



June 17, 2005
GDP 05-0020

Mr. Jack R. Strosnider
Director, Office of Nuclear Material Safety and Safeguards
Attention: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Paducah Gaseous Diffusion Plant (PGDP)
Docket No. 70-7001, Certificate No. GDP-1
Certificate Amendment Request – Revise Safety Analysis Report (SAR) Table 1-4, TSR
2.2.4.3 and TSR 2.3.4.7

Dear Mr. Strosnider:

In accordance with 10 CFR 76.45, the United States Enrichment Corporation (USEC) hereby submits a request for amendment to the Certificate of Compliance for the Paducah, Kentucky, Gaseous Diffusion Plant (PGDP). This Certificate Amendment Request (CAR) proposes to revise PGDP's authorized activities described in Safety Analysis Report (SAR) Table 1-4; and to correct typographic errors in TSRs 2.2.4.3/2.3.4.7.

Enclosure 1 contains the Oath and Affirmation. Enclosure 2 to this letter provides a detailed description and justification of the proposed changes. Enclosure 3 is a copy of the revised SAR and TSR pages associated with this request for NRC approval. Enclosure 4 contains the basis for USEC's determination that the proposed changes associated with the CAR are not significant.

Modifications to PGDP SAR Table 1-4, Authorized uses of NRC regulated materials, are needed to ultimately disposition depleted uranium that was associated with Amendment 3 to the Portsmouth Gaseous Diffusion Plant (PORTS) Certificate of Compliance (Reference). USEC is unable to transfer this material to PGDP for enrichment since the current wording in SAR Table 1-4 does not clearly indicate that PGDP may receive depleted uranium for enrichment. Additional corrections to the authorized activities described in SAR Table 1-4 are needed to clarify that uranium enrichment activities conducted with Special Nuclear Material are also applicable to Source Material. These corrections are included as part of the proposed SAR revisions. This change will also correct a typographic error in the Required Action sections of TSR 2.2.4.3 and TSR 2.3.4.7.

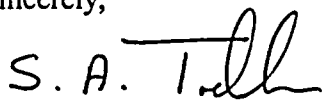
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USEC requests NRC review of this CAR as soon as practical so that the depleted material can be transferred to PGDP for enrichment. The amendment should become effective immediately after issuance.

Any questions related to this submittal should be directed to me at (301) 564-3250. There are no new commitments contained in this submittal.

Sincerely,

Handwritten signature of Steven A. Toelle in black ink.

Steven A. Toelle
Director, Nuclear Regulatory Affairs

Reference: Letter from Gary S. Janosko (NRC) to J. Morris Brown (USEC), Amendment 3-Portsmouth Gaseous Diffusion Plant-Receipt, Storage, Handling, and Processing of Four Off-Specification Cylinders (TAC L52559), dated March 15, 2004.

Enclosures:

1. Oath and Affirmation
2. United States Enrichment Corporation (USEC), Certificate Amendment Request, Revise Safety Analysis Report (SAR) Table 1-4, TSR 2.2.4.3 and TSR 2.3.4.7, Detailed Description and Justification of the Changes.
3. Certificate Amendment Request, Paducah Gaseous Diffusion Plant, Letter GDP 05-0020, Removal/Insertion Instructions
4. United States Enrichment Corporation (USEC), Certificate Amendment Request, Revise Safety Analysis Report (SAR) Table 1-4, TSR 2.2.4.3 and TSR 2.3.4.7, Significance Determination

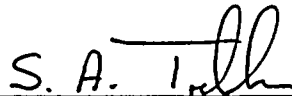
cc: M. Thomas, NRC Acting Sr. Resident Inspector, PGDP
J. Hensen, NRC Region II Office
D. Martin, NRC Project Manager, PGDP

Enclosure 1
GDP 05-0020

Oath and Affirmation

OATH AND AFFIRMATION

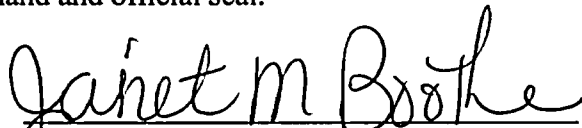
I, Steven A. Toelle, swear and affirm that I am the Director, Nuclear Regulatory Affairs of the United States Enrichment Corporation (USEC), that I am authorized by USEC to sign and file with the Nuclear Regulatory Commission this Certificate Amendment Request for the Paducah Gaseous Diffusion Plant addressing revisions to the Authorized Uses Table and TSRs 2.2.4.3 and 2.3.4.7 described in USEC letter GDP 05-0020, that I am familiar with the contents thereof, and that the statements made and matters set forth therein are true and correct to the best of my knowledge, information, and belief.



Steven A. Toelle

On this 17th day of June 2005, the individual signing above personally appeared before me, is known by me to be the person whose name is subscribed to within the instrument, and acknowledged that he executed the same for the purposes therein contained.

In witness hereof I hereunto set my hand and official seal.



Janet M. Boothe, Notary Public
State of Maryland, Howard County
My commission expires June 1, 2007

Enclosure 2
GDP 05-0020

USEC-01
Certificate Amendment Request
Revise Safety Analysis Report (SAR) Table 1-4,
TSR 2.2.4.3 and TSR 2.3.4.7

**United States Enrichment Corporation (USEC)
Certificate Amendment Request
Revise Safety Analysis Report (SAR) Table 1-4,
TSR 2.2.4.3 and TSR 2.3.4.7
Detailed Description and Justification of the Changes**

Description of Change

This proposed change will modify Safety Analysis Report (SAR) Table 1-4, Part A, "Source Material Element 92," to more accurately reflect PGDP's activities related to Source Material.

The wording in Table 1-4, Part A, "Source Material Element 92, line item 2 which associates the activity with "natural" uranium will be removed. Line item 3 will be revised to clarify that PGDP may receive depleted uranium generated from domestic gaseous diffusion plant operations. Line item 4 will be revised to indicate that assay and shipment are also activities that may be performed with natural or depleted uranium. Line item 14 is being added to authorize PGDP to receive and process depleted uranium associated with Amendment 3 to the PORTS Certificate of Compliance GDP-2. The line items in Table 1-4 that are affected by this proposed change are shown below. Wording that is being deleted is shown as a ~~strikeout~~. Wording that is being added is shown as underlined.

Table 1-4, Authorized uses of NRC-regulated materials.

Material Type	Authorized Use
A. Source Material, Element 92 ^b	<p>2. Enrichment of natural uranium up to 5.5 percent enrichment by weight ²³⁵U.</p> <p>3. Receipt, storage, inspection, and acceptance sampling of cylinders containing natural or recycled uranium, <u>and uranium depleted in ²³⁵U generated from domestic gaseous diffusion plant operations.</u></p> <p>4. Filling, assay, storage and <u>shipment</u> of cylinders with natural uranium and uranium depleted in ²³⁵U.</p> <p><u>14. Receipt, storage, inspection, acceptance sampling and enrichment of one cylinder containing depleted uranium derived from four off-specification cylinders transferred from DOE to USEC.</u></p>

This proposed change will also revise TSR 2.2.4.3 and TSR 2.3.4.7 to correct a typographic error in Condition B of the Actions associated with LCO 2.2.4.3b and LCO 2.3.4.7b. Condition B for these LCOs currently state "TSR 1.6.6.2d is not applicable". This wording is incorrect since TSR 1.6.6.2d does not exist. The correct wording is shown in LCO 2.2.4.3a and LCO 2.3.4.7a, Condition B which state "TSR 1.6.2.2d is not applicable".

Reason for the Changes

USEC has reviewed SAR Table 1-4 and determined that the activities described in SAR Table 1-4, line items 2, 3, and 4, contain language that is not consistent with Footnote "b" of the table, or with the same activities involving the use of Special Nuclear Material described in Table 1-4, Part C. This proposed change will make the wording for activities involving Source Material consistent with the same activities as they apply to Special Nuclear Material. Line item 14 is also being added to allow PGDP to receive and process depleted uranium that did not originate from gaseous diffusion plant operations.

The editorial changes to TSR 2.2.4.3 and 2.3.4.7 are necessary to correct typographic errors that have existed since these TSRs were originally approved.

Justification of the Changes

The requirements that must be met before uranium is fed to the cascade are described in the SAR, Table 1-4, footnote "b." The footnotes state the following, "Uranium to be fed to the cascade will meet the requirements of ASTM Standard C996, "Standard Specification for Uranium Hexafluoride Enriched to Less Than 5% ²³⁵U," or ASTM Standard C787, "Standard Specification for Uranium Hexafluoride for Enrichment," for reprocessed UF₆. All other uranium that does not meet the requirements of ASTM Standard C996 or C787 for reprocessed UF₆ may be accepted by USEC for storage and subsequent dispositioning but will not be introduced to the cascade, with the exception of small amounts (e.g., 50 pounds of UF₆) associated with sampling, subsampling, and analysis required to establish receiver's values."

The authorized activity listed in SAR Table 1-4, Source Material Element 92, line item 2 associates uranium enrichment with one specific type of Source Material (i.e., natural uranium). Associating enrichment activities with only one type of Source Material is not consistent with the same activity listed in Table 1-4, Special Nuclear Material, line item 14. The authorized activity described in Table 1-4, Special Nuclear Material, line item 14 states "Enrichment up to 5.5% ²³⁵U by weight." This section of the table does not differentiate between types of uranium and indicates that any uranium meeting the requirements of footnote "b" may be fed to the cascade.

The use of the term “natural” creates an inconsistency because it implies that uranium which meets the requirements of Table 1-4, footnote “b,” but is at a ^{235}U content below 0.711wt. % ^{235}U , is not acceptable for enrichment. The same uranium at a ^{235}U content above 0.711wt. % ^{235}U would be acceptable for enrichment under Table 1-4, Special Nuclear Material. The ASTM standards, and not the ^{235}U content of uranium, are the determining factors on whether uranium may be fed to the cascade. There is no practical reason to differentiate authorized use activities by ^{235}U content since the activity is the same regardless of the ^{235}U content of the material. USEC’s enrichment operations involve enrichment of Source Material uranium starting at any ^{235}U content that is economically advantageous and is not limited to only natural uranium. This proposed change will remove the qualifier “natural”, from Table 1-4, Source Material Element 92, line item 2 to clarify that PGDP also enriches material with an assay less than 0.711wt. % ^{235}U . This change is also consistent with SAR Section 3.1.3 which indicates the UF_6 feed to the cascade may range in assay from partially depleted material up to and including the plant assay limit.

The revision to line item 3 will clarify that PGDP may receive depleted uranium generated from domestic gaseous diffusion plant operations. The depleted uranium may be owned by USEC, USEC customers, or material transferred from the Department of Energy to USEC. This change is necessary because PGDP may utilize depleted uranium material as a source of feed material when it is economical to do so. Depleted uranium tails may also be shipped to customers who require low assay material.

The activities described in line item 4 will be modified to clarify that Source Material may also be assayed and shipped in the same manner as Special Nuclear Material described in Table 1-4, line item 2. As noted above, this change is necessary because PGDP supplies Source Material uranium to customers when required by contract.

Line item 14 is being added to allow PGDP to receive and disposition depleted uranium that was processed at PORTS in accordance with Amendment 3 to PORTS Certificate of Compliance GDP-2. The sample analysis conducted at PORTS confirmed this material meets the ASTM specifications described in Table 1-4, footnote “b.”; however, this change is needed because PGDP’s current list of authorized activities does not specifically state that PGDP may receive and enrich this source of depleted feed material. This proposed change will allow PGDP to receive and disposition this material.

The only effect of the proposed change to TSR 2.2.4.3 and TSR 2.3.4.7 is to ensure TSR 1.6.2.2d is correctly referenced in these TSRs. TSR 1.6.2.2d is a requirement that prevents entry into an Operational Mode when relying on the provisions of an Action statement. The requirements of TSR 1.6.2.2d are not applicable to the Criticality Accident Alarm System TSRs; however, TSR 1.6.2.2d was incorrectly referenced as TSR 1.6.6.2d in the two TSRs being revised.

Certificate Amendment Request Paducah Gaseous Diffusion Plant Letter GDP 05-0020 Removal/Insertion Instructions	
Remove Pages	Insert Pages
APPLICATION FOR UNITED STATES NUCLEAR REGULATORY COMMISSION CERTIFICATION VOLUME 1	
SAR Section 1 Page 1-10	SAR Section 1 Page 1-10
APPLICATION FOR UNITED STATES NUCLEAR REGULATORY COMMISSION CERTIFICATION VOLUME 4	
TSR Section 2.2 Page 2.2-17	TSR Section 2.2 Page 2.2-17
TSR Section 2.3 Page 2.3-21	TSR Section 2.3 Page 2.3-21

Table 1-4. Authorized uses of NRC-regulated materials.

Material Type	Authorized Use
A. Source Material, Element 92 ^b	<ol style="list-style-type: none"> 1. Heating cylinders and feeding contents into the diffusion process. 2. Enrichment of uranium up to 5.5 percent enrichment by weight ²³⁵U. 3. Receipt, storage, inspection, and acceptance sampling of cylinders containing natural or recycled uranium, and uranium depleted in ²³⁵U generated from domestic gaseous diffusion plant operations. 4. Filling, assay, storage and shipment of cylinders with natural uranium and uranium depleted in ²³⁵U. 5. Cleaning and inspection of cylinders used for the storage and transport of process feed, product, and tails containing source or special nuclear material. 6. Storage of process wastes containing uranium, transuranic elements, and other contaminants and decay products. 7. Process, characterize, package, ship, or store low-level radioactive and mixed wastes. 8. Radiation protection, process control and environmental sample collection, analysis, instrument calibration and operation checks. 9. Maintenance, repair, and replacement of process equipment. 10. Process Control Laboratory analysis and testing. 11. Cold feeding^a. 12. Transfer between cylinders. 13. Receipt, storage, inspection, and acceptance sampling of two cylinders containing depleted uranium hexafluoride (UF₆) from the former Sarnet CMI site. 14. Receipt, storage, inspection, acceptance sampling and enrichment of one cylinder containing depleted uranium derived from four off-specification cylinders transferred from DOE to USEC.
B. Source Material, Element 90	<ol style="list-style-type: none"> 1. Calibration and use of portable health physics and fixed laboratory equipment. 2. Process Control Laboratory analysis and testing. 3. Process, characterize, package, ship, or store low level radioactive and mixed wastes.

SECTION 2.2 SPECIFIC TSRS FOR UF₆ FEED FACILITIES (C-333-A AND C-337-A)

2.2.4 GENERAL LIMITING CONDITIONS FOR OPERATION

2.2.4.3 CRITICALITY ACCIDENT ALARM SYSTEM (continued)

LCO 2.2.4.3b: Criticality accident alarm shall be operable (audible).

APPLICABILITY: In areas where the maximum foreseeable absorbed dose in free air exceeds 12 rad, except areas in permit-required confined spaces. This LCO is applicable when the new criticality accident alarm system supplied by air accumulators is operable.

ACTIONS:

Condition	Required Action	Completion Time
<p>A. Area does not have an audible criticality accident alarm.</p>	<p>A.1 Implement the following for areas, equipment, or processes where a criticality accident could result in a maximum foreseeable dose exceeding 12 rad in the area of inaudibility and LCO 2.2.4.3a or 2.4.4.2a applies.</p> <p>A.1.1 Discontinue movement of cylinders containing UF₆ enriched to ≥ 1 wt % ²³⁵U. <u>AND</u></p> <p>A.1.2 Cylinder processing with UF₆ enriched to ≥ 1 wt % ²³⁵U will be discontinued. [In-progress cylinder operating cycle(s) may be completed, stopped and/or re-started as necessary, as long as the in-progress autoclave(s) remain in Mode 5. However, these autoclaves may be placed in Mode 2 at any time.] <u>AND</u></p> <p>A.1.3 Perform Required Actions A.1.1 through A.1.6 of TSR 2.4.4.2b. <u>AND</u></p> <p>A.1.4 Discontinue movement of uranium enriched to ≥ 1 wt % ²³⁵U. <u>AND</u></p> <p>A.2.1 Evacuate area of inaudibility applicable to this LCO. <u>AND</u></p> <p>A.2.2 Restrict access to area evacuated in A.2.1. <u>AND</u></p> <p>A.3 Provide personnel allowed into the area that would be restricted under Action A.2.1 with an alternate means of criticality alarm notification, such as a device that will alarm on sensing a 10 mr/hr dose rate, or a radio in constant communication with the Central Control Facility.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>
<p>B. Area does not have an audible criticality accident alarm.</p>	<p>B.1 Restore criticality accident alarm to operable status.</p> <p>TSR 1.6.2.2d is not applicable.</p>	<p>Prior to reinitiating activities</p>

**Enclosure 4
GDP 05-0020**

**USEC-01
United States Enrichment Corporation (USEC)
Certificate Amendment Request, Revise Safety Analysis Report
(SAR) Table 1-4, TSR 2.2.4.3 and TSR 2.3.4.7, Significance Determination**

**United States Enrichment Corporation (USEC)
Certificate Amendment Request
Revise Safety Analysis Report (SAR) Table 1-4,
TSR 2.2.4.3 and TSR 2.3.4.7
Significance Determination**

The United States Enrichment Corporation (USEC) has reviewed the proposed changes associated with this certificate amendment request and provides the following Significance Determination for consideration.

1. No Significant Change to Any Conditions to the Certificate of Compliance

None of the Conditions to the Certificate of Compliance specifically address the subject SAR or TSR sections that are being revised. Thus, the proposed change will have no impact on any of the Conditions to the Certificate of Compliance.

2. No Significant Change to Any Condition of the Approved Compliance Plan

All Compliance Plan Issues have been closed. As a result, the conditions specified in the compliance plan are no longer in effect. Thus, this proposed revision does not represent a significant change to any condition of the approved Compliance Plan.

3. No Significant Increase in the Probability of Occurrence or Consequences of Previously Evaluated Accidents

The proposed changes to the SAR, Table 1-4 will result in uranium processing activities that are the same as those previously authorized and conducted at PGDP. The proposed changes to TSR Sections 2.2 and 2.3 are editorial corrections only and will not result in any to change to plant operations or existing TSR controls. As a result, there is no significant increase in the probability of occurrence or consequences of previously evaluated accidents.

Based on the above, this proposed change will not result in a significant increase in the probability of occurrence or consequences of previously evaluated accidents.

4. No New or Different Type of Accident

No new or different activities are being proposed by this change. USEC is currently authorized to conduct the activities affected by this proposed change for uranium that has an assay greater than Source Material. The only affect of the change to the SAR is to clarify that authorized activities for Special Nuclear Material also apply to Source Material uranium. The proposed changes to TSR Sections 2.2 and 2.3 are editorial corrections only and will not result in any to change to plant operations or existing TSR controls. The proposed changes do not create any

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Significance Determination**

new failure modes or create initiating events that are different than previously evaluated in the SAR. Therefore, this proposed change will not create a new or different type of accident.

5. No Significant Reduction in Margins of Safety

The authorized activities involved in this change include enrichment, receipt, storage, inspection, acceptance sampling, filling, assay and shipment of cylinders with uranium. These activities will continue to be performed in accordance with all plant safety requirements. The changes to the TSR are editorial only and will not affect any TSR limits or controls. Therefore, there is no significant reduction in margins of safety associated with the proposed change.

6. No Significant Decrease in the Effectiveness of Any Programs or Plans Contained in the Certificate Application

The proposed changes will not result in a change to any of the programs or plans contained in the Certificate Application. Uranium will continue to be processed in accordance with the current programs and plans contained in the Certificate Application. Therefore, the proposed changes will not decrease the effectiveness of any programs or plans contained in the Certificate Application.

7. The Proposed Changes do not Result in Undue Risk to 1) Public Health and Safety, 2) Common Defense and Security, and 3) the Environment

Due to the fact that there is no significant increase in the probability or consequences of any accident previously analyzed and no new or different type of accident, there will be no undue risk to the public health and safety because of the proposed change. In addition, the proposed change will have no impact on plant effluents or on the programs and plans in place to implement physical security, protection of classified matter, transportation security, or Special Nuclear Material accountability. Consequently the proposed change to the SAR and TSR will not pose any undue risk to the public health and safety, common defense and security, or the environment.

8. No Change in the Types or Significant Increase in the Amounts of Any Effluents that May be Released Offsite

The proposed change does not involve any physical change to the plant, or plant operations that

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Certificate Amendment Request
Revise Safety Analysis Report (SAR) Table 1-4,
TSR 2.2.4.3 and TSR 2.3.4.7
Significance Determination**

could change the types or increase the amounts of any effluents that may be released offsite. Therefore, the proposed change does not change the type or significantly increase the amount of effluents that may be released offsite.

9. No Significant Increase in Individual or Cumulative Occupational Radiation Exposure

The proposed change does not significantly increase the probability or consequences of a UF₆ release. The proposed changes will not effect the radiological protection program description or the actions in place to minimize occupational exposures. Therefore, there is no increase in individual or cumulative occupational radiation exposure as a result of this change.

10. No Significant Construction Impact

This proposed change does not involve any construction activities. Therefore, there are no significant construction impacts associated with this change.