



January 5, 2007  
AET 07-0001

Mr. Jack R. Strosnider  
Director, Office of Nuclear Material Safety and Safeguards  
Attention: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

**American Centrifuge Plant  
Docket Number 70-7004  
Submission of Response to Request for Regulatory Analysis of Separative Work Unit  
Performance**

Dear Mr. Strosnider:

In a letter dated December 13, 2006 (Reference), the NRC staff requested that USEC Inc. (USEC) provide information regarding the separative work unit (SWU) output of the proposed American Centrifuge Plant (ACP). Accordingly, please find our response below.

The recent announcement by USEC that the centrifuge machine being developed for the ACP is expected to exceed the original estimated performance efficiency does not impact the assumptions used as the basis for the ACP Environmental Report (ER) or the assumptions used as the basis for the ACP License Application (LA) and supporting documents. Deployment of the more efficient centrifuge in the ACP will increase the separative capacity of the plant, but will not result in the ACP processing more UF<sub>6</sub> than was assumed in the analyses used in the ER and LA submitted to the NRC.

The "name plate" separative capacity of the ACP was a convenient way to refer to the two and four building scenarios described in the ER and other documents. A better measure of the impact of plant performance on environmental and safety factors is the rate at which UF<sub>6</sub> can be processed by the plant. The UF<sub>6</sub> processing rate is a function of tails and product assay, as well as separative equipment capacity. Values for product and tails assays that maximized material flows were used to develop the bases for the ER and LA analyses. In the ER, these flow assumptions are documented in Section 4.2.3.2.1 and its subsections. The material flows and working inventories used to develop frequency rates for accident scenarios and to evaluate the impact of accident releases are described in several places in the documentation (e.g., LA Section 10.2.1 and the ACP Integrated Safety Analysis Summary Sections 3.7.4, 5.1, and various accident scenarios described in Appendices C, D, and E).

*MEM 501*

Mr. Jack R. Strosnider  
January 5, 2007  
AET 07-0001, Page 2

Using conservative values to develop the material flow assumptions provided greater assurance that the analyses would bound the final plant design and also provided some margin for expected improvements that might occur as part of the development process. In addition, other market forces have influenced the ACP design towards a lower tails assay range. Reducing the design tails assay reduces the amount of UF<sub>6</sub> that can be processed for a given separative capacity because it takes more separative work to produce each kilogram of product. These two factors result in the material flows for the ACP employing the more efficient centrifuge to be bounded by the analyses documented in the ER and LA for the two-building case. Since the bases for the four building case described in the ER assumed the material flows for the two building case are double, the ER for the four building case bounds a four building ACP that utilizes the more efficient centrifuge. Accordingly, the volume of tails and number of product shipments remain bounded by the assumptions in the existing analyses.

As the ACP design is finalized, USEC will evaluate the design changes against the design assumptions used for the ACP ER, LA, and ISA using the change evaluation process in order to ensure the continued integrity of the bases for the analyses are maintained. Should changes to these assumptions be required, they will be incorporated into the appropriate documentation in accordance with the change evaluation process, pursuant to 10 *Code of Federal Regulations* 70.72.

If you have any questions regarding this matter, please contact me at (301) 564-3470.

Sincerely,



Peter J. Miner  
Director, Regulatory and Quality Assurance

Reference: J. Olivier (NRC) letter to S.A. Toelle (USEC), Separatory Work Unit Regulatory Analysis, dated December 13, 2006.

cc: J. Olivier, NRC HQ  
B. Smith, NRC HQ