

**Independent Oversight Review of the
Portsmouth Gaseous Diffusion Plant
Integrated Safety Management System
Phase I Verification Review**



April 2013

**Office of Safety and Emergency Management Evaluations
Office of Enforcement and Oversight
Office of Health, Safety and Security
U.S. Department of Energy**

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Acronyms

CRAD	Criteria, Review and Approach Document
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U.S. Department of Energy
ESH&Q	Environment, Safety, Health, and Quality
FBP	Fluor-Babcock & Wilcox Portsmouth
FY	Fiscal Year
HSS	Office of Health, Safety and Security
IP	Implementation Plan
ISMS	Integrated Safety Management System
PORTS	Portsmouth Gaseous Diffusion Plant
PPPO	Portsmouth/Paducah Project Office
VPP	Voluntary Protection Program

Independent Oversight Review of the Portsmouth Gaseous Diffusion Plant Integrated Safety Management System Phase I Verification Review

1.0 PURPOSE

The Office of Enforcement and Oversight (Independent Oversight), within the Office of Health, Safety and Security (HSS), conducted an independent review of the U.S. Department of Energy (DOE) Portsmouth/Paducah Project Office (PPPO). The objective of the Independent Oversight review was to evaluate PPPO's conduct of the Integrated Safety Management System (ISMS) Phase I verification review at the Portsmouth Gaseous Diffusion Plant (PORTS). The contractor at PORTS is Fluor-Babcock & Wilcox Portsmouth (FBP). The HSS Office of Safety and Emergency Management Evaluations performed the onsite portion of the Independent Oversight review November 5-16, 2012.

2.0 SCOPE

The Independent Oversight review focused on PPPO's oversight of the initial development of a new ISMS at PORTS for work being performed by FBP¹, including PPPO's effectiveness in meeting the oversight requirements of DOE Order 226.1B, *Implementation of Department of Energy Oversight Policy*. PPPO's verification review of PORTS was performed in accordance with DOE Policy 450.4A, *Integrated Safety Management Policy*, and considered the guidance in DOE Guide 450.4-1C, *Integrated Safety Management System Guide*, and DOE-HDBK-3027-99, *Integrated Safety Management System (ISMS) Verification Team Leader's Handbook*.

3.0 BACKGROUND

Over the last two years, the contractor has transitioned PORTS from a cold standby mode to an active decommissioning and demolition mode. Prior to the transition, most of the work conducted at PORTS was not subject to DOE requirements for an ISMS, because the United States Enrichment Corporation was regulated by the Nuclear Regulatory Commission. Consequently, the ISMS requirements and processes applicable to the rest of the DOE complex are new to most PORTS workers¹. During the past year, FBP has developed an ISMS, and PPPO performed the Phase I verification review of the FBP ISMS in November 2012. The ISMS Phase II verification review (field implementation) is anticipated before the end of calendar year 2013.

4.0 METHODOLOGY

The Independent Oversight team shadowed the PPPO ISMS Phase I verification review of FBP, which examined FBP's establishment of ISMS programs. For the Phase I verification review, the PPPO verification team focused primarily on review of the associated program documentation and interviews of FBP management personnel.

¹ One previous contractor, LATA/Parallax Portsmouth LLC, did have an approved DOE ISMS program to conduct environmental remediation and waste management activities at PORTS. The previous workers for this contractor are now a small percentage of FBP.

5.0 RESULTS

The PPPO ISMS Phase I verification team was led by an experienced nuclear engineer, who is certified as a Nuclear Quality Assurance-1 Lead Auditor, from the DOE Office of Environmental Management's Safety, Security, and Quality Programs. The verification team included a diverse group of subject matter experts who were also highly qualified in their disciplines. The verification team followed the ISMS Phase I verification review methodology delineated in DOE Guide 450.4-1C and DOE-HDBK-3027-99.

Overall, the ISMS Phase I verification team performed a comprehensive review of the FBP ISMS (other than the exceptions noted later in this report). Findings and observations were appropriate and identified areas needing attention. The proficiency and findings from the ISMS Phase I review are summarized in the following list and grouped according to the applicable ISMS guiding principle.

Line Management Responsibility for Safety

- Utilizing United Steel Worker Safety Representatives is a proactive approach to worker involvement and should be fully pursued. (Proficiency)
- Environmental Management objectives and targets are not formally documented as required in FBP-EP-PDD-00008, Environmental Management System Description. (Finding)

Clear Roles and Responsibility

- Some roles and responsibilities are not clearly defined. (Finding)
- The worker safety and health program has been issued without DOE review and approval. (Finding)

Competence Commensurate with Responsibilities

- None

Balanced Priorities

- None

Identification of Safety Standards and Requirements

- The waste management program documents (e.g., Waste Management Program and Radiological Waste Management Basis) do not address all of the requirements of DOE Order 435.1. (Finding)
- The training program does not identify the processes requiring DOE approval (e.g., granting exceptions, extending certifications, qualifying individuals who do not meet experience requirements). (Finding)
- EM-QA-001, EM Quality Assurance Program, Rev. 1, is not referenced in the contractor Quality Assurance Program Description. (Finding)
- Fire protection program and fire protection program description documents reference DOE Order 420.1 versus DOE Order 420.1B Change 1. (Finding)
- Fire protection program documents do not address all requirements from DOE Order 420.1B Change 1. (Finding)
- FBP-IH-PRO-00082, Process Safety Management of Highly Hazardous Chemicals, does not capture all of the requirements from 29 CFR 1910.119. (Finding)

Hazard Controls Tailored to Work Being Performed

- The "long term order" for identification and control of hazards for work performed in the Former Uranium Enrichment Facilities blue sheeted procedures does not identify the expertise needed to perform the review. (Finding)
- FBP-NSE-PRO-00002, Pre-Job Briefing and Post-Job Review, does not meet the requirements of FBP-PM-PDD-00001, Integrated Safety Management System, with respect to pre-job briefings. (Finding)

Operations Authorization

- None

Overall, the ISMS Phase I verification team concluded that although there were some programmatic issues that need to be corrected, the FBP ISMS program was adequately described in program documents and implementing procedures, and implementation of the ISMS was found to meet the objectives of the Criteria, Review and Approach Documents (CRADs). No findings or observations were categorized as Significant Conditions Adverse to Quality as a result of the assessment. Upon PPPO approval of corrective actions for the identified issues, the ISMS Phase I verification review team recommended approval of the FBP ISMS description document. The Independent Oversight team concurred with the proficiency, findings, observations, and overall conclusion of the validation team, and found that the validation team was thorough and effective in identifying both strengths and deficiencies within the scope of the review.

Although the ISMS validation review was performed effectively for the most part, the ISMS verification team identified some process improvements and the Independent Oversight team identified a few areas of concern in the process, as described below.

Several of the criteria in the PPPO-approved ISMS Phase I verification review plan addressed activity-level implementation reviews that would be appropriate for a Phase II verification review but not for the Phase I verification review. In a memorandum to PPPO, FBP documented its concerns that the review plan included some criteria applicable only to Phase II verification. Communications between PPPO and FBP on the scope of the review prior to PPO's approval of the review plan were inadequate. Subsequently, PPPO and the verification team leader met with FBP management and agreed that the scope of the review would be restricted to an ISMS Phase I verification as described in DOE documents and would not include the Phase II verification activities described in the review plan. Although this agreement was documented in a second letter from FBP to PPPO, the plan was not revised to modify the review scope and criteria. Consequently, the Phase II criteria remained in the plan, and the team documented those criteria as Not Applicable in the respective CRAD sections. The Lessons Learned section of the ISMS Phase I verification review report acknowledged the following issues as opportunities for improvement: (1) when a Phase I review is conducted separate from the Phase II review, more detailed coordination would be beneficial to ensure that the review team, PPPO staff, and the contractor fully understand what is included in the scope of a Phase I review; and (2) the review plan for a Phase I review should be examined with additional attention to removing implementation (i.e., Phase II) topics from the scope as necessary.

The ISMS Phase I verification review did not address two areas recommended in DOE Guide 450.4-1C and DOE-HDBK-3027-99. First, PPPO and the team leader decided to delay the programmatic review of FBP safety culture and perform the Phase I verification review of the safety culture area during the ISMS Phase II verification review scheduled for later this year. The ISMS Phase I report justified this decision by citing the ongoing safety culture assessments addressed by the implementation plan (IP) for Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2011-1. However, the DNFSB IP-related reviews focus only on safety conscious work environment, a subset of safety culture, and the December 2012 PPPO safety culture review did not focus on the programmatic aspects of safety culture that would be expected of an ISMS Phase I review. Further, the recent significant events at PORTS and associated PORTS management interviews by Independent Oversight have demonstrated that the events had a large safety culture component (see HSS report *Independent Oversight Review of the Portsmouth Gaseous Diffusion Plant Work Planning and Control Activities Prior to Work Execution*, January 2013). Independent Oversight noted that the FBP ISMS description includes the three key safety culture focus areas – leadership, employee/worker engagement, and organizational learning – and related attributes from DOE Guide 450.4-1C. However, the FBP ISMS description does not reference any additional programmatic requirements on safety culture, aside from existing programs embedded in other guiding

principles and a plan to implement the voluntary protection program (VPP) and achieve DOE VPP recognition. Following the ISMS Phase I review and at the request of the DOE PPPO Site Director as a result of the recent significant events mentioned above, PPPO chartered an independent assessment of the FBP safety culture review. That independent assessment was performed in December 2012, and the report was issued in January 2013. The safety culture independent assessment found four significant conditions adverse to quality that included a total of 19 findings and 11 observations.

The other area not addressed in the ISMS Phase I verification review as recommended in DOE Guide 450.4-1C and DOE-HDBK-3027-99 was the review of the PPPO ISMS. The ISMS Phase I report stated that PPPO decided to exclude PPPO from the Phase I review based on the maturity of the PPPO ISMS program and the fact that the PPPO ISMS description document was not up to date. The ISMS Phase I report additionally stated that PPPO will update the ISMS description document as needed and that a combined Phase I and Phase II review of the DOE program will be included with the Phase II review of the FBP program. Further review found that PPPO program had been assessed as part of the Paducah Contractor ISMS evaluations in March 2012, and an assessment of the PPPO ISMS is planned prior to the Phase II assessment of FBP ISMS.

6.0 CONCLUSIONS

Overall, the ISMS Phase I verification review team performed a comprehensive review of the FBP ISMS. The findings and observations were appropriate and identified areas needing attention in the FBP ISMS. Management attention is needed to ensure that these deficiencies are appropriately addressed in the upcoming ISMS Phase II verification review at PORTS. The Independent Oversight team concurred with the findings, observations, and overall conclusion of the PPPO verification team, whose review was thorough and effective in identifying both strengths and deficiencies within the scope of the review. Independent Oversight identified a few areas of concern with the review team's implementation of the review process, including concerns with communications between PPPO and FBP on the scope the review and subject areas excluded from the ISMS Phase I verification. In these cases, PPPO is taking appropriate actions to track and address these deficiencies.

7.0 OPPORTUNITIES FOR IMPROVEMENT

None.

8.0 FINDINGS AND UNRESOLVED ITEMS

None.

9.0 ITEMS FOR FOLLOW-UP

HSS will monitor PORTS development and implementation of corrective actions from the PPPO independent assessment of FBP safety culture. Additionally, HSS will continue to monitor future PPPO ISMS implementation reviews.

Appendix A Supplemental Information

Dates of Review

Onsite Review: November 5-16, 2012

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Appendix B

Referenced Documents and Interviews

Referenced Documents

- DOE Order 226.1B, *Implementation of Department of Energy Oversight Policy*
- DOE Policy 450.4A, *Integrated Safety Management Policy*
- DOE Guide 450.4-1C, *Integrated Safety Management System Guide*
- DOE-HDBK-3027-99, *Integrated Safety Management System (ISMS) Verification Team Leader's Handbook*
- FBP-PM-PDD-00001, *Integrated Safety Management System*
- Letter J. Bradburne to D. Carr, DOE Phase I Verification of Fluor-B&W Portsmouth LLC (FBP) Integrated Safety Management System (ISMS), October 25, 2012 (PPPO-03-1709682-13)
- FY 2013 Fluor-B&W Portsmouth, LLC Integrated Safety Management System Phase I Verification Review Plan, PPPO-13 IA-100463, November 5 – November 16, 2012, Revision 0
- Letter D. Carr to J. Bradburne, DE-AC30-10CC40017: DOE Phase I Verification of Fluor-B&W Portsmouth LLC (FBP) Integrated Safety Management System (ISMS), October 31, 2012 (FBP-12-0924)
- Letter D. Carr to J. Bradburne, DE-AC30-10CC40017: DOE Phase I Verification of Fluor-B&W Portsmouth LLC (FBP) Integrated Safety Management System (ISMS), November 1, 2012 (FBP-12-0928)
- Letter J. Bradburne to D. Carr, *Fiscal Year 2013 Fluor-B&W Portsmouth, LLC Integrated Safety Management System Phase I Verification Review* (PPPO-13-IA-I00463), January 4, 2013 (PPPO-03-1772873-13)

Interviews

- Program Manager
- Deputy Program Manager/Facility Stabilization & Deactivation Manager
- Environment, Safety, Health, and Quality (ESH&Q) Director
- ESH&Q Deputy Director
- Waste Management Manager
- ISMS Manager
- Site Maintenance & Infrastructure and Decommissioning and Demolition Project Director