

**AUDIT WORKSHEET**  
**GALL REPORT AMP**

PLANT: \_\_\_\_\_

LRA AMP: \_\_\_\_\_

GALL AMP: **XI.M26, Fire Protection**

REVIEWER: \_\_\_\_\_

DATE: \_\_\_\_\_

| Program Element       | Auditable GALL Criteria   | Documentation of Audit Finding  |
|-----------------------|---|---|
| Program Description   | A. For operating plants, the fire protection aging management program (AMP) includes a fire barrier inspection program and a diesel-driven fire pump inspection program. The fire barrier inspection program requires periodic visual inspection of fire barrier penetration seals, fire barrier walls, ceilings, and floors, and periodic visual inspection and functional tests of fire rated doors to ensure that their operability is maintained. The diesel-driven fire pump inspection program requires that the pump be periodically tested to ensure that the fuel supply line can perform the intended function. The AMP also includes periodic inspection and testing of the halon/carbon dioxide (CO <sub>2</sub> ) fire suppression system. | Consistent with GALL AMP: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Document(s) used to confirm Criteria:<br><br>Comment: |
| 1. Scope of Program   | A. For operating plants, the AMP manages the aging effects on the intended function of the penetration seals, fire barrier walls, ceilings, and floors, and all fire rated doors (automatic or manual) that perform a fire barrier function. It also manages the aging effects on the intended function of the fuel supply line. The AMP also includes management of the aging effects on the intended function of the halon/CO <sub>2</sub> fire suppression system.   | Consistent with GALL AMP: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Document(s) used to confirm Criteria:<br><br>Comment  |
| 2. Preventive Actions | A. For operating plants, the fire hazard analysis assesses the fire potential and fire hazard in all plant areas. It also specifies measures for fire prevention, fire detection, fire suppression, and fire containment and alternative shutdown capability for each fire area containing structures, systems, and components  | Consistent with GALL AMP: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Document(s) used to confirm Criteria:                 |

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|                                    | important to safety.   | Comment:  |
| 3. Parameters Monitored/ Inspected | A. Visual inspection of approximately 10% of each type of penetration seal is performed during walkdowns carried out at least once every refueling outage. These inspections examine any sign of degradation such as cracking, seal separation from walls and components, separation of layers of material, rupture and puncture of seals, which are directly caused by increased hardness, and shrinkage of seal material due to weathering. Visual inspection of the fire barrier walls, ceilings, and floors examines any sign of degradation such as cracking, spalling, and loss of material caused by freeze-thaw, chemical attack, and reaction with aggregates. Fire-rated doors are visually inspected on a plant-specific interval to verify the integrity of door surfaces and for clearances. The plant-specific inspection intervals are to be determined by engineering evaluation to detect degradation of the fire doors prior to the loss of intended function. | Consistent with GALL AMP: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Document(s) used to confirm Criteria:<br><br>Comment: |
| “                                  | B. The diesel-driven fire pump is under observation during performance tests such as flow and discharge tests, sequential starting capability tests, and controller function tests for detection of any degradation of the fuel supply line.   | Consistent with GALL AMP: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Document(s) used to confirm Criteria:<br><br>Comment: |
| “                                  | C. The periodic visual inspection and function test is performed at least once every six months to examine the signs of degradation of the halon/CO <sub>2</sub> fire suppression system. Material conditions that may affect the performance of the system, such as corrosion, mechanical damage, or damage to dampers, are observed during these tests.  | Consistent with GALL AMP: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Document(s) used to confirm Criteria:<br><br>Comment: |

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| 4. Detection of Aging Effects | A. Visual inspection of penetration seals detects cracking, seal separation from walls and components, and rupture and puncture of seals. Visual inspection by fire protection qualified inspectors of approximately 10% of each type of seal in walkdowns is performed at least once every refueling cycle. If any sign of degradation is detected within that sample, the scope of the inspection is expanded to include additional seals. Visual inspection by fire protection qualified inspectors of the fire barrier walls, ceilings, and floors, performed in walkdowns at least once every refueling outage ensures timely detection of concrete cracking, spalling, and loss of material. Visual inspection by fire protection qualified inspectors detects any sign of degradation of the fire door such as wear and missing parts. Periodic visual inspection and function tests detect degradation of the fire doors before there is a loss of intended function. | Consistent with GALL AMP: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Document(s) used to confirm Criteria:<br><br>Comment: |
| “                             | B. Periodic tests performed at least once every refueling outage, such as flow and discharge tests, sequential starting capability tests, and controller function tests performed on diesel-driven fire pump ensure fuel supply line performance. The performance tests detect degradation of the fuel supply lines before the loss of the component intended function.   | Consistent with GALL AMP: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Document(s) used to confirm Criteria:<br><br>Comment: |
| “                             | C. Visual inspections of the halon/CO <sub>2</sub> fire suppression system detect any sign of added degradation, such as corrosion, mechanical damage, or damage to dampers. The periodic function test and inspection performed at least once every six months detects degradation of the halon/CO <sub>2</sub> fire suppression system before the loss of the component intended function.  | Consistent with GALL AMP: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Document(s) used to confirm Criteria:<br><br>Comment: |
| 5. Monitoring and Trending    | A. The aging effects of weathering on fire barrier penetration seals are detectable by visual inspection and, based on operating experience, visual inspections are performed at least once every refueling outage to detect any sign of degradation of fire barrier penetration seals prior to loss of the intended function.  | Consistent with GALL AMP: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Document(s) used to confirm Criteria:<br><br>Comment: |

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|                        | Concrete cracking, spalling, and loss of material are detectable by visual inspection and, based on operating experience, visual inspection performed at least once every refueling outage detects any sign of degradation of the fire barrier walls, ceilings, and floors before there is a loss of the intended function. Based on operating experience, degraded integrity or clearances in the fire door are detectable by visual inspection performed on a plant-specific frequency. The visual inspections detect degradation of the fire doors prior to loss of the intended function.  |   |
| “                      | B. The performance of the fire pump is monitored during the periodic test to detect any degradation in the fuel supply lines. Periodic testing provides data (e.g., pressure) for trending necessary.  | Consistent with GALL AMP: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Document(s) used to confirm Criteria:<br><br>Comment: |
| “                      | C. The performance of the halon/CO <sub>2</sub> fire suppression system is monitored during the periodic test to detect any degradation in the system. These periodic tests provide data necessary for trending.   | Consistent with GALL AMP: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Document(s) used to confirm Criteria:<br><br>Comment: |
| 6. Acceptance Criteria | A. Inspection results are acceptable if there are no visual indications (outside those allowed by approved penetration seal configurations) of cracking, separation of seals from walls and components, separation of layers of material, or ruptures or punctures of seals; no visual indications of concrete cracking, spalling and loss of material of fire barrier walls, ceilings, and floors; no visual indications of missing parts, holes, and wear and no deficiencies in the functional tests of fire doors. No corrosion is acceptable in the fuel supply line for the diesel-driven fire pump. Also, any signs of corrosion and mechanical damage of the halon/CO <sub>2</sub> fire suppression system are not acceptable. | Consistent with GALL AMP: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Document(s) used to confirm Criteria:<br><br>Comment: |

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| 7. Corrective Actions      | A. For fire protection structures and components identified within scope that are subject to an AMR for license renewal, the applicant's 10 CFR Part 50, Appendix B, program is used for corrective actions, confirmation process, and administrative controls for aging management during the period of extended operation. This commitment is documented in the final safety analysis report (FSAR) supplement in accordance with 10 CFR 54.21(d). As discussed in the appendix to this report, the staff finds the requirements of 10 CFR Part 50, Appendix B, acceptable to address the corrective actions, confirmation process, and administrative controls. | Consistent with GALL AMP: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Document(s) used to confirm Criteria:<br><br>Comment: |
| 8. Confirmation Process    | A. See Item 7, above.  | Consistent with GALL AMP: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Document(s) used to confirm Criteria:<br><br>Comment: |
| 9. Administrative Controls | A. See Item 7, above.  | Consistent with GALL AMP: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Document(s) used to confirm Criteria:<br><br>Comment: |
| 10. Operating Experience   | A. Silicone foam fire barrier penetration seals have experienced splits, shrinkage, voids, lack of fill, and other failure modes (IN 88-56, IN 94-28, and IN 97-70). Degradation of electrical racing way fire barrier such as small holes, cracking, and unfilled seals are found on routine walkdown (IN 91-47 and GL 92-08). Fire doors have experienced wear of the hinges and handles.  | Consistent with GALL AMP: <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Document(s) used to confirm Criteria:<br><br>Comment: |

EXCEPTIONS

| Item Number | Program Elements | LRA Exception Description | Basis for Accepting Exception | Documents Reviewed (Identifier, Para.# and/or Page #) |
|-------------|------------------|---------------------------|-------------------------------|---|
| 1.          |                  |                           |                               |   |
| 2.          |                  |                           |                               |   |
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ENHANCEMENTS

| Item Number | Program Elements | LRA Enhancement Description | Basis for Accepting Enhancement | Documents Reviewed (Identifier, Para.# and/or Page #) |
|-------------|------------------|-----------------------------|---------------------------------|---|
| 1.          |                  |                             |                                 |   |
| 2.          |                  |                             |                                 |   |
| ...         |                  |                             |                                 |   |

DOCUMENT REVIEWED DURING AUDIT

| Document Number | Identifier (number) | Title | Revision and/or Date |
|-----------------|---------------------|-------|----------------------|
| 1.              |                     |       |                      |
| 2.              |                     |       |                      |
| 3.              |                     |       |                      |
| 4.              |                     |       |                      |
| ....            |                     |       |                      |