RAS 10916

Estimated Costs for Deconversion of DUF_6 Using a Private Facility

Introduction

This report presents cost estimates for processing depleted uranium hexafluoride (DUF_6) to create depleted triuranium octoxide (DU_3O_8) and hydrogen fluoride (HF). These estimates are based on building a commercial facility in the United States that is sized to process the DUF_6 that will be generated by the operations of the National Enrichment Facility (NEF).

The financial information in this report is based on discussions with developers of deconversion technology. Cost estimates for the capital expenses and operating requirements will be provided in 2004 dollars for the facility.

Facility

The proposed facility will be sized to handle the annual production of the NEF with additional capacity to reduce the backlog that may be built-up by NEF operations during licensing and construction of a deconversion facility. The proposed plant will use the technology owned by Cogema SA. An operating facility that uses this technology has been in operation for twenty years in Pierrelatte, France. Current estimates indicate that a plant with a 7000 ton uranium capacity (10,500 ton DUF_6), would provide sufficient volume to meet the requirements of the NEF and provide excess capacity in the later years of NEF's operating license.

The facility converts the DUF_6 into DU_3O_8 and aqueous hydrofluoric acid. It is considered a "dry" process because no liquid effluents are generated that require later treatment. At the plant in Pierrelatte, the HF is sold immediately to customers which provides a significant off-set to operating costs. Since the market in the US has not yet been tested, the proceeds from sales of the HF are not included in the cost estimates provided in this report. The DU_3O_8 material would be in a final form for disposal and could be shipped directly to a licensed low level rad waste facility in the United States in the case of NEF.

The cost estimate for the facility includes the capital cost for all equipment necessary to handle, process, and store the material. Construction costs including infrastructure for utilities, administrative space, shipping and receiving, and storage requirements are also included.

Licensing and Engineering

The licensing process for the facility is anticipated to take up to a maximum of three years. This is primarily due to the fact that this technology is new in the United States. The level of complexity of the facility is low compared with the majority of license applications reviewed by the NRC.

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U.S. NUCLEAR REGULATORY COMMISSION

In the Matter of Louisiana Energy Services, L.P.

Docket No. 70-3103-ML Official Exhibit No. LES 92

OFFERED by: Applicant/Licensee Intervenor

NRC Staff Other

IDENTIFIED on 10/24/05 Witness/Panel LES Deconversion

Action Taken: ADMITTED REJECTED WITHDRAWN

Reporter/Clerk Bethany Engle

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The engineering work will be based on the current technology in France and will need only be developed to reflect the specific size of the facility to support the NEF along with modifications required to meet US standards.

Engineering and licensing costs include all labor, overheads, and fees for engineering design and quality assurance to provide a detailed engineering design to build the facility. The estimate also includes costs and fees for licensing and permitting.

Operations and Maintenance

The operations and maintenance costs are mainly related to employee wages. Some replacement parts are factored into the budget along with anticipated regulatory fees and utility costs.

Decontamination and Decommissioning

The decontamination and decommissioning estimate is set at ten percent of the capital cost of the facility.

Cost Estimate

The cost estimates provided are based on 2004 dollars. No escalation or discount factors have been applied. The provider/operator of the technology, AREVA, has confirmed that the numbers provided for the facility construction, engineering, licensing, operations, and maintenance are conservative based on their twenty years of experience.

Activity	Cost	kg U	cost/ kgU
Facility Construction	$70,000,000	110,027,923	$0.64
Licensing and Engineering	$18,000,000	110,027,923	$0.16
Annual Operations and Maintenance*	$12,500,000	7,000,000	$1.79
Decontamination and Decommissioning	$8,800,000	110,027,923	$0.08
Total cost per kg U			$2.67
* O&M is on annual basis and therefore would apply to kg U processed per year (7000MT)			