

## Criteria, Review, and Approach Document for the Assessment of Operational Readiness of Vital Safety Systems Response

Site: Y-12 Complex

Facility: 9212

System: Fire Suppression Wet Pipe Systems (WPS) 3, 6, 7, 8, 9, 11  
(Referred to in Surveillance Procedure as: 9212-000-WPS-003, 9212-000-WPS-006, 9212-000-WPS-007, 9212-000-WPS-008, 9212-000-WPS-009, 9212-000-WPS-011)

System Classification: Safety Significant

System Safety Function (list):

To minimize a fire in the area of coverage to reduce the chance of a uranium release. To prevent fire from becoming a major wing/facility fire and to reduce consequences of fires that do develop. [Systems] are credited with minimizing fires in the areas protected by the suppression systems.

(Document Y/MA-7254, Rev. 11, The Basis for Interim Operation for Building 9212 Enriched Uranium Operation Complex, Table 6.1)

### OBJECTIVES:

VSS-1.1 VSS safety functions are defined and understood by responsible line managers, and supporting information/documentation is available and adequate. System testing is adequate to ensure operability. (Review Approach Items 1,2,3 and 7)

Criterion VSS-1.1 was met. The safety function of Wet Pipe Systems (WPS) 3, 6, 7, 8, 9, and 11 are defined in Y/MA-7254, Rev. 11, *The Basis for Interim Operations for Building 9212 Enriched Uranium Operations Complex*. Review of the orientation given the line managers in Fire Protection Operations who are responsible for overseeing the operation of WPS 3, 6, 7, 8, 9, and 11 demonstrated that the safety functions of this vital safety system are addressed. Interviews with these line managers confirmed their understanding of the safety functions of the Wet Pipe Systems (WPS) 3, 6, 7, 8, 9, and 11. Interviews with randomly selected personnel within Fire Department Operations indicated a basic understanding of the safety functions of the Wet Pipe Systems (WPS) 3, 6, 7, 8, 9, and 11 and where to obtain further information. Although these reviews showed basic knowledge, a review of general Vital Safety System information is warranted. The available drawings that document the system configuration included system riser and flow diagrams and are maintained at Y12 Facility Records. Comparison of the system testing requirements, including the specified acceptance criteria and test frequencies mandated by Y52-54-FDO-013, *Wet Pipe Sprinkler System Monthly Surveillance for Building 9212 Complex* and Y52-54-FDO-045, *Wet Pipe Sprinkler System Semi-Annual Surveillance for Building 9212 Complex* with the testing required to ensure operability defined in Y/MA-

7255, *The Operational Safety Requirements for Building 9212 Enriched Uranium Operations Complex*, verified that the testing of the WPS 3, 6, 7, 8, 9, and 11 is adequate to ensure operability.

No necessary documentation was unavailable or inadequate.

Details of the assessment verifying compliance with this criterion follow.

1.1.1 (Approach Item 1): Using the DOE-approved facility safety analysis (i.e., SAR, BIO, etc.) identify: a) the system safety function(s); b) the normal, abnormal, and accident conditions under which the system is intended to perform its safety function(s); and c) relevant system functional requirements and performance criteria.

1.1.1.a Identify the system safety functions:

To minimize a fire in the area of coverage to reduce the chance of a uranium release. To prevent fire from becoming a major wing/facility fire and to reduce consequences of fires that do develop. [Systems] are credited with minimizing fires in the areas protected by the suppression systems.

(Document Y/MA-7254, Rev. 11, *The Basis for Interim Operation for Building 9212 Enriched Uranium Operation Complex*, Table 6.1)

1.1.1.b The normal, abnormal, and accident conditions under which the system is intended to perform its safety function(s):

Normal Conditions. Fire suppression systems must be operable during facility operating and warm standby modes. (Y/MA-7255, Rev. 11, Section 3.5.1)

Abnormal/Accident Conditions. The following are the dominant accident conditions for the relevant suppression systems:

Wet Pipe Sprinkler Systems 3,6,7,8,9,11:

Document Y/MA-7254, Rev. 11, Section 5.6.1.1.3 – Fires involving safe storage bottles of organics

Document Y/MA-7254, Rev. 11, Section 5.6.1.5 – Transient combustible fires

Document Y/MA-7254, Rev. 11, Section 5.6.1.8 – Fire in B-1 Wing.

1.1.1.c Relevant system functional requirements and performance criteria

Functional requirements for the sprinkler systems are identified in LCO 3.5.1 of Y/MA-7255 Revision 17, *Operational Safety Requirements for Building 9212 Enriched Uranium Operations Complex*. Water Pressures for the credited sprinkler systems are as follows:

Sprinkler System Number	Required Water Supply Pressure (psig) per LCO 3.5.1
9212-000-WPS-003	≥ 35.0
9212-000-WPS-006	≥ 37.5
9212-000-WPS-007	≥ 27.5
9212-000-WPS-008	≥ 32.5
9212-000-WPS-009	≥ 32.5
9212-000-WPS-011	≥ 20.0

During the review it was noted that the water supply pressures specified in the OSR met or exceed the requirements specified in the associated Fire Hazard Analysis.

Relevant system performance criteria are identified in LCO 3.5.1 of Y/MA-7255 Revision 17, *Operational Safety Requirements for Building 9212 Enriched Uranium Operations Complex*.

Acceptance criteria include the following:

- 2-in. main drain test results are less than or equal to 10 psig for each wet pipe sprinkler system
- main control valves or post-indicating valves, if provided, for each wet pipe sprinkler system are open.
- water flow indication when an inspector's test valve (ITV) for an associated sprinkler system is opened.

1.1.2 (Approach Item 2) Identify the acceptance criteria from the surveillance tests used to verify that the system is capable of accomplishing its safety function(s). Review the acceptance criteria against the function(s), conditions, requirements and performance criteria identified in section 1.1.1 above.

Requirement	Implementation
LCO 3.5.1	
WPS-003	
system water pressure ≥ 35.0 psig	Y52-54-FDO-013 Rev. 3.0 Step 5.1 [5]
2-in main drain test results ≤ 10 psig	Y52-54-FDO-045 Rev. 0.2 Step 5.4 [8]
Main control valve or PIV is open	Y52-54-FDO-013 Rev. 3.0 Step 5.1 [3]
ITV test indicates water flow	Y52-54-FDO-045 Rev. 0.2 Step 5.2.1[9]
WPS-006	
system water pressure ≥ 37.5 psig	Y52-54-FDO-013 Rev. 3.0 Step 5.1 [5]
2-in main drain test results ≤ 10 psig	Y52-54-FDO-045 Rev. 0.2 Step 5.4 [8]
Main control valve or PIV is open	Y52-54-FDO-013 Rev. 3.0 Step 5.1 [3]
ITV test indicates water flow	Y52-54-FDO-045 Rev. 0.2 Step 5.2.1[9]

Requirement	Implementation
WPS-007	
system water pressure $\geq$ 27.5 psig	Y52-54-FDO-013 Rev. 3.0 Step 5.1 [5]
2-in main drain test results $\leq$ 10 psig	Y52-54-FDO-045 Rev. 0.2 Step 5.4 [8]
Main control valve or PIV is open	Y52-54-FDO-013 Rev. 3.0 Step 5.1 [3]
ITV test indicates water flow	Y52-54-FDO-045 Rev. 0.2 Step 5.2.1[9]
WPS-008	
system water pressure $\geq$ 32.5 psig	Y52-54-FDO-013 Rev. 3.0 Step 5.1 [5]
2-in main drain test results $\leq$ 10 psig	Y52-54-FDO-045 Rev. 0.2 Step 5.4 [8]
Main control valve or PIV is open	Y52-54-FDO-013 Rev. 3.0 Step 5.1 [3]
ITV test indicates water flow	Y52-54-FDO-045 Rev. 0.2 Step 5.2.1[9]
WPS-009	
system water pressure $\geq$ 32.5 psig	Y52-54-FDO-013 Rev. 3.0 Step 5.1 [5]
2-in main drain test results $\leq$ 10 psig	Y52-54-FDO-045 Rev. 0.2 Step 5.4 [8]
Main control valve or PIV is open	Y52-54-FDO-013 Rev. 3.0 Step 5.1 [3]
ITV test indicates water flow	Y52-54-FDO-045 Rev. 0.2 Step 5.2.1[9]
WPS-011	
system water pressure $\geq$ 20.0 psig	Y52-54-FDO-013 Rev. 3.0 Step 5.1 [5]
2-in main drain test results $\leq$ 10 psig	Y52-54-FDO-045 Rev. 0.2 Step 5.4 [8]
Main control valve or PIV is open	Y52-54-FDO-013 Rev. 3.0 Step 5.1 [3]
ITV test indicates water flow	Y52-54-FDO-045 Rev. 0.2 Step 5.2.1[9]

1.1.3. (Approach Item 3) At what frequency are the tests identified in Question 1.1.2 above performed? Determine whether these tests and inspections are required by Technical Safety Requirements, Operational Safety Requirements (OSRs), or other Authorization Basis or Authorization Agreement requirements.

Surveillance Requirement	Frequency	Implementation
Y/MA-7255 SR 4.5.1.1 – Verify the water supply pressure for each sprinkler system meets the minimum supply pressure requirements specified in Table 3.5.1-1 (Y/MA-7255)	Monthly	Y52-54-FDO-013 Rev. 3.0 Wet Pipe Sprinkler System Monthly Surveillance for the Building 9212 Complex - Step 5.1 [5]
Y/MA-7255 SR 4.5.1.2 – Verify the main control and post indicator valve, if provided, for each sprinkler system in Table 3.5.1-1(Y/MA-7255) is open.	Monthly	Y52-54-FDO-013 Rev. 3.0 Wet Pipe Sprinkler System Monthly Surveillance for the Building 9212 Complex - Step 5.1 [3]
Y/MA-7255 SR 4.5.1.3 – Perform a 2-in. main drain test for each wet pipe sprinkler system in Table 3.5.1 to verify the water supply pressure reduction is less than or equal to 10 psig from a static condition.	Semi-Annual	Y52-54-FDO-045 Rev. 0.2 Wet Pipe Sprinkler System Semi-Annual Surveillance for the Building 9212 Complex -Step 5.4 [8]
Y/MA-7255 SR 4.5.1.4 – Open an ITV in each wet pipe sprinkler system in Table 3.5.1 and verify water flow through the associated system.	Semi-Annual	Y52-54-FDO-045 Rev. 0.2 Wet Pipe Sprinkler System Semi-Annual Surveillance for the Building 9212 Complex -Step 5.2.1 [9]

1.1.4 (Approach Item 7). Are drawings that document the system configuration available? If so, identify the types of drawings (e.g., piping and instrumentation diagrams, electrical one-line, wiring, or schematic diagrams, installation drawings).

Response: System riser and flow diagrams (piping) are available for the WPS 3, 6, 7, 8, 9, 11 and are maintained at Y12 Facility Records.

VSS-1.2 The backlog for surveillances, tests, inspections, maintenance, repair, upgrades, or other work on the system is managed and kept to an appropriate minimum. (See Review Approach item 6.)

Criterion VSS-1.2 was met. The processes for assigning priorities to surveillances, tests, inspections, maintenance, repair, upgrades, and other work on WPS 3, 6, 7, 8, 9, and 11 are not formally documented. The process for prioritizing test, maintenance and inspection was promulgated as a part of Fire Protection Operations RFA 166. The process is installed in the FireBase scheduler and provides a ranking number for each system dependent of system grade, Authorization Basis assignment, building importance and system type. Review of these processes showed that the WPS 3, 6, 7, 8, 9, and 11 have been assigned a priority for surveillances, tests and inspections that is commensurate with their importance to safety. WPS 3, 6, 7, 8, 9, and 11 are subject to the requirements of Y/MA-7255 Revision 17, *Operational Safety Requirements for Building 9212 Enriched Uranium Operations Complex* which requires that surveillances, tests, and inspections be conducted on a specific schedule. The backlog for surveillances, tests, and inspections on WPS 3, 6, 7, 8, 9, and 11 is managed to keep it at an appropriate minimum. A review of the FireBase database records for the last three years showed that there is some discontinuity between hard copy and electronic maintenance records. Had these maintenance items been actually missed the facility would have initiated an occurrence report. Due to the fact that there are no supporting occurrence reports, it is probable that all of the required surveillances, tests, and inspections have been conducted on schedule and that a documentation problem exists. All surveillances are currently up to date.

The process for prioritizing corrective maintenance is documented on the Test, Maintenance and Inspection web site. It is used by TM&I schedulers to prioritize work. In general, TM&I support personnel have been able to care only for those items that directly affect operability of the VSS. Remaining maintenance is backlogged. Of note, the inability of Fire Department Operations to conduct all test, maintenance and inspection throughout the Y12 plant has been the focus of several recent inspections both internal and external. The deficiencies have been targeted at the balance of plant systems. A review of the current backlog of maintenance, repair, upgrades, and other work in the EIS deficiency database was reviewed. A backlog of 27 maintenance job requests affect WPS 3, 6, 7, 8, 9, or 11. None affect the operability of WPS 3, 6, 7, 8, 9, and 11.

The corrective actions necessary to remedy the problems identified in the TM&I program are identified as a part of ESAMS action items I 31820 and I 39665 when funding is authorized to support these issues.

Details of the assessment verifying compliance with this criterion follow:

1.2.1 (Approach Item 6) Identify the current backlog for the system for items such as preventive maintenance, corrective maintenance, modifications, surveillances, tests, inspections, and corrective actions.

Response: There is a backlog of 27 maintenance job requests affecting WPS 3, 6, 7, 8, 9, or 11. None affect the operability of WPS 3, 6, 7, 8, 9, and 11. Although the plant-wide backlog of over 600 items has been identified by internal assessments and commented on by various outside agencies, VSS have priority in this regard per the prioritization scheme used by TM&I. Recent reviews and audits conducted internally (March 2000) and externally (DOE HQ Integrated Safety Management Verification, Phase II, FP 2.3 August 2000 and DNFSB Review of the Y-12 Fire Program July 2000) identified the large backlog of general maintenance items for fire systems as a program weakness. The corrective actions necessary to remedy these problems are identified as a part of ESAMS action items I 31820 and I 39665 when funding is authorized to support these issues.

VSS-1.3 Configuration Management and Maintenance programs effectively ensure operational availability of the system. (See Review Approach Items 5, 8, and 9)

Criterion VSS-1.3 was met. The Configuration Management and Maintenance programs covering WPS 3, 6, 7, 8, 9, and 11 were reviewed. Modifications and changes are evaluated and controlled in accordance with Y15-187, *Integrated Safety and Change Control Process*. Modifications important to safety are reviewed by appropriate technical personnel and presented to the facility Operational Safety Board (OSB) for concurrence prior to implementation. The process also requires USQ screening. As part of the change control process, impacted procedures and drawings are required to be identified and updated.

Maintenance activities on WPS 3, 6, 7, 8, 9, and 11 are performed in accordance with formal work packages developed in accordance with Y10-35-008, *Planners Guide*, Y15-204, *Work Instruction Process and Development*, and work instructions are provided by system engineers as part of the work package development. As part of the Y-12 Complex Integrated Safety Management Program, reviews by the Operational Safety Boards, including representatives of the facility to ensure appropriate requirements are captured. Post maintenance testing of the system for proper service and closure of the work package prior to return-to-service authorization is required. Maintenance personnel, work planners, and supervisors have been trained in the applicable authorization basis and NFPA requirements. Thus, the Configuration Management and Maintenance Programs effectively ensure operational fire suppression systems.

The responsibility for maintenance and operation of these VSS and all fire systems is assigned to Y-12 Fire Protection Operations as described in Y79-001INS, *Y-12 Fire Protection Program Manual* and Y14-001INS, *Conduct of Operations Manual*. Fire Protection line management receive awareness training for the various AB (VSS) systems for which they are responsible. The training is in the form of Web training and Required Reading.

Details of the assessment verifying compliance with this criterion follow.

- 1.3.1 (Approach Item 5) Identify formally scheduled activities, in addition to those addressed in section 1.1.2 above that are intended to help ensure reliable performance of the system. Include preventive maintenance, walkdowns, inspections, and assessments as appropriate.

Response: All testing, inspection and maintenance of VSS systems are specified by the National Fire Protection Association consensus codes as modified by a DOE authorized equivalency, including those items specified in the Authorization Basis. Additional testing of WPS 3, 6, 7, 8, 9, and 11 beyond the Authorization Basis are specified in Y-FPO-017, *Wet Pipe Sprinkler System Technical Basis*. Many of these items (inspections and preventative maintenance items) are written into the various procedures supporting Wet Pipe Sprinkler test, maintenance and inspection and are scheduled for conduct in the FireBase scheduler. Those that are not yet included in procedures are scheduled to be included in the future. Additional activities that are conducted to support health of fire systems include periodic building inspections conducted with operations that assess the fire prevention activities of the building and monthly trending reviews of suppression parametric values for untoward trends or out of specification readings.

Maintenance is performed using formalized work packages developed per Y10-35-008, *Planners Guide*, Y15-204, *Work Instruction Process and Development*, and work instructions provided by system engineers as part of the work package development. OSB review, including fire and facility representatives, is required to ensure all fire watch and restoration requirements are captured. Post maintenance testing of the system for proper service and closure of the work package prior to return-to-service authorization is required as part of the maintenance package development.

- 1.3.2 (Approach Item 8) Review the processes used to ensure that work on the system and changes to the system are properly controlled (i.e., formally reviewed, approved, implemented, tested, USQ review performed if required, documents updated, and work/change accepted).

Response: Modifications/changes are evaluated and controlled per Y15-187, *Integrated Safety and Change Control Process*. Modifications important to safety are reviewed by appropriate technical personnel and presented to the facility Operational Safety Board for concurrence. The process requires evaluation by the USQ process. As part of the change control process, impacted procedures and drawings are identified and updated. The August 2000 management assessment of the FPO

configuration control process indicated a maturing process with few deficiencies.

- 1.3.3 (Approach Item 9) Determine whether the procedures identified in Items 1.1.2 and 1.3.1 above, and the drawings identified in Item 1.1.4 above, are controlled under formal document control process(es), and indicate whether the process requires that documents be updated as necessary to maintain their accuracy.

Response: Modifications/changes are evaluated and controlled per Y15-187, *Integrated Safety and Change Control Process*. Modifications important to safety are reviewed by appropriate technical personnel and presented to the facility Operational Safety Board (OSB) for concurrence. The process requires evaluation by the USQ process. As part of the change control process, impacted procedures and drawings identified and updated. The August 2000 management assessment of the FPO configuration control process indicated a maturing process with few deficiencies.

Modifications made to Authorization Basis documents are controlled by Y74-802, *Authorization Basis Documents for Nuclear, PSM/RMP, and Specified Chemically Hazardous Facilities* and Y74-804, *Preparation and Performance of Implementation Plans for Authorization Basis Documents*. Changes created by modifications to Fire Hazard Analysis are reviewed by the affected facility and the USQD process is executed as necessary and then implemented into the Authorization Basis. All of these documents are controlled within the Y-12 Document Control System. If the change to the Authorization Basis affects roll-down procedures, the requirement is captured in the implementation plan and procedure are modified per Y15-202, *Technical Procedure Control* which requires USQD and OSB interaction.

VSS-1.4 The system is operable and available to fulfill its safety function when required. (See approach Items 4 and 10)

Criterion VSS-1.4 was met. Surveillance and testing records developed in accordance with Y52-54-FDO-013, *Wet Pipe Sprinkler System Monthly Surveillance for Building 9212 Complex* and Y52-54-FDO-045, *Wet Pipe Sprinkler System Semi-Annual Surveillance for Building 9212*, covering the last three years were reviewed. This review demonstrated that WPS 3, 6, 7, 8, 9, and 11 had never failed to meet test and surveillance acceptance criteria or experienced demand failures in operation. The only periods of system non-availability were identified to be at times of system maintenance or at times where human error was involved. These time frames were excluded from this calculation. Therefore, the best estimate is that these fire suppression systems have always been operable during this period. Thus, the operating history of WPS 3, 6, 7, 8, 9, and 11 provides evidence that it is operable and available to fulfill its safety function when required.

Details of the assessment verifying compliance with this criterion follow.

- 1.4.1 (Approach Item 4) For each of the past three years: a) identify the number of times that the system has failed to meet its test acceptance criteria; b) identify the number of times that the system has failed in response to facility operating conditions (i.e., failed on demand); and c) estimate the percentage of time that the system was not capable of accomplishing its safety function(s) when required to be operable.

Response: Based upon review of surveillance results documented in the FireBase scheduler for the last three years the only instance where the system failed to meet its acceptance criteria was in early 1998 where the recorded water pressure for WPS 003 was less than that specified in the procedure. It was determined that the procedure was in error and the systems continued in operation. Similarly, a review of occurrence reports have identified no instances where the system failed in response to facility operating conditions. Therefore, the system has been available 100 per cent of the time while operating to accomplish its safety functions.

- 1.4.2 (Approach Item 10) Identify any systems and equipment (e.g., electric power, instrument or control air, diesel fuel transfer, vacuum, heat tracing, etc.) that directly support the operation of the vital safety system being assessed (i.e., where the support systems/equipment are essential for the safety system to perform its safety functions) that are not included within the defined system boundary).

Response: The following systems, which support the operation of the 9212 VSS, were also examined: electric power system, steam supply system, and water supply system. As discussed below, this examination demonstrated that the short-term loss of electric power, steam supply, or off-site water supply would not prevent these systems from performing their safety function. This examination also demonstrated that 9212 has LCO compensatory measures to ensure that the VSS would be able to perform their safety function in the event of a longer-term loss of electric power, steam supply, or off-site water supply or that operations in the facility would be curtailed.

▪ **Electrical:**

The electrical system provides power to the excess pressure pumps located on some WPS and power to the heating systems in valve houses throughout the plant. In general the short-term loss of electrical power is not limiting to the ability of any of these systems to suppress a fire. The purpose of the excess pressure pump is to reduce the effect of plant water surges on the fire suppression systems and the failure of the pump to operate will at most result in some additional fire alarm activity. The function of the excess pressure pump is not taken credit for in any Authorization Basis document.

Valve house heat ensures that no portion of the suppression system riser assembly freezes during cold weather. Frozen pipes could adversely

affect the operation of a suppression system either by pipe breakage or plugging. Temperatures in valve houses are monitored by fire system low temperature devices, which alert the Fire Department to a loss of heat in the valve house. Loss of heat to a valve house in excess of 2 hours generally results in either the installation of portable heat or frequent checks by Fire Department Operations or as determined by Fire Protection Engineering. The function of valve house heat is not taken credit for in any Authorization Basis document.

- **Steam:**

Steam provides heat to many facilities at Y12. The function of steam heat is not taken credit for in any Authorization Basis document. Facility steam heat ensures that no portion of the suppression system piping freezes during cold weather. Frozen pipes will adversely affect the operation of a suppression system either by breakage of piping or plugging of piping. Loss of heat to a facility in excess of 2 hours generally results in frequent checks by either facility operations or Fire Department Operations or as determined by Fire Protection Engineering.

- **Water:**

The source of water to the Y-12 fire suppression systems is the plant potable water system. The normal potable water supply to the entire Y-12 plant is provided from the Pine Ridge water plant, located North of the Y-12 plant. The normal potable water supply to Y-12 is a gravity fed system that consists of three main supply lines (two 16" and one 24" feed lines) that provide seven connections to the Y-12 plant. They are capable of supplying approximately 7 million gallons per day through an underground common grid water supply system for the entire Y-12 plant. In addition to the normal potable water supply from the Pine Ridge water plant, Y-12 maintains a secondary supply of three 2-million gallon water tanks located on Chestnut Ridge that can supply water to the Y-12 plant in the event that the primary water supply is lost. Two million gallons of this secondary water supply has been dedicated for firefighting activities. A third source of water is available to the Y-12 plant from two 1½ million gallon tanks just north of the plant. The water from these tanks is not always available on a full time basis and is therefore not considered available for fire protection purposes. Testing of the underground water system is accomplished periodically by Y-12 Plant Utilities. This testing includes monthly cycling of electrically operated valves and quarterly placement of the emergency water system on line.

Due to the common grid supply, water is capable of reaching all fire suppression system via multiple paths. The vulnerability is a supply failure (rupture/blockage) at or near the fire system tap off from the underground supply. A situation such as this could result in a loss of water to the suppression system and since a supply of water is credited in the

Authorization Basis entry into the LCO action steps is necessary. Back up water can be supplied using another source attached to the fire department connection.

Recently control of the water filtration plant which supplies water to Y-12 was transferred to the city of Oak Ridge. Additionally, several isolation valves exist outside the confines of Y-12 which, if shut, could potentially affect water supplies/pressures in Y-12. The current controls on these valves are administrative only and base on interfaces between the city of Oak Ridge and Y-12.

## **Conclusion**

This assessment demonstrates that WPS 3, 6, 7, 8, 9, and 11 are operational and that processes are in place to ensure its continued operational readiness. The fire suppression safety functions and their corresponding functional requirements are defined, implemented, and maintained through mature programs and procedures that have resulted in achieving on-time surveillances. The resultant monitoring through these surveillances and operating procedures indicate that the vital safety systems have been operable and available to fulfill their function as required.

## **Additional Information**

On February 2, 2001, BWXT Y-12 submitted a Price Anderson Amendments Act (PAAA) Noncompliance Tracking System (NTS) report identifying deficiencies in the Y-12 fire protection program that were outside the scope of the fire protection vital safety systems. To evaluate the ability to continue operating, a team of Operations, Environment, Safety, and Health, and Fire Protection representatives met to determine what additional actions or compensatory measures were needed, and concluded as follows:

- There were no immediate actions needed beyond those compensatory measures already in effect. The deficiencies in the fire protection program do not represent any known imminent danger conditions.
- There were no Limiting Conditions for Operations action steps needed as a result of the deficiencies identified in the NTS report. Each nuclear facility is assessing the deficiencies with respect to the impact on their safety authorization basis.
- With respect to all Safety Class and Safety Significant fire systems (i.e., the fire protection vital safety systems) in the Y-12 Complex nuclear facilities, all test, maintenance, and inspection requirements for operability, as specified by the applicable authorization bases, are being met.

It was determined that no additional compensatory measures were needed because as fire protection deficiencies have been identified, they have been evaluated for compensatory measures and compensatory measures have been implemented where needed. The fire protection program has overlapping echelons of protection as part of

protection-in-depth that compensate for deficiencies, including a capable, trained, and equipped emergency response force that is on-site 24 hours per day.

These deficiencies are being addressed as a part of the comprehensive site-wide action plan for the improvement of Fire Protection at the Y-12 Complex [Comprehensive Fire Protection Correction Action Plan (ESAMS S4637/I39665)]. A project task team is being established to address all fire protection deficiencies (programmatic, hardware, infrastructure, project, etc.) at the Y-12 Complex, and this team will develop a comprehensive corrective action plan.

BWXT Y-12 Assessor: \_\_\_\_\_  
Signature Date

BWXT Y-12 Reviewer: \_\_\_\_\_  
Signature Date

BWXT Y-12 Reviewer: \_\_\_\_\_  
Signature Date

DOE employee who reviewed this assessment:

\_\_\_\_\_  
Signature Date

Estimated Hours (BWXT Y-12 and DOE) for data gathering, assessment, and documentation:

DOE: \_\_\_\_\_

BWXT: FSM 63; Procedures 1.5; FCM 3; FDO 1; TMI 14; FPO 3;  
Eng 116; Management Review 15.