

Coeur d'Alene Basin 2003 Recommended Workplan

**Prepared by:
Basin Commission Technical Leadership Group**

**Prepared for:
Coeur d'Alene Basin Improvement Project Commission Board**

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1. Summary

The 2003 Workplan recommended by the Technical Leadership Group (TLG) to the Coeur d'Alene Basin Improvement Project Commission Board (Commission) identifies tasks in the areas of human health exposures in residential and recreational areas, streambank stabilization, Upper Basin source areas, water treatment and Lake Coeur d'Alene monitoring and lake information and education. Table 1-1 summarizes the scope of work, implementing agency, estimated cost and source of funds, and the task's relationship to longer-term implementation of the Basin Record of Decision and Lake Management Plan (in revision pending public comment). In addition, Table 1-1 shows the level of agreement by the TLG for the draft plan recommended for each task.

The recommended workplan (Workplan) contemplates the availability of funds from the Clean Water Act Grant, EPA's Superfund Remedial Action Budget Request, and EPA's "Pipeline" budget. The purpose and restrictions of each source of funds were considered in developing proposed projects and activities.

The Workplan includes a single proposal for each of the following tasks: human health in residential and recreational areas, Upper Basin source areas, water treatment for Mullan inflow and infiltration and Canyon Creek, and Lake Coeur d'Alene education and information. These proposals have addressed comments received from the TLG members and the Citizens Coordinating Council (CCC). A majority recommendation and a minority recommendation are presented for the Commission consideration for bank stabilization. Submittal of a recommended Lake Monitoring Plan for Commission action will be deferred until after the public comment period on the Lake Management Plan.

Table 1-1. Summary of Recommended 2003 Workplan

Task	Scope	Implementing Agency	2003 Budget Request	Relationship to Overall Basin Environmental Improvement	Mean TLG Acceptance * 5-High; 1-Low
Human Health Residential Areas	Beginning in areas with the most data such as Osburn sample enough properties to remediate approximately 200 residential yards and other properties with the highest potential exposure to children and pregnant women (see project information sheet for details).	EPA/IDEQ	Estimated to be about \$6,000,000 from the EPA Superfund Remedial Action Request (200 properties @ an average cost of \$30,000 per property including gathering access agreements, sampling, analysis, database development and construction.)	One-year effort that is part of ongoing remediation of residential areas identified in the ROD	3.6
Human Health Recreational Areas	Evaluate, design and implement remedial actions at IDFG boat ramp east of Rose Lake, IDFG Blackrock Gulch Beach, IDFG RM 135 Long Beach/Springston area adjacent to Thompson Lake boat ramp, and area along the north side of Mission Slough	EPA through Army Corps of Engineers w/ guidance from IDFG and others	Estimated to be about \$550,000 from the EPA Superfund Remedial Action Request (\$79,000 - \$192,000 per area depending upon the type of actions taken)	One-year effort that is part of ongoing remediation of recreational areas identified in the ROD	3.8
Stream Bank Stabilization	Two alternatives are included. Majority alternative - Conduct evaluation of existing projects and records followed by the selection of demonstration site location(s), designs, and monitoring criteria for the demonstration project(s) with a goal of beginning construction, or at a minimum design and contracting, in 2003. Minority alternative - Conduct evaluation of existing projects, select locations and designs of four projects and complete construction in 2003.	To be determined	Over five-years, \$445,000 from Clean Water Act Grant. Majority Alt – Estimated to be about 187,500 in 2003. Minority Alt – Estimated to be about \$365,000 in 2003 with the remaining \$80,000 set aside for monitoring in years 2-5.	One-year of the five-year demonstration project designed to prepare for larger-scale bank stabilization identified in the ROD.	2.9 for Jan 17 draft plan; Agreement was achieved with majority of TLG membership. The 4 dissenting members elected to present an alternative recommendation
Upper Basin Source Areas	Remediation of one source area selected from Standard Mammoth, Golconda, Constitution, U.S. Bureau of Mines, Sisters, Sites near Rex Mill and Success Sites; and National Mill	EPA	Estimated to be about \$500,000 from the EPA Superfund Remedial Action Request	One-year part of ongoing remediation of source areas identified in the ROD	3.6
Rex Mine & Mill Site	Complete design and remediate the site	EPA or BLM	??? \$ from the EPA Superfund Remedial Action Request???	One-year as soon as funding is available,	N/A – action will occur when

				to continue overall improvement in Nile Mile Drainage	funds are received
Water Treatment - Mullan I&I	Demonstrate and monitor various techniques for reducing I&I and metal loading into the Mullan WWTP	IDEQ/South Fork Sewer District	\$800,000 from Clean Water Act Gant	One-year demonstration that may be applied to reduction in load to South Fork from Page WWTP	3.3
Water Treatment - Canyon Creek	Assess existing technology and prepare workplan for bench and/or pilot studies to test technology and develop site specific design and implementation data	EPA/URS	\$100,000 from EPA "Pipeline" Budget	First step in selecting water treatment technology for use in the Basin	3.6
Lake Coeur d'Alene Monitoring	Defer action until after the public comment period for the Lake Management Plan and remaining technical issues are resolved	USGS, CdA Tribe, USFWS, and IDEQ	\$225,000/yr for 3 years of CWA grant; \$100,000/yr from USGS; \$50,000/yr from CdA Tribe; \$26,000 from USFWS; \$95,000 from EPA's Basinwide long-term monitoring program	First year of long-term monitoring of response to upstream actions and around Lakeshore to inform the ROD and LMP	3.1 3.5 for recommendation for deferral
Lake Education & Information	Develop and distribute materials designed to empower users of the Lake to change practices by understanding how their actions affect water quality	Coeur d'Alene Tribe and State of Idaho	\$40,000 per year for two years	A component of the Lake Management Plan	3.9

* Average TLG Acceptance of Jan 17 draft scope of work developed by Project Focus Teams; The ranking scale is a 5 indicating full agreement to 1 indicating no agreement; Bank Stabilization and Lake Monitoring were the only two tasks that received votes of 1 or 2 by TLG members. (Further explanation is provided in Section 2, Introduction)

2. Introduction

This recommended workplan (Workplan) was developed by the Commission's Technical Leadership Group (TLG) per the request of the Coeur d'Alene Basin Improvement Project Commission Board (Commission). The Workplan is designed to identify specifically what work is recommended in 2003 within the Coeur d'Alene Basin and describe how the one-year recommendations fit into the long-term program of implementation of the Record of Decision (ROD) and Lake Management Plan (LMP). Although the LMP is being revised, components of the plan were considered in the development of the Workplan. The Workplan does not include work in the Box.

The budget of the Clean Water Act (CWA) Grant and EPA's 2003 budget request guided the development of the tasks within the Workplan. Anticipated remediation or demonstration activities were identified along with their planning budgets as presented in Table 2-1.

Table 2.1. Tasks, objectives and budget identified for the 2003 Recommended Workplan

Tasks	Overall Objective	Planning Budget	Primary Area of Project Definition
Human Health in Residential Areas	Reduction in Lead Exposure to the most sensitive population	EPA Superfund Remedial Action Budget Request	About 200 contaminated properties
Human Health in Recreational Areas	Reduction in Lead Exposure	EPA Superfund Remedial Action Budget Request	Up to 5 Lower Basin Recreational Areas
Streambank Stabilization	Reduce erosion of sediment into surface water	\$445,000 over 5 years from CWA Grant	Demonstration projects on banks to test different methods of bank stabilization
Upper Basin Source Areas	Reduce metal loading into surface water and reduction of human health exposure	EPA Superfund Remedial Action Budget Request	Stabilization of one or two source areas
Rex Mine and Mill Site	Remediation of site	EPA Superfund Remedial Action Budget Request	Remediation Design and Construction
Water Treatment	Evaluate existing technologies for removing metals from water	EPA funds	Prepare a report evaluating existing technologies and initiate bench or pilot-scale tests focusing on Canyon Creek
Mullan I/I Pilot Project	Demonstrate most effective methods for reducing metals into the Treatment Plant	\$800,000 from CWA Grant	Pilot project for reducing inflow and infiltration in Mullan Sewer Collection/Treatment System
Lake CdA Monitoring	Collect data to support the Lake management and related activities	\$225,000 annually for 3 years from CWA Grant; \$95,000/yr from EPA Basin-wide monitoring budget	Monitoring Lake water quality to assess nutrient, sediment, and metal loading and trends; to assess upstream activities and development along the lakeshore
Lake CdA Education & Information	Empowering users of the Lake to protect water quality through their actions	\$40,000 annually for 2 years from CWA Grant	Provide information and education to users of the Lake on water quality protection strategies

Objectives of projects within the Workplan that contemplate funding from the CWA grant considered the purpose of the grant which is, “to carry out a pilot program for environmental response, natural resource restoration and related activities pursuant to CWA 104(b)(3). Specifically the application describes the purpose as follows:

“The major objectives of this project are to 1) conduct studies on water quality trends and improvement in Lake Coeur d’Alene, 2) conduct pilot project research on bank stabilization techniques to reduce sediment loading to the South Fork Coeur d’Alene River and into Lake Coeur d’Alene, 3) conduct training and education for lake shore owners and users on lake stewardship to reduce nutrient and sediment loading to the lake, and 4) conduct a pilot experiment or demonstration project on reducing groundwater metal loading by addressing inflow and infiltration to a demonstration community water treatment facility infrastructure. The results from these projects will be transferable to other areas and communities within the Coeur d’Alene Basin to reduce, eliminate or prevent water quality pollution.”

Expenditure of the funds from the EPA Superfund require a State Superfund Contract with the State of Idaho which includes the commitment for 10 percent match of the budget from the State.

The TLG established Project Focus Teams (PFT) for each of the tasks identified for the Workplan. The PFT for the Rex Mine and Mill Site will be convened once funding is available. Companion focus groups were developed within the Citizens Coordinating Council (CCC). Schedules for meetings and conference calls of PFT during development of the workplans were communicated to the CCC members. Draft documents of the proposals were regular distributed among the TLG and CCC members. Memberships of the TLG, PFTs, and CCC groups are provided in Appendix A.

The PFTs developed draft plans for their respective tasks and distributed them on January 17. The drafts were presented to the CCC on January 27 and to the TLG on January 28, 2003. The comments by the CCC as recorded at the January 27 meeting are provided in Appendix B.

After presentations by the PFTs and consideration of comments by the CCC, the TLG assessed the level of acceptance for the draft plans at the January 28 meeting. The procedure allowed each member of the TLG to express their level of acceptance which was recorded as a 5 for full agreement, 4 for general support, 3 for no objections, 2 for specific concerns, or a 1 for no agreement. TLG members expressed their concerns and offered suggestions or alternatives. The record of acceptance by the TLG membership for the draft project plans before revisions are provided in Appendix C.

The concerns or suggestions by the TLG members for draft project plans for all of the tasks except bank stabilization and Lake monitoring were resolved quickly. The draft plans, revised to address the concerns expressed by the TLG and CCC are included in this Workplan. The PFTs for the bank stabilization and Lake monitoring continued to discuss the different viewpoints for another week. The discussion resulted in the two alternatives for bank stabilization included in the Workplan. Discussions on Lake monitoring resulted in the recommendation to defer action

on Lake Monitoring Plan in the Workplan. It is anticipated that a Lake Monitoring Plan will be recommended in May 2003 after the close of public comment on the Lake Management Plan and the few remaining technical issues are resolved.

The recommend scope of work for each task within the Workplan is provided in the following sections:

3. Reduction of Human Health Lead Exposure in Residential Areas
4. Reduction of Human Health Lead Exposure in Recreational Areas
5. Sediment Reduction by Bank Stabilization
6. Remediation of Upper Basin Source Areas
7. Water Treatment for Reduction of Metals
 - 7.1 Mullan I/I Wastewater Treatment System
 - 7.2 Canyon Creek Water Treatment
8. Lake Coeur d'Alene
 - 8.1 Monitoring
 - 8.2 Education & Information
9. Appendices

3. Residential Area Remediation

Funding: EPA Superfund Remedial Action Budget Request. This funding request does compete with the funds for completion of remediation in the Box. EPA expects to receive funding for completion of yard remediation in the Box and in fact receiving funding for the work in the Box has less uncertainty than receiving funds for work in the Basin.

Location and Ownership: Typically private property, but also public schools, playgrounds, churchyards, etc.

Implementing Agency: State of Idaho implementing the property remediation and Panhandle Health District implementing the Lead Health Intervention Program

Long-term Caretaker Agency: Property owner in compliance with a yet to be defined institutional controls program

All Enforcement Actions Explored and Exhausted: Yes

Description

Objectives: Reduce human exposure to lead-contaminated soils, sediment, and house dust exceeding health risk goals (>1000 ppm lead requires full remediation, >700 and <1000ppm require greening program) with particular emphasis on young children and expectant mothers. Reduce human exposure to soils and sediments that would exceed a cancer risk of one in ten thousand (arsenic >100 ppm). Reduce ingestion of drinking water that contains contaminants exceeding drinking water standards and risk-based levels (arsenic > 10 ppb, cadmium >5 ppb, and lead >15 ppb with Treatment Technique regulation).

Design: The one-year workplan includes sampling and remediation of residential soils in the same manner as has been done in the Box, while adding implementation of the new greening program as outlined in the ROD. Drinking water well sampling and drinking water remediation for homes on contaminated private wells also will be included, pursuant to the ROD. Prioritization of remediation locations will be based on addressing the most at-risk populations first, which are homes with young children and pregnant women. Other factors for prioritization include: residential and community areas where children live and play, where soil lead levels are highest, and where there has been a history of exposures. The remediation program will coordinate with an expanded Health Intervention Program.

A high-risk remediation program will be implemented focusing on homes with young children and pregnant women. This would likely result in the remediation of 20 to 30 properties annually. In addition to the high-risk program, other priority areas will be remediated this year. Remediating priority areas are limited by availability of sampling data and property databases to support remediation. Therefore, areas with sampling data and an established database of property information (e.g., location, lot size, ownership) will be prioritized in the one-year workplan.

Based on work initiated in 2002, sampling data and a completed property database are available for the community of Osburn. Thus, area-by-area remediation of contaminated properties will begin in Osburn this construction season. Other potential priority areas include the Burke and Nine Mile areas, however, additional sampling data and database information will need to be collected for these areas. Another factor that needs to be considered in community and residential remediation is the potential for recontamination and development of an Institutional Controls Program. The goal of this construction season is to complete remediation of 200 contaminated properties.

The Box Lead Health Intervention Program will be expanded to cover the drainages of the South Fork and Main Coeur d'Alene River below Enaville. Most of the at-risk population will be identified and located so that any confirmed and necessary remediation action can be focused on abating those risks. If the Mullan sanitation sewer project results in yard excavations of contaminated properties, efforts will be made to coordinate residential remediation activities to minimize yard disturbances where properties meet remedial criteria.

Projected Benefits: Protect public health and also facilitate ease of property transactions.

Approach

Construction & Contracting Plan: The State of Idaho is anticipated to be the implementing agency for this project. Funding would come from the EPA and would require payment of Davis Bacon wages. The Panhandle Health District would implement the Lead Health Intervention Program. The Health Intervention Program will locate and intervene with at least the same percentage of the total at-risk population that was reached in the early years of the Box Program.

Proposed Schedule: Planning needs to begin immediately to identify high-risk properties and obtain access agreements for sampling. Sampling needs to begin as soon as possible in the spring. Properties that meet remedial action criteria then need to have plot plans developed in negotiation with the property owner. The remediation construction season would be mid-June to mid-October. There are concerns about being able to collect enough data to identify 200 yards for remediation. It is estimated that 1000 property owners will need to be contacted to obtain 600 access agreements to sample in order to identify about 200 properties meeting remedial action criteria.

Repository Requirements: Big Creek Repository will be available to handle the estimated 40 to 50K cubic yards of disposal materials.

Safety Hazards: Minimal. Good construction practice to control dust and contaminant migration. Follow site Health and Safety Plan.

Funding

Estimated Capital Cost: \$2 to \$5.50 per square foot of remediated area with an average around \$3.50 per square foot. \$1500 to \$2000 per yard for gathering access agreements, sample collection, sample analysis, database development and input. Average per yard cost is \$25K to \$30K.

Estimated Future O&M and Repair Costs: Minimal with property owner compliance with an institutional control program. Institutional controls need to be developed, adopted and funded.

Funding Sources: EPA Superfund money

Post-Construction Monitoring

Five Year Reviews and institutional controls program. The need for additional monitoring will be evaluated for areas of high recontamination potential.

4. Remediation of Lower Basin Recreational Areas

Funding: EPA Superfund Remedial Action Budget Request

Location and Ownership: Lower Basin recreational areas identified in the one-year workplan are publicly owned

Implementing Agency: The Army Corps of Engineers, through an Interagency Agreement with EPA, will design and implement the remedial actions based on input and guidance from IDFG and other members of the Project Focus Team.

Long-term Caretaker Agency: Property owner or managing agency in compliance with a yet to be defined institutional controls program

All Enforcement Actions Explored and Exhausted: Yes

Description

Objectives: Reduce human exposure to lead and arsenic contaminated soils and sediments exceeding the recreational area soil action levels identified in the ROD: 700 mg/kg lead and 100 mg/kg arsenic.

Design: Sampling plan will be developed based on site-specific factors and be consistent with the ROD. The XRF is available (EPA/Corps) and could be used to characterize areas. The following design principles have been developed to prioritize recreational areas for cleanup. It is important to note that the following design principles are specific to the one-year workplan and are influenced by the limited planning period:

- Primary objective is to protect human health, particularly young children
- Design to minimize long-term operation and maintenance costs
- Create clean oases for public use (based on community interest)
- “Reality check” the scale and scope of what could be done (e.g., potable water, septic systems)
- Build on existing features to enhance use and reduce risks to human health
- Closely examine property ownership, recognizing that privately owned property will require time for negotiations and resolving other issues
- Provide enough amenities to attract folks to clean “safe” areas; do not create attractive nuisances or beautification-only projects
- Design individual recreational areas to be consistent with an overall strategy for Basin recreational areas

Projected Benefits: Protect public health and create clean recreational oases for young children and their families.

Approach

Construction & Contracting Plan: It is important to note that this plan addresses the first year workplan only. The criteria that have been used to select recreational areas for the one-year workplan are primarily based on ownership/access, recontamination potential, and community interests due to the limited planning period. For example, the team focused on areas that are non-federal and publicly-owned (e.g., IDFG) and are accessible by land. Other factors and criteria may be considered when developing the longer-term (i.e., 5 year) recreational areas workplan. It is important that the one-year and five-year

workplan are consistent with one another and fit into an overall approach to Basin recreational areas. It also is important that the overall approach or strategy (e.g., strawman proposal) for Basin recreational areas be developed during the preparation of the one- and five-year workplans.

The sites selected for the one-year workplan were evaluated using the list of recreational areas identified in the ROD (Figure 12.1-2) and applying a screening analysis in the following manner:

- 1) The group only considered property on the list that was non-federal and publicly owned. The group also focused on sites that were not located adjacent to the UPRR right-of-way recreational areas. The group recognized that privately-owned sites and sites along the UPRR right-of-way would require more time than is available this construction season to coordinate with other parties and resolve potential issues. These areas will be further evaluated in the five-year workplan.
- 2) Federally-owned recreational areas (approximately 8) have been removed from further consideration in the one-year workplan because there are limitations on the use of remedial action funds on property owned by federal agencies such as the US Forest Service (USFS) and Bureau of Land Management (BLM).
- 3) The group only considered sites that are accessible by land. Due to the limited planning period, the group assumed that land-accessible areas would provide easier access for heavy equipment and transport of materials during remedial activities.
- 4) The group focused on recreational areas that would meet the design principles developed by the group, such as minimal long-term operation and maintenance (O&M) costs and building on existing features.

Based on this analysis, three sites are being recommended for further evaluation, design, and remediation in the one-year workplan:

- East of Rose Lake IDFG boat launch area. This area includes property owned by IDFG and USFS and they will work in partnership to improve existing recreational features at this location. As previously noted, there are limitations on the use of remedial action funds on federal property, therefore, remedial action funds will be used on the IDFG-owned property. IDFG has identified that their funds can be used on the federally-owned property. Possible ideas would be to repair the boat ramp, pave a parking area, and improve road access.
- Blackrock Gulch Beach area. This area is owned by IDFG and is used by young children and their families.
- RM 135 Long Beach/Springston area. This area is owned by IDFG and is adjacent to the Thompson Lake boat ramp.

As previously noted, further evaluation of these areas will take into consideration a long-term holistic approach to Basin recreational area development and enhancement. The long-term approach will be developed in coordination with the entities involved in the Basin Commission's Technical Leadership Group, with a particular focus on the land management agencies such as IDFG, Idaho Department of Parks and Recreation, BLM, USFS, the Coeur d'Alene Tribe, and Kootenai County. Private property owners also may be involved in the discussions.

The property owners for the recommended recreational areas will be substantively involved in the planning and implementation of the remedial activities. As previously mentioned, the property owner is responsible for long-term maintenance of the site. IDFG is the property owner for the sites identified in the one-year workplan and will be the lead agency for these projects, with participation and input from members of the Project Focus Team. The Army Corps of Engineers, through an Interagency Agreement

with EPA, will design and implement the remedial actions based on input and guidance from IDFG and other members of the Project Focus Team. The group recommends the use of local contractors with appropriate experience.

Remedial actions at each site will be based on site-specific factors and may include boat ramps, paved parking areas, educational signs, and modifying access.

Access Plan: Property owners will be contacted to approve access plans for both sampling and remediation.

Proposed Schedule:

- Access agreements - March
- Sampling - April/May
- Design - June
- Remediation - July through October

Repository Requirements: Repository locations will need to be developed for Lower Basin remediation activities and will be discussed further as part of the 5-year workplan. The projects identified in this one-year workplan are not expected to generate significant removal volumes. If needed, the Big Creek Repository may be used to dispose of contaminated soil (unless a more suitable location is made available in time for the construction season).

Safety Hazards: The remedial activities are expected to address safety hazards at the site.

Funding

Estimated Capital Cost: RI/FS cost estimates range from approximately \$79,000 to \$192,000 dependent upon the types of actions at each site.

Estimated Future O&M and Repair Costs: RI/FS cost estimates range from approximately \$24,000 to \$83,000 over 30 years based on type of action at each site. As previously noted, one of the design principles is to implement projects in the one-year workplan that have minimal O&M requirements. The property owner is required to assume long-term O&M responsibilities; this agreement will be documented in a Superfund State Contract prior to the expenditure of remedial action dollars.

Funding Sources: EPA Superfund remedial design and remedial action funding.

Post-Construction Monitoring

Monitoring will be required to ensure that cleanup objectives have been met by the remedial actions conducted at each site. A monitoring plan will be drafted during the planning and design phase and distributed for review and comment.

5. Bank Stabilization Demonstration

Funding: Clean Water Act Grant, 445,000 over 5 years

Location and Ownership: Dependent upon project locations selected

Implementing Agency: IDEQ, Coeur d'Alene Tribe and Kootenai-Shoshone Soil Conservation District have expressed interest.

Long-term Caretaker Agency: Property owner or managing agency

Description

Objectives: The objectives comply with the Clean Water Act grant which requires pilot study projects to test various methods to stabilize the stream banks, restore natural vegetation buffers, and implement storm water and erosion control programs to minimize runoff from adjacent lands, within the Coeur d'Alene Basin and tributaries to Lake Coeur d'Alene.

Design: Two approaches to bank stabilization (majority and minority proposals) were identified within the TLG. Each approach anticipates \$445,000 from the CWA grant over five years. The TLG recommended that the Commission determine which of the two approaches for bank stabilization is preferred to accomplish their goals and be consistent with the Clean Water Act grant.

The Majority Alternative is based primarily on the belief that more time than a few months will be required to select the locations and define detailed designs for demonstrating one or more viable bank stabilization methods, develop the monitoring and data analysis plans as well as acquire permits and make contracting arrangements. The approach asserts that the basis for the demonstration project must be clearly established to comply with the requirements of the Clean Water Act grant. The basis of the project should include selection of locations and designs for bank stabilization to test the cost-effectiveness of controlling erosion and transport of associated metals and nutrients as well as protection or development of the riparian zone, potential effects on aquatic resources and potential for untended downstream consequences such as mobilization of the river bed. The project proposal prepared by the PFT generally reflecting this approach is found as Attachment 1. This approach includes:

- The goal of triggering at least one on-the-ground project in 2003. The group feels it is disingenuous to make a commitment for project construction in 2003 because of the unknown factors in getting all of the necessary planning, contracting, and permits in place.
- A comprehensive evaluation of existing bank stabilization projects be completed and that the selection of project locations and designs be based upon information gathered after 3 or 4 months of evaluation and planning.
- Selection of projects sites anywhere within the Coeur d'Alene Basin or along tributaries to Lake Coeur d'Alene.

The Minority Alternative is based primarily upon the belief that bank stabilization is not "rocket science" and that enough is known about stabilization designs to quickly implement demonstration projects and begin monitoring effectiveness of the demonstration projects and beginning progress toward the goal of reducing particulate lead transported into Lake Coeur d'Alene and restoring the riparian corridor. The project proposal submitted by Benewah County generally follows this approach (Attachment 2). This approach contains a view that planning, acquiring permits and contracting should take no more time than 3 months and that it is necessary to have at least one on-the-ground project in 2003. This approach

believes that the projects are to be located along in the Lower Coeur d'Alene River. The approach calls for multiple designs to allow comparison among designs as well as between stabilized banks and control reaches without stabilization activities.

Projected Benefits: The demonstration projects, effectiveness monitoring and evaluation will provide the necessary information to begin implementing larger-scale bank stabilization according to the ROD.

Approach

The approaches for the alternatives are described in Attachments 1 and 2.

Funding

The Majority Alternative calls for \$67,500 for the evaluation and about \$120,000 for design and construction of the first demonstration project(s) in 2003. The remainder of the \$445,000 will be budgeted in future years.

The Minority Alternative calls for \$45,000 for the work preparing for construction and \$320,000 construction of four projects in 2003. About \$80,000 would be used for monitoring in future years.

Attachment 1. Technical Leadership Group's Bank Stabilization Plan

Key Points:

- This recommendation contains the first-year activities of an overall plan for five years of demonstration and pilot projects on the riverbanks of the watersheds contributing contaminated sediment to the Coeur d'Alene Basin. The recommended activities comply with the requirements of the Clean Water Act (CWA) Grant.
- To maximize the performance of demonstration projects funded by the CWA Grant and prepare for further bank stabilization actions this plan includes a six-month activity of evaluating previous bank stabilization efforts, producing necessary maps, and developing selection, design and monitoring criteria for bank stabilization actions. The evaluation would identify prioritized data needs regarding effective streambank stabilization techniques in the Coeur d'Alene and St. Joe basins. The cost of this evaluation will be estimated pending development of a detailed scope of work but is anticipated to be less than 15% (\$67,500) of the overall project budget.
- The plan commits to the goal of implementing, or at a minimum initiating at least one demonstration bank stabilization project in 2003.
- Protocols for performance monitoring will be incorporated into the design and construction of bank stabilization demonstration project(s). Monitoring protocols will be incorporated into locations of existing bank stabilization actions to further assess their effectiveness.
- Local and State governments and the Coeur d'Alene Tribe have shown interest in performing the work.

Introduction

Sediments have been shown to be the primary carrier of lead and phosphorous through the watersheds and into Lake Coeur d'Alene. Erosion of riverbanks is one source of sediment. The Coeur d'Alene Record of Decision (ROD) identifies stabilization of 33 miles of banks along the lower Coeur d'Alene River as well as banks in the Upper Basin as a method for reducing contaminated sediment in surface water. River bank stabilization is also an issue along the St. Joe River, which affects nutrient loading. Maximizing the reduction in sediment by bank stabilization will require selecting the reaches of banks with the greatest potential for sediment erosion and using cost-effective designs with a low potential for unintended negative consequences such as accelerated erosion downstream. To establish the basis for informed decisions about location and design that can be used throughout the many years of bank stabilization actions, a six-month effort to evaluate previous bank stabilization projects and review existing data has been recommended. In addition, it is recommended that at least one demonstration project of bank stabilization be initiated, or proceed, this year. Monitoring protocols will be put in place so that performance over time can be assessed.

This plan describes (1) the objectives and deliverables of the evaluation effort, (2) the objectives of monitoring, (3) the approach for the design and construction of the demonstration project, (4) the estimated costs and approach to implementation, and (5) the approach for continuation of the effort through year five.

Evaluation of Previous Bank Stabilization Actions

Performance of bank stabilization projects previously conducted in the study area can serve to inform decisions about location and design of future projects. The performance evaluation will inventory existing projects and compile information from each project such as location and characteristics of the reach, method and design used, observed erosion reduction and physical stability, riverine aquatic habitat impacts, costs, and maintenance expectations. Evaluation of the information will attempt to determine what characterization data are needed to support design and location decisions, project prioritization and selection criteria, best practices for restoration of natural vegetation buffers and storm water and erosion control programs to minimize runoff from adjacent lands, as well as monitoring protocols.

A detailed scope of work for the evaluation project will be prepared ASAP. Deliverables from the performance evaluation and data consolidation step will include a report in late summer 2003 describing necessary characterization data, criteria to be considered in designing and prioritization of future bank stabilization actions, best practices for riparian restoration and minimizing runoff, and maps of the River system showing access points, ownership, and riverbank and floodplain characteristics.

Monitoring

Monitoring of erosion reduction requires tools for measuring changes in bank geometry at the project site as well as at reference sites. Reference sites will be established both upstream and downstream at similar reaches in the river system. Monitoring protocols should consider tools to measure changes in the banks as well as in the cross-section and form of the riverbed. Projects would also be evaluated for potential adverse effects to aquatic resource habitats. Through time comparison of the data collected at the reference and project sites will provide a view of the dynamics of the river system and how sediment movement is affected by bank stabilization. A monitoring plan will be prepared prior to construction.

Design and Construction

The location and design of the demonstration project(s) will be selected after the evaluation of existing stabilization projects and existing information is completed. This perspective is based upon the belief that while there are several known and proven methods for achieving bank stabilization, the most cost-effective and appropriate methods for basin cleanup are not yet confirmed. The shape, aspect, river hydraulics, and composition of riverbanks vary within the Basin and along rivers. Multiple stabilization designs may ultimately be demonstrated within the basin. The demonstration project(s) may be located anywhere within the Coeur d'Alene or St. Joe River Basins and could incorporate multiple locations and configurations within the design. In addition, consideration of the riparian zone per the Clean Water Grant application and the EPA Record of Decision (ROD) and performance monitoring will be integrated into the design of the demonstration project. The majority of the Streambank Project Focus Team maintains that the evaluation of prior projects will provide information on cost-effective ways of achieving these objectives.

Cost and Implementation

While recognizing that the actual cost of the recommended activities will depend upon the details of the scope and design, cost estimates are as follows:

- \$67,500 for the Evaluation Project and consolidation of existing data
- It is anticipated that the demonstration project will be of the magnitude of \$120,000, however, the cost are subject to modification based upon the project(s) and design(s) selected.

The Idaho Department of Environmental Quality (IDEQ) is the recipient of EPA CWA Grant. It is anticipated that IDEQ will distribute the grant funds as directed by the Coeur d'Alene Basin

Environmental Improvement Project Commission (Commission). IDEQ, the Coeur d'Alene Tribe, and the Kootenai-Shoshone Soil and Water Conservation District have expressed interest in implementing this recommended work plan, or aspects of it.

Implementation of the demonstration projects will require contracting and an EPA-approved QA/QC plan (under the terms of the CWA grant funding), and all applicable local, state and federal permits will need to be obtained for the project(s). Full cooperation of all agencies and governments involved will be required to fulfill the commitment of work on the ground in 2003.

Five-Year Project Summary:

This plan contains the recommended work for only the first year of five-years of activity focused on demonstrations of bank stabilization to achieve Clean Water Act objectives. The overall goal of the five-year project is to develop comprehensive plans, procedures, and designs to implement and monitor the bank stabilization component of the Record of Decision.

Attachment 2. Bank Stabilization Proposal Submitted by Benewah County

Location & Ownership: Lower CDA River on lands owned by IDL, FDF&G, USFS, etc.

Implementing Agency: IDEQ and Idaho Department of Lands

Long Term Caretaker Agency: Land owner in cooperation with appropriate agency.

Identified In the ROD: Yes

Identified In the Lake Management Plan: Yes

All Enforcement Actions Explored: N/A

Description: One year work plan includes an inventory of existing projects on the CDA & St Joe Rivers.

Objective: To test bank protective designs/riparian restoration.

Design: After specific site selections on the Lower CDA River, design evaluation and selection will be completed by June 1, 2003. Obtaining permits, letting bids and collaboration w/cooperators and TLG will be completed by Sept 1, 2003. Construction of 4 designs at representative sites will take place during October, November & December. A first year report will be completed by July 1, 2004.

Projected Benefits: Determine which bank stabilization methods can provide the best protection over time for the least amount money, as well as preventing heavy metal laden banks from eroding and restore riparian habitat.

APPROACH

Construction & Contracting Plan: Idaho Department of Lands in consultation w/ACOE & IDEQ to develop detailed site specific plans w/ landowners. June 1 – Sept 1, 2003.

Access Plans: Via river and or lands owned by cooperators (USFS, IDF&G, private land owners etc.)

Proposed Schedule: Existing demo inventory, permit applications and site selections need to start ASAP to be ready for late fall construction.

Sampling & Analysis & Quality Assurance Plans:

1. Sample soil and sediment from banks.
2. All sites selected from those identified in the ROD as eroded.
3. QAP to be detailed in project monitoring plan.

Repository Requirements: - To be detailed in project monitoring plan. The minimal needs for this will be worked out with PFT & EPA/IDEQ.

Safety Hazards: - Silt fences, silt fabrics, work done during low water and all other standard safety practices will be observed.

Funding

Estimated Capital Cost: Approx \$400,000 (i.e. \$100,000 for each of 4 designs at 4 representative river sites, both sides including a 30 ft riparian restoration zone each 1000-1500 ft long). The budget of \$100,000 per design includes \$20,000 per design for monitoring through the five-year period.

Estimated Future O&M and Repair Costs: Landowner owner/agency managers.

Funding Sources: CWA Grant via IDEQ and IDL

Post Construction Monitoring and Reporting

Four years of monitoring, evaluation w/ final report and recommendations. A like reach with no stabilization to be monitored for comparison. Above funding includes monitoring. The balance of \$45,000 to be used for preparatory work spring & summer 2003.

6. Remediation of Upper Basin Sources

Funding Source: EPA Superfund Remedial Action Budget (\$0.5 million)

Implementing Agency: To be determined when funding is received

Long-term Caretaker Agency: Property owner in compliance with a yet to be defined institutional controls program, as necessary

All Enforcement Actions Explored and Exhausted: Uncertain

Description

Objectives: Reduce human exposure to lead and arsenic contaminated soils and sediments exceeding the recreational area soil action levels identified in the ROD: 700 mg/kg lead and 100 mg/kg arsenic. Reduce and/or eliminate source(s) of contamination to surface water and groundwater

Design: In the fall of 2002 EPA submitted a request for funding remedial actions at sites in the Upper Basin where very minimal design work was necessary and where action would provide both human health and ecological protection. EPA's funding request identified several Upper Basin source areas in several South Fork tributaries (e.g., Canyon Creek and Pine Creek) that require stabilization to reduce substantial metals/sediment loading into the surface waters and action to reduce exposure to recreational users. Within Canyon Creek source areas identified included Oom Paul, Ajax No. 3, Gertie and Gorge Gulch due to their impact to streams and potential for recreational exposure. In Pine Creek, the Constitution sites were identified due to recreational use and as a source area impacting surface waters.

During the course of several conference calls and a field trip the Upper Basin, the Project Focus Team (PFT) assessed the sites originally identified by EPA and several additional sites recommended by PFT members. Based upon these discussions the following candidate sites are being recommended for further evaluation during the preparation of the one-year workplan. Additional information on each of these sites is provided in the Appendices.

- Sisters - Canyon Creek adjacent to Woodland Park
- National Mill - Mullan
- Constitution (Upper and Lower) - Pine Creek
- Golconda - South Fork between Wallace and Mullan
- U.S. Bureau of Mines Impoundment - South Fork near Osburn
- Standard Mammoth Mill - Canyon Creek
- East Fork Upper Nine Mile Creek Sites - Above the Success Site

During the course of discussion on these sites the PFT identified a number of issues and possible approaches that may be taken to prioritize upper basin source areas. The following are several of the approaches that were discussed and that will be considered as part of the project prioritization process:

- Focus on a project that can be completed with the available funding that will address both human exposure and ecological protection.
- Conduct relatively low cost actions at a number of sites to prevent direct human exposure to metals (such as physical access restrictions). Comprehensive actions to address water quality and ecological issues could be deferred until full funding was available to complete the project. Initial and later actions should be planned and coordinated to avoid rework at a site.

- Select sites based on other cleanup work being conducted within the immediate vicinity in order to leverage resources. For example, if work at the Rex Mill was funded it would be more cost effective to take action at other sites in this area rather than at a distant location.
- First focus on sites that are at the upper end of watershed and work downstream. This could avoid potential recontamination issues and provide a logical and systematic approach to upper basin source control.
- First take actions that will prevent direct human exposure to metals and secondly actions that will address ecological issues. Actions should not be taken to enhance aesthetic values or address physical hazards.

Projected Benefits: Protect public health and reduce metal loading to surface water

Approach

Refinement of Short Term Project Goals and Objectives and Project Selection for 2003 Workplan

The sites have not been prioritized because of the unknowns of sites ownership, access and funding. These are key issues that affect where work can occur and the scope of a project. EPA is working to clarify the ownership and access issues for the above sites and is awaiting a decision from EPA headquarters on funding for FY03. When additional information becomes available the process will begin to prioritize the candidate sites.

This task will further refine project goals and objectives in order to implement a project during the 2003 Field Season. The TLG matrix evaluation tool will be used in order to clarify goals, identify priorities, and help make comparisons between prospective project sites. The PFT will also consider the above philosophical approaches to project selection. Through this process the PFT will focus on one or two projects that best meet the following criteria:

- Project can be initiated with minimal design
- Access can be obtained from Private Property Owner (includes consideration of liability and other issues associated with private property)
- Cost of project fits within overall budget for Upper Basin Sources for this calendar year
- Project will address human exposure (not necessarily limited to recreational exposure) and reflect community interest

Projects that meet these criteria will be further evaluated to consider the following factors:

- Extent of data including surface and groundwater on the site including monitoring data above and below a site
- Volume of material requiring disposal
- Identification of specific goals of project including specific cleanup goals and design criteria (how the design will meet the goals and specific design elements such as caps)
- Consideration of specific implementation issues such as location and availability of repository space, recontamination potential, relationship to other sites in the area, potential impacts to community etc.
- Coordination with local, state, and federal agencies
- Funding mechanisms related to who does the work.

- Consideration of any previous work conducted at the site
- Potential future use of the site

During this screening process the TLG or CCC members may propose viable alternatives or modifications to the proposed work. Upon completion of the screening/prioritization process the PFT will make its recommendations to the TLG.

Depending on the extent of funding received and scope of the project the following work would be conducted on the selected site(s):

Work to be Performed upon Selection of Project Site(s)

- Scoping and Remedial Design Plan
- Collection of any Pre-Design Field Data (as determined to be necessary)
- Preliminary and Final Design (as determined to be necessary)
- Collection of Pre-Construction Data (as determined to be necessary)
- Prepare Contract Specifications and Issue Contracts
- Perform Construction
- Final Construction Inspection
- Reports - Remedial Action Construction Report and As-Built Documents
- Long-term Operation, Maintenance & Monitoring and/or institutional controls as necessary or required

Long-Term Upper Basin PFT Project Goals

The PFT recognized in the process of evaluating sites that some of the recommended sites warranted action based upon significant human exposure but that the scope of work required was beyond the anticipated funding for this year. In addition other sites being recommended were proposed in conjunction with potential future work in adjacent areas which could allow leverage of resources and provide completion for stream reaches (Upper East Fork of Nine Mile). Sites not selected for the one-year workplan will be carried forward into the development of the five-year work plan during calendar year 2003. The five-year workplan will develop a comprehensive approach for identifying, prioritizing, and characterizing the work to be conducted on upper basin source areas.

Funding

Estimated Capital and O&M Costs: Costs will be developed upon selection of site(s). The work and costs will vary depending on the size and complexity of the project. Some sites may require a very minimal design and data collection while larger and more complex sites will require more planning and take longer. Projects lasting beyond one year can be initiated under the current funding request.

Schedule: Will be developed upon selection of site(s).

7.1 Mullan Inflow and Infiltration System Demonstration

Funding: \$800,000, Clean Water Act 104(b)(3)

Location and Ownership: City of Mullan

Implementing Organization: South Fork Sewer District (proposed)

Long-Term Caretaker Agency: City of Mullan

Description

Objective: The objective is develop techniques to reduce peaks in metal loading from the WWTP resulting from metals in groundwater entering the collection system especially during wet weather.

Design: Wet weather flows to the City of Mullan and Page Waste Water Treatment Plants (WWTP's) exceed the capacity of these plants. Peak flows of 5 – 10 times the average flow rates are not uncommon for either plant. These extreme peaks are directly attributable to the inflow and infiltration (I/I) into the system. Metals data collected at the Page and Mullan WWTP's indicates that total metal loadings increase as flows increase during the spring months due to infiltration of snow melt and rising ground water levels (see attached tables). The reasons for this includes:

- Leaching of metals from tailings used to bed collection system pipes by groundwater (infiltration),
- High background levels of metals in areas soils (infiltration)
- Leaching of metals from surface tailings by surface runoff (inflow).

Recent work (JUB Engineers January 2002) has identified the probable locations of inflow and infiltration into the system, but lack of funding has not allowed the entities to verify that I/I does have a direct relationship to high metals loadings at the treatment plants. A pilot project is proposed to test remedial effectiveness in addressing I/I issues to reduce excessive flows and loading to the community water treatment plants, as well as construction techniques to minimize surface disturbance. The City of Mullan was chosen for a pilot study due to it being the only contributing entity to the Mullan WWTP, which allows immediate verification of the efficacy of the pilot project. Second, the Mullan WWTP has the same relative magnitude of peak flows versus average flows (10:1 peaking factor) as the Page WWTP. Third, the most significant contributing areas have already been identified and are limited in geographic scope making the pilot project cost effective. The target area is estimated to contribute 25-50 percent of the I/I flows to the treatment plant. Fourth, the bulk of the Mullan I/I problem appears to be infiltration, which directly relates to metals concentrations in the ground water. The information collected in this pilot study will be directly applicable to the rest of the Silver Valley and approximately \$15 - \$20 million in-anticipated I/I & load reduction work

The WWTP's are also significant sources of point source discharge of phosphorous to Lake Coeur d'Alene. Phosphorous loading to the lake has been identified as a significant management issue in the Lake Management Plan. Hydraulic overloading (due to I/I) of these facilities reduces their ability to remove nutrients from the waste stream, resulting in higher nutrient discharge concentrations.

The project will involve the following key tasks:

Phase I: Characterization. Sampling of domestic water supplies, groundwater, WWTP influent, and WWTP effluent will be conducted for metals concentrations to characterize and determine the likely

source of high metals levels. This will include installation of six groundwater wells upgradient and downgradient of suspected high metal loading areas to the Mullan treatment system.

Phase II: Demonstration. The areas of high I/I contributions will be addressed using a variety of potential construction techniques. Based on previous work, (JUB 2002) this proposed work area includes Earle Street, River Street, and Mill Street in Mullan.

Surface soil conditions in Mullan and throughout the Basin are being investigated and addressed to reduce human health exposure to elevated lead and arsenic in surface soils. Conventional construction methods to address I/I involve excavation of soils, which creates the potential for recontamination of previously cleaned-up areas.

The study and demonstration will test various construction methods to minimize surface disturbance and may include conventional replacement (trenching), pipe bursting or micro tunneling and slip lining or cured in place lining. These “trench less” methods are typically more costly than conventional construction. However, if they minimize surface recontamination and the cost associated with surface cleanup, they may be cost competitive in the Basin. These techniques will then be considered for transferability throughout the Basin.

Phase III Verification. Post project verification and monitoring will include assessing whether eliminating I/I from this system results in lower loadings and improves discharge water quality. The successful construction techniques will then be considered for transferability to the larger downstream Page WWTP. In addition, the cost/benefit of various construction techniques applied will also be evaluated. (Additional information on monitoring in Appendix).

Approach

Schedule: Once funding is acquired for the project, initial baseline data collection will take approximately 30 days, construction documents would be developed and ready within 90 days, construction will take an additional 90-120 days, and result verification and final reporting will take 60 days. Baseline data collection and construction documents development will occur concurrently. Project construction would occur in mid to late summer 2003. Post project monitoring will continue for at least one year to provide verification of project effectiveness.

Repository Requirements: Most materials will be returned to the excavation. However, should excess material be generated the Big Creek Repository may be used to dispose of contaminated material.

Impact to Infrastructure/Transferability: The City of Mullan’s collection system is a microcosm of the larger South Fork System. The materials of construction, bedding materials, construction techniques, and system age are similar in all of the basin municipalities. Since the City of Mullan is only served by one WWTP, one water system, and since those plants serve no other entities, isolation of the sources of I/I and pollutant loading is significantly simplified. Furthermore, the location of I/I in the City has been clearly documented. In the absence of complicating factors, the precise impact of I/I can best be identified in Mullan. Since all of the municipalities in the basin are similar in nature, the results can be transferred to the larger problem of the Page WWTP.

References

JUB, 2002 is available from the IDEQ office in Kellogg, ID

7.2 Canyon Creek Treatability Study

Funding Source: EPA Superfund Pipeline Dollars

Location and Ownership: Near the mouth of Canyon Creek; Ownership depends upon specific location

Implementing Organization: EPA Region 10

Long-term Caretaker Agency: State of Idaho has long-term responsibility for water treatment

Description

Objective: The objective is to identify most cost-effective treatment technologies for waters in the Coeur d'Alene Basin.

Design: Canyon Creek contributes more dissolved metal load to the South Fork than any other tributary, approximately 20 to 25 percent of the load in the South Fork at its confluence with the North Fork. The benchmark for Canyon Creek identified in the CDA ROD (EPA, 2002) is to reduce dissolved metal load discharging from the creek into the South Fork by at least 50 percent. The expected value of the dissolved zinc load in Canyon Creek after remedy implementation is estimated to be 234 pounds per day, a reduction of 322 pounds per day compared to the expected value calculated from surface water data collected from 1991 to 1999. The long-term goals for Canyon Creek include the return of a native fishery and full protection of riparian and riverine zone birds and other animals.

The selected remedy focuses on identifying the most cost-effective technologies for improving downstream water quality by monitoring completed removal actions and conducting pilot technology tests and full-scale treatment projects for intercepting the lower creek water and using either passive or active treatment systems. In order to implement this remedy this project will evaluate the effectiveness of water treatment at the mouth of Canyon Creek. Decisions on cost effectiveness will consider the magnitude of budgets available for long-term O&M. Should creek water treatment prove effective after pilot studies, full-scale treatment would be implemented as part of the Selected Remedy in Canyon Creek. The successful technology could also be applied to other areas such as Ninemile creek or other areas within the basin.

Approach

To accomplish the stated objective and provide design information this treatability study will be conducted in two phases. Phase I will focus primarily on assessing overall feasibility and economics of a range of treatment options, including emerging new technologies and other information provided by the PFT. This phase will also take into consideration surface water and groundwater flows and interactions within Canyon Creek. Specific comparisons will be made between active and passive systems with particular attention on overall long-term operation and maintenance costs in light of contemplated budgets. Upon completion of the evaluation, a Phase I Treatability Study Evaluation Report will be issued that describes the evaluation process and effectiveness of various treatment technologies. This report will also summarize relevant design parameters and identify critical factors affecting pilot-scale and full-scale implementation.

Phase II will involve pilot testing to develop quantitative design and cost data. The following discussions outline the general approaches for the study. The specific approaches will be defined in a Treatability Study Work Plan that is in the process of being developed by EPA. The work plan will specify the Data

Quality Objectives (DQOs) and identify specific materials, test conditions, measurement parameters, analytical methods, and Quality Assurance/Quality Control (QA/QC) requirements.

Phase II - Bench or Pilot Scale Implementation

Phase II consists of bench and/or pilot studies to test the technology and develop site specific design and implementation data. This study will evaluate a number of parameters such as treatment efficiency, cost of treatment, ability to regenerate treatment media, disposal options for treatment residuals, and secondary water quality impacts (BOD, COD, DO, odor, phosphate, potentially H₂S or CS₂).

A Phase II Treatability Study Work Plan will be developed describing the specific design and construction methods for the pilot system. The Phase II plan will also specify the operational parameters that will be investigated during the pilot study. Upon completion of the testing, a Phase II Treatability Study Evaluation Report will be issued that summarizes the results, identifies final design criteria, compares the technology to the performance standards established for the site by the ROD and compares the costs to the budgets likely to be available. If technology is determined to be cost-effective and affordable, the Phase II Treatability Study Evaluation Report may serve as the Design Criteria Report in the RD process, and preparation of the Preliminary Design (including plans and specifications) can begin as operational data from the Phase II study are obtained.

Source(s) of Funding

This project is being funded through EPA's pipeline budget. Currently, URS, a contractor working for EPA, has been tasked to develop a workplan for treatability studies in Canyon Creek and will be also be tasked to conduct the first phase of this work - evaluation of existing technologies. The first phase may also include collection and testing of test stream samples for common ions and jar tests for lime stabilization-precipitation. Sufficient funds currently exist to complete this first phase of work. Upon completion of this work further work at the bench or pilot scale will be conducted to refine the treatment options and operating parameters.

Work to be Performed/Schedule

Draft and Final Treatability Study Workplan - February
Phase I Draft and Final Report - May- August 2003
Phase II Treatability Study Workplan - September 2003
Phase II Pilot Project Implementation - Summer 2004

8.1 Lake Monitoring Plan

Key Points:

- The Lake Monitoring PFT recommends deferring a decision on a lake-monitoring plan until the end of April 2003.
- A draft lake monitoring plan has been prepared and revised. Agreement among the TLG on a proposed plan is close, but issues remain. Resolution of those issues is expected by mid-April.
- In April 2003, the Lake PFT will recommend Basin Commission approval for the expenditure of \$225,000 per year for the next three years from the Clean Water Act Grant.
- Commitments for in-kind contributions have been offered by the USGS (\$100,000 per year), the USFWS (\$26,000), and the Coeur d'Alene Tribe (\$50,000 per year). These in kind contributions would leverage the Basin Commission's expenditure of \$660,000 over three years to obtain \$1,151,000 worth of monitoring work. Deferral of a decision until the end of April places only a small risk on obtaining these cooperating agencies' funds.
- Sampling is intended to begin in October 2003. Deferral of a decision until the end of April would not affect this schedule.
- The lake monitoring plan is a component of the Lake Management Plan. It is contained in Section 4 of the Coeur d'Alene Lake Management Plan Addendum.
- The Coeur d'Alene Lake Management Plan Addendum, including the proposed lake monitoring plan, is in an extended public comment period slated to end March 25, 2003.
- The Lake PFT's current revision of the draft lake-monitoring plan addresses most, if not all, of the technical issues raised in Kootenai County's minority report. That revised draft is not presented at this time because it may be changed to reflect public comment.

Introduction

EPA's ROD for the Coeur d'Alene Basin excludes Coeur d'Alene Lake. It notes that "State, tribal, federal, and local governments are currently in the process of implementing a lake management plan outside of the Superfund process using separate regulatory authorities." (Section 12.3 of the ROD) The ROD anticipates a lake-monitoring program that will "evaluate the effects of upstream cleanup, potential sources of contamination, and potential impacts to the lake and the Spokane River." (Section 12.3 of the ROD) The current draft proposed monitoring plan focuses on the long-term monitoring and evaluation of trends in water quality, sediments, biological resources, and metal flux from lakebed sediments. It is designed to be complementary to other, basin-wide and action specific monitoring. Specifically, it will provide data and information relative to monitoring the effectiveness of the Lake Management Plan.

- Long-term status and trends assessment of surface water, soil, sediment, and biological resource conditions in the Basin.
- Effectiveness monitoring of remedial actions implemented under the Coeur d'Alene Basin ROD.
- Performance of management actions implemented under the Coeur d'Alene Lake Management Plan.
- Identification and quantification of benchmarks that will be used in the process to "de-list" Coeur d'Alene Lake from its Superfund designation.

The current draft includes data gathering and evaluation in four areas:

- mass balance of metals and nutrients
- nutrients and lake productivity
- fate and transport of metals
- ecological health

The draft monitoring plan is designed to meet monitoring requirements in the Lake Management Plan, inform decisions on lake management actions, explain future trends in water quality, and support decisions related to removing the Lake from the Superfund list. It includes both deep and shallow monitoring, and anticipates using the water quality data to calculate changes in the amount of metals stored in the lake bottom. Monitoring would be done at different frequencies for different stations in order to capture seasonal effects but not to sample more than necessary. It is intended that monitoring will begin in October 2003.

Issues Resolved

The following issues on the draft monitoring plan are among those that were raised and resolved within the TLG.

- Location of a sample station at the state line. It was agreed that this station is important enough that it should be included in the larger, Basin-wide monitoring plan to ensure that it stays in place beyond any time lake monitoring when lake monitoring might be curtailed.
- Peer review of agency reports. It was agreed to develop a process for external peer review describing the type of reports subject to this review, the procedure for conducting and the funding source for the reviews.
- Sampling approach for benthic flux. Sediments will not be sampled. Instead, the overlying water will be sampled for water quality analysis. The water quality data will be used to calculate estimated changes in metals stored in the Lake sediment.
- Idaho Department of Fish and Game involvement in the monitoring plan. USFWS has consulted with IDFG and involved them in discussions of the ecological health monitoring.

Issues Outstanding

Unresolved non-technical issues include the following:

- Public comment on the Lake Management Plan Addendum that contains Section 4, a “Proposed Work Plan for Limnological Monitoring and Evaluation of Coeur d’Alene Lake” has been extended until March 25, 2003. The TLG recommends that the final monitoring plan consider public comment.
- Public involvement in the Basin Commission’s process may not yet be complete. One PFT member raised the issue that the Citizens’ Coordinating Council has not had adequate opportunity to review and comment to the PFT on the draft proposed lake-monitoring plan.
- The tie between the lake monitoring plan and Superfund deletion of the Lake is unclear.

Technical issues still to be resolved include the following:

- The parameters that will be included in definition of baseline conditions need to be defined. While data are available for use as a baseline for some parameters, there are other parameters for which little or no data exists.
- The Basin-wide data analysis and statistical approach, under development by EPA’s contractor, needs to be completed and incorporated in the final lake monitoring plan.
- The extent to which Lake benchmarks include ecological parameters must be determined. These could influence future management decisions concerning the lake, including decisions about “de-listing”.
- Data from the 2002 “fish study” is not yet available. It will inform the decisions on the extent of fish monitoring included.
- The process for coupling existing data with new data needs to be established

- The extent to which data needs to be collected to improve the understanding of how natural processes operate in the lake needs to be determined. The value of additional understanding needs to be clearly articulated.

The Lake PFT believes these issues can be resolved by mid-April. For example, the extended public comment period on the Lake Management Plan, including its lake monitoring plan, will end on March 25. EPA's contractor will have completed a draft of the statistical approach to be used in the Basin-wide monitoring by April, and that can be incorporated in the monitoring plan. Studies to determine metals contamination of fish tissue will be completed in time to decide whether and what additional sampling might be appropriate by mid-April. By mid-April, the EPA will have had the opportunity to further articulate the process by which decisions will be made regarding the future Superfund status of the Lake.

8.2 Lake Coeur d'Alene Education and Information Program

Funding: Clean Water Act Grant, \$40,000 per year for 2 years

Location and Ownership: Lake Coeur d'Alene

Implementing Agencies: Coeur d'Alene Tribe and IDEQ

Long-term Caretaker Agency: Idaho DEQ and Coeur d'Alene Tribe

Description

Objectives: This project is designed to proactively protect Lake Coeur d'Alene's water quality by empowering users to understand how their actions affect water quality resulting in a reduction in the amount of nutrients entering the Lake.

Design: The project will develop and implements a two-year lake education and information (I&E) outreach program directed to uses of the Lake. The project design will meet the education and information objectives of the Lake Management Plan to improve water quality in Coeur d'Alene Lake. The Tribe and IDEQ will develop this program to leverage their resources and coordinate with other agencies with responsibilities in or affecting the Lake, such as Lakeshore Property Owners, the Idaho Department of Fish and Game, the Panhandle Health District, and the Farm Bureau. Activity and progress will be reporting to the Basin Commission.

A simple, positive message will be developed to generate interest from those whose actions affect lake water quality. Specific information will be targeted to interest groups, such as boaters, road builders, loggers, farmers, or homeowners. As the program is developed, it will determine which audience or group, and which activities (e.g. on-site sewage disposal, boaters, construction activities) make the most difference in water quality in the lake and focus initial efforts in order to maximize the program's effectiveness.

The project includes gathering existing information and educational materials, developing new materials where needed, fostering awareness and interest, delivering the materials, and monitoring to see that the program is effective. The program will be adaptively managed to respond to changing conditions and information, and to take advantage of insights gained from monitoring.

Projected Benefits: Achieve community participation and support of efforts to improve or prevent degradation in Lake Coeur d'Alene's water quality

Approach

Construction & Contracting Plan: Agreements for implementing the program will be with Idaho DEQ and the Coeur d'Alene Tribe.

Access Plan: Not Applicable

Proposed Schedule: Spring 2003 through Spring 2005. During the first year, the program will be established, a strategic plan will be prepared and materials will be gathered and developed. Material will be available for delivery and dissemination during the first year. In the second year, delivery of information and education will continue, and monitoring will be used to assess the effectiveness of the

program. In subsequent years, the program will be integrated into the regular programs of work of the Coeur d'Alene Tribe, the IDEQ, and other agencies.

Repository Requirements: Not Applicable

Safety Hazards: Not Applicable

Funding

Estimated Capital Cost: \$40,000/year for 2 years

Estimated Future O&M and Repair Costs: None

Funding Sources: Clean Water Act Grant

Monitoring

Baseline monitoring will be conducted to assess current public awareness, attitudes and perceptions so that actual changes in behavior can be made and measured.

Effectiveness will be monitoring by a periodic survey to determine whether the information provided is reaching the intended audience, and whether it is changing the way people do things that affect water quality.

Appropriate regular periodic summaries of the program's activities and effectiveness will be prepared for the Basin Commission. These would include recommendations for changes that the program might require or that would make it more effective.

Appendices

- Appendix A. Membership of the Technical Leadership Group (TLG), Project Focus Teams (PFT) and Citizen Coordinating Council
- Appendix B. Comments from the Citizen Coordinating Council on January 17 Draft Proposals from PFTs for 2003 Workplan
- Appendix C. Acceptance by the TLG on January 17 Draft Proposals from PFTs for 2003 Workplan
- Appendix D. Upper Basin Source Area Fact Sheets