

**From:** Michael Raddatz  
**Sent:** Friday, October 10, 2008 8:16 AM  
**To:** Valerie Williams  
**Subject:** FW: Consultation on the Report to Congress (update as of Friday 8/29)

Please docket this e-mail, public non-sensitive it relates to the recertification of the GDPs.

Send me the ML ASAP

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**From:** Michael Raddatz  
**Sent:** Tuesday, September 23, 2008 1:01 PM  
**To:** 'Mardis, David G.'  
**Subject:** RE: Consultation on the Report to Congress (update as of Friday 8/29)

Good Afternoon Dave

I noticed that you added a chapter 12 – Lead Federal Agency / Emergency Coordination. But did not add any text. What are your thoughts?

Mike R

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**From:** Mardis, David G. [mailto:MardisDG@oro.doe.gov]  
**Sent:** Wednesday, September 17, 2008 6:57 AM  
**To:** Michael Raddatz  
**Cc:** Devault, Randall Maynard; Hutson, Jim D  
**Subject:** RE: Consultation on the Report to Congress (update as of Friday 8/29)

Good morning Mike,

The attached document contains ORO's comments we would like to offer for your report.

Thanks for the opportunity to provide input.

Dave

## DOE SUMMARY OF ACTIVITIES COMMON TO PADUCAH AND PORTSMOUTH

DOE activities to enhance and improve HS&E conditions at both the Paducah and Portsmouth GDPs between October 1, 1998, and September 30, 2003, have been numerous and extensive. These activities include, but are not limited to, the following:

### Health and Safety

- Completed all corrective actions that closed Defense Nuclear Facilities Safety Board Recommendation 95-1, "Improved Safety of Cylinders Containing Depleted Uranium" (FY 1999);
- Performed safety evaluations associated with review and approval of Compliance Plan CARs (FY 2000, FY 2001);
- Established resource centers at the Paducah and Portsmouth GDPs, in conjunction with the Department of Labor under the Energy Employees Occupational Illness Compensation Program Act, to handle workers' medical claims resulting from past operations at the GDPs (FY 2001);

- Conducted an Integrated Safety Management System (ISMS) initiative to verify implementation of ISMS (FY 1999) and implemented a CAP to support re-verification of the ISMS program at both GDPs (FY 2003); and
- Directed the preparation of, and reviewed, Documented Safety Analyses (DSAs) to achieve compliance with 10 CFR Part 830, Subpart B, "Safety Basis Requirements" (FY 2000 - FY 2003).

#### Inspections and Investigations

- Conducted independent investigations of past and current HS&E conditions at both GDPs and issued reports that concluded that current operations in DOE-controlled areas do not present an immediate risk to workers or the public (FY 1999, FY 2000);
- Developed and completed corrective actions to address all findings of the HS&E independent investigations (FY 2000 - FY 2003);
- Regulated the Federal arming and arrest authority of the GDP protective forces under the AEA, as amended, and DOE's Regulatory Oversight Agreement (ROA) with USEC (FY 1999 - FY 2003);
- Reviewed and approved revisions of USEC's "Arming and Arrest Authority Security Plan for the Paducah and Portsmouth Gaseous Diffusion Plants" (Security Plan), including Revision 3, that incorporated interim compensatory measures required by NRC after September 11, 2001 (FY 1999 - FY 2003); and
- Investigated historical uses of recycled uranium as part of a DOE complex-wide initiative (FY 2000, FY 2001).

## Uranium Management

- Continued the transfer of approximately 14,000 DUF<sub>6</sub> cylinders from USEC to DOE, pursuant to agreements with USEC in FY 1998 and FY 2002 (FY 1999 - FY 2003);
- Developed and implemented a DUF<sub>6</sub> Long-Term Management Program for approximately 739,000 MT (815,000 tons) of DUF<sub>6</sub> stored at the GDPs, in response to Public Law No. 105-204 (FY 1999 - FY 2003);
- Issued a final Programmatic Environmental Impact Statement for dispositioning of stored DUF<sub>6</sub> (FY 1999);
- Awarded a contract for design, construction, and operation of a facility at each GDP for the conversion of DUF<sub>6</sub> to a more stable compound of uranium for reuse or ultimate disposal, pursuant to Public Law No. 197-206 (FY 2002);
- Issued system requirements documents, completed conceptual designs, and began preliminary design activities for the DUF<sub>6</sub> conversion facilities (FY 2003);
- Met with State regulatory agencies to discuss the permitting process for the DUF<sub>6</sub> conversion facilities and the planned transfer of DUF<sub>6</sub> cylinders from the DOE East Tennessee Technology Park (ETTP) to the Portsmouth GDP (FY 2003); and
- Entered into an agreement with USEC that ensures continued removal of Russian weapons-origin HEU, ensures domestic enrichment capabilities, facilitates the deployment of cost-effective advanced enrichment technology, replaces out-of-specification UF<sub>6</sub> that was previously transferred from DOE to USEC, and continues the transfer of DUF<sub>6</sub> cylinders from USEC to DOE (FY 2002).

## DOE SUMMARY OF ACTIVITIES AT PADUCAH

DOE activities to enhance and improve HS&E conditions at the Paducah GDP between October 1, 1998, and September 30, 2003, include, but are not limited to, the following:

### Health and Safety

- Worked more than 3 million hours, with no lost time from work related to Recordable Injuries/Illnesses (RIIs) for the 4-year period preceding August 28, 2002 (FY 1999 - FY 2002);
- Sampled selected leased and non-leased facilities for beryllium and funded health screening of current and former employees to identify cases of beryllium sensitivity (FY 2003); and
- Funded a preliminary investigation by the National Institute of Occupational Safety and Health to determine availability of exposure data for epidemiological studies of people who worked at the Paducah GDP for at least 30 days from 1952 to the present (FY 2003).

### Inspections and Investigations

- Investigated HS&E conditions related to past projects involving weapons dismantlement, metals recycling, and radiation exposure (FY 2000 - FY 2002);
- Conducted inspections of USEC's implementation of the Security Plan and issued three DOE Severity Level III NOVs involving failures to record inspections of firearms, record test firings of weapons after repair, and maintain documentation related to the physical fitness program for the GDP protective force (FY 2000 - FY 2003); and

- Conducted an inspection of an accidental discharge of a weapon and issued one DOE Severity Level I, one DOE Severity Level II, and two DOE Severity Level III NOVs for failures to follow procedures regarding firearms handling, perform firearms risk analysis, and perform appraisals of the firearms safety program, which resulted in civil penalties totaling \$41,250 (FY 2003).

#### Uranium Management

- Inspected all DUF<sub>6</sub> cylinders, constructed five new concrete cylinder storage yards for improved cylinder storage, relocated all cylinders for improved inspectability, and repainted cylinders at high risk for corrosion (FY 1999 - FY 2003);
- Received, since CY 1995, 5705 MT (6290 tons) of LEU as part of DOE's agreement to purchase downblended (formerly weapons-grade) uranium from Russia (FY 2003); and
- Assisted in the shipment to Russia, since CY 1995, of over 23,580 MT (25,900 tons) of unsold portions of the natural uranium-feed component derived from the Russian LEU (FY 2003).

#### Environmental Restoration

- Treated approximately 3360 million liters (887 million gallons) of contaminated groundwater (FY 1999 - FY 2003);
- Continued to remediate the site, including removing 7110 cubic meters (251,000 cubic feet) of crushed drums (FY 2000); initiating removal of over 23,600 MT (26,000 tons) of scrap metal and other material from scrap yards; and initiating cleanup of the North-South Diversion Ditch, one of the most contaminated locations at the Paducah GDP (FY 2002, FY 2003);
- Obtained regulatory approvals and issued regulatory reports relating to environmental remediation (FY 1999 - FY 2003);
- Initiated D&D of the C-410/C-420 Feed Plant Complex (FY 2001 - FY 2003);
- Developed remediation technologies, including the Lasagna™ technology developed by a consortium of DOE, regulatory agencies, and private companies, which reduced average concentrations of trichloroethylene (TCE) in soil from 84 parts per million (ppm) to less than 0.5 ppm (FY 1999 - FY 2003);
- Tested innovative cleanup technologies such as the Six-Phase Soil Heating technology for removal of a major source of TCE contamination in groundwater (FY 2002, FY 2003);
- Reached an agreement with Commonwealth of Kentucky regulatory agencies on enforceable milestones for environmental cleanup for FY 2003 through FY 2005 (FY 2003); and
- Signed a Letter of Intent with Commonwealth of Kentucky officials to promote accelerated cleanup, develop integrated planning and funding requests, meet commitments under the Paducah Federal Facility Agreement, and settle all identified outstanding enforcement and compliance issues through an Agreed Order (FY 2003).

#### Waste Management

- Treated, shipped, and disposed of approximately 9760 MT (10,760 tons) of waste and an additional 1761 cubic meters (62,000 cubic feet) of waste (FY 1999 - FY 2003);

- Provided waste management support for enrichment of uranium to a higher assay (FY 2001 - FY 2003);
- Saved an estimated \$2.5 million in disposal costs by reaching an agreement to ship tanks and equipment once used in fluorine production to a private company for reuse (FY 2003); and
- Completed the Environmental Assessment (EA) for site-wide waste disposition activities (FY 2003).

#### HS&E Status

The maximum occupational radiation exposure received by a worker in the DOE radiation protection program at Paducah for CY 1998 - CY 2002 was 4.59 mSv (459 mrem) in CY 1998. Average occupational radiation exposure per person per year for personnel in the DOE radiation protection program at Paducah was 0.1 mSv (10 mrem) in CY 1998; 0.09 mSv (9 mrem) in CY 1999; 0.054 mSv (5.4 mrem) in CY 2000; 0.049 mSv (4.9 mrem) in CY 2001; and 0.017 mSv (1.7 mrem) in CY 2002. These exposure data indicate that occupational radiation exposures at Paducah are substantially less than the DOE occupational exposure limit of 50 mSv (5000 mrem) per person per year specified in 10 CFR Part 835. DOE prime contractor and subcontractors worked approximately 4 million hours and experienced 28 RIIs, including five Lost Workday Cases (LWCs), during the 5-year period.

During the 5-year period of this report, 119 incidents occurred in the non-leased areas at Paducah that DOE classified as reportable HS&E occurrences. Ninety-nine incidents were classified as "off-normal," and 20 were classified as "unusual." Eleven of the 99 occurrences were determined to be potential noncompliances with the Price Anderson Amendments Act (PAAA) regulations, but DOE assessed none as PAAA violations.

Environmental releases and discharges from DOE activities at Paducah during FY 1999 through FY 2003 remained within established regulatory limits, with the following exceptions: twenty-two exceedances of water permit limits occurred, and DOE received 23 NOVs for alleged violations and one Notice of Noncompliance for an alleged noncompliance from Federal and State regulatory agencies. In August 2003, DOE agreed to pay the Commonwealth of Kentucky \$1 million to settle all identified outstanding enforcement and compliance issues at the Paducah GDP. The settlement, which is included in a letter of intent that DOE and the Commonwealth of Kentucky signed in August 2003, resolves most issues that have prevented officials from signing a formal accelerated cleanup agreement.

#### DOE SUMMARY OF ACTIVITIES AT PORTSMOUTH

DOE activities to enhance and improve HS&E conditions at the Portsmouth GDP between October 1, 1998, and September 30, 2003, include, but are not limited to, the following:

##### Health and Safety

- Prepared Safety Evaluation Reports and an Operational Readiness Assessment for changes in HEU operations in the X-705 facility (FY 1999);
- Worked over 25,000 hours to complete the transfer of uranium materials from the Fernald Environmental Management Project (FEMP) to the Portsmouth GDP without an accident (FY 2002);

- Worked for 2 years on the cylinder storage yard project and 1 year on the scrap metal removal project without an RII (FY 2002);
- Directed the preparation of, and reviewed, DSAs in accordance with 10 CFR 830 Subpart B, for the Portsmouth DUF<sub>6</sub> cylinder storage yards and all remaining Category 2 and 3 nuclear facilities (FY 2003);
- Initiated preparation of a site-wide beryllium characterization plan for implementation at the Portsmouth GDP in FY 2004 (FY 2003); and
- Reduced the RII rate from 11 RIIs in FY 2002 to 6 RIIs in FY 2003 (FY 2002, FY 2003).

#### Inspections and Investigations

- Conducted over 60 inspections of HEU cylinder-cleaning activities at the Portsmouth GDP (FY 1999, FY 2000) and issued one Severity Level III NOV involving failures to adhere to NCS labeling and spacing requirements in the X-705 facility (FY 1999);
- Conducted inspections of USEC's implementation of the Security Plan and issued two Severity Level III violations involving the failure to retrieve an individual's Weapons Authorization Card on expiration and the failure to effectively implement the physical fitness program for the GDP protective force (FY 2000 - FY 2002);
- Regulated activities associated with uranium enriched to greater than or equal to 10 percent assay U<sup>235</sup> discovered or made accessible in USEC-leased areas, under the ROA (FY 1999 - FY 2003); and
- Conducted a special review of USEC's Emergency Preparedness Program and participated in or observed Full Participation Emergency Management exercises at the Portsmouth GDP (FY 1999, FY 2002).

#### Uranium Enrichment Operations Shutdown

- Awarded a contract in August 2001 to maintain the Portsmouth GDP facilities in a cold standby condition after cessation of uranium enrichment operations in May 2001 (FY 2001);
- Performed uranium deposit removal activities on GDP cells required for cold standby (FY 2002 - FY 2003);
- Finalized an EA relating to a new heat source for DOE facilities (FY 2001); and
- Installed new heating systems for DOE facilities at the Portsmouth GDP that became operational on November 1, 2001 (FY 2001, FY 2002).

#### HEU Management

- Continued surveillance and maintenance of shutdown HEU cells (FY 1999 - FY 2003);
- Removed stored HEU materials from the X-345 facility and downgraded the facility to a Category III security level (FY 1999);
- Planned for removal of stored HEU-bearing material from the site (FY 2000 - FY 2003);
- Regulated HEU cylinder cleaning in the X-705 facility under the ROA (FY 1999, FY 2000);
- Transferred oversight responsibility for the X-705 facility to NRC after completion of HEU cylinder cleaning (FY 2001); and
- Shipped HEU oxides for downblending and sale (FY 1999 - FY 2002).

#### Uranium Management

- Inspected and restacked DUF<sub>6</sub> cylinders at the Portsmouth GDP (FY 1999 - FY 2003);
- Received 1799 30B cylinders containing LEU, as part of DOE's agreement to purchase downblended (formerly weapons-grade) uranium from Russia (FY 1999 - FY 2002);
- Prepared and issued a Programmatic EA addressing the consolidation of reusable uranium materials from various DOE sites (FY 2000 - FY 2003);
- Constructed a 1.42-hectare (3.5-acre) expansion of a DUF<sub>6</sub> cylinder storage yard for transfer of 2657 USEC cylinders to DOE (FY 2000);
- Renovated the X-744G building to store approximately 4000 MT (4400 tons) of potentially marketable uranium received from FEMP, Hanford, and universities (FY 1999 - FY 2002);
- Completed the transfer of approximately 4000 MT (4400 tons) of potentially marketable uranium from FEMP, Hanford, and universities to the Portsmouth GDP (FY 1999 - FY 2002); and
- Met with State regulators to develop new Ohio Director's Final Findings and Orders to address the planned transfer of approximately 6300 DUF<sub>6</sub> cylinders from the DOE ETPP site in Oak Ridge, Tennessee, to the Portsmouth GDP (FY 2003).

#### Environmental Restoration

- Continued to treat groundwater at the site, using techniques such as groundwater extraction and treatment and phytoremediation (FY 1999 - FY 2003);
- Completed 10 site remediation projects, including capping landfills, conducting pilot *in-situ* treatment projects, installing additional extraction wells, planting 3000 hybrid poplar trees to treat groundwater, and removing a neutralization pit (FY 1999 - FY 2003);
- Treated more than 492 million liters (130 million gallons) of contaminated groundwater through five onsite treatment facilities (FY 1999 - FY 2003);
- Obtained regulatory approval for two final quadrant-wide reports, with Decision Documents issued by Ohio EPA on Quadrant III (FY 1999) and Quadrant I (FY 2000);
- Upgraded the X-622 Groundwater Treatment Facility to increase flow capacity by 50 percent (FY 2001, FY 2002); and
- Completed corrective actions for three of the four quadrants at the Portsmouth GDP, with the exception of solid waste management units deferred until plant D&D, and initiated design activities for remedial actions to treat a groundwater plume containing high concentrations of TCE in Quadrant II (FY 1999 - FY 2003).

#### Waste Management

- Disposed of, treated, or recycled over 10,496 MT (11,570 tons) of waste and other material (FY 1999 - FY 2003);

- Treated over 79 MT (87 tons) of wastewater (FY 1999) and over 78,700 liters (20,800 gallons) of polychlorinated biphenyl mineral oil (FY 2001, FY 2002);
- Disposed of, treated, or recycled over 4950 containers, drums, and boxes containing TCE-contaminated soils, low-level waste (LLW) solids, Toxic Substances Control Act debris, and silver solutions (FY 2002); and
- Disposed of, treated, or recycled over 6360 cubic meters (224,000 cubic feet) of debris, LLW, LLW scrap metal, or sodium permanganate (FY 2003).

## HS&E Status

The maximum occupational radiation exposure received by a worker in the DOE radiation protection program at the Portsmouth GDP for CY 1998 through CY 2002 was 2.11 mSv (211 mrem) in CY 2000. Average occupational radiation exposure per person per year for personnel in the DOE radiation protection program at The Portsmouth GDP was 0.0137 mSv (1.37 mrem) in CY 1998; 0.0251 mSv (2.51 mrem) in CY 1999; 0.0372 mSv (3.72 mrem) in CY 2000; 0.0185 mSv (1.85 mrem) in CY 2001; and 0.0157 mSv (1.57 mrem) in CY 2002. These exposure data indicate that occupational radiation exposures at the Portsmouth GDP are substantially less than the DOE occupational exposure limit of 50 mSv (5000 mrem) per person per year, as specified in 10 CFR Part 835. DOE prime contractor and subcontractors worked approximately 5.3 million hours and experienced 46 RIIs, including 22 LWCs, during the 5-year period. In FY 2000, DOE conducted an investigation after a worker was seriously injured in an accident at a technology demonstration site at the Portsmouth GDP.

During the 5-year period of this report, 89 incidents occurred in the non-leased areas at the Portsmouth GDP that DOE classified as reportable HS&E occurrences. Eighty-eight incidents were classified as "off-normal," and one was classified as "unusual." Several of the occurrences were determined to be potential noncompliances with PAAA regulations, but DOE assessed none as PAAA violations. Eighteen of the reportable occurrences involved violations of NCS procedures or indicated NCS programmatic deficiencies. None of these occurrences resulted in a nuclear criticality.

Environmental releases and discharges from DOE activities at the Portsmouth GDP during FY 1999 through FY 2003 remained within established regulatory limits, with the following exceptions: seven permit exceedances occurred at various outfalls, and DOE received nine NOVs for alleged violations and two Notices of Deficiencies for alleged noncompliances from Federal and State regulatory agencies.

## OVERALL STATUS

During the 5-year period of this report, DOE continued to discharge its regulatory and oversight responsibilities at the Paducah and Portsmouth GDPs. DOE conducted its activities in a manner to enhance and improve HS&E conditions and achieve compliance with all applicable Federal and State laws and regulations. In those instances where potential violations of these laws and regulations were identified, actions were taken to notify appropriate authorities, identify the cause, and institute corrective measures.