

RL-675 (03/99)

United States Government

Department of Energy
Office of River Protection**memorandum**

DATE: JUN 13 2006

REPLY TO
ATTN OF: ESQ:CPC 06-ESQ-066

SUBJECT: SELF-ASSESSMENT OF THE U.S. DEPARTMENT OF ENERGY (DOE), OFFICE OF RIVER PROTECTION (ORP) FIRE PROTECTION PROGRAM

TO: Roy J. Schepens, Manager
U.S. Department of Energy
Office of River Protection

This memorandum forwards the results of the self-assessment of the ORP Fire Protection Program. The assessment evaluated the adequacy of the ORP Fire Protection Program to requirements and guidance contained in applicable DOE Orders and Guidelines and included a detailed critical review of existing ORP procedures, processes, and elements to determine the rigor and health of the overall fire protection program.

The assessment determined ORP had implemented a comprehensive Fire Protection Program necessary to meet the fire safety objectives of the DOE Directives.

The Team identified some deficiencies that, when corrected will improve the Fire Protection Program. The Team made two Observations noting the ORP Fire Protection Program Manual was outdated and inconsistent with the current organization and ORP could improve the Fire Hazard Analyses review process through the implementation of a simplified desk instruction. The observations will be addressed and tracked in the Consolidated Action Reporting System by my staff.

The full results of the assessment are attached.



Robert C. Barr, Director
Office of Environmental Safety and Quality

Attachment

cc w/attach:
K. Biagini, PAC
D. L. Borders, PAC
C. R. Ungerecht, PAC

Attachment
06-ESQ-066
A-06-ESQ-ORP-001

U.S. DEPARTMENT OF ENERGY
Office of River Protection
Environmental Safety and Quality

ASSESSMENT: Fire Protection Program Self-Assessment

REPORT: A-06-ESQ-ORP-001

FACILITY: Office of River Protection

LOCATION: Hanford Site

Dates: May 15 through 26, 2006

ASSESSORS: Craig P. Christenson, Lead Assessor
Walter B. Scott, Assessor

APPROVED BY: Patrick P. Carrier, Team Lead
Verification and Confirmation

Executive Summary

The U.S. Department of Energy (DOE), Office of River Protection (ORP) conducted a self-assessment of the ORP Fire Protection Program from May 15 through 26, 2006. This assessment evaluated the adequacy of the ORP Fire Protection Program against requirements and guidance contained in applicable DOE Orders and Guidelines and included a detailed critical review of existing ORP procedures, processes, and elements to determine the rigor and health of the overall Fire Protection Program.

The results of this assessment determined ORP had implemented a comprehensive Fire Protection Program necessary to meet the fire safety objectives of the DOE Directives. Documentation of the program and recently completed program assessments of contractor activities provide an adequate level of dedication to the program by ORP Management. ORP used well defined and written fire protection policies, procedures, and methodologies which flow down from the Functions, Responsibilities, and Authorities Manual (FRAM) which are further defined and clarified in the ORP Fire Protection Program Manual.

The Team identified some deficiencies which should be corrected to improve the Fire Protection Program. The Team found the ORP Fire Protection Program Manual was outdated and inconsistent with the current organization and the process for approving fire protection exemption and equivalency requests were not currently consistent with the revised DOE Orders. The Team confirmed no requests for exemptions or equivalencies to fire protection requirements had been made or approved within ORP since the issuance of new DOE Facility Safety Order in December 2005, and ORP technical staff was cognizant of these changes to the revised Order.

Overall the outdated Fire Protection Program Manual did not have a deleterious affect on Fire Protection Program implementation within ORP. ORP should revise the content of the manual consistent with the current ORP FRAM, Integrated Safety Management System Description and the DOE Facility Safety Order.

The Team determined ORP had implemented an effective oversight program which includes review and evaluation of contractor written fire hazard analyses. These reviews were conducted by qualified Fire Protection Engineers and nuclear safety personnel who evaluated the content of fire hazard analysis consistent with authorization basis documents and DOE requirements contained in DOE Facility Safety Order and the DOE Fire Protection Implementation Guide. The Team noted ORP should consider improving the fire hazard analyses reviews by implementing a desk instruction in the process as a technical basis for conducting the reviews.

The Team also noted another critical oversight method which ORP conducts in evaluating the contractor's fire protection effectiveness, including the Fire Protection Program assessment of each prime contractor. The Team determined ORP was conducting fire protection assessments of its contractors at the frequency and scope expected by DOE requirements. In addition, ORP not only evaluated the contractor programs for written content, as required, but utilized an integrated multidiscipline team of facility representatives, nuclear safety and the Fire Protection Engineer to conduct physical in-plant reviews in determining overall Fire Protection Program implementation.

This approach provided a feedback and improvement mechanism for Management and gave an overall indication of program integration into important mission activities. The results of these assessments were documented and formally transmitted to the contractor for corrective action.

This assessment concluded the ORP Fire Protection Program had implemented Fire Protection Program elements and responsibilities consistent with DOE requirements and expectations and identified some deficiencies which, when corrected, will improve the overall Fire Protection Program effectiveness. The Team identified the following observations to address these deficiencies:

A-06-ESQ-ORP-001-O01 – The ORP Fire Protection Program Manual requires update consistent with the current ORP organization and process for approving fire protection exemption and equivalency requests contained in DOE O 420.1B.

A-06-ESQ-ORP-001-O02 – The fire hazard analyses review process should be improved by the development and implementation of a formalized review desk instruction as a technical basis for conducting the reviews.

Details are contained in this report.

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List of Acronyms

DOE	U.S. Department of Energy
FHA	Fire Hazard Analysis
FRAM	Functions, Responsibilities, and Authorities Manual
ISMS	Integrated Safety Management System
OPM	Office of Personnel Management
ORP	Office of River Protection
RCR	Review Comment Records
WTP	Waste Treatment and Immobilization Plant

**U.S. Department of Energy (DOE)
Office of River Protection (ORP)
Fire Protection Program
Self-Assessment**

1.0 Details

The Team investigated various performance objectives, using evaluation of documentation and interviews with ORP personnel as the primary methods of data gathering to evaluate key fire protection assessment elements. The elements included programmatic areas within fire protection as specified in DOE G 420.1B-0, "DOE Implementation Guide for use with DOE Order 420.1 and 440.1 Fire Safety Program."

To evaluate the ORP Fire Protection Program, the Team included a detailed review of existing ORP manuals, procedures, process, functional Integrated Safety Management System (ISMS) description, Functions, Responsibilities and Authority's Manual (FRAM), and other elements to determine the adequacy and fire protection responsibilities of ORP against requirements and guidance contained in applicable DOE Orders to address the following Fire Protection Program elements:

- ORP implements a comprehensive Fire Protection Program;
- Assessments of the contractor are performed by ORP as required by DOE Orders and Fire Protection Implementation Guide;
- ORP has adequate fire protection engineering resources; and
- ORP has an implemented an appropriate fire hazards analyses review process.

1.1 Performance Objective FP1

This performance object evaluated the comprehensiveness of the ORP Fire Protection Program.

To evaluate this area, the Team:

- Reviewed key documents, including but not limited to, the ORP Fire Protection Program Manual, the ISMS Description, and the Safety Management FRAM;
- Obtained the staff organizational chart and determined, via documentation and interviews, whether the fire protection policies, and roles and responsibilities are clearly defined;
- Determined, via document review, if a defined method of reviewing exemption and equivalency requests exists within ORP; and

- Reviewed the program to identify if a specific method for receiving, tracking, and dispositioning fire protection findings and/or recommendations exists within ORP.

Overall the Team concluded ORP met the performance objective and noted one area for improvement, identified by the following Observation:

A-06-ESQ-ORP-001-001 – The ORP Fire Protection Program Manual requires update consistent with the current ORP organization and process for approving fire protection exemption and equivalency requests contained in DOE O 420.1B.

Conclusions for Performance Objective FP1

The Fire Protection Program is defined and delineated at ORP. Documentation of the program and recently completed program assessments of contractor activities show an adequate level of dedication to the program by ORP Management. ORP uses well defined and written fire protection policies, procedures, and methodologies which flow down from the FRAM which are incorporated and further defined into ORP Fire Protection Program Manual.

The Team identified some deficiencies which should be corrected to improve the overall Fire Protection Program. The Team found the ORP Fire Protection Program Manual is outdated and inconsistent with the current organization and the process for approving fire protection exemption and equivalency requests is not currently consistent with the revised DOE Orders. The Team confirmed no requests for exemptions or equivalencies to fire protection requirements have been made or approved within ORP since the issuance of new DOE "Facility Safety" Order in December 2005 and ORP technical staff is cognizant of the changes to the revised Order.

Overall the outdated Fire Protection Program Manual has not had a deleterious affect on Fire Protection Program implementation within ORP. ORP should revise the content of the manual consistent with the current ORP "FRAM," "Integrated Safety Management System Description," and the DOE "Facility Safety" Order (A-06-ESQ-ORP-001-001).

1.2 Performance Objective FP2

This performance object evaluated whether Fire Protection Program assessments of the contractor were performed as specified in DOE O 420.1A/B and DOE G 420.1.

To evaluate this area, the Team:

- Reviewed the Fire Protection Program Manual to determine whether ORP has a process for performing Fire Protection Program assessments and the Manual requires documented fire protection assessments to be performed at a frequency required by DOE; and
- Obtained copies of the most recent fire protection assessments and reviewed the assessments to determine if the overall content met DOE requirements.

Overall, the Team concluded ORP met the performance objective by implementing an effective oversight program which includes the Fire Protection Program assessment of each prime

contractor. Furthermore, ORP is conducting fire protection assessments of their required contractors at the frequency and scope expected by DOE requirements.

Conclusions for Performance Objective FP2

ORP conducted fire protection assessment oversight of its required contractors at a frequency expected by DOE requirements and the content of the assessments reflect the elements required by DOE as contained on DOE O 420.1A/B as well as the DOE fire protection implementation guide.

The Team determined ORP's assessment process evaluates the contractor's written program to verify whether:

- Fire protection elements were addressed by basic program features of the DOE Fire Protection Program, specified by contractual requirements;
- Contractors Fire Protection Program commitments were implemented and an adequate numbers of technically competent, experienced, and fully qualified personnel were assigned to address the fire protection commitments; and
- Contractors have implemented comprehensive elements into the Fire Protection Program which include, fire safety training to employees, life safety provisions into facilities, and fire prevention methods to minimize facility fire risks and fire loss potential.

ORP not only evaluated the contractor programs for written content, as required, but ORP utilized an integrated multidiscipline team of facility representatives, nuclear safety and the Fire Protection Engineer to conduct physical in-plant reviews in determining overall Fire Protection Program implementation. The Team determined this approach provides a feedback and improvement mechanism for Management and gives an overall indication of integration of the program into important mission activities.

The results of the ORP Fire Protection Program assessments were documented and formally transmitted to the contractor for corrective action and followed up by DOE staff for verification of corrective action closure.

The Team concluded the ORP assessment program of contractor fire protection had been maturing and ORP had implemented a comprehensive process for performing fire protection assessments as expected by DOE. The Team did identify no deficiencies in this area.

1.3 Performance Objective FP3

This performance objective evaluated if ORP had adequate fire protection engineering resources.

To evaluate this area, the Team:

- Reviewed the qualifications of Fire Protection Engineer and related technical staff to determine if ORP employs an adequate number of Fire Protection Engineers and/or technical staff to accommodate timely resolution of fire protection engineering concerns; and
- Interviewed the Fire Protection Engineer and/or staff to determine their level of knowledge compared to the work they are asked to perform.

Overall, the Team concluded ORP met the performance objective because the fire protection engineering aspects of the ORP Fire Protection Program were adequately implemented within ORP. The qualifications of the personnel within ORP were defined through the Fire Protection Program Manual which implements the fire protection engineering technical qualification standard and ORP Fire Protection Engineer meeting these requirements.

Conclusions for Performance Objective FP3

To establish the minimum skill mix of a “qualified” Fire Protection Engineer, the DOE published Standard DOE-STD-1137-2000, which includes expectations and guidance for Fire Protection Engineers responsible for ensuring the safe operation of defense nuclear facilities. This standard requires Federal Fire Protection Engineers to meet Office of Personnel Management (OPM) standards for Occupational Series 804 or equivalent for the grade level of their position.

The ORP Fire Protection Program Manual further characterizes the OPM standards for Occupational Series 804 “Qualified Fire Protection Engineers” as “An engineer who is a graduate of an accredited university or college with a B.S. degree in an engineering or a related technical field and that the qualifications for Member Grade in the Society of Fire Protection Engineers, or an engineer which has a member grade in the SFPE, or an engineer that is a Registered Professional Fire Protection Engineer.”

The Team determined, there was at least one qualified Fire Protection Engineer within ORP which met all of these requirements. The ORP Fire Protection Engineer was a graduate of an accredited university in fire protection engineering with over 20 years professional working experience and maintained a professional engineering license in fire protection.

With support from other technical staff the ORP Fire Protection Engineer conducted and assisted in performing field reviews and assessments of contractor Fire Protection Programs and when requested, the Fire Protection Engineer supported contractor fire protection exemptions and equivalencies reviews.

In addition to the ORP work, the Fire Protection Engineer evaluated and made recommendations concerning the content of DOE Complex-Wide fire protection by planning, developing, and promulgating new and revised standards or guides necessary to assure the desired level of fire protection and personnel safety, including the confinement ventilation fire protection criteria contained in DOE-STD-1066 and upgrading the current DOE wide fire protection technical qualification standard for the Federal Technical Capability Panel.

The Fire Protection Engineer conducted design reviews of proposed fire protection systems for installation at the Waste Treatment and Immobilization Plant (WTP) and was actively involved in reviewing fire hazard analyses and authorization bases related documentation for tank farm operations, the WTP, and limited technical support to the DOE Richland Operations Office. The ORP Fire Protection Engineer is the fire protection/prevention expert in the DOE Complex and other DOE and Contractor personnel, management, and engineers from other Federal and non-Federal locations often consult him for input into an array of complex fire protection engineering problems and solutions, including code evaluation, the application fire models and their limitations, fire hazard analyses and technical controls, fire protection system hardware and application, field reviews related to fire safety, and alternative method evaluation for fire protection. Prior to the Fire Protection Engineer being brought on to the ORP staff in April 2005, other technical capable personnel within ORP supplemented by contractor and DOE Headquarters fire protection engineering staff assisted in the oversight duties for fire protection engineering within ORP.

Recently the ORP Fire Protection Engineer had spent a significant time reviewing contractor work related to the Construction and Engineering activities for the WTP, primarily related to unique and special fire protection structural steel coatings. This coupled with support to WTP Project Authorization Basis Amendment Requests and fire hazard analyses reviews for both Tanks Farms and the WTP has resulted in significant technical demands for the ORP Fire Protection Engineer.

Given this, the Team recognized current staffing was adequate, with increasing fire protection technical demands being placed on the ORP fire protection engineering staff for oversight involving the WTP. The Team identified no deficiencies in this area.

1.3 Performance Objective FP4

This performance object evaluated ORP implementation of its Fire Hazards Analysis (FHA) review program.

To evaluate this area, the Team:

- Reviewed the Fire Protection Program Manual to determine if ORP had a process for the appropriate review of FHAs; and
- Obtain the results of two recent FHAs reviews and determine the adequacy and completeness of the reviews.

Overall, the Team concluded ORP met the performance objective but noted one area for improvement which is identified in the following Observation:

A-06-ESQ-ORP-001-002 – The FHA review process should be improved by the development and implementation of a formalized review desk instruction as a technical basis for conducting the reviews.

Conclusions for Performance Objective FP4

The Team concluded ORP had implemented an effective oversight program which includes review and evaluation of contractor written FHAs. These reviews were conducted by qualified Fire Protection Engineers and nuclear safety personnel who evaluated the content of FHA consistent with nuclear authorization basis documents and DOE requirements contained in DOE O 420.1A/B and DOE G 420.1. ORP personnel used the fire protection Order and Guide as the technical basis for evaluating the completeness of the contractor submitted FHAs and document its reviews either in Review Comment Records (RCR) or through the Safety Evaluation Report process. The engineers obtain disposition and closure of comments generated either through the RCR disposition process, authorization basis amendment request reviews, safety evaluation reports, and/or conditions of approvals, which were carefully tracked until all issues identified by the reviews had been satisfactorily addressed.

However, the Team noted ORP should consider improving the FHAs reviews by implementing a formalized review desk instruction in the process as a technical basis for conducting the reviews (A-06-ESQ-ORP-001-O02).

2.0 Conclusion

Following the review of procedures and records, completion of interviews, the Team concluded ORP had implemented a comprehensive Fire Protection Program necessary to meet the fire safety objectives of the DOE Directives. Documentation of the program and recently completed program assessments of contractor activities showed an adequate level of dedication to the program by ORP Management. ORP has well defined and written fire protection policies, procedures and methodologies which flow down from the FRAM which were incorporated and further defined into ORP Fire Protection Program Manual. However, the Team identified some deficiencies which should be corrected to improve the Fire Protection Program. These deficiencies were identified in two Observations, as discussed above.

3.0 Items Opened, Closed, and Discussed

Opened

A-06-ESQ-ORP-001-001 Observation The ORP Fire Protection Program Manual requires update consistent with the current ORP organization and process for approving fire protection exemption and equivalency requests contained in DOE O 420.1B.

A-06-ESQ-ORP-001-002 Observation The FHA review process should be improved by the development and implementation of a formalized review desk instruction as a technical basis for conducting the reviews.


Closed

None.

Discussed

None.

Signatures



Craig P. Christenson
Lead Assessor

6-6-06

Date



Walter B. Scott
Assessor

6/6/06

Date