

Citizens for a Clean Columbia

Our mission: to advocate for a clean Columbia River ecosystem
NEWSLETTER JULY 2018

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.

News in Brief

CCC General Member Meeting Followed by Community Meeting with EPA May 3, 2018

- Joe Wichmann presented an update of the remedial investigation work. EPA has denied our petition for air monitoring in Northport.
- EPA staff provided an update on the Upper Columbia River (UCR) Site remedial investigation including past field work, ongoing 2018 field work and property clean-up and how the information collected will be used in the human health risk assessment (HHRA) for the UCR Site.

Phase 3 Sediment Study Planning Underway

- This study is designed to identify locations of sediment texture classes and depositional areas, nature and extent of sediment chemical and physical properties, characterization of sediment porewater for bioavailable metals, toxicity identification evaluations of effects on benthic species conducted in the laboratory, and colonization of sediments by benthic organisms.

Soil Amendment Technology Evaluation Study

- Phase 1 data collection and analysis of soil from test plots on three tribal allotments completed.

Toxicity Reference Values (TRV)

- TRV reports present methods and results from available literature that will be used in the baseline ecological risk assessment (BERA) as acceptable toxicity endpoints. CCC reviewed the draft Wildlife, draft and final Fish Diet, and draft Porewater and Sediment Benthic Invertebrate TRVs.

Plant Tissue Study

- This study is currently underway to collect and characterize metal concentrations in the tissues of wild upland plants sampled from Tribal allotments in the study area.

Technical Advisor Update

- Joe focused on the phase 3 sediment toxicity study, the plant tissue study, the three TRV reports, the northern pike tissue study, the macroinvertebrate split sample memorandum, the background soil report, the draft river-associated HHRA report, and the soil amendment treatability evaluation (SATES) study.

CCC General Member Meeting and Community Meeting with EPA

May 3, 2018 CCC held its biannual general member meeting (GMM) in Northport's City Park. Ten members were in attendance along with our technical advisor, Joe Wichmann. We discussed questions to ask EPA staff during the meeting to follow and Joe provided an update of the various studies comprising the remedial investigation feasibility study (RI/FS). These included studies (most detailed below) that will provide toxicity

reference values, data on plant tissue, information on sediment toxicity (phase III assessing porewater) to inform the baseline ecological risk assessment, soil amendment baseline data, and a compounds of interest list to be used in the HHRA.

We also discussed the EPA response to our request for air monitoring. A petition was sent to EPA in December 2017 asking for resumption of air monitoring. The EPA response letter stated that they believed that the risk of lead exposure through air to the citizens of Northport was low based on their analysis of Ecology's report and air monitoring from Sheep Creek and would not be moving forward on our request.

At the community meeting that followed CCC's GMM, EPA clarified that CERCLA (superfund) studies do not collect air monitoring data. New lead screening values have been lowered to the amount that gives a 5% chance of causing a blood lead level between 2 and 8 ug/dl. Marc Stifelman agreed to introduce CCC to the EPA air program people. This hasn't happened yet. A member of DOE stated that there has not been a continued improvement in air quality since that seen with the KIVCET upgrade in 1997. CCC will continue to try other avenues to institute air monitoring.

During the community meeting, EPA staff provided updates on the UCR Site RI/FS including clean-up of several properties, a summary of past field work, ongoing 2018 field work, and how the information collected will be used in the HHRA. The meeting was well attended by about 40 community members in addition to members of the Washington Department of Ecology (DOE). In addition to these presentations, several community members expressed frustration and concern about archeological holds placed on their as a result of soil sampling studies.



Meeting with EPA staff at Northport school

Mindy Smith, CCC secretary

Phase 3 Sediment Study

This study is under development. CCC had an opportunity to provide comments to EPA on the draft data quality objectives. This study has 5 elements:

- Sediment bed mapping to identify locations of sediment texture classes and depositional areas
- Nature and extent of sediment chemical and physical properties
- Sediment porewater to characterize concentrations of bioavailable metals to which sediment organisms are exposed
- Toxicity identification evaluations (biological effects on benthic species of representative surface samples in the laboratory)
- Colonization of sediments by benthic organisms

CCC commented on the perhaps overly optimistic timeline, better clarification of the areas of interest (includes Deadman's Eddy, China Bend, and the area upstream from Marcus Flats), use of both backscattered scanning electron microscopy and optical microscopy to estimate slag percentages, adding sampling locations to offset likely refusals,

provision of additional detail on porewater sampling (which is fraught with difficulty from mixing and cross-contamination), and to provide supporting documentation for the selected colonization period.

Mindy Smith, CCC secretary

Soil Amendment Technology Evaluation Study

The purpose of this study is to identify and field test soil amendment technologies that could cost-effectively reduce long-term potential for human exposure to lead in shallow soils in the UCR area. We introduced this study in our July 2017 newsletter and now phase 1 of this study - baseline characterization of selected test plots on three tribal allotments – is completed. Both incremental composite samples and discrete samples were obtained as shown below.



The results of the vegetation survey were not included in this report. These baseline data on the chemical, mineralogical, and physical properties of soil, in addition to baseline vegetation, are critical to assessing the subsequent effects of amendments. These documents were provided to CCC in mid-August.

CCC had an opportunity to provide comments on the draft data summary report. We had concerns about the number of J-flagged analytical results (estimated results) relative to the total number of analytical results and asked that the report include greater detail on sample preparation and reasons for the delay for some sample processing.

A summary of the findings will be provided in our next newsletter once the final document is approved.

Mindy Smith, CCC secretary

Toxicity Reference Values (TRV)

TRV reports present methods and results from available literature that will be used in the BERA to set acceptable toxicity endpoints. As such, the quality of the literature, such as study methods used, and result reporting are critical to these determinations.

CCC reviewed the draft Wildlife, draft and final Fish Diet, and draft Porewater and Sediment Benthic Invertebrate TRVs.

In the draft Wildlife TRV, we were concerned about the tier classification system used to rank the study relevance because these ratings had not been vetted by the EPA and did not seem to be based on study quality. There were some missing tables and figures.

We were pleased to see a section on Metal Mixtures in the Fish Diet TRV, an issue that has not been addressed in previous UCR RI/FS studies and is critically important to understanding the effects of contamination. We asked for additional discussion of the somewhat contradictory evidence and the conclusions drawn about the need to consider potentially additive and synergistic effects.

The Porewater and Sediment Benthic Invertebrate TRV was devoted to methods and not actual TRVs, which we noted in our comments. Collection of porewater has been an issue for many years and we asked for clarification of the relative merits and shortfalls of porewater obtained using different collection methods. We also asked about the choice of analytical models for determining the TRVs.

Mindy Smith, CCC secretary

Plant Tissue Study Underway

The primary objective of this study is to characterize the concentrations of metals in the tissues of wild upland plants sampled from Tribal allotments that qualified for time critical remediation as a result of the 2014 residential soil study. This work will inform the exposure assessments for humans who consume or utilize these plants. Plant tissue will be analyzed for metals and characteristics such as total mass and percent moisture.

Plants were collected in three separate rounds in Spring and late Summer, 2018. The collection of spring plant types and co-located soil sampling was completed by Tech American Incorporated on May 2, 2018. The work was conducted under EPA oversight and with assistance from the CCT.

From both high and low lead sampling areas in May, the field crew collected the targeted number of samples for spring beauty/Indian potato, lomatium, kinnickinnik, black lichen, and camas. At low lead sampling areas, the field crew also collected willow.

The field work to collect summer plant types (e.g., wild strawberries, sarvisberries, cedar, sage) was conducted in late June 2018 and a final round was completed in August. I did not have the results of this collection at the time of this writing. We will

present results from the plant tissue study in later issues as these data become available.

Mindy Smith, MD, MS

Technical Advisor Report

My efforts over the past seven months focused on the phase 3 sediment toxicity study, the plant tissue study, the three TRV reports, the northern pike tissue study, the macroinvertebrate split sample memorandum, the background soil report, the draft river-associated HHRA report, and the SATES study. CCC used my reviews as the basis for their comments to EPA. I also attended the Lake Roosevelt Forum Conference in April, 2018.

The phase 3 sediment toxicity study is comprised of five data quality objectives (DQOs) or parts. The individual DQOs are: sediment bed mapping; nature and extent of sediment physical and chemical properties; characterization of sediment porewater; sediment toxicity identification evaluation (TIE); and macroinvertebrate colonization study. My primary concern with the original DQO document was the choice of only 15 samples to evaluate each feature of the studies. The primary reference for advanced geospatial analyses stated: "Advanced methods require the largest data sets; the minimum is usually greater than 15 (Harre et al. 2009) and perhaps greater than 30 to 100 sample locations, depending on the site, objectives, and data set." To date, this concern has not been addressed. Other concerns included how porewater samples will be obtained, how slag percentage in sediment samples will be determined, and if the proposed timing and length of the colonization study is appropriate. Pilot studies to evaluate the sediment bed mapping equipment and software, the porewater collection system, the use of "freeze-grab" sediment sampling, and the TIE

approach are being undertaken in September and October, 2018.

The plant tissue study, as noted above, was undertaken to evaluate the levels of metals in plants identified in the tribal use survey as being harvested in the area. The first of three rounds of sampling began on April 25, 2018. The kick-off orientation meeting was held in Northport, Washington. Four tribal elders attended and presented the connection between plants and the tribes from four very memorable and unique perspectives. Without the help of the elders, the first day of sampling would not have been nearly as successful as it was. The second round of sampling occurred in June and the final round occurred in August. A final summary of the plant samples is expected soon. Analytical results should be available in early 2019.

I reviewed three TRV drafts: "Wildlife Toxicity Reference Values for the Baseline Ecological Risk Assessment: Methods and Results for Five Metals," "Fish Diet Toxicity Reference Values for the Baseline Ecological Risk Assessment," and "Porewater and Sediment Benthic Invertebrate Toxicity Reference Values for Metals for the Baseline Ecological Risk." A primary concern with the three TRVs was a lack of reference vetting by entities other than the organization preparing the drafts and inconsistent formatting and data presentation among the drafts. Additional concerns with the sediment and porewater TRV included the lack of discussion of the relative merits and shortfalls of porewater obtained using different collection methods, and the lack of detailed explanation of the choice of the biotic ligand model for some metals and regression models for other metals. A further concern was the use of probable effects concentrations (PECs) and threshold effects concentrations (TECs) to establish TRVs. The sediment quality guidelines for bulk sediment from which the PECs and TECs were

derived are explicitly labeled as screening values only and are not regulatory criteria or standards.

The northern pike tissue study was performed in a fashion similar to the 2016 sturgeon tissue study. A total of 30 fish in two size classes, 12-to-18 inches and greater than 18 inches, were caught, filleted and six composite samples were prepared for each size class. Composite samples are to be analyzed for metals, lipids and moisture. Sample collection was completed on July 27, 2018. Results are expected in October, 2018. It is expected that the Washington Department of Health will issue a northern pike advisory based on the data.

The macroinvertebrate split sample memorandum was issued in July. Results from the two laboratories were in good agreement when metals were detected above the reporting limit by both laboratories. The EPA laboratory, Manchester Environmental Laboratory, had significantly higher reporting limits for most analytes than ALS Environmental, the primary analytical laboratory for the study. This resulted in a number of low-level analyte comparisons being in poor agreement.

I reviewed the June 1, 2018 background soil DQOs draft. In addition to the references previously vetted by the participating parties, a number of additional references were included. Most of these additional references were listed as available on the Upper Columbia River remedial investigation and feasibility study (UCR RI/FS) database website. Many of the links on the website did not work. The references were listed in footnotes, rather than in an alphabetized references section, making it difficult to check the complete reference listing. I was uncertain about the meaning of the reference listing headings "Report Seen" and "Report Not Seen."

I reviewed the preliminary draft of the river-associated HHRA. While the overall approach was thorough and protective of human health, I had several concerns with the document. One concern was the omission of a clear description of the history of beach sampling and risk assessment of each phase of sampling at beaches that were repetitively sampled. CCC asked for a detailed discussion, with potential impacts on analytical accuracy and precision and risk assessment, of the differences among the sampling, homogenization and subsampling procedures used for the 2009, 2010 and 2011 beach sediment study, the 2013 reanalysis of archived beach sediment samples from 2011, the 2014 and 2016 residential beach sampling events, and the 2015 refined Bossburg Flat and Evans Campground beach sediment sampling event. CCC also asked that the report include an error and uncertainty analysis of all analytical data and how it may impact risk assessment. Varying levels of residential soil lead exposure were used for risk evaluation from other exposure routes. CCC suggested that a constant range of residential soil lead exposure be used throughout the document that includes lead levels up to the levels that triggered time critical removal actions.

Collection of soil samples for the laboratory evaluation of potential amendments for the SATES is scheduled to occur in October, 2018. Soil amendments to be tested in the laboratory include phosphorus fertilizer, wood ash, potting soil, water treatment residuals, biosolids and biochar. It is hoped results from the laboratory study will be available in August 2019 to allow selection of treatments for the field plots.

I also attended the first day of the 2018 Lake Roosevelt Forum (LRF) conference in Spokane, Washington, on April 24. Presentation and discussion topics included the Columbia River

Treaty, Northern Pike, and the status of specific UCR RI/FS projects. As always, the LRF program brought together the site stakeholders, agencies and community members to share information on ongoing UCR RI/FS studies and related activities.

Joe Wichmann, PhD; CCC Technical Advisor

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 spring. We will post updated information on the website. Please join us.

We are still looking for a new webmaster. This would involve maintaining our website and posting new information to it about once a month. If anyone out there is interesting in helping us with this, please contact Mindy Smith (smithm69@msu.edu).

With questions for the EPA project managers, contact Monica Tonel for information on human health studies at Tonel.Monica@epamail.epa.gov and Kathryn Cerise for information on ecological studies at Cerise.Kathryn@epa.gov. Kira Lynch is responsible for the Soil Amendment Technology Evaluation Study and can be reached at Kira.Lynch@epa.gov. Concerns may also be directed to the acting EPA region 10 administrator Michelle Pirzadeh (Pirzadeh.Michelle@epa.gov).

Mindy Smith, CCC secretary