



April 6, 2010  
GDP 10-0015

Mr. Michael F. Weber  
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 Changes to the Decommissioning Funding Program Description and  
Depleted Uranium Management Plan and Financial Assurance for Calendar Year 2010**

Dear Mr. Weber:

On March 23, 2010, the Department of Energy (DOE) and USEC Inc. signed a Cooperative Agreement to support continued development and demonstration of the American Centrifuge technology. The agreement transferred title to a certain amount of depleted uranium from the United States Enrichment Corporation (USEC) to DOE. The objective of this transfer was to reduce the decommissioning financial assurance required by the Nuclear Regulatory Commission (NRC) thereby releasing funds encumbered by the associated decommissioning funding surety bonds. A copy of the Agreement is provided as Enclosure 1.

Enclosures 2 and 3 provide revisions to the Gaseous Diffusion Plants (GDPs) Decommissioning Funding Program Description (DFP) and Depleted Uranium Management Plan (DU Plan) for calendar year 2010, respectively. The United States Enrichment Corporation (USEC) will incorporate the DFP and DU Plan changes into a revision to the Application.

Enclosure 4 contains the following original executed documents in duplicate: SAFECO Insurance Company of America Rider to Bond Number 6516945 reducing the amount of the Bond from \$58,867,631 to \$50,000 and Argonaut Insurance Company Rider to Bond Number SUR0000037 reducing the amount of the Bond from \$15,000,000 to \$217,631. Please sign one SAFECO and one Argonaut original Rider acknowledging the reductions and return them to me for forwarding to the insurance companies. These Riders, in combination with USEC's existing financial assurance, provides sufficient funding to cover USEC's decommissioning liabilities for calendar year 2010.

Enclosure 5 contains executed originals of Schedules A and B of USEC's Standby Trust Agreement, a revised Schedule C of the Trust and the executed Letter of Acknowledgement. These documents

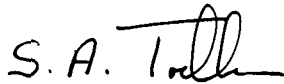
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should be inserted into the Standby Trust Agreement as replacement pages.

Consistent with the previous DFP update, USEC has developed the calendar year 2010 depleted uranium disposal cost estimates for the GDPs by applying the methodology established during the licensing activities associated with USEC Inc.'s American Centrifuge Plant (ACP), and escalating the unit costs to 2010 dollars. Enclosure 6 provides the analysis of the depleted uranium disposal unit cost estimates for the GDPs.

Should you have any questions or require additional information, please contact me at (301) 564-3250. Commitments contained in this submittal are noted in Enclosure 7.

Sincerely,



Steven A. Toelle  
Director, Regulatory Affairs

Enclosures:

1. Cooperative Agreement between Department of Energy and USEC Inc. Concerning the American Centrifuge Demonstration Project
2. GDP Decommissioning Funding Program Description
3. GDP Depleted Uranium Management Plan
4. Payment Surety Bond
5. Standby Trust Schedules A, B, C and Letter of Acknowledgement
6. Analysis of Depleted Uranium Disposal Costs For the Gaseous Diffusion Plants
7. Commitments Contained in this Submittal

cc: J. Henson, Chief, Fuel Facility Inspection, NRC Region II  
NRC Senior Resident Inspector, PGDP  
T. Liu, NRC Project Manager (w/originals)

Cooperative Agreement Between  
Department of Energy and USEC Inc.  
Concerning the American Centrifuge Demonstration Project

COOPERATIVE AGREEMENT

BETWEEN

DEPARTMENT OF ENERGY

AND

USEC Inc.  
6903 Rockledge Drive  
Bethesda, MD 20817

CONCERNING

THE AMERICAN CENTRIFUGE DEMONSTRATION PROJECT

- 1. Agreement No.: DE-SC0003997
- 2. Amendment No.: 000
- 3. Budget Period: From: January 1, 2010 To: December 31, 2010
- 4. Project Period: From: January 1, 2010 To: December 31, 2010
- 5. Total Estimated Cost of the Agreement: \$90,000,000.00
- 6. Total Estimated Government Share of the Agreement: \$45,000,000.00
- 7. Total Estimated Recipient Share of the Agreement: \$45,000,000.00
- 8. Funds Obligated This Action: \$ 000
- 9. Funds Obligated Prior Actions: \$ 000
- 10. Total Government Funds Obligated: \$ 000
- 11. Authority: 42 U.S.C. 7256(a) and 42 U.S.C. 2011 et seq.
- 12. Appropriation Data: Not applicable

This Cooperative Agreement, hereinafter called the Agreement, is entered into between the Department of Energy, (hereinafter called the "DOE" or the "Government"), and USEC Inc., (hereinafter called "USEC" or the "Recipient").

FOR USEC INC.

FOR THE DEPARTMENT OF ENERGY

(Signature)

(Signature)

Philip G. Sewell  
Philip G. Sewell, Senior Vice President

Mary Lou Crow  
Mary Lou Crow, Contracting Officer

3/23/2010  
(Date)

03/23/2010  
(Date)

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## **PART I – GENERAL AND ADMINISTRATIVE INFORMATION**

### **ARTICLE 1 – PURPOSE**

The purpose of this Cooperative Agreement is to provide support for the continued development and demonstration of the American Centrifuge Technology.

### **ARTICLE 2 – DEFINITIONS**

The terms defined in 10 CFR Part 600 apply to this agreement. In addition, the following terms apply:

2.01 “American Centrifuge Technology” means the advanced gas centrifuge technology that is being developed by USEC based on technology licensed to USEC by DOE.

2.02 “American Centrifuge Plant” means the commercial plant being constructed by USEC using its American Centrifuge Technology in Piketon, Ohio.

2.03 “American Centrifuge Demonstration Facility” or “Lead Cascade” means the test facility constructed by USEC and being operated in Piketon, Ohio using its American Centrifuge Technology.

2.04 “Atomic Energy Act” means the Atomic Energy Act of 1954, as amended, 42 U.S.C. §§ 2011 et. seq.

2.05 “Cylinder” means a container as defined in the specifications at Attachment A.

2.06 “Depleted Uranium Hexafluoride” (“DUF6”) means DUF6 generated as a result of operation of the Gaseous Diffusion Plants.

2.07 “Gaseous Diffusion Plants” or “GDPs” means the gaseous diffusion plants at Paducah, Kentucky and Piketon, Ohio owned by DOE, portions of which are leased to the United States Enrichment Corporation (a wholly owned subsidiary of USEC).

2.08 “Party” and/or “Parties” means the executing entities to this Agreement, consisting of the U.S. Department of Energy (“DOE”) and/or USEC Inc. (“USEC” which includes where applicable its subsidiaries and affiliates).

2.09 “PGDP” means the Paducah Gaseous Diffusion Plant.

2.10 “Effective Date” means the date this Agreement has been signed by both Parties.

2.11 “Project Scope” means the scope of the project subject to this Agreement as described in Attachment B.

2.12 "Total Estimated Cost" is the sum of the estimated project costs attributable to contributions by DOE and USEC under the terms of this Agreement as set forth in Article 9.

2.13 "Transferred Material" means DUF6 and the cylinders in which the DUF6 is contained as defined in the specifications at Attachment A that is transferred from USEC to DOE under the terms of this Agreement.

### **ARTICLE 3 – ORDER OF PRECEDENCE**

3.01 In the event of any inconsistency between the terms of this Agreement and the Attachments, the inconsistency shall be resolved by giving precedence in the following order: (1) The Agreement and (2) Attachments to the Agreement.

3.02 Any apparent inconsistency between Federal statutes and regulations and the terms and conditions contained in this award, as shown in Block 18 of the Notice of Financial Assistance Award (NFAA) must be referred to the DOE Award Administrator identified in Block 12 of the NFAA for guidance.

### **ARTICLE 4 – AGREEMENT ADMINISTRATORS**

4.01 Unless otherwise provided in this Agreement, approvals permitted or required to be made by DOE may be made only by the DOE Contracting Officer. Administrative and contractual matters under this Agreement shall be referred to the following representatives of the Parties:

DOE Award Administrator/Contracting Officer: Mary Lou Crow, Contracting Officer, U.S. Department of Energy, P. O. Box 2001, Oak Ridge, TN 37831. Telephone: (865) 576-7343. Facsimile: (865) 576-9189. Email: [crowml@oro.doe.gov](mailto:crowml@oro.doe.gov).

Questions regarding intellectual property matters should be referred to: Emily G. Schneider, Esq., Assistant Chief Counsel for Intellectual Property, U.S. Department of Energy, Oak Ridge Office, 200 Administration Road, Oak Ridge, TN 37831. Telephone: (865) 576-1077. Facsimile: (865) 576-6363. Email: [schneidereg@oro.doe.gov](mailto:schneidereg@oro.doe.gov).

USEC Administrator: Charles Kerner, Director of Procurement and Contracts, (301) 564-3323, [KernerC@usec.com](mailto:KernerC@usec.com), 6903 Rockledge Dr., Bethesda, MD 20817.

4.02 Technical matters under this Agreement shall be referred to the following representatives:  
DOE Project Officer: Larry W. Clark, Assistant Manager for Nuclear Fuel Supply, U.S. Department of Energy, Oak Ridge Office. 200 Administration Road, Oak Ridge, TN 37830. Telephone: (865) 576-2678. Facsimile: (865) 241-4439. Email: [clarklw@oro.doe.gov](mailto:clarklw@oro.doe.gov).

USEC: Paul Sullivan, Vice President, American Centrifuge and Chief Engineer, (301) 564-3301, [sullivanp@usec.com](mailto:sullivanp@usec.com), 6903 Rockledge Dr., Bethesda, MD 20817.

4.03 Each Party may change its representatives named in this Article by written notification to the other Party.

## **PART II – PROJECT**

### **ARTICLE 5 – SCOPE OF AGREEMENT**

5.01 The Project Scope, included as Attachment B, describes the overall vision for the project, including purpose, objectives, work to be performed, project plan, and commercial goals. USEC must perform the development and demonstration in accordance with the Project Scope. Any significant change to the Project Scope must be issued as an amendment to the Agreement by the DOE Contracting Officer.

5.02 USEC must submit or otherwise provide all documentation required by Attachment C, Reporting Requirements.

5.03 USEC will make available funds for the Project in return for DOE accepting Transferred Material as provided in Article 8 and Article 9.

### **ARTICLE 6 – MANAGEMENT OF THE PROJECT**

6.01 Responsibilities. DOE and USEC are bound to each other by a duty of good faith in performing their respective responsibilities. The responsibilities of the Parties are:

- a. USEC is responsible for the overall management of the project, including technical, programmatic, reporting, financial and administrative matters.
- b. The DOE Project Officer will attend and fully participate in technical and project monthly status meetings. Other DOE personnel, and/or DOE's designated representatives, as deemed appropriate by the DOE Project Officer, may also participate in technical and project status meetings. DOE representatives will be subject to appropriate obligations of confidentiality with respect to USEC proprietary, export control, and classified information.
- c. Project Review. USEC is responsible for establishing a schedule of regular technical meetings. USEC is responsible for meeting with DOE, and/or DOE's designated representatives, on a monthly basis to update progress and discuss any special advances or problems. DOE representatives will be subject to appropriate obligations of confidentiality with respect to USEC proprietary, export control, and classified information. The monthly project review meetings may be combined with other meetings with DOE related to the review of the American Centrifuge Program. USEC shall notify the DOE Project Officer of the meeting schedule.
- d. Modifications.
  - (i) If the initial results of the project indicate that a change in the Project Scope would be beneficial to program objectives, Recipient may submit a written request to modify the Agreement or its Attachments to the DOE Contracting Officer, with a copy to the DOE Project Officer. The request must provide justifications to support any changes to the Project Scope and detail the technical, chronological, and financial impact of the proposed



changes to the project. A revised Project Scope is not authorized under this Agreement unless and until the Project Scope is formally revised by the DOE Contracting Officer and made part of this Agreement.

(ii) The DOE Contracting Officer is the only individual who can amend the Agreement or commit DOE. A commitment by other than the DOE Contracting Officer, either explicit or implied, is invalid.

## **ARTICLE 7 – STATEMENTS OF FEDERAL STEWARDSHIP AND SUBSTANTIAL DOE INVOLVEMENT**

7.01 DOE will exercise normal Federal stewardship in overseeing the project activities performed under this award. Stewardship activities include, but are not limited to, conducting site visits; reviewing performance and financial reports; providing technical assistance and/or temporary intervention in unusual circumstances to correct deficiencies which develop during the project; assuring compliance with terms and conditions; and reviewing technical performance after project completion to ensure that the award objectives have been accomplished.

7.02 DOE shall be substantially involved in the project. DOE responsibilities include reviewing technical reports and other information in a timely manner, and providing suggestions or advice if the activities do not address DOE needs; attending and fully participating in monthly program review meetings to ensure that the work accomplishes the program and project objectives; and reviewing and approving any modifications to the Project Scope, if such modifications are deemed to be in the best interest of the project.

## **PART III – FINANCIAL MATTERS**

### **ARTICLE 8 – FUNDING, ACCEPTANCE, TRANSFER & DELIVERY**

8.01 The Total Estimated Cost of the project is approximately \$90 million. DOE has agreed to accept title to certain quantities of DUF6 that will enable USEC to release encumbered funds for approximately fifty percent (50%) of the Total Estimated Cost of the project up to \$45 million. DOE will accept title to, but not possession or custody until disposition of, Transferred Material in accordance with Section 8.02 below. The maximum Government obligation to USEC is limited to accepting no more than 19,700,000 kg of DUF6. The Parties agree that the transfer of this amount of DUF6 shall provide a present value equal to DOE's share of the Total Estimated Cost. The Parties agree that the transfer of DUF6 shall be from and accomplished by USEC through USEC's subsidiary the United States Enrichment Corporation.

8.02 Schedule for Title Transfer. Subject to adjustment as provided in Section 9.03, USEC will transfer title to no more than 19,700,000 kg of DUF6 and the cylinders in which the DUF6 is contained meeting the specification set forth in Attachment A (the "Transferred Material") to DOE and DOE will accept title to, and responsibility for the disposition of, such Transferred Material as of the effective date of this Agreement. After title is transferred to DOE, USEC shall remain responsible for custody, possession and the safe and secure storage of the Transferred

Material at USEC's own expense, and in accordance with USEC's procedures and applicable NRC regulatory requirements, until DOE takes custody and possession of the material.

8.03 Schedule for Transfer of Custody and Possession At USEC's cost and expense, USEC shall transfer custody and possession of, and DOE will accept custody and possession of and responsibility for safe and secure storage of, the Transferred Material, provided that the Transferred Material meets the specifications set forth in Attachment A and applicable NRC regulatory requirements, at the date that is the earlier of either: (i) sixty (60) days after USEC's receipt of notice from DOE of the date DOE deems appropriate to disposition the Transferred Material; or (ii) one hundred and eighty (180) days after DOE's receipt of notice from USEC to DOE of the date USEC expects that it will be within 360 days of completing all its NRC decommissioning and decontamination (D&D) responsibilities at PGDP.

8.04 Identification of Cylinders, Right of Inspection, and Acceptance. All Transferred Material will be provided in cylinders that meet the specifications set forth in Attachment A and applicable NRC regulatory requirements. USEC shall provide DOE with a list of the cylinders of the Transferred Material within ten (10) days of the effective date of this Agreement. DOE shall have the right to inspect the cylinders. USEC shall configure the cylinders as required by NRC. Within sixty (60) days of receiving USEC's list of cylinders, DOE may reject any cylinder of DUF6 if the cylinder does not meet the specifications set forth in Attachment A and applicable NRC regulatory requirements, and such cylinder shall be replaced by USEC with one that meets such standards. Prior to accepting possession and custody of the Transferred Material from USEC, DOE may reject any cylinder and/or Transferred Material if it does not meet the specifications set forth in Attachment A and applicable NRC regulatory requirements. Transferred Material and/or cylinder(s) that are rejected by DOE shall be promptly replaced by USEC at its expense with Transferred Material and/or cylinders that meet the specifications set forth in Attachment A and applicable NRC regulatory requirements.

8.05 Delivery. When DOE accepts custody and possession and responsibility for the safe and secure storage of the Transferred Material and/or cylinders as provided in Sections 8.03 and 8.04, USEC shall deliver the cylinders to DOE at a mutually agreed location at PGDP and mutually agreed upon schedule. The delivery must be completed no later than 180 days after it is commenced, unless agreed otherwise.

8.06 Records. At the time USEC provides the list of cylinders or identifies a replacement cylinder as provided in Section 8.04, and prior to transferring custody and possession of cylinders as provided in Section 8.05, USEC shall provide copies of all USEC records associated with inspection, storage, and management of the Transferred Material and the cylinders, including, but not limited to, all manufacturers records in its possession and all Nuclear Material Control and Accountability records for each cylinder.

8.07 Effective date of transfer of possession and custody. The effective date of transfer of custody and possession for any Transferred Material will be the date the Transferred Material is delivered to DOE as provided in Section 8.05.

8.08 Responsibility for cylinder compliance. USEC represents and warrants that the cylinders transferred to DOE under this Agreement are compliant with the specifications at Appendix A and applicable NRC regulatory requirements. USEC is responsible for ensuring that the cylinders remain compliant with the specifications in Appendix A and applicable NRC regulatory requirements during the time period where title to the cylinders has passed to DOE but the cylinders remain in USEC's custody and possession. In the event a cylinder is noncompliant, USEC will replace such cylinder as required in Section 8.04. USEC shall bear all expense of cylinder surveillance and maintenance, and such costs are not allowable costs under this Cooperative Agreement. USEC shall indemnify DOE, and hold DOE harmless, from any and against all claims, demands, fines, suits, actions, proceedings, orders, decrees and judgments of any kind and from and against all cost and expenses, including reasonable attorney fees, resulting from the cylinders failing to be compliant with the specifications in Appendix A and applicable NRC regulatory requirements during the time period where title to the cylinders has passed to DOE but the cylinders were in USEC's custody and possession.

## **ARTICLE 9 – COST SHARING**

9.01 Total Estimated Cost is the sum of the Government share and Recipient share of the estimated project costs. The Recipient's cost share must come from non-federal sources unless otherwise allowed by law. By accepting this award, Recipient agrees that it is liable for its percentage share of total allowable project costs, even if the project is terminated early. The cost share of each Party is fifty percent (50%) and the Total Estimated Cost for the project through the end of the project is ninety million dollars (\$90,000,000). In no event will the Government's cost share be greater than fifty percent (50%).

9.02 If the Recipient discovers that it may be unable to provide cost sharing of at least the amount identified in Section 9.01, it shall immediately provide written notification to the DOE Contracting Officer indicating whether it will continue or phase out the project. If the Recipient plans to continue the project, the notification must describe how replacement cost sharing will be secured. If the Recipient decides to phase out the project, then this Agreement will be terminated in accordance with Article 27.

9.03 In the event the total costs incurred for the project are less than the \$90,000,000.00, the total amount of DUF6 transferred to DOE will be adjusted on pro rata basis to equal DOE's share of the total project costs to the nearest full cylinder. Within thirty (30) days of the delivery of the final report of the total cost of the project, DOE shall notify USEC of the need to return title to Transferred Material and identify the cylinders to be returned. Only title to amounts previously transferred by USEC under Section 8.03 will be transferred back to USEC. USEC will notify DOE of any objection to the return of the cylinders identified within ten (10) days of receiving DOE's notice. DOE shall transfer and USEC shall accept title to such material on the later of (i) the eleventh day after USEC's receipt of DOE's notice if no objection is delivered to DOE; (ii) the date DOE and USEC agree to the transfer; (iii) the date any dispute is resolved under Article 21.

9.04 Recipient must maintain records of all project costs that it claims as cost sharing, including in-kind costs. Such records are subject to audit.

## **ARTICLE 10 – MAXIMUM OBLIGATION**

The maximum Government obligation to USEC is limited to accepting no more than 19,700,000 kg of DUF6. The Recipient is not obligated to continue performance of the project after the Total Estimated Cost stated in Section 8.01 and the Recipient's share of the project costs are expended.

## **ARTICLE 11 – FINANCIAL SYSTEM AND RECORDS**

Prior to the submission of cost reports to DOE, the Recipient shall have and maintain an established accounting system which complies with Generally Accepted Accounting Principles, and with the requirements of this Agreement, and shall ensure that appropriate arrangements have been made for receiving, distributing and accounting for Federal funds and Recipient cost sharing, including any in-kind costs. Consistent with this, an acceptable accounting system will be one in which all funds, cash receipts, and disbursements are controlled and documented properly. Such records are subject to audit.

## **ARTICLE 12 – ALLOWABLE COSTS**

Allowable costs are determined in accordance with the cost principles in 48 CFR Part 31 in the Federal Acquisition Regulation as applicable to for-profit entities in accordance with 10 CFR 600.317.

## **ARTICLE 13 – USE OF PROGRAM INCOME**

13.01 Program income earned during the project period may be retained by the Recipient and added to the funds committed to the award and used to further eligible project objectives.

13.02 The Recipient may retain program income earned:

- a. From license fees and royalties for copyrighted material, patents, patent applications, trademarks, and inventions produced under the Agreement.
- b. After the end of the project period.

## **ARTICLE 14 – RECOGNITION OF PRE-AWARD COSTS**

Pre-award costs are authorized for reimbursement under 10 CFR 600.317(b), if such costs are allowable in accordance with the applicable Federal cost principles referenced in 10 CFR Part 600.

## **PART IV – ADMINISTRATIVE REQUIREMENTS**

### **ARTICLE 15 – TITLE AND DISPOSITION OF PROPERTY**

15.01 Real property and equipment acquired by the Recipient shall be subject to the rules set forth in 10 CFR 600.321.

15.02 Consistent with the goals and objectives of this project, the Recipient may continue to use real property and equipment purchased in whole or in part under this award for its authorized purpose beyond the Period of Performance without obligation to make payment to DOE to extinguish DOE's interest to such property as described in 10 CFR 600.321, subject to the following: (a) the Recipient continues to utilize such property for the objectives of the project (demonstrate centrifuge technology); (b) DOE retains the right to periodically ask for, and the Recipient agrees to provide, reasonable information concerning the use and condition of the property; and (c) the Recipient follows the property disposition rules set forth in 10 CFR 600.321 if the property is no longer used by the Recipient for the objectives of the project, and the fair market value of property exceeds \$5,000.

15.03 Once the per unit fair market value of the property is less than \$5,000, pursuant to 10 CFR 600.321(f)(1)(i), DOE's interest in the property shall be extinguished and Recipient shall have no further obligation to the DOE with respect to the property.

15.04 The Parties agree that use of the real property or equipment on other projects or programs would interfere with the work on the project under this Agreement.

15.05 Consistent with 10 CFR 600.321(b)(2), Recipient may request that the DOE Contracting Officer consider approving encumbrance of real property or equipment purchased in whole or in part under this Agreement.

### **ARTICLE 16 – INTELLECTUAL PROPERTY**

The intellectual property requirements applicable to this Agreement are provided in Attachment D.

### **ARTICLE 17 – RECORD RETENTION AND ACCESS TO RECORDS**

17.01 USEC must keep records related to this agreement for a period of three (3) years after submission of the final report, except records for any real property or equipment acquired with project funds must be kept for three years after final disposition.

17.02 The DOE Contracting Officer, the DOE Inspector General, and the Comptroller General of the United States, or any of their duly authorized representatives, shall have unrestricted access to any books, documents, papers or other records of USEC and that are pertinent to the work performed under this agreement in order to make audits. Such audit, examination, or access shall be performed during business hours on business days upon prior written notice and shall be subject to the security requirements of the audited Party.

## **ARTICLE 18 – REPORTING**

18.01 The reporting requirements for this award are identified on the Federal Assistance Reporting Checklist, DOE F 4600.2, attached to this award as Attachment C. Failure to comply with these reporting requirements is considered a material noncompliance with the terms of the award. Noncompliance may result in withholding of future payments, suspension or termination of the current award, and withholding of future awards. A willful failure to perform, a history of failure to perform, or unsatisfactory performance of this and/or other financial assistance awards, may also result in a debarment action to preclude future awards by Federal agencies.

18.02 Dissemination of scientific/technical reports. Scientific/technical reports submitted under this award will be disseminated on the Internet via the DOE Information Bridge ([www.osti.gov/bridge](http://www.osti.gov/bridge)), unless the report contains proprietary data, patentable material, protected data or SBIR/STTR data. Citations for journal articles produced under the award will appear on the DOE Energy Citations Database ([www.osti.gov/energycitations](http://www.osti.gov/energycitations)).

18.03 Restrictions. Reports submitted to the DOE Information Bridge must not contain any Protected Personal Identifiable Information (PII), limited rights data (proprietary data), classified information, information subject to export control classification, or other information not subject to release.

## **ARTICLE 19 – FEDERAL, STATE, AND MUNICIPAL REQUIREMENTS**

USEC must obtain any required permits and comply with applicable Federal, state, and municipal laws, codes, and regulations for work performed under this Agreement.

## **ARTICLE 20 – SITE VISITS**

DOE and/or DOE authorized representatives have the right to make site visits at reasonable times to review project accomplishments. USEC must provide, and must require its contractors performing project work to provide, reasonable access to facilities, office space, resources, and assistance for the safety and convenience of DOE and its representatives in the performance of their duties. All site visits and evaluations must be performed in a manner that does not unduly interfere with or delay the work. DOE representatives will be subject to appropriate obligations of confidentiality with respect to USEC proprietary, export control and classified information.

## **ARTICLE 21 – CLAIMS, DISPUTES AND APPEALS**

21.01 USEC must submit claims arising out of or relating to this agreement in writing to the DOE Contracting Officer and must specify the nature and basis for the relief requested and include all data that supports the claim. DOE will attempt to resolve such claims informally at the DOE Contracting Officer level. All disputes and appeals will be resolved in accordance with the procedures set forth in 10 CFR 600.22.

21.02 Claims for damages of any nature whatsoever pursued under this Agreement shall be limited to direct damages only up to the aggregate amount of Government funding disbursed as

of the time the dispute arises. In no event shall the Government be liable for claims for consequential, punitive, special and incidental damages, claims for lost profits, or other indirect damages.

## **ARTICLE 22 – FOREIGN ACCESS TO TECHNOLOGY**

The Parties understand that technology developments resulting from the performance of the agreement may be subject to U.S. laws and regulations limiting access. Any transfer of technology developed under this agreement must be consistent with these laws and regulations, including the Department of Energy Regulations at 10 CFR Part 810 and DOE Guidelines on Export Control and Nonproliferation, as applicable. USEC shall comply with these laws and regulations.

## **ARTICLE 23 – NATIONAL POLICY ASSURANCES**

National Policy Assurances are incorporated into this award and are provided as Attachment E.

## **ARTICLE 24 – INSOLVENCY, BANKRUPTCY OR RECEIVERSHIP**

24.01 You shall immediately notify the DOE Administrator identified in Block 12 of the Notice of Financial Assistance Award of the occurrence of any of the following events: (i) you or your parent's filing of a voluntary case seeking liquidation or reorganization under the Bankruptcy Act; (ii) your consent to the institution of an involuntary case under the Bankruptcy Act against you or your parent; (iii) the filing of any similar proceeding for or against you or your parent, or its consent to, the dissolution, winding-up or readjustment of your debts, appointment of a receiver, conservator, trustee, or other officer with similar powers over you, under any other applicable state or federal law; or (iv) your insolvency due to your inability to pay your debts generally as they become due.

24.02 Such notification shall be in writing and shall: (i) specifically set out the details of the occurrence of an event referenced in the paragraph above ; (ii) provide the facts surrounding that event; and (iii) provide the impact such event will have on the project being funded by this award.

24.03 Upon the occurrence of any of the four events described in the first paragraph, DOE reserves the right to conduct a review of your award to determine your compliance with the required elements of the award (including such items as cost share, progress towards technical project objectives, and submission of required reports). If the DOE review determines that there are significant deficiencies or concerns with your performance under the award, DOE reserves the right to impose additional requirements, as needed, including (i) change your payment method; or (ii) institute payment controls.

24.05 Failure of the Recipient to comply with this provision may be considered a material noncompliance of this financial assistance award by the Contracting Officer.

## **ARTICLE 25 – LOBBYING RESTRICTIONS**

By accepting funds under this award, you agree that none of the funds obligated on the award shall be expended, directly or indirectly, to influence congressional action on any legislation or appropriation matters pending before Congress, other than to communicate to Members of Congress as described in 18 U.S.C. 1913. This restriction is in addition to those prescribed elsewhere in statute and regulation.

## **ARTICLE 26 – NOTICE REGARDING THE PURCHASE OF AMERICAN-MADE EQUIPMENT AND PRODUCTS -- SENSE OF CONGRESS**

It is the sense of the Congress that, to the greatest extent practicable, all equipment and products purchased with funds made available under this award should be American-made.

## **PART V – TERMINATION AND ENFORCEMENT**

### **ARTICLE 27 – TERMINATION AND ENFORCEMENT**

Termination and enforcement of this Agreement shall follow the procedures at 10 CFR 600.350 through 600.353.

### **ARTICLE 28 – MISCELLANEOUS**

28.01 Force Majeure. Except for defaults of USEC contractors at any tier, USEC shall not be in default because of any failure to perform its commitments under this Agreement under its terms if the failure arises from causes beyond the control and without the fault or negligence of USEC. Examples of these causes are (1) acts of God or the public enemy, (2) acts of the Government in its sovereign capacity (3) fires, (4) floods, (5) epidemics, (6) quarantine restrictions, (7) strikes, (8) freight embargoes, (9) earthquakes, and (10) unusually severe weather. In each instance, the failure to perform must arise from causes and be beyond the control and without the fault or negligence of USEC. "Default" includes the failure to make progress so as to endanger completion of performance of USEC's obligations under this Agreement.

28.02 If the failure to perform is caused by the failure of a contractor at any tier to perform or make progress, and if the cause of the failure was beyond the control of both USEC and the contractor, and without the fault or negligence of either, USEC shall not be deemed to be in default, unless (1) the contracted supplies or services were obtainable from other sources; and (2) USEC failed to purchase these supplies or services from the other sources.

28.03 In order to invoke the protections of this clause, USEC must request a determination by DOE on whether any failure to perform results from one or more of the causes in the first paragraph above. Upon the request of USEC and within sixty (60) days of USEC's submission of its position, NE will ascertain the facts and circumstances of the failure of performance upon an assertion of a circumstance triggering this clause. If NE determines that any failure to perform results from one or more of the causes in the first paragraph above, the schedule for performance of the affected commitments shall be extended for the period of the excused delay.



USEC may appeal this determination within thirty (30) days to the Secretary of Energy (or designee), whose determination will be considered the final agency action under this Agreement. USEC retains all remedies available to it under the Administrative Procedure Act to challenge the decision of the Secretary (or designee).

28.04 Entire Agreement. This Agreement contains the entire understanding of DOE and USEC with respect to the subject matter of this Agreement. This Agreement does not modify, alter or change any other agreements between DOE and USEC including, but not limited to, the Agreement Between the U.S. Department of Energy and USEC Inc. dated June 17, 2002, as amended; the Lease Agreement entered into as of July 1, 1993 between the U.S. Department of Energy and the United States Enrichment Corporation, as amended (the Lease Agreement); the Supplemental Agreement No. 1 to the Lease Agreement dated as of December 7, 2006, as amended; and the Non-Exclusive Patent License granted by U.S. Department of Energy to USEC dated as of December 7, 2006.

28.05 Applicable Law. This Agreement shall be governed and construed in accordance with the laws of the United States of America.

28.06 Further Assistance. DOE and USEC shall provide such information, execute and deliver any agreements, instruments and documents and take such other actions as may be reasonably necessary or required, which are not inconsistent with the provisions in this Agreement and which do not involve the assumption of obligations other than those provided for in this Agreement, in order to give full effect to this Agreement and to carry out its intent. This provision does not encompass, and DOE makes no commitment regarding, the issuance of any loan guarantees by DOE to any entity including to USEC or a USEC affiliate.

GDP Decommissioning Funding Program Description

## **DECOMMISSIONING FUNDING PROGRAM DESCRIPTION**

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## 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

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1 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, the "Agreement Between the U.S. Department of Energy ("DOE") and USEC Inc. ("USEC")," dated June 17, 2002, and the "Cooperative Agreement Between Department of Energy and USEC Inc. Concerning the American Centrifuge Demonstration Project," dated March 23, 2010.

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 provided 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 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 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, provided, 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 was reduced by the quantity of depleted uranium specified in this June 17, 2002 agreement.

The "Cooperative Agreement Between Department of Energy and USEC Inc. Concerning the American Centrifuge Demonstration Project," dated March 23, 2010, transferred title to 13,312,411 kg of DU from USEC to DOE to enable USEC to release encumbered funds to support continued development and demonstration of the American Centrifuge technology.

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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 CY 2010 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 .....	\$ 10.94 M
Depleted Uranium .....	\$139.95 M
Labor Cost .....	\$ 0.50 M
CY10 Cost .....	\$151.39 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 2010 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 CY 2010 is \$ 189.2 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 2010. At PGDP, the LLRW

in storage includes 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 75,000 ft<sup>3</sup> of LLRW from routine operations and projects at the Paducah plant for CY 2010. USEC has assumed disposal of Paducah's LLRW at various commercial disposal facilities at an average weighted cost of \$35/ft<sup>3</sup>. The disposal cost for LLRW generated by USEC at the Paducah plant for CY 2010 is therefore estimated to be:

$$\text{Paducah LLRW: } 75,000 \text{ ft}^3 \times \$35/\text{ft}^3 = \$2.625 \text{ million for the year}$$

Likewise at the Portsmouth plant, USEC anticipates generating a total of approximately 30,000 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 \$74/ft<sup>3</sup>. The disposal cost for LLRW generated by USEC at the Portsmouth plant for CY 2010 is therefore estimated to be:

$$\text{Portsmouth LLRW: } 30,000 \text{ ft}^3 \times \$74/\text{ft}^3 = \$2.220 \text{ million for the year}$$

The cost of disposal of USEC's LLRW for CY 2010 is \$4.85 million.

### 3.1.2 Mixed Waste Disposal

USEC anticipates generating a total of approximately 96 ft<sup>3</sup> of mixed waste at Paducah plant in CY 2010. The current average cost estimate for disposing of this mixed waste product at Paducah is \$1500/ft<sup>3</sup>. The disposal cost for this mixed waste generated at Paducah plant for CY 2010 is therefore estimated to be:

$$\text{Paducah Mixed Waste: } 96 \text{ ft}^3 \times \$1,500/\text{ft}^3 = \$0.144 \text{ million for the year}$$

Likewise at the Portsmouth plant, USEC anticipates generating a total of approximately 300 ft<sup>3</sup> of mixed waste for CY 2010. The current average cost of disposal of such waste at Portsmouth is \$800/ft<sup>3</sup>. The disposal cost for this mixed waste generated at the Portsmouth plant for CY 2010 is therefore estimated to be:

$$\text{Portsmouth Mixed Waste: } 300 \text{ ft}^3 \times \$800/\text{ft}^3 = \$0.240 \text{ million for the year}$$

The cost of disposal of USEC's mixed waste for CY 2010 is \$0.384 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 2010 at the Portsmouth plant. USEC estimates that 100 ft<sup>3</sup> of mixed waste will be in storage at the end of CY 2010. 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:

$$\text{Portsmouth mixed waste in storage: } 100 \text{ ft}^3 \times \$1,500/\text{ft}^3 = \$0.150 \text{ million}$$

### 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 2010. This waste will be disposed at a later date at an estimated cost of \$35/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 8,300 ft<sup>3</sup>.

The disposal cost for this LLRW that will remain on site at Paducah at the end of CY 2010 is estimated to be:

$$\text{Paducah LLRW in storage: } 8,300 \text{ ft}^3 \times \$35/\text{ft}^3 = \$0.291 \text{ million}$$

Likewise, at the Portsmouth Plant, USEC estimates that 7,700 ft<sup>3</sup> of LLRW will remain on-site at the end of CY 2010, and disposed at a later date. Therefore, the disposal cost for this LLRW that will remain on site at Portsmouth at the end of CY 2010 is estimated to be:

$$\text{Portsmouth LLRW in storage: } 7,700 \text{ ft}^3 \times \$74/\text{ft}^3 = \$0.570 \text{ million}$$

In addition, 7,800 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 7,800 ft<sup>3</sup> of LLRW, an additional \$600/ft<sup>3</sup> may be necessary for disposal. Therefore, the disposal cost for this LLRW that will remain in storage at Portsmouth at the end of CY 2010 is estimated to be:

$$\text{Portsmouth LLRW in storage: } 7,800 \text{ ft}^3 \times \$600/\text{ft}^3 = \$4.7 \text{ million}$$

Therefore, the cost to dispose of the LLRW in storage in a subsequent calendar year is \$5.56 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 \$3.99/kilogram (kg) uranium (U) to \$5.11/kg U, depending on a number of factors and assumptions. The unknown factors include: 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 for the purposes of ACP decommissioning funding. The 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 for disposal of the ACP depleted uranium and escalating this unit cost to CY 2010 dollars, the depleted uranium disposal cost for USEC's depleted uranium located at PORTS is estimated to be \$5.11/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 \$4.44/kgU (in 2010 dollars) 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 CY 2010 for the disposition of depleted uranium generated by its Paducah and Portsmouth operations is 31,466,000 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	31,106,000
PORTS	360,000

Total estimated disposal cost, in 2010 dollars, for depleted uranium is then calculated as follows:

Location	Projected Quantity (kgU)	Unit Cost (\$/kgU)	Disposal Cost (\$)
PGDP	31,106,000	4.44	138,110,640
PORTS	360,000	5.11	1,839,600
<b>Total Disposal Cost</b>			<b>139,950,240</b>

The total estimated disposal cost for depleted uranium, after rounding, is \$139.95 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.



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### **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.

**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.

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.

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: \$ \_\_\_\_\_

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**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.

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.

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]

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. 107  
PORTS Rev. 85

April 13, 2007

United States Enrichment Corporation  
Standby Trust Agreement

SCHEDULE B

AMOUNT:  
AS EVIDENCED BY:

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

Trustee \_\_\_\_\_



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.

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GDP Depleted Uranium Management Plan

**DEPLETED URANIUM MANAGEMENT PLAN**

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**LIST OF EFFECTIVE PAGES**

<u>Pages</u>	<u>PGDP</u> <u>Revision</u>	<u>PORTS</u> <u>Revision</u>
ii	86	70
iii	117 (RAC 10C007, R0)	100 (RAC 10-X0005, R0)
iv	86	70
v	86	70
vi	86	70
1	86	70
2	94	77
3	94 (RAC 10C007, R0)	77 (RAC 10-X0005, R0)
4	86	70
5	117 (RAC 10C007, R0)	100 (RAC 10-X0005, R0)
6	86	70

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## **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

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, the "Agreement Between the U.S. Department of Energy ("DOE") and USEC Inc. ("USEC")," dated June 17, 2002, and the "Cooperative Agreement Between Department of Energy and USEC Inc. concerning the American Centrifuge Demonstration Project," dated March 23, 2010.

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 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 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.

The "Agreement Between the U.S. Department of Energy ("DOE") and USEC Inc. ("USEC")," dated June 17, 2002, provided, 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 was reduced by the quantity of depleted uranium specified in this June 17, 2002 agreement. The quantity of depleted uranium associated with this agreement is reflected 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 reflected in Table 1.

In 2010, DOE and USEC entered into the "Cooperative Agreement Between Department of Energy and USEC Inc. concerning the American Centrifuge Demonstration Project," dated March 23, 2010, to provide support for the continued development and demonstration of the American Centrifuge technology. DOE agreed to accept title to 13,312,411 kg of DU to enable USEC to release encumbered funds. The quantity of Depleted Uranium associated with the agreement is reflected 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<sub>6</sub> 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 Transferred to DOE <sup>5</sup>	Other DU <sup>4</sup>	Estimated net cumulative USEC DU <sup>2</sup>	USEC DU at PGDP	USEC DU at PORTS
July 28, 1998- Dec. 31, 2009	-		-	38943 <sup>3</sup>	38583	360
CY2010	5840	(13312)	(5)	31466	31106	360
CY2011	5525		(5)	36986	36626	360
CY2012	2421		0	39407	39047	360
CY2013	0		0	39407	39047	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. Includes depleted uranium refeed to the cascade or sold.
5. DU transfer to DOE in 2010 related to Cooperative Agreement between DOE and USEC concerning American Centrifuge Demonstration Project.

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Enclosure 4  
GDP 10-0015

Payment Surety Bond



Standby Trust Schedules A, B, C and  
Letter of Acknowledgement

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

ADDRESS OF  
LICENSED  
ACTIVITY

3930 State Route 23/Perimeter Road  
Piketon, Ohio 45661

5600 Hobbs Road  
Paducah, Kentucky 42001


COST ESTIMATE FOR  
REGULATORY ASSURANCES  
DEMONSTRATED BY THIS  
AGREEMENT

\$189,200,000

The cost estimates listed here are submitted to the NRC on April 1, 2010.

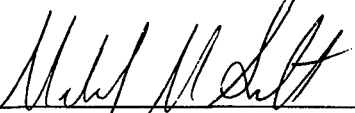
The Total Cost of decommissioning the GDP's, assuming no liability for decontamination, is as per the decommissioning cost estimate on file with the NRC.

United States Enrichment Corporation

  
\_\_\_\_\_  
Stephen S. Greene

Vice President, Finance and Treasurer

U.S. Bank N.A.

  
\_\_\_\_\_  
Melody M. Scott, Trust Officer

United States Enrichment Corporation  
Standby Trust Agreement

SCHEDULE B

AMOUNT: \$189,200,000

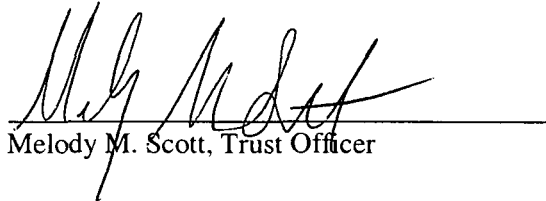
AS EVIDENCED BY: Payment Surety Bonds issued by American International Companies, Rockwood Casualty Insurance Company, Safeco Insurance Companies and Westchester Fire Insurance Company and a Letter of Credit issued by J.P. Morgan Chase effective December 31, 2005, as subsequently amended effective December 19, 2008, as on file with the NRC.

United States Enrichment Corporation



Stephen S. Greene  
Vice President, Finance and Treasurer

U.S. Bank N.A.

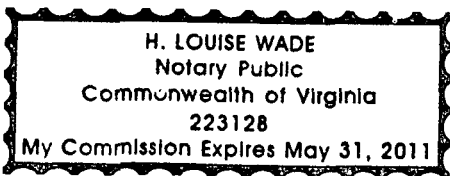
  
Melody M. Scott, Trust Officer

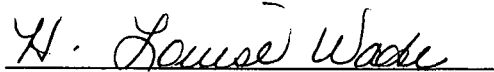
LETTER OF ACKNOWLEDGEMENT

STATE OF: Virginia

CITY OF: Richmond

On the 1<sup>st</sup> day of April, 2010, before me, a Notary Public in the for the city and state aforesaid, personally appeared Melody M. Scott, and she did depose and say that she is the Trust Officer of U.S. Bank N.A., Trustee, which executed the above instrument, that she knows the seal of said association, that the seal affixed to such instrument is such corporation seal; that it was so affixed by order of the association; and that she signed her name thereto by like order.



  
Signature of Notary Public

My Commission Expires: May 31, 2011  
Date

United States Enrichment Corporation  
Standby Trust Agreement

SCHEDULE C

Trustee will be paid \$1,500.00 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.

Analysis of Depleted Uranium Disposal Costs  
For the Gaseous Diffusion Plants

### **Analysis of Depleted Uranium Disposal Costs 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 (GDPs) based on a methodology and supporting data provided by the Department of Energy (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 the 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 ACP licensing activities which has been accepted by the Nuclear Regulatory Commission (NUREG-1851, Reference 2). 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 DUF<sub>6</sub> Conversion Facility located in Piketon, Ohio, and was used as a basis to calculate the disposal cost for GDP depleted uranium located at PORTS. Consistent with the estimated unit cost proposed for disposal of the ACP depleted uranium, and escalating this disposal cost to 2010 dollars, the depleted uranium disposal cost for USEC's GDP depleted uranium located at PORTS is estimated to be \$5.11/kgU. The specific analysis is attached as Table 1. Using the ACP unit cost as a basis for estimating the disposal cost for GDP depleted uranium located at PORTS is appropriate since 1) the PORTS and ACP depleted uranium are co-located on the same reservation, 2) for the purposes of decommissioning funding, USEC currently anticipates processing the PORTS and the ACP depleted uranium at the DUF<sub>6</sub> Conversion Facility in Piketon, Ohio, 3) the total quantity of PORTS depleted uranium (360 MTU) is a small percentage (less than ½ of 1 percent) of the total ACP depleted uranium, and 4) if incorporated into the ACP unit cost analysis, processing the additional GDP depleted uranium would have a negligible impact on the estimated ACP unit cost.

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 \$4.44/kgU (in 2010 dollars) is a reasonable depleted uranium disposal unit cost estimate for the purposes of decommissioning funding of USEC's depleted uranium located at PGDP. The PGDP-specific analysis is attached as Table 2.

These analyses utilized Scenarios 1 and 2 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 and Portsmouth DUF<sub>6</sub> 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].
2. NUREG-1851, Safety Evaluation Report for the American Centrifuge Plant in Piketon, Ohio

Table 1  
Attached

**Scenario 2: Process at Portsmouth in "Base" Plant**

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

		<u>per Kg DUF6</u>	<u>2010 dollars</u> <u>per Kg DUF6 (d)</u>
<b>Investment costs</b>			
Plant construction (\$000)	\$ 133,800		
Less: Contingency (20%)	\$ (22,300)		
Plant construction, net of contingency	\$ 111,500		
Life of the plant (years)	38		
Plant start	2009		
Start receiving non-DOE tails	2011		
DOE DUF6 (MT)	245,700		
USEC-ACP DUF6 (MT)	<u>214,400</u>		
Total	460,100		
USEC-ACP pro rata share	47%		
USEC pro rata investment cost	\$ 51,957		
Investment cost in equivalent annual value (c)	\$ 2,493		
Investment equivalent annual cost per Kg DUF6		\$ 0.44	\$ 0.51 (d)
<b>Annual operating costs</b>			
Plant operations	\$ 1.76		
Less: Contingency (10%)	\$ (0.16)		
Plant operations, net of contingency	\$ 1.60	\$ 1.82	(e)
Plant recapitalization costs	\$ 0.33	\$ 0.38	(e)
Transportation to Portsmouth costs	\$ -	\$ -	
Product disposal	\$ 0.37	\$ 0.42	(e)
Surveillance and maintenance costs	\$ 0.003	\$ 0.003	(e)
<b>Decon &amp; Decommissioning</b>			
Plant D&D cost (\$000)	\$ 47,600		
USEC-ACP pro rata share	47%		
USEC pro rata D&D cost	\$ 22,181		
Equivalent uniform annual cost (c)	\$ 1,064		
Equivalent annual cost per Kg DUF6		\$ 0.19	\$ 0.22 (d)
Federal administrative charge (3%)		\$ 0.09	\$ 0.10
<b>Total per Kg DUF6</b>		<u>\$ 3.02</u>	<u>\$ 3.45</u>
<b>Total per Kg DU</b>		<u>\$ 4.47</u>	<u>\$ 5.11</u>

**Assumptions:**

- (a) Plant remains in operation until the DOE backlog and USEC-ACP DUF6 are processed.
- (b) USEC-ACP DUF6 is treated concurrently with other DUF6.
- (c) Using LMI methodology, cost includes a 3.5% annual charge applied to both current capital expenditures and future D&D expenditures over the projected life of the plant.
- (d) Cost escalated from 2004 dollars to 2010 dollars based on the following:
  - (i) the Implicit Price Deflator of the Gross Domestic Product --
 

	<u>IPD-GDP</u>	<u>Annual increase</u>
2004	96.770	
2005	100.000	3.3%
2006	103.257	3.3%
2007	106.214	2.9%
2008	108.483	2.1%
  - (ii) CBO's August 2009 estimate of inflation as measured by a forecast of the GDP index --
 

2009	1.8%
2010	1.1%
- (e) DOE's projected operating costs in 2008 dollars were de-escalated to 2004 dollars by LMI using a DOE-suggested factor of 10.5%, which equals the following annual rates issued by DOE's Office of Engineering and Construction Management in January 2004:

**Escalation Rate Assumptions for DOE Projects - Operations and Management:**

- 2005 - 2.7%
- 2006 - 2.6%
- 2007 - 2.4%
- 2008 - 2.4%
- Compound Rate - 10.5%

Operating costs in 2004 dollars are escalated to 2008 dollars using these inflation factors, then after 2008 using the factors described in note (d) above.



Table 2  
Attached

**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>per Kg DUF6</u>	<u>2010 dollars</u> <u>per Kg DUF6</u>
Investment costs			
Plant construction (\$000)	\$ 151,700		
Less: Contingency (20%)	\$ (25,283)		
Plant construction, net of contingency	\$ 126,417		
Life of the plant (years)	28		
Plant start	2010		
DOE DUF6 (MT)	421,200		
USEC-GDP DUF6 (MT)	<u>80,343</u>		
Total	501,543		
Annual Capacity	18,000		
Years to Process	28		
USEC-GDP pro rata share	16%		
USEC pro rata investment cost	\$ 20,251		
Investment cost in equivalent annual value (c)	\$ 1,150		
Investment equivalent annual cost per Kg DUF6		\$ 0.40	\$ 0.46 (d)
Annual operating costs			
Plant operations	\$ 1.45		
Less: Contingency (10%)	\$ (0.13)		
Plant operations, net of contingency	\$ 1.32	\$ 1.50	(e)
Plant recapitalization costs	\$ 0.28	\$ 0.32	(e)
Transportation to Paducah costs	\$ -	\$ -	
Product disposal	\$ 0.37	\$ 0.42	(e)
Surveillance and maintenance costs	\$ 0.003	\$ 0.003	(e)
Decon & Decommissioning			
Plant D&D cost (\$000)	\$ 57,150		
USEC-GDP pro rata share	16%		
USEC pro rata D&D cost	\$ 9,155		
Equivalent uniform annual cost (c)	\$ 520		
Equivalent annual cost per Kg DUF6		\$ 0.18	\$ 0.21 (d)
Federal administrative charge		\$ 0.08	\$ 0.09
<b>Total per Kg DUF6</b>		<u>\$ 2.63</u>	<u>\$ 3.00</u>
<b>Total per Kg DU</b>		<u>\$ 3.89</u>	<u>\$ 4.44</u>

Assumptions:

- (a) Plant remains in operation until the DOE backlog and USEC-GDP DUF6 are processed.
- (b) USEC-GDP DUF6 is treated concurrently with other DUF6.
- (c) Using LMI methodology, cost includes a 3.5% annual charge applied to both current capital expenditures and future D&D expenditures over the projected life of the plant.

- (d) Cost escalated from 2004 dollars to 2010 dollars based on the following:

	<u>IPD-GDP</u>	<u>Annual increase</u>
2004	96.770	
2005	100.000	3.3%
2006	103.257	3.3%
2007	106.214	2.9%
2008	108.483	2.1%

- (ii) CBO's August 2009 estimate of inflation as measured by a forecast of the GDP index --

2009	1.8%
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- (e) DOE's projected operating costs in 2008 dollars were de-escalated to 2004 dollars by LMI using a DOE-suggested factor of 10.5%, which equals the following annual rates issued by DOE's Office of Engineering and Construction Management in January 2004:

Escalation Rate Assumptions for DOE Projects - Operations and Management:

2005 - 2.7%
2006 - 2.6%
2007 - 2.4%
2008 - 2.4%
Compound Rate - 10.5%

Operating costs in 2004 dollars are escalated to 2008 dollars using these inflation factors, then after 2008 using the factors described in note (d) above.

**Commitments Contained in this Submittal**

USEC will incorporate the DFP and DU Plan changes into a revision to the Application.