EagleRockPEm Resource

From: VanNOORDENNEN Gerry (AREVA US) [gerry.vannoordennen.EXT@areva.com]
Sent: Tuesday, June 22, 2010 3:03 PM
To: Reilly, Breeda
Cc: Lemont, Stephen
Subject: RE: Tail Production Question
Attachments: NEF SAR Section 10.3.pdf

Breeda,

We used the same methodology as used by LES to determine their maximum quantity of tails based on a 30-yr operational period, and not on 30-yrs of license lifetime. Please see the attached 3rd paragraph of Section 10.3 of the LES SAR.

Based on that methodology which was approved by the NRC for LES, we determined the maximum quantity of tails that the plant will generate over a 30-yr operational period with 30-yrs of tails production. As the plant starts operations on the 3rd year after the year of license issuance, the end of the 30-yr tails production is year 32 after the year of license issuance. It is assumed that the first two years of license issuance are for construction.

This methodology is conservative, and in reality, we will stop tails production at the end of the licensed period.

If you need any further clarification, please let me know.

Gerry van Noordennen

Hi Gerry,

When you have a chance, please give me a call. The Environmental Project Manager has a question concerning Table 10.3-1, "Tails Production and Buildup During 30-Year License Period," of the SAR. Specifically, what was AES's intention in showing years 31 and 32?

Thanks,

Breeda

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10.3 TAILS DISPOSITION

The disposition of tails from the NEF is an element of authorized operating activities. It involves neither decommissioning waste nor is it a part of decommissioning activities. The disposal of these tails is analogous to the disposal of radioactive materials generated in the course of normal operations (even including spent fuel in the case of a power reactor), which is authorized by the operating license and subject to separate disposition requirements. Such costs are not appropriately included in decommissioning costs (this principle (in the 10 CFR 50 context) is discussed in Regulatory Guide 1.159 (NRC, 1990), Section 1.4.2, page 1.159-8). Further, the "tails" products from the NEF are not mill tailings, as regulated pursuant to the Uranium Mill Tailings Radiation Control Act, as amended and 10 CFR 40, Appendix A (CFR, 2003j), and are not subject to the financial requirements applicable to mill tailings.

Nevertheless, LES intends to provide for expected tails disposition costs (even assuming ultimate disposal as waste) during the life of the facility. Funds to cover these costs are based on the amount of tails generated and the unit cost for the disposal of depleted UF_6.

It is anticipated that the NEF will generate 132,942 MT of depleted uranium over a nominal 30 year operational period. This estimate is conservative as it assumes continuous production of tails over 30 years of operation. Actual tails production will cease prior to the end of the license term as shown in Figure 10.1-1, NEF – Conceptual Decommissioning Schedule.

Waste processing and disposal costs for UF_6 tails are currently estimated to be $5.50 per kg U or $5,500 per MT U. This unit cost was obtained from four sets of cost estimates for the conversion of DUF_6 to DU_3O_8 and the disposal of DU_3O_8 product, and the transportation of DUF_6 and DU_3O_8. The cost estimates were obtained from analyses of four sources: a 1997 study by the Lawrence Livermore National Laboratory (LLNL) (Elayat, 1997), the Uranium Disposition Services (UDS) contract with the Department of Energy (DOE) of August 29, 2002 (DOE, 2002), information from Urenco, and the costs submitted to the Nuclear Regulatory Commission as part of the Claiborne Enrichment Center (CEC) license application (LES, 1993a) in the 1990s.

The four sets of cost estimates obtained are presented in Table 10.3-1, Summary Of Depleted UF_6 Disposal Costs From Four Sources, below, in 2002 dollars per kg of uranium (kg U). Note that the Claiborne Energy Center cost had a greater uncertainty associated with it. The UDS contract does not allow the component costs for conversion, disposal and transportation to be estimated. The costs in the table indicate that $5.50 per kg U ($2.50 per lb U) is a conservative and, therefore, prudent estimate of total depleted UF_6 disposition cost for the LES NEF. That is, the historical cost estimates from LLNL and CEC and the more recent actual costs from the UDS contract were used to inform the LES cost estimate. Urenco has reviewed this estimate and, based on its current cost for UBC disposal, finds this figure to be prudent.

In May 1997, the LLNL published UCRL-AR-127650, Cost Analysis Report for the Long-Term Management of Depleted Uranium Hexafluoride (Elayat, 1997). The report was prepared to provide comparative life-cycle cost data for the Department of Energy's (DOE's) Draft 1997 Programmatic Environmental Impact Statement (PEIS) (DOE, 1997) on alternative strategies for management and disposition of DUF_6. The LLNL report is the most comprehensive assessment of DUF_6 disposition costs for alternative disposition strategies available in the public domain.