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USEC

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November 26, 1997

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

GDP 97-2037

Portsmouth Gaseous Diffusion Plant (PORTS)
Docket No. 70-7002
Revised Response to Notice of Violation (NOV) 97-203-03

USEC letter GDP-97-2015 provided a response to NOV 97-203-03 regarding the failure to properly validate Nuclear Criticality Safety (NCS) computer code calculations. In this response, USEC denied the violation based on our belief that the SCALE code was adequately validated for the NCS calculations. Nuclear Regulatory Commission (NRC) letter dated October 28, 1997, rejected USEC's response because, in NRC's opinion, it did *not provide any additional technical basis that the SCALE code is validated in the intermediate range, or demonstrate that the code is well-behaved between 5% and 92.5%*

After further review of this issue, USEC acknowledges that benchmark data was not used to validate SCALE code calculations in the intermediate range. Therefore, USEC no longer contests this violation. Accordingly, Enclosure 1 to this letter provides the reason for the violation, corrective actions taken, corrective actions to be taken, and the date when full compliance will be achieved. USEC continues to believe that the SCALE code calculation yields valid results for the 20% enrichment cases. The correctness of this approach was recently confirmed with the authors of this code [(i.e., DOE Oak Ridge National Laboratory (ORNL)].

As requested in NRC's letter dated October 28, 1997, USEC has scheduled a meeting with NRC on December 8, 1997, to further discuss this issue and to reach a common understanding as to the action required to achieve resolution. Following this meeting, USEC will submit a supplemental response to this NOV by January 14, 1998.

Enclosure 2 lists the commitments made in this letter. If you have any questions regarding this submittal, please contact Ron Gaston (614) 897-2710.

Sincerely,

James B. Morgan
Acting General Manager
Portsmouth Gaseous Diffusion Plant

Enclosures (2)

cc: NRC Region III, Regional Administrator
NRC Headquarters, Chief Fuel Cycle Operations Branch, NMSS (P. Ting)
NRC Resident Inspector, PORTS

Enclosure 1

UNITED STATES ENRICHMENT CORPORATION (USEC)
REVISED RESPONSE TO NOTICE OF VIOLATION (NOV) 97-203-03

Restatement of Violation

TSR Section 3.11.1 requires, in part, that "A Criticality Safety Program shall be established, implemented, and maintained as described in the Safety Analysis Report...".

SAR Section 5.2.3.2 requires, in part, that "When NCS is based on computer code calculations of K_{eff}, controls and limits are established to ensure that the maximum K_{eff} complies with the applicable code validation for that type of system being evaluated."

Contrary to the above, as of May 30, 1997, three Nuclear Criticality Safety calculations, NCS-CALC-97-009, NCS-CALC-97-010, and NCS-CALC-97-012, were observed to be based upon an enrichment of 20%, without justification that the results are bounded by the validation report.

I. Reason for the Violation

The reason for the violation was that no benchmark data existed to support the SCALE code validation in the intermediate range at the time the validation report was prepared. However, USEC believes using the SCALE code is valid in the intermediate range and USEC is currently assembling data to verify the correctness of this approach. Additionally, based on discussions with the authors of this code (i.e., DOE ORNL),USEC believes that the theoretical aspects of the code not yet validated do not pose a risk of criticality.

II. Corrective Actions Taken and Results Achieved

As noted above, USEC has contacted DOE ORNL concerning the validity of using the SCALE code calculations for the intermediate enrichments. DOE's reply was documented in a memorandum dated November 21,1997. The DOE memorandum states that while the criticality codes and cross sections have been validated over a broad range of moderation for enrichments <5% and >90%, the validation is also applicable to systems which are "similar" (e.g., geometry, fuel type, moderator, moderation range) to those that have been validated. Therefore, DOE stated that the validation could be applied to intermediate range enrichments where optimum moderation for minimum mass or solution geometry is considered. Additionally, DOE concurred additional data is needed for validation of calculations that are going to be performed for systems at intermediate enrichments.

II. Corrective Steps to be Taken

1. USEC is currently assembling benchmark data applicable to the intermediate enrichment range for NCS code validation efforts associated with the Atomic Vapor Laser Isotopic Separation (AVLIS) project. The collected data will be reviewed for applicability and included in the validation report.

2. Following the completion of the above action, existing NCSAs and their supporting calculations will be reviewed to determine the impact the data validation results may have on them. These NCSAs and their supporting calculations will be revised as needed.

3. USEC has scheduled a meeting with NRC on December 8, 1997, to further discuss this issue and achieve resolution.

4. USEC will submit a supplemental response to NRC by January 14, 1998, based on the inclusion of the new benchmark data in the validation report.

IV. Date of Full Compliance

The date by which USEC expects to achieve full compliance will be provided in the supplemental response.

Enclosure 2

UNITED STATES ENRICHMENT CORPORATION (USEC)
REVISED RESPONSE TO NOTICE OF VIOLATION (NOV) 97-203-03

LIST OF COMMITMENTS

1. USEC is currently assembling benchmark data applicable to the intermediate enrichment range for NCS code validation efforts associated with the Atomic Vapor Laser Isotopic Separation (AVLIS) project. The collected data will be reviewed for applicability and included in the validation report.

2. Following the completion of the above action, existing NCSAs and their supporting calculations will be reviewed to determine the impact the data validation results may have on them. These NCSAs and their supporting calculations will be revised as needed.

3. USEC will submit a supplemental response to NRC by January 14, 1998, based on the inclusion of the new benchmark data in the validation report.