Revision 2, by relocating the closure times for MSIVs, FIVs, FCVs, and associated bypass valves to the Technical Requirements Manual (TRM). The availability of TSTF–491, Revision 2, was announced in the **Federal Register** on December 29, 2006 (71 FR 78472), as part of the Consolidated Line Item Improvement Process (CLIIP).

Date of issuance: June 29, 2012.

Effective date: As of the date of issuance and shall be implemented within 120 days from the date of issuance.

Amendment Nos.: Unit 1—157; Unit 2—157.

Facility Operating License Nos. NPF–87 and NPF–89: The amendments revised the Facility Operating Licenses and Technical Specifications.

Date of initial notice in **Federal Register:** January 24, 2012 (77 FR 3511).

The Commission's related evaluation of the amendments is contained in a Safety Evaluation dated June 29, 2012.

No significant hazards consideration comments received: No.

South Carolina Electric and Gas Company, South Carolina Public Service Authority, Docket No. 50–395, Virgil C. Summer Nuclear Station, Unit 1, Fairfield County, South Carolina

Date of application for amendment: October 12, 2011.

Brief description of amendment: The amendment authorizes revision of the Final Safety Analysis Report (FSAR) to reflect deletion of five high head safety injection (HHSI) containment isolation valves from the local leak rate test program on the basis that they are in lines that are closed outside of containment.

Date of issuance: July 9, 2012.

Effective date: This license amendment is effective as of the date of its issuance.

Amendment No.: 191.

Renewed Facility Operating License No. NPF–12: Amendment revises the License.

Date of initial notice in **Federal Register**: December 13, 2011 (76 FR 77570).

The Commission's related evaluation of the amendment is contained in a Safety Evaluation dated July 9, 2012.

No significant hazards consideration comments received: No.

Tennessee Valley Authority, Docket No. 50–328, Sequoyah Nuclear Plant, Unit 2, Hamilton County, Tennessee

Date of application for amendment: July 15, 2011, as supplemented on October 20, 2011 (TS–SQN–2011–01).

Brief description of amendment: The proposed amendment revised the Technical Specifications (TSs) requirements for steam generator (SG) tube inspections to reflect the replacement steam generators (RSGs) to be installed during refueling outage 18 presently scheduled for the fall of 2012. Previous changes to the TSs to reflect the Technical Specification Task Force (TSTF) Standard Technical Specification Traveler, TSTF–449, ''Steam Generator Tube Integrity,'' Revision 4, were approved by the U.S. Nuclear Regulatory Commission (NRC) on May 22, 2007. The changes proposed in this amendment reflect the inspection requirements of TSTF–449, Revision 4. The RSG tubes will be made of Alloy 690 thermally treated (TT) material, and the existing SGs have Alloy 600 tubes. The revisions to TSs are required because the inspection frequency for Alloy 690 TT tube material, as defined in TSTF–449, differs from the inspection frequency for Alloy 600, and the tube repair processes and products in the existing TSs are not applicable to the RSGs.

Date of issuance: July 10, 2012.

Effective date: As of the date of issuance and shall be implemented upon startup from fall 2012 refueling outage after completing the installation of new steam generators.

Amendment No.: 323.

Facility Operating License No. DPR–79: Amendment revised the TSs.

Date of initial notice in **Federal Register**: September 6, 2011 (76 FR 55131). The supplement letter dated October 20, 2011, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination.

The Commission's related evaluation of the amendment is contained in a Safety Evaluation dated July 10, 2012.

No significant hazards consideration comments received: No.

Dated at Rockville, Maryland, this 13th day of July 2012.

For the Nuclear Regulatory Commission.

Michele G. Evans,

Director, Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation.

[FR Doc. 2012–17869 Filed 7–23–12; 8:45 am]

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NUCLEAR REGULATORY COMMISSION

[Docket No. 50–336; NRC–2012–0158]

Millstone Power Station, Unit 2; Exemption

1.0 Background

Dominion Nuclear Connecticut, Inc., (the licensee, Dominion) is the holder of Renewed Facility Operating License No. DPR–65, which authorizes operation of the Millstone Power Station, Unit 2 (MPS2). The license provides, among other things, that the facility is subject to all rules, regulations, and orders of the U.S. Nuclear Regulatory Commission (NRC or the Commission) now or hereafter in effect.

MPS2 shares the site with Millstone Power Station Unit 1, a permanently defueled boiling water reactor nuclear unit, and Millstone Power Station Unit 3, a pressurized water reactor. The facility is located in Waterford, Connecticut, approximately 3.2 miles west southwest of New London, CT. This exemption applies to MPS2 only. The other units, Units 1 and 3, are not part of this exemption.

2.0 Request/Action

Title 10 of the *Code of Federal Regulations* (10 CFR) 50.48, requires that nuclear power plants that were licensed before January 1, 1979, satisfy the requirements of 10 CFR Part 50, Appendix R, ''Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979,'' Section III.G, ''Fire protection of safe shutdown capability.'' MPS2 was licensed to operate prior to January 1, 1979. As such, the licensee's Fire Protection Program (FPP) must provide the established level of protection as intended by Section III.G of 10 CFR Part 50, Appendix R.

By letter dated June 30, 2011, ''Request for Exemption from 10 CFR Part 50, Appendix R, Section III.G, Fire Protection of Safe Shutdown Capability'' available at Agencywide Documents Access and Management System (ADAMS), Accession No. ML11188A213, and supplemented by letter dated February 29, 2012, ''Response to Request for Additional Information Request for Exemption from 10 CFR Part 50, Appendix R, Section III.G, Fire Protection of Safe Shutdown Capability'' (ADAMS Accession No. ML12069A016), the licensee requested an exemption for MPS2, from certain technical requirements of 10 CFR Part 50, Appendix R, Section III.G.2 (III.G.2) for the use of operator manual actions (OMAs) in lieu of meeting the circuit

separation and protection requirements contained in III.G.2 for fire areas:

R–2/Fire Hazards Analysis (FHA) Zone A–8C, Zone A–8D, Zone A–13, Zone T–8, Zone T–10;
R–4/FHA Zone A–6A, Zone A–6B;
R–5/FHA Zone A–8A;
R–6/FHA Zone A–3;
R–7/FHA Zone A–15;
R–8/FHA Zone A–16;
R–9/FHA Zone A–20;
R–10/FHA Zone A–21;
R–12/FHA Zone T–4;
R–13/FHA Zone T–6;
R–14/FHA Zone T–7, Zone T–9;
R–15/FHA Zone C–1;
R–17/FHA Zone A–10A, Zone A–10B, and Zone A–10C.

3.0 Discussion

Pursuant to 10 CFR 50.12, the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of 10 CFR Part 50 when: (1) The exemptions are authorized by law, will not present an undue risk to public health or safety, and are consistent with the common defense and security; and (2) when special circumstances are present. The licensee has stated that special circumstances are present in that the application of the regulation in this particular circumstance is not necessary to achieve the underlying purpose of the rule, which is consistent with the language included in 10 CFR 50.12(a)(2)(ii). The licensee further states that the OMAs included in the exemption request provide assurance that one train of systems necessary to achieve and maintain hot shutdown will remain available in the event of a fire.

In accordance with 10 CFR 50.48(b), nuclear power plants licensed before January 1, 1979, are required to meet Section III.G, of 10 CFR Part 50, Appendix R. The underlying purpose of Section III.G of 10 CFR Part 50, Appendix R, is to ensure that the ability to achieve and maintain safe shutdown is preserved following a fire event. The regulation intends for licensees to accomplish this by extending the concept of defense-in-depth to:

a. Prevent fires from starting;

b. Rapidly detect, control, and extinguish promptly those fires that do occur;

c. Provide protection for structures, systems, and components important to safety so that a fire that is not promptly extinguished by the fire suppression activities will not prevent the safe shutdown of the plant.

The stated purpose of III.G.2 is to ensure that in the event of a fire, one of the redundant trains necessary to achieve and maintain hot shutdown conditions remains free of fire damage. III.G.2 requires one of the following means to ensure that a redundant train of safe shutdown cables and equipment is free of fire damage, where redundant trains are located in the same fire area outside of primary containment:

a. Separation of cables and equipment by a fire barrier having a 3-hour rating;

b. Separation of cables and equipment by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards and with fire detectors and an automatic fire suppression system installed in the fire area; or

c. Enclosure of cables and equipment of one redundant train in a fire barrier having a 1-hour rating and with fire detectors and an automatic fire suppression system installed in the fire area.

The licensee stated that the OMAs addressed in the exemption request are those contained in the MPS2 Appendix R Compliance Report. The licensee stated that the MPS2 Appendix R Compliance Report was submitted to the NRC for review on May 29, 1987 (ADAMS Legacy Library Accession No. 8706120088, available at NRC Public Document Room) and found acceptable by an NRC safety evaluation report (SER) dated July 17, 1990 (ADAMS Accession No. ML012880391), but that the SER did not specifically address the OMAs.

Each OMA included in this review consists of a sequence of tasks that need to be performed in various fire areas. The OMAs are initiated upon confirmation of a fire in a particular fire area. Table 1 lists the OMAs included in this review (OMAs are listed in the order they are conducted for a fire originating in a particular area). Some OMAs are listed more than once, if they are needed for fires that originate in different areas.

TABLE 1

Area of fire origin	Area name	Actions	OMA
Fire Area R–2	West Penetration Area, Motor Control Center B61, and the Facility Z2 Upper 4.16kV Switchgear Room and Cable Vault.	Pull Control Power Fuses and Ensure Breaker A305 is Open	OMA 12
		Operate Valve 2–MS–190A to Transition from Main Steam Safety Valves.	OMA 10
		Check Local Condensate Storage Tank Level Indication at LIS–5489.	OMA 20
		Open Breaker to Fail Valve 2–CH–517 Closed	OMA 6
		Check Local Level Indication at LI–206A	OMA 18
		Check Local Boric Acid Storage Tank Level Indication at LI–208A.	OMA 19
		Open Valve 2–CH–429 to Establish Charging Flow Path	OMA 2
		Open Valve 2–CH–192 to Establish Charging Pump Suction from Refueling Water Storage Tank.	OMA 1
		Open Valve 2–CS–13.1B to Establish Charging Pump Suction from Refueling Water Storage Tank.	OMA 8
Fire Area R–4	Charging Pump Cubicles	Control at Panel C–10 Until Loss of Air, Operate Valve 2–MS–190B to Transition from Main Steam Safety Valves.	OMA 11
		Open Valve 2–CH–192 to Establish Charging Pump Suction from Refueling Water Storage Tank.	OMA 1
Fire Area R–5	"A" Safeguards Room (High Pressure Safety Injection/Low Pressure Safety Injection).	Operate Valve 2–MS–190A to Transition from MSSVs	OMA 10

TABLE 1—Continued

Area of fire origin	Area name	Actions	OMA
		Open Valve 2–CH–192 to Establish Charging Pump Suction from Refueling Water Storage Tank.	OMA 1
Fire Area R–6	"B" Safeguards Room (Low Pressure Safety Injection).	Operate Valve 2–MS–190A to Transition from Main Steam Safety Valves.	OMA 10
		Open Valve 2–CH–192 to Establish Charging Pump Suction from Refueling Water Storage Tank.	OMA 1
Fire Area R–7	Diesel Generator Room A	Control at Panel C–10 Until Loss of Air, Operate Valve 2–MS–190B to Transition from Main Steam Safety Valves.	OMA 11
		Open Valve 2–CH–508 to Obtain Charging Pump Suction from Boric Acid Storage Tank.	OMA 4
		Open Valve 2–CH–509 to Obtain Charging Pump Suction from Boric Acid Storage Tank.	OMA 5
		Open Valve 2–CH–192 to Establish Charging Pump Suction from Refueling Water Storage Tank.	OMA 1
Fire Area R–8	Diesel Generator Room B	Operate Valve 2–MS–190A to Transition from Main Steam Safety Valves.	OMA 10
		Open Valve 2–CH–192 to Establish Charging Pump Suction from Refueling Water Storage Tank.	OMA 1
		Check Local Condensate Storage Tank Level Indication at LIS–5489.	OMA 20
Fire Area R–9	Facility Z1 Direct Current Switchgear Room and Battery Room.	Open Valve 2–CH–508 to Obtain Charging Pump Suction from Boric Acid Storage Tank.	OMA 4
		Open Valve 2–CH–509 to Obtain Charging Pump Suction from Boric Acid Storage Tank.	OMA 5
Fire Area R–10	Facility Z2 Direct Current Equipment Room and Battery Room.	Check Local Condensate Storage Tank Level Indication at LIS–5489.	OMA 20
		Check Local Boric Acid Storage Tank Level Indication at LI–206A.	OMA 18
		Check Local Boric Acid Storage Tank Level Indication at LI–208A.	OMA 19
Fire Area R–12	Turbine Driven Auxiliary Feedwater Pump Pump Pit.	Operate Valve 2–MS–190A to Transition from Main Steam Safety Valves.	OMA 10
		Open Valve 2–CH–192 to Establish Charging Pump Suction from Refueling Water Storage Tank.	OMA 1
Fire Area R–13	West (Facility Z1) 480 VAC Switchgear Room.	Operate Valve SV–4188 from Panel C–10	OMA 22
		Operate Speed Control Circuit H–21 from Panel C–10 to Control Turbine Driven Auxiliary Feedwater Pump Speed.	OMA 17
		Check Local Condensate Storage Tank Level Indication at LIS–5489.	OMA 20
		Pull Control Power Fuses and Ensure Breaker A406 is Open ...	OMA 16
		Close Breaker DV2021 at Panel DV20	OMA 24
		Open Valve 2–CH–508 to Obtain Charging Pump Suction from Boric Acid Storage Tank.	OMA 4
		Open Valve 2–CH–509 to Obtain Charging Pump Suction from Boric Acid Storage Tank.	OMA 5
		Operate Pump P18C from Panel C–10	OMA 21
Fire Area R–14	Facility Z1 Lower 4.16kV Switchgear Room and Cable Vault.	Open Valve 2–CH–508 to Obtain Charging Pump Suction from Boric Acid Storage Tank.	OMA 4
		Open Valve 2–CH–509 to Obtain Charging Pump Suction from Boric Acid Storage Tank.	OMA 5
		Pull Control Power Fuses and Ensure Breaker A410 is Open to Isolate Required Bus.	OMA 14
		Pull Control Power Fuses and Ensure Breaker A408 is Open to Isolate Required Bus.	OMA 13
		Pull Control Power Fuses and Ensure Breaker A401 is Closed to Power Bus from the Emergency Diesel Generator.	OMA 23
		Pull Control Power Fuses and Ensure Breaker A411 is Open to Isolate Required Bus.	OMA 15
		Close Breaker DV2021 at Panel DV20	OMA 24
Fire Area R–15	Containment Building	Operate Valve 2–MS–190A to Transition from Main Steam Safety Valves.	OMA 10

TABLE 1—Continued

Area of fire origin	Area name	Actions	OMA
		Control at Panel C–10 Until Loss of Air, Operate Valve 2–MS–190B to Transition from Main Steam Safety Valves.	OMA 11
		Open Breaker to Fail Valve 2–CH–517 Closed	OMA 6
		Open Breaker to Fail Valve 2–CH–519 Open to Establish Charging Flow Path.	OMA 7
		Open Valve 2–CH–192 to Establish Charging Pump Suction from Refueling Water Storage Tank.	OMA 1
Fire Area R–17	East Penetration Area	Control at Panel C–10 Until Loss of Air, Operate Valve 2–MS–190B to Transition from Main Steam Safety Valves.	OMA 11
		Open Valve 2–CH–508 to Obtain Charging Pump Suction from Boric Acid Storage Tank.	OMA 4
		Open Valve 2–CH–509 to Obtain Charging Pump Suction from Boric Acid Storage Tank.	OMA 5
		Open Valve 2–CH–192 to Establish Charging Pump Suction from Refueling Water Storage Tank.	OMA 1

The designation Z1 and Z2 are used throughout this exemption. The licensee stated that the 4.16 kV subsystems are divided into two specific ''Facilities'' and that Facility Z1 or Z1 Power begins with load center 24C which powers one train of Engineered Safety Features (ESFs) and is provided with an emergency power supply by the ''A'' Emergency Diesel Generator (EDG) while Facility Z2 begins with load center 24D and powers a redundant second train of ESF and is provided with an emergency power supply by the ''B'' EDG. The licensee also stated that vital power and control cables fall mainly into two redundancy classifications; Channel Z1 and Channel Z2 and that in a few cases there is also a Channel Z5, which is a system that can be transferred from one source to another. The licensee further stated that, Facility Z1 would be synonymous with ''A'' train while Facility Z2 would be synonymous with ''B'' train.

The licensee stated that their exemption request is provided in accordance with the information contained in Regulatory Issue Summary (RIS) 2006–10, ''Regulatory Expectations with Appendix R Paragraph III.G.2 Operator Manual Actions,'' which states that an approved 10 CFR 50.12 exemption is required for all OMAs, even those accepted in a previously issued NRC SER.

Dominion has requested an exemption from the requirements of III.G.2 for MPS2 to the extent that one of the redundant trains of systems necessary to achieve and maintain hot shutdown is not maintained free of fire damage in accordance with one of the required means, for a fire occurring in the following fire areas:

R–2 West Penetration Area, Motor Control Center (MCC) B61, and the Facility Z2 Upper 4.16kV Switchgear Room and Cable Vault;
R–4 Charging Pump Cubicles;
R–5 ''A'' Safeguards Room;
R–6 ''B'' Safeguards Room;
R–7 Diesel Generator Room ''A'';
R–8 Diesel Generator Room ''B'';
R–9 Facility Z1 DC Switchgear Room and Battery Room;
R–10 Facility Z2 DC Switchgear Room and Battery Room;
R–12 Turbine Driven Auxiliary Feedwater Pump Pit;
R–13 West 480 VAC Switchgear Room;
R–14 Facility Z1 Lower 4.16kV Switchgear Room and Cable Vault;
R–15 Containment Building;
R–17 East Penetration Area.

The licensee stated that the OMAs are credited for the III.G.2 deficiencies, such as having only a single safe shutdown train, lack of separation between redundant trains, lack of detection and automatic suppression in the fire area or a combination of those deficiencies. The NRC staff notes that having only a single safe shutdown train is not uncommon to this plant design. Single train systems at MPS2 include Instrument Air (IA), ''A'' and ''B'' Boric Acid Storage Tank (BAST) Control Room (CR) level indication, Condensate Storage Tank (CST) CR level indication, suction-side flow to the Charging Pumps from the Refueling Water Storage Tank (RWST), auxiliary spray to the Pressurizer, and Charging Pump discharge to the Reactor Coolant System (RCS).

The licensee also stated that they have evaluated/modified all motor operated valves (MOVs) relied upon by OMAs consistent with NRC Information Notice (IN) 92–18 (February 28, 1992) which detailed the potential for fires to damage MOVs that are required for safe shutdown so that they can no longer be remotely or manually operated and that as a result of this evaluation and modifications, the possibility that the desired result was not obtained is minimized. The licensee further stated that all the equipment operated to perform these OMAs are not fire affected and therefore are reasonably expected to operate as designed with one exception being in fire area R–4 concerning the performance of OMA 1 (see section 3.2.4.1.1) The licensee further stated that valve 2–CH–192 could be fire affected, however, it is an (air operated valve (AOV) that fails closed on loss of IA or power and is normally closed and that a fire event in this area will not cause this valve to be driven beyond its stops and that the valve will not be overtourqued. The licensee further stated that operating valve 2–CH–192 is not required until the BASTs are nearly depleted; a minimum of 72 minutes after charging is reestablished (which is not required until 180 minutes) and that a fire directly impacting valve 2–CH–429 would result in the valve failing in the desired open position.

In their submittals, the licensee described elements of their FPP that provide their justification that the concept of defense-in-depth that is in place in the above fire areas is consistent with that intended by the regulation. To accomplish this, the licensee utilizes various protective measures to accomplish the concept of defense-in-depth. Specifically, the licensee stated that the purpose of their request was to credit the use of OMAs, in conjunction with other defense-in-depth features, in lieu of the separation and protective measures required by III.G.2. Their approach is discussed below.

The licensee provided an analysis that described how fire prevention is addressed for each of the fire areas for which the OMAs may be required.

Unless noted otherwise below, all of the fire areas included in this exemption have a combustible fuel load that is considered to be low, with fuel sources consisting primarily of fire retardant cable insulation and limited floor based combustibles. The licensee also stated that two of the fire areas (R–7/FHA Zone A–15 and R–8/FHA Zone A–16) have high combustible loading consisting of fuel oil and lube oil and that automatic pre-action fire suppression systems are provided in these areas. The licensee further stated that two other fire areas (R–17/FHA Zone A–10A and R–12/FHA Zone T–4) contain negligible combustible loading, with combustibles in these areas consisting of Class A combustibles and lube oil. There are no high energy ignition sources located in the areas except as noted in fire areas R–2 and R–14. The fire areas included in the exemption request are not shop areas so hot work activities are infrequent with administrative control (e.g., hot work permits, fire watch, and supervisory controls) programs in place if hot work activities do occur. The administrative controls are described in the Millstone FPP, which is incorporated into the Updated Final Safety Analysis Report.

The licensee stated that the storage of combustibles is administratively controlled by the site's FPP procedures to limit the effects of transient fire exposures on the plant and in addition, hot work (i.e., welding, cutting, grinding) is also administratively controlled by site FPP procedure CM–AA–FPA–100.

The licensee indicated that their FPP uses the concept of defense-in-depth, both procedurally and physically, to meet the following objectives: 1. Prevent fires from starting; 2. Rapidly detect, control, and extinguish promptly, those fires that do occur; and, 3. Provide protection for structures, systems, and components important to safety so that a fire that is not promptly extinguished by the fire suppression activities will not prevent the safe shutdown of the plant. The licensee also stated that the integration of the program, personnel, and procedures, which are then collectively applied to the facility, reinforce the defense in-depth aspect of the FPP and that strict enforcement of ignition source and transient combustible control activities (through permitting), and monthly fire prevention inspections by the site Fire Marshal ensure that this work is actively monitored to prevent fires.

The MPS Fire Brigade consists of a minimum of a Shift Leader and four Fire Brigade personnel. The affected unit (MPS2 or MPS3) supplies an advisor, who is a qualified Plant Equipment Operator (PEO). The advisor provides direction and support concerning plant operations and priorities. Members of the Fire Brigade are trained in accordance with MPS, Station Procedure TQ–1, Personnel Qualification and Training. Fire Brigade personnel are responsible for responding to all fires, fire alarms, and fire drills and to ensure availability, a minimum of a Shift Leader and four Fire Brigade personnel remain in the Owner Controlled Area and do not engage in any activity which would require a relief in order to respond to a fire. The licensee further stated that the responding Fire Brigade lead may request the Shift Manager (SM) augment the on-shift five member Fire Brigade with outside resources from the Town of Waterford Fire Department which has a letter of agreement with MPS, to respond to the site (when requested) in the event of a fire emergency or rescue and will attempt to control the situation with available resources.

MPS2 has been divided into fire areas, as described in the MPS FPP. Three-hour fire barriers are normally used to provide fire resistive separation between adjacent fire areas. In some cases, barriers with a fire resistance rating of less than three hours are credited but exemptions have been approved or engineering evaluations performed in accordance with Generic Letter 86–10 to demonstrate that the barriers are sufficient for the hazard. Walls separating rooms within fire areas are typically constructed of heavy concrete. The licensee stated that in general, fire rated assemblies separating Appendix R fire areas meet Underwriters Laboratories/Factory Mutual (UL/FM) design criteria and the requirements of American Society of Testing Materials (ASTM) E–119, ''Fire Test of Building Construction and Materials'' for 3-hour rated fire assemblies. The licensee also stated that openings created in fire rated assemblies are sealed utilizing penetration seal details that have been tested in accordance with ASTM E–119 and are qualified for a 3-hour fire rating, in addition, fireproof coating of structural steel conforms to UL–Listed recognized details and is qualified for a 3-hour fire rating. The licensee further stated that fire dampers are UL–Listed and have been installed in accordance with the requirements of National Fire Protection Association (NFPA) 90A, ''Standard for the Installation of Air Conditioning and Ventilation Systems,'' and that the code of record for fire dampers is either the version in effect at the time of original plant construction (late 1960s) or the 1985 edition. The licensee further stated that fire doors are UL–Listed and have been installed in accordance with NFPA 80, ''Standard for Fire Doors and Windows'' in effect at the time of plant construction (late 1960s).

The licensee provided a discussion of the impacts of any Generic Letter (GL) 86–10 evaluations and/or exemptions on the fire areas included in this exemption request. For all the areas with GL 86–10 evaluations and/or other exemptions, the licensee stated that none of the issues addressed by the evaluations would adversely impact, through the spread of fire or products of combustion, plant areas where OMAs are performed or the respective travel paths necessary to reach these areas. The licensee also stated that there are no adverse impacts on the ability to perform OMAs and that the conclusions of the GL 86–10 evaluations and the exemption requests would remain valid with the OMAs in place. In addition to these boundaries, the licensee provided a hazard analysis that described how detection, control, and extinguishment of fires are addressed for each of the fire areas for which the OMAs may be needed.

Unless noted otherwise below, fire areas are provided with ionization smoke detectors. The licensee stated that the smoke and heat detection systems were designed and installed using the guidance of the requirements set forth in several NFPA standards including the 1967, 1979, and 1986 Editions of NFPA 72D, ''Standard for the Installation, Maintenance and Use of Proprietary Protective Signaling Systems for Watchman, Fire Alarm and Supervisory Service,'' and the 1978 and 1984 Editions of NFPA 72E, ''Standard on Automatic Fire Detectors.'' Upon detecting smoke or fire, the detectors initiate an alarm in the CR enabling Fire Brigade response. The licensee stated that in most cases, no automatic fire suppression systems are provided in the areas included in this exemption request except for plant areas with significant quantities of combustibles, such as lube oil. Automatic fire suppression systems have also been installed in areas with one-hour barrier walls and one-hour rated electrical raceway encapsulation.

The licensee stated that fire suppression systems were designed in general compliance with, and to meet the intent of the requirements of several NFPA standards depending on the type of system including the 1985 Edition of NFPA 13, ''Standard for the Installation of Sprinkler Systems,'' the 1985 Edition of NFPA 15, ''Standard for Water Spray

Fixed Systems For Fire Protection,'' and the 1987 Edition of NFPA 12A, ''Standard on Halon 1301 Fire Extinguishing Systems.''

The licensee stated that in general, fire extinguishers and hose stations have been installed in accordance with the requirements of the 1968 Edition of NPFA 10, ''Standard for the Installation of Portable Fire Extinguishers'' and the 1978 Edition of NFPA 14, ''Standard for the Installation of Standpipe and Hose Systems,'' respectively. The licensee stated that Equipment Operators are trained Fire Brigade members and would likely identify and manually suppress or extinguish a fire using the portable fire extinguishers and manual hose stations located either in or adjacent to, or both, these fire areas.

Each of the fire areas included in this exemption is analyzed below with regard to how the concept of defense-in-depth is achieved for each area and the role of the OMAs in the overall level of safety provided for each area.

3.1 Fire Area R–2, West Cable Vault, Upper 6.9 and 4.16kV Switchgear Rooms, 480V MCC B61 and B41A Enclosure, West Piping Penetration Area, West Electrical Penetration Area

3.1.1 Fire Prevention

The licensee stated that the West Cable Vault, the Upper 6.9 and 4.16 kV Switchgear Room, the 480V MCC B61 and B41A Enclosure, and the West Piping Penetration Area have low combustible loading that predominantly consists of cable insulation and that potential ignition sources for these areas includes electrical faults.

The licensee stated that the West Electrical Penetration Area has low to moderate combustible loading that includes small amounts of plastics and cellulosic materials and that potential ignition sources include electrical faults.

3.1.2 Detection, Control and Extinguishment

The licensee stated that the West Cable Vault is provided with an automatic wet-pipe sprinkler system designed to protect structural steel in this area from the adverse affects of a fire, and also protected by an ionization smoke detection system that alarms at the main fire alarm panel in the CR. In addition, the licensee stated that the vertical cable chase that leads down the Auxiliary Building (AB) cable vault is protected by an automatic deluge spray system which is actuated by a cross-zoned smoke detection system that alarms at a local panel and at the main fire alarm panel in the CR. The licensee also stated that a fire in the West Cable Vault that could potentially impact a cable of concern would likely involve cable insulation and result from an electrical fault and that combustibles in this area consist predominantly of Institute of Electrical and Electronics Engineers (IEEE) 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics (not self-igniting or capable of propagating flame after pilot ignition source is removed). The licensee also stated that were a cable fire to occur in this area, it would be rapidly detected in its incipient stage by the installed smoke detection system, which will aid in providing rapid response by the Fire Brigade and that in the unlikely event the fire advanced beyond its incipient stage, it would actuate the installed automatic wet-pipe suppression system which consists of sprinklers located in each beam pocket and provides reasonable assurance that a cable tray fire in this area will be controlled and confined to the immediate area of origin, and will limit fire exposure/damage.

The licensee stated that the Upper 6.9 and 4.16kV Switchgear Room has ionization smoke detection located directly over each switchgear cabinet that alarms at the main fire alarm panel in the CR. The licensee further stated that a fire in the Upper 6.9 and 4.16 kV Switchgear Room that could potentially impact any cables of concern would likely involve cable insulation resulting from an electrical fault or failure of Bus 25B, which is located several feet away from the subject cable tray and that combustibles in this area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics. The licensee further stated that in the unlikely event of a fire, it would be rapidly detected by the ionization smoke detection system installed in the area and that the smoke detection system, which consists of an ionization smoke detector located directly over each switchgear cabinet in the area, will aid in providing prompt Fire Brigade response.

The licensee stated that the 480V MCC B61 and B41A enclosures are provided with ionization smoke detection that alarms at a local panel and at the main fire alarm panel in the CR. The licensee also stated that the steel enclosure of the MCC room is protected by a wet pipe water spray system in lieu of a three hour fire barrier. The licensee further stated that a fire in the 480 V MCC B61 and B41A enclosures that could potentially impact any cables of concern would likely involve cable insulation resulting from an electrical fault or failure of one of the MCC's located in the room and that combustibles in this area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics. The licensee further stated that a failure of MCC B–41B could also serve as an ignition source and that an MCC failure normally results in a high intensity fire that lasts for a short duration, which makes it unlikely that it will cause sustained combustion of IEEE 383 qualified cables despite the fact that the subject cable trays are located approximately 6–8' above the MCC. The smoke detection system, which consists of an ionization smoke detector located directly over MCC B61, will aid in providing prompt Fire Brigade response.

The licensee stated that the West Piping Penetration Area is provided with an ionization smoke detection system, which alarms at a local panel and at the main fire alarm panel in the CR. The licensee further stated that a fire in the West Piping Penetration area that could potentially impact any cables of concern would likely involve cable insulation resulting from an electrical fault and that combustibles in this area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics. The licensee further stated that since there is a minimal amount of Class A combustibles in this area, there is little chance of a fire occurring, outside of a switchgear failure, which could act as a pilot ignition source for the cable insulation and that a switchgear failure normally results in a high intensity fire that lasts for a short duration, which makes it unlikely that it will cause sustained combustion of IEEE 383 qualified cables. The licensee further stated that in the event of a fire in this area, it would be rapidly detected in its incipient stage by the installed smoke detection system, which will aid in providing rapid response by the Fire Brigade.

The licensee stated that the West Electrical Penetration Area is provided with an ionization smoke detection system, which alarms at the main fire alarm panel in the CR. The licensee further stated that a fire in the West Electrical Penetration Area that could potentially impact any cables of concern would likely involve cable insulation resulting from an electrical fault and that combustibles in this area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire

resistive characteristics. The licensee further stated that in the event of a fire in this area, it would be rapidly detected in its incipient stage by the installed smoke detection system, which will aid in providing rapid response by the Fire Brigade.

3.1.3 Preservation and Safe Shutdown Capability

The licensee stated that the OMAs associated with a fire in the West Cable Vault are related to failure of the feed to the 480V load center bus 22F or the ''B'' EDGs control and power cables and that loss of bus 22F results in the loss of the ''B'' battery charger and the eventual depletion of the ''B'' battery which in turn results in the loss of level transmitter LT–5282.

The licensee stated that the cables of concern in the Upper 4.16 kV Switchgear Room are for valves 2–CH–429 and 2–CH–517, level transmitters LT–5282, LT–206 and LT–208 and breaker A305. The licensee also stated that the cabling of concern is part of the breaker control logic and coordination between buses 24C, 24D and 24E and that components 2–CH–429, 2–CH- 517, LT–5282, LT–206, and LT–208 are single train components. The licensee further stated that the worst case tray arrangement is the common tray for components 2–CH–429, 2–CH–517, LT–206, LT–208 and LT–5282. The licensee further stated that there is a moderate likelihood that a fire can occur which will impact components 2–CH–429, 2–CH–517, LT–206, LT–208 or LT–5282.

The licensee stated that cables of concern in the 480 V MCC B61 and B41A enclosures are the power, indication and control cables for valves 2–CS–13.1B and 2–CH–429.

The licensee stated that valve 2–CH–429 is located in the north and west side of the West Piping Penetration Room, near the containment building wall and that the power and indication cabling for this valve is routed via conduit into a cable tray located along the west wall of the room. The licensee also stated that there is likely no fire that can occur which will impact valve 2–CH–429 due to configuration, combustible loading and ignition sources, however, if there was an impact, the nature of the cables would fail the valve in the desired open position.

The licensee stated that the cables of concern in the West Electrical Penetration Area service valves 2–CH–429 and 2–CH–517, and level transmitters LT–206, LT–208 and LT–5282. The licensee also stated that it is very unlikely that a fire can occur which will impact valves 2–CH–429 or 2–CH–517 due to configuration, combustible loading, and ignition sources and that analysis indicates there is a low likelihood that a fire will impact LT–206, LT–208 and LT–5282.

The licensee stated that a fire in the West Penetration Area, MCC B61, and the Facility Z2 Upper 4.16 kV Switchgear Room and Cable Vault will affect all Facility Z2 shutdown components, that Facility Z1 is used to achieve and maintain Hot Standby, and that an Abnormal Operating Procedure (AOP) is used to achieve plant shutdown to Hot Standby. The licensee also stated that for a fire in fire area R–2, OMAs are required to provide for Decay Heat Removal and to restore Charging system flow to the RCS.

3.1.4 OMAs Credited for a Fire in This Area

3.1.4.1 Auxiliary Feedwater (AFW) Flow

3.1.4.1.1 OMA 12—Pull Control Power Fuses and Ensure Breaker A305 Is Open

The licensee stated that in order to establish AFW flow, Bus 24C is credited to provide power from H7A (''A'' EDG) to P9A (''A'' Motor Drive Auxiliary Feedwater Pump (MDAFW)) and that calculations conclude that AFW flow must be established within 45 minutes. The licensee also stated that cable damage may result in a loss of remote breaker control capability for A305, which is the Bus 24C to Bus 24E cross-tie breaker and that at A305 (Bus 24C), the OMA is to de-energize the breaker control circuit by pulling control power fuses and ensuring that the breaker is open which prevents spurious closure of A305. The licensee further stated that this step establishes AFW flow and provides for a 36 minute time margin on the 45 minute time requirement and that after AFW flow is established, the atmospheric dump valves (ADVs) are utilized to remove decay heat. The licensee further stated that prior to this, RCS decay heat removal is provided by utilizing the Main Steam Safety Valves (MSSVs) and that steaming through the MSSVs is also acceptable after AFW flow is established but utilizing the ADVs, with 2–MS–190A credited for the fire in fire area R–2, is required for initiating the transition to Cold Shutdown.

3.1.4.1.2 OMA 10—Operate Valve 2–MS–190A To Transition From MSSVs

The licensee stated that valve 2–MS–190A fails due to a postulated loss of IA and its cables are not impacted by fire. The licensee also stated that PEO–2, will remain with the ADV to modulate steam flow per direction from the CR. Although this OMA is completed in 10 minutes, since the OMA is conducted after AFW flow and before charging system flow is established, there is no minimum required completion time.

3.1.4.1.3 OMA 20—Obtain Condensate Storage Tank Level at Local Level Indicating Switch LIS–5489A

The licensee stated that the remaining decay heat removal function is to locally monitor CST level (LIS–5489) which is not a short-term requirement because there is sufficient inventory in the CST to provide over 10 hours of water flow to the AFW system. The licensee further stated that this activity will likely be repeated several times over the course of placing the plant in Cold Shutdown.

3.1.4.2 Charging System Flow

3.1.4.2.1 OMAs 2 and 6—Open Valve 2–CH–429 To Establish Charging Pump Flow Path and Open Breaker to Fail Valve 2–CH–517 Closed

The licensee stated that the Charging System has several OMAs to reestablish flow within the three hour required timeframe and that to initially restore charging, valve 2–CH–429 is opened or verified open (OMA 2), and valve 2–CH–517 (OMA 6) is closed. The licensee stated that valve 2–CH–429 is a MOV located in the fire area and will be locally manually operated postfire and that it has been evaluated with respect to the guidance contained in NRC IN 92–18. The licensee stated that valve 2–CH–517 is an AOV that fails closed and is located in containment. The licensee further stated that the OMA is to de-energize the power supply (DV20) and fail the valve closed and that once 2–CH–429 is manually opened, Charging can be reestablished. The licensee further stated that assuming 60 minutes before being allowed into the fire affected area, the Charging flow path can be established within 64 minutes and Charging flow within 66 minutes which provides 114 minutes of margin on the 180 minute required time.

3.1.4.2.2 OMAs 18 and 19—Obtain BAST Level at Local Level Indicator LI–206A and Obtain BAST Level at Local Level Indicator LI–208A

The licensee stated that due to fire cable damage, both LT–206 and LT–208 are not available from the CR and that both BAST levels require OMAs for local level indication at LI–206A (OMA 18) and LI–208A (OMA 19). The licensee also stated that both indicators are outside the R–2 fire area and that the action is considered part of the restoration for the Charging system and as such, this action is not required until the three hour timeframe.

3.1.4.2.3 OMAs 1 and 8—Open Valve 2–CH–192 and Open Valve 2–CS–13.1B

The licensee stated that after Charging is restored, there are OMAs to switch the Charging suction path from the BASTs to the RWST which requires opening valves 2–CH–192 (OMA1) and 2–CS–13.1B (OMA 8). The licensee also stated that the 2–CH–192 valve is an AOV which may have failed closed due to a loss of IA and that it has a safety-related air accumulator which provides sufficient air to stroke open the valve and maintains it open for three hours and that after the air accumulator is exhausted, the valve will fail closed and an OMA is required to establish/maintain RWST flow to the Charging system.

The licensee stated that valve 2–CS–13.1B is a MOV which may spuriously close due to fire cable damage and that it has to be manually opened in the field prior to switching over to the RWST. The licensee also stated that based on requirements in the technical requirements manual (TRM), the BASTs can supply Charging for more than 72 minutes, at which time the Charging pump suction source is shifted to the RWST.

3.1.4.3 OMA Timing

The OMA to establish AFW flow can be completed in 9 minutes which provides a 36 minute margin since the required completion time is 45 minutes. The OMA to monitor CST level can be completed in 12 minutes and is a long term action as the CST provides over 10 hours of inventory to AFW. The OMAs to establish Charging system flow from the BASTs can be completed in 66 minutes which provides a 114 minute margin since the required completion time is 180 minutes. The OMAs to establish Charging system flow from the RWST prior to BAST depletion can be completed in 40 minutes which provides a 32 minute margin since the required completion time is 72 minutes.

3.1.5 Conclusion

Given the limited amount of combustible materials and ignition sources and installed detection and automatic fire suppression (West Cable Vault), it is unlikely that a fire would occur and go undetected or unsuppressed by the personnel, and damage the safe shutdown equipment. The low likelihood of damage to safe shutdown equipment due to a fire in this area, combined with the ability of the OMAs to manipulate the plant in the event of a fire that damages safety shutdown equipment and be completed with more than 30 minutes of margin, provides adequate assurance that safe shutdown capability is maintained.

3.2 Fire Area R–4, Charging Pump Room, Degasifier Area

3.2.1 Fire Prevention

The licensee stated that the Charging Pump Room has low combustible loading that includes small amounts of lube oil and that potential ignition sources include electrical faults, pump motors, mechanical failure, and hot surfaces.

The licensee stated that the Degasifier Area has low combustible loading that predominantly consists of cable insulation and that potential ignition sources include electrical faults.

3.2.2 Detection, Control, and Extinguishment

The licensee stated that the Charging Pump Room is provided with an ionization smoke detection system which alarms at a local panel and at the main fire alarm panel in the CR. A fixed water curtain is provided at the entrance to the Degasifier Area (FHA Fire Zone A–6B), which provides protection for the Charging Pump area from a fire in the Reactor Building Closed Cooling Water System (RBCCW) Pump and Heat Exchanger Area (FHA Fire Zone A–1 B). The licensee also stated that actuation of this system results in an alarm (waterflow) at the main fire alarm panel in the CR. The licensee further stated that a fire in the Charging Pump cubicles that could potentially impact any cables of concern would likely involve cable insulation resulting from an electrical fault or a lube oil fire resulting from a Charging Pump failure and that combustibles in this area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics. The licensee also stated that since there is a minimal amount of Class A combustibles in this area, there is little chance of a fire occurring which could act as a pilot ignition source for the cable insulation and that each charging pump contains just over 10 gallons of lube oil which could also serve as a pilot ignition source for cable insulation in the event of a pump/motor failure with the resultant ignition of the lube oil. The licensee further stated that based on the elevated ignition temperature of the lube oil and the low probability of a pump/motor assembly failure with subsequent ignition of the entire quantity of lube oil, it is unlikely that a lube oil fire from a Charging Pump failure would serve as an ignition source for IEEE 383 qualified cable insulation. The licensee further stated that curbs are installed between each Charging Pump to protect each pump from a combustible liquid spill within a neighboring Charging Pump cubicle. The licensee further stated that a fire would be rapidly detected in its incipient stage by the installed smoke detection system, which will aid in providing rapid response by the Fire Brigade.

The licensee stated that the Degasifier Area is provided with an ionization smoke detection system which alarms at a local panel and at the main fire alarm panel in the CR and that a fixed water curtain is provided at the entrance to this area and serves to provide protection for the Charging Pump Room (FHA Zone A–6A) from a fire in the RBCCW Pump and Heat Exchanger Area (FHA Zone A–1 B). The licensee also stated that actuation of this system results in an alarm (waterflow) to the main fire panel in the CR. The licensee further stated that a fire in the Degasifier Area that could potentially impact any cables of concern would likely involve cable insulation resulting from an electrical fault and that combustibles in this area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics. The licensee further stated that since there is a minimal amount of Class A combustibles in this area, there is little chance of a fire occurring which could act as a pilot ignition source for the cable insulation. The licensee further stated that in the event of a fire in this area, it would be rapidly detected in its incipient stage by the installed smoke detection system, which will aid in providing rapid response by the Fire Brigade.

3.2.3 Preservation of Safe Shutdown Capability

The licensee stated that the cables of concern in the Charging Pump Room are for control and indication of valve 2–CH–192 and that analysis indicates there is a low likelihood that a fire can occur which will impact the valve. The licensee stated that the cables of concern for the Degasifier Area pass through the hallway leading into the area and are for control and indication of valve 2–CH–192 and that analysis indicates there is a very low likelihood that a fire can occur which will impact valve 2–CH–192.

The licensee stated that a fire in the Charging Pump cubicles will affect the Charging Pumps and several suction valves and that the compliance strategy relies on re-routing of Facility Z2 control and power cables for P18B and

Facility Z2 power cable for P18C from the pump cubicles to outside of fire area R–4. The licensee also stated that an exemption provides technical justification of survivability of at least one Charging Pump following a fire in this area, even though the requirements of III.G.2 are not met. The licensee further stated that survivability is justified based on existing physical spatial separation, partial height missile walls, curbing between pumps, and low intervening combustibles and that plant shutdown can be accomplished using an AOP. The licensee further stated that OMAs are required to provide for decay heat removal and to restore Charging system flow to the RCS.

3.2.4 OMAs Credited for a Fire in This Area

3.2.4.1 AFW and Charging System Flow

3.2.4.1.1 OMAs 1 and 11 Open Valve 2–CH–192 and Control Valve 2–MS–190B at Panel C10 or Local Manual Operation

The licensee stated that establishing AFW flow to the credited steam generator (SG) is required to be accomplished within 45 minutes and that the required flow path utilizes the turbine driven auxiliary feedwater (TDAFW) pump. The licensee also stated that prior to AFW initiation, the plant is placed in the Hot Standby condition by steaming through the MSSVs and that after AFW is established from the CR, operation of the ADV (2–MS–190B) (OMA 11) is the required method of removing decay heat to maintain Hot Standby and transition to Cold Shutdown. The licensee further stated that there is no cable damage from fire to the required ADV (2–MS–190B), however, the fire may cause a loss of IA which is required to operate the ADVs to support decay heat removal. The licensee stated that upon a loss of air, the ADV will fail closed and that this design prevents excessive RCS cooldown prior to AFW start and, therefore, in the event of a loss of IA, Operators will establish local manual control of 2–MS–190B after AFW flow is established. The licensee further stated that PEO–2 will remain with the ADV to modulate steam flow per direction from the CR and that after restoration of the Charging system, the BASTs are credited for maintaining RCS inventory and that the BASTs have a minimum level specified in the TRM which ensures 72 minutes of flow. The licensee further stated that once the BASTs are depleted, Operators switch over to the RWST. The licensee further stated that due to fire damage, the 2–CH–192 valve may spuriously close and that in order to establish the RWST as the suction path for the Charging system, an OMA is required to open valve 2–CH–192 (OMA 1) prior to BAST depletion. The licensee further stated that OMA 1 is performed in the fire affected area and is performed after the fire is extinguished and after the Station Emergency Response Organization (SERO) is fully staffed. OMA 1 establishes the RWST as the suction supply for the charging system and is not conducted until after AFW is established which takes 17 minutes. The BASTs have a minimum TRM specified inventory to ensure 72 minutes of flow and OMA 1 can be completed in 32 minutes which results in 40 minutes of margin.

3.2.4.2 OMA Timing

AFW flow is established from the CR within the required 45 minute time period and should IA be lost, the OMA to continue decay heat removal can be conducted beginning 17 minutes after AFW flow is established. The OMA to establish Charging system flow from the RWST prior to BAST depletion can be completed in 32 minutes which provides a 40 minute margin since the required completion time is 72 minutes.

3.2.5 Conclusion

Given the limited amount of combustible materials and ignition sources and installed detection and water curtain, it is unlikely that a fire would occur and go undetected or unsuppressed by the personnel, and damage the safe shutdown equipment. The low likelihood of damage to safe shutdown equipment due to a fire in this area, combined with the ability of the OMAs to manipulate the plant in the event of a fire that damages safe shutdown equipment and be completed with more than 30 minutes of margin, provides adequate assurance that safe shutdown capability is maintained.

3.3 Fire Area R–5, ''A'' Safeguards Room (Containment Spray and High Pressure Safety Injection/Low Pressure Safety Injection Pump Room)

3.3.1 Fire Prevention

The licensee stated that the area has low combustible loading that includes cable insulation and small amounts of lube oil and that potential ignition sources include electrical faults, pump motors, mechanical failure, and hot surfaces.

3.3.2 Detection, Control, and Extinguishment

The licensee stated that the area is provided with an ionization smoke detection system which alarms at a local panel and at the main fire alarm panel in the CR. The licensee also stated that a fire in this area that could potentially impact any cables of concern would likely involve cable insulation resulting from an electrical fault or a lube oil fire resulting from a pump and/or motor failure. Combustibles in this area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics. The licensee further stated that since there is a minimal amount of Class A combustibles in this fire area, there is little chance of a fire occurring which could act as a pilot ignition source for the cable insulation and that while lube oil could also serve as a pilot ignition source for cable insulation, the small quantities of lube oil would result in a low intensity fire and based on the elevated ignition temperature of the lube oil and the low probability of a pump and/or motor assembly failure with subsequent ignition of the entire quantity of lube oil, it is unlikely that a lube oil fire from a pump and/or motor failure would serve as an ignition source for IEEE 383 qualified cable insulation. The licensee further stated that in the event of a fire in this area, it would be rapidly detected in its incipient stage by the installed smoke detection system, which will aid in providing rapid response by the Fire Brigade.

3.3.3 Preservation of Safe Shutdown Capability

The licensee stated that a fire in the area that could potentially impact any cables of concern would likely involve cable insulation resulting from an electrical fault or a lube oil fire resulting from a pump and/or motor failure and that some Shutdown Cooling system components would be affected and that plant shutdown to Hot Standby can be accomplished using existing AOPs.

3.3.4 OMAs Credited for a Fire in This Area

3.3.4.1 AFW and Charging System Flow

3.3.4.1.1 OMAs 1 and 10—Open Valve 2–CH–192 and Operate Valve 2–MS–190A

The licensee stated that for a fire in fire area R–5, two OMAs are identified to provide for decay heat removal and restore charging system flow to the RCS, with the first OMA (OMA 10) being to open and modulate 2–MS–190A (ADV) and the second OMA (OMA 1) being to open valve 2–CH–192. The licensee also stated that both OMAs are needed to compensate for a postulated loss of IA

and that neither valve will experience cable damage due to a fire in fire area R–5. The licensee further stated that the ADVs are utilized after AFW flow is established and that AFW is required to be established within 45 minutes and prior to this, RCS decay heat removal is provided by utilizing the MSSVs. The licensee further stated that steaming through the MSSVs is also acceptable after AFW flow is established, but utilizing the ADVs, with 2–MS–190A credited for a fire in fire area R–5, is required for maintaining the plant in Hot Standby and initiating the transition to Cold Shutdown. The licensee further stated that PEO–2 will remain with the ADV to modulate steam flow per direction from the CR and that PEO–1 will complete the second OMA by opening 2–CH–192 to establish the RWST as the source of water to the RCS. The licensee further stated that 2–CH–192 is an AOV which may have failed closed due to a loss of IA and that the valve has a safety-related air accumulator which supplies sufficient air to stroke open the valve and maintain it open for three hours and that after the air accumulator is exhausted, the valve will fail closed. The licensee further stated that the required OMA establishes/maintains RWST flow to the Charging system and the BASTs have a minimum level specified in the TRM which ensures Charging flow for more than 72 minutes, at which time Charging pump suction is shifted to the RWST. The licensee further stated that calculations indicate that the Charging system must be restored within three hours, therefore, the accumulator capacity and the minimum TRM BAST level requirement require the OMA to locally open 2–CH–192 be accomplished within three hours (prior to the air accumulator being exhausted).

3.3.4.2 OMA Timing

AFW flow is established within the required 45 minute time period and should IA be lost, the OMA to continue decay heat removal can be conducted beginning 17 minutes after AFW flow is established. The OMA to establish Charging system flow from the RWST prior to BAST depletion can be completed in 32 minutes which provides a 40 minute margin since the required completion time is 72 minutes.

3.3.5 Conclusion

Given the limited amount of combustible materials and ignition sources and installed detection, it is unlikely that a fire would occur and go undetected or unsuppressed by the personnel, and damage the safe shutdown equipment. The low likelihood of damage to safe shutdown equipment due to a fire in this area, combined with the ability of the OMAs to manipulate the plant in the event of a fire that damages safe shutdown equipment and be completed with more than 30 minutes of margin, provides adequate assurance that safe shutdown capability is maintained.

3.4 Fire Area R–6, ''B'' Safeguards Room (Low Pressure Safety Injection Pump Room)

3.4.1 Fire Prevention

The licensee stated that the area has low combustible loading that includes cable insulation and small amounts of lube oil and that potential ignition sources include electrical faults, pump motors, mechanical failure, and hot surfaces.

3.4.2 Detection, Control, and Extinguishment

The licensee stated that the area is provided with an ionization smoke detection system which alarms at a local panel and at the main fire alarm panel in the CR. The licensee also stated that a fire in the area that could potentially impact any cables of concern would likely involve cable insulation resulting from an electrical fault or a lube oil fire resulting from a pump and/or motor failure and that combustibles in this area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics. The licensee further stated that since there is a minimal amount of Class A combustibles in this fire area, there is little chance of a fire occurring which could act as a pilot ignition source for the cable insulation and that while lube oil could also serve as a pilot ignition source for cable insulation, the small quantities of lube oil would result in a low intensity fire and based on the elevated ignition temperature of the lube oil and the low probability of a pump and/or motor assembly failure with subsequent ignition of the entire quantity of lube oil, it is unlikely that a lube oil fire from a pump and/or motor failure would serve as an ignition source for IEEE 383 qualified cable insulation. The licensee further stated that in the event of a fire in this area, it would be rapidly detected in its incipient stage by the installed smoke detection system, which will aid in providing rapid response by the Fire Brigade.

3.4.3 Preservation of Safe Shutdown Capability

The licensee stated that a fire in the area that could potentially impact any cables of concern would likely involve cable insulation resulting from an electrical fault or a lube oil fire resulting from a pump and/or motor failure, that some Shutdown Cooling System components would be affected, that Hot Standby equipment will not be affected, and that plant shutdown to Hot Standby can be accomplished using an AOP.

3.4.4 OMAs Credited for a Fire in This Area

3.4.4.1 AFW and Charging System Flow

3.4.4.1.1 OMAs 1 and 10—Open Valve 2–CH–192 and Operate Valve 2–MS–190A

The licensee stated that for a fire in fire area R–6, two OMAs are identified, the first OMA (OMA 10) which is to open 2–MS–190A (ADV) and the second OMA (OMA 1) which is to open 2–CH–192. The licensee also stated that both OMAs are needed to compensate for a postulated loss of IA and that neither valve will experience cable damage due to a fire in fire area R–6. The licensee further stated that the ADVs are utilized after AFW flow is established, that AFW is not fire impacted, is required to be established within 45 minutes, and that prior to this, RCS decay heat removal is provided by steaming through the MSSVs which is also acceptable after AFW flow is established. Utilizing the ADVs, with 2–MS–190A credited for a fire in fire area R–6, is required for maintaining the plant in Hot Standby and initiating the transition to Cold Shutdown. The licensee further stated that PEO–2 will remain with the ADV to modulate steam flow per direction from the CR and that PEO–1 will complete the second OMA by opening 2–CH–192 to establish the RWST as the source of water to the RCS and that 2–CH–192 is an air operated valve which may have failed closed due to a loss of IA. The licensee further stated that the valve has a safety-related air accumulator which supplies sufficient air to stroke open the valve and maintain it open for three hours and that after the air accumulator is exhausted, the valve will fail closed. The licensee further stated that the required OMA establishes/maintains RWST flow to the charging system and that the BASTs have a minimum level specified in the TRM which ensures charging flow for more than 72 minutes, at which time charging pump suction is shifted to the RWST and that

calculations indicate that the Charging system must be restored within three hours, and therefore, the accumulator and the minimum TRM BAST level requirement require the OMA to locally open 2–CH–192 be accomplished within three hours (prior to the accumulator being exhausted).

3.4.4.2 OMA Timing

AFW flow is established within the required 45 minute time period and should IA be lost, the OMA to continue decay heat removal can be conducted beginning 17 minutes after AFW flow is established. The OMA to establish Charging system flow from the RWST prior to BAST depletion can be completed in 32 minutes which provides a 40 minute margin since the required completion time is 72 minutes.

3.4.5 Conclusion

Given the limited amount of combustible materials and ignition sources and installed detection, it is unlikely that a fire would occur and go undetected or unsuppressed by the personnel, and damage the safe shutdown equipment. The low likelihood of damage to safe shutdown equipment due to a fire in this area, combined with the ability of the OMAs to manipulate the plant in the event of a fire that damages safe shutdown equipment and to be completed with more than 30 minutes of margin, provides adequate assurance that safe shutdown capability is maintained.

3.5 Fire Area R–7, ''A'' Diesel Generator Room

3.5.1 Fire Prevention

The licensee stated that the area has high combustible loading that includes diesel fuel and small amounts of lube oil and that potential ignition sources include motors, mechanical failure, and hot surfaces.

3.5.2 Detection, Control, and Extinguishment

The licensee stated that the area is provided with automatic pre-action sprinkler protection to provide automatic suppression in/around the diesel generator as well as to provide cooling to the structural steel overhead and that the deluge valve for this system is opened by the installed heat detection system. The licensee also stated that the detection system alarms at the main fire alarm panel in the CR while the pre-action sprinkler system alarms at a local panel and at the main fire alarm panel in the CR.

The licensee stated that a fire in the area that could potentially impact any cables of concern would likely involve diesel fuel oil and/or lube oil resulting from a mechanical failure of the diesel generator or cable insulation resulting from an electrical fault and that combustibles in this area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics. The licensee also stated that since there is a minimal amount of Class A combustibles in this area, there is little chance of a fire involving Class A combustibles occurring which could act as a pilot ignition source for the cable insulation and that while a fuel oil or lube oil fire could serve as a pilot ignition source to the cabling, it is expected that a fire involving Class B combustibles (flammable/combustible liquids) would be rapidly detected by the installed heat detection system and be suppressed by the installed suppression system and/or manual firefighting. The licensee further stated that the heat detection system would also aid in providing prompt Fire Brigade response were a fire to occur in this area.

3.5.3 Preservation of Safe Shutdown Capability

The licensee stated that the components of concern for the area are valves 2–CH–192, 2–CH–508, and 2–CH–509 and that the loss of the EDG results in the loss of the Facility Z1 emergency power supply which results in the loss of power to the battery charger supplying the battery for valve 2–CH–192. The licensee also stated that the loss of the Facility Z1 emergency power causes the loss of power to valves 2–CH–508 and 2–CH–509 and that a fire could also cause the failure of IA which would impact valves 2–CH–192 and 2–MS–190B.

The licensee stated that a fire in the area will affect all Facility Z1 shutdown components, that Facility Z2 is used to achieve and maintain Hot Standby, and that plant shutdown to Hot Standby can be accomplished using an AOP.

3.5.4 OMAs Credited for a Fire in This Area

3.5.4.1 AFW and Charging System Flow

3.5.4.1.1 OMA 11—Control Valve 2–MS–190B at Panel C10 or Local Manual Operation

The licensee stated that for a fire in the area, OMAs are required to provide decay heat removal and restore Charging system flow to the RCS, that AFW flow must be established to the credited SG within 45 minutes, and that the required AFW flow path utilizes the TDAFW pump which is not fire impacted. The licensee also stated that once AFW flow is established from the CR, operation of an ADV (2–MS–190B) (OMA 11) is the method of removing decay heat to maintain the plant in Hot Standby and for initiating the transition to Cold Shutdown and that prior to AFW initiation, the plant is placed in the Hot Standby condition by steaming through the MSSVs. The licensee further stated that there is no cable damage from a fire in the area to the required ADV (2–MS–190B), however, the fire may cause a loss of IA which is required to operate the ADVs to support decay heat removal. The licensee further stated that upon a loss of IA, the ADV will fail closed and this ''fail to closed'' design prevents excessive RCS cooldown prior to AFW start, and therefore, in the event of a loss of IA, Operators will establish local manual control of 2–MS–190B after AFW is established and that PEO–1 will remain with the ADV to modulate steam flow per direction from the CR.

3.5.4.1.2 OMAs 4, 5, and 1—Open Valve 2–CH–508, Open Valve 2–CH–509, and Open Valve 2–CH–192

The licensee stated that for a fire in the area the Charging system has OMAs identified and that the BASTs gravity feed valves, 2–CH–508 (OMA 4) and 2–CH–509 (OMA 5), may fail as is (closed) due to a loss of power supply. The licensee also stated that an OMA is in place to locally open the valves as part of restoring the Charging system and that once these valves are opened, the CR can establish charging flow within 2–3 minutes. The licensee further stated that establishing pump suction from the BASTs and restoring charging is required within three hours of reactor shutdown/loss of charging and charging is re-established within 24 minutes (21 minutes to open BASTs valves and 3 minutes to establish charging flow in the CR) which provides a 156 minute margin. The licensee further stated that after the BASTs have reached the 10 percent level, Operators switch the charging suction flow path to the RWST and the 2–CH–192 (OMA 1) valve is required to be open to accomplish the switch over. The licensee further stated that evaluations conclude that the BASTs will last a minimum of 72 minutes after charging is re-established. The licensee stated that valve 2–CH–192 fails closed in the event of a loss of its power supply and/or IA, but valve 2–CH–192 will remain operable using its backup air source until it and/or the Facility Z1 battery is depleted and that the backup air source is capable of opening the valve and maintaining it open for three hours. The licensee further stated that battery depletion will

not occur prior to exhausting the backup air source and that the OMA is not required prior to this time.

3.5.4.2 OMA Timing

AFW flow is established from the CR within the required 45 minute time period and should IA be lost, the OMA to continue decay heat removal can be conducted beginning 17 minutes after AFW flow is established. The OMA to establish Charging system flow from the BASTs can be completed in 24 minutes which provides a 156 minute margin since the required completion time is 180 minutes. The OMA to establish Charging system flow from the RWST prior to BAST depletion can be completed in 32 minutes which provides a 40 minute margin since the required completion time is 72 minutes.

3.5.5 Conclusion

Although a fuel oil or lube oil fire could serve as a pilot ignition source to cabling, it is expected that such a fire would be detected by the installed heat detection and controlled by the suppression system with additional suppression provided by manual firefighting, therefore, it is unlikely that a fire would occur and go undetected or unsuppressed and damage safe shutdown equipment. The low likelihood of damage to safe shutdown equipment due to a fire in this area, combined with the ability of the OMAs to manipulate the plant in the event of a fire that damages safe shutdown equipment and to be completed with more than 30 minutes of margin, provides adequate assurance that safe shutdown capability is maintained.

3.6 Fire Area R–8, ''B'' Diesel Generator Room

3.6.1 Fire Prevention

The licensee stated that the area has high combustible loading that includes diesel fuel oil, small amounts of lube oil, and negligible amounts of cable insulation and that potential ignition sources include electrical faults, motors, mechanical failure and hot surfaces.

3.6.2 Detection, Control, and Extinguishment

The licensee stated that this area is provided with automatic pre-action sprinkler protection to provide automatic suppression in/around the diesel generator as well as to provide cooling to the structural steel overhead and that the deluge valve for this system is opened by the installed heat detection system. The licensee also stated that the detection system alarms at the main fire alarm panel in the CR while the pre-action sprinkler system alarms at a local panel and at the main fire alarm panel in the CR. The licensee stated that a fire in the area that could potentially impact any cables of concern would likely involve diesel fuel oil and/or lube oil resulting from a mechanical failure of the diesel generator or cable insulation resulting from an electrical fault and that combustibles in this area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics. The licensee also stated that since there is a minimal amount of Class A combustibles in this area, there is little chance of a fire involving Class A combustibles occurring which could act as a pilot ignition source for the cable insulation and that while a fuel oil or lube oil fire could serve as a pilot ignition source to the cabling, it is expected that a fire involving Class B flammable/combustible liquids would be rapidly detected by the installed heat detection system and be suppressed by the installed suppression system and/or manual firefighting. The licensee further stated that the heat detection system would also aid in providing prompt Fire Brigade response were a fire to occur in this area.

3.6.3 Preservation of Safe Shutdown Capability

The licensee stated that the OMAs associated with a fire in the area are related to failure of the ''B'' EDG resulting in the loss of power to breakers 24D, 22F and MCC B61, and the battery charger resulting in the depletion of the ''B'' battery and that a fire in this area could also cause the failure of IA.

The licensee stated that a fire in the area will affect all Facility Z2 shutdown components, that Facility Z1 is used to achieve and maintain Hot Standby, and that plant shutdown to Hot Standby can be accomplished by using an AOP.

3.6.4 OMAs Credited for a Fire in This Area

3.6.4.1 AFW and Charging System Flow

3.6.4.1.1 OMAs 10 and 1—Operate Valve 2–MS–190A and Open Valve 2–CH–192

The licensee stated that for a fire in the area, two OMAs are identified, the first OMA (OMA 10) is to open 2–MS–190A (ADV) and the second OMA (OMA 1) is to open 2–CH–192. The licensee also stated that both OMAs are required to compensate for a postulated loss of IA and that neither valve will experience cable damage due to a fire in the area. The licensee further stated that the ADVs are utilized after AFW flow is established, that AFW is not fire impacted, is required to be established within 45 minutes and that prior to this, RCS decay heat removal is provided by steaming through the MSSVs which is also acceptable after AFW flow is established. The licensee further stated that utilizing the ADVs, with 2–MS–190A credited for the fire in the area, is required for maintaining the plant in Hot Standby and initiating the transition to Cold Shutdown, that PEO–1 will remain with the ADV to modulate steam flow per direction from the CR and that PEO–2 will complete the second OMA by opening 2–CH–192 to establish the RWST as the source of water to the RCS. The licensee further stated that 2–CH–192 is an AOV which may have failed closed due to a loss of IA, that the valve has a safety-related air accumulator which supplies sufficient air to stroke open the valve and maintain it open for three hours and that after the air accumulator is exhausted, the valve will fail closed. The licensee further stated that the required OMA establishes/maintains RWST flow to the Charging system and the BASTs have a minimum level specified in the TRM which ensures Charging flow for more than 72 minutes, at which time Charging Pump suction is shifted to the RWST. The licensee further stated that calculations indicate that the Charging system is to be restored within three hours, therefore, the accumulator and the minimum TRM BAST level requirement require the OMA to locally open 2–CH–192 within three hours (prior to the accumulator being exhausted).

3.6.4.1.2 OMA 20—Obtain CST Level at Local Level Indicating Switch LIS–5489A

In their letter dated February 29, 2012 the licensee added OMA 20 to the exemption request for fire area R–8. The licensee stated that a fire in the area could cause a loss of the ''B'' EDG resulting in the depletion of the ''B'' battery after 480 minutes causing a loss of level transmitter LT–5282 (CST Level) which will necessitate obtaining level readings locally at the tank using level indicator LIS–5489 (OMA 20). The licensee also stated that the route to the CST is illuminated by emergency lighting units (ELUs), that checking the level of the CST supports AFW system operation and checking the level is not a short-term requirement as there is sufficient inventory in the CST to provide over 10 hours of water flow to the AFW system. The licensee further stated that if necessary, after the CST is depleted, Operators can switch over to the fire water system and maintain flow to the AFW system.

3.6.4.2 OMA Timing

AFW flow is established from the CR within the required 45 minute time period and should IA be lost, the OMA to continue decay heat removal can be conducted beginning 17 minutes after AFW flow is established. The OMA to check CST level can be completed in 6 minutes and is a long term action as the CST provides over 10 hours of inventory to AFW. The OMA to establish Charging system flow from the RWST prior to BAST depletion can be completed in 32 minutes which provides a 40 minute margin since the required completion time is 72 minutes.

3.6.5 Conclusion

Although a fuel oil or lube oil fire could serve as a pilot ignition source to cabling, it is expected that such a fire would be detected and suppressed by the installed heat detection and suppression system with additional suppression provided by manual firefighting, therefore, it is unlikely that a fire would occur and go undetected or unsuppressed and damage safe shutdown equipment. The low likelihood of damage to safe shutdown equipment due to a fire in this area, combined with the ability of the OMAs to manipulate the plant in the event of a fire that damages safe shutdown equipment and to be completed with more than 30 minutes of margin, provides adequate assurance that safe shutdown capability is maintained.

3.7 Fire Area R–9, ''A'' East DC Equipment Room

3.7.1 Fire Prevention

The licensee stated that the area has low combustible loading that predominantly consists of cable insulation and that potential ignition sources include electrical faults.

3.7.2 Detection, Control, and Extinguishment

The licensee stated that the area is provided with a cross-zoned ionization and photoelectric smoke detection system that activates a total flooding Halon 1301 fire suppression system and that the Halon 1301 suppression system has manual release stations at each doorway and an abort switch located at the doorway to the east CR/cable vault stairway. The licensee also stated that this system alarms locally at the Halon control panel and at the main fire alarm panel in the CR. The licensee further stated that duct smoke detection is provided between this area, the ''B'' (West) DC Equipment Room (FHA Zone A–21), and the auxiliary building cable vault (FHA Zone A–24) and that this system alarms at a local panel and at the main fire alarm panel in the CR. The licensee further stated that a fire in the area that could potentially impact any cables of concern would likely involve cable insulation resulting from an electrical fault or failure of a bus or electrical panel located in the room and that combustibles in this area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics. The licensee further stated that since there is a minimal amount of Class A combustibles in this area, there is little chance of a fire occurring, outside of a bus/electrical panel failure, which could act as a pilot ignition source for the cable insulation and that a bus/electrical panel failure normally results in a high intensity fire that lasts for a short duration, which makes it unlikely that it will cause sustained combustion of IEEE 383 qualified cables. The licensee further stated that in the unlikely event of a fire in this area, it would be rapidly detected by the cross-zoned ionization and photoelectric smoke detection system and subsequently extinguished by the total flooding Halon 1301 suppression system and that the smoke detection system would also aid in providing prompt Fire Brigade response.

3.7.3 Preservation of Safe Shutdown Capability

The licensee stated that the OMAs associated with a fire in the area are related to loss of power to the ''A'' DC buses (such as DV10) and that cables for valves 2–CH–192, 2–CH–508, and 2–CH–509 do not pass through this room.

The licensee stated that a fire in the area will affect all Facility Z1 shutdown components, that Facility Z2 is used to achieve and maintain Hot Standby, and that plant shutdown to Hot Standby can be accomplished using an AOP.

3.7.4 OMAs Credited for a Fire in This Area

In their letter dated February 29, 2012 the licensee deleted OMAs 1 and 11 from the exemption request for fire area R–9 since loss of IA is no longer postulated.

3.7.4.1 AFW and Charging System Flow

3.7.4.1.1 OMAs 4 and 5.—Open Valve 2–CH–508 and Open Valve 2–CH–509

The licensee stated that for a fire in fire area R–9, the Charging system has OMAs identified and that the BASTs gravity feed valves, 2–CH–508 (OMA 4) and 2–CH–509 (OMA 5), may fail as is (closed) due to a loss of power supply. The licensee also stated that an OMA is in place to locally open the valves as part of restoring the Charging system and that once these valves are opened, the CR can establish charging flow within 2–3 minutes. The licensee further stated that establishing charging pump suction from the BASTs and restoring charging is required within three hours of reactor shutdown/loss of charging and that Charging is re-established within 24 minutes (21 minutes to open the BASTs valves and 3 minutes to establish charging flow in the CR) which provides a 156 minute margin.

3.7.4.2 OMA Timing

AFW flow is established from the CR within the required 45 minute time period. The OMA to establish Charging system flow from the BASTs can be completed in 24 minutes which provides a 156 minute margin since the required completion time is 180 minutes.

3.7.5 Conclusion

Given the limited amount of combustible materials and ignition sources and installed detection and suppression, it is unlikely that a fire would occur and go undetected or unsuppressed by the personnel, and damage the safe shutdown equipment. The low likelihood of damage to safe shutdown equipment due to a fire in this area, combined with the ability of the OMAs to manipulate the plant in the event of a fire that damages safe shutdown equipment and to be completed with more than 30 minutes of margin, provides adequate assurance that safe shutdown capability is maintained.

3.8 Fire Area R–10, ''B'' West DC Equipment Room

3.8.1 Fire Prevention

The licensee stated that the area has low combustible loading that predominantly consists of cable insulation and that potential ignition sources include electrical faults.

3.8.2 Detection, Control, and Extinguishment

The licensee stated that the area is provided with a cross-zoned ionization and photoelectric smoke detection system that activates a total flooding Halon 1301 fire suppression system and that the Halon 1301 suppression system has manual release stations at each doorway and an abort switch located at the doorway to the ''A'' (East) DC equipment room (FHA Zone A–20). The licensee also stated that this system alarms locally on the halon control panel and at the main fire alarm panel

in the CR. The licensee further stated that duct smoke detection is provided between this fire area, the ''A'' (East) DC Equipment Room (FHA Zone A–20), and the AB cable vault (FHA Zone A–24) and that this system alarms at a local panel and at the main fire alarm panel in the CR. The licensee further stated that a fire in the area that could potentially impact any cables of concern would likely involve cable insulation resulting from an electrical fault or failure of a bus or electrical panel located in the room and that combustibles in this area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics. The licensee further stated that since there is a minimal amount of Class A combustibles in this area, there is little chance of a fire occurring, outside of a bus/electrical panel failure, which could act as a pilot ignition source for the cable insulation and that a bus/electrical panel failure normally results in a high intensity fire that lasts for a short duration, which makes it unlikely that it will cause sustained combustion of IEEE 383 qualified cables. The licensee further stated that in the unlikely event of a fire in this area, it would be rapidly detected by the cross-zoned ionization and photoelectric smoke detection smoke detection system and subsequently extinguished by the total flooding Halon 1301 suppression system installed in this area. The smoke detection system would also aid in providing prompt Fire Brigade response.

3.8.3 Preservation of Safe Shutdown Capability

The licensee stated that the OMAs associated with a fire in the area are related to loss of power to the ''B'' AC vital power panels (such as VA20) and that cables for level transmitters LT–206, LT–208 and LT–5282 do not pass through this room.

The licensee stated that a fire in the area will affect all Facility Z2 shutdown components, that Facility Z1 is used to achieve and maintain Hot Standby, and that plant shutdown to Hot Standby can be accomplished using an AOP.

3.8.4 OMAs Credited for a Fire in This Area

In their letter dated February 29, 2012 the licensee deleted OMA 1 and 10 from the exemption request for fire area R–10 since loss of IA is no longer postulated.

3.8.4.1 AFW and Charging System Flow

3.8.4.1.1 OMA 20—Obtain CST Level at Local Level Indicating Switch LIS–5489A

The licensee stated that a fire in area may cause cable damage to level transmitter LT–5282 (CST Level) which will necessitate obtaining level readings locally at the tank using level indicator LIS–5489 (OMA 20). The licensee also stated that the route to the CST is illuminated by ELUs, that checking the level of the CST supports AFW system operation and checking the level is not a short-term requirement as there is sufficient inventory in the CST to provide over 10 hours of water flow to the AFW system. The licensee further stated that if necessary, after the CST is depleted, Operators can switch over to the fire water system and maintain flow to the AFW system.

3.8.4.1.2 OMAs 18 and 19—Obtain BAST Level at Local Level Indicator LI–206A and Obtain BAST Level at Local Level Indicator LI–208A

The licensee stated that for a fire in the area, the Charging system has OMAs identified and that fire damage to cables may render level transmitters LT–206 and LT–208 (BAST Level) inoperable from the CR which would necessitate BAST level indication being obtained locally via level indicators LI–206A (OMA 18) and LI–206B (OMA 19). The licensee also stated that the TRM requires a minimum level be maintained in the BASTs and that maintaining this level provides a minimum of 72 minutes of charging flow to the RCS after charging is re-established and that calculations indicate that charging must be restored within three hours of a reactor trip.

3.8.4.2 OMA Timing

AFW flow is established from the CR within the required 45 minute time period. The OMA to check CST level can be completed in 6 minutes and is a long term action as the CST provides over 10 hours of inventory to AFW. The OMAs to check BAST level can be completed in 12 minutes which provides a 168 minute margin since the required completion time is 180 minutes.

3.8.5 Conclusion

Given the limited amount of combustible materials and ignition sources and installed detection and suppression, it is unlikely that a fire would occur and go undetected or unsuppressed by the personnel, and damage the safe shutdown equipment. The low likelihood of damage to safe shutdown equipment due to a fire in this area, combined with the ability of the OMAs to manipulate the plant in the event of a fire that damages safe shutdown equipment and to be completed with more than 30 minutes of margin, provides adequate assurance that safe shutdown capability is maintained.

3.9 Fire Area R–12, Steam Driven Auxiliary Feedwater Pump Pit

3.9.1 Fire Prevention

The licensee stated that the area has low combustible loading that includes lube oil only, that there is no cable insulation or Class A combustibles located in the area, and that potential ignition sources include electrical faults or the over-heating of a pump bearing.

3.9.2 Detection, Control, and Extinguishment

The licensee stated that the area is provided with an ionization smoke detection system which alarms at a local panel and at the main fire alarm panel in the CR. The licensee stated that a fire in the TDAFW Pump Pit that could potentially impact any cables of concern would likely involve a lube oil fire resulting from an auxiliary feedwater pump failure and that lube oil found within the steam driven AFW pump is the only contributing factor to the combustible loading of this area. The licensee also stated that the lube oil is completely enclosed within the pump housing, which would help in preventing ignition of the oil from an external ignition source and that there are no external ignition sources for the lube oil in this room. The licensee further stated that restrictive access to this pump room limits the amount of transient combustibles and ignition sources in this room and in the event of a fire in this room, the low combustible loading would result in a low intensity fire which would be rapidly detected in its incipient stage by the installed smoke detection system, which will aid in providing rapid response by the Fire Brigade.

3.9.3 Preservation of Safe Shutdown Capability

The licensee stated that a fire in the area will affect only the TDAFW pump and its steam supply components, that no other Hot Standby equipment will be affected and the MDAFW pumps may be used to feed the SGs. The licensee also stated that plant shutdown to Hot Standby can be accomplished using existing shutdown procedures.

3.9.4 OMAs Credited for a Fire in This Area

3.9.4.1 AFW and Charging System Flow

3.9.4.1.1 OMA 10—Operate Valve 2–MS–190A and Open Valve 2–CH–192

The licensee stated that for a fire in the area, two OMAs are identified, the first is to open 2–MS–190A (ADV) (OMA 10) and the second is to open 2–CH–192 (OMA 1). The licensee also stated that both OMAs are required to compensate for a postulated loss of IA, that neither valve will experience cable damage due to a fire in the area, and that the ADVs are utilized after AFW flow is established. The licensee further stated that AFW flow is required to be established within 45 minutes and that prior to this, RCS decay heat removal is provided by steaming through the MSSVs which is also acceptable after AFW flow is established. The licensee further stated that utilizing the ADVs, with 2–MS–190A credited for the fire in the area, is required for maintaining the plant in Hot Standby and the transition to Cold Shutdown, and that PEO–1 will remain with the ADV to modulate steam flow per direction from the CR. The licensee further stated that PEO–2 will complete the second OMA by opening 2–CH–192 to establish the RWST as the source of water to the RCS. The licensee stated that 2–CH–192 is an AOV which may have failed closed due to a loss of IA and that the valve has a safety-related air accumulator which supplies sufficient air to stroke open the valve and maintain it open for three hours. After the air accumulator is exhausted, the valve will fail closed. The licensee further stated that the required OMA establishes/maintains RWST flow to the Charging system and that the BASTs have a minimum level specified in the TRM which ensures Charging flow for more than 72 minutes, at which time Charging Pump suction is shifted to the RWST. The licensee further stated that calculations indicate that the Charging system must be restored within 3 hours, therefore, the accumulator capacity and the minimum TRM BAST level requirements require that this OMA be accomplished within three hours (prior to the accumulator being exhausted).

3.9.4.2 OMA Timing

AFW flow is established from the CR within the required 45 minute time period and should IA be lost, the OMA to continue decay heat removal can be conducted beginning 17 minutes after AFW flow is established. The OMA to establish Charging system flow from the RWST prior to BAST depletion can be completed in 32 minutes which provides a 40 minute margin since the required completion time is 72 minutes.

3.9.5 Conclusion

Given the limited amount of combustible materials and ignition sources and installed detection, it is unlikely that a fire would occur and go undetected or unsuppressed by the personnel, and damage the safe shutdown equipment. The low likelihood of damage to safe shutdown equipment due to a fire in this area, combined with the ability of the OMAs to manipulate the plant in the event of a fire that damages safe shutdown equipment and to be completed with more than 30 minutes of margin, provides adequate assurance that safe shutdown capability is maintained.

3.10 Fire Area R–13, West 480 V Load Center Room

3.10.1 Fire Prevention

The licensee stated that the area has low combustible loading that predominantly consists of cable insulation and that potential ignition sources include electrical faults.

3.10.2 Detection, Control, and Extinguishment

The licensee stated that the area is provided with ionization smoke detection that alarms at the main fire alarm panel in the CR. The licensee also stated that a fire in the area that could potentially impact any cables of concern would likely involve cable insulation resulting from an electrical fault or a bus failure and that combustibles in the area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics. The licensee further stated that since there is a minimal amount of Class A combustibles in this area, there is little chance of a fire occurring, outside of a bus failure, which could act as a pilot ignition source for the cable insulation. A bus failure normally results in a high intensity fire that lasts for a short duration, which makes it unlikely that it will cause sustained combustion of IEEE 383 qualified cables. The licensee further stated that in the unlikely event of a fire, it would be rapidly detected by the ionization smoke detection system installed in the area and that the smoke detection system will aid in providing prompt Fire Brigade response.

3.10.3 Preservation of Safe Shutdown Capability

The licensee stated that the components of concern for the area are for valves 2–CH–192, 2–CH–508, 2–CH–509, 2–FW–43B and 2–MS–190B, breaker A406, H21 (TDAFW speed control circuit), level transmitter LT–5282, P18C (''C'' charging pump), SV–4188 (TDAFW steam supply valve) and breaker DV2021.

The licensee stated that a fire in the area will affect Facility Z1 safe shutdown equipment, that the ''A'' EDG will be unavailable due to a loss of the Facility Z1 power supply for the diesel room ventilation fan F38A, that Facility Z2 is used to achieve and maintain Hot Standby, and that plant shutdown to Hot Standby can be accomplished using an AOP.

3.10.4 OMAs Credited for a Fire in This Area

In their letter dated February 29, 2012, the licensee deleted OMAs 1, 9, and 11, from the exemption request for fire area R–13 since loss of IA is no longer postulated.

3.10.4.1 AFW Flow

3.10.4.1.1 OMAs 22 and 17—Operate Supply Valve SV–4188 From Panel C10 and Operate Turbine Driven AFW Pump Speed Control Circuit H–21 From Panel C10

The licensee stated that for a fire in the area, OMAs are required to provide decay heat removal and restore Charging system flow to the RCS and that establishing AFW flow to the credited SG is required within 45 minutes. The licensee stated that for a fire in the area, the required AFW flow path utilizes the TDAFW pump and that due to fire induced cable damage, AFW turbine steam supply valve (SV–4188) (OMA 22), and TDAFW turbine speed control (H21) (OMA 17) may not be available from the CR. The licensee further stated that the cable damage can be isolated and the TDAFW pump can be operated from the Fire Shutdown Panel (C–10) located in fire area R–2 and that an OMA is necessary to isolate the damaged cables and operate the TDAFW turbine speed control to maintain level in the SG. The licensee stated that in the case of 2–FW–43B, cable damage could result in spurious operation and that isolation of the affected cables and control of the valve can be accomplished at the C–10 panel, and that control of SG water level can be maintained using the speed control function of the TDAFW pump. The licensee further stated that the timeframe to establish control of TDAFW at the C–10 panel is 45 minutes and that after Reactor Operator 1 (RO–1) has established control of TDAFW pump speed at the C–10 panel (8 minutes), it will take an additional 2

minutes to establish AFW flow which results in a total time to establish AFW flow of 10 minutes, leaving a 35 minute margin.

3.10.4.1.2 OMA 20—Obtain CST Level at Local Level Indicating Switch LIS–5489A

The licensee stated that valves 2–MS–190B and 2–FW–43B can be operated from the C–10 panel and that the OMA for local or C–10 operation of 2–MS–190B is not required until after AFW flow is established and that PEO–1 will remain with the ADV to modulate steam flow per direction from the CR. The licensee further stated that the final decay heat removal function is to monitor CST level from either the C–10 panel (LT–5282) or locally at the CST (LIS–5489) (OMA 20) and that checking the level is not a short-term requirement because there is sufficient inventory in the CST to provide over 10 hours of water flow to the AFW system. The licensee further stated that a spurious start of the TDAFW coupled with 2–FW–43B failing open should not result in a SG overfill and that the nominal water level in the SG is maintained between 60–75% as indicated on the Narrow Range (NR) level instruments (i.e. the normal operating band). The licensee further stated that from the top of the normal operating band, more than 8000 gallons of water can be added before reaching 100 percent on the NR level instruments and allotting 8 minutes to establish operations from the C–10 panel and assuming all the flow from the TDAFW is filling one SG, approximately 4800 gallons can be added before regaining level control. The licensee further stated that there is also an additional 14,000 gallons of margin available before the SG would overfill (i.e. from 100 percent NR to the Main Steam nozzle).

3.10.4.2 Charging System Flow

3.10.4.2.1 OMAs 4, 5, 16, 21, and 24—Open Valve 2–CH–508, Open Valve 2–CH–509, Pull Control Power Fuses for Breaker A406 and Ensure Breaker Is Open, Operate Pump P18C From Panel C10, and Locally Close Breaker DV2021

The licensee stated that for a fire in the area, the Charging system has OMAs identified. The BASTs gravity feed valves, 2–CH–508 and 2–CH–509, may fail as is, (closed) due to cable damage and that OMAs are (OMA 4 and 5) in place to locally open these valves as part of restoring the Charging system. The licensee further stated that cable damage due to fire may also cause a spurious start of the P18C Charging Pump and that cable damage may be mitigated by isolating and operating P18C (OMA 21) at the C–10 panel. The licensee further stated that RO–1 is at C–10 and must manipulate the controls for P18C and that establishing pump suction from the BASTs and operating P18C is required within 3 hours of reactor shutdown/loss of Charging. The licensee further stated that completing the OMAs to re-establish Charging would take 23 minutes leaving a margin of 157 minutes, which includes the parallel actions of PEO–2 establishing control of Bus 24D (by pulling control power fuses to circuit breaker A406 (OMA 16), ensuring A406 is open and closing breaker DV2021 (OMA 24) and PEO–3 (by manually aligning valves 2–CH–508 and 2–CH–509). The licensee further stated that after the BASTs have reached the 10 percent level, Operators switch Charging Pump suction over to the RWST and valve 2–CH–192 may fail closed due to a loss of power supply, but it can be controlled from the CR.

3.10.4.4 OMA Timing

The OMAs to establish AFW flow can be completed in 10 minutes which provides a 35 minute margin since the required completion time is 45 minutes. The OMA to check CST level can be completed in 3 minutes and is a long term action as the CST provides over 10 hours of inventory to AFW. The OMAs to establish Charging system flow from the BASTs can be completed in 23 minutes which provides a margin of 157 minutes since the required completion time is 180 minutes.

3.10.5 Conclusion

Given the limited amount of combustible materials and ignition sources and installed detection, it is unlikely that a fire would occur and go undetected or unsuppressed by the personnel, and damage the safe shutdown equipment. The low likelihood of damage to safe shutdown equipment due to a fire in this area, combined with the ability of the OMAs to manipulate the plant in the event of a fire that damages safe shutdown equipment and to be completed with more than 30 minutes of margin, provides adequate assurance that safe shutdown capability is maintained.

3.11 Fire Area R–14, Lower 6.9 and 4.16 kV Switchgear Room, East Cable Vault

3.11.1 Fire Prevention

The licensee stated that the areas have low combustible loading that predominantly consists of cable insulation and Thermo-Lag fire resistant wrap, and that potential ignition sources include electrical faults.

3.11.2 Detection, Control, and Extinguishment

The licensee stated that the Lower 6.9 and 4.16 kV Switchgear Room contains ionization smoke detectors located directly over each switchgear cabinet that alarm at the main fire alarm panel in the CR. The licensee also stated that a fire in the Lower 6.9 and 4.16 kV Switchgear Room that could potentially impact cables of concern would likely involve cable insulation resulting from an electrical fault in one of the cable trays routed over Bus 24E or failure of Bus 24E itself. Combustibles in this area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics. The licensee further stated that since there is a minimal amount of Class A combustibles in this area, there is little chance of a fire occurring, outside of a switchgear failure, which could act as a pilot ignition source for the cable insulation and that a switchgear failure normally results in a high intensity fire that lasts for a short duration, which makes it unlikely that it will cause sustained combustion of IEEE 383 qualified cables. The licensee further stated that in the unlikely event of a fire, it would be rapidly detected by the ionization smoke detection system installed in the area and that the smoke detection system, which consists of an ionization smoke detector located directly over each switchgear cabinet in the area, will aid in providing prompt Fire Brigade response.

The licensee stated that the East Cable Vault is provided with an automatic wet-pipe sprinkler system designed to protect structural steel and an ionization smoke detection system that alarms at the main fire alarm panel in the CR. The licensee also stated that the vertical cable chase that leads down the AB cable vault is protected by an automatic deluge spray system which is actuated by a cross-zoned smoke detection system that alarms at a local panel and at the main fire alarm panel in the CR. The licensee further stated that a fire in the area that could potentially impact any cables of concern would likely involve cable insulation resulting from an electrical fault and that combustibles in this area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics. The licensee further stated that since there is a minimal amount of Class A combustibles in this area, there is little chance of a fire

occurring which could act as a pilot ignition source for the cable insulation. The licensee further stated that Thermo-Lag, while considered combustible, is one-hour fire rated in this area and that based on its fire resistive qualities and lack of ignition sources, a fire involving Thermo-Lag wrap is not credible. The licensee further stated that in the event of a fire in this area, it would be rapidly detected in its incipient stage by the installed smoke detection system, which will aid in providing rapid response by the Fire Brigade. In the unlikely event the fire advanced beyond its incipient stage (unlikely based on type of cable insulation and Fire Brigade suppression activities), it would actuate the installed automatic wet-pipe suppression system provided in this area which will, at a minimum, provide reasonable assurance that a cable tray fire in this area will be controlled and confined to the immediate area of origin.

3.11.3 Preservation of Safe Shutdown Capability

The licensee stated that a fire in the Facility Z1 Lower 4.16 kV Switchgear Room and Cable Vault will affect all Facility Z1 shutdown components, that Facility Z2 is used to achieve and maintain Hot Standby, that plant shutdown to Hot Standby can be accomplished using an AOP and that OMAs are required to provide decay heat removal and restore Charging system flow to the RCS.

The licensee stated that the cables of concern in the East Cable Vault are the control and indication cabling for valve 2–FW–43B. The licensee also stated that cables for valves 2–CH–192, 2–CH–508 and 2–CH–509 are not located in this room, however, valves 2–CH–508 and 2–CH–509 are impacted due to the potential loss of the feed cables for bus 22E or the ''A'' EDG's control and power cables which results in the loss of power to the valves.

3.11.4 OMAs Credited for a Fire in This Area

In their letter dated February 29, 2012, the licensee deleted OMAs 1, 9 and 11 from the exemption request for fire area R–14 since loss of IA is no longer postulated.

The licensee stated that during verification and validation of the AOPs, it was identified that for a fire in fire area R–14 an additional operator might be necessary to place the plant into hot standby. The staffing requirements for MPS2 were changed to add one licensed or non-licensed operator over the minimum technical specification (TS) requirement to be on duty each shift during Modes 1, 2, 3, or 4, with this operator being designated as the Appendix R operator and is not part of the credited five man Fire Brigade crew.

3.11.4.1 Charging System Flow

3.11.4.1.1 OMAs 4 and 5—Open Valve 2–CH–508 and Open Valve 2–CH–509

The licensee stated that the Charging system has OMAs identified in that the BASTs gravity feed valves, 2–CH–508 and 2–CH–509, may fail as is (closed) due to a loss of power supply and that OMAs are in place (OMA 4 for 2–CH–508 and OMA 5 for 2–CH–509) to locally open these valves as part of restoring the Charging system. The licensee further stated that establishing Charging Pump suction from the BASTs is required within 3 hours of reactor shutdown/loss of Charging and that RO–1 and PEO–3 will perform their OMAs in parallel (see Section 3.11.4.1.2) to restore Charging. OMAs 4 and 5 are completed in 21 minutes.

3.11.4.1.2 OMAs 13, 14, 15, 23, and 24—Pull Control Power Fuses for Breaker A408 and Ensure Breaker Is Open, Pull Control Power Fuses for Breaker A410 and Ensure Breaker Is Open, Pull Control Power Fuses for Breaker A411 and Ensure Breaker Is Open, Pull Control Power Fuses for Breaker A401 and Ensure Breaker Is Closed, and Locally Close Breaker DV2021

The licensee stated that as part of the restoration of Charging flow to the RCS, Bus 24D must be isolated from cross-ties to Bus 24B, Bus 24E and the RSST and that this is due to fire-induced cable damage which may result in spurious operation/loss of control from the CR of breakers A401, A410, A408 and A411. The OMAs associated with these breakers are to pull the control power fuses and ensure that breakers A410 (OMA 14), A408 (OMA 13) and A411 (OMA 15) are open and that breaker A401 (OMA 23) is closed. The licensee also stated that once RO–1 completes the OMAs, PEO–1 will then reset and close breaker DV2021 (OMA 24). OMAs 13, 14, 15, 23 and 24 are completed in 24 minutes, then it will take an additional 3 minutes for the CR to establish Charging flow for a total of 27 minutes which results in a 153 minute margin since the required completion time is 180 minutes.

3.11.4.2 OMA Timing

The OMAs to establish Charging system flow from the BASTs can be completed in 27 minutes which provides for a margin of 153 minutes since the required completion time is 180 minutes.

3.11.5 Conclusion

Given the limited amount of combustible materials and ignition sources and installed detection (Lower 6.9 and 4.16 kV Switchgear Room) and installed detection and suppression (East Cable Vault), it is unlikely that a fire would occur and go undetected or unsuppressed by the personnel and damage the safe shutdown equipment. The low likelihood of damage to safe shutdown equipment due to a fire in this area, combined with the ability of the OMAs to manipulate the plant in the event of a fire that damages safe shutdown equipment and to be completed with more than 30 minutes of margin, provides adequate assurance that safe shutdown capability is maintained.

3.12 Fire Area R–15, Containment Building

3.12.1 Fire Prevention

The licensee stated that the area has low combustible loading including cable insulation and small amounts of lube oil and that potential ignition sources include electrical faults, motors, mechanical failure, and hot surfaces.

3.12.2 Detection, Control, and Extinguishment

The licensee stated that the area is provided with smoke detection at each of the East and West Electrical Penetration Areas on the 14′–6″ elevation and that the system alarms at a local panel and at the main fire alarm panel in the CR. The licensee also stated that heat detection is provided for each of the Reactor Coolant Pumps (RCPs) and that during refueling outages, the fire protection header within Containment is charged, with hose stations available on all elevations with the exception of the 3′–6″ elevation. The licensee further stated that during normal plant operation, fire protection piping within the Containment is not charged. The licensee further stated that a fire in the Containment that could potentially impact any cables of concern would likely involve cable insulation resulting from an electrical fault and that combustibles in this area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics. The licensee further stated that during plant operation, there are negligible amounts of Class A combustibles in this area, and therefore, there is little chance of a fire occurring which could act as a pilot ignition source for the cable insulation. If a cable fire does occur, it would be rapidly detected by the smoke detection

system installed at the east and west electrical penetration areas on the 14′–6″ elevation of the Containment, alerting the CR to a fire condition in Containment. The licensee further stated that a lube oil fire serving as a pilot ignition source to cable in the Containment is not a realistic scenario, that lube oil in this fire area is predominantly associated with the four RCPs and that while a failure of one of these RCP motors and a subsequent lube oil fire could be postulated, each of the RCP motors (located on the 14′–6″ Elevation of Containment) is partially enclosed in reinforced concrete compartments and the floor beneath the RCPs drains to the lowest elevation of Containment (22′–6″ Elevation). The licensee further stated that cabling in the Containment is routed outside of these concrete compartments along the outer annulus of the Containment and would be shielded from an RCP motor fire. The licensee further stated that based on the large volume of the Containment, the heat and hot gasses generated by an RCP motor lube oil fire would rise to the upper elevations of the Containment away from the cable tray concentrations located at the East and West Electrical Penetration Areas on the 14′–6″ elevation of the Containment. If an RCP motor lube oil fire does occur, it would be detected in its incipient stage by the installed heat detection system that protects the RCP motors, alerting the CR to a fire condition in Containment.

3.12.3 Preservation of Safe Shutdown Capability

The licensee stated that the cables of concern for the Containment are the power and indication cables for valves 2–CH–517 and 2–CH–519.

The licensee stated that a fire in the Containment will affect a significant amount of instrumentation needed to monitor plant parameters and that a review of all instrument cables inside the Containment indicates that compliance with separation criteria was achieved with the exception of the Pressurizer cubicle. The separation issues inside Containment have been evaluated as follows:

1. Separation criteria were evaluated for the Pressurizer cubicle to address instruments LT–11OX, LT–1 10Y, PT–102A, and PT–102B (instruments located on Racks C140 and C211 in the NE quadrant of containment) and instruments PT–103 and PT–103–1.

2. Separation criteria were evaluated for the remainder of the instruments required for safe shutdown (RCS temperature, SG level and pressure, core exit thermocouples, nuclear instruments (NIs), containment temperature) and the sensing lines for the pressurizer level and pressurizer pressure instruments.

The licensee stated that plant shutdown to Hot Standby can be accomplished using an AOP and that for a fire in the area, OMAs are required to provide decay heat removal and restore Charging system flow to the RCS.

3.12.4 OMAs Credited for a Fire in This Area

3.12.4.1 AFW Flow

3.12.4.1.1 OMAs 10 and 11—Operate Valve 2–MS–190A and Control Valve 2–MS–190B at Panel C10 or Local Manual Operation

The licensee stated that for decay heat removal, after AFW flow is established from the CR in the required 45 minute time period, Operators will transfer from steaming through the MSSVs to steaming through the ADVs and that for a fire in the area, both ADVs (2–MS–190A and 2–MS–190B) are required. The licensee also stated that operators must first determine which SG instruments are available and that if SG1 instrumentation is available, then 2–MS–190A (OMA 10) ADV will be utilized for the decay heat steam path, and if SG2 instrumentation is available, then the 2–MS–190B (OMA 11) ADV will be utilized for the decay heat steam path. The licensee further stated that neither ADV is fire affected, however, the fire may cause a loss of IA which is required to operate the ADVs to support decay heat removal. The licensee further stated that upon a loss of IA, the ADV will fail closed and that this ''fail to closed'' design prevents excessive RCS cooldown prior to AFW start. In the event of a loss of IA, operators will establish local manual control of 2–MS–190A or 2–MS–190B after AFW flow is established. The licensee further stated that PEO–1 will remain with the ADV to modulate steam flow per direction from the CR. OMAs 10 and 11 can begin 17 minutes after AFW is established by the CR.

3.12.4.2 Charging System Flow

3.12.4.2.1 OMAs 6 and 7—Open Breaker to Fail Valve 2–CH–517 Closed and Open Breaker to Fail Valve 2–CH–519 Open

The licensee stated that the Charging system OMAs are for possible spurious operation of valves 2–CH–517, 2–CH–518, and 2–CH–519, due to fire-induced cable damage and that these valves are located in Containment. The licensee also stated that PEO–3 opens breakers to place the valves in their required positions and for valve 2–CH–517 (OMA 6), breaker DV2012 is opened which will fail the valve in the closed position and that this breaker manipulation will also fail 2–CH–519 (OMA 7) in its required open position. The licensee further stated that valve 2–CH–518 is not required for a fire in the area, but will be failed open (desired position) when other power circuits are isolated and that once PEO–3 completes the OMA in 7 minutes, it takes approximately 3 additional minutes for the CR to re-establish Charging flow which provides a 170 minute margin.

3.12.4.2.2 OMA 1—Open Valve 2–CH–192

The licensee stated that although not fire affected, valve 2–CH–192 will failed closed after the isolation of power to Containment which will necessitate an OMA (OMA 1) to establish the RWST as the source of water to the RCS once the BASTs are depleted. The licensee also stated that a minimum switch-over time of 72 minutes, after charging has been restored, has been established based on the TRM BAST level requirements and that calculations conclude that the Charging system must be restored within 3 hours, therefore, the initial alignment of 2–CH–517 and 2–CH–519 will take place within 3 hours. The licensee further stated that establishing the RWST as a flow path to the RCS is not required until 1.2 hours after Charging is re-established.

3.12.4.3 OMA Timing

AFW flow is established from the CR within the required 45 minute time period and should IA be lost, the OMA to continue decay heat removal can be conducted beginning 17 minutes after AFW flow is established. The OMAs to establish Charging system flow from the BAST can be completed in 10 minutes which provides a margin of 170 minutes since the required completion time is 180 minutes. The OMA to establish Charging system flow from the RWST prior to BAST depletion can be completed in 32 minutes which provides a 40 minute margin since the required completion time is 72 minutes.

3.12.5 Conclusion

Given the limited amount of combustible materials, ignition sources, installed partial detection, and separation from the RCPs, it is unlikely that a fire would occur and go undetected or unsuppressed by the personnel and damage the safe shutdown equipment. There is a low likelihood of damage to safe shutdown equipment due to a fire in this area. The ability of the OMAs to manipulate the plant in the event of a fire that damages safe shutdown equipment, to be

completed with more than 30 minutes of margin, provides adequate assurance that safe shutdown capability is maintained.

3.13 Fire Area R–17, East Electrical Penetration Area, East Main Steam Safety Valve/Blowdown Tank Room, East Piping Penetration Area

3.13.1 Fire Prevention

The licensee stated that the East Electrical Penetration Area has moderate combustible loading that includes cable insulation and small amounts of plastics and that potential ignition sources include electrical faults.

The licensee stated that the East Main Steam Safety Valve/Blowdown Tank Room has low combustible loading that consists entirely of cable insulation and that potential ignition sources include electrical faults.

The licensee stated that the East Piping Penetration Area has low combustible loading that includes Class A combustibles (e.g., rubber) and that potential ignition sources include transient ignition sources (e.g. hotwork).

3.13.2 Detection, Control, and Extinguishment

The licensee stated that the East Electrical Penetration Area is provided with an ionization smoke detection system which alarms at the main fire alarm panel in the CR. The licensee also stated that a fire in the area that could potentially impact a cable of concern would likely involve cable insulation resulting from an electrical fault. The licensee stated that combustibles in this area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics. The licensee further stated that the cable trays in this area are predominantly located towards the southern and eastern end of the room, while the Class A combustibles are located predominantly towards the northern end of the room. Based on the location of the Class A combustibles in relation to the cable trays in this area, there is little chance of a fire occurring which could act as a pilot ignition source for the cable insulation. Based on the length of the east wall (55 feet), the distance between the cable trays and the Class A combustibles is approximately 45 feet. The licensee further stated that a failure of motor control center (MCC) B–31B could also serve as an ignition source and that an MCC failure normally results in a high intensity fire that lasts for a short duration, which makes it unlikely that it will cause sustained combustion of IEEE 383 qualified cables. In order to impact the subject cable trays, an MCC failure would have to ignite a cable tray located immediately above the MCC. The fire would also have to propagate via the cable tray until it reached any cables of concern. The licensee further stated that based on the discussion above, the postulated fire scenario is highly unlikely. The characteristics of an MCC failure and the fire retardant properties of IEEE 383 cabling also make it implausible that failure of hydrogen analyzers C86 or C87 would result in the ignition of a cable tray located several feet above the analyzers. The heavy construction of the hydrogen analyzer cabinets would further preclude this event. The licensee further stated that in the event of a fire in this area, it would be rapidly detected in its incipient stage by the installed smoke detection system, which will aid in providing rapid response by the Fire Brigade.

The licensee stated that a fire in the East Main Steam Safety Valve/Blowdown Tank Room that could potentially impact the cables of concern would likely involve cable insulation resulting from an electrical fault and that combustibles in this area consist predominantly of IEEE 383 qualified cable insulation or cable that has been tested and found to have similar fire resistive characteristics. The licensee also stated that since the amount of Class A combustibles in this fire area is negligible, there is little chance of a fire occurring which could act as a pilot ignition source for the cable insulation and in the unlikely event of a fire in this fire area, the high ceiling and the large volume of this room would preclude a large rise in temperature in the areas where the subject cable trays or conduits are routed, reducing the likelihood that they would be damaged by the fire.

The licensee stated that the East Piping Penetration Area is not provided with a smoke detection system, however, due to the openings in the ceiling of this area, the ionization smoke detection system located at the ceiling of the east electrical penetration area (FHA Zone A–10B) would provide supplemental coverage to detect a fire in this area. The licensee stated that a fire in the East Piping Penetration Area that could potentially impact any cables of concern would likely involve Class A combustibles from a transient ignition source. Based on the controls placed on transient combustibles and transient ignition sources, it is unlikely a fire would occur in this area. The licensee also stated that all hot work evolutions in the plant are procedurally required to have a fire watch in place. Hot work fire watches are individuals stationed in plant areas for the purpose of fire safety for workers and welders, detecting and suppressing smoke, fire, flames, or sparks as a result of hot work such as welding, cutting, or grinding. If a fire starts as a result of hot work, it would be detected in its incipient stages. The licensee further stated that since the amount of Class A combustibles in this area is small, a fire in this room is unlikely to occur. If a fire did occur, it would be of low intensity and would not likely be of sufficient magnitude to impact cable routed in conduit. The licensee further stated that the high ceiling of this room and the fact that this area opens up to the east electrical penetration area above (FHA Zone A–10B) would preclude a large rise in temperature in the areas where the subject conduits are routed, lessening the likelihood that they would be damaged by the fire.

3.13.3 Preservation of Safe Shutdown Capability

The licensee stated that OMAs associated with a fire in the East Electrical Penetration Area are related to failure of the ''A'' EDGs power or control cables resulting in the loss of power to buses 24C, 22E, B51 and the battery charger, which results in the depletion of the ''A'' battery and that a fire in this area could also cause the failure of IA.

The licensee stated that the OMAs associated with a fire in the East Main Steam Safety Valve/Blowdown Tank Room are related to failure of IA and that cables for valves 2–CH–192 and 2–MS–190B do not enter this room.

The licensee stated that in the event of a fire in the East Penetration Area which could affect Facility Z1 shutdown components, Facility Z2 is used to achieve and maintain Hot Standby and that plant shutdown to Hot Standby can be accomplished using an AOP. The licensee also stated that for a fire in the area, OMAs are required to provide decay heat removal and restore charging system flow to the RCS.

3.13.4 OMAs Credited for a Fire in This Area

3.13.4.1 AFW Flow

3.13.4.1.1 OMA 11—Control Valve 2–MS–190B at Panel C10 or Local Manual Operation

The licensee stated that establishing AFW flow to the credited SG is required within 45 minutes and that for a fire in the area, the required AFW flow path utilizes the TDAFW pump. The licensee

also stated that once AFW flow is established from the CR, operation of the ADV (2–MS–190B) (OMA 11) is the required method for maintaining the plant in Hot Standby and transitioning to Cold Shutdown and that prior to AFW initiation, the plant is placed in the Hot Standby condition by steaming through the MSSVs. The licensee further stated that a fire in the area would not damage any cables associated with ADV (2–MS–1 90B), however, the fire might cause a loss of IA which is required to operate the ADVs and support decay heat removal. The licensee further stated that upon a loss of IA, the ADV will fail closed and that this ''failed to close'' design prevents excessive RCS cooldown prior to AFW start. Therefore, in the event of a loss of IA, Operators will establish local manual control of 2–MS–190B after AFW flow is established. The licensee further stated that PEO–1 will remain with the ADV to modulate steam flow per direction from the CR.

3.13.4.2 Charging System Flow

3.13.4.2.1 OMAs 4, 5 and 1—Open Valve 2–CH–508, Open Valve 2–CH–509, and Open Valve 2–CH–192

The licensee stated that for a fire in the area, the Charging system has OMAs identified as the BASTs gravity feed valves, 2–CH–508 and 2–CH–509, might fail as is (closed) due to a loss of power supply. The licensee also stated that OMAs (OMA 4 and 5) are in place to locally open these valves as part of restoring the Charging system and that once these valves are opened, the CR can establish Charging flow within 2–3 minutes. The licensee further stated that establishing Charging Pump suction from the BASTs is required within 3 hours of reactor shutdown/loss of charging, and Charging is therefore re-established within 24 minutes (21 minutes to open BASTs valves and 3 minutes to establish charging flow from the CR) which provides a 156 minute margin. The licensee further stated that after the BASTs have reached the 10 percent level, Operators switch the charging pump suction over to the RWST and that valve 2–CH–192 will fail closed when DV1013 is opened to mitigate spurious operation of 2–CH–518 and that an OMA is required to open 2–CH–192 (OMA 1) once the BASTs supply to charging is exhausted. The licensee further stated that evaluations conclude that the BASTs will last a minimum of 72 minutes after Charging is re-established and that the OMA is not required to be performed prior to this time.

3.13.4.3 OMA Timing

AFW flow is established from the CR within the required 45 minute time period and should IA be lost, the OMA to continue decay heat removal can be conducted beginning 17 minutes after AFW flow is established. The OMAs to establish Charging system flow from the BAST can be completed in 24 minutes which provides a margin of 156 minutes since the required completion time is 180 minutes. The OMA to establish Charging system flow from the RWST prior to BAST depletion can be completed in 32 minutes which provides a 40 minute margin since the required completion time is 72 minutes.

3.13.5 Conclusion

Given the limited amount of combustible materials and ignition sources, administrative controls, available margin (40 minutes), and installed detection in the East Electrical Penetration Area, it is unlikely that a fire would occur and go undetected or unsuppressed by the personnel, and damage the safe shutdown equipment.

The East Piping Penetration Room has limited combustible materials and ignition sources and lacks credible fire scenarios, but is not provided with detection. However, due to the openings in the ceiling, the detection located in the East Electrical Penetration Area provides some coverage to the East Piping Penetration Room. A fire in this room, although unlikely, would be expected to be of low intensity and not likely to impact cable routed in conduit. In addition, the high ceiling and ceiling openings to the East Electrical Penetration Area would preclude a large rise in temperature reducing the likelihood that cables would be damaged by the fire. The limited amount of combustible materials and ignition sources, administrative controls, and lack of credible fire scenarios, combined with the ability of the OMAs with available margin (40 minutes) to manipulate the plant, in the unlikely event of a fire that damages safe shutdown equipment, provides adequate assurance that safe shutdown capability can be maintained.

The East Main Steam Safety Valve/Blowdown Tank Room has limited combustible materials and ignition sources and lacks credible fire scenarios, but is not provided with detection. However, since the amount of Class A combustibles is small, there is little likelihood of a fire occurring which could act as a pilot ignition source for the cable insulation. In addition, the high ceiling and the large volume would preclude a large rise in temperature where the cable trays or conduits are routed, reducing the likelihood of cable damage. The limited amount of combustible materials and ignition sources, administrative controls, and lack of credible fire scenarios, combined with the ability of the OMAs with available margin (40 minutes) to manipulate the plant in the unlikely event of a fire that damages safe shutdown equipment, provides adequate assurance that safe shutdown capability can be maintained.

3.14 Feasibility and Reliability of the Operator Manual Actions

In their February 29, 2012 letter, the licensee stated that the means to safely shutdown MPS2 in the event of a fire that does occur and is not rapidly extinguished, as expected, has been documented in the Appendix R Compliance report. The entire Appendix R Compliance report was not reviewed by the NRC as part of this exemption, the relevant information was submitted on the docket in the letters identified above. The sections below outline the licensees basis for the OMA's feasibility and reliability.

NUREG–1852, ''Demonstrating the Feasibility and Reliability of Operator Manual Actions in Response to Fire,'' provides criteria and associated technical bases for evaluating the feasibility and reliability of post-fire OMAs in nuclear power plants. The following provides the MPS2 analysis of these criteria for justifying the OMAs specified in this exemption.

3.14.1 Bases for Establishing Feasibility and Reliability

The licensee stated that in establishing the assumed times for operators to perform various tasks, a significant margin (i.e., a factor of two) was used with respect to the required time to establish the system function for all fire area scenarios identified in the exemption request (with the exception of RWST flow to charging). For example, the Time Critical Action (TCA) to establish AFW flow is validated to be able to be completed within 22.5 minutes, which provides a factor of two margin of the 45 minute timeframe used in the fire scenario analysis.

The licensee stated that confirmation times for valve/breaker manipulations was included in the action time for the OMAs. The licensee also stated that for valves that are operated in the field, if they are being manually opened or closed, there is local indication plus the mechanical stops to confirm valve operation. For valves that are throttled, the field operator is in communication with the CR personnel who monitor

control board indication to confirm the proper response. The licensee further stated that all breakers have local mechanical indication for position verification, that all sequenced steps are coordinated from the CR, and that the OMA times listed include this coordination.

3.14.2 Environmental Factors

The licensee stated that a review of ventilation systems for the fire areas addressed by the exemption request concluded that no credible paths exist that could allow the spread of products of combustion from the area of fire origin to an area that either serves as a travel path for OMAs or is an action location for an OMA. There is an exception for OMA 1 in fire area R–4 which was discussed in section 3.2.4.1.1 (and below). The licensee also stated that the installed ventilation systems are not used to perform smoke removal activity for the fire areas discussed in the exemption request and that smoke evacuation for these areas would be accomplished by the site Fire Brigade utilizing portable mechanical ventilation.

The licensee stated that the performance of all the OMAs for each of the fire areas have specific safe pathways for access and egress and that in all cases, ELUs have been provided to ensure adequate lighting. The licensee also stated that during a fire event, implementation of CR actions ensure the radiation levels along these pathways, and at the location of the OMAs, are within the normal and expected levels.

The licensee stated that area temperatures may be slightly elevated due to a loss of normal ventilation, however, in no case would the temperatures prevent access along the defined routes or prevent the performance of an OMA. The licensee also stated that only OMA 1 could occur in the fire affected area in that a fire in fire area R–4, charging pump cubicle, could impact valve 2–CH–192 requiring the OMA to manually open this valve. The licensee further stated that this action would be delayed until after the fire is extinguished and the area is ventilated and that opening valve 2–CH–192 would not be required until the BASTs are emptied. The licensee further stated that the most limiting time estimate is 72 minutes of Charging system operation injecting the contents of the BASTs based on the tanks being at the TRM minimum level at the start of the event and that during the event, Charging may be lost or secured, and RCS inventory can meet the Appendix R performance goal for 180 minutes. The licensee further stated that analysis indicates that valve 2–CH–192 may not need to be opened until 252 minutes into the event.

The licensee stated that fire barrier deviations that could allow the spread of products of combustion of a fire to an adjacent area that either serves as a travel path for OMAs or is an action location for an OMA have been found to not adversely impact OMA travel paths or action areas.

3.14.3 Equipment Functionality and Accessibility

The licensee stated that as part of the OMA validation process, lighting, component labeling, accessibility of equipment, tools, keys, flashlights, and other devices or supplies needed are verified to ensure successful completion of the OMA.

The licensee stated that for each OMA, the current MPS2 Appendix R Compliance Report indicates that operator access is assured by an alternate path or access is not required until after the fire has been suppressed. Where applicable, the licensee stated that OMAs have sufficient ELUs to provide for access to the particular component and to perform the task.

3.14.4 Available Indications

Indicators and indication cables have been evaluated by the licensee as part of the exemption request process. Where impacts to indication have been identified the licensee provided an alternate method to obtain the needed indication(s).

3.14.5 Communications

The licensee stated that Operators are provided with dedicated radio communication equipment and that the Appendix R communication system utilizes a portion of the MPS 800 MHz trunked radio system which consists of 800 MHz portable radio units, a CR base station transmitter, antennas, a main communication console located inside the CR and redundant repeaters. The licensee also stated that the CR base station transmitter is provided to ensure two-way voice communications with the CR without affecting plant safety systems that may have sensitive electronic equipment located in the area and the resulting design configuration ensures communications capability for all Appendix R fire scenarios.

3.14.6 Portable Equipment

The licensee stated that all equipment required to complete a required action is included in a preventative maintenance program and is also listed in the TRM which identifies surveillances for the equipment utilized in each OMA.

3.14.7 Personnel Protection Equipment

The licensee stated that there are no OMAs required in fire areas identified in the exemption request that necessitate the use of self-contained breathing apparatus. No fire areas necessitate reentry to the area of fire origin other than described in Section 3.2.4.1.1.

3.14.8 Procedures and Training

The licensee stated that entry into AOP 2559, ''FIRE'' is at the first indication of a fire from a panel alarm or report from the field. If the fire is in an Appendix R area, the shift is directed to determine if a fire should be considered Appendix R by:

1. Identifying actual or imminent damage to safe shutdown components, switchgear, MCCs, cable trays or conduit runs;
2. Observation of spurious operation of plant components needed for safe shutdown;
3. Observation of loss of indication, control, or function of safe shutdown plant systems or components;
4. Observation of conflicting instrument indication for safe shutdown systems or components; or
5. Observation of parameters associated with safe shutdown systems or components not being within expected limits for the existing plant configuration.

The licensee stated that AOP 2559, ''FIRE'' has various attachments that have Appendix R egress/access routes which provide a safe pathway to reach the required equipment necessary to complete the OMAs and that they have confirmed that the pathways will be free of hazards to the operators due to the subject fire.

The licensee also stated that there is an Appendix R AOP corresponding to each Appendix R fire area, which are entered when an Appendix R fire is declared. Operations personnel train to those AOPs which identify the steps to perform each OMA. The licensee further stated that time critical OMAs are also identified within operating procedures which require that Operations personnel train to perform these time critical activities. The OMAs presented in this exemption request are encompassed in the time critical procedure.

The licensee further stated that the times allotted to perform these tasks are easily achieved by experienced and inexperienced operators during training sessions, evaluated requalification training, and supervised walk downs and that for each case, there is sufficient

margin to account for the uncertainties associated with stress, environmental factors, and unexpected delays.

3.14.9 Staffing

The licensee stated that the Operations shift staffing requirements include one additional licensed or non-licensed operator over the minimum TS requirement to be on duty each shift during Modes 1, 2, 3, or 4, and that this operator is designated as the Appendix R operator and is specified in the TRM. The licensee also stated that the number of individuals available to respond to the OMAs is one RO, two PEOs, and one additional licensed or non-licensed individual (Appendix R Operator). The licensee stated that the exemption request allocated tasks to PEO–1, PEO–2, PEO–3 and RO–1 and that one of the three PEOs would be the TRM required Appendix R Operator. With the exception of the panel C10 activities, the assignments are interchangeable between the four operators, since these individuals are specified by the TS and TRM, they are not members of the Fire Brigade and have no other collateral duties.

The licensee stated that MPS2 has a SERO and appropriate emergency response facilities. In the event of a declaration of an ALERT (events which are in progress or have occurred involving an actual or potential substantial degradation of the level of safety of the plant, with releases expected to be limited to small fractions of the Environmental Protection Agency, Protective Action Guideline exposure levels), ALERT event activates the SERO organization, which is immediately staffed by on-site personnel and is fully established with on-call personnel within 60 minutes of the ALERT being declared. The licensee also stated that after this time, off-shift Operations staff (e.g., personnel in training, performing administrative functions, etc.) may be called in as requested by the SM. The licensee further stated that many of the OMAs are not required prior to the establishment of SERO and that the additional staff available through SERO will improve the reliability of these OMAs.

The licensee stated that operators are required and assumed to be within the Protected Area and that the time lines account for the initial response by the field Operator. The licensee also stated that upon the announcement of a fire, the field Operators are directed to report to the CR and await further directions. Upon a report of a fire, the CR Operators enter AOP 2559, ''FIRE.'' The licensee further stated that the flow path to get into an Appendix R fire scenario is, that upon indication of a fire, the Fire Brigade is dispatched, and based on their report or indications in the CR, an Appendix R fire may be declared. In the development of the time lines, the Operators are allowed 5 minutes to respond and report to the CR.

3.14.10 Demonstrations

In their letter dated February 29, 2012 the licensee provided its validation process for the OMAs included in the exemption request. The validation process included the following: 1. Validation Objectives; 2. Validation Frequency; 3. Validation Methods; 4. Validation Attributes; and 5. Validation Performance.

The licensee stated that all OMAs are encompassed in procedure COP 200.18, ''Time Critical Action Validation and Verification'' and that an enhancement to the tracking and training on TCAs has been developed and is currently being implemented.

The licensee stated that all of the OMAs identified are contained in the AOPs to respond to an Appendix R Fire in the AOP Series 2579's fire procedures for Appendix R and that during initial validation of these procedures, the OMAs were performed and all of the time performance objectives were met as a result of the validation.

3.14.11 Feasibility Summary

The licensee's analysis demonstrates that, for the expected scenarios, the OMAs can be diagnosed and executed within the amount of time available to complete them. The licensee's analysis also demonstrates that various factors, including the factor of two time margin, the use of the minimum BAST inventory, and the use of the CST inventory, have been considered to address uncertainties in estimating the time available. Therefore, the OMAs included in this review are feasible because there is adequate time available for the Operator to perform the required OMAs to achieve and maintain hot shutdown following a postulated fire event. The following table summarizes the ''required'' versus ''available'' times for OMAs with time requirements. Where a diagnosis time has been identified, it is included as part of the required time for a particular action. Where an action has multiple times or contingencies associated with the ''allowable'' completion time, the lesser time is used. This approach is considered to represent a conservative approach to analyzing the timelines associated with each of the OMAs with regard to the feasibility and reliability of the actions included in this exemption. All OMAs have at least 30 minutes of margin, and all but one have a factor of two time margin available. Margin is based on using the most limiting information from the licensee, for example, if the licensee postulated a range of time for diagnosis, the required time below includes the largest number in the range.

Finally, these numbers should not be considered without the understanding that the manual actions are a fall back in the unlikely event that the fire protection defense-in-depth features are insufficient. In most cases there is no credible fire scenario that would necessitate the performance of these OMAs. The licensee provided a discussion of the activity completion times and associate margins related to the OMAs in their June 30, 2011, and February 29, 2012 letters which are summarized in Table 3.

TABLE 3

Fire Area of Fire Origin	Activity	OMAs	Available time (min)	Time to conduct OMAs (min)	Margin (min)
Fire Area R–2 (West Penetration Area, MCC B61, and the Facility Z2 Upper 4.16kV Switchgear Room and Cable Vault).	Establish AFW Flow	12	45	9	36
	Establish Charging Suction from BAST.	2, 6, 10, 18, 19, 20	180	66	114
	Establish Charging Suction from RWST.	1, 8	72	40	32

TABLE 3—Continued

Fire Area of Fire Origin	Activity	OMAs	Available time (min)	Time to conduct OMAs (min)	Margin (min)
Fire Area R–4 (Charging Pump Cubicles)	Establish Charging Suction from RWST.	1	72	32	40
Fire Area R–5 (“A” Safeguards Room, HPSI/LPSI).	Establish Charging Suction from RWST.	1	72	32	40
Fire Area R–6 (“B” Safeguards Room, LPSI)	Establish Charging Suction from RWST.	1	72	32	40
Fire Area R–7 (Diesel Generator Room A)	Establish Charging Suction from BAST.	4, 5, 11	180	24	156
	Establish Charging Suction from RWST.	1	72	32	40
Fire Area R–8 (Diesel Generator Room B)	Establish Charging Suction from RWST.	1	72	32	40
Fire Area R–9 (Facility Z1 DC Switchgear Room and Battery Room).	Establish Charging Suction from BAST.	4, 5	180	24	156
Fire Area R–10 (Facility Z2 DC Equipment Room and Battery Room).	Obtain Local BAST Level Indication.	18, 19	180	12	168
Fire Area R–12 (TDAFW Pump Pit)	Establish Charging Suction from RWST.	1	72	32	40
Fire Area R–13 (West (Facility Z1) 480 VAC Switchgear Room).	Establish AFW Flow	17, 22	45	10	35
	Establish Charging Suction from BASTs.	4, 5, 16, 20, 21, 24	180	23	157
Fire Area R–14 (Facility Z1 Lower 4.16kV Switchgear Room and Cable Vault).	Establish Charging Suction from BASTs.	4, 5, 13, 14, 15, 23, 24	180	27	153
Fire Area R–15 (Containment Building)	Establish Charging Suction from BASTs.	6, 7	180	10	170
	Establish Charging Suction from RWST.	1	72	32	40
Fire Area R–17 (East Penetration Area)	Establish Charging Suction from BASTs.	4, 5	180	24	156
	Establish Charging Suction from RWST.	1	72	32	40

The completion times noted in the table above provide reasonable assurance that the OMAs can reliably be performed under a wide range of conceivable conditions by different plant crews because it, in conjunction with the time margins associated with each action and other installed fire protection features, account for sources of uncertainty such as variations in fire and plant conditions, factors unable to be recreated in demonstrations and human-centered factors.

3.14.12 Reliability

A reliable action is a feasible action that is analyzed and demonstrated as being dependably repeatable within an available time. The above criteria, 3.14.1 through 3.14.10 provide the staff’s basis that the actions are feasible. Section 3.14.11, provides a discussion of the available time margin. The licensee provided a basis that the actions were reliable, based on the available time margin; the administrative controls such as procedures, staffing levels, and availability of equipment; and by accounting for uncertainty in fires and plant conditions. Therefore, the OMAs included in this review are reliable because there is adequate time available to account for uncertainties not only in estimates of the time available, but also in estimates of how long it takes to diagnose a fire and execute the OMAs (e.g., as based, at least in part, on a plant demonstration of the actions under non-fire conditions). OMA 1 for fire area R–4 is performed in a fire affected area and is performed after the fire is extinguished and after the SERO is fully staffed. This OMA establishes the RWST as the suction supply for the charging system and is not conducted until after AFW is established and since the BASTs have a minimum TRM specified inventory to ensure 72 minutes of flow, OMA 1 can be completed with 40 minutes of margin.

3.15 Summary of Defense-in-Depth and Operator Manual Actions

In summary, the defense-in-depth concept for a fire in the fire areas discussed above provides a level of safety that results in the unlikely occurrence of fires, rapid detection, control and extinguishment of fires that do occur and the protection of structures, systems and components important to safety. As discussed above, the licensee has provided preventative and protective measures in addition to feasible and reliable OMAs that together demonstrate the licensee’s ability to preserve or maintain safe shutdown capability in the event of a fire in the analyzed fire areas.

3.16 Authorized by Law

This exemption would allow MPS2 to rely on OMAs, in conjunction with the other installed fire protection features, to ensure that at least one means of achieving and maintaining hot shutdown remains available during and following a postulated fire event, as part of its fire protection program, in lieu of meeting the requirements specified in III.G.2 for a fire in the analyzed fire areas. As stated above, 10 CFR 50.12 allows the NRC to grant exemptions from the requirements of 10 CFR Part 50. The NRC staff has determined that granting of this exemption will not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission’s regulations. Therefore, the exemption is authorized by law.

3.17 No Undue Risk to Public Health and Safety

The underlying purpose of 10 CFR Part 50, Appendix R, Section III.G is to ensure that at least one means of achieving and maintaining hot shutdown remains available during and following a postulated fire event. Based on the above, no new accident precursors are created by the use of the specific OMAs, in conjunction with the other installed fire protection features, in response to a fire in the analyzed fire areas. Therefore, the probability of postulated accidents is not increased. Also based on the above, the consequences of postulated accidents are not increased. Therefore, there is no undue risk to public health and safety.

3.18 Consistent with Common Defense and Security

This exemption would allow MPS2 to credit the use of the specific OMAs, in conjunction with the other installed fire protection features, in response to a fire in the analyzed fire areas, discussed above, in lieu of meeting the requirements specified in III.G.2. This change, to the operation of the plant, has no relation to security issues. Therefore, the common defense and security is not diminished by this exemption.

3.19 Special Circumstances

One of the special circumstances described in 10 CFR 50.12(a)(2)(ii) is that the application of the regulation is not necessary to achieve the underlying purpose of the rule. The underlying purpose of 10 CFR Part 50, Appendix R, Section III.G is to ensure that at least one means of achieving and maintaining hot shutdown remains available during and following a postulated fire event. While the licensee does not comply with the explicit requirements of III.G.2 specifically, they do meet the underlying purpose of 10 CFR Part 50, Appendix R, and Section III.G as a whole. Therefore, special circumstances exist that warrant the issuance of this exemption as required by 10 CFR 50.12(a)(2)(ii).

4.0 Conclusion

Based on the all of the features of the defense-in-depth concept discussed above, the NRC staff concludes that the use of the requested OMAs, in these particular instances and in conjunction with the other installed fire protection features, in lieu of strict compliance with the requirements of III.G.2 is consistent with the underlying purpose of the rule. As such, the level of safety present at MPS2 is commensurate with the established safety standards for nuclear power plants.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12(a), the exemption is authorized by law, will not present an undue risk to the public health and safety, is consistent with the common defense and security and that special circumstances are present to warrant issuance of the exemption. Therefore, the Commission hereby grants Dominion an exemption from the requirements of Section III.G.2 of Appendix R of 10 CFR Part 50, to utilize the OMAs discussed above at MPS2.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will not have a significant effect on the quality of the human environment (77 FR 39746).

This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 12th day of July 2012.

For the Nuclear Regulatory Commission.

Michele G. Evans,

Director, Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation.

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NUCLEAR REGULATORY COMMISSION

[NRC–2010–0138]

Final Standard Review Plan, Branch Technical Position 7–19 on Guidance for Evaluation of Diversity and Defense-in-Depth in Digital Computer-Based Instrumentation and Control Systems

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of availability.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC or the Commission) staff is issuing Final Revision 6 to NUREG–0800, ''Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants,'' Branch Technical Position (BTP) 7–19 on ''Guidance for Evaluation of Diversity and Defense-in-Depth in Digital Computer-Based Instrumentation and Control Systems.'' This BTP is to be cited as the acceptance criteria for Diversity and Defense-in-Depth in Digital Computer-Based Instrumentation and Control Systems in the Standard Review Plan (SRP), Chapter 7, for those standard reactor designs that have not been certified prior to the date of this BTP. The purpose of this SRP update is to provide staff guidance for assessing combined license (COL) applicant compliance with the requirements.

DATES: The effective date of this SRP update is August 23, 2012.

ADDRESSES: Please refer to Docket ID NRC–2010–0138 when contacting the NRC about the availability of information regarding this document. You may access information related to this document, which the NRC possesses and are publicly available by any of the following methods:

- *Federal Rulemaking Web site:* Go to *http://www.regulations.gov* and search for Docket ID NRC–2010–0138. Address questions about NRC dockets to Carol Gallagher; telephone: 301–492–3668; email: *Carol.Gallagher@nrc.gov.*
- *NRC's Agencywide Documents Access and Management System (ADAMS):* You may access publicly-available documents online in the NRC Library at *http://www.nrc.gov/reading-rm/adams.html.* To begin the search, select ''*ADAMS Public Documents*'' and then select ''*Begin Web-based ADAMS Search*.'' For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1–800–397–4209, 301–415–4737, or by email to *pdr.resource@nrc.gov.* The ADAMS accession number for each document referenced in this notice (if that document is available in ADAMS) is provided the first time that a document is referenced. The Final Revision 6 to NUREG–0800, ''Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants,'' Branch Technical Position (BTP) 7–19 on ''Guidance for Evaluation of Diversity and Defense-in-Depth in Digital Computer-Based Instrumentation and Control Systems'' (*Package*) (ADAMS Accession No. ML110550767), Final Revision 6 to NUREG–0800, ''Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants,'' Branch Technical Position (BTP) 7–19 on ''Guidance for Evaluation of Diversity and Defense-in-Depth in Digital Computer-Based Instrumentation and Control Systems,'' (ADAMS Accession No. ML110550791), and Comment Response Document for BTP 7–19, (ADAMS Accession No. ML120830075).
- *NRC's PDR:* You may examine and purchase copies of public documents at the NRC's PDR, Room O1–F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.
- The NRC posts its issued staff guidance on the NRC's external Web page (*http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0800/*).