial design process.*

Clark Fork River is routed into the bypass channel (Exhibit 7). After the dam is removed, the resulting reduction of the river level will facilitate the natural draining of the sediments. Once achieved, this minimum river level will be maintained throughout the construction period.

The excavation process will use large excavators working a linear face to optimize production and minimize the area of exposed groundwater. The area will be quickly backfilled following excavation. The first excavator will remove the pre-load materials and create blending areas ahead of the sediment excavation operation. Pre-load material will also be loaded into trucks and used as backfill in areas where the sediment has been excavated. Concurrently, other excavators will remove the sediment, place it on an adjacent area where the pre-load material has been removed, and let it drain, if necessary. EPA anticipates that, even after spillway and radial gate removal, a small portion of the sediment will remain below the water table. This sediment will be stacked and allowed to drain naturally, mechanically dewatered, or mixed with drier sediment to improve its consistency, and the blended materials will be loaded into trucks and transported to the staging area by the rail spur.

Transportation and Disposal

At the rail staging and loadout area located between Interstate 90 and the river, the sediment will be placed into rail cars. Rail transport will be provided by two unit trains of gondola rail cars. The rail cars will be transported each night to Opportunity Ponds, so a train full of empty cars will be onsite for loading each morning. Exhibit 7 shows the location of the rail spur near Milltown. Exhibit 8 shows the rail spur at Opportunity Ponds.

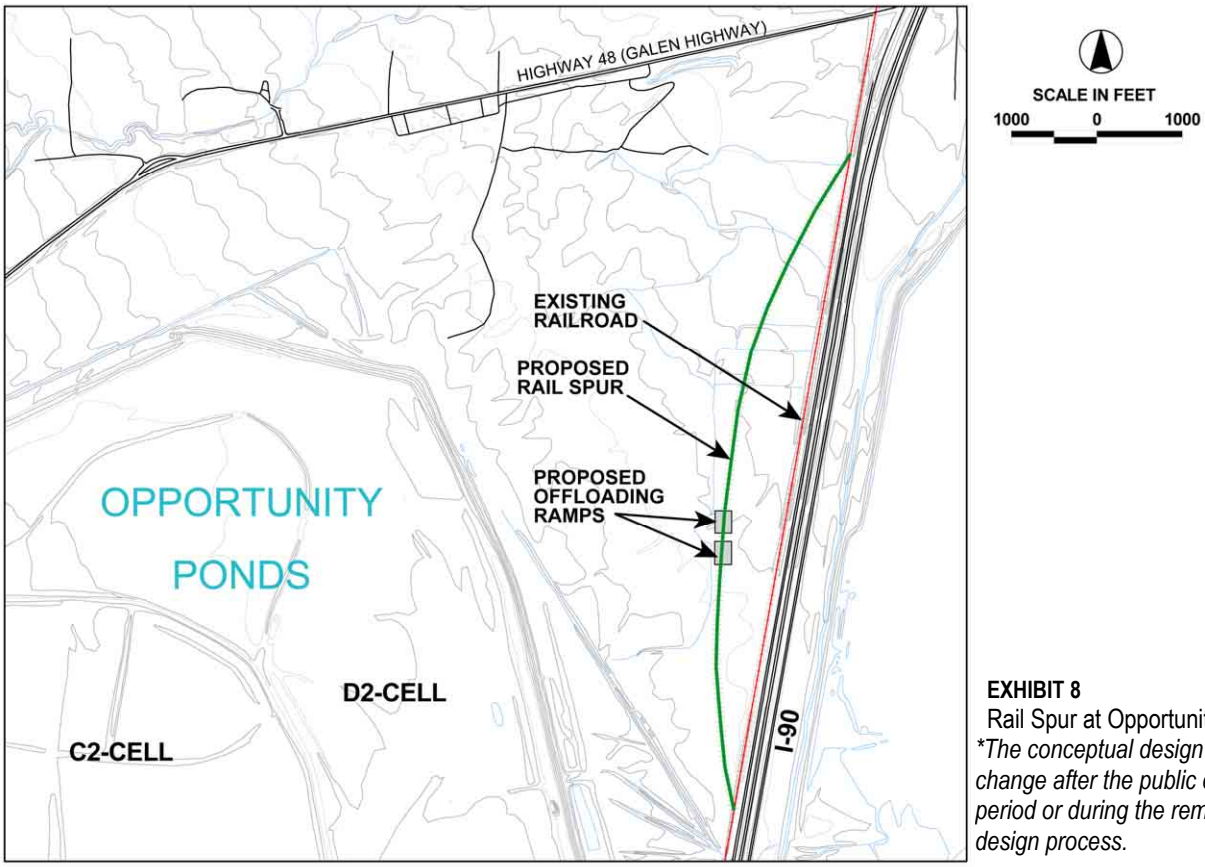

EXHIBIT 8
Rail Spur at Opportunity Ponds
**The conceptual design may change after the public comment period or during the remedial design process.*

Large or woody debris encountered during excavation may require additional handling and processing to reduce its size so it can be transported by rail to Opportunity Ponds or it may be disposed of in local landfills. Long-term operation and maintenance of the transported materials at Opportunity will be the responsibility of Atlantic Richfield Company as part of its obligations within the Anaconda Smelter Superfund Site.

Dewatering

Dewatering of the lower sediments within SAA-I may be necessary if the sediments do not free-drain completely. For the proposed cleanup, EPA anticipates that some sediment dewatering will occur. An estimate of sediment pore water quality using sediment drainage test data collected by EPA during the 2002 drawdown indicates that discharge of pore water into the Clark Fork River would not raise the river dissolved arsenic and copper concentrations above EPA's temporary construction standards. However, monitoring will be conducted and, if the impacts of returning excavation water to the river are found to be harmful or temporary standards are expected to be exceeded, the water will be treated before being discharged to the river.

Control of Sediment Releases

An important factor in EPA's and DEQ's consideration of whether to issue a Revised Proposed Plan was the evaluation of the downstream impact of scoured sediments. Of particular concern was the volume of scoured sediments released and the downstream concentration of metals, arsenic, and TSS; the potential downstream impact of these sediments; methods for controlling and mitigating these potential impacts; and monitoring during and after cleanup activities. Conservative input assumptions were used in sediment scour modeling calculations so the values reported represent the upper range of sediment transport that is expected to occur during construction. The following section briefly describes these issues. For additional details concerning these issues please see *Final Technical Memorandum – Milltown Reservoir Dry Removal Scour Evaluation* (Envirocon, April 2004) on the EPA Milltown website or in EPA's Administrative Record. In summary:

- Modeling estimates that approximately 478,000 tons (406,000 cy) of additional sediment will be scoured from the Milltown Reservoir during the 4-year construction period.
- The concentrations of dissolved metals moving downstream during construction are projected to be similar to those seen during normal high flow events.
- EPA expects little or no effect on downstream aquatic life resulting from metals released during construction. The release of high levels of TSS could have a temporary negative impact on aquatic life.
- Sediment releases should not pollute downstream drinking water supplies because of the expected low concentrations of dissolved arsenic being released.
- Deposition of sediment should not cause problems to downstream public infrastructure. There is a potential for some temporary problems at irrigation intakes where coarse particles may settle out and constrict intakes. These areas will be monitored and problems will be corrected. The majority of the sediment will be transported downstream, mixed with other channel sediment, and ultimately deposited in

downstream reservoirs. The amount released from Milltown as a result of construction activities is relatively small when compared to the amounts entering downstream reservoirs on a routine basis.

- Several key engineering controls and BMPs will be used to protect downstream water quality. This will be accomplished by isolating the most highly contaminated sediments with sheet piling and a bypass channel, and carefully planning the timing and sequence of reservoir drawdown and dam removal. Equipment will be available to clean out downstream irrigation intakes to ensure they are not constricted.
- The Clark Fork River downstream of the Milltown Dam will be monitored during and after remediation. Monitoring will include daily water quality sampling and caged fish exposure studies, as well as seasonal or annual measurements of fish and benthic (bottom-dwelling) macroinvertebrates communities.

The concentration of dissolved metals in the Clark Fork River during construction should not be any higher than the concentrations during normal high flow events.

Volume of Sediments Released/ Downstream Concentration of Copper, Arsenic, and TSS

Modeling using conservative input assumptions was conducted to estimate the volume of materials that would be scoured and the downstream TSS, copper, and arsenic concentrations resulting from the proposed Milltown cleanup. The modeling indicates that about 478,000 tons of additional sediment scouring from the reservoir would occur during the 4-year construction period. As a comparison, about 148,000 tons of sediment move through the Milltown reservoir and continue downstream each year. During high flow years, the sediment load is typically higher. For example, in 1996, about 317,000 tons of sediment moved through the reservoir. In 1997, that number was 445,000 tons.

A temporary bypass channel for the Clark Fork River will be required so none of the most highly contaminated sediments will go downstream. Of the material that is scoured from the reservoir, slightly more than half will be uncontaminated sediments from the Blackfoot River and the rest from the Clark Fork River. The concentrations of metals from the Clark Fork arm of the reservoir are expected to be similar to what already comes down the Clark Fork each year. Nearly all (about 97 percent) of the sediment scouring would happen during the high flow seasons in 2005 and 2006.

The concentration of dissolved metals in the Clark Fork River during construction should not be any higher than the concentrations during normal high flow events. Dissolved metals concentrations in the river are not expected to exceed any of the temporary standards (Exhibit 5, page 11) established for this project. Peak dissolved copper and arsenic levels are expected to be about 23 µg/L and 14 µg/L respectively. Of these concentrations, about 15 to 25 percent is expected to be from upstream loading. TSS concentrations may exceed the temporary standards for short periods of time, but are not expected to approach the construction standards after the high flow season following dam removal. Peak TSS concentrations are predicted to be about 1,850 mg/L. It is predicted that the daily maximum TSS standard (550 mg/L) will be exceeded for approximately 12 days during the 4-year construction period.

Effects of Sediment Release

There is expected to be little or no effect on downstream aquatic life resulting from metals released during the cleanup. The release of high levels of TSS could have a temporary negative impact on aquatic life. Adult trout have been shown to have high tolerances to high levels of TSS, but concentrations of TSS greater than 1,200 mg/L have been shown to cause some mortality in trout less than a year old. Longer term exposure to TSS concentrations between 100 and 1,000 mg/L have been shown to have chronic impacts on trout such as impaired feeding and reduced growth. Deposited sediment can also reduce fish spawning habitat and macroinvertebrate populations (fish food supplies), and thereby impact fish reproduction, growth and population. The sediment modeling effort indicated that the fine materials (about 50 percent of the total release) will move through the system very quickly. Maximum impacts will be observed from immediately below the Milltown dam to the junction of the Clark Fork and Bitterroot Rivers. Impacts of sand and fine material moving downstream become less and less as more water enters the river. The flow of the Clark Fork River below the Bitterroot River is twice as great as the flow of the Clark Fork River leaving the Milltown Reservoir and seven times greater by the time the Clark Fork River reaches Thompson Falls Reservoir.

Drinking water supplies should not be polluted in any way by the cleanup. To the contrary, the cleanup will result in restored a drinking water aquifer for Milltown. EPA and DEQ are confident that drinking water supplies will not be impacted by the cleanup because the levels of metals and arsenic in any released sediments are expected to be low as well as the fact that there are no drinking water system intakes drawing water directly from the river.

Downstream irrigation systems may be impacted, namely those withdrawing water between the Milltown Dam and the Bitterroot River. The main impact is expected to be from sand accumulating at the intakes and constricting intake flows.

Drinking water supplies should not be polluted in any way by the cleanup. To the contrary, the cleanup will result in restored a drinking water aquifer for Milltown.

There should be very little impact on infrastructure from sediment accumulation downstream of the I-90 bridge immediately below Milltown other than at the irrigation intakes. This is due to higher river velocity between Milltown Dam and Thompson Falls Reservoir. Most of the fine sediments and sand will accumulate in the Thompson Falls Reservoir (some fines may go through Thompson Falls Reservoir into Noxon Reservoir). The amounts of sediment that will be transported to the downstream reservoirs as a result of construction activities at Milltown will be relatively small as compared to the amount routinely transported. An estimated 478,000 tons of sediment will be transported from the Milltown Reservoir during the 4-year construction period as compared to an estimated 2,200,000 tons of sediment transported from upstream to Thompson Falls Reservoir during any 4-year period. Given the large amounts of sediment routinely deposited in these reservoirs and the low levels of metals in the released Milltown sediments, there should be little to no impact on overall sediment metals levels, groundwater quality adjacent to these reservoirs, or reservoir storage capacity.

Controls and Mitigation Measures

Several key engineering controls and construction BMPs will be used to minimize the scour and release of reservoir channel sediment and associated metals during construction activities to protect downstream water quality.

The major planned engineering controls include the isolation of the SAA-1 sediments (Exhibit 7, page 15) using a sheet pile and bypass channel system. This system should be highly effective in reducing the potential for scouring. This system reduces total scouring from about 1.2 million tons of sediment to about 478,000 tons, and reduces the amount of highly contaminated sediment scoured from the reservoir from a projected 400,000 tons to 0 tons. Additional BMPs (such as silt curtains, coffer dams, flood control berms, and grading of stream banks) will also be developed during cleanup design and construction.

Another important aspect of mitigating and reducing potential downstream impacts is the timing and sequencing of reservoir drawdown and dam removal. To minimize downstream impacts and allow the earliest possible fish passage and recovery, EPA and DEQ propose dam removal during the winter and spring months immediately after the SAA–1 sediments are isolated and the Clark Fork River is routed into the bypass channel. By timing the reservoir drawdown and dam removal in late winter/early spring, most sediment would be scoured during spring run-off and before the major irrigation withdrawals and the summer/early fall recreational season. There is also a potential for intake gate elevation control to try to bypass the sand fraction past irrigation intakes. Excavation equipment will also be dedicated to insure that gates are not constricted by sand deposition. EPA and DEQ plan to work closely with irrigators to insure that negative impacts are minimized.

This system reduces total scouring from about 1.2 million tons of sediment to about 478,000 tons, and reduces the amount of highly contaminated sediment scoured from the reservoir from a projected 400,000 tons to 0 tons.

Monitoring

An important part of the cleanup proposal is the monitoring program during and after remediation. Monitoring will assess and document the effectiveness of the cleanup. The monitoring program will include water quality and biological studies conducted during and after site remediation activities to assess any adverse effects on aquatic habitat and organisms.

The water quality monitoring station will include the following:

1. Continuous monitoring of turbidity on the Clark Fork River downstream of the Milltown Dam Site at the Deer Creek Bridge
2. Daily sampling of TSS and dissolved and total recoverable metals

In addition, EPA and DEQ have established temporary construction standards (performance standards) for the river to protect human health and prevent acute impacts to the downstream fishery and bull trout. The Superfund point of compliance for these standards is proposed at Deer Creek Bridge, located about 2.8 miles downstream of Milltown Dam and the site of a current U.S. Geological Survey (USGS) sampling station (Station No. 12340500). This monitoring point will allow direct comparison to historic levels and is down-stream far enough to account for the effect of any contaminated groundwater recharge back into the river. Additional BMPs and

control actions will be considered if these standards were exceeded.

Seasonal or annual measurements of fish and benthic macroinvertebrate communities will be used to assess longer-term impacts. Results from these monitoring activities will be used to adjust construction activities or BMPs to avoid acute impacts on fish. In addition to the surface water quality monitoring, groundwater quality in the Milltown area and at key downstream locations will be monitored. Although negative impacts to groundwater used for drinking water are not expected, EPA is committed to remedy any problems related to drinking water that might occur.

Channel Reconstruction

Upon completion of sediment removal, a new floodplain and channel will be constructed. The original channel and floodplain design, which reflected a highly engineered channel with a narrow 100-year floodplain within the project area, will likely be replaced with a design consistent with the trustee draft Conceptual Restoration Plan. The plan proposes a more natural floodplain and channel design than in the Original Proposed Plan that will benefit fish and wildlife as well as local recreational use. The removal of the entire dam—including the powerhouse, divider block, and right abutment—allows for a wider, more natural channel and floodplain.

The original channel and floodplain design, which reflected a highly engineered channel with a narrow 100-year floodplain within the project area, will likely be replaced with a design consistent with the trustee draft Conceptual Restoration Plan. The plan proposes a more natural floodplain and channel design

Stimson Dam Removal

Another necessary, coordinated action is the removal of the Stimson Dam located on the Blackfoot River, a mile upstream of the Milltown Dam. Although not specifically a remediation element of the project, EPA, DEQ, and the Trustees have determined that the removal of this dam is necessary to provide fish passage and eliminate physical hazards that would occur from the lower water level once the Milltown Dam is removed. Currently, plans call for removal of the Stimson Dam. This would occur with funding from the USFWS National Fish Passage Program, matching funds, and other contributions. The removal of the Stimson Dam would occur immediately prior to the removal of the Milltown Dam.

Replacement Water Supply Program/Temporary Groundwater Institutional Controls

As noted in the Original Proposed Plan, temporary groundwater institutional controls may be necessary during and immediately after construction to address potential human health risks by limiting the use of the groundwater until the aquifer recovers through natural attenuation. Groundwater institutional controls during construction and until the aquifer recovers (4 to 10 years after dam removal) are the same as listed for the Original Proposed Plan.

Compliance with the Endangered Species Act (ESA) During Construction

Bull trout and bald eagle are both listed as threatened species and occur in or near the site. Construction activities should have minimal impact on bald eagles in the area, but bull trout may be impacted by site activities. To minimize the impact on bull trout, construction methods proposed during implementation of this remedy include use of a sheet pile system and construction of a bypass channel to minimize TSS and metals release. Activities will also be timed and sequenced to minimize impacts. EPA will coordinate and conduct cleanup activities in a manner that will facilitate fish passage as soon as possible. In the long term, it is considered beneficial to fishes to implement cleanup and dam removal quickly and in an environmentally safe manner.

Although extensive mitigation methods are proposed, there is a potential that short-term adverse impacts to bull trout and proposed critical habitat could occur as a result of construction activities. Adverse impacts could reach the level at which incidental take of bull trout could result. The USFWS has worked with the EPA on the development of measures to ameliorate impacts of this project on fish and wildlife. The EPA will prepare a revised biological assessment shortly, describing potential impacts of this cleanup and measures to minimize impacts to fish and wildlife in greater detail. The USFWS Biological Opinion is expected before the Record of Decision for the cleanup is issued.

Bull Trout

Implementation Schedule

The potential schedule for implementation of the proposed remedy is summarized below. This schedule is likely to change based on public participation activities, final design components and sequencing, and yearly variations in hydrologic conditions.

2004 – Late	Record of Decision
2004 – 2005	Planning/Remedial Design
2004 – 2005	Anticipated FERC License Surrender Regulatory Activities
2005	Infrastructure Construction (sheet pile, bypass channel, rail spurs, etc.)
2006	Dam Removal (Remediation and Restoration elements)
2006 – 2007	Sediment Removal, Backfilling, Regrading
2007 – 2008	Channel Stabilization and Revegetation Activities (Restoration)
2009 – Future	Redevelopment Activities
2009 – Future	Operation and Maintenance and 5-year reviews

Community Participation and Public Support of the Cleanup

Two public meetings were held following the release of the Original Proposed Plan. The first public meeting was held Wednesday, May 7, 2003, at Bonner School in Bonner, Montana. The second meeting was held Thursday, May 8, 2003, at the University of Montana campus in Missoula, Montana. The public provided comments for the record at both of these meetings. Most of the participants supported removal of the dam and sediments, but did not support the Bandman Flats Repository location. Many people felt that using the established repository at Opportunity Ponds made more sense from an ecological and community impact perspective. In addition to the public meetings, EPA has received thousands of letters, postcards, and e-mails, many of which make these same points.

Another opportunity to provide comment begins with the release of this Revised Proposed Plan. As noted, EPA will accept public comment for thirty (30) days following the release of this Revised Proposed Plan.

Other Important Documents

Important supporting documents associated with the Original and Revised Proposed Plans are available for review and are located in the Milltown Reservoir Sediments Site Administrative Record and local document repositories, as well as on the web site shown below. These documents include the Biological Assessment, various cost analyses, detailed work breakdown structure and schedule, and reports associated with sediment scouring and related impacts.

It should be noted that the removal of the powerhouse, now contemplated as part of the restoration actions, was originally considered by the agencies as part of remedial Alternatives 5, 7A, and 7B in the Combined Feasibility Study for this operable unit (ARCO, December 2002).

Commenters should be aware that this public comment period is an opportunity to comment not only on this proposed action, but on all the alternatives that were considered by the agencies.

This is an important time to express your opinion about what type of cleanup you'd like to see for the Milltown Reservoir Sediments Site.

Please Comment!

The public comment period runs from May 19, 2004 to June 21, 2004.

For more information:
http://www.epa.govregion8/superfund/sites/milltowndamou.html

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Artist's Rendition of post-remedy confluence, looking upstream from the bluff above Milltown Dam.

Note: The conceptual plan may change after the public comment period or during the remedial design process.