

# 2018 ANNUAL REPORT



*Basin Environmental Improvement  
Project Commission*

February 2019

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Cover Photo, Upgrade of Central Treatment Plant in Kellogg

## *Executive Summary*

The Basin Environmental Improvement Project Commission (BEIPC) is responsible for coordinating environmental cleanup to address heavy metal contamination, natural resource restoration and water quality in the Coeur d’Alene Basin (Basin). The BEIPC also participates in guiding and coordinating infrastructure upgrades and improvements to protect the environmental cleanup remedy and enhance living conditions in the communities of the Basin. The Basin is defined as the watersheds of the Coeur d’Alene River (CDA River), Coeur d’Alene Lake and the Spokane River within the Idaho Counties of Shoshone, Kootenai, and Benewah, as well as the Coeur d’Alene Tribal Reservation within Idaho.

During Calendar Year 2018, the BEIPC coordinated and monitored accomplishments by various implementing entities for environmental cleanup and natural resource restoration work included in the BEIPC 2018 Annual Work Plan and the five-year operating plan. It also developed a 2019 Annual Work Plan and an updated five-year plan. The environmental cleanup work was performed through the federal Comprehensive, Environmental Response, Compensation and Liability Act (CERCLA/Superfund) Program and the State of Idaho environmental cleanup programs, and actions under the direction of the Environmental Protection Agency (EPA) by the Coeur d’Alene Work Trust (Trust) formed under the ASARCO Bankruptcy settlement. Natural resource damage restoration work was performed by the Coeur d’Alene Basin Natural Resource Trustees (Restoration Partnership) including the Coeur d’Alene Tribe (CDA Tribe), State of Idaho Department of Environmental Quality (IDEQ) and Idaho Department of Fish and Game (IDFG), U.S. Department of Interior through the U.S. Fish and Wildlife Service (USFWS) and Bureau of Land Management (BLM) and U.S. Department of Agriculture through the U.S. Forest Service (USFS). The Panhandle Health District (PHD) continued to manage the Institutional Controls Program (ICP) to control the release and migration of contamination remaining in place after remediation.

## *BEIPC Overview*

### **Authorization and Duties**

The BEIPC was established by the Idaho State Legislature and implemented through a Memorandum of Agreement (MOA) among implementing parties.

The Basin is considered to be Operable Unit 3 (OU-3) of the Bunker Hill Mining and Metallurgical Complex Superfund Facility originally listed on the CERCLA National Priorities List in 1983. Operable Units 1 and 2 (OU-1&2) are the populated, industrial, and undeveloped areas in a 21 square mile area encompassing the communities of Pinehurst, Smelterville, Wardner, and Kellogg and outlying Shoshone County lands known as the “Bunker Hill Box” located within the Basin. OU-3 includes the remainder of the site outside the Box in the Basin where contamination has come to be present.

The BEIPC’s primary purpose is to work with the EPA and IDEQ to implement the Record of Decision (ROD) for OU-3 throughout the Basin and implement the Upper Basin ROD Amendment (RODA) for portions of OU-3 and work in OU-2 included in the Amendment designed to advance the cleanup of heavy metals contamination in the Upper Basin (confluence of the North and South Forks of the CDA River and the head waters of the South Fork above Mullan).

In addition, the BEIPC is involved in:

- Assisting the EPA in developing and managing the Superfund Cleanup Implementation Plan (SCIP), a comprehensive cleanup plan for the Upper and Lower Basins based on remedies selected in the OU-3 ROD and Upper Basin RODA;
- Coeur d'Alene Lake management planning and implementation;
- Heavy metal contamination cleanup efforts at mining sites in the North Fork of the CDA River (NFCDR);
- Assisting the Resource Partnership in the implementation of their natural resource restoration program as provided for in the CDA Basin Restoration Plan; and
- Leading multi-agency coordination in addressing potential flooding in the South Fork CDA River (SFCDR) and Pine Creek drainages.

Legislation and the MOA creating the BEIPC authorized appointment of a seven-member board comprised of:

- Four members from Idaho, one representing the state, and one each representing the county commissions from Shoshone, Kootenai, and Benewah Counties, appointed by the Governor of Idaho;
- One representative of the state of Washington appointed by the Governor of Washington;
- One representative appointed by the Council of the Coeur d'Alene Tribe; and
- One federal representative of the United States appointed by the President.

The Executive Director of the Basin Commission is Terry Harwood.

### **BEIPC Membership as of December 2018:**

Name	Title	Representing
Jack Buell, Chair	Benewah County Commissioner	Benewah County
Marc Eberlein	Kootenai County Commissioner	Kootenai County
Mike Fitzgerald	Shoshone County Representative	Shoshone County
Phillip Cernera	Lake Management Director	Coeur d'Alene Tribe
Grant Pfeifer	Regional Director, Washington Dept. of Ecology	State of Washington
John Tippetts	Director, Idaho Department of Environmental Quality	State of Idaho
Chris Hladick	Regional Administrator, EPA, Region 10	Federal Government



## ***Program Management***

The BEIPC operates in accordance with the Idaho statute and the MOA among the governing entities. It is responsible for coordinating the activities of federal, tribal, state and local government agencies implementing the ROD for OU-3 and the Upper Basin RODA for human health and ecological cleanup activities. It is also involved in the efforts by the Restoration Partnership to restore natural resources in accordance with their CDA Basin Restoration Plan and to coordinate efforts to protect the cleanup remedies, human health, and the environment from the release and migration of contaminants through the implementation and management of Institutional Controls in the Basin.

The Executive Director (ED) works with the seven governmental entities and their agencies to establish annual work priorities and operating plans, manages the activities and programs of the BEIPC, and assists governments on various engineering and environmental issues at their request. To assist the Executive Director in program management, planning, and implementation, volunteer staff “on loan” to the BEIPC from the states of Idaho and Washington, the EPA, the Coeur d’Alene Tribe and the Counties coordinate with the Executive Director and provide routine intergovernmental input on technical and policy issues. Other support groups include the Technical Leadership Group (TLG) and the Citizen Coordinating Council (CCC).

### **Technical Leadership Group (TLG)**

The TLG with its Project Focus Teams (PFTs) is the BEIPC primary technical advisory group. It is comprised of federal, state, local and tribal representatives as well as interested private citizens serving on the PFTs who provide expertise in science, engineering, logistics, regulatory aspects, and land management in the Basin. The TLG advises the BEIPC on work planning and implementation while striving toward consensus-based recommendations. In 2018, the Executive Director and TLG developed the 2019-2023 Five-Year and Calendar Year 2019 draft work plans and studied and developed project and program proposals to implement the remedy in OU-2 and 3.

## ***Public Outreach and Citizen Involvement***

### **Community Involvement**

During Calendar Year 2018, the BEIPC held meetings and deliberations open to the public and maintained an up-to-date Basin website at: [www.basincommission.com](http://www.basincommission.com). Meetings were held at various locations within the Basin with locations and dates announced on the website, in local newspapers, flyers posted throughout the community and at the BEIPC office in Kellogg, Idaho. EPA, IDEQ and the BEIPC held a number of community meetings to discuss proposed project work in the Basin and Box. The BEIPC also participated in public education/outreach efforts including the joint information booth at the North Idaho Fair, and the Career Fair at Lakeside High School for Jr. and Sr. High students in Plummer, Idaho.

### **Citizen Coordinating Council (CCC)**

The CCC serves as an information conduit to and from the BEIPC on citizen, community, and special interest issues, and on environmental cleanup and restoration concerns. It is comprised of politically and geographically diverse members and was established to provide local citizen review and input on Basin related work to the BEIPC.

## **CCC Meetings and Communication**

The CCC facilitated communications to its members and the public on an as-needed basis by e-mail, flyers, newspaper ads and posting to the BEIPC website and EPA Facebook. CCC meetings were held in April and June. CCC members were invited on the August tour of project work and issues in the Upper Basin.

At CCC meetings, members were updated on ongoing BEIPC and agency activities and asked to provide input on a variety of issues. The CCC informed the BEIPC of its activities by providing meeting summary notes of presentations, discussions and comments to Commissioners prior to BEIPC meetings and by the CCC Chair making reports at BEIPC meetings. Throughout 2018, the CCC arranged for transmission of information to its members and the public regarding activities in the Basin.

## **Chronology of Selected CCC Activities and Input to the BEIPC in 2018**

In addition to receiving various reports for review and comments, CCC members were involved in the following BEIPC activities in 2018:

### **February**

At the last minute, the February BEIPC meeting was canceled because of bad winter weather. Many citizens and government officials had already arrived for the meeting, an impromptu informational meeting was held to discuss a number of items. Items included questions and concerns from various parties resulting from discussions at the last three CCC and BEIPC meetings; a presentation by Upper Basin jurisdictions requesting assistance from the BEIPC to address flood issues in the Upper CDA River Basin; a discussion on outreach activities by PHD and IDEQ; and a review of recommendations to the BEIPC concerning operational procedures of the CCC and BEIPC.

### **April**

The CCC held an April 18 meeting at the Medicine Mountain Grange in Medimont, Idaho. There were presentations on blood lead testing for children in the Basin and the Restoration Partnership's Natural Resource Restoration Plan; updates on groundwater monitoring at the East Mission Flats Repository and Lower Basin work planning; and a presentation of a project proposal by Kootenai County for river bottom remediation.

### **May**

The CCC Chairman reported on the April CCC meeting activities and other general citizen issues at the May BEIPC Meeting.

### **June**

At the request of EPA, a special CCC meeting was held at the Medimont Grange on June 13 for a presentation by EPA of its plans for future work in the Lower Basin. A list of proposed projects was presented and work shop was held to develop the criteria for prioritizing the project work.

### **August**

CCC members were invited to the BEIPC Site Tour on August 15, and a number attended along with TLG Members, federal, state, and local government officials, members of the public, press, and the Idaho Congressional Delegation.

## **October**

The draft 2019 Annual Work Plan and 2019-2023 Five Year Work Plan were set out to the CCC members and other interested parties for comment prior to completing the final draft documents for consideration and approval by the BEIPC at the November meeting.

## **November**

At the November BEIPC meeting, the CCC Chair announced that the CCC would concentrate on holding special meetings to discuss specific issues and keep the CCC members informed of activities through the use of the extensive mailing list maintained at the BEIPC office.



**CCC Meeting At the Medimont Grange**

## **Additional Outreach Activities**

In addition to the activities of the CCC, the various governmental entities represented by the BEIPC continue to support the TLG and CCC by being involved in the activities of those groups. The governmental entities have been involved in outreach activities including meeting with citizen groups, giving technical presentations, participating in Basin events, holding tours of Basin project areas, maintaining information posting throughout the Basin, and publishing various information documents to provide updates on Basin activities and to give answers to common environmental cleanup and improvement questions.

As part of the public outreach program, the Basin Commission ED continued to make numerous presentations to local business and community groups concerning activities of the BEIPC and planned cleanup actions and activities required to protect the remedy, human health, and the environment. The ED also hosted the tour of projects in August by interested parties.

## **BEIPC Communications and Public Involvement**

In 2018, the BEIPC continued its efforts to strengthen public involvement in BEIPC activities and communication between the Basin community the BEIPC and agencies involved in the cleanup. The CCC continues to be the focus organization to help implement this process.

The following is a partial list of BEIPC community involvement activities throughout the year:

- Participated in public education/outreach efforts in a joint booth with IDEQ, EPA and PHD at the North Idaho Fair.
- Coordinated a field tour of sites in the Upper Basin for the Basin Commissioners, agency representatives, and citizens in August. Participants viewed a remedy protection project in Osburn, the Central Treatment Plant and Ground Water Extraction areas in Kellogg, paved road projects, and mine remediation sites in the East Fork of Ninemile Canyon.
- Provided assistance to BEIPC groups and staff on communications material including presentations, brochures, news articles, displays, banners, and advertising.
- Publicized BEIPC and CCC meetings by posting the dates and agendas to the BEIPC website, newspaper advertising, and through electronic media and distribution of informational flyers with assistance from EPA and IDEQ.
- Sent out reports and activities updates, CCC meetings and BEIPC meetings as well as BEIPC work plans to CCC members by email for review and comment.
- Shared BEIPC related information with the Community Involvement Coordinators (CICs) of EPA, IDEQ and the Lake Management Plan (LMP) staff for publication on their Facebook pages.
- Continued to populate the BEIPC website with new information about BEIPC related activities and other information as requested by various agencies and advisory groups. The website provides information to keep the public informed including how to become involved and participate in the process; and opportunities for the community to provide input. Updates, including agendas and summary minutes of quarterly meetings, are posted to the website at [www.basincommission.com](http://www.basincommission.com).



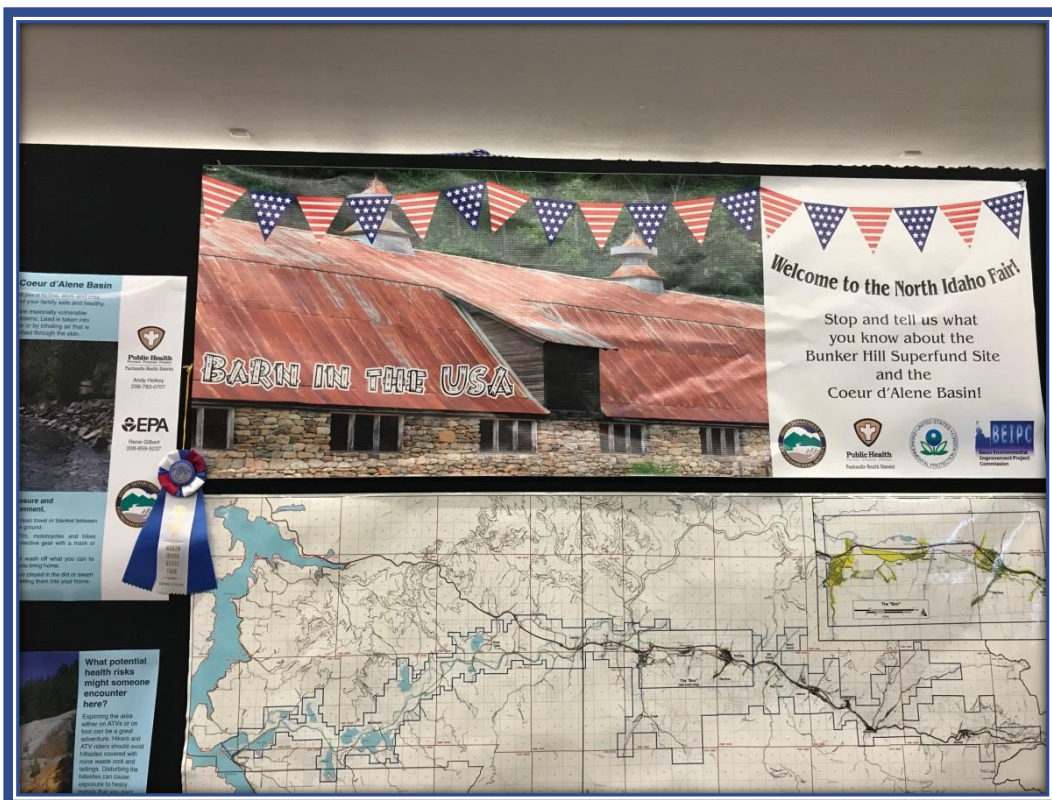
- Continued to support the work of the Corps of Engineers (COE) and the local Flood Group concerning the COE Grant to develop hydraulic loading data for flood control on the South Fork CDA River.
- Assisted IDEQ and EPA concerning public questions and concerns about deleting areas from the Superfund Site.
- Assisted the City of Mullan in their application for a wastewater collection system block grant.
- Assisted Idaho Department of Water Resources on their tour of the Bunker Hill Site for the Western States Water Council.
- Executive Director accepted nomination by EPA to be a member of the EPA National Advisory Council for Environmental Policy and Technology for a two year term.
- Executive Director Presented a Q&A lecture on environmental and Superfund issues at the Human Rights Institute in CDA.



**BEIPC August Field Tour**



**North Idaho Fair Joint Booth Blue Ribbon Winner**





## **EPA Community Involvement Activities**

Coordinating with local communities and residents is a priority for EPA Region 10. The cleanup team wants to give people meaningful opportunities to be involved in and informed about the cleanup. Many of EPA's community involvement activities are done in partnership with others, including the IDEQ, BEIPC, and PHD. Highlights for the year include:

- The EPA continued to follow its Community Involvement Plan for the cleanup. The plan lays out how community members can get information and be involved, and summarizes local concerns and input. It also outlines how the EPA collaborates with its partners. Many local people helped develop this plan.
- The EPA and its partners conducted several Remedy Protection Projects, working closely with local jurisdictions, community members and property owners, that will help protect completed cleanup work. Agency fact sheets, door-to-door communications, and other outreach efforts have been ongoing. Local jurisdictions are also especially involved with public outreach.
- The agency, in coordination with its partners, conducted outreach on several projects this year including: public outreach for the Upper Basin Success Mine cleanup, Hecla Star Complex site study, trucks hauling waste to the Lower Burke Canyon Repository, and Kellogg area groundwater collection system. Outreach was also conducted for lead health education; soil testing and property cleanups; recreation and health; repositories; habitat restoration; roads projects; and more.
- EPA released its final Lower Basin Strategic Plan this year. The plan lays out the requirements, goals, and objectives that guide the strategy for cleanup in the Lower CDA River Basin. EPA held a Lower Basin Community Meeting, sponsored by the BEIPC's Citizens Coordinating Council. Community members shared ideas about important things for the agency to consider when choosing projects. Participants also discussed areas to focus on. The agency widely publicized this community meeting by using direct mail, newspaper ads, Facebook and website posts, email, announcements at local meetings and events, and so on.
- The **Coeur d'Alene Basin Facebook** page continues to provide site updates to the public. Find it at [www.facebook.com/CDAbasin](http://www.facebook.com/CDAbasin). The page offers site news, photos, and resource information. The EPA invites participation, suggestions, and postings.
- Publication of EPA's **Basin Bulletin** newsletter continues. Published three times per year, in March, July, and November, it provides news and updates about the Coeur d'Alene Basin Cleanup.
- The agency maintained its commitment to the BEIPC process throughout 2018. EPA provides staff support and regular participation at meetings of the BEIPC, CCC, TLG, and PFTs. EPA provided a tour guide handout for participants at BEIPC's annual Basin Cleanup Tour.
- EPA coordinated with agency partners, including IDHW, IDEQ, and PHD, and the local community group Silver Valley Community Resource Center on an outreach event called a soilSHOP. The event was led by the Agency for Toxic Substances and Disease Registry (ATSDR). The name soilSHOP stands for Soil Screening, Health, Outreach, and Partnership. Its purpose was to help people learn if their soil contained lead or other metals, how to reduce exposures to contaminated soil, and how to garden safely. The soilSHOP was held in Smelterville during the Shoshone Medical Center's Children's Health Fair. It was the first soilSHOP at the Bunker Hill Superfund Site.

- EPA has transitioned to a new website for the Basin Cleanup. It offers the public access to updates, site documents, and background information. Suggestions for improvements are always welcome. (New website URL: [www.epa.gov/superfund/bunker-hill](http://www.epa.gov/superfund/bunker-hill))
- EPA maintains document collections related to the cleanup at several area libraries and at the EPA Coeur d'Alene Field Office for public access.
- Project managers met several times with local officials, interest groups, and others to provide updates and answer questions in 2018. Additionally, EPA led site tours for interested parties including the local environmental group Spokane Riverkeeper, provided support at a site tour for the Western States Water Council (led by the State of Idaho), provided presentations to groups in the area, and staffed booth exhibits at local events. EPA also supported interagency exhibits about the cleanup at the Earth Day event, North Idaho Fair, and Shoshone Medical Center's Children's Health Fair. EPA provided materials about the cleanup as part of an environmental justice exhibit at the Human Rights Education Institute in Coeur d'Alene.
- EPA regularly worked with the media in 2018, arranging a number of press availability sessions, fielding questions from reporters about the site, running newspaper display ads, and issuing press releases on high-interest activities.

EPA's Community Liaison continued working with the community, serving as a resource for local residents. The EPA created this liaison position in response to requests for an on-site representative. The liaison is enhancing local communications, providing people with easier access to the agency, and helping the EPA to be responsive to local issues and questions.

## **IDEQ and PHD Community Involvement Activities**

IDEQ, PHD and EPA conduct education, public engagement, and health awareness activities related to the CDA Basin Cleanup. Kellogg PHD is the primary partner for health messaging and outreach. The aim is to raise awareness about lead intervention and to support the continuation of healthy trends for children, families, and visitors to the area. The following are highlights of 2018 activities:

### **Education related activities:**

- PHD provided Lead Health Prevention Education to K-3 students at Mullan, Wallace, Kellogg, Cataldo, Harrison and Plummer schools.
- PHD provided Lead Health Education and Superfund site history to Wallace and Kellogg High School.
- Updated Human Health signs were placed in Basin and Box communities. New signs combine historical, ecological, and health related information.
- New signs were also placed along the Trail of Coeur d'Alene's advising trail users to "Stay on the Trail".
- A new brochure entitled "Protect Your Family from Lead At Home" was developed.



## Other community presentations and events:

- PHD organized and partnered with University of Idaho to put on an Environmental Health and Science Fair for students and the community.
- IDEQ, PHD and EPA staff provided a booth at Shoshone Medical Center's Children's Health Fair. As well as partnered with ATSDR and IDHW to host a Soil Shop.
- PHD worked with BEIPC, EPA and IDEQ on the booth at the North Idaho Fair.
- BEIPC, PHD and EPA hosted a booth at the Gear UP Career Fair at Lakeside High School in Plummer, ID.
- IDEQ, PHD and EPA presented at Environment Day for Coeur d'Alene Leadership.
- PHD presented at field day for Post Falls High School Students on Beaver Creek, arranged by The Lands Council.
- PHD attended and helped judge scientific research projects at the Youth Water Summit held at North Idaho College.
- PHD provided a booth at the North Idaho College Wellness Fair and Safety Fest.
- PHD provided a booth at the Leadman Triathlon at Silver Mountain in Kellogg.
- PHD regularly gives tours to Kootenai Medical Center Residents.
- IDEQ, EPA, and PHD gave two separate tours to Spokane River Keepers and interested citizens.
- PHD staff presented on the history of the CDA Basin Cleanup to the Center of Justice in Spokane, WA.
- PHD gave presentations to both Silver Valley and CDA Realtors Association, along with the Kellogg Rotary and Kiwanis.



**BEIPC, PHD, EPA, IDEQ, CDA Tribe Booths at the Gear Up Career Fair in Plummer**

## *Calendar Year 2018 Work Accomplishments*

### **Part 1 -**

### **Work Performed Through Federal Superfund or Other Cleanup Programs:**

#### **Lead Health Intervention Program**

Screening of children for elevated blood lead levels has been occurring annually in the CDA Basin since 1996. For children with elevated blood lead levels, follow-up consultations from a public health professional are available through the Lead Health Intervention Program to assist families with identifying ways to reduce lead exposures. The screening program also informs the Basin cleanup efforts although cleanup decisions are not based on annual blood lead testing results. The goal is to prevent lead exposures that could result in elevated blood lead levels.

The following table shows the Basin Blood Lead summary results from 2009 – 2018 for children residing in the Basin 6 months to 6 years of age.

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Number of Children	175	108	75	83	92	77	94	70	105	88
Min (µg/dL)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.0	1.4
Max (µg/dL)	10.0	20.0	12.0	8.0	16.0	11.0	13.0	9.0	20.0	9.0
Ave (µg/dL)	3.1	2.5	3.1	3.3	2.8	3.1	3.2	3.2	4.3	2.4
GeoMean (µg/dL)	2.7	2.1	2.6	3.1	2.5	2.9	2.8	2.9	3.5	2.0

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 take action earlier to reduce the child’s future exposure to lead.

In addition to the 88 children between 6 months to 6 years of age screened in the Basin; 33 individuals over the age of 6 from the Basin, 141 children between the ages 6 months to 6 years and 58 individuals over 6 years of age residing in the Box also participated in the 2018 summer screening.

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 in 2019 with a \$30 incentive for children between ages 6 months to 6 years of age residing within the Basin.

During 2019, the Lead Health Intervention Program will continue to offer the additional services:

- Year-round blood lead screening and follow-ups
- In-home consultations for individuals with elevated blood lead
- HEPA vacuum loan program for cleaning residences
- Educational and awareness for parents and children
- Education classes in local school’s grades K-12
- Annual Environmental Science and Health Fair
- Outreach booth at North Idaho Fair
- Sampling of soil, dust, paint, water, and other media as appropriate

## **Basin Property Remediation Program (BPRP)**

<b>Year</b>	<b>Number of Property Addresses</b>	<b>Area Remediated (Acres)</b>	<b>Waste From BPRP Disposed of in Repositories ( Truckloads)</b>
<b>2007</b>	<b>373</b>	<b>60</b>	<b>9,240</b>
<b>2008</b>	<b>352</b>	<b>57</b>	<b>8,129</b>
<b>2009</b>	<b>547</b>	<b>149</b>	<b>18,780</b>
<b>2010</b>	<b>311</b>	<b>70</b>	<b>10,725</b>
<b>2011</b>	<b>243</b>	<b>64</b>	<b>9,795</b>
<b>2012</b>	<b>216</b>	<b>73</b>	<b>9,127</b>
<b>2013</b>	<b>128</b>	<b>44</b>	<b>3,500</b>
<b>2014</b>	<b>95</b>	<b>30</b>	<b>3,647</b>
<b>2015</b>	<b>82</b>	<b>37</b>	<b>3,069</b>
<b>2016</b>	<b>74</b>	<b>23</b>	<b>2,692</b>
<b>2017</b>	<b>48</b>	<b>20</b>	<b>1,062</b>
<b>2018</b>	<b>54</b>	<b>26</b>	<b>1449</b>

The CDA Trust BPRP Program collected a total of 1,295 soil samples and 3 vacuum dust samples from 52 residential and commercial properties throughout 2018. In addition, 22 private drinking water system samples were collected from 9 properties.

The targeted house dust mat sampling program was transferred to the CDA Trust in 2017. In 2018, the program focused predominately on the Lower Basin. A website was developed to more effectively communicate with lower basin residents. In addition, mailings were sent to 1,107 Lower Basin residences to request participation in the program. Dust mats were placed in 179 residences and vacuum samples collected from 116 residences.

The CDA Trust BPRP Program completed remediation of 54 residential and commercial properties for a total of 26.4 acres in 2018. The construction season started on April 24th and finished on November 27th.

The CDA Trust continued to maintain 7 existing reverse osmosis under-sink water filtration systems treating drinking water from private sources in 2018.



In addition to the work noted above, IDEQ managed remediation at one property in the Box whose owners changed from refusing access to allowing cleanup work to proceed.

## **Remedy Protection Projects**

Remedy Protection is a high priority in the Upper Basin RODA and the SCIP developed by EPA in the fall of 2012. 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. In 2012, planning, survey and design began on a number of projects in the urban areas of the Box and Upper Basin portion of OU-3 noted in the RODA. IDEQ completed Remedy Protection work in the Box in 2015.

In 2018, the CDA Work Trust completed the Tiger Creek Project in Mullan design and began working on designs for the Star Parking and the Gem areas in the Canyon Creek drainage.

The CDA Trust worked on construction of several projects in 2018:

- Started and completed the Printer's Creek project in Wallace,
- Started and completed the Rosebud Gulch project in Osburn, and
- Started the Tiger Creek (including Eight Street) project in Mullan. Construction on the Tiger Creek project will be completed in 2019.



**Installation of Fish Passage Structure Rosebud Creek Remedy Protection Project  
Osburn**



### **Installation of Drainage Pipe for Tiger Creek Remedy Protection Project Mullan**

### **Paved Roadway Surface Remediation Program**

EPA and IDEQ implemented the roadway surface remediation program in 2013 to address the deterioration of contaminated paved road surfaces due to heavy traffic during site remediation activities to ensure road surfaces continue to serve as barriers that reduce or eliminate exposures to underlying contamination. There were 593 road segments to be remediated in the original program Strategy; the EPA/IDEQ Roads Board has added 13 segments to date that were not identified in the text of the Strategy, but were identified as qualifying in supplemental information, specifically road maps, as qualifying for remediation in the program. Several roads segments previously included in the Strategy have been disqualified because they have just recently been rebuilt and were not in need of work, or they were under the jurisdiction of State of Idaho Transportation Department who does not qualify for funding in the program.

The local road jurisdictions have completed remediation of 499 roadway segments to date. Many of these projects were completed in coordination with remedy protection projects and major subsurface utility projects in Mullan, Wallace and Kellogg, which were funded by public utilities or through local bond elections and USDA Rural Development grants.

The Cities of Mullan, Wallace, Osburn, Pinehurst, Wardner, Smelterville, and the East Side Highway District have completed their Paved Roads Program. The City of Kellogg should finish their program in 2019 with the exception of two segments, Bunker Ave. and Wildcat Way which are waiting on the completion of the Central Treatment Plant Upgrade and Groundwater Collection Project. Scheduling indicates that these segments should be completed in 2020. Shoshone County has one remaining project in the Box that should be completed by the end of 2019. It appears that Shoshone County will have approximately 65 remaining roadway segments to remediate in the Basin at the end of 2019.





**Completed Construction McKinley Ave. in Kellogg**



**Silver Valley Road Under Construction**

## **Contaminated Waste Disposal and Management**

### **Introduction**

Contaminated waste disposal and management is an ongoing process that must meet the demand for the disposal of historic mining related contamination for the entire Basin environmental and human health related cleanup program. The contaminated waste management program includes a four part approach to dispose of waste material generated by the BPRP and other cleanup actions performed by EPA through the Trust or IDEQ; and waste generated by private parties and local government agencies under the ICP and Paved Roads Program. Without the expansion of existing disposal facilities or the construction of new facilities, continued cleanup and control of contamination could be compromised and potentially stopped.

Each of the four approaches to waste disposal are engineered and constructed to reliably contain waste materials, and prevent contaminants from being released to surface water, groundwater, or air in concentrations that will cause state and/or federal standards to be exceeded. The first approach includes Repositories that are large, centrally located areas within the Upper and Lower Basin where contaminated soil and material excavated during cleanup actions is transported to be managed and secured. The second approach uses Waste Consolidation Areas (WCAs) in the Upper Basin, located adjacent to or near the waste source areas, serving for consolidation or placement of wastes from specifically identified sources such as mine and mill site actions. The third approach involves the Community Fill Plan (CFP) developed in recognition that the ICP allows use of contaminated soils for fill material to create more developable ground in the Upper Basin, its use taking place under agreement between a generator and a property owner with space for fill approved by the PHD in compliance with the ICP and with the approval of EPA and IDEQ for any CFPs proposed to dispose of 5,000 cubic yards (cy) or greater. The fourth approach, use of a Limited Use Repository (LUR), takes advantage of the relatively low volume of base materials excavated during the paved roads projects, and their inclusion with the relatively inert asphalt or Portland cement concrete which makes up 30 – 50% of the wastes generated when roads are torn up for remediation. The three primary goals for constructing LURs are: 1) the economy of disposing low toxicity wastes in places close to roads projects, 2) conserving repository space for more contaminated remediation waste, and 3) increasing the developable space inventory in the Upper Basin.

Five Repositories were operated to receive remedial action and ICP waste in the 2018 field season. Big Creek Repository (BCR) and Big Creek Repository Annex (BCRA) near the community of Big Creek and Lower Burke Canyon Repository (LBCR) serve the Upper Basin, and East Mission Flats Repository (EMFR) near Cataldo serves communities in the Lower Basin. The Page Repository, located near Smelterville receives the ICP and remedial action wastes generated by the cleanup activities conducted in the “Box.” EMFR, BCR, BCRA and LBCR are operated by the Trust. Page is operated by IDEQ. Both IDEQ and the Trust directed waste to the repositories to minimize transportation distances and costs. In addition, the Page Repository continues to use recycled construction materials extracted from Basin and Box waste streams which helps to further reduce repository operating costs. A summary of activity at each site is described in the sections below.

### **Big Creek Repository**

During 2018, BCR received limited quantities of waste. Most waste streams delivered to BCR were directed to BCRA as the Trust site management contractor prepared the east slope of BCR for additional capacity by raising high voltage power lines that cross over BCR. Soil test plots on the west slope of BCR have been installed with the purpose to develop options for the final vegetated cover system for the BCR. Five test plots were constructed to approximately 0.39 acre in size with all plots having the same aspect. Each test plot received different ratios of soil amendments and was hand broadcast seeded with a Bonded



Fiber hydroseed applied for erosion control and winterization. The options implemented will be compared and evaluated based on their individual cost-to-coverage ratios. The water quality monitoring program at BCR found operations have not impacted adjacent surface or ground waters.

The year-end repository shutdown activities have been completed and include:

- All road surfaces were graded and sloped inward to collect runoff to capture runoff and prevent ponding.
- Additional storm water management controls including straw waddles and hydro-seeding with a native seed mix were installed on finished slopes to further protect against erosion of these surfaces.

In 2018 BCR received 82 truckloads from the BPRP, 315 from the ICP, 85 from the Remedy Protection Program, and 9 from the Paved Roads Program for an estimated 4,700 cy of waste placed. At the end of the 2018 construction season, the BCR contained approximately 605,465 cy of waste soils. BCR currently has approximately 125,300 compacted cy of capacity left for disposal. The ICP area will be managed by the Trust's Operations Contractor during the winter closure period. Prior to spring runoff, all ICP waste will be transported and stockpiled on top of the repository for processing and future placement and compaction.

### **Big Creek Repository Annex**

In 2018 BCRA received 33 truckloads from the BPRP, 889 from the ICP, 11 from the Remedy Protection Program, and 2 from the Paved Roads Program for an estimated 8,800cy of waste placed. The Annex capitalized on being able to use the existing infrastructure at BCR such as the main entrance and wash station.

### **Lower Burke Canyon Repository**

During 2018, LBCR received 1,306 truckloads from BPRP, 881 truckloads from the ICP, 233 truckloads from the Remedy Protection Program, and 9 truckloads from the Paved Roads Program for a total waste placement of 21,861cy. The year-end repository shutdown activities have been completed and include:

- Stabilize slopes by track walking.
- Create low area sump near decontamination pad to ensure that runoff from the asphalt area is contained on site.
- Construct drainage swale around south end of fill limits to collect any runoff during rain on snow events.
- Crown center of waste area to encourage drainage to runoff collection ditches.
- Install additional storm water management controls including straw waddles and silt fencing on steep slopes to further protect against erosion.

### **East Fork of Ninemile Creek Waste Consolidation Area (WCA)**

During 2018 the East Fork WCA received 146,075 cy of waste from the Success Mine Complex Dump. Additional work conducted at the WCA included expansion for additional capacity and continued generation of soils for future capping and repairs. To date, the East Fork WCA site has generated approximately 170,000 cubic yards of rock and 250,000 cubic yards of soil for East Fork Ninemile Creek Remedial Actions. This has saved the project approximately \$8.4 million and significantly minimized traffic through local communities.



### **Placing Waste Material at Waste Consolidation Area in East Fork 9 Mile Canyon**

#### **East Mission Flats Repository**

In 2018, the EMFR repository received 357 truckloads from the BPRP and 3,966 truckloads from the ICP. Final in-place, compacted volume calculated from the truck load count was about 35,100 cy. The ICP disposal area will be available at the east end of EMFR to receive ICP waste during the winter closure period and managed by the Trust's Operations Contractor. Prior to spring runoff, all ICP waste will be transported and stockpiled on top of the repository for processing and future placement and compaction.

Semiannual groundwater monitoring was conducted at six monitoring wells located on or near EMFR. Groundwater and surface water monitoring results indicate that disposal activities have not impacted water quality near the site. Two new monitoring wells were installed to replace two wells that were not as productive as existing wells in the past.



## **Page Repository**

Page Repository received 2,328 truckloads of waste from Box Remedial Action projects including the Central Treatment Plant (CTP) upgrades, groundwater collection system, and Paved Roads Program. ICP waste delivered to Page in 2018 totaled 2,031 truckloads. Much of the ICP and remedial action waste delivered to Page consisted of concrete debris and other coarse materials utilized to construct a foundation mattress for repository expansion. The total estimated volume of material placed at Page in 2018 based on the truck counts was 32,700 cubic yards.

## **Shoshone County Transfer Station LUR**

The Shoshone County Transfer Station LUR received an estimated 5,976 cy of Paved Roads Program waste in 2018 reaching capacity and a clean barrier gravel cap with visual barrier material between the waste and gravel was placed on the area. The site provides two flat surfaces (0.4 acres and 3.45 acres) to be utilized by Shoshone County.



**Completed LUR at Shoshone County Solid Waste Transfer Station**

### **East Zanetti Yard LUR**

The East Zanetti Yard LUR received a total of 10,855 cy of Paved Roads Program waste in 2018 with the final volume of 23,158 compacted cubic yards being met. The land owner requested that the area be capped. It should provide about 5 acres of additional flat land to be used only for commercial development.

### **Government Gulch LUR**

The Government Gulch LUR received 5,965 truckloads for an estimated 53,600 cy of waste generated by the Paved Roads Program in 2018 completing the first cell and utilizing the second cell that when completed will result in an anticipated 6 acres of useful property for development along Government Gulch Road.

### **Government Gulch CFP**

This CFP is located directly adjacent to the Government Gulch LUR for the purpose of accepting ICP waste from collaborative projects involving sewer, water supply and other utility replacements and upgrades within the City of Kellogg. The CFP received 3,727 truckloads for an estimated disposal volume of 28,000 cy in 2018.

### **Additional Disposal Locations**

In addition to the operational repositories, two separate areas for future disposal and permanent storage of mining related contamination are currently in some stage of consideration and/or planning. The repository site selection process initiated in 2008 culminated in the identification of two new repository sites in the Upper Basin; the Osburn Tailings Impoundment (OTI) near Osburn and the LBCR. LBCR is currently accepting waste and the Osburn Tailings Impoundments will be considered for use in the future depending of disposal needs.

A second location currently under development is the Canyon Complex Repository (CCR). The location of the CCR is the former Silver Valley Natural Resource Trustee Repository (SVNRT) location near the LBCR. Based on waste projections, additional disposal capacity was required in Canyon Creek basin and the SVNRT site ranked high using the site selection criteria from 2008. Use of the SVNRT site will prevent transporting waste through downstream communities.

### **Mullan ICP Disposal Area**

The Mullan ICP Disposal Area served as the local repository for activities conducted in the City of Mullan. However, because the disposal area is now effectively full, it is being closed though a transfer station will remain on site. The transfer station ensures that future local ICP wastes get disposed of in an engineered facility (e.g. BCRA or Lower Burke Canyon Repository), and local ICP users can continue to use the facility as they are currently accustomed. The Disposal Area was capped and left for the City to maintain. Following construction, the transfer station will only accept ICP waste from Mullan residents. The Trust will operate the transfer station for the foreseeable future. No material from the Mullan ICP site was removed for disposal in 2018.



## **Upper Basin Remedies**

### **Cleanup Actions in East Fork Nine Mile Creek (EFNM) and Canyon Creek**

In 2018, investigations/remedies in the EFNM Creek Basin consisted of the following:

- Operations and maintenance (O&M) of the Interstate Callahan Mine Rock Dumps, Rex Mine No. 2, and infrastructure to support remedial actions (RAs).
- Construction of the third year of the Success Mine Complex RA project, one year remaining to complete the project.
- Operation of the EFNM Waste Consolidation Area (WCA).
- Continued surface water monitoring in EFNM Basin.
- Conducting additional characterization and sampling activities to assist in determining the remaining remedial actions needed in the Nine Mile Creek Basin.
- Completion of the design alternatives memorandum for the EFNM Tamarack Complex to support future design activities.

In 2018, investigations/remedies in the Canyon Creek Basin

- Conducting additional characterization and sampling activities in Canyon Creek to assist in determining the remedial actions needed in the Canyon Creek Basin.
- Finalized design of the SVNRT/CCR complex area in Canyon Creek.
- Continued work to address all applicable regulatory requirements including compliance with the National Historic Preservation Act, Endangered Species Act, and Clean Water Act.

The following summarizes the 2018 construction activities conducted in the EFNM Basin:

- Approximately 53,477 cy of contaminated waste rock and mine tailings were hauled from the Success Complex and placed and compacted at the EFNM WCA resulting in 44,865 compacted cy at the WCA.
- Approximately 2 acres of remediated steep slope at the Success Mine Complex were covered and revegetated.
- Placement of temporary cover materials over contaminated waste rock and mine tailings at WCA prior to winter shutdown.

### **Central Treatment Plant (CTP) and Groundwater Collection System (GCS)**

- The Corps of Engineers awarded the Design/Build/Operate Contract to AMEC/Foster Wheeler (AMEC) in 2016 and issued the Notice to Proceed on Feb 2, 2017. Prior to commencement of work AMEC was acquired by Wood. Wood assumed the responsibility for the continued operation of the existing Central Treatment Plant (CTP) and will continue to operate it until one year after the completion of the upgrades to the plant and construction of the Groundwater Collection System (GCS). Wood responsibilities also include design and construction of the CTP upgrades, new GCS and new lined Sludge Impoundment on top of the Central Impoundment Area (CIA). The Corps of Engineers (COE) is charged with administration and management of the contract.

- During the 2018 construction season, Wood started constructing the GCS and CTP upgrades. Tasks included removing billboards along the CIA; demolishing existing CTP components and installing CTP upgrade components; and constructing the new sludge impoundment area and power, ventilation and control systems. Installation of the new liner system for the sludge impoundment area was about 95% when activities were stopped for the winter. A major milestone was reached in September when treatment operations were shifted from the CTP to a temporary treatment system. This allowed Wood to commence demolition of existing treatment components that will be replaced as part of the upgrades, including the existing Aeration Basin and associated sub-systems (e.g., Rapid Mix Tank, Floc Basin, and associated infrastructure systems). Wood installed control wells, commenced work on the slurry wall for the GCS in June 2018, and had completed approximately 90% of the installation of the slurry wall by the time it shut down construction activities in the fall. There are openings in the cut-off wall that will be closed after the collection system (extraction wells, pumps and piping) is completed and operable in late summer 2019. All construction activities are scheduled to be completed over the course of 2019 and 2020 and following completion will undergo testing and acceptance prior to being operated for one year under 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 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 water, and the groundwater to be collected from the GCS near the CIA. The Bunker Hill Mine water has been and continues to be treated at the CTP. The upgraded CTP is intended 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, 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 discharged from the CTP to the SFCDA River 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 SFCDA River from groundwater interaction, as discussed in the following paragraph.
- The project includes approximately 8,000-linear feet of 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 concentration of metals predicted by the mathematical model represents the range from base flow/strength through maximum flow/strength. Base flow/strength typically occurs in late summer or early fall and maximum flow/strength typically occurs during 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 SFCDA River 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.

## Lower Basin Remedies

The cleanup described in the 2002 OU-3 ROD for the Lower Basin includes actions for the wetlands and lateral lakes, the river banks, splay areas and river bed. These remedial actions, envisioned primarily as pilot studies, are being evaluated for implementation under the 2002 OU-3 ROD. The objectives of remediation in the Lower Basin are focused on reducing risks to human health and wildlife by reducing exposure to particulate lead and improving habitat quality in the CDA River system. Remedies that address human health or ecological exposure, coupled with continued evolution of our understanding of sediment transport and recontamination in the Lower Basin, are interconnected with natural resource restoration actions.

EPA continued two pilot projects initiated in 2015 to evaluate wetland mitigation options. Thin-layer capping is one method considered promising for sensitive wetlands to cost-effectively reduce ecosystem impacts from contamination while limiting the hydraulic effects of remedial actions. In 2018, EPA monitored a second year of Incremental Thin Layer Capping (ITLC) to evaluate application of native alluvial material on wetland vegetation response. Samples were also collected for analysis and testing of possible amendments to reduce the bioavailability of lead. The ITLC technique continues to show promise for reducing exposure to lead concentrations in sediment with minimal impact to sensitive wetland ecosystems. In October 2018, sampling was conducted at the IDFG Black Lake Ranch property and the private agricultural property adjacent to Strobl Marsh (around River Mile 150). These data will be used to inform potential remedial and restoration design.

In 2018, the EPA finalized the Strategic Plan for the Lower Basin; it can be downloaded from the EPA website (below). The EPA also expanded its efforts to test and apply a structured decision process for prioritizing work in the Lower Basin within the Strategic Plan's focus areas (human health, clean off-channel habitat and source control). The purpose of the Lower Basin Project Selection Process is to identify, evaluate, and select projects to be designed, implemented, and monitored within the next 3 years and beyond in an adaptive management framework. The process will be iterative, and conducted periodically as needed based on funding, knowledge, opportunities, and experience gained from implementation and subsequent monitoring.

The EPA reached out to agency partners, the Restoration Partnership and members of the CCC (June 13, 2018) to help identify key values, projects and objectives that should be considered in the selection process. A workgroup of agency staff with experience and specific expertise working in the Lower Basin tested the process on a group of potential projects that have been identified over the years (including projects identified in the 2013 Lower Basin Pilot Project Forums). The process will be further tested with the Lower Basin PFT and the results and insights will be used to inform the EPA's annual and long-term work planning through the CDA Work Trust. Going forward, the Lower Basin PFT will continue to assist the Lower Basin Project Selection Process by providing updates on new technologies, pilot projects for consideration, key technical input, and project ideas.

Health Intervention Program projects lead by IDEQ and Kellogg PHD continue to be relevant and meaningful Basin-wide. Projects aim to lower human exposure rates to heavy metals through educational outreach. With help from partnering agencies, a number of efforts were undertaken in 2018 including airing radio announcements, staffing informational booths, and providing educational presentations to school students and installation of new information signing in use areas. This purpose of these activities was to provide health tips to recreationists. Long-term planning for addressing Human Health Risks as a result of recreational activities at dispersed recreation sites in both the Lower and Upper Basin is described in the Recreation Sites Section of this Report.

In 2018, investigative and modeling work in the Lower Basin culminated with a working sediment transport model and a much more comprehensive picture of the channel reaches and bed characteristics that are primary sources of lead to the environment. The model development report was completed and is under review by the modeling Peer Advisory Team. EPA is currently using the model to characterize baseline conditions in the Lower Basin. The model has been used to 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. Several of the more significant documents under the Enhanced Conceptual Site Model for the Lower Basin can be found on the EPA website under the Lower Basin including:

Technical Memorandum Addendum D-2 - Floodplain Sedimentation Rates Developed from One-Dimensional Model Results

Technical Memorandum Addendum D-3 – Processes of Sediment and Lead Transport, Erosion, and Deposition

Technical Memorandum Addendum E-5 - Riverbank Characteristics, Erosion Rate, and Lead Contribution

Technical Memorandum Addendum E-6 – Riverbed Characterization

<https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.scs&id=1000195&doc=Y&colid=35748&region=10&type=SC>

As additional Lower Basin documents are completed and approved for release they will be posted on EPA's website and notifications of such will be provided to the BEIPC and its subgroups.

## **State of Washington Projects**

Spokane River beach remediation sites had been evaluated annually on a rotating basis. However, since most of the sites now have a decreasing monitoring frequency, the Washington State Department of Ecology has decided to evaluate all beaches concurrently once every five years, consistent with state law. These evaluations will continue to include site visits, inspections, and XRF surveys. A complete beach survey was completed in 2018 and the results will be provided in a periodic Review available in early 2019.

## **Recreational Sites**

Work on Recreation Areas in 2018 included sampling, remediation, and public education/outreach activities for areas in both the Box and Basin. New health information signs were developed and installed, with several unique types of signs intended to inform users at different types of sites and provide consistent health messaging. Ten signs were installed at mine and mill sites in the Pine Creek basin where ATV use, hiking, hunting, camping, and shooting have been observed. Ten signs were installed at known swimming holes in the Box and Upper Basin. Twelve new signs were installed along the Trail of the Coeur d'Alene's where there is evidence of the trail being used to access off-trail recreation areas.

Recreation site work in the Box focused on the SFCDA River between Mountainview Park in Kellogg and the Pine Creek trailhead in Pinehurst. IDEQ conducted sampling and XRF screening of areas along the river currently being utilized for recreation activities. Areas that were remediated on Smelterville Flats during the late 1990s were also sampled to evaluate how the installed barriers have endured and if any

recontamination has occurred. The initial screening indicated that most of the areas previously remediated along Smelterville Flats still have adequate clean barriers. Additional summary data is expected to be available in early 2019 and data from this characterization work will be used to develop potential remedial action alternatives in 2019.

2018 sampling and cleanup work in the Basin focused on the following recreation sites: Burke Road AVISTA substation parking area, Nine Mile Fishing Pond, Cataldo Boat Launch and three CDA River pull-outs. Cleanup was completed at the AVISTA substation and three pull-outs. Cleanup was started at the Nine Mile Fishing Pond and sampling was completed at Cataldo Boat Launch. These projects are expected to be completed in 2019. A pilot program also was initiated to evaluate the effectiveness of hand washing stations at formal recreation sites. Temporary hand washing stations were provided at three locations for 10 weeks. The sites selected included public boat launches, trailheads, and picnic areas that do not have running water.

## **Basin Environmental Monitoring**

EPA is completing a draft of the CDA Basin Environmental Monitoring Plan (BEMP) which will include ongoing remedy effectiveness and long-term monitoring associated with actions in the Upper, Middle and Lower Basin. The goal of the updated and optimized CDA BEMP is to provide a framework for designing efficient data collection plans to support site-wide management decisions. Specific monitoring goals include:

- Assessing long-term status and trends of contaminants in Site media;
- Evaluating the performance and effectiveness of the Selected Remedy;
- Providing data for CERCLA-required five-year reviews of the progress on remedy implementation;
- Evaluating progress toward Remedial Action Objectives (RAOs); and
- Improving understanding of Basin processes and variability to optimize subsequent remedial action implementation.

The CDA BEMP will be a working and adaptive document and will incorporate the Site-wide Quality Management Plan (completed in 2015) and media-specific Quality Assurance Project Plans (QAPPs). A programmatic Data Management Plan for the Bunker Hill Site is currently under development that provides guidance and data requirements for all entities collecting environmental data at the Site. Human health-related data will not be included in this database. The database platform selected for this site is Scribe and the repository is the EPA Region 10 subscription to Scribe.net. EPA has been working with each entity that collects data for the Bunker Hill Site to migrate their data to the new Scribe platform. Until this task is completed, stakeholders can make specific data requests to the EPA Remedial Project Manager.

One of the monitoring objectives under the CDA BEMP is remedy efficacy monitoring for specific remedial actions. In 2016, EPA prepared a Remedial Action (RA) Effectiveness Monitoring Plan for cleanup efforts in East Fork Nine Mile Creek (EFNM) and baseline monitoring is being conducted at 24 stations in EFNM and 23 stations in Canyon Creek. In 2018, EPA completed a RA Effectiveness Monitoring Plan for the Groundwater Collection System (GCS) that is currently being constructed along with upgrades to the Central Treatment Plant (CTP). Baseline conditions for groundwater and surface water were established prior to installing the GCS, which initiated in 2018.

During 2018, United States Geological Survey (USGS), IDEQ, USFWS and EPA continued BEMP sampling. Specific activities are outlined below.



## **Surface Water**

In calendar year 2018, USGS collected 68 stream discharge and water-quality samples from 16 OU-3 and four OU-2 surface water stations during a range of hydrographic events. Samples were collected during a winter storm in February, during the spring snowmelt runoff in May, during the hydrograph recession in July, and during baseflow conditions in September. Each site was sampled between two and four times during the year. Samples were analyzed for nutrients, selected trace metals and major ions, and suspended sediment.

Eleven of the 16 OU-3 stations are collecting continuous streamflow data and are telemetered with real-time streamflow access. Information can be viewed at <http://waterdata.usgs.gov/id/nwis/rt>

One winter flow event occurred in February 2018, with flows approaching 15,000 cubic feet per second (cfs) in the CDA River at Cataldo. Spring snowmelt runoff in May was similar in timing but higher in magnitude to median runoff flows. Recessional samples were collected in July. Fall samples were collected in September 2018 and captured baseflow conditions.

The USGS completed a seepage study in September 2017 to evaluate groundwater loading of dissolved cadmium and zinc to the SFCDA River between Kellogg and Smelterville prior to installing the GCS and performing upgrades to the CTP. The analysis and final report on this study will be completed and available in 2019.

All gaging station stream discharge and water-quality records for the BEMP gages for Water Year (WY) 2018 were worked up, approved, and will be included in the 2018 USGS annual data report for Idaho. The annual data summaries will be completed and delivered to EPA during the first quarter of calendar year 2019.

## **Groundwater**

In 2018, IDEQ administered semiannual groundwater sampling within OU-2 of the Bunker Hill Box in accordance with the new and optimized BEMP QAPP for Groundwater Monitoring.

Groundwater sampling was conducted at 11 sites during May high flow conditions. In addition to measurement of typical field parameters, samples underwent laboratory analysis for dissolved metals (antimony, arsenic, copper, cadmium, lead, and zinc) at all sites, total phosphorus for one site, and the remaining sites were analyzed for acidity, alkalinity, total dissolved solids, total suspended solids, anions, and o-phosphate.

Sufficient baseline groundwater data were collected by the spring 2018 event. Monitoring was then temporarily discontinued in preparation for the installation of the GCS between the CIA and I-90. In the future, data analysis will also include estimating dissolved metal loads to the SFCDR, monitoring remedy performance and effectiveness, and evaluating long-term response to the collection system operation.

## **Biological Resources**

USFWS conducted waterfowl surveys from early February to late April 2018 in Lower Basin floodplain wetlands recording observations of waterfowl use and tundra swan mortalities. Unseasonably warm weather during the first week of surveys (2/8) led to an early start in migration with over 1,000 swans observed in the lower Basin, primarily at Schlepp's, Lane, and Gleason's. At the peak of migration in mid-March 5,700 swans were counted primarily in Strobl and Lane Marsh. The numbers of swans, geese, pintails, wigeons, and mallards gradually declined over subsequent weeks but despite declining numbers,

over 500 swans were observed over nine survey weeks, three weeks longer than normal. In 2018, water levels remained fairly low, allowing smaller groups of swans to spread out over multiple wetlands. The highest cumulative swan counts in 2018 were observed at Lane Marsh, Strobl Marsh, Schlepp's East Field, Killarney, Harrison, and Cave Lake.

Associated with the higher numbers and duration of the swan migration, there were 113 swan mortalities documented in 2018. Conditions also likely contributed to the number of mortalities with the early warm weather and subsequent early migration, followed by a wintery freeze that pushed most of the swans to Harrison Slough where they remained for over two weeks until temperatures warmed back up and allowed waterfowl to move back up into the Lower Basin. The high concentration of swans at Harrison for two weeks likely contributed to increased exposure and high mortality.

EPA is reviewing a revised draft of the CDA Basin Long-term Biological Monitoring Report, starting with the Palustrine/Lacustrine Habitat Report for 2013 – 2017. This document will be finalized in 2019.

## **Sediment**

Sediment data WY 2018 (October 1, 2017 to September 30, 2018) are summarized below. In 2014 the threshold criteria for sampling of suspended sediment was raised from 20,000 cfs flow to 25,000 cfs at Cataldo. In the past during these events, EPA's contractors have collected high-volume isokinetic sediment samples at bridge locations. Since the bridges are relatively few and widely spaced, the data provide a "snapshot" of conditions but not the spatial and temporal variability of flow and sediment dynamics throughout the flood. Discharge conditions in 2018 did not trigger the threshold criteria for sampling of suspended sediment in the channel.

Depositional sediment samples were collected at defined locations throughout the Lower Basin in Water Year (WY) 2018. As part of the long-term BEMP program, eleven near-channel stake locations and five off-channel tile locations were sampled as soon as they were accessible in the spring. In addition, 42 supplemental tile sampling stations (installed in 2013) were sampled to provide additional resolution regarding deposition rates and sediment characteristics in floodplain areas of interest. River flows in WY 2018 were relatively low; flows did not exceed the over-bank threshold of approximately 20,000 cfs (Cataldo station), so many off-channel supplemental tile locations were not inundated.

Lead concentrations in deposited sediment at the stations sampled for WY 2018 were highly variable but were generally higher at the downstream locations. The highest lead concentrations for WY 2018 from supplemental sampling stations were measured near Swan Lake. In previous years, lead concentrations have sharply increased for nearby locations downstream from the Cataldo station, indicating that lead is being mobilized from within the Coeur d'Alene River channel below the grade break at the Cataldo dredge pool. WY 2018 depositional lead data characteristics may have been influenced by the relatively lower peak flows observed in 2018 and reduced riverbed erosion. Lead concentrations measured at BEMP depositional stations show a high degree of year-over-year variability, particularly at off-channel locations, complicating the assessment of long-term trends.

## **Part 2 – Other BEIPC Activities and Responsibilities:**

### **Lake Management Activities**

The Lake Management Plan (LMP), developed by the CDA Tribe and IDEQ, was finalized in 2009. Since then the CDA Tribe and IDEQ have been implementing core aspects of the LMP. LMP coordinators with IDEQ and the CDA Tribe have been conducting an ongoing audit of activities completed by various stakeholders since 2009.

As of the summer of 2018, the Coeur d’Alene Tribe 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 IDEQ and EPA to determine what additional mechanisms/actions are needed to manage the hazardous materials in the lake bed sediments. Therefore, although various aspects outlined in the LMP and listed below are essential to continue, additional approaches to augment work conducted under the auspices of the LMP are being contemplated. These discussions will continue during 2019.

LMP implementation accomplishments in 2018 consisted of the following staff activities:

#### **Science Core Program**

- Routine lake monitoring by CDA Tribe and IDEQ staff continued through 2018.
- Curlyleaf pondweed was identified at the Coeur d’Alene Third St. boat launch and Boardwalk Marina late summer 2018. Avista Corporation and Idaho State Department of Agriculture (ISDA) staff are planning treatment activities for spring 2019. A press release was jointly developed between the CDA Tribe, ISDA and IDEQ, and was released to the area news outlets.
- IDEQ completed visual rooted aquatic plant surveys within Bell, 16:1, Sunup, Carlin, Mica, and Wolf Lodge Bays, as well as the Black Rock Marina. Snorkel surveys were performed at Sanders Beach and Fort Sherman/Coeur d’Alene City Beach. Milfoil was not observed in these locations. Annual reports of the plant surveys are forwarded to Avista. IDEQ is a cooperative partner under Avista’s aquatic plant management program.
- The CDA Tribe continued its milfoil treatment program in southern waters during 2018, including continued herbicide, diver and bottom barrier treatments. The CDA Tribe also has been conducting herbicide efficacy monitoring. Based on these results, the tribe is moving away from broader application to focus on managing public swim areas. Past herbicide applications have been observed to be effective within the application year but do not eradicate milfoil.
- LMP staff partnered with University of Idaho to implement the second of a two-year study to monitor periphyton (attached algae) growth in northern bays to increase knowledge of bay productivity.

## **Education & Outreach Core Program**

- LMP staff conducted water quality training for camp counselors at Camp Four Echoes in Windy Bay.
- LMP staff participated in the Coeur d’Alene Chamber of Commerce “Coeur Fest,” a one-day event at McEuen Park that targeted area residents and highlighted natural resources. There were several hundred visitors to the LMP booth, which featured environmentally friendly giveaways, a zooplankton display, and resource handouts.
- Throughout 2018, LMP staff provided updates on lake management activities to a variety of community groups and made various presentations to the public.
- LMP staff participated in several K-12 educational programs, including The Confluence Project (TCP) for high school students; water science days at Ramsey and Hayden Meadows Elementary; Women in Science Fair at North Idaho College (NIC); and the 2<sup>nd</sup> annual Coeur d’Alene Water Festival, which hosted over 300 fifth-graders from area schools.
- LMP worked with partners including Kootenai Environmental Alliance, University of Idaho Community Water Resource Center (CWRC), and area high schools to obtain funding for TCP from the Coeur d’Alene Tribe and the Aquifer Protection District. This allowed for the expansion to 13 North Idaho schools, including area alternative high schools.
- TCP partners hosted the second Youth Water Summit at North Idaho College, this year expanding to include more than 400 North Idaho high school students in presenting water science-related research, judged by more than 100 agency and business representatives.
- LMP staff continued involvement with the Panhandle Stormwater and Erosion Education Program (SEEP) in partnership with the UI CWRC.
- LMP staff participated for the 3<sup>rd</sup> year in a continuing education training that provides information related to water quality and land use regulation for realtors, reaching 40 realtors. Evaluations indicate its continued popularity.
- LMP staff continued to work with the Coeur d’Alene Chamber of Commerce Natural Resource Committee to implement the “Local Gems” program. This year’s recipients primarily represented educators. There will be renewed focus on area businesses for 2019.
- IDEQ and CDA Tribe staff collaborated with the UI CWRC and agency partners to conduct three Baywatchers introductory workshops and one aquatic plant workshop in 2018.
- LMP staff coordinated with the Spokane River Forum to develop the agenda for the next two-day Forum in Spokane in April, 2019 to be followed later by a one-day Coeur d’Alene Lake “Our Gem” symposium in Coeur d’Alene. The decision to split to the two events was based on the lack of an available facility large enough to house the entire three-day conference in spring 2019.



## **Nutrient Inventory & Nutrient Reduction Core Program**

- A basin-wide nutrient inventory document has been drafted, and planning is underway to address data gaps identified by staff.
- A monitoring station has been placed in lower Wolf Lodge Creek, and monitoring is underway. This will help capture more nutrient loading data and document baseline water quality information prior to upper watershed restoration activities (see previous bullet).
- LMP partners continue to be involved in the Coeur d'Alene Tributaries Watershed Advisory Group (WAG). Planning efforts in the Wolf Lodge drainage are ongoing to identify resources for restoration activities.
- LMP staff worked with Avista Corporation, NRCS, the Benewah Soil and Water Conservation District, the Idaho Soil and Water Conservation Commission, and private landowners to complete stabilization of eroding banks along the St. Joe River on private recreational lots. Planning for a stabilization project on Avista property is ongoing. Funding from Idaho's 319 Program, Avista Corporation and IDEQ Lake Management funds are being utilized for these projects.

## **Partnerships with Other Entities**

- LMP staff continued to be involved in the CDA Lake Tributaries and the St. Joe/St. Maries Rivers WAGs.
- LMP staff worked with the BEIPC Executive Director to provide LMP activity updates to the TLG, CCC, and BEIPC during quarterly meetings and for written reports.
- LMP staff continued coordination with county staff and the CDA 2030 Project and have continued participation in the Coeur d'Alene Chamber's NR Committee. The LMP coordinator for the CDA Tribe continues to participate on the CDA 2030 Board and Implementation Committee.

This continued level of coordination with BEIPC forums maximizes opportunities for information exchange and advice, while recognizing that IDEQ and the CDA Tribe retain their respective decision-making authorities.

## **Flood Control and Infrastructure Revitalization**

In 2017 the local jurisdictions formed the Silver Valley Flood Protection Group to deal with flooding issues in the SFCDA River and to investigate opportunities to deal with flooding and its impacts on the communities and the Superfund remedies. A formal partnership was developed in 2018 through a MOA between the BEIPC and the local flood group to work with the U.S. Army Corps of Engineers to develop a hydraulic loading analysis for the SFCDA River from Wallace through Kellogg. The results of this analysis will be used to develop an approach to dealing with potential flooding in the river and its impacts on the community and remediated areas.

The BEIPC continued to assist Upper Basin communities and utilities in pursuing funding to implement the Upper Basin Drainage Control and Infrastructure Revitalization Plan (DCIRP). As in previous years, a large number of the priority drainage control projects and roads needs in the DCIRP continue to be implemented as Remedy Protection and Paved Roadway Surface Remediation projects included in

CERCLA/Superfund cleanup activities. A number of the local utility jurisdictions continued to replace potable water lines and sanitary sewers ahead of road and street actions under the Paved Roadway Program and the road program was coordinated with the utility work and remedy protection work to enhance the accomplishments being made with the funds available.

## **Restoration Partnership**

The Restoration Partnership (Partnership) is a collaborative effort comprising the Coeur d'Alene Basin Natural Resource Trustees which are the U.S. Department of the Interior, represented by the U.S. Fish and Wildlife Service (USFWS) and Bureau of Land Management (BLM); the Coeur d'Alene Tribe; the U.S. Department of Agriculture, represented by the U.S. Forest Service (USFS); and the State of Idaho, represented by the Idaho Department of Fish and Game (IDFG) and Idaho Department of Environmental Quality (IDEQ). The Partnership's primary mission is to recover the natural resources that were injured by releases of mine waste contamination, and compensate for lost human use services of those resources by developing and implementing projects under the framework of a Restoration Plan for the Coeur d'Alene Basin. The following Partnership activities occurred throughout fiscal year 2018 (FY18):

- The Partnership published the final Restoration Plan to guide natural resources restoration throughout the Restoration Planning Area, and adopted the final plan through an associated Record of Decision.
- The Partnership also completed the associated Environmental Impact Statement which included the plan's Purpose and Need, identified Alternatives, and described potential effects. The official Administrative Record for the Environmental Impact Statement process was completed, ending the National Environmental Policy Act process.
- Outreach to share information with the public and gather input included:
  - Press releases and email announcements
  - Presentations to more than 15 groups and public meetings
  - Public open houses in Hayden, Osburn, and St. Maries
- The Partnership convened fiscal representatives from each of the Trustees, creating a forum to discuss project accountability and appropriate financial reporting requirements.
- In June of 2018 the USFS hired a Restoration Biologist, who is a liaison with personnel on the central and south zones of the Idaho Panhandle National Forest as well as the BLM to prepare for upcoming project solicitations in spring and summer of 2019.
- Ongoing operations and maintenance continued for wetlands at the Schlepp Agriculture to Wetlands Conversion Pilot Project, funded under the 2007 interim Restoration Plan. The construction and implementation of this restoration project has been completed. For more information visit: [http://restorationpartnership.org/wetland\\_restoration\\_project.html](http://restorationpartnership.org/wetland_restoration_project.html).
- A sample of agency and government projects was used to evaluate the selection criteria and funding process for the official project solicitation, improving the likelihood of a successful project selection and implementation process.

- The Partnership selected a suite of natural resource restoration projects to pilot the process for implementing the Restoration Plan. The Trustees tested and refined the administrative process for project solicitation and implementation to ensure readiness before soliciting project ideas from the public.

The following project proposals were presented to the Trustee Council on June 20, 2018 and selected for funding:

- Conservation of wetlands habitat along the Coeur d'Alene River corridor by the USFWS.
- Wetland and stream enhancement at Cougar Bay on Coeur d'Alene Lake by the BLM.
- Development of a native riparian plant nursery by the Coeur d'Alene Tribe.
- Wetlands enhancement at Hepton Lake near the St. Joe River by the Coeur d'Alene Tribe.
- Projects for the replacement of tribal cultural services (fish and culturally significant plants) in the Hangman Creek Watershed by the Coeur d'Alene Tribe.
- Coeur d'Alene Lake monitoring, modeling, and outreach by the Coeur d'Alene Tribe.
- Wetlands restoration planning at Black Lake Ranch by IDFG.

For more information on the Partnership, the Plan or the projects, please visit our website at: [www.restorationpartnership.org](http://www.restorationpartnership.org).

## *Challenges Ahead*

As in past years a great deal of work was accomplished across the Basin in 2018. The cleanup and restoration effort was focused on a mix of items; remediation of human health risks resulting from contaminated residential and commercial properties and public roads; extensive work by the CDA Trust in the EFNW Creek Drainage and work in the Canyon Creek drainage on ecological remedies; and EPA directed work to address the contaminated ground water problems and mine discharges in OU-2 noted in the Upper Basin RODA. Human health related projects continue to be a priority, but cleanup work in fish and wildlife habitat areas, and surface and ground water is moving forward with EPA working with the BEIPC, IDEQ, the CDA Trust, other cooperating agencies and stakeholders. The Restoration Partnership also developed their preliminary list of potential projects for implementation of natural resource restoration actions in the Basin.

Besides the RODA for the Upper Basin, the involved governments and agencies are developing a list of potential projects to address Lower Basin ecological issues. Because the CDA River system contains millions of tons of contaminated sediments, a portion of which is moving downstream every year, recontamination from annual flooding is a major concern for any project planned in the Lower Basin.

Other major challenges include: management of the ICP by PHD; development of any needed additional waste repositories for disposal of remedial action and ICP wastes; continued implementation of the RODA for the Upper Basin and OU-3 ROD for the Lower Basin; assistance to the local jurisdictions in their implementation of a storm water drainage control program; development of a solution to major flooding

issues in Lower Pine Creek and the SFCDR; and continued coordination with the CDA Tribe and State's efforts to implement the Lake Management Plan and the Restoration Partnership to implement natural resource restoration actions.

The ASARCO bankruptcy settlement and the Hecla settlement continue to be the major sources of funding for the environmental remediation and natural resource restoration actions. Careful action through the implementation of the Upper Basin RODA and Lower Basin OU-3 ROD, any additional needed amendments plus diligent work on the part of the Restoration Partnership is necessary to ensure that the available funds are expended in a judicious manner. Current funding projections indicate that the funds from the Hecla settlement for remedial actions will be exhausted within the next few years. Some other source of funding will be needed to carry on remedial actions in the Box because funds from the ASARCO settlement cannot be used in the Box. Assuring sustainable funding intended to advance cleanup as planned in the RODs and amendments, along with operation and maintenance of the implemented remedies, restoration of injured natural resources, and management of CDA Lake continues to represent a significant challenge into the future.