

BEIPC Coeur d'Alene Basin Calendar Year 2016 Work Plan

INTRODUCTION

This plan covers proposed environmental cleanup and improvement activities in the Coeur d'Alene Basin scheduled for CY 2016 by the Basin Environmental Improvement Project Commission (BEIPC) and coordinating agencies in accordance with their responsibilities as stated in the Memorandum of Agreement (dated August 2002). Actions noted in the plan are intended to implement the goals and objectives of the BEIPC's 2016-2020 Five Year Work Plan. This plan has been prepared by the Executive Director working with the coordinating agencies with review, input and approval by the Technical Leadership Group (TLG) and review and input from the Citizen Coordinating Council (CCC). The work plan is organized as follows:

Part 1 – Environmental cleanup work performed through the federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) by the EPA and State of Idaho or work performed by Potentially Responsible Parties (PRP).

Part 2 - Other Activities and Responsibilities

Part 1 includes work to implement the Record of Decision (ROD) for Operable Unit 3 (OU-3) and the Upper Basin ROD Amendment (RODA) for OU-2 and 3.

Part 2 includes work and responsibilities concerning management of Coeur d'Alene Lake by the CDA Tribe and State of Idaho, restoration of natural resources by the Natural Resource Trustees and work the BEIPC has assumed based on recommendations from the National Academy of Sciences (NAS) Study and requests from citizens and communities of the Basin.

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

PART 1 – ENVIRONMENTAL CLEANUP WORK

For Part 1, the scope of the proposed work corresponds to the source and level of funding anticipated for CY 2016 and work anticipated to be performed by the responsible parties. The proposal includes the following work:

- Human Health Issues including Residential and Community Property and Private Drinking Water Supply Remediation Basin Property Remediation Program (BPRP), Mine and Mill Site Characterization, the Paved Road Remediation Program, and the Remedy Protection Program, Blood Lead Screening in Children,

- Recreation Use Activities, and Fish Tissue Sampling.
- Repository Development and Management
- Remedial actions in the Upper Basin including source control actions, water treatment, and related human health activities provided for in the Upper Basin RODA.
- Remedial actions and/or Pilot Projects in the Lower Basin.
- Basin Environmental Monitoring

1.1 HUMAN HEALTH ISSUES

Remediation of human health exposures is a remedial action priority as defined in the OU-3 ROD. It includes maintaining the Institutional Controls Program (ICP) and conducting cleanup in residential, community and recreational areas in the Upper and Lower Basin and the Paved Road Remediation Program. The RODA addresses source control remedies, water treatment remedies, ecological cleanup projects, and related human health activities and the Remedy Protection Program.

1.1.1 Residential and Commercial Property Remediation

During 2015, IDEQ and EPA worked to transition the cleanup portion of the Basin Property Remediation Program (BPRP) to the Coeur d'Alene Work Trust (Trust). Sampling, plot plan development and documentation remained under IDEQ management. In May of 2016, the sampling, plot plans and documentation will also transition to the Trust. In 2015, the Trust's BPRP managed program remediated approximately 80 residential properties and four large commercial properties. This resulted in approximately 1.2 million square feet being remediated.

The IDEQ BPRP concluded work on five properties in 2015. This resulted in 121,300 square feet of remediation. This included completion of the Khanderosa Campground and the Harrison Dock Builders commercial properties.

In 2016, IDEQ will continue an oversight and coordination role initiated in 2015. IDEQ staff worked to help the Trust transition into full management of the remediation side and will continue to be instrumental in transition of the sampling and documentation program.

The goal for 2016 is to complete at least 1,000,000 square feet of remediation on 70 residential and two large commercial properties. These commercial properties have already been sampled and will be remediated by the Trust. The program will sample 80 to 100 properties that qualify for remediation.

In 2016 the program, IDEQ will be gearing up a campaign to encourage property owner hold outs to have their properties sampled and remediated before the program winds down. This would allow completion of most properties before the BPRP goes into a "trickle" mode.

1.1.2 Mine and Mill Site Characterization

The purpose of the characterization task is to obtain site-specific information to identify mine and mill sites that might pose a threat to human health, prioritize sites that are in close proximity to residential properties and may require remediation to address human health exposures, and ensure that completed human health remedies are not re-contaminated by migration of contaminants from mine and mill sites.

Since more than 1,000 mining-impacted sites are catalogued for the Bunker Hill Superfund Site, sites that might pose a threat to human health were identified using one of the following categories:

- Site is located within 200 feet of a residence.
- Site is located within 1,000 feet of a residence.
- Site intersects a road and/or stream.
- Site is up-gradient of a residential area.

Based on this characterization, approximately 100 sites were identified as candidates for this characterization task. To perform characterization, the *Sampling Analysis Plan/Quality Assurance Project Plan (SAP/QAPP) for Upper CDA Basin Mine and Mill Sites for Characterization of Human Health Risks* was prepared to direct the following activities: historic desktop research, access agreements, site visits to determine potential human health concerns, and sampling (if necessary).

At the completion of the 2015 field season, site visits will have been conducted for approximately 50 sites and sampling completed for approximately 10 sites located in the Upper Basin. During 2016, sites within the Box and sites remaining in the Upper Basin will be targeted for conducting site visits and possible sampling.

1.1.3 Paved Roadway Surface Remediation Program

EPA and IDEQ developed a Roadway Surface Remediation Strategy in 2012 in recognition of some road damage caused by heavy truck traffic during remediation work and potential ongoing risk posed by deterioration of paved roads in remediated areas (596 road segments). The purpose of the continuing program is to address the deterioration of paved road surfaces that are underlain by contamination. Work is intended to ensure road surfaces continue to serve as barriers that reduce or eliminate exposures.

In 2013 through 2015 approximately 37 miles (253 road segments, about 42.5%) were paved or repaired. This is impressive considering that many roads projects completed thus far have been segments that required total rebuilds as opposed to the projects anticipated for 2018 and 2019 that will likely need patching, chip sealing and/or overlays.

In 2016 approximately 10 miles of roadways will be paved in the Box and Basin. Of this, approximately 7.6 miles will be completed in the Box where there is the opportunity to joint venture paved roads projects with sewer projects in Kellogg for example. This opportunity has been realized because of the Kellogg sewer bond election that passed in

November of 2014, and the City's receipt of a U.S. Department of Agriculture Rural Development grant that was awarded in 2015. Those bonds and grants call for completion of infrastructure replacements under Roads Program segments to be completed by the end of 2018. Consequently there is a need to expedite roads projects to compliment the construction sewer projects in that time frame.

1.1.4 Remedy Protection Projects

Remedy Protection is a high priority in the Bunker Hill Superfund Cleanup Implementation Plan (SCIP). The objective of this work is to protect the installed human health related remedy from recontamination and scouring caused by heavy precipitation and tributary flooding. All Remedy Protection projects are now complete in the Box. In 2016, work on projects in the Upper Basin portion of OU-3 noted in the RODA will continue. That work will include completion of design and construction work in the Copper Street, Boulder Creek, and Mill Creek areas in Mullan and Printers Creek in Wallace. 2016 work will also include design work on several projects including Rosebud Gulch in Osburn and two side gulch projects, one near Canyon Creek and one within Hunt Gulch.

EPA and IDEQ will continue with additional analysis to define the remedy protection projects for the side drainages outside the larger community areas. Completion of the analysis process and preparation of an Explanation of Significant Differences (ESD) or other decision documents will continue in 2016 so that those projects can be incorporated into the on-going Remedy Protection work.

1.1.5 Blood Lead Screening in Children

The Panhandle Health District (PHD) has been screening children for elevated blood lead levels in the CDA Basin since 1996 as a public health service through the Lead Health Intervention Program (LHIP). 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 assess the effectiveness of the Basin cleanup efforts. The cleanup action decisions are not based on annual blood lead testing results. Rather, the goal is to prevent lead exposures that could result in elevated blood lead levels.

In 2012 the Centers for Disease Control established a new threshold value for blood lead levels in young children. According to CDC's fact sheet, "This new level is based on the population of children aged 1-5 years in the U.S. who are in the top 2.5% of children when tested for lead in their blood. Currently, that is 5 micrograms per deciliter of lead in blood." Previously, CDC's blood lead level of concern" was 10 micrograms per deciliter. In response to this change the PHD has used the 5 micrograms per deciliter as the trigger for follow up since 2012.

Currently, LHIP tests children and prenatal women living within the Basin on a year round basis. Children living outside the Institutional Controls Program (ICP)

Administrative Boundary who recreate in the CDA Basin are also eligible for free screening by scheduling an appointment with the Kellogg Panhandle Health District office. The annual summer screening will be conducted again in 2016 and will offer a \$30 incentive for each qualifying child between the ages of 6 months to 6 years of age. Screening in 2015 was conducted at the PHD Office in Kellogg as opposed to using upper and lower basin sites as was done in the past. Participation numbers increased for 2015 for all screening categories. PHD will utilize a single location for the 2016 summer screening event.

1.1.6 Recreation Use Activities

The OU-3 Interim ROD includes remediation of Lower Basin recreational use areas to reduce human exposure to lead and other metals. Some priority developed recreational use areas were identified in the ROD and these areas and others identified by cooperating agencies have been remediated. Additional dispersed recreational use areas will be evaluated for cleanup based on factors such as risk of exposure, location, and use. However, due to the widespread contamination throughout the CDA Basin and the potential for recontamination at dispersed, undeveloped recreation sites; it is not generally feasible to remediate these areas. Increased education and outreach will be undertaken to inform people on how to protect their health while recreating in the CDA Basin. Meanwhile, in a related effort, several agencies are working together to inventory frequently-used dispersed recreation sites.

2016 Tasks

1. Community Involvement Coordinators (CICs) continue to raise awareness of human health risks associated with recreating in the CDA Basin and to educate people on how to minimize those risks.
2. PHD and IDEQ continue to work on Riley Raccoon Recreation Education Program to support the Lead Health Intervention Program (LHIP). A primary role of the CICs is participation and development of lead health awareness and support of PHD and the LHIP. Target recreation-related lead intervention education in the Basin including shorelines and floodplains of the river system (with exception of the North Fork), recreation areas on hillsides near the Bunker Hill Box, and historic mine sites.
3. CICs collaborate with land management agencies to reduce the risk of recreational exposure through the creation of additional “clean” areas for people to recreate, if the opportunities arise.
4. CICs will coordinate an effort to update human health signs along the Trail of the Coeur d’Alene’s and in other recreation areas throughout the CDA Basin.

1.1.7 Fish Tissue Sampling

The selected remedy in the OU-3 ROD includes educational resources and health advisories to manage the potential for metals exposure through consumption of fish. During 2016, fish tissue samples will be collected to review and update health advisories. Fish tissue samples will be collected in accordance with the Idaho Fish Consumption Advisory Project (IFCAP) protocol from the South Fork Coeur d'Alene River, Coeur d'Alene River and Chain Lakes, Coeur d'Alene Lake, and Spokane River in Idaho. The goal for 2016 is to collect and analyze samples following a sampling plan cooperatively developed under IFCAP with the Coeur d'Alene Tribe. This plan will identify sampling locations, target species, and indicator metals for analysis. Fish species will be selected based on fish present in each water body, fish harvested for consumption, fish life histories, and known data gaps. The analytical results will be provided to IFCAP and the Coeur d'Alene Tribe. During 2017, IFCAP will prepare a Health Consultation Report in coordination with the Coeur d'Alene Tribe. Health advisories for fish consumption in will be issued by the Idaho Department of Health and Welfare through IFCAP and the Coeur d'Alene Tribe. The goal of IFCAP and the Tribe is to protect the public from adverse health risks associated with consuming contaminated fish.

For more information on the IFCAP protocol visit:

<http://healthandwelfare.idaho.gov/Health/EnvironmentalHealth/FishAdvisories/tabid/180/default.aspx>

1.2 REPOSITORY DEVELOPMENT AND MANAGEMENT

Background

There are currently three operational repositories within the OU-3 area, Big Creek Repository (BCR), East Mission Flats Repository (EMFR) and Lower Burke Canyon Repository (LBCR). The Page Repository provides for disposal of remedial and ICP wastes in the Box (OU-1 and OU-2 areas). In 2015 disposal of relatively inert asphalt concrete and road base in the aforementioned repositories was minimized by developing two Limited Use Repositories (LURs) in East Osburn and Government Gulch.

Repository development and management is an ongoing process that must meet the demand for disposal of historic mining related contamination for the Basin environmental and human health related cleanup program. This includes the BPRP, other cleanup actions performed by IDEQ, EPA, and the Trust. It also includes waste generated by private parties and local government agencies under the ICP. Without the operation and expansion of existing repositories or the construction of new repositories, continued cleanup and control of contamination could be compromised and potentially stopped.

The siting, development and use of LURs will continue to be a major task for the agencies and the Trust while the Paved Roads Program generates over 50,000 cubic yards of asphalt concrete and base materials every year for the next three to five years. The Government Gulch LUR will continue to provide for disposal of more than 60,000 cubic

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yards in 2015 - 2017. The Trust is currently scoping out several new sites for LURs in the Upper Basin to utilize in 2016 and 2017. These include the Shoshone County Transfer Station near Big Creek, the “Zanetti Triangle” near the Idaho Transportation Department (ITD) yard north of Osburn, and the Sunshine Mine tailings Impoundment in Osburn.

BCR is located at the mouth of Big Creek Canyon and primarily serves the Upper Basin. The BCR has received waste since 2002. The total designed waste disposal capacity is approximately 600,000 cubic yards (cy). The BCR is estimated to reach the total design capacity of 600,000 cubic yards in 2016. The Trust is currently reviewing the BCR waste disposal plan and existing footprint in order to increase the original volume estimate above 600,000 cy. The Trust is evaluating the possible expansion of BCR to the east which could allow for an estimated additional 80,000 cy. Additional capacity near BCR was identified several year ago just southwest of the original site on the west side of Big Creek. This location is identified as the Big Creek Repository Annex (BCRA). During 2014 the development of the BCRA included the development of the repository design, relocation of utilities at the site and construction of an access road bridge over Big Creek. The work was completed in the spring of 2015 and BCRA has been receiving waste. The BCRA uses the existing BCR access, decontamination, and ICP staging facilities as well as the current Operator. The initial design waste capacity of the BCRA is approximately 250,000 cubic yards. Construction of this additional disposal area was completed in 2015.

EMFR is located north of Interstate 90 off Exit 39, near Cataldo and primarily serves the Lower Basin. The EMFR has been receiving waste since 2009. The designed waste capacity is approximately 410,000 cubic yards. At the current and estimated future waste disposal rates the EMFR is estimated to reach the design capacity in approximately 30 years.

LBCR is located in Burke Canyon on the Star Tailings Impoundment near the community of Woodland Park. Design activities by the Trust for LBCR began in late 2012 and continued through 2014. The total design waste capacity is more than one million cubic yards. Construction of the first phase of the repository by the Trust including site access roads, ICP disposal area, decontamination facilities, and employee facilities were completed in the fall 2014.

The Page Repository, which has been operating for almost 20 years, is located just west of Smelterville. Having reached its previous design capacity in 2010, Page was been expanded to dispose an additional 700,000 cubic yards of waste. Because of policy change to use LURs to dispose of over 150,000 cubic yards of relatively inert asphalt concrete and road base from the Box Paved Roads Program, the service life of the Page West Expansion was likely extended by 10 years, for a total life expectancy of about 45 years.

Objectives

The Repository Work Plan focuses on the following objectives:

- (1) Box repository operations
- (2) Continued development of Box repository capacity to support remedial action projects in the near term and sustain ICP support in-perpetuity
- (3) Facilitate the disposal of inert road wastes in LURs
- (4) Operating BCR, BCRA, EMFR, and LBCR
- (5) Beginning Final closure of BCR, expected final closure in 2017
- (6) Increasing repository volume in the Upper Basin
- (7) Updating of the Waste Management Strategy (WMS) including considerations for waste reduction or consolidation.

Specific tasks to achieve these objectives are summarized below:

Box Repository Operations

The estimated annual waste disposal capacity needed at the Page Repository and Government Gulch LUR for 2016 through 2020 is approximately 66,000 cubic yards which include about 16,000 cy of ICP wastes, and 50,000 cy of Paved Roads waste. Page Repository and Government Gulch LUR operations will include but are not limited to the following tasks:

- Receipt and placement of Remedy Protection, Paved Roads and ICP wastes
- Segregation and appropriate re-use or disposal of non-soil waste such as wood and root wads, concrete, asphalt, large (greater than 6 inch) rock fragments and miscellaneous demolition debris
- Equipment decontamination, site stabilization, erosion and sediment control installation
- Surface and ground water monitoring and associated reporting.
- Waste stream management to minimize disposal and maximize re-use of high volume waste materials.

Increasing Box Repository Capacity

To accommodate the anticipated waste volume, Expansion Cell(s) #1 and #2 at Page have been founded and are accepting Remedy Protection and ICP wastes. Furthermore the 6.5 acre area in Government Gulch has been developed to accommodate approximately 80,000 cubic yards of road wastes generated in 2015 – 2017 in the Box. The Government Gulch LUR was developed complete with a ground water interception system to prevent groundwater from contacting historic wastes from the Phosphoric Acid Plant and the Zinc Plant, and it was developed with a permanent storm water management system to service the 6.5 acres fill site.

Page expansion requires careful planning and coordination to limit construction costs while maintaining sufficient capacity. Although construction of the foundation for

expansion cell #3 will not be necessary for at least 10 years, repository expansion will occur in two to three acre phases. Each phase will be initiated by constructing a foundation layer consisting of a “starter berm” from two to four foot concrete blocks, filled behind by a “mattress” layer of 1 inch plus to 12 inch minus materials. The starter berms and mattress materials have been designed to exceed geotechnical criteria for structural stability and to platform placed wastes above the 50 year flood conditions that may be realized in the West Page Swamp. Cost effective construction of the foundation layer depends on segregation of waste generated during remedial actions and re-use of appropriate material during mattress construction. If sufficient repository capacity is not available, mattress material must be purchased adding significant cost to the expansion. The pace of cost effective repository expansion could be accelerated if sufficient quantities of segregated waste are available for foundation construction.

Basin Repository Operations

Although nearing completion, the BPRP is likely to include both Lower and Upper Basin property remediation in the 2016 construction season generating an estimated 5,000 to 10,000 cy of waste material. In addition, total Basin ICP waste volume projections are as high as 5,000 cy per year and paved road projects in the Upper and Lower Basin could generate from 35,000 to 120,000 cy of waste for repository disposal. Although significant uncertainty exists in waste volume projections due to its dependence on local funding of infrastructure projects, waste requiring repository disposal in the Upper and Lower Basin could be as high as 170,000 cy. Anticipating that need, the Basin repository operations include but are not limited to the following tasks:

- Receipt and placement of BPRP, Remedy Protection, Paved Roads and ICP wastes
- Segregation and appropriate re-use or disposal of non-soil waste such as wood and root wads, concrete, asphalt, large (greater than 6 inch) rock fragments and miscellaneous demolition debris
- Equipment decontamination, site stabilization, erosion and sediment control installation
- Surface and ground water monitoring and associated reporting.
- Placing waste to consume all remaining capacity at BCR
- Transition of operations from BCR to the LBCR and the BCRA.

Closure of BCR

The BCR was estimated to reach original design capacity of 600,000 cy in 2016. As noted above the Trust is currently reviewing the original BCR design placement plan in order to increase capacity at the BCR which could allow for at least another year of operation. The Trust is also working to develop a closure plan for the BCR.

Increasing Upper Basin Repository Capacity

Increasing Basin repository capacity will be needed to dispose of the waste material generated by the cleanups identified in the 2002 OU-3 ROD and the Upper Basin RODA.

The Upper Basin RODA adopted a two-part approach to waste management that utilizes both the Waste Consolidation Areas (WCA) and repositories. Waste generated by remedial actions in the East Fork of Nine Mile Creek is being disposed of in the WCA developed by the Trust. In order to address the waste disposal needs for other cleanup actions, a repository siting process driven by public input identified two new repository sites to support cleanup activities in the Upper Basin. One repository is the LBCR which began receiving waste materials in 2015. Baseline site characterization data was collected at Osburn Tailings Impoundment (OTI) and a 30% design was completed in 2011. Due to a change in remedial project planning from the RODA process, and to coordinate closely with Hecla Mining Co. activities at the Star Mine Complex in Burke, the OTI design was put on hold to focus on the more immediate needs for repository capacity in Canyon Creek. During 2015 the Trust began evaluating and collecting data towards the possibility of improving and expanding the existing Silver Valley Natural Resource Trustee (SVNRT) repository in Canyon Creek. This area in combination with the existing LBCR will likely be able to handle all waste generated in Canyon Creek.

The repository design program is a dynamic process driven by many factors, including waste stream volume estimates, priority cleanup site locations, funding availability and active mine site activities. As cleanup implementation plans are finalized and waste stream volume generation schedules are developed, repository designs, technical evaluations, and property acquisition will proceed at the repository sites currently identified through the public planning process or new sites best located to serve the cleanup program in the 10 year planning period.

Waste Management Strategy Update

The WMS is a key document that guides repository siting and waste disposal or re-use. It contains the most current estimates of future waste volumes and implementation schedule forecasts within geographic areas. The WMS will be updated to incorporate additional information regarding the projected waste volumes generated by OU-2 and OU-3 remedial activity and remaining repository capacities. The revised WMS is being developed jointly by IDEQ and EPA and in coordination with the Trust, PHD and the TLG and/or Repository Project Focus Team (PFT), when appropriate.

1.3 ENVIRONMENTAL REMEDIATION ACTIONS

Environmental remediation actions include work in the Upper Basin described in the RODA and work in the Lower Basin described in the OU-3 ROD.

1.3.1 Upper Basin Remedies

This work includes remediation identified for the Upper Basin which includes the South Fork Coeur d'Alene River (SFCDAR) and its tributaries above its confluence with the North Fork.

The Upper Basin RODA identified \$635 million of work in the Upper Basin including potential work at 125 mine and mill sites. The EPA SCIP identifies the priority setting process and outlook for sequencing the work over the next 10 years and the list of mine and mill sites to be addressed has been reduced to 95 through assessments activities. This document is updated on an annual basis as part of the adaptive management process to incorporate lessons learned as the work moves forward¹. Additional information about the RODA and prioritization of cleanup actions including technical memos, meeting presentations, and community involvement documents are located at the following web site: <http://yosemite.epa.gov/R10/CLEANUP.NSF/sites/bh+rod+amendment>

The goals of the RODA include:

- Prioritizing Upper Basin/Box source areas for cleanup to improve water quality and address risks to human health and the environment,
- Moving forward on the OU-2 Phase 2 cleanup to improve water quality in the SFCDAR
- Addressing changes in water treatment to accommodate additional contaminated water,
- Focusing on source control actions that address particulate lead which poses a risk to human health and ecological receptors, and
- Protecting remedies in community areas from tributary flooding and heavy precipitation events.

The prioritized cleanups under the RODA are expected to provide significant improvement to surface water quality and will reduce the contribution of contaminated groundwater to surface water. There will also be reduced particulate lead in the CDA River and downstream areas as a result of this work. These actions in turn are expected to reduce the recontamination potential in the Lower Basin and other downstream areas and reduce risks to humans and wildlife from exposure to contaminated mine waste. This BEIPC 2016 work plan focuses on those cleanup actions that have either already started or been planned for the coming year.

The following is expected to be the focus of the work in 2016.

1. The Trust completed remediation work in East Fork Ninemile (EFNM) watershed including the Interstate Callahan Rock Dumps and associated riparian areas in 2015. The Trust will begin cleanup of the Success Site and associated riparian areas in 2016. It is expected that this work will take 4 years to complete.
2. In 2016, the Trust will continue characterization work in the EFNM watershed, focusing on the Tamarack area.
3. In 2016, the Trust will continue to do characterization in Canyon Creek at the SVNRT repository site. Work will be done to determine if measures can be taken to stop the seepage with the current configuration or if the deposited repository material will need to

¹ An update including lessons learned from 2014 is currently being prepared and will be available in December or January.

be removed and the repository area prepared with a sufficient drainage system to prevent further contaminant migration through the deposited material. It is anticipated that 30% design for the cleanup will be completed by the end of 2016. In the interim, to prevent exposure, the area has been fenced to eliminate the current unauthorized use by pedestrians and ATV's.

4. Planning and design for upgrades to the Central Treatment Plant (CTP) continue in accordance with the 2012 update of the CTP Master Plan. The CTP upgrades are necessary to treat additional influent flow from the Groundwater Collection System (GCS), improve system reliability, meet current, more stringent discharge requirements, and operate in High-Density Sludge (HDS) mode. The performance work statement for the upgrades was completed in August 2015 and the design-build-operate contractor is scheduled to be selected by January 2016. These upgrades have been necessary for some time to provide dependable and more efficient water treatment for the Bunker Hill Mine water, which is currently treated at the CTP, and collected groundwater from the GCS near the Central Impoundment Area (CIA) after it is installed and placed on-line. The CTP will be designed to treat influent flows at rates that nearly triple the current rate of base flows from the Bunker Hill Mine. Excess flow from the Bunker Hill Mine will be diverted to in-mine storage. The plant is currently not capable of meeting discharge standards when being operated in HDS mode but the upgraded plant when operating in HDS mode will result in much less sludge production, more efficient operating conditions, and fewer sludge ponds being constructed over time. Following treatment, the effluent (combined mine water and extracted groundwater) will be discharged from the CTP to the SFC DAR in compliance with current water quality standards. On an average basis, the GCS is expected to result in significant removal of dissolved metals, the most notable of which is zinc that is currently being discharged to the SFC DAR from groundwater interaction, as discussed in the following paragraph.

5. The conceptual design for the GCS was completed in 2014 and the final design and construction of the remedy will be integrated with the CTP upgrades under the same design-build-operate contract. The proof-of-concept design includes an 8,000-linear feet cutoff wall between the CIA and Interstate 90 (I-90), a series of extraction wells, and a conveyance pipeline to the CTP that extends along the north side and over the top of the CIA. Groundwater flow and strength (concentration of metals) predicted by the mathematical model represents the range from base flow/strength (late summer/winter) through maximum flow/strength (spring runoff). Considering this seasonal variability and groundwater monitoring well data from south of I-90 the estimated metals loading to the gaining reach of the SFC DAR ranges from 250 to 450 pounds per day (lbs/day). A significant unknown is the potential source of metals in tailings under and north of I-90 that will not be captured by the groundwater collection system. However, the optimistic target is to capture up to 90% of this estimated load.

1.3.2 Lower Basin Remedies

Work described in the OU-3 Interim ROD for the Lower Basin includes actions for wetlands and lateral lakes, river banks, splay areas and river bed dredging. Objectives of

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remediation in the Lower Basin focus on improving water quality and reducing particulate lead and other heavy metals in the Basin ecosystem.

EPA continued to invest in data gathering efforts in 2015 to address key data gaps pertaining to the relationship between Basin ecology and ongoing effects and movement of historic mining related contamination. This is a multi-year effort, described in the Enhanced Conceptual Site Model (ECSM, EPA release 2010), focused on filling critical data gaps and computational model development to better understand and predict contaminated sediment transport in the Lower Basin. Such modeling and data collection will further enhance the working hypothesis for contaminated sediment locations, concentrations and transport and will support the selection of pilot projects, future cleanup decision making, project prioritization, and future decision documents. The results of these data gathering efforts continue to be shared with the subgroups of the BEIPC (e.g. Lower Basin PFT, TLG and CCC), interested stakeholders, and citizen groups after they are compiled and synthesized. In 2015, the 2-dimensional hydraulic model calibration was completed and in 2016 EPA resources will focus on completing the 2-dimensional sediment transport model. Cleanup options and potential pilot projects will be evaluated using the models as they become available.

In 2016, EPA staff will continue to assess key factors associated with selection and implementation of potential pilot projects at several sites in the Lower Basin and will be determining viability of those sites, in coordination with the Restoration Partnership.

The Lower Basin PFT will continue to assist the TLG and provide updates on new technologies, pilot projects for consideration, and project ideas in order to implement the ROD for OU-3 where remedial actions are identified and where the potential for recontamination is low. The Lower Basin PFT will continue to pursue the identification of both pilot projects and larger scale projects in the Lower Basin that could benefit from remedial action and restoration work and are of low risk of recontamination. This will be accomplished while continued cleanup priorities focus on human health and addressing source stabilization in the Upper Basin and decreasing recontamination potential in the near term.

Documents that will be generated as a result of the Lower Basin work include modeling work plans, model development reports, data reports and other technical memorandums that are generated as more is learned about contaminated sediment transport and source areas in the Lower Basin. These documents will be available to the subgroups of the BEIPC (e.g. Lower Basin PFT, TLG and CCC), interested stakeholders and citizen groups.

The actions being planned and undertaken in the Upper Basin discussed in earlier sections are expected to improve water quality and reduce the movement of contaminated sediments downstream into the Lower Basin. Thus, the Upper Basin cleanup is expected to complement cleanup activities in the Lower Basin by reducing the loading of contaminated materials to the watershed and reducing the potential for recontamination from the Upper Basin to the Lower Basin.

In 2016, EPA will develop a comprehensive strategic plan that will further build on the work that has been produced or is already underway related to the Lower Basin. It will detail the work to be completed over the next 3-5 years, outline a decision matrix or tool for prioritizing projects and remedial actions that may be completed over the next 20-30 years, and detail a stakeholder and community engagement process. EPA will develop the plan and seek input from the Lower Basin PFT, CCC and other stakeholders on the plan before finalizing it. EPA anticipates the strategic planning development process to be completed by the end of 2016. EPA is not selecting new remedies for the Lower Basin through this strategic planning process, but prioritizing, evaluating, and implementing actions that have been previously selected in the decision document and pilot projects as part of its remedial investigation/feasibility study process. The 2002 ROD provides a large degree of flexibility in how EPA chooses to approach development and implementation of remedies in the Lower Basin. However, EPA may select supplemental actions, which are not explicitly identified by the ROD, and which may require additional ROD amendments or Explanation of Significant Differences (ESD).

EPA is also in the planning stages for reviewing several pilot projects in the Lower Basin including beach replacements/modifications, river bed pilot project analysis, and floodplain soil capping and amendments. Long-term projects such as agricultural to wetland projects will also be considered for planning in 2016.

In the late summer of 2015, the wetland restoration project on property owned by the Idaho Department of Fish and Game near Robinson Creek was underway. The property acquisition and restoration work was only made possible through the collaboration of multiple entities including Idaho Fish and Game, Idaho Transportation Department, the Restoration Partnership, and AVISTA. Superfund dollars, through IDEQ, will be used to construct the wetlands in return for the wetland mitigation credits required for the expansion of the Page Repository. Work plans were finalized in 2015 and construction commenced. On the ground work will be completed in 2016 and includes but is not limited to; 1) the development of a series of wetland and island features, 2) planting of native vegetation (e.g., water potato which is a culturally significant species to the Coeur d'Alene Tribe and a vital source of nutrition to Tundra Swans and other water fowl), and 3) stream alterations of Robinson Creek. The wetland restoration will create clean waterfowl habitat. This project is an excellent opportunity for collaboration between multiple entities and it will provide valuable experience for learning how to get the most out of natural resource restoration funds.

1.4 BASIN ENVIRONMENTAL MONITORING

EPA has been working over the last several years to optimize the current sampling program by reducing the overall effort while continuing to update data quality objectives to better meet both remedial action effectiveness and long term monitoring needs of the cleanup. For over ten years, EPA has implemented the Basin Environmental Monitoring Program (BEMP) to meet the following objectives:

- Assess long-term status and trends of surface water, sediment, groundwater and biological resource conditions in the Basin.

- Evaluate progress toward meeting remedial action objectives (RAOs), applicable or relevant and appropriate requirements (ARARs), and preliminary remediation goals (PRGs).
- Improve the understanding of Basin environmental processes and variability to improve the effectiveness and efficiency of remedial actions.
- Provide data for CERCLA required Five-Year Reviews of remedy performance.

Extensive data from the site has been collected, analyzed and presented in the 2015 Five Year Review. EPA has been working with an optimization team from EPA headquarters and monitoring agencies to evaluate the BEMP data and explore changes to the program that reduce redundant or outdated monitoring from phase 1 remediation work.

In 2016, EPA will be implementing recommended changes from the optimization review. The recommendations will help streamline and focus monitoring efforts in the Basin. Below are the overarching recommendations from the optimization effort:

- Distinguish monitoring required to assess Remedial Action performance and efficacy versus long-term progress toward remedial goals.
- Develop monitoring objectives for all monitoring based on information needed for site management decisions and regulatory requirements.
- Define baseline datasets for each monitoring program and medium.
- Articulate assumptions and expectations about chemical quality and ecological responses to remedial efforts.
- Describe how data will be managed and analyzed.
- Identify management actions potentially resulting from the outcome of data analyses.

EPA is currently developing a new Bunker Hill Superfund Site-wide Environmental Monitoring Program Management Plan, a Site-wide Quality Management Plan and a Site-wide Data Management Plan that will incorporate these recommendations. EPA plans to have these documents available for agencies collecting data to support site work in early 2016.

EPA continues to make available the analytical results from site surface water, sediment, groundwater and biological resource sampling through WQX, EPA's Water Quality Exchange; human health-related data will not be included in this database. EPA no longer has regional support to make environmental monitoring data available through a web page. Site environmental monitoring data are accessible via WQX and EPA Headquarters can assist interested stake holders in accessing the information. Stakeholders can call 800-424-9067 for support.

PART 2 – OTHER ACTIVITIES AND RESPONSIBILITIES

For Part 2, the scope of this work plan recognizes a number of work items that the BEIPC will be involved in and items of work needed to accommodate some of the

recommendations of the NAS study; it also includes implementation of the Lake Management Plan by the State of Idaho and CDA Tribe and the activities of the Natural Resource Trustees (Restoration Partnership).

The plan includes the following work:

- Lake Management Activities
- Flood Control, and Infrastructure Revitalization
- Communications and Public Involvement
- Restoration Partnership

2.1 LAKE MANAGEMENT ACTIVITIES

The OU-3 Interim ROD did not include CDA Lake in the Selected Remedy nor is there a remedy identified in the Upper Basin RODA. The OU-3 Interim ROD anticipated that the State, Tribe, federal agencies, and local governments would implement a Lake Management Plan (LMP) outside the CERCLA (Superfund) process using separate regulatory authorities. The updated LMP was approved in 2009 and implementation has been underway. Implementation of the LMP is an adaptive management process and adjustments may be necessary as monitoring and other data are obtained and analyzed.

As referenced in Subsection 4.5.1 of the 2009 LMP, many of the agencies, governments, and other stakeholders that address water quality in CDA Lake are represented on the BEIPC, TLG or CCC. As such, these various BEIPC forums represent unique opportunities for LMP coordination and implementation which IDEQ and the Tribe intend to fully utilize. In addition, LMP staff will continue to coordinate with county representatives at least quarterly.

Objectives of the LMP (as outlined in Section 3) include the following:

1. Improve Scientific Understanding of Lake Conditions through Monitoring, Modeling, and Special Studies.
2. Establish and Strengthen Partnerships to Maximize Benefits of Actions under Existing Regulatory Frameworks.
3. Develop and Implement a Nutrient Reduction Action Plan.
4. Increase Public Awareness of Lake Conditions and Influences on Water Quality.
5. Establish Funding Mechanisms to Support the LMP Goal, Objectives, and Strategies.

Below are activities envisioned for implementation of the LMP in 2016. These activities are categorized under objectives 1, 3, and 4 from the LMP. Objectives 2 and 5 are intertwined throughout all objectives, and there are other crossovers between objectives. In the activities outlined below, those that address or facilitate additional objectives have those noted at the end of the task. Given limited staff and resources, LMP staff has not reached all milestones laid out in the LMP. IDEQ and the Coeur d'Alene Tribe will revisit LMP objectives and milestones in order to come to a mutually agreed upon refined

timeline for 2016 and beyond. This timeline will be shared with the TLG, CCC, and BEIPC for feedback.

In addition to the items listed below, in 2016, the Tribe, State of Idaho, EPA, and Counties will meet to discuss evaluations of the LMP effectiveness in light of recent monitoring information.

Increase Scientific Understanding (Objective 1):

1. IDEQ and the Tribe will continue joint water quality monitoring throughout Coeur d'Alene Lake for metals, nutrients, and physical parameters. In 2016, the Tribe, State of Idaho, and Counties will evaluate the effect that potentially reduced BEMP monitoring in the Coeur d'Alene River will have on Lake Management activities while simultaneously encouraging EPA to pursue adequate funding for monitoring. In the summer of 2016, the Tribe will also install a data logger buoy in the southern portion of the lake to collect parameters such as water temperature and dissolved oxygen at multiple depths. The location of the logger buoy has yet to be determined. **Facilitates Objective 5*
2. The Tribe and IDEQ will continue utilizing the ELCOM-CAEDYM and LOADEST models. These models are utilizing real-time data that is collected from Coeur d'Alene Lake including the establishment of four meteorological stations. *Facilitates Objective 5*
3. In early 2016 (January-February), core LMP monitoring plans will be shared with the TLG and CCC once a preliminary monitoring schedule has been agreed upon between IDEQ and the Tribe.
4. A draft 5-year lake monitoring report (State of Lake Water Quality Update, as outlined in section 5.1 of the LMP) was presented to the TLG in 2015, and input was solicited. Revisions have been made and data from 2013 and 2014 has since been incorporated. This revised report will be distributed to the TLG and BEIPC in January-February 2016. **Supports Objective 2*
5. The 2015 update to the State of Lake Water Quality is expected to be available for TLG and BEIPC review in spring of 2016.
6. In 2013 Kootenai and Shoshone County representatives raised questions regarding field replicate samples and the resulting relative percent difference. LMP staff will evaluate QA/QC results from existing data and evaluate potential implications for trend data reported in the State of Lake Water Quality updates (see 3 & 4 above). This analysis will be reported to the TLG.
7. Synthesis of Lake Trend data will be initiated to look further into variability and relationships among parameters measured in order to help inform stakeholders on possible causative factors for observed trends.
8. Both the Tribe and IDEQ are collaborating with the University of Idaho EPSCoR "Managing Idaho Landscapes for Ecosystem Services (MILES)" project, which will take place through 2018. The project will support joint outreach activities, special studies, and will be used to leverage support for additional research. In 2016, the MILES project team will be assessing the social aspects of water quality management in the Coeur d'Alene Basin. **Supports Objectives 2, 4, and 5*

9. In 2016, IDEQ and the Tribe will continue to partner with area research universities to pursue funding to support research on nutrient sources in the watershed, nutrient cycling in lakebed sediments, and strengthening the predictive ability of ELCOM-CAEDYM. **Supports Objectives 2, 3, 4, and 5*
10. In 2015, Kootenai and Shoshone County representatives raised questions regarding different methods used for phosphorus analyses by the labs utilized by IDEQ and the Tribe. Through ongoing QA/QC, LMP staff are analyzing data between the labs. A detailed analysis will be presented to the TLG in the spring.

Nutrient Reduction and Implementation (Objective 3)

1. Information from the 3 Year Nutrient Source Inventory in the St. Maries/St. Joe River watersheds (2010-2012), as well as historic published nutrient data from rivers and streams, will be compiled into a summary for stakeholders and distributed once complete. The LMP team anticipates this will be complete by February 2016. **Supports Objectives 1, 2, and 5*
2. The data compilation referenced in item 1 is being used to develop a more comprehensive GIS-based basin-wide estimate of nutrient loading. The resulting preliminary nutrient source inventory will be distributed to the BEIPC, TLG and CCC as it is developed. LMP staff anticipates this will be ready for distribution in spring of 2016. The inventory will be a dynamic resource, with updates as new information becomes available in the future. **Supports Objectives 1, 2, and 5*
3. The LMP team will utilize the preliminary nutrient source inventory above to identify potential sites for future monitoring where more information is needed. **Supports Objectives 1, 2, and 5*
4. In support of the Nutrient Source Inventory, feasibility of conducting erosion inventory work on the lower 9 miles of the St. Maries River will be assessed. This information may exist from previous work.
5. LMP staff will continue to communicate nutrient load estimate results to Watershed Advisory Groups and other potential partners for feedback and project identification as information is obtained. The inventory data, along with feedback and potential projects identified through communication with stakeholders such as WAGs, county representatives, homeowner groups, and others will be used to inform a nutrient reduction action plan. **Supports Objectives 2 and 5*
6. The LMP team will participate in Coeur d'Alene Basin Watershed Advisory Group discussions in order to coordinate implementation opportunities. LMP staff will provide support on implementation of selected projects that align with LMP goals, as opportunities arise. **Supports Objectives 2 and 5*
7. The Tribe and IDEQ partnered with Eastern Washington/North Idaho Girl Scouts in 2015 for the removal of invasive yellow flag iris and the installation of a vegetative buffer that features aesthetically pleasing native vegetation and recreational access. The team will continue to monitor the buffer through the coming year to ensure success in plant establishment, and to assist in maintenance needs. The project will be used as a demonstration site to encourage more implementation projects. **Supports Objectives 2 & 4*

8. LMP work plans and activities will be presented to the CCC for input in early 2016. **Supports Objective 2*
9. The LMP identifies an audit of its Management Action Tables (MATs) every 5 years. The audit process was initiated in 2014 by IDEQ and the Tribe and will be completed in 2016. This will facilitate identifying potential nutrient reduction project and partnership opportunities. **Supports Objective 2*
10. Stabilization projects along eroding banks will be evaluated and prioritized in collaboration with Avista Corporation, the Natural Resource Conservation Service (NRCS), the Soil & Water Conservation Districts, the Counties, and landowners. Potential project sites have been identified, and coordination with landowners is ongoing. **Supports Objective 2*
11. The Tribe will continue to implement and evaluate the invasive Aquatic Plant Survey and Treatment Program in the southern lake, and IDEQ will continue implementing their aquatic plant surveys within northern pool bays. **Supports Objective 1*
12. The LMP Coordinators will continue to be involved in the Lower Basin PFT and the TLG and support implementing projects identified in the 2002 OU-3 Interim ROD. **Supports Objective 2*

Increase Public Awareness (Objective 4)

1. The LMP Education/Outreach Program, Lake*A*Syst (a home owner's guide to environmental stewardship within the Coeur d'Alene Basin), developed in 2013, is undergoing revisions based on stakeholder feedback. A revised electronic version will be distributed to stakeholders, including county representatives and the CCC, in early spring 2016. **Supports Objectives 1 & 2*
2. In 2016, LMP staff will be providing support in design and plant selection for an outdoor classroom adjacent to the UI Harbor Center in Coeur d'Alene, and will be collaborating closely with the City of Coeur d'Alene and other partners to select storm water and Low Impact Development (LID) elements that will be incorporated into the site. **Supports Objectives 2 & 3*
3. LMP staff will partner with Spokane River Forum, CDA Vision 2030, and other agencies and stakeholders to plan and host a 2016 "Our Gem Symposium" to share information and get feedback from the basin-wide community. The tentative date for the 2016 conference is March 22 in Coeur d'Alene. **Supports Objectives 2 and 3*
4. LMP staff will continue to partner with University of Idaho to support Basin high schools involved in the "Confluence Project," which was awarded funds from EPA for 2015-2016. The team will continue to provide workshops and guidance to teachers and students involved in field-based watershed science. **Supports Objective 2*
5. LMP staff will participate in other joint educational and outreach opportunities as time allows. *Supports Objective 2*
6. The Local Gems program for local businesses will continue through 2016. This program recognizes businesses and organization that are doing things proactively to protect basin water quality. It is anticipated to additionally increase

- involvement in stormwater abatement and promotion of water quality. **Supports Objectives 2 & 3*
7. LMP activity updates will continue to be provided to various groups throughout the year. **Supports Objective 2*

Coordination with BEIPC forums will maximize opportunities for information exchange and advice working under the BEIPC MOA and work plans. Future coordination with the BEIPC recognizes that IDEQ and the Tribe retain their respective decision making authorities under CERCLA and the Clean Water Act (CWA).

2.2 FLOOD CONTROL AND INFRASTRUCTURE REVITALIZATION

The BEIPC through the office of the Executive Director continues to pursue support and funding for an analysis of flood control needs and the existing levee system in the South Fork CDA River and Pine Creek. The Executive Director will continue to work to develop an approach to dealing with potential flooding problems and levee management in the Upper Basin. The BEIPC will continue to assist Upper Basin communities and utilities in pursuing funding to implement the Upper Basin Drainage Control and Infrastructure Revitalization Plan (DCIRP). In 2016, the Executive Director will use the Inventory and Spread Sheet of Existing Drainage Infrastructure to coordinate with the local infrastructure jurisdictions on an Operation and Maintenance plan for the Upper Basin.

2.3 COMMUNICATIONS AND PUBLIC INVOLVEMENT

During 2016, the BEIPC and Community Involvement Coordinators (CICs) from EPA and IDEQ will work together to strengthen public involvement, communication, and education related to BEIPC activities. The CCC will continue to be the focus organization to facilitate the BEIPC public involvement process. The BEIPC Executive Director, Assistant, Project Focus Team Chairpersons, and CCC Chairperson may request EPA and IDEQ CICs to support public outreach regarding BEIPC activities. EPA and IDEQ CICs may in turn request their support for public involvement activities.

Following is a partial list of communications and public involvement work items and coordination opportunities:

- Make presentations to public groups. In 2016, PHD and IDEQ CIC's will work with the Tribe to provide presentations or informational brochures at the Benewah Medical Center in Plummer, ID.
- Explore and suggest opportunities for increasing public attendance at meetings and encouraging public involvement.
- Consider local community interests as laid out in the 2012 Technical Assistance Needs Assessment to support meaningful public involvement interactions in the BEIPC and CCC meetings.
- Consider feedback given by local public in the EPA 2014 Community Involvement Plan.

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- Support the CCC in meetings, communications, and exploring ways to maximize the group's value to interested local people.
- Sponsor and participate in a joint booth for public outreach/education at the North Idaho Fair.
- Help coordinate public education/outreach for BEIPC-sponsored activities such as open houses, workshops, training, or public meetings.
- Provide peer reviews for each other upon request to provide input or different perspectives on communication pieces (including brochures, communication strategies, fliers, and posters).
- BEIPC/CCC leads the development, production and distribution of brochures, advertising and meeting announcements.
- Upon request, CIC's may support BEIPC with suggestions for publicizing BEIPC events and meetings (ie: communications strategies).
- BEIPC may inquire about CIC availability to participate in distributing meeting announcements or supporting BEIPC meetings if coordinated in advance.

CIC's work directly with EPA, IDEQ, PHD, and BEIPC project managers as needed to tailor communications outreach and/or education for specific projects under the programs listed in this work plan. Outreach activities are often reported and discussed at CCC meetings.

2.4 RESTORATION PARTNERSHIP (Partnership)

The CERCLA Natural Resource Trustees in the Coeur d'Alene Basin are the United States (represented by the U.S. Forest Service, U.S. Fish and Wildlife Service and U.S. Bureau of Land Management), the Coeur d'Alene Tribe, and the State of Idaho (represented by the Idaho Department of Fish and Game and IDEQ). A series of lawsuits followed the Superfund designation in the Coeur d'Alene Basin for response costs and natural resource damages. Natural resources injured by contamination included surface and groundwater, soils and sediments, riparian resources, fish, birds, macroinvertebrates and phytoplankton.

Under CERCLA, settlements were reached with all parties. Following the final 2011 settlement agreement, the Trustees entered into a MOA to address the planning and implementation of restoration for natural resources and associated services injured, destroyed or lost as a result of the release of mining-related hazardous substances into the Coeur d'Alene Basin. As specified in CERCLA the funds will be dedicated to projects that restore, rehabilitate, replace, and/or acquire the equivalent of the injured natural resources. The Trustees' goal is to restore the health, productivity and diversity of injured natural resources and the services they provide in the Coeur d'Alene Basin.

In 2013, the Trustees branded their new name as the Restoration Partnership (Partnership) and, began developing a Restoration Plan and Environmental Impact Statement (EIS) following the National Environmental Policy Act (NEPA) process. This plan will be a comprehensive guide for restoration of injured natural resources in the Coeur d'Alene Basin and will be coordinated with remediation activities.

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In 2015, the Partnership continued working on finalizing the Restoration Plan and EIS for the Basin. Currently, the NEPA analysis of effects is underway and the goal is to provide a draft plan/EIS to basin stakeholders and the public in 2016 for public comment.

During 2016, the Partnership will continue to coordinate with the BEIPC, participate in PFTs, and provide updates on restoration planning efforts and ongoing implementation of projects that were identified in the 2007 Interim Restoration Plan. The Partnership will continue to coordinate with EPA to integrate restoration planning with remediation. The following work will occur for the ongoing wetland restoration project along the Lower Coeur d'Alene River:

- Schlepp Agricultural to Wetland Conversion Project: Management and implementation of restoration activities. A 10 year Restoration and Management Plan for the Schlepp Agricultural to Wetland Conversion Project will be developed. Ongoing long-term operation and maintenance will continue along with wetlands habitat management and success monitoring.