

Upper Clark Fork Restoration through the Natural Resource Damage Program

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Introduction

This presentation summarizes the past accomplishments and present activities of the State of Montana's Natural Resource Damage Program's (NRDP) restoration initiative and provides a glimpse into the future. I first review the damage lawsuit and partial settlement that lead to funding opportunities for restoration in the Basin. Next I review the major aspects of the Restoration Plan. I finish by addressing the questions provided by Dr. Vicki Watson that focus on overall visions/goals and coordination possibilities.

The NDRP Restoration Initiative covers the entire Upper Clark Fork River Basin (UCFRB), not just the Clark Fork River. The initiative involves restoring or replacing natural resources that were injured, and/or services provided by those resources that were lost, due to releases of hazardous substances from ARCO and its predecessor's mining and mineral processing operations in the UCFRB. In addition to surface water and fisheries, public natural resources covered by the initiative include groundwater, wildlife, and wildlife habitat.

NRD Lawsuit Summary

In its NRD lawsuit (Montana v. ARCO) filed in 1983, the State asserted a restoration damages claim against ARCO for the cost of restoring to baseline, or replacing, the natural resources that it had documented were injured or lost as a result of releases of hazardous substances in the UCFRB. The goal of remediation is to clean up the hazardous substances at a Superfund site so that the public health and environment are protected against further harm from those substances. Restoration activities encompass the additional effort beyond remediation to return injured natural resources to their uncontaminated condition. The State also asserted a damage claim seeking compensation for the lost use and intrinsic value of the injured natural resources (compensable damages).

In 1998, the State and ARCO reached a partial settlement of the natural resource damage lawsuit via a two-step consent decree that settled some of the state's claims and set up a process by which remaining claims would be resolved. Among other provisions, the state received approximately \$130 million to restore or replace the injured natural resources and lost services and \$80 million to implement the Superfund remedy on Silver Bow Creek (SBC). The State reserved its restoration damages claims for Butte Area One, the Clark Fork River, and the Anaconda Uplands. For a summary of all the major provisions of settlement, see Attachment 1.

Injured Resources and Lost Services Summary

In 1995, the State issued its Report of Assessment, which included about 40 separate reports describing and quantifying the injury to natural resources in the UCFRB and the damages that the state would seek at trial. The groundwater injury reports found that more than 600,000 acre-feet of groundwater in areas of Anaconda, Butte, Milltown, and Rocker have been contaminated. The aquatics injury reports found that the CFR should have 5 times more fish than it currently has, and that Silver Bow Creek, which has no fish, should have a healthy fishery. The terrestrial injury reports found a loss of approximately 1000 acres of wildlife habitat and wildlife in SBC and CFR, 3400 acres of riparian habitat in Opportunity ponds, and a loss of upland wildlife & habitat in approximately 18 m² of Anaconda uplands areas. The compensable damage assessment covered the services lost or impaired by these injured natural resources, such as hunting,

fishing, boating, hiking, camping, observing wildlife, bird watching, and domestic and industrial consumption and uses of groundwater. (Refer to Attachment 2).

Summary of Restoration Plan Development

In 1999 the State of Montana developed a draft *UCFRB Restoration Plan Procedures and Criteria* (hereafter referred to as the *Restoration Plan*) that provided the framework for expending restoration funds obtained from the 1998 settlement. The State revised the draft based on input from the UCFRB Remediation and Restoration Education Advisory Council (“Advisory Council”) and other public comments and finalized the *Restoration Plan* in February 2000. Major aspects of this plan and public comment included:

1. Proceeding with allowing restoration fund expenditures despite on-going litigation and pending Superfund remedy decisions. (Discussed later).
2. Selecting an annual grants program for a variety of projects and entities as opposed to a prescriptive program whereby the State determined where and what should be done and then solicited specific proposals.
3. Developing a multi-phase funding selection process with multiple entities involved – various state and federal agencies, the Advisory Council, the Trustee Restoration Council, general public, and the Governor (refer to Attachment 3). We received many public comments critical of this decision-making system as too complex.
4. Establishing project selection criteria (9 Legal, 8 Policy, 5 Land Acquisition, and 2 Research and Monitoring Criteria (Attachment 3). The criteria are not weighted. The importance of each criterion will vary depending upon the nature of the project and the unique issues it raises. Projects are evaluated against the criteria and then against each other. Public comment was mixed regarding the quantity and complexity of these criteria – some saying too many/too complex and others applauding them.
5. Restricting eligible project location to UCFRB except for native trout restoration on Blackfoot River if such restoration is deemed impractical or uneconomical in UCFRB. Keeping eligible projects within the Basin was a subject of substantial public comments and the State narrowed the project location eligibility to within the Basin with only this limited exception, recognizing “there was more work to be done in the Basin than there is money to get it done.” Some have misinterpreted the Blackfoot exception as an invitation. It is not.
6. Restricting, by policy, to spending interest in initial years with understanding that the principal could be used at a later time to fund significant/time critical projects as agreed by the Governor. Public input supported this policy that would maximize funding capabilities over the long-term.
7. Developing a Pilot Year application process based on the *Restoration Plan* to be tested and refined in the next Plan. Special pilot year restrictions include limiting the total number of projects to between a range of 10 and 20 and requiring an urgency demonstration. Public comment generally supported this “Pilot” concept.

Summary of Observations to this Point

Applications submitted by the April 14th deadline for Pilot Year 2000 grant funding include are for the following projects: a recreational corridor along SBC (a.k.a. the Greenway); conservation easements and land acquisitions; revegetation/weed management, best management practices; stream channel and

stream bank restoration; wetland enhancement; watershed planning, modeling and monitoring; and restoration research.

Major observations of this initiative process so far:

The on-going litigation and pending remedy decisions complicate the process and will affect the type of projects that receive funding in the initial years greatly. While many of the criteria give preference to actual restoration in the injured areas, projects will be disfavored if ARCO may be required under Superfund to perform the activity. Since many unknowns remain regarding what will and won't be done in and along the CFR under Superfund remedy, actual restoration projects for the river itself are disfavored and thus replacement projects are more likely. This "mismatch" exists not only for sites where remedy has not been determined, but also for sites where the remedy is of such a general nature that many unknowns remain about what will be done under Superfund, such as the Anaconda Regional Wastes, Water, and Soils Operable Unit.

A policy is needed regarding large-expense, multi-year projects. Should the State commit future years' available funding to such projects or should applicants seek funding each year? What about multi-million \$\$ projects that are only beneficial if fully completed vs. ones that can be beneficial if even completed in phases?

The funding selection process is indeed complex with what many perceive to be difficult requirements. Mentioned examples include the requirement that state procurement and contracting procedures be met; the application of the same criteria to projects of varied types and costs; and confusion over just what constitutes eligible restoration and replacement activities. We tried to ease some of the difficulty for applicants by only requiring readily available information for some of the criteria. But even with improvements based on lessons learned, the process will remain complex given the complexity of the problems to be addressed with the funding, the regulatory framework, and the variety of eligible projects.

Planning and Coordination Efforts

I will now address the questions Dr. Vicki Watson requested we cover in our presentations.

1. What are the Guiding Visions and Goals and Specific Objectives?

We received a lot of public comment about the lack of these in the *Restoration Plan*. The State believes a comprehensive planning effort, while worthwhile, is premature given potential interference with litigation and on-going Superfund remedy process. Instead, the State and Advisory Council have drafted a general vision statement and goals for restoration expenditures (refer to Attachment 4) that will be revisited after "testing" of the first grant cycle.

The State's litigation documents, in particular the 1995 *Restoration Determination Plan*, and the NRD regulation themselves all set out the underlying and overriding goal of this initiative: to restore injured natural resources in the Basin to baseline conditions. In those documents, the State recognizes that restoration to baseline conditions will take decades to centuries and may never occur in some injured areas such as the bedrock aquifers in Butte and Anaconda.

How does the Restoration Initiative Relate to River's Overall Health?

The NRD Restoration Initiative is for the entire Basin, not just River – a superior watershed approach. It provides significant funding for restoration of injured natural resources to baseline conditions and the aquatic injuries to Silver Bow Creek and the River were a major component of the NRD claim. Baseline conditions do not mean pristine condition; they are the condition of the resource had the hazardous substance release not occurred.

Some folks view that these restoration funds should only be spent on river projects. But eligible projects may address other natural resources besides surface water (e.g. wildlife, groundwater) and also replace lost services. The service projects are less oriented towards river's overall health and more oriented to improving the public's use of resources. For example, water supply developments for the communities overlying contaminated aquifers could be funded. However, criteria do establish preferences for those projects that actually restore injured resources and by doing so, lost services provided by those injured resources.

When considering projects that involve improving the river's overall health, interested applicants should pay close attention to the overriding legal threshold on how these funds be spent: To restore or replace injured natural resources and/or services lost as a result of releases of hazardous substances from ARCO and its predecessors' mining activities in the Basin. Some actions may be worthwhile in improving the CFR's overall health but could not be legitimately funded with Restoration Funds.

2. How do you hope to achieve goals?

We hope to achieve goals by developing project evaluation criteria that match the goals and by ensuring selected projects are implemented as approved. We are supported by strict legal restrictions on how restoration monies be spent, and the funding selection process has been developed based on those legal restrictions.

3. How will you evaluate success?

We require that prospective applicants identify specific goals and objectives for their projects, document the likelihood that the project will meet these, and provide a monitoring component to evaluate accomplishment. The *Restoration Plan* also envisions long-term monitoring of injured resources (e.g. whether they are improving or whether there are constraints on recovery), but we have not yet planned that effort. We feel we have time to do so given the on-going Superfund monitoring. Examples of measuring accomplishment of goals on a project specific basis and overall Basin are included in Attachment 4.

4. How will you coordinate with other restoration initiatives?

We currently coordinate with Tribes and DOI through a Memorandum of Agreement; with various stakeholders and the general public through proceedings of the Advisory Council; with EPA and DEQ through our "watch-dog" participation in Superfund processes; with DFWP under terms of the Consent Decree; and with DEQ and DFWP as agency partners with DOJ as NRD Trustee representatives. Some coordination with other initiatives may occur through our criteria evaluations, particularly the Results of Superfund Response Actions; Ecosystem Consideration, Coordination, and Integration; and Matching Funds.

5. How will you involve the public? We provide ample opportunity for public input. A major opportunity for input exists through the proceedings of the Advisory Council, whose mission is to facilitate public dialogue, promote public understanding, and advise the Governor on remediation and restoration activities

in the Basin. There are multiple informal and formal opportunities for public review in the funding selection process – both on pre-draft and draft annual work plans for restoration projects as well as on revisions to the *Restoration Plan*. The Trustee Restoration Council meetings also offer an opportunity for public input. We conduct public outreach such as application workshops. And...the public can submit proposals.

Adaptive Management

Based on lessons learned from what does and does not work well in the Pilot Year, the State, in consultation with the Advisory Council and other entities, will propose revisions to the *Restoration Plan* for the next grant cycle that will be subject of public comment. Stay tuned as we evolve a process that, **combined with other restoration initiatives**, will lead to a healthier UCRFB ecosystem.

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ATTACHMENT 1 – SETTLEMENT SUMMARY

The consent decree up a two step process settling some of the state’s claims against ARCO and setting up a process by which Montana’s remaining claims would be resolved. Therefore, this was called a two step settlement.

STEP 1

Under **STEP 1** of the consent decree, Montana receives from ARCO:

\$15 million for assessment and enforcement costs, which were used to reimburse the state general fund and the coal tax trust fund.

\$118 million and \$2 million in real property to be used to restore or replace the injured natural resources in the Upper Clark Fork River Basin, and services that would have been provided, absent the injury to natural resources.

Step 1 also settled the state’s claims against ARCO for the cost of implementing the Streamside Tailing Operable Unit (Silver Bow Creek) remedy for \$80 million. That money is to be used solely to implement the remedy, as set forth in the ROD, on Silver Bow Creek.

Under **STEP 1**, ARCO received from the state:

A release of Montana’s assessment and enforcement cost claim

A release of Montana’s compensable damage claim

A release of Montana’s restoration damages claims for Butte Hill, Silver Bow Creek, Montana Pole, Rocker, Milltown, and the Anaconda Area (excluding the Uplands area encompassing Stucky Ridge, Smelter Hill, and Mount Haggin.)

For all of the STEP 1 sites, save Milltown, a ROD had been issued at the time of settlement.

STEP 2

Under **STEP 2**, Montana reserved its **restoration** damages claims for Butte Area One, the Clark Fork River, and the Anaconda Uplands. At the time of settlement, a ROD had not been issued for any of these “step 2” sites.

Step 2 of the consent decree also includes an agreement between Montana and ARCO that, following the issuance of each of the RODs for the step 2 sites, the parties would enter into settlement negotiations to attempt settlement of the state’s restoration damages claim for that site. If after 60 days the parties have failed to settle the claim, they would seek a trial date and proceed to try the damages claim for that site. As many of you are aware, subsequent to the settlement, a ROD was issued for the Anaconda Uplands area. The state and ARCO failed to settle the state’s restoration damages claim for this area, and are currently preparing for trial once again.

ATTACHMENT 2 - INJURIES ALONG THE UPPER CLARK FORK RIVER BASIN

AQUATICS

- ✓ ***Surface Water Resources:*** Surface water concentrations of copper and zinc exceed aquatic life criteria virtually all of the time in Silver Bow Creek and periodically along the 120 miles of the Clark Fork River.
- ✓ ***Sediments:*** Sediments are highly contaminated along Silver Bow Creek and the Clark Fork River. Bed sediments contain copper concentrations that exceed baseline conditions by, on average, factors of 25 on the Clark Fork River and a factor of 500 on Silver Bow Creek.
- ✓ ***Benthic Macroinvertebrates:*** Benthic Macroinvertebrates contain elevated concentrations of metals in both Silver Bow Creek and Clark Fork River. Particular species have been reduced in quality, or along Silver Bow Creek, eliminated.
- ✓ ***Fish:*** Trout populations are absent from Silver Bow Creek and are about one-fifth of the population found in Clark Fork River baseline streams. Silver Bow Creek should contain about 190 trout/mile according to the 1994 survey. Clark Fork River has lost about 1100 fish/mile. The average trout population in the 1994 sampling was only 250/mile on the Clark Fork River whereas baseline is 1350/mile.
- ✓ ***Services:*** The services lost or impaired by aquatic injuries include lost fishing and many other recreation opportunities that accompany fishing such as boating, hiking, camping, and observing wildlife.

TERRESTRIAL

- ✓ ***Aquatic terrestrial injuries:*** 750 acres of floodplain along Silver Bow Creek and 215 acres along Clark Fork River (Warm Springs Ponds – Deer Lodge) contain tailings which have eliminated riparian wildlife habitat. There are additional acres of floodplain on Silver Bow Creek and Clark Fork River which contain metals enriched soils which are a source of metals to surface water and are phytotoxic to vegetation. Baseline vegetation contains a mixture of riparian forest/shrub communities and agricultural land uses.

Populations of otter, mink and raccoons have been eliminated from Silver Bow Creek and severely reduced in the Clark Fork River. Baseline reference sites on the Big Hole River had significantly more sign of otter, mink and raccoon. Populations of other types of wildlife have also been significantly reduced along Silver Bow Creek and Clark Fork River.

- ✓ ***Opportunity ponds:*** Riparian resources (soils, vegetation, wildlife and wildlife habitat) have been lost on the 3400 acre ponds.
- ✓ ***Upland terrestrial injury:*** Approximately 17.8 square miles (11,366 acres) of upland soils, vegetation, wildlife habitat, and wildlife have been injured. These phytotoxic soils are lacking major indigenous plant associations. These areas are Mount Haggin (6.7 square miles); Smelter

Hill (7.2 square miles); and Stucky Ridge (3.8 square miles). As a result, wildlife populations in these areas have been significantly reduced.

Baseline areas have vegetative cover consisting of approximately 70% forest and 30% grassland for the Mt. Haggin and Smelter Hill areas. Stucky Ridge area was mostly grassland.

- ✓ **Services:** The services lost or impaired due to injuries to vegetation, wildlife and wildlife habitat include the many activities that revolve around them, such as hunting, birdwatching, hiking, observing wildlife and general recreation.

GROUNDWATER

- ✓ **Butte Area:** The bedrock groundwater injury covers 7 square miles (4500 acres) and has a volume of some 250,000 acre feet. Less than half of this injured groundwater is in the Berkeley Pit at the present time. However, when the critical water level is approached the volume of contaminated ground water in the pit will exceed the total volume of contaminated bedrock groundwater in the aquifer outside of the pit.

The alluvial groundwater in the Butte Hill area has some 5000 injured acre feet over a square mile. Injury at Butte=s Area One alluvial aquifer also extends over a mile and is some 10,000 acre feet in volume.

The groundwater in both the alluvial and bedrock aquifers contain groundwater concentrations many times over baseline for arsenic, cadmium, copper, lead, zinc, sulfate, iron and manganese.

- ✓ **Montana Pole & Rocker:** Montana Pole has 350 acre feet of groundwater injury (organics) over 44 acres. Rocker has 190 acre feet of injury (organic and inorganic) over a 26-acre area.
- ✓ **Anaconda Area:** Groundwater contamination (inorganics) at Anaconda extends over 40 square miles (25,000 acres) and totals more than 400,000 acre feet. Most of the injury is in the alluvial aquifer, with the remaining injury found in the Bedrock. Exceedences of drinking water standards exist for arsenic, cadmium, iron, manganese, sulfate, zinc, and TDS. EPA has found more groundwater contamination in the upland bedrock areas since the State=s injury report was released.
- ✓ **Milltown:** The volume of injured groundwater at Milltown is approximately 6500 acre feet and extends over about 110 acres. Drinking water exceedences exist for arsenic, iron and manganese.
- ✓ **Services:** Services lost or impaired by injuries to groundwater include domestic and industrial consumption and uses.

ATTACHMENT 3 UCFRB RESTORATION PLAN

For more detailed information, refer to the:

- February 2000 *UCFRB Restoration Plan Procedures and Criteria*
- February 2000 State of Montana's *Responses to Public Comment on the UCFRB Restoration Plan Procedures and Criteria*

The following are the 5 steps of the NRPD grants selection process and entities involved in that funding selection decisions.

- a. Phases
 1. Minimum Qualification Screening
 2. Project Evaluation and Ranking
 3. Pre-Draft Restoration Work Plan
 4. Draft Restoration Work Plan
 5. Final Proposed Restoration Work Plan to Governor
- b. Multiple Entities Involved:
 1. NRDP and other state entities
 2. Advisory Council (citizens appointed by governor)
 3. Trustee Restoration Council (DEQ, DNRC, DFWP)
 4. federal agencies (EPA, DOI, Tribes)
 5. general public

Project Criteria Summary (summarized from Feb. 2000 *Procedures & Criteria*)

Threshold criteria: Projects must restore or replace injured natural resources or lost services.

"Balancing Criteria": The existing criteria give preference to projects that:

- are technically feasible
- are cost effective
- have a positive impact human health or the environment
- meet applicable policies, rules, laws
- have a reasonable cost/benefit relationship
- actually restore an injured resource
- are closest to areas of injury
- coordinate with ongoing or planned remedies
- connect services lost to services restored
- benefit the original user group (person or natural resources)
- are integrated with other restoration efforts in the Basin
- share project costs
- have public support

ATTACHMENT 4 – DRAFT VISION STATEMENT AND GOALS

4/7/2000 Draft Vision Statement being considered by State and UCFRB Advisory Council

“The Upper Clark Fork River Basin Remediation and Restoration Education Advisory Council supports investing restoration funds into returning the UCFRB to a healthy ecosystem by restoring the natural resources and quality of life damaged by mining operations in the Basin. Restoration funds must be spent on projects that restore or replace natural resources which were injured and/or services which were lost or impaired as a result of releases of hazardous substances from ARCO’s and its predecessors mining and mineral processing activities in the Upper Clark Fork River Basin. In determining restoration priorities, the Council advocates an ecosystem approach to restoration that views each restoration project as part of a whole basin effort. Restoration projects should not interfere with on-going natural resource damage litigation.”

Draft General Goals

The following are the general goals for restoration projects in the Basin. These goals are for the entire Basin, not just the Clark Fork River. Baseline conditions are set out by the State in its litigation documents, particularly the 1995 Restoration Determination Plan. In those documents, the State recognizes that restoration to baseline conditions will take decades to centuries and may never occur in some injured areas such as the bedrock aquifers in Butte and Anaconda.

- Improve surface water quality to baseline conditions.
- Improve aquatic habitat and fisheries to baseline conditions.
- Increase instream flows to help improve surface water quality and support native fisheries.
- Improve riparian and upland area wildlife habitat and wildlife to baseline conditions.
- Improve groundwater quality.
- Improve or provide replacement of recreational services lost or impaired in riparian and upland areas.
- Improve or provide replacement of lost groundwater use services.

Measuring Accomplishment of Goals

Examples of measuring goal realization on a project specific basis and overall Basin basis include:

- reduction in pollutant levels in surface waters
- volume of surface water improved
- increase in instream flows
- miles of restored aquatic habitat (e.g. spawning, rearing, overwintering habitat)
- increases in fish density
- reduction in pollutant levels in groundwater
- volume of groundwater improved
- acres of restored wildlife habitat
- acres of restored native vegetation
- increase in wildlife variety and density
- increase in recreational uses, users, and access
- increase in groundwater uses and users