

# Citizens for a Clean Columbia

Our mission: to advocate for a clean Columbia River ecosystem  
NEWSLETTER JULY 2016

## Who are we?

Citizens for a Clean Columbia (CCC) is a volunteer organization focused on advocating for the health of the Upper Columbia River (UCR) and Lake Roosevelt. Visit us at [www.cleancolumbia.org](http://www.cleancolumbia.org).

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## News in Brief

### Expanded Residential Soil Study: Northport, WA

- This study will expand the 2014 Residential Soil Study to determine whether additional properties contain lead and arsenic concentrations (and possibly other TAL metals) that pose an unacceptable risk to human health
- 138 residential properties will be sampled between August and October 2016

### Macroinvertebrate Study Underway

- The study will determine the concentrations of chemicals in the tissues of mussels, clams and crayfish in the Upper Columbia River (UCR)
- The information will be used in exposure assessments for people and wildlife that consume these organisms

### Documentary makers visit Northport

- Two professors from Evergreen State College presented their documentary “**Their Mines, Our Stories**” in Northport on the experiences of communities in the wake of ASARCO smelter’s decades of unregulated pollution

## Long-Awaited Sediment Transport Study

- A sediment transport study is being planned to understand contaminated sediment movement in the river and the behavior of slag deposits.

## Colville Confederated Tribes Update

- CCT is pushing for early actions

## Technical Advisor Update

- Joe reviewed the 2016 residential soil study; macroinvertebrate study; 2013 sediment toxicity data summary report; Phase 2 Bossburg data summary report; Level of Effort memoranda for: background metal levels in soil, sediment transport, and three split sample results; and the data quality objectives memorandum to investigate soil amendments as an alternative to soil removal for remediation efforts.

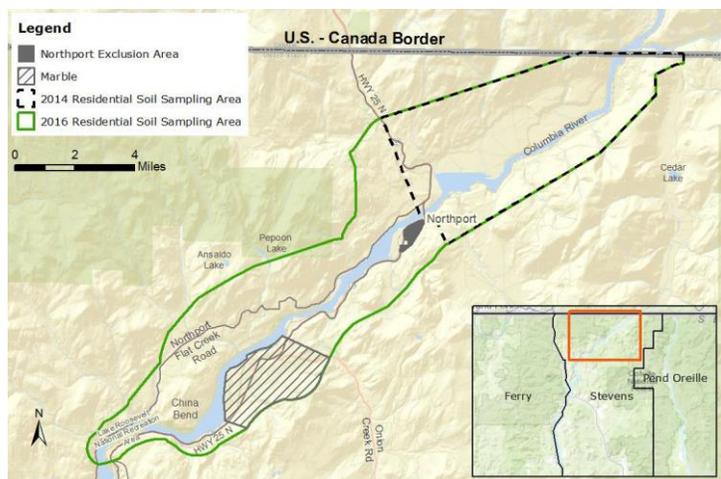
## Residential Soil Study in 2016

An expansion of the Residential Soil Study conducted in 2014 by the EPA is planned for this summer (2016) based on findings of aerial contamination above national screening levels for lead and arsenic. The 2014 study findings are described in our July 2015 newsletter. Additional information can be found in the EPA fact sheets on CCC’s website or on the [epa.gov](http://epa.gov) website searching under “region10 Upper Columbia River remedial investigation”.

In brief, the project action limits for arsenic (20 mg/kg) and lead (400 mg/kg) were exceeded at 18 and 24 properties, respectively. EPA set action levels of 90 mg/kg for arsenic and 700 mg/kg for lead for soil removal action. There were 14 residential properties where the highest adjusted lead result for

any DU exceeded the 700 mg/kg lead action level and these underwent time-critical removal action.

The current study is being led by Teck America, Inc. (TAI) and extends the southern boundary of EPA's 2014 Residential Soil Study to approximately the intersection of Williams Lake Road and Highway 25 on the east side of the river as shown in Figure 1. There are 138 residential properties for which property owner's volunteered to have their property tested that will be sampled. Field reconnaissance was conducted this spring at each property to review property-specific maps of potential DUs and complete resident interviews.



The major changes in this study from the 2014 Residential Soil Study include:

- Changing from EPA to TAI as the investigation study lead.
- Expanding the study area boundary as shown in the figure above.
- Modifying the sampling design with regard to:
  - Collection of dripline samples (not needed based on the 2014 study results unless there is a history of potential lead-based paint)
  - Frequency of collecting triplicate samples and submitting samples for in vitro bioassay (20 percent of the total number of DUs for each of these and a minimum of one triplicate per property based on high level of agreement in

split samples and low variability on soil bioassays from the 2014 study)

- Reduction in collection of discrete core samples to 20 percent of properties and collecting 0-1" and 1-6" samples for each discrete sample.

Surface soil samples (see below) will be collected from residential properties in locations where there is a high potential for exposure by residents, especially young children, based on the interviews and site visits. Young children and gardeners are most likely to be exposed to metals through ingestion of fine soil particles that adhere to skin.



Property-specific maps were created that include DUs for areas near the homes that were most frequently used, children's play areas, gardens, animal pens and riding areas. Boundaries for each DU were delineated based on land use and global positioning system data collected during a visit to each property. Most of the properties have one DU ('house') that encompasses up to 1 acre immediately surrounding the residence. Distinct play areas, gardens, and animal pens/riding areas are considered separate DUs.

Surface soils that are collected from these properties will be tested for metals including aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium,

selenium, silver, sodium, thallium, vanadium, and zinc. This study is intended to produce data representative of potential exposure associated with metal-enriched soil particles and to support risk management decision making for the human health risk assessment.

The timeline for this study is approximately August to October 2016 for field sampling. Laboratory analysis will follow and be completed by the end of the year. Data validation occurs followed by data analysis and reporting so that EPA will be able to begin their review of these data around March 2017. The report will undergo review and revision by EPA, participating parties and CCC, and a final version should be out by summer 2017.

The principal environmental question that will be addressed by the data collected in this study is: Do lead and arsenic concentrations (and possibly other metals) in the fine-grained fraction of soils pose an unacceptable risk to human health, particularly to children who live within the UCR Study Area? Secondly, the discrete soil sample data to be collected in this study will also allow for comparison to data collected in the 2014 study, and are intended to support evaluation of uncertainty regarding the 2014 discrete sample results on the vertical nature and extent of contamination.

Mindy Smith, CCC secretary

### **Sampling for the Macroinvertebrate Tissue Study Underway**

The primary objective of the macroinvertebrate study is to determine the concentrations of chemicals present in the tissues of mussels and crayfish. Target metals, methylmercury, inorganic arsenic, PCB congeners, and dioxins/furans will be assessed to support the human health risk assessment (and metals only for the baseline ecological risk assessment). These organisms, along

with clams, were selected because they are commonly found in the Upper Columbia River (UCR) and are eaten by both people and wildlife.

One sampling area was chosen within each of six river reaches - from Deadman's Eddy near the Canadian border to Keller Ferry - to provide widespread spatial coverage. The intent was to obtain 6 samples from different locations within each sampling area, if sufficient numbers of organisms are available. The locations were selected based on information from the Colville Confederated Tribe Tribal survey and a Spokane Tribe representative as areas where people collect mussels and crayfish.

Six composite samples each of mussels and crayfish are targeted for collection for a total of 36 mussel samples and 36 crayfish samples at UCR locations and 12 from the two reference areas. Each composite sample will consist of five organisms (or potentially more for mussels) based on an analysis of the sizes of mussels and crayfish expected at the sites and the analytical mass required for each sample. Clams will also be analyzed when collected by the teams. Compositing plans are under review.

The most important consideration for timing of sample collection was during reservoir water level drawdown, because mussels are most accessible for sampling at that time. In addition, sampling in the reaches closest to the border (see map for area 1 on next page) were targeted to occur before spring runoff to lower the chances of losing crayfish traps as a result of high river flows.

The first round of sampling occurred between April 27 and May 18<sup>th</sup>. So far 19/48 planned samples were collected for mussels and 41/66 samples for crayfish.



The EPA is in the process of making recommendations to Teck on compositing the specimens and on additional sampling needed. CCC provided comments to EPA on both the original sampling plan and initial comments on the compositing plan.

Mindy Smith, CCC secretary

## Documentary makers visit Northport

What began as a class project for Anne Fischer and Lin Nelson, two professors from Evergreen State College, grew into a multi-media project documenting the experiences of three communities with prolonged relationships with the American Smelting and Refining Company (ASARCO). Through research, film, photography, oral history, analytical writing, a website, and a documentary, **Their Mines, Our Stories**, they document the experiences and struggles of these communities, left to deal with the fallout of ASARCO smelter's decades of unregulated pollution that remained after they closed their doors and filed for bankruptcy. Through their shared conditions, these communities are fighting to strengthen policy framework, pollution control laws, regulations and emission standards.

Anne and Lin are now reaching out to other communities impacted by industrial pollution, struggling to find answers, assistance, and solutions

from the polluters and their state and federal agencies. This is what brought them to Northport.

In May 2016, Anne and Lin met with Northport community members at the Northport High School, where we screened their documentary "Under the Smoke Stack." After the screening, Carlos Martinez, a community advocate from Smelertown in El Paso, Texas, called in and we shared our experiences dealing with the polluters, the EPA, and the changes that needed to be made to benefit small communities going forward. We all agreed that if small communities like ours worked together we could create a larger information network.

The following day they filmed interviews with several residents who shared their stories of how decades of exposure to toxic pollution had impacted their lives. They will provide me with the edited interviews once they are complete and I will share them on my blog, [www.northportproject.com](http://www.northportproject.com).

The difficulty that small communities impacted by big polluters face is that their size makes them easy to overlook. However, if we work with other small communities, we will become bigger, our voices will become louder, and we will become harder to overlook. With a stronger voice we can work together to make positive changes to strengthen policy, regulations, and environmental health laws.

To read more about **Their Mines, Our Stories: Work, Environment and Justice in ASARCO-Impacted Communities** visit Anne and Lin's website at: [www.theirminesourstories.org](http://www.theirminesourstories.org).

Jamie Paparich

## Long-Awaited Sediment Transport Study

A sediment transport study is being planned to understand the current status of contaminated sediment movement in the river and the behavior of slag deposits near the U.S.-Canadian border. The

level of effort memorandum outlining the process addresses gaps in our knowledge about how slag and potentially other metals-enriched sediments move into the upper Columbia River (UCR) from existing slag deposits within the river in Canada, and the associated quantity and rate of slag/metal being transported across the border.

The overall goals of this monitoring program are to better understand:

- How sediment, including slag, moves into the UCR site from upstream Canadian sources
- The quantity of sediment being transported into and within the UCR site
- The chemical composition of the actively transported sediment, and
- The apparent propensity for active transport (and redistribution) of slag and other sediments within the upper reaches of the UCR system.

A multi-season monitoring program is planned with data collection occurring over a range of seasonal flow conditions. Two border-area monitoring stations at the Highway 25 bridge and the USGS gaging station at Black Sand Beach have been suggested.

This effort will provide valuable baseline information to support site characterization, long-term monitoring, or other UCR-related initiatives. A special shout-out goes to Bob Jackman who has advocated for such a study for many years.

Mindy Smith, CCC secretary

## **Colville Confederated Tribes Update**

In response to a statement made in December 2015 by the EPA that no early/interim actions will be taken at Deadman's Eddy until after the completion of the Baseline Ecological Risk Assessment, CCT drafted a letter of protest in January 2016. In their

letter, they explain that this refusal to allow and encourage early action when warranted undermines planning efforts currently being conducted by the Four Sovereign Governments (EPA, U.S. Department of Interior, CCT and the Spokane Tribe Indians, and the State of Washington) through their UCR Early Action Work Group.

CCT notes that precedent and support for early action is provided in EPA's 2006 Settlement Agreement and by the National Contaminated Sediments Technical Advisory Group. In fact, in a 1991 Superfund guide, the text clearly states that reasons for taking an interim action could include the need to:

- Take quick action to protect human health and the environment from an imminent threat in the short term while a final remedial solution is being developed
- Institute temporary measures to stabilize the site or operable unit and/or prevent further migration of contaminants or further environmental degradation.

Both of these reasons are present with respect to Dead Man's Eddy Bar.

Representatives of the Four Sovereign Governments CERCLA response entities have requested that EPA take measures to expedite the Remedial Investigation through both cooperative and enforcement approaches. The group is working on identifying technical issues necessary for evaluation.

CCC supports CCT in their efforts to use this time to pilot test potential remediation strategies at Deadman's Eddy. Sites this large would be difficult to manage through excavation, dredging, and soil replacement. Strategies could include bioremediation (use of plants for example), nanoremediation (use of nano-sized reactive agents

to degrade or immobilize contaminants), and other innovative methods to address contamination. As it is not likely that the risk assessments will be completed within the next two years, we hope that EPA will consider CCT's request.

Mindy Smith, CCC secretary

## **Technical Advisor Report**

My efforts over the past six months focused on the 2016 residential soil study, the macroinvertebrate study, the 2013 sediment toxicity data summary report, the Phase 2 Bossburg data summary report, level of effort (LOE) memorandum for background metal levels in soil, LOE memorandum for sediment transport in the Columbia River and the data quality objectives (DQO) memorandum to investigate soil amendments as an alternative to soil removal for remediation efforts. I also reviewed final drafts of three split sample results memoranda. CCC used my reviews as the basis for their comments to EPA.

I observed the first day of the **residential soil study** field reconnaissance program, the interviews with property owners to determine areas for soil sampling in August and September. All three interview teams were present at the first property, which also served as a field training exercise (see picture below). The teams were equipped with tablets with GPS input and a camera. Each potential sampling area (decision unit [DU]) was photographed and GPS coordinates with notes were directly entered in the tablet. The only issue I observed was the use of loose leaf paper to record field notes instead of a bound notebook. I was assured this was an artifact of the first interview day. All interview teams had bound field notebooks for this purpose.

The study quality assurance project plan (QAPP) was finalized after the field reconnaissance effort was completed. I was surprised to see the Google maps images used to create the property DU maps were from June 2011. CCC suggested that more recent satellite imagery may be more informative for sampling crews and property owners. I was more concerned that the placement of DUs on the maps was incorrect in several instances and that some DUs were missing from the maps. CCC suggested that a detailed re-examination of field reconnaissance forms and notebooks be done to correct inconsistencies and omissions in the DU listings and maps prior to field sampling. CCC also suggested that property owners be sent maps with the proposed DUs for review prior to the field sampling effort. Soil sampling for the 138 properties enrolled in the study is scheduled to start the first week of August.

The **macroinvertebrate study** QAPP seemed to be rushed to completion to allow field sampling to proceed this spring. Issues of greatest concern with the February and March drafts of the QAPP were inconsistencies among the QAPP, the field sampling plan and the standard operating procedures. It was not clear if clams were to be obtained in earlier versions of the QAPP. The study QAPP was not finalized before field sampling began and clams had been collected from one sampling area. CCC informed EPA several times that the lowest river level from Northport to the Canadian border is reached in early to mid-March, but sampling began on April 26, 2016. This limited the mussel collection effort in this river area.

I was able to observe mussel and crayfish collection in the Sanpoil River reference area on May 17, 2016. The field team was not allowed to dig or disturb rocks, which are typical methods for collecting mussels and crayfish. As a result, collection of these organisms was difficult. The field teams had not

asked local residents where they collected mussels and crayfish at that time of year, potentially contributing to the difficulty in collecting organisms. I was the only person present who observed that the lower end of the sampling area is an arm of Lake Roosevelt at full pool. CCC requested that all organisms collected in this region be composited and analyzed separately from other organisms in the reference sample area. CCC requested and was given input in the sample compositing plan and is in general agreement with the plan proposed to Teck American, Incorporated (TAI) on July 1, 2016. The compositing plan for clams is currently being developed. Additional sampling for mussels is required in five of seven sampling areas. Additional sampling for crayfish is required in four of seven sampling areas.



Field reconnaissance team training with 17 team members

I reviewed the draft 2013 **sediment toxicity study** data summary report. Areas of concern included the poor quality of the pore water collected in the field; the lack of formal validation reports for the bioassay studies performed at Pacific EcoRisk and the backscattered scanning electron microscopy (BSEM) determination of slag content at RJ Lee Group; data establishing steady state conditions for the bioassay

tests were not included in the report; the standard operating procedure for developing rules for determining slag content by BSEM was not provided; and a variety of slag was identifiable by visible microscopy only, not by BSEM. CCC hopes these concerns can be addressed in the final report.

I reviewed the draft Final **Bossburg data summary report**. Several issues remained from the first draft of the document. The natural background level of arsenic was listed as 9.0 milligrams per kilogram (mg/kg), but the determination of background metal levels (including the metalloid arsenic) is the focus of a study currently in the LOE stage of development. CCC suggested that the background arsenic level be referred to as tentative. Laboratory notebook entries for drying a set of samples could not be found by auditors. CCC requested that an explanation of how the samples could be shown to have been properly prepared for analysis be included in the document. CCC also requested that the report include a map indicating all the *in situ* x-ray fluorescence lead determination locations and determined lead levels.

I reviewed two **LOE memoranda**, which lay out the major questions to be answered for a study and the approaches to use to answer the questions. The background soil metals level LOE proposes establishing soil levels from existing published studies that have been fully vetted by EPA, Ecology and the participating parties. The discussion process for this study will be determining which values are used from which studies. CCC has proposed a sediment transport study be performed in the Columbia River for over ten years and is very excited to see that planning for this study begun. The sediment transport LOE proposed measuring active transport for 15 months at two locations, the highway 25 bridge and the gaging station near Black Sand Beach. The LOE also proposed determining the size of slag reserves in this region.

I reviewed a DQO memorandum for investigating the use of soil amendments as an approach for remediation of high lead and arsenic levels in soil. These procedures would be used in place of soil removal and replacement to lower the human health and ecological risks posed by these contaminants. CCC is excited about this study. Methods may be found that will economically treat large areas of soil contamination.

I also reviewed final draft **split sample memoranda** for the Bossburg phase 2 study, 2014 residential soil study and the 2013 sediment toxicity study. All major concerns in the previous drafts of these reports were addressed in these final drafts. A few minor concerns with the memoranda were provided to EPA.

Joe Wichmann, PhD; CCC Technical Advisor

### **CCC's General Member Meeting**

We took this picture at our June meeting held at the Northport park. As usual, we discussed updates on the various studies that form the RI/FS and other environmental news from our area. Hope some of you can make the next meeting. Our minutes are posted on the website. Have a wonderful summer.



Top row: Clifford Ward, Matt Wolohan, Russ Larson  
Bottom row: Caroll Vrba, Jamie Papparich, Hillary Ohm, Mindy Smith, and Joe Wichmann

### **Want to be More Involved?**

CCC welcomes new members; you can join on our website ([www.cleancolumbia.org](http://www.cleancolumbia.org)). You can also find meeting minutes and links to other organizations involved in protecting the environment.

Our next General Member Meeting will be in the fall. We will post updated information on the website. Please join us.

You can also write to our EPA project managers Laura Buelow ([buelow.laura@epa.gov](mailto:buelow.laura@epa.gov)), Dustan Bott ([bott.dustan@epa.gov](mailto:bott.dustan@epa.gov)) or the EPA region 10 administrator Dennis McLerran ([McLerran.Dennis@epa.gov](mailto:McLerran.Dennis@epa.gov)).