



June 16, 2008
AET 08-0045

Mr. Daniel H. Dorman, Director
Division of Security Operations
Office of Nuclear Security and Incident Response
ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

American Centrifuge Plant
Docket Number 70-7004; License Number SNM-2011

Submittal of Changed Pages of the Emergency Plan for the American Centrifuge Plant

Dear Mr. Dorman:

In accordance with 10 *Code of Federal Regulations* (CFR) 70.32(i), USEC Inc. (USEC) hereby submits changed pages of the Emergency Plan for the American Centrifuge Plant (ACP) as Enclosure 1 of this letter. Revision bars in the right hand margin depict changes from the previous revision submitted to the U.S. Nuclear Regulatory Commission (NRC).

Currently, the NRC-accepted Emergency Plan in effect at the U.S. Department of Energy reservation in Piketon, Ohio is the United States Enrichment Corporation's Emergency Plan, which USEC credited within Chapter 8.0 of the License Application for the Lead Cascade Facility. Changed pages for this site-wide Emergency Plan are currently submitted to the affected off-site response organizations in accordance with 10 CFR 76.91(o) and will remain effective until implementation of the Emergency Plan for the ACP. Upon full implementation of the new site-wide Emergency Plan and in accordance with 10 CFR 70.32(i), USEC will begin supplying changed pages to the affected off-site response organizations through the controlled distribution process.

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The changes noted in Enclosure 1 have been reviewed in accordance with 10 CFR 70.72 and has been determined not to require prior NRC approval. This change has also been reviewed in accordance with 10 CFR 70.32 and has been determined not to decrease the effectiveness of the applicable plan.

If you have any questions regarding this matter, please contact me at (301) 564-3470.

Sincerely,



Peter J. Miner
Director, Regulatory and Quality Assurance

Enclosure: As Stated

cc: S. Echols, NRC HQ
J. Henson, NRC Region II
B. Smith, NRC HQ

American Centrifuge Plant Licensed Activities

The mission of the American Centrifuge Plant (ACP) is the enrichment of uranium with the isotope necessary to produce fuel for nuclear reactors (^{235}U) using the gas centrifuge process. A basic summary of this process follows.

The uranium element appears in nature in numerous isotopes; the three major isotopes of interest have atomic weights of 234, 235, and 238. The three isotopes are fissionable; however, only ^{235}U is capable of sustaining a critical reaction in most applications. Natural uranium contains 0.711 weight (wt.) percent ^{235}U isotope. Isotopic separation processes separate uranium (e.g., its compounds) into two fractions, one enriched in the ^{235}U isotope, and the other depleted.

Prior to the enrichment process, uranium is combined with fluorine to form uranium hexafluoride (UF_6). The ACP receives uranium in solid UF_6 form, in 10- or 14-ton cylinders in accordance with U.S. Department of Transportation regulations.

In the gas centrifuge process, the isotopic separation is accomplished by "centrifugal force," which uses the difference in weight percent of the different uranium isotopes to achieve this isotopic separation. UF_6 is fed into the system in the gaseous state and is enriched up to 10 wt. percent assay ^{235}U . The ACP withdraws the enriched (product) stream and the depleted (tails) stream in the gaseous state. The product and tails streams are then sublimed into a solid state for handling/movement. The ACP minimizes the amount of UF_6 in the liquid state.

The ACP operates two process buildings containing the centrifuge machines arranged in cascades to produce an initial target of 3.8 million Separative Work Units.

Based upon the hazards and consequence analyses reflected in the Integrated Safety Analysis (ISA), USEC has concluded that UF_6 is the only material in sufficient quantity used at the ACP that poses a potential off-site hazard. Upon release to the atmosphere UF_6 reacts with moisture in the air to produce two highly toxic substances, uranyl fluoride particulate, and hydrogen fluoride (HF). The following provides a brief description of each of these substances, the manner in which it is used in the enrichment process, and the locations where it is stored or used at the ACP.

- UF_6 on-site is stored in solid form until it is heated, sublimed, and fed to the enrichment process. After enrichment, the UF_6 gas is sublimed as product and tails. Only the sampling and transfer operations require that UF_6 be heated at a high enough temperature and pressure to liquefy the material. UF_6 is located in the X-3001 and X-3002 Process Buildings; X-3346 Feed and Customer Service Building; X-3346A Feed and Product Shipping and Receiving Building; X-3356 Product and Tails Withdrawal Building; and ACP cylinder storage yards.