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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 OF TECHNICAL SAFETY REQUIREMENTS SECTION 3.0, ADMINISTRATIVE REQUIREMENTS, TABLE 3.2.2-1, MINIMUM STAFFING REQUIREMENTS

1.0 PROPOSED CHANGES

By letter dated November 9, 2012 (GDP 12-0033) (Agencywide Documents Access and Management System [ADAMS] Accession No. ML12328A023), the United States Enrichment Corporation (the Corporation) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) for a modification to the Certificate of Compliance (COC) for the Paducah Gaseous Diffusion Plant (PGDP) to revise Technical Safety Requirements (TSRs) Section 3.0, Administrative Requirements, Table 3.2.2-1, Minimum Staffing Requirements. The certificate amendment request (CAR) proposed to revise the feed facilities minimum staffing requirements, cascade facilities minimum staffing requirements, and minimum staffing requirements for the power and utility operations. In its request, the Corporation stated that the minimum staffing requirements for the feed facility modes 1, 2, 5, and 7 would be revised to only require one operator instead of the current two, and that the minimum staffing requirements for the feed facility modes 3, 4, and 8 would remain unchanged. In addition, the Corporation stated that the change to the cascade minimum staffing requirements would allow additional flexibility in staffing for the cascade enrichment facilities during specific modes/operations. In its request, the Corporation also stated that, with the enrichment cascade's shutdown, very limited operations would be required or needed and that, during the limited operations, the required operator's actions would be significantly curtailed, thereby significantly reducing the staffing requirements. In its request, the Corporation also proposed to reduce the minimum staffing requirements for Power Operations and Utility Operations to zero since a review of the responsibilities for these positions determined that they do not perform any safety related activities as credited in the accident analysis or associated TSR required actions. As such, the Corporation stated that the proposed changes will not result in any adverse impact on the health, safety, or security of workers or the public.

2.0 BACKGROUND

2.1 Feed Facilities' Minimum Staffing Requirements

Currently, feed facility modes 1, 2, 5, and 7 require two operators to be in the facility or immediately surrounding grounds. Modes 3, 4, and 8 require one person in the facility or immediately surrounding grounds, including the local cylinder yard.

2.2 Enrichment Cascade Facilities' Minimum Staffing Requirements

The current minimum staffing levels for the enrichment cascade buildings (C-331, C-333, C-335 and C-337) is the same regardless of the mode the cells and freezer/sublimers (F/S) are in. The C-331 and C-335 facilities with "00" size equipment and the C-333 and C-337 facilities with "000" size equipment have different minimum staffing requirements. The C-331 and C-335 facilities have a minimum staffing requirement of two operators and the C-333 and C-337 facilities have a minimum staffing requirement of three operators. The difference is based on the physical size of the facilities. Both the "00" and "000" minimum staffing requirements specify that at least one operator be in the area control room (ACR) for the facility.

2.3 Power Operations and Utilities Operations' Minimum Staffing Requirements

The minimum staffing requirements for Power Operations and Utilities Operations personnel are included in TSR 3.2.2, Facility Staff, generally, and listed specifically in TSR Table 3.2.2-1, Minimum Staffing Requirements. These positions do not require any safety actions that are credited in the accident analysis or associated TSR required actions. Unlike most of the other minimum staffing requirements, the "Onsite" Power Operations and Utilities Operations are not assigned to a unique facility nor are there specific modes or operations that are applicable for them. The work area definition only states that the personnel must be on-site. In addition, there is currently one Power Operator that is required to be in the C-300 facility.

Chapter 4 of the SAR discusses numerous cascade cell-related scenarios (e.g., 4.3.2.1.1, 4.3.2.1.2, 4.3.2.1.3, 4.3.2.1.5, 4.3.2.1.7, and 4.3.2.1.8) in which operating personnel respond to certain process conditions and alarms by de-energizing the process motors ("tripping the cell"), thus bringing the cell below atmospheric pressure and preventing/mitigating a Uranium Hexafluoride (UF_6) release. During normal conditions, the cell trip is accomplished by pressing the area control room (ACR) or central control facility (CCF) compressor motor stop button. If the motor stop buttons are inoperable, the TSR Required Action(s) state that there is a potential need to utilize an alternate means of cell shutdown. This includes stationing an operator at an established alternate location with communications to the ACR or CCF. The TSR Required Action(s) do not specify or imply that this alternate cell trip location be manned by Power Operations personnel. The Required Action(s) only states that an operator be stationed at an established alternate cell shutdown location, which could be any person trained to fulfill this position. This safety related action could be performed by anyone with sufficient skill that has had any necessary training. Utilities Operations personnel do not have any credited mitigative action in the accident analysis scenarios in SAR Chapter 4.3 or in the TSR required actions. Utilities systems are essential for plant operation, but none of these systems are credited to perform a safety function other than to fail safe.

Minimum staffing requirements do not apply to the prevention of a criticality. An operator is expected to comply with the controls put in place to prevent a criticality including monitoring for UF_6 releases. If a criticality event occurs, the operator is required to evacuate the area and contact the Plant Shift Supervisor. As such, no further discussion of criticality is included in this evaluation.

3.0 DISCUSSION

3.1 Feed Facilities' Minimum Staffing Requirements

In its request, the Corporation stated that it conducted a review of the feed facilities (C-333-A and C-337-A) minimum staffing requirements specified in TSR Section 3.2.2, Facility Staff, and Table 3.2.2-1, Minimum Staffing Requirements, which identified that the minimum number of staff specified for specific feed facility modes can be reduced without adversely affecting safe operation of the facility. Modes 1, 2, 5, and 7 currently require a minimum staffing level of two. The Corporation is proposing to reduce the minimum staffing requirements to 1. For all the remaining modes, the minimum staffing requirements will remain unchanged. In its request, the Corporation also stated that, based on its review, the proposed minimum staffing requirements are consistent with the number of operations that the staff is required to safely operate the facility during normal and upset/accident conditions.

3.2 Enrichment Cascade Facilities' Minimum Staffing Requirements

In its request, the Corporation also stated that, currently, the TSR minimum staffing requirements for the enrichment cascade facilities require either two or three operators during all modes/operations as specified in TSR Table 3.2.2-1, Minimum Staffing Requirements. The Corporation also stated that the proposed changes to the cascade facilities' TSR minimum staffing requirements will be, specifically, for Cascade modes 1 and 3 and that these changes would provide staffing flexibility for the cascade enrichment facilities. The proposed changes to the enrichment cascade facilities TSR minimum staffing requirements in Table 3.2.2-1 will be as follows:

- The first proposed change to the cascade facility minimum staffing requirements would allow staffing flexibility for operating modes/conditions in the cascade enrichment facilities when all enrichment operations have been shut down and all the cascade cells are in the Cascade 3 mode (Not In Use; System at UF_6 negative) and all the F/S are in the F/S 6 mode (Out of Service; R-114 drained from vessel). The minimum staffing for these modes and operations is proposed to be zero.

- The second proposed change to the cascade facility minimum staffing requirements will also allow staffing flexibility when the facility enrichment cascade is shutdown with no enrichment operations (no stage/booster motors running) and the only operations are involved with: 1) maintaining a fluorinating environment or dry gas blanket in accordance with TSR 2.4.4.4; or 2) operating a Purge & Evacuation (P&E) pump and associated valves, headers, and surge drums. These operations will be a specific operating mode/condition exception while in the Cascade 1 mode with minimum staffing requirement of one operator located in the facility.

- The third proposed change to the cascade facility minimum staffing requirement will allow an exception[1] to the Cascade 1 mode during limited UF_6 operations involving equipment, evacuation/feed headers and surge drums containing UF_6 if: 1) UF_6 in piping/equipment is below atmospheric pressure, 2) all cascade enrichment cells including booster stations are in Cascade 3, and 3) P&E pumps are not energized. These limited operations during Cascade 1 mode do not require constant attention thus

[1] i.e., relax minimum staffing requirements from 2 to 1.

continuous staffing in the facility is not required (zero manning requirement), as there are no running UF_6 equipment and all equipment/piping are below atmospheric pressure.

- The fourth proposed change to the cascade facility minimum staffing requirement will revise TSR Table 3.2.2-1 footnote "a" to make it clear that the cascade ACRs are manned as required by operating mode. Currently, footnote "a" of TSR Table 3.2.2-1 specifies that the C-331, C-333, C-335, and C-337 ACRs shall always be manned. This requirement could conflict with the proposed changes to the cascade minimum staffing requirements. The proposed change to footnote "a" would require the ACRs be manned when required by specific operating mode. This is currently the manning requirement for the C-310, C-315, C-333-A, and C-337-A ACRs/Operations Monitoring Rooms (OMRs). Each of the existing and proposed minimum staffing requirements for the cascade facilities specify whether the ACR must be manned in the Work Area Definition column.

3.3 Power Operations and Utilities Operations' Minimum Staffing Requirements

In its request, the Corporation also stated that it conducted a review of the responsibilities of the minimum staffing requirements for Power Operations and Utility Operations and determined that staff for these positions does not perform any safety related activities as credited in the accident analysis or associated TSR required actions. Therefore, the Corporation proposes to reduce the minimum staffing requirements for these positions to zero. The Corporation also states that these changes will allow facility staffing flexibility, which would result in more efficient and continued safe operation of the feed facilities, cascade enrichment facilities, and power/utilities operations.

4.0 STAFF EVALUATION

The NRC staff performed an evaluation of the Corporation's request which identified additional information that was needed before final action could be taken. As such, by letter dated February 27, 2013, the NRC staff issued a Request for Additional Information (RAI) (see ADAMS Accession No. ML13045A503).

With regard to the Corporation's requested change to the feed facilities' minimum staffing requirements, the NRC staff requested additional information regarding the operability of the autoclave manual isolation system (AMIS) required by TSR 2.2.4.13. The NRC staff noted that, in order to provide the required actuation of the AMIS, one of the three actuation devices must be actuated by a person either in the OMRs (while fleeing the building), autoclave bay (while fleeing the building), or the associated "000" building ACR. The NRC staff inquired about how would the operability of the AMIS be impacted in applicable modes if either Building C-333 or C-337 was not staffed as described in proposed footnote "f" of TSR Table 3.2.2-1 and the actuating devices were not accessible to the C-333-A or C-337-A operator in the event of a release.

In response to the RAI, the Corporation revised the proposed change to the feed facilities' minimum staffing requirements to state that the feed facility OMR or crane bay will be manned with the minimum staffing operator during the AMIS applicable modes (Modes 4, 5, 7, and 8) to accomplish the required manual actuations if the associated cascade ACR is not manned. If the associated cascade ACR is manned, the minimum staffing operator can be in the operating facility or immediately surrounding grounds including the local cylinder yard during AMIS applicable modes. In addition, during feed facility Modes 1, 2, and 3, the operator can be in the operating facility or immediately surrounding grounds including the local cylinder yard. The NRC staff evaluated the information provided by the Corporation in its request and its responses to the RAI

and determined that the proposed change to the feed facilities' minimum staffing requirements would not affect the safe operation of the facilities. Therefore, the NRC staff determined that the proposed change in minimum staffing requirements for the feed facilities was acceptable.

With regard to the Corporation's requested changes to the cascade facilities' minimum staffing requirements, the NRC staff requested that the Corporation provide a detailed explanation of how the immediate actions of TSR 2.4.4.7 are implemented if the C-631-2 basin drops below the required level for operability, including who, from the proposed TSR minimum staff, is trained and qualified to perform the actions and from what specific location in the plant those actions are performed. In response, the Corporation stated that the normal water level in the C-631-2 basin is sufficient to provide nearly two hours of High Pressure Fire Water System water for fighting a design-basis fire before the TSR requires initiation of emergency makeup. The Corporation also stated that the action does not require personnel from the TSR minimum staffing and can be accomplished by any trained individual. The NRC staff evaluated the information provided by the Corporation in its request and its responses to the RAI and determined that the proposed change to the minimum staffing requirements for the cascade facilities would not affect the safe operation of the facilities. As such, the NRC staff determined that the proposed change in minimum staffing requirements for the cascade facilities was acceptable.

With regard to the Corporation's requested change to the power operations and utilities operations' minimum staffing requirements, the NRC staff requested additional information regarding the Corporation's request to reduce the minimum staffing level requirements to zero. In its RAI, the NRC staff inquired about how are the actions of TSR 2.4.4.12 implemented with regards to providing an alternate means of cell shutdown in the event that the cascade cell trip system is not operable, including who, from the proposed TSR minimum staff, is trained and qualified to perform the actions and from what specific location those actions are performed.

In response, the Corporation stated that, if the cascade cell trip system is not operable, the next alternate method of cell shutdown would be to open the switchyard breaker feeding the affected cell. The Corporation stated that this is accomplished from either the C-300 Power Pit Supervisory Control and Data Acquisition console, or the C-532 or C-536 (as applicable) Relay House, or manually at the breaker in the switchyard by a Power Operator. As a result, the Corporation revised the requested minimum staffing to include 1 Power Operator when the plant is in the TSR 2.4.4.12 applicable modes (Cascade 1 or 2 when stage motors are energized). The NRC staff evaluated the information provided by the Corporation in its request and its responses to the RAI and determined that the proposed change to the Power Operations and Utilities Operations' minimum staffing requirements would not affect the safe operation of the facilities. Therefore, the NRC staff determined that the proposed change to the power operations and utilities operations' minimum staffing requirements was acceptable.

In its RAI, the NRC staff also requested that the Corporation provide a specific basis for why its Emergency Squad's (E-Squad's) ability to respond to emergencies as described in its Emergency Plan is not negatively impacted by the Corporation's proposed reduction in TSR minimum staffing. In its response, the Corporation indicated that operations personnel fulfilling the TSR minimum staffing requirements are not available to perform E-Squad duties. The Corporation indicated that by reducing the number of operations personnel required to fill TSR minimum staffing positions, potentially more individuals who are on site will be available to staff the E-Squad. The proposed reduction in TSR minimum staffing does not change the number of personnel who would be available to provide E-Squad response. The NRC staff evaluated the Corporation's response and determined that the E-Squad's ability to respond to emergencies as described in the Emergency Plan would not be negatively impacted.

Based on the information provided by the Corporation in its initial request and its responses to the RAI, the NRC staff determined that the proposed changes to the minimum staffing requirements discussed above, with the addition of the revisions made in response to the RAI's, will maintain the operation of the Paducah Gaseous Diffusion plant in compliance with all NRC's regulatory requirements, will not affect the safe operation of the facility, and ensure adequate protection of the workers' and the public's health and safety.

5.0 CONCLUSION

Based on its review and evaluation of the information provided by the Corporation in its November 9, 2012, CAR, and its March 29, 2013, responses to the RAI, the staff concludes that the proposed revision to TSR Section 3.0, Administrative Requirements, Table 3.2.2-1, Minimum Staffing Requirements, would not have any impacts on public health and safety, and would not pose a significant increase in risk to the plant's personnel. The NRC staff also concludes that the proposed revision would continue to provide adequate protection of public health, safety, safeguards, security, and the environment. As such, the NRC staff recommends that the Corporation's request be approved.

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ADAMS Accession No. **ML13098A180**