



June 5, 2006  
GDP 06-0032

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

**Paducah Gaseous Diffusion Plant (PGDP)  
Portsmouth Gaseous Diffusion Plant (PORTS)  
Docket Nos. 70-7001 and 70-7002  
Certificate Nos. GDP-1 and GDP-2  
Transmittal of Proposed Changes to the Decommissioning Funding Program Description  
and Depleted Uranium Management Plan (TAC Nos L52568, L52569, L32306, L32307 and  
L32308)**

Dear Mr. Strosnider:

Enclosures 1 and 2 provide proposed revisions to the Gaseous Diffusion Plants Decommissioning Funding Program Description (DFP) and Depleted Uranium Management Plan (DU Plan) for Calendar Year 2006, respectively. These documents incorporate changes in response to the NRC's letters of February 2, 2006 (Reference 1) and May 4, 2006 (Reference 2). These documents supersede the proposed DFP and DU Plan revisions transmitted in References 3 and 4 and are provided for review.

In support of USEC Inc.'s American Centrifuge Plant licensing activities, the Department of Energy (DOE) provided a DOE contractor's report detailing a methodology and associated supporting data used to estimate an appropriate unit cost for disposal of depleted uranium at the DOE's Paducah and Portsmouth DUF<sub>6</sub> Conversion Facilities. USEC has developed the depleted uranium disposal cost estimate for the GDPs based on this DOE contractor's methodology. As such, USEC has provided a unit cost for depleted uranium disposition that is consistent with the methodology and unit cost proposed for USEC's American Centrifuge Plant. Enclosure 3 provides the analysis of the uranium disposal unit cost estimate for GDPs. In addition, USEC has applied a 25% contingency to the depleted uranium disposition costs as requested by Reference 2.

Upon notification that the proposed changes to the DFP and DU Plan are acceptable to NRC, USEC will incorporate the DFP and DU Plan changes in a revision to the Application and submit the appropriate executed financial instruments to cover the revised cost estimate. The revision to the Application incorporating the approved plans and the executed financial instruments will be submitted to NRC no later than 30 days after USEC receives this notification.

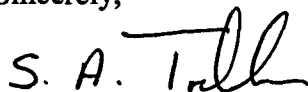
USEC Inc.  
6903 Rockledge Drive, Bethesda, MD 20817-1818  
Telephone 301-564-3200 Fax 301-564-3201 <http://www.usec.com>

UMSSOL

Mr. Jack R. Strosnider  
June 5, 2006  
GDP 06-0032, Page 2

Should you have any questions or require additional information, please contact Mark Smith at (301) 564-3244. Commitments contained in this submittal are noted in Enclosure 4.

Sincerely,



Steven A. Toelle  
Director, Regulatory Affairs

Reference:

1. Letter from Dan E. Martin (NRC) to Steven A. Toelle (USEC), "Request for Additional Information-Paducah and Portsmouth Gaseous Diffusion Plants-Revised DUP and DFP dated November 10, 2005 (TAC Nos. L52568 and L52569)", dated February 2, 2006.
2. Letter from Gary Janosko and Joseph Giitter (NRC) to Steven A. Toelle (USEC), "Contingency Factor Applied to Decommissioning Funding Plans for Portsmouth and Paducah Gaseous Diffusion Plants and American Centrifuge Plant (TAC Nos. L32306, L32307, and L32308)", dated May 4, 2006.
3. Letter from Steven A. Toelle to Jack R. Strosnider (NRC), "Transmittal of Proposed Changes to the Decommissioning Funding Program Description and Depleted Uranium Management Plans", USEC Letter GDP 05-0041, dated November 10, 2005.
4. Letter from Steven A. Toelle to Gary S. Janosko (NRC), "Transmittal of Financial Assurance Mechanisms and Standby Trust Documentation", USEC Letter GDP 05-0050, dated December 29, 2005.

Enclosures:

1. Proposed Revisions to the GDP Decommissioning Funding Program Description
2. Proposed Revisions to the GDP Depleted Uranium Management Plan
3. Analysis of Depleted Uranium Disposal Costs Utilizing the DOE/LMI Methodology For the Gaseous Diffusion Plants
4. Commitments Contained in this Submittal

cc: J. Henson, Chief, Fuel Facility Inspection, NRC Region II  
M. Thomas, NRC Senior Resident Inspector, PGDP  
D. Martin, NRC Project Manager

**Proposed Revisions to the GDP  
Decommissioning Funding Program Description**

## **DECOMMISSIONING FUNDING PROGRAM DESCRIPTION**

Blank Page

**LIST OF EFFECTIVE PAGES**

<u>Pages</u>	<u>PGDP</u> <u>Revision</u>	<u>PORTS</u> <u>Revision</u>
ii	86	70
iii	94/RAC 05C032(R2)	77/RAC 05X0030(R2)
iv	86	70
v	94/RAC 05C032(R1)	77/RAC 05X0030(R1)
vi	86	70
1	86	70
2	86	70
3	94	77
4	94/RAC 05C032(R2)	77/RAC 05X0030(R2)
5	94/RAC 05C032(R1)	77/RAC 05X0030(R1)
6	94/RAC 05C032(R1)	77/RAC 05X0030(R1)
7	94/RAC 05C032(R2)	77/RAC 05X0030(R2)
7a	94/RAC 05C032(R2)	77/RAC 05X0030(R2)
8	94/RAC 05C032(R2)	77/RAC 05X0030(R2)
PSB-1	86	70
PSB-2	86	70
PSB-3	86	70
PSB-4	86	70
LOC-1	94/RAC 05C032(R1)	77/RAC 05X0030(R1)
LOC-2	94/RAC 05C032(R1)	77/RAC 05X0030(R1)
STA-1	86/RAC 05C032(R1)	70/RAC 05X0030(R1)
STA-2	86	70
STA-3	86	70
STA-4	86	70
STA-5	86	70
STA-6	86	70
STA-7	94	77
STA-8	94/RAC 05C032(R1)	77/RAC 05X0030(R1)
STA-9	86	70
STA-10	86	70

Blank Page

**CONTENTS**

	<u>Page</u>
<b>1.0 INTRODUCTION .....</b>	<b>1</b>
<b>2.0 SCOPE OF USEC'S DECOMMISSIONING FINANCIAL RESPONSIBILITY .....</b>	<b>2</b>
<b>3.0 DECOMMISSIONING COST ESTIMATE .....</b>	<b>4</b>
<b>3.1 LOW LEVEL AND MIXED WASTE DISPOSAL .....</b>	<b>4</b>
<b>3.1.1 LOW LEVEL RADIOACTIVE WASTE DISPOSAL .....</b>	<b>5</b>
<b>3.1.2 MIXED WASTE DISPOSAL .....</b>	<b>6</b>
<b>3.1.3 MIXED WASTE IN STORAGE .....</b>	<b>6</b>
<b>3.1.4 LOW-LEVEL RADIOACTIVE WASTE IN STORAGE .....</b>	<b>7</b>
<b>3.2 DEPLETED URANIUM DISPOSITION .....</b>	<b>7</b>
<b>3.3 LABOR COSTS .....</b>	<b>8</b>
<b>4.0 REVIEW AND ADJUSTMENT OF DECOMMISSIONING COSTS AND FUNDING     LEVELS .....</b>	<b>8</b>
<b>5.0 DECOMMISSIONING FUNDING MECHANISM .....</b>	<b>8</b>
<b>PAYMENT SURETY BOND - NON-EXECUTED VERSION .....</b>	<b>PSB-1</b>
<b>IRREVOCABLE STANDBY LETTER OF CREDIT .....</b>	<b>LOC-1</b>
<b>NON-EXECUTED VERSION</b>	
<b>STANDBY TRUST AGREEMENT - NON-EXECUTED VERSION .....</b>	<b>STA-1</b>



Blank Page

|

## 1.0 INTRODUCTION

As a condition of certification, 10 Code of Federal Regulations (CFR) 76.35(n) requires the United States Enrichment Corporation (USEC) to submit, as part of its application for an NRC certificate of compliance:

A description of the funding program to be established to ensure that funds will be set aside and available for those aspects of the ultimate disposal of waste and depleted uranium, decontamination and decommissioning, relating to the gaseous diffusion plants leased to the Corporation by the Department of Energy, which are the financial responsibility of the Corporation.

Section 76.35(n) also requires USEC to establish financial surety arrangements to provide the requisite funding. The funding mechanism must ensure availability of funds for activities required to be completed both before and after the return of the gaseous diffusion plants to the Department of Energy (DOE) in accordance with the July 1, 1993 Lease Agreement between DOE and USEC (Lease Agreement). The funding program must also contain a basis for cost estimates used to establish funding levels, and means of adjusting such cost estimates and associated funding levels over the duration of the lease. Finally, USEC is not required to provide funding for "those aspects of decontamination and decommissioning . . . assigned to the Department of Energy under the Atomic Energy Act of 1954, as amended."

In accordance with 10 CFR 76.35(n), USEC hereby submits a description of its program to ensure adequate funds are available for the disposal of waste and the disposition of depleted uranium generated at the GDP's and for which USEC is financially responsible under the Atomic Energy Act (AEA).

## 2.0 SCOPE OF USEC'S DECOMMISSIONING FINANCIAL RESPONSIBILITY

USEC began to operate the Paducah (PGDP) and Portsmouth (PORTS) plants on July 1, 1993, in accordance with the AEA, as amended, and the July 1, 1993 Lease Agreement. Prior to July 1, 1993, DOE operated the plants for about 40 years. Section 1403(d) of the AEA provides that "[t]he payment of any costs of decontamination and decommissioning . . . with respect to conditions existing before the transition date [July 1, 1993], in connection with property of the Department leased under subsection (a), shall remain the sole responsibility of the Department." Accordingly, USEC is not financially responsible for, and this Program Description does not provide funding assurance for, decontamination or decommissioning costs associated with any operations at the gaseous diffusion plants (GDPs) prior to July 1, 1993.

Furthermore, the GDPs, including the Leased Premises, will ultimately be decommissioned by DOE, which is solely responsible for the conduct of decontamination and decommissioning activities at the plant, and which also bears sole financial responsibility for the bulk of these activities. Section 4.6 of the Lease Agreement states that:

Except as provided in Section 4.5(c) of this Lease, the Department will be responsible for and will pay the costs of all Decontamination and Decommissioning, including the costs of Decontamination and Decommissioning of the Leased Premises, the Leased Personalty, any personal property found on the Leased Premises, regardless of ownership, and any Capital Improvement.

In addition, Section 4.3(b) of the Lease Agreement states that "[t]he Corporation shall be entitled, should it choose, to leave any of its personal property (including personal property contaminated by radioactive materials) on the Leased Premises at the end of the Lease Term for Decontamination and Decommissioning by the Department."

However, USEC does have certain specific financial responsibilities with respect to some of these activities. Under Section 4.4(c) of the Lease Agreement, USEC is "responsible for the ultimate treatment and disposal of any waste generated by the Corporation, and for which the Department is not responsible . . . ." Under this provision, USEC is financially responsible for, and this Program Description addresses, the disposal of low-level radioactive waste (LLRW) and "mixed" hazardous and radioactive waste generated by USEC at the GDPs after the date of privatization, July 28, 1998.<sup>1</sup>

In addition, as discussed above, Section 4.6 of the Lease Agreement provides that the Department will pay the costs of all decontamination and decommissioning, "[e]xcept as provided in Section 4.5(c) of this Lease . . . ." Section 4.5(c) authorizes USEC to remove any capital improvement at the GDPs, but "if such removal increases the costs of the Department for the Decontamination and Decommissioning

---

<sup>1</sup> A more detailed description of USEC's plans to manage and dispose of LLRW and mixed waste generated at the GDPs is provided in the Radioactive Waste Management Program, which is included as part of each certificate of compliance application.

of the Leased Premises to which any such Capital Improvement was attached, the Corporation will pay any such increase in Decontamination and Decommissioning costs." At this time, USEC does not anticipate removing any capital improvement from the plant site. Therefore, no financial assurance for Decontamination and Decommissioning cost increases arising out of such removal is currently being provided.

Finally, USEC is generating depleted uranium as a result of its operation of the GDPs. Section 3109(a)(3) of the USEC Privatization Act (passed April 1996) states that:

All liabilities arising out of the disposal of depleted uranium generated by the Corporation between July 1, 1993 and the privatization date shall become the direct liabilities of the Secretary [Secretary of Energy].

Therefore, this Program Description also describes USEC's funding program to ensure funds are available for the ultimate disposition of the depleted uranium generated by USEC's operations after July 28, 1998.<sup>2</sup>

As described in the Depleted Uranium Management Plan, USEC has established agreements with the DOE that affect USEC's liability associated with the disposal of depleted uranium generated by USEC. These agreements are the "Memorandum of Agreement Between the United States Department of Energy and the United States Enrichment Corporation Relating to Depleted Uranium," dated June 30, 1998 and the "Agreement Between the U.S. Department of Energy ("DOE") and USEC Inc. ("USEC")," dated June 17, 2002.

The "Memorandum of Agreement Between the United States Department of Energy and the United States Enrichment Corporation Relating to Depleted Uranium," dated June 30, 1998 provides for the transfer to DOE of 2,026 48G cylinders containing approximately 16,674,000 Kg of depleted uranium generated by USEC's operations. In accordance with the agreement, USEC has made the required full payment of over \$50M to DOE, covering the entire quantity of depleted uranium to be transferred. Therefore, the liability to dispose of the full amount of USEC's depleted uranium specified in the agreement now rests with DOE, further reducing the quantity of depleted uranium to be ultimately disposed of by USEC. Within these major parameters of the agreement, USEC and DOE have also agreed to implement the actual transfer of the material on a schedule covering the period of FY 1999 through 2004.

The "Agreement Between the U.S. Department of Energy ("DOE") and USEC Inc. ("USEC")," dated June 17, 2002, provides, in part, for the DOE taking title of depleted uranium from USEC operations during USEC's fiscal years 2002 and 2003 and one-half the amount of depleted uranium generated during USEC's fiscal years 2004 and 2005. Therefore, as a result of this June 17, 2002 agreement, USEC's liability associated with the disposal of USEC generated depleted uranium has been reduced by the quantity of depleted uranium specified in this June 17, 2002 agreement.

---

2 The Depleted Uranium Management Plan describes in greater detail USEC's plans for the management and disposition of depleted uranium.

The quantity of depleted uranium associated with these agreements, and the transfer schedule for this material, is specified in Table 1 of the Depleted Uranium Management Plan.

In addition to USEC's enrichment operations, USEC also performs contract work for the DOE and DOE contractors at the Portsmouth and Paducah Plants. To compensate USEC for incurred costs associated with these contracts, DOE has taken title to depleted uranium further reducing USEC's liability for the disposal of depleted uranium. The quantity of depleted uranium, and the transfer schedule for the depleted uranium associated with the compensation for these contracts, is specified in Table 1 of the Depleted Uranium Management Plan.

### 3.0 DECOMMISSIONING COST ESTIMATE

In accordance with 10 CFR 76.35(n), USEC has estimated the costs associated with the disposal of LLRW and mixed waste, and the disposition of depleted uranium generated by its operations at the GDPs. These costs are not considered decontamination and decommissioning costs, but rather production costs since they are incurred during the operation and maintenance of the plant. These cost estimates are cumulative, and are calculated one year in advance. The estimated cost for calendar year (CY) 2006 for the disposal of waste and for the disposition of depleted uranium generated by USEC at the GDPs is as follows:

Low Level and Mixed Waste	\$ 7.88	M
Depleted Uranium	\$94.20	M
Labor Cost	\$ 0.50	M
CY06 Cost	\$102.58	M

To account for uncertainties associated with either the estimated volumes or costs associated with the above cost estimates, a contingency factor of 25% is applied to the CY 06 cost, which is consistent with the recommendations in the NRC's guidance on preparing Decommissioning Funding Plans (NUREG-1757). After application of the 25% contingency, USEC's total projected decommissioning funding liability for calendar year 2006 is \$ 128.23 million.

The bases for these cost estimates, are described below in their respective subsection. USEC's cost estimates will be reviewed annually and revised, as necessary, to reflect any change in USEC's projected liability.

#### 3.1 LOW LEVEL AND MIXED WASTE DISPOSAL

USEC generates many types of LLRW and mixed (hazardous and radioactive) waste at the GDPs, as described in the Radioactive Waste Management Program (RWMP) for each site. For the most part, all wastes are routinely treated on-site or treated and disposed of off-site as the wastes are generated. There are, however, a small number of mixed waste streams at PORTS for which no treatment and/or disposal option exists in the US. These wastes are authorized to be stored in Department of Energy permitted storage at PORTS under agreements with the appropriate state agencies. There is also a quantity of LLRW at each plant that will remain onsite at the end of CY 2006. At PGDP, the LLRW

in storage includes waste that is in the process of being recharacterized for nuclear criticality parameters and waste that is being processed for off-site disposal, while at PORTS, most of these wastes currently do not have a disposal option. These wastes are being stored in compliance with USEC's Certificate of Compliance. USEC's LLRW and mixed waste decommissioning liability is calculated as the sum of the liability associated with the cost of disposal of that amount of waste estimated to be generated during the calendar year plus the liability associated with the estimated amount of waste that remains in storage at the end of the calendar year. Cost of disposal includes disposal cost, container cost, and transportation costs.

Estimated waste generation volumes are based on historical waste generation for each plant. Each individual LLRW and mixed waste stream has a different estimated volume and a different disposal cost. For the year, the different volumes of waste generated and their disposal cost estimates are averaged to establish an average disposal cost. USEC's cost estimate is based on the weighted average cost to manage waste. The disposal cost estimate for each waste stream in the weighted average cost is based upon existing contract prices, and historical cost of containers and transportation.

Except for those mixed wastes and LLRW that are stored on-site, as noted above, USEC anticipates that its waste disposal activities will be such that LLRW and most mixed waste generated in any given year will be disposed of within that year, or shortly thereafter. USEC funds this disposal cost out of accrued cash generated from operations. The decommissioning liability associated with the waste that remains in storage at the end of the calendar year at each site will be calculated based on the estimated volume of waste in storage at the end of the calendar year.

### 3.1.1 Low Level Radioactive Waste Disposal

USEC anticipates generating a total of approximately 53,500 ft<sup>3</sup> of LLRW from routine operations and projects at the Paducah plant for calendar year 2006. USEC has assumed disposal of Paducah's LLRW at various commercial disposal facilities at an average weighted cost of \$37/ft<sup>3</sup>. The disposal cost for LLRW generated by USEC at the Paducah plant for calendar year 2006 is therefore estimated to be:

$$\text{Paducah LLRW: } 53,500 \text{ ft}^3 \times \$37/\text{ft}^3 = \$1.980 \text{ million for the year}$$

Likewise at the Portsmouth plant, USEC anticipates generating a total of approximately 17,250 ft<sup>3</sup> of LLRW from routine operations, projects and shutdown related activities. USEC has assumed disposal of Portsmouth's LLRW at various commercial disposal facilities at an average weighted cost of \$37/ft<sup>3</sup>. The disposal cost for LLRW generated by USEC at the Portsmouth plant for calendar year 2006 is therefore estimated to be:

$$\text{Portsmouth LLRW: } 17,250 \text{ ft}^3 \times \$37/\text{ft}^3 = \$0.638 \text{ million for the year}$$

The cost of disposal of USEC's LLRW for CY 2006 is \$2.618 million.

### 3.1.2 Mixed Waste Disposal

USEC anticipates generating a total of approximately 350 ft<sup>3</sup> of mixed waste at the Paducah plant in calendar year 2006. The current average cost estimate for disposing of this mixed waste produced at Paducah is \$500/ft<sup>3</sup>. The disposal cost for this mixed waste generated at the Paducah plant for calendar year 2006 is therefore estimated to be:

$$\text{Paducah Mixed Waste: } 350 \text{ ft}^3 \times \$500/\text{ft}^3 = \$0.175 \text{ million for the year}$$

Likewise at the Portsmouth plant, USEC anticipates generating a total of approximately 310 ft<sup>3</sup> of mixed waste for CY 2006. The current average cost of disposal of such waste at Portsmouth is \$500/ft<sup>3</sup>. The disposal cost for this mixed waste generated at the Portsmouth plant for calendar year 2006 is therefore estimated to be:

$$\text{Portsmouth Mixed Waste: } 310 \text{ ft}^3 \times \$500/\text{ft}^3 = \$0.155 \text{ million for the year}$$

The cost of disposal of USEC's mixed waste for CY 2006 is \$0.33 million.

### 3.1.3 Mixed Waste in Storage

As described earlier, there is an amount of mixed waste that will remain in storage at the end of CY 2006 at the Portsmouth plant. USEC estimates that 1,200 ft<sup>3</sup> of mixed waste will be in storage at the end of CY 2006. Due to the unknown future costs associated with these wastes an additional \$1,500/ft<sup>3</sup> may be necessary for disposal. The additional estimated cost associated with the disposal of this waste is:

$$\text{Portsmouth mixed waste in storage: } 1,200 \text{ ft}^3 \times \$1,500/\text{ft}^3 = \$1.8 \text{ million}$$

### 3.1.4 Low-Level Radioactive Waste in Storage

As described earlier, there is an amount of LLRW that will remain in storage at the end of CY 2006. This waste will be disposed at a later date at an estimated cost of \$37/ft<sup>3</sup>. This disposal cost is determined based on the weighted average cost for this particular waste stream. At Paducah, this LLRW volume is estimated to be 25,000 ft<sup>3</sup>.

The disposal cost for this LLRW that will remain on site at Paducah at the end of CY 2006 is estimated to be:

$$\text{Paducah LLRW in storage: } 25,000 \text{ ft}^3 \times \$37/\text{ft}^3 = \$0.925 \text{ million}$$

Likewise, at the Portsmouth Plant, USEC estimates that 3,000ft<sup>3</sup> of LLRW will remain on-site at the end of CY 2006, and disposed at a later date. Therefore, the disposal cost for this LLRW that will remain on site at Portsmouth at the end of CY2006 is estimated to be:

$$\text{Portsmouth LLRW in storage: } 3,000\text{ft}^3 \times \$28/\text{ft}^3 = \$0.08 \text{ million}$$

In addition, 3,500 ft<sup>3</sup> of LLRW for which USEC does not currently have a disposal outlet will remain in storage at Portsmouth. Due to the unknown future costs associated with disposal of this 3,500 ft<sup>3</sup> of LLRW, an additional \$600 may be necessary for disposal. Therefore, the disposal cost for this LLRW that will remain in storage at Portsmouth at the end of CY 2006 is estimated to be:

$$\text{Portsmouth LLRW in storage: } 3,500 \text{ ft}^3 \times \$600/\text{ft}^3 = \$2.1 \text{ million}$$

Therefore, the cost to dispose of the LLRW in storage in a subsequent calendar year is \$3.136 million.

## 3.2 Depleted Uranium Disposition

The estimate of decommissioning liability for depleted uranium is based on the generation of depleted uranium as described in the Depleted Uranium Management Plan. USEC's examination of the available information has identified that the unit cost to dispose of tails for the GDPs could range between \$3.29/kilogram (kg) uranium (U) to \$4.60/kg U, depending on a number of factors and assumptions. The unknown factors include: location(s) for processing USEC depleted uranium, escalation rate(s) of various construction cost components; de-escalation rate(s) of future operating costs (to present day dollars); volume of tails disposed; revenue/avoided disposal cost from sale of conversion products (e.g., hydrogen fluoride) or higher assay tails (tail stripping); construction and operations budget contingencies; allocation of decontamination and decommissioning costs (between USEC and DOE); and DOE oversight costs.

USEC has developed the depleted uranium disposal cost estimate for the GDPs based on a methodology and supporting data provided by DOE in support of USEC Inc.'s American Centrifuge Plant (ACP) licensing activities. This DOE methodology and supporting data enabled the development of a specific analysis for the ACP which determined that \$4.60/kgU is a reasonable depleted uranium disposal unit cost for the purposes of ACP decommissioning funding. This unit cost for disposal of ACP



generated depleted uranium was developed based upon costs associated with processing of the ACP depleted uranium at the DOE's Portsmouth DUF<sub>6</sub> Conversion Facility. Consistent with the estimated unit cost proposed for disposal of the ACP depleted uranium, the depleted uranium disposal cost for USEC's depleted uranium located at PORTS is estimated to be \$4.60/kgU.

USEC used the same methodology and supporting data provided by DOE in support of the ACP licensing activities to develop a PGDP-specific cost estimate to process USEC depleted uranium located at PGDP at the DOE's Paducah DUF<sub>6</sub> Conversion Facility. Based on the information provided by DOE, USEC determined that \$4.14/kgU is a reasonable depleted uranium disposal unit cost for the purposes of decommissioning funding of USEC's depleted uranium located at PGDP.

Based on the Depleted Uranium Management Plan, USEC's projected maximum liability at the end of calendar year 2006 for the disposition of depleted uranium generated by its Paducah and Portsmouth operations is 22,705,000 kilograms (refer to Table 1 in the Depleted Uranium Management Plan). The projected quantities of depleted uranium located at each GDP are noted below.

Location	Projected Quantity (kgU)
PGDP	22,345,000
PORTS	360,000

Total estimated disposal cost, in 2006 dollars, for depleted uranium is then calculated as follows:

Location	Projected Quantity (kgU)	Unit Cost (\$/kgU)	Disposal Cost (\$)
PGDP	22,345,000	4.14	92,508,300
PORTS	360,000	4.60	1,656,000
Total Disposal Cost			94,164,300

The total estimated disposal cost for depleted uranium, after rounding, is \$94.2 million.

The above cost estimate includes processing as well as transportation and disposal of any by-product related to processing of the depleted uranium. There are no costs for transporting USEC's depleted uranium inventory to the DOE DUF<sub>6</sub> conversion facilities as these facilities are co-located with the gaseous diffusion plants.

### 3.3 Labor Costs

To account for labor costs associated with disposal of USEC generated waste, USEC has included provisions for two crews (one for each facility) comprised of 1 supervisor, 3 laborers, 1 health physics technician and 1 engineer. Since disposal of waste is not a continuous process, the labor costs are calculated assuming the crews are available for a six-month duration, with the health physics technician and the engineer available for half of this duration (3 months duration). Labor costs were estimated based on the costs provided in NUREG/CR-6477, "Revised Analyses of Decommissioning Reference Non-Fuel-Cycle Facilities," dated July 1998. Based on these assumptions, the labor costs associated with disposal of USEC generated waste is \$500,000 (\$250,000 per site).

### 4.0 REVIEW AND ADJUSTMENT OF DECOMMISSIONING COSTS AND FUNDING LEVELS

USEC will review the decommissioning cost estimates and associated funding levels over the duration of the lease and adjust them when necessary. These adjustments will take into account such factors as changes in volume and cost estimates, changes in plant conditions, and changes in expected decontamination and decommissioning procedures. USEC will conduct such reviews in October of each year.

### 5.0 DECOMMISSIONING FUNDING MECHANISM

USEC utilizes payment surety bond(s) and/or letter(s) of credit in conjunction with standby trust agreement(s) to ensure that sufficient funds will be available for waste disposal and depleted uranium disposition as set forth in this Program Description. The instruments are derived from Appendix A, NUREG-1757 Volume 3, "Consolidated NMSS Decommissioning Guidance, *Financial Assurance, Recordkeeping, and Timeliness*", dated September 2003. Non-executed versions are included in this Plan. Executed documents are submitted to the NRC for review as they are revised and reissued.

December 29, 2003

**PAYMENT SURETY BOND - NON--EXECUTED VERSION**

Date bond executed: \_\_\_\_\_

Effective date: \_\_\_\_\_

Principal: United States Enrichment Corporation  
6903 Rockledge Drive  
Bethesda, MD 20817

Type of organization: Delaware Chartered Corporation

NRC certificate of compliance number: GDP-1 and GDP-2

Name and address of facilities: Paducah Gaseous Diffusion Plant  
Portsmouth Gaseous Diffusion Plant

Amount(s) for decommissioning  
activity guaranteed by this bond: Estimated at [insert amount]

Surety(ies) [name(s) and business address(es)]

Type of organization: [insert "proprietorship," "joint venture," "partnership" or "corporation"]

State of incorporation: \_\_\_\_\_ (if applicable)

Surety's qualification in jurisdiction where facility is located.

Surety's bond number \_\_\_\_\_

Total penal sum of bond: \$ \_\_\_\_\_

Know all persons by these presents, That we, the Principal and Surety(ies) hereto, are firmly bound to the U.S. Nuclear Regulatory Commission (herein called NRC), in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally; provided that, where the Sureties are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety; but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

December 29, 2003

WHEREAS, the NRC, an agency of the U.S. Government, pursuant to the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, has promulgated regulations in Title 10, Chapter I of the Code of Federal Regulations, Part 76, applicable to the Principal, which require that the holder of a certificate of compliance for a gaseous diffusion plant, or an applicant for a certificate of compliance for such a facility provide financial assurance that funds will be available when needed for those aspects of the ultimate disposal of waste and disposition of depleted uranium, decontamination and decommissioning of such a facility which are the financial responsibility of such holder or applicant (collectively, "decommissioning");

NOW, THEREFORE, the conditions of the obligation are such that if the Principal shall faithfully, before the beginning of decommissioning of each facility identified above, fund the standby trust fund in the amount(s) identified above for the facility;

Or, if the Principal shall fund the standby trust fund in such amount(s) after an order to begin facility decommissioning is issued by the NRC or a U.S. district court or other court of competent jurisdiction;

Or, if the Principal shall provide alternative financial assurance and obtain the written approval of the NRC of such assurance, within 30 days after the date a notice of cancellation from the Surety(ies) is received by both the Principal and the NRC, then this obligation shall be null and void; otherwise it is to remain in full force and effect.

The Surety(ies) shall become liable on this bond obligation only when the Principal has failed to fulfill the conditions described above. Upon notification by the NRC that the Principal has failed to perform as guaranteed by this bond, the Surety(ies) shall place funds in the amount guaranteed for the facility(ies) into the standby trust fund established by the Principal with [name of trustee] pursuant to the Standby Trust Agreement dated [date].

The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the Surety(ies) hereunder exceed the amount of said penal sum.

The Surety(ies) may cancel the bond by sending notice of cancellation by certified mail to the Principal and to the NRC provided, however, that cancellation shall not occur during the 90 days beginning on the date of receipt of the notice of cancellation by both the Principal and the NRC, as evidenced by the return receipts.

The Principal may terminate this bond by sending written notice to the NRC and to Surety(ies) 90 days prior to the proposed date of termination, provided, however, that no such notice shall become effective until the Surety(ies) receive(s) written authorization for termination of the bond from the NRC.

If any part of this agreement is invalid, it shall not affect the remaining provisions which will remain valid and enforceable.

December 29, 2003

In Witness Whereof, the Principal and Surety(ies) have executed this financial guarantee bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies).

Principal: United States Enrichment Corporation

[Signature(s)]

[Name(s)]

[Title(s)]

[Corporate Seal]

Corporate Surety(ies)

[Name and address]

State of incorporation: \_\_\_\_\_

Liability limit: \$ \_\_\_\_\_

[Signature(s)]

[Name(s) and title(s)]

[Corporate Seal]

[For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for Surety(ies) above.]

Bond premium: \$ \_\_\_\_\_

Blank Page

December 29, 2005

**IRREVOCABLE STANDBY LETTER OF CREDIT NO. [INSERT NUMBER]  
NON-EXECUTED VERSION**

This Credit Expires [*insert date*]

Issued To: U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Dear Sir or Madam:

We hereby establish our Irrevocable Standby Letter of Credit No. \_\_\_\_\_ in your favor, at the request and for the account of the United States Enrichment Corporation, 6903 Rockledge Drive, Bethesda, MD 20817, Certificate Numbers GDP-1 and GDP-2, Docket Numbers 70-7001 and 70-7002, up to the aggregate amount of [*insert dollar amount in words*], U.S. dollars \$\_\_\_\_\_, available upon presentation of:

- (1) your sight draft, bearing reference to this Letter of Credit No. \_\_\_\_\_, and
- (2) your signed statement reading as follows: "I certify that the amount of the draft is payable pursuant to regulations issued under authority of the U.S. Nuclear Regulatory Commission."

This letter of credit is issued in accordance with regulations issued under the authority of the U.S. Nuclear Regulatory Commission (NRC), an agency of the U.S. Government, pursuant to the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974. NRC has promulgated regulations in title 10, Chapter I of the *Code of Federal Regulations*, Part 76, which require that a holder of, or an applicant for, an NRC certificate of compliance issued under 10 CFR Part 76 provide assurance that funds will be available when needed for decommissioning.

This letter of credit is effective as of [*insert date*] and shall expire on [*insert date at least 1 year later*], but such expiration date shall be automatically extended for a period of [*insert time period of at least 1 year*] on [*insert date*] and on each successive expiration date, unless, at least 90 days before the current expiration date, we notify both you and the United States Enrichment Corporation, by certified mail, as shown on the signed return receipts or overnight courier. If the United States Enrichment Corporation is unable to secure alternative financial assurance to replace this letter of credit within 30 days of notification of cancellation, NRC may draw upon the full value of this letter of credit prior to the then current expiration date. The bank shall give immediate notice to the applicant and NRC of any notice received or action filed alleging (1) the insolvency or bankruptcy of the financial institution or (2) any violation of regulatory requirements that could result in suspension or revocation of the bank's charter or license to do business. The financial institution also shall give immediate notice if the bank, for any reason, becomes unable to fulfill its obligation under the letter of credit unless a court order or other applicable law prevents the giving of such notice.

DFP-GDPs  
PGDP Rev. 94 / RAC05C032(R1)  
PORTS Rev. 77 / RAC05-X0030(R1)

December 29, 2005

Whenever this letter of credit is drawn on, under and in compliance with the terms of this letter of credit, we shall duly honor such draft upon its presentation to us within 30 days, and we shall deposit the amount of the draft directly into the standby trust fund of the United States Enrichment Corporation in accordance with your instructions.

Each draft must bear on its face the clause: "Drawn under Letter of Credit No. \_\_\_\_\_, dated \_\_\_\_\_, and the total of this draft and all other drafts previously drawn under this letter of credit does not exceed [*insert amount of letter of credit*]."

[*Signature(s) and title(s) of official(s) of issuing institution*]  
[*Name, address, and phone number of issuing institution*]  
[*Date*]

This credit is subject to [*insert "the most recent edition of the Uniform Customs and Practice for Documentary Credits, published by the International Chamber of Commerce," or "the Uniform Commercial Code"*].



**STANDBY TRUST AGREEMENT - NON-EXECUTED VERSION**

TRUST AGREEMENT, the Agreement entered into as of [date] by and between the United States Enrichment Corporation, a Delaware chartered corporation, herein referred to as the "Grantor," and [name and address of a national bank or other Trustee acceptable to the U.S. Nuclear Regulatory Commission], the "Trustee."

WHEREAS, the U.S. Nuclear Regulatory Commission (NRC), an agency of the U.S. Government, pursuant to the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, has promulgated regulations in Title 10, Chapter I of the Code of Federal Regulations, Part 76. These regulations, applicable to the Grantor, require that a holder of, or an applicant for, a Part 76, certificate of compliance provide assurance that funds will be available when needed for required decommissioning activities.

WHEREAS, the Grantor has elected to use a surety bond in combination with a letter of credit to provide such financial assurance for the facilities identified herein; and

WHEREAS, when payment is made under a surety bond and/or letter of credit this standby trust shall be used for the receipt of such payment; and

WHEREAS, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this Agreement, and the Trustee is willing to act as trustee,

NOW, THEREFORE, the Grantor and the Trustee agree as follows:

**Section 1. Definitions.** As used in this Agreement:

- (a) The term "Decommissioning" means those aspects of the ultimate disposal of waste and disposition of depleted uranium, decontamination and decommissioning of the Paducah and Portsmouth Gaseous Diffusion Plant (GDPs) which are the financial responsibility of the Grantor.
- (b) The term "Grantor" means the United States Enrichment Corporation and any successors or assigns thereof.
- (c) The term "Trustee" means the trustee who enters into this Agreement and any successor Trustee.

**Section 2. Costs of Decommissioning.** This Agreement pertains to the costs of decommissioning the materials and activities identified in Certificate of Compliance Number GDP-1 and GDP-2 issued pursuant to 10 CFR Part 76.

**Section 3. Establishment of Fund.** The Grantor and the Trustee hereby establish a standby trust fund (the Fund) for the benefit of the NRC. The Grantor and the Trustee intend that no third party have access to the Fund except as provided herein.

**Section 4. Payments Constituting the Fund.** Payments made to the Trustee for the Fund shall consist of cash, securities, or other liquid assets acceptable to the Trustee. The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee are referred to as the "Fund," together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount of, or adequacy of the Fund, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by the NRC.

**Section 5. Payment for Required Activities Specified in the Plan.** The Trustee shall make payments from the Fund to the Grantor upon presentation to the Trustee of the following:

a. A certificate duly executed by the Secretary of the Grantor attesting to the occurrence of the events, and in the form set forth in the attached Specimen Certificate, and

b. A certificate attesting to the following conditions:

(1) that decommissioning is proceeding pursuant to an NRC-approved plan.

(2) that the funds withdrawn will be expended for activities undertaken pursuant to that Plan, and

(3) that the NRC has been given 30 days' prior notice of the Grantor's intent to withdraw funds from the escrow fund.

No withdrawal from the fund can exceed 10 percent of the outstanding balance of the Fund unless NRC approval is attached.

In the event of the Grantor's default or inability to direct decommissioning activities, the Trustee shall make payments from the Fund as the NRC shall direct, in writing, to provide for the payment of the costs of required activities covered by this Agreement. The Trustee shall reimburse the Grantor, or other persons as specified by the NRC, from the Fund for expenditures for required activities in such amount as the NRC shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as the NRC specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

**Section 6. Trust Management.** The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge its duties with respect to the Fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity

and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

- (a) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended (15 U.S.C. 80a-2(a)), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;
- (b) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal Government, and in obligations of the Federal Government such as GNMA, FNMA, and FHLM bonds and certificates or State and Municipal bonds rated BBB or higher by Standard and Poor's or Baa or higher by Moody's Investment Services; and
- (c) For a reasonable time, not to exceed 60 days, the Trustee is authorized to hold uninvested cash, awaiting investment or distribution, without liability for the payment of interest thereon.

**Section 7. Commingling and Investment.** The Trustee is expressly authorized in its discretion:

- (a) To transfer from time to time any or all of the assets of the fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and
- (b) To purchase shares in any investment company registered under the Investment Company Act of 1940 (15 U.S.C. 80a-1 et seq.), including one that may be created, managed, underwritten, or to which investment advice is rendered, or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

**Section 8. Express Powers of Trustee.** Without in any way limiting the powers and discretion conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

- (a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale, as necessary to allow duly authorized withdrawals at the joint request of the Grantor and the NRC or to reinvest in securities at the direction of the Grantor;
- (b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;
- (c) To register any securities held in the Fund in its own name, or in the name of a nominee, and to hold any security in bearer form or in book entry, or to combine

certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, to reinvest interest payments and funds from matured and redeemed instruments, to file proper forms concerning securities held in the Fund in a timely fashion with appropriate government agencies, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, where so deposited, such securities may be merged and held in bulk in the name of the nominee or such depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the U.S. Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

**Section 9. Taxes and Expenses.** All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

**Section 10. Annual Valuation.** After payment has been made into this standby trust fund, the Trustee shall annually, at least 30 days before the anniversary date of receipt of payment into the standby trust fund, furnish to the Grantor and to the NRC a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days before the anniversary date of the establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and the NRC, shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to the matters disclosed in the statement.

**Section 11. Advice of Counsel.** The Trustee may from time to time consult with counsel with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting on the advice of counsel.

**Section 12. Trustee Compensation.** The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing with the Grantor. (See Schedule C.)

**Section 13. Successor Trustee.** Upon 90 days notice to the NRC, the Trustee may resign; upon 90 days notice to NRC and the Trustee, the Grantor may replace the Trustee; but such resignation or replacement shall not be effective until the Grantor has appointed a successor Trustee and this successor accepts the appointment. The successor Trustee shall have the same powers and duties as those conferred upon the

Trustee hereunder. Upon the successor Trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor Trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor Trustee or for instructions. The successor Trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the NRC, and the present Trustee by certified mail 10 days before such changes becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this section shall be paid as provided in Section 9.

**Section 14. Instructions to the Trustee.** All orders, requests, and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are signatories to this agreement or such other designees as the Grantor may designate in writing. The Trustee shall be fully protected in acting without inquiry in accordance with the grantor's orders, requests, and instructions. If the NRC issues orders, requests, or instructions to the Trustee these shall be in writing, signed by the NRC, or its designees, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor, or the NRC, hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instruction from the Grantor and/or the NRC, except as provided for herein.

**Section 15. Amendment of Agreement.** This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee and the NRC, or by the Trustee and the NRC, if the Grantor ceases to exist.

**Section 16. Irrevocability and Termination.** Subject to the right of the parties to amend this Agreement as provided in Section 15, this trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the NRC, or by the Trustee and the NRC, if the Grantor ceases to exist. Upon termination of the trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor or its successor.

**Section 17. Immunity and Indemnification.** The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this trust, or in carrying out any directions by the Grantor, or the NRC, issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the trust fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

**Section 18.** This Agreement shall be administered, construed, and enforced according to the laws of the United States.

**Section 19. Interpretation and Severability.** As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement. If any part of this agreement is invalid, it shall not affect the remaining provisions which will remain valid and enforceable.

December 29, 2003

IN WITNESS WHEREOF the parties have caused this Agreement to be executed by the respective officers duly authorized and the incorporate seals to be hereunto affixed and attested as of the date first written above.

ATTEST:

[Insert name of Grantor]  
[Signature of representative  
of Grantor]  
[Title]

[Title]  
[Seal]

[Insert name of Trustee]  
[Signature of representative  
of Trustee]  
[Title]

ATTEST:

[Title]  
[Seal]

DFP-GDPs  
PGDP Rev. 94  
PORTS Rev. 77

February 25, 2005

United States Enrichment Corporation  
Standby Trust Agreement

SCHEDULE A

This Agreement demonstrates financial assurance for the following cost estimates for the following licensed activities:

U.S. NUCLEAR  
REGULATORY  
COMMISSION  
CERTIFICATE OF  
COMPLIANCE NUMBER

GDP-1 and GDP-2

NAME AND  
ADDRESS OF  
LICENSEE

United States Enrichment Corporation  
6903 Rockledge Drive  
Bethesda, Maryland 20817

3930 State Route 23/Perimeter Road  
Piketon, Ohio 45661

5600 Hobbs Road  
Paducah, Kentucky 42001

COST ESTIMATE FOR  
REGULATORY ASSURANCES  
DEMONSTRATED BY THIS  
AGREEMENT

[Insert amount of agreement]

The cost estimates listed here were submitted to the NRC on [insert date]

The Total Cost of decommissioning the GDP's, assuming no liability for decontamination, is as per the decommissioning cost estimate on file with the NRC.

United States Enrichment Corporation \_\_\_\_\_

Trustee \_\_\_\_\_

DFP-GDPs  
PGDP Rev. 94 / RAC05C032(R1)  
PORTS Rev. 77 / RAC05X0030(R1)

December 29, 2005

United States Enrichment Corporation  
Standby Trust Agreement

SCHEDULE B

AMOUNT:  
AS EVIDENCED BY:

United States Enrichment Corporation \_\_\_\_\_

Trustee \_\_\_\_\_



DFP-GDPs  
PGDP Rev. 86  
PORTS Rev. 70

December 29, 2003

United States Enrichment Corporation  
Standby Trust Agreement

SCHEDULE C

Trustee will be paid [insert amount] annually for services being provided under the standby trust agreement. This fee will apply whether or not payment has been made to the standby trust fund.

DFP-GDPs  
PGDP Rev. 86  
PORTS Rev. 70

December 29, 2003

Blank Page

|

Enclosure 2  
GDP 06-0032  
Page 1 of 13

**Proposed Revisions to the GDP  
Depleted Uranium Management Plan**

## **DEPLETED URANIUM MANAGEMENT PLAN**

Blank Page

**LIST OF EFFECTIVE PAGES**

<u>Pages</u>	<u>PGDP</u> <u>Revision</u>	<u>PORTS</u> <u>Revision</u>
ii	86	70
iii	94 / RAC 05C032 (R2)	77 / RAC 05-X0030 (R2)
iv	86	70
v	86	70
vi	86	70
1	86	70
2	94	77
3	94	77
4	86	70
5	94 / RAC 05C032 (R2)	77 / RAC 05-X0030 (R2)
6	86	70

Blank Page

## CONTENTS

<b>1.0 INTRODUCTION .....</b>	<b>1</b>
<b>2.0 DEPLETED URANIUM PRODUCTION ESTIMATES .....</b>	<b>1</b>
<b>3.0 MANAGEMENT AND DISPOSITION PLAN .....</b>	<b>2</b>
<b>4.0 ITEMS ADDRESSED BY COMPLIANCE PLAN.....</b>	<b>4</b>
<b>TABLE 1 .....</b>	<b>5</b>



Blank Page

## **1.0 INTRODUCTION**

Under 10 Code of Federal Regulations (CFR) 76.35(m), the United States Enrichment Corporation (USEC) is required, as part of its application for a certificate of compliance, to provide:

“A description of the program, as appropriate, for processing, management, and disposal of mixed and radioactive wastes and depleted uranium generated by operations. This description must be limited to processing, management, and disposal activities conducted during operation of the facilities while under lease to the Corporation. The application must also include a description of the waste streams generated by enrichment operations, annual volumes of depleted uranium and waste expected, identification of radioisotopes contained in the waste, physical and chemical forms of the depleted uranium and waste, plans for managing the depleted uranium and waste, and plans for ultimate disposition of the waste and depleted uranium before turnover of the facilities to the Department of Energy under the terms of the lease agreement between the United States Enrichment Corporation and the Department.”

In accordance with 10 CFR 76.35(m), this plan describes USEC's program for the management and disposition of the depleted uranium (DU) produced as part of the enrichment activities at the Portsmouth (PORTS) and Paducah (PGDP) Gaseous Diffusion Plants (GDPs). USEC's program for the processing, management, and disposal of mixed and radioactive wastes is described in the Radioactive Waste Management Plan submitted as part of this application.

## **2.0 DEPLETED URANIUM PRODUCTION ESTIMATES**

The production of depleted uranium will continue throughout the period that enrichment activities are conducted at the GDPs. The production rate of depleted uranium is a function of the demand for enriched uranium, the portion of that demand supplied by the Russian enriched uranium, and the operating mode of the plants (determined by power load, power costs, enrichment levels, and other factors). USEC's projected depleted uranium production estimates for both GDPs cover the period of the Nuclear Regulatory Commission (NRC) Certificate of Compliance. The estimates are provided in Table 1, along with the amount of depleted uranium that USEC is responsible for, taking into account the factors discussed in Section 3.0 below.

The funds set aside for the disposition of depleted uranium at the GDPs will be based on the actual production rates of depleted uranium at the plant during the period that the plant is operated under the USEC/DOE Lease Agreement. USEC's funding plan for the disposition of depleted uranium is described in the Decommissioning Funding Program Description submitted as part of this application.

### 3.0 MANAGEMENT AND DISPOSITION PLAN

The depleted uranium is currently being stored as solid uranium hexafluoride ( $UF_6$ ) in carbon steel cylinders at the GDP plant sites (cylinder storage is described in PGDP SAR Section 3.7.2 and PORTS SAR Section 3.2.4.4). The cylinders meet specific design requirements and special procedures and handling equipment are used for DU cylinder handling, movement, and stacking. USEC can continue to store depleted uranium in the solid state in these cylinders for an extended period without undue risk. In addition, cylinder inspections are conducted, as described below, to provide evidence of continued cylinder integrity.

The cylinders used for the storage of depleted uranium are inspected prior to being filled. After filling, the cylinder is cooled and then moved to a cylinder yard and stacked in place. After the cylinder is stacked in position, a baseline (initial) storage inspection is conducted at which point any damage to the cylinder is identified. If the cylinder is damaged, supervision is notified promptly and the damage evaluated for any actions required; the range of actions are to be commensurate with the cylinder damage. After the initial inspection, the cylinders are inspected every four years thereafter (except for any cylinders identified in the initial inspection as requiring a more frequent inspection); the condition of each cylinder is documented using a cylinder inspection data sheet.

Initial and quadrennial inspections are conducted on full cylinders that are normally single or double stacked. These inspections, conducted from ground level, with or without visual aids, are made using the following criteria:

- Cylinders positioned incorrectly (e.g., with valves in other than top center position); this often is an indication of potential stacking damage.
- Improperly stacked cylinders with potentially damaging contact (e.g., lifting lug resting on cylinder body, stiffening ring resting on stiffening ring, other criteria as described in the inspection procedure).
- Dents, bulges, cracks, metal loss, apparent by visual inspection, on the longitudinal and circumference welds.
- Dents, bulges, cracks, gouges, stacking damage, excessive scale or rust, apparent by visual inspection, on the cylinder shell.
- Bends, cracks or breaks from shell, impact damage, gouges, apparent by visual inspection, on the stiffening rings.
- Tears, dents, cracks, excessive scale or rust, or plugged weep hole, apparent by visual inspection, on the cylinder skirt (or valve protector).

Depleted uranium in the form of solid  $UF_6$  is suitable for conversion to other chemical forms. For example, the solid  $UF_6$  could be converted to  $U_3O_8$ ,  $UF_4$ , or uranium metal. There are a number of

February 25, 2005

existing and potential uses for depleted uranium, including use in radiation shielding material, armor-piercing projectiles, and counterweights. It is possible that increased energy costs may make recovery of additional  $^{235}\text{U}$  from the depleted uranium economically feasible in the future and that other potential uses may also be identified. However, the conversion of the depleted uranium to one of these other forms in the near term could either foreclose other uses and disposition options because of the difficulty of processing some of these uranium compounds and the lack of processing facilities, or increase the cost of the ultimate disposition.

Moreover, the amount of depleted uranium that will be produced by USEC in the near term will be relatively small in comparison with the DOE's existing depleted uranium inventory. DOE is currently storing approximately 700,000 MTU of depleted uranium as solid  $\text{UF}_6$  in approximately 60,000 cylinders stored at various locations on the DOE portions of the GDP plant sites. USEC presently anticipates that the bulk of its inventory of depleted uranium will ultimately be dispositioned in the same manner as the larger DOE depleted uranium inventory.

In the meantime, USEC has established agreements with the DOE that affect USEC's liability associated with the disposal of depleted uranium generated by USEC. These agreements are the "Memorandum of Agreement Between the United States Department of Energy and the United States Enrichment Corporation Relating to Depleted Uranium," dated June 30, 1998 and the "Agreement Between the U.S. Department of Energy ("DOE") and USEC Inc. ("USEC")," dated June 17, 2002.

The "Memorandum of Agreement Between the United States Department of Energy and the United States Enrichment Corporation Relating to Depleted Uranium," dated June 30, 1998 provides for the transfer to DOE of 2,026 48G cylinders containing approximately 16,674,000 Kg of depleted uranium generated by USEC's operations. In accordance with the agreement, USEC has made the required full payment of over \$50M to DOE, covering the entire quantity of depleted uranium to be transferred. Therefore, the liability to dispose of the full amount of USEC's depleted uranium specified in the agreement now rests with DOE, further reducing the quantity of depleted uranium to be ultimately disposed of by USEC. Within these major parameters of the agreement, USEC and DOE have also agreed to implement the actual transfer of the material on a schedule covering the period of FY 1999 through 2004. Table 1 reflects the transfer schedule.

The "Agreement Between the U.S. Department of Energy ("DOE") and USEC Inc. ("USEC")," dated June 17, 2002, provides, in part, for the DOE taking title of depleted uranium from USEC operations during USEC's fiscal years 2002 and 2003 and one-half the amount of depleted uranium generated during USEC's fiscal years 2004 and 2005. Therefore, as a result of this June 17, 2002 agreement, USEC's liability associated with the disposal of USEC generated depleted uranium has been reduced by the quantity of depleted uranium specified in this June 17, 2002 agreement. The quantity of depleted uranium associated with this agreement is specified in Table 1.

In addition to USEC's enrichment operations, USEC also performs contract work for the DOE and DOE contractors at the Portsmouth and Paducah Plants. To compensate USEC for incurred costs associated with these contracts, DOE has taken title to depleted uranium further reducing USEC's liability for the disposal of depleted uranium. The quantity of depleted uranium associated with the compensation for these services is specified in Table 1

In addition to the foregoing outlets, USEC will, to the extent practicable, continue to market depleted uranium for uses in military applications, counterweights, and shielding applications. Efforts may also be made to develop other commercial uses that could include shielding for high-level waste storage and shipping casks, or multipurpose canisters being developed for the DOE high-level waste program.

The remaining inventory will continue to be stored as solid  $UF_6$  until it can be processed in accordance with the disposition strategy established by DOE for its inventory.

The estimated cost of conversion and disposition of the depleted uranium is provided in the Decommissioning Funding Program, along with a description of the funding mechanisms that will be used to address USEC's funding liabilities.

#### **4.0 ITEMS ADDRESSED BY COMPLIANCE PLAN**

Section deleted.

**Table 1. Estimated amount of depleted uranium (DU) generated by USEC and its disposition, in metric tons uranium (MTU) for PORTS and PGDP combined.**

Year	DU Generated by USEC <sup>1</sup>	DU Transfers to DOE under 6/30/98 agreement <sup>4</sup>	DU Transfers to DOE under 6/17/02 agreement <sup>5</sup>	Other DU Transfer to DOE <sup>6</sup>	Estimated net cumulative USEC DU <sup>2</sup>	USEC DU at PGDP <sup>8</sup>	USEC DU at PORTS <sup>8</sup>
July 28, 1998- Dec. 31, 2003	-	-	-	-	17862 <sup>3</sup>	-	-
CY2004	6610 <sup>7</sup>	(8735)	(3270)	(3756)	8711	-	-
CY2005	6917	0	(1438)	0	14190	-	-
CY2006	8515	0	0	0	22705	22,345	360
CY2007	6292	0	0	0	28997	28,637	360
CY2008	5593	0	0	0	34590	34230	360

Notes:

1. Projections are provided through the expiration date of the NRC Certificate of Compliance.
2. DOE retains liability for depleted uranium generated prior to USEC's privatization (July 28, 1998) per USEC Privatization Act (Public Law 104-134, Sec 3109, paragraph (a)(3)).
3. Reflects the cumulative amount of DU since USEC's privatization (July 28, 1998) for which USEC is responsible for disposition.
4. Total transferred to DOE is the quantity in 2026 48G cylinders.
5. Under the June 17, 2002 agreement, DOE has taken possession of depleted uranium from USEC operations during USEC's fiscal years 2002 and 2003 (July 1, 2002 through June 30, 2003) and one-half the amount of depleted uranium generated during USEC's fiscal years 2004 and 2005.
6. Depleted uranium transfers to compensate USEC for incurred costs associated with DOE Contract activities.
7. Includes 7 MTU returned from the Former Starnet, CMI site.
8. Quantities of USEC DU at PORTS and PGDP not provided prior to CY2006.

Blank Page

**Analysis of Depleted Uranium Disposal Costs  
Utilizing the DOE/LMI Methodology  
For the Gaseous Diffusion Plants**



**Analysis of Depleted Uranium Disposal Costs  
Utilizing the DOE/LMI Methodology  
For the Gaseous Diffusion Plants**

The United States Enrichment Corporation (USEC) has developed the depleted uranium disposal cost estimate for the depleted uranium located at the Gaseous Diffusion Plants based on a methodology and supporting data provided by DOE in support of USEC Inc.'s American Centrifuge Plant (ACP) licensing activities. This methodology and supporting data was contained in a redacted report prepared by the DOE's consultant LMI (LMI report, Reference 1), detailing its methodology for estimating the unit cost of disposal of depleted uranium at the DOE's DUF<sub>6</sub> Conversion Facilities. The report was initially prepared by the DOE's contractor in response to a request by Louisiana Energy Services (LES) to support its application for the National Enrichment Facility (NEF) but the methodology and underlying information are applicable to GDPs with only minor adjustments.

Using the DOE contractor's methodology, USEC, Inc. developed a depleted uranium disposal cost estimate in support of USEC Inc.'s American Centrifuge Plant (ACP) licensing activities. This methodology determined that \$4.60/kgU is a reasonable depleted uranium disposal unit cost for the purposes of ACP decommissioning funding. This unit cost for disposal of ACP generated depleted uranium was developed based upon costs associated with processing of the ACP depleted uranium at the DOE's Portsmouth DUF<sub>6</sub> Conversion Facility. Consistent with the estimated unit cost proposed for disposal of the ACP depleted uranium, the depleted uranium disposal cost for USEC's depleted uranium located at PORTS is estimated to be \$4.60/kgU.

USEC used the same methodology and supporting data provided by DOE in support of the ACP licensing activities to develop a PGDP-specific cost estimate to process USEC depleted uranium located at PGDP at the DOE's Paducah DUF<sub>6</sub> Conversion Facility. Based on the information provided by DOE, USEC determined that \$4.14/kgU is a reasonable depleted uranium disposal unit cost for the purposes of decommissioning funding of USEC's depleted uranium located at PGDP. The PGDP-specific analysis is attached as Table 1. This analysis utilized Scenario 1 from the LMI report for the LES NEF (referred to as the "new uranium enrichment facility" in the LMI Report) as the base case for the Paducah conversion facility cost estimate.

**Reference:**

1. LMI Government Consulting, Report DE523T1, An Analysis of DOE's Cost to Dispose of DUF<sub>6</sub>, Revision 1, July 2005 [Redacted January 31, 2006].

Table 1

**Scenario 1: Process at Paducah in "Base" Plant**

Based on "An Analysis of DOE's Cost to Dispose of DUF6 - Revision 1", LMI, July 2005

	<u>USEC-GDP</u>	
Investment costs		<u>per Kg DUF6</u>
Plant construction (\$000)	\$ 151,700	
Less: Contingency (20%)	\$ (25,283)	
Plant construction, net of contingency	\$ 126,417	
Life of the plant (years)	26	
Plant start	2009	
DOE DUF6 (MT)	421,200	
USEC-GDP DUF6 (MT)	50,338	
Total	471,538	
Annual Capacity	18,000	
Years to Process	26	
USEC-GDP pro rata share	11%	
USEC pro rata investment cost	\$ 13,495	
Investment cost in equivalent annual value (note 3)	\$ 795	
Investment equivalent annual cost per Kg DUF6		\$ 0.41
Annual operating costs		
Plant operations	\$ 1.45	
Less: Contingency (10%)	\$ (0.13)	
Plant operations, net of contingency	\$ 1.32	
Plant recapitalization costs	\$ 0.28	
Transportation to Paducah costs	\$ -	
Product disposal	\$ 0.37	
Surveillance and maintenance costs	\$ 0.003	
Decon & Decommissioning		
Plant D&D cost (\$000)	\$ 57,150	
USEC-GDP pro rata share	11%	
USEC pro rata D&D cost	\$ 6,101	
Equivalent uniform annual cost (note 3)	\$ 360	
Equivalent annual cost per Kg DUF6		\$ 0.19
Federal administrative charge		\$ 0.09
Subtotal - 2004 dollars		\$ 2.66
Inflation - 2 years at 2.53% per year (note 4)		\$ 0.14
Total - USEC-GDP cost in 2006 dollars (Kg DUF6)		<u>\$ 2.80</u> per Kg DUF6
Total - USEC-GDP cost in 2006 dollars (Kg DU)		<u>\$ 4.14</u> per Kg DU

**Assumptions:**

1. Plant remains in operation until the DOE backlog and USEC-GDP DUF6 are processed.
2. USEC-GDP DUF6 is treated concurrently with other DUF6.
3. Discount rate 3.50%
4. Note 3 on page 2-2 of the LMI report states costs were descalated from 2008 to 2004 (4 years) using a factor of 10.5%, which equates to 2.53% annual inflation.  $((1+2.53\%)^4)-1=10.5\%$

**Commitments Contained in this Submittal**

Upon notification that the proposed changes to the Decommissioning Funding Program Description (DFP) and Depleted Uranium Management Plans (DU Plan) are acceptable to NRC, USEC will incorporate the DFP and DU Plan changes in a revision to the Application and submit the appropriate executed financial instruments to cover the revised cost estimate. The revision to the Application incorporating the approved plans and the executed financial instruments will be submitted to NRC no later than 30 days after USEC receives this notification.