UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
IDAHO OPERATIONS OFFICE
1435 N. Orchard St.
Boise, Idaho 83706

November 26, 2007

Rafael Rodriguez, Project Manager
Decommissioning Directorate
U.S. Nuclear Regulatory Commission

Dear Rafael:

This letter is to discuss waste characterization and disposal of the various stockpiled radiological wastes at the Salmon River Uranium Development site (Site), near North Fork, Idaho.

As you know, the Environmental Protection Agency (EPA), responding to requests from the Nuclear Regulatory Commission (NRC) and the Idaho Department of Environmental Quality (IDEQ), mobilized to the Site on October 23, 2007 to initiate cleanup of waste piles, liquid wastes and contaminated soils with excessively high levels of hazardous substances and/or radionuclides. To date EPA has spent approximately $180,000 on this cleanup, and has removed for proper disposal approximately 25 tons of non-radiological wastes with high concentrations of arsenic and lead, approximately 2,000 gallons of corrosive sodium hydroxide liquid, and approximately 50 tons of un-processed thorium containing ore. Other wastes and contaminated soils at the Site have been excavated and stockpiled on site, pending resolution of certain issues regarding waste characterization and appropriate waste disposal.

The table below identifies the stockpiled wastes that remain at the Site awaiting disposal:

Waste Description	Volume (cubic yard)	Concentration (pCi/gm)
Unprocessed Th ore pile (remaining)	33 cy	Not available
Mixed waste (Arsenic, Lead and Thorium)	2 cy	Not available
North waste pile	50 cy	183 of Th-228 144 of Th-232
South waste pile	47 cy	374 of Th-228 348 of Th-232

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Bagged Uranium waste	1 cy	25 of U-234 730 of R-226

As you recall, prior to mobilizing to the Site we had discussions about waste characterization and disposal options. Specifically, we discussed blending excavated materials of the same waste stream; combining higher concentration contaminated soils and waste piles from around the mill building with lower concentration contaminated soils from the upper tailings pond. We had anticipated that the combined waste pile would be of a low enough concentration of thorium and/or uranium to be disposed of as non-source radioactive waste, and could be accepted for disposal at the USEI facility in Grandview, Idaho. This turned out not to be a viable approach, as we did not have an adequate source of lower concentration, like-contaminated material to blend down the higher concentration stockpile. My understanding was, however, that given the appropriate circumstances this approach would have been acceptable to you and the NRC. It was also my understanding that we were not considering this waste to be 11e(2) byproduct material at the time, which, if it were, would have required that it go for disposal to a facility with a license to accept such material, and it could not have gone to the USEI facility.

Recently, you have told me that you believe the processed wastes from the Site should be considered 11e(2) byproduct material. I need to make an appropriate waste determination quickly in order to proceed with disposal and finish our work at the Site. If it is indeed determined that these wastes are 11e(2) byproduct material, EPA Region 10 may not be able to provide the necessary additional funds for disposal, and would likely have to examine the possibility of interment of the waste in an engineered on-site repository, such as the mine openings directly uphill from the mill site.

The estimated costs for disposal of wastes remaining at the Site vary greatly depending on how the waste is characterized and how quickly we can act. Below is a summary of waste disposal options:

- Disposal at USEI facility in Grandview, Idaho as regulated source material (non 11e(2)) will cost approximately $506,000. This quote is per 2007 rates. Rates are expected to increase greatly for wastes received at the facility beginning 2008; the actual increase amount will be announced mid-December.
- Alternatively, our contact at USEI says that they can accept our waste (as non 11e(2) material) to be used to fill void spaces in boxes that they are receiving for disposal from another project. As such, they would accept it as a transfer of licensed material and would not charge regular disposal rates. According to USEI, they have a specific exemption from State of Washington to do this. The cost would be around $100,000. We would have to pull the trigger soon in order to take advantage of this option. Of course, USEI could not accept our stuff if it is 11e(2) byproduct material.

- If our waste is 11e(2) byproduct material, it would probably have to go to the Energy Solutions facility in Clive, Utah. We have not yet engaged Energy Solutions to obtain a price quote, but we anticipate that it would be much more than the cost for disposal at USEI.
- Unrefined and unprocessed material (such as the remaining thorium ore) can go to USEI for only $175/ton disposal fee.
- Disposal of 2 yards of mixed waste that will need to go Energy Solutions will cost about $10,000.

EPA Region 10 believes that waste generated and stockpiled at the Site does not meet the definition of 11e(2) byproduct material. The term 'byproduct material' is defined in 42 U.S.C. § 2014(e)(2) as "the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content." Verbal history provided by the current property owner indicates that processing of ore took place at the Site, but there is no evidence that such activity resulted in the extraction or concentration of uranium or thorium in any significant or measurable amount. Direct exposure measurements by NRC staff of bottles containing supposedly extracted thorium that were at the home of the Site property owner showed dose readings that were slightly, if at all, above background. This indicates that the liquid contained very little radiological content, and that whatever process was used was unsuccessful in extracting or concentrating uranium or thorium in any significant amount. Also, sample results from the ORISE Radiological Scoping Survey of the Site (January 5, 2004) show concentrations of thorium in apparent processed waste material in the former mill building are roughly consistent with the concentration of thorium in crushed ore at the Site, further indicating that extraction or concentration of source material did not successfully occur. Finally, there are no records or information to indicate that any extracted or concentrated uranium or thorium from the Site was ever sold or otherwise delivered for nuclear fuel production or any other purpose.

For these reasons EPA Region 10 believes that there is no clear indication that these wastes meet the definition of 11e(2) byproduct material. EPA Region 10 believes that these wastes (except the identified mixed waste) can appropriately be sent to USEI in Grandview, Idaho, which does not have a license to accept 11e(2) byproduct material. I would appreciate your thoughts on this. Please provide your response or comments as quickly as possible, to allow EPA Region 10 to utilize of the most advantageous cost options for disposal. Please call or email if you have any questions.

Sincerely,

Greg Weigel
On-Scene Coordinator