Coeur d'Alene Basin Five-year (2007-2011) Work Plan Final

INTRODUCTION

This plan for calendar years 2007-2011 covers environmental cleanup and improvement activities in the Coeur d'Alene Basin planned by the Basin Environmental Improvement Project Commission (BEIPC) and cooperating agencies and governments in accordance with responsibilities as stated in the Memorandum of Agreement establishing the BEIPC. 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 2007-2011. Annual work plans will address specific actions from this five-year plan. This proposed five-year work plan 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 3 – Other BEIPC Activities and Responsibilities

Part 1 includes work to implement the Operable Unit (OU) 3 Record of Decision (ROD) with funding provided by the U.S. Environmental Protection Agency (EPA's) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Superfund program or other environmental cleanup funding. The OU-3 ROD identifies approximately $350 million of remedial actions in the State of Idaho as well as about $10 million in cleanup actions in the State of Washington. For planning purposes a 30-year period of remediation was anticipated. Except for establishing the human health remedy as a top priority, the ROD does not address the sequence of actions.

Part 2 addresses the work to be accomplished 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."*

Part 3 includes work and responsibilities the BEIPC has assumed based on recommendations from the National Academy of Sciences (NAS) Study and requests from the citizens and communities of the Basin.

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 may also supply funding through the Idaho Department of Environmental Quality (IDEQ) for environmental cleanup activities.

For Part 1, the scope of the proposed five-year work plan corresponds generally to the level of funding and the funding sources anticipated over the five-year period, 2007-2011. The 2007-2011 Work Plan proposes a cleanup approach and a listing of priority projects for the 5-year planning period. 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
- Basin Contaminant Management and Implementation of the Basin Institutional Controls Program (ICP)
- 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
- Ecological actions in the Upper Basin
- Ecological actions in the Lower Basin
- Basin Environmental Monitoring

Table 1-1 is a summary of activities proposed for 2007-2011 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 for 2007-2011

Proposed Activity	Scope	Objective	Lead Agency
Evaluation of 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.	Complete evaluation of these sites in context of the ROD and its schedule and incorporate into remedial action program as warranted.	EPA, IDEQ, BLM, Forest Service, CDA Tribe
Repositories	Develop, as needed, repositories to support remediation and 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 Upper Basin remediation and ICP waste. Finalize design of East Mission Flats site and make it operational in 2007 for remediation and ICP waste. Perform technical evaluations of other appropriate sites as they are identified. Complete transfer station evaluation for potential ICP needs.	IDEQ and EPA
Basin Contaminant Management and Institutional Controls Program (ICP)	Implement the Basin ICP to manage activities to protect remediated areas from recontamination and to protect human health and the environment. Consider the need to manage contaminants in areas of OU-3 outside the Basin ICP Administrative Area.	Implement the Basin ICP. Develop recommendations concerning the need for contaminant management not covered in the Basin ICP.	IDEQ EPA PHD CDA Tribe

Proposed Activity	Scope	Objective	Lead Agency
Residential and Community Area Sampling and Remediation	Protect human health by continuing property sampling and property remediation program.	Property sampling substantially complete by December 2009. Continue to protect human health by remediating 350-500 properties per year as funding allows.	IDEQ
Drinking Water Supply	Protect human health by providing adequate drinking water supplies by continuing the sampling and remediation program.	Program substantially complete by December 2009.	IDEQ
Recreational Areas	Develop a Lower Basin recreational management plan. Remediate identified recreation areas or develop substitute clean areas along the CDA River.	Update contaminated recreation use area inventory. Complete a Lower Basin recreational management plan.	EPA with state and federal 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 prepare designs so remedial actions can be initiated as funds become available.	Complete remedial actions at Rex and Golconda sites. Complete design and remedial actions at the USBM site. Prepare a priority list for the remaining sites noted in the ROD. Conduct remedial actions at additional identified sites as funds become available.	EPA, IDEQ. With BLM in Ninemile Creek.

Proposed Activity	**Scope**	**Objective**	**Lead Agency**
Blood Lead Screening in Children	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.	EPA, IDEQ, IDOH, and PHD will continue to offer a universally available blood lead screening program. Idaho Department of Health and Welfare, Division of Medicaid will work with participating physicians in the Basin to comply with requirements to perform blood lead screening during "well child checkups". In addition, the TLG will also develop an approach to encourage and facilitate the provision of blood lead testing to children covered under Idaho's Medicaid program.	IDEQ PHD
Upper Basin Ecological Remedies	Complete evaluation of approaches and technologies for water treatment in Canyon Creek and select remedies. Remediate mine wastes along Denver Creek tributary to Pine Creek. 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. Plan and prioritize remedial actions for other source areas.	Finalize development of water treatment approaches for surface and groundwater in Canyon Creek. Complete projects noted under the Mine/Mill program for human health remedies. Prepare for remediation in future planning periods.	EPA and IDEQ. With BLM in Pine & Ninemile Creeks.

Proposed Activity	Scope	Objective	Lead Agency
Lower Basin Ecological Remedies	Complete the pilot project for conversion of agriculture land into waterfowl habitat. 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. Incorporate findings from AVISTA studies into remediation strategies.	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. 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.	EPA, IDEQ, USFWS and Coeur d'Alene Tribe
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 effectiveness of remedial actions and trends in overall ecological improvement due to remediation and natural attenuation.	EPA working with other agencies including IDEQ, USFWS, and USGS

1.1 EVALUATION OF OU3 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. Evaluate the results of these activities based on the OU-3 ROD and if warranted, incorporate into the OU-3 remedial action program. Continued monitoring is needed at a number of sites to protect the investment.

1.2 REPOSITORIES

Repository development is an ongoing process to address the demand for waste disposal space generated by remedial actions and the ICP. IDEQ is the lead in developing repository options and the effort is coordinated with and funded by the EPA.

From 2007-2011 the Big Creek Repository (BCR) will continue to be used for the residential and community remediation program and ICP requirements in the Upper Basin. Closure activities will begin for the BCR no earlier than 2011 based on the assumption that the BCR will receive 50,000 cy of material or less each year and there is an estimated 320,000 cy of repository capacity remaining. Depending on remedial cleanup volumes this could require that in the latter part of 2010 a new repository site be on-line. With the addition of a new repository in 2011 the

BCR would be left with about 70,000 cy of capacity which will facilitate the ICP in the Upper Basin.

In early 2007, the EPA and DEQ developed a long-term repository needs projection for remediation activities in the Upper Basin and Lower Basin and determine the best options for meeting those projected needs. The plan, the Basin Waste Management Strategy, called for a new repository to replace the BCR in order to provide disposal capacity in the Upper Basin for the Basin Property Remediation Program and other cleanup actions that may require waste disposal capacity. Therefore the 5 year plan is consistent with the overall Basin Waste Management Strategy as developed. Both the EPA and IDEQ will continue to review and update the Basin Waste Management Strategy as new information is gathered and to support cleanup priorities.

Use of the East Mission Flats Repository (EMFR) will be based on need for waste disposal in the Lower Basin. The 30% design document for the EMFR was completed in late 2006 and will be available for review by the Repository Project Focus Team (PFT) and the TLG in May of 2007. The final design for the EMFR is expected to be completed in 2008. In the interim the EMFR will be open on July 1, 2007 to accept Basin ICP wastes and some wastes from residential and community remediation operations in proximity to the repository. Full use of the repository for residential and community remediation waste disposal will not occur until 2009, unless programmatic needs change.

In support of the ICP, IDEQ and EPA completed a preliminary feasibility study and analysis of using waste transfer stations and other satellite collections concepts around the Basin to accommodate small quantity ICP wastes. The design and cost analysis included conceptual designs of transfer stations that could be constructed if there was a need in the community. The sites were designed to be temporary features that would be operated for an appropriate period of time and then closed.

Information gathered on the siting and operation of transfer stations incorporated input from Shoshone and Kootenai County representatives familiar with the design and operation of transfer stations. The results of the ICP Waste Transfer Station Design and Cost Analysis indicated that the cost to build and operate a transfer station is extremely expensive, and land procurement could prove to be challenging. It was estimated that it would take 90-120 days to construct a transfer station, provided all land easement and ownership issues are resolved.

Consequently the agencies will continue to monitor the needs of the ICP program and evaluate alternatives for meeting those needs in the Upper and Lower Basin.

1.3 HUMAN HEALTH ISSUES

Remediation of human health exposures is a remedial action priority in the OU-3 ROD and includes conducting cleanup in residential, community, commercial and recreational areas as well as implementing the Basin ICP. The ROD also identifies mine and mill sites that are used for recreation and represent risks to human health.

1.3.1 Basin Contaminant Management and Institutional Controls Program (ICP)

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 Legislature and will be implemented on July 1, 2007 by the Panhandle Health District (PHD). PHD will implement the ICP for the duration of this planning period (2007-2011) and beyond, ensuring that remedies are maintained and human health and the environment are protected.

The Contaminant Management PFT is studying the need for contaminant management on a site specific basis in the CDA Lake and Spokane River portions of OU-3. The PFT is working with the TLG, CCC to formulate recommendations concerning the need for further contaminant management. The need for further action will be determined after these recommendations have been presented to the BEIPC.

1.3.2 Residential and Community Area Sampling and Remediation

This subsection represents a large portion of the current "on the ground" work activities which directly implement the ROD. The residential and community property remediation program includes the following property types:

- Residential yards
- Rights of Way
- Commercial facilities
- Apartment complexes
- School grounds
- Trailer parks
- Common use areas

Much of the program management work is done in the year preceding actual remediation. This fact is especially true for soil sampling and analysis and property mapping. Each year the sampling program samples properties in anticipation of the next construction season. It is anticipated that the sampling of properties will be substantially completed by December 2009.

In planning the remediation program in this 5-year period IDEQ will continue to emphasize work in communities in the upper end of the Basin. This target community emphasis on remediation activities will continue during this planning period, with cleanup actions moving down the Basin (east to west) over time. The property remediation program emphasizes the cleanup of high risk properties. High risk properties are those properties on which children less than 7 years of age and/or pregnant women reside and contamination levels exceed cleanup thresholds. Cleanup actions at high risk properties within and outside of target communities will continue to be treated as a high priority of the remediation program.

Average annual remediation goals for the next 5-year planning period are as follows:

- Remediate 350-500 properties

- Utilize multiple remediation contractors
- Focus on High Risk properties
- Focus on properties in target communities
- Map 500 future properties for next year's work
- Sample and analyze soils for 800-1200 properties

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. A number of site remediation activities have been completed.

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

Table 1-2 Recreational Use Area Actions

Site Name	Land Manager/ Owner	Proposed Actions
Medimont Boat Launch Area	Forest Service	- Continue day use only limitation. Continue to pursue funding to reconstruct and pave access road and boat launch.
Anderson Lake Boat Launch*	Idaho Dept. of Fish and Game	- Consider improvements in conjunction with Hwy 97 bridge replacement (scheduled for completion in 2008)

*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 will be considerably wider and bridge access will be adjusted accordingly which may in turn impact the Anderson Lake Boat Launch access point. Accordingly, EPA is deferring any decisions regarding additional remedial action work at the Anderson Lake Boat Launch so that any additional cleanup efforts can be coordinated with the bridge replacement. EPA will continue to stay abreast of ITD's plans to the extent that this activity may influence the Superfund remedy.

During the 2007-2011 planning period, the Recreation PFT will complete development of a Lower Basin Recreational Management Plan involving agencies, local communities, impacted land owners and other stakeholders. This effort could include development of collaborative informational/educational strategies regarding the Basin and CDA Lake. The plan could also address development of cooperative maintenance agreements.

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 with consideration made to impacts on water quality. Remediation has been completed at a number of those sites. The remaining sites listed in the ROD that have not been completely addressed include the following:

- Day Rock in Nine Mile Creek
- Highland Surprise, Nabob, Nevada Stewart, Hilarity in Pine Creek
- Standard Mammoth 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)

In 2007, remedial actions at the Rex and Golconda sites and design for remedial actions at the USBM site will be completed. Remediation at the USBM site should be complete in 2007 or 2008.

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. 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.

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, PHD, Idaho Department of Health and Welfare (IDHW), IDEQ, Agency for Toxic Substances and Disease Registry (ATSDR), and 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 (NAS) 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."

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

1.4 ENVIRONMENTAL REMEDIATION AND RESTORATION ISSUES

Environmental remediation and restoration issues under consideration by the BEIPC include environmental work in the Upper and Lower Basin. Remediation work is described in the ROD for OU-3. Environmental restoration will be addressed as opportunities arise.

1.4.1 Upper Basin 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 the fishery.

Priorities proposed 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 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 and pilot tests have been 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 mid 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 is planned and the Upper and Lower Constitution Mine Site remediation is complete.

In addition to current actions including evaluation for water treatment in Canyon Creek and actions at mine and mill sites, many potential 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.

1.4.2 Lower Basin Remedies

The ecological work described in the ROD for the Lower Basin includes actions for the wetlands and lateral lakes, the river banks, 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.

EPA is developing a cleanup level for riparian soils using data collected by the U.S. Fish and Wildlife Service (USFWS) through an interagency funding agreement. 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 implemented by the BEIPC to provide site-specific information required to make sound ecological remedial management decisions. In 2007, most of these studies and demonstration projects will be complete. Monitoring of these and other completed CWA sub grant projects affecting the Lower Basin will continue.

EPA used Coeur d'Alene Basin Superfund settlement monies to negotiate and purchase a conservation agreement/easement adjacent to a reach of the CDA River in the Lower Basin in 2006. The agreement was executed to help meet OU-3 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. It is intended to provide habitat containing, at a maximum, 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. EPA anticipates completion of the 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 continue. The monitoring program is critical to the successful implementation and evaluation of the Selected Remedy in the ROD. 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 stake holders in accessing the information.

Remedial Action Effectiveness Monitoring - Action-specific effectiveness monitoring will continue to 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 are 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, incorporates similar monitoring hypotheses as those included in the BEMP. This adaptive management approach maximizes the utility of effectiveness monitoring data through comparison of results to expectations.

Remedial action effectiveness monitoring in OU-3 will continue to be included in the designs and implementation plans for ecological-related remedial actions.

PART 2 – ACTIVITIES AND WORK FUNDED THROUGH THE CLEAN WATER ACT GRANT PROGRAM

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 implemented a number of projects to be funded under the CWA. A number of these projects 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 will be completed by January 31, 2008. The next round of funding for FY2003 was available to the BEIPC during the summer of 2004. These projects will be completed by June 30, 2008. Finally, the most recent round of funding for FY2004 was available in July 2005 and these projects are at various stages of implementation. It is anticipated that most if not all the CWA projects will be completed by the end of 2008.

This section of the work plan outlines activities of all CWA 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.

Table 2-1 is a summary of activities funded with CWA funds.

Table 2-1 Summary of Activities Funded by CWA

Activity	Original Scope of Sub-Grant	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.	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.	USFWS
Stream Bank Stabilization (Complete)	Construct and monitor the effectiveness of several techniques to protect the Coeur d'Alene River banks from boat wake erosive forces.	IDEQ

Activity	Original Scope of Sub-Grant	Lead Agency
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.	CDA Tribe, KSSWCD
Mullan Inflow and Infiltration Groundwater Metal Loading Study/Demonstration Project (Complete)	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.	South Fork Sewer District
Woodland Park Groundwater Quality Monitoring (Complete)	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.	IDEQ
Meyer Creek Flood Control (Complete)	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.	IDEQ

Activity	Original Scope of Sub-Grant	Lead Agency
Upper East Fork Nine Mile Creek Water Quality Evaluation (Complete)	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.	INL
Metals and Nutrient Removal Pilot at Page Plant (Complete)	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.	South Fork Sewer District
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.	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.	USFWS

Activity	Original Scope of Sub-Grant	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.	USFWS, U of I
Sediment Transport Model Phase 1 (Complete)	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. Objectives include the utilization of existing data and collection of additional data to 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 stream flow 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.	USGS
Lake Response Simulation Model Phase 1 (Complete)	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.	USGS

Activity	Original Scope of Sub-Grant	Lead Agency
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).	IDEQ
Mica Bay Nutrient Reduction Project. Phase 1 complete, Phase 2 ongoing.	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.	IDEQ
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.	CDA Tribe
Canyon Creek Groundwater Metal Source Characterization (Complete)	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.	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.	City of Plummer

Activity	Original Scope of Sub-Grant	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.	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.	IDEQ
Silver Crescent Mine and Mill Complex Habitat Restoration	Study the feasibility and economics of watershed restoration through demonstration projects in areas where the original stream type has been severely altered by mining and environmental cleanup activities.	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.	IDEQ
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.	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.	IDEQ

Activity	Original Scope of Sub-Grant	Lead Agency
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.	IDEQ, CDA Tribe

Note: See 2006 Annual Accomplishment Report for update on current project activities as of January 1, 2007.

PART 3 – OTHER BEIPC ACTIVITIES AND RESPONSIBILITIES

For Part 3, the scope of the five-year work plan includes a number of work items that the BEIPC has elected to become involved in and items of work needed to accommodate some of the recommendations of the NAS study. The plan includes the following work:

- Implementation of the Phase II Component of Overall OU-2 Remedy
- Coordination with the EPA Five-Year Review
- Implementation of selected National Academy of Sciences Recommendations
- Lake Management Plan Activities
- Deletion of areas within the Superfund Site
- Funding Source Evaluation
- Comprehensive Infrastructure Needs Identification and Planning Activities

3.1 PHASE II COMPONENT OF OVERALL OU2 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 OU-2 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.

The BEIPC elected to participate in 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. The last two documents 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 include 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 OU-2 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 latest 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.

3.2 CONSIDERATION OF EPA'S 5-YEAR REVIEW

EPA's latest 5-Year Review of the Bunker Hill Superfund Site was completed in October 2005. Another 5-year review is scheduled for 2010. BEIPC reviewed the content of this report and included appropriate courses of action in its annual and 5-year work planning processes in response.

3.3 NATIONAL ACADEMY OF SCIENCES STUDY

The report of the NAS study of EPA's assessment and cleanup decisions in the Coeur d'Alene Basin was released in December 2005. The BEIPC completed review of the report and its recommendations concerning the Basin and is implementing programs in response to the

recommendations including development and implementation of a Basin ICP, a comprehensive infrastructure needs identification and planning program, and flood control analysis and action plan for the Upper Basin.

3.4 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.

3.5 DELETION OF AREAS WITHIN THE SUPERFUND SITE

The BEIPC requested and received information from EPA concerning required actions for deleting geographic portions of the listed Superfund Site in accordance with the National Contingency Plan, 40 CFR 300.425(e). That material has been distributed to Basin stakeholders.

3.6 FUNDING SOURCE EVALUATION

The funding source evaluation and infrastructure needs study have been combined and an Infrastructure Revitalization Plan will be produced that includes a section on funding sources.

3.7 INFRASTRUCTURE NEEDS IDENTIFICATION AND PLANNING ACTIVITIES

The BEIPC is implementing an infrastructure needs identification and planning process for the Upper Basin that includes development of potential financing options and acquisition of financing. This process is addressing infrastructure needs to protect environmental cleanup remedies, preserve public and private property, and revitalize local economies within the Basin. This project is modeled on a similar project implemented in the Box and will be combined with that effort.

This work will address the concerns of many residents and government officials in the Basin and the NAS involving potential damage to the cleanup remedies posed by flooding and the need to construct and reconstruct infrastructure to preserve property and protect the environment. The BEIPC will work closely with county and local government agencies to develop and implement the infrastructure process.