



December 20, 2011
GDP 11-1045

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

**Paducah Gaseous Diffusion Plant (PGDP)
Docket No. 70-7001, Certificate No. GDP-1
Notification of a Defect in a Component Supplied to the Paducah Gaseous Diffusion Plant**

Pursuant to 10 CFR 21.21(d)(3), enclosed is the initial and written notification of the identification of a defect in a basic component at PGDP.

Should you have any questions or require additional information regarding this event, please contact Vernon Shanks, Regulatory Affairs Manager at 270-441-6039.

Sincerely,

Steven R. Penrod
Vice President Enrichment Operations

SRP: DMG: mcl

Enclosure: As stated

cc: J. Calle, NRC Region II Office
M. Miller, NRC Senior Resident Inspector – PGDP
T. Liu, NRC – HQ

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10 CFR 21.21 Report

I. Name and address of the individual providing the information:

Steven R. Penrod
Vice President Enrichment Operations
United States Enrichment Corporation
Paducah Gaseous Diffusion Plant
5600 Hobbs Road
Paducah, KY 42002-1410

II. Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect:

On October 26, 2011, the discovery of two (2) defects (cracks) was identified on the north head of the Building C-310A Side Accumulator Vessel. The accumulator is a tank used to provide a storage volume for liquid Uranium Hexafluoride (UF₆) during the product withdrawal process.

III. Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect:

The firm which designed and fabricated the vessel is Westerman Companies of Bremen, Ohio.

IV. Name of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply:

The defects in the 48" UF₆ side accumulator allowed a small release of material which produced a process gas leak detection alarm on October 21, 2011. Investigation to determine the cause of the cracks has revealed that the base metal contained stress defects which allowed multiple cracks to form with some of the cracks penetrating through the outer wall causing the vessel to leak. These cracks were a result of fabrication deficiencies and not use of the vessel. This is a deviation from the expectation that the pressure vessel will not leak during use.

This defect has the potential to initiate a catastrophic failure of the vessel releasing a large amount of liquid UF₆ which would be a failure to perform its required safety function of containment. The accumulator can hold up to 20,000 pounds of UF₆ liquid which, if released, could result in a substantial safety hazard.

V. The date on which the information of such defect or failure to comply was obtained:

On October 26, 2011, it was discovered that the defect in the C-310A side accumulator caused the release of UF₆ on October 21, 2011. The failure was reported to the NRC Operations Center as required by 10 CFR 76.120(d)(2) at 1320 hrs.

VI. In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part:

There are nine (9) similar basic components used in Buildings C-310 and C-315. However, the other nine (9) vessels were not manufactured by Westerman Companies.

VII. The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action (Note: These are actions specifically associated with the identified defect or failure to comply):

The C-310A side accumulator has been repaired by cutting out the area of the defect extending into the unaffected areas of the base metal in accordance with ASME Boiler and Pressure Vessel Code, Section VIII, Division 1. Utilizing additional precautions to reduce overheating and ensure cleanliness of the area to be welded, PGDP personnel have repaired the vessel and it is available for service.

VIII. Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to the purchasers or licensees:

The subject component is a one of a kind pressure vessel and USEC has not communicated with specific purchasers or licensees. A meeting with a representative of Westerman Companies was held on November 22, 2011, to discuss the defect.