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J.E. Pollock
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NL-11-014

February 10, 2011

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Revised Tables from Responses to Requests for Additional Information Regarding Request for Exemption from 10 CFR 50, Appendix R, Paragraph III.G.2 for Use of Operator Manual Actions for Indian Point Unit No. 2 (TAC No. ME0798)
Indian Point Unit No. 2
Docket No. 50-247
License No. DPR-26

- References:
1. Entergy letter NL-11-006, Response to December 16, 2010 Request for Additional Information Regarding Request for Exemption from 10 CFR 50, Appendix R, Paragraph III.G.2 for Use of Operator Manual Actions for Indian Point Unit No. 2 (TAC No. ME0798), dated January 19, 2011
 2. NRC letter dated December 16, 2010, "Indian Point Nuclear Generating Unit Nos. 2 and 3 – Request for Additional Information Regarding Request for Exemption (TAC Nos. ME0798 and ME0799)"
 3. Entergy letter NL-10-100, "Response to August 11, 2010 Request for Additional Information Regarding Request for Exemption from 10 CFR 50, Appendix R, Paragraph III.G.2 for Use of Operator Manual Actions for Indian Point Unit No. 2 (TAC No. ME0798)," dated September 29, 2010
 4. NRC letter dated August 11, 2010, "Indian Point Nuclear Generating Unit Nos. 2 and 3 – Request for Additional Information Regarding Request for Exemption (TAC Nos. ME0798 and ME0799)"

A006
MLR

5. Entergy letter NL-10-042, "Response to January 20, 2010 Request for Additional Information Regarding Request for Exemption from 10 CFR 50, Appendix R, Paragraph III.G.2 for Use of Operator Manual Actions for Indian Point Unit No. 2 (TAC No. ME0798)," dated May 4, 2010
6. NRC letter dated January 20, 2010, "Indian Point Nuclear Generating Unit Nos. 2 and 3 – Request for Additional Information Regarding Request for Exemption (TAC Nos. ME0798 and ME0799)"
7. Entergy letter NL-09-116, "Revision to Request for Exemption from 10 CFR 50, Appendix R, Paragraph III.G.2 for Use of Operator Manual Actions for Indian Point Unit No. 2," dated October 1, 2009
8. Entergy letter NL-09-031, "Request for Exemption from 10 CFR 50, Appendix R, Paragraph III.G.2 for Use of Operator Manual Actions for Indian Point Unit No. 3," dated March 6, 2009

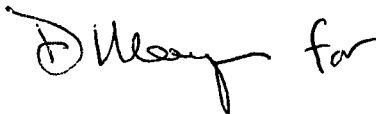
Dear Sir or Madam:

By letter dated March 6, 2009 (Reference 8), Entergy Nuclear Operations, Inc. (Entergy) requested exemptions from the requirements of 10 CFR 50, Appendix R in accordance with the guidance contained in NRC Regulatory Issue Summary 2006-010 (Regulatory Expectations with Appendix R Paragraph III.G.2 Operator Manual Actions), and in accordance with 10 CFR 50.12, "Specific exemptions." A revision to the exemption request was submitted by letter dated October 1, 2009 (Reference 7). Responses to the Request for Additional Information contained in NRC letter dated January 20, 2010 (Reference 6) were provided by letter dated May 4, 2010 (Reference 5). Responses to the Request for Additional Information contained in NRC letter dated August 11, 2010 (Reference 4) were provided by letter dated September 29, 2010 (Reference 3). Responses to the Request for Additional Information contained in NRC letter dated December 16, 2010 (Reference 2) were provided by letter dated January 19, 2011 (Reference 1).

The purpose of this letter is to provide changes to tables of information previously provided in References 1 and 5. Tables RAI-06.1-1 and RAI-08.1-1 through RAI-08.1-7 from Reference 5 were previously revised in Reference 3, and additional changes were determined to be required during the preparation of Reference 1. Reference 1 stated that these changes would be made in a separate letter. Changes to Tables RAI-01.1-1 and RAI-01.1-2 from Reference 1 were also determined to be required during the preparation of this current letter. Complete tables have been provided with additions indicated by bold underline and deletions by bold strikethrough. These tables replace the tables previously provided.

There are no new commitments being made in this submittal. If you have any questions or require additional information, please contact Mr. Robert W. Walpole, IPEC Licensing Manager at (914) 734-6710.

Sincerely,

A handwritten signature in black ink, appearing to read "JEP/gd", with a stylized flourish at the end.

JEP/gd

Attachments:

1. Revised Table RAI-06.1-1 from Entergy Letter NL-10-042 dated May 4, 2010
2. Revised Tables RAI-08.1-1 through 08.1-7 from Entergy Letter NL-10-042 dated May 4, 2010
3. Revised Table RAI-01.1-1 from Entergy Letter NL-11-006 dated January 19, 2011
4. Revised Table RAI-01.1-2 from Entergy Letter NL-11-006 dated January 19, 2011

cc: Mr. John P. Boska, Senior Project Manager, NRC NRR DORL
Mr. William Dean, Regional Administrator, NRC Region I
NRC Resident Inspector's Office, Indian Point Energy Center
Mr. Paul Eddy, New York State Department of Public Service
Mr. Francis J. Murray, Jr., President and CEO, NYSERDA

ATTACHMENT 1

TO

NL-11-014

**Revised Table RAI-06.1-1 from
Entergy Letter NL-10-042 dated May 4, 2010**

**ENTERGY NUCLEAR OPERATIONS, INC.
Indian Point Nuclear Generating Unit No. 2
Docket No. 50-247
License No. DPR-26**

Summary of Required Changes to Table RAI-06.1-1 from Entergy Letter NL-10-042 dated May 4, 2010

Change	Reason for Change	Letter with Change
REVISE SSD Feature column to ADD 22 AFW Pump steam supply isolation valves for Fire Area/Zone C/23	Cables associated with 22 AFW Pump steam supply isolation valves PCV-1310A/B and PCV-1139 have been verified to route through Fire Area/Zone C/23	Entergy Letter NL-10-100 dated September 29, 2010
Fire Area/Zone F/6	This zone was included on the table in Entergy letter NL-10-042 but was then inadvertently deleted from the table in Entergy Letter NL-10-100	Entergy Letter NL-10-100 dated September 29, 2010 Entergy Letter NL-11-014 dated February 10, 2011
REVISE SSD Feature column to ADD "LCV-112C" for Fire Area/Zone F/7A	Cables associated with charging suction valve LCV-112C have been determined by field walkdown to be included in Fire Area/Zone F/7A	Entergy Letter NL-10-100 dated September 29, 2010
REVISE SSD Feature column to ADD "LCV-112B" for Fire Area/Zone F/7A	This component was inadvertently omitted from the table	Entergy Letter NL-11-014 dated February 10, 2011
REVISE SSD Feature column to DELETE "Charging makeup valves 227/HCV-142:" for Fire Area/Zone F/7A	These components were inadvertently included in the table	Entergy Letter NL-11-014 dated February 10, 2011
REVISE SSD Feature column to ADD "Charging makeup valves 227/HCV-142:" for Fire Area/Zone F/27A	These components were inadvertently omitted from the table	Entergy Letter NL-11-014 dated February 10, 2011
ADD Fire Area/Zone F/59A	Identified new Fire Area/Zone F/59A impact via cable routing and field walkdown	Entergy Letter NL-10-100 dated September 29, 2010

Summary of Required Changes to Table RAI-06.1-1 from Entergy Letter NL-10-042 dated May 4, 2010

Change	Reason for Change	Letter with Change
REVISE to ADD Fire Area/Zones H/71A , H/72A , H/84A , and H/85A and to DELETE H/76A	Fire Area/Zones H/71A , H/72A , H/84A , and H/85A have been identified to contain cables/components for the listed SSD features, and it incorrectly identifies Fire Area/Zone H/76A as a zone that contains cables/components for the listed SSD features	Entergy Letter NL-10-100 dated September 29, 2010
REVISE SSD Feature column to DELETE "IBUS23/IBUS23A" for Fire Area/Zones J19 and J/45A	These components were inadvertently included in these zones	Entergy Letter NL-11-014 dated February 10, 2011
REVISE SSD Feature column to DELETE "LCV-112C" for Fire Area/Zones J/43A and J/46A	Cables associated with LCV-112C have been verified to not be routed in Fire Area/Zones J/43A or J/46A	Entergy Letter NL-10-100 dated September 29, 2010
REVISE SSD Feature column to DELETE "FCV-405B, C; FCV-406A" for Fire Area/Zone J/46A	Cables associated with valves FCV-405B/C and FCV-406A have been verified to not be routed in Fire Area/Zone J/46A	Entergy Letter NL-10-100 dated September 29, 2010
REVISE SSD Feature column to ADD "IBUS23/IBUS23A" for Fire Area/Zone J/46A	This component was inadvertently omitted from the table	Entergy Letter NL-11-014 dated February 10, 2011
REVISE SSD Feature column to CHANGE "-" to "B" for "FCV-406A-D" for Fire Area/Zones K/60A and K/65A	Cables for all AFW flow control valves are located in these zones but only FCV-406A and FCV-406B are associated with 21 AFW Pump which is credited for the OMA	Entergy Letter NL-11-014 dated February 10, 2011

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

<p align="center">Table RAI-06.1-1 Proximity of Redundant Safe-Shutdown Cables/Components, Fire Hazards, and Ignition Sources Within Fire Areas and Fire Zones of Concern</p>				
Fire Area / Zone	SSD Feature	Proximity to Significant Fixed Combustibles	Proximity to Ignition Sources	Comments
C / 23	All three AFW pumps, flow control valves, and <u>22 AFW Pump steam supply isolation valves, and</u> associated cables	Small quantities of cable in overhead trays, with pumps and valves at floor elevation. The trays containing cables serving the AFW flow control valves are also located in the overhead area.	The cable runs and pump motors are the credible ignition sources, in addition to an alternative power transfer switch located at the south end of the room	<p>Nonmechanistic ignition of control or instrument cables in the overhead trays would present an immediate impact on redundant AFW trains, as the trays contain (in part) control cables serving the AFW flow control valves</p> <p>The remaining fixed combustibles, consisting of a minute quantity of lube oil and electrical cabinets, present no credible challenge to the AFW components in the zone</p> <p>The smoke detection system in the zone provides assurance of early warning of a fire condition, enabling fire brigade response prior to significant fire development</p>
F / 5A	Cables associated with Charging suction valves LCV-112C and LCV-112B	The dominant combustible is cable in overhead trays. The cables of concern are located in or adjacent to the trays.	The ignition sources, consisting of cable tray runs, junction boxes, and electrical cabinets, are in direct contact with, or in close proximity to the combustibles (electrical cables)	<p>The flame-retardant characteristics of the cables ensure that any fire would be limited in scope and severity</p> <p>No fire detection is installed in the zone, but given the insignificant ignition sources, the occurrence of a fire of significance in the zone is a low-credibility event. Smoke detection in adjacent Fire Zone 7A may provide annunciation of any smoke that may migrate out of Fire Zone 5A to the main corridor area.</p>

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

<p align="center">Table RAI-06.1-1 Proximity of Redundant Safe-Shutdown Cables/Components, Fire Hazards, and Ignition Sources Within Fire Areas and Fire Zones of Concern</p>				
Fire Area / Zone	SSD Feature	Proximity to Significant Fixed Combustibles	Proximity to Ignition Sources	Comments
F / 6	Cables associated with: Charging suction valves LCV-112C and LCV-112B; Instrument Buses 23 and 23A	Cables and valve LCV-112B are located adjacent to the Charging pump, containing lubricating oil, the dominant combustible in the zone	The only credible ignition source, the Charging pump motor, is located at the midpoint of the zone, while LCV-112B and cables are located at the south end of the zone	<p>There is no clear mechanism for ignition of the lubricating oil contained within the pump</p> <p>The smoke detection system in the zone provides assurance of early warning of a fire condition, enabling brigade response prior to significant fire development.</p> <p>Manual valve 288 (LCV-112B bypass) is also located in this zone.</p>
F / 7A	Cables associated with: Charging makeup valves 227/HCV-142; Instrument Buses 23 and 23A; LCV-112C and LCV-112B	The dominant combustible material in the zone is cable in overhead trays. The subject cables, in part, are located in or adjacent to these trays.	<p>Ignition sources in the form of electrical cabinets are distributed throughout the zone. Cable trays are oriented directly above electrical cabinets in the primary corridor area of the zone.</p> <p>Secondary combustibles in the area are dispersed, and substantial quantities of these combustibles are not proximate to the ignition sources in the zone</p>	<p>Combustibles other than cables in trays are minimal throughout the zone. The credible fire scenario would involve transient combustibles, which are tightly controlled to "Level 2" limits per administrative control procedure.</p> <p>Combustibles in this large zone are widely distributed, presenting minimal potential for significant involvement in response to initiation by any single ignition source in the zone</p> <p>The smoke detection system in the zone provides assurance of early warning of a fire condition of any significance, enabling fire brigade response prior to significant fire development</p>

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

<p align="center">Table RAI-06.1-1 Proximity of Redundant Safe-Shutdown Cables/Components, Fire Hazards, and Ignition Sources Within Fire Areas and Fire Zones of Concern</p>				
Fire Area / Zone	SSD Feature	Proximity to Significant Fixed Combustibles	Proximity to Ignition Sources	Comments
F / 22A	Cables associated with Charging suction valve LCV-112C and LCV-112B	The zone contains a negligible quantity of fixed combustibles	The ignition sources, defined as electrical cabinets, do not present the potential for ignition of secondary combustibles, given the insignificant content of the zone	<p>Redundant SSD trains are not located in the zone, but damage to cables associated with LCV-112C requires an OMA to align an alternate Charging suction source, outside this zone</p> <p>No fire detection is installed in the zone, but given the insignificant ignition sources, and the absence of significant combustibles, the occurrence of a fire of significance in the zone is a low-credibility event</p>
F / 27A	Cables associated with Charging suction valve LCV-112C and LCV-112B; <u>Charging makeup valves 227/HCV-142</u>	The dominant combustible is cable in overhead trays. The cables of concern are located in or adjacent to the trays.	The ignition sources consist of cable tray runs and a significant number of motor control centers, located in the southeast corner of the zone. Cable trays are in overhead proximity to one or more MCCs.	<p>Combustibles other than cables in trays are minimal throughout the zone. The credible fire scenario would involve transient combustibles, which are tightly controlled to "Level 2" limits per administrative control procedure.</p> <p>Combustibles in this large zone are widely distributed, presenting minimal potential for significant involvement in response to initiation by any single ignition source in the zone</p> <p>The smoke detection system provides assurance of early warning of a fire condition, enabling brigade response prior to significant fire development</p>

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

<p align="center">Table RAI-06.1-1 Proximity of Redundant Safe-Shutdown Cables/Components, Fire Hazards, and Ignition Sources Within Fire Areas and Fire Zones of Concern</p>				
Fire Area /Zone	SSD Feature	Proximity to Significant Fixed Combustibles	Proximity to Ignition Sources	Comments
F / 33A	Cables associated with Charging makeup valves 227/HCV-142	The dominant combustible is cable in overhead trays. The cables of concern are located in or adjacent to the trays	The ignition sources consist of the cable tray runs themselves, as well as a significant number of motor control centers. Cable trays containing the cables of concern are in overhead proximity to one or more MCCs.	While not contained within a rated barrier, the effects of a fire in this zone can be expected to be largely confined to the zone, which is enclosed by a partial-height (10 ft) concrete block wall. In the event of a significant fire in the zone, smoke migration through the open ceiling of the zone to adjacent Fire Zone 27A, the adjacent main corridor area, can be expected to be detected by the smoke detection system in Zone 27A.
<u>F / 59A</u>	<u>Cables associated with HCV-142 bypass valve 227</u>	<u>The dominant combustible is charcoal enclosed in HVAC filter units.</u>	<u>Ignition sources consist of electrical cabinets. Conduit containing the cables of concern is routed directly above one electrical (instrument) cabinet.</u>	<u>The predominant combustible in the zone (charcoal) is enclosed in filter housings equipped with an automatic fire detection and water suppression system.</u>

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

<p align="center">Table RAI-06.1-1 Proximity of Redundant Safe-Shutdown Cables/Components, Fire Hazards, and Ignition Sources Within Fire Areas and Fire Zones of Concern</p>				
Fire Area / Zone	SSD Feature	Proximity to Significant Fixed Combustibles	Proximity to Ignition Sources	Comments
H / 70A, <u>71A, 72A, 75A, 76A, 77A, 84A, 85A, 87A</u>	<p>Charging makeup valves 204A and 204B and associated cables</p> <p>Safe-shutdown instruments (Pressurizer level and pressure, Steam Generator level, RCS loop temperatures, and source-range neutron monitoring)</p>	<p>Significant fixed combustibles are cables in trays located in the annulus area proximate to the electrical penetrations in Fire Zone 75A, and RCP lubricating oil located in Fire Zones 70A and 71A. Combustibles in the balance of containment are minimal, as are ignition sources, during normal plant operation.</p> <p>Cables for valves 204A, 204B, and normal SSD instrument channels are located proximate to ignition source represented by cable tray runs, located principally in Fire Zone 75A. Instrument cables are located in Fire Zones 70A, 71A, where the RCP oil collection systems minimize the potential for a fire of significance, and in Fire Zone 75A, where smoke detectors and minimal ignition sources other than cable runs minimize the potential fire challenge. Cables and instruments are also located in Fire Zones 76A, 77A, and 87A, all of which contain minimal quantities of fixed combustibles.</p>	<p>Cables for valves 204A and 204B and safe-shutdown instrumentation are located within zones containing RCPs and the associated lube oil. However, as noted at right, the oil collection systems are considered to reduce the potential fire hazard to a negligible level.</p> <p>Cables for the normal SSD instrument channels are located proximate to ignition sources in the form of cable tray runs containing these cables</p>	<p>RCP lube oil is not considered to present a credible hazard, in that the RCPs are provided with a lube oil collection system, ensuring that any leakage cannot contact hot surfaces and present an ignition threat</p> <p>Smoke detectors are installed in the annulus – electrical penetration area, where the density of exposed cables is high. Smoke detection is also installed in each of the RCP bays. While the RCP oil collection systems can be expected to minimize the potential for an oil fire in the RCP areas, the smoke detection in each zone can be expected to provide timely annunciation of an oil or electrical fire that may occur.</p>

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

<p align="center">Table RAI-06.1-1 Proximity of Redundant Safe-Shutdown Cables/Components, Fire Hazards, and Ignition Sources Within Fire Areas and Fire Zones of Concern</p>				
Fire Area / Zone	SSD Feature	Proximity to Significant Fixed Combustibles	Proximity to Ignition Sources	Comments
J / 17	Cables associated with 480V Buses 5A and 6A	Cables routed through the zone are above the turbine lube oil heat exchangers, and below the turbine oil reservoir located above the zone	Two electrical control cabinets are located in the zone, proximate to the turbine lube oil heat exchangers. No combustibles are in proximity to these potential ignition sources.	An automatic Aqueous Film Forming Foam system is provided for the turbine lube oil reservoir, located in the overhead of this zone
J / 19	Cables associated with: 480V Buses 5A and 6A; IBUS23/IBUS 23A	Cables routed through the zone are above the air compressor located in the zone	No significant combustibles are located proximate to the air compressor, the principal ignition source in the zone, or to the control cabinet located in the zone	The dominant combustible in the zone is lubricating oil in the air compressor, with minimal potential for ignition of the enclosed oil inventory
J / 25	Cables associated with IBUS23/IBUS 23A	Cables are located proximate to batteries in the zone	Cables are routed above the ignition source (batteries)	The concrete block construction of this small zone, in consideration of the minimal combustibles (battery cases) and low likelihood of ignition, provides reasonable assurance that any fire in the zone would be confined to the zone. Effects on the post-fire safe-shutdown capability would be minimal as a result.

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

<p align="center">Table RAI-06.1-1 Proximity of Redundant Safe-Shutdown Cables/Components, Fire Hazards, and Ignition Sources Within Fire Areas and Fire Zones of Concern</p>				
Fire Area / Zone	SSD Feature	Proximity to Significant Fixed Combustibles	Proximity to Ignition Sources	Comments
J / 39A	Cables associated with: 480V Buses 5A and 6A; IBUS23/IBUS 23A	The dominant combustible in this zone is turbine lube oil, which is contained within the lube/control oil piping system. A piping system failure would be required to create a credible fuel loading concern. Other combustibles include cables in trays.	Ignition sources include electrical cabinets and motors, distributed throughout the zone. Cables in trays are located above one or more of the identified ignition sources.	The limiting fire scenario postulated for this zone, a turbine lube oil fire, would require a nonmechanistic piping failure to release the anticipated quantity of lubricating oil. The only other significant fuel source/ignition source is fire-retardant electrical cables in trays.
J / 43A	Cables associated with: 480V Buses 5A and 6A; IBUS23/IBUS 23A; LCV-112B/112C	Cable trays are the dominant combustibles in the zone, and cables of concern are located in or in proximity to these trays	Ignition sources include 6.9kV switchgear and motors located in the zone, with 6.9kV switchgear also presenting HEAF event potential. Cables of concern are routed through the overhead area of the zone.	No fire detection or automatic suppression systems are provided for this zone, but a fire involving the 6.9kV switchgear can be expected to be promptly detected in the CCR, via annunciation of loss of power to the affected 6.9kV buses. In addition, Zone 43A is a high-traffic area and a developing fire condition can be expected to be detected and reported by personnel in the area.

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

<p>Table RAI-06.1-1 Proximity of Redundant Safe-Shutdown Cables/Components, Fire Hazards, and Ignition Sources Within Fire Areas and Fire Zones of Concern</p>				
Fire Area / Zone	SSD Feature	Proximity to Significant Fixed Combustibles	Proximity to Ignition Sources	Comments
J / 45A	Cables associated with: 480V Buses 5A and 6A; IBUS23/IBUS 23A	Cable trays are the dominant combustibles in the zone, and cables of concern are located in or in proximity to these trays	Ignition sources include electrical cabinets, MCCs, and motors distributed throughout the zone. Cables of concern are routed through the overhead area of the zone.	The principal fuel source and ignition source exposure to the zone is the Main Boiler Feedwater pump oil equipment located immediately beneath this zone, under a partially-open floor deck. The oil storage/handling area below is provided with an automatic Aqueous Film Forming Foam system.
J / 46A	Cables associated with: 480V Buses 5A and 6A; FCV-405B, C; FCV-406A; LCV-112B/112C; IBUS23/IBUS 23A	The dominant combustible considered in this zone is turbine lube oil, which is contained within the lube/control oil piping system. A piping system failure would be required to create a credible fuel loading concern. Other combustibles include cables in trays.	Ignition sources include electrical cabinets and motors, distributed throughout the zone. Cables in trays are located above one or more of the identified ignition sources.	Absent the postulation of a lube oil piping failure, the dominant combustible in the zone is electrical cable in trays. The flame-retardant characteristics of the cables ensure that any fire would be limited in scope and severity.

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

<p align="center">Table RAJ-06.1-1 Proximity of Redundant Safe-Shutdown Cables/Components, Fire Hazards, and Ignition Sources Within Fire Areas and Fire Zones of Concern</p>				
Fire Area /Zone	SSD Feature	Proximity to Significant Fixed Combustibles	Proximity to Ignition Sources	Comments
J / 47A	Cables associated with 480V Buses 5A and 6A	Cable trays are the dominant combustibles in the zone, and cables of concern are located in or in proximity to these trays	Ignition sources include electrical cabinets, distributed throughout the zone. Cables in trays are located above one or more of the identified ignition sources.	The postulated fire in this zone is a lube oil fire involving one or more turbine lube oil transfer pumps. The area is not provided with automatic detection or suppression systems.
J / 50A	Cables associated with: 480V Buses 5A and 6A; IBUS23/IBUS 23A	The dominant combustible considered in this zone is turbine lube oil, which is contained within the lube/control oil piping system. A piping system failure would be required to create a credible fuel loading concern. Other combustibles include cables in trays.	Ignition sources include electrical cabinets and motors distributed throughout the zone. Cables in trays are located above one or more of the identified ignition sources.	Absent the postulation of a lube oil piping failure, the dominant combustible in the zone is electrical cable in trays. The flame-retardant characteristics of the cables ensure that any fire would be limited in scope and severity.
J / 270	Cables associated with IBUS23/IBUS 23A	Cables associated with Battery 23 are located remote from the principal combustibles located in the zone	The dominant ignition sources (transformers, electrical panels, motors) are not located in proximity to Battery 23 and cables traversing to the Cable Spreading Room and CCR from Battery 23	The cables of concern are predominantly confined to the northwest area of the zone, which does not contain the substantial combustible loads and ignition sources presented by the switchgear, transformers, and electrical panels located in the balance of this zone

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

<p align="center">Table RAI-06.1-1 Proximity of Redundant Safe-Shutdown Cables/Components, Fire Hazards, and Ignition Sources Within Fire Areas and Fire Zones of Concern</p>				
Fire Area / Zone	SSD Feature	Proximity to Significant Fixed Combustibles	Proximity to Ignition Sources	Comments
K / 60A	Cables associated with 21 AFW Pump; 21 AFW Pump recirculation valve FCV-1121; AFW flow control valves FCV-406A, B-D	Zone contains negligible fixed combustibles	Motors on two penetration blowers and two electrical cabinets represent the ignition sources in this zone. The ignition sources are located in the south end of the zone as are the SSD cables listed as SSD Features.	This area is devoid of significant fixed combustibles, and a substantial fire capable of challenging the integrity of the cables of concern is not considered a credible event
K / 65A	Cables associated with: 21 AFW Pump; 21 AFW Pump recirculation valve FCV-1121; AFW flow control valves FCV-406A, B-D	Zone contains negligible fixed combustibles	This zone contains no ignition sources	This area is devoid of significant fixed combustibles, and a substantial fire capable of challenging the integrity of the cables of concern is not considered a credible event

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

Table RAI-06.1-1 Proximity of Redundant Safe-Shutdown Cables/Components, Fire Hazards, and Ignition Sources Within Fire Areas and Fire Zones of Concern				
Fire Area / Zone	SSD Feature	Proximity to Significant Fixed Combustibles	Proximity to Ignition Sources	Comments
P / 1	All three CCW pumps and associated cables	Zone contains negligible fixed combustibles	Ignition sources are the CCW pump motors themselves	Separation between CCW pumps previously approved by exemption (SER dated October 16, 1984)
YD / 900	Cables associated with HCV-142/227	Outdoor area with minimal fixed combustibles	Ignition sources, if any, would be transient in nature	While this area contains minimal fixed combustibles, credible fire scenarios would involve transient materials and ignition sources. However, given the minimal footprint of SSD circuits in the area/zone, the impact on the post-fire safe-shutdown capability would be minimal.

ATTACHMENT 2

TO

NL-11-014

**Revised Tables RAI-08.1-1 through RAI-08.1-7 from
Entergy Letter NL-10-042 dated May 4, 2010**

**ENTERGY NUCLEAR OPERATIONS, INC.
Indian Point Nuclear Generating Unit No. 2
Docket No. 50-247
License No. DPR-26**

**Summary of Required Changes to Tables RAI-08.1-1 through RAI-08.1-7
from Entergy Letter NL-10-042 dated May 4, 2010**

Change	Reason for Change	Letter with Change
REVISE Table RAI-08.1-1 OMA Performance column to ADD Fire Area/Zone C/23 as a Performance Zone for the Required OMA of "Open/check open 22 AFW Pump steam supply isolation valves"	Cables associated with 22 AFW Pump steam supply isolation valves PCV-1310A/B and PCV-1139 have been verified to route through Fire Area/Zone C/23	Entergy Letter NL-10-100 dated September 29, 2010
REVISE Table RAI-08.1-2 OMA Initiator column from Zone 27 (sic – should have read "27A") to Zone 59A as an Initiator Zone for the Required OMA of "Align Charging pump makeup path to RCS"	Cable EDC3-EXF6/2 for OMA "Align charging path to RCS" found NOT routed through Fire Area/Zone F/27A - actually routed through Fire Area/Zone F/59A	Entergy Letter NL-10-100 dated September 29, 2010
REVISE Table RAI-08.1-2 OMA Initiator column to ADD Zone 27A for the Required OMA of "Align Charging pump makeup path to RCS"	Cable EDC3-EXF6/2 was incorrectly reported in Entergy Letter NL-10-100 as not routed in Zone 27A	Entergy Letter NL-11-014 dated February 10, 2011
REVISE Table RAI-08.1-2 OMA Initiator column to ADD "A" to Zone 33 as an Initiator Zone for the Required OMA of "Align Charging pump makeup path to RCS"	The correct zone number is 33A, the 'A' was inadvertently omitted	Entergy Letter NL-11-014 dated February 10, 2011
REVISE Table RAI-08.1-2 OMA Initiator column to ADD Zones 5A and 27A for the Required OMA of "Align Charging pump suction source to Refueling Water Storage Tank (RWST)"	These zones were inadvertently omitted from the table	Entergy Letter NL-11-014 dated February 10, 2011

**Summary of Required Changes to Tables RAI-08.1-1 through RAI-08.1-7
from Entergy Letter NL-10-042 dated May 4, 2010**

Change	Reason for Change	Letter with Change
REVISE Table RAI-08.1-3 OMA Initiator column to ADD Zones 70A, 72A, 77A, 84A, 85A, and 87A as Initiator Zones for the Required OMA of "Align Charging pump makeup path to RCS."	Zones 70A, 77A, and 87A were inadvertently omitted from the table in Entergy letter NL-10-042 dated May 4, 2010. Zones 72A, 84A, and 85A were added to Table RAI-06.1-1 in Entergy letter NL-10-100 dated September 29, 2010 but were inadvertently omitted from Table RAI-8.1-3.	Entergy Letter NL-11-014 dated February 10, 2011
REVISE Table RAI-08.1-3 OMA Initiator column to DELETE Zone 76A as an Initiator Zone for the Required OMA of "Activate/enable Alternate Safe Shutdown System (ASSS) pneumatic instruments (Steam Generator level, Pressurizer pressure and level) at Fan House local control panel. Also enable ASSS source-range channel and Loop 21 and 22 hot (Th) and cold leg (Tc) temperature channels"	The zone was deleted from Table RAI-06.1-1 in Entergy letter NL-10-100 dated September 29, 2010 but was inadvertently not omitted from Table RAI-8.1-3	Entergy Letter NL-11-014 dated February 10, 2011
REVISE Table RAI-08.1-4 OMA Initiator column to DELETE Zone 24 as an Initiator Zone for the Required OMA of "Transfer Instrument Buses 23 and 23A to emergency power source" Note that Zone 24 is in fact a correct part of the routing of the affected circuits, but should not be mentioned here, since it is not a III.G.2 zone	Incorrect reference is made to Fire Area/Zone J/24 , which is a III.G.3 zone, and not relevant to the OMA issue	Entergy Letter NL-10-100 dated September 29, 2010

**Summary of Required Changes to Tables RAI-08.1-1 through RAI-08.1-7
from Entergy Letter NL-10-042 dated May 4, 2010**

Change	Reason for Change	Letter with Change
REVISE Table RAI-08.1-4 OMA Initiator column to ADD Zones 39A, 43A, 46A, and 50A as Initiator Zones for the Required OMA of "Transfer Instrument Buses 23 and 23A to emergency power source"	These zones were inadvertently omitted from the table	Entergy Letter NL-11-014 dated February 10, 2011
REVISE Table RAI-08.1-4 OMA Initiator column to delete Zones 19, 39A, 45A, and 50A as Initiator Zones for the Required OMA of "Align Charging pump suction source to RWST"	Cables associated with LCV-112B have been verified to not be routed in Fire Area/Zones J/19, J/39A, J/45A, or J/50A NOTE: This change was included in the table of changes in Entergy letter NL-10-100 dated September 29, 2010 but was inadvertently not omitted from the table	Entergy Letter NL-11-014 dated February 10, 2011
REVISE Table RAI-08.1-4 Comments column to DELETE "LCV-112C" and to specify that a cable associated with a supporting component for LCV-112B is the Target for the Required OMA of "Align Charging pump suction source to RWST"	Cables associated with LCV-112C have been verified to not be routed in Fire Area/Zones J/19, J/39A, J/43A, J/45A, J/46A, or J/50A Cables associated with LCV-112B have been verified to not be routed in Fire Area/Zones J/19, J/39A, J/45A, or J/50A	Entergy Letter NL-10-100 dated September 29, 2010

**Summary of Required Changes to Tables RAI-08.1-1 through RAI-08.1-7
from Entergy Letter NL-10-042 dated May 4, 2010**

Change	Reason for Change	Letter with Change
REVISE Table RAI-08.1-4 to WITHDRAW the Required OMA of "Operate 22 AFW Pump flow control valves to align AFW flow to selected Steam Generators(s)"	Unnecessary OMA to operate 22 AFW Pump flow control valves (FCVs 405B, C) for Fire Area/Zones J/19, J/39A, J/43A, J/45A, J/50A . Failure as determined by Safe-Shutdown Analysis is the failure of the valve power supplies (instrument buses), which are recovered by a separate OMA to transfer the instrument buses to their emergency power supplies. After reenergizing the instrument buses, the valves can be operated from the controls in the CCR, so an OMA is not required.	Entergy Letter NL-10-100 dated September 29, 2010

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

<p align="center">TABLE RAI-08.1-1 FIRE AREA C CREDITED III.G.2 OPERATOR MANUAL ACTIONS</p>						
Required OMA	Required Time to Complete ¹	Actual Time to Diagnose Need for OMA ²	Actual Time to Complete OMA ³	Total Time to Complete and Resultant Margin ⁴	OMA Initiator (I) Fire Area/Zone ⁵	Comments
					OMA Performance (P) Fire Area/Zone ⁶	
Implement FR-H.1 if necessary to establish alternate secondary heat sink	N/A (a)	N/A	NA – no OMAs required	N/A	I: Area C, Zone 23 P: N/A	Action performed from CCR, and not an OMA, but described for completeness
Operate Steam Generator Atmospheric Dump Valve(s) (SGADV)	-	-	-	-	-	WITHDRAWN See response to RAI-02.1
<p>(a) The Required Time to Complete for this potential action was shown in the previous submittals as 34 minutes. However, the 34-minute limitation refers to the Steam Generator (SG) boil-dry time in the absence of AFW flow to the SGs, and represents the time available to restore AFW flow. In the unlikely event that the EOP 2-FR-H.1 methodology would be necessary, the time to boil dry the SGs has no direct applicability, as actions within 2-FR-H.1 are driven to be implemented at substantially greater remaining SG inventories, and the boil-dry time does not have direct applicability given the multiple methods that 2-FR-H.1 provides for reactor coolant heat removal alternatives. The reference to "34 minutes" has therefore been deleted in this submittal.</p>						

These notes apply to Tables RAI-08.1-1 through RAI-08.1- 7:

1. Represents the available time to complete the action to ensure fulfillment of the Appendix R performance goals.
2. Elapsed time from start of announced fire event for operators in simulator environment to detect failure
3. Actual Time to Complete = travel time + time to execute OMA + time to report completion/validate action
4. Total Time to Complete (TTC) = Actual Time to Diagnose Need for OMA + Actual Time to Complete OMA
Resultant Margin = $100 \times (\text{Required Time to Complete} - \text{TTC}) / \text{Required Time to Complete}$
5. Fire Area/Zone in which the postulated fire may cause cable or component damage resulting in the need for the OMA to recover the required SSD function
6. Fire Area/Zone in which the OMA is actually performed

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

<p align="center">TABLE RAI-08.1-1 FIRE AREA C CREDITED III.G.2 OPERATOR MANUAL ACTIONS</p>						
Required OMA	Required Time to Complete ¹	Actual Time to Diagnose Need for OMA ²	Actual Time to Complete OMA ³	Total Time to Complete and Resultant Margin ⁴	OMA Initiator (I) Fire Area/Zone ⁵	Comments
					OMA Performance (P) Fire Area/Zone ⁵	
Operate 22 AFW Pump (turbine-driven) [previously "steam-driven"]	>1 hr	4.5 m	22 m	TTC: 26.5 m Margin: 33.5 m; 56%	I: Area C, Zone 23 P: Area C, Zone 23	Targets: 21, 22, 23 AFW pumps; Cables associated with AFW pumps and flow control valves FCV-405A, FCV-405B As described in Entergy letter NL-09-031, Att. 2, Table 2 NOTE, reentry to the AFW pump room is credited, following the initial 60 minutes of the fire event
Open/check open 22 AFW Pump steam supply isolation valves	>1 hr	4.5 m	15 m	TTC: 19.5 m Margin: >40.5 m; >67%	I: Area C, Zone 23 P: Area K, Zones 60A and 61A, <u>Area C, Zone 23</u>	Targets: Cables associated with 22 AFW Pump steam supply isolation valves
Operate 22 AFW Pump flow control valves to align AFW flow to selected Steam Generator(s)	>1 hr	4.5 m	22 m	TTC: 26.5 m Margin: >33.5 m; >56%	I: Area C, Zone 23 P: Area C, Zone 23	Targets: Cables associated with 23 AFW Pump flow control valves FCV-405A, FCV-405B

Required OMA	Required Time to Complete	Actual Time to Diagnose Need for OMA	Actual Time to Complete OMA	Total Time to Complete and Resultant Margin	OMA Initiator (I) Fire Area/Zone	Comments
					OMA Performance (P) Fire Area/Zone	
Operate SGADVs	-	-	-	-	-	WITHDRAWN See response to RAI-02.1
Align Charging pump makeup path to RCS	75 m	14 m	14 m (b)	TTC: 28 m Margin: 47 m; 63%	I: Area F, Zone <u>27 27A</u> , <u>59A</u> or <u>33A</u> P: Area A, Zone 1A	Targets: Cables associated with valve 227 Travel time conservatively taken to be 10 minutes, from CCR to PAB. Travel time is non-critical, since no attempt is made to perform the OMA for the initial 60 minutes of the scenario.

(b) The Total Time to Complete is conservatively revised to 14 minutes, whereas the previous submittals showed a value of 4 minutes for the Actual Time to Complete

Required OMA	Required Time to Complete	Actual Time to Diagnose Need for OMA	Actual Time to Complete OMA	Total Time to Complete and Resultant Margin	OMA Initiator (I) Fire Area/Zone	Comments
					OMA Performance (P) Fire Area/Zone	
Align Charging pump suction source to Refueling Water Storage Tank (RWST)	75 m	14 m	18 m (c)	TTC: 32 m Margin: 43 m; 57%	I: Area F, Zone <u>5A</u> , 6, 7A, or 22A, <u>or 27A</u> P: Area F, Zone 6; Area F, Zone 22A	<p>Targets: cables associated with valves LCV-112B, LCV-112C</p> <p>Reentry to Area F to implement OMA is following extinguishment of and securing from fire, >1 hour from start of event</p> <p>Travel time conservatively taken to be 10 minutes, from CCR to PAB. Travel time is non-critical, since no attempt is made to perform the OMA for the initial 60 minutes of the scenario. Note that time to diagnose the need for this OMA is measured from T=0, and not from the time of fire area reentry, at 60 minutes into the scenario.</p>

(c) The Total Time to Complete is conservatively revised to 18 minutes, whereas the referenced submittals showed a value of 8 minutes for the Actual Time to Complete

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

TABLE RAI-08.1-2 FIRE AREA F CREDITED III.G.2 OPERATOR MANUAL ACTIONS						
Required OMA	Required Time to Complete	Actual Time to Diagnose Need for OMA	Actual Time to Complete OMA	Total Time to Complete and Resultant Margin	OMA Initiator (I) Fire Area/Zone	Comments
					OMA Performance (P) Fire Area/Zone	
Transfer Instrument Buses 23 and 23A to alternate power	30 m	5.5 m	2 m	TTC: 7.5 m Margin: 22.5 m; 75%	I: Area F, Zone 6 or 7A P: Area A, Zone 11	Targets: Cables associated with IB23, IB23A

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

<p align="center">TABLE RAI-08.1-3 FIRE AREA H CREDITED III.G.2 OPERATOR MANUAL ACTIONS</p>						
Required OMA	Required Time to Complete	Actual Time to Diagnose Need for OMA	Actual Time to Complete OMA	Total Time to Complete and Resultant Margin	OMA Initiator (I) Fire Area/Zone	Comments
					OMA Performance (P) Fire Area/Zone	
<p>Activate/enable Alternate Safe Shutdown System (ASSS) pneumatic instruments (Steam Generator level, Pressurizer pressure and level) at Fan House local control panel. Also enable ASSS source-range channel and Loop 21 and 22 hot (Th) and cold leg (Tc) temperature channels</p> <p align="center">(e)</p>	34 m	<1 m (instruments assumed failed at T=0)	<p>13 m: ASSS pneumatic channels in service</p> <p>10 m: ASSS source range, Th, Tc channels in service</p>	<p>TTC:</p> <p>13 m (ASSS pneumatics)</p> <p>23 m (Th, Tc, source range)</p> <p>Margin:</p> <p>21 m (ASSS pneumatics); 62%</p> <p>11 m (Th, Tc, source range); 32%</p>	<p>I: Area H, Zone 70A, 75A, 76A, 77A, 87A</p> <p>P: Area A, Zone 1A; Area J, Zone 270, 360; Area F, Zone 59A</p>	<p>Loss of multiple channels of some key instrumentation is assumed to occur at T=0, and therefore the time-to-diagnose is effectively considered to be <1 minute</p> <p>Deployment of ASSS instruments involves parallel actions by two operators. PAB operator aligns ASSS pneumatic channel isolation valves and manipulations necessary to energize ASSS source-range drawer; conventional operator enables ASSS power supply to power up ASSS source-range channel and Loop 21/22 Th and Tc channels, located in Area F, Zone 59A</p> <p>Time to close supply breaker on ASSS switchgear 12FD3 to energize ASSS source range, Th and Tc channels conservatively taken to be 10 min, equivalent to the time required for the more complex breaker operation OMA taken for the Fire Area J scenario. In parallel with breaker closure, PAB operator installs fuses and closes knife switch to energize ASSS channels locally.</p>

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

Required OMA	Required Time to Complete	Actual Time to Diagnose Need for OMA	Actual Time to Complete OMA	Total Time to Complete and Resultant Margin	OMA Initiator (I) Fire Area/Zone	Comments
					OMA Performance (P) Fire Area/Zone	
<p>(e) The description of this OMA has been revised to more completely describe the deployment of the ASSS instrument set, which includes not only the referenced pneumatic level and pressure channels, but also five electronic instrument channels, including RCS Loops 21 and 22 hot and cold leg temperatures, and source-range neutron monitoring. As now described in Table RAI-08.1-3, the most demanding time limit for placing any of these channels in service is the time required to place SG level channels in service, in support of the required restoration of AFW to the Steam Generators within 34 minutes to preclude SG boil-dry conditions being reached. Therefore, the Total Time to Complete is conservatively revised to 34 minutes, whereas the referenced submittals showed a nominal value of "30+" minutes for the Actual Time to Complete. Consistent with the information presented in the March and October 2009 submittals, the Time to Complete the OMA remains 13 minutes, for the deployment of the pneumatic instrument channels. Additional data is now shown for the time required for deployment of the ASSS electronic instrument channels.</p>						

Required OMA	Required Time to Complete	Actual Time to Diagnose Need for OMA	Actual Time to Complete OMA	Total Time to Complete and Resultant Margin	OMA Initiator (I) Fire Area/Zone	Comments
					OMA Performance (P) Fire Area/Zone	
Trip breakers 52/5A and 52-SAC on Bus 5A and 52/6A and 52/TAO at Bus 6A and remove control power fuses	1 hour	0 (Offsite power assumed unavailable at T=0)	10 m	TTC: 10 m Margin: 50 m; 83%	I: Area J, Zone 17, 19, 39A, 43A, 45A, 46A, 47A, or 50A P: Area A, Zone 14	Targets: Cables associated with Bus 6A supply breakers Actual time to complete in this case is based on equivalent breaker tripping actions in the 480V Switchgear Room that have been previously validated
Transfer Instrument Buses 23 and 23A to emergency power source	30 m	5.5 m	2 m	TTC: 7.5 m Margin: 22.5 m; 75%	I: Area J, Zone 24 , 25, <u>39A, 43A, 46A, 50A</u> or 270 P: Area A, Zone 11	Targets: Cables associated with IB23, IB23A
Align Charging pump suction source to RWST	75 m	14 m	18 m (f)	TTC: 32 m Margin: 43 m; 57%	I: Area J, Zone 19, 39A, 43A, 45A, or 46A, or 50A P: Area F, Zone 6; Area F, Zone 22A	Targets: Cables associated with <u>supporting components for</u> valves LCV-112B, <u>LCV-112C</u> Travel time conservatively taken to be 10 minutes, from CCR to PAB
Operate 22 AFW Pump flow control valves to align AFW flow to selected Steam Generator(s)	34 m	4.5 m	17 m	TTC: 11.5 m Margin: 22.5 m; 66%	I: Area J, Zone 19, 39A, 43A, 45A, or 50A P: Area C, Zone 23	WITHDRAWN Targets: Cables associated with AFW flow control valves FCV-405A-D

(f) The Total Time to Complete is conservatively revised to 18 minutes, whereas the referenced submittals showed a value of 8 minutes for the Actual Time to Complete

Required OMA	Required Time to Complete	Actual Time to Diagnose Need for OMA	Actual Time to Complete OMA	Total Time to Complete and Resultant Margin	OMA Initiator (I) Fire Area/Zone	Comments
					OMA Performance (P) Fire Area/Zone	
Transfer 21 AFW Pump to ASSS power source	34 m	4.5 m	17 m (g)	TTC: 21.5 m Margin: 12.5 m; 37%	I: Fire Area K, Zone 60A or 65A P: Fire Area C, Zone 23; Fire Area J, Zones 360 and 361	Targets: Cables associated with 21 AFW pump normal power Two discrete operations are performed by an operator dispatched to Fire Area C and a second operator dispatched to ASSS switchgear 12FD3 in Fire Area J
Operate SGADVs as required to control secondary system cooldown	-	-	-	-	-	WITHDRAWN See response to RAI-02.1
Open 21 AFW Pump recirculation bypass valve	34 m	4.5 m	5 m	TTC: 9.5 m Margin: 24.5 m; 72%	I: Fire Area K, Zone 60A or 65A P: Fire Area C, Zone 23	Target: Cable associated with valve FCV-1121
Operate 21 AFW Pump flow control valves to control AFW flow to Steam Generators 21 & 22	34 m	4.5 m	7 m	TTC: 11.5 m Margin: 22.5 m; 66%	I: Fire Area K, Zone 60A or 65A P: Fire Area C, Zone 23	Targets : Cables associated with FCV-406A and FCV-406B

(g) The Total Time to Complete is revised to 17 minutes, whereas the referenced submittals showed a value of 5 minutes for the Actual Time to Complete

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

TABLE RAI-08.1-6 FIRE AREA P CREDITED III.G.2 OPERATOR MANUAL ACTIONS						
Required OMA	Required Time to Complete	Actual Time to Diagnose Need for OMA	Actual Time to Complete OMA	Total Time to Complete and Resultant Margin	OMA Initiator (I) Fire Area/Zone	Comments
					OMA Performance (P) Fire Area/Zone	
Transfer 23 CCW Pump to ASSS power feed if normal power/control is lost	> 1 hour	24 m	7 m	TTC: 31 m Margin: >29 m; >48%	I: Area P, Zone 1 P: Area F, Zone 7A	Targets: 21, 22, 23CCP and their power cables
Start Appendix R Diesel Generator (ARDG) if normal power and offsite power are lost	1 hour	0 m (Offsite power assumed unavailable at T=0)	17 m	TTC: 17 m Margin: 43 m; 72%	I: Area P, Zone 1 P: Area J, Zones 360 and 361	Target: Normal power cable to 23CCP Offsite power availability is not affected by a fire in Fire Area P

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

TABLE RAI-08.1-6 FIRE AREA P CREDITED III.G.2 OPERATOR MANUAL ACTIONS						
Required OMA	Required Time to Complete	Actual Time to Diagnose Need for OMA	Actual Time to Complete OMA	Total Time to Complete and Resultant Margin	OMA Initiator (I) Fire Area/Zone	Comments
					OMA Performance (P) Fire Area/Zone	
Transfer 23 CCW Pump to ASSS power feed if normal power/control is lost	> 1 hour	24 m	7 m	TTC: 31 m Margin: >29 m; >48%	I: Area P, Zone 1 P: Area F, Zone 7A	Targets: 21, 22, 23CCP and their power cables
Start Appendix R Diesel Generator (ARDG) if normal power and offsite power are lost	1 hour	0 m (Offsite power assumed unavailable at T=0)	17 m	TTC: 17 m Margin: 43 m; 72%	I: Area P, Zone 1 P: Area J, Zones 360 and 361	Target: Normal power cable to 23CCP Offsite power availability is not affected by a fire in Fire Area P

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-10-042 DATED MAY 4, 2010

TABLE RAI-08.1-7 FIRE AREA YD CREDITED III.G.2 OPERATOR MANUAL ACTIONS						
Required OMA	Required Time to Complete	Actual Time to Diagnose Need for OMA	Actual Time to Complete OMA	Total Time to Complete and Resultant Margin	OMA Initiator (I) Fire Area/Zone	Comments
					OMA Performance (P) Fire Area/Zone	
Align Charging pump makeup path to RCS	75 m	14 m	4 m	TTC: 28 m Margin: 47 m; 63%	I: Area YD, Zone 900 P: Area A, Zone 1A	Target: Cable associated with valve 227

ATTACHMENT 3

TO

NL-11-014

**Revised Table RAI-01.1-1 from
Entergy Letter NL-11-006 dated January 19, 2011**

**ENTERGY NUCLEAR OPERATIONS, INC.
Indian Point Nuclear Generating Unit No. 2
Docket No. 50-247
License No. DPR-26**

Summary of Required Changes to Table RAI-01.1-1 from Entergy Letter NL-11-006 dated January 19, 2011	
Change	Reason for Change
REVISE Component of Concern column to CHANGE "HVC" to "HCV" for Areas/Zones F/27A , F/33A , F/59A and YD/900 for the Required OMA of "Align Charging pump makeup path to RCS"	Typographical error
REVISE Cables of Concern column for the Required OMA of "Repower instrument buses IBUS23 and IBUS23A from backup source" as follows: ADD "EDB8-EPB3" for Area/Zone J/25 ; ADD "JB1-L91" for Area/Zone J/43A ; ADD "EGA9-EDB8/4" and "EGA9-EDB8/5" for Area/Zone J/270	These cables were inadvertently omitted from the table
REVISE to ADD Area/Zones J/39A , J/46A and J/50A to the Required OMA of "Repower instrument buses IBUS23 and IBUS23A from backup source"	These Area/Zones were inadvertently omitted from the table
REVISE to DELETE the Required OMA of "Locally operate AFW flow control valves FCV-405B, 405C, or FCV-406A"	This OMA was previously WITHDRAWN in Entergy Letter NL-10-100 dated September 29, 2010 and was inadvertently included in the table

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-11-006 DATED JANUARY 19, 2011

TABLE RAI-01.1-1 OMA Initiator Cables of Concern and Mitigating Features Minimizing the Potential to Require Use of Credited OMAs				
Required OMA ¹	OMA Initiator Fire Area Fire Zone ¹	Component of Concern ¹	Cables of Concern ²	Fire Protection Defense in Depth ³
Operate 22AFW Pump (turbine-driven)	Area C Zone 23	21 AFW Pump	EDC5-M74/1 EDC5-M74/2 ELD11-EWC26	Exemption granted for App R III.G.2 in this area – SERs dated Oct 16, 1984 and March 4, 1987 Area Wide Smoke Detection Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone 23 AFW Pump power cable wrapped w/ 30 minute ERFBS Radiant Energy Shield installed between 21 & 23AFW Pump
		23 AFW Pump	JB1-PT1/1 PT1-A19 XD7-M75/1 XD7-M75/2	
Open/check open 22 AFW Pump steam supply isolation valves	Area C Zone 23	PCV-1139	JB1-PT1/3 PT1-RH7 PT1-YL4	Exemption granted for App R III.G.2 in this area – SERs dated Oct 16, 1984 and March 4, 1987 Area Wide Smoke Detection Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone 23 AFW Pump power cable wrapped w/ 30 minute ERFBS Radiant Energy Shield installed between 21 & 23AFW Pump
		PCV-1310B	EWZ64-ENX2 JB1-YP1 S95-EWZ64 S95-S92 S95-YP1	
		PCV-1310A	EWZ63-ENX1 JB1-YN9 S94-EWZ63 S94-S93 S94-YN9	

¹ References: Entergy letter NL-10-042 dated May, 4, 2010, Tables RAI-08.1-1 through RAI-08.1-7; Entergy letter NL-10-100 dated September 29, 2010, Tables RAI-08.1-1, RAI-08.1-2, and RAI-08.1-4

² Reference: Entergy letter NL-10-100 dated September 29, 2010, RAI-02.1 response

³ References: Entergy letter NL-10-042 dated May, 4, 2010, Tables RAI-GEN-1 through GEN-27; Entergy letter NL-10-100 dated September 29, 2010, Tables RAI-GEN-1, RAI-GEN-10, RAI-GEN-23, RAI-GEN-25, RAI-GEN-28, RAI-GEN-29, RAI-GEN-30, and RAI-GEN-31

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-11-006 DATED JANUARY 19, 2011

TABLE RAI-01.1-1 OMA Initiator Cables of Concern and Mitigating Features Minimizing the Potential to Require Use of Credited OMAs				
Required OMA ¹	OMA Initiator Fire Area Fire Zone ¹	Component of Concern ¹	Cables of Concern ²	Fire Protection Defense in Depth ³
Operate 22 AFW Pump flow control valves to align AFW flow to selected steam generator(s)	Area C Zone 23	FCV-405A	JB1-LV1	Exemption granted for App R III.G.2 in this area – SERS dated Oct 16, 1984 and March 4, 1987 Area Wide Smoke Detection Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone 23 AFW Pump power cable wrapped w/ 30 minute ERFBS Radiant Energy Shield installed between 21 & 23AFW Pump
		FCV-405B	JB1-LV2	
		FCV-405C	JB1-LV3	
		FCV-405D	JB1-LV4	
		FCV-406A	ELZ27-YN6 JF5-YN6 PU9-JG2	
		FCV-406B	ELZ28-YN8 JF5-YN8 LL8-JF5 PU9-JH1	
		FCV-406C	ELZ29-YN7 JF9-YN7 LL9-JF9 PU9-JF2	
		FCV-406D	ELZ30-YN5 JF9-YN5 PU9-JF9	
	Area K Zone 60A	FCV-406A	PU9-JG2 LL8-JF5	Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hydrants in adjacent yard
		FCV-406B	PU9-JH1	
		FCV-406C	PU9-JF2 LL9-JF9	
		FCV-406D	PU9-JF9	

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-11-006 DATED JANUARY 19, 2011

TABLE RAI-01.1-1 OMA Initiator Cables of Concern and Mitigating Features Minimizing the Potential to Require Use of Credited OMAs				
Required OMA ¹	OMA Initiator Fire Area Fire Zone ¹	Component of Concern ¹	Cables of Concern ²	Fire Protection Defense in Depth ³
	Area K Zone 65A	FCV-406A	PU9-JG2 LL8-JF5	Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hydrants in adjacent yard
		FCV-406B	PU9-JH1	
		FCV-406C	PU9-JF2 LL9-JF9	
		FCV-406D	PU9-JF9	
Align charging makeup path to RCS (locally open bypass valve 227 to mitigate a spuriously closed HCV-142)	Area F Zone 27A	MOV-227 HCV-142	ECD3-EXF6/2	Area Wide Smoke Detection Moderate Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hose Station in the zone
	Area F Zone 33A	MOV-227 HCV-142	ECD3-EXF6/2	Open to Zone 27A w/ Area Wide Smoke Detection Moderate Fixed Combustible Loading Transient Combustible Controls Hot Work & Ignition Source Controls Portable Extinguishers in adjacent zone Hose Station in adjacent zone
	Area F Zone 59A	MOV-227 HCV-142	ECD3-EXF6/2	Thermistor and Smoke Detector for Charcoal Filters Minimal Ignition Sources Portable Extinguishers in the zone Hose Station in adjacent zones Hydrant in adjacent yard Transient Combustible Controls Hot Work & Ignition Source Controls

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-11-006 DATED JANUARY 19, 2011

TABLE RAI-01.1-1 OMA Initiator Cables of Concern and Mitigating Features Minimizing the Potential to Require Use of Credited OMAs				
Required OMA ¹	OMA Initiator Fire Area Fire Zone ¹	Component of Concern ¹	Cables of Concern ²	Fire Protection Defense in Depth ³
	Area YD Zone 900	MOV-227 HCV-142	ECD3-EXF6/2	Outside – PAB roof Low fixed combustible loading Hose Station in adjacent zones Portable Extinguishers in adjacent zone
Align charging pump suction source to RWST (close LCV-112C, open 288)	Area F Zone 5A	LCV-112B LCV-112C	PQ3-JB9/8	Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Extinguishers in adjacent zone Hose station in adjacent zone
	Area F Zone 6	LCV-112B LCV-112C	YZ1-JB5	Exemption granted for App R III.G.2 in this area – SER March 4, 1987 Area Wide Smoke Detection Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Extinguishers in adjacent zone Hose station in adjacent zone
	Area F Zone 7A	LCV-112B LCV-112C	CK1-YP3 YZ1-JB5 CK1-JB5/1	Exemption granted for App R III.G.2 in this area – SER October 16, 1984 Area Wide Smoke Detection Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hose Station in the zone

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-11-006 DATED JANUARY 19, 2011

TABLE RAI-01.1-1 OMA Initiator Cables of Concern and Mitigating Features Minimizing the Potential to Require Use of Credited OMAs				
Required OMA ¹	OMA Initiator Fire Area Fire Zone ¹	Component of Concern ¹	Cables of Concern ²	Fire Protection Defense in Depth ³
	Area F Zone 22A	LCV-112B LCV-112C	CK1-YP3	Low Fixed Combustible Loading Minimal Ignition Sources Transient Combustible Controls Hot Work Controls Portable Extinguishers in adjacent zone Hose Stations in adjacent zone
	Area F Zone 27A	LCV-112B LCV-112C	CK1-YP3 CK1-JB5/1	Area Wide Smoke Detection Moderate Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hose Station in the zone
	Area J Zone 43A	LCV-112B LCV-112C	ECE19-MN3/01 AE2-BA7 ECE18-CC5/01 EWF61-AG9/01 EWF61-AG9/02 EWF61-ECE19/01 EWF61-ECE19/02	Low to Moderate Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hose Station in the zone
	Area J Zone 46A		ECE19-MN3/01 ECE18-CC5/01 EWF61-AG9/01 EWF61-AG9/02 EWF61-ECE19/01 EWF61-ECE19/02	Low to Moderate Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hose Station in the zone

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-11-006 DATED JANUARY 19, 2011

TABLE RAI-01.1-1 OMA Initiator Cables of Concern and Mitigating Features Minimizing the Potential to Require Use of Credited OMAs				
Required OMA ¹	OMA Initiator Fire Area Fire Zone ¹	Component of Concern ¹	Cables of Concern ²	Fire Protection Defense in Depth ³
Transfer Instrument Buses 23 and 23A to alternate power	Area F Zone 6	BUS3A	PL2-M42	Area Wide Smoke Detection Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Extinguishers in adjacent zone Hose station in adjacent zone
	Area F Zone 7A	BUS3A	AI5-PL2 PL2-JA2/2 AI4-PT2 PT2-JA2 PL2-M42	Area Wide Smoke Detection Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls
Close IA-501 to fail open valves 204A and 204B	Area H Zone 70A Zone 71A Zone 72A Zone 75A Zone 77A Zone 84A Zone 85A Zone 87A	Valve 204A	YI7-H55	Smoke Detection over RCPs Low to Moderate fixed combustible loading Hose Station in adjacent zones Minimal Ignition Sources Transient Combustible Controls Hot Work & Ignition Source Controls Restricted access during operation (containment) Oil collection system for RCPs
		Valve 204B	YI5-H50	

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-11-006 DATED JANUARY 19, 2011

TABLE RAI-01.1-1 OMA Initiator Cables of Concern and Mitigating Features Minimizing the Potential to Require Use of Credited OMAs				
Required OMA ¹	OMA Initiator Fire Area Fire Zone ¹	Component of Concern ¹	Cables of Concern ²	Fire Protection Defense in Depth ³
Open IIP-500X to enable ASSS pneumatic instruments	Area H Zone 70A Zone 75A Zone 77A Zone 87A	All normal safe-shutdown instrument channels for steam generator level, pressurizer level, and pressurizer pressure	EPC3-H39/4 EPC4-H41/4 EPC4-H41/3 EPC3-H39/3 PN8-H39/2 PR3-H41/2 PR4-H33/2 PR4-H33/3 ETC5-EZC9 EZC9-H27 ETD4-EZA5 EZA5-H52 ETC6-EZD1 EZD1-H30 ETD5-EZA6 EZA6-H20 ETC7-EZD2 EZD2-H20 ETD6-EZA7 EZA7-H21 ETC8-EZD3 EZD3-H23 ETD7-EZA8 EZA8-H22	Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Hose station in adjacent zone RCP Smoke Detection

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-11-006 DATED JANUARY 19, 2011

TABLE RAI-01.1-1 OMA Initiator Cables of Concern and Mitigating Features Minimizing the Potential to Require Use of Credited OMAs				
Required OMA ¹	OMA Initiator Fire Area Fire Zone ¹	Component of Concern ¹	Cables of Concern ²	Fire Protection Defense In Depth ³
Open breakers, pull fuses at two breakers on Bus 5A and 6A	Area J Zone 17 Zone 19 Zone 39A Zone 43A Zone 45A Zone 46A Zone 47A Zone 50A	480V Bus 5A	AD1-BA8 AG5-XA5 PC9-XA5/1 PC9-XA5/2 XA5-WU9	Low to Moderate Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the area Hose Stations in the area
		480V Bus 6A	AC4-BA6 JC2-YA9	
Repower instrument buses IBUS23 and IBUS23A from backup source	Area J Zone 25	PPNL23 BUS3A	EGA9-EDB8/4 EGA9-EDB8/5	Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls
	<u>Area J Zone 39A</u>		<u>JB1-L91 JJ7-JC3 EWD49-EAA24/01 EWD49-EWE60/01 WF6-AA2/01</u>	<u>Low to Moderate Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the area Hose Stations in the area</u>
	Area J Zone 43A		AA3-BA5	Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hose station in adjacent zone
	<u>Area J Zone 46A</u>		<u>JB1-L91</u>	<u>Low to Moderate Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the area Hose Stations in the area</u>

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-11-006 DATED JANUARY 19, 2011

TABLE RAI-01.1-1 OMA Initiator Cables of Concern and Mitigating Features Minimizing the Potential to Require Use of Credited OMAs				
Required OMA ¹	OMA Initiator Fire Area Fire Zone ¹	Component of Concern ¹	Cables of Concern ²	Fire Protection Defense in Depth ³
	Area J Zone 50A		JB1-L91	Low to Moderate Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the area Hose Stations in the area
	Area J Zone 270		EDB8-EPB3	Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hose station in adjacent zone
Locally operate AFW flow control valves FCV-405B, 405C, or FCV-406A	Area J Zone 17 Zone 19 Zone 39A Zone 43A Zone 45A Zone 46A Zone 47A Zone 50A	FCV-405B FCV-405C FCV-406A	AD1-BA8 AG5-XA5	Low to Moderate Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the area Hose Stations in the area

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-11-006 DATED JANUARY 19, 2011

TABLE RAI-01.1-1 OMA Initiator Cables of Concern and Mitigating Features Minimizing the Potential to Require Use of Credited OMAs				
Required OMA ¹	OMA Initiator Fire Area Fire Zone ¹	Component of Concern ¹	Cables of Concern ²	Fire Protection Defense in Depth ³
	Area J Zone 43A		AE2-BA7 ECE18-CC5/01 EWF61-AG9/01 EWF61-AG9/02 EWF61-ECE19/01 EWF61-ECE19/02	Low to Moderate Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hose Station in the zone
	Area J Zone 46A		ECE18-CC5/01 EWF61-AG9/01 EWF61-AG9/02 EWF61-ECE19/01 EWF61-ECE19/02	Low to Moderate Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hose Station in the zone
Transfer 21 AFW Pump to ASSS power source	Area K Zone 60A	21AFP	JB1-PT1/2 PT1-AI6	Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hydrants in adjacent yard

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-11-006 DATED JANUARY 19, 2011

TABLE RAI-01.1-1 OMA Initiator Cables of Concern and Mitigating Features Minimizing the Potential to Require Use of Credited OMAs				
Required OMA ¹	OMA Initiator Fire Area Fire Zone ¹	Component of Concern ¹	Cables of Concern ²	Fire Protection Defense in Depth ³
	Area K Zone 65A	21AFP	JB1-PT1/2 PT1-AI6	Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hydrants in adjacent yard
Open 21 AFW Pump recirculation bypass valve	Area K Zone 60A	FCV-1121	JB1-YN9	Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hydrants in adjacent yard
	Area K Zone 65A	FCV-1121	JB1-YN9	Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hydrants in adjacent yard
Operate 21 AFW Pump flow control valves to control AFW flow to Steam Generators 21 & 22	Area K Zone 60A	FCV-406A	PU9-JG2 LL8-JF5	Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hydrants in adjacent yard
		FCV-406B	PU9-JH1	
	Area K Zone 65A	FCV-406A	PU9-JG2 LL8-JF5	Low Fixed Combustible Loading Transient Combustible Controls

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-11-006 DATED JANUARY 19, 2011

TABLE RAI-01.1-1 OMA Initiator Cables of Concern and Mitigating Features Minimizing the Potential to Require Use of Credited OMAs				
Required OMA ¹	OMA Initiator Fire Area Fire Zone ¹	Component of Concern ¹	Cables of Concern ²	Fire Protection Defense In Depth ³
		FCV-406B	PU9-JH1	Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hydrants in adjacent yard
Transfer 23 CCW Pump to ASSS power feed if normal power/control is lost	Area P Zone 1	21CCP 22CCP 23CCP	AG4-M43 AG9-M44/01 EZG3-M45 EZG2-AJ3/01 EZG2-EDF9	Exemption granted for App R III.G.2 in this area – SER October 16, 1984 Area Wide Smoke Detection Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hose station in adjacent zone
Start Appendix R Diesel Generator (ARDG) if normal power and offsite power are lost	Area P Zone 1	21CCP 22CCP 23CCP	N/A (Reference Table RAI-01.1-2)	Area Wide Smoke Detection Low Fixed Combustible Loading Transient Combustible Controls Minimal Ignition Sources Hot Work & Ignition Source Controls Portable Extinguishers in the zone Hose station in adjacent zone

ATTACHMENT 4

TO

NL-11-014

**Revised Table RAI-01.1-2 from
Entergy Letter NL-11-006 dated January 19, 2011**

**ENTERGY NUCLEAR OPERATIONS, INC.
Indian Point Nuclear Generating Unit No. 2
Docket No. 50-247
License No. DPR-26**

Summary of Required Changes to Table RAI-01.1-2 from Entergy Letter NL-11-006 dated January 19, 2011

Change	Reason for Change
REVISE the Associated Cables column to ADD "JB1-L91" for Fire Area J for the OMA of "Repower instrument buses IBUS23 and IBUS23A from backup source"	This cable was inadvertently omitted from the table
REVISE to DELETE the OMA "Locally operate AFW flow control valves FCV-405B, 405C, or 406A" for Fire Area J	This OMA was previously WITHDRAWN in Entergy Letter NL-10-100 dated September 29, 2010 and was inadvertently included on the table
REVISE the Comments/Conclusion column to ADD "a potential spurious closure signal resulting from" for Fire Area J for the OMA of "Open valve 288 and close valve LCV-112C"	Clarification

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-11-006 DATED JANUARY 19, 2011

<p align="center">Table RAI-01.1-2 IP2 Fire Area C Credited OMAs And Cable/Component Failures That May Require the Use of the Credited OMAs</p>					
OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
Operate 22AFW pump (turbine driven)	21AFP 23AFP	EDC5-M74/1 EDC5-M74/2 ELD11-EWC26 JB1-PT1/1 PT1-A19 XD7-M75/1 XD7-M75/2	Open circuit, intra-cable short, ground fault	Motor-driven AFW pump is disabled	Previously granted exemption (see Table RAI-01.1-1) credited low hazards of the area, smoke detection system, and radiant energy shields between pumps and ERFBS on 23AFW pump power cable. Likelihood of damage to both motor driven pumps, and therefore the need to perform the OMA, is considered extremely low.
Open/check open 22AFW pump steam supply valves	PCV-1139 PCV-1310A PCV-1310B	JB1-PT1/3 PT1-RH7 PT1-YL4 EWZ63-ENX1 JB1-YN9 S94-EWZ63 S94-S93 S94-YN9 EWZ64-ENX2 JB1-YP1 S95-EWZ64 S95-S92 S95-YP1	Open circuit, intra-cable short, ground fault, inter-cable short	Valve(s) may spuriously close or fail closed	This OMA is required only if the use of 22AFW pump becomes necessary, due to loss of both motor-driven AFW pumps as discussed above. Previously granted exemption (see Table RAI-01.1-1) credited low hazards of the area, smoke detection system, and radiant energy shields between pumps and ERFBS on 23AFW pump power cable. Likelihood of damage to both motor driven pumps, and therefore the need to perform the OMA, is considered extremely low.

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-11-006 DATED JANUARY 19, 2011

<p align="center">Table RAI-01.1-2 IP2 Fire Area C Credited OMAs And Cable/Component Failures That May Require the Use of the Credited OMAs</p>					
OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
Operate 22AFW pump flow control valves to align AFW flow to selected steam generator(s)	FCV-405A through D (for 22AFW pump)	JB1-LV1 JB1-LV2 JB1-LV3 JB1-LV4	Open circuit, intra-cable short, ground fault, inter-cable short	Valve(s) may be spuriously opened or closed	<p>This OMA is required only if cables for all flow control valves for a given AFW pump are damaged, and remote control of all valves is lost. Given the limited fire challenge expected in this area, as underscored by the referenced exemption, loss of control of all FCVs for either the motor-driven AFW pumps or the steam-driven AFW pump is considered a low-likelihood occurrence.</p> <p><i>The subject OMA is directed at a scenario in which both motor-driven AFW pumps have been rendered inoperable by fire damage, thereby requiring local use of the turbine-driven pump. The associated cables for the motor-driven auxiliary feedwater pump flow control valves (FCV-406A through FCV-406D) are also listed, to illustrate the number of fire-induced cable failures that would be necessary to require the use of the subject OMA.</i></p>
	FCV-406A through D (for 21 and 23 AFW pumps)	ELZ27-YN6 JF5-YN6 PU9-JG2 ELZ28-YN8 JF5-YN8 LL8-JF5 PU9-JH1 ELZ29-YN7 JF9-YN7 LL9-JF9 PU9-JF2 ELZ30-YN5 JF9-YN5 PU9-JF9			

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<p>Table RAI-01.1-2 IP2 Fire Area F Credited OMAs And Cable/Component Failures That May Require the Use of the Credited OMAs</p>					
OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
Align charging makeup path to RCS (locally open bypass valve 227 to mitigate a spuriously closed HCV-142)	Valve 227	ECD3-EXF6/2	Intra-cable short, ground fault, or open circuit	Loss of power to valve 227, causing it to fail in the normal position (closed) and rendering it inoperable for remote opening from the CCR.	This OMA is unlikely to be needed for a Fire Area F event, since HCV-142 (the normal charging makeup flowpath flow control valve) does not have cables routed through Fire Area F. Only the unlikely concurrent scenario of loss of the instrument air supply to HCV-142 (as the result of fire damage to instrument air header piping in Fire Area F) could cause HCV-142 to fail closed, thereby creating the need for performing the OMA to manually open bypass valve 227. Refer to Entergy response to RAI-09.1 in the September 29, 2010 submittal.
Align charging pump suction source to RWST (close LCV-112C, open 288)	LCV-112C LCV-112B	CK1-JB5/1 CK1-YP3 PQ3-JB9/8 YZ1-JB5	Open circuit, intra-cable short, ground fault, inter-cable short	LCV-112C fails open or fails closed; LCV-112B may fail to automatically open	The minimal hazards of the area and active fire protection features, as summarized on Table RAI-01.1-1 minimize the potential for a significant fire capable of causing the cable damage necessary to initiate this OMA. As described in Entergy's September 29, 2010 submittal, alignment of a reliable suction source (valve 288) and return of a charging pump to service is

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<p>Table RAI-01.1-2 IP2 Fire Area F Credited OMAs And Cable/Component Failures That May Require the Use of the Credited OMAs</p>					
OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
					required within nominally 75 minutes. With respect to the potential charging prompt damage concern caused by loss of all suction sources, the proceduralized control room operator action to secure the credited charging pump on receipt of a smoke alarm from the affected plant area can be expected to effectively protect the pump from any damage potential. As described in the response to RAI-01.3 herein, upon placing the pump control into "pullout," any subsequent spurious start signals are effectively locked out, and present no threat to restart the pump.
Transfer Instrument Buses 23 and 23A to alternate power	BUS3A	AI4-PT2 AI5-PL2 PL2-JA2/2 PL2-M42 PT2-JA2	Intra-cable short, ground fault, or open circuit	Loss of normal power source to Instrument Buses 23/23A	The success logic for IBUS23 and IBUS23A requires a power source from EGA8 (Static Inverter 23), which is normally fed from PPNL23, which is fed from BATTCHG23, which in turn is fed from 480V MCC26C, which is fed from BUS3A. The alternate power source for IBUS23 and IBUS23A is MCC29A, which is fed from BUS5A.

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<p>Table RAI-01.1-2 IP2 Fire Area F Credited OMAs And Cable/Component Failures That May Require the Use of the Credited OMAs</p>					
OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
					<p>The above described buses, power panel, and MCCs are located in Fire Area A.</p> <p>As stipulated by Appendix R, a loss of offsite power is typically presumed to occur concurrent with a fire. However, circuit and routing analyses performed for Fire Area F have confirmed that offsite power distribution is not impacted by a fire in this area. Therefore, it can be expected that the 480V distribution system, including BUS3A, will remain energized during this scenario.</p> <p>If offsite power is nonmechanistically assumed to be unavailable during a fire in Fire Area F, the emergency diesel generators can be expected to automatically supply power to the safety-related 480V distribution system. Bus 3A is fed by 22EDG.</p> <p>In the unlikely event that BUS3A and therefore Instrument Buses 23 and</p>

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-11-006 DATED JANUARY 19, 2011

Table RAI-01.1-2 IP2 Fire Area F Credited OMAs And Cable/Component Failures That May Require the Use of the Credited OMAs					
OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
					<p>23A are not automatically repowered by the EDG, it can be expected that Static Inverter 23 will remain operable for a significant time, backed by 125VDC Battery 23, until the manual action to transfer to the alternate power source can be accomplished.</p> <p>Given the low likelihood of loss of BUS3A due to fire damage to cables in this fire area as described above, the need to implement this OMA is also considered to be low likelihood.</p>

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<p>Table RAI-01.1-2 IP2 Fire Area H Credited OMAs And Cable/Component Failures That May Require the Use of the Credited OMAs</p>					
OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
Close IA-501 to fail open valves 204A and 204B	Valve 204A Valve 204B	YI7-H55 YI5-H50	Intra-cable short, inter-cable short	Valves 204A and 204B are spuriously closed due to internal cable fault	The fire challenge within Fire Area H (reactor containment) is minimal during plant power operation. The principal hazard, the RCP lube oil inventories, are secured by virtue of oil collection systems that capture and conduct any oil leakage to collection tanks located in the containment annulus area, away from any hot surfaces and ignition sources. The potential for a fire within this area, during plant power operation, sufficient to cause damage to both 204A and 204B cables, is considered to be low. Either valve 204A OR 204B remaining open is sufficient to support normal RCS makeup from the CVCS charging pump selected for use.
Open IIP-500X to enable ASSS pneumatic instruments	All normal safe-shutdown instrument channels for steam generator level, pressurizer	All cables associated with the following normal instrumentation channels for the parameters	Intra-cable short, open circuit, ground fault, or inter-cable hot short	Loss of all normal (electronic) instrument channels for any of the primary or	The fire challenge within Fire Area H (reactor containment) is minimal during plant power operation. The principal hazard, the RCP lube oil inventories, are secured by virtue of oil collection systems that capture and conduct any oil leakage to collection

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-11-006 DATED JANUARY 19, 2011

<p>Table RAI-01.1-2 IP2 Fire Area H Credited OMAs And Cable/Component Failures That May Require the Use of the Credited OMAs</p>					
OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
	level, and pressurizer pressure	<p>listed at left:</p> <p>EPC3-H39/4 EPC4-H41/4 EPC4-H41/3 EPC3-H39/3 PN8-H39/2 PR3-H41/2 PR4-H33/2 PR4-H33/3 ETC5-EZC9 EZC9-H27 ETD4-EZA5 EZA5-H52 ETC6-EZD1 EZD1-H30 ETD5-EZA6 EZA6-H20 ETC7-EZD2 EZD2-H20 ETD6-EZA7 EZA7-H21 ETC8-EZD3 EZD3-H23 ETD7-EZA8 EZA8-H22</p>		secondary system parameters listed at left.	<p>tanks located in the containment annulus area, away from any hot surfaces and ignition sources. The principal area of common routing of normal instrument channel cables is in the electrical penetration area of containment. The cables in this area are of asbestos/glass braid jacket construction (or other IEEE 383 Flame Test qualified construction), the area is devoid of ignition sources, and the area is equipped with a smoke detection system. The potential for a fire within this area, during plant power operation, sufficient to cause damage to multiple trains of normal instrument channel cables, is considered to be low.</p>

ORIGINALLY PROVIDED IN ENTERGY LETTER NL-11-006 DATED JANUARY 19, 2011

<p>Table RAI-01.1-2 IP2 Fire Area J Credited OMAs And Cable/Component Failures That May Require the Use of the Credited OMAs</p>					
OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
Open breakers, pull fuses at two breakers on Bus 5A and 6A	480V Bus 5A 480V Bus 6A	<p>BUS5A: AD1-BA8 AG5-XA5 PC9-XA5/1 PC9-XA5/2 XA5-WU9</p> <p>BUS6A: AC4-BA6 JC2-YA9</p>	Intra-cable short, open circuit, ground fault, or inter-cable hot short	Affected circuit breakers may not trip on command	<p>A loss of offsite power may occur as the result of a fire in this area, given that the switchgear and cables associated with offsite power distribution are located in this area. The EDGs, which are not located in this fire area, and which have no cables routed through this area, can be expected to automatically repower 480V BUS5A and BUS6A.</p> <p>The cables listed for BUS5A include the incoming normal 6.9kV feeder cable (AD1-BA8), which is connected to the Bus 5A Station Service Transformer (SST) Supply Breaker, and control cables associated with the Service Air Compressor. The cables listed for BUS6A include the incoming normal 6.9kV feeder cable (AC4-BA6), which is connected to the Bus 6A SST Supply Breaker, and control cables associated with the main turbine auxiliary oil pump.</p>

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<p>Table RAI-01.1-2 IP2 Fire Area J Credited OMAs And Cable/Component Failures That May Require the Use of the Credited OMAs</p>					
OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
					<p>With respect to the OMA to manually trip breakers for the Station Air Compressor and Turbine Auxiliary Oil Pump, the OMA need only be implemented at Operations discretion, to secure the described loads, if desired. The nominal load imposed by these components would not be expected to challenge EDG load capacity, given the minimal equipment set associated with the post-fire safe-shutdown model.</p> <p>With respect to the potential OMA to manually trip the Station Service Transformer Supply Breakers, the IP2 SSD analysis identified a potential concern that if the SST Supply Breaker remains closed and a fault occurs on the incoming feeder cable, the 480V bus could back-feed into the fault through the associated SST. However, the SST supply breakers, which are located in Fire Area A, can be expected to automatically trip on undervoltage (which would be caused by faulting of</p>

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<p>Table RAI-01.1-2 IP2 Fire Area J Credited OMAs And Cable/Component Failures That May Require the Use of the Credited OMAs</p>					
OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
					<p>the incoming power supply cable). The circuits and control power associated with the SST Supply Breaker undervoltage trip function are located in Fire Area A, and would not be expected to be impacted by a fire in Fire Area J. Therefore the need to manually trip the SST Supply Breaker in such a scenario is of extremely low likelihood.</p> <p>This OMA is NOT necessary to enable the restoration of power to the safety-related 480V buses, or to ensure the operability of the EDGs. Therefore, the likelihood of need to perform this OMA is considered to be low.</p>
Repower instrument buses IBUS23 and IBUS23A from backup source	PPNL23 BUS3A	EDB8-EPB3 AA3-BA5 EGA9-EDB8/4 EGA9-EDB8/5 <u>JB1-L91</u>	Intra-cable short, ground fault, or open circuit	Loss of normal power source to Instrument Buses 23/23A	The success logic for IBUS23 and IBUS23A requires a power source from EGA8 (Static Inverter 23), which is normally fed from PPNL23, which is fed from BATTCHG23, which in turn is fed from 480V MCC26C, which is fed from BUS3A. The alternate power source for IBUS23 and IBUS23A is MCC29A,

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					<p>which is fed from BUS5A.</p> <p>Cable AA3-BA5 is the normal 6.9 kV power feeder to BUS3A. Failure of this cable will result in deenergization of BUS3A, and the emergency diesel generators can be expected to resupply power to BUS3A. However, it can be expected that Static Inverter 23 will remain operable for a significant time, backed by 125VDC Battery 23, until the manual action to transfer to the alternate power source can be accomplished.</p> <p>Cable EDB8-EPB3 is the power supply cable to 125VDC PPNL23 from Battery 23. PPNL23 is located in Fire Area A, and Battery 23 is located in a masonry enclosure, identified as Fire Zone 25, in Fire Area J. The cable route traverses from Fire Zone 25 on the 33' elevation of the Superheater Building through adjoining Fire Zone 270, to PPNL23, which is located in the Cable Spreading Room, Fire Area A, also on</p>

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OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
					<p>the 33' elevation. The area of Fire Zone 270 traversed by the cable is characterized by minimal fixed combustibles and ignition sources.</p> <p>Cables EGA9-EDB8/4 and EGA9-EDB8/5 are located entirely within Fire Zone 25, and are not subject to fire damage other than a potential fire at Battery 23. This room is a restricted access area, not subject to routine personnel access, and devoid of combustibles or ignition sources other than the battery cells. A fire within the Battery 23 room (Fire Zone 25) can be expected to be confined within the room, and present no impact to other plant equipment.</p> <p>Given the low likelihood of loss of BUS3A or PPNL23 due to fire damage to cables in this fire area, the need to implement this OMA is considered to be low likelihood.</p>
Locally operate AFW flow	FCV 405B FCV 405C	Cables associated with	Intra-cable fault, ground fault, open	Loss of power supply	The listed cables are conservatively assumed by the IP2 SSD analysis to

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OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
control valves FCV-405B, 405C, or FCV-406A	FCV-406A	<p>upstream power supplies to IBUS22 and IBUS23:</p> <p>MCC24A (located in Fire Area J): ECE18-CC5/01 EWF61-AG9/01 EWF61-AG9/02 EWF61- ECE19/01 EWF61- ECE19/02</p> <p>480V Buses 2A (BUS2A) and 5A (BUS5A):</p> <p>AE2-BA7 AD1-BA8 AG5-XA5</p>	circuit, inter-cable fault	renders the air-operated valve unable to be remotely controlled	<p>impact the availability of the upstream power supplies to IBUS22 and IBUS23, which are MCC24A and MCC29A, which are in turn supplied by 480V Buses 2A and 5A, respectively. MCC24A is located in this fire area.</p> <p>However, cables AE2-BA7 and AD1-BA8 are the normal 6.9kV feeder cables supplying the station service transformers on 480V buses 2A and 5A, respectively. Failure of the 6.9kV power supply cable to either bus would be mitigated by resupplying power to the buses via the EDGs. Cable AG5-XA5 is associated with the Station Air Compressor on Bus 5A, and failures of this cable do not present the potential to disable the associated 480V bus. In light of the above, the likelihood of need to perform the OMA to locally operate all of the listed AFW flow control valves is considered to be a low.</p>

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Table RAI-01.1-2 IP2 Fire Area J Credited OMAs And Cable/Component Failures That May Require the Use of the Credited OMAs					
OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
Open valve 288 and close valve LCV-112C	LCV-112B LCV-112C	Cables associated with upstream supply to LCV-112B power source, 125V DC Distribution Panel 22 (DPNL22): MCC24A (located in Fire Area J) ECE18-CC5/01 EWF61-AG9/01 EWF61-AG9/02 EWF61- ECE19/01 EWF61- ECE19/02 ECE19-MN3/01 480V Bus 2A (BUS2A) AE2-BA7	Intra-cable fault, ground fault, open circuit, inter-cable fault	Loss of power to LCV-112B, rendering it inoperable for automatic or remote manual opening	The IP2 SSD analysis conservatively provides for the listed OMA, to provide a means to mitigate a potentially failed LCV-112B. LCV-112B provides a backup suction source for the charging pumps, from the RWST. However, normal charging pump suction valve (VCT outlet valve) is not impacted by <u>a potential spurious closure resulting from</u> a fire in Fire Area J, and hence there would be no expectation of need for the automatic or remote manual use of LCV-112B. As a result, the implementation of this OMA is considered to be of low likelihood.

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Table RAI-01.1-2 IP2 Fire Area K Credited OMAs And Cable/Component Failures That May Require the Use of the Credited OMAs					
OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
Transfer 21AFW Pump to ASSS power source	21AFP	JB1-PT1/2 PT1-AI6	Intra-cable fault, ground fault, open circuit	21AFP circuit breaker is rendered inoperable by remote control	The cables are routed in rigid steel conduit, along the south wall of the area. They are routed vertically from the AFW Pump Room below the area and exit through the south wall of the area. The exposure within the area is minimal, and fixed combustibles and ignition sources in the area of the conduits are minimal. Given the minimal potential fire challenge to the cables, the likelihood of need for implementation of this OMA is considered to be low.
Open 21 AFW Pump recirculation bypass valve	FCV-1121	JB1-YN9	Intra-cable fault, ground fault, open circuit, inter-cable fault	FCV-1121 may spuriously open or close	The cable is routed in rigid steel conduit, along the south wall of the area. The conduit is routed vertically from the AFW Pump Room below the area and exit through the south wall of the area. The exposure within the area is minimal, and fixed combustibles and ignition sources in the area of the conduit are minimal. Given the minimal potential fire challenge to the cable, the likelihood of need for implementation of this OMA is considered to be low.

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<p>Table RAI-01.1-2 IP2 Fire Area K Credited OMAs And Cable/Component Failures That May Require the Use of the Credited OMAs</p>					
OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
Operate 21 AFW Pump flow control valves for 21 and 22 steam generators	FCV-406A FCV-406B	LL8-JF5 PU9-JG2 PU9-JH1	Intra-cable fault, ground fault, open circuit, inter-cable fault	FCV-406A, FCV-406B may spuriously open or close	The cables are routed in rigid steel conduit, along the south wall of the area. They are routed vertically from the AFW Pump Room below the area and exit through the south wall of the area. The exposure within the area is minimal, and fixed combustibles and ignition sources in the area of the conduits are minimal. Given the minimal potential fire challenge to the cables, the likelihood of need for implementation of this OMA is considered to be low.

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<p>Table RAI-01.1-2 IP2 Fire Area P Credited OMAs And Cable/Component Failures That May Require the Use of the Credited OMAs</p>					
OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
Transfer 23 CCW Pump to ASSS power feed if normal power/control is lost	21CCP 22CCP 23CCP	AG4-M43 AG9-M44/01 EZG3-M45 EZG2-AJ3/01 EZG2-EDF9	Intra-cable fault, ground fault, open circuit	CCW pumps are rendered inoperable	Separation features within the area, an ERFBS installed on the 23CCP power supply conduit, insignificant fixed combustibles and ignition sources, as acknowledged by a previously granted exemption for this area, make loss of all three CCW pumps, and therefore the need to implement this OMA, a low-likelihood event.
Start Appendix R Diesel Generator (ARDG) if normal power and offsite power are lost	21CCP 22CCP 23CCP	N/A	N/A	N/A	Further review has confirmed that Fire Area P presents no impact to cables or components associated with the onsite power supplied by the safety-related EDGs (21EDG, 22EDG, 23EDG). For the fire scenarios that may be postulated for Fire Area P, there is no credible event that would require implementation of this OMA.

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<p>Table RAI-01.1-2 IP2 Fire Area YD Credited OMAs And Cable/Component Failures That May Require the Use of the Credited OMAs</p>					
OMA	Affected Component(s)	Associated Cables	Type of cable failure(s) that may cause need for OMA	Effect of cable failure that leads to need for OMA	Comments / Conclusion
Align charging makeup path to RCS	Valve 227	ECD3-EXF6/2	Intra-cable fault, ground fault, open circuit	Valve 227 may be rendered inoperable by remote control, or may spuriously open/close	The described OMA (manually open MOV 227) is only required if it becomes necessary to bypass a failed-closed normal charging path flow control valve, HCV-142. While normally-closed valve 227 may be rendered inoperable, or may spuriously open or close in response to cable failure, normal charging flowpath valve HCV-142 has no cables routed through Fire Area YD. Hence, HCV-142 can be expected to continue to operate normally, and there is no need to implement the OMA to manually operate valve 227.