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OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF
Docket No. 70-3103-ML
RAS 10608

October 14, 2005

Dear Mr. Schneider,

Based on my extensive experience as an Engineering Manager and specifically having led the design and estimating effort for the deconversion facilities for American Conversion Services LLC I offer the following information for your reference. American Conversion Services LLC was a CH2M Hill and USEC Inc. consortium that was formed to prepare a proposal to the United States Department of Energy to convert its depleted uranium hexafluoride to a more stable form and place it in permanent storage. You requested that that I provide a description and comparison of the two disposition options for the HF by-product of deconversion, production of HF for sale or neutralization and disposal of calcium fluoride (CaF_2).

HF Alternatives:

In order to sell HF on the industrial market it is necessary to produce a high purity product that can be certified for commercial use, and then store the HF until it can be sold and transported. To neutralize the HF by-product requires only that the HF be mixed with lime ($Ca(OH)_2$@ $10/ton), the resulting CaF_2 must be filtered and dried and then stored until it is transported to a landfill for disposal.

Bulk HF:

The facilities and equipment necessary to produce bulk HF for sale are substantially greater in size and cost than the facilities to neutralize the HF. HF produced for sale would require additional filtration and certification steps not required if the HF were being neutralized. In addition, the facility will require specialized tankage (with required environment sensors, exhaust controls and specialized loading facilities) and plumbing.

In addition to the facility, the consideration for safe handling is magnified based on the quantity of storage in the most hazardous state and additional complexity for handling and transfer. In the US, bulk HF is only transported by rail which would require the deconversion plant to install a rail spur with significant interlocks that support safe loading and transport. These facilities would cost approximately 50% more than the Neutralization Facility and would cost 20% more annually to operate. Actual costs would be dependant on size, location and timing of the facility.

HF Disposal (HF Neutralization):

The facilities and equipment necessary to neutralize HF include a mixing tank (exhaust handling and monitoring), a filter press and a powder dryer. Although initial handling of the HF will require similar safety precautions as the Bulk HF they are reduced significantly due to the reduced quantity of HF in the extremely hazardous state. Once the CaF_2 is produced it can then be handled as a non-hazardous bulk material using

standard commercial applications. CaF_2 can be stored outdoors in open bins until it is transported in standard commercial vehicles to an industrial landfill for disposal. These facilities would cost approximately 50% less than the bulk HF storage and transport and would cost 20% less annually to operate.

Conclusions:

There are several considerations in making the final decision regarding the form of HF to be produced. The ultimate decision becomes a balance of cost and risk. Although production of Bulk HF will result in a marketable product, there is additional risk and complexity. HF Disposal is attractive in the simplification of handling but results in a product that will need to be disposed of at some cost. The decision regarding the most appropriate alternative in our case, was ultimately driven by the consideration of the ability to achieve acceptance by the Department of Energy for commercial sale of HF. There was sufficient uncertainty that it was decided to provide the design for HF disposal.

I hope that the data presented covers the information that you requested. If you need any additional information please feel free to contact me.

Sincerely,

John Smets