Whitepaper: Early Determination of Pre-Mining Background for Mine Sites Affecting Tribal Lands and Resources

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Prior to delving into RI/FS studies, EPA needs to realize that the goal of any tribe is to restore its traditional cultural practices and lifeways, including returning to a subsistence level of hunting, gathering, and fishing. It is our experience that this reasonably anticipated future land use (RAFLU) is not contemplated by EPA, DOI, USDA, the State, and their consultants early in the Superfund Process.

By definition, a reservation is reserved by the Federal Government, the land owner, to be the permanent homeland to the Tribe, providing all the natural resources required to sustain the Tribe's health, welfare, and culture. In nearly all superfund cases, the current demography is highly influenced by contamination and subsequent advisories or other institutional controls that reflect reduced land uses that have resulted from current contaminated conditions. Therefore, current demographic conditions and land uses should not be considered as RAFLU in any of the risk assessments. Again, the lands were reserved by congress or executive order for traditional Tribal uses—not current uses that have evolved as a consequence of widespread contamination.

The requirement of the reservation to provide for a permanent homeland capable of supporting traditional uses, necessarily means that the land must be cleaned up for Unrestricted Land Use. This concept of identifying the RAFLU early within the process is not new to EPA—it is consistent with "Land Use in the CERCLA Remedy Selection Process, (OSWER Directive No. 9355.7-04). The concept of an unrestricted land use also is not new to EPA—it is consistent with "Comprehensive Five-Year Review Guidance (EPA 540-R-01-007; OSWER Directive No. 9355.7-03B-P).

Knowing EPA's propensity to attempt to compartmentalize a given problem, it is very important that EPA and the designer of the Remedial Action Alternatives realize that maximizing lands for RAFLU is an overarching goal—capping a lake bottom or capping ponds/piles or relying on long-term institutional controls, by definition, cannot result in an "Unrestricted Land Use" status.[1] Similarly, a brownfield remediation is, by definition, a land use restriction that should not be a final remedy unless the land owner is fully cognizant of the residual contamination and

[1] This discussion applies to Brownfield designation as well.

is in agreement that a brownfield land use is a permanent deed restriction with associated responsibilities of monitoring and informing its members/constituents.

This RAFLU goal does not only apply to lands held in trust by the federal government. Tribes are repatriating lands with the ultimate goal of re-acquiring all nearby non-Indian owned lands. If lands currently held by non-Indians are not also cleaned-up to protect the Tribe's members for unrestricted uses (including but not limited to historical traditional cultural practices), these areas will effectively zone-out Indian interests within the reservation, implicating civil rights concerns.

It is extremely important that EPA view the remediation of sites containing widespread contamination[2] in the broader context of the environmental justice initiatives that have been developing in the recent years. In the past, the implementation of CERCLA has predominantly focused on cleaning-up organic chemical-related sites that affected large populations of U.S. citizens. Remediation of these sites has been viewed from the narrow lens of protecting the "general public", without taking into account the needs of more sensitive populations. For the citizens of the Tribe, who have the right to "live close to the land" and are forced to live on a parcel of land termed a reservation, creating a remedy that is sufficiently protective of human health poses a new challenge—the resources affected by the site must be much more clean than lands used by members of the General Public, since the General Public is much less exposed than those who rely on the land for sustenance. This is particularly true of mine sites, because, unlike organic chemicals that can be expected to eventually degrade, metals and minerals do not degrade.

As discussed, above, If RAFLU is not contemplated by the parties, the initial preliminary remedial objectives/remedial action objectives (PRGs/RAOs) employed to evaluate the Remedial Action Alternatives (and all of their supporting documents) will not be protective of a Tribe for Unrestricted Land Use ["unlimited use and unrestricted exposure (UU/UE; OSWER Directive No. 9355.7-03B-P)"]. Again, in general, Congress or the President set aside reservations with the intent that these tracts of land be the permanent homelands for Tribes, providing all the natural resources required to sustain the Tribe's health, welfare, and culture.

It is our experience working with tribes on superfund issues throughout the U.S., that because tribes rely heavily on natural resources, in many instances, their sole source of sustenance, these resources have to be free of site contamination[3]. In essence, the Tribal members are the largest omnivores in the valley that are constrained to the reservation *(site)* over their entire life-span. Our experience at more than 10 Tribal-related sites indicates that cleanups are being driven by levels that are safe for humans—not levels that are safe for ecological receptors or not levels that are determined to be an applicable relevant or appropriate requirement (ARAR)[4]. In many cases, a true non-risk based cleanup is required (i.e. pre-mining baseline/background becomes the PRG/RAO/ARAR). This is clearly the case for mine sites in which a fingerprint of naturally

[2] For example mining-related Superfund sites such as Tar Creek, Bunker Hill, Sulphur Bank Mercury Mine, Upper Columbia River, or Yerington.
[3] Contaminants released from the site that are in excess of natural pre-mining background (PMB).
[4] Non-Tribal ARARs are designed to protect the General Public, not Citizens of the Tribe.

occurring contaminants was present prior to mining[5]. In such instances, PMB is clearly the PRG/RAO, since PRPs cannot be forced to cleanup to conditions better than PMB. Finally, in practice, since excavators cannot "see the PRG/RAO contour line on the ground", and since excavators benefit more financially when more dirt is moved, all near-mine areas that do not rely on institutional controls are generally more protective than estimated.[6]

This concept of cleaning-up a site based on "what the site looked like prior to contamination" also is not new to the U.S. For example for uranium mill sites, the US Nuclear Regulatory Commission (NRC) employs the concept of cleaning-up to As Low as Reasonably Achievable (ALARA, 10 CFR 20) and at a minimum 25 mrem incremental risk above background. Since the difference between 25 mrem and background for a mill tailings pond is on the order of 1 foot of cover soil, the majority of sites are cleaned up to PMB. The DOI NRDAR regulations 43 CFR 11 revised in 2008 also acknowledge the restoration goal[7] for any site, regardless of Tribal involvement is pre-release baseline (PRB)[8]. Finally, when a reasonable U.S. citizen is asked what he or she believes to represent cleanup, the result is invariably "what the area looked like before it was contaminated"—not to a level that results in no more than risk 10^{-6} chance of premature cancer from residual contamination or exceeding hazard indices (HI) as specified under Superfund (40 CFR 300).

In Summary, for mine sites affecting Tribal resources, drawing the conclusion that PMB is the PRG/RAO early in the process enables the focus of work to shift from estimating risk and back-calculating PRG/RAOs, to determining PMB and mapping the nature and extent of contamination. This early realization will result in saving large sums of time and money, makes EPA to appear more credible to the public, speeds the cleanup process while not costing the responsible parties additional sums, and more rapidly brings closure to the RI/FS and NRDA processes. Aspects of the Baseline Human Health Risk Assessment may still be necessary to assess residual risk associated with each general action evaluated in the FS and to ensure that the proposed alternative is protective of human health and the environment. However, this work can come later.

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[5] This is the case for most mining-related superfund sites, including the Midnite Uranium Mine, Leviathan Mine, Sulphur Bank Mercury Mine, etc.

[6] Large sites Tar Creek, Bunker Hill, Sulphur Bank Mercury Mine, Upper Columbia River, etc., where residual mine contamination and concomitant residual risk will occur in distal waterways for geologic time, require the pathway from source areas to be fully broken via removal action.

[7] From 43 CFR Part 11, Subpart A § 11.14 Definitions. (e) Baseline means the condition or conditions that would have existed at the assessment area had the discharge of oil or release of the hazardous substance under investigation not occurred. (ll) Restoration or rehabilitation means actions undertaken to return an injured resource to its baseline condition, as measured in terms of the injured resource's physical, chemical, or biological properties or the services it previously provided, when such actions are in addition to response actions completed or anticipated, and when such actions exceed the level of response actions determined appropriate to the site pursuant to the NCP.

[8] PRB and PMB are synonymous.