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Subject: Green Alert: Good Work Practice- Proper Project Safety and Emergency Planning

The following Bechtel Jacobs Company, LLC Lesson Learned Good Work Practice is provided for sharing across DOE facilities that may have similar situations If you have any questions, please contact Joanne Schutt at (423)483-0554, e-mail=s6u@ornl.gov .

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TITLE: Proper Project Safety and Emergency Planning

IDENTIFIER: G-1998-OR-BJCETTP-0801 DATE: August 10, 1999

LESSONS LEARNED STATEMENT: The lesson learned from this event was the successful protection of personnel and the environment by recognizing the cylinder breach hazard, planning mitigating measures, maintaining knowledgeable personnel, and abiding by existing procedures. Through the use of these good work practices, no serious impacts were experienced. This event was not an unanticipated event. The hazard of a cylinder breach has been recognized and included in project safety and emergency planning. The prior recognition of this hazard prompted the work of the Cylinder Refurbishment Project.

DISCUSSION: While performing grit blasting, as a part of the UF6 Cylinder Refurbishment Project, a subcontractor employee observed a stream of smoke coming from an area of a Cylinder being cleaned. The employee immediately stopped the grit blasting operation, evacuated the building, and notified the supervisor. The supervisor proceeded to shut down the building ventilation. Other personnel were immediately notified, and all personnel at the work site evacuated to the assembly station. The cylinder contained approximately ten tons of depleted uranium hexafluoride at .2% assay. The material released due to the leak was hydrogen fluoride gas. The subcontractor employee was wearing supplied air respiratory protection equipment. There was no exposure to personnel in the area. An estimated 0.1 pounds of gaseous hydrogen fluoride was released with no harmful effects to personnel or the environment.

After observance of the breach, emergency response actions were followed in accordance to approved project plans. A re-entry plan, "Re-entry Plan for the Depleted UF6 Cylinder Refurbishment Project" was prepared and approved for entry of Industrial Hygiene and Emergency Response personnel. Emergency response personnel with planning support from Health Physics and Industrial Hygiene applied a temporary patch to the cylinder. The breach was not an unanticipated occurrence, and prior planning and proper execution by personnel involved has resulted in no personnel contamination and contained localized contamination with no environmental impact.

ANALYSIS: The direct and root cause was Equipment Material Problem: Defective Weld, Braze, or Soldered Joint. The cylinder is a Model T fabricated from ASTM A-285 steel. It is a ten-ton thin wall (5/16-inch wall thickness) with skirted ends. It was delivered August 1957. The breach is located in the

circumferential head weld at approximately the 9:00 o'clock position on the valve end. The diameter of the breach appears to be the size of a "pencil point" (approximately 0.9 mm). The breach and surrounding area showed no signs of impact or corrosion damage. A temporary patch was placed on the breach.

The cylinder was placed in the refurbishment building and received a post relocation visual inspection in accordance to procedure P-2400, "Handling and Inspection of DOE 48-Inch Diameter UF6 Cylinders." No breach was detected during this inspection.

RESOLUTION/RECOMMENDED ACTIONS: Apply a permanent patch to the cylinder to permanently fix the breach. The permanent weld repair of cylinder 6780 was planned and conducted utilizing exemplary attention to the safe conduct of the repair work. The work resulted in a successful permanent fix with no incidence of personnel or environmental safety problems.

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DOE FUNCTIONAL CATEGORIES: Occupational Safety and Health
BJC FUNCTIONAL CATEGORIES: SH - Safety, PC - Planning and Controls
HAZARDS: Personnel Protection, Other
WORK ACTIVITY: Radiological, Work Control, Other

FOLLOW-UP ACTION: Information in this report is accurate to the best of our knowledge. As means of measuring the effectiveness of this report please notify Joanne E. Schutt at (423)574-1248, e-mail at s6u@ornl.gov of any action taken as a result of this report or of any technical inaccuracies you find. Your feedback is important and appreciated.