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October 7, 2010

VIA EDGAR AND FEDERAL EXPRESS

Mr. H. Roger Schwall
Assistant Director
Division of Corporation Finance
Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549-7010

Re: Comments on USEC Inc. Periodic Reports

Dear Mr. Schwall:

By letter dated September 27, 2010 (the "Comment Letter"), the Staff of the Division of Corporation Finance (the "Staff") delivered to USEC Inc. ("USEC" or the "Company") the Staff's comments on USEC's Form 10-K for the fiscal year ended December 31, 2009 filed on March 1, 2010 (the "10-K") and definitive proxy statement on Schedule 14A filed on March 19, 2010 (the "Proxy Statement"). USEC's responses to the comments of the Staff are set forth below. The responses have been keyed to correspond to each of the comments of the Comment Letter. The responses reference existing disclosure in the 10-K and Proxy Statement.

Annual Report on Form 10-K for the Fiscal Year Ended December 31, 2009

Business and Properties, page 3

1. We note your disclosure at page 5 that revenue from Exelon Corporation represented more than 10% of your total revenue in 2009. Please file any sales contracts with Exelon, or tell us why you are not required to file them. See Item 601(b)(10) of Regulation S-K.

RESPONSE:

We have concluded that we are not required to file our contract with Exelon Corporation pursuant to Item 601(b)(10) of Regulation S-K because the contract is such as ordinarily accompanies the kind of business conducted by the Company and our business is not substantially dependent on the contract. Our primary business is to supply low enriched uranium (LEU) to utility customers, like Exelon Corporation. Our contracts with utility customers include agreement on payment terms, quantities, delivery terms, warranty terms and similar terms of sale. Although, as disclosed at page 5 of our Form 10-K, "[i]n 2009 our ten largest customers in our LEU segment represented 55% of total revenue" and "revenue from Exelon Corporation represented more than 10%, but less than 15% of total revenue," no one contract or customer accounts for the major part of our products or services as specified in Item 601(b)(10)(ii)(B) of Regulation S-K or is otherwise a contract or customer upon which our business is substantially dependent within the meaning of Item 601(b)(10) of Regulation S-K. While our relationship with Exelon is important to us, there are a significant number of utilities both in the U.S. and worldwide that we could sell our products to. The contract with Exelon is similar (except for the specific pricing and quantities) to the contracts we have with our other utility customers. Based on the foregoing, we have concluded that the contract is not required to be filed at this time under Item 601(b)(10) of Regulation S-K.

Definitive Proxy Statement on Schedule 14A filed March 19, 2010

Executive Compensation, page 21

Compensation and Analysis, page 21

2. We note your disclosure at page 34 regarding the performance goals for 2009 under your 2009 Performance Plan. Please expand your disclosure to clarify all material quantitative and qualitative measures that comprise each of the listed performance goals, and disclose your performance against each such measure. For example, and without limitation, please clarify how you determined whether the company "ensure[d] sufficient liquidity" to fund ongoing company operations with respect to the threshold performance level. To the extent that you believe that disclosure of the measures would result in competitive harm such that they could be excluded properly under Instruction 4 to Item 402(b) of Regulation S-K, please provide on a supplemental basis a detailed explanation supporting your conclusion.

RESPONSE:

The three performance goals for 2009 under the Company's 2009 Performance Plan are listed on page 34 of the Proxy Statement. These three goals, including the threshold goal of "[e]nsure sufficient liquidity to fund ongoing Company operations," were the actual performance measures used and so there are no additional quantitative or qualitative measures in addition to what was disclosed. The threshold performance measure was intended to provide a

minimum level of benefit. Achievement of this goal was determined by the Compensation Committee, in consultation with management, assessing that the Company had sufficient liquidity to fund ongoing Company operations as of December 31, 2009 (the end of the performance period). This assessment was based on their knowledge of the Company's liquidity and expected cash needs, which knowledge was a result of periodic analyses of the Company's liquidity presented to the Company's Board of Directors, including the information provided in the "Management's Discussion and Analysis of Financial Condition and Results of Operations – Liquidity and Capital Resources" section of the 10-K beginning on page 78. The Compensation Committee determined that the Company had not satisfied the specific maximum and target performance goals listed on page 34 of the Proxy Statement because the Company did not obtain financing for the Company's American Centrifuge Plant during the performance period and in August 2009 demobilized construction of the American Centrifuge Plant, as discussed on page 22 of the Proxy Statement. We note the Staff's comment, and, although the Company does not have a 2010 Performance Plan, if the Company again in the future uses a similar performance plan, in future filings we will clarify how the determination of performance is made.

The Company hereby acknowledges that (i) the Company is responsible for the adequacy and accuracy of the disclosure in the filing; (ii) Staff comments or changes to disclosure in response to Staff comments do not foreclose the Commission from taking any action with respect to the filing; and (iii) the Company may not assert Staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

If you have any further questions or comments, please contact me at (301) 564-3327.

Sincerely,

/s/ Peter B. Saba

Peter B. Saba
Senior Vice President, General Counsel and Secretary
