



Spokane Tribal Natural Resources

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MEMORANDUM

TO: Christer Loftenius, PG PHG WADOE Toxics Cleanup Program - ERO
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FSK

FROM: Dr. F. E. Kirschner, Senior Scientist

DATE: September 7, 2025

SUBJECT: Review of “*L-Bar cleanup site, Chewelah Draft periodic review of this cleanup site, August 2025*”

CC: Director McCrea, STI-DNR
Director Crossley, STI Water and Fish Program
File

The L-Bar Facility is in the heart of the Spokane’s Usual and Accustomed Use Area (UAUA)—we have members who currently hunt, fish, gather, and reside in the area. Therefore, cleanup activities directed to protect human health and the environment are of great concern to the Tribe.

The Tribe was provided the aforementioned document for review on August 7, 2025. A technical meeting was held between WADOE and the Tribe on September 4, 2025 to brief the Tribe on the issue. Christer Loftenius, who inherited the project from Chuck Gruenenfelder, led the discussion for WADOE.¹ The Tribe is unable to access and review many of the necessary underlying support documents to the ROD. However, since the meeting, the Tribe has begun to work with WADOE records personnel in order to acquire these important documents for future

¹ This was purely a technical meeting designed to bring the Tribe up to speed on the Site. The Tribe explained that Dr. Kirschner has worked on the site as an employee of the USBOM as well as an employee of the Tribe in the mid 1990’s.

review². The Tribe was asked prior to the meeting in the September 3, 2025 e-mail from WADOE “Is there any information Christer can have ready to aid the discussion?.” The Tribe replied:

“For starters, it would be nice to see the HHRA CSM, walk me through how the COCs were determined, and provide the thinking behind the ground water to surface water pathway monitoring strategy.”

At the meeting the Tribe realized that none of this information was presented, since it was not readily available. Hence the need for the document request described above.

A few general comments follow that were developed in the absence of review of the ROD and supporting documents. These comments were developed directly from information conveyed to the Tribe during the 45 minute meeting.

General Comments

1. The Tribe was told that the entire remedial action focused only on Flux Bar Residues (FBR) which are the newer generation of processed materials. In essence WADOE has segregated the site into at least two Operable Units (OUs). One being FBR and the other being the older magnesium containing ores. The FBR containing OU was addressed via removal and relocation to a disposal facility³. The Old Ore OU allows uncover, uncapped ore processing wastes to remain onsite, relying on “natural attenuation” and perpetual institutional controls as the “cleanup mechanism.

Procedurally, OUs are designated based on either geography or media—not on COC or not on time of disposal. MTCA allowing this piecemeal approach to cleanup has enabled the PRPs to “high-grade” the site risk making it harder to justify a full clean-up.^{4, 5}

2. The Tribe also notes that site-specific metallurgical flow-sheets and reagent lists have alluded the RPM. The Tribe pointed-out that WADOE needed these to understand chemical process and determine what COCs may have been released.

² During the meeting, the Tribe was informed that the site file is roughly 12 feet in length and has not been scanned and digitized at this time. The Tribe will request a digital copy of the entire file for future review.

³ The location of which was not readily available at the meeting.

⁴ This “game” was attempted at the Midnite Uranium Mine and elsewhere in the 1990s. Here WADOE fell for it or was compelled by the PRPs (predominantly the U.S. and Alcoa)

⁵ If successful, the site may not meet requirements to be on the NPL or MTCA’s equivalent if the site were scored post remedy.

3. The WADOE RPM admitted that heavy metals are still present. These likely include but are not limited to residuals from FBR, ore, fly ash, crushing, grinding, sieving, flotation, and smelting wastes. The RPM stated that thallium and arsenic are major concerns.⁶
4. The Tribe pointed-out that our main concern is the ground water to surface water pathway. WADOE explained that the remainder of the remedy (or remedy for OU2, wastes generated in the earlier processes) relies on natural attenuation and monitoring to protect surface water. The Tribe pointed-out that the three-dimensional distribution of COCs as well as minerals relied upon to provide buffering of acid rock drainage (ARD) production must be well defined via characterization of the nature and extent of contamination, and that this high-level of characterization is required to estimate the decay of release. Judging from the time-period that this was completed, and the PRPs involved, it is clear that this issue will need to be revisited, and re-evaluated once the document request has been filled.

The RPM verbally explained that uncovered/uncapped/unlined wastes are located throughout the site, directly overlying the uppermost aquifer. The uppermost geologic unit is comprised of alluvial sands/gravels and is on the order of 10 feet thick. This unit rests on top of an aquitard--a 60 foot thick clay unit. A lower artesian aquifer is below the clay unit. As long as these conditions are maintained, the vertical component of the hydraulic gradient in this underlying artesian lower aquifer and clay units, does not enable contaminants to leach into the uppermost aquifer and travel deeper in the system. The Tribe pointed-out that, in this situation, the topography of uppermost surface of the clay layer controls the direction of flow in the uppermost aquifer, and the presumed buffering is believed to control the rate of release of metals to the uppermost aquifer.

Based on groundwater monitoring data obtained over the years from a handful of wells completed in the uppermost aquifer, the RPM believes WADOE COCs are fully immobilized due to high pH of waste material matrix.⁷ If the RPM is correct on total immobilization of all COCs, then metals are being precipitated deeper in the piles or in the aquifer. The Tribe pointed-out that the buffering capacity is finite and is not being replenished. The buffering capacity also is not being monitored.

The threat of release is clear and present as soon as the buffering capacity decays. This is a major fallacy associated with all attempts to rely on natural attenuation that relies on non-natural sources of COCs providing buffering capacity. A peak release of COCs will appear as soon as buffering capacity is diminished. The direct connection with the Colville River and then the Columbia means these waterways will be affected by this

⁶ The Tribe pointed-out that any and all COCs in excess of natural pre-release baseline are detrimental to the health of tribal members who practice traditional lifestyles.

⁷ The RPM also acknowledged concern for amphoteric nature of some of the transition metals likely present.

release. This is clear rationale for immediate full removal and relocation on all remaining materials.

5. Alternatively, the RPM could be wrong regarding full immobilization of COCs and metals are currently being mobilized and transported to the creek, un-detected by the handful of monitoring wells. This situation has occurred at the Dawn Uranium Mill site in Ford, WA, where a previously unidentified alluvial material-filled channel is incised in the uppermost portion of the clay unit and transmits contaminated water to Chamokane creek. The geologic units and hydrogeology are similar to those at Chewelah. This is the main reason the Tribe asked about topography of clay surface. The RPM did not have details, only stating that the surface “slopes towards creek”.

In summary, the assumed infinite buffering capacity has allowed WADOE to be complacent, relying on institutional controls and natural attenuation. The administrative decision to allow the PRPs to high-grade the site risk, has weakened WADOE’s regulatory position. Containing and controlling historic and ongoing releases into the local environment is of great concern to the Tribe. The Tribe will provide a more thorough review once the aforementioned site records have been secured.