



December 17, 2012
AET 12-0062

ATTN: Document Control Desk
Ms. Catherine Haney, Director
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

**American Centrifuge Lead Cascade Facility
Docket Number 70-7003; License Number SNM-7003
Submittal of Supplemental Revision to the Decommissioning Program for the American
Centrifuge Lead Cascade Facility (TAC L34178) – USEC Proprietary Information**

**INFORMATION TRANSMITTED HERewith IS PROTECTED FROM PUBLIC
DISCLOSURE AS CONFIDENTIAL COMMERCIAL OR FINANCIAL INFORMATION
AND/OR TRADE SECRETS PURSUANT TO 10 CFR 2.390**

Dear Ms. Haney:

Purpose

The purpose of this letter is to request the U.S. Nuclear Regulatory Commission (NRC) review of supplemental proposed changes to Chapter 10.0 of the License Application and the Decommissioning Funding Plan (DFP) for the American Centrifuge Lead Cascade Facility (Lead Cascade), in accordance with 10 *Code of Federal Regulations* (CFR) 70.25(e) and 40.36(d).

Background

USEC Inc. (USEC) has revised the decommissioning cost estimate to ensure full funding for its Lead Cascade decommissioning liabilities, which includes the second phase of the Cascade Demonstration Test Program (CDTP). The initial phase (Phase I) of the CDTP was previously submitted to the NRC for review and approval on July 17, 2012 (Reference 1). NRC accepted the estimate for technical review on September 7, 2012. On November 16, 2012, NRC issued a request for additional information (Reference 2).

Discussion

Enclosure 1 to this letter provides a detailed description of the proposed change associated with this request. Enclosure 2 of this letter contains the proposed changes for Chapter 10.0 of the License

~~Information transmitted herewith contains
USEC Proprietary Information~~

~~When separated from the Enclosures 3, 4, and 5, this cover letter is uncontrolled.~~

USEC Inc.
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Application and the DFP for the Lead Cascade. Enclosure 3 of this letter provides proposed changes for Appendix D of the DFP for the Lead Cascade. Enclosure 4 of this letter provides USEC's in-depth calculations related to the annual labor by classification and staffing estimated in phased man-days. Enclosure 5 of this letter provides USEC's responses related to the Phase I requests for additional information as provided by Reference 2. For the changes provided within Enclosures 2 and 3, only changes from those previously submitted by Reference 1 are depicted with a revision bar in the right margin.

Enclosures 3 through 5 contain USEC Proprietary Information; therefore, USEC requests that these enclosures be withheld from public disclosure pursuant to 10 CFR 2.390(a)(4). An affidavit required by 10 CFR 2.390(b)(1)(ii) is provided as Enclosure 6 of this letter.

Action

The proposed changes to the License Application and DFP require NRC prior review and approval. USEC requests NRC review and acceptance of the enclosed decommissioning cost estimate. Within 45 days following NRC's approval of the proposed changes, USEC will provide draft financial assurance documentation to the NRC for review and approval. Within 60 days following NRC's approval of the proposed changes, USEC will, in accordance with Materials License SNM-7003, Condition 15, submit a final executed financial assurance instrument for the approved decommissioning cost estimate to the NRC.

Contact

If you have any questions regarding this matter, please contact me at (301) 564-3470 or Vernon J. Shanks at (740) 897-2343.

Sincerely,



Peter J. Miner
Director, Nuclear Safety and Safeguards

Enclosures: As Stated

cc: J. Downs – NRC HQ
L. Pitts – NRC RII
O. Siurano – NRC HQ
B. Smith – NRC HQ

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References:

1. USEC letter AET 12-0037 from P.J. Miner to C. Haney (NRC) regarding Submittal of Revision to the Decommissioning Program for the American Centrifuge Lead Cascade Facility, dated July 17, 2012
2. NRC letter from O. Siurano-Perez to P.J. Miner (USEC) regarding Request for Additional Information Regarding the Revision to the Decommissioning Funding Plan for the American Centrifuge Lead Cascade Facility (TAC No. L34178), dated November 16, 2012

Enclosure 1 of AET 12-0062

Detailed Description of Proposed Changes

**Information contained within
does not contain
Export Controlled Information**

**Reviewer: G. Peed
Date: 12/14/2012**

Detailed Description of Proposed Change

The proposed changes described below relate to the decommissioning cost estimate for the American Centrifuge Lead Cascade Facility (Lead Cascade).

USEC Inc. (USEC) has revised the decommissioning cost estimate to ensure full funding for its Lead Cascade decommissioning liabilities. USEC plans to continue operations under the U.S. Nuclear Regulatory Commission (NRC) Materials License for the Lead Cascade during the Cascade Demonstration Test Program (CDTP) to enhance the technical readiness of the centrifuge technology for commercialization; therefore, USEC is providing the necessary changes to the decommissioning cost estimate for NRC's review and approval in two phases.

At the time of submittal of Reference 1 of this letter, U.S. Department of Energy (DOE) had provided funding for its portion of the costs only to support the initial execution (Phase I) of the CDTP through November 30, 2012. DOE has since provided an initial increment of funding to support Phase II of the CDTP.

Phase II, as encompassed by this submittal, provides additional proposed changes to Chapter 10.0 of the License Application, DFP, and decommissioning cost estimate for the Lead Cascade to address current operations and the additional costs associated with the CDTP and provide an update to the decommissioning cost estimate for the Lead Cascade to ensure it bounds the anticipated costs to decommission the Lead Cascade from December 1, 2012 through the remainder of the CDTP (December 31, 2013). These proposed changes do not introduce an undue risk to the public health and safety, the environment, or common defense and security.

The Phase I proposed changes to the License Application and Decommissioning Funding Plan for the Lead Cascade which are currently under review will be incorporated following NRC's approval of these additional proposed changes (i.e., Phase II).

The Phase II proposed changes do not alter the justification or significance determination as presented in Reference 1 of this letter. Accordingly, no further justification is provided. The proposed changes are contained in Enclosures 2 and 3 of this letter and are identified by the following method:

- ~~Blue Strikeout~~ - Identifies text to be removed
- Red underline – Identifies text to be added

Enclosure 2 of AET 12-0062

**Proposed Changes for Chapter 10.0 of the License Application and
the Decommissioning Funding Plan for the Lead Cascade**

**Information contained within
does not contain
Export Controlled Information**

**Reviewer: G. Peed
Date: 12/14/2012**

10.0 DECOMMISSIONING

The Lead Cascade is located on the U.S. Department of Energy (DOE) Portsmouth Gaseous Diffusion Plant (PORTS) reservation. The Licensee has operated the Lead Cascade since June 6, 2007. Materials License SNM-7003 provides the expiration date for the license. Information on the Licensee, the location of the site, and the types and authorized uses of licensed material is provided in Section 1.2, Institutional Information, and a description of the site and immediate environs is provided in Section 1.3, Site Description.

Consistent with the Agreement between USEC and the DOE, any Commercial Plant would be sited either at the PORTS or the Paducah Gaseous Diffusion Plant. PORTS was chosen as the location for the Commercial Plant. Consequently, the Lead Cascade would likely be included in the Commercial Plant license and would be decommissioned as part of the Commercial Plant construction efforts. If no Commercial Plant is deployed, then at the end of Lead Cascade operation, the Lead Cascade would be decommissioned prior to being de-leased and returned to DOE. For conservatism, it was assumed that centrifuges and other installed equipment would be removed and the Lead Cascade decommissioned in accordance with the lease agreement with DOE.

Centrifuges, service modules, process headers, vacuum pumps, and traps are the typical equipment to be removed by the Licensee; only the building shells and the facility infrastructure, including equipment that existed at the time of lease (e.g., rigid mast crane, utilities, etc.) will remain. The cascade area floor will be monitored for contamination, and will be decontaminated, if required. The remaining facilities will be decontaminated where needed to comply with lease turnover requirements. Confidential and Secret Restricted Data material, components, and documents will be transferred to the Commercial Plant or dispositioned in accordance with the Security Program for the American Centrifuge Plant, Chapter 2: Security Plan for the Protection of Classified Matter. Uranium hexafluoride (UF₆) material will be transferred to an authorized facility. Radioactive wastes will be disposed of at licensed low-level waste disposal sites. Hazardous wastes will be treated or disposed of at licensed hazardous waste facilities. Following the Licensee's decommissioning activities, the facilities will be de-leased and returned to DOE in accordance with Lease Agreement requirements.

Activities required for decommissioning have been identified and decommissioning costs have been estimated. Costs projected were developed based on the experience at PORTS during the transition to Cold Standby operation. Other activities and estimated costs for decommissioning were developed based on an evaluation prepared by USEC concerning removal of the DOE centrifuges that previously remained at the PORTS site in the former Gas Centrifuge Enrichment Plant (GCEP) process buildings. Additionally, USEC has performed dismantling and decontamination work at the gaseous diffusion plants; data and experience from these activities allowed a realistic estimation of decommissioning financial expenditures. Using the cost data as a basis, financial arrangements are made to cover costs required for returning the Lead Cascade facilities to DOE in accordance with the terms of the Lease Agreement. Updates on cost and funding will be provided periodically as costs or funding mechanisms change significantly. A more detailed Decommissioning Plan for the Lead Cascade will be submitted in accordance with 10 *Code of Federal Regulations* (CFR) 70.38 in order to terminate the license.

There are two locations that have been identified for the machine Decontamination Service Area (DSA).

The first option is to utilize the centrifuge assembly area as the disassembly area. The result would be that the X-7726 facility would become potentially contaminated and would need subsequent decontamination. The second machine decontamination option is to utilize the south half of X-3001 building for simplicity, but a machine dismantling stand would have to be fabricated. The rigid mast crane would be used to transport the centrifuge machines from the cascade area to this decontamination area.

The following assumptions were utilized in this decommissioning plan:

- Machine dismantling and decontamination activities would occur in the X-7726 facility (i.e., option one), which are concurrently utilized for machine assembly and disassembly activities today.
- Although the Commercial Plant can use Lead Cascade equipment (e.g., centrifuge machines), the plan conservatively assumes that this equipment is dismantled and disposed of at the end of the Lead Cascade's useful life. No credit is taken for salvage value of this equipment or materials. Likewise, no credit is taken for reduced taxes that might result from payment of decommissioning costs or site control and maintenance costs.
- No Lead Cascade activity and no decontamination liability are anticipated other than the cascade area in the X-3001 building and its associated utility bay area including the mezzanine (i.e., two floors), the anticipated DSA, and the X-7726 facility.
- No decontamination effort should be required in other Lead Cascade leased buildings/facilities, such as: X-7725, X-7727H, and X-3012, but for conservatism, these areas are used in the estimate in labor calculations.

The remaining subsections describe decommissioning plans and funding arrangements, and provide a detailed examination of the decontamination aspects of the program. The information here was developed in connection with the decommissioning cost estimate and is provided for information. Specific elements of the planning may change with the submittal of the decommissioning plan required at the time of license termination.

10.1 Decommissioning Program

The plan for decommissioning is to promptly decontaminate or remove materials from the facilities that are required under the Lease Agreement to return the facilities to DOE.

Decommissioning planning begins by incorporating special design features into the facility. These features will simplify eventual dismantling and decontamination. The plans are implemented through proper management and Radiation Protection and Industrial Safety

10.2 Decommissioning Steps

Implementation of decommissioning may begin immediately following facility shutdown, since only low radiation levels exist at this facility. Overall, the decommissioning period is estimated to require slightly greater than six months from facility shutdown to completion of the final radiation survey. The order of activities to support decommissioning will generally be: process system purging, equipment dismantling and removal, decontamination, disposition of Confidential and Secret Restricted Data equipment and material, disposal of wastes, and completion of a final radiation survey. The next paragraphs provide an overview and explanation of each of these steps in more detail.

10.2.1 Overview

The intent of decommissioning the Lead Cascade is to turnover the buildings and facility infrastructure to the DOE as required by the Lease Agreement. The removed equipment includes: piping and components from systems providing UF₆ containment, systems in direct support of the centrifuges (e.g., cooling water), radioactive and hazardous waste handling systems, contaminated air filtration systems, etc. to the extent they are required to be removed by the Lease Agreement. The remaining facility infrastructure will include services such as electrical power supply, sanitary water, fire suppression, ventilation, communications, and sewage treatment.

Decontamination of facility components and structures will not require the installation of a new facility dedicated for that purpose since the Lead Cascade DSA will be designed to accommodate repetitive equipment decontamination of up to the currently expected number of centrifuge machines to be deployed in the Lead Cascade (e.g., up to ~~120~~⁸⁹ operating centrifuge machines plus an additional ~~173~~¹²⁸ machines in storage), for a total of ~~293~~²¹⁷ centrifuge machines and other components. The DSA is one of the two locations described in Section 10.0 of this license application. It will be the primary location for decontamination activities.

Although components may be reused in the Commercial Plant, for conservatism this plan assumes that these components will be decontaminated in accordance with radiation protection requirements and classified parts will be dispositioned in accordance with the Security Program. Table 10.2-1, Items for Potential Decontamination at Decommissioning, lists major items from the facility that are expected to require decontamination.

Contaminated portions of the buildings will be decontaminated as required. Structural contamination should be limited to the areas indicated on Figure 10.1-1 inside the CCZ of the facility. The remainder of the Lead Cascade facility is not expected to require decontamination. Good housekeeping practices during normal operation will maintain the other areas contamination free. When decontamination is complete, the Lead Cascade facilities will be surveyed to verify that further decontamination is not required. Decontamination activities will continue until Lead Cascade facilities are demonstrated to be suitable for de-leasing and turnover to DOE in accordance with Lease Agreement requirements.

10.2.2 System Cleaning

At the end of testing, the Lead Cascade is shut down and UF_6 material is removed to the fullest extent possible by normal process operation. This is followed by evacuation and purging of the process systems. This shutdown and purging portion of the decommissioning process is estimated to take less than a month.

10.2.3 Dismantling

Dismantling is unbolting, disconnecting, cutting, etc., of components requiring removal. The operations themselves are simple, but labor intensive. They generally require the use of protective clothing. The work process will be optimized, considering the following:

- Minimizing contamination spread and the need for protective clothing;
- Balancing the number of cutting and removal operations with the resultant decontamination and disposal requirements;
- Optimizing the rate of dismantling with the rate of decontamination facility throughput;
- Providing storage and laydown space required, as impacted by retrievability, criticality safety, security, etc.; and
- Balancing the cost of decontamination with the cost of disposal.

Details of the complex optimization process will necessarily be decided near the end of facility useful life, taking into account specific contamination levels, market conditions, and available waste disposal sites. To avoid laydown space and contamination problems, dismantling will proceed generally no faster than the downstream decontamination process. The time frame to accomplish both dismantling and decontamination is estimated to be approximately five months.

10.2.4 Decontamination

The decontamination process is addressed separately in detail in Section 10.8 of this license application.

10.2.5 Sale/Salvage

Items to be removed from the facilities can be categorized as potentially re-usable equipment (whether contaminated or decontaminated), recoverable decontaminated scrap, and wastes.

Based on the facility testing life, operating equipment should have significant reuse value for the Commercial Plant. Aluminum cannot be decontaminated. Therefore, uranium-bearing equipment that is not reused in the Commercial Plant or which

remains in the facility will be treated as scrap and disposed of appropriately. Smaller amounts of steel, copper, and other metals can be recovered at market price. However, no credit is taken for salvage value in the Decommissioning Funding Plan (DFP), which is submitted separate from this license application. Likewise, no credit is taken for reduced taxes that might result from payment of decommissioning costs or site control and maintenance costs.

Other items are considered waste. Wastes have no intrinsic salvage value.

10.2.6 Disposal

Wastes produced during decommissioning will be collected, handled, and disposed of in a manner similar to that described for those wastes produced during normal operation. Wastes will consist of normal industrial trash, non-hazardous chemicals and fluids, radioactive wastes and very small amounts of hazardous materials. The radioactive waste will primarily be accumulated centrifuge components, trash, and citric cake. Citric cake consists of uranium and metallic compounds precipitated from citric acid decontamination solutions. It is estimated that approximately 4,600~~200~~ cubic meters (m³) of radioactive waste will be generated during the decommissioning operation. This waste may be subject to further volume reduction prior to disposal.

Radioactive wastes will ultimately be disposed of in licensed low-level radioactive waste disposal facilities. Hazardous wastes will be disposed of in hazardous waste disposal facilities. Non-hazardous and non-radioactive wastes will be disposed of in a manner consistent with good industrial practice and in accordance with applicable regulations. A more complete estimate of the wastes and effluent to be produced during decommissioning will be provided in the Licensee's plan for completion of decommissioning, to be submitted prior to the time of license termination.

Confidential and Secret Restricted Data components and documents at the facility not transferred to the Commercial Plant will be dispositioned in accordance with the requirements of 10 CFR Part 95 and the Security Program.

10.2.7 Final Radiation Survey

A final radiation survey is performed to verify proper decontamination to allow the facilities to be returned to DOE in accordance with Lease Agreement requirements. The evaluation of the final radiation survey is based, in part, on an initial radiation survey performed prior to operation. The initial survey determines the background radiation of the area; providing a datum for measurements that determine any increase in levels of radioactivity.

The final survey will systematically measure radioactivity over the Lead Cascade. The intensity of the survey will vary depending on the location (i.e., the buildings/facilities, the immediate area around the buildings/facilities, the controlled fenced area, and the remainder of the site). The survey procedures and results will be documented in a report. The report will include a map of the survey site, measurement results, and the site's relationship to the surrounding area. The results will be analyzed and shown to be below allowable residual radioactivity limits; otherwise, further decontamination will be performed.

Table 10.2-1
Items for Potential Decontamination at Decommissioning

Utilization	Category	Description	Estimated Quantity
LC Plant / Facility ⁴	Centrifuges ¹	Casings, Rotor Assemblies, Motors, Suspensions, and Mounts	293 217
	<u>Structure</u>	<u>Service Modules (sections + aisle module)</u>	6
	Piping	Less than 1 in. Process Piping length (Lft) and Includes Tubing ³	9,500 3,020
		1 – 8 4 in. Process Piping length (Lft)	12,340 6,360
	Pumps	Evacuation Vacuum Pumps (Leybold)	4
		Purge Vacuum Pumps (Leybold)	8
		Tuthill Vacuum Pumps	7
		Miscellaneous Vacuum Pumps (used sample, dump and feed cart vacuum pumps, used mass spec pumps, calibration buggy pumps, and helium leak detector pumps, etc.	34
	Ventilation Ductwork	Ductwork length (Lft) [4' x 3']	810 540
	Electrical Equipment / Panels	Motor Control Centers, Transfer Switches, Distribution Panels, DCS Control Cabinets, Human Machine Interface (HMI) Panels, Machine Isolation Control Cabinet, and Server Cabinets	43
	Transformers	Transformers (225KVA and 150 KVA)	4
	Uninterruptable Power Supply (UPS)	UPS Batteries, Bypass Switch, and Bypass Maintenance Transformer, and <u>Batteries (Station)</u>	116 62
	Diesel Generators & Auxiliaries	Diesel Generators including Fuel Tanks, Air Storage Tanks, Fuel Pumping Systems and Other System Auxiliaries	17 12
	Building Surfaces ²	Floors (ft ²)	57,700
	Valves ³	Process Valves (Sets) ³	187
		Miscellaneous Valves	734 722
	Traps	Chemical Traps (1 Set of 4)	4
	Other Equipment	UF ₆ Portable Carts, Buffer Storage Stands, Mass Spectrometers, Mass Spectrometer Enclosure, Vent Monitor	35 33

Table 10.2-1
Items for Potential Decontamination at Decommissioning

Utilization	Category	Description	Estimated Quantity
		Traps, <u>X-3001 New Air Compressor</u> , and Miscellaneous Fixtures	
LC Plant / Facility	Misc. Accumulated Waste	Accumulated, Classified and Contaminated Waste in B-25 Boxes	<u>54</u> 52
Leased Personalty Equipment ^{4,5}	Other Equipment	South Bend Radial Drill and Lathe	2
	Carts ^{5,6}	Centrifuge <u>Machine</u> Transport Carts	3
	Valves	Cascade Isolation Valves (CIV), Sample Valves (SV), Sensor Manifold Valve Assembly (SMVA), Sensor Calibration Valves (SCV), Back Pressure Control Valves (BPCV), Pressure Control Valves (PCV – current name) and Machine Isolation Valve sets (MIV)	889
	Structure	Service Modules (sections + aisle module)	<u>15</u> 20
	Fixtures	Machine Mount Hardware and Process Piping Flexible Connectors <u>Sets</u>	<u>1,288</u> 1,378
	Misc. Centrifuge Sub-Components	Upper Suspension; <u>(including Transfer Head Spool Piece)</u> , Upper Column Test Stand, Column Assemblies, <u>Lower Column Assemblies, Lower Tip Assemblies</u> , Lower Column Assembly – Cover Plates, and Miscellaneous Column Hardware	<u>448</u> 506
Decontamination Equipment	Cart ^{5,6}	Centrifuge Transport Cart	1
	Other Equipment	Centrifuge Disassembly Stands	2
		Centrifuge Dismantling Equipment	4
		Cutting Machines	2
		Degreasers	2
		Decontamination Tanks	3
		Wet Blast Cabinet	1

Note 1: The current project quantity consists of Train 3 storage – 88, CTTF Storage – 14, Buffer Storage – 26, Lead Cascade-1 – 25, Lead Cascade-3 – 42 and Demonstration Cascade – 120 and 45 additional assembled centrifuge machines or associated storage — 22 machines for a grand total of 293~~217 anticipated~~ centrifuge machines. This includes only a fraction of all centrifuge machines and spares built for the RD&D scope.

Note 2: The floor space listed is contained within the X-3001 Lead Cascade footprint. The amount of wall area (ft²) is not provided because it is not anticipated to need decontamination at the time of decommissioning.

Note 3: Process Valve sets follow the estimated number of positions utilized (Lead Cascade-1 – 25, Lead Cascade-3 – 42, and Demonstration Cascade – 120 for a total of 187). Miscellaneous valves quantity is an estimated count.

Note 4: Some of the USEC equipment was transferred to DOE as Leased Personalty items as part of the RD&D project support agreement, but these items are not separately specified as the other Leased Personalty items.

Note 54: Leased Personalty is equipment requested by the Licensee as part of the facility lease process, but the Licensee is responsible for its disposition ~~and was previously funded and captured by another vehicle that has been discontinued.~~

Note 65: There are 3 Centrifuge Transport Carts accumulated as waste/disposal. Only 1 cart is needed/considered to support further Decontamination efforts.

The centrifuges will be processed and the following operations will be performed:

- Removal of external fittings;
- Removal of bottom flange, motor and bearings, and collection of contaminated oil;
- Removal of top flange, and withdrawal and disassembly of internals;
- Weld flanges to casing to make the casing a permanent disposal “cask”; and
- Destruction of classified parts by burial.

10.8.3 Results

Recoverable items will be externally decontaminated and suitable for reuse except for a very small amount of intractably internal contaminated material that severely limits potential customers. Other than centrifuge machines, there is potentially a small amount of salvageable scrap material (i.e., service modules, etc.). Material requiring disposal will primarily be process piping, trash, and residue from the effluent treatment systems. No problems are anticipated which will prevent the Lead Cascade facilities from being released to DOE in accordance with Lease Agreement requirements.

10.9 Agreements with Outside Organizations

This decommissioning plan and the funding arrangements described below, provide for decontamination of the Lead Cascade for turnover to DOE. As such, no agreements with outside organizations are required for control of access to the facility following shutdown and decommissioning.

10.10 Arrangements for Funding

This section provides an estimate of decommissioning costs and explains the arrangements made to assure funding is available to cover these costs.

10.10.1 Decommissioning Costs

Table 10.10-1, provides a summary listing of the estimated costs of the major decommissioning activities described in Section 10.2. A more detailed breakdown of the cost estimates is provided in Section 3.0 of the DFP submitted with this application. Costs are in 2012 dollars and a 7.5 percent general and administrative cost, a 15 percent contractor profitability factor, and a 25 percent contingency factor is added based on the NRC guidance of NUREG-1757, Volume 3, Consolidated NMSS Decommissioning Guidance, Financial Assistance, Recordkeeping, and Timeliness, dated September 2003. As shown in the table, the estimated total cost is \$~~15.98~~^{13.66} million. Costs may change between the time of license

application and decommissioning. The cost estimate will be adjusted periodically and no less frequent than every three years consistent with the requirements of 10 CFR 70.25(e) and recent NRC changes to financial assurance amendments for materials licensees (Federal Register, Volume 68 Number 192, October 3, 2003). The method for adjusting the cost estimate will consider the following:

- Changes in general inflation (e.g., labor rates, consumer price index)
- Changes in price of goods (e.g., packing materials)
- Changes in price of services (e.g., shipping and disposal costs)
- Changes in facility condition or operations
- Changes in decommissioning procedures or regulations

Costs are estimated as explained below:

Planning and Preparation: \$0.34 million

This is based upon utilizing exempt workers at the current average cost distribution amounts for 586 man-days of exempt and 34 man-day of non-exempt work to be completed in a three-month duration. Scope includes developing Project Execution Plan and schedule (including organization and staffing plan and needed services); developing and submitting to the U.S. Nuclear Regulatory Commission (NRC), a detailed decommissioning plan; developing/implementing Site Characterization Plan; developing/implementing decommissioning activity procedures; and designing DSA.

Decontamination or Dismantling of Radioactive Facility Components: ~~\$1.961.75~~ million

This is based upon utilizing both exempt and non-exempt workers at their respective current average cost distribution for ~~1,820,600~~ man-days of exempt and ~~3,200,929~~ man-days of non-exempt work over a five-month duration. This does not include any costs associated with cranes, platforms, fencing, etc. because they would already exist and be in place. Scope includes erecting DSA; decontamination of facilities – internals; dismantling centrifuge machines; waste segregation/staging; and dismantling facilities/components.

Restoration of Contaminated Areas on Facility Grounds: ~~\$0.110~~ million

This is based upon utilizing both exempt and non-exempt workers at their respective current average cost distribution for ~~695~~ man-days of exempt and ~~18070~~ man-days of non-exempt work over a five-month duration. This also assumes the contamination of the facility grounds from the Lead Cascade operations will be minimal. Scope includes decontamination of facilities; performing health physics surveys; and removal of fixed contamination.

Final Radiation Survey: ~~\$0.109~~ million

This is based upon utilizing both exempt and non-exempt worker technicians at their respective current average cost distribution for 65 man-days of exempt and 135 man-days of non-exempt work over a three and a half-month duration. Scope includes developing/implementing survey plans; collecting/analyzing data; performing confirmatory surveys; developing final survey

report; and terminating license.

Site Stabilization and Long-Term Surveillance: N/A

As previously stated, the intent of decommissioning is to turnover the buildings and facility infrastructure to the DOE as required by the Lease Agreement. Hence, no long-term surveillance or site stabilization is required.

Indirect Services: \$1.2~~52~~ million

This includes services such as human resources; procurement; material management support; respirator issue and use; emergency and fire services; security support; sanitary water; sewage; and power and power operations utilities.

Packing, Shipping, and Disposal of Radioactive Wastes: \$5.10~~3.90~~ million

This is based upon disposition of ~~293~~247 centrifuge machines and becoming a total of approximately ~~3,500~~2,665 m³ of wastes at current packaging, shipping, and disposal rates.

Equipment/Supply Costs: \$0.53~~43~~ million

This includes the purchase or lease of cutting machines, degreasers, decontamination tanks, blast cabinets, B-25 containers, and 55-gallon barrels.

Laboratory Costs: \$0.06 million

This includes the costs for laboratory analysis of contamination samples taken during various decommissioning activities.

Miscellaneous Costs: \$1.3~~98~~ million

This includes other direct costs of \$0.14 million for miscellaneous material for decommissioning and \$1.2~~54~~ million for other indirect costs, such as NRC review fees for the submitted DP, license fees, DOE lease fees, and taxes on procured equipment and supplies.

Total Decommissioning Cost Estimate \$15.98~~13.66~~ million

The total cost is a rounded-up summation of the individual costs plus a 7.5 percent general and administrative cost, 15 percent contractor profitability, and a 25 percent contingency.

10.10.2 Funding Arrangements

The funds for decommissioning the facility will be provided by one or more of the methods described in 10 CFR 40.36(e) and 10 CFR 70.25(f). The selected method(s) is(are) described in the DFP, included as part of this license application. In the DFP, methods are described for periodic adjustments in the cost estimate and resulting necessary adjustments to the funding method.

Table 10.10-1
Estimated Total Decommissioning Costs and Duration

Task	Cost Estimate (Millions, 2012 dollars)	Approx. Percentage
Planning and Preparation	\$0.34	<u>34</u> %
Decontamination or Dismantling of Radioactive Facility Components	\$1. <u>9675</u>	<u>189</u> %
Restoration of Contaminated Areas on Facility Grounds	\$0.1 <u>10</u>	1%
Final Radiation Survey	\$0. <u>109</u>	1%
Site Stabilization and Long-Term Surveillance	-	0%
Indirect Services	\$1.2 <u>52</u>	<u>123</u> %
Packing, Shipping, and Disposal of Radioactive Wastes	<u>\$5.103.90</u>	<u>472</u> %
Equipment/Supply Costs	\$0. <u>5343</u>	<u>54</u> %
Laboratory Costs	\$0.06	1%
Miscellaneous Costs - Other Direct Costs	\$0.14	<u>12</u> %
Miscellaneous Costs - Other Indirect Costs	\$1.2 <u>54</u>	<u>113</u> %
Subtotal¹	<u>\$10.849.27</u>	100
G&A (7.5 percent) ²	\$0. <u>8169</u>	
Contractor Profit (15 percent) ³	<u>\$1.130.97</u>	
Contingency (25 percent) ⁴	<u>\$3.202.73</u>	
Total Decommissioning Cost Estimate	<u>\$15.983.66</u>	

Note 1: Subtotal includes labor/material/overhead allocation costs.

Note 2: General & Administrative (G&A) cost assumed to be 7.5% based upon current company's experience.

Note 3: Contractor profit assumed to be 15% of subtotal plus General and Administrative minus Other Indirect Costs [excluding insurance] minus the outside services portion of the Packaging, Shipping, and Waste Disposal Costs (15% * [10.849.27 + 0.8169 - 1.254 - 2.9023] = \$1.130.97 M).

Note 4: Contingency assumed to be 25% on subtotal plus General and Administrative and contractor profit.

For related information, reference also the DFP, contained in the License Application for the American Centrifuge Lead Cascade Facility.

Decommissioning Funding Plan

American Centrifuge Lead Cascade Facility

in Piketon, Ohio



Proposed Changes

Information Contained Within
Does Not Contain
Export Controlled Information

Docket No. 70-7003

Reviewer: Gregg Peed
Date: 12-14-2012

~~July~~ December 2012

Change Package A 10 CFR 1045 review and approval completed by LMS, DOE-ORO on 08/29/03 and 10/24/03.

Revision 1 – 10 CFR 1045 review and approval completed on 06/29/05.

Revision 2 – 10 CFR 1045 review and approval completed on 11/30/05.

Revision 3 – 10 CFR 1045 review and approval completed on 2/27/06.

Revision 4 – 10 CFR 1045 review and approval completed on 3/20/06.

Revision 5 – 10 CFR 1045 review and approval completed on 7/13/06.

Revision 6 – 10 CFR 1045 review and approval completed on 1/14/09.

Revision 7 – 10 CFR 1045 review and approval completed on 1/27/09.

Revision 8 – 10 CFR 1045 review and approval completed on 5/15/09.

Revision 9 – 10 CFR 1045 review and approval completed on 7/8/09.

Revision 10 – 10 CFR 1045 review and approval completed on 4/5/10.

Revision 11 – 10 CFR 1045 review and approval completed on 10/14/10.

Revision 12 -- Reviewed and determined to be UNCLASSIFIED. Derivative Classifier R.S. Lykowski.

Sensitive information reviews completed and approved for public release by R.S. Lykowski on 2/16/11.

Revision 13 -- Reviewed and determined to be UNCLASSIFIED. Derivative Classifier R.S. Lykowski.

Sensitive information reviews completed and approved for public release by R.S. Lykowski on 2/8/12.

Proposed Changes – Reviewed and determined to be UNCLASSIFIED. Derivative Classifier R.S. Lykowski.

Sensitive information reviews completed and approved for public release by R.S. Lykowski on 06/26/12.

Proposed Changes – Reviewed and determined to be UNCLASSIFIED. Derivative Classifier Gregg Peed.

Sensitive information reviews completed and approved for public release by Gregg Peed on 12/14/12.

1.0 INTRODUCTION

The Licensee hereby submits, pursuant to the provisions of the *Atomic Energy Act* of 1954, as amended, and the rules and regulations of the U.S. Nuclear Regulatory Commission (NRC), its Decommissioning Funding Plan (DFP) for the American Centrifuge Lead Cascade Facility (hereafter referred to as the Lead Cascade) at the U.S. Department of Energy (DOE) Portsmouth Gaseous Diffusion Plant (PORTS) reservation. This DFP sets forth that information required by 10 *Code of Federal Regulations* (CFR) Part 70 regarding the Applicant's plans for funding the ultimate decommissioning of the Lead Cascade.

As indicated below, the Licensee presently intends to provide for decommissioning funding through a surety bond and/or letter of credit in accordance with applicable requirements of 10 CFR Part 70. Appropriate model documentation for these funding methods is attached hereto. Upon acceptance of this funding estimate execution of the revised funding instrument(s), will be developed and the Licensee will supplement this portion of its application.

2.0 GENERAL INFORMATION

Facility Description: USEC is a global energy company and a leading supplier of enriched uranium utilized for reactor fuel for commercial nuclear power plants. USEC signed an Agreement with the DOE on June 17, 2002, in which it agreed to submit a license application for the Lead Cascade to support deployment of new, cost-effective advanced enrichment technology in the United States using gas centrifuges. The Lead Cascade is to be located in areas leased from the DOE at PORTS.¹

Licensed Material: The License Application for the Lead Cascade supports authorization to operate the facility to recycle UF₆ through centrifuge machines as documented in Materials License SNM-7003. Uranium enriched in the ²³⁵U isotope up to the certified limit of PORTS (10 weight percent ²³⁵U) will be recombined with material depleted in the ²³⁵U isotope. No enriched product will be removed from the cascade, except for samples. As currently envisioned the facility will have up to ~~120~~⁸⁹ operating centrifuge machines in the Lead Cascade. Pursuant to 10 CFR 70.25(a), a DFP is required. For DFP funding purposes, the decommissioning estimate will be based on the planned ~~120~~⁸⁹ operating centrifuge machines, plus an additional ~~173~~¹²⁸ machines in storage, for a total of ~~293~~²¹⁷ centrifuge machines to be decommissioned.

Schedule: The projected operational date for the Lead Cascade is July 2006.

Period of Operation: USEC has operated the Lead Cascade since June 6, 2007. Materials License SNM-7003 provides the expiration date for the license.

¹ Details regarding the planned operations of the Lead Cascade may be found in the License Application and the accompanying Environmental Report.

Decommissioning Costs: The Licensee has prepared a revised site-specific decommissioning cost estimate for the ultimate decommissioning of the Lead Cascade for de-leasing and return to DOE. This cost estimate utilizes current information regarding the activities and associated costs of decommissioning. The estimate and associated funding mechanisms will be adjusted over time, in accordance with the applicable provisions of 10 CFR Part 70.

Decommissioning Funding: As set forth in this DFP, the Licensee presently intends to utilize a surety bond and/or letter of credit to provide reasonable assurance of the availability of decommissioning funds when needed. These funding mechanisms are intended to satisfy the provisions of 10 CFR Part 70 with respect to decommissioning financial assurance for license applicants under those provisions.

3.0 DECOMMISSIONING COST ESTIMATE

Pursuant to 10 CFR 70.25(e) and the guidance provided by the NRC in NUREG-1757, *Consolidated Decommissioning Guidance*, the Licensee has evaluated the estimated costs of decommissioning the Lead Cascade. The facility will be decommissioned such that the facilities may be de-leased and returned to the DOE. The estimated costs of decommissioning, patterned after NRC guidance in Appendix A of NUREG-1757, Volume 3, *Consolidated NMSS Decommissioning Guidance, Financial Assurance, Recordkeeping, and Timeliness*, Final Report, September 2003 is set forth in the tables contained in Appendix C and D of this DFP and noted below. (Note: To maintain consistent table sequence numbers with those presented in Appendix A of NUREG-1757, Tables 3.1 through 3.3 are not used):

- Facility Description Summary (Table C3.4 and Table C3.4A)
- Number and Dimensions of Facility Components (Table C3.5 and Table C3.5A)
- Planning and Preparation (Table C3.6)
- Decontamination or Dismantling of Radioactive Facility Components (Table C3.7)
- Restoration of Contaminated Areas on Facility Grounds (Table C3.8)
- Final Radiation Survey (Table C3.9)
- Site Stabilization and Long-term Surveillance (Table C3.10)
- Total Work Days by Labor Category (Table C3.11)
- Worker Unit Cost Schedule (Table D3.12)
- Total Labor Costs by Major Decommissioning Task (Table D3.13)
- Packaging, Shipping, and Disposal of Radioactive Wastes (Table C3.14)
- Equipment/Supply Costs (Table C3.15)
- Laboratory Costs (Table C3.16)
- Miscellaneous Costs (Table C3.17)
- Total Decommissioning Costs (Table C3.18)
- Total Labor Distribution (Table C3.19)

Currently, the Licensee does not have an estimate of potential levels of contamination at the time of decommissioning. Chapter 10.0 of the License Application for the American Centrifuge Lead Cascade Facility describes specific features that serve to minimize the level and spread of radioactive contamination during operation that simplify the eventual facility decommissioning and minimize worker exposure. The total estimated cost of decommissioning the facility in 2012 dollars is \$1~~5.983.66~~ million (see Table C3.18).

Key assumptions used in the decommissioning cost estimate are as follows:

- Details of planned surveys to be taken and decontamination efforts
- Release criteria to be used for the licensed material
- Information on facility building and grounds, dimensions, type, and number of components that will require decontamination
- Costs for labor and non-labor
- Levels of effort for decontamination activities; and volumes and types of wastes generated
- Decommissioning Cost Estimate unit quantities were developed based on actual USEC Gas Centrifuge Enrichment Plant (GCEP) Cleanout data. Costing of unit quantities used industry standard costs escalated to 2012 dollars, and 2012 estimated costs for services and materials, resulting in a Decommissioning Cost Estimate that reflects independent third-party costs to perform Lead Cascade decommissioning activities.

There are no decommissioning costs associated with disposition of UF₆ since the Licensee intends to utilize this material in future enrichment operations.

Finally, the Licensee recognizes the need to adjust cost estimates and funding levels periodically, pursuant to 10 CFR 70.25(e). These measures are in Section 5.0 of this DFP. The Licensee also recognizes that, pursuant to 10 CFR 70.38(g)(4)(v), it must update its detailed cost estimate at the time of license termination and provide, if necessary, additional assurance of the availability of adequate funds for completion of decommissioning.

4.0 DECOMMISSIONING FUNDING MECHANISM

The Licensee presently intends to utilize a surety bond and/or letter of credit to provide reasonable assurance of decommissioning funding, pursuant to 10 CFR 70.25(f)(2). Accordingly, the Licensee provides with this application model documentation related to the use of the surety method of providing decommissioning financial assurance.² Upon acceptance of this cost estimate and finalization of the specific funding instruments to be utilized, the Licensee will supplement its application to include the executed documentation.

As noted, the Licensee presently intends to utilize a surety bond and/or letter of credit to

² The model documentation is derived from NRC guidance in NUREG-1757, Volume 3, Consolidated NMSS Decommissioning Guidance, Financial Assistance, Recordkeeping, and Timeliness, dated September 2003. The Licensee will consider this model documentation as guidance in preparing and executing funding instruments for the Lead Cascade. In the event the Licensee ultimately selects another form of decommissioning funding, model documentation from NUREG-1757 will also be used as guidance in the preparation of funding instruments.

Table C3.4(A) Quantities of Materials or Waste Accumulated Before Shipping or Disposal

Utilization	Category	Description	Estimated Quantity
LC Plant / Facility ⁴	Centrifuges ¹	Casings, Rotor Assemblies, Motors, Suspensions, and Mounts	293 217
	<u>Structure</u>	<u>Service Modules (sections + aisle module)</u>	<u>6</u>
	Piping	Less than 1 in. Process Piping length (Lft) and Includes Tubing ³	<u>9,500</u> 3,020
		1- 8 4 in. Process Piping length (Lft)	<u>12,340</u> 6,360
	Pumps	Evacuation Vacuum Pumps (<u>Leybold</u>)	4
		Purge Vacuum Pumps (<u>Leybold</u>)	8
		Tuthill Vacuum Pumps	7
		Miscellaneous Vacuum Pumps (used sample, dump and feed cart vacuum pumps, used mass spec pumps, calibration buggy pumps, and helium leak detector pumps, etc.	34
	Ventilation Ductwork	Ductwork length (Lft) [4'x3']	<u>810</u> 540
	Electrical Equipment / Panels	Motor Control Centers, Transfer Switches, Distribution Panels, DCS Control Cabinets, Human Machine Interface (HMI) Panels, Machine Isolation Control Cabinet, and Server Cabinets	43
	Transformers	Transformers (225KVA and 150 KVA)	4
	Uninterruptable Power Supply (UPS)	UPS Batteries, Bypass Switch, and Bypass Maintenance Transformer, <u>and Batteries (Station)</u>	<u>116</u> 62
	Diesel Generators & Auxiliaries	Diesel Generators including Fuel Tanks, Air Storage Tanks, Fuel Pumping Systems and Other System Auxiliaries	<u>17</u> 42
	Building Surfaces ²	Floors (ft ²)	57,700
	Valves ³	Process Valves (sets) ³	187
		Miscellaneous Valves	<u>734</u> 722
	Traps	Chemical Traps (1 Set of 4)	4
	Other Equipment	UF ₆ Portable Carts, Buffer Storage Stands, Mass Spectrometers, Mass Spectrometer Enclosure, Vent Monitor Traps, <u>X-3001 New Air Compressor</u> , and Miscellaneous Fixtures	<u>35</u> 3

Table C3.4(A) Quantities of Materials or Waste Accumulated Before Shipping or Disposal

Utilization	Category	Description	Estimated Quantity
	Misc. Accumulated Waste	Accumulated, Classified and Contaminated Waste in B-25 Boxes	542
Leased Personality Equipment ⁴⁵	Other Equipment	South Bend Radial Drill and Lathe	2
	Carts ⁵⁶	Centrifuge Machine Transport Carts	3
	Valves	Cascade Isolation Valves (CIV), Sample Valves (SV), Sensor Manifold Valve Assembly (SMVA), Sensor Calibration Valves (SCV), Back Pressure Control Valves (BPCV), Pressure Control Valves (PCV – current name) and Machine Isolation Valve sets (MIV)	889
	Structure	Service Modules (sections + aisle module)	1520
	Fixtures	Machine Mount Hardware and Process Piping Flexible Connectors Sets	1,288378
	Misc. Centrifuge Sub-Components	Upper Suspension, (including Transfer Head Spool Piece), Upper Column Test Stand, Column Assemblies, Lower Column Assemblies, Lower Tip Assemblies, Lower Column Assembly – Cover Plates, and Miscellaneous Column Hardware	448506
Decontamination Equipment	Cart ⁵⁶	Centrifuge Transport Cart	1
	Other Equipment	Centrifuge Disassembly Stands	2
		Centrifuge Dismantling Equipment	4
		Cutting Machines	2
		Degreasers	2
		Decontamination Tanks	3
		Wet Blast Cabinet	1

Note 1: The current project quantity consists of Train 3 storage – 88, CTTF Storage – 14, Buffer Storage – 26, Lead Cascade-1 – 25, Lead Cascade-3 – 42 and Demonstration Cascade – 120 and 45 additional assembled centrifuge machines or associated storage – 22 machines for a grand total of 293217 anticipated centrifuge machines. This includes only a fraction of all centrifuge machines and spares built for the RD&D scope.

Note 2: The floor space listed is contained within the X-3001 Lead Cascade footprint. The amount of wall area (ft²) is not provided because it is not anticipated to need decontamination at the time of decommissioning.

Note 3: Process Valve sets follow the estimated number of positions utilized (Lead Cascade-1 – 25, Lead Cascade-3 – 42, and Demonstration Cascade – 120 for a total of 187). Miscellaneous valves quantity is an estimated count.

Note 4: Some of the USEC equipment was transferred to DOE as Leased Personality items as part of the RD&D project support agreement, but these items are not separately specified as the other Leased Personality items.

Note 54: Leased Personality is equipment requested by the Licensee as part of the facility lease process, but the Licensee is responsible for its disposition and was previously funded and captured by another vehicle that has been discontinued.

Note 65: There are 3 Centrifuge Transport Carts accumulated as waste/disposal. Only 1 cart is needed/considered to support further Decontamination efforts.

**Table C3.5 Number and Dimensions of Facility Components
(Total Volume)**

Component	Number of Components	Dimensions of Component (specify units)	Total Volume (ft ³)	Compaction Factor (Volume Remaining)	Total Compact Volume (ft ³)	Level of Contamination
X-3001						
Centrifuges	29,124 3 units	~30" dia x 45'	61,722 17,934	0.0	0	High Alpha
Vacuum Pumps	53 ea	4' x 6' x 4' * VF	1,175	1.0	1,175	High Alpha
Chemical Traps (1 set of 4)	4 ea	8" dia x 8'	11	0.2	2	High Alpha
Process Piping	12,340 6,360 Lft	1", 2", 4", & 8" dia	1,077 555	0.2	215 111	High Alpha
Piping <1"; Tubing	9,500 3,020 Lft	<1" dia	52 16	0.2	10 3	High Alpha
Ventilation Ductwork (HVP)	810 540 Lft	4' x 3'	9,720 6,480	0.0	0	Low Alpha
Process Valves	187 sets	0.4 ft ³	75	1.0	75	High Alpha
Motor Control Centers	2 units	5' x 7' x 3'	210	0.4	84	Low Alpha
Transfer Switches	15 ea	2' x 4' x 18"	180	0.4	72	Low Alpha
Distribution Panels	6 ea	2' x 3' x 9"	27	0.4	11	Low Alpha
Transformers (225KVA)	3 units	4' x 4' x 5'	240	0.7	168	Low Alpha
Transformers (150KVA)	1 unit	3' x 3' x 4'	36	0.7	25	Low Alpha
Diesel Generators	1 unit	19.2' x 7.5' x 9'	1,296	0.8	1,037	Low Alpha
Day Tank (Fuel-650gal)	1 ea	19.2' x 7.5' x 1.13'	163	0.2	33	Low Alpha
Fuel Tank (2000gal)	2 1 ea	4.5' dia x 13'	414 207	0.2	83 41	Low Alpha
Air Storage Tanks (300gal)	2 ea	3' dia x 7.5'	106	0.2	21	Low Alpha
Air Compressors (30hp)	2 ea	0.63' x 1.5' x 2'	4	1.0	4	Low Alpha
Fuel Pumping System	2 ea	3' x 1' x 1'	6	1.0	6	Low Alpha
UPS (Batteries)	60 units	1.5' x 1' x 1'	90	0.8	72	Low Alpha
UPS Bypass Switch	1 ea	2' x 4' x 18"	12	0.4	5	Low Alpha
UPS Bypass Transformer	1 ea	3' x 3' x 4'	36	0.7	25	Low Alpha
Batteries (Station)	54 units	1.5' x 1' x 1'	81	0.8	65	Low Alpha
DCS Control Cabinets (with Network Patch Panels)	7 ea	6' x 5' x 2'	420	0.4	168	Low Alpha
Human Machine Interface Panels	3 ea	9" x 9" x 6"	1	0.4	0	Low Alpha
Machine Isolation Control	1 ea	4' x 2' x 1'	8	0.4	3	Low Alpha

**Table C3.5 Number and Dimensions of Facility Components
(Total Volume)**

Component	Number of Components	Dimensions of Component (specify units)	Total Volume (ft ³)	Compaction Factor (Volume Remaining)	Total Compacted Volume (ft ³)	Level of Contamination
Cabinet						
Server Cabinets	9 units	6' x 5' x 2'	540	0.4	216	Low Alpha
Valves (Miscellaneous and Leased Personalty Equipment)	1,623+1 ea	0.4 ft ³	6494	1.0	6494	High Alpha
<u>Air Compressor</u>	<u>1 ea</u>	<u>7.2' x 4.75' x 7.2'</u>	<u>239</u>	<u>1.0</u>	<u>239</u>	<u>Low Alpha</u>
UF ₆ Portable Carts	187 ea	3' x 5' x 4'	1,08020	0.5	54010	Low Alpha
Buffer Storage Stands	5 ea	5' x 25' x 1.5'	938	0.3	281	Low Alpha
Mass Spectrometers	3 ea	2' x 5' x 3'	90	1.0	90	Low Alpha
Mass Spec Room Enclosure	1 ea	50' x 30' x 14'	21,000	0.15	3,150	Low Alpha
Vent Monitors Traps	3 ea	3" Dia x 1.5'	0	0.3	0	Low Alpha
X-3012						
Diesel Generators	1 unit	14.7' x 5' x 7'	515	0.8	412	Low Alpha
Day Tank (Fuel-250gal)	1 ea	6.3' x 5' x 1'	32	0.2	6	Low Alpha
Fuel Tank (1000gal)	1 ea	5' dia x 7'	137	0.2	27	Low Alpha
<u>Air Storage Tanks (300gal)</u>	<u>1 ea</u>	<u>3' x 7.5'</u>	<u>53</u>	<u>0.2</u>	<u>11</u>	<u>Low Alpha</u>
<u>Air Compressors (30hp)</u>	<u>1 ea</u>	<u>0.63' x 1.5' x 2'</u>	<u>2</u>	<u>1.0</u>	<u>2</u>	<u>Low Alpha</u>
<u>Fuel Pumping System</u>	<u>2 ea</u>	<u>3' x 1' x 1'</u>	<u>6</u>	<u>1.0</u>	<u>6</u>	<u>Low Alpha</u>
General						
Miscellaneous Fixtures (B-25 Boxes)	4 ea	4' x 4' x 6'	384	1.0	384	None
Miscellaneous Accumulated Classified Waste (B-25 Boxes)	542 ea	4' x 4' x 6'	5,1844,992	1.0	5,1844,992	Low Alpha
Total Component Volumes			<u>105,827</u> 84,588		<u>9,372</u> 8,861	

Assumptions:

- Service module structural steel is not considered waste. These items are to be removed, disassembled, decontaminated to NRC 'Free Release' criteria (see Section 4.8.2.4 of License Application for the Lead Cascade), and stored for later disposition or other use. Centrifuge machines are considered waste and accounted for in Table C3.14.
- Total Compacted Volume does not include the centrifuge machines or service modules (structures); the ventilation ductwork is decontaminated to a 'free release' criteria and remains in the building; centrifuge machines/casings are accounted in the waste stream by a unique pathway (see Table C3.14, page 2) and the service module structure is decontaminated to a 'free release' criteria and is stored for later disposition or other use.

**Table C3.5 Number and Dimensions of Facility Components
(Total Volume)**

Component	Number of Components	Dimensions of Component (specify units)	Total Volume (ft ³)	Compaction Factor (Volume Remaining)	Total Compacted Volume (ft ³)	Level of Contamination
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- Miscellaneous Fixtures is accumulated items provided in a-B-25 boxes and consists of Leased Personalty equipment (fixtures and misc. sub-components). The other Leased Personalty equipment (i.e., drill, lathe, centrifuge transport carts, and Service Module structure) will be decontaminated to a 'free release' criteria and is stored for later disposition or other use.
- Miscellaneous Accumulated Classified Waste consists of 287 existing B-25 Boxes and it is anticipated that another 264 will be generated from 25% cross-over from unclassified contaminated waste for a total of 544.

- Highlighted rows represent centrifuge casings and service module structure items.
- Highlighted rows represent ventilation ductwork (HVP system).
- Highlighted rows represent distinct waste flowpath and Volume not summed in Total or Compacted Volume.

**Table C3.7 Decontamination or Dismantling of Radioactive Facility Components
(Productive Work Days)**

Group	Type	# Workers	Dur (#y)	Avail Factor	Total (wd)
Supervision	Exempt	1	110	219	110
Engineering	Exempt	4	85 0	219	340 20
Operations	Exempt	2	110	219	220
	Non-Exempt	43	60 3	219	240 189
Maintenance	Exempt	54	90 5	219	450 380
	Non-Exempt	25 3	110	219	2,750 30
Support	Exempt	76	100 9 5	219	700 570
	Non-Exempt	10	21	219	210
Totals		58 3			5,020 4, 529

Assumptions:

- Anticipated duration = 5m or 110d
- Availability Factor = average annual work days = 219 md/y = 260 - 41(Paid Absences)

Anticipated tasks considered:

- Erect Decontamination Facility (~~m~~Minimal comparative effort)
- Decontamination of facilities - Internals
- Dismantle centrifuge machines; Waste segregation/staging [46.6 mh/machine]
- Dismantle facilities/components
- Continued Project and Security Support

**Table C3.8 Restoration of Contaminated Areas on Facility Grounds
(Productive Work Days)**

Group	Type	# Workers	Dur (#y)	Avail Factor	Total (wd)
Supervision	Exempt	0	0	219	0
Engineering	Exempt	10	20	219	20
Operations	Exempt	1	65	219	65
	Non-Exempt	2	85	219	170
Maintenance	Exempt	0	0	219	0
	Non-Exempt	0	0	219	0
Support	Exempt	10	20	219	20
	Non-Exempt	10	10	219	10
Totals		63			249 35

Assumptions:

- Anticipated duration = 5m or 110d
- Availability Factor = average annual work days = 219 md/y = 260 - 41(Paid Absences)
- Shares resource allocation concurrent with Decontamination or Dismantling phase effort
- Minimal loose contamination and cleanup anticipated

Anticipated tasks considered:

- Decontamination of facilities
- Remove fixed contamination

**Table C3.9 Final Radiation Survey
(Productive Work Days)**

Group	Type	# Workers	Dur (#y)	Avail Factor	Total (wd)
Supervision	Exempt	0	0	219	0
Engineering	Exempt	10	20	219	20
Operations	Exempt	0	0	219	0
	Non-Exempt	0	0	219	0
Maintenance	Exempt	0	0	219	0
	Non-Exempt	0	0	219	0
Support	Exempt	13	45	219	45 135
	Non-Exempt	30	450	219	1350
Totals		53			200 135

Assumptions:

- Anticipated duration = 3.5m or 75d
- Availability Factor = average annual work days = 219 md/y = 260 - 41(Paid Absences)
- Work period occurs concurrent with the last 3.5 months of the D&D phase

Anticipated tasks considered:

- Develop/Implement survey plans
- Collect/Analyze data
- Perform confirmatory surveys
- Develop final survey report
- Terminate license

Table C3.11 Total Work Days by Labor Category

Task	Labor Category Supervision (E)	Labor Category Engineering (E)	Labor Category Operations (E)	Labor Category Operations (N)	Labor Category Maintenance (E)	Labor Category Maintenance (N)	Labor Category Support (E)	Labor Category Support (N)	Total Labor
Planning and Preparation	34	276	0	0	138	0	138	34	620
Decontamination or Dismantling of Radioactive Facility Components	110	340 20	220	240 189	450 380	2,750 530	700 570	210	5,020 4,529
Restoration of Contaminated Areas on Facility Grounds	0	20	65	170	0	0	20	10	249 235
Final Radiation Survey	0	20	0	0	0	0	45 135	1350	200 135
Site Stabilization and Long-Term Surveillance	0	0	0	0	0	0	0	0	0
Total by Category	144	638 596	285	410 359	588 18	2,750 530	885 843	389 244	6,089 5,519

Assumption:

- Individual tables describe other assumptions; this table is a summation of previous table information categorized by Exempt and Non-Exempt per phase.

Table D3.12 Worker Unit Cost Schedule

This Table is withheld pursuant to 10 CFR 2.390 and is located in Appendix D of this DFP

Table D3.13 Total Labor Costs by Major Decommissioning Task

This Table is withheld pursuant to 10 CFR 2.390 and is located in Appendix D of this DFP

Table C3.14 Packaging, Shipping, and Disposal of Radioactive Wastes

Waste Type	[A] Disposal Volume (ft ³); # Centrifuges	[B] Number of Containers	[C] Container Volume	[D] Unit Cost (\$/ft ³ or \$/gal)	[E] Total Unclassified Waste Disposal Costs
1: Miscellaneous Total Compacted Equipment Solid Waste	9,372 8,861	7 84	96	\$ 52.76	\$ 395,067 74,807
2: Liquid Waste	293 247	7 5	55	\$ 94.47	\$ 36,371 25,979
Sub-Total					\$ 431,43800,786

Assumptions:

- Unclassified, Low-Level Contaminated waste; Liquid waste from machine disassembly to Energy Solutions site
- [A¹] = Total Compacted Volume (Table C3.5); [A²] = # centrifuges (installed plus Spares) (Table C3.4A)
- [B¹] = A¹/90 (usable volume) minus 25% cross-over to classified waste disposal process [H³]; [B²] = A²*5.4 qt/machine/220 qt/barrel; [C¹] = B-25 Boxes volume = 96 ft³ (including box itself), [usable volume = 90 ft³]; [C²] = 55 gal/barrel
- [D¹] = Unit Cost¹ = \$52.76/ft³ = \$32.34 (Current Disposal cost) + \$3.82 (Transportation costs to Energy Solutions, Clive, UT utilizing B-25 boxes [1,791 miles one way trip and Brokerage Costs]) + \$15.81/ft³ (Labor costs - Handling, Waste Engineering, Radiological Waste NDA Characterization, and HP Support) + \$0.79/ft³ (Radiological Characterization Equipment); [D²] = Unit Cost² = \$94.47 = \$82.78/gal (Incineration and Disposal costs to Diversified Scientific Services Inc. {DSSI}, Oak Ridge, TN) + \$0.87/gal (Transportation and Brokerage cost [350 miles one way trip to DSSI]) + \$10.82/gal (Labor costs - Handling, Sampling, Lab Analyses) [\$2012]
- [E¹] = B¹C¹D¹; [E²] = B²C²D²
- Unclassified Waste Disposal Prorated Ratio [only used in computation for contractor profitability] = amount of waste cost that is directly associated with waste disposal and not subject to contractor profit: ¹(Current Disposal cost + Transportation cost) / (Total Compacted Solid Waste Disposal cost) = 0.69; ²(Incineration and Disposal cost + Transportation cost) / (Total Liquid Waste Disposal cost) = 0.89

Table C3.14 Packaging, Shipping, and Disposal of Radioactive Wastes

Waste Type	[F] # of Centrifuges	[G] Factor (B-25/ma)	[H] Number of Containers	[J] Container Volume	[K] Unit Cost (\$/ft ³)	[M] Total Classified Waste Disposal Costs
3: Classified Waste (Misc. B-25 Boxes)	0	0	542	96	\$43.95	\$227,837 ⁴ 19,398
4: Classified Waste (Machine Externals)	293217	0.9	264195	96	\$43.95	\$1,112,603 ⁴ 824,010
5: Classified Waste (Machine – Casing and Internals)	293217	1.0	293217	290	\$39.10	\$3,322,327 ⁵ 2,460,563
Sub-Total						\$4,662,767³3,503,971
Grand Total						\$5,094,205³3,904,757
Grand Total (Rounded, M)						\$5,103.90

Assumptions:

- Classified, Low-Level Contaminated Waste to Nevada National Security Site (NNSS)
- [G⁴] - historical evidence = 0.9 B-25 boxes/machine (includes machine and service module components not disposed in sealed casing); [G⁵] = 1 (no factor really needed)
- [H³] = from Table C3.5 Misc. Accumulated Waste in B-25 Boxes, which includes 25% cross-over from unclassified waste disposal process in Column B¹ of this table.
- [H⁴] = Number of B-25 Boxes = F⁴G⁴; [H⁵] = Number of Machine Casings
- [J^{3,4}] = B-25 Boxes volume = 96 ft³ (including box itself); [J⁵] = Casing attributed volume = 290 ft³
- [K^{3,4}] = Unit Cost^{3,4} = \$43.95/ft³ = \$16.79/ft³ (Current DOE Classified Disposal cost to NNSS, NV utilizing B-25 boxes as shipping package) + \$4.86/ft³ (Transportation [2,136 miles one way trip and Brokerage Costs]) + \$21.51/ft³ (Labor costs - Handling, Waste Engineering, Radiological NDA Waste Characterization, and HP Support) + \$0.79/ft³ (-Radiological Characterization Equipment); [K⁵] = Unit Cost⁵ = \$39.10/ft³ = \$16.79/ft³ (Current DOE Classified Disposal cost to NNSS, NV utilizing Casings as shipping package) + \$6.03/ft³ (Transportation [2,136 miles one way trip and Brokerage Costs]) + \$15.49/ft³ (Labor costs - Handling, Waste Engineering, Radiological NDA Waste Characterization, and HP Support) + \$0.79/ft³ (-Radiological Characterization Equipment) [2012]
- [M³] = H³J³K³; [M⁴] = F⁴G⁴J⁴K⁴; [M⁵] = F⁵G⁵J⁵K⁵
- B-25 boxes contain volume gaps, which are anticipated to be filled to capacity from associated miscellaneous sources
- Classified Waste Disposal Prorated Ratio [only used in computation for contractor profitability] = amount of waste cost that is directly associated with waste disposal and not subject to contractor profit: ⁴(Current DOE Classified Disposal cost + Transportation cost) / (Total Classified Waste Disposal cost) = 0.49; ⁵(Current DOE Classified Disposal cost + Transportation cost) / (Total Classified Waste Disposal cost) = 0.58

Table C3.15 Equipment/Supply Costs

Equipment/Supplies	[A] Quantity	[B] Unit Cost	[C] Total Equipment/Supply Cost
Centrifuge Dismantling Equipment ¹	4	N/C	-
Cutting Machines ²	2	\$315	\$630
Degreasers ³	2	\$525	\$1,050
Decontamination Tanks ⁴	3	\$1,576	\$4,728
Blast Cabinet ⁵	1	\$1,051	\$1,051
B-25 Containers ⁶	368 294	\$1,422	\$523,296 418,068
55 gallon Barrels ⁷	75	\$90	\$630 450
TOTAL			\$531,385425,977
TOTAL (Rounded, M)			\$0.5343

Note 1: Anticipate using existing specialized tooling and lift fixtures for handling various machine components.

Note 2: Hand-tool metal cutting saws for cutting long parts into manageable sizes.

Note 3: Portable pressure washer for removing residue from the machines.

Note 4: Cost includes tank supports, suction pumps, associated valves and piping.

Note 5: Ad-hoc enclosures to support the degreaser operations.

Note 6: Approved metal containers for storage/shipment of dismantled machine and machine components. Quantity is sum of B-25 containers needed to be procured (i.e., ~~287~~ already exist) from Table C3.14 (~~784~~ + ~~265~~ + ~~264195~~ = ~~368294~~).

Note 7: Barrels for the capturing of dismantled machine and machine component fluids from Table C3.14 (~~75~~).

Assumptions:

- Some of these components currently exist by some means and works in conjunction with Table C3.17.
- The primary option for centrifuge disassembly methodology is utilizing the X-7726 CTTF.
- [C] = AB₂.
- Unit costs increased by Inflation Index = CY2009 (1.1%) * CY2010 (1.2%) * CY2011 (1.5%) * CY2012 (1.2%); Total Inflation Index (CY12) = 1.0509.
- [Reference A] = Past Inflation: GDP Price Index values (2004 – 2010) are from the Bureau of Economic Analysis of the Department of Commerce; Future Inflation projections: Annual Inflation values (2011 – 2012) are from the Congressional Budget Office –GDP Price Index Forecast Budget and Economic Outlook - Update (August 2011).

Table C3.16 Laboratory Costs

Phase	Activity	# Workers	# Yr	Routine Freq (Samples/y)	Recall Freq (Samples/y)	Incident Freq (Samples/y)	Sample Factor	Unit Cost (\$)	Total Cost
1	Planning and Preparation	9	0.25	4	0.2	2	6.2	121	\$1,688
2	Decontamination or Dismantling of Radioactive Facility Components	583	0.417	12	0.6	6	18.6	121	\$54,433 49,744
3	Restoration of Contaminated Areas on Facility Grounds	63	0.417	12	0.6	4	16.6	121	\$5,026 2,513
4	Final Radiation Survey	53	0.292	12	0.6	4	16.6	121	\$2,933 1,760
5	Site Stabilization and Long-Term Surveillance	0	0	4	0.2	2	6.2	121	-
TOTALS		678							\$64,080 55,702
TOTAL (Rounded, M)									\$0.06

Assumptions:

- The utilization of the 'On-Site' laboratory facility is anticipated; therefore, there are no associated transportation costs included in the derivation of the Unit Cost.
- Routine Frequency is the anticipated number of samples per individual per year (see Table 4.7-3 of the Lead Cascade License Application).
- Recall Frequency assumes 5% recall rate; Recall = an individual sample submitted when analysis results exceed a predetermined urinalysis program action level (see Table 4.7-3 of the Lead Cascade License Application).
- Incident Frequency assumes 2 samples submitted for each incident; Incident = a special sample submitted for analysis due to an incident (for example, a personnel contamination event or an airborne release of radioactive material event occurs).
- Sample Factor = Routine freq + Recall + Incident; Total Cost = (# workers/phase) * (# -yr) * Sample Factor * Unit Cost.
- # samples = (# workers/phase) * (Routine freq + Recall + Incident) * # yr.
- Analytical Unit Cost = \$121 / sample [Amount based for uranium isotopic analysis ~~by alpha spectrometry~~ and includes analysis performance, laboratory work, as well as Quality Assurance/Quality Control labor, and cost of materials plus overheads] (\$CY12).

Table C3.17 Miscellaneous Costs

Other Direct Costs

Cost Item	Total Cost
Miscellaneous Material for DeCon ¹	\$140,000
Total	\$140,000
Total (Rounded, M)	\$0.14

Note 1: Estimate based upon percentage of Decommissioning Cost subtotal (1.5% * Total Other Indirect Costs [Table C3.18 = Indirect Services + Packaging/Shipping & Waste Disposal + Equipment + Laboratory + Other Direct + Other Indirect Costs]) [0.015 * (Total Other Indirect costs); factor then rounded].

Other Indirect Costs

Cost Item	Total Cost
NRC Staff Review and Approval DP ²	\$84,392
NRC Fees ³	\$612,500
DOE Lease	\$516,990
Business Insurance	-
Taxes ⁴	\$37,197,29,818
Total	\$1,251,0791,243,700
Total (Rounded, M)	\$1.254

Note 2: Estimate based upon review and approval for Decommissioning Plan (DP).
Inflation Index = CY2009 (1.1%) * CY2010 (1.2%) * CY2011 (1.5%) * CY2012 (1.2%)
[See Reference A in Table C3.15].

Note 3: Estimate based upon 6 months of NRC Annual Operational Fees for plant.

Note 4: Estimate based upon procured items
[Total Table C3.15 * 7% tax rate].

Table C3.18 Total Decommissioning Costs

Ref	Task	Calculated Costs (\$2012, M)	Approximate Percentage
D3.13	Planning and Preparation	\$0.34	34%
D3.13	Decontamination or Dismantling of Radioactive Facility Components	\$1.9675	189%
D3.13	Restoration of Contaminated Areas on Facility Grounds	\$0.110	1%
D3.13	Final Radiation Survey	\$0.109	1%
D3.13	Site Stabilization and Long-Term Surveillance	-	0%
	Indirect Services	\$1.252	123%
C3.14	Packing, Shipping, and Waste Disposal Costs	\$5.103.91	472%
C3.15	Equipment/Supply Costs	\$0.5343	54%
C3.16	Laboratory Costs	\$0.06	1%
C3.17	Other Direct Costs	\$0.14	12%
C3.17	Other Indirect Costs	\$1.254	113%
	Subtotal¹	\$10.849.27	100%
	G&A ²	\$0.8169	
	Contractor Profit ³	\$1.130.97	
	Contingency ⁴	\$3.202.73	
	Total Decommissioning Cost Estimate	\$15.983.66	

Note 1: Subtotal includes labor/materials/overhead allocation costs.

Note 2: General & Administrative (G&A) cost assumed to be 7.5% based upon current company's experience.

Note 3: Contractor Profit assumed to be 15% on the subtotal plus G&A minus Other Indirect Costs [excluding insurance] minus the outside services portion of the Packaging, Shipping, and Waste Disposal Costs (15% * $[10.849.27 + 0.8169 - 1.254 - 2.9023] = \$1.130.97M$).

Note 4: Contingency assumed to be 25% on subtotal plus G&A and contractor profit.

Table C3.19 Total Labor Distribution

Group	Type	Job/Personnel/Benchmark Descriptions
Supervision	Exempt	Project Manager
Engineering	Exempt	Design Engineer, Systems Engineer, Nuclear Engineer, Nuclear Safety Engineer, Engineer (Regulatory)
Operations	Exempt	Production Supervisor
	Non- Exempt	Hazardous Materials Technician
Maintenance	Exempt	Maintenance Supervisor, Scheduler/Planner
	Non- Exempt	Mechanic, Groundskeeper
Support	Exempt	Health Physics (HP) Supervisor, Engineer (Waste)
	Non- Exempt	HP Technician, Security Officer – Armed, Research Technician, Hazardous Materials Technician

Enclosure 6 to AET 12-0062

Affidavit

**Information contained within
does not contain
Export Controlled Information**

**Reviewer: G. Peed
Date: 12/14/2012**

**AFFIDAVIT OF PETER J. MINER
SUPPORTING APPLICATION TO WITHHOLD FROM
PUBLIC DISCLOSURE CERTAIN INFORMATION CONTAINED
IN ENCLOSURES 3, 4, AND 5 OF AET 12-0062 FOR THE
AMERICAN CENTRIFUGE LEAD CASCADE FACILITY**

I, Peter J. Miner, of USEC Inc. (USEC), having been duly sworn, do hereby affirm and state:

1. I have been authorized by USEC to (a) review the information owned by USEC and is referenced herein relating to the worker unit cost and total labor costs as part of the decommissioning cost estimate for the American Centrifuge Lead Cascade Facility (Lead Cascade), which USEC seeks to have withheld from public disclosure pursuant to section 147 of the *Atomic Energy Act* (AEA), as amended, 42 U.S.C § 2167, and 10 CFR 2.390(a)(4), and 9.17(a)(4), apply for the withholding of such information from public disclosure by the U.S. Nuclear Regulatory Commission (NRC) on behalf of USEC.
2. Consistent with the provisions of 10 CFR 2.390(b)(4) of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
 - i. The information sought to be withheld from public disclosure is owned and has been held in confidence by USEC.
 - ii. The information is of a type customarily held in confidence by USEC and not customarily disclosed to the public. USEC has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitute USEC policy and provide the rational basis required. Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential

competitive advantage, as follows:

- a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where presentation of its use by any of USEC's competitors without license from USEC constitutes a competitive economic advantage over other companies.
 - b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage (e.g., by optimization or improved marketability).
 - c) Its use by a competitor would reduce their expenditure of resources or improve their competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
 - d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of USEC, its customers or suppliers.
 - e) It reveals aspects of past, present, or future USEC or customer funded development plans and programs of potential commercial value to USEC.
 - f) It contains patentable ideas, for which patent protection may be desirable.
 - g) It reveals information concerning the terms and conditions, work performed, administration, performance under or extension of contracts with its customers or suppliers.
- iii. There are sound policy reasons behind the USEC system which include the following:
- a) The use of such information by USEC gives USEC a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the USEC competitive position.

- b) It is information, which is marketable in many ways. The extent to which such information is available to competitors diminishes USEC's ability to sell products and services involving the use of the information.
 - c) Use by our competitors would put USEC at a competitive disadvantage by reducing their expenditure of resources at USEC expense.
 - d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components or proprietary information, any one component may be the key to the entire puzzle, thereby depriving USEC of a competitive advantage.
 - e) Unrestricted disclosure would jeopardize the position of prominence of USEC in the world market, and thereby give a market advantage to the competition of those countries.
 - f) The USEC capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- iv. The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.
- v. The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
3. The proprietary information sought to be withheld is contained in Enclosures 3, 4, and 5 to USEC letter AET 12-0062. Enclosure 3 contains USEC's decommissioning worker unit cost and total labor costs captured in Appendix D of the Decommissioning Funding Plan for the Lead Cascade. Enclosure 4 contains USEC's in-depth calculations related to the annual labor by classification and staffing estimated in phased man-days as used in the development of the

Decommissioning Cost Estimate for the Lead Cascade. Enclosure 5 contains USEC's responses to the NRC's requests for additional information related to Phase I of the decommissioning cost estimate. The information contained within Enclosures 3, 4, and 5 have not been previously disclosed and is likely to cause substantial harm to the competitive position of USEC because it contains details of our labor rates which may provide insights into USEC's forward pricing rates. This information is part of that which will enable USEC to:

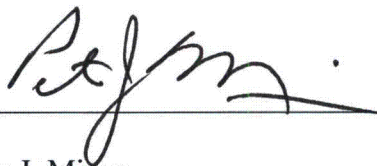
- Continue to deploy the Lead Cascade; and
- Ensure adequate funding is available for decommissioning activities for the Lead Cascade.

Further, this information has substantial commercial value as follows:

- The development of the information described in part is the result of applying many person-hours and expenditure of thousands of dollars on analysis to develop the information which is sought to be withheld; and
- In order for a competitor of USEC to duplicate this information sought to be withheld, a similar process would have to be undertaken and a significant effort and resources would have to be expended.

Further the deponent sayeth not.

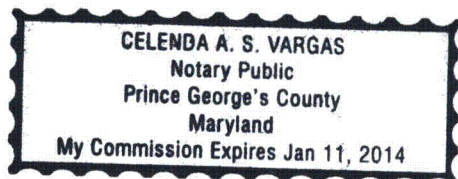
Peter J. Miner, having been duly sworn, hereby confirms that I am the Director, Nuclear Safety and Safeguards of USEC, that I am authorized on behalf of USEC to review the information attached hereto and to sign and file with the U.S. Nuclear Regulatory Commission this affidavit and the attachments hereto, and that the statements made and matters set forth herein are true and correct to the best of my knowledge, information, and belief.



Peter J. Miner

State of Maryland)
) ss.
County of Montgomery)

On this 17th day of December 2012, the individual signing above personally appeared before me, is known by me to be the person whose name is subscribed to within the instrument, and acknowledged that he executed the same for the purposes therein contained. In witness hereof I hereunto set my hand and official seal.



Celenda A. S. Vargas, Notary Public
My commission expires January 11, 2014