

October 17, 2008

Mr. David A. Christian
President and Chief Nuclear Officer
Virginia Electric and Power Company
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: KEWAUNEE POWER STATION NRC TRIENNIAL FIRE PROTECTION
BASELINE INSPECTION REPORT 05000305/2008008(DRS)

Dear Mr. Christian:

On September 11, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed a triennial fire protection inspection at your Kewaunee Power Station. The enclosed report documents the inspection findings, which were discussed on September 11, 2008, with Mr. M. Crist and other members of your staff.

As a result of your intent to adopt the National Fire Protection Association Standard (NFPA) 805 Code, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, 2001 Edition," as defined by Title 10, Code of Federal Regulations (CFR), Part 50, Section 48(c), the inspection was conducted in accordance with Inspection Procedure 71111.05TTP, "Fire Protection - NFPA 805 transition Period (Triennial)," dated May 9, 2006. The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, three NRC-identified findings were discovered that involved violations of NRC requirements. The NRC-identified findings were not associated with findings of high safety significance (Red) and met the four criteria established by Section A of the NRC's Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues (10 CFR Part 50.48) for a licensee in NFPA 805 transition, including being entered into your corrective action program. The finding also met additional criteria established in Section 06.06.a.2 of Inspection Manual Chapter (IMC) 0305. Therefore, we are exercising enforcement discretion to not cite these violations in accordance with the NRC's Enforcement Policy.

If you contest the subject or severity of a Non-Cited Violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Kewaunee Power Station.

D. Christian

-2-

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any), will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Robert C. Daley, Chief
Engineering Branch 3
Division of Reactor Safety

Docket No. 50-305
License No. DPR-43

Enclosure: Inspection Report 05000305/2008008
w/Attachment: Supplemental Information

cc w/encl: S. Scace, Site Vice President
M. Wilson, Director, Nuclear Safety and Licensing
C. Funderburk, Director, Nuclear Licensing and
Operations Support
T. Breene, Manager, Nuclear Licensing
L. Cuoco, Senior Counsel
D. Zellner, Chairman, Town of Carlton
J. Kitsembel, Public Service Commission of Wisconsin
P. Schmidt, State Liaison Officer

D. Christian

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Letter to Mr. David A. Christian from Mr. Robert C. Daley dated October , 2008.

SUBJECT: KEWAUNEE POWER STATION NRC TRIENNIAL FIRE PROTECTION
INSPECTION REPORT 05000305/2008008

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-305
License No: DPR-43

Report No: 05000305/2008008

Licensee: Dominion Energy Kewaunee, Inc.

Facility: Kewaunee Power Station

Location: Kewaunee, WI

Dates: August 25 through September 11, 2008

Inspectors: R. Langstaff, Senior Reactor Inspector, Lead
A. Dahbur, Senior Reactor Inspector
D. Szwarc, Reactor Inspector

Approved by: R. Daley, Chief
Engineering Branch 3
Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000305/2008008; 08/25/2008 – 09/11/2008; Kewaunee Power Station; Routine Triennial Fire Protection Baseline Inspection.

This report covers an announced triennial fire protection baseline inspection. The inspection was conducted by Region III inspectors. Based on the results of this inspection, three NRC-identified findings were discovered that involved violations of NRC requirements. The findings were associated with transition to the National Fire Protection Association (NFPA) Standard 805, where the NRC exercised enforcement discretion. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealed Findings

No violations of significance were identified.

B. Licensee-Identified Violations

No violations of significance were identified.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R05 Fire Protection (71111.05TTP)

Dominion Energy Kewaunee, Inc., the licensee, in a letter to the U. S. Nuclear Regulatory Commission (NRC) dated July 21, 2008, committed to adopt the National Fire Protection Association Standard (NFPA) 805 Code, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, 2001 Edition," as defined by 10 CFR 50.48(c) for the Kewaunee Power Station. The NFPA 805 Code establishes a comprehensive set of requirements for fire protection programs at nuclear power plants. The code incorporated both deterministic and risk-informed, performance-based concepts. The deterministic aspects of the code are comparable to traditional requirements. However, the transition to a risk-informed, performance-based fire protection program requires an in-depth nuclear safety circuit analysis for equipment identified for nuclear safety functions such as safe shutdown. Because the conversion and licensing process to NFPA 805 was expected to identify and address a variety of issues that were normally the subject of the triennial fire protection baseline inspection, the NRC modified the fire protection inspection program and Enforcement Policy for licensees in transition to NFPA 805. As a result, this inspection was conducted in accordance with Inspection Procedure (IP) 71111.05TTP, "Fire Protection - NFPA 805 transition Period (Triennial)," dated May 9, 2006. Associated with the transition to NFPA 805, when a certain finding not associated with a finding of high safety significance meets the four criteria established by Section A of the NRC's Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48), the violation would receive enforcement discretion in accordance with the NRC's Enforcement Policy.

The purpose of the fire protection triennial baseline inspection was to conduct a design-based, plant specific, risk-informed, onsite inspection of the licensee's fire protection program's defense-in-depth elements used to mitigate the consequences of a fire. The fire protection program shall extend the concept of defense-in-depth to fire protection in plant areas important to safety by:

- preventing fires from starting;
- rapidly detecting, controlling and extinguishing fires that do occur; and
- providing protection for structures, systems, and components important to safety so that a fire that is not promptly extinguished by fire suppression activities will not prevent the safe shutdown of the reactor plant.

The inspectors' evaluation focused on the design, operational status, and material condition of the reactor plant's fire protection program and post-fire safe shutdown systems. The objectives of the inspection were to assess whether the licensee had implemented a fire protection program that: (1) provided adequate controls for combustibles and ignition sources inside the plant; (2) provided adequate fire detection and suppression capability; (3) maintained passive fire protection features in good material condition; (4) established adequate compensatory measures for out-of-service,

degraded or inoperable fire protection equipment, systems or features; (5) ensured that procedures, equipment, fire barriers and systems exist so that the post-fire capability to safely shut down the plant was ensured; (6) included feasible and reliable operator manual actions when appropriate to achieve safe shutdown; and (7) identified fire protection issues at an appropriate threshold and ensured these issues were entered into the licensee's problem identification and resolution program.

In addition, the inspectors' review and assessment focused on the licensee's post-fire safe shutdown systems for selected risk-significant fire areas. Inspector emphasis was placed on determining that the post-fire safe shutdown capability and the fire protection features were maintained free of fire damage to ensure that at least one post-fire safe shutdown success path was available. The inspection was performed in accordance with the NRC's regulatory oversight process using a risk-informed approach for selecting the fire areas and attributes to be inspected. The inspectors, with assistance from a Senior Reactor Analyst (SRA), used the licensee's Individual Plant Examination for External Events (IPEEE) to select several risk-significant areas for detailed inspection and review. Documents reviewed are listed in the Attachment to this report.

The fire areas and/or fire zones selected for review during this inspection are listed below and constituted 4 inspection samples as defined in IP 71111.05TTP.

<u>Fire Zone</u>	<u>Description</u>
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Ax-23B	Auxiliary Building Basement
AX-35	Control Room and AC Equipment Room
TU-95B	Safeguards Alley
TU-97	Battery Room 1-A

.1 **Shutdown from Outside Main Control Room**

a. **Inspection Scope**

The inspectors reviewed the functional requirements identified by the licensee as necessary for achieving and maintaining hot shutdown conditions to ensure that at least one post-fire safe shutdown success path was available in the event of fire in each of the selected fire areas and for alternative shutdown in the case of control room evacuation. The inspectors reviewed the plant systems required to achieve and maintain post-fire safe shutdown to determine if the licensee had properly identified the components and systems necessary to achieve and maintain safe shutdown conditions for each fire area selected for review. Specifically, the review was performed to determine the adequacy of the systems selected for reactivity control, reactor coolant inventory makeup, reactor heat removal, process monitoring, and support system functions. The review also included the fire safe shutdown analysis to ensure that all required components in the selected systems were included in the licensee's safe shutdown analysis.

The inspectors reviewed the licensee's post-fire safe shutdown analysis, normal and abnormal operating procedures, piping and instrumentation drawings, electrical drawings, their updated final safety analysis report, and other supporting documents to

verify that hot and cold shutdown could be achieved and maintained from outside the control room for fires that rely on shutdown from outside the control room. This review included verification that shutdown from outside the control room could be performed both with and without the availability of offsite power.

The inspectors also examined the operators' ability to perform the necessary manual actions for achieving safe shutdown by reviewing post-fire shutdown procedures, the accessibility of safe shutdown equipment, and the available time for performing the actions.

The inspectors reviewed the updated final safety analysis report and the licensee's engineering and/or licensing justifications (e.g., NRC guidance documents, license amendments, technical specifications, safety evaluation reports, exemptions, and deviations) to determine the licensing basis.

b. Findings

No findings of significance were identified.

.2 Protection of Safe Shutdown Capabilities

a. Inspection Scope

For each of the selected fire areas, the inspectors reviewed the fire hazards analysis, safe shutdown analysis, and supporting drawings and documentation to verify that safe shutdown capabilities were properly protected.

The inspectors reviewed the licensee procedures and programs for the control of ignition sources and transient combustibles to assess their effectiveness in preventing fires and in controlling combustible loading within limits established in the fire hazards analysis. The inspectors performed plant walkdowns to verify that protective features were being properly maintained and administrative controls were being implemented.

The inspectors also reviewed the licensee's design control procedures to ensure that the process included appropriate reviews and controls to assess plant changes for any potential adverse impact on the fire protection program and/or post-fire safe shutdown analysis and procedures.

b. Findings

No findings of significance were identified.

.3 Passive Fire Protection

a. Inspection Scope

For the selected fire areas, the inspectors evaluated the adequacy of fire area barriers, penetration seals, fire doors, electrical raceway fire barriers, and fire rated electrical cables. The inspectors observed the material condition and configuration of the installed barriers, seals, doors, and cables. The inspectors reviewed approved construction details and supporting fire tests. In addition, the inspectors reviewed license

documentation, such as NRC safety evaluation reports, and deviations from NRC regulations and NFPA codes to verify that fire protection features met license commitments.

The inspectors walked down accessible portions of the selected fire areas to observe material condition and the adequacy of design of fire area boundaries (including walls, fire doors, and fire dampers) to ensure they were appropriate for the fire hazards in the area.

The inspectors reviewed the installation, repair, and qualification records for a sample of penetration seals to ensure the fill material was of the appropriate fire rating and that the installation met the engineering design.

b. Findings

No findings of significance were identified.

.4 Active Fire Protection

a. Inspection Scope

For the selected fire areas, the inspectors evaluated the adequacy of fire suppression and detection systems. The inspectors observed the material condition and configuration of the installed fire detection and suppression systems. The inspectors reviewed design documents and supporting calculations. In addition, the inspectors reviewed license basis documentation such as NRC safety evaluation reports, deviations from NRC regulations, and NFPA codes to verify that fire suppression and detection systems met license commitments.

b. Findings

(1) Failure to Provide Fire Detection and Fixed Fire Suppression in a III.G.3 Area

Introduction: A violation of 10 CFR Part 50, Appendix R, Section III.G.3 was identified by the inspectors for the licensee's failure to meet the requirement for fire detection and a fixed fire suppression system in the control room heating, ventilation, and air conditioning (HVAC) room (fire zone AX-35). Specifically, the licensee failed to provide fire detection and a fixed fire suppression system in the HVAC equipment room. The licensee received enforcement discretion for this violation because they are in transition to NFPA 805.

Description: Fire zone AX-35 was comprised of the control room and the HVAC equipment room. The HVAC equipment room was located directly above the control room and was separated from the control room by a reinforced concrete floor. The control room had smoke detectors located inside cabinets and the duct work, but had no fixed suppression system. The HVAC equipment room contained thermal detectors and automatic water deluge systems inside the air filter enclosures, but lacked area-wide fire detection and a fixed fire suppression system.

An exemption for the lack of a fixed suppression system in the control room was granted in 1988 based partly on the condition that the control room is continuously manned and

fires would be quickly detected and manually suppressed. However, that exemption did not extend to the HVAC equipment room as it was not specifically mentioned in the exemption and also would not be continuously manned. The licensee performed an evaluation of the adequacy of the fire protection systems in various plant areas (FPEE-049, "Evaluation of Partial Area Suppression/Detection") in which they took credit for the exemption for fire zone AX-35 and did not perform additional evaluation for the HVAC equipment room. The inspectors were concerned that a fire in the HVAC equipment room may not have been readily detected due to the lack of area-wide detection.

The inspectors noted that one train of redundant cables was located approximately five feet above the compressors and another less than five feet to the side. The inspectors performed preliminary calculations for the plume temperatures resulting from a compressor fire and concluded that the plume temperatures could exceed 680 degrees Fahrenheit (°F). That was above the 625°F damage threshold for thermoset cables. The inspectors used the "Estimating Centerline Temperature of a Buoyant Fire Plume" spreadsheet provided in NUREG-1805, "Fire Dynamics Tools," to estimate the plume temperature of a 200 kW fire source. The 200 kW fire size was obtained for a 98th percentile generic small electrical fire from table 2.3.1 of IMC 0609 Appendix F, "Fire Protection Significance Determination Process."

The licensee entered the inspectors' finding into Kewaunee's corrective action program (CAP) as CR108948, "Adequacy of Suppression and Detection in Control Room HVAC Equipment Room." The licensee established a roving one-hour fire watch in the control room HVAC room at the end of the inspection and will evaluate this issue during Kewaunee's transition to NFPA 805.

The NRC had previously identified a similar issue involving the lack of suppression for redundant circuits. Specifically, the NRC had issued non-cited violation (NCV) 05000305/2006016-05 on January 16, 2007. As part of the extent of condition review discussed in CA075272, "CSR Fire Suppression System coverage – NRC Potential NCV of Appendix R, III.G.3," the licensee evaluated fire zones having redundant circuits, including fire zone AX-35. For this review, the licensee inappropriately relied upon the exemption for the control room for addressing the lack of suppression in the HVAC equipment room. In addition, the licensee inappropriately took credit for detection in the control room HVAC ventilation ducts for addressing detection. However, such detection was not capable of detecting a fire within the HVAC equipment room which relied on a separate ventilation system. The licensee's extent of condition review was documented as being complete on May 30, 2008. The inspectors determined that the licensee failed, in this instance, to thoroughly evaluate problems such that the resolutions address causes and extent of conditions, as necessary.

Analysis: The inspectors determined that the failure to provide area-wide fire detection and fixed fire suppression was contrary to 10 CFR Part 50, Appendix R, Section III.G.3 and was a performance deficiency.

The finding was determined to be more than minor because the finding was associated with the mitigating systems cornerstone attribute of protection against external factors (fire) and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the lack of area-wide detection and suppression systems could increase the response time and complicate fire fighting

activities. That could result in a loss of both trains of safe shutdown equipment required for safe shutdown of the plant.

The licensee completed a risk assessment evaluation for this issue because the finding was fire protection-related and the licensee was in transition to NFPA 805. The inspectors reviewed the evaluation and did not agree with some of the evaluation assumptions. The inspectors performed an independent risk evaluation and determined that the finding was not associated with a finding of high safety significance (i.e., less than Red). No mitigating systems, other than the control room ventilation, would be affected by a fire in the area. Operators would have at least four hours available upon loss of control room ventilation before they would need to establish alternate means for control room ventilation. In addition, there was no potential that the control room would need to be evacuated due to smoke because the fire would be located outside the of the control room ventilation ductwork. A regional SRA concurred with the inspectors' evaluation.

Cross-cutting aspects are not applicable for findings involving enforcement discretion.

Enforcement: Section III.G.3 of 10 CFR Part 50, Appendix R requires, in part, that alternative of dedicated shutdown capability and its associated circuits, independent of cables, systems, or components in the area, room, or zone under consideration should be provided where the protection of systems whose function is required for hot shutdown does not satisfy the requirement of paragraph G.2 of this section. In addition, fire detection and a fixed fire suppression system shall be installed in the area, room, or zone under consideration.

Contrary to the above, as of September 11, 2008, the licensee failed to meet the requirements of 10 CFR Part 50, Appendix R, Section III.G.3. Specifically, the licensee failed to provide area-wide fire detection and fixed fire suppression in the control room HVAC equipment room.

The licensee is in transition to NFPA 805 and therefore the NRC-identified violation was evaluated in accordance with the criteria established by Section A of the NRC's Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues (10 CFR Part 50.48) for a licensee in NFPA 805 transition. The inspectors determined that for this violation: (1) the licensee would have identified the violation during the scheduled transition to 10 CFR Part 50, Section 48(c); (2) the licensee had established adequate compensatory measures within a reasonable time frame following identification and would correct the violation as a result of completing the NFPA 805 transition; (3) the violation was not likely to have been previously identified by routine licensee efforts; and (4) the violation was not willful. The finding also met additional criteria established in Section 06.06.a.2 of Inspection Manual Chapter (IMC) 0305. In addition, in order for the NRC to consider granting enforcement discretion the violation must not be associated with a finding of high safety significance. Therefore, the inspectors performed a risk evaluation and determined that this issue was not associated with a finding of high safety significance. As a result, the inspectors concluded that the violation met all four criteria established by Section A and the NRC was exercising enforcement discretion to not cite this violation in accordance with the NRC's Enforcement Policy (FIN 05000305/2008008-01).

.5 Protection from Damage from Fire Suppression Activities

a. Inspection Scope

For the selected fire areas, the inspectors verified that redundant trains of systems required for hot shutdown would not be subject to damage from fire suppression activities or from the rupture or inadvertent operation of fire suppression systems including the effects of flooding. The inspectors conducted walkdowns of each of the selected fire areas to assess conditions such as the adequacy and condition of floor drains, equipment elevations, and spray protection.

b. Findings

No findings of significance were identified.

.6 Alternative Shutdown Capability

a. Inspection Scope

The inspectors reviewed the licensee's systems required to achieve alternative safe shutdown to determine if the licensee had properly identified the components and systems necessary to achieve and maintain safe shutdown conditions. The inspectors also focused on the adequacy of the systems to perform reactor pressure control, reactivity control, reactor coolant makeup, decay heat removal, process monitoring, and support system functions.

The team conducted selected area walkdowns to determine if operators could reasonably be expected to perform the alternate safe shutdown procedure actions and that equipment labeling was consistent with the alternate safe shutdown procedure. The review also looked at operator training as well as consistency between the operations shutdown procedures and any associated administrative controls.

b. Findings

(1) Post-fire Shutdown Procedures Failed to Ensure Time-Critical Operator Actions were Performed in an Expeditious Manner

Introduction: A violation of 10 CFR Part 50, Appendix R, Section III.L was identified by the inspectors for the licensee's failure to have adequate post-fire shutdown procedures in the event of a severe fire in any of the 10 CFR Part 50, Appendix R, Section III.G.3 (alternate or dedicated shutdown) zones. Specifically, procedures OP-KW-AOP-FP-002, "Fire in Alternate Fire Zone," and OP-KW-AOP-FP-003, "Fire in Dedicated Fire Zone," failed to specify that operator actions to remove fuses for pressurizer Power Operated Relief Valves (PORV) PR-2A or PR-2B were time-critical and needed to be completed in an expeditious manner. These actions were required to mitigate possible spurious operation of the PORVs in the event of a severe fire. The licensee received enforcement discretion for this violation because they are in transition to NFPA 805.

Description: The licensee's procedures OP-KW-AOP-002 and OP-KW-AOP-003 included operator manual actions to remove fuses associated with pressurizer PORVs PR-2A and PR-2B to mitigate possible spurious opening of these valves in the event of

severe fire in any of the alternate or dedicated zones respectively. The licensee credited the closure of the block valves within seven minutes in response to a spurious opening of one of the pressurizer PORVs in evaluation FPEE-003, "Feasibility Evaluation for Remote Operator Actions Credited for Appendix R." The analysis results showed that temporary voiding would occur in the reactor vessel head and the reactor vessel upper plenum if one PORV was open for seven minutes. Pressurizer level would temporarily be off scale (high) as a result of depressurization and inventory swelling would occur. However, adequate heat removal and adequate reactor coolant inventory would have been maintained. In addition, hot standby conditions could have also been achieved and maintained.

Section 6 of Attachment A, "Time Critical Operator Actions – Respond to Appendix R Event," of procedure GNP-05.16.06, "Validation of Time Dependant Operator Actions," listed only four actions that were required to be completed in a specified critical time during an Appendix R design basis fire event in either dedicated or alternate shutdown zones. These actions included establishment of service water to the diesel generator jacket, auxiliary feedwater to the steam generator, make up to the reactor coolant system, and reactor coolant pumps seal integrity. The inspectors noted that the operator actions to remove fuses associated with the pressurizer PORVs PR-2A and PR-2B were not listed as critical operator actions that were required to be completed within seven minutes. In addition, the inspectors also noted that there were no caution notes in either of the procedures indicating that the actions to remove the fuses were time critical and should be performed in an expeditious manner. Caution notes were included in procedures OP-KW-AOP-FP-002 and OP-KW-AOP-FP-003 for those actions identified in GNP-05.16.06 as being time-critical.

The licensee credited in Attachment 6 of FPEE-003, "Dedicated Shutdown Timeline," that the steps to remove fuses to mitigate the spurious opening of one of the pressurizer PORVs could be accomplished within approximately five minutes. In response to inspector concerns that there was no validation for these credited times, the licensee, on September 4, 2008, performed a walkthrough/exercise of the operator actions to validate the time to disable a potentially spuriously opened PORV (either PR-2A or PR-2B). The exercise, which directed control room evacuation, failed to validate the seven minutes credited in the analysis. As result of this exercise, the licensee revised and re-arranged steps in OP-KW-AOP-FP-002, Revision 2, to move the critical step of pulling the fuses for the pressurizer PORVs to earlier in the procedure. In addition, the licensee also ran hydraulic analyses for two scenarios: assuming that a pressurizer PORV was open for ten minutes for one scenario and for twenty minutes for the second scenario. Based on a review of the hydraulic analyses the licensee determined that adequate heat removal and reactor coolant inventory would be maintained. The inspectors determined that the time intervals used for the hydraulic analyses bounded the time required to complete the necessary manual actions.

Procedure OP-KW-AOP-FP-002 also contained steps to pull the subject fuses. However, these steps were performed earlier in the procedure, and therefore, no immediate revision for this procedure was necessary.

The licensee entered this issue into their CAP as CR 107231, "Steps Pulling Fuses for Pressurizer PORVs in OP-KW-AOP-FP-002/003 do not Specify Critical Time," and CR 108217, "Time Validation of OP-KW-AOP-FP-002." The licensee revised and re-arranged steps in procedure OP-KW-AOP-FP-002 and also added a caution note

informing operators that the actions associated with pulling the fuses for pressurizer PORVs needed to be performed in an expeditious manner. The licensee also revalidated the timing of local actions for removing power from the PORV circuits using the new procedures and determined that the time to perform local actions would be less than three minutes from the time that the operator was directed to perform the actions.

The licensee's hydraulic analysis run, which simulated the opening of one of the pressurizer PORVs, showed that adequate heat removal and reactor coolant inventory would be maintained and that hot standby conditions could also be achieved and maintained. However, the inspectors were concerned that the temporary voiding that may occur in the reactor vessel head, which would result in pressurizer level going off scale temporarily, did not meet the requirements of Appendix R and could complicate the shutdown of the plant. The licensee indicated that they would evaluate this concern during the transition to NFPA 805.

Analysis: The inspectors determined that the failure to have adequate procedural instructions for safe shutdown of the plant from outside the control room in the event of a severe fire in any of the alternate or dedicated shutdown fire zones was contrary to the requirements of 10 CFR Part 50, Appendix R, Section III.L, and was a performance deficiency.

The finding was determined to be more than minor because it affected the mitigating systems cornerstone attribute of procedure quality for protection against external factors (fire) and impacted the cornerstone objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to have adequate instructions, in OP-KW-AOP-FP-002 and OP-KW-AOP-FP-003, to mitigate the spurious opening of a pressurizer PORV in an expeditious manner could have adversely impacted the operators' ability to promptly take appropriate actions and could have complicated plant safe shutdown in the event of a severe fire.

The licensee completed a risk assessment evaluation for this issue because the finding was fire protection-related and the licensee was in transition to NFPA 805. The inspectors reviewed the evaluation and did not agree with some of the evaluation assumptions. The inspectors performed an independent risk evaluation and determined that the finding was not associated with a finding of high safety significance (i.e., less than Red). The inspectors noted that with seven minutes for control room actions and three minutes for local actions, the total time for removing power from a pressurizer PORV circuit would be ten minutes or less. Hydraulic analyses performed by the licensee indicated that taking twenty minutes to remove power from the PORV circuits would not result in core damage. Therefore, the inspectors concluded that there would be at least ten minutes of margin for performing the local actions. There would not be a significant degradation of the reliability associated with performance of these local actions because at least ten minutes of margin would still exist. As such, the inspectors qualitatively determined that the issue was of less than high safety significance (i.e., less than red). A regional SRA concurred with the inspectors' evaluation.

Cross-cutting aspects are not applicable for findings involving enforcement discretion.

Enforcement: Section III.L.3 of 10 CFR Part 50, Appendix R requires, in part, that alternative shutdown capability shall be independent of the specific fire area(s) and procedures shall be in effect to implement this capability. In addition, Section III.L.1 (e)

requires, in part, that during the post-fire shutdown, the reactor coolant system process variables shall be maintained within those predicted for loss of normal AC power. Section III.L.2 (b) also states, in part, that the performance goals for the reactor coolant makeup shutdown function shall be capable of maintaining the reactor level within the level indication in the pressurizer.

Contrary to the above, on August 27, 2008, the inspectors identified that procedures OP-KW-AOP-FP-002 and OP-KW-AOP-FP-003, Revision 0, were not adequate to implement this alternative shutdown capability. Specifically, the actions to mitigate the spurious opening of any of the pressurizer PORVs PR-2A or PR-2B were not clearly identified as time critical actions that needed to be performed in an expeditious manner. In addition, the licensee failed to ensure that the reactor level was maintained within the level indication in the pressurizer for post fire scenario which could have resulted in the opening of one of the pressurizer PORVs.

The licensee is in transition to NFPA 805 and therefore the NRC-identified violation was evaluated in accordance with the criteria established by Section A of the NRC's Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues (10 CFR Part 50.48) for a licensee in NFPA 805 transition. The inspectors determined that for this violation: (1) the licensee would have identified the violation during the scheduled transition to 10 CFR Part 50, Section 48(c); (2) the licensee had established adequate compensatory measures within a reasonable time frame following identification and would correct the violation as a result of completing the NFPA 805 transition; (3) the violation was not likely to have been previously identified by routine licensee efforts; and (4) the violation was not willful. The finding also met additional criteria established in section 06.06.a.2 of Inspection Manual Chapter (IMC) 0305. In addition, in order for the NRC to consider granting enforcement discretion the violation must not be associated with a finding of high safety significance. Therefore, the inspectors performed a risk evaluation and determined that this issue was not associated with a finding of high safety significance. As a result, the inspectors concluded that the violation met all four criteria established by Section A and the NRC was exercising enforcement discretion to not cite this violation in accordance with the NRC's Enforcement Policy (FIN 05000305/2008008-02).

(2) Failure to Protect Pressurizer PORV Control Cable for a Fire Scenario

Introduction: A violation of 10 CFR Part 50, Appendix R, Section III.G. 3 was identified by the inspectors for the licensee's failure to have adequate protection for control circuits and cables associated with the pressurizer PORV. Specifically, the inspectors found that control cabling for pressurizer PORV PR-2B was not protected to preclude spurious operation of the PORV due to hot shorts in the event of a fire in the relay room. The licensee received enforcement discretion for this violation because they are in transition to NFPA 805.

Description: The PORV PR-2A is connected in series with its associated block valve (PR-1A) and PORV PR-2B is connected in series with its associated block valve (PR-1B). During normal plant operation, the block valves are normally open and the PORVs are normally closed. The PORVs are air operated valves that fail to the closed position upon loss of power and/or air supply. The block valves are motor operated valves that fail in the as-is position prior to loss of power. The PORV PR-2A is controlled via solenoid valve SV-33114 and the redundant PORV PR-2B is controlled via two

solenoid valves, SV-33113 and SV-33731, connected in parallel. The PORV PR-2B will open if any one of these solenoid valve energizes.

Section 3.1.3.3 "Reactor Coolant System Isolation" of Kewaunee's Appendix R analysis indicated that in order to prevent a fire induced Loss of Coolant Accident (LOCA), assurance must be provided for isolation capability of the reactor coolant system. The two parallel air operated PORVs, PR2A and PR-2B, were assured to remain closed by removal of fuses for their respective solenoid valves at fuse panels. Section 5.5, "High/Low Pressure Interface Components," of this analysis also indicated that the approved licensing basis for Kewaunee credited the mitigation of potential spurious operation of high/low pressure interface components through the removal of fuses for solenoid operated valves. This method was previously approved by a safety evaluation report (SER) dated December 22, 1981. However, in 1987, at the request of the NRC, the station made modifications to the valves' cabling to enhance the protection of these valves against spurious operation due to hot shorts by isolating their associated solenoid valves cables. Each was then routed alone in conduit except for cables associated with SV 33731 located in the relay room.

During the inspectors' review of the electrical diagrams associated with the PORVs, the inspectors noted that cable 1S6C1228 for PR-2B solenoid valve SV33731 was routed in cable trays from the control room to relay cabinet TC19S6, located in the relay room. The 125 volt direct current (DC) PORV power supply cable 1S6C1229 from fuse panel RR-176 to panel TC19S6 along with other 125 volt DC cables were also found routed in the same trays as cable 1S6C1228. These trays were located in the relay room. The remainder of the PORV control cables were routed in dedicated conduit from the relay room to the containment.

Generic Letter (GL 86-10), "Implementation of Fire Protection Requirements," stated, in part, that for ungrounded DC circuits, if it can be shown that only two hot shorts of proper polarity without grounding could cause spurious operation, no further evaluation is necessary except for any cases involving high/low pressure interfaces. Regulatory Issue Summary (RIS) 2004-03 "Risk-Informed Approach for Post-Fire Safe-Shutdown Circuit Inspections", Revision 1, also indicated that inspectors would focus on the high consequences failure of decay heat removal system isolation valves at high/low pressure interfaces, that may be subject to three-phase, proper-polarity hot short cable failures.

Based on the inspectors' review of Kewaunee's design basis analysis for Appendix R, licensing basis SER, and previous/current NRC guidance for circuit analysis, GL 86-10, and RIS 2004-03, the inspectors determined that a spurious opening of PR-2B due to fire-induced failures was credible, and was within Kewaunee's design/licensing basis and could occur during a fire event in the relay room. Specifically, fire-induced damage resulting in an internal short between conductors for cable 1S6C1228 and external cable-to-cable hot shorts between 1S6C1229 and another energized DC cable in the same tray (two concurrent DC hot shorts of the proper polarity from the same battery) would result in the spurious opening of the PR-2B.

The inspectors reviewed cabling for the other PR-2B solenoid SV33113 and PR-2A SV33114 and determined that the issue discussed above did not apply to these valves. Cables associated with these solenoid valves were routed in dedicated conduits from the control room to containment.

The licensee entered the issue into their corrective action system under CR 109107, "Pressurizer PROV PR-2B Control Cable Appendix R Spurious Operation Concern," and initiated hourly fire watches in the relay room as a compensatory measure. In addition, pursuant to 10 CFR Part 50, Section 72(b)(3)(ii)(b), on September 12, 2008, the licensee made an event notification (EN 44482) to the NRC and reported the unanalyzed condition. The licensee will evaluate this issue during the transition to NFPA 805.

Analysis: The inspectors determined that the failure to protect control circuit/cabling to preclude spurious operation of the pressurizer PORV PR-2B in the event of a fire in the relay room was contrary to the requirements of Appendix R III.G.2 and was a performance deficiency.

The finding was determined to be more than minor because it affected the mitigating systems cornerstone attribute of design control for protection against external factors (fire) and affected the mitigating systems objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, spurious opening of the pressurizer PORV PR-2B could have complicated safe shutdown.

The licensee completed a risk assessment evaluation for this issue because the finding was fire protection-related and the licensee was in transition to NFPA 805. The inspectors reviewed the evaluation and did not agree with some of the evaluation assumptions. The inspectors performed an independent risk evaluation and determined that the finding was not associated with a finding of high safety significance (i.e., less than Red). Spurious actuation of the PORV PR-2B, even after power was removed from the circuit, was only possible due to a fire in the relay room. The cable for the PORV circuit only shared a cable tray containing other energized DC circuits within the relay room. Although removal of power from the PORV circuit would preclude an intra-cable hot short causing a spurious actuation, removal of power would not preclude an inter-cable hot short from other energized cables in the cable tray.

Based on information provided by the licensee, the total fire frequency for the relay room was 3.0×10^{-4} per year. The cable for the PORV PR-2B circuit consisted of three conductors: a target conductor which, if energized, would cause the PORV PR-2B to open; a normally energized source conductor; and a spare conductor. Using the methodology described in NUREG/CR-6850, "Fire PRA Methodology for Nuclear Power Facilities," Appendix J, "Technical Basis for Circuit Failure Mode Likelihood Equations," the inspectors determined that the probability, P_{FM} , of a hot short with the failure mode of interest (i.e., an inter-cable short) was 0.056 due to a fire. No credit was assumed for probability of suppression because no detailed fire suppression analysis was performed. No credit was assumed for Conditional Core Damage Probability (CCDP) because the alternative shutdown procedures for a fire in the relay room were based on the removal of power from the PORV circuit mitigating a spurious PORV opening. Based on the above information, the inspectors determined that the issue had less than high safety significance (i.e., less than red). A regional SRA concurred with the inspectors' evaluation.

Cross-cutting aspects are not applicable for findings involving enforcement discretion.

Enforcement: Section III.G.3 of 10 CFR Part 50, Appendix R requires, in part, that alternative of dedicated shutdown capability and its associated circuits, independent of

cables, systems, or components in the area, room, or zone under consideration should be provided where the protection of systems whose function is required for hot shutdown does not satisfy the requirement of Paragraph G.2 of this Section.

Contrary to the above, prior to September 11, 2008, the licensee failed to ensure that the dedicated shutdown capability was free of fire damage. Specifically, the licensee's shutdown capability to manually remove the fuses associated with the pressurizer PORV PR-2B SV33731 failed to preclude a spurious operation of the valve due to hot shorts in the event of a fire in the relay room.

The licensee is in transition to NFPA 805 and therefore the NRC-identified violation was evaluated in accordance with the criteria established by Section A of the NRC's Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues (10 CFR Part 50.48) for a licensee in NFPA 805 transition. The inspectors determined that for this violation: (1) the licensee would have identified the violation during the scheduled transition to 10 CFR Part 50, Section 48(c); (2) the licensee had established adequate compensatory measures within a reasonable time frame following identification and would correct the violation as a result of completing the NFPA 805 transition; (3) the violation was not likely to have been previously identified by routine licensee efforts; and (4) the violation was not willful. The finding also met additional criteria established in section 06.06.a.2 of Inspection Manual Chapter (IMC) 0305. In addition, in order for the NRC to consider granting enforcement discretion the violation must not be associated with a finding of high safety significance. Therefore, the inspectors performed a risk evaluation and determined that this issue was not associated with a finding of high safety significance. As a result, the inspectors concluded that the violation met all four criteria established by Section A and the NRC was exercising enforcement discretion to not cite this violation in accordance with the NRC's Enforcement Policy (FIN 05000305/2008008-03).

.7 Circuit Analyses

a. Inspection Scope

In accordance with IP 71111.05TTP, "Fire Protection - NFPA 805 transition Period (Triennial)," dated May 9, 2006, this section of the IP was suspended for facilities in NFPA 805 transition.

b. Findings

No findings of significance were identified.

.8 Communications

a. Inspection Scope

The inspectors reviewed, on a sample bases, the adequacy of the communication system to support plant personnel in the performance of alternative safe shutdown functions and fire brigade duties. The inspectors verified that plant telephones, page systems, sound powered phones, and radios were available for use and maintained in working order. The inspectors reviewed the electrical power supplies and cable routing

for these systems to verify that either the telephones or the radios would remain functional following a fire.

b. Findings

No findings of significance were identified.

.9 Emergency Lighting

a. Inspection Scope

The inspectors performed a plant walkdown of selected areas in which a sample of operator actions would be performed in the performance of alternative safe shutdown functions. As part of the walkdowns, the inspectors focused on the existence of sufficient emergency lighting for access and egress to areas and for performing necessary equipment operations. The locations and positioning of the emergency lights were observed during the walkdown and during review of manual actions implemented for the selected fire areas.

b. Findings

No findings of significance were identified.

.10 Cold Shutdown Repairs

a. Inspection Scope

The inspectors reviewed the licensee's procedures to determine whether repairs were required to achieve cold shutdown and to verify that dedicated repair procedures, equipment, and material to accomplish those repairs were available onsite. The inspectors also evaluated whether cold shutdown could be achieved within the required time using the licensee's procedures and repair methods. The inspectors also verified that equipment necessary to perform cold shutdown repairs was available onsite and properly staged.

b. Findings

No findings of significance were identified.

.11 Compensatory Measures

a. Inspection Scope

The inspectors conducted a review to verify that compensatory measures were in place for out-of-service, degraded or inoperable fire protection and post-fire safe shutdown equipment, systems, or features (e.g., detection and suppression systems, and equipment, passive fire barriers, pumps, valves or electrical devices providing safe shutdown functions or capabilities). The inspectors also conducted a review on the adequacy of short term compensatory measures to compensate for a degraded function or feature until appropriate corrective actions were taken.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution (71152)

a. Inspection Scope

The inspector reviewed the licensee's corrective action program procedures and samples of corrective action documents to verify that the licensee was identifying issues related to the fire protection program at an appropriate threshold and entering them in the corrective action program. The inspectors reviewed selected samples of condition reports, design packages, and fire protection system non-conformance documents.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.1 (Closed) Unresolved Item 05000305/2008002-03, Containment Sump Programmatic Controls not in USAR

The Updated Safety Analysis Report (USAR) had not been updated to reflect programmatic controls implemented to maintain the containment sump safety function. At the time the URI was identified, the licensee had updated the USAR, on April 19, 2007, to reflect containment sump hardware modifications, but had not described the programmatic controls in place to maintain the containment sump safety function. Based on additional discussions conducted since initiation of the URI, the inspectors learned that the licensee planned to update the USAR to reflect the analysis assumptions for the containment sump, but did not plan to describe the programmatic controls implemented to maintain the analysis assumptions. Based on additional review and consideration, the inspectors determined that updating the USAR to reflect the containment analysis assumptions was an acceptable approach. At the time of the April 2007 USAR update, analyses supporting the containment sump modification were still in progress. As such, the licensee was not able to include analysis assumptions as part of the April 2007 USAR update. The inspectors did not identify a finding associated with updating the USAR. This URI is closed.

4OA6 Management Meetings

.1 Exit Meeting Summary

On September 11, 2008, the inspectors presented the inspection results to Mr. M. Crist, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

M. Crist, Plant Manager
L. Armstrong, Site Engineering Director
S. Boeing, Engineer
E. Brand, Fire Protection Engineer
T. Breene, Nuclear Licensing Manager
J. Dillich, Assistant Plant Manager
A. Jelalian, Engineer
R. Justice, Fire Marshal
J. Martin, Nuclear Specialist
K. Peveler, Manager Engineering Programs
R. Repshas, Licensing Engineer
J. Ruttar, Operations Manager
J. Smith, Nuclear Technical Specialist
M. Wilson, Nuclear Safety and Licensing Director
S. Wood, Emergency Preparedness Manager
S. Yuen, Nuclear Engineering Manager

Nuclear Regulatory Commission

S. Burton, Senior Resident Inspector
R. Daley, Chief, Division of Reactor Safety, Engineering Branch 3
D. Dodson, Reactor Inspector

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

05000305/2008008-01	FIN	Failure to Provide Fire Detection and Fixed Fire Suppression in a III.G.3 Area
05000305/2008008-02	FIN	Post-fire Shutdown Procedures Failed to Ensure Time-Critical Operator Actions were Performed in an Expeditious Manner
05000305/2008008-03	FIN	Failure to Protect Pressurizer PORV Control Cable for a Fire Scenario

Closed

05000305/2008002-03	URI	Containment Sump Programmatic Controls not in USAR
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Discussed

None

LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety, but rather, that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

CALCULATIONS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
04-085	Kewaunee CO2 Vent Sizing for Relay Room	A
C11717	Cable Ampacity	0

CAP DOCUMENTS REVIEWED

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
CA031298	FP SA014668 CO2 Suppression Systems	April 17, 2007
CA022649	Engineering Programs to Evaluate MPS IR 2007-07 Millstone Triennial Fire Protection	July 11, 2008
CR020213	Appendix R – FP Improvement Plan	September 17, 2007
CR025099	Rubber Seat of the Safeguards Alley Sprinkler Deluge Vlv, FP-265 Found Extruded	November 16, 2007
CR025444	Hose Reel for Station No. 0 Needs to be Replaced	November 24, 2007
CR075272	CSR Fire Suppression System coverage – NRC Potential NCV of Appendix R, III.G.3	May 16, 2008
CR107468	Fire Extinguisher Hose Rupture	August 27, 2008

CONDITION REPORTS GENERATED DURING INSPECTION

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
CR107160	CO2 Hose Reel #1 Had Degraded or Damaged Outer Jacketing	August 26, 2008
CR107231	Steps Pulling fuses for Pzr PORVs in AO-FP-002/003 Do Not specify Critical Time	August 27, 2008
CR107300	Typographical error in AOP-FP-002 corrected via Temporary Procedure Change	August 27, 2008
CR107348	CO2 Hose Stations are Not Being Inspected per NFPA 12 1973 Edition	August 27, 2008
CR107486	Triennial Inspection – Basis for “65% Concentration Achieved” in DCR 3330	August 28, 2008
CR107490	Work Orders 06-5267 and 06-5268 CO2 Testing of Hose Station Hoses	August 28, 2008

CONDITION REPORTS GENERATED DURING INSPECTION

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
CR107510	Appendix R Ruse Replacement in EDG A Engine Control Cabinet	August 28, 2008
CR107570	Editorial change to EPM Report P1919-086-001, References	August 29, 2008
CR107654	CCW Motor Feeder Pull Box Fire Wrap	August 29, 2008
CR107708	Blowdown valves missing red appendix R labels	August 30, 2008
CR107709	Idea for labeling chain operated valves	August 30, 2008
CR108217	Time Validation of OP-KW-AOP-FP-002	September 4, 2008
CR108229	electrical Safety Equipment for Appendix R Operations	September 4, 2008
CR108335	Appendix R Design Description Table 6-1 Inconsistent with AOP-FP-003	September 5, 2008
CR108578	Enhancement to appendix R response	September 8, 2008
CR108638	Potential change to OP-KW-AOP-FP-001, attachment A for Relay Room CO2 actuation	September 8, 2008
CR108624	Human Performance Enhancements Recommended to Appendix R Spare Fuse Boxes	September 8, 2008
CR108625	Appendix r emergency Lighting for Contingency Actions in AOP-FP-002	September 8, 2008
CR108823	Typographical error in Procedure MA-KW-ECM-RHR-003, Rev. 0	September 10, 2008
CR108921	RCS Pressure Interlock bypass Jumpers RHR-002 & RHR-003	September 10, 2008
CR108945	Revision Needed to FPEE-049 Evaluation of Partial Suppression and Detection	September 10, 2008
CR108948	Adequacy of Suppression and Detection in Control Rm HVAC Equipment Rm	September 10, 2008
CR108981	RCS Pressure Interlock Bypass Jumpers RHR-002 & RHR-003	September 10, 2008
CR109035	Proposed change to OP-KW-AOP-FP001	September 11, 2008
CR109051	Control Room A/C Duct Smoke Detector Not Visually Inspected	September 11, 2008
CR109107	Pressurizer PROV PR-2B Control Cable Appendix R Spurious Operation	September 11, 2008

DRAWINGS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
237127A-M628	Ventilation – Aux Bldg Elevation 642’-3”	AG
E-799	Wiring Diagram – Terminal Cabinet TC19S6	EA

DRAWINGS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
E-2038	Integrated Logic Diagram – Reactor Coolant System	AD
E-2447	Fire Detection System Fan Floors EI 642'-3" & EI 657'-6"	D
E-3117	Schematic Diagram – CV-31109, SV-33731	D
M-603	Flow Diagram-Air Conditioning Administration Bldg & Control Room	BD
M-845	Composite Flow Diagram, Appendix R Safe Shutdown Systems, RC, RHR, SI, CVC & WDL	C
M-846	Composite Flow Diagram, Appendix R Safe Shutdown Systems, SW & CC	C
M-847	Composite Flow Diagram, Appendix R Safe Shutdown Systems, MS, SGB, CD, MUP, AFW, FP, DGM & AS	G
M-1751-1	Safeguards Alley Fire Protection Sprinkler Piping Plan	A
M-1751-2	Safeguards Alley Fire Protection Sprinkler Piping Plan	A
M-1751-3	Safeguards Alley Fire Protection Sprinkler Piping Sections and Details	A
OPERXK-100-35	Flow Diagram – Chemical and Volume Control System	AC
OPERXK-100-36	Flow Diagram – Chemical and Volume Control System	BB

EVALUATIONS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
	Cable Fire Suppression Using Carbon Dioxide	January 23, 2003
EPM P1919-086-001	Identification and Evaluation of Communications Design Basis	0
FPEE-046	Lack of Suppression in Turbine-Driven AFW Pump Room	0
FPEE-049	Adequacy of Partial Area Suppression/Detection	5
FPEE-061	3M Fire Wrap Installed on Pull Box PB1168	0

MISCELLANEOUS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
	Kewaunee – Appendix R Design Description	6

4

Attachment

MISCELLANEOUS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
FPEE No. 003	Fire Protection Engineering Evaluation – Feasibility Evaluation for Remote Operator Actions Credited for Appendix R	0

MODIFICATIONS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
DCR 1191	Install 3 Hour Fire Wall and Doors in Various Locations in the Aux Building	April 12, 1982
DCR 3049	Replace Plant Fire Alarm System	March 13, 2001
DCR 3330	Relay Room CO2 Pressure Relief Modification	0
DCR 3393	Safeguards Alley Fire Protection System	0

PROCEDURES

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
GNP-05.16.06	Validation of Time Dependant Operator Actions	6
MA-KW-ECM-RHR-003	Electrical Corrective Maintenance – RHR-2B MOV RCS Pressure Interlock Bypass	0
OP-KW-AOP-ACC-001	Abnormal Control Room A/C System Operation	0
OP-KW-AOP-FP-001	Abnormal Operating Procedure – Fire	0
OP-KW-AOP-FP-002	Fire in Alternate Fire Zone	0 & 2
OP-KW-AOP-FP-003	Fire in Dedicated Fire Zone	0
PMP-08-14	FP – Safeguards Common Zones Fire Detection Functional Test	12
PMP-08-30	FP – CO2 System Inspection and Dry Test (QA-1)	P
PMP-41-06B	Big Beam Emergency Light Train “B” Electrical Maintenance Appendix R and Non Appendix R	2

VENDOR DOCUMENTS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
85001-0245	Edwards Systems Technology Intelligent 4D Multisensor Detector	1996

WORK ORDERS

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
02-012744	Relay Room Pressure Relief Modification Testing – DCR 3330	March 31, 2006
06-2005	Data Sheet No. 3 – CO2 Hose Reel Operation	September 15, 2006
06-8618	Data Sheet No. 3 – CO2 Hose Reel Operation	February 22, 2007
07-2100	Data Sheet No. 3 – CO2 Hose Reel Operation	September 12, 2007
7-10674	Data Sheet No. 3 – CO2 Hose Reel Operation	March 26, 2008
KW100420498	Test Potentially Damaged CO2 Hose Removed Per WO KW100418925 in Accordance	September 4, 2008

WORK REQUEST FORM

<u>Number</u>	<u>Description or Title</u>	<u>Date or Revision</u>
35848	Three Hour Fire Barrier	January 7, 1987

LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agencywide Documents Access and Management System
AOP	Abnormal Operating Procedure
CAP	Corrective Action Program
CCDP	Conditional Core Damage Probability
CFR	Code of Federal Regulations
CR	Condition Report
DC	Direct Current
EN	Event Notification
FPEE	Fire Protection Engineering Evaluation
GL	Generic Letter
HVAC	Heating, Ventilation, and Air Conditioning
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IPEEE	Individual Plant Examination of External Events
IR	Inspection Report
kW	Kilowatt
LOCA	Loss of Coolant Accident
NCV	Non-Cited Violation
NFPA	National Fire Protection Association
NRC	U.S. Nuclear Regulatory Commission
PARS	Publicly Available Records
PORV	Power Operated Relief Valve
RIS	Regulatory Issue Summary
SDP	Significance Determination Process
SER	Safety Evaluation Report
SRA	Senior Reactor Analyst
USAR	Updated Safety Analysis Report
URI	Unresolved Item