

# 2014 ANNUAL REPORT



*Basin Environmental Improvement  
Project Commission*

February 2015

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**Note: Cover Photo, Main Street in Smelterville after Remediation w/New Pavement**

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## Executive Summary

The Basin Environmental Improvement Project Commission (BEIPC) is responsible for overseeing 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 (CDR), 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 2014, the BEIPC coordinated and monitored accomplishments by various implementing entities for environmental cleanup and natural resource restoration work included in the BEIPC 2014 Annual Work Plan and the five-year operating plan. It also developed a 2015 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 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 to direct, and/or coordinate environmental remediation, natural resource restoration, and related measures to address water quality and heavy metal contamination in the Basin.

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 what is known as the "Bunker Hill Box."

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 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); and
- Leading multi-agency coordination in addressing potential flooding in the South Fork CDA River (SFCDR) and Pine Creek drainages.

Legislation 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 tribal council member of the Coeur d'Alene Tribe 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 is Terry Harwood.

### **Current BEIPC Membership**

<b>Name</b>	<b>Title</b>	<b>Representing</b>
Jack Buell, Chair	Benewah County Commissioner	Benewah County
Dan Green, Vice-Chair	Kootenai County Commissioner	Kootenai County
Larry Yergler	Shoshone County Commissioner	Shoshone County
Phillip Cernera	Lake Management Director	Coeur d'Alene Tribe
Grant Pfeifer	Regional Director, Washington Dept. of Ecology	State of Washington
Curt Fransen	Director, Idaho Department of Environmental Quality	State of Idaho
Dennis McLerran	Regional Administrator, EPA, Region 10	Federal Government

## ***Program Management***

The BEIPC operates in accordance with the Idaho statute and the MOA between 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 coordination of efforts to protect the cleanup remedies, human health, and the environment from the release and migration of contaminants through the implementation of Institutional Controls in the Basin and implementation of a Drainage Control and Infrastructure Revitalization Plan (DCIRP) for the Upper Basin Communities.

The Executive Director 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, and the Coeur d’Alene Tribe 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 2014, the Executive Director and TLG developed the 2015-2019 Five-Year and Calendar Year 2015 draft work plans and studied and developed project and program proposals to implement the remedy in OU-2 and 3. The TLG is currently composed of representatives from 21 governmental entities.

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

### **Community Involvement**

During Calendar Year 2014, 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 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, a booth at the Silver Valley Business Expo, STEM program presentations for North Idaho Schools, and career and professional education fair booths for North Idaho small school districts.



## **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 and LBC Meetings and Communication**

The CCC facilitated email and US Mail communications to its members and the public on an as-needed basis. CCC meetings were held in January, April, and July 2014 in different locations around the Coeur d'Alene Basin. All meetings were open to the public.

At the regular CCC meetings, members were updated on ongoing BEIPC and TLG activities and asked to provide input on a variety of issues such as how information is best distributed to residents in the Basin, and the one and five-year BEIPC work plans. The CCC informed the BEIPC of its activities by providing meeting minutes and comments to Commissioners prior to BEIPC meetings and by making presentations at BEIPC meetings.

## **Chronology of Selected CCC Activities and Input to the BEIPC in 2014**

In addition to receiving updates approximately once a month via email or regular mail about current BEIPC activities, CCC members were involved in the following activities in 2014.

### **January**

- The Vice Chair moved out of the Basin and is unavailable to serve the CCC.
- The CCC held a regular quarterly meeting in January in Coeur d'Alene, Idaho. The Executive Director also provided general updates on Basin Commission activities in the CDA Basin. The CCC chair was unable to attend. The CCC meeting was adjourned early due to lack of public attendance.

### **February-March**

- The CCC Chair presented the results of the January CCC meeting at the February BEIPC meeting in Spokane, Washington.

### **April**

- The April CCC meeting was held at the Medimont Grange and was well attended.
- EPA discussed the two pilot projects to be constructed in the Lower Basin.

### **May-June**

- The CCC Chair presented the results of the April 24 CCC meeting at the May BEIPC meeting in Wallace, Idaho.

## **July**

- The CCC held a regular meeting in July in Wallace, Idaho. Topics included: the Basin Property Remediation Program (BPRP), IDEQ updates on repository groundwater and surface water testing, updates from EPA on blood lead testing in the Basin, RODA Remedy Protection projects, status of the Lower Burke Canyon Repository development project, and updates on the East Fork Ninemile Waste Consolidation Area.

## **August-September**

- The CCC Chair presented the results of the July CCC meeting at the August BEIPC meeting in Wallace, Idaho.
- The CCC Chair and other CCC members volunteered to help staff the joint fair booth at the North Idaho Fair that was sponsored by the BEIPC, IDEQ, CDA Tribe, EPA and PHD for public education and outreach.

## **October**

- The October CCC quarterly meeting was cancelled due to the limited participation of recent CCC meetings.
- The draft five-year and one-year (2015) BEIPC work plans were circulated to CCC Members for review and comment via email and mail in lieu of a meeting.

## **November-December**

- At the November, 2014, BEIPC meeting, the CCC Chair discussed CCC meetings and the fact that several persons requested copies of the BEIPC work plans and that he received no comments on the work plans.

Throughout 2014, the CCC has arranged for transmission of information to its members and the public regarding activities in the Basin.

## **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 repositories 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 Executive Director 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 Executive Director also hosted a number of field reviews by interested parties, and was interviewed numerous times by the media for news stories.

## Communications and Public Involvement

### BEIPC Communications and Public Involvement

In 2014, the BEIPC continued its efforts to strengthen public involvement in BEIPC activities and communication between the CDA 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 BEIPC public education/outreach efforts at the North Idaho STEM Fair at North Idaho College in Coeur d'Alene, and in a joint booth with IDEQ, EPA, CDA Tribe and PHD at the North Idaho Fair.
- Participated in the annual Silver Valley Business Expo with an information booth next to the IDEQ booth.
- Coordinated a field tour of sites in the Upper Basin for the Basin Commissioners, agency representatives, and citizens in August. Participants viewed the East Fork of Ninemile remedial work, Shields Gulch Remedy Protection Project in Osburn, and the Moon Creek Natural Resource Restoration Project in Shoshone County.
- Provided assistance to BEIPC groups and staff on communications material including presentations, information sessions, news articles, displays, and advertising.
- Publicized BEIPC and CCC meetings through distribution of informational flyers with assistance from EPA and IDEQ.
- Sent out activities updates to CCC members by email and hard mail.
- Utilized other communication methods to publicize meetings such as public TV, community calendar pages, newspaper advertising, and electronic media.
- 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.
- Collaborated with the CICs regarding future communication resources such as video training, public service announcements, and community workshop training sessions.
- Continued efforts 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 to the website will be ongoing.





### **BEIPC August Field Trip East Fork Ninemile Canyon**

#### **EPA Community Involvement Activities**

EPA Region 10 continued working with the local community throughout 2014. The agency's outreach activities are designed 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. Highlights for 2014 include:

- With the help of many local people, the EPA developed a new Community Involvement Plan for the cleanup in 2014. 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. EPA and IDEQ CICs interviewed more than 20 local citizens to ensure the plan reflects local values and suggestions. (<http://go.usa.gov/vvgG>)
- In November, the EPA invited the public to share information and ideas to inform the cleanup's Five-Year Review. The EPA conducts these reviews every five years at sites where contaminants remain in place. The review ensures that cleanup actions continue to protect human health and the environment. ([www.epa.gov/r10earth/bunkerhill](http://www.epa.gov/r10earth/bunkerhill))

- The Trust, EPA, and IDEQ are continuing to plan, design, and construct several projects that will help protect completed cleanup work. Project coordinators have been working closely with local jurisdictions and other property owners on these Remedy Protection Projects. Agency fact sheets, door-to-door communications, and other outreach efforts have been ongoing. Local jurisdictions are also especially involved with public outreach.  
([http://www.epa.gov/region10/pdf/sites/bunker\\_hill/cda\\_basin/cdb\\_remedy\\_protection\\_fs\\_082014.pdf](http://www.epa.gov/region10/pdf/sites/bunker_hill/cda_basin/cdb_remedy_protection_fs_082014.pdf))
- The agency conducted more outreach related to the cleanup work up in the East Fork Ninemile area this year. EPA prepared a Q&A fact sheet (<http://go.us.gov/PV6m>), a series of features on Facebook, and other publicity. EPA's Community Liaison made direct contact with several local people and businesses, including the ATV club, to inform and answer questions.
- 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, resource information, and an online community forum. EPA invites your participation, suggestions, and postings.
- Publication of EPA's **Basin Bulletin** continues (<http://go.usa.gov/VNUx>). The agency redesigned the bulletin in 2014, making it easier to read with more graphics and photos. Published three times per year, it provides news and updates about the Coeur d'Alene Basin Cleanup Project.
- The agency maintained its commitment to the Basin Commission process throughout 2014. EPA provides staff support and regular participation at meetings of the Basin Commission, CCC, TLG, and PFTs. EPA also provided funding support for facilitation of the CCC.
- An EPA website for the Basin Cleanup Project offers the public access to updates, site documents, and background information about the cleanup. Suggestions for improvements are always welcome. ([www.epa.gov/r10earth/bunkerhill](http://www.epa.gov/r10earth/bunkerhill))
- 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 2014. Additionally, EPA and IDEQ led site tours for interested parties, provided presentations to local schools and groups in the area, and staffed booth exhibits at local events. EPA also supported the interagency exhibit about the cleanup at the North Idaho Fair.
- EPA regularly worked with the media in 2014, arranging quarterly 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. EPA created this liaison position in response to requests for an on-site representative. In coordination with the IDEQ Public Outreach Analyst, the liaison is enhancing local communications, providing people with easier access to the agency, and helping EPA be responsive to local issues and questions.

## IDEQ Community Involvement Activities

The IDEQ Public Outreach Analyst provides and supports diverse avenues for public input, education, public engagement, and health awareness. The following are highlights of 2014 IDEQ activities.

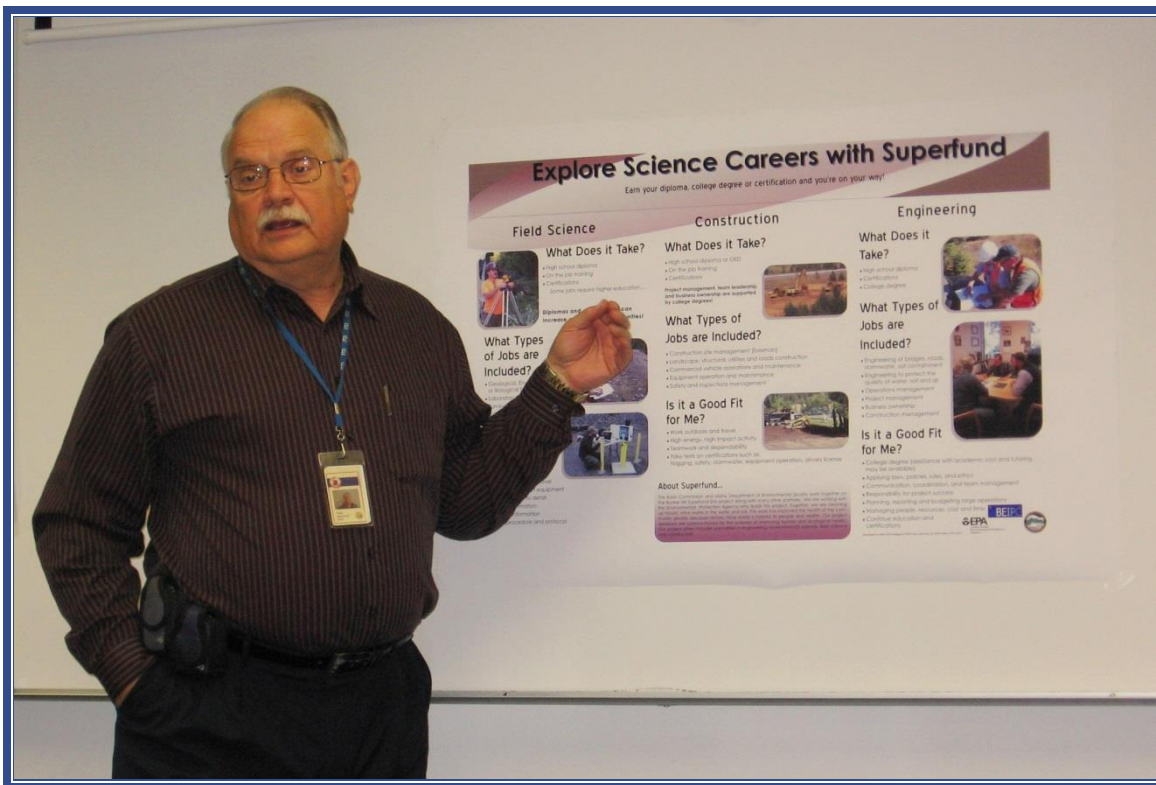
- Community and recreational health projects raise awareness about lead intervention and support the continuation of healthy trends for children, families, and visitors. Projects include:
  - “Riley’s Family” children’s activity book, “Suds After Mud” radio public service announcement, “Play Clean” website.
  - Relocate health signage to effective public spaces
  - Expand distribution of children’s activity book
  - Provide coloring contest project before annual screening event
  - Kellogg PHD is the primary partner for health messaging
- Community presentations and events provide education and meaningful dialogue from the community. Events participated in 2014 include:
  - Silver Valley schools Lead Health Intervention Program, organized by PHD
  - Kellogg High School and Middle School: Simplified Scientific Modeling
  - Kellogg High School: Page Wetlands Creation and Lead Intervention
  - Coeur d’Alene Chamber of Commerce “Leadership Coeur d’Alene” group with EPA and Coeur d’Alene Tribe.
  - Silver Valley Chamber of Commerce and Shoshone County Realtors: Basin Property Remediation Program
  - Silver Valley Chamber of Commerce Visitors Center poster: *“Then and Now”*
  - Shoshone Medical Center Children’s Health Fair
  - University of Idaho Upward Bound (students of Shoshone County High Schools)
  - North Idaho Fair education booth with BEIPC, EPA, IDEQ, and CDA Tribe
  - Idaho State Parks Executive Conference: Page Wetlands and *Then and Now* publication
  - GearUp Expo for regional 8<sup>th</sup> grade students
  - iDream Team Afterschool Program: Lead Intervention
  - Assistance and participation in BEIPC’s meetings: CCC, TLG and Basin Commission
- Direct-outreach for program projects include:
  - door-to-door outreach for Basin-wide Unpaved Road Program construction
  - door-to-door outreach for Box Remedy Protection projects
- Additional Community liaison and media work include:
  - Attend community and civic meetings supporting community communications
  - Participate in the Public Information Officers team lead by the Restoration Partnership Communications Specialist
  - Develop and submit Basin Bulletin articles for EPA three times each year
  - Serve as Board Member on Panhandle SEEP (Stormwater and Erosion Education Program) Steering Committee. IDEQ participated in revising and updating class curriculum, facilitating classroom activities, and delivering training to contractors, design professionals, and jurisdictions throughout Shoshone and Kootenai County.

- Additional program project tasks include:
  - Assist the Paved Roads Remediation Program Board with gathering annual program submittals and assist local jurisdictions' contract document management
  - Provide property suitability assessment and landowner coordination with Kellogg staff for IDEQ's involvement with the Community Fill Plan.



**North Idaho Fair Booth**





## STEM Expo Career Day @ NIC

### *Calendar Year 2014 Work Accomplishments*

#### **Part 1 -**

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

#### **Blood Lead Screening in Children**

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 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

Results of the 2014 Screening Program were presented at the November BEIPC meeting. The following table shows the Basin Blood Lead summary results from 2005 – 2014 for children residing in the Basin 6 months to 6 years of age.

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Number of Children</b>	<b>81</b>	<b>69</b>	<b>71</b>	<b>73</b>	<b>175</b>	<b>108</b>	<b>75</b>	<b>83</b>	<b>92</b>	<b>77</b>
<b>Min (µg/dl)</b>	<b>1.4</b>	<b>1.4</b>	<b>1.4</b>	<b>1.4</b>	<b>1.4</b>	<b>1.4</b>	<b>1.4</b>	<b>1.0</b>	<b>1.4</b>	<b>1.0</b>
<b>Max (µg/dl)</b>	<b>12.0</b>	<b>10.0</b>	<b>9.0</b>	<b>14.0</b>	<b>10.0</b>	<b>20.0</b>	<b>12.0</b>	<b>8.0</b>	<b>16</b>	<b>11</b>
<b>Ave (µg/dl)</b>	<b>2.9</b>	<b>2.8</b>	<b>2.9</b>	<b>2.4</b>	<b>3.1</b>	<b>2.5</b>	<b>3.1</b>	<b>3.3</b>	<b>2.8</b>	<b>3.1</b>
<b>GeoMean (µg/dl)</b>	<b>2.3</b>	<b>2.4</b>	<b>2.6</b>	<b>2.1</b>	<b>2.7</b>	<b>2.1</b>	<b>2.6</b>	<b>3.1</b>	<b>2.5</b>	<b>2.9</b>

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 2014, one child in the Basin was identified with a blood lead level greater than 10 µg/dl. PHD contacted families of children for each child with a blood lead level equal to or greater than 5 µg/dl to provide information on how to reduce exposures and to offer follow-up screenings.

Also, in 2014 Basin participants were paid \$30 for each child screened. The number of children tested in 2014 was slightly lower than the previous two years, but was close to the ten year average of 81, excluding 2009 where a \$40 incentive was offered as a one-time effort to increase participation, more than doubled the ten year average. The blood lead screening program will continue in 2015 offering a \$30 incentive for children between ages 6 months to 6 years of age residing within the Basin.



## Basin Property Remediation Program (BPRP)

Year	Number of Property Addresses	Area Remediated (Acres)	Waste From BPRP Disposed of in Repositories ( Truckloads)	Truckloads Per Acre
2007	373	60	9,240	154
2008	352	57	8,129	143
2009	547	149	18,780	126
2010	311	70	10,725	153
2011	243	64	9,795	153
2012	216	73	9,127	125
2013	128	44	3,500	80
2014	95	30	3,647	121

IDEQ remediated a total of 95 residential and commercial property addresses, respectively, during 2014. Two commercial properties have additional work that must be completed in 2015. This resulted in over 1.3 million square feet of contaminated property being remediated. The volume of waste material disposed of in the Big Creek and East Mission Flats repositories per acreage remediated was similar to previous years, except 2013 during which a large portion of the 2013 BPRP work involved capping wastes in place.

Work started in May and continued into December. Activities at the repositories extended slightly beyond the beginning and end dates of the BPRP due to seasonal preparation and closeout, remedy protection and ICP related business. The cost of property remediation conducted by IDEQ was \$7.1 million.

In 2011, EPA and IDEQ implemented a process to sample unpaved public roadway surfaces to determine if and where surface contamination with heavy metals may be present. The sampling process was completed in 2013 and the results of the process used to develop an unpaved roadway surface remediation program with a listing of unpaved roads to be addressed. A pilot project for unpaved road surface remediation on contaminated road segments in Shoshone County and East Side Highway District jurisdictions was prepared and implemented to develop surveying techniques, design approaches, standard drawings and technical specifications, and a standard Operation and Maintenance Agreement document for execution by the State of Idaho and the involved local road jurisdictions. The pilot project was completed in 2013. Based on the information learned from the pilot project two additional projects were designed and one contracted in 2013 and the other in January 2014. The unpaved contaminated public road remediation program was completed in 2014 for the Basin from Harrison to Mullan.



**Shoshone County Remediated Unpaved Road**



**Property Remediation**



## **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. The Portland Avenue Project in Kellogg was completed and the Little Pine Creek Project in Pinehurst was initiated in 2014 under the management of IDEQ. The Meyer Creek and Shield's Gulch Projects in Osburn were completed by the Trust in 2014. The Trust and IDEQ also were working on designs for a number of projects in the Box and Basin to be contracted in 2015.

EPA and IDEQ completed analysis of data to define the remedy protection projects for select side drainages noted in the RODA. Analysis of remaining side drainages will continue in 2015. Some side drainage projects are now planned in 2015.



**Little Pine Creek Remedy Protection Project Under Construction**

**West Shoshone Park**



## **Little Pine Creek Remedy Protection Project Under Construction**

### **Country Club Lane Crossing**

### **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 583 road segments to be remediated in the original program Strategy; the EPA/IDEQ Roads Board has added approximately 10 segments that were not identified by the local jurisdictions resulting in a total to date of 593 segments. The local road jurisdictions working with their engineering consultants and contractors under the program oversight of the Roads Board completed 175 segments in 2013 and 2014, many of which required much more work than planned in the Strategy. The Board estimates that about 85% of the segments will require more work than that identified in the Strategy. Accomplishments to date are about 29.5 % of the entire program with an investment of about \$11.6 million. Therefore, 29.5 % of the work has been completed with about 21.5% of the available funding, but only about 11.4 percent of the original estimated cost. These accomplishments are attributed to the contracting procedure, the oversight of the Board and the hard work of the Jurisdictions. The Board and jurisdictions also developed the anticipated program for 2015.





## **Paved Road Program in Mullan w/Completed and Uncompleted Sections**

### **Repository Development and Management**

#### **Introduction**

Repository development and management is an ongoing process that must meet the demand for the disposal of historic mining related contamination for the entire Coeur d'Alene Basin environmental and human health related cleanup program. The cleanup program includes the BPRP, other cleanup actions performed by EPA, the Trust, and Potentially Responsible Parties (PRPs) performing cleanup under administrative agreements with EPA and IDEQ. It also includes waste generated by private parties and local government agencies under the ICP and Paved Roadway Remediation Program. Without the expansion of existing repositories or the construction of new repositories, continued cleanup and control of contamination could be compromised and potentially stopped.

The Upper Basin RODA specifies a two-part approach to waste management that utilizes both repositories and Waste Consolidation Areas (WCAs). Repositories are large, centrally located areas within the Upper and Lower Basin where contaminated soil and material excavated during cleanup actions is transported to, managed, and secured. WCAs will be located adjacent to or near the waste source areas and will serve for consolidation or placement of wastes from specifically identified sources such as mine and mill site remedial actions. Repositories and WCAs constructed under the remedy 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.

A third waste management approach was adopted in 2014 following public review and comment called the Community Fill Plan (CFP). The CFP was developed in recognition that the ICP allows use of contaminated soils for fill and the need for fill material to create more developable ground in the Silver Valley. The CFP also will help preserve repository space for both remedial action and ICP waste management in the future. Under the plan, contaminated fill can only be placed in existing contaminated areas within the boundaries of the ICP with an ICP permit. Impacts to areas already or scheduled for cleanup will be considered. Limits are set on lead and arsenic concentrations and site specific sampling and notification to IDEQ and EPA by the ICP are required. A barrier of clean material and long-term care are also required in compliance with the ICP. IDEQ and EPA provide technical and regulatory support for fill sites greater than 5,000 cubic yards.

Three repositories were operated to receive remedial action and ICP waste in the 2014 field season. Big Creek Repository (BCR) near the community of Big Creek serves 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 and BCR were operated by the Trust. Page is operated by IDEQ. In 2014 IDEQ primarily conducted the BPRP with the Trust performing work only at the Silver Hills Elementary School. Both IDEQ and the Trust directed waste to the repositories to minimize transportation distances and costs. In addition, the Page Repository is being expanded using recycled construction materials extracted from Basin 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 2014, BCR received 1,833 truckloads from the BPRP, 1,162 truckloads from the ICP, 1,365 truckloads from Remedy Protection Projects and 2,102 truckloads from Paved Roads Projects. Final in-place, compacted volume calculated from the truck load count was about 26,000 cubic yards. This material was placed and compacted in accordance with the fill plan outlined in the annual BCR Operations Plan. The Trust’s site management contractor oversaw these activities including operation of the decontamination facility. In 2014, the water quality monitoring program at the site found that BCR operations had not impacted adjacent surface or ground waters.

BPRP, ICP, Remedy Protection Program and Paved Roadway Remediation Program wastes placed at BCR in 2014 were placed in the north expansion area. This area was constructed to final elevation in August, 2014. Waste soils were also placed on top of the repository around the stormwater retention pond. Starting immediately after the last of these wastes were received the slope was stabilized and hydro seeded. The year-end repository shutdown activities were initiated on November 10.

Year-end repository shutdown activities have been completed and include:

- Finish grading of the north and west slopes of the BCR North End expansion area were initiated and completed in October. All slopes were cut/filled to a nominal 3:1 slope, and track-walked to prevent erosion.
- The active placement surface of the BCR North End expansion area was graded and sloped inward to prevent consolidated runoff from eroding any finished slopes.



- A storm water ditch (constructed of filter fabric and six inch cobble) was constructed at the interface between BCR North End expansion waste and the original tailings pond berm at the NW corner of the site to convey collected storm water off the waste mass.
- 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.

At the end of the 2014 field season, the BCR contained approximately 590,000 cubic yards of waste soils. The total anticipated capacity is approximately 607,000 cubic yards including the final cap volume. Assuming similar production levels of waste from the BPRP, ICP, Remedy Protection Program and Paved Roadway Program, no more than one year of capacity remains in BCR. To ensure continued ICP capacity for the Upper Basin until operation of a new upper basin repository begins, careful management of wastes and the remaining BCR capacity will be critical. The BCR Annex will be available to receive soils in 2015 (see discussion below).

### **East Mission Flats**

East Mission Flats Repository (EMFR) achieved fully operational status starting in 2010. In 2014, the EMFR repository received 1,814 truckloads from the BPRP, and 1,118 truckloads from the ICP. Final in-place, compacted volume calculated from the truck load count was about 16,126 cubic yards.

All exterior slopes of EMFR completed in 2014 have been constructed to a nominal 3:1 slope, and track-walked to prevent erosion. Clean soil treated with approximately 180 cubic yards of compost generated at the Page Repository was placed as a six inch cover over the 2014 lifts. This temporary cover will stabilize the exposed waste until the final cap and cover can be constructed. The exterior surfaces were further stabilized from erosion using straw waddles and hydro-seeded with a native vegetation seed mix.

As in the past, the ICP disposal area will be available at the east end of EMFR to receive ICP waste during the winter closure period. 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.

Quarterly 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.

### **Page Repository**

The Page Repository, which has been operating for almost 20 years, is located just west of Smelterville. End of year surveys for placed and compacted wastes at Page are still in progress. However, IDEQ's Program manager estimated that during 2014 Page received and disposed of approximately 11,000 cubic yards of ICP waste generated in the Box. Most of these materials were generated by commercial developments. Page received approximately 59,000 cubic yards of remedial action wastes from the Paved Roadway Remediation Program in the Box. Approximately 500 cubic yards of Remedy Protection wastes were also delivered from the Little Pine Creek project.

Page also received, processed, and re-used concrete, asphalt, organic materials and wood wastes from local communities and the Basin repositories.

Top soil stock piles belonging to the remedial programs were identified in several locations throughout the Box and Basin. In addition, there was a surplus of sand and top soil that had been purchased under the 2013 BPRP program. Because of the values associated with these materials and the potential for loss due to contamination, infection of noxious weeds and theft, the soils were transported and stockpiled at Page for safe keeping and use in Box and Basin remedial actions. However, some of the soils that were consolidated did not meet specifications for use as residential soils in the BPRP. Consequently, IDEQ processed approximately 20,000 cubic yards of soils extracting approximately 6,000 cubic yards of gravels and cobbles, which were used as mattress material in the Page Expansion Cell #2.

IDEQ has continued working with the Basin Repository Operators and local developers, including the Idaho Transportation Department, to reuse concrete and clean coarse durable materials which are suitable as construction fill for the Starter Berm of the Page Expansion Cell #2. IDEQ accepted approximately 16,000 cubic yards of concrete and rock, which was delivered to the point of use on the starter berm. Although the repository realized costs of approximately \$5.50 per cubic yard to place and compact the material in the starter berm, the delivered value of the fill was approximately \$250,000.

Approximately 10,000 cubic yards of wood wastes from local waste streams continue to be composted for use as soil amendments in repository caps and covers. The composted wood waste has been proven to be a successful soil amendment and stabilizer when capping exposed surface areas of the repository. There was no grinding of wood wastes at Page because the budgeted funds were needed to purchase mattress materials for Expansion Cell#2.

To mitigate for the expansion of the Page Repository into the West Page Swap, the West End Natural Infiltration Area (WENI) wetland restoration project was required. The WENI mitigation project is currently in a monitoring mode, but results from field inspections conclude that the area is developing at a much faster than expected rate. The IDFG has been contracted by IDEQ to implement the Robinson Creek Wetlands project, which will provide for the residual mitigation obligations for the Page Expansion.

## **New Repositories**

In addition to the operational repositories, four separate areas for future disposal and permanent storage of mining related contamination are currently in some stage of development. 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 Star Tailings Impoundment (STI) near Woodland Park (now known as the Lower Burke Canyon Repository). The third area under development is a WCA in the East Fork of Ninemile Creek necessitated by the significant volume of waste identified for cleanup in that drainage. The fourth location is an expansion area adjacent to the Big Creek Repository. The progress toward transforming these sites into waste disposal facilities is described in the sections below.

During 2011, a thirty percent repository design report was initiated for the OTI site. Prioritization of remediation projects in Canyon Creek necessitated shifting to design of a repository located at the STI site. The design and development of the OTI site has been put on hold until prioritization of nearby projects necessitate a disposal facility at the location.

In 2013, the Trust began the design for the Lower Burke Canyon Repository (LBCR) located at the STI site in Canyon Creek. The collection of the pre-design data was completed in 2012. The 30% design document was made available for public comment from May 30 to June 28, 2013 and was presented at an open house in Wallace on June 4, 2013. The Final 100% design was completed on August 15, 2014 and the contractor

was given notice to proceed on October 1, 2014 for the first phase of construction at the LBCR. LBCR will be able to receive waste on a limited basis during 2015.

In late 2013, the Trust began initial characterization and investigation at the Big Creek Repository Annex area (BCRA) (i.e., across Big Creek from the BCR) to explore the possibility of a potential expansion of the BCR and provide significant long-term capacity for both ICP waste and other cleanup actions in the basin. Due to favorable site conditions and the very close proximity to the BCR, which will allow the use of existing infrastructure and decontamination facilities, the BCRA progressed into design. On October 31, 2014 the pre-final (90% design) was submitted to the EPA for comment with plans to submit the final (100%) design in the first two weeks of 2015. Initial development activities at the BCRA included relocation of existing utilities and construction of an access bridge over Big Creek. The access bridge construction was completed in December 2014; the utility relocation is anticipated to be completed in the first quarter of 2015. BCRA initial development construction is anticipated to begin in spring 2015.

In addition to the regional repositories being developed to receive future waste generated by the Basin cleanup, during 2013 construction started at the WCA in the East Fork of Ninemile Creek. The WCA is located approximately ¼ mile northeast of the Interstate Mill site. The WCA design is intended to meet the disposal and borrow material needs of remedial actions being implemented in the Ninemile Creek watershed to reduce metals loading to Ninemile Creek.

Finally, during 2014, EPA and IDEQ evaluated options for disposal of road waste (primarily asphalt and contaminated base material) generated from the Paved Roadway Remediation Program outside of established repositories. This evaluation was necessary due to the large volumes of waste, with relatively low levels of contamination, and the demands it was placing on the capacity of existing repositories. Additional information outlining this evaluation and any subsequent policy for disposal of such materials as well as identification of any recommended disposal locations will be communicated to the public in early 2015.

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

## **Upper Basin Remedies**

In 2014, EPA continued implementing the cleanup actions identified in the RODA for the Upper Basin pursuant to the priority actions identified in the 10-year Superfund Cleanup Implementation Plan (SCIP). The Upper Basin RODA is an interim remedy and covers a portion of OU-3 including the SFC DAR and its tributaries downstream to where they combine with the North Fork and some work in the Box where EPA began cleanup in the 1980s. Specific actions for respective areas of the Upper Basin are discussed below.

**To learn more about the Upper Basin RODA:** Additional details including technical memos, a map, materials from past meetings, and community involvement documents may be found at:

<http://yosemite.epa.gov/R10/CLEANUP.NSF/sites/bh+rod+amendment>.

## **OU-2 Phase II Remedial Actions**

The Upper Basin RODA includes several OU- 2 Phase II cleanup actions to address ongoing water quality issues. During 2014, EPA continued work on the highest priority action identified for OU-2 with the design of a groundwater collection system in the vicinity of the north side of the Central Impoundment Area (CIA) concurrent with upgrades to the Central Treatment Plant (CTP).

The CTP upgrade design was integrated with the groundwater collection system at the schematic design phase (approximately 30%), which was reviewed by EPA and IDEQ in November 2013. In January 2014, a Value Engineering study was performed in which a multidisciplinary team gathered for one week to target key project elements and recommend alternatives that could increase value and decrease overall cost. One of the recommendations was to control flows to the CTP to 5,000 gallons per minute (gpm). This would require controlling groundwater flow (estimated to be less than 2,500 gpm based on groundwater modeling) and controlling mine water flow from the Bunker Hill Mine to a similar flow rate.

In May 2014, EPA contracted with the US Army Corps of Engineers (USACE) to manage the construction acquisition as an operate-design-build-operate contract to be completed in approximately four years (two years for design and construction, one year of testing and acceptance, and one year of full operations). Contractors were invited to the site for an Industry Day in June 2014 hosted by the USACE and a market survey was also conducted by the USACE to gage overall contractor capabilities and interest, which was completed in October. The Phase 1 solicitation to identify a small pool of qualified firms was initiated in November 2014. Immediately following the selection of the qualified firms, the Phase II Request for Proposals solicitation will be issued. The procurement is moving forward with a goal of selecting a contractor in mid to late summer 2015. The selected contractor will complete the design from conceptual level to final design and initiate full construction in 2016.

## **Cleanup Actions in East Fork Ninemile Creek**

In 2014, construction was completed at the Waste Consolidation Area (WCA) and it began receiving waste from the Interstate Callahan (IC) Rock Dumps Remedial Action. Work began at the IC Rock Dumps and will be completed in 2015. The following specific work was conducted in the East Fork Ninemile (EFNM) Creek:

- Completion of the 100% Remedial Design of the Interstate-Callahan Mine/Upper and Lower Rock Dumps.
- Continued Surface water monitoring in the EFNM.
- Completion of the WCA in the EFNM.
- Approximately 160,000 cubic yards of contaminated waste rock and mine tailing from the IC Rock Dump Site was moved to the WCA.
- Continued work to address all applicable regulatory requirements including compliance with the National Historic Preservation Act, Endangered Species Act, and Clean Water Act.
- Completion of the 30% Remedial Design of the Success Site.
- Characterization of the Tamarack Site in EFNM.





**Interstate-Callahan Mine Waste Dump Remediation**



**Interstate-Callahan Mine Waste Dump Remediation**



## WCA Operations

### 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 focus on reducing risks to human health and wildlife by reducing exposure to particulate lead and improving habitat quality in the CDAR 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.

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 2014 including inventorying and relocating health signage and airing radio announcements that provide health tips to recreationists. Additional outreach efforts are listed in the IDEQ Community Involvement Activities subsection.

EPA and project partners including the Trust and the Restoration Partnership implemented a river bank stabilization project. The 2013 Lower Basin Pilot Project process and knowledge gained about the river system helped select a river bank isolation project implemented in the Lower Basin in 2014 at the Kahnderosa Campground property, immediately downstream of Cataldo. The primary purposes of this project was to reduce exposures of people and wildlife to the high concentrations of lead in the river erosion bank and to demonstrate an alternative river bank stabilization technique that could be implemented



by landowners elsewhere in the Lower Basin. Clean fill material was wrapped in geotextile fabric, and planted with thousands of willow stakes and other vegetation, to isolate the contaminated bank material while creating a natural and resilient riparian surface. The construction work was completed in November 2014. Additional opportunities to reduce exposures in the Lower Basin will continue to be considered concurrent with the model development and additional analyses.

Development of a two-dimensional hydraulic model of the Lower Basin was completed in 2014. Calibration efforts of this complex system of lakes, wetlands and the river channel are nearly complete. The model will provide a valuable tool for evaluating flows in the river channel and across wetlands and floodplains, and in prioritizing and evaluating remedial designs. It can be used to evaluate the hydraulic effects of possible remedies early in the design process, and will provide the foundation for the sediment transport model; development of this model will begin immediately following the completion of calibration and validation of the two-dimensional model. The sediment transport model will allow simulations of how sediment is eroded, transported and deposited in the Lower Basin, and will provide additional resolution to evaluate potential remedial actions options and designs.

Other work to support development of the sediment transport model was conducted throughout 2014. Bathymetric data were used to develop a river bed map of geomorphic bed types, in conjunction with data from river bed coring conducted in 2013, to develop a 3-dimensional data set of sediment characteristics, including particle size and metals concentration. This bed map data set will be used for input files to the sediment transport model, as well as supporting ongoing work to refine and expand the conceptual site model of the Lower Basin. Patterns of horizontal and vertical variations in sediment characteristics will be used to evaluate the feasibility, relative priority and evaluation of possible remedial actions in the river. The sediment transport model is expected to be completed in 2015.

EPA continued additional data collection and analysis efforts in 2014 to address key data gaps. An extensive network of floodplain sediment deposition tiles was established throughout the Lower Basin to document the rates and characteristics of sediment deposited during large overbank floods. Although such flows did not occur in spring 2014, the network has been maintained and will remain in place for the current water year. Likewise, much of the flood stage suspended sediment sampling planned for 2014 could not be conducted because of low runoff, but will be if high flows occur in 2015.

Documentation of ongoing data collection and analysis being conducted to support the Enhanced Conceptual Site Model (ECSM) continued through 2014, with updates to the initial ESCM (EPA, August 2010) being prepared as work elements were completed. Significant updates included documentation of the sediment and lead budgets for the Lower Basin, vertical changes in the river bed, estimations of floodplain deposition rates, and summaries of suspended and depositional sampling. These documents are currently being reviewed by EPA and will be made available to stakeholders in the first half of 2015. Information gained as a result of the ECSM helps develop the selection and design of pilot projects, such as the bank stabilization project at the Kahnderosa Campground.



**Unraveling River Banks @ Kahnderosa Campground 10/2014**



**Kahnderosa Campground River Banks after Stabilization 12/2014**

## **Spokane River Remedial Actions in Washington**

The Washington department of Ecology continued monitoring its Spokane River beach cleanup activities with sampling of the Island Complex, Starr Road, Murray Road and Harvard Road cleanup sites.

Observations recorded during the sampling indicated that the cleanup actions performed at each of the beach sites are intact and performing as expected. Newly deposited material was observed at each of the upstream beach sites including material moving through the system from upstream sources. Results from the sampling were received in early 2014 and will be summarized in a report available in early 2015.

In late 2014 further observations were made at each of the beach sites including the downstream sites of Barker North, Flora Road, Myrtle Point and Islands Lagoon. Sampling was also attempted at each of the downstream sites, but only Islands Lagoon was able to be sampled as there was a lack of fine-grained material at the other sites. Analytical results from the collected materials are expected in early 2015 and will be summarized in a report. Visual observations at each of the sites indicate that the cleanup actions are intact and performing as expected.

## **Basin Environmental Monitoring**

### **Basin Environmental Monitoring Plan (BEMP)**

EPA has been working to consolidate the Bunker Hill Superfund Site/CDA Basin three primary monitoring plans into one plan for the entire Basin. Historically there have been three CDA Basin environmental monitoring programs/plans: OU-3 Basin Environmental Monitoring Plan (2004), OU-2 Environmental Monitoring Plan (EMP, 2006), and OU-3 RA Effectiveness Monitoring Program (2007). EPA has been working to integrate the existing plans into a consolidated CDA Basin environmental monitoring plan to: 1) optimize the current monitoring under the various programs; and 2) enhance the overall program operation and effectiveness with respect to changes and adaptive management, laboratory coordination, field sampling, data management, and reporting efforts. This work is still evolving and EPA is currently working on the approach, data, locations, and evaluation process. EPA anticipates updating the BEMP in phases and will likely have the revised BEMP finalized for the 2015 Five Year Review.

The major goal of the BEMP is to monitor and evaluate the progress of the remedy in terms of improving ecosystem conditions. Consistent with that goal, the BEMP will provide data relative to the following Basin-wide monitoring objectives:

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

In 2014, United States Geological Survey (USGS), IDEQ, USFWS and EPA continued BEMP and EMP sampling. Specific activities are outlined below.

**Surface Water:**

In Fiscal Year (FY) 2014, USGS collected 112 stream discharge and water-quality samples from a total of 18 OU-3 and 19 OU-2 surface-water stations for a range of hydrographic events. All samples were analyzed for nutrients, selected trace metals and major ions, and suspended sediment.

All gaging station stream discharge and water-quality records for the BEMP gages for Water Year (WY) 2013 were worked up, approved, and included in the 2013 USGS annual data report for Idaho. The annual data summaries were completed and delivered to EPA during the first quarter of FY14. USGS personnel worked with EPA to upload all of the BEMP surface water quality data to STORET.

All 13 of the continuous streamflow stations are telemetered and real-time streamflow data for each can be accessed at <http://waterdata.usgs.gov/id/nwis/rt>

USGS personnel attended the Basin Commission meeting in Coeur d'Alene in November, 2013 and presented an overview of the surface water BEMP network and findings from the BEMP sampling effort. The following day they attended the BEMP meeting to discuss the network with EPA, IDEQ, FWS, and others. In February, 2014 they presented findings from the BEMP monitoring network at the IDEQ annual water quality symposium.

During FY14, the gaging station on the Spokane River at the outlet of Coeur d'Alene Lake was relocated about ¼ mile downstream of the highway 95 bridge, about half a mile downstream from the previous location. The old location created difficulties with silt buildup and lacked sufficient velocity for high-quality measurements. Water quality samples will continue to be collected upstream of the outfall from the Coeur d'Alene Sewer Treatment Plant while discharge measurements will be made at the new location.

A USGS Scientific Investigations Report (SIR 2014-5204) entitled "Sources, transport, and trends for selected trace metals and nutrients in the Coeur d'Alene and Spokane River Basins, Idaho, 1990-2013" was completed and published. The report primarily covers five years of data from Water Year 2009-13 to coincide with EPA's Five Year review. Additional data collected since 1990 was included in the report in order to evaluate long-term trends.

**Groundwater:**

In 2014, IDEQ administered semiannual groundwater sampling within OU-2 of the Box in accordance with OU-2 EMP. The sampling objective is to evaluate the OU-2 Phase I human health remedial actions conducted pursuant to the 1992 OU-2 ROD. In addition, the OU-2 sampling helps to inform and support the implementation of the Phase II water quality remedial actions identified for OU-2.

During the 2014, groundwater sampling was conducted at 74 sites during the May and June high flow conditions and 61 sites during October low flow conditions. In addition to measurement of typical field parameters, samples underwent laboratory analysis for a number of dissolved metals at all sites and total phosphorus at select sites.

As part of the overall effort to consolidate the BEMP, IDEQ worked with EPA to optimize the long-term groundwater monitoring network by reducing the number of sites sampled for the October low flow event from 97 sites in 2013 to 61 sites in 2014. These changes were made based on review of historic data and ongoing discussions between IDEQ and EPA regarding the groundwater monitoring objectives. Opportunities for additional optimization will be evaluated and integrated into both the high and low flow events starting in 2015.



Baseline monitoring continued in preparation for the installation of the groundwater collection system in OU-2 between the CIA and I-90 and data will continue to be collected to estimate dissolved metal loads to the SFCDDR, monitor remedy performance and effectiveness, and evaluate long-term response to the collection system operation.

### **Biological Resources:**

USFWS conducted waterfowl surveys from late February to late April in 26 lower basin floodplain wetlands recording observations of waterfowl use and tundra swan mortalities. During June, July and August, Monitoring of Avian Productivity and Survivorship (MAPS) of songbirds was conducted for the fifth year at two locations in the Basin, Smelterville Flats and a Reference Site (located on the Lambrose Property) adjacent to the NFCDDR.

In July and August, aquatic sampling was conducted at one additional sample site on the EFN Creek just below Success Mine and Mill site to capture the health condition of aquatic resources prior to the remediation of the Interstate-Callahan Upper and Lower Rock Dumps. Benthic macroinvertebrate tissue samples were collected for cadmium, lead, zinc, and arsenic tissue concentration analyses. Because no fish are present below the Success Mine Site, only benthic macroinvertebrates were collected for analyses. Benthic macroinvertebrate, and periphyton diversity and abundance data, as well as aquatic habitat data collection was also conducted at this new site. This site will be sampled again post-remediation, with the other three sites, to evaluate the success and assist in guiding any additional work at this location, or future locations.

In July and August, Canyon Creek aquatic sampling was conducted for the second year at the one long-term and three remedial effectiveness monitoring sites. Fish and benthic macroinvertebrate tissue samples were collected for cadmium, lead, zinc, and arsenic tissue concentration analyses; fish, benthic macroinvertebrates, and periphyton were collected at these locations for diversity and abundance, and aquatic habitat data was collected as well.

As part of the long term biological monitoring program small mammals were collected for the second year during July, August and September at two sample Smelterville Flats sites (one upland, one riparian). A total of 63 voles, shrews, and deer mice were collected; kidneys and livers were removed, preserved and shipped to the EPA's Manchester Lab for metals (lead, cadmium, zinc, arsenic) analysis.

### **Sediment:**

2014 BEMP sediment sampling in the Basin included the collection of two types of sediment samples: sediment suspended in the water column (suspended sediment) and sediment deposited on banks near the river channel and in off-channel lakes or wetland areas (depositional sediment). Suspended sediment sampling is conducted to obtain data on the amount and characteristics of sediment being transported at a given time and location in the river system. Six suspended sediment sampling stations are located in the Upper Basin: SFCDDR near Shoshone Park, mouth of Ninemile Creek, mouth of Canyon Creek, SFCDDR near Wallace, SFCDDR near Smelterville, and SFCDDR near Elizabeth Park. An additional six suspended sediment sampling stations are located in the Lower Basin: SFCDDR near Pinehurst (mouth of the SFCDDR), NFCDDR near Enaville (mouth of the NFCDDR), CDR near Cataldo, mouth of Latour Creek (a tributary), CDR near Rose Lake, and CDR near Harrison.

Depositional sediment sampling was conducted as soon as practicable (between May and June) after floodwaters receded at each sampling station to provide data on the amount and characteristics of sediment deposited by high-flow events. Five near-channel depositional sampling stations are located in the Upper Basin. Sampling stations in the Lower Basin include 10 within-bank or near-channel locations. Six off-

channel locations are used to assess sediment deposition rates and characteristics in shallow lakes and wetlands. These stations provide data on material deposited in wildlife habitat areas and can be used as a measure of sedimentation rates and risk characteristics associated with specific flood events. One additional near-channel depositional sampling station is located downstream of Coeur d'Alene Lake and Post Falls Dam on the Spokane River. This sampling location is used to assess the physical and chemical characteristics of sediment carried beyond Coeur d'Alene Lake. Analysis on depositional sediment is performed for seven metals as determined by the Ecological Risk Assessment (EPA, 2002) to be contaminants of ecological concern.

WY-2014 was characterized by generally low to average flow conditions throughout most of the winter. The BEMP program conducted limited sampling during one short duration elevated flow event in March that was well above, albeit briefly, flood stage. Depositional sediment sampling was conducted following the spring runoff.

The following conclusions provide a general summary of the data collected for WY-2014. :

- Consistent with previous sampling results, the lowest concentrations of lead in depositional sediment samples were observed at the upstream Shoshone Park station. Lead concentrations detected at Shoshone Park were characteristic of river sediment upstream of significant historical mining impacts and are considered to represent approximate background conditions.
- Of the two suspended sediment samples collected during WY 2014, the highest concentration of bulk lead was observed at Harrison (3,500 mg/kg). The highest concentrations of bulk lead in depositional sediment in the WY 2014 data set were at Anderson Lake (5,680 mg/kg).
- The highest measured lead load was at Harrison (approximately 38 tons/day on March 11, 2014). This value is largely attributable to higher SSC values, as bulk lead concentrations were similar at Rose Lake and Harrison.
- Compared with both upstream and downstream samples, lead concentrations were relatively low in the depositional sediment samples collected at the Cataldo station. These concentrations were lower than those upstream on the SFCDR but higher than those on the NFCDR. The relatively low lead concentrations near Cataldo appear to be the result of dilution of SFCDR sediment with cleaner sediment from the NFCDR and the cobbled river bottom in this reach, which does not store significant amounts of sediment from historical releases. Downstream of Cataldo, lead concentrations in depositional sediment increased to levels above SFCDR levels indicating that lead is being mobilized from within the CDR channel.
- Depositional results indicate that concentrations of lead immediately downstream of the Cataldo Dredge Site are similar to Cataldo. However, about one river mile downstream of the Dudley Scour Hole concentrations of lead in depositional sediment increase rapidly. This pattern supports the conceptual model of recruitment of previously deposited sediment from the riverbed (and, to a lesser degree, riverbanks) that contains higher concentrations of metals and subsequent downstream transport and deposition of this sediment.

EPA will continue to make analytical results from site surface water, sediment, and groundwater sampling available on a web-accessible data management system; human health-related data will not be included in this database. For the last several years, EPA has made site environmental monitoring data available through a web page. Nationally the STORET system is transitioning to the new WQX data management system and the site environmental monitoring data will be accessible at a new website:

<http://gispub9.epa.gov/cda/>. EPA is working with USFWS to incorporate the biological monitoring data into WQX.



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

### **Lake Management Activities**

The Lake Management Plan (LMP), written by the Tribe and IDEQ, was finalized in 2009. Since then the Tribe and IDEQ have been implementing core aspects of the LMP. LMP related accomplishments in 2014 consisted of the following:

#### **Science Core Program**

- Tribal and IDEQ staff began coordinating for and drafting a comprehensive report of monitoring data collected by the Tribe and IDEQ since 2007.
- Routine lake monitoring on seven sampling visits was conducted by Tribe and IDEQ staff.
- IDEQ LMP staff produced a presentation of preliminary LMP triggers status of data from 2007 – 2012 and presented it to the TLG and BEIPC for feedback prior to the Our Gem Coeur d’Alene Lake Symposium.
- IDEQ continued collecting samples in selected bays for pico-plankton (very small but highly productive algae) and heterotrophic bacteria.
- IDEQ continued collecting surface sediment samples in selected bays for presence and abundance of benthic invertebrates, along with trace metal concentrations.
- The Tribe collaborated with University of Idaho on a “Water, Sustainability and Climate” proposal to the National Science Foundation. If funded, the work will include research on phosphorous cycling and transport in the watershed through collection of core sediment samples in the lake and the St. Joe River. Information will be used to strengthen and calibrate the ELCOM-CAEDYM model.
- IDEQ completed rooted aquatic plant surveys within Bennett, Beauty, and Blue Creek Bays. Sampling of plants within quadrats by SCUBA is used to characterize plant community diversity. Collected plants are measured for biomass as well as plant tissue content of phosphorus, nitrogen, and trace metals. In 2014, a small amount of milfoil was found in Beauty Bay, but it was not determined whether it was native, Eurasian, or a hybrid of the two. Annual reports of the plant surveys are forwarded to Avista Corporation. IDEQ is a cooperative partner under Avista’s aquatic plant management program for non-Tribal waters.
- The Tribe continued its milfoil treatment program in its waters during 2014. Work included continued herbicide treatments and some bottom barrier treatment. The Tribe also conducted pre and post treatment monitoring to determine efficacy of treatments as well as conducted water quality sampling during the treatments. All herbicide treatments were conducted using containment booms to provide for increased effectiveness.

## **Education & Outreach Core Program**

- LMP staff continue to maintain a Facebook page, and to refine the Our Gem website ([www.OurGem.org](http://www.OurGem.org)), with items relating to activities and information of the Lake Management Plan.
- The Coeur d'Alene Basin Lake\*A\*Syst manual was vetted through stakeholder groups, including the Coeur d'Alene Lakeshore Property Owners Association, the Spokane River Association, and the Kootenai County Natural Resource Advisory Board, for feedback. The materials will be revised in 2015 to incorporate this feedback.
- LMP staff conducted its fourth year of water quality training for camp counselors at Camp Cross in Loffs Bay and Camp Four Echoes in Windy Bay. Camp staff are trained on: water clarity measurements using a Secchi disc, collection of water samples for pH and dissolved oxygen measurement, collection and identification of aquatic insects along the lakeshore, and rake toss for collection and identification of rooted aquatic plants. Camp staff are given equipment and supplies to conduct this water quality sampling with summer campers.
- For the fifth consecutive year, LMP staff participated in a water quality educational booth at the North Idaho Fair in August, with partners from EPA and BEIPC.
- Throughout 2014, LMP staff provided updates on LMP activities to a variety of community groups. LMP staff was also involved in the University of Idaho "Back to the Earth" watershed education program; the Coeur d'Alene Tribe's Rock'n the Rez camp; Women in Science Fair at NIC; and water science activities at Ramsey Elementary, Hayden Meadows, and the Coeur d'Alene School District's CDA4Kids afterschool program. Staff also presented at the Osprey Cruise, sponsored by the Coeur d'Alene Chamber of Commerce.
- LMP staff collaborated with the University of Idaho Confluence Project, which partners with St. Maries, Post Falls and Lake City High Schools to lead year-round projects in watershed education. LMP staff conducted in-class presentations for City of Post Falls students, held a Benewah Creek field trip, and included students and teachers from all three schools in the Our Gem Symposium.
- LMP staff continue to be involved with stormwater education. Both coordinators are committee members for the Stormwater and Erosion Education Program (SEEP). In 2014, SEEP was moved from Panhandle Area Council to the UI CWRC, furthering the objectives of the stormwater working group. The SEEP committee and the stormwater working group are working together to identify joint projects and curriculum to support the reduction of pollutants in the watershed.
- LMP staff collaborated with the Spokane River Forum, CDA 2030 Visioning Project, the UI CWRC, and the Coeur d'Alene Chamber of Commerce Natural Resource Committee to hold the first Our Gem Coeur d'Alene Lake Symposium. Attended by more than 185 community participants, the Symposium allowed the LMP team to present some preliminary science and modeling results, hear about fisheries status in the lake, and solicit input from diverse group of stakeholders on what questions the community still has regarding the health of the lake and where the lake management efforts should focus moving forward.
- LMP staff have begun coordinating with the Coeur d'Alene Chamber Natural Resource Committee to further develop the "Local Gems" program to recognize businesses and individuals who are doing things good for the health of Coeur d'Alene Lake.

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

- Tribe and IDEQ staff analyzed three years-worth of water quality data collected in the St. Maries/St. Joe River watersheds as part of the Nutrient Source Inventory and have identified sub-watersheds that are substantial nutrient contributors. The information was presented to watershed stakeholders in 2014 to solicit potential implementation projects. Further land use analysis is underway to refine implementation priorities within these watersheds.
- LMP staff have coordinated with Idaho Fish and Game and private landowners for a potential improvement project near the mouth of Mica Creek.
- LMP funding was contributed as match toward a Clean Water Act (CWA) Section 319 project on Wolf Lodge Creek to reduce sediment loading. The project is administered by the Kootenai Shoshone Soil and Water Conservation District (KSSWCD) and will be complete by the end of 2014.
- In 2013, LMP staff collaborated on a KSSWCD/Idaho Department of Lands (IDL) grant proposal for a Western Coordination Grant. In 2014, the grant received full funding. LMP staff are collaborating on the project, which has the goal of assessing watershed conditions in Blue Creek, Wolf Lodge Creek and Fernan sub-watersheds, and developing watershed plans.
- LMP staff coordinated with the KSSWCD and the Idaho Soil and Water Conservation Commission to identify a road project to improve drainage and decrease erosion that is impacting Coeur d'Alene Lake. KSSWCD submitted a project proposal to IDEQ for potential CWA Section 319 funding.
- IDEQ continued a survey of erosion using bank pins along the St. Joe River from St. Maries upstream to St. Joe City and updated a bank erosion survey map to reflect recently-treated areas. Planning is underway to look at 4-5 recreational sites along the St. Joe River and other tributaries to the lake for potential future stabilization projects. This is a cooperative effort with Avista Corporation, IDEQ, NRCS, and others.

## **Partnerships with Other Entities**

- LMP staff continued to be involved in the Coeur d'Alene River and Lake Tributaries Watershed Advisory Group (WAG), and the St. Joe/St. Maries Rivers WAG. These WAGs have completed five year reviews of existing Total Maximum Daily Limits (TMDLs) for these water bodies.
- 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 have increased coordination with county staff and the CDA 2030 Visioning Project and have increased participation in the Coeur d'Alene Chamber Natural Resource Committee. The LMP coordinator for the Tribe now sits on the board of the CDA 2030 Visioning Project.
- LMP staff provided review and comment to land use applications throughout the Basin where there can be potential impacts to Lake or tributary water quality.

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

## **Flood Control and Infrastructure Revitalization**

IDEQ and the BEIPC Executive Director completed a process in 2014 to inventory all of the drainage and flood control facilities in the side drainages of the SFCDR. That inventory will be used to work with the CDR Watershed Management Group in 2015 to develop an Operation and Maintenance Plan for these facilities including assignment of O&M responsibilities to insure that they are properly maintained. 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). A number of the priority drainage control projects and roads needs in the DCIRP are now being implemented as remedy protection projects and Paved Roadway Surface Remediation projects included in CERCLA/Superfund cleanup activities so infrastructure and Superfund remedial needs are both being met by the work. A number of the local utility jurisdictions have also passed bond issues to replace deteriorated sanitary sewers in the communities ahead of road and street remedial actions under the Paved Road Program.

## **Restoration Partnership**

The Restoration Partnership (Partnership) has implemented a few restoration projects within the Basin. The Trustees include the USFS, BLM, USFWS, the CDA Tribe, and the State of Idaho; represented by the IDFG and IDEQ. The purpose of the Trustees' restoration projects is to restore natural resources injured due to the release of hazardous substances as a result of mining and mining related activities in the Basin. In 2014, the Partnership focused mainly on writing the Restoration Plan for the Coeur d'Alene Basin. The only active project was at the Schlepp wetland project where the Trustees supported the USFWS ongoing monitoring and restoration oversight.

Throughout 2014, the Partnership continued developing and finalizing the draft Restoration Plan that will be part of a Programmatic Environmental Impact Statement (PEIS) following the National Environmental Policy Act (NEPA) process. In particular, towards the later part of 2014, the Partnership started developing the NEPA Analysis of Effects for the PEIS. The team also coordinated with EPA in their remedial efforts as identified in the RODA. On the ground work that the Partnership was involved in included:

- **Wetland Restoration in the Lower Basin**  
Ongoing monitoring of wetland plant growth, vegetative weed management, wild rice plantings, and water level management (i.e. maintenance of water pump and repair of dikes).
- **Robinson Creek**  
As Trustees in the Partnership, IDEQ, IDFG, and their consultant began collaborating on conceptual designs of the water management system for restoration.

The Partnership also continued to coordinate with the BEIPC through Project Focus Teams and BEIPC quarterly meetings. The Restoration team met with EPA and IDEQ Project Leads throughout the year on draft design documents from 30-90% phases. In particular, the team continued to work with the Trust on the 60% Design documents for the work in EFN Creek. As Co-Trustee, the USFS team member worked closely with EPA, their project managers, and consultants at the Kahnderosa Campground river bank isolation project site. See the Lower Basin section of this accomplishment report for more details.



## *Challenges Ahead*

The challenges ahead have not changed since last year and they will continue to be the focus of all the parties involved in environmental cleanup actions in the Coeur d'Alene Basin. Again, the cleanup effort in 2014 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 Trust in the EFNW Creek Drainage on ecological remedies; and EPA directed work to address the contaminated ground water problems and mine discharges in the Box noted in the Upper Basin RODA. Human health related projects continue to be a priority, but cleanup work in fish and wildlife habitat areas, surface and ground water, and inactive mine and mill sites is moving forward with EPA working with the BEIPC, IDEQ, the Trust, other cooperating agencies and stakeholders.

Besides the RODA for the Upper Basin, the involved governments and agencies are continuing work on Lower Basin ecological issues and project planning. 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; assistance to the local jurisdictions in their implementation of an infrastructure revitalization and 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.

The ASARCO bankruptcy settlement and the Hecla settlement are currently the major sources of funding for the environmental remediation and natural resource restoration actions. Careful action through the implementation of the Upper Basin RODA any additional needed amendments plus diligent work on the part of the Natural Resource Trustees is necessary to ensure that the available funds are expended in a judicious manner. Assuring sustainable funding intended to advance cleanup as planned in the RODs and amendments, along with operation and maintenance of the implemented remedies and restoration of injured natural resources still represents a significant challenge in the future.