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GDP Depleted Uranium Management Plan

DEPLETED URANIUM MANAGEMENT PLAN

December 29, 2003

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DU Plan-GDPs PGDP Rev. 112/ RAC 09C018 (R1) PORTS Rev. 91/ RAC 09X0034 (R1) December 29, 2009

LIST OF EFFECTIVE PAGES

·	<u>PGDP</u>	<u>PORTS</u>
Pages	Revision	Revision
i.	86	70
iii	112/ RAC 09C018 (R1)	91/ RAC 09X0034 (R1)
iv	86	70
V	86	70
vi	86	70
1	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 (UF₆) 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 UF₆ is suitable for conversion to other chemical forms. For example, the solid UF₆ could be converted to U₃O₈, UF₄, 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 ²³⁵U 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 UF $_6$ in approximately 60,000 cylinders stored at various locations on the DOE portions of the GDP plant sites. USEC presently anticipates that the bulk of its inventory of depleted uranium will ultimately be dispositioned in the same manner as the larger DOE depleted uranium inventory.

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

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

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

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

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

The remaining inventory will continue to be stored as solid UF₆ 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.

PGDP Rev. 112/ RAC 09C018 (R1) PORTS Rev. 91/ RAC 09X0034 (R1)

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 ¹	Other DU ⁴	Estimated net cumulative USEC DU ²	USEC DU at PGDP	USEC DU at PORTS
July 28, 1998-Dec. 31, 2009	*	-	38962 ³	38602	360
CY2010	5840	(5)	44797	44437	360
CY2011	5525	(5)	50317	49957	360
CY2012	2421	0	52738	52378	360
CY2013	0	0	52738	52378	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 refed to the cascade or sold.

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Payment Surety Bond

PAYMENT SURETY BOND

Date bond executed:

12/22/09

Effective Date:

12/31/09

Principal:

United States Enrichment Corporation

6903 Rockledge Drive

Bethesda, MD 20817

Type of organization:

Delaware Chartered Corporation

NRC certificate of compliance number:

GDP1 and GDP2

Name and address of facility:

Paducah Gaseous Diffusion Plant

Amounts for decommissioning

Activity guaranteed by this bond:

\$30,800,000

Surety:

Westchester Fire Insurance Company, 436 Walnut St., Philadelphia, PA 19106

Type of Organization:

Corporation

State of Incorporation:

NY

Westchester Fire Insurance Company is Treasury Listed and licensed to do business in all 50 States of the United States of America.

Surety's Bond Number:

K08246129

Total Penal Sum of bond:

\$30,800,000

Know all persons by these presents, That we, the Principal and Surety 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 Surety, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or aff 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 that 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 1 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 alternate 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 Sureties 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 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 shall place funds in the amount guaranteed for the facilities into the standby trust fund established by the Principal with U.S. Bank pursuant to the Standby Trust Agreement dated 7/28/98.

The liability of the Surety 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 Sureties hereunder exceed the amount of said penal sum.

The Surety may cancel the bond by sending notice of cancellation by certificated 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 Sureties 90 days prior to the proposed date of termination, provided, however, that no such notice shall become effective until the Sureties receive 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 have executed this financial guarantee bond to 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.

Principal:

United States Enrichment Corporation

resident

Signature:

•

Name:

Stephen S. Greene

Title:

V.P. Finance & Treasurer

Corporate Seal:

Corporate Sureties

Westchester Fire Insurance Company 436 Walnut Street Philadelphia, PA 19106

State of Incorporation:

NY

Liability Limit:

Signature:

Name and Title:

Corporate Seal:

Bond Premium:

\$862,400.00

Know all men by these presents: That WESTCHESTER FIRE INSURANCE COMPANY, a corporation of the State of New York; having its principal office in the City of Atlanta; Georgia; pursuant to the following Resolution; adopted by the Board of Directors of the said Company on December 11, 2006, to

*RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company of bonds; undertakings, recognizances, contracts and other written communications of the Company entered into the ordinary course of business each a "Written Commitment").

Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Writen Commitment for and on behalf of the Company, under the seal of the Company or otherwise,

- Each tuly appointed attorney-in-fact of the Company is hereby authorized to recentle any Written Commitment for and on behalf of the Company ander the seal of the Company or otherwise, to the extent that such actions as authorized by the grant of powers provided for an each persons awritten appointment as such attorney in-fact.

Hach of the Chairman, the President and the Vice Presidents of the Company with full power and authority to extent, for and on behalf of the Company to extent, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Company as may be specified in such written appointment, which specifies now may be specified in such written appointment, which specifies now may be specified in such written appointment, which specifies now may be specified in such written appointment, which specifies now may be specified in such written appointment, which specifies now the Company as may be specified in such written appointment, which specifies now the Company as may be specified in such written appointment.

Each of the Chairman, the President and Vice Presidents of the Company is perely authorized for and on behalf of the Company to delegate in writing to any other officer of the Company the authority to execute. For and on behalf of the Company, index the Company's seal or otherwise, such Written Communicated the Company as are specified in such writing delegation, which specification may be by general type or class of Western Communication of the Company as a respective in such writing delegation, which specification may be by general type or class of Western Communications of the Company and Vice Presidents and Vice Presidents of the Company the authority to execute. For

The signature of any officer or other person executing any Written Communication appropriate or delegation pursuant to this Republication and the seal of the Company, may be affored by facesmile on such Written Communication virtuals appointment of delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive sinferent of the powers and authority of officers, employees and other persons to six for and on behalf of the Company, and such Resolution shall not time or otherwise affect the exercise of any such power or suthority otherwise validly granted or vested.

FURTHER RESOLVED, that the Resolution of the Board of Directors of the Company adopted at the meeting field to November 8, 1999 relating to the authorization of certain persons to execute, for such on behalf of the Company, Written Communication and approximents and approximents and delegations; is bereby resembled.

Does hereby nominate, constitute and appoint STEPHAN J. MAY. SANDRA L. ROPKA, CHRIS EDWARDS; JULIE GIST and MARK ATKINS all of the City of Seattle. State of Washington: JAMES BOYLAN and K. DIANE REKGERS both of the City of Phoenix, State of Arizona; each individually if there be more than one named; its true and lawful attorney-in-fact, to make, execute; seal and deliver on its behalf, and as its act and deed any and all bonds, undertakings, recognizances, contracts and other writings in the nature thereof. And the execution of such writings in pursuance of these presents shall be as blinding upon said Company, as fully and amply as if they had been duly executed and acknowledged by the regularly elected officers of the Company at its principal office.

IN WITNESS WHEREOF, the said Stephen M. Haney. Vice President, has hereunto subscribed his name and affixed the corporate stal of the said WESTCHESTER FIRE INSURANCE COMPANY this 10th day of February. 2009.



WESTCHESTER FIRE INSURANCE COMPANY

Stock M More

Stephen M. Haney, Vice President

COMMONWEALTH OF PENNSYLVANIA COUNTY OF PHILADELPHIA SS:

On this 10th day, of February A.D. 2009, before me, a Notary Public of the Commonwealth of Fennsylvants in and for the County of Philadelphia came Stephen M. Hanry; Vice President of the WESTCHESTER FIRE INSURANCE COMPANY to me personally known to be the individual and officer who executed the preceding instrument, and he acknowledged that he executed the same, and that the scal affixed to the preceding instrument is the comporate scal of said Company; that the said corporate scal and his signature were duly affixed by the authority and direction of the said corporation, and that Resolution, adopted by the Board of Directors of said Company, referred to in the preceding instrument; is now in force:

IN TESTIMONY WHEREOF, I have hereupto set my hand and affixed my official seal at the City of Philadelphia the day and year first above written



COMMONWEALTH OF PENNSYLVANIA

NOTARIAL SEAL KAREN E. BRANDT, Notary Public City of Philadelphia, Phila. County My Commission Expires September 26, 2010

Notary Public

1, the undersigned Assistant Secretary of WESTCHESTER FIRE INSURANCE COMPANY, do hereby certify that the original POWER OR ATTORNEY, of which the foregoing is a substantially true and correct copy, is in full force and effect.

In witness whereof, I have hereunto subscribed my name as Assistant Secretary, and affixed the corporate scal of the Corporation, this 22 day of Declaration 2007



William L. Kelly : Assistant Secretary

2666 1 100

THIS POWER OF ATTORNEY MAY NOT BE USED TO EXECUTE ANY BOND WITH AN INCEPTION DATE AFTER February 10, 2011

NOTARY ACKNOWLEDGMENT

State of	Washington	
County of _	King	ss:

On this <u>22nd</u> day of <u>December</u>, <u>2009</u>, before me personally came <u>Stephan J. May</u> to me known and known to me to be the person who is described in and who executed the foregoing Agreement; and acknowledge(s) to me that he executed the same.



Juli Ann Just
(Signature of Notary Public)

My commission expires July 13, 2013

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

ADDRESS OF

Bethesda, Maryland 20817

LICENSED

3930 State Route 23/Perimeter Road Piketon, Ohio 45661

ACTIVITY

5600 Hobbs Road

Paducah, Kentucky 42001

COST ESTIMATE FOR REGULATORY ASSURANCES **DEMONSTRATED BY THIS AGREEMENT**

\$262,800,000

The cost estimates listed here are submitted to the NRC on December 28, 2009.

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

John C. Barpoulis

Serjier Vice President and Chief Financial Officer

U.S. Bank N.A.

Melody M. Scott, Trust Officer

United States Enrichment Corporation Standby Trust Agreement

SCHEDULE B

AMOUNT: \$262,800,000

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

ohn C. Barpoulis

Senior Vice President and Chief Financial Officer

U.S. Bank N.A

Melody M. Scott, Trust Officer

LETTER OF ACKNOWLEDGEMENT

STATE OF: Virginia

CITY OF: Richmond

On the 22^M day of December, 2009, 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.

H. LOUISE WADE
Notary Public
Communwealth of Virginia
223128

My Commission Expires May 31, 2011

Signature of Notary Public

My Commission Expires: 5/3//11

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 DUF₆ 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 DUF₆ 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 DUF₆ 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 DUF₆ 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 DUF₆ Conversion Facility cost estimate.

Reference:

- 1. LMI Government Consulting, Report DE523T1, An Analysis of DOE's Cost to Dispose of DUF₆, 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

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Table 2 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

	·						0 dollars	
ŧ	nvestment costs			per	Ka DUF6	per K	g DUF6 (d)	
	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 talls		2011					
	DOE DUF6 (MT)		245,700					
ŧ	JSEC-ACP DUF6 (MT)		214,400					
7	otal		460,100					
į	ISEC-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)
,	Armual operating costs							
	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)
ï	Decon & Decommissioning							
	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)
	To do not be for the bloom of the control of the co			_		_		
ŀ	Federal administrative charge (3%)			\$	0.09	\$	0.10	
٦	Total per Kg DUF6			\$	3.02	\$	3.45	
٦	otal per Kg DU		•	\$	4.47	\$	5.11	

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>	Annual increase
	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 infla	ition as m	neasured by a fo	recast 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%

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.

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

	Investment costs			nor l	(a DUF6		dollars	
	Plant construction (\$000)	s	151,700	Det 1	NG DOI G	Dei r	IN DOPO	
	Less: Contingency (20%)	Š	(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)		80,343					
	Total		501,543					
٠	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%)			<u>\$</u>	(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	
	Total per Kg DUF6			\$	2.63	\$	3.00	•
	Yotal per Kg DU			\$	3.89	\$	4.44	

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:
 - (i) the Implicit Price Deflator of the Gross Domestic Product -

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		IPO-GDP	Annual increase
	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 me	asured by a to	recast 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%

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.