Information Sheet: Remedial Investigation Feasibility Study Update, April 2018

* + **Beach Sediment** – *Bottom line*: All but 3 beaches (Bossburg Flats, Evans Campground, “Swimming hole” near Sheep Creek) are considered safe for recreational use. CCC requested additional analyses for arsenic and lead levels at 5 negotiated beaches (some samples were already destroyed) to test Teck’s mathematical model for estimates. Contaminants were lower than in the original report. CCC’s technical advisor has concerns about lead data reproducibility and multiple J flags (estimated values vs. actual) on grain size fractions raising concerns about extrapolated values. This is of concern for Northport beach and China Bend. There is no actual verification of the mechanical (sieving) procedures at the EPA lab (only wet chemistry evaluated). *Status*: Final report on Teck website.
  + **Benthic Tissue**: Field sampling occurred in two events, spring and fall 2016. Mussel, crayfish and clam organisms were randomly composited by species for each of the six study and two reference areas. *Status:* The data summary report issued in March 2018 and is available on the website.
  + **Bossburg –** Sampling in 16 decision units (DUs) was completed in April 2015 and the final draft report in March 2016. Higher water elevation prevented sampling in some locations. Contaminants above ecosystem screening levels at most DUs included antimony, cadmium, lead, manganese, vanadium, and zinc. Human health screening levels were exceeded in 2 soil DU’s for lead (although most were at the borderline of 400 mg/kg), *Status*: Final data summary report issued in September 2016 on the Teck website. Cleanup plans for Bossburg Beach are not progressing.
  + **Fish tissue** – *Bottom line*: There were still some contaminants in fish tissue, most were unchanged from 2005 (arsenic in suckers; mercury, selenium, zinc, and PCBs in multiple species). Some contaminant levels were lower (arsenic in walleye; copper levels in walleye and suckers; lead in walleye) and some were higher (cadmium in suckers and walleye, lead in suckers) *Status*: Document is final and can be accessed on Teck's public website (as above).
  + **Plant tissue study** – A study to examine potential contamination of plants identified in the Tribal Use Survey is ***underway***. The study sampling and analysis plan is on the website.
  + **Recreational Use** – *Bottom line*: EPA will be able to get fish consumption and exposure information from these data on 2394 people. *Status*: CCC requested that data be analyzed by zip code so that potential exposures for local residents can be assessed and to increase the “Plausible Limit” for beach exposure for boaters.
  + **Residential Soil**: First wave 2014 sample collection on 74 properties: 24 had lead levels above the national screening level (400 ppm) and 18 were above the screening level (20 ppm) for arsenic. Time critical removal was completed on 14 in August 2015. Second wave 2016 sample collection on 144 properties: 26 had arsenic levels above the screening level (20 ppm), 6 had lead levels above the national screening level (400 ppm), 3 had thallium levels above the screening level (0.78 ppm) and 1 had cobalt levels above the screening level (23.4 ppm). Removal actions on 4 properties are planned to complete in spring of 2018. *Status:* The 2016 study data summary report is available on the website.
  + **Sediment toxicity study** – The primary objective of this study is to evaluate unacceptable risks to benthic invertebrates associated with exposure to metals and otherchemicals in UCR sediments (136 sampling locations and 69 bulk sediment samples). Porewater could not be obtained at all locations and CCC has concerns about porewater quality. Sediment and porewater chemistry were assessed and survival, weight, biomass, and reproduction were the biologic endpoints. *Status*: Final data summary report issued May 2017 on the Teck website.
    - **Phase 3 sediment toxicity study** – A five-part study is ***under development*** to examine potential sediment toxicity in more detail from Marcus to the Canadian border. The study will examine sediment distribution, sediment chemistry, porewater chemistry, expanded sediment toxicity studies and the ability of organisms to colonize site sediments.
  + **Sediment transport** – A Level of Effort plan for monitoring and evaluating sediment transport, loading, and remobilization is ***under development***. EPA has placed this study on indefinite hold.
  + **Soil Amendment Technology Evaluation Study**: A study to evaluate noninvasive techniques to decrease lead and arsenic bioavalibility in soils is currently underway on three tribal allotments that were offered but declined remediation from the 2014 residential soil study. *Status:* Test plot characterization is complete. Laboratory testing of potential treatments is to begin this summer.
  + **Sturgeon studies** - Both reports of study results were unacceptable. CCC urged EPA to write a report on study findings so that the results will be available to researchers and the public to inform future efforts to understand risks to the sturgeon population. Study results for the USGS study have been published and copies are available on the CCC website. On March 1, 2018 EPA sent Teck a letter stating that the November 2015 draft final data summary report is now final. The letter stipulated that the water-only copper exposure data was the only acceptable data for risk assessment.
  + **Surface Water** – *Bottom line*: There are no concerns with surface water, absent a spill; disturbed water, however, is not well addressed and there are several samples that raise concerns. Final reports are located on Teck’s public UCR-RIFS website: http://www.ucr-rifs.com/documents-plans/
  + **Tribal Use Survey** - *Bottom line*: EPA will be able to get fish consumption and exposure information from these data on 1700 individuals from the Colville Confederated Tribes. The tribe released their own report (CCC has a copy; fish consumption was 400 g/day). *Status*: Final report on Teck website.
  + **Upland Soil** – A total of 215 composite samples were collected. Concentrations above screening levels for antimony, cadmium, lead, vanadium, and zinc were found in aerial deposition areas. *Status*: Final report on Teck website.