

BEIPC Coeur d'Alene Basin Calendar Year 2007 Work Plan



Success Mine

INTRODUCTION

This plan covers environmental cleanup and improvement activities in the Coeur d'Alene Basin scheduled for CY 2007 by the Basin Environmental Improvement Project Commission (BEIPC) in accordance with its responsibilities as stated in the Memorandum of Agreement (dated August 2002). Actions noted in the plan are intended to implement the goals and objectives of the BEIPC's 2006-2010 5-Year Work Plan. This plan has been prepared by the Technical Leadership Group (TLG) and the Executive Director with review by the Citizen Coordinating Council (CCC), and is based on their recommendations for activities and work to be performed in CY 2007. The organization of the work plan is a reflection of the funding sources for the work. This work plan for 2007 is organized as follows:

Part 1 – Work Funded with Superfund or Other Cleanup Monies

Part 2 – Activities and Work Funded Through the Clean Water Act (CWA) Grant Program

Part 1 of this document includes proposed work for CY 2007 to implement the Operable Unit #3 Record of Decision (ROD) for the Coeur d'Alene Basin to be funded by the U.S. Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Superfund program or other environmental cleanup funding. As previously defined in the CY 2006-2010 five-year work plan, the human health remedy is established as a top priority with other environmental cleanup activities included where appropriate. Part 1 also contains information concerning the correlation between some of the work currently being performed under Part 2 and future work to be performed under Part 1.

Part 2 of this document addresses the work to be accomplished in CY 2007 with CWA Grant Funding. In Fiscal Years 2002, 2003, and 2004, funding under the CWA was provided for the BEIPC to be used for “...research, investigation, experiments, training, demonstrations, surveys, and studies related to the causes, effects, extent, prevention, reduction, and elimination of pollution.”

The five-year plan outlines activities and work proposed to be implemented over the next five years; however, it does not sequence these activities. This one-year plan establishes and maintains the sequencing of activities that will be needed to complete the activities and work approved in the five-year plan, but it may not address all work items noted in the five-year plan because some will not be initiated until later years in the five-year plan.

PART 1 – OU-3 ROD WORK FUNDED WITH SUPERFUND OR OTHER CLEANUP FUNDING

Funds made available through EPA's CERCLA appropriations are available for environmental remediation on privately owned lands and state, county and local government owned properties. EPA's CERCLA funds cannot be used for cleanup of sites on public (Federal) land. Work proposed on public lands is the responsibility of the federal land management agencies. The State of Idaho is supplying funding through the Idaho Department of Environmental Quality (IDEQ) for environmental cleanup activities.

For Part 1, the scope of the proposed work corresponds to the level of funding and the funding sources anticipated from EPA and State funding for CY 2007 for implementation of the ROD. The proposal includes the following OU-3 ROD work to be funded with Superfund or other cleanup monies:

- Evaluation of OU-3 Removal Actions
- Development and management of Repositories
- Implementation of the Institutional Controls Program for OU-3.
- Remediation in the Residential and Community Areas
- Remediation of Drinking Water Supply Problems

- Remediation in Lower Basin Recreational Use Areas
- Remediation of Mine and Mill Sites in the Upper Basin
- Preliminary ecological actions in the Upper Basin
- Preliminary ecological actions in the Lower Basin
- Basin Environmental Monitoring

Part 1 also includes the following items:

- Implementation of the Phase II Component of Overall OU-2 (Box) Remedy
- Coordination with the EPA Five-Year Review
- Consideration of the National Academy of Sciences Study

Table 1-1 is a summary of activities scheduled for CY 2007 to be funded with Superfund or other cleanup monies. More detailed descriptions of the activities follow the summary table.

Table 1-1 Summary of Activities Proposed for Implementation of the ROD for CY 2007

Proposed Activity	Scope	CY 2007 Objective	Lead Agency
Evaluation of PRE ROD OU-3 Removal Actions (see EPA 5-year Review Report)	Various parties have performed CERCLA removal actions. Results of these activities need to be evaluated and if warranted, incorporated into the OU-3 remedial action program.	Continue evaluation of these sites in context of the ROD and its schedule and incorporate into remedial action program as warranted.	EPA, IDEQ, BLM, USDA Forest Service, CDA Tribe
Repositories	Develop, as needed, repositories to support remediation and Institutional Controls Program (ICP). Plan, secure properties and be ready for remediation and ICP waste in Upper and Lower Basin anticipated in the next 5-10 years.	Utilize Big Creek for Basin remediation and ICP waste. Complete East Mission Flats (EMF) 30% design memo and evaluate short-term geographical repository needs to determine next siting activities. Complete ICP Waste Transfer Station Feasibility Study and Analysis.	IDEQ and EPA
Basin Contaminant Management and Institutional Controls Program (ICP)	Develop a program to manage activities in OU-3 to protect remediated areas from recontamination and to protect human health and the environment in areas requiring cleanup actions where no remedy is yet in place.	Present the ICP Rule to the Legislature for approval and implement the ICP in the CDA River Watershed portion of OU-3. Contaminant Management PFT to develop final recommendations for additional management of contaminants in CDA Lake and Spokane River portions of OU-3 by March 31.	IDEQ, PHD, CDA Tribe

Proposed Activity	Scope	CY 2007 Objective	Lead Agency
Residential and Commercial Area Sampling and Remediation	Protect human health by continuing property sampling and property remediation program.	Complete sampling on approximately 1000 properties and remediate 300-400 properties in CY 2007.	IDEQ
Drinking Water Supply	Protect human health by providing adequate drinking water supplies by continuing the sampling and remediation program.	For properties sampled in CY 2007 with private drinking water supplies, sample water supplies and implement remediation actions if necessary.	IDEQ
Recreational Areas	Continue to identify contaminated recreation use areas along the CDA River and remediate areas or develop substitute clean areas. Develop a Lower Basin recreational management plan.	Update contaminated recreation use area inventory. Begin the Lower Basin recreational management planning process. Complete work noted in Table 1-2 for CY 2007.	EPA with state and federal land management agencies
Mine & Mill Sites	Cleanup priority sites that contribute to human health risks, are currently utilized for recreation activities, and contribute to water quality impacts. Continue to evaluate and prioritize additional mine and mill sites identified in OU-3 ROD and begin designs so remedial actions can be initiated as funds become available.	Complete Phase 2 remedial actions at Golconda site and remedial actions at Rex Site. Complete design and begin remedial action at USBM site and prepare priority list for remaining sites noted in the ROD.	EPA, IDEQ. With BLM in Pine & Ninemile Creeks.

Proposed Activity	Scope	CY 2007 Objective	Lead Agency
Phase II Component of overall OU2 remedy	The effectiveness evaluation of the Phase I source control and removal activities to meet water quality improvement objectives for the OU-2 ROD will be used to determine appropriate Phase II implementation strategies and actions. Implementation of future Phase II remedial action may require a ROD amendment and a State Superfund Contract (SSC) between EPA and IDEQ.	In early 2007, the updated water quality analysis and OU2 Phase I Remedial Action Assessment report will be available.	EPA, IDEQ
Blood Lead Screening in Children	The Human Health PFT will explore alternative approaches to integrating universally available blood lead testing into the regular health care services received by Basin children aged 1-4 years with a part of the work being to identify an education outreach program. Such exploration will include examining alternative methods for implementing an integrated blood lead testing approach as reflected in those present in other states elsewhere in the nation. The goal will be to craft a two-year pilot program for the delivery of blood lead testing via this new approach. This goal may be modified as the Human Health PFT works on this issue.	The Human Health PFT will build on its work of 2006 to increase the number of children participating in the blood lead screening program. The work will include improving outreach and recruitment efforts to families with small children, exploring options for working with Medicaid to increase physician testing for blood lead, and identifying alternative testing methods to increase the efficiency of testing. The Human Health PFT will provide a proposed two-year work plan to the BEIPC in early 2007 to increase participation in the child blood lead screening program. As part of that proposal, the Human Health PFT will request that community leaders and elected officials encourage participation in the screening program.	IDEQ PHD

Proposed Activity	Scope	CY 2007 Objective	Lead Agency
Upper Basin Ecological Remedies	<p>Continue to evaluate approaches and technologies for water treatment in Canyon Creek that include pilot projects to develop design criteria and operational information. Remediate mine wastes along Denver Creek tributary to Pine Creek.</p> <p>Monitor previous remediation in East Fork of Ninemile, and water treatment pilot projects. Monitor existing growth media plots, assess biostabilization methods and develop media for capping waste material.</p> <p>Plan and prioritize remedial actions for other source areas.</p>	<p>Finalize development of water treatment approaches for surface and groundwater in Canyon Creek. Coordinate work with study performed under the CWA Grant Program. Continue to monitor completed remediation actions in Pine Creek. Complete Golconda and Rex site remediation and other projects noted under the Mine/Mill program for human health remedies. Complete investigation design work for the USBM site. Prepare for remediation in future planning periods.</p>	<p>EPA and IDEQ. With BLM in Pine & Ninemile Creeks. EPA and USFWS have lead in soil cleanup standard.</p>
Lower Basin Ecological Remedies	<p>Develop a pilot project for conversion of agriculture land into waterfowl habitat. Complete a pilot project on soil amendment to reduce bioavailability of lead. Design wetland remediation approach. Perform numerical modeling of River processes and sediment. Collect data on river bank conditions and metal concentrations. Monitor bank stabilization pilot projects and evaluate effectiveness. Develop lead cleanup level for riparian soil. Incorporate findings from AVISTA studies into remediation strategies. Develop lead cleanup level for riparian soil.</p>	<p>Continue to implement the Lower Basin CWA sub-grant projects and monitor the results to have a better understanding of the complex and dynamic system in the Lower Basin. Complete development of the lead cleanup level for riparian soils. Continue EPA and USFWS collaboration on perpetual protection, conversion and remediation of agricultural land, followed by restoration to wetland habitat ecologically safe for use by waterfowl.</p>	<p>EPA, IDEQ, USFWS and Coeur d'Alene Tribe</p>

Proposed Activity	Scope	CY 2007 Objective	Lead Agency
Basin Environmental Monitoring	Continue to implement long-term monitoring and make results available via www.storet.org . Implement remedial action effectiveness monitoring as appropriate.	Assess the effectiveness of remedial actions and trends in overall ecological improvement due to remediation and natural attenuation. Public outreach needed to assist in data access.	EPA working with other agencies including IDEQ, USFWS, and USGS

1.1 EVALUATION OF PRE ROD OU-3 REMOVAL ACTIONS

Various parties have performed CERCLA removal actions in Basin sub-watersheds including Canyon, Ninemile, Pine, Moon, and Grouse Creeks and along the Upper South Fork and Lower Main Coeur d'Alene River to cleanup contamination, protect human health and restore ecological systems. During 2007 existing information for these sites will be collected and incorporated into the database developed for prioritizing the mine and mill site work. This will facilitate the review of existing information and prioritization of further data collection in order to evaluate the status of these sites in the context of the OU-3 ROD and if warranted, incorporation into the OU-3 remedial action program.

1.2 REPOSITORIES

Repository development is an ongoing process that must address the demand for waste disposal space generated by remedial actions and the Institutional Controls Program (ICP), or the entire clean up is compromised and potentially stopped. IDEQ is the lead in developing repository options and the effort is coordinated with and funded by the EPA.

During 2007, the Big Creek Repository (BCR) will continue to be used for the residential and community remediation program. Closure activities will begin for the BCR no earlier than 2010. This is based on the assumption that the BCR will receive 50,000 cu yds of material or less each year. As a result of raising the power lines, as of the end of the 2006 field season there is an estimated 300,000 cu yds of repository capacity remaining in the BCR. Depending on remedial cleanup volumes this could require that in the latter part of 2010 a new repository site be on-line to facilitate the residential and community remediation program in the upper basin. The 2007 objective is to determine the long-term repository needs projections for remediation activities in the Upper Basin and Lower Basin and determine the best options for meeting those projected needs.

The East Mission Flats Repository (EMFR) site is now owned by the IDEQ and operations will be based on need for disposal in the Lower Basin. Currently the 30% design document is being prepared for the EMFR and will be available for review by the Repository Project Focus Team (PFT) and the TLG in the first quarter of 2007. If there is a justifiable need, final design would be necessary for the EMFR site to accept wastes and could be completed in the latter part of the calendar year 2007.

In support of the ICP, IDEQ and EPA are evaluating a preliminary feasibility study and analysis of ICP waste transfer stations at various locations around the Coeur d'Alene Basin to accommodate small quantity ICP wastes. The feasibility study will include recommendations for station locations accessible for communities and/or rural residential areas. It will also include conceptual designs of transfer stations that could be constructed of temporary features that would be operated for an appropriate period of time contrasted to repositories that are permanent fixtures. Information gathering on the siting and operation of transfer stations will be coordinated with Shoshone and Kootenai

Counties, to explore their experiences in construction, operation, management and closure of municipal waste transfer stations. The ICP Waste Transfer Station Feasibility Study and Analysis will be produced for the Repository PFT and TLG to review.

1.3 HUMAN HEALTH ISSUES

Remediation of human health exposures is a remedial action priority as defined in the OU-3 ROD. It includes developing and maintaining an ICP as outlined in Sub-section 1.3.1 and conducting cleanup in residential and community areas as well as recreational areas. The ROD also identifies mine and mill sites that are used for recreation and represent risks to human health.

1.3.1 Contaminant Management and Institutional Controls Program (ICP)

The ROD for OU3 states in Section 12, page 12-12 that institutional controls will be required to limit future exposures to contaminated soil left in place and groundwater not addressed by the Selected Remedy. The ROD, Section 12, page 12-2 states that the Selected Remedy does not include remedial actions for Coeur d'Alene (CDA) Lake.

ICP Rules for an administrative area from the confluence of the CDA River and CDA Lake to the headwaters of the South Fork CDA River in OU-3 have been approved by the BEIPC and Panhandle Health District (PHD) Board and submitted to the Legislature for approval. When approved, PHD will implement that ICP program in conjunction with the program in OU-1 and 2.

The BEIPC has requested the formation of a Project Focus Team (PFT) to study the need for contaminant management on a site specific basis in the CDA Lake and Spokane River portions of OU-3. The PFT began work in August 2006 and will be working with the TLG, CCC and BEIPC to formulate final recommendations concerning the need for further contaminant management by March 31, 2007. The need for further action will be determined after these recommendations have been presented to the BEIPC.

1.3.2 Residential and Commercial Property Remediations

During 2007 IDEQ plans to remediate 300-400 properties. The properties will be located mainly in target areas including the upper CDA Basin. During the spring and fall areas located at lower elevations will be targeted. High risk properties will be the top priority for remediation and IDEQ expects about 1/3 of the properties will be classified as high risk. High risk properties are those properties on which children less than 7 years of age or pregnant women reside.

The health and safety of the public, staff, contractors, and consultants is an important component of the remediation program. That component will again be emphasized in 2007.

Each year DEQ plans to sample approximately 1,000 properties to allow for planning for the current and future year remediation efforts.

1.3.3 Recreational Use Areas

The OU-3 ROD includes remediation of Lower Basin recreational use areas to reduce human exposure to lead and other metals. Some priority recreational use areas were identified in the ROD with the understanding that other recreational areas may be evaluated for cleanup based on factors such as risk of exposure, location and use.

The remediation and development principles identified by the Recreational Area PFT (below) remain valid and appropriate for the 2007 work plan:

- Primary objective is to protect human health, particularly young children and pregnant women.
- Work with impacted communities and local residents when considering recreational site development.
- Design to minimize long-term operation/maintenance costs and repository requirements.
- Create clean oases for public use (based upon community interests).
- “Reality check” of the scale and scope of what can be done.
- Build upon existing features to enhance use and reduce risks to human health.
- Provide enough amenities to attract folks to clean “safe” areas; do not create attractive nuisances or beautification-only projects.
- Design individual recreational sites to be consistent with an overall strategy for Basin recreational areas.

The PFT is using a two-stage approach to address recreational areas.

Stage 1 – Recreational Areas Identified for Action - The first stage is remediation at existing publicly-owned recreational sites selected from those identified in the ROD. The areas proposed for remediation are existing recreation areas with a potential for a low-maintenance remedy that will be protective of human health.

Table 1-2 identifies recreational sites identified as candidates for action under the 2007-2011 planning period.

Table 1-2 Recreational Use Area Actions

Site Name	Land Manager/ Owner	Proposed Actions
Medimont Boat Launch Area and Rainy Hill Camping Area (on uncontaminated hill)*	Forest Service	-Continue to pursue land exchange and complete legal documentation by December 31, 2007. If land exchange does not occur, continue to pursue funding to pave boat launch. -In the interim, continue day use only limitation.
East of Rose Creek/West of Rose Lake	Forest Service	-Install warning sign visible from river (current sign visible from road only).
Anderson Lake Boat Launch**	Idaho Dept. of Fish and Game	- Consider improvements in conjunction with Hwy 97 bridge replacement (scheduled for 2006-2008)

* The FS and State of Idaho are pursuing a land exchange for the State to acquire FS managed lands in the Rainy Hill/Medimont area in exchange for natural resource lands at other locations in Idaho.

**The Anderson Lake Boat Launch is immediately upstream of the Idaho Highway 97 Bridge across the Coeur d'Alene River. The Idaho Transportation Department (ITD) has started construction of the bridge and approaches. The new bridge approach eliminated the access road to the boat launch. ITD is constructing a new approach in conjunction with the bridge project. EPA is deferring any decisions regarding additional remedial action work at the Anderson Lake Boat Launch so that efforts can be coordinated with the bridge replacement. EPA will continue to stay abreast of ITD's activities to the extent that they may influence the Superfund remedy.

Stage 2 – Lower Basin Recreational Management Plan – During the 2007-2011 planning period, the PFT will complete development of a Lower Basin Recreational Management Plan involving agencies, local communities, impacted land owners and other stakeholders. Many agencies and entities, including BLM, Idaho Fish and Game (IDFG), the CDA Tribe, Idaho Department of Parks and Recreation (IDPR), Kootenai County Parks and Waterways, and FS, manage recreational sites in the Lower Basin. All entities will benefit from the establishment of a coordinated plan to administer recreational areas.

In 2007, the PFT will update as needed the contaminated recreation use area inventory, identify what additional sites may be candidates for action, and initiate the Lower Basin recreational management planning process.

1.3.4 Mine & Mill Sites

The OU-3 ROD identified a number of mine and mill sites with potential for human health exposures, primarily from recreational use. Prioritization of mine and mill sites in

the Upper Basin is primarily based on risks of lead exposure to recreational users. Remedial designs will address these risks as well as any impacts to water quality. The mine and mill sites listed in the ROD that appeared to represent a potential risk to human receptors are as follows:

- Day Rock in Nine Mile Creek
- Upper and Lower Constitution, Highland Surprise, Nabob, Nevada Stewart, Hilarity, in Pine Creek
- Standard Mammoth, Sisters and Burke Concentrator in Canyon Creek
- Hercules, USBM, and Silver Dollar in South Fork
- Golconda, Morning No. 6, and National in the Upper South Fork
- Rex mill site in the east fork of Nine Mile Creek (added subsequent to the ROD)

The Constitution tailings piles, the Rex mine and mill site, the Golconda site, and the Sisters waste rock dump were identified in 2003 as initial priorities. These four sites were incorporated into the BEIPC five-year work plan. Construction at the Sisters site was completed in 2005. Work at the Constitution site included consolidation of the mine tailings from the upper and lower mine sites into a single repository at the Upper Constitution Mine. Construction began in the summer 2006 and was completed in October 2006.

Phase I work at the Golconda site involved an interim action to address the adit flow and surface water runoff. The design for this work was completed by the EPA in early 2006. The construction was completed by IDEQ in the spring of 2006. The design for the Phase II work was completed by EPA in July 2006. Construction started in the fall 2006 with completion scheduled in spring 2007.

Design work for the upper Rex site is nearing completion and construction is scheduled for the summer of 2007. In July 2006 EPA completed the design for the toe buttress. The construction for this element of the project was conducted by the BLM.

At the USBM site pre-design data gathering began in the September 2006. This will be followed by development of a design and construction start in 2007.

Looking ahead to the later years of the five-year plan, the Mine & Mill Site PFT will continue to evaluate the other sites identified in the OU-3 ROD that have a potential for human health exposure from recreational use. Using the factors listed above, the PFT will prioritize sites for initiation of remedial designs including the collection of pre-design field data. Initiation of designs and remedial actions will be contingent on available funding. Further prioritization of mine and mill sites and removal sites began in the fall 2006 with the implementation of an inventory that would list sites, identify existing data and any data gaps, identify responsible entities and property owners etc. This tool would help prioritize sites for further investigation and cleanup work as funds become available.

1.3.5 Blood Lead Screening in Children

Screening of children for elevated blood lead levels has been occurring annually in the CDA Basin since 1996. The purpose of the screening is to identify children with elevated blood lead levels and provide follow-up from a public health professional to identify ways to reduce lead exposures. The screening program also provides data to inform the Basin Superfund cleanup efforts.

It is recognized that the number of children participating in the screening program falls far short of the number of eligible children in the CDA Basin. As part of the Basin Superfund project, the Panhandle Health District, Idaho Department of Health and Welfare (IDHW), Idaho Department of Environmental Quality (IDEQ), Agency for Toxic Substances and Disease Registry (ATSDR), and the Environmental Protection Agency (EPA) have sustained ongoing efforts to encourage child participation in the screening program. The importance of this effort to encourage participation was further highlighted when the National Academy of Sciences recommended that “blood lead screening of all children aged 1-4 years living in the basin be initiated in conjunction with local health care providers. Results should be used to evaluate the efficacy of the environmental interventions.”

Comment [DHW1]: Do we need to keep it restricted to the basin or do you mean both box and basin when you refer to the superfund project?

Consistent with the 2006 BEIPC Workplan, the Human Health PFT will build on its work of 2006 to increase the number of children participating in the blood lead screening program. The work will include improving outreach and recruitment efforts to families with small children, exploring options for working with Medicaid to increase physician testing for blood lead, and identifying alternative testing methods to increase the efficiency of testing.

The Human Health PFT will provide a proposed two-year work plan to the BEIPC in early 2007 to increase participation in the child blood lead screening program. As part of that proposal, the Human Health PFT will request that community leaders and elected officials encourage participation in the screening program.

1.4 ENVIRONMENTAL REMEDIATION ISSUES

Environmental remediation issues under consideration by the BEIPC include involvement in the OU-2 Phase 2 remedy implementation as well as environmental remediation work in the Upper and Lower Basin described in the ROD for OU-3.

1.4.1 Upper Basin Ecological Remedies

This work includes remediation identified for Ninemile Creek, Pine Creek, Canyon Creek and the South Fork. Remediation in these areas is tied to benchmarks established in the ROD that are directed toward improvements in water quality and in the fishery.

Priorities proposed in this plan for improvement in water quality and fisheries habitat are water treatment in Canyon Creek, and remediation of mine wastes along Pine Creek.

Treatment in Canyon Creek was selected as the priority action because it is expected to provide the greatest reduction of dissolved zinc and cadmium in the South Fork of the Coeur d'Alene River upstream of OU-1 and 2 (the Box). Remedial actions in Pine Creek were selected as the priority because this drainage provides the best opportunity for meeting fisheries benchmarks specified by the ROD in the near term.

Water Treatment - Treatment of water in Canyon Creek is proposed as the remedial action priority for reduction of dissolved metals in the South Fork above the Box. To reduce zinc loads to the South Fork Coeur d'Alene River, the OU-3 ROD calls for treatment of Canyon Creek surface water near the mouth of the creek. A great deal of the metals loading in the surface water comes from contaminated ground water in the watershed. Water treatment technology assessments, groundwater modeling, and monitoring are underway for surface and ground water focusing on developing the most cost-effective long-term solution to improving water quality from Canyon Creek that will meet the goals of the OU-3 ROD.

Based upon preliminary studies and current information the approach to treatment of Canyon Creek water continues to evolve. The current approach is to evaluate the ability to treat groundwater in order to achieve the goals of the ROD. If this proves to be feasible it is possible that several technologies, either active or passive, could be used in series or parallel to treat Canyon Creek groundwater. The ongoing studies and evaluation are essential to the selection, design, and construction of any eventual water treatment system for Canyon Creek. See Part 2, CWA grant project, Canyon Creek Treatability Study.

During 2007 the modeling, monitoring, and technology evaluations will be completed. Based upon the findings of this work and community and PFT involvement, a remedial design for the most favorable technology and approach will begin in Summer 2007. Construction of a treatment and conveyance system will be contingent on funding and a State Superfund Contract for this work.

Fishery Habitat Improvements - Pine Creek is a priority area for improvement of fish habitat. Implementation of the remedy selected in the ROD is expected to significantly improve 3.5 miles of habitat. These improvements are expected to allow natural increases in salmonid populations and enhance spawning and rearing. EPA and BLM are the lead agencies for remedial actions in Pine Creek. BLM has already done a significant amount of stream and mine site stabilization on public and private lands in Pine Creek. BLM is developing a master stream stabilization plan. Cleanup in Denver Creek and the Upper and Lower Constitution tailings piles are a first priority. The potential exists for BLM to contribute funds to projects in the Pine Creek watershed if performed as joint-funded efforts along with BEIPC directed projects.

In addition to technology evaluation for water treatment in Canyon Creek and remedial designs for mine and mill sites, many remedial actions identified in the ROD will require additional information and analysis to support design and remediation. Development of

necessary information and understanding in the near term will allow efficient implementation of remedial actions in future years.

Recommended work to be completed in 2007 in support of future remedial actions:

- Continue to develop a plan and monitor effectiveness of the remediation done at Interstate and Success in Nine Mile Creek.
- Complete evaluation of water treatment projects including the Success passive apatite barrier.
- Monitor the BLM and Success Mine water treatment pilot plants with incorporation of the findings into treatment technology assessments and design.
- Continuing monitoring performance of the growth media plots constructed in 2002 at the Silver Dollar Mine.

1.4.2 Lower Basin Ecological Remedies

In the 2004 work plan, it was noted that a better understanding of the complex and dynamic system in the Lower Basin and sound answers to these questions were necessary before a sequence of remedial actions could be recommended. The ecological work described in the ROD for the Lower Basin includes actions for the wetlands and lateral lakes, the river banks, splay areas and river bed. The objectives of remediation in the Lower Basin focus on improving wildlife habitat and reducing particulate lead in the Coeur d'Alene River.

As indicated in the 2005–2009 Work Plan, EPA will be developing a cleanup level for riparian soils. The U.S. Fish and Wildlife Service (USFWS) completed data collection through an interagency funding agreement with EPA. During 2007, the EPA, USFWS and EPA's contractor will be developing a risk-based soil cleanup level that is protective of riparian ground-feeding songbirds.

Many other issues and uncertainties pertaining to the implementation of remedial actions in the Lower Basin have been raised. Some lack of data continues to exist pertaining to the complex ecology of the Lower Basin and the combined effects of mining related contamination. Clean Water Act sub-grants were approved by the BEIPC to provide site-specific information required to make sound ecological remedial management decisions. In 2007, a major focus will be to complete these studies and demonstration projects and monitor the effectiveness of already completed CWA sub grant projects.

EPA used Coeur d'Alene Basin Superfund settlement monies to purchase a conservation agreement with a willing private property owner in April 2006. The agreement was established to help meet OU3 ROD goals in establishing safe waterfowl feeding habitat in the Lower Basin. Other parties participating in agreement negotiations included USFWS and Ducks Unlimited. Remedial actions on the property include the conversion of approximately 400 acres previously used for agriculture to safe wetland and upland habitat providing waterfowl feeding areas with mining-related metals concentrations below those shown to cause negative physiological effects in waterfowl. Natural

resource restoration has also been proposed for the property following remediation. Phase I of the remedial action construction started in September 2006 using Asarco Trust settlement funds. EPA anticipates completion of the remedial action in 2007.

However, despite the large extent of mining-related contamination, resulting negative ecological effects previously documented, and work described in the ROD, no additional remedial action Superfund money is currently designated for Lower Basin ecological remedies. EPA Region 10 is receiving funding for human health remedies in OU-3 but not for Lower Basin ecological remedies. In order to fully implement the interim ROD, funding from the EPA Superfund program and other sources will be needed. The BEIPC will support EPA Region 10 in an effort to secure Superfund funding from EPA Headquarters and will have the Funding PFT working on outside source funding for ecological remedies.

1.5 BASIN ENVIRONMENTAL MONITORING

Basin Environmental Monitoring Plan (BEMP) - Implementation of the long-term status and trends basin environmental monitoring program (BEMP) will be continued in 2007 with EPA funding. Establishment of a basin-wide environmental monitoring plan is required under the OU-3 ROD. The monitoring program is critical to the successful implementation and evaluation of the Selected Remedy. EPA worked with the Monitoring PFT to develop the Basin-wide environmental monitoring program. The Monitoring PFT, TLG and key stakeholder agencies concurred that the BEMP is appropriate given available funding to obtain technical data for assessment of long-term status and trends, evaluation of overall effectiveness of the Selected Remedy, evaluation of progress toward cleanup benchmarks, and future Five-Year reviews. EPA will continue to make analytical results from site surface water, soil and sediment sampling available on the web-accessible data management system (www.storet.org); human health-related data will not be included in this database. EPA will assist interested stakeholders in accessing the information.

Remedial Action Effectiveness Monitoring - Action-specific effectiveness monitoring will focus on areas that have been addressed by remedial actions (e.g., tributaries, river reaches, etc.). The purpose of the effectiveness monitoring is to assess the success and effect of a given remedial action. By comparison, the BEMP will address basin-wide status and trends by monitoring a limited number of strategic locations. Both the remedial action-effectiveness and long-term monitoring plans will be integrated by coordinating monitoring to generate comparable data (same timeframe or synoptic) and using common sampling locations, where possible. Effectiveness monitoring, while not detailed in the BEMP, will incorporate similar monitoring hypotheses as those included in the BEMP. The adaptive management approach will maximize the utility of effectiveness monitoring data through comparison of results to expectations.

Remedial action effectiveness monitoring in OU-3 will be included in the designs and implementation plans for ecological-related remedial actions. In 2007, remedial action effectiveness monitoring plans will be established for several mine and mill sites,

including Golconda, Rex and Constitution. In addition, monitoring plans may be established for the Canyon Creek water treatment project, Success treatment system, and the US Bureau of Mines site. The remedial action effectiveness monitoring will continue at the human health-related remedial actions recently implemented at the East of Rose Lake Boat Launch and Highway 3/Trail of the Coeur d'Alenes Crossing site.

1.6 PHASE II COMPONENT OF OVERALL OU-2 REMEDY

As part of the State Superfund Contract (SSC) for OU-2, a Comprehensive Cleanup Plan (CCP) was developed to define a path forward for remedy implementation in OU-2. The CCP calls for a phased approach to implementing the OU-2 remedy. In Phase I, the focus is on remedial actions aimed at removing and consolidating extensive contamination from various site areas, demolition of structures, development and implementation of an ICP for OU-1 and OU-2, future land use development, and public health response actions. Phase I work also includes support studies for long-term water quality improvement and evaluation of Phase I remedial action effectiveness.

Phase II of the OU2 remedy will be implemented following completion of source control, removal activities and evaluation of the effectiveness of these activities in meeting water quality improvement objectives. Phase II will consider any shortcomings encountered in implementing Phase I and will specifically address long-term water quality, ecological and environmental management issues. Both ROD and SSC amendments will be required prior to implementation of any Phase II remedial actions. EPA and IDEQ are the responsible parties for modifying the ROD and negotiating a State Superfund Contract.

Per the motion passed by the BEIPC in August 2005, the Commission will participate in future Phase II activities in OU-2 by providing technical input into the remedy alternative development and selection (including evaluation of technical reports, pilot studies, and feasibility study documents), providing input into the public processes associated with ROD modifications and educating the community and legislative bodies of the need for funding for this work.

The following provides a brief overview of EPA and IDEQ's concept for how the agencies will jointly move forward in conjunction with the BEIPC to set the stage for evaluation and potential implementation of an OU-2 Phase II remedy.

Phase I Evaluation

The OU-2 Phase I evaluation is currently underway by EPA and IDEQ. The first four of the following documents have been completed, provided to the OU-2 Phase II Water Quality PFT, and placed in the site information repositories. In addition, a briefing was provided to the Basin Commissioners in February 2006. The last two documents, the updated water quality analysis and the Phase I remedial action assessment report will both be completed in early 2007. These documents have been or are being developed to provide a road map to refine understanding of the OU-2 environmental system and facilitate Phase II remedy implementation.

Revised OU-2 Conceptual Site Model (CSM)

The CSM presents the current understanding and status of contamination within the OU-2 environmental system. Within this document, data gaps and uncertainties associated with the environmental system are presented. This is a living document and will be updated as required to refine the understanding of the OU-2 environmental system and to provide a basis for future actions.

Statistical Trend Analysis of Groundwater and Surface Water

A statistical analysis of water quality monitoring data generated through April 2004 as a result of OU-2 water quality monitoring was performed to analyze contaminant data for trends on a location specific and, to the extent possible, on an OU-2-wide spatial basis. Included in this analysis is an evaluation of correlations between contaminants and parameters measured within OU-2.

Phase I Remedial Action Characterization

This characterization of Phase I remedial actions includes identification of the extent of these cleanup activities and their impact on contaminant nature and extent and potential release mechanisms associated with these sources. This document refines the understanding of remedial actions performed as part of Phase I cleanup activities within OU-2.

Revised OU-2 Environmental Monitoring Plan

This revised status and trends monitoring plan for groundwater, surface water, and ecological receptors within OU-2 will provide data to evaluate the performance of the overall OU-2. Remedial action effectiveness monitoring plans were also being developed for the larger Phase I remedial actions. The revised OU-2 monitoring plan will coordinate with the OU-3 Basin Environmental Monitoring Program. Implementation of the revised monitoring plan began in spring 2006.

Updated OU-2 Groundwater and Surface Water Analysis

The existing statistical analysis of OU2 water quality data was finalized in February 2006 and includes data collected through April 2004. In order to more fully evaluate OU2-wide water quality and assist in the assessment of Phase I remedial actions, the statistical analysis will be updated to include monitoring data collected from April 2004 through the present.

OU-2 Phase I Remedial Action Assessment Report

This document will assess impacts of Phase I remedial actions on water quality and ecological receptors within OU-2. The assessment will rely on the recently completed Five-Year Review Report for the Bunker Hill site, the Phase I RA characterization report and the findings of the updated water quality statistical analysis. The assessment will include all remedial actions completed under OU-2 Phase I but will emphasize those areas or actions believed to have the most substantial impact on the water quality and ecological receptors.

OU-2 Phase II Remedy Consideration

Following the above evaluation of Phase I remedial actions in OU-2, the next step is to further set the stage for consideration of Phase II remedy alternatives and potential implementation. The following evaluations will facilitate definition of OU-2 Phase II.

Identification of OU-2 Source Areas of Concern

Based on the results of the Phase I evaluation, source areas within OU-2 will be identified and ranked based upon a set of criteria to be established. The criteria will include a relative contaminant metal loading, impacts on environmental receptors and other factors to be determined. Data gaps that need to be filled to confirm and quantify source areas and their resultant impact on the environmental system may be identified and addressed.

Identification and Evaluation of Potential OU-2 Phase II Remedial Actions

Based on the results of the identification and relative ranking of source areas identified within OU-2, conceptual remedial actions (RAs) will be developed to address the sources and evaluated based on implementability, effectiveness and cost of supplemental remedial actions.

1.7 NATIONAL ACADEMY OF SCIENCES STUDY

The final report of the National Academy of Sciences (NAS) study of EPA's assessment and cleanup decisions in the Coeur d'Alene Basin was published in 2005. The BEIPC reviewed the report concerning Coeur d'Alene Basin recommendations and is taking appropriate action on a number of items including blood lead testing for children and protection of the remedy by implementation of an ICP and an infrastructure evaluation and upgrade program.

1.8 INFRASTRUCTURE AND FUNDING SOURCE EVALUATION

The BEIPC formed a Funding PFT in September 2005 to examine potential environmental cleanup and restoration funding sources and present an assessment of funding availability. This assessment will include a discussion on constraints for the use of various funding sources. This work should be completed by May 2007.

1.9 LAKE MANAGEMENT ACTIVITIES

The original Coeur d'Alene Lake Management Plan (LMP) was prepared by the CDA Tribe, Clean Lakes Coordinating Council and Idaho Division (Department) of Environmental Quality and accepted by the CDA Tribe, Kootenai and Shoshone Counties in 1996. In February 2004, the BEIPC voted to coordinate and be involved in implementing the LMP and any future modification to the plan. The BEIPC funded a LMP Implementation Audit under a Clean Water Act sub-grant in 2005 to determine how well the original LMP is being implemented and this study will be completed in 2008. In addition to this work, during the 2007–2011 work planning period, the BEIPC and Clean Water Act sub-grant implementing agencies will continue to be involved in the following actions in support of lake management:

- Monitoring of a pilot CDA River bank stabilization project to reduce the introduction of lead-bearing sediment into the Lake;
- Support and management of an educational program to improve public awareness of the Lake and its needs for continued protection;
- Completion of a project to develop computer models to assess sediment transport and bed evolution in the lower CDA River;
- Completion of implementation of a project to develop a simulation model to evaluate the Lake's response to watershed remediation;
- Implementation of a pilot project to reduce nutrients entering the Lake from Mica Bay;
- Implementation of a project to survey aquatic vegetation in Benewah, Chatcolet and Round Lakes, tributaries to the Lake; and their potential impacts on the vegetation in the Lake;
- Implementation of a wastewater treatment plant pilot study for the City of Plummer to reduce nutrient loading to Plummer Creek and the Lake; and
- Implementation of a project to perform a nutrient load assessment and modeling to develop a management plan for Plummer Creek tributary to the Lake.

All of these actions are scheduled to be completed by June 2008.

The OU-3 ROD anticipates that the State and Tribe, coordinating with federal agencies and local governments, will prepare and implement an updated LMP outside of the Superfund process using separate regulatory authorities.

During 2006, the State and Tribe were involved in a two phase mediation process. The first phase has been completed and entailed assessing the global issues surrounding the current impasses to develop an updated joint LMP. The report on this assessment was finalized in January 2007. The second phase will attempt to mediate the impasses and develop a joint Tribe and State LMP that includes stakeholder involvement consistent with agreements between the State and Tribe and the State and Counties. If the second phase is successful the State and Tribe anticipate approving the LMP and coordinating adoption and implementation with other stakeholders, including local governments and the BEIPC.

Part 2 – Activities and Work Funded Through the Clean Water Act Grant Program

2.0 INTRODUCTION

CWA funds are being used *“to conduct and promote the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, reduction and elimination of pollution”* Clean Water Act 104(b)(3). Within these constraints, the BEIPC has, over the last three years, approved a number of projects to be funded under the CWA. A portion of these projects are designed to support CDA Lake management activities.

The first round of CWA funds were available in Fiscal Year (FY) 2002 and obtained by the BEIPC in the summer of 2003. These projects are completed. The next round of funding for FY2003 was available to the BEIPC during the summer of 2004. These projects are at various stages of implementation and some are completed or nearing completion. Finally, the most recent round of funding for FY2004 was available in July 2005 and these projects are at various stages of implementation.

This section of the work plan outlines CY 2007 activities of all ongoing projects. As these projects reach completion, the BEIPC will receive reports detailing the results of each one. Over the next five years, information taken from these reports will be used to develop future work plans and be incorporated into additional remedial and resource restoration actions.

Table 2-1 is a summary of activities scheduled for CY 2007 funded with CWA funds. More detailed descriptions follow the summary table.

Table 2-1 Summary of Activities Funded by CWA

Proposed Activity	Scope	CY 2007 Objective	Lead Agency
Lake Monitoring Water Quality Studies	Conduct monitoring of lake water quality to assess nutrient, sediment, and metal loading and trends in lake water quality; to assess improvements/impacts from upstream environmental improvements projects; and assess impacts from further development projects along the lakeshore.	Publish 2006 water year data. Compile and evaluate data and publish evaluation of limnological data and riverine inflow/outflow data and physical, chemical, and biological interactions.	CDA Tribe, USGS
Ecological Monitoring of Coeur d'Alene Lake	Identify baseline conditions for ecological receptors in CDA Lake in order to determine future changes in the ecological condition of the lake. This information may be used in the future to determine if actions implemented under the OU-3 ROD and management actions implemented under the Lake Management Plan are effective.	All work complete.	USFWS
Stream Bank Stabilization	Construct and monitor the effectiveness of several techniques to protect the Coeur d'Alene River banks from boat wake erosive forces.	Continue monitoring cross-sections, bathymetry, erosion pins, and photo points.	IDEQ
Lake Education and Outreach Program	Develop and implement a public information and education plan. The objective of such a plan is to provide the public with information to help them better understand the ecology of the Lake and ways they can better protect the Lake while they enjoy it.	All work complete.	CDA Tribe, KSSWCD

Proposed Activity	Scope	CY 2007 Objective	Lead Agency
Mullan Inflow and Infiltration Groundwater Metal Loading Study/Demonstration Project	Evaluate sources of metals loadings to wastewater treatment facilities, investigate the potential reduction of metals loadings to the South Fork Coeur d'Alene River, determined the efficacy of wastewater collection system infiltration and inflow (I/I) reduction projects to reduce peak plant flows, and advance the current state of knowledge with regard to the cause and effect of such efforts to reduce pollution while considering transaction costs and community coordination.	All work complete.	South Fork Sewer District
Woodland Park Groundwater Quality Monitoring	Monitor water quality in this shallow alluvial groundwater system in Woodland Park area of Canyon Creek. Gain a better understanding of the metal concentrations and potential loading from groundwater to the Canyon Creek surface water system.	All work complete.	IDEQ
Meyer Creek Flood Control	Assess the condition of the Meyer Creek diversion system and propose possible alternative remedial recommendations and order of magnitude cost estimates to prevent recontamination of the Superfund remedy in the City of Osburn during a flood event.	All work complete.	IDEQ

Proposed Activity	Scope	CY 2007 Objective	Lead Agency
Upper East Fork Ninemile Creek Water Quality Evaluation	Success Mine Passive Water Treatment – 1) Reduce plugging in the Success Mine Apatite Barrier by making design modifications to the sediment chamber and injecting air into the Apatite to break up clogging in the media; 2) Perform a tracer study to determine hydraulic flow paths and residence times; 3) Analyze Apatite to determine forms of metal precipitates and where the reactions occur; and 4) Evaluate nutrient addition in the groundwater to determine if in situ metal precipitation is a viable option. East Fork Ninemile Creek Monitoring – Conduct monitoring of the East Fork of Ninemile Creek to assess where metal loadings occur, how seasonal flows affect metal loadings, evaluate overall water chemistry, and determine forms of metal precipitates.	Prepare final report and present it to BEIPC.	INL
Metals and Nutrient Removal Pilot at Page Plant	Evaluate two emerging technologies for precipitation and/or adsorption for removal of heavy metals (lead, cadmium, zinc, and copper) and phosphorus from point source discharges in the Silver Valley, especially the Page wastewater treatment plant.	All work complete.	South Fork Sewer District

Proposed Activity	Scope	CY 2007 Objective	Lead Agency
East Fork Pine Creek Revegetation Pilot Project	Identify practical and cost-effective methods to accelerate natural revegetation processes. Vegetation is needed to ultimately stabilize many stream reaches within the Basin. Identify and contrast the relative “bang for the buck” of several locally applicable revegetation methods.	Additional planting resumed in the fall of 2006. Monitoring of plant growth and survival rates will continue throughout the growing season. Any changes to planting site conditions, including average depth to seasonal low water table, effects of floods or channel shifting will also be monitored.	BLM
Inventory and Evaluation of Private Lands for Potential Restoration of Wetland Habitats	Provide a comprehensive inventory that identifies private land that may be suitable for wetland remediation and restoration projects in the Basin. This inventory would be useful for identifying agricultural and wetland habitats that could be remediated or restored as part of the ROD. Landowners will be surveyed to determine interest in wetland creation or enhancement on their respective properties. Properties identified as potential remediation/restoration projects will be assessed for their habitat quality.	Landownership, potential project location and toxicological surveys will continue through 2009 based on need and project status.	USFWS

Proposed Activity	Scope	CY 2007 Objective	Lead Agency
Monitoring Fish Responses to Bank Stabilization in the Coeur d'Alene River	Assess the short- and long-term affects of bank stabilization treatments on fish community structure in the lower Coeur d'Alene River. Provide recommendations for bank stabilization project designs with the least adverse impacts and most positive benefits to overall fish community structure. Provide recommendations on what project-specific monitoring that would be required for individual bank stabilization projects.	Sampling will continue in the spring of 2007 at the same sites as in 2005 and 2006.	USFWS U of I
Sediment Transport Model	Develop a set of tools that can be used by resource managers for evaluating proposed projects designed to minimize the transport of metal contaminated sediments in the Lower CDA River. Develop and calibrate computer models of the river between Cataldo and CDA Lake. These models would be capable of simulating the hydraulic and sediment transport characteristics of the river over a wide range of streamflow and lake elevation conditions. The models would be used to test proposed projects prior to implementation with the goal of improving their design and avoiding unanticipated and costly mistakes.	Complete final report and present results to the BEIPC.	USGS

Proposed Activity	Scope	CY 2007 Objective	Lead Agency
Lake Response Simulation Model	Provide the entities responsible for management of Coeur d'Alene Lake with a sophisticated computer modeling system with which to simulate the lake's long-term responses to a wide range of remediation strategies to be implemented under the ROD and the Lake Management Plan.	Complete final report and present results to BEIPC. Complete Peer review by June.	USGS
North Fork Coeur d'Alene River Hydrologic and Sediment Study	Characterize and determine the existing hydrologic and in-stream conditions within the North Fork Coeur d'Alene River sub-basin stream system, and attempt to determine the impact of past and current management actions on the observed stream function and ecological conditions. In turn, the above scientific assessment would lead to specific identification of restoration projects, BMPs, and land use policy changes aimed to restore proper hydrologic functions and the impaired cold water aquatic life beneficial use (i.e., salmonid populations).	Complete watershed assessment using survey information collected during the 2006 field season. Produce a final report and present results to the BEIPC.	IDEQ
Mica Bay Nutrient Reduction Project	Demonstrate for training and education purposes a means of reducing nutrient and sediment contamination to Coeur d'Alene Lake in accordance with the implementation of the Lake Management Plan. Project will also accomplish some TMDL implementation goals for the recovery of beneficial uses in Mica Creek.	Preliminary study complete. Complete construction and conduct educational activities.	IDEQ

Proposed Activity	Scope	CY 2007 Objective	Lead Agency
Lower Lakes Aquatic Vegetation Survey	Develop baseline data on submersed aquatic plant species distribution and biomass in Benewah, Chatcolet and Round Lakes. Estimate nutrient (primarily phosphorus) release from the existing plant beds into the water column of these lakes and, subsequently into Coeur d'Alene Lake. Inspect these lakes for the presence of invasive, noxious aquatic species.	Prepare project report and present it to BEIPC.	CDA Tribe
Canyon Creek Groundwater Metal Source Characterization	Determine how, in practical terms, zinc and other metals are distributed between different physical and chemical states in the Canyon Creek alluvium. This information will be used to help understand how natural processes can affect the movement of contaminant metals through Canyon Creek and how engineered processes can impact contaminant metal mobility or sequestration.	Complete studies and prepare final report and present it to the BEIPC.	INL
Plummer Wastewater Treatment Plant Pilot	Construct a pilot scale demonstration of a cascading wetland treatment for use in the City of Plummer waste water treatment plant upgrade.	Construction project complete. Monitoring and testing were completed on a monthly basis through September, 2006. Prepare final report and make presentation to BEIPC.	City of Plummer

Proposed Activity	Scope	CY 2007 Objective	Lead Agency
Plummer Creek Watershed Nutrient Load Assessment, Modeling, and Management Plan Development	Characterize nutrient concentrations and transport through the Plummer Creek watershed and into Chatcolet Lake. Develop a Watershed Nutrient Management Plan which will include appropriate and specific point nutrient source control efforts for the Plummer Creek watershed.	Field water quality and constituent concentration data will be collected at key points, including potential pollutant sources in the Plummer Creek watershed.	CDA Tribe
Pinehurst Flood Impact Study	Develop stream channel and drainage infrastructure techniques to control and mitigate water pollution and protect property from recontamination and flood impacts.	Prepare design report for pilot project. Design project improvements and prepare bid package. Implement construction project.	IDEQ
Silver Crescent Mine and Mill Complex Habitat Restoration	Study the feasibility and economics of watershed restoration in areas where the original stream type has been severely altered by mining and environmental cleanup activities.	Construction start fall 2006. Stream channel construction with wildlife and fish habitat structure installation will encompass the bulk of the construction phase at the site in 2007.	USDA-Forest Service
Canyon Creek Treatability Study	Develop an alkaline precipitation design as a low cost method of achieving a substantial improvement toward ROD goals, and determine if the proposed water treatment technology is implementable in the So. Fork CDA River.	Complete the conceptual design for construction of an alkaline precipitation treatment pilot plant study. Prepare final report and present results to BEIPC.	IDEQ

Proposed Activity	Scope	CY 2007 Objective	Lead Agency
South Fork Sewer District Toxicity Reduction	Identify sources of toxicity in Basin community wastewater treatment plant effluent to develop options for removal of toxicants; perform bench testing to verify removals; and develop capital and O&M cost projections.	Toxicity control evaluation (TCE) – November 2006 through May 2007.	South Fork Sewer District
Assessment of the Economics and Effectiveness of Alluvium Sorting as Mine Waste Removal Strategy at the Project Implementation Level	Establish, at a removal project level, the costs of a simple screening of removed contaminated alluvium, and assess the beneficial value of the removal strategy by assessing the change in the metals content of the three-quarter inch minus fraction of the bed load sediment downstream.	Bank full discharge occurred in Prichard Creek. Stream bed load sediment will be re-sampled for its metals content for comparison to pre-tailings removals content. The project has allotted four seasons (2006-2009) to attain at least two bank full discharge events and assess the effectiveness of the project in removal of contaminated sediments from Prichard Creek.	IDEQ
Coeur d'Alene Lake Management Plan Implementation	Conduct an extensive evaluation of all activities within one mile of the Lake shore to evaluate what BMPs are in place, how effective they are, what BMPs are required but not in place, and to establish specific BMP audit procedures.	Complete the survey and effectiveness audit. Estimate programmatic costs for nutrient management activities and prepare final report. Report results to BEIPC.	IDEQ, CDA Tribe

Lake Monitoring Water Quality Studies

Sub-grant amount: \$515,000 FY 2002 plus \$13,000 additional FY 2004 to sample southern lake nearshore stations.

Sub-grantee: CDA Tribe, USGS

Description of work to be performed in 2007: Limnological samples were collected at 5 pelagic stations approximately 8 times per year in water years 2004-2006. Limnological data and riverine inflow/outflow data from water years 2004-2005 were used to describe current physical, chemical, and biological conditions in Coeur d'Alene Lake, and potential changes and trends compared to those reported in the early 1990s lake studies. Completion of a USGS Scientific Investigations Report is scheduled for late 2006 completing the project. A report will be made to the BEIPC in 2007.

Ecological Monitoring of CDA Lake

Sub-grant amount: \$160,000

Sub-grantee: USFWS

USFWS submitted the final report "Health of Waterfowl Utilizing Lake Coeur d'Alene, Idaho" to the BEIPC in May 2005. The report was the final deliverable for the evaluation of waterfowl exposure to metals of concern for waterfowl utilizing Coeur d'Alene Lake.

The final report on Coeur d'Alene Lake fish receptors was completed in 2006 and the report presented to the BEIPC in November 2006.

These studies will help to provide baseline conditions for ecological receptors of concern in Coeur d'Alene Lake.

All work complete.

Streambank Stabilization

Sub-grant amount: \$445,000 FY 2002, \$122,386 FY 2003, \$15,540 from BLM

Sub-grantee: IDEQ

Description of Work to be performed in 2007: All construction work is complete. The site was surveyed prior to construction and was monitored in 2005 and 2006. Monitoring will continue in 2007 to document changes. Monitoring activities will include measuring cross-sections, bathymetry, erosion pins, photo documentation, and electrofishing.

Lake Education and Outreach Program

Sub-grant amount: \$80,000

Sub-grantee: CDA Tribe, Kootenai-Shoshone Soil and Water Conservation District (KSSWCD).

All work complete.

Mullan Inflow and Infiltration Assessment

Sub-grant amount: \$800,000

Sub-grantee: South Fork of the Coeur d'Alene River Sewer District

All work complete.

Woodland Park Groundwater Quality Monitoring

Sub-grant amount: \$35,948

Sub-grantee: IDEQ

All work complete.

Meyer Creek Flood Control

Sub-grant amount: \$31,521

Sub-grantee: IDEQ

All work complete.

Upper East Fk. Ninemile Water Quality Evaluation

Sub-grant amount: \$193,652

Sub-grantee: INL

Description of work to be performed in 2007: A final report was completed in 2006 and will be presented to the BEIPC at its February 2007 meeting.

Metal & Nutrient Removal Pilot @ Page WWTP

Sub-grant amount: \$179,763

Sub-grantee: South Fork of the Coeur d'Alene River Sewer District

All work complete.

East Fork Pine Creek Revegetation Pilot Project

Sub-grant amount: \$61,624

Sub-grantee: BLM

Description of work to be performed during 2007: Spring planting will take place in late April–early May, 2007. Field measurements for site characterization, including stream flow measurements, floodplain particle size distribution and surveyed channel cross-sections continue throughout the summer of 2007. Additional planting will resume in the fall of 2007. Monitoring of plant growth and survival rates will continue throughout the growing season. Any changes to planting site conditions, including average depth to seasonal low water table, effects of floods or channel shifting will also be monitored.

Inventory and Evaluation of Private Lands for Potential Restoration of Wetland Habitats

Sub-grant amount: \$152,406

Sub-grantee: USFWS

Description of work to be performed in 2007: Land ownership, potential project location and toxicological surveys will continue through 2009 based on need and project status. The completed project will provide a comprehensive inventory that identifies private land that may be suitable for wetland remediation and restoration projects in the Coeur d'Alene Basin. This inventory will be useful for identifying agricultural and wetland habitats that could be remediated or restored as part of the ROD, through use of settlement dollars currently available to the federal natural resource trustees and Coeur d'Alene Tribe, or through existing federal and state grant/cost-share programs aimed at restoring and protecting wetland habitat.

Monitoring Fish Responses to Bank Stabilization in the Coeur d'Alene River

Sub-grant amount: \$107,550

Sub-grantee: USFWS, University of Idaho

Description of work to be performed in 2007: A total of 24 sites and 3 boat ramps were sampled in each of the first two of three sampling events. The final sampling event is scheduled for October 2006. The project team decided to change the scheduled summer 2006 sampling to a fall 2006 sampling because of the large differences in fish

species diversity and abundance between summer 2005 and spring 2006 sampling events. The target species of concern for the project (salmonids) were not present in summer 2005 but were present in spring 2006. High water temperatures in summer were likely the reason for the lack of salmonid use. The project team decided that a fall sampling would provide needed data whereas another summer sampling would not be helpful. Results will be included in a final report evaluating fish species, age structure, and relative abundance within study areas is expected early 2007.

Results of this monitoring effort will provide information which will reduce agency concerns and requirements when considering approval of required permits. Additionally, results will likely reduce individual bank stabilization project costs and permitting requirements by providing much of the initial baseline information, by defining appropriate monitoring techniques, and by identifying inter-species interaction dynamics associated with natural and artificial habitat structures within the CDA River system. Bank stabilization efforts will likely be proposed to treat more than 33 kilometers of the lower Coeur d'Alene River banks in coming years. Resource management agencies are being asked to evaluate the impact of a rapidly increasing number of bank stabilization project proposals for the CDA River. This monitoring effort will 1) establish baseline fish community structures, 2) evaluate variability in fish community structures over time, 3) evaluate the effects of existing bank stabilization projects on fish communities, 4) determine appropriate monitoring strategies for future bank stabilization projects, and 5) recommend bank stabilization techniques that have positive effects or minimal adverse effects on fish communities.

Computer Models to Assess Sediment Transport and Bed Evolution in the Lower Coeur d'Alene River Phase 1 and 2

Sub-grant amount: Phase 1 - \$193,706 FY 2003, Phase 2 - \$128,000 FY 2004

Sub-grantee: USGS

Description of work to be performed in 2007: Work is complete and a final report will be made to the BEIPC in 2007.

Simulation Model to Evaluate Coeur d'Alene Lake's Response to Watershed Remediation-Phases 1 and 2.

Sub-grant amount: Phase 1 - \$190,406 FY 2003, Phase 2 - \$221,800 FY 2004

Sub-grantee: USGS

Description of work to be performed in 2007: Field work is complete and the final report will be prepared and presented to the BEIPC in spring 2007. The Peer review and report will be completed by June and results shared with the BEIPC.

North Fork Coeur d'Alene River Hydrologic & Sediment Study

Sub-grant amount: \$165,810

Sub-grantee: IDEQ

Description of work to be performed in 2007: Final contract deliverables will be completed. These deliverables are two reports: *Summary of Existing Knowledge and Information within the North Fork Coeur d'Alene River Subbasin*, and, *Watershed Assessments of Selected Subwatersheds of the North Fork Coeur d'Alene River Subbasin*.

Mica Bay Nutrient Reduction Project – Phase 1 & Phase 2

Sub-grant amount: \$20,000 FY 2003, \$121,000 FY 2004

Sub-grantee: IDEQ

2006 Status of Project – IDEQ contractor finalized a *Mica Creek - Design Alternatives* document in October 2005. This document presented design and cost alternatives for a project to reduce sediment and nutrients being transported from Mica Creek into Lake Coeur d'Alene by diverting flood flows through constructed wetlands. The U.S. Fish & Wildlife Service (USFWS) led an effort to secure additional funding and land owner consent and easements to develop the lower Mica Creek project. However, by summer of 2006, land owner agreements could not be reached, and the project of constructed wetlands has been abandoned.

In August 2006 agencies were contacted by a Mica Creek landowner who was interested in having stream improvement projects on his property. The farm property has considerable size, around 800 acres, and has portions of North Fork, South Fork, and main stem Mica Creek running through it, just upland of the proposed lower Mica Creek project. In the past, the landowner has participated in both federal and Idaho State, farm cost-share programs to install such practices as cattle exclusion fencing and stream bank stabilization. USFWS, IDEQ, CDA Tribe and BEIPC representatives toured the property in August 2006, and observed many opportunities for stream bank stabilization projects that could reduce the amount of fine sediment and attached phosphorus that flow through Mica Creek toward Mica Bay.

IDEQ met with NRCS, Idaho Soil Conservation Commission, and the Kootenai/Shoshone Soil & Water Conservation Service to discuss possibilities of a CWA grant project to reduce fine sediment/nutrient export in the Mica Creek watershed from this farm land. Project components would likely include a variety of stream-bank stabilization methods and techniques to compare, over time, BMP cost-effectiveness of these methods, and to serve as a demonstration to other ranchers on the west side drainages to Coeur d'Alene Lake techniques of stream bank stabilization.

Project possibilities were discussed with the TLG in October 2006 who recommended preparation of a project amendment for presentation to the BEIPC. The amendment was prepared and presented for consideration at the November 2006 BEIPC meeting.

Description of work to be performed in calendar year 2007: Depends on the outcome of BEIPC consideration.

Lower Lakes Aquatic Vegetation Survey

Sub-grant amount: \$143,275

Sub-grantee: CDA Tribe

Description of work to be performed in calendar year 2007: The final task of this project is the preparation of the project completion report which was begun during calendar year 2006. Final work to be performed during 2007 will include a summary of plant biomass data for each species collected with year-to-year variations, summary of grid node survey findings, calculation of release of phosphorus and nitrogen from existing population as lake-wide loadings, appropriate statistical analyses, discussion of the infestation of Eurasian watermilfoil that was found and overall conclusions.

Canyon Creek Groundwater Metal Source Characterization

Sub-grant amount: \$190,253

Sub-grantee: INL

Description of work to be performed in 2007: In April, 2006, a modified work plan for completion of the Canyon Creek Metal Leaching studies was approved, and the revised work scope was initiated in May, 2006, with a 6 month schedule. 2007 work will include completion of Test 3 (column studies) and delivery of final report and presentation to the BEIPC.

Plummer Wastewater Treatment Pilot

Sub-grant amount: \$129,900

Sub-grantee: City of Plummer, Idaho

Description of work to be performed in 2007: Monitoring and testing will be completed on a monthly basis with quarterly reports. Following is a synopsis of the 2007 project schedule:

- January 30, 2007 - Complete Fifth Quarter Monitoring Report, pilot study 16th monthly monitoring
- February 28, 2007 - Pilot study 17th monitoring

- March 31, 2007 - Pilot study 18th monitoring
- April 30, 2007 - Complete Sixth Quarterly Monitoring Report, pilot study 19th monitoring
- May 31, 2007 - Pilot study 20th monitoring
- June 30, 2007 - Pilot study 21st monitoring
- July 31, 2007 - Complete Seventh Quarter Monitoring Report, pilot study 22nd monitoring
- August 31, 2007 - Pilot Study 23rd monitoring
- September 30, 2007 - Pilot Study 24th monitoring
- October 15, 2007 - Pilot Study Final Report submitted to IDEQ, BEIPC, Coeur d'Alene Tribe

Plummer Creek Watershed Nutrient Load Assessment, Modeling and Management Plan Development

Sub-grant amount: \$165,700

Sub-grantee: CDA Tribe

Description of work to be performed in calendar year 2007:

Field data collection work will be continued through September 2007 after which the modeling effort will begin.

Field water quality and constituent concentration data will be collected at eight key sites, including potential pollutant sources in the Plummer Creek watershed. Samples are being collected on a regular basis (approximately bi-weekly March-April, and monthly for the remainder of the year) from each point for two full water years starting Oct. 1, 2005. In addition, point source discharges (i.e. the Plummer City Wastewater Treatment Plant outfall) are being monitored. The following field data is being collected: instantaneous streamflow, specific conductivity, dissolved oxygen (mg/L and % saturation), pH and water and air temperatures. Samples are also being collected for laboratory analysis of phosphorus (total and dissolved "ortho"), nitrogen (nitrate+nitrite, ammonia, total Kjeldahl), hardness, total suspended solids and fecal Coliform bacteria.

Modeling work will focus on the Generalized Watershed Loading Function (GWLF) model which will be used to simulate watershed nutrient loadings. The model will be configured based on watershed data (e.g., land use, soils, weather, crop, point source, etc.) for a number of sub-watersheds. Sub-watershed delineations will be determined based on such factors such as monitoring station locations, expected source locations, topography, and hydrology. In addition, after configuration, the model will be tested or calibrated to available flow and water quality data. The calibrated model will be applied to establish the "existing conditions" in the watershed. The model results will be used to characterize the current nutrient loading conditions in the watershed, including identifying the location and magnitude of watershed sources.

Pinehurst Flood Impact Study

Sub-grant amount: \$330,000

Sub-grantee: IDEQ

The project assessment was conducted in 2006. This assessment included sampling sediments for heavy metals and their geographic distribution within the lower Little Pine Creek reach. Existing soil, riparian plant, and wetland plant inventories occurred for Little Pine Creek and its wetland. Flood and contamination risk was analyzed and several community meetings were held.

Description of work to be performed in 2007: Discussion of Division Street improvements will occur with the City of Pinehurst. A design package will be prepared that includes storm water management and Division Street storm drainage improvements. A construction contractor will be secured and the project implemented in 2007. A monitoring program will be developed that observes water quality parameter changes after three a year period.

Silver Crescent Mine and Mill Complex Habitat Restoration

Sub-grant amount: \$318,700

Sub-grantee: USDA Forest Service

Description of work to be performed in 2007: Construction start was in September 2006 with delivery of materials such as topsoil to the site. The Forest Service has successfully gained an additional partnership with the Silver Mountain Corporation on the project. Additional wetland creation and enhancement will be accomplished using funding provided by Silver Mountain. This work in turn will satisfy Silver Mountain's mitigation requirements under their current 404 permit for new development at the ski area and village. This added wetland work will further enhance the overall restoration effort at the site. Additions to the design for the project have been integrated into the Forest Service contract(s).

A primary construction contract award and implementation start is planned for late 2006 or early 2007. Stream channel construction with wildlife and fish habitat structure installation will encompass the bulk of the construction phase at the site. Comprehensive native vegetative restoration at the site which will include treatment for noxious weeds will follow, possibly utilizing a second contract in 2007. A post construction report will outline the entire project and any changes that were made. This report will include an evaluation of successes and a section dedicated to "lessons learned". Site maintenance and a 5-year monitoring effort will start at the close of the construction phase.

Canyon Creek Treatability Study

Sub-grant amount: \$100,000

Sub-grantee: IDEQ

Description of work to be performed in 2007: A contract was awarded to develop a conceptual design for construction of an alkaline precipitation treatment pilot plant study. The conceptual design includes a literature search into the technology; an evaluation of implementation and effectiveness issues associated with this technology; and a design for a pilot scale test facility and program. It will include conceptual sizing and operational requirements of the entire full scale treatment system including land requirements, access, treatment ponds, process equipment, piping, power and electrical requirements, water collection, pumping, and waste disposal systems. It will also include an assessment of operations and maintenance activities and costs and a discussion of the pros and cons of utilization of this treatment technology. Inherent in that discussion will be the requirements of the ROD for OU-3 and the applicable water quality discharge limitations.

The 90% Design was presented to the Water Treatment PFT in 2006. The presentation was in sufficient detail to allow PFT members to understand and comment upon the study, design, process, and cost estimates. The results of the presentation and PFT comments will be addressed in subsequent design phases. The final results of the entire work effort will be presented to the BEIPC in 2007.

South Fork Sewer District Toxicity Reduction

Sub-grant amount: \$115,900

Sub-grantee: South Fork of the Coeur d'Alene River Sewer District

Description of work to be performed in 2007:

Page WWTP performance and typical effluent characteristics are being compared against typical potential toxicant levels. Two WET tests have been completed in 2006. Both WET tests showed toxicity as defined in the District's discharge permit; however, the most severe toxicity was observed in mid-winter when metals levels were higher. The next step in the TRE is a Phase I TIE, which will be initiated with another failing WET test. The Phase I TIE will indicate the likely toxicant or group of toxicants in the Page WWTP effluent. Our current schedule for the next round of WET tests is December 2006 / January 2007 to coincide with the highest observed toxicity. Following completion of the TIE, source evaluation and control options will be explored.

- Toxicity control evaluation (TCE) – November 2006 through May 2007
- Draft report – August 2007
- Final report – December 2007

Assessment of the Economics and Effectiveness of Alluvium Sorting as Mine Waste Removal Strategy at the Project Implementation Level

Sub-grant amount: \$207,000

Sub-grantee: IDEQ

Description of work to be performed in 2007: Mine waste removal using a sorting strategy was completed at the Monarch Mill site during 2005. Monitoring of project costs, waste compaction and the trace (heavy) metals in stream alluvium prior to removal were completed during 2005. An interim report on the project results was completed and supplied to the BEIPC. During the winter and spring of 2006 sufficient snow pack developed in the watershed above the project area to support sustained bank full discharge of Prichard Creek for a substantial period of April, May and early June 2006. These conditions were necessary to support turnover of the stream bed and potential change in the metals contamination concentration of the stream alluvium. During August 2006, low discharge conditions re-established in Prichard Creek. Streambed gravel samples were collected at the sampling locations along Prichard Creek and submitted for analysis by the University of Idaho. Analytical results are expected by December 2006.

During calendar year 2007, the analytical results of the 2006 alluvium sampling will be assessed. An interim report on these results will be prepared for the BEIPC. If at least one bank full discharge event occurs during the 2006-2007 winter precipitation or 2007 spring snow melt events, the second streambed gravel sampling will be completed during the summer of 2007.

Coeur d'Alene Lake Management Plan Implementation

Sub-grant amount: \$137,200

Sub-grantee: IDEQ, CDA Tribe

Description of work to be performed in 2007: From September 2006 through April 2007, the Coeur d'Alene Tribe and Idaho DEQ will continue to meet with local, state, tribal, and federal entities that were identified as lead groups in the management action tables of the 1996 CDA LMP. Questionnaires applicable to those entities have been developed and interviews will be conducted with the following organizations, but may not be limited to:

Kootenai County Planning and Zoning
Benewah County Commissioners
Coeur d'Alene Tribe-Lake Mgt. Dept. & Natural Resources Dept.
IDEQ
City of Coeur d'Alene
USDA Forest Service
BLM

Intermountain Forest Industry Association
North Idaho Building Contractors Association
Coeur d'Alene Realtors
Private and Industrial timber companies
Highway Districts
Representatives for Senators Craig, Crapo, and Representative Otter
Wastewater dischargers
Marina operators
Golf course managers
The Nature Conservancy
Inland Northwest Land Trust

With anticipated cooperation and input from the agencies and businesses listed above, conduct and complete a survey and effectiveness audit that would:

- Continue to evaluate what best management practices (BMPs) are in place to protect water quality;
- Continue to determine the effectiveness of those BMPs being used;
- Continue to evaluate areas and activities where BMPs are required under various regulations, but are not being applied or are being applied improperly;
- Continue to establish specific BMP audit procedures where needed for the following, but not limited to these activities - road construction and maintenance, building and facility construction, installation of septic and other wastewater treatment systems, operation and maintenance of marinas and docks, construction, operation and maintenance of golf courses; recreational use of the Coeur d'Alene and St. Joe Rivers and agricultural operations; and
- Continue to determine future programmatic funding projections to continue nutrient management activities as well as determine whether staffing and funding are sufficient to implement activities outlined in the 1996 LMP management action tables.

Results of the survey will be reported to the BEIPC and incorporated into the revised Lake Management Plan management tables currently being developed by IDEQ and the Tribe. This work will also serve as the basis for establishment of a standardized audit process that can be repeated as needed to evaluate the effectiveness of LMP actions.