DCP
TE-07

USEC
A Global Energy Company

July 13, 1998
GDP 98-0134

Dr. Malcolm R. Knapp
Acting 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
Response to Request for Additional Information - Updates to Certification Application

Dear Dr. Knapp:

By letter dated June 12, 1998, the NRC requested additional information regarding the appropriateness of changes made to the certification application under 10 CFR 76.68. The enclosure provides USEC's responses to questions 1, 2, 3, 5, 6, 7, 8, 9, 12, and 13. The responses to questions 4, 10, and 11 will be submitted at a later date.

Should you have any questions related to this subject, please contact Steve Routh at (301) 564-3251. There are no new commitments contained in this submittal.

Sincerely,

S. A. Toelle

Steven A. Toelle
Nuclear Regulatory Assurance and Policy Manager

Enclosure: United States Enrichment Corporation, Paducah Gaseous Diffusion Plant, Docket No. 70-7001, Response to June 12, 1998 NRC Request for Additional Information

cc: Mr. Robert C. Pierson, NRC HQ
NRC Region III Office
NRC Resident Inspector - PORTS
NRC Resident Inspector - PGDP

6903 Rockledge Drive, Bethesda, MD 20817-1818
Telephone 301-564-3200 Fax 301-564-3201 http://www.usec.com
Offices in Livermore, CA Paducah, KY Portsmouth, OH Washington, DC

United States Enrichment Corporation
Paducah Gaseous Diffusion Plant
Docket No. 70-7001
Response to June 12, 1998 NRC Request for Additional Information

Safety Analysis Report

1. **In Table 1-3 (pages 1-7 through 1-9), Rev. 21, some of the changes made to the possession limits need to be corrected as follows: (1) footnote f is inappropriate for material types A, B, D, and the 5th and 6th items under C; (2) footnote f should be removed from the end of the first description entry under C. The description provides for uranium enriched up to 2.75 percent. The addition of the footnote for item 4 would allow possession of samples in excess of 2.75 percent in conflict with the up to 2.75 percent allowance; (3) footnote f is not necessary for the 2nd, 3rd, and 4th items under C as these items already provide for assays greater than 2.75 percent; (4) changing the enrichment level up to 10 percent in item 2 under C is the same change for which USEC received a Notice of Violation in Inspection Report 97004. Please correct or explain the basis for these changes. In addition, please clarify the addition of samples for analysis that has been added to material types A, B, and C, particularly for the higher enrichments since Paducah only processed low enrichment uranium.**

USEC Response

SAR Table 1-3 has been revised in accordance with the USEC Application change process to remove footnote f from the table. Removal of footnote f resolves concerns (1), (2), and (3). Regarding concern (4), SAR Table 1-3 has also been revised to clarify that the enrichment for item 2 under C is limited to less than 10 percent.

The addition of samples for analysis for the higher enrichments is to allow PGDP to analyze samples of DOE legacy material which may be held up in facilities and equipment and which may be of an assay greater than 2.75 percent. The material is from items which originated offsite (i.e., K-25 or PORTS) and which may be contaminated with uranium enriched in ^{235}U to assays greater than 2.75 percent.

2. **On page 3.3-57, Rev. 24, the first change bar, it appears that some of the sentence was dropped. The sentence states what is excluded in C-315 but does not state what all other buildings do use for fine adjustment.**

USEC Response

When the sentence in question was revised, the approved change was not incorporated as intended by the approved Application change documentation. The words "which does not" that were added to the second change on this page should not have been included in the first change.

The first paragraph, first sentence, of SAR Section 3.3.5.10.1 under the heading, "Recycle Line," has been corrected in accordance with the USEC Application change process to read as follows:

> "All of the unit lube oil systems are equipped with a manual recycle valve for coarse adjustments and all buildings, excluding C-315, have an automatic recycle adjustment used for fine control."

3. **On page 3.10-1, Rev. 21, last sentence, why has storage areas been changed to permanent storage areas? Do you no longer utilize temporary storage areas? Temporary storage areas must also be posted unless they meet the requirements of 10 CFR 20.1903.**

USEC Response

Temporary storage of waste containers is addressed in SAR Section 3.10.1. No pertinent changes were made to this section. The change referred to in the question is the last sentence of the first paragraph in SAR Section 3.10.2. SAR Section 3.10.2 describes how the permanent waste storage facilities are managed, and the title of SAR Table 3.10-1 was changed to read "USEC **permanent** radioactive waste storage **areas** ~~facilities~~." These changes were made to clarify which areas are permanently managed as radioactive waste storage areas. Both temporary and permanent storage areas comply with SAR Section 5.3.1.7, and SAR Sections 3.10.1 and 3.10.2 do not contain any exceptions to the posting and labeling requirements of SAR Section 5.3.1.7.

5. **On page 4.4-6, Rev. 21, 5th paragraph, explain why the requirement to characterize waste containers for enrichment has been removed. Enrichment can be a factor in ensuring application of appropriate nuclear criticality safety controls.**

USEC Response

It is agreed that enrichment can be an important factor in the application of appropriate nuclear criticality safety controls; however, the primary NCSEs/NCSAs that govern characterization of fissile/potentially fissile waste containers rely on mass control and not enrichment. The last sentence of the first paragraph of SAR Section 4.4.1.7 states that methods other than mass control can be used for the characterization of waste container contents under specific NCS approvals. An example of other methods would be controls on enrichment.

6. **On page 4.4-9, Rev. 24, changing the frequency of the level and airflow sensors and alarms testing frequency would appear to decrease the effectiveness of nuclear criticality safety for the spray booth operation. In addition changing the monthly calibration of the level sensors to a verification monthly could also be viewed as decreasing the safety of the system. Please explain the basis for these changes.**

USEC Response

The NCSE for the C-400 Spray Booth credits routine testing and verification of level detection system set points and interlock operation to minimize the chance of undetected system failures or problems. The level and airflow sensors and alarms are tested monthly when the spray booth is operating to ensure proper operation. In addition, the level sensor set points are verified monthly at a minimum. Spray Booth operations are stopped if either the level or airflow detection system is found to be inoperable.

The acceptability of the monthly testing interval is based on past performance of the monthly testing and its ability to ensure reliable performance of the level detection system. A review of the C-400 Spray Booth monthly check sheets for a 2-year period confirmed the performance acceptability. The results of these monthly tests demonstrate that the performance of set point verification and interlock operating checks on a monthly testing interval is sufficient to ensure reliable performance of the level detection system.

7. **In Table 5.1-7 (page 5.1-22) and references on page 5.1-11, Rev 21, explain why you have changed all references to the frequency of analysis to frequency of sampling. The frequency of analysis and the frequency of sampling are not interchangeable, in fact sampling often occurs more frequently than analysis when composite samples are utilized. The change to sampling instead of analysis actually makes some of the information in the table incorrect. The flow proportional continuous samplers are not sampled on a weekly, monthly or quarterly basis; this is the frequency for analysis of the composite samples that are collected continuously. The analysis frequency is an important piece of information for the monitoring program and should be included in Chapter 5.1.**

USEC Response

Prior to the revision in question, SAR Table 5.1-7 and the text in SAR Section 5.1 specified the frequency for sample collection and analysis. The table was revised to specify the frequencies applied to the sample collection interval and removed the frequency of laboratory analysis. Analysis of samples at the exact frequency of submittal is not required due to the nature of the program described in SAR Section 5.1.

The routine outfall samples are used for long-term tracking and trending of effluents for the purpose of identifying plant changes resulting in effluent characteristic changes as described in SAR Section 5.1. The samples are not used for real-time process control purposes. The control of effluents is maintained at the origination point per SAR Section 5.1.1.2 and the Radioactive Waste Management Plan.

Due to the length of the ditches and the low flow rate in many of the ditches, there is often a lengthy period between the time a release from a building occurs and the time the release reaches the sampling point. In addition, the continuous composite samplers may be subsampled weekly, monthly, or quarterly per SAR Table 5.1-7 and grab samples are obtained at infrequent intervals. Individual releases cannot be tracked and process control cannot be accomplished using these techniques.

Due to the nature of the sampling program, PGDP does not expect to identify individual releases through the program described in SAR Section 5.1. Should a spill or other release occur, as identified by the corrective action process or other notification system, special samples are obtained and analysis is expedited. All spills are required, by procedure, to be reported to the Plant Shift Superintendent (PSS). Environmental Compliance is notified of all such reports.

Elevated levels of radionuclides in individual samples and trends from the results of multiple samples may trigger investigations per SAR Table 5.1-4 to identify plant changes resulting in changes in effluent characteristics. While timely analysis is necessary, it is not required that samples

be analyzed at the same frequency they are obtained for the purpose of tracking and trending because the purpose of the program is long-term. Sampling in response to actual or suspected releases does require analysis at the same frequency as sampling. Such targeted sampling is not described in SAR Section 5.1.

The term "continuous sampling" includes both noninterrupted sampling and repetitive sequential collection of small samples obtained automatically at intervals short enough to yield a representative sample for the entire sampling period. SAR Table 5.1-7 identifies Outfalls 001, 008, 009, and either 010 or 011 as being continuously sampled. The weekly, monthly, and quarterly intervals pertain to the schedule for the submittal of subsamples for analysis.

8. In Table 5.1-9 (page 5.1-24) and reference on page 5.1-12, Rev. 21, explain why you have deleted the analysis frequency. Again the analysis frequency is an important piece of information for the monitoring program and should be included in Chapter 5.1.

USEC Response

Prior to the revision in question, SAR Table 5.1-9 specified the frequency for the collection and analysis of samples. The table was revised to specify the frequencies applied to the collection interval and removed the frequency of laboratory analysis. Analysis of samples at the exact frequency of submittal is not required due to the nature of the program described in SAR Section 5.1.

Process control of emissions from the C-310 Purge and Vent Stack and the C-335 UF_6/R-114 Separation System is accomplished through the use of on-line, real-time monitors and other process instrumentation. The sampling programs described in SAR Section 5.1 are for the purpose of quantifying emissions and for long-term tracking and trending of emission characteristics. The results of these programs cannot be used for process control as the analysis of samples takes a minimum of several hours.

Due to the nature of the sampling program, PGDP does not expect to identify individual releases through the program described in SAR Section 5.1. Should a release occur, as identified by the corrective action process or other notification system, special samples are obtained and analysis is expedited. All releases are required, by procedure, to be reported to the PSS. Environmental Compliance is notified of all such reports.

Elevated levels of radionuclides in individual samples and trends from the results of multiple samples may trigger investigations per SAR Table 5.1-1 to identify plant changes resulting in the changes in emission characteristics. While timely analysis is necessary, it is not required that samples be analyzed at the same frequency they are obtained for the purpose of tracking and trending because the purpose of the program is long-term. Sampling in response to actual or suspected releases does require analysis at the same frequency as sampling. Such targeted sampling is not described in SAR Section 5.1.

9. On Figure 5.1-4 (page 5.1-30), Rev. 21, explain why the alpha tape was removed from the figure.

USEC Response

The Alpha Tape Monitor was an instrument which had been installed for testing and was considered experimental. In 1996, it was determined that the monitor was not required. Testing was curtailed, the instrument was abandoned in place, and SAR Figure 5.1-4 was subsequently revised.

Radwaste Management Program

12. **On pages 4 and 5, Rev. 21, explain why you have changed the language from wastes generated in radiological areas to wastes generated in areas controlled for transferable contamination. What types of waste, if any, are no longer being managed as low level waste due to the wording change?**

USEC Response

The same change was also made to the first paragraph of SAR Section 3.10.1. The original wording was that waste generated in "restricted" areas was to be considered potentially contaminated. "Restricted areas" include areas controlled for fixed contamination. Fixed Contamination Areas are defined in SAR Section 5.3.3.1 as areas that do not have removable contamination levels that exceed SAR Table 5.3-6 values. SAR Section 5.3.4.3 states that materials and equipment will not be released for unrestricted use unless the contamination levels are less than the levels specified in SAR Table 5.3-6. Therefore, waste generated in an area (fixed contamination area) that does not have removable contamination exceeding unrestricted use levels will meet the criteria for unrestricted use (i.e., release as "clean" waste).

13. On page 7, 2nd line, Rev. 21, explain why you have changed the wording from are monitored to may be monitored, making the monitoring optional would appear to decrease the effectiveness of the program. If the intent was not to make monitoring optional but to allow other methods of monitoring, it would be clearer to either add the other methods to be used or end the sentence after contamination.

USEC Response

This section discusses waste that is already being handled as low level radioactive waste (LLRW). The word "may" was added to allow the waste to be inspected for hazardous materials but not monitored for radioactive contamination using bulk or hand monitors. Monitoring the waste using bulk or hand monitors may not be necessary if the waste is known to be radiologically contaminated based upon other methods, including but not limited to, process knowledge or sampling and analysis.