



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 10**

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OFFICE OF  
ENVIRONMENTAL CLEANUP

September 4, 2013

**MEMORANDUM**

**SUBJECT:** Evaluation of Reporting Error for Historical Mercury Tissue Data Results for the Salt Chuck Mine Superfund Site, Prince of Wales Island, Alaska

**FROM:** Karen Keeley, EPA RPM

**TO:** Salt Chuck Mine Superfund Site, Site File Folders 1.7 and 2.8.2

The purpose of this memorandum is to document a mercury data reporting error in EPA records for the Salt Chuck Mine Superfund Site. In 1997 and 2002, BLM and the US Forest Service collected clams at Salt Chuck, and analyzed tissue samples for metals, including mercury. Mercury tissue results were summarized in a draft Engineering Evaluation and Cost Analysis (EE/CA; URS 2007) prepared for the US Forest Service (see excerpts, Attachment A). EPA erred when reporting the URS 2007 mercury tissue data, and incorrectly reported a maximum concentration of 18.5 ppm mercury in clam tissue in site-related documents. In fact, based on the original source document (URS 2007), the actual maximum concentration reported is 0.03 ppm mercury in clam tissue. It appears that the value of 18.5 ppm was inadvertently taken from the reported copper concentration from clam tissue at sample location SCTILN-28 (Figure 2-12; URS 2007).

Thus, statements in the EPA National Priorities List (NPL) Site Narrative for the Salt Chuck Mine Superfund Site and in previous internal EPA presentations, which were based on the data summarized in URS 2007, are inaccurate when referring to “elevated concentrations of mercury in clam tissue” at Salt Chuck. Most importantly, the reference to a maximum concentration of 18.5 ppm mercury in clam tissue is incorrect.

**Background and Rationale**

The EPA National Priorities List (NPL) Site Narrative (March 2010) for Salt Chuck Mine Superfund Site includes the following text:

*Contaminants in the sources, surface water and sediments include copper, mercury, polychlorinated biphenyls (PCBs), and benzo-a-anthracene. Concentrations of all of these contaminants in upland sources exceed EPA cleanup guidelines for soil and mercury. Copper concentrations in the Bay exceed EPA risk assessment guidelines. Copper and mercury detected in clam tissues in the Bay exceed the consumption guidelines for mercury in fish tissue issued by the Alaska Department of Health and Social Services.*

<http://www.epa.gov/superfund/sites/npl/nar1812.htm>

The site narrative indicates that mercury is a contaminant at the site, and that mercury concentrations in clam tissues in the Bay exceed consumption guidelines.

On January 26, 2010, an EPA presentation to the “SedHeads” group (comprised of sediment cleanup project managers) included two slides that described mercury (Attachment B):

- Slide 1. “Salt Chuck Bay is a commercial and subsistence fishery and shell fishery used intensively by the Native Village of Kasaan, and the communities of Thorne Bay and Craig. Tissue and sediment samples indicate elevated levels of metals (As, Hg<sup>1</sup>).”
- Slide 2. “Clam Tissue. Mercury – 18.5 ppm. Copper – 0.07 ppm.”

Based on the NPL Docket, the data used for the NPL Site Narrative and for the SedHeads presentation appear to be entirely from the 1997 and 2002 data presented in the draft EE/CA (URS 2007). In URS 2007, clam tissue data are presented in Figures 2-12 and 2-13, Tables 2-17 and 2-39, and Section 2.5.2.3.7 (see excerpts, Attachment A). All mercury concentrations in clam tissue reported in URS 2007 are well below 0.1 ppm (wet weight), far below the incorrectly reported mercury concentration of 18.5 ppm mercury. It appears that the value of 18.5 ppm was inadvertently taken from the reported copper concentration from clam tissue at sample location SCTILN-28 (Figure 2-12; URS 2007). In the recent 2011 and 2012 field efforts (CH2M HILL 2012, 2013), the maximum mercury concentration reported in tissue is 0.03 ppm (wet weight) (Table B-5; CH2M HILL 2012).

Additionally, the clam tissue concentration of 0.07 ppm copper in the SedHeads presentation is also incorrect; in the URS 2007 report, all copper concentrations in clam tissue are greater than 0.07 ppm.

Regarding mercury clam tissue concentrations at Salt Chuck, the conclusions presented in the draft EE/CA (URS 2007) are as follows:

*Mercury was not identified as a shellfish COHC (Section 2.5.2.3.7). Thus, further action to address mercury in sediment was not considered warranted for the protection of human health.*

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*Tissue concentrations in invertebrates were measured to reduce the uncertainty in estimating risks from the consumption of local shellfish since estimating uptake rates from water column and sediment data often results in overestimates of risk. Site tissue concentrations were compared to EPA tissue criteria.*

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<sup>1</sup> As previously documented (EPA 9-4-2013), 2002 mercury sediment data were rejected and thus the data cannot be used to support this statement.

*Based on the maximum concentration on a wet weight basis in any clam or mussel tissue sample, arsenic (total and inorganic) and vanadium were identified as COHCs in tissue (Table 2-30).*

*Mercury: The CTRG to protect wildlife consumers of freshwater, marine, and estuarine biota is 0.033 micrograms of methylmercury per gram (wet weight) in prey tissue. The total methyl concentration in blue mussel tissue at one location exceeded this criterion (HQ of 2.3). However, it should be noted that the corresponding mercury concentration in sediment was a nondetect value, suggesting that developing an RAO for mercury in sediment would not address this finding total mercury whole body value. None of the mercury concentrations in shellfish tissue were above the 3 mg/kg total mercury whole body value for protection of fish (Table 2-39).*

*Mercury tissue concentrations (URS 2007) did not exceed background, human health risk-based screening levels, or eco benchmarks (Figure 2-12 and 2-13; URS 2007).*

The human health and ecological risk assessments for the Salt Chuck Mine Superfund Site will be performed using the 2011, 2012, and 2013 data collected by CH2M HILL for EPA.

#### References

CH2M HILL. May 7, 2012. Salt Chuck Mine – Preliminary Findings for Pre-Remedial Investigation 2011 Field Sampling Activities. Prepared for USEPA Region 10, Seattle, WA.

CH2M HILL. February 27, 2013. Salt Chuck Mine – Preliminary Findings for 2012 Remedial Investigation Field Sampling Activities. Prepared for US EPA Region 10, Seattle, WA.

Matheny, Don. August 29, 2013. Personal communication to Karen Keeley, EPA Region 10, Seattle, WA.

URS. 2007. Engineering Evaluation and Cost Analysis (EE/CA) Draft Report for the Salt Chuck Mine, Tongass National Forest, Prince of Wales Island, Alaska. Prepared for the U.S. Department of Agriculture Forest Service – Alaska Region. URS Group, Inc., Anchorage, Alaska. March 2007.