

DOCKET NUMBER: 70-7001

CERTIFICATE NUMBER: GDP-1

CERTIFICATE HOLDER: United States Enrichment Corporation
Paducah Gaseous Diffusion Plant
Paducah, Kentucky

SUBJECT: COMPLIANCE EVALUATION REPORT FOR CERTIFICATE
AMENDMENT REQUEST REGARDING REVISION TO
TECHNICAL SAFETY REQUIREMENTS SURVEILLANCE
REQUIREMENT 2.4.4.3-1, MEASURE PRODUCT STREAM
ASSAY

1.0 BACKGROUND

By letter, dated March 6, 2014 [GDP 14-0005, Agencywide Documents Access and Management System [ADAMS] Accession Number ML14077A218], the United States Enrichment Corporation (USEC) submitted a certificate amendment request (CAR) to the U.S. Nuclear Regulatory Commission (NRC) regarding its Paducah Gaseous Diffusion Plant (PGDP). The proposed amendment would change the frequency of performance for Technical Safety Requirement (TSR) Surveillance Requirement (SR) 2.4.4.3-1, "Measure product stream assay," so that it is not required when the "000" and "00" enrichment cascade is (are) shut down and isolated from the cascade in the C-310 building (C-310), and there is insufficient uranium hexafluoride (UF₆) to support product withdrawal.

2.0 DISCUSSION OF USEC'S CAR

In its submittal, USEC states that the requested change is being made to recognize that, during shutdown conditions, it is not possible to exceed the limiting conditions for operations assay limits of the TSR, thus removing the need for measuring the product stream assay required by this TSR SR. USEC further states that, after the shutdown of the "000" and "00" enrichment cascade, it has continued to operate the C-310 purge cascade to support cylinder transfers, product cylinder heel recovery, and provide support for ongoing operations in the C-360 facility. USEC also states that these operations are now complete and that the C-310 cascade operations are scheduled to be completed by the end of April 2014.

USEC also states that, with the shutdown of enrichment operations, a large portion of the PGDP has been placed into cold shutdown and will remain so until facilities are de-leased and returned to the U. S. Department of Energy. USEC states that it will continue to meet all applicable TSR and Safety Analysis Report (SAR) required surveillances and maintenance of systems, structures, and components as necessary to ensure the applicable safety bases are maintained. This also includes complying with all requirements of the PGDP's Certificate Application programs and plans. USEC stated that, with the shutdown of the "000" and "00" enrichment cascade, and the planned shutdown of the C-310 purge cascade, a change to modify the frequency of performance of TSR 2.4.4.3 is required. USEC further states that, because at some point during the process of shutting down the C-310 cascade, and establishing a UF₆ negative, it will not be possible to measure the product stream assay (i.e., performing SR 2.4.4.3-1) since there will be insufficient UF₆ to support withdrawal and, later, due to the shutdown of the cascade.

Therefore, USEC requests that frequency of performance of TSR SR 2.4.4.3-1 be modified from "twice per shift" to "twice per shift, except when the "000" and "00" enrichment cascade is shutdown and isolated from the C-310 cascade and there is an insufficient amount of UF₆ in C-310 to support product withdrawal."

3.0 NRC STAFF EVALUATION

The NRC staff evaluated the information provided by USEC in its March 6, 2014, submittal, and the TSRs for the operation of the PGDP contained in USEC's certificate application, to determine the implications of the proposed changes on the PGDP operations. Specifically, the NRC staff evaluated the requirements in TSR Section 2.4, Specific TSRs for Enrichment Cascade Facilities, and noted that TSR 2.4.4.3 provides a list of the cascade equipment's uranium 235 isotope (²³⁵U) assay limits during operations. In order to verify that these limits are not exceeded, TSR-SR 2.4.4.3-1 requires USEC to measure the product stream at a frequency of twice per shift.

The NRC staff evaluated the current operations at the PGDP and, as previously notified by USEC, determined that USEC has ceased "000" and "00" enrichment cascade's operations. In addition, the NRC staff, based on the current operations at the PGDP, and the NRC's Region II staff inspections, has also determined that, as previously informed by USEC, shut down of the C-310 enrichment and purge cascade should be completed by the end of April of 2014.

The NRC staff evaluated the requirements described under TSR SR 2.4.4.3-1, and agrees that, as stated by USEC, the purpose of the TSR SR is to ensure that the plant does not exceed the ²³⁵U assay limits, established in TSR 2.4.4.3, during normal operations. The NRC staff determined that, eventually, with the shutdown of the C-310 cascade and obtaining a UF₆ negative, it will not be possible for USEC to measure the product stream assay, since at some point during this process there will be insufficient UF₆ to support withdrawal and meet the requirement in TSR SC 2.4.4.3-1. The NRC confirmed that there has been no recent fissile UF₆ (i.e., greater than 1 percent by weight - 1%wt - of ²³⁵U) fed into the C-310 cascade and that, as stated by USEC, there are no plans for feeding any fissile UF₆ into the C-310 cascade. In addition, the NRC staff has confirmed that all usable fissile UF₆ has been repackaged for shipment. The NRC staff also noted that the current product withdrawals show concentrations of ²³⁵U of less than 0.7 wt% (i.e., non-fissile). The NRC staff then concluded that, with the inventory in the C-310 cascade below 1 wt% ²³⁵U, there is no possibility for the concentrations of ²³⁵U in the PGDP's equipment to exceed the TSR's assay limits. As such, the NRC staff concluded that there is no potential to exceed the product assay limits in TSR 2.4.4.3 neither during the current limited, nor future anticipated operations at the PGDP. The NRC staff concludes that it will no longer be necessary for USEC to perform the product sampling as required by SR 2.4.4.3-1. The NRC staff concludes that modifying the frequency of performance of TSR SR 2.4.4.3-1, as described by USEC in its March 6, 2014, submittal is acceptable.

4.0 ENVIRONMENTAL REVIEW

Issuance of the requested amendment to Certificate of Compliance GDP-1 is subject to the categorical exclusion provided in Title 10 of the *Code of Federal Regulations* (10 CFR) 51.22(c)(19) and will not have a significant impact on the human environment. Therefore, in accordance with 10 CFR 51.22.b, neither an environmental assessment nor an environmental impact statement is required for the proposed action.

5.0 CONCLUSION

Based on its review and evaluation of the information provided by USEC in its CAR dated March 6, 2014, the NRC staff confirmation of shutdown of enrichment activities and limited operations at the PGDP, and USEC's discontinuation to feed fissile material into the PGDP's cascades, the NRC staff concludes that the USEC's proposed CAR is acceptable. Therefore, the NRC staff concludes that USEC's proposed modification to the frequency of performance of TSR SR 2.4.4.3-1, as described by USEC in its March 6, 2014, submittal is acceptable and should be approved.

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