

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 TABLE 3.2.2.1,
MINIMUM STAFFING REQUIREMENTS

1.0 BACKGROUND

By letter, dated December 16, 2013 (GDP 13-0020, Agencywide Documents Access and Management System [ADAMS] Accession Number ML13361A105), 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 revise the PGDP's Health Physics (HP) minimum staffing requirements. In addition, the proposed amendment would revise the minimum staffing requirements for the C-310 facility by removing the Cascade 3 mode from the C-310 facility's minimum staffing requirement mode applicability.

2.0 DISCUSSION OF USEC'S CAR

In its CAR, USEC stated that the PGDP's Technical Safety Requirements (TSRs) Table 3.2.2-1, Minimum Staffing Requirements, currently specifies that a single HP technician be present on plant site at all times. USEC states that with the enrichment cascade and uranium hexafluoride (UF₆) feed, withdrawal, transfer, and sampling facilities shutdown, HP support on a continuous 24-hour basis is no longer required. USEC also stated that a review of the PGDP's TSRs and Safety Analysis Report (SAR) found that the HP personnel have no immediate actions/requirements specified in the TSR required actions, nor is there any credit taken in the PGDP SAR accident analysis for HP actions/requirements to prevent or mitigate any postulated accident scenario. In addition, USEC states that its Emergency Plan (EP) does not require continuous HP presence on plant site and that the EP delineates that the responsibilities of the plant emergency squad include HP skills (training provided by the PGDP's HP organization) along with other skills (e.g., firefighting, HAZMAT response, and environmental response). USEC also stated that the EP does not require that an HP technician be included on the plant emergency squad, but does discuss that HP may provide training, support and equipment for the plant emergency squad. In addition, USEC stated that the PGDP's HP organization may be requested to provide training and support for off-site agencies (hospitals, emergency management, law enforcement, etc.). Therefore, USEC proposes that TSR Table 3.2.2-1, Minimum Staffing Requirements, be revised to remove the requirement for continuous 24-hour HP coverage under shutdown plant conditions. USEC also proposed that a new footnote "i" to Table 3.2.2-1 be included to reflect this change. USEC finally proposed that HP support be available as required by plant procedures.

In its CAR, USEC also proposed that the C-310 minimum staffing mode applicability be revised to no longer require minimum staffing if the C-310 purge cascade is shut down and UF₆ removed. USEC stated that this is consistent with the number of operations staff required to

safely operate the PGDP during normal and upset/accident conditions. In its CAR, USEC further stated that the above described changes will allow staffing flexibility, which will result in more efficient and continued safe operation of the very limited operations after the UF₆ repackaging and UF₆ liquid operations are completed.

3.0 NRC STAFF EVALUATION

The NRC staff evaluated the information provided by USEC in its December 16, 2013, submittal and USEC's current operations at the PGDP to determine the implications of the proposed changes. Of importance to this review is USEC's June 3, 2013 (GDP 13-0016), notification of its decision to permanently cease uranium enrichment activities at the PGDP (see ADAMS Accession Number ML13176A151). Following this notification, the NRC and USEC have frequently communicated, and USEC is providing weekly reports to both the NRC headquarters and NRC Region II staff, regarding the status of its operations at the site. The NRC Region II staff has also continued to perform inspections at the PGDP in accordance with its inspections plans.

In evaluating USEC's proposal to revise TSR Table 3.2.2-1, Minimum Staffing Requirements, to remove the requirement for continuous 24-hour HP coverage under shutdown plant conditions, the NRC staff evaluated USEC's operations at the PGDP. Based on its evaluation of USEC's operations at the site, the NRC staff confirmed, as stated by USEC in its June 3, 2013, notification, that there is no uranium enrichment occurring at the PGDP at this time. The NRC staff also confirmed that the enrichment cascade and the UF₆ feed, withdrawal, transfer, and sampling facilities have also been shutdown. UF₆ feed and product material has been transferred into cylinders to be shipped offsite for storage and management. Therefore, based on the NRC staff's confirmation of the limited operations at the site, and the shutdown of all enrichment cascades and UF₆ feed, withdrawal, transfer, and sampling facilities, the NRC staff determined that HP support on a continuous 24-hour basis is no longer necessary. However, the NRC staff raised concerns regarding a possible decrease in effectiveness of the PGDP's emergency response capabilities should continuous HP support become no longer required or if qualified HPs are not available. The NRC requested clarification on this matter (see Request for Additional Information (RAI) section below).

In its December 16, 2013, submittal, USEC also requested that Table 3.2.2-1 be revised to remove the Cascade 3 mode (i.e., Not in Use; System at UF₆ negative) from the C-310 minimum staffing requirement mode applicability. Under this mode, the C-310 facility is required to have 2 operators in the facility. In its submittal, USEC stated that, with the completion of the liquid UF₆ operations, the C-310 withdrawal process equipment and purge cascade will be shut down and noted that, even under these circumstances, the 2 operators in the facility would still be required. USEC also stated that, currently, for the enrichment cascade facilities C-331, C-333, C-335 and C-337, minimum staffing is not required when the facilities are in the Cascade 3 mode. USEC further stated that note "c" of Table 3.2.2-1 provides minimum staffing relief if the withdrawal process equipment is shut down and meets specific requirements.

In evaluating USEC's request to revise Table 3.2.2-1 to remove the Cascade 3 mode from the C-310 facility's minimum staffing requirement mode applicability, the NRC staff evaluated the information provided by USEC in its December 16, 2013, submittal, and USEC's current operations at this facility. Based on the evaluation of the information provided by USEC in its request, the NRC headquarters and Region II staff discussions with USEC staff and management, and the NRC Region II staff inspections of USEC's activities at the PGDP, the NRC staff confirmed that, as a result of USEC's shutdown of the PGDP, all enrichment and

purge operations at the C-310 facility will eventually be shutdown as well. The NRC staff determined that, with the completion of the liquid UF₆ operations and the C-310 withdrawal process equipment and purge cascade shutdown, operators at this facility will no longer be required. Therefore, based on the evaluation of the information provided by USEC, and the NRC headquarters' and Region II staff's confirmation of both the shutdown of the PGDP's enrichment activities and the eventual shutdown of the C-310 facility, as described above, the NRC staff concludes that Cascade 3 mode, which requires operators at the C-310 facility even under shutdown conditions, can be removed. The NRC staff also concludes that, similar to the enrichment cascade facilities C-331, C-333, C-335, and C-337, minimum staffing should not be required when the C-310 facility is in the Cascade 3 mode. The NRC staff also concludes that note "c" of Table 3.2.2-1 does provide minimum staffing relief under the current shutdown of activities at the plant. Therefore, USEC's request to revise Table 3.2.2-1 to remove the Cascade 3 mode from the C-310 facility's minimum staffing requirement mode applicability is acceptable and should be approved.

4.0 REQUEST FOR ADDITIONAL INFORMATION

In its December 16, 2013, submittal, USEC stated that the removal of HP technicians will not result in a significant decrease in the effectiveness of any of the PGDP's programs or plans contained in its Certificate application. In its request, USEC stated that the responsibilities of the plant emergency squad (E-Squad) includes HP skills (training provided by the HP organization) along with other skills (e.g., firefighting, HAZMAT response, and environmental response).

The NRC staff raised concerns regarding a possible decrease in effectiveness of the PGDP's emergency response capabilities should USEC's request is approved. The NRC Health Physics Position Task Qualification of HP Technicians (HPPOS-238 PDR-9111210362 - see ADAMS Accession Number ML103470228) dated September 20, 1991, which states the following:

"...Health Physics Technicians (HPTs) may independently perform specific tasks or job assignments if they meet the required prerequisites and complete the required task qualifications of their plant training programs. However, there are certain tasks and job assignments that require in-depth knowledge and can only be performed by fully qualified ANSI technicians, such as authorizing the free release of radioactive materials from the restricted area, approval of effluent release permits, approval of radiation work permits, and receipt/shipping of radioactive material. In the area of Emergency Preparedness, for example, a non-fully qualified HPT should not be authorized to lead emergency search and rescue teams, lead environmental monitoring teams, and perform offsite dose assessment."

In addition, the Beaver Valley Escalated Enforcement Letter EA-03-054 (White Finding/Notice of Violation, see ADAMS Accession Number ML031910628), which maintains, among others, that "... responding to an emergency with 'meter qualified' (i.e. non-ANSI qualified) individuals is not acceptable to the NRC, in part because, although many of the Beaver Valley staff are 'meter qualified' to perform basic radiation protection (RP) duties, this level of training would not be sufficient to carry out the complex RP duties that would be necessary in a radiological emergency."

Based on NRC staff inspections and interviews with PGDP's E-Squad personnel and the fire chief, the E-Squad personnel may not be qualified to perform the above described tasks and only possess very basic HP knowledge (e.g., use survey meters, fill out paperwork, set up air

samplers, etc.). E-Squad personnel are not trained to determine protective equipment or actions for others during an emergency, which would be a function of qualified Health Physics technicians (HPTs), nor are they qualified or trained to do daily survey meter quality control checks and inspections. Based on this information, the NRC staff, therefore, believed that, should an emergency event happens at the PGDP, the plant E-Squad technicians would not be qualified to perform those activities that must be performed only by fully qualified American National Standards Institute technicians. As such, by letter dated March 13, 2014 (ADAMS Accession Number ML14071A086), the NRC staff requested USEC to provide additional information and clarification on this matter.

USEC provided its response to the RAI by letter dated March 21, 2014 (see ADAMS Accession Number ML14101A345). In its responses to the RAI, USEC stated, with regard to an NRC staff's question on formal qualification of the E-Squad members to meet HP qualification requirements, that the PGDP EP does not require any of the E-Squad personnel to be qualified as HPTs. USEC stated that E-Squad personnel, as first responders, only require limited HP task-specific training/qualification to perform their duties as specified in the EP and Emergency Plan Implementing Procedures. Furthermore, USEC stated that, at the PGDP the HPTs currently on shift do not perform any first responder tasks (e.g., lead emergency search and rescue teams, lead environmental monitoring teams, or perform off-site dose assessments) and so, qualified HPTs presence is not required to respond to emergencies.

With regard to an NRC staff's question on dispatching qualified HPTs to hospitals upon request, USEC stated that, if needed, additional HP support is on call to support emergency response at the site and, as specified in the PGDP's EP, to assist hospital personnel, as requested, in contamination control and decontamination of patients, hospital staff, and hospital facilities/equipment. HP personnel may be directed to report to the hospital from either HP personnel on site or from on-call HP personnel off site.

With regard to an NRC staff's question on the daily instrument quality control checks and instrument verification and replacement of faulty meters, USEC stated that, during weekdays, daily checks will continue to be performed by either HP personnel or personnel who have been specifically trained to perform these tasks. USEC further stated that daily instrument checks will be performed by staff trained to do these tasks during weekends and holidays.

With regard to an NRC staff's question on providing technical advice on the consequences and control of personnel exposure at the onset of an emergency prior to activation of the Emergency Operations Center, USEC stated that the Plant Shift Superintendent (PSS) or other qualified individual, as the incident commander (IC), is well trained to make these initial decisions and maintain overall control of the plant during the emergency until relieved after the Emergency Operations Center is operational. In addition, USEC stated that E-Squad personnel are task trained to use specific HP instruments (i.e., contamination meter, dose rate meter, high volume air sampler, etc.) to assist in these tasks.

With regard to an NRC staff's question on the availability of qualified personnel to perform the air sampling and monitoring required for the classification of emergencies based on air concentrations (i.e., Emergency Action Levels [EALs]), USEC stated that none of the events listed within the PGDP's EAL Matrices (except for a nuclear criticality event) require an airborne radioactive material concentration sample or field radiation level measurement as part of the EAL criteria. USEC further stated that the only radiological event in the PGDP EAL Matrices is a nuclear criticality occurring on site. During such an event, USEC stated that the PGDP EAL Matrix states that the PSS will make a criticality accident response according to PGDP's

procedure CP2-EP-EP5038, "Criticality and Radiation Emergencies," which ensures that immediate actions are taken (i.e., alarm announcements, personnel evacuation, E-Squad deployment, ventilation changes, establishing restricted areas/boundaries, etc.). USEC further stated that the only immediate radiation monitoring required for a criticality accident response is for plant E-Squad or HP personnel, if available, to monitor dose rates at and near assembly areas and boundaries established by the PGDP's Protective Force (PF) personnel, ensure PF and other emergency response personnel are provided with electronic dosimeters, and process personnel for contamination and exposure to the nuclear criticality. USEC also stated that, during evaluation of the potential criticality, the IC may direct the E-Squad to conduct an exterior and interior building radiation survey.

The NRC staff evaluated USEC's responses to the RAI. In addition, the NRC staff evaluated the current level of operations at the site to analyze the risk of a radiological event to happen. The NRC staff determined that operations have been minimized to day shift only. In addition, the NRC staff confirmed that, currently, there is no gaseous UF₆ onsite and that all liquid UF₆ has also been removed and, thus, greatly decreasing the probability of a criticality event. Based on its evaluation, the NRC staff concluded that, under the current circumstances, the probability of a radiological (or criticality) event at the site has been significantly decreased. The NRC also concluded that, because of the limited operations described above, the risk of a radiological event to happen at the site has been actually decreased. In addition, the NRC staff concluded that removing the requirement of having qualified HPTs onsite will not result in a decrease of the PGDP's emergency response capabilities. The NRC staff also concluded that, in view of the current level of operations, the E-Squad HP personnel skills are adequate to safely operate the PGDP and respond to accidents should these occur. The NRC staff, therefore, concludes that, given the current plant limited operations and operational changes described above, USEC's proposed change to TSR Table 3.2.2-1, to no longer require HP support on a continuous 24-hour basis, is acceptable and should also be approved.

5.0 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.

6.0 CONCLUSION

Based on its review and evaluation of the information provided by USEC in its December 16, 2013, CAR, the frequent communications between NRC and USEC, and the NRC Region II staff inspections of USEC's current operations at the PGDP, the NRC staff concludes that the proposed revisions to TSR Table 3.2.2-1, Minimum Staffing Requirements, to remove the requirement for continuous 24-hour HP coverage under shutdown plant conditions would not have a significant increase in risk to the workers and would continue to provide adequate protection of public health, safety, safeguards, security, and the protection of the environment. The NRC staff also concludes that USEC's proposal to have HP support available, as required by plant procedures, is also acceptable. The NRC staff also concludes that USEC's proposed HP minimum staffing requirements are consistent with the number of operations staff required to safely operate the PGDP during normal and upset/accident conditions.

Similarly, the NRC staff concludes that USEC's proposed revision to remove the Cascade 3 mode from the C-310 minimum staffing requirements (i.e., 2 operators in the facility) if the C-310 purge cascade is shut down and UF₆ removed, would not have a significant increase in risk to the workers and would continue to provide adequate protection of public health, safety, safeguards, security, and the protection of the environment. The NRC staff also concludes that removal of the Cascade 3 mode minimum staffing requirement for the C-310 facility will not have a negative impact on USEC's safe operation of the PGDP. The NRC staff, therefore, concludes that USEC's CAR to revise the PGDP's HP minimum staffing requirements, and to revise the minimum staffing requirements for the C-310 facility by removing the Cascade 3 mode from the facility's minimum staffing requirements mode applicability, are acceptable and should be approved.

PRINCIPAL CONTRIBUTORS

Manuel Crespo, NRC RII
Regina Russell, NRC RII
Osiris Siurano, NMSS/FCSS
Mary Lynn Thomas, NRC RII
ADAMS Accession Number: ML14108A428