

Citizens for a Clean Columbia

Our mission: to advocate for a clean Columbia River ecosystem
NEWSLETTER JULY 2015

Who are we?

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

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News in Brief

Residential Soil Study Completed

- Results from 74 properties north of Northport, Wa showed that 24 had lead levels above the national screening level (400 ppm) and 18 were above the screening level (20 ppm) for arsenic.
- 17 properties meeting removal levels for action were offered time critical removal this August.

Upland Soil Study Draft Results

- A total of 215 composite samples were collected.
- Concentrations greater than the screening levels for antimony, cadmium, lead, vanadium, and zinc were found in aerial deposition areas.

Technical Advisor Update

- Joe worked with CCC on both soil studies and the draft Chemicals of Potential Concern Refinement document.
- He also observed sampling for the Bossburg study and reported no concerns.

Lake Roosevelt Forum Conference

- Record attendance and lively presentations made this once again a great conference.

Residential Soil Study Results

Complete and Clean-up on Schedule

Results of the 2014 residential soil study of properties north of Northport, WA indicate aerial contamination above national screening levels for lead and arsenic. Of 74 properties sampled in the residential soil study, 24 (32%) were above the 400 ppm national screening level for lead and 18 were above the 20 ppm national screening level for arsenic. Lead levels of >1000 ppm were found on 6 properties. Seventeen properties with lead levels close to or over the removal level for action of 700 ppm have been offered clean-up beginning in mid-August 2015. While details of the removal plans are not known at this time, individualized plans will be made with the property owners.

Families living on properties with lead levels >250 ppm and/or arsenic >20 ppm who did not meet the removal level for action are encouraged to follow the Soil Safety Guidelines to reduce exposure. These can be obtained from the Washington State Department of Ecology at www.ecy.wa.gov/.

In general, the sampling process went well after a rough start with difficulties with the sampling tools the GPS system. The teams acted professionally and results were available within 5-6 months of sampling. While results on lead and arsenic concentrations were provided to property owners, no information was provided on the remainder of the 22 metals analyzed. In addition, due to a log-in error, 27/943 samples were inadvertently disposed of rather than archived; this problem has been addressed.

With respect to the source of the contaminants, a report completed by Bill Thayer and Gary Diamond of SRC demonstrated an association between deposition of metals and the extent of the sulfur dioxide plume extending from the Trail smelter. Based on multiple linear regression analyses of lead and arsenic concentrations in residential (and upland) soil samples, there were significant trends for soil concentrations decreasing with increasing distance from the Trail facility. In addition, the distance from local mines was not a significant explanatory variable for predicting residential soil lead concentrations. Residential soil lead actually increased with increasing distance from the old Le Roi smelter.

Linear regression models in which the sulfur dioxide vegetation damage mapped in 1936 was the only explanatory variable, explained a significant amount of the variability in the concentrations of lead, arsenic, antimony and thallium in residential soils; the highest lead and arsenic soil concentrations from the samples were located within the 60%-100% vegetation injury zone of the plume. Teck is disputing the results of the regression analysis.

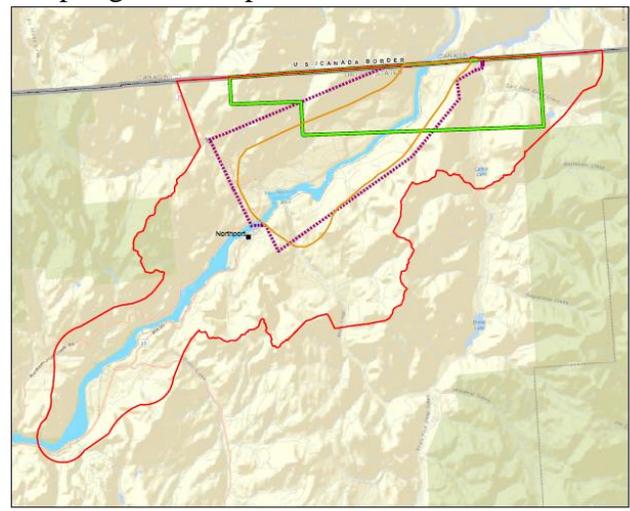
Based on these results, the board of CCC and their technical advisory believe that the Environmental Protection Agency (EPA) should offer soil sampling and any indicated removal actions to property owners who live adjacent to the properties being cleaned up, if their properties were not sampled in 2014. This process should continue until no properties are found that require remediation. We also hope that there will be a second round of residential soil sampling that encompasses all properties in the upland soil study site area.

Mindy Smith, CCC secretary

Upland Soil Study Draft Results

As noted in our January newsletter, this study examines soil for contaminants from air emissions, historic flooding, or windblown dust from contaminated sediment. The area of interest for air emissions is approximately 99 square miles (see red area on the map on p.3), with a 23 square mile area along the Upper Columbia River downstream of the border designated for more intensive sampling (see orange area on the map). The sampling area for flood effects was from 5 relict floodplain areas. The windblown dust areas included near-shore areas near Marcus Flats and Seven Bays.

Sampling areas map



Green: Dept of Ecology study area
Purple: residential soil study area
Orange: upland soil intensive study area
Red: upland soil study area

A total of 215 composite samples were collected at 171 decision units. Samples were sieved into two fractions, one (<2 mm) for ecological risk assessments and one (<149 μm) for human health risk assessments. Information was collected on concentrations of the standard 23 metals and molybdenum in upland soil. Different screening levels were used for the ecological and human

health portions of the study, so these results are presented separately. The bioavailability of these chemicals to soil organisms and humans was also assessed.

Sampling was conducted between September 8 and October 23, 2014 under direct EPA oversight. A field sampling plan, approved by the EPA, was used based on expected deposition areas which were then divided into decision units (DUs) of about 25 acres each. Within each DU, 30 incremental soil samples were collected from the top 7.5 cm (0 to 3 in.). Equal volumes of these were then combined in the field to form a single sample for the DU and sent to the laboratory for sieving and subsampling. If a randomly selected area could not be sampled because of steep terrain or lack of access or permission, alternate areas were attempted; however, not all of the targeted DUs were sampled. In some areas duplicate and triplicate samples were obtained for quality assurance.

Upland soil composite samples were obtained from 171/199 planned DU sampling areas (142/142 from aerial deposition sites, 16/29 from relict floodplains, and 13/28 from windblown sediment sites at Columbia Beach North and South and Marcus Flats East and West).

Ecological Screening

Of the 142 DUs sampled from the *aerial deposition* areas and the 16 *relic floodplains* DUs, all had concentrations greater than screening level for antimony, cadmium, lead, vanadium, and zinc. Some aerial DUs concentrations were greater than screening level for arsenic (n=41), barium (n=59), chromium (n=26), cobalt (n=5), copper (n=21), nickel (n=10), and selenium (n=19). Thirteen *relic floodplains* DUs had concentrations greater than screening levels for copper, nine had concentrations

greater than screening levels for chromium and selenium, and five had concentrations greater than screening levels for arsenic, and cobalt.

With respect to the 13 *windblown sediment deposition areas*, all had concentrations greater than screening level for vanadium, eleven DUs had concentrations greater than screening level for zinc, 8 DUs had concentrations greater than screening levels for antimony and lead, and 7 DUs had concentrations greater than screening levels for cadmium.

Human Health Screening

Of the 142 DUs sampled from the *aerial deposition* areas, only arsenic and lead were detected at greater than screening levels. For arsenic, the screening level (9.39 mg/kg) was exceeded at 68 DUs after adjusting for bioavailability and for lead, the screening level (400 mg/kg) was exceeded for 21 DUs after adjusting for bioavailability. Similarly, for the 16 *relic floodplains* DUs, only arsenic and lead were detected at greater than screening levels, with 8/16 exceeding the screening level for arsenic and 2/16 exceeding screening level for lead after adjustment.

Next Steps

CCC provided comments on this document with the assistance of our technical advisor, Joe Wichmann in May 2015. We voiced concerns about inaccurate representation of the beach sampling results; the low percentage of sampling completeness for the relict flood plain (55%) and windblown sediment (46%) deposition areas resulting in data gaps; the need for additional samples and analytical runs to establish the metal bioaccessibility; the method and timing of grain size distribution, total solids, and pH measurement; and the reporting of “J” flagging results. Our comments, along with comments from

the participating parties and EPA were sent back to Teck to make any needed changes to the document before it is finalized and available to the public. The information will be used during the preparation of the ecological and human health risk assessments that, in turn, will be used to determine needed remediation. CCC is also requesting a formal air monitoring study to be performed in this area as a result of the upland and residential soil study results.

Mindy Smith, CCC secretary

Technical Advisor Report

My efforts over the past six months focused on the residential and upland soil studies, the Bossburg refined sediment and soil study, and review of the draft Chemicals of Potential Concern (COPC) Refinement document. CCC used my reviews as the basis for their comments to EPA.

EPA provided arsenic and lead results from the residential soil study to property owners in March, 2015. The reported results were adjusted for bioavailability. Several property owners were interested in the analytical results for the other 20 metals analyzed. I provided them with the results from the RI/FS project database.

EPA presented a summary of both the residential and upland soil study results at a meeting in Northport, WA on April 14, 2015 and at the Lake Roosevelt Forum (LRF) Conference in Spokane, WA on April 21, 2015. Seventeen property owners have been approached by EPA for time-critical removal action due to high lead levels found on their property, identified as a result of the residential soil study. The removal action is currently scheduled to begin in August. (See accompanying article.)

Analytical results for the nine residential soil study split samples that CCC obtained from EPA and had

analyzed at Test America Incorporated compared very favorably with the primary study sample results analyzed at ALS, the study laboratory. Comparative lead and arsenic results from the two laboratories were well within the acceptable range for split sample results defined in the study quality assurance project plan (QAPP) for analysis at ALS.

I reviewed the draft Soil Study Data Summary and Data Gap Report and provided my comments to CCC. The major concern was the Teck American, Incorporated (TAI) position that there were no data gaps in the study results. That is, TAI's position is that the study results fully answered the questions posed in the study QAPP.

CCC believes that more sampling is needed to fully define the aerial deposition area, and that the low percentage of proposed samples obtained in old flood plain areas is a major data gap. CCC also proposed that wording in the document stating that previous sampling of 42 beaches indicated no human health risks be corrected to reflect the information EPA provided the public in their 2012 beach fact sheet. The fact sheet indicated concern with Evans campground beach, Bossburg beach, and the swimming hole near the mouth of Sheep Creek. EPA requested TAI to eliminate all discussion of data gaps in the next draft of the document and issue just a data summary report on the upland soil study.

I also reviewed the draft COPC Refinement report. A major concern was the elimination of most metals that could have originated at the Trail smelter as COPCs in this document. CCC requested that EPA and its contractors scrutinize all the associated calculations for accuracy. An additional concern was that a significant number of media, receptors and chemicals of interest (COIs) were not evaluated in the report, but will be evaluated at a future date in the baseline ecological risk assessment (BERA). CCC

suggested that a table listing all media, receptors and COIs to be evaluated in the BERA would be very helpful, as would a companion table listing all media, receptors and COIs evaluated in the report.

I observed beach sediment and soil sampling for the Bossburg refined sediment and soil study in April, 2015. The field sampling teams were professional, well prepared, and efficient in sample collection and field sample analysis. The level of Lake Roosevelt was higher than anticipated. A number of proposed sampling sites were submerged and had to be moved to dry ground. It appeared that the data quality for the study would not be compromised by the relocated sample sites. The sampling areas on the west side of the river were in a culturally sensitive area. Coordination among a number of agencies and the Colville Confederated Tribes resulted in collection of all proposed samples in the areas, as well as additional samples for field x-ray fluorescence analysis. It is unclear from the data if the old ferry landing on the west side of the river was located. Data from the study are expected in fall, 2015.

Joe Wichmann, PhD; CCC Technical Advisor

Lake Roosevelt Forum Conference (LRF) a Success

Setting a new record, 320 people attended one or both days of the 2015 Lake Roosevelt Forum Conference in April. Topics included exploring salmon restoration above the Grand Coulee Dam, issues concerning aquatic invasive species, and an update on the RI/FS. Information on the conference can be found at www.lrf.org/conf. Also, check out the 2015 LRF RI/FS Public Guide at www.lrf.org/publicguide2015.

New Member of EPA Project Team

CCC would like to welcome Dustan Bott who is officially joining the EPA UCR site team in September, replacing Matt Wilkening. While new to the Office of Environmental Cleanup (Superfund), he has been at Region 10 for 7 years working as a compliance inspector in the Office of Compliance and Enforcement.

Before the EPA, Dustan worked in a variety of positions at different levels of government in the northwest- Seattle Public Utilities, the Port of Seattle, the Nez Perce Tribe, US Forest Service, USGS and the Idaho Department of Environmental Quality. He has experience in project management, program/policy analysis, research, and environmental fieldwork. He also worked for a mining company in Idaho conducting water quality monitoring. He has two Bachelor of Science degrees, one in Environmental Science and one in Anthropology, and a Master's degree in Public Administration.

Matt will be moving to a project centered in Boise. CCC wishes him all the best with his new project.

Want to be More Involved?

CCC welcomes new members; you can join on our website (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), Dustan Bott (bott.dustan@epa.gov) or the EPA region 10 administrator Dennis McLerran (McLerran.Dennis@epa.gov).