BEIPC Coeur d'Alene Basin Calendar Year 2020 Work Plan

INTRODUCTION

This plan covers proposed environmental cleanup and improvement activities in the Coeur d'Alene Basin scheduled for CY 2020 by the Basin Environmental Improvement Project Commission (BEIPC) and coordinating agencies and governments 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 2020 - 2024 Five Year Work Plan. This plan has been prepared by the Executive Director working with the coordinating agencies and governments 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 Environmental Protection Agency (EPA) and State of Idaho through the Idaho Department of Environmental Quality (IDEQ) or work performed by the Coeur d' Alene Work Trust (Trust) and Potentially Responsible Parties (PRP).
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> 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 2020 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 Water Supply Remediation, Basin Property Remediation Program (BPRP); Paved Road Remediation Program; Lead Health Intervention Program (LHIP); and Recreation Use Activities.
- 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 Program
- Operation and Maintenance Responsibilities for Remedial Actions

1.1 HUMAN HEALTH ISSUES

Remediation in areas where human health exposures exists is a remedial action priority as defined in the OU-3 ROD. It includes maintaining the Institutional Controls Program (ICP) managed by the Panhandle Health District (PHD) 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, and ecological cleanup projects with related human health activities.

1.1.1 Residential and Commercial Property Remediation

During 2019, the Trust's Basin Property Remediation Program (BPRP) remediated about 31 properties and sampled eight including residential and commercial properties, rights-of way, and private drinking water sources. Properties remaining to be sampled and/or remediated in the Upper and Lower Basin are those whose owners have refused access or have been unresponsive to repeated contact attempts by the Trust and IDEQ.

The goal for 2020 is to complete sampling and remediation if sampling results are above actions levels on parcels whose owners have granted access. Currently, 216 properties in the Upper and Lower Basin require sampling and 43 properties require remediation based on previous sampling. A total of 3918 properties in the Basin and 3235 properties in the Box have been remediated at the conclusion of 2019. Eight properties in the Box remain to be remediated once owners grant access.

In 2020, EPA will continue to direct and oversee the Trust's BPRP work. IDEQ will continue an oversight and coordination role initiated in 2015 and will continue to encourage property owner hold outs to have their properties sampled and remediated, if necessary.

1.1.2 Paved Roadway Surface Remediation Program

The BEIPC, 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. The purpose of the 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. There were 593 segments to be remediated in the original strategy. The EPA/IDEQ Roads Board has added 13 segments that were found to meet the criteria for remediation under the program resulting in 606 segments on the current eligible list. The local road jurisdictions are responsible for implementing the program and continuing operations and maintenance of the paved road segments as barriers. Work under this program is being carried out by the local road jurisdictions with funding through IDEQ and the Coeur d'Alene Trust.

As of the end of the 2019 construction season, Wardner, Smelterville, Eastside Highway District, Pinehurst, Osburn, Wallace, Mullan and Shoshone County Box have completed all of their eligible segments in the Paved Roads Program. In Kellogg, all roads that have been excavated during their sanitary sewer project have been completed. Kellogg has two remaining roadway segments to be completed in 2020. They are Bunker Avenue and Wildcat Way. These two projects were put on hold pending the construction of the Bunker Hill Central Treatment Plant. Shoshone County has approximately 50 remaining road segments in the program. Remaining funding in the Basin will be used to address as many of these roadway segments as possible during the upcoming 2020 construction season.

1.1.3 Lead Health Intervention Program (LHIP)

Screening of children for elevated blood lead levels has been occurring annually in the CDA Basin since 1996 as a public health service to identify children with elevated blood lead levels and to provide follow-up from a public health professional to identify ways to reduce lead exposures. The screening program also provides information to the Basin cleanup efforts; however, cleanup decisions are not based on annual blood lead testing results since the cleanup goal is to prevent lead exposures that could result in elevated blood lead levels.

In early 2012, the Centers for Disease Control & Prevention (CDC) changed its "level of concern" associated with childhood lead poisoning from a blood lead level of 10 micrograms per deciliter (µg/dl) to a new "reference value" of 5µg/dl. The new lower value means that more children will be identified as having lead exposure allowing parents, doctors, public health officials, and communities to act earlier to reduce the child's future exposure to lead.

Panhandle Health District (PHD) will continue to offer free blood lead screening for residents living within the Bunker Hill Superfund Site boundaries. In addition, PHD will again be conducting its annual summer screening with a $30 incentive for children between ages 6 months to 6 years of age residing within the Basin for 2020.

When an individual is identified with an elevated blood lead, it is recommended their physician be notified and Panhandle Health District will make an appointment for a home visit to identify potential sources of exposure in and around the home. These in-home consultations help PHD and individual families identify ways to reduce exposure risks. In addition, PHD can help identify potential exposure pathways the cleanup project can address to prevent lead exposures.

Additional Services offered by PHD's LHIP:

- Year-round blood lead screening and free follow-ups
- HEPA vacuum loan program for cleaning residences
- Education, outreach, and awareness for parents, children, community members, recreationalists, and visitors
- Education classes in local school's grades K-12
- Annual Environmental Science and Health Fair
- Education and outreach at community events
- Sampling of soil, dust, paint, water, and other media as appropriate

1.1.4 Recreation Use Activities

In 2016, a Recreation Sites Program was created to address and manage human health risks from exposure to lead and other metals that can occur during recreation activities throughout the Upper and Lower Coeur d'Alene Basin. A strategy document was developed to lay out goals, ways to inventory recreation areas, possible ways to manage risks to people, and current outreach activities. This strategy was issued for public and stakeholder comments and suggestions. The strategy and response to community input are available at: **www.deq.idaho.gov/playclean**.

Addressing contamination at recreation sites is different than other cleanup activities. Many places are recontaminated with each high water event or flood making it difficult to just remove contaminated soil and replace it with clean soil. Other recreation areas are remote, hard to access, and spread out, like hiking trails or ATV areas, making cleanup of the entire area difficult. Overall, different approaches are

needed for the various types and locations of recreation sites. In addition, community outreach and education are important ways to help people manage health risks while recreating. An outreach and education program has been in place for years and will continue to be implemented and expanded.

During 2020, the Recreation Sites Program, which includes EPA, IDEQ, PHD, CDA Tribe, and the CDA Trust, will meet at least biannually to evaluate and discuss priorities. In the Basin, the CDA Trust expects to start cleanup at the Cataldo Boat Ramp, sample other upper and lower basin areas that are known to have high usage by young children, continue to update and install new signage at identified recreation sites, and continue the temporary hand wash station installation at select boat ramps. In the Box, IDEQ and PHD will continue to update signage and evaluate access controls at mine and recreation sites where ATV and other use has been identified. Recreation sites that were sampled last year will receive signage, as necessary, and removal of material waste piles found in unrestricted areas will be coordinated. Planning for further remediation at the sampled recreation sites will continue. The overall goal is to address and manage human health risks from exposure to lead and other metals while maintaining the benefits of recreation for people's health and the local economy.

1.2 REPOSITORY DEVELOPMENT AND MANAGEMENT

Background

There are currently three operational repositories within the OU-3 area; Big Creek Repository (BCR), which includes the Big Creek Repository Annex (BCRA), 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 (OU1 and OU2). Limited Use Repositories (LUR) were initiated in 2015 for the disposal of relatively inert asphalt, concrete, and road base material. Of the four LURs developed, the Government Gulch LUR was closed, capped, and hydroseeded in 2019 after receiving its final 8,000 compacted cubic yards (cy) of material. The others were closed prior to 2019; East Osburn (2015), East Zanetti Yard and Shoshone County Transfer Station (2018). In addition, the community fill project (CFP) developed to accommodate ICP wastes generated by the City of Kellogg's infrastructure project was closed in 2019 along with the Government Gulch LUR.

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, Remedy Protection, Paved Roads Program, and 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.

BCR is located at the mouth of Big Creek Canyon and primarily serves the Upper Basin. The BCR has received waste since 2002. The BCR has undergone expansions in 2009 (+200K cy), 2011 (+126K cy), and 2017 (+126K cy) increasing its waste holding capabilities. BCR currently has a remaining capacity for approximately 107,000 cy. BCRA was constructed in 2015 and is located adjacent to the original BCR, just southwest of the original site on the west side of Big Creek. BCRA uses the existing BCR access, decontamination, and ICP staging facilities. The initial design waste capacity of BCRA was approximately 190,000 cy and has approximately 171,000 cy remaining.

EMFR is located north of Interstate 90 off Exit 39, near Cataldo, and primarily serves the Lower Basin. EMFR has been receiving waste since 2009. The EMFR was designed with a waste capacity of approximately 410,000 cy. At the current and estimated future waste disposal rates the EMFR is estimated to reach the design capacity in approximately 30 years. Approximately 9,400 cy of waste were delivered to EMFR in 2019. The EMFR has approximately 171,372 cy of volume remaining.

LBCR is located in Burke Canyon on the Star Tailings Impoundment near the community of Woodland Park. The CDA Trust completed the LBCR design and construction in 2015. Approximately 22,300 cy of wastes were received at LBCR in 2019. The remaining capacity at LBCR is about 1,050,000 cy of volume.

The Page Repository is located just west of Smelterville. Having reached its previous design capacity in 2010, Page is being expanded westward to provide capacity for an additional 700,000 cy of waste. Because of the policy change to use LURs to dispose of paved road wastes 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. Page received 27,000 cubic yards of material in 2019 and has an expected remaining volume of 560,000 cubic yards. Page anticipates receiving 25,000 cubic yards of waste in 2020.

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) Operating BCR, BCRA, EMFR, and LBCR
(4) Increasing repository volume in the Upper Basin
(5) Managing 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 waste disposal capacity needed at the Page Repository in 2020 is approximately 25,000 cy which includes Paved Roads, ICP, and Box Ground Water Collection System (GWCS) wastes. Page Repository will include but are not limited to the following tasks:

- Receipt and placement of Paved Roads, ICP, and Box GWCS 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

2020 work will include placement of concrete debris removed from road surfaces through the Paved Roads Program to continue construction of starter berms and foundation mattress in the Page expansion cells. Other concrete debris received from ICP waste streams will also be utilized as starter berm and foundation mattress material. Expansion cell foundation materials that were placed in 2018 will be allowed to sit for one year to accommodate settling of the soils beneath the foundation mattress. The test was completed, and the observed settlement was consistent with the conditions predicted by the design. That cell is available for the deposition of wastes.

Basin Repository Operations

In 2020, Basin repositories and LURs will be operated to accept waste from the BPRP and Paved Roads Programs as well as ICP waste. There is significant uncertainty in waste volume projections for infrastructure (ICP) waste. However, Basin repositories are estimated to potentially receive as much as 25,500 cy from all projects in the Basin. Anticipating those needs, the Basin repository and LUR operations include but are not limited to the following tasks:

- Receipt and placement of BPRP, 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 placement to fill all remaining capacity at BCR
- Transition of operations from BCR to LBCR and BCRA

Increasing Upper Basin Repository Capacity

Increasing Basin long-term repository capacity will be needed to dispose of the waste material generated by the cleanups identified in the 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 (WCAs) and repositories. Waste generated by remedial actions in the East Fork of Ninemile Creek is disposed of in the WCA, located in the Upper Ninemile drainage. The CDA Trust finalized construction at the WCA in 2016.

A repository siting process, with community input, was developed to identify new repository sites to support cleanup activities in the Upper Basin. First, the LBCR was constructed and began receiving waste materials in 2015. Second, baseline site characterization data was collected, and a 30% design was completed in 2011 at Osburn Tailings Impoundment (OTI). Based on remedial project planning, as described in the RODA, and with close coordination with Hecla Mining Company, activities at the Star Mine Complex in Burke and the OTI design were put on hold to focus on the more immediate needs for repository capacity in Canyon Creek. Third, in 2015 the CDA Trust began evaluating and collecting data to evaluate rebuilding the old Silver Valley Natural Resource Trustee (SVNRT) Repository in Canyon Creek. In 2019 construction began on the Canyon Creek Repository (CCR), which will function primarily as a WCA for source material project wastes in Canyon Creek Drainage and receive the waste material originally held in the SVNRT repository. Originally, the intent was to rebuild the SVNRT repository, but with the construction of the CCR the SVNRT material can be transferred eliminating the need for repository rework and provide correctly engineered containment. The CCR is designed for 1,500,000 cy in addition to the transferred volume of the SVNRT Repository.

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.

Waste Management Strategy (WMS) 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 is updated, as needed, to incorporate additional information regarding the projected waste volumes generated by OU-2 and OU-3 remedial activity and remaining repository capacities. The WMS is developed by EPA and the CDA Trust in coordination with IDEQ and PHD. The Technical Leadership Group and/or the Repository Project Focus Team (PFT) also are involved during key planning intervals.

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 dollars of work in the Upper Basin including potential work at 125 mine and mill sites. The 2016 EPA Superfund Cleanup Implementation Plan (SCIP) identifies the priority setting process and outlook for sequencing the work over the next ten years. This document is updated at a minimum of every 5 years, as part of the adaptive management process to incorporate lessons learned as the work moves forward. 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:
https://www.epa.gov/superfund/bunker-hill

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 2020 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 Trust in the Upper Basin during 2020:

East Fork Ninemile Basin

Interstate Mill Site Cleanup: The cleanup of this site was prioritized due to its large contributions of dissolved zinc and cadmium to the East Fork Ninemile (EFNM) Creek, as well as its upstream location relative to other source sites in Ninemile Basin. The design of the Interstate Mill Site cleanup was completed in 2018 and cleanup activities were initiated in 2019. Activities included installation of an arched culvert crossing over EFNM Creek to better access the site and removal of a portion of the mine waste. The remaining cleanup activities at the site, including waste removal and EFNM Creek reconfiguration, will be completed in 2020.

Tamarack Complex Design and Cleanup: The prioritization of the Tamarack Complex cleanup is based on metals loading, accessibility to the public, impacts to adjacent roadways, and the upstream location of the sites relative to other source sites in Ninemile Basin. The design of the Tamarack Complex will be completed in 2020 and cleanup will begin in 2021. The cleanup is expected to be completed in 2023.

East Fork Ninemile Waste Consolidation Area: Constructed in 2013, the EFNM Waste Consolidation Area (WCA) provides a location to consolidate mine waste materials, including waste rock and tailings, from cleanup activities throughout the Ninemile Basin. Wastes from the completed Interstate-Callahan Mine/Rock Dumps and the Success Complex cleanups have already been placed and consolidated at this site, as well as the first wastes from the Interstate Complex cleanup.

The EFNM WCA will require expansion following the placement of the remaining Interstate Mill Site cleanup wastes to provide capacity for the waste from the other Ninemile Basin source sites (i.e., Tamarack Complex, Dayrock Complex, and a portion of the lower EFNM Creek riparian area). This expansion will be constructed in 2020.

Data Characterization and Evaluation: In 2020, the Trust will evaluate data collected during characterization work at the Dayrock Mine and in the Lower East Fork Ninemile Creek riparian area.

Canyon Creek Basin

Canyon Creek Complex Repository/Waste Consolidation Area: Similar to the EFNM WCA, the Canyon Creek Complex Repository (CCR)/WCA is being constructed to receive and consolidate wastes from the numerous source areas that will be cleaned up in the Canyon Creek Basin. Construction of the CCR/WCA began in 2019 and will continue in 2020. In the interim to prevent exposure, the area has been fenced to eliminate unauthorized use by pedestrians and ATV's.

Data Characterization and Evaluation: In 2020, the Trust will evaluate data collected during characterization work at the Hecla Star Mine Complex and Tamarack #7.

Canyon Creek Design Investigation: Flynn Mine and Black Bear Fraction design investigation will begin.

Pine Creek Basin

Douglas Mine and Mill: The Trust began characterization of the Douglas Mine and Mill site in 2019. Characterization and remedial design will proceed in 2020 with anticipated construction beginning in 2022.

Central Treatment Plant/Central Impoundment Area

Work under the Corps of Engineers Design/Build/Operate Contract to AMEC/Foster Wheeler (now Wood) is well under way. Wood is responsible for the continued operation of the existing Central Treatment Plant (CTP) in Kellogg and the design and construction of upgrades to the CTP along with the new Groundwater Collection System (GCS). The Corps of Engineers is responsible for administration and management of this contract.

The CTP upgrades are necessary to treat additional influent flow from the GCS, improve system reliability, meet current, more stringent discharge requirements, and to operate in High-Density Sludge (HDS) mode. These upgrades have been necessary for some time to provide dependable and more efficient water treatment of the Bunker Hill Mine discharge water and the groundwater to be collected from the GCS near the Central Impoundment Area (CIA). The Bunker Hill Mine water has been and continues to be treated at the CTP. The upgraded 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 operated in HDS mode; the upgraded plant when operating in HDS mode will result in much less sludge production, more efficient operating conditions, and the need for fewer sludge ponds being constructed over time. Following treatment, the effluent (combined mine water and extracted groundwater) discharged from the CTP to the SFCDAR will be required to be 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 SFCDAR from groundwater interaction, as discussed in the following paragraph.

The GCS design includes an approximate 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) varies from base flow/strength (late summer/winter) through maximum flow/strength (spring runoff). By considering seasonal and annual variability and groundwater monitoring well data from south of I-90, the estimated dissolved zinc loading to the gaining reach of the SFCDAR ranges from 150 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 the predicted load to this gaining reach from south of I-90.

In 2019, the last of the design packages were finalized and submitted to the Corps of Engineers. Installation of the liner system at the new Sludge Impoundment Area (SIA) was completed. Construction of the slurry wall for the GCS was completed in late 2018 except for 3 gaps, which will be installed in early 2020 after the pumping and conveyance system are completed, tested and accepted. All treatment components of the CTP will also undergo testing and acceptance in late 2019 so that system operators can receive training and fully operate on the new system prior to the 1-year O&M period beginning May 2020. Additionally, the SIA was completed, tested and accepted in late 2019 and will be operational in 2020.

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

In 2019, the working sediment transport model was modified as a result of review and input from the Peer Advisory Team and the output from those revisions was documented in the model development report. EPA used the model to characterize baseline conditions in the Lower Basin and simulate the impacts of typical and extreme floods as well as changes to the system over a five-year and 30-year period. This will inform a management plan that targets areas for active remediation, evaluates the effects of remedial technologies, and identifies areas for natural recovery. The results of these efforts continue to be shared with the subgroups of the BEIPC (e.g. Lower Basin PFT, TLG and CCC), interested stakeholders, and citizen groups.

Informed by the Lower Basin Project Selection Process, EPA will continue to coordinate with the Restoration Partnership in 2020 to advance design on IDFG-owned Gray's Meadow to create clean waterfowl feeding habitat at one of the habitat areas that scored well using the multiple objective decision analysis process. To address contaminated sediment transport in the CDA River channel, EPA will continue working with the LBPFT to finalize the approach for selection of a pilot project in 2020 for implementation in the Dudley Reach, which is considered the most significant upstream lead loading segment into the river. Several technologies including capping, dredging, splays, and riverbed weirs will be evaluated for feasibility, cost and remedy effectiveness. Several recreation areas will be considered by the recreation subgroup to address lead exposure associated with recreating along the river channel as it is an ongoing concern, as discussed in the Recreation Areas Section.

Additional investigation in the channel and the floodplains will be used to inform the conceptual design and feasibility of specific pilot projects that are being considered for implementation over the next two to five years. In 2020, maintenance and monitoring will continue at the Incremental Thin-Layer Capping site at Lane Marsh and soil amendments will be bench tested using native soil collected from the marsh. Additional disposal capacity will be evaluated in 2020 to serve potential, future lower basin remediation and pilot project implementation.

This work in the Lower Basin will be accomplished while continued cleanup focuses on human health and addressing source stabilization in the Upper Basin. The Upper Basin cleanup is expected to compliment 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.

1.4 BASIN ENVIRONMENTAL MONITORING

EPA has continued to optimize and restructure the Basin Environmental Monitoring Program (BEMP) updating data quality objectives and Quality Assurance Project Plans (QAPPs) 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.

The most comprehensive summary of data collected through the BEMP is included in the 2015 Five Year Review. In 2019, EPA will begin to compile the BEMP data that will be summarized in the 2020 Five Year Review.

The USGS surface water sampling results for 2018 is summarized in the following report, available on the EPA Webpage: Coeur d'Alene Basin Environmental Monitoring Program – Surface Water, Annual Data Summary – Water Year 2018: https://semspub.epa.gov/src/collection/10/SC39274.

The updated BEMP Plan will be finalized in the first quarter of 2020. The updated BEMP Plan is intended to guide the collection, analysis, and interpretation of environmental data while providing flexibility for adaptive management as remediation work is completed and information regarding site conditions evolves.

The updated and revised BEMP is structured into three geographically based tiers:

- Site-specific remedial action (RA) effectiveness and performance monitoring
- Area-wide monitoring focused on geographically related areas and typically encompassing multiple RA sites (e.g., watersheds)
- Bunker Hill site-wide and long-term monitoring with a focus on surface water throughout the entire site.

The BEMP Plan will incorporate the site wide Program Quality Management Plan that was finalized in 2015 and a Site-wide Data Management Plan (also scheduled for completion in 2020).

A RA Effectiveness Monitoring Plan for the Groundwater Collection System (GCS), currently under construction adjacent to the Central Impoundment Area (CIA) in Kellogg, was completed in 2018 and groundwater and surface water monitoring has continued during construction of the GCS along with performance monitoring that is required under the construction contract. Groundwater and surface water monitoring will continue after construction to measure the effectiveness of the GCS. As part of the BEMP surface water monitoring network, the USGS collects discharge and water-quality samples from two stations located at Kellogg and Smelterville on the SFCDAR above and below the GCS. For a limited period following construction and optimization, additional groundwater and surface water samples will be collected more frequently to ascertain the overall efficacy of the GCS. Additionally, the USGS conducted a baseline seepage investigation in August 2017 (prior to construction) to more accurately define the distribution of groundwater seepage to the SFCDAR in the reach between Kellogg and Smelterville, and to quantify the metal loading from both groundwater and surface water along the reach adjacent to the CIA. The information gained from this investigation will be compared to a similar study to be conducted following the construction and implementation of the GCS to more accurately estimate the efficiency of the interception system.

RA Effectiveness monitoring has been ongoing in Ninemile Creek since 2014 to establish baseline conditions, help prioritize work, and assess the effect of source area removals. The source areas in East Fork Ninemile (EFNM) Creek continue to contribute, in aggregate, the largest lead and zinc loads to Ninemile Creek. In 2017, significant source areas in Ninemile Creek that were assessed included the Dayrock Mine, Option Mine, and Dayrock Repository Reach. In general, 2017 was a greater peak flow year than previous years (2014 – 2016). This variation in the hydrologic regime appears to have contributed to the increase in loads observed during 2017.

EPA continues to make available the analytical results from historic data through 2015 via WQX, EPA's Water Quality Exchange. Human health-related residential data is not included in this database. Data management for the Bunker Hill Site is transitioning to Scribe.net, an EPA data management system that

will be administered by Bunker Hill stakeholders including EPA, IDEQ, and the CDA Trust with support from the EPA Environmental Response Team. Both WQX and Scribe.net databases include site surface water, soil, sediment, groundwater and biological resource sampling data. During this transition period, site-specific data requests should be directed to the EPA RPM at prestbo.kim@epa.gov.

1.5 OPERATION AND MAINTENANCE RESPONSIBILITIES FOR REMEDIAL ACTIONS

CERCLA prohibits EPA from use of funds from the Superfund Account on operation and maintenance (O&M) of remedies. The entity responsible for O&M on completed and accepted remedial work may vary. In general, O&M on EPA selected cleanup actions will be performed by the Trust; the State of Idaho; local governmental jurisdictions or parties who are required to perform O&M activities by judicial or administrative settlement, environmental covenants/conservation easements or the Institutional Control Program.

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 coordination with 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
- State of Washington Activities
- Coordination with the 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.

As of the summer of 2018, the Coeur d'Alene Tribe has determined that the LMP is inadequate, in itself, as an effective tool to protecting water quality in the Lake and has been in discussions with the IDEQ and the EPA to determine what additional mechanisms/actions are needed to manage the hazardous substances in the lake bed sediments. Therefore, although various aspects outlined in the LMP and listed below are essential to continue to implement the LMP, additional approaches to augment work conducted under the auspices of the LMP are being contemplated. These discussions will continue during 2020.

Below are the objectives outlined in Section 3 of the LMP: These objectives are listed in the order they appear in the LMP, which does not necessarily reflect any prioritization.

1. Improve Scientific Understanding of Lake Conditions through Monitoring, Modeling, and Special Studies. Comment from IDEQ and Tribal staff: This objective is needed to ensure management actions are effective and efficient, providing a data-driven adaptive management approach.
2. Establish and Strengthen Partnerships to Maximize Benefits of Actions under Existing Regulatory Frameworks.
3. Finalize and Implement a Nutrient Reduction Action Plan. Comment from IDEQ and Tribal staff: This plan will utilize existing data and ongoing monitoring to identify and prioritize nutrient reduction actions.
4. Increase Public Awareness of Lake Conditions and Influences on Water Quality. Comment from IDEQ and Tribal staff: Only through awareness and understanding can nutrient management and reductions be achieved. Buy-in is critical to action.
5. Establish funding mechanisms to support LMP goal, objectives and strategies: Task; work with EPA to identify funding mechanisms to support water quality monitoring and modeling to inform EPA of their future decisions to call for actions in the Lake.

In 2020, IDEQ and Tribal staff will focus on working with stakeholders throughout the basin to share nutrient inventory information, with the ultimate goal of accomplishing on-the-ground improvements through partnerships.

Increase Scientific Understanding (LMP Objective 1):

1. IDEQ and Tribal staff will independently conduct water quality monitoring throughout Coeur d'Alene Lake for metals, nutrients, and physical parameters.
2. Tribal staff will continue utilizing the AEM3D and LOADEST models. These models are utilizing real-time data that is collected from the Lake and four meteorological stations. In 2020, Tribal staff will reconvene with IDEQ staff after 2 years of model calibration to run water quality scenarios.
3. Draft updates to the Lake Status Report will be provided to the TLG for feedback prior to distribution to the BEIPC.
4. Tribal and IDEQ staff will continue to evaluate water year variability and relationships among measured parameters to help inform stakeholders on possible causative factors for trends.
5. Both the Tribal and IDEQ staff will continue to partner with University of Idaho (UI) faculty at the Community Water Resource Center to explore special studies and research funding.
6. The Tribe will continue to partner with area research universities and organizations to support research that will strengthen the predictive ability of AEM3D.

Nutrient Reduction and Implementation (LMP Objective 3)

1. The nutrient inventory report will be used to begin development of a nutrient reduction action plan in collaboration with stakeholders.
2. IDEQ staff will continue to work with county representatives, and Tribal and IDEQ staff will continue to work with Watershed Advisory Groups and other potential partners to identify and implement nutrient reduction projects.

3. IDEQ staff began the Lake tributary monitoring in 2019 to fill gaps in nutrient loading data identified in the nutrient inventory report. Monitoring will continue through 2020.
4. IDEQ staff established a monitoring site in Wolf Lodge Creek (as of fall 2017). Nutrient monitoring will continue throughout 2020 at this site.
5. IDEQ staff will continue to monitor pilot implementation projects in Windy Bay and on Wolf Lodge Creek to ensure success in plant establishment, and to assist in maintenance needs. These projects will be used as demonstration sites to encourage future implementation projects. Stabilization projects along eroding banks will continue to be evaluated, prioritized, and implemented in collaboration with Avista Corporation, the Natural Resource Conservation Service (NRCS), the Soil & Water Conservation Districts, the Counties, and landowners.
6. Tribal staff will continue to implement a Eurasian watermilfoil Treatment Program as well as aquatic plant surveys in the southern lake, and IDEQ staff will continue implementing aquatic plant surveys within the northern lake.
7. Tribal and IDEQ staff will identify potential opportunities to align nutrient reduction and remedial efforts in the Lower Basin.
8. Tribal and IDEQ staff will coordinate with the Restoration Partnership on water quality improvement implementation.
9. Tribal and IDEQ staff will collaborate with area Conservation Districts, NRCS, and Washington Department of Ecology on outreach and monitoring as part of the Resource Conservation Partnership Program (RCPP), an NRCS-funded initiative in the Coeur d'Alene/Spokane River drainage that will increase the availability of funding for Farm Bill conservation programs.

Increase Public Awareness (LMP Objective 4)

1. Tribal and IDEQ staff will partner with Spokane River Forum, CDA Vision 2030, and other agencies and stakeholders to share information and get feedback from the basin-wide community.
2. Tribal and IDEQ staff will continue to partner with UI and Kootenai Environmental Alliance to support Basin high schools by providing workshops and guidance to teachers and students involved in field-based watershed science through The Confluence Project, and will continue to pursue funds to sustain this program.
3. Tribal and IDEQ staff will continue to partner with UI/Community Water Resource Center to develop and support the Baywatchers program, to provide land management information and resources to lakeshore residents.
4. Tribal and IDEQ staff will continue to partner with UI, area high schools, and area environmental organizations to host the annual Youth Water Summit, featuring secondary education watershed research projects as the culminating event of The Confluence Project each school year.
5. Tribal and IDEQ staff will participate in other joint educational and outreach opportunities as time allows.
6. The Local Gems program for local businesses will continue through 2020. This program recognizes businesses and organization that are taking action to protect basin water quality.

Continued coordination with BEIPC forums will maximize opportunities for information exchange and advice for all the parties that participate in the BEIPC activities. 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) with regards to implementation.

2.2 FLOOD CONTROL AND INFRASTRUCTURE REVITALIZATION

During 2018 participating governments of the BEIPC and the Upper Basin jurisdictions (Local Flood Group) implemented a Memorandum of Agreement (MOA) to work together on potential flooding issues on the SFCDAR. The local flood group and the BEIPC worked under the MOA with the U.S. Army Corps of Engineers in 2018 and 2019 with funding from a grant to perform flood zone analysis on a portion of the river from Elizabeth Park to Theater Bridge in Smelterville. Under the MOA the city of Kellogg and the BEIPC funded surveys of Federal Emergency Management Agency (FEMA) river cross sections used in 2009 to determine flood flows. The Corps has obtained additional funding to perform some analysis work of the portion of the river from Wallace to Elizabeth Park. Work to determine the best approach to coordinating with FEMA to development new flood inundation maps will be implemented in 2020. Based on the new flood maps it is anticipated that updated analysis of the need for certified levees in the SFCDAR may be initiated in 2021. The Executive Director will continue to work with the EPA for implementation of selected in-stream CERCLA remedies included in the RODA. The BEIPC will continue to assist Upper Basin communities and utilities in pursuing funding to implement the remaining needs noted in the Drainage Control Infrastructure Revitalization Plan (DCIRP).

2.3 COMMUNICATIONS AND PUBLIC INVOLVEMENT

During 2020, the BEIPC Assistant to the Executive Director and agency Community Involvement Coordinators (CICs) will work together to carry out public involvement, communication, and education related to BEIPC and agency activities. Agency CICs may include staff from EPA, IDEQ, and the Panhandle Health District.

The Office of the BEIPC Executive Director, the Citizen Coordinating Council (CCC) and agency CICs continue to facilitate the public involvement process in the Basin. The BEIPC Executive Director and/or Assistant, Project Focus Team Chairpersons, and CCC Chairperson may request CIC support for public outreach regarding BEIPC activities. The CICs may in turn request BEIPC support for their agencies' public involvement activities.

Following is a partial list of community engagement activities and coordination opportunities for 2020:

- As required by legislation, the BEIPC will hold quarterly meetings open to the public. The CCC will hold meetings open to members and the public as issues or opportunities arise or discussions are warranted.

- The BEIPC will coordinate its annual tour in August of the Basin cleanup with publicity support from the CICs and technical support from agency project managers. The tour is open to everyone.

- The BEIPC/CCC and agency CICs will continue to sponsor activities such as open houses, workshops, training, or public meetings. The BEIPC Assistant and CICs may assist each other to coordinate public education and outreach associated with these events.

- The BEIPC/CCC will lead the development, production and distribution of BEIPC related items and the agency CICs will lead the development, production and distribution of agency items. The BEIPC/CCC and agency CICs will create and process flyers, public notices, newspaper ads, and posting to their respective websites of their meetings and other information. The BEIPC/CCC will also create, process, and distribute their meeting announcements, agendas, and

their meeting summary notes and other information by e-mail to CCC members and interested parties. The BEIPC Assistant will update and maintain the BEIPC website.

- CICs will continue to support the CCC meetings, support BEIPC communications, and explore ways to maximize the CCC's value to interested local people. Upon request, CIC's may support BEIPC with suggestions for publicizing BEIPC events and meetings, participate in distributing meeting announcements, posting to social media, or by proposing and/or helping to implement communications strategies.

- Upon request, the BEIPC Executive Director will make presentations to public groups and participate in educational forums such as school district Science, Technology, Engineering and Math (STEM) fairs, etc. Assistance from agency CICs may be requested for these efforts. The Director will participate in quarterly press availability sessions, as scheduled by EPA.

- The BEIPC and agency CICs will help organize and participate in a joint booth for public outreach/education at the North Idaho Fair.

- The EPA will publish BEIPC/CCC information upon request in its triannual Basin Bulletin and on the CDA Basin Facebook page.

- CICs 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.

- CICs will report their outreach activities at the quarterly Basin Commission meetings, and activities are often reported and discussed at CCC meetings.

2.4 STATE OF WASHINGTON ACTIVITIES

The Washington State Department of Ecology will continue to monitor the status of previous cleanups along the Spokane River. Site visits will be performed, along with visual documentation of performance and sediment accumulation. If changes in sediment accumulation are observed, a portable XRF will be used to measure contaminant concentrations.

2.5 RESTORATION PARTNERSHIP (Partnership)

The Restoration Partnership (Partnership) is composed of the Coeur d'Alene Basin Natural Resource Trustees, comprised of representatives of agencies/governments who have management and stewardship responsibilities for fish, wildlife, and other natural resources in the Basin. They are the U.S. Department of Agriculture, represented by the U.S. Forest Service; the U.S. Department of the Interior, represented by the U.S. Fish and Wildlife Service and Bureau of Land Management; the Coeur d'Alene Tribe; and the State of Idaho, represented by the Idaho Department of Fish and Game (IDFG) and Idaho Department of Environmental Quality. For more information, refer to **www.restorationpartnership.org.** The Trustees will be reviewing full applications and making funding decisions for restoration projects in 2020 and will continue to update the website above. In 2020, there will be ongoing coordination with EPA with remedy and restoration activities and participation in BEIPC and associated groups and committees.