



Designated  
Original

May 16, 2007  
AET 07-0029

Mr. Michael F. Weber  
Director, Office of Nuclear Material Safety and Safeguards  
Attention: 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 Information Concerning Radiological Characterization Results for the American  
Centrifuge Plant**

Dear Mr. Weber:

Per a request of the U.S. Nuclear Regulatory Commission staff, please find enclosed the details regarding the radiological characterization survey completed for facilities/areas to be leased/subleased on May 17, 2007 for the American Centrifuge Plant as Enclosure 1 of this letter. Enclosure 2 contains supplemental information for facilities previously discussed in Reference 1.

This submittal is being provided for information purposes only and no action is requested. If you have any questions regarding this matter, please contact me at (301) 564-3470.

Sincerely,

Peter J. Miner  
Director, Regulatory and Quality Assurance

Enclosures: As Stated

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

Reference:

1. USEC letter AET 07-0023 to M.F. Weber (NRC) from P.J. Miner (USEC) regarding Submittal of Information Concerning Radiological Characterization Results for the American Centrifuge Plant, dated April 20, 2007.

Received  
at OCO  
on 2/19/09

NMS501

**Enclosure 1 of AET 07-0029**

**Radiological Characterization Results for Facilities/Areas to be Leased/Subleased  
on May 17, 2007 for the American Centrifuge Plant**

**Enclosure 1 of AET 07-0029**

Reviewer: G. Peed  
Date: May 16, 2007

The following facilities were reviewed and assessed for turnover to USEC Inc. (USEC) on May 17, 2007:

- X-7721 – three classified rooms 28, 29, and 30 subleased from the United States Enrichment Corporation
- X-7725A – Waste Accountability Facility
- XT-860A – Rubb Tent

Other facilities/areas are scheduled for turnover at later dates as shown in Exhibit A of the Gas Centrifuge Enrichment Plant Lease.

Facilities identified with radiological concerns based on USEC's criteria (defined in Reference 1) were baseline surveyed to establish posting of the area and labeling of identified equipment. This review indicated potential radiation protection issues in the X-7725A facility. Surveys were performed and the following tables summarize the survey results:

| Facility | Posted Restricted Areas/Types  | Size  | Type  | Maximum General Area Radiation Levels in Routinely Occupied Areas |
|----------|--------------------------------|-------|-------|---|
| X-7725A  | Fixed Contamination Area (FCA) | Floor | Fixed | 0.6 – 0.8<br>μRoentgen/hour (hr)                                  |

| Facility | Size                                  | Restricted Area (approximate) | Maximum Contamination Levels (fixed)*  | Maximum Radiation Levels on Contact with Parts and Equipment |
|----------|---------------------------------------|-------------------------------|--|--|
| X-7725A  | 29,400 square feet (ft <sup>2</sup> ) | 2.25 ft <sup>2</sup> **       | 87 disintegration per minute (dpm)/100 square centimeter (cm <sup>2</sup> ) alpha and 2,179 dpm/100 cm <sup>2</sup> beta/gamma | < 1.0 millirem (mrem)/hr gamma                               |

\* Radiological monitoring identified no transferable radioactivity above the detection limits of 200 dpm/100 cm<sup>2</sup> alpha and 700 dpm/100 cm<sup>2</sup> beta/gamma

\*\* Single spot identified during the survey approximately 2 inches in diameter with multiple layers of paint, removable contamination not detectable.

Although residual fixed radioactive contamination is currently present in the X-7725A facility (as depicted within the previous tables), the actual locations, amounts, and intensity of activity has been determined to be at normal background radiation levels for whole body exposure. For perspective, if a worker were to be present in these areas for 2,000 work hours, their annual occupational exposure would not exceed 2.0 mrem. No loose (transferable) contamination was present above detection limits for the instruments used, thus there would be no risk of measurable internal dose to the worker from this material.

The three X-7721 rooms were surveyed during the site characterization as part of the activities associated with Portsmouth Gaseous Diffusion Plant Compliance Plan Issue 13, Posting of Radioactive Materials. Since evidence revealed no radiation protection concerns, a detailed survey was not performed. Subsequently, however, a Radioactive Materials Area was established in one room for interim storage of Lead Cascade tested valves. This room was surveyed on April 10, 2007 and down posted when the items were transferred to Lead Cascade Facility areas.

The XT-860A Rubb Tent was surveyed on April 20, 2007. The survey revealed that contamination measurements were all less than 200 dpm/100 cm<sup>2</sup> alpha and 700 dpm/100 cm<sup>2</sup> beta/gamma; and total contamination levels were all less than 400 dpm/100 cm<sup>2</sup> alpha and 5,000 dpm/100 cm<sup>2</sup> beta/gamma. Penetrating radiation levels were at or below normal background levels.

**Enclosure 2 of AET 07-0029**

**Supplemental Radiological Characterization Results for the American Centrifuge Plant**

**Enclosure 2 of AET 07-0029**

**Reviewer: G. Peed  
Date: May 16, 2007**

Subsequent to submission of Reference 1, the following facilities were re-assessed for turnover to USEC Inc. (USEC) on May 17, 2007:

- X-3002 – Process Building (South half)
- X-3346 – Feed and Customer Services Building
- X-7745R – Recycle/Assembly Storage area (concrete pad)

Reference 1 indicated potential radiation protection issues in these buildings/facilities. Additional American Centrifuge surveys of the Fixed Contamination Areas (FCA) were performed and the following summarizes the results of this re-assessment for the above noted buildings/facilities:

1. X-3002 building (South half) – A more detailed survey was completed on May 2, 2007 of the FCA, which revealed maximum fixed levels 3,086 disintegration per minute (dpm)/100 square centimeter (cm<sup>2</sup>) alpha contaminations, 10,936 dpm/100 cm<sup>2</sup> beta/gamma, and no removable contamination was detected. Penetrating radiation levels were at or below normal background levels.
2. X-3346 building – In addition to the fixed contamination on the parts and equipment (i.e., valves and motors), a walk-through of the area indicated the ventilation system is posted for contamination control purposes. The ventilation system will be surveyed after the system has been shut down for a minimum of three days to allow for decay of radon daughters. This has been standard practice at the U.S. Department of Energy (DOE) reservation and has proved to be appropriate to ensure accurate results. No contamination is anticipated to be discovered in the X-3346 building ventilation system.
3. X-7745R area – An additional survey completed on April 20, 2007 confirmed that all levels (fixed and removable) were less than posting limits; therefore, the DOE postings have been removed. Penetrating radiation levels were at or below normal background levels.