

Attachment 3

Maintenance Operating Procedure 1-MOP6.90
North Anna Units 1 and 2

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INFORMATION ONLY



VIRGINIA POWER

NORTH ANNA POWER STATION

PROCEDURE NO:

1-MOP-6.90

UNIT NO:

1

REVISION NO:

28

PROCEDURE TYPE:

MAINTENANCE OPERATING

EFFECTIVE DATE:

08-29-96

EXPIRATION DATE:

N/A

PROCEDURE TITLE:

EMERGENCY DIESEL GENERATOR 1-EE-EG-1H

REVISION SUMMARY:

NON-UPGRADED PROCEDURE

- Deleted Attachment 2, has been replaced by 11715-FM-107C, changed Procedure Title.
- Incorporated Technical Requirements Manual Change 20 by updating References and adding P & L Step 3.11.
- Incorporated Technical Requirements Manual Change 21 by updating References and rewording P & L Step 3.3 and adding Steps 4.3.11.3.a and 4.8.6.1.
- Incorporated Procedure Change E-PAR P1 which incorporates OP FB 0091 which adds the valves to the drums opened and the valves to the radiator drain tank verified closed throughout section 4.3 and removed the draining of the heater via drain plug throughout section 4.3.
- Incorporated Procedure Change E-PAR P2 which incorporates P1 and incorporates OP 96-0149 changing step 4.8.6 and P & L 3.10 to allow options of fill sources.
- Incorporated feedback item OP FB 96-0112 by deleting Step 3.2 and making verification of steps consistent throughout.
- Updated References.
- Made administrative changes, noun name changes, standardized "Danger Tag", and changed substeps to bullets when applicable throughout.
- Added Step 3.1 standard step for marking steps N/A.
- Added Step 4.1.9 to verify charging pump running if required.
- Added Step 4.2.6 to allow mechanical procedure to be performed.

ELECTRONIC DISTRIBUTION — APPROVAL ON FILE

PROBLEMS ENCOUNTERED: ☐ Yes ☐ No

NOTE: If yes, note problems in Remarks.

REMARKS:

SHIFT SUPERVISOR:

DATE:

1-MOP-6.90 028

REFERENCES:

1. Colt Industries Technical Manual
2. UFSAR
3. 11715-LSK-22-12 Series
4. NAS Specification 155
5. 11713-FE-1D, 1Q, 1T, 480V One Line Diagrams
6. 11715-FM-107A, Flow/Valve Operating Numbers Diagram Emergency Diesel Air Services
7. Tech Specs 3.8.1.1, 3.1.2.5, 3.8.1.2, 3.1.2.3, 3.7.4.1, and 3.7.4.2
8. O-MPM-0701-01, 18-Month & 5-Year Preventative Maintenance of Emergency Diesel Generators
9. Standing Order #177, Rev. 1, Service Water System Control, deleted by inclusion in procedures
10. CTS Assignment 02-91-1808-003, Tech Spec Amendments 152/136
11. CTS Assignment 02-92-1804-003, Tech Spec Amendments 156/138
12. VPAP-2202, Chemical and Hazardous Material Control
13. 1-OP-6.6A, Emergency Generator Pre-Operational Check For 1H And 1J Diesel
14. VPAP 2401, Fire Protection Program
15. TRM Section 7.5, Appendix R Alternate Shutdown Equipment
16. O-OP-49.6, Service Water System Throttling Alignment
17. CTS 02-95-0001-002, INPO Outage Review Planning Visit Action Plan
18. DR N-95-567, 2J EDG Charger Removed From Service While Equalizing Battery
19. 11715-ESK-11-C series
20. 11715-FB-35A, Flow/Valve Operating Diagram Yard - Fuel Oil Lines
21. CTS 02-95-0001-018, INPO Outage Review, SBO Diesel verified available prior to removing an EDG for maintenance

22. Memo from Steve Kotowski dated 02-16-96, Preferred Water Sources for Station Diesel Engines
23. Technical Requirements Manual (TRM), TR 9.4
24. Technical Requirements Manual (TRM), TR 7.1.2
25. Technical Requirements Manual (TRM), TR 7.2
26. Technical Requirements Manual (TRM), TR 12.2
27. 11715-FM-107B, Flow/Valve Operating Numbers Diagram Emergency Diesel Lube Oil System
28. 11715-FM-107C, Flow/Valve Operating Numbers Diagram Emergency Diesel Coolant System
29. Technical Requirements Manual (TRM), TR 7.5

1.0 **Purpose**

- 1.1 To safely remove Emergency Diesel Generator 1-EE-EG-1H from service and to safely return it to normal service after maintenance.
 - 1.1.1 Removal for Air System Maintenance
 - 1.1.2 Removal for Lube Oil System Maintenance
 - 1.1.3 Removal for Cooling Water System Maintenance
 - 1.1.4 Removal for Fuel System Maintenance
 - 1.1.5 Removal for Generator Maintenance
 - 1.1.6 Return from Air System Maintenance
 - 1.1.7 Return from Lube Oil System Maintenance
 - 1.1.8 Return from Cooling Water System Maintenance
 - 1.1.9 Return from Fuel System Maintenance
 - 1.1.10 Return from Generator Maintenance

2.0 Initial Conditions

2.1 1-EE-EG-1H is to be removed from service for maintenance.

2.2 IF 1H Emergency Bus will remain energized, THEN the following power sources are available to supply 1-EE-SW-1H, 1H 4160-Volt Emergency Bus:

(References 17 and 21)

- C Reserve Station Service Transformer via 1-EP-SW-09,
F Transfer Bus
- 1-EP-SW-1B, 1B 4160-Volt Emergency Bus
- 0-AAC-DG-OM, Alternate AC Diesel Generator (SBO Diesel)

3.0 Precautions and Limitations

- 3.1 Comply with the following guidelines when marking steps N/A:
- IF the conditional requirements of a step do not require the action to be performed, THEN mark the step N/A.
 - IF any other step is marked N/A, THEN have the Shift Supervisor or designee approve the N/A and justify the N/A on the Procedure Cover Sheet.
- 3.2 The following Tech Specs apply:
- Unit 1 T.S. 3.8.1.1, A.C. Electrical Power Source Operability.
 - Unit 1 T.S. 3.8.1.2, A.C. Electrical Power Source Operability
 - Unit 1 T.S. 3.1.2.3, Charging Pump Operability
 - Unit 1 T.S. 3.1.2.5, Boric Acid Transfer Pump Operability
 - Unit 1 T.S. 3.7.4.1, Service Water Loops Operability
 - Unit 1 T.S. 3.7.4.2, Service Water Loop Operability
 - Unit 2 T.S. 3.7.4.1, Service Water Loops Operability
 - Unit 2 T.S. 3.7.4.2, Service Water Loop Operability
- 3.3 IF hoses are run through the Diesel Room Doorway, THEN the applicable Required Action of Technical Requirements Manual, TR 7.1.2, TR 7.2, TR 7.5 and TR 12.2 apply.
- 3.4 To ensure the SW System can supply adequate flow to equipment in the event of CDA, maintain at least three (3) Service Water Pumps Operable (does not include 1/2-SW-P-4). IF this condition cannot be met, THEN enter the action of Tech. Spec. 3.7.4.1 or 3.7.4.2 as applicable. (Ref. 9)

NOTE: The lineup as specified in 0-OP-49.6, Service Water System Throttling Alignment is the required starting condition for any SW System valve lineup (i.e. if it is necessary to run 2 SW pumps on a header, then the system should be throttled prior to start-up of the second pump).

- 3.5 With three SW pumps operable or one of four EDGs out of service for any reason (including operation allowed by Tech. Specs. in Mode 5 and 6), enter the action of Tech. Spec 3.7.4.1 or 3.7.4.2 as applicable until the Service Water System has been throttled in accordance with 0-OP-49.6, Service Water System Throttling Alignment. The action statement clock begins when the fourth pump becomes inoperable or the EDG enters its associated action statement. **(Ref. 9)**
- 3.6 To avoid entry into a Tech Spec. action statement prior to removing a SW Pump from service or a EDG from service establish the lineup as specified in 0-OP-49.6, Service Water System Throttling Alignment. **(Ref. 9)**
- 3.7 If a SW pump failure occurs, enter the action statement of Tech. Spec. 3.7.4.1 or 3.7.4.2 as applicable until the lineup as specified in 0-OP-49.6, Service Water System Throttling Alignment, is established. **(Ref. 9)**
- 3.8 To avoid interrupting an equalizing charge, System Engineering should be notified before removing a Battery Charger from service. **(Reference 18)**
- 3.9 There is a 10 minute time delay before the Lube Oil Pump will restart after the breaker is closed. To prevent energizing the Lube Oil Heater dry and damaging the heater elements, the Lube Oil Pump should be allowed to operate for 2 to 3 minutes prior to energizing the heater.
- 3.10 Primary Grade water shall be used to fill the coolant system. This water may be obtained from PG system hose connections or the Condensate makeup header, but NOT the Condensate header, as it has been chemically treated. **(Reference 22)**
- 3.11 WHEN any EDG Fuel Oil Transfer Pump becomes inoperable, THEN the applicable Required Action of Technical Requirements Manual, TR 9.4 applies.

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4.0 Procedure

4.1 **Removing Emergency Diesel Generator 1-EE-EG-1H from Service for Air System Maintenance**

NOTE: Initial Condition 2.2 does not apply if Unit 1 is defueled.

4.1.1 Initial Condition are satisfied.

4.1.2 Review Precautions and Limitations.

4.1.3 Verify the following pumps and Diesels are operable. (Ref. 9).

- 2-SW-P-1A Service Water Pump
- 1-SW-P-1B Service Water Pump
- 2-SW-P-1B Service Water Pump
- 2-EE-EG-2J Emergency Diesel Generator
- 2-EE-EG-2H Emergency Diesel Generator
- 1-EE-EG-1J Emergency Diesel Generator

NOTE: IF the EDG must be removed from service due to failure of the EDG, THEN Step 4.1.4 should be marked N/A AND T.S. 3.7.4.1 or 3.7.4.2 as applicable for both units must be consulted.

4.1.4 IF any of the above are inoperable, THEN do not remove 1-EE-EG-1H from service. (Ref. 9).

4.1.5 IF all of the equipment in Step 4.1.3 is operable, THEN do one of the following: (Ref. 9)

- a. Enter Action Statement of T.S. 3.7.4.1 or 3.7.4.2 as applicable for both units.

OR

- b. Establish throttled condition on the Service Water system using 0-OP-49.6, Service Water System Throttling Alignment. (Ref. 9)

4.1.6 IF in Modes 1-4, THEN verify that all required safety-related equipment powered by 1J bus is OPERABLE (no Action Statement Status entries).

- _____ 4.1.7 IF in Modes 1-4, THEN commence surveillance as per Attachment #1
(within 1 hour).
- _____ 4.1.8 IF in Modes 5 or 6, THEN verify a boric acid pump is operable,
powered by the 1J Bus or the RWST is available. (T.S. 3.1.2.5)
- _____ 4.1.9 IF in Modes 5 or 6, THEN verify a charging pump is operable,
powered by 1J Bus. (T.S. 3.1.2.3)
- _____ 4.1.10 In the Control Room, place the Emergency Diesel Mode Control
Selector switch for 1H EDG to the "MAN-Local" position.
- _____ 4.1.11 In the Emergency Diesel Generator Room, unlock and close BOTH the
air start inlet manual isolation valves to the Diesel:
- _____ • 1-EB-16, 1HA Air Rcvr to 1H EDG Starting Air Isol Valve
- _____ • 1-EB-66, 1HB Air Rcvr to 1H EDG Starting Air Isol Valve
- _____ 4.1.12 Open the downstream Starting Air Strainers blowdown valves on the
Diesel to depressurize the air start lines:
- _____ • 1-EB-14, 1HA Air Rcvr to 1H EDG Air Strainer Drain Valve
- _____ • 1-EB-64, 1HB Air Rcvr to 1H EDG Air Strainer Drain Valve
- _____ 4.1.13 Danger Tag Closed the following valves:
- _____ • 1-EB-16, 1HA Air Rcvr to 1H EDG Starting Air Isol Valve
- _____ • 1-EB-66, 1HB Air Rcvr to 1H EDG Starting Air Isol Valve

4.1.14 Danger Tag Open the following valves:

- 1-EB-14, 1HA Air Rcvr to 1H EDG Air Strainer Drain Valve
- 1-EB-64, 1HB Air Rcvr to 1H EDG Air Strainer Drain Valve

4.1.15 Using 0-OP-26.9, rack out to "DISCONNECT" and Danger Tag
1-EE-BKR-15112, 1-EE-SW-1H, 1H Emer Bus Diesel Gen Power
Supply Circuit Bkr.

4.1.16 Enter 1-EE-EG-1H INOPERABLE in Action Statement Status Log.

Completed: _____ Date: _____

Verified By: _____ Date: _____

initials

4.0 Procedure

4.2 Removing Emergency Diesel Generator 1-EE-EG-1H from Service for Lube Oil System Maintenance

_____ 4.2.1 Ensure Section 4.1 has been completed.

_____ 4.2.2 Review Precautions and Limitations.

_____ 4.2.3 At 1-EP-CB-136 (A.C. Circuit Breaker Panel behind 1-EE-EG-01A in the Diesel Room), Danger Tag the following OPEN:

_____ • CB3, 1-EG-P-4H, Lube Oil Circ Pump

_____ • CB4, 1-EG-P-2H, Lube Oil Prelube Pump

_____ 4.2.4 On the side of Circuit Breaker Panel 1-EE-EG-01A, open and place a Danger Tag on 1-EE-EG-1A DISC, 1H Lube Oil Heater Disconnect.

_____ 4.2.5 IF oil is to be drained from the radiator fan right angle drive, THEN at 1-EP-CB-136 (A.C. Circuit Breaker Panel behind 1-EE-EG-01A in the Diesel Room), open and Danger Tag CB6, Gear Box Heater 1H.

_____ 4.2.6 IF the Diesel is being tagged for 0-MPM-0701-01, THEN open and Danger Tag the following valves:

_____ • 1-EL-5, 1H EDG LO Strainer Drain to Oil Pan Isol Valve

_____ • 1-EL-4, Lube Oil Cooler Drain

_____ • 1-EL-3, 1H EDG LO Filter Drain to Oil Pan Isol Valve

NOTE: The Mechanical Department will remove and replace lube oil.

Completed: _____ Date: _____

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4.0 Procedure

4.3 Removing Emergency Diesel Generator 1-EE-EG-1H from Service for Cooling Water System Maintenance

_____ 4.3.1 IF draining the entire coolant system OR fully draining a portion of the system, THEN ensure Section 4.1 has been completed.

_____ 4.3.2 Review Precautions and Limitations.

NOTE: When draining only a small amount of coolant, for example when adding glycol, use the step for draining a small amount of coolant.

4.3.3 IF it is desired to drain only a small amount of coolant, THEN perform the following:

_____ 4.3.3.1 Remove the filler cap on the Expansion Tank located on the roof of the radiator compartment.

_____ 4.3.3.2 Determine the volume to be drained.

CAUTION: All draining operations should be monitored. Coolant leakage should not be allowed to enter the floor drains to prevent exceeding EPA limits for release.

NOTE: Only drums of the proper color should be used. Reference VPAP-2202 for color scheme.

NOTE: Drums should be checked clean and empty prior to use.

_____ 4.3.3.3 Connect a hose from 1-EC-19, 1H EDG Cooling Wtr Drain Hdr to Drums Isol Valve, to a suitably sized container.

_____ 4.3.3.4 Open 1-EC-17, 1H EDG Clg Wtr Air Clrs Outlet Drain Hdr Isol Vv.

_____ 4.3.3.5 Throttle open 1-EC-19, 1H EDG Cooling Wtr Drain Hdr to Drums Isol Valve, as necessary to control drain rate.

- 4.3.3.6 WHEN the desired amount of coolant has been drained,
THEN close 1-EC-19, 1H EDG Cooling Wtr Drain Hdr to
Drums Isol Valve.
- 4.3.3.7 Close 1-EC-17, 1H EDG Clg Wtr Air Clrs Outlet Drain Hdr
Isol Vv.
- 4.3.3.8 Disconnect the drain hose.
- 4.3.3.9 Replace the filler cap on the Expansion Tank located on the
roof of the radiator compartment.
- 4.3.3.10 Dispose of the drained coolant as instructed by Chemistry
Department.
- 4.3.3.11 Mark remainder of this Section N/A.
- 4.3.4 Ensure that 1-EG-P-3H, Coolant Pump, is OFF.
- 4.3.5 At 1-EP-CB-136 (A.C. Circuit Breaker Panel behind 1-EE-EG-01A in
the Diesel Room), Danger Tag following open:
- CB1, 1-EG-HTR-601H, Jacket Water Heater.
 - CB2, 1-EG-P-3H, Jacket Water Circ Pump.
- 4.3.6 IF it is desired to drain the affected portions of the system to the
skid-mounted Storage Tank, THEN perform the following:
- 4.3.6.1 Remove the filler cap on the Expansion Tank located on the
roof of the radiator compartment.
- 4.3.6.2 Close 1-EC-19, 1H EDG Cooling Wtr Drain Hdr to Drums
Isol Valve.
- 4.3.6.3 Close 1-EC-5, 1H EDG Clg Wtr Radiators Drain to Drums
Isol Vv.

CAUTION: All draining operations should be monitored. Coolant leakage should not be allowed to enter the floor drains to prevent exceeding EPA limits for release.

NOTE: Only drums of the proper color should be used. Reference VPAP-2202 for color scheme.

NOTE: Drums should be checked clean and empty prior to use.

4.3.7 IF it is desired to drain affected portions of the system to Drums, THEN perform the following:

_____ 4.3.7.1 Remove the filler cap on the Expansion Tank located on the roof of the radiator compartment.

_____ 4.3.7.2 Close 1-EC-18, 1H EDG Clg Wtr Drain Tank Drain Header Isol Valve.

_____ 4.3.7.3 Close 1-EC-4, 1H EDG Clg Wtr Radiators Drain to Drain Tk Isol Vv.

4.3.8 IF desired to drain the Jacket water System, THEN:

4.3.8.1 Close the following valves:

_____ • 1-EC-11, 1H EDG Clg Wtr to Gear Box Oil Cooler Isol Valve

_____ • 1-EC-20, 1H EDG Clg Wtr From Lube Oil Cooler Isol Valve

_____ • 1-EC-10, 1H EDG Clg Wtr Air Clrs to Stby Cool Pump Isol Vv

4.3.8.2 Open the following valves:

- 1-EC-1, 1H EDG Cooling Water Radiator Drain Valve
- 1-EC-2, 1H EDG Cooling Water Radiator Drain Valve
- 1-EC-3, 1H EDG Clg Wtr Water Radiator Outlet Header Drain Valve
- 1-EC-14, 1H EDG Turbo Chgr Clg Wtr Drain Header Isol Valve

4.3.8.3 IF draining to Skid-mounted Storage Tank, THEN throttle open as necessary the following valves to control draining:

- 1-EC-18, 1H EDG Clg Wtr Drain Tank Drain Header Isol Valve.
- 1-EC-4, 1H EDG Clg Wtr Radiators Drain to Drain Tk Isol Vv.

4.3.8.4 IF draining to the Storage Drums, THEN throttle open as necessary the following valves to control draining:

- 1-EC-19, 1H EDG Cooling Wtr Drain Hdr Drums Isol Valve.
- 1-EC-5, 1H EDG Clg Wtr Radiators Drain to Drums Isol Vv.

4.3.9 IF desired to drain only the Air Cooler System, THEN:

4.3.9.1 Close the following valves:

- 1-EC-11, 1H EDG Clg Wtr to Gear Box Oil Cooler Isol Valve
- 1-EC-21, 1H EDG Clg Wtr Ret From Gear Box Oil Clr Isol Vv
- 1-EC-10, 1H EDG Clg Wtr Air Clrs to Stby Cool Pump Isol Vv

4.3.9.2 Open the following valves:

- 1-EC-15, 1H EDG Radiator Clg Water Inlet Drain Hdr Isol Vv
- 1-EC-16, 1H EDG Clg Wtr Engine Drvn Pp Drain Hdr Isol Vv
- 1-EC-17, 1H EDG Clg Wtr Air Clrs Outlet Drain Hdr Isol Vv

4.3.9.3 IF draining to Skid-mounted Storage Tank, THEN throttle open as necessary the following valves to control draining:

- 1-EC-18, 1H EDG Clg Wtr Drain Tank Drain Header Isol Valve.
- 1-EC-4, 1H EDG Clg Wtr Radiators Drain to Drain Tk Isol Vv.

4.3.9.4 IF draining to the Storage Drums, THEN throttle open as necessary the following valves to control draining:

- 1-EC-19, 1H EDG Cooling Wtr Drain Hdr Drums Isol Valve.
- 1-EC-5, 1H EDG Clg Wtr Radiators Drain to Drums Isol Vv.

4.3.10 IF desired to drain the entire system, THEN

4.3.10.1 Open the following:

- 1-EC-11, 1H EDG Clg Wtr to Gear Box Oil Cooler Isol Valve
- 1-EC-17, 1H EDG Clg Wtr Air Clrs Outlet Drain Hdr Isol Vv
- 1-EC-16, 1H EDG Clg Wtr Engine Drvn Pp Drain Hdr Isol Vv
- 1-EC-15, 1H EDG Radiator Clg Water Inlet Drain Hdr Isol Vv
- 1-EC-1, 1H EDG Cooling Water Radiator Drain Valve
- 1-EC-2, 1H EDG Cooling Water Radiator Drain Valve
- 1-EC-3, 1H EDG Clg Wtr Water Radiator Outlet Header Drain Valve
- 1-EC-9, 1H EDG Clg Wtr Stby Cool Pp Normal Suct Isol Valve
- 1-EC-6, 1H EDG Clg Wtr Standby Cool Pp Disch Isol Vv
- 1-EC-14, 1H EDG Turbo Chgr Clg Wtr Drain Header Isol Valve
- 1-EC-21, 1H EDG Clg Wtr Ret From Gear Box Oil Clr Isol Vv
- 1-EC-20, 1H EDG Clg Wtr From Lube Oil Cooler Isol Valve
- 1-EC-10, 1H EDG Clg Wtr Air Clrs to Stby Cool Pump Isol Vv

4.3.10.2 IF draining to Skid-mounted Storage Tank, THEN throttle open as necessary the following valves to control draining:

- 1-EC-18, 1H EDG Clg Wtr Drain Tank Drain Header Isol Valve.
- 1-EC-4, 1H EDG Clg Wtr Radiators Drain to Drain Tk Isol Vv.

4.3.10.3 IF draining to the Storage Drums, THEN throttle open as necessary the following valves to control draining:

- 1-EC-19, 1H EDG Cooling Wtr Drain Hdr Drums Isol Valve.
- 1-EC-5, 1H EDG Clg Wtr Radiators Drain to Drums Isol Vv.

4.3.10.4 IF desired to drain the small amount of coolant remaining in the Circulating pump, THEN open 1-EC-8, 1H EDG Clg Wtr Standby Cool Pp Suct Drain Valve, and drain into the drip pan.

4.3.11 IF a coolant changeout from winter to summer coolant is to be performed, THEN do the following to flush the Coolant System:

4.3.11.1 Ensure that the Coolant System has been drained using Step 4.3.10.

4.3.11.2 Return all valves to the normal position by performing 1-OP-6.1A.

4.3.11.3 Fill the Coolant System with primary grade water as follows:
(Reference 22)

- _____
- a. IF required to block diesel room door open, THEN ensure the required actions of TRM, TR 7.1.2, TR 7.2, TR 7.5, and TR 12.2 are met.
- b. Connect sufficient hose to reach from one of the following desired sources. Mark valves not used N/A:
- _____ • 1-PG-302, Primary Grade Water Hose Conn Isol Valve, located in Unit 2 Safeguards
 - _____ • 1-PG-1047, Primary Grade Water Hose Conn Isol Valve, located in Unit 2 QSPH Basement
 - _____ • 2-CN-328, CN Makeup Line To Aux Boilers Drain Isol Valve, located West end of Turbine hallway
 - _____ • 2-CN-257, 2-CN-LCV-208 Outlet Drain Valve, located in Turb basement near D CW Outlet Waterbox
- _____ c. Remove the filler cap on the Expansion Tank (located on the roof of the radiator compartment)
- _____ d. Fill through the expansion Tank filler by throttling open valve selected in Step 4.3.11.3.b.
- _____ e. WHEN the desired level has been obtained, THEN close valve opened in Step 4.3.11.3.d.
- _____ f. Remove the hose and replace cap on valve selected in Step 4.3.11.3.b.

_____ 4.3.11.4 At 1-EP-CB-136 (A.C. Circuit Breaker Panel behind 1-EE-EG-01A in the Diesel Room), lift Danger Tag and close CB2, 1-EG-P-3H, Jacket Water Circ Pump.

_____ 4.3.11.5 Place 1-EG-P-3H, Coolant Pump, control switch to MAN and run for 30 minutes.

_____ 4.3.11.6 WHEN 30 minutes has elapsed, THEN do the following place 1-EG-P-3H, Coolant Pump, control switch to OFF.

_____ 4.3.11.7 At 1-EP-CB-136 (A.C. Circuit Breaker Panel behind 1-EE-EG-01A in the Diesel Room), open and Danger Tag CB2, 1-EG-P-3H, Jacket Water Circ Pump.

4.3.12 IF the coolant system was flushed, THEN drain the entire coolant system as follows:

_____ 4.3.12.1 Close 1-EC-18, 1H EDG Clg Wtr Drain Tank Drain Header Isol Valve.

_____ 4.3.12.2 Close 1-EC-4, 1H EDG Clg Wtr Radiators Drain to Drain Tk Isol Vv.

4.3.12.3 Open the following drain valves:

- 1-EC-17, 1H EDG Clg Wtr Air Clrs Outlet Drain Hdr Isol Vv
- 1-EC-16, 1H EDG Clg Wtr Engine Drvn Pp Drain Hdr Isol Vv
- 1-EC-15, 1H EDG Radiator Clg Water Inlet Drain Hdr Isol Vv
- 1-EC-1, 1H EDG Cooling Water Radiator Drain Valve
- 1-EC-2, 1H EDG Cooling Water Radiator Drain Valve
- 1-EC-3, 1H EDG Clg Wtr Water Radiator Outlet Header Drain Valve
- 1-EC-14, 1H EDG Turbo Chgr Clg Wtr Drain Header Isol Valve

4.3.12.4 IF draining to Skid-mounted Storage Tank, THEN throttle open as necessary the following valves to control draining:

- 1-EC-18, 1H EDG Clg Wtr Drain Tank Drain Header Isol Valve.
- 1-EC-4, 1H EDG Clg Wtr Radiators Drain to Drain Tk Isol Vv.

4.3.12.5 IF draining to the Storage Drums, THEN throttle open as necessary the following valves to control draining:

- 1-EC-19, 1H EDG Cooling Wtr Drain Hdr Drums Isol Valve.
- 1-EC-5, 1H EDG Clg Wtr Radiators Drain to Drums Isol Vv.

- 4.3.13 IF the coolant system was flushed, and it is desired to drain the small amount of coolant remaining in the Circulating pump, THEN open 1-EC-8, 1H EDG Clg Wtr Standby Cool Pp Suct Drain Valve, and drain into the drip pan.

Completed: _____ Date: _____

Verified By: _____ Date: _____

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4.0 Procedure

4.4 Removing Emergency Diesel Generator 1-EE-EG-1H from Service for Fuel System Maintenance

4.4.1 Ensure Section 4.1 has been completed.

4.4.2 Review Precautions and Limitations.

4.4.3 Open and Danger Tag Breaker CB-7 beside panel 1-EE-EG-1B for DC Fuel Oil pump.

4.4.4 Open and Danger Tag the breakers for the EDG Fuel Oil Transfer pumps:

- 1-EG-P-1HA, 1-EE-BKR-1H1-4 A1, 1H EDG Fuel Transfer Pump (Emerg. Swgr. Room)
- 1-EG-P-1HB, 1-EE-BKR-1H1-2N C1, 1H EDG Fuel Oil Backup Trans Pump Ckt Bkr (Cable Vault)

4.4.5 IF maintenance is to be performed on the Fuel Oil pumps OR strainers, THEN do the following:

4.4.5.1 Close and hang Danger Tags on the following valves:

- 1-EG-253, 1HA EDG Fuel Oil Pump Suction Isolation Valve
- 1-EG-255, 1HA EDG Fuel Oil Pump Discharge Isolation Valve
- 1-EG-276, 1HB EDG Fuel Oil Pump Suction Isolation Valve
- 1-EG-279, 1HB EDG Fuel Oil Pump Discharge Isolation Valve

4.4.5.2 Open and hang Danger Tags on the following valves, to
drain the Fuel Oil Pump:

- 1-EG-314, 1HA EDG Fuel Oil Pump Suction Strainer
Drain Vv
- 1-EG-257, 1HA EDG Fuel Oil Pump Discharge Drain
Valve
- 1-EG-277, 1HB EDG Fuel Oil Pump Suct Strainer Drain
Valve
- 1-EG-281, 1HB EDG Fuel Oil Pump Discharge Drain
Valve

Completed: _____ Date: _____

initials

4.0 Procedure

4.5 **Removing Emergency Diesel Generator 1-EE-EG-1H from Service for Generator Maintenance**

- _____ 4.5.1 Ensure Section 4.1 has been completed.
- _____ 4.5.2 Review Precautions and Limitations.
- _____ 4.5.3 At 1-EP-CB-136 (A.C. Circuit Breaker Panel behind 1-EE-EG-1A in the Diesel Room), Open and Danger Tag CB-5, Generator Space Heater 1H.

NOTE: To prevent inadvertent battery discharge during battery charger maintenance, System Engineering should be consulted to determine the applicable fuses to be tagged.

NOTE: Annunciator Panel J-H5, Diesel Gen F.O. Day Tank 1H/1J Hi Level, will alarm when fuses FU-16 and FU-17 are pulled.

- 4.5.4 Have the Electrical Department remove and store the fuses located in Regulator Control Panel (1-EE-EG-01C), as required. Mark N/A any fuses that are NOT removed.

_____ Elect

_____ Elect

_____ Elect

_____ Elect

_____ Elect

_____ Elect

_____ Elect

- 1-EE-EG-1C FU-1, (two 6 Amp) Emer Gen 1H Regulator Cont Ckt (Not required for Battery Charger Maintenance.)
- 1-EE-EG-1C FU-2, (6 Amp) Emer Gen 1H Regulator Cont Ckt (Not required for Battery Charger Maintenance.)
- 1-EE-EG-1C FU-14, (15 Amp) Pwr Dist. Ckt. (1EGSH09)
- 1-EE-EG-1C FU-15, (15 Amp) Pwr Dist. Ckt. (1EGSH09)
- 1-EE-EG-1C FU-6NA, (15 Amp) Field Flash Excit. Ckt
- 1-EE-EG-1C FU-6EA, (15 Amp) Field Flash Excit. Ckt
- 1-EE-EG-1C FU-7NA, (15 Amp) Field Flash Excit. Ckt

STEP 4.5.4 CONTINUED

Elect

- 1-EE-EC-1C FU-7EA, (15 Amp) Field Flash Excit. Ckt

Elect

- 1-EE-EG-1C FU-1NA, (6 Amp) Spd/Load Cntrl (TJ-5) CNO
(Not required for Battery Charger Maintenance.)

Elect

- 1-EE-EG-1C FU-1EA, (6 Amp) Spd/Load Cntrl (TJ-4) CEO
(Not required for Battery Charger Maintenance.)

Elect

- 1-EE-EG-1C FU-2NA, (6 Amp) Spd/Load Cntrl (TJ-1) ANO
(Not required for Battery Charger Maintenance.)

Elect

- 1-EE-EG-1C FU-2EA, (6 Amp) Spd/Load Cntrl (TJ-2) AEO
(Not required for Battery Charger Maintenance.)

Elect

- 1-EE-EG-1C FU-12, (30 Amp) Gen Field Excitation

Elect

- 1-EE-EG-1C FU-13, (30 Amp) Gen Field Excitation

Elect

- 1-EE-EG-1C FU-16, (15 Amp) EDG Annunciator Panel

Elect

- 1-EE-EG-1C FU-17, (15 Amp) EDG Annunciator Panel

Elect

- 1-EE-EG-1C FU-18N, (15 Amp) Gen Volt Reg Ckt (TH-7) PNO

Elect

- 1-EE-EG-1C FU-18E, (15 Amp) Gen Volt Reg Ckt (TH-8) PEO

Elect

- 1-EE-EG-1C FU-19N, (15 Amp) Gen Volt Reg Ckt (TH-11) NOO

Elect

- 1-EE-EG-1C FU-19E, (15 Amp) Gen Volt Reg Ckt (TH-10) NEO

- 4.5.5 Place Danger Tags on any fuses that were removed in Step 4.5.4. Mark
N/A any fuses NOT removed:

- 1-EE-EG-1C FU-1, (two 6 Amp) Emer Gen 1H Regulator Cont Ckt (Not required for Battery Charger Maintenance.)
- 1-EE-EG-1C FU-2, (6 Amp) Emer Gen 1H Regulator Cont Ckt (Not required for Battery Charger Maintenance.)
- 1-EE-EG-1C FU-14, (15 Amp) Pwr Dist. Ckt. (1EGSH09)
- 1-EE-EG-1C FU-15, (15 Amp) Pwr Dist. Ckt. (1EGSH09)
- 1-EE-EG-1C FU-6NA, (15 Amp) Field Flash Excit. Ckt
- 1-EE-EG-1C FU-6EA, (15 Amp) Field Flash Excit. Ckt
- 1-EE-EG-1C FU-7NA, (15 Amp) Field Flash Excit. Ckt
- 1-EE-EG-1C FU-7EA, (15 Amp) Field Flash Excit. Ckt
- 1-EE-EG-1C FU-1NA, (6 Amp) Spd/Load Cntrl (TJ-5) CNO
- 1-EE-EG-1C FU-1EA, (6 Amp) Spd/Load Cntrl (TJ-4) CEO
- 1-EE-EG-1C FU-2NA, (6 Amp) Spd/Load Cntrl (TJ-1) ANO
- 1-EE-EG-1C FU-2EA, (6 Amp) Spd/Load Cntrl (TJ-2) AEO
- 1-EE-EG-1C FU-12, (30 Amp) Gen Field Excitation
- 1-EE-EG-1C FU-13, (30 Amp) Gen Field Excitation
- 1-EE-EG-1C FU-16, (15 Amp) EDG Annunciator Panel
- 1-EE-EG-1C FU-17, (15 Amp) EDG Annunciator Panel
- 1-EE-EG-1C FU-18N, (15 Amp) Gen Volt Reg Ckt (TH-7) PNO
- 1-EE-EG-1C FU-18E, (15 Amp) Gen Volt Reg Ckt (TH-8) PEO
- 1-EE-EG-1C FU-19N, (15 Amp) Gen Volt Reg Ckt (TH-11) NOO
- 1-EE-EG-1C FU-19E, (15 Amp) Gen Volt Reg Ckt (TH-10) NEO

4.5.6 Have the Electrical Department remove and store the fuses located in Control Power Panel (1-EE-EG-01B), as required. Mark N/A any fuses that are NOT removed:

- 1-EE-EG-1B FU-1N, (10 Amp) Start Ckt #1 (PNO-B8)
- 1-EE-EG-1B FU-1E, (10 Amp) Start Ckt #1 (PEO-B8)
- 1-EE-EG-1B FU-2N, (10 Amp) Start Ckt #1 (NNO-B10)
- 1-EE-EG-1B FU-2E, (10 Amp) Start Ckt #1 (NEO-B8)
- 1-EE-EG-1B FU-3N, (10 Amp) Start Ckt #2 (PNO-B5)
- 1-EE-EG-1B FU-3E, (10 Amp) Start Ckt #2 (PEO-B5)
- 1-EE-EG-1B FU-4N, (10 Amp) Start Ckt #2 (NNO-B6)
- 1-EE-EG-1B FU-4E, (10 Amp) Start Ckt #2 (NEO-B5)
- 1-EE-EG-1B FU-5N, (10 Amp) Stop Ckt #1 (PNO-B6)
- 1-EE-EG-1B FU-5E, (10 Amp) Stop Ckt #1 (PEO-B6)
- 1-EE-EG-1B FU-6N, (10 Amp) Stop Ckt #1 (NNO-B6)
- 1-EE-EG-1B FU-6E, (10 Amp) Stop Ckt #1 (NEO-B6)
- 1-EE-EG-1B FU-7N, (10 Amp) Stop Ckt #2 (PNO-B6)
- 1-EE-EG-1B FU-7E, (10 Amp) Stop Ckt #2 (PEO-B6)
- 1-EE-EG-1B FU-8N, (10 Amp) Stop Ckt #2 (NNO-B4)
- 1-EE-EG-1B FU-8E, (10 Amp) Stop Ckt #2 (NEO-B6)

Elect

Elect

Elect

Elect

Elect

Elect

Elect

Elect

Elect

Elect

Elect

Elect

Elect

Elect

Elect

Elect

4.5.7 Place Danger Tags on any fuses that were removed in Step 4.5.6. Mark
N/A any fuses NOT removed:

- 1-EE-EG-1B FU-1N, (10 Amp) Start Ckt #1 (PNO-B8)
- 1-EE-EG-1B FU-1E, (10 Amp) Start Ckt #1 (PEO-B8)
- 1-EE-EG-1B FU-2N, (10 Amp) Start Ckt #1 (NNO-B10)
- 1-EE-EG-1B FU-2E, (10 Amp) Start Ckt #1 (NEO-B8)
- 1-EE-EG-1B FU-3N, (10 Amp) Start Ckt #2 (PNO-B5)
- 1-EE-EG-1B FU-3E, (10 Amp) Start Ckt #2 (PEO-B5)
- 1-EE-EG-1B FU-4N, (10 Amp) Start Ckt #2 (NNO-B6)
- 1-EE-EG-1B FU-4E, (10 Amp) Start Ckt #2 (NEO-B5)
- 1-EE-EG-1B FU-5N, (10 Amp) Stop Ckt #1 (PNO-B6)
- 1-EE-EG-1B FU-5E, (10 Amp) Stop Ckt #1 (PEO-B6)
- 1-EE-EG-1B FU-6N, (10 Amp) Stop Ckt #1 (NNO-B6)
- 1-EE-EG-1B FU-6E, (10 Amp) Stop Ckt #1 (NEO-B6)
- 1-EE-EG-1B FU-7N, (10 Amp) Stop Ckt #2 (PNO-B6)
- 1-EE-EG-1B FU-7E, (10 Amp) Stop Ckt #2 (PEO-B6)
- 1-EE-EG-1B FU-8N, (10 Amp) Stop Ckt #2 (NNO-B4)
- 1-EE-EG-1B FU-8E, (10 Amp) Stop Ckt #2 (NEO-B6)

4.5.8 Have the Electrical Department remove and store the Potential
Transformer fuses in back of Regulator Control Panel (1-EE-EG-01C),
as required.

4.5.9 Place Danger Tags on any fuses that were removed in Step 4.5.8. Mark
N/A if fuses NOT removed.

4.5.10 IF 1-EG-BC-2, 1H Emergency Diesel Gen Battery Charger, is to be removed from service, THEN perform the following:

- a. Ensure the applicable fuses have been tagged in Step 4.5.4 through Step 4.5.9 as determined by System Engineering to prevent inadvertent battery discharge.
- b. At 1-EG-BC-2, 1H Emergency Diesel Gen Battery Charger, do the following:
 - 1. Open the AC Input Circuit Breaker.
 - 2. Open and Danger Tag the DC Output Circuit Breaker.
- c. Open and Danger Tag 1-EE-BKR-1H1-1A A2L, 1H Emerg Diesel Generator Battery Chgr 2 Ckt Bkr 1-EG-BC-2.

Completed: _____ Date: _____

4.6 Returning Emergency Diesel Generator 1-EE-EG-1H to Service after Air System Maintenance.

- _____ 4.6.1 Verify that required EDG maintenance has been completed.
- _____ 4.6.2 Review Precautions and Limitations.
- _____ 4.6.3 Ensure Sections 4.7, 4.8, 4.9, and 4.10 have been completed as required.

NOTE: WHEN hand rotation of 1H EDG is necessary before starting, THEN Steps 4.6.4 and 4.6.5 should be performed in conjunction with 1-OP-6.6A, Emergency Generator Pre-Operational Check For 1H And 1J Diesel.

- _____ 4.6.4 In the Diesel Room, remove the Danger Tags and CLOSE air start line strainer blowdown valves:
- _____ • 1-EB-14, 1HA Air Rcvr to 1H EDG Air Strainer Drain Valve
 - _____ • 1-EB-64, 1HB Air Rcvr to 1H EDG Air Strainer Drain Valve
- _____ 4.6.5 Remove Danger Tags and lock OPEN Both Starting Air isolation valves:
- _____ • 1-EB-16, 1HA Air Rcvr to 1H EDG Starting Air Isol Valve
 - _____ • 1-EB-66, 1HB Air Rcvr to 1H EDG Starting Air Isol Valve
- _____ 4.6.6 Remove Danger Tag and rack in 1-EE-BKR-15H2, 1-EE-SW-1H, 1H Emer Bus Diesel Gen Power Supply Circuit Bkr, to CONNECT as per 0-OP-26.9.
- _____ 4.6.7 In the Control Room, place the Emergency Diesel Mode Control Selector switch in the "Man-Remote" position.
- _____ 4.6.8 Test the operability of 1-EE-EG-1H in accordance with the applicable PT, PMT Sheet, or OP.
- _____ 4.6.9 Verify all followers and procedures that affect operability of the EDG are properly documented.

SV

_____ 4.6.10 Upon successful completion of PT, PMT Sheet, or OP suspend
Attachment 1, surveillance log of 1-EE-EG-1J, and attach to this
procedure.

_____ 4.6.11 Place the Diesel Mode Control Switch in "AUTO REMOTE".

Completed: _____ Date: _____

Verified By: _____ Date: _____

4.7 Returning Emergency Diesel Generator 1-EE-EG-1H to Service after
Lube Oil System Maintenance

4.7.1 Verify that required EDG Lube Oil System maintenance has been
completed.

4.7.2 Review Precautions and Limitations.

4.7.3 Verify all Lube Oil System valves are in normal position as per
1-OP-6.3A.

NOTE: All Lube Oil additions to the Diesel will be made by the Mechanical Maintenance
Department as per the Emergency Diesel Generator Lube Oil Addition Log.

4.7.4 Verify Diesel Oil level $\approx$ 3" above "FULL" mark on dipstick. IF level is
low, THEN notify the Maintenance Department to add oil to the Diesel
as necessary.

4.7.5 Verify governor sight glass full.

4.7.6 At 1-EP-CB-136 (A.C. Circuit Breaker Panel behind 1-EE-EG-01A in
the Diesel Room), remove Danger Tags and CLOSE:

- CB3, 1-EG-P-4H, Lube Oil Circ Pump
- CB4, 1-EG-P-2H, Lube Oil Prelube Pump

CAUTION: To prevent energizing the Lube Oil Heater dry and damaging the heater elements, the Lube Oil
Pump should be allowed to operate for 2 to 3 minutes prior to energizing the heater.

NOTE: There is a 10 minute time delay before the Lube Oil Pump will restart after the
breaker is closed.

4.7.7 Allow the Lube Oil Pump to operate for at least two minutes.

- ____ SV 4.7.8 On the side of Circuit Breaker Panel 1-EE-EG-01A remove
Danger Tag and close 1-EE-EG-1A DISC, 1H Lube Oil Heater
Disconnect.
- ____ SV 4.7.9 IF gearbox heater was tagged, THEN at 1-EP-CB-136
(A.C. Circuit Breaker Panel behind 1-EE-EG-01A in the
Diesel Room), remove Danger Tag and close CB6, 1-EG-HTR-603H
Gear Box Heater 1H.

NOTE: Section 4.6 must also be completed to return the EDG to service.

Completed: _____ Date: _____

Verified By: _____ Date: _____

4.8 Returning Emergency Diesel Generator 1-EE-EG-1H to Service after Cooling Water System Maintenance

_____ 4.8.1 Verify required EDG Cooling Water System maintenance has been completed.

_____ 4.8.2 Review Precautions and Limitations.

NOTE: Ensure drains are closed prior to opening any valves.

NOTE: Step 4.8.3 independent verification should be completed prior to continuing with this procedure.

_____ 4.8.3 Return all valves to normal position by performing 1-OP-6.1A.

_____ 4.8.4 Ensure 1-EG-P-3H, Coolant Pump, control switch is in OFF.

_____ 4.8.5 At 1-EP-CB-136 (A.C. Circuit Breaker Panel behind 1-EE-EG-01A in the Diesel Room), remove Danger Tag and close breaker CB-2, 1-EG-P-3H, Jacket Water Circ Pump.

SV

CAUTION: When filling the Coolant system from an external source, primary grade water shall be used, as Domestic Water may contain impurities. (**Reference 22**)

NOTE: Fill Expansion Tank to not more than 2" from the top, to allow for expansion.

4.8.6 To fill system from a primary grade water source, do the following:
(**Reference 22**)

- _____ 1. IF required to block diesel room door open, THEN ensure the required actions of TRM, TR 7.1.2, TR 7.2, TR 7.5 and TR 12.2 are met.
- _____ 2. Connect sufficient hose to reach from one of the following desired sources. Mark valves not used N/A:
- _____ • 1-PG-302, Primary Grade Water Hose Conn Isol Valve, located in Unit 2 Safeguards
 - _____ • 1-PG-1047, Primary Grade Water Hose Conn Isol Valve, located in Unit 2 QSPH Basement
 - _____ • 2-CN-328, CN Makeup Line To Aux Boilers Drain Isol Valve, located West end of Turbine hallway
 - _____ • 2-CN-257, 2-CN-LCV-208 Outlet Drain Valve, located in Turb basement near D CW Outlet Waterbox
- _____ 3. Remove the filler cap on the Expansion Tank and insert fill hose (located on the roof of the radiator compartment).
- _____ 4. Fill through the expansion Tank filler by throttling the valve selected in Step 4.8.6.2.

5. WHEN the desired level has been obtained, THEN close the following valve selected in step 4.8.6.2. Mark valves not used N/A:

- 1-PG-302, Primary Grade Water Hose Conn Isol Valve, located in Unit 2 Safeguards
- 1-PG-1047, Primary Grade Water Hose Conn Isol Valve, located in Unit 2 QSPH Basement
- 2-CN-328, CN Makeup Line To Aux Boilers Drain Isol Valve, located West end of Turbine hallway
- 2-CN-257, 2-CN-LCV-208 Outlet Drain Valve, located in Turb basement near D CW Outlet Waterbox

6. Disconnect hose and replace cap on the valve closed in step 4.8.6.5.

- 4.8.7 To fill system from the Storage Tank, do the following:

- 4.8.7.1 Close 1-EC-9, 1H EDG Clg Wtr Stby Cool Pp Normal Suct Isol Valve.
- 4.8.7.2 Open 1-EC-7, 1H EDG Clg Wtr Drain Tank to Stby Clg Pp Isol Vv.
- 4.8.7.3 Start 1-EG-P-3H, Coolant Pump to fill the system.

NOTE: Fill Expansion Tank to not more than 2" from the top, to allow for expansion.

- 4.8.7.4 WHEN the system is filled, THEN perform the following:

- a. Stop 1-EG-P-3H, Coolant Pump.
- b. Open 1-EC-9, 1H EDG Clg Wtr Stby Cool Pp Normal Suct Isol Valve.
- c. Close 1-EC-7, 1H EDG Clg Wtr Drain Tank to Stby Clg Pp Isol Vv.

- ____ SV 4.8.8 At 1-EP-CB-136 (A.C. Circuit Breaker Panel behind 1-EE-EG-01A in the Diesel Room), clear Danger Tag and close CB1, 1-EG-HTR-601H, Jacket Water Heater.
- ____ 4.8.9 Place control switch for 1-EG-P-3H, Coolant Pump, in AUTO.
- ____ 4.8.10 Notify Chemistry Department to sample the coolant and prepare chemical additions as necessary.
- ____ 4.8.11 Replace the filler cap on the Expansion Tank.

NOTE: Section 4.6 must also be completed to return the EDG to service.

Completed: _____ Date: _____

Verified By: _____ Date: _____

4.9 Returning Emergency Diesel Generator 1-EE-EG-1H to Service after Fuel System Maintenance

_____ 4.9.1 Verify required EDG Fuel System maintenance has been completed.

_____ 4.9.2 Review Precautions and Limitations.

_____ SV 4.9.3 Remove Danger Tag and close breaker CB-7 beside 1-EE-EG-01B for the DC Fuel Oil pump.

4.9.4 IF maintenance was performed on the Fuel Oil pumps OR strainer, THEN do the following:

4.9.4.1 Remove the Danger Tags and close the following valves:

- _____ • 1-EG-314, 1HA EDG Fuel Oil Pump Suction Strainer Drain Vv
- _____ • 1-EG-257, 1HA EDG Fuel Oil Pump Discharge Drain Valve
- _____ • 1-EG-277, 1HB EDG Fuel Oil Pump Suct Strainer Drain Valve
- _____ • 1-EG-281, 1HB EDG Fuel Oil Pump Discharge Drain Valve

4.9.4.2 Remove the Danger Tags and open the following valves:

- _____ • 1-EG-253, 1HA EDG Fuel Oil Pump Suction Isolation Valve
- _____ • 1-EG-255, 1HA EDG Fuel Oil Pump Discharge Isolation Valve
- _____ • 1-EG-276, 1HB EDG Fuel Oil Pump Suction Isolation Valve
- _____ • 1-EG-279, 1HB EDG Fuel Oil Pump Discharge Isolation Valve

4.9.5 Remove Danger Tags from and close the breakers for the EDG Fuel Oil Transfer pumps:

- | | | |
|-------|----|---|
| _____ | SV | • 1-EG-P-1HA, 1-EE-BKR-1H1-4 A1, 1H EDG Fuel Transfer Pump (Emerg. Swgr. Room) |
| _____ | SV | • 1-EG-P-1HB, 1-EE-BKR-1H1-2N C1, 1H EDG Fuel Oil Backup Trans Pump Ckt Bkr (Cable Vault) |

4.9.6 Place the control switches for the Fuel Oil Transfer pumps to "AUTO".

- | | | |
|-------|-------|--------------|
| _____ | _____ | • 1-EG-P-1HA |
| _____ | _____ | • 1-EG-P-1HB |

4.9.7 Place the Control switch for the DC Fuel Oil pump to "Manual" for several minutes to fill the Fuel System, THEN return the switch to "AUTO".

4.9.8 Verify that the Control switch for the DC Fuel Oil pump is in AUTO.

NOTE: Section 4.6 must also be completed to return the EDG to service.

Completed: _____ Date: _____

Verified By: _____ Date: _____

4.10 Returning Emergency Diesel Generator 1-EE-EG-1H to Service After Generator Maintenance

_____ 4.10.1 Verify required EDG Electrical maintenance has been completed.

_____ 4.10.2 Review Precautions and Limitations.

_____ 4.10.3 IF 1-EG-BC-2, 1H Emergency Diesel Gen Battery Charger, was removed
from service, THEN perform the following:

_____ SV a. Remove Danger Tag and close 1-EE-BKR-1H1-1A A2L, 1H Emerg Diesel
Generator Battery Chgr 2 Ckt Bkr 1-EG-BC-2.

b. At 1-EG-BC-2, 1H Emergency Diesel Gen Battery Charger, do the
following:

_____ SV 1. Remove Danger Tag and close the DC Output Circuit Breaker.

_____ SV 2. Close the AC Input Circuit Breaker.

_____ SV 4.10.4 At 1-EP-CB-136 (A.C. Circuit Breaker Panel behind 1-EE-EG-01A in
the Diesel Room), remove Danger Tag and close CB-5, Generator
Space Heater 1H.

_____ SV 4.10.5 IF required, THEN remove Danger Tags and have the Electrical
Department replace Potential Transformer fuses in back of Regulator
Control Panel (1-EE-EG-01C).

4.10.6 Remove Danger Tags and have the Electrical Department replace fuses located in Control Power Panel (1-EE-EG-01B). Mark N/A any fuses that were NOT removed:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

- 1-EE-EG-1B FU-1N, (10 Amp) Start Ckt #1 (PNO-B8)
- 1-EE-EG-1B FU-1E, (10 Amp) Start Ckt #1 (PEO-B8)
- 1-EE-EG-1B FU-2N, (10 Amp) Start Ckt #1 (NNO-B10)
- 1-EE-EG-1B FU-2E, (10 Amp) Start Ckt #1 (NEO-B8)
- 1-EE-EG-1B FU-3N, (10 Amp) Start Ckt #2 (PNO-B5)
- 1-EE-EG-1B FU-3E, (10 Amp) Start Ckt #2 (PEO-B5)
- 1-EE-EG-1B FU-4N, (10 Amp) Start Ckt #2 (NNO-B6)
- 1-EE-EG-1B FU-4E, (10 Amp) Start Ckt #2 (NEO-B5)
- 1-EE-EG-1B FU-5N, (10 Amp) Stop Ckt #1 (PNO-B6)
- 1-EE-EG-1B FU-5E, (10 Amp) Stop Ckt #1 (PEO-B6)
- 1-EE-EG-1B FU-6N, (10 Amp) Stop Ckt #1 (NNO-B6)
- 1-EE-EG-1B FU-6E, (10 Amp) Stop Ckt #1 (NEO-B6)
- 1-EE-EG-1B FU-7N, (10 Amp) Stop Ckt #2 (PNO-B6)
- 1-EE-EG-1B FU-7E, (10 Amp) Stop Ckt #2 (PEO-B6)
- 1-EE-EG-1B FU-8N, (10 Amp) Stop Ckt #2 (NNO-B4)
- 1-EE-EG-1B FU-8E, (10 Amp) Stop Ckt #2 (NEO-B6)

4.10.7 Remove Danger Tags and have the Electrical Department replace the fuses located in the Regulator Control Panel (1-EE-EG-01C). Mark N/A any fuses that were NOT removed:

- | | | |
|-------|-------|---|
| _____ | _____ | • 1-EE-EG-1C FU-1, (two 6 Amp) Emer Gen 1H Regulator Cont Ckt |
| _____ | _____ | • 1-EE-EG-1C FU-2, (6 Amp) Emer Gen 1H Regulator Cont Ckt |
| _____ | _____ | • 1-EE-EG-1C FU-14, (15 Amp) Pwr Dist. Ckt. (1EGSH09) |
| _____ | _____ | • 1-EE-EG-1C FU-15, (15 Amp) Pwr Dist. Ckt. (1EGSH09) |
| _____ | _____ | • 1-EE-EG-1C FU-6NA, (15 Amp) Field Flash Excit. Ckt |
| _____ | _____ | • 1-EE-EG-1C FU-6EA, (15 Amp) Field Flash Excit. Ckt |
| _____ | _____ | • 1-EE-EG-1C FU-7NA, (15 Amp) Field Flash Excit. Ckt |
| _____ | _____ | • 1-EE-EG-1C FU-7EA, (15 Amp) Field Flash Excit. Ckt |
| _____ | _____ | • 1-EE-EG-1C FU-1NA, (6 Amp) Spd/Load Cntrl (TJ-5) CNO |
| _____ | _____ | • 1-EE-EG-1C FU-1EA, (6 Amp) Spd/Load Cntrl (TJ-4) CEO |
| _____ | _____ | • 1-EE-EG-1C FU-2NA, (6 Amp) Spd/Load Cntrl (TJ-1) ANO |
| _____ | _____ | • 1-EE-EG-1C FU-2EA, (6 Amp) Spd/Load Cntrl (TJ-2) AEO |
| _____ | _____ | • 1-EE-EG-1C FU-12, (30 Amp) Gen Field Excitation |
| _____ | _____ | • 1-EE-EG-1C FU-13, (30 Amp) Gen Field Excitation |
| _____ | _____ | • 1-EE-EG-1C FU-16, (15 Amp) EDG Annunciator Panel |
| _____ | _____ | • 1-EE-EG-1C FU-17, (15 Amp) EDG Annunciator Panel |
| _____ | _____ | • 1-EE-EG-1C FU-18N, (15 Amp) Gen Volt Reg Ckt (TH-7) PNO |
| _____ | _____ | • 1-EE-EG-1C FU-18E, (15 Amp) Gen Volt Reg Ckt (TH-8) PEO |
| _____ | _____ | • 1-EE-EG-1C FU-19N, (15 Amp) Gen Volt Reg Ckt (TH-11) NOO |
| _____ | _____ | • 1-EE-EG-1C FU-19E, (15 Amp) Gen Volt Reg Ckt (TH-10) NEO |

NOTE: Section 4.6 must also be completed to return the EDG to service.

Completed: _____ Date: _____

Verified By: _____ Date: _____

ATTACHMENT 1

Page 1 of 2

SURVEILLANCE LOG (NON-ROUTINE)
IN MODES 1-4

NOTE: IF the EDG became inoperable due to pre planned preventative maintenance or testing, THEN NO OPERABILITY testing is required. Refer to T.S. 3.8.1.1.

1. IF one offsite circuit AND one EDG is inoperable, THEN demonstrate the operability of the remaining OPERABLE EDG by performing Surveillance Requirements of T.S. 4.8.1.1.2.a.4 within 8 hours.
 - 1.1 Record time and date EDG declared inoperable _____.
 - 1.2 Record time and date offsite circuit inoperable _____.
 - 1.3 Record time EDG tested sat to prove operability _____.
2. IF one EDG is inoperable and the EDG became inoperable due to any cause other than pre-planned preventative maintenance or testing, THEN demonstrate its operability by performing Surveillance Requirements of T.S. 4.8.1.1.2.a.4 within 24 hours. This test is required to be completed regardless of when the inoperable EDG is restored to OPERABILITY.
 - 2.1 Record time and date EDG declared inoperable _____.
 - 2.2 Record time and date EDG tested sat to prove operability
_____.

ATTACHMENT 1

Page 2 of 2

SURVEILLANCE LOG (NON-ROUTINE)
IN MODES 1-4

3. Record the Offsite Circuit verification using the following chart:

REQUIRED TIME (hrs.)	1-PT-80 SAT/UNSAT	INITIALS
0		
8		
16		
24		
32		
40		
48		
56		
64		
72		

4. IF the Diesel has NOT been repaired at this time (72 hrs.), THEN be in hot standby in the next six (6) hours and in Cold Shutdown within the following 30 hours.
5. IF BOTH EDGs are inoperable, THEN restore one of the inoperable EDGs to OPERABLE status within two (2) hours OR be in at least hot standby within the next 6 hours and in Cold Shutdown within the following 30 hours. Refer to T.S. 3.8.1.1.

IN MODES 5 AND 6

No additional surveillance is required.

Attachment 4
Configuration Risk Matrix
North Anna Units 1 and 2

ENGINEERING TRANSMITTAL

STD-GN-0041

POW 14

To: Mr. G. E. Marshall NAPS

Nuclear Analysis and Fuel

From: T. P. John, IN3SW

October 13, 1997 QA Cat SR

Engineering Transmittal NAF-97-0024, Rev 26
On-Line Maintenance Configuration Matrix
North Anna Power Station Units 1 & 2
Key Words: MRule Evaluation, NAPS, PSA

Source Documents:

Verbal request from Mr. G. E. Marshall, NAPS, Supervisor Scheduling.

References

- 1) Engineering Transmittal NAF-96-0204, Rev. 1 "PSA Risk Significant Equipment and PSA Recommended Performance Criteria for the 10CFR50.65 Maintenance Rule Program, North Anna Power Station Units 1 and 2".
- 2) Engineering Transmittal CEP-970018, Rev. 0 "Maintenance Rule Scoping and Performance Criteria Matrix, North Anna power Station Units 1&2".
- 3) Engineering Transmittal NAF-97-0191, Rev. 0 "On-Line Maintenance Risk Significant Functional Equipment Group Data North Anna Power Station Units 1 & 2"
- 4) Engineering Transmittal NAF-97-0192, Rev. 0 "On-Line Maintenance Configuration Matrix for Outages North Anna Units 1&2".

Changes From Last Revision

Added text to the row in the configuration matrix on page 43 clarifying the risk color of the stub buses.

Program Effects

This evaluation is generated as part of the Maintenance Rule program.

Purpose

Nuclear Analysis and Fuel (NAF) is responding to requests to evaluate the risk associated with On-Line Maintenance(OLM) configurations which were not previously analyzed. This ET provides the results of the evaluations in the attached Configuration Matrix.

Method

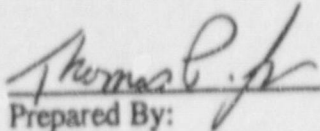
The North Anna PSA model was requantified to support the previous configuration requests. This ET utilizes the risk achievement worth ranking results from those evaluations to be the basis for developing the Configuration Matrix included in the attached matrix. It should be noted that the impact of OLM for PSA initiating events modeled with fault trees is not evaluated for most cases at this time. Altering the current model to replace these single basic initiators with detailed initiator fault trees is a major model revision. However, for the one header operation of SW and the unavailability of two normal SW pumps, the basic event representing the loss of SW initiating event was modified. In addition, the impact of on-line maintenance on other initiating event frequencies were evaluated by decreasing the AOT by a conservative factor.

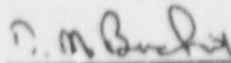
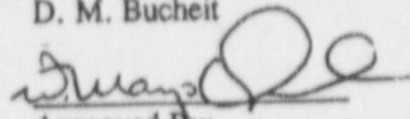
Conclusion

The Configuration Matrix may be used to as a tool for risk informed maintenance during operating modes 1 and 2. The risk information is only based on the FEGs included in each Configuration, plus one additional FEG, being unavailable. It is assumed that all other risk significant FEGs identified by ET NAF-97-0191(ref. 3) are operable. It is recommended that defense in depth is maintained for all non risk significant FEGs which can be used to mitigate core damage or off-site dose release. Defense in depth means that no more than one in a redundant series of equipment is removed from service (e.g., one out of four channels, or one out of three trains).

The risk recommended allowed outage time for each Configuration are intended only as a means to understand the relative risk level during the maintenance configuration. Currently, maintenance risk is limited to an acceptable level by conformance to the Maintenance Rule unavailability performance criteria established in ET CEP-970018(ref. 2).

Contact Mr. Thomas John at (8-730-2274) with any questions or if you need additional information.


Prepared By:
T. P. John


Reviewed By:
D. M. Bucheit

Approved By:
W. M. Oppenheimer

Attachments:

- Attachment 1 Configuration Matrix Guidelines
- Attachment 2 Configuration Matrix

CC: Mr. E. S. Grecheck NAPS
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Attachment 1

Configuration Matrix Guidelines

Configuration

A configuration is a group of Function Equipment Groups (FEGs) which are simultaneously out of service. When possible, each configuration is generalized to represent multiple possible combinations of similar FEGs. For example a Configuration may be "one CC heat exchanger, 1/2-CC-E-1A/B, and one Charging Pump, 1/2-CH-P-1A/B/C". This means that any one of four CC heat exchangers is unavailable simultaneously with any one of six Charging Pumps. A conservative bounding risk analysis was actually performed utilizing the combination of any CC heat exchanger with any Charging pump which will provide the worst case risk.

Also, in order to ensure that the different combinations of FEGs that can be removed from service with the plant configuration expressed in this format, the components in the Red, Orange, and Yellow columns have been conservatively listed. For example, in case 970316F on page 15, the plant configuration contains 1/2-EE-EG-1J/2J in addition to the standard CC HX, and one CH pump from each unit. For this plant configuration, the components listed in the Unit 1 row are for when the 1J EDG is unavailable. The components listed in the Unit 2 row are for when the 2J EDG is unavailable. For the risk impact on Unit 1 due to the 2J EDG being unavailable, the components listed in the Unit 1 row should be consulted. This is a conservative approach to assessing the impact on the opposite unit since some of the components listed in the Unit 1 row are for when the 1J EDG is unavailable. If this conservatism creates a problem, then contact PSA for further guidance.

Configuration Matrix

Attachment 2 contains the OLM Configuration Matrix which provides a risk informed approach to on-line maintenance configurations. All equipment groupings into FEGs are provided in ET NAF-970191(ref. 3) are to be utilized.

How To Use The Configuration Matrix

The Configuration Matrix presents the risk recommended allowed outage time (AOT) for combinations of FEGs. To use the matrix follow these steps:

- Find a configuration in the left column representing FEGs which will be removed from service.
- The second column provides the risk recommended AOT for that Configuration for each unit based on solution of the PSA model. The risk recommended AOT for the opposite unit is conservatively estimated to be the same as the evaluated unit. If a conflict exists between the AOT value provided in this column with any AOT value reported in the right four

Attachment 1

Configuration Matrix Guidelines

columns for a similar configuration, the AOT value should be based on the AOT value of the second column since it is considered to be the most accurate.

- The risk information(CDF, AOT & color) for each configuration in the left column is determined using conservative configurations that bound all of the different combinations of unit 1 and 2 FEGs in the listed configuration. The evaluated configurations shown in the left column are actually for all unit 1 FEGs(except for common FEGs in some configurations) even though the mark numbers are generalized for either unit FEGs. The risk information is the same if the configuration was all unit 2 FEGs. If there is a combination of Unit 1 and 2 FEGs unavailable, then the CDF and AOT for unit 1 and 2 would be different, but they are bounded by what is shown in the second column in the matrix.
- Examination of the final four columns in that same row identify risk recommended AOTs and risk color for the configuration represented by that row with any other FEG. Look up the FEGs which fall into the Red, Orange, Yellow and Green FEGs categories in ET NAF-970191(ref. 3).

Keep in mind that the FEGs assigned to these last four columns were assigned based on all of the FEGs in the configuration in the first column being all unit 1 FEGs. If there is a combination of unit 1 and 2 FEGs unavailable, the risk color may appear to be overly conservative for one of the units in some configurations. If this creates a work scheduling problem, then contact NAF and a computer run of that specific configuration will be made and entered in the matrix. If conflicting durations are indicated by the matrix, the more conservative(i.e. shortest) should be used until an evaluation is performed.

If a configuration contains one FEG in a series, then the final four columns in the matrix may also list the same series. This is to be interpreted as the FEGs shown in the final four columns as being the remaining FEGs not considered part of the original configuration. For example, the configurations which contain one CC heat exchanger, 1/2-CC-E-1A/B, is included in the 1st column and repeated in the "orange" risk columns. This means that one of the four heat exchangers is included in the configuration and that a second CC heat exchanger being removed from service places the unit into a "orange" risk level. It is acceptable to consider a configuration as a bounding analysis for any other configuration with fewer FEGs removed from service (e.g., the configuration of "one CC heat exchanger, one Charging Pump and one SW header" may be applied to "one Charging pump and one SW header"). It is not acceptable to utilize the matrix to combine configurations with other configurations.

Attachment 1

Configuration Matrix Guidelines

Risk Recommended Allowed Outage Time

The risk recommended AOT is calculated based on maintaining a core damage probability for each configuration of less than $1E-6$. The risk used in the calculation is the change in risk from the baseline risk when no equipment is unavailable, to the risk when all equipment in the configuration is unavailable.

Red FEGs and Combinations of FEGs

The "Red" risk category represents equipment configurations that have risk recommended AOT less than or equal to 24 hours, which correspond to a core damage frequency of greater than $1E-3$ /year. All of these configurations should be avoided without very conservative preplanning. This preplanning should include at the minimum a PSA evaluation by Nuclear Analysis & Fuel (NAF).

Some equipment is so risk significant that it results in a $CDF > 1E-3$ /year when it is the only equipment unavailable. Rows representing this highly risk significant equipment has a special indication that CDF is $> 1E-3$.

Orange FEGs and Combinations of FEGs

The "Orange" risk category represents equipment configurations which have a risk recommended AOT greater than 24 hours and less than or equal to 72 hours. These combinations may be removed from service, but because of the short risk recommended AOT, it would be prudent to emphasize preplanning for these configurations to ensure minimizing the total time in this configuration. Maintenance should be performed continuously when practical until the risk configuration returns to "Green". Management updates on maintenance progress are recommended once per shift.

Yellow FEGs and Combinations of FEGs

The "Yellow" risk category represents equipment configurations which have a risk recommended AOT greater than 72 hours and less than or equal to 168 hours. These combinations may be removed from service, but because of the short risk recommended AOT, it would be prudent to emphasize preplanning for these configurations to ensure minimizing the total time in this configuration. Maintenance should be performed continuously when practical until the risk configuration returns to "Green". Management updates on maintenance progress are recommended approximately once every 24 hours.

Attachment 1

Configuration Matrix Guidelines

Green FEGs and Combinations of FEGs

The "Green" risk category represents equipment configurations which have a risk recommended AOT greater than 168 hours. These combinations may be removed from service at any time. When one or more risk significant FEGs is unavailable, management updates on maintenance progress are recommended approximately once every 24 hours. These maintenance updates should include remaining time for the configuration based on risk recommended AOT and time remaining until the MRule performance criteria is exceeded. Most FEGs are in the green risk category.

Defense-In-Depth

The Configuration Matrix only provides the probabilistic safety assessment perspective for removing equipment from service for testing and maintenance. There are many other perspectives which must be taken into account when equipment becomes unavailable during power operation. Technical Specifications, design basis documents, and other program guidelines provide perspectives concerning equipment unavailability combinations which need to be taken into account. It is recommended that a deterministic approach toward defense in depth should be taken at all times. Redundancy in equipment and functions should be maintained at the highest possible levels at all times by minimizing equipment unavailability combinations which reduce defense in depth.

Risk Recommended AOTs and MRule Unavailability Performance Criteria

There is the potential for conflicting information from the risk recommended AOTs and the MRule unavailability performance criteria. A configuration AOT may have a limit of 36 days and the MRule performance criteria for a FEG may be 18 days/year. The risk recommended AOT is specific to each configuration. To ensure that risk remains at an acceptable level, the MRule Program has established unavailability performance criteria for each Maintenance Rule RS FEG as defined in the scoping and performance matrix in ET CEP-970018(ref. 2). When scheduling maintenance, the most limiting of both risk limits, configuration recommended AOT and MRule unavailability performance criteria, should be followed. When considering the unavailability performance criteria, it is important to examine the unavailability accumulated during the proceeding 12 months to ensure that the performance criteria will not be exceeded. In the above example of an unavailability performance criteria of 18 days/year, if the unavailability accumulated during the past 12 months is 13 days, then the most limiting unavailability duration becomes the 5 days remaining before the performance criteria is exceeded.

Attachment 1

Configuration Matrix Guidelines

Removing Risk Significant Equipment from Service During Modes 1 & 2

During Modes 1 and 2 it is possible to minimize risk of core damage and off-site dose consequence by limiting the equipment removed from service due to testing or maintenance. The current guideline for on-line maintenance is to remove only one PSA risk significant FEG from service at a time unless evaluated by NAF. To ensure compliance with this guideline the table of OLM RS FEGs in ET NAF-970191(ref. 3) provides the risk level for each risk significant FEG can be utilized.

Removing Risk Significant Equipment from Service When One Unit is in Mode 3 to 6

When only one unit is in Mode 1 and 2 and the other unit is in Mode 3 or 4, then the units are still limited to only one risk significant FEG out of service unless evaluated by NAF. The attached configuration matrix can be used to assess the risk of the unit in mode 3 or 4 as long as all mode 1 and 2 Technical Specification LCO's are still applicable. A qualitative assessment may also be required to fully assess the risk of the specific configurations while in mode 3 or 4 or when less restrictive LCO's are applicable.

Since there is no PSA model for a shutdown unit in mode 5 or 6, consult the shutdown risk assessment performed by the Station Nuclear Safety group for risk levels of the shutdown unit. For risk evaluations of the operating unit while the other unit is shutdown, refer to the configuration matrix for outages in ET NAF-970192(ref. 4)

The FEGs common to both units are considered available to the operating unit. The operating Unit should take into account the impact of all risk significant FEGs including FEGs common to both units.

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
No Equipment Out of Service {TM-0}	Unit 1: Green 365 Days CDF = 3.846E-5	U1 Red FEGs	U1 Orange FEGs	U1 Yellow FEGs	U1 Green FEGs
	Unit 2: Green 365 Days CDF = 3.846E-5	U2 Red FEGs	U2 Orange FEGs	U2 Yellow FEGs	U2 Green FEGs
U1 CH Pump: 1-CH-P-1A/B/C U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U2 CH Pump: 2-CH-P-1A/B/C {970316A}	Unit 1: Green 365 Days CDF = 3.876E-5	U1 Red FEGs	U1 Orange FEGs 1/2-CC-E-1A/B	U1 Yellow FEGs	U1 Green FEGs
	Unit 2: Green 365 Days CDF = 3.876E-5	U2 Red FEGs	U2 Orange FEGs 1/2-CC-E-1A/B	U2 Yellow FEGs	U2 Green FEGs

OLM CONFIGURATION MATRIX North Area Units 1 & 2					
Configuration		Configuration + One FEC			
FEC Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C SW Header A (1-SW-P-1A, 2-SW-P-1B)	Unit 1: Green 27 Days CDF = 5.192E-5	U1 Red FECs 1-EE-MCC-1H1-2S 1-SW-HEADER-B 1-SW-P-1B 2-SW-P-1A	U1 Orange FECs U1 Yellow FEC 1/2-CC-E-1A/B 1-RS-E-1A/B 1-RS-E-1C/D	1-EE-EG-1H/J 1-FW-P-2 1-FW-P-3A/B 1/2-CH-P-1A/B/C 1/2-1A-C-1 1-SI-TK-2 2-EE-EG-2H/J 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1 2-EE-SS-2H/J 2-EE-SS-2H1/J1	U1 Green FECs
	Unit 2: Green 27 Days CDF = 5.192E-5	U2 Red FECs 2-EE-MCC-2H1-2S 1-SW-HEADER-B 1-SW-P-1B 2-SW-P-1A	U2 Orange FECs U2 Yellow FEC 1/2-CC-E-1A/B 2-RS-E-1A/B 2-RS-E-1C/D	1-EE-EG-1H/J 1/2-CH-P-1A/B/C 1/2-1A-C-1 2-EE-EG-2H/J 2-FW-P-2 2-FW-P-3A/B 2-SI-TK-2 1-EE-MCC-1H1-1 1-EE-MCC-1J1-1 1-EE-SS-1H/J 1-EE-SS-1H1/J1	U2 Green FECs

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG	Unit Specific PSA AOT	"Red"	"Orange"	"Yellow"	"Green"
Description / Mark Numbers	CDF	Not Acceptable Equipment Combinations 0 Hours	Equipment Combinations Acceptable for 24 Hours	Equipment Combinations Acceptable for 3 Days	Equipment Combinations Acceptable for 7 Days
{PSA Run number}					
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C SW Header B (1-SW-P-1B, 2-SW-P-1A)	Unit 1: Green 27 Days CDF = 5.192E-5	U1 Red FEGs 1-EE-MCC-1H1-2S 1-SW-HEADER-A 1-SW-P-1A 2-SW-P-1B	U1 Orange FEGs U1 Yellow FEG 1/2-CC-E-1A/B 1-RS-E-1A/B 1-RS-E-1C/D	1-FW-P-2 1-FW-P-3A/B 1-EE-EG-1H/1 1-SI-TK-2 1/2-CH-P-1A/B/C 1/2-1A-C-1 2-EE-EG-2H/1 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1 2-EE-SS-2H/1 2-EE-SS-2H1/11	U1 Green FEGs
	Unit 2: Green 27 Days CDF = 5.192E-5	U2 Red FEGs 2-EE-MCC-2H1-2S 2-SW-HEADER-A 1-SW-P-1A 2-SW-P-1B	U2 Orange FEGs U2 Yellow FEG 1/2-CC-E-1A/B 2-RS-E-1A/B 2-RS-E-1C/D	1-EE-EG-1H/1 1/2-CH-P-1A/B/C 1/2-1A-C-1 2-EE-EG-2H/1 2-FW-P-2 2-FW-P-3A/B 2-SI-TK-2 1-EE-MCC-1H1-1 1-EE-MCC-1J1-1 1-EE-SS-1H/1 1-EE-SS-1H1/11	U2 Green FEGs
{970316C}					

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Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C 1-MS-TCV-1408A/2-MS-TCV-2408A 1-MS-TCV-1408B/2-MS-TCV-2408B	Unit 1: Green 32 Days CDF = 4.97E-5	U1 Red FEGs 1-EP-CB-4A/C	U1 Orange FEGs 1/2-CC-E-1A/B	U1 Yellow FEGs 1/2-CH-P-1A/B/C 1-EP-CB-4B 1-FW-P-2 1-FW-P-3A/B 1-MS-PCV-101A/B	U1 Green FEGs
	Unit 2: Green 32 Days CDF = 4.97E-5	U2 Red FEGs 2-EP-CB-4A/C	U2 Orange FEGs 1/2-CC-E-1A/B	U2 Yellow FEGs 1/2-CH-P-1A/B/C 2-EP-CB-4B 2-FW-P-2 2-FW-P-3A/B 2-MS-PCV-201A/B	U2 Green FEGs

{970316D}

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C 1/2-EE-EG-1H/2H (970316E/G)	Unit 1: Green 11 Days CDF = 7.066E-5	U1 Red FEGs 1-EE-EG-1H/J 1-EE-MCC-1H1-2S 1-EP-SW-1D/E/F 1-FW-P-3B 2-EE-EG-2H/J 2-EE-SS-2H/J 2-EE-SS-2H1/J1 2-EP-CB-12A/C 1/2-IA-C-1* *1-IA-C-1 while 2H EDG is OOS. 2-IA-C-1 while 1H EDG is OOS.	U1 Orange FEGs U1 Yellow FEG 0-AAC-DG-0M 1/2-CC-E-1A/B 1-FW-P-2 1-FW-P-3A	1/2-CH-P-1A/B/C 1-EP-BUS-1/2 1-EP-BUS-3/4 1-EP-RST-1A/B/C 1-RC-PCV-1455C 1-RC-PC-1-1456 1-SI-TK-2 2-EE-MCC-2H1-2N 2-EE-MCC-2J1-2N 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1 1/2-IA-C-1** **1-IA-C-1 while 1H EDG is OOS. 2-IA-C-1 while 2H EDG is OOS.	U1 Green FEGs

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Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG	Unit Specific PSA AOT	"Red"	"Orange"	"Yellow"	"Green"
Description / Mark Numbers		Not Acceptable	Equipment	Equipment	Equipment
(PSA Run number)	CDF	Combinations	Combinations	Combinations	Combinations
		0 Hours	Acceptable for 24 Hours	Acceptable for 3 Days	Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C 1/2-EE-EG-1H/2J	Unit 1: Green 11 Days CDF = 7.069E-5	U1 Red FEGs 1/2-CC-E-1A/B 1-EE-EG-1H/1J 1-EE-MCC-1H1-2S 1-EP-SW-1D/E/F 1-FWP-3A 1-EP-C3-4A/C 1 RH System 2-EE-EG-2H/J 2-EE-SS-2H/J 2-EE-SS-2H1/J1 2-EP-CB-12A/C	U1 Orange FEGs U1 Yellow FEG 0-AAC-DG-0M 1-EP-BUS-1/2 1-EP-BUS-3/4 1-FW-P-2 1-FW-P-3B 1-RC-PCV-1455C 1-RC-PCV-1456	U2 Yellow FEGs 1/2-CH-P-1A/B/C 1-EP-RST-1A/B/C 1/2-1A-C-1 1-SI-MOV-1867A 1-SI-MOV-1867C 1-SI-TK-2 2-EE-MCC-2J1-2N 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1	U1 Green FEGs
	Unit 2: Green 11 Days CDF = 7.069E-5	U2 Red FEGs 1/2-CC-E-1A/B 1-EE-EG-1H/1J 1-EP-SW-1D/E/F 2-EE-MCC-2H1-2S 2-FWP-3A 2-EE-EG-2H/J 2-EP-CB-4A/C 2 RH System 1-EE-SS-2H/J 1-EE-SS-2H1/J1 1-EP-CB-12A/C	U2 Orange FEGs U2 Yellow FEG 0-AAC-DG-0M 1-EP-BUS-1/2 1-EP-BUS-3/4 2-FW-P-2 2-FW-P-3C 2-RC-PCV-2455C 2-RC-PCV-2456	U1 Yellow FEG 1/2-CH-P-1A/B/C 1-EP-RST-1A/B/C 1/2-1A-C-1 2-SI-TK-2 2-SI-MOV-2867A 2-SI-MOV-2867C 2-SI-TK-2 1-EE-MCC-1J1-2N 1-EE-MCC-1H1-1 1-EE-MCC-1J1-1	U2 Green FEGs
(970316F)					

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG	Unit Specific PSA AOT	"Red"	"Orange"	"Yellow"	"Green"
Description / Mark Numbers		Not Acceptable Equipment Combinations	Equipment Combinations Acceptable for	Equipment Combinations Acceptable for	Equipment Combinations Acceptable for
{PSA Run number}	CDF	0 Hours	24 Hours	3 Days	7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C 1/2-IA-C-1	Unit 1: Green 9 Days CDF = 7.526E-5	U1 Red FEGs U2 Yellow FEG 1-EP-SW-1D/E/F 2-EE-MCC-2H1-2S 2-EE-SS-2H 2-EE-SS-2H1 2-EP-CB-12A/C 1/2-IA-C-1 1SA System 1/2-EE-EG-1H/2H*	U1 Orange FEGs U1 Yellow FEG 0-AAC-DG-0M 1-FW-P-2 1/2-CC-E-1A/B 1/2-CH-P-1A/B/C 2-EE-EG-2J 2-EE-SS-2J 2-EE-SS-2J1 2-EE-MCC-2J1-1	1/2-EE-EG-1J/2J 1-EP-BUS-1/2 1-EP-BUS-3/4 1-FW-P-3A/B 1-RC-PCV-1455C 1-RC-PCV-1456 1-SI-TK-2 1/2-SA-C-1 SW Header -A/B 1/2-EE-EG-1H/2H**	U1 Green FEGs
{970315/J}		*1H EDG while 2-IA-C-1 is OOS. 2H EDG while 1-IA-C-1 is OOS		**1H EDG while 1-IA-C-1 is OOS. 2H EDG while 2-IA-C-1 is OOS.	

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Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-F-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C PT-36.9.1H (1/2-EE-EG-1H/2H; 1/2-SW-P-3A; 1/2-CC-P-1A; 1/2-RS-1A/2/3; 1-SW-P-1A)	Unit 1: Yellow 6 Days CDF = 9.891E-5	U1 Red FEGs 1-EE-EG-1H/J 1-EE-MCC-1H1-2S 1-EE-SW-1D/E/1F 1-FW-P-2 1-FW-P-3B 1SA System 1SW-HEADER-B 2-EE-EG-2H/J 2-EE-SS-2H/2J 2-EE-SS-2H1/J1 2-EP-CB-12A/C 1/2-IA-C-1*	U1 Orange FEGs U1 Yellow FEG 0-AAC-DG-0M 1/2-CC-E-1/J 1/2-CC-P-1b 1/2-CH-P-1A/B/C 1-EE-SW-1J STUP 1-RC-E-1A/B/C 1-RC-PCV-1455C 1-RC-PCV-1456 1-SI-TK-2	U1 Green FEGs 2-EE-MCC-2H1-2N 1/2-IA-C-1**	No FEGs
(970316K)		*1-IA-C-1 During 2-PT-36.9.1H 2-IA-C-1 During 1-PT-36.9.1H		**1-IA-C-1 During 1-PT-36.9.1H 2-IA-C-1 During 2-PT-36.9.1H	

Attachment 2

CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C PT-36.9.1H (1/2-EE-EG-1H/2H; 1/2-FW-P-3A; 1/2-CC-P-1A; 1/2-RS-P-1A/2/3; 1-SW-P-1A) (970316K)	Unit 2: Yellow 6 Days CDF = 9.891E-5	U2 Red FEGs 1-EE-EG-1H/J 1-EE-SW-1DE/F 2-EE-MCC-2H1-2S 2-FW-P-2 2-FW-P-3B 2-EE-EG-2H/J 2SA System 1-EE-SS-1H/J 1-EE-SS-1H1/J1 1-EP-CB-12A/C 1SW-HEADER-B 1/2-IA-C-1* *1-IA-C-1 During 2-PT-36.9.1H 2-IA-C-1 During 1- PT-36.9.1H	U2 Orange FEGs U2 Yellow FEG 0-AAC-DG-0M 1/2-CC-E-1A/B 1/2-CC-P-1B 1/2-CH-P-1A/B/C 2-EE-SW-2J STUB 2-RC-E-1A/B/C 2-RC-PCV-2455C 2-RC-PCV-2456 2-SI-TK-2	U2 Green FEGs 1-EE-MCC-1H1-2N 1/2-IA-C-1** **1-IA-C-1 During 1-PT-36.9.1H 2-IA-C-1 During 2- PT-36.9.1H	No FEGs

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG	Unit Specific PSA AOT	"Red" Not Acceptable Equipment Combinations	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
Description / Mark Numbers {PSA Run number}	CDF	0 Hours			
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C PT-36.9.1J (1/2-EE-EG-1J/2J; 1/2-FW-P-3B; 1/2-CC-P-1B; 1/2-RS-P-1A/B/C, 1-SW-P-1B)	Unit 1: Yellow 6 Days CDF = 8.076E-5	U1 Red FEGs 1-EE-EG-1H/J 1-EE-SW-1D/E/F 1-FW-P-2 1-FW-P-3A 1SA System 1SW-HEADER-A 2-EE-EG-2H/J 2-EE-SS-2H/J 2-EE-SS-2H1/J1 2-EP-CB-12A/C	U1 Orange FEGs U1 Yellow FEG 0-AAC-DG-0M 1/2-CC-E-1A/B 1/2-CC-P-1A 1/2-CH-P-1A/B/C 1-EE-SW-1H STUB 1-RC-E-1A/B/C 1-RC-PCV-1455C 1-RC-PCV-1456 1-SI-TK-2	U1 Green FEGs 2-EE-MCC-2H1-2N 1/2-IA-C-1	No FEGs
	Unit 2: Yellow 6 Days CDF = 8.078E-5	U2 Red FEGs 1-EE-EG-1H/J 1-EE-SW-1D/E/F 2-FW-P-2 2-FW-P-3A 2-EE-EG-2H/J 2SA System 1-EE-SS-1H/J 1-EE-SS-1H1/J1 1-EP-CB-12A/C 1SW-HEADER-A	U2 Orange FEGs U2 Yellow FEGs 0-AAC-DG-0M 1/2-CC-E-1A/B 1/2-CC-P-1A 1/2-CH-P-1A/B/C 2-EE-SW-2H STUB 2-RC-E-1A/B/C 2-RC-PCV-2455C 2-RC-PCV-2456 2-SI-TK-2	U2 Green FEGs 1-EE-MCC-1H1-2N 1/2-IA-C-1	No FEGs
{970808K}					

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Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C SBO Diesel 1-EE-EG-1H/2H (970318C& 970316E/G)	Unit 1: Orange 33 Hours CDF = 3.011E-4	U1 Red FEGs U1 Orange FEGs U1 Yellow FEG U2 Yellow FEG 1/2-CC-E-1A/B/C 1/2-CH-P-1A/B/C 1-EE-EG-1H/J 1-EP-BUS-1/2 1-EP-BUS-3/4 1-EP-RST-1A/B/C 1-EP-SW-1D/E/1F 1-FW-P-2 1-FW-P-3A/B 1-RC-PCV-1455C 1-RC-PCV-1456 2-EE-EG-2H/J 1/2-1A-C-1 2-EE-MCC-2H1-2S 2-EE-MCC-2J1-1 2-EE-SS-2H/2J 2-EE-SS-2H1/J1 2-EF-CB-12A/C	U1 Green FEGs	No FEGs	No FEGs

Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (FSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C SBO Diesel 1-EE-EG-1H/2H	Unit 2: Orange 33 Hours CDF = 3.011E-4	U2 Red FEGs U2 Orange FEGs U2 Yellow FEG U1 Yellow FEG 1/2-CC-E-1A/B 1/2-CH-P-1A/B/C 1-EE-EG-1H/J 1-EE-MCC-1H1-2S 1-EE-MCC-1J1-1 1-EE-SS-1H/J 1-EE-SS-1H1/J1 1-EP-CB-12A/C 1-EP-BUS-1/2 1-EP-BUS-3/4 1-EP-RST-1A/D/C 1-EE-SW-1D/E/F 2-FW-P-2 2-FW-P-3A/B 2-RC-PCV-2455C 2-RC-PCV-2456 2-EE-EG-2H/J 1/2-1A-C-1	U2 Green FEGs	No FEGs	No FEGs

(970318C& 970316E/G)

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[illegible]

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OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C SBO Diesel 1-EE-EG-1I/2J	Unit 2: Orange 66 Hours CDF = 1.702E-4	U2 RED FEGs U2 Orange FEGs U2 Yellow FEG U1 Yellow FEG 1/-CC-E-1A/B 1/2-CH-P-1A/B/C 1-EE-EG-1H/J 1-EE-SW-1D/E/F 1-EP-BUS-1/2 1-EP-BUS-3/4 2-FW-P-2 2-FW-P-3A/B 2-RC-PCV-2455C 2-RC-PCV-2456 2-EE-EG-2H/J 1/2-1A-C-1 1-EE-MCC-1J1-2S 1-EE-MCC-1H1-1 1-EE-SS-1H1/J 1-EE-SS-1H1/J1 1-EP-CB-12A/C	U2 Green FEGs	No FEGs	No FEGs
(970318D & 970316F)					

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG	Unit Specific PSA AOT	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
Description / Mark Numbers (PSA Run number)	CDF				
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C PT-36.1A (1/2-EE-EG-1H/2H; 1/2-SW-P-1A)	Unit 1: Green 11 Days CDF = 7.070E-5	U1 Red FEGs 1-EE-EG-1H/J 1-EE-MCC-1H1-2S 1-EP-SW-1D/E/F 1-FW-P-3B 1/2-IA-C-1* 2-EE-EG-2H/J 2-EE-SS-2H/J 2-EE-SS-2H1/J1 2-EP-CB-12A/C *1-IA-C-1 During 2-PT-36.1A 2-IA-C-1 During 1-PT-36.1A	U1 Orange FEGs U1 Yellow FEG 0-AAC-DG-0M 1/2-CC-E-1A/B 1-FW-P-2 1-FW-P-3A 1-SW-HEADER-A 1-SW-HEADER-B 1/2-SW-P-1A 1/2-SW-P-1B	U2 Yellow FEG 1/2-CH-P-1A/B/C 1-EP-BUS-1/2 1-EP-BUS-3/4 1-EP-RST-1A/B/C 1/2-IA-C-1** 1-RC-PCV-1455C 1-RC-PCV-1456 1-SI-TK-2 2-EE-MCC-2H1-1 **1-IA-C-1 During 1-PT-36.1A 2-IA-C-1 During 2-PT-36.1A	U1 Green FEGs
	Unit 2: Green 11 Days CDF = 7.070E-5	U2 Red FEGs 1-EE-EG-1H/J 2-EE-MCC-2H1-2S 1-EP-SW-1D/E/F 2-EE-EG-2H/J 2-FW-P-3B 1/2-IA-C-1* 1-EE-SS-1H/J 1-EE-SS-1H1/J1 1-EP-CB-12A/C *1-IA-C-1 During 2-PT-36.1A 2-IA-C-1 During 1-PT-36.1A	U2 Orange FEGs U2 Yellow FEG 0-AAC-DG-0M 1/2-CC-E-1A/B 2-FW-P-2 2-FW-P-3A 1-SW-HEADER-A 1-SW-HEADER-B 1/2-SW-P-1A 1/2-SW-P-1B	U1 Yellow FEG 1/2-CH-P-1A/B/C 1-EE-MCC-1H1-1 1-EP-BUS-1/2 1-EP-BUS-3/4 1-EP-RST-1A/B/C 1/2-IA-C-1** 2-RC-PCV-2455C 2-RC-PCV-2456 2-SI-TK-2 **1-IA-C-1 During 1-PT-36.1A 2-IA-C-1 During 2-PT-36.1A	U2 Green FEGs

{970316M; 970322A}

Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C PT-36.1B (1/2-EE-EG-1H/2J; 1/4-SW-P-1B)	Unit 1: Green 11 Days CDF = 7.070E-5	U1 Red FEGs 1-EE-EG-1H/J 1-EP-SW-1D/E/F 1-FW-P-3A 2-EE-EG-2H/J 2-EE-SS-2H/2J 2-EE-SS-2H1/J1 2-EP-CB-12A/C	U1 Orange FEGs U1 Yellow FEG 0-AAC-DG-0M 1/2-CC-E-1A/B 1-FW-P-2 1-FW-P-3B 1-SW-HEADER-A 1-SW-HEADER-B 1/2-SW-P-1A 1/2-SW-P-1B	U2 Yellow FEG 1/2-CH-P-1A/B/C 1-EP-BUS-1/2 1-EP-BUS-3/4 1-EP-RST-1A/B/C 1/2-1A-C-1 1-RC-PCV-1455C 1-RC-PCV-1456 1-SI-TK-2 2-EE-MCC-2J1-1	U1 Green FEGs
	Unit 2: Green 11 Days CDF = 7.070E-5	U2 Red FEGs 1-EE-EG-1H/J 1-EP-SW-1D/E/F 2-EE-EG-2H/J 2-FW-P-3A 1-EE-SS-1H/J 1-EE-SS-1H1/J1 1-EP-CB-12A/C	U2 Orange FEGs U2 Yellow FEG 0-AAC-DG-0M 1/2-CC-E-1A/B 2-FW-P-2 2-FW-P-3B 1-SW-HEADER-A 1-SW-HEADER-B 1/2-SW-P-1A 1/2-SW-P-1B	U1 Yellow FEG 1/2 CH-P-1A/B/C 1-EE-MCC-1J1-1 1-EP-BUS-1/2 1-EP-BUS-3/4 1-EP-RST-1A/B/C 1/2-1A-C-1 2-RC-PCV-2455C 2-RC-PCV-2456 2-SI-TK-2	U2 Green FEGs

{970316N/M; 970322A}

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C PT-36.5.3A (1-SI-P-1A; 1-RS-P-1A or 2-SI-P-1A & 2-RS-P-1A for Unit 2 case)	Unit 1: Orange 47 Hours CDF = 2.227E-4	U1 Red FEGs U1 Yellow FEG 1/2-CC-E-1A/B 1/2-CH-P-1A/B/C 1-EE-MCC-1H1-2S 1-EP-CB-4A/C 1-SI-P-1B 1-SI-TK-2 1RH System	U1 Orange FEGs U1 Green FEGs	No FEGs	No FEGs
	Unit 2: Orange 47 Hours CDF = 2.227E-4	U2 Red FEGs U2 Yellow FEG 1/2-CC-E-1A/B 1/2-CH-P-1A/B/C 2-EE-MCC-2H1-2S 2-EP-CB-4A/C 2-SI-P-1B 2-SI-TK-2 2RH System	U2 Orange FEGs U2 Green FEGs	No FEGs	No FEGs
{970322B}					

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C PT-36.5.3B (1-SI-P-1B; 1-RS-P-1B or 2-SI-P-1B & 2-RS-P-1B for Unit 2 case) The CDF for the "B" train is slightly less than the "A" train. However, the most limiting AOT was used for both trains.	Unit 1: Orange 47 Hours CDF = 2.076E-4	U1 Red FEGs U1 Yellow FEG 1/2-CC-E-1A/B 1/2-CH-P-1A/B/C 1-EE-MCC-1H1-2S 1-EP-CB-12A/C 1-EP-CB-4A/C 1-SI-P-1A 1-SI-TK-2 1RH System	U1 Orange FEGs U1 Green FEGs	No FEGs	No FEGs
	Unit 2: Orange 47 Hours CDF = 2.076E-4	U2 Red FEGs U2 Yellow FEG 1/2-CC-E-1A/B 1/2-CH-P-1A/B/C 2-EE-MCC-2H1-2S 2-EP-CB-12A/C 2-EP-CB-4A/C 2-SI-P-1A 2-SI-TK-2 2RH System	U2 Orange FEGs U2 Green FEGs	No FEGs	No FEGs
{970618A}					

{970322C}

Attachment 2

Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C 1-SI-P-1A for Unit 1 case and 2-SI-P-1A for Unit 2 case) 1/2-1A-C-1	Unit 2: Orange 39 hours CDF = 2.593E-4	U2 Red FEGs U2 Yellow FEG 0-AAC-DG-0M 1/2-CC-E-1A/B 1/2-CH-P-1A/B/C 1-EE-EG-1H 1-EE-MCC-1H1-2S 2-EP-CB-4A/C 1-EP-SW-1D/E/F 2-FW-P-2 2-SI-P-1B 2-SI-TK-2 1-EE-MCC-1H1-2N 1-EE-MCC-1H1-2S 1-EE-MCC-1J1-1 1-EE-SS-1H 1-EE-SS-1H1 1-EE-SS-1J 1-EE-SS-1J1 1-EP-CB-12A/C 1/2-1A-C-1 2RH System 2SA System	U2 Orange FEGs U2 Green FEGs	No FEGs	No FEGs

(970322C)

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C SBO Diesel	Unit 1: Green 27 Days CDF = 5.155E-5	U1 Red FEGs 1-EE-MCC-1H1-2S	U1 Orange FEGs 1/2-CC-E-1A/B 1-EE-EG-1H/J 1-FW-P-3A/B 1-IA-C-1 2-EE-EG-2H/J 2-EE-SS-2H/J 2-EE-SS-2H1/J1 2-EP-CB-12A/C	U1 Yellow FEG 1/2-CH-P-1A/B/C 1-EP-BUS-1/2 1-EP-BUS-3/4 1-FW-P-2	U1 Green FEGs
	Unit 2: Green 27 Days CDF = 5.155E-5	U2 Red FEGs U2 Orange FEGs	U2 Yellow FEG 1/2-CC-E-1A/B 1-EE-EG-1H/J 1-EE-SS-1H/J 1-EE-SS-1H1/J1 1-EP-CB-12A/C 2-EE-EG-2H/J 2-FW-P-3A/B 2-IA-C-1	1/2-CH-P-1A/B/C 1-EP-BUS-1/2 1-EP-BUS-3/4 2-FW-P-2	U2 Green FEGs
{970322D}					

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Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C PT-44.7 (1-RC-PCV-1455C OR 1-RC-PCV-1456 OR 2-RC-PCV-2455C OR 2-RC-PCV-2456) {970327C}	Unit 1: Green 18 Days CDF = 5.802E-5	U1 Red FEGs	U1 Orange FEGs 1/2-CC-E-1A/B 1-FW-P-3A 1-RC-PCV-1455A 1-RC-PCV-1455C 1-RC-PCV-1456 1-EP-SW-1A	U1 Yellow FEG 1/2-CH-P-1A/B/C 1-FW-P-2 1-FW-P-3B 1/2-IA-C-1 1-SI-TK-2	U1 Green FEGs
	Unit 2: Green 18 Days CDF = 5.802E-5	U2 Red FEGs	U2 Orange FEGs 1/2-CC-E-1A/B 2-FW-P-3A 2-RC-PCV-2455A 2-RC-PCV-2455C 2-RC-PCV-2456 1-EP-SW-1A	U2 Yellow FEG 1/2-CH-P-1A/B/C 2-FW-P-2 2-FW-P-3B 1/2-IA-C-1 2-SI-TK-2	U2 Green FEGs
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C Switchyard (LOOP) {970409}	Unit 1: Yellow 99 Hours CDF = 1.270E-4	U1 Red FEGs 1-EE-EG-1H/J 1-EE-MCC-1H1-2S 1-FW-P-2 1-FW-P-3A/B 1/2-IA-C-1 2-EE-EG-2H/J 2-EE-SS-2H/J 2-EE-SS-2H1/J1 2-EP-CB-12A/C	U1 Orange FEGs U1 Yellow FEG U2 Yellow FEG 0-AAC-DG-0M 1/2-CC-E-1A/B 1/2-CH-P-1A/B/C 1-RC-PCV-1455C 1-RC-PCV-1456 1-SI-TK-2 1/2-IA-C-1 2-EE-MCC-2H1-2S 2-EE-MCC-2J1-1	U1 Green FEGs	No FEGs

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Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C Switchyard (LOOP)	Unit 2: Yellow 99 Hours CDF = 1.270E-4	U2 Red FEGs 1-EE-EG-1H/J 2-EE-MCC-2H1-2S 2-FW-P-2 2-FW-P-3A/B 1/2-IA-C-1 2-EE-EG-2H/J 1-EE-SS-1H/J 1-EE-SS-1H1/J1 1-EP-CB-12A/C	U2 Orange FEGs U2 Yellow FEG U1 Yellow FEG 0-AAC-DG-0M 1/2-CC-E-1A/B 1/2-CH-P-1A/B/C 2-RC-PCV-2455C 2-RC-PCV-2456 2-SI-TK-2 1/2-IA-C-1 1-EE-MCC-1H1-2S 1-EE-MCC-1J1-1	U2 Green FEGs	No FEGs

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Pump: 1/2-CC-P-1A/B U1/2 Chiller: 1/2-HV-E-4A/B/C U1/2 IA Compressor: 1/2-IA-C-1 U1 LHSI Pump or for the case of Unit 2 U2 LHSI Pump (1-SI-P-1A/B or for U2 2-SI-P-1A/B)	Unit 1 Orange 47 Hours CDF = 2.237E-4	U1 Red FEGs U1 Orange FEGs U1 Yellow FEG 1/2-CC-P-1A/B 1-EE-MCC- 1H/STUB BUS 1-FW-P-2 1-FW-P-3A/B 1/2-IA-C-1 1-SI-TK-2 1SA System	U1 Green FEGs	No FEGs	No FEGs
	Unit 2 Orange 47 Hours CDF = 2.237E-4	U2 Red FEGs U2 Orange FEGs U2 Yellow FEG 1/2-CC-P-1A/B 2-EE-MCC- 2H/STUB BUS 2-FW-P-2 2-FW-P-3A/B 1/2-IA-C-1 2-SI-TK-2 2SA System	U2 Green FEGs	No FEGs	No FEGs

{970509A}

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/P U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C U1/2 ESGR Chiller: 1/2-HV-E-4A/B/C {970612A}	Unit 1 Green 365 Days CDF = 3.915E-5	Unit 1 Red FEGs	Unit 1 Orange FEGs 1/2-CC-E-1A/B	Unit 1 Yellow FEGs	Unit 1 Green FEGs
	Unit 2 Green 365 Days CDF = 3.915E-5	Unit 2 Red FEGs	Unit 2 Orange FEGs 1/2-CC-E-1A/B	Unit 2 Yellow FEGs	Unit 2 Green FEGs
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C SBO Diesel Two Unit 1 S/G PORVs: 1-MS-PCV-101A/B/C or Two Unit 2 S/G PORVs: 2-MS-PCV-201A/B/C {970617A}	Unit 1 Yellow 3 Days CDF = 1.593E-4	Unit 1 Red FEGs Unit 1 Orange FEGs Unit 1 Yellow FEGs 1/2-CC-E-1A/B 1-CH-P-1A/B/C 1-EE-EG-1H/1J 2-EE-EG-2H/2J 1-EP-BUS-1/2 1-EP-BUS-3/4 1-MS-PCV-101A 1-MS-PCV-101B 1-MS-PCV-101C 1-SI-TX-2	Unit 1 Green FEGs 2-CH-P-1A/B/C 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1 2-EE-SS-2H/2H1 2-EE-SS 2J/2J1 2-EG-P-2HA/B 2-EG-P-2JA/B 2-EP-CB12A/B/C/D 2-HV-AC-6/7 1/2-1A-C-1	No Unit 1 FEGs 2-HV-E-4A/B/C	No Unit 1 FEGs

Attachment 2

[illegible]

Attachment 2

O&M CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Number (PSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C U1/2 CC Pump: 1/2-CC-P-1A/B 1-RC-PCV-1455A/B or 2-RC-PCV-2455A/B 4" SW Header A/B to CH pumps & IA compressors *The stub bus that powers the available CC pump is Orange. The stub bus that powers the unavailable CC pump is Green.	Unit 1 Green 27 Days CDF = 5.173E-5	Unit 1 Red FEGs Unit 1 Orange FEGs SW Header A/B 1/2-SW-P-1A/B	Unit 1 Yellow FEGs 1/2-CC-E-1A/B 1/2-CC-P-1A/B 1-RC-PCV-1455A/B 1-RC-PCV-1455C 1-RC-PCV-1456 1-SW-MOV-101A-D 1-SW-MOV-108A/B 2-SW-MOV-201A/B 2-SW-MOV-201A-D 1H/J Stub Bus*	1-CH-P-1A/B/C 1-EE-EG-1H/J 2-EE-EG-2H/J 1-FW-P-2/3A/3B 2-EE-MCC-2J1-1 2-EE-MCC-2H1-1 2-EE-SS-2H/2J	Unit 1 Green FEGs
	Unit 2 Green 27 Days CDF = 5.173E-5	Unit 2 Red FEGs Unit 2 Orange FEGs SW Header A/B 1/2-SW-P-1A/B	Unit 2 Yellow FEGs 1/2-CC-E-1A/B 1/2-CC-P-1A/B 1-SW-MOV-101A-D 1-SW-MOV-108A/B 2-RC-PCV-2455A/B 2-RC-PCV-2455C 2-RC-PCV-2456 2-SW-MOV-208A/B 2-SW-MOV-201A-D 2H/J Stub Bus*	1-EE-EG-1H/J 2-EE-EG-2H/J 1-EE-MCC-1J1-1 1-EE-MCC-1H1-1 1-EE-SS-1H/2J 2-CH-P-1A/B/C 2-FW-P-2/3A/3B	Unit 2 Green FEGs
{970714B}					

Attachment 2

OLM CONFIGURATION MATRIX North Area Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-F-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C U1/2 CC Pump: 1/2-CC-P-1A/B U1/2 ESGR Chiller: 1/2-HV-E-4A/B/C One Unit 1 Battery Train and associated charger, DC bus, vital bus and inverter - 1-BY-B-1-III/III/TV 1-BY-BC-1-III/III/TV 1-BY-BC-1C-III 1-EP-CB-4A/B/C/D 1-EP-CB 12A/B/C/D 1-VB-INV-1/2/3/4 (970730A)	Unit 1 Red 6 Hours CDF = 1.311E-4	Unit 1 Red FEGs Unit 1 Orange FEGs Unit 1 Yellow FEGs Unit 1 Green FEGs 2-CH-P-1A/B/C 2-EE-EG 2H/J 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1 2-EE-SS-2H/J 2-EE-SS-2H1/J1 2-EE-SW-2H/J 2-EG-P-2HA/B 2-EG-P-2JA/B 2-EP-CB-12A/C 2-HV-AC-6/7 2-HV-E-4A/B/C 2-IA-C-1	No Unit 1 FEGs	No Unit 1 FEGs	No Unit 1 FEGs
	Unit 2 Green 209 Days CDF = 4.020E-5	Unit 2 Red FEGs	Unit 2 Orange FEGs 2-CC-E-1A/B 2-CC-P-1A/B 2H/J Stub Bus	Unit 2 Yellow FEGs 2-CH-P-1A/B/C	Unit 2 Green FEGs

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C U1/2 CC Pump: 1/2-CC-P-1A/B U1/2 ESGR Chiller: 1/2-HV-E-4A/B/C One Unit 2 Battery Train and associated charger, DC bus, vital bus and inverter - 2-BY-B-2-I/II/III/IV 2-BY-BC-2-I/II/III/IV 2-BY-BC-2C-I/II 2-EP-CB-4A/B/C/D 2-EP-CB-12A/B/C/D 2-VB-INV-1/2/3/4 {970730B}	Unit 1 Green 209 Days CDF = 4.020E-5	Unit 1 Red FEGs	Unit 1 Orange FEGs 1-CC-E-1A/B 1-CC-P-1A/B 1H/J Stub Bus	Unit 1 Yellow FEGs 1-CH-P-1A/B/C	Unit 1 Green FEGs
	Unit 2 Red 6 Hours CDF = 1.311E-4	Unit 2 Red FEGs Unit 2 Orange FEGs Unit 2 Yellow FEGs Unit 2 Green FEGs 1-CH-P-1A/B/C 1-EE-EG-1H/J 1-EE-MCC-1H1-4 1-EE-MCC-1J1-1 1-EE-SS-1H/J 1-EE-SS-1H1/J1 1-EE-SW-1H/J 1-EG-P-1HA/B 1-EG-P-1JA/B 1-EP-CB-12A/C 1-HV-AC-6/7 1-HV-E-4A/B/C 1-IA-C-1	No Unit 2 FEGs	No Unit 2 FEGs	No Unit 2 FEGs

Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit Specific PSA AOT (CDF)	"Red" Net Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C U1/2 CC Pump: 1/2-CC-P-1A/B Two ESGR Chillers: 1/2-HV-E-4A/B/C	Unit 1 Green 85 Days CDF = 4.272E-5	Unit 1 Red FEGs 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1 2-EE-SS-2H/J 2-EE-SS-2H1/J1 2-EE-SW-2H/J	Unit 1 Orange FEGs 1/2-CC-E-1A/B 1/2-CC-P-1A/B 1-EE-MCC-1H1-1 1H/J Stub Bus 2H/J Stub Bus 1-EP-SW-D/E/F 1/2-HV-E-4A/B/C	Unit 1 Yellow FEGs 1-FW-P-2/3A/3B 2-EE-MCC-2H1-4	Unit 1 Green FEGs
	Unit 2 Green 85 Days CDF = 4.272E-5	Unit 2 Red FEGs 1-EE-MCC-1H1-4 1-EE-MCC-1J1-1 1-EE-SS-1H/J 1-EE-SS-1H1/J1 1-EE-SW-1H/J	Unit 2 Orange FEGs 1/2-CC-E-1A/B 1/2-CC-P-1A/B 2-EE-MCC-2H1-1 1H/J Stub Bus 2H/J Stub Bus 1-EP-SW-D/E/F 1/2-HV-E-4A/B/C	Unit 2 Yellow FEGs 2-FW-P-2/3A/3B 1-EE-MCC-1H1-1	Unit 2 Green FEGs

(970731B)

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C U1/2 CC Pump: 1/2-CC-P-1A/B One ESGR Chiller: 1/2-HV-E-4A/B/C *The stub bus that powers the available CC pump is Orange. The stub bus that powers the unavailable CC pump is Green. (970731C)	Unit 1 Green 365 Days CDF = 3.935E-5	Unit 1 Red FEGs	Unit 1 Orange FEGs 1/2-CC-E-1A/B 1/2-CC-P-1A/B 1-EE-MCC-1H1-1 1H/J Stub Bus* 2H/J Stub Bus* 1-EP-SW-D/E/F 1/2-HV-E-4A/B/C	Unit 1 Yellow FEGs 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1 2-EE-SS-2H/J 2-EE-SS-2H1/J1 2-EE-SW-2H/J	Unit 1 Green FEGs
	Unit 2 Green 365 Days CDF = 3.935E-5	Unit 2 Red FEGs	Unit 2 Orange FEGs 1/2-CC-E-1A/B 1/2-CC-P-1A/B 2-EE-MCC-1H1-4 1H/J Stub Bus* 2H/J Stub Bus* 1-EP-SW-D/E/F 1/2-HV-E-4A/B/C	Unit 2 Yellow FEGs 1-EE-MCC-1H1-1 1-EE-MCC-1J1-1 1-EE-SS-1H/J 1-EE-SS-1H1/J1 1-EE-SW-1H/J	Unit 2 Green FEGs

{970805A}

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C Three Unit 1 ESGR Chillers: 1-HV-E-4A/B/C (970805B)	Unit 2 Green 12 Days CDF = 6.851E-5	Unit 2 Red FEGs 1-EE-MCC-1H1-1 1-EE-MCC-1J1-1 1-EE-SS-1H/H1 1-EE-SS-1J/J1	Unit 2 Orange FEGs 1/2-CC-E-1A/B 1/2-CH-P-1A/B/C 1-EE-MCC-1H1-4 1-EP-SW-1D/E/F 1-EP-CB-12A/C 1-EP-CB-16A/B/C/D 1-EP-CB-4A/B/C/D 1-EP-DB-16A/B/C/D 2-CN-SC-1A/B 2-EE-MCC-2H1-1 2-HV-AC-6/7 2-RCP-SEAL-COOLING	Unit 2 Yellow FEGs 1-EP-BUS-2/4 2-HV-E-4A/B/C	Unit 2 Green FEGs
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C Three Unit 2 ESGR Chillers: 2-HV-E-4A/B/C (970805B)	Unit 1 Green 12 Days CDF = 6.851E-5	Unit 1 Red FEGs 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1 2-EE-SS-2H/H1 2-EE-SS-2J/J1	Unit 1 Orange FEGs 1/2-CC-E-1A/B 1/2-CH-P-1A/B/C 1-CN-SC-1A/B 1-EE-MCC-1H1-1 1-HV-AC-6/7 1-RCP-SEAL-COOLING 2-EE-MCC-2H1-4 2-EP-SW-1D/E/F 2-EP-CB-12A/C 2-EP-CB-16A/B/C/D 2-EP-CB-4A/B/C/D 2-EP-DB-16A/B/C/D	Unit 1 Yellow FEGs 1-EP-BUS-2/4 1-HV-E-4A/B/C	Unit 1 Green FEGs

Configuration					
FEG		Configuration ~ One FEG			
Description / Mark Numbers	Unit Specific PSA AWT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
{PSA Run number}					
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C Three Unit 2 ESGR Chillers: 2-HV-E-4A/B/C	Unit 2 Orange 61 Hours CDF = 1.804E-4	Unit 2 Red FEGs Unit 2 Orange FEGs 1/2-CC-E-1A/B 1-C-CH-P-1A/B/C 1-EP-SW-1D/E/F 1-EE-MCC-1H1-1 1-EE-MCC-1J1-1 1-EE-MCC-1H1-4 1-EE-SS-1H/J 1-EE-SS-1H1/J1 1-EE-SW-1H/J 1-EP-CB-12A/C 1-EP-CB-16A/BCD 1-EP-CB-4A/B/C/D 1-EP-DB-16A/BCD 1-HV-AC-6/7 1-HV-E-4A/B/C 2-EP-SS-2A1/2 2-EP-SS-2B1/2 2-EP-SS-2C1/2 2-FW-P-2 2-HV-AC-6/7 2RCP-SEAL-COOLING	Unit 2 Yellow FEGs Unit 2 Green FEGs 1-EE-EG-1H/J 1-EG-P-1HA/B 1-EG-P-1JA/B 1-IA-C-1	No Unit 2 FEGs	No Unit 2 FEGs
(970805A)					

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C U1/2 CC Pump: 1/2-CC-P-1A/B Two ESGR Chillers: 1/2-HV-E-4A/B/C SW Header A/B *The stub bus that powers the available CC pump is Orange. The stub bus that powers the unavailable CC pump is Green.	Unit 1 Green 17 Days CDF = 5.944E-5	Unit 1 Red FEGs 1-EE-MCC-1H1-1 1-EP-SW-1D/E/F SW Header A/B 1/2-SW-P-1A/B 2-EE-MCC-2H1-1 2-EE-MCC-2H1-4 2-EE-MCC-2J1-1 2-EE-SS-2H/2H1 2-EE-SS-2J/2J1 2-EE-SW-2H/2J	Unit 1 Orange FEGs 1-BC-101/102 1/2-CC-E-1A/B 1/2-CC-P-1A/B 1H/J Stub Bus* 1/2-HV-E-4A/B/C 1-RS-E-1A/B/C/D	Unit 1 Yellow FEGs 1-CH-P-1A/B/C 1-EE-EG-1H/J 1-FW-P-2/3A/3B 1/2-HV-AC-6/7 1-IA-C-1 1-SI-TK-2 2-EE-EG-2H/J 2-EE-MCC-2J1-1 2-EE-MCC-2H1-1 2-EE-SS-2H/2J	Unit 1 Green FEGs
	Unit 2 Green 17 Days CDF = 5.944E-5	Unit 2 Red FEGs 1/2-SW-P-1A/B 1-EE-MCC-1H1-1 1-EE-MCC-1H1-4 1-EE-MCC-1J1-1 1-EE-SS-1H/1H1-1 1-EE-SS-1J/1J1 1-EE-SW-1H/1J 1-EP-SW-1D/E/F SW Header A/B	Unit 2 Orange FEGs 1-BC-101/102 1/2-CC-E-1A/B 1/2-CC-P-1A/B 1/2-HV-E-4A/B/C 2-EE-MCC-2H1-1 2H/J Stub Bus* 2-RS-E-1A/B/C/D	Unit 2 Yellow FEGs 1-EE-EG-1H/J 1-EE-MCC-1J1-1 1-EE-MCC-1H1-1 1-EE-SS-1H/1J 1/2-HV-AC-6/7 2-IA-C-1 2-CH-P-1A/B/C 2-EE-EG-2H/J 2-FW-P-2/3A/3B 2-SI-TK-2	Unit 2 Green FEGs
(970811B)					

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG	Unit Specific PSA AOT	"Red"	"Orange"	"Yellow"	"Green"
Description / Mark Numbers	CDF	Not Acceptable Equipment Combinations 0 Hours	Equipment Combinations Acceptable for 24 Hours	Equipment Combinations Acceptable for 3 Days	Equipment Combinations Acceptable for 7 Days
(PSA Run number)					
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C U1/2 CC Pump: 1/2-CC-P-1A/B 1-SW HEADER -A 1-PT-36.1A (1-EE-EG-1H, 1-SW-P-1A) OR 2-PT-36.1B (2-EE-EG-2I, 2-SW-P-1B)	Unit 1 Green 7 Days CDF = 8.383E-5	Unit 1 Red FEGs 1/2-EE-EG-1H/I 1-EE-MCC-1H1-2N 1-EE-MCC-1H1-2S 1-EP-SW-1D/E/F 1-FW-P-2/3A/3B 2-IA-C-1** 1-SW HEADER -B 2-EE-SS-2H/H1 2-EE-SS-2I/I1 2-EE-SW-2H/I 2-EP-CB-12A/C	Unit 1 Orange FEGs 0-AAC-DG-0M 1-BC-101/102 1/2-CC-E-1A/B 1/2-CC-P-1A/B 1H/I Stub Bus* 1-RC-PCV-1455C 1-RC-PCV-1456 1/2-SW-P-1A/B 1-RS-E-1A/B/C/D 2-EE-MCC-2H1-2N 2-EE-MCC-2H1-2S 2-EE-MCC-2H1-1 2-EE-MCC-2I1-1	Unit 1 Yellow FEGs 1/2-CH-P-1A/B/C 1-EG-P-1HA/B 1-EG-P-1JA/B 1-EP-BUS-1/2 1-EP-BUS-3/4 1-EP-RST-1A/B/C 1-EP-SW-1A/B/C 1-GN-TK-1A/B 1/2-IA-C-1** 1-MS-SV-101A/B/C 1-RC-E-1A/B/C 1-RC-PCV-1455A/B 1-RH-P-1A/B 1-SI-TF-2 2-EG-P-2HA/B 2-EG-P-2IA/B	Unit 1 Green FEGs
*The stub bus that powers the available CC pump is Orange. The stub bus that powers the unavailable CC pump is Green. {970812B}		** 2-IA-C-1 is Red during 1-PT-36.1A		** 2-IA-C-1 is Yellow during 2-PT-36.1B	

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C U1/2 CC Pump: 1/2-CC-P-1A/B 1-SW HEADER -A 1-PT-36.1A (1-EE-EG-1H, 1-SW-P-1A) OR 2-PT-36.1B (2-EE-EG-2J, 2-SW-P-1B)	Unit 2 Green 7 Days CDF = 8.383E-5	Unit 2 Red FEGs 1/2-EE-EG-1H/J 1-EP-SW-1D/E/F 1-SW HEADER -B 1-EE-SS-1H/H1 1-EE-SS-1J/J1 1-EE-SW-1H/J 1-EP-CB-12A/C 2-EE-MCC-2H1-2N 2-EE-MCC-2H1-2S 2-FW-P-2/3A/3B 2-IA-C-1**	Unit 2 Orange FEGs 0-AAC-DG-0M 1-BC-101/102 1/2-CC-E-1A/B 1/2-CC-P-1A/B 1/2-SW-P-1A/B 2-RS-E-1A/B/C/D 1-EE-MCC-1H1-2N 1-EE-MCC-1H1-2S 1-EE-MCC-1H1-1 1-EE-MCC-1J1-1 2H/J Stub Bus* 2-RC-PCV-2455C 2-RC-PCV-2456	Unit 2 Yellow FEGs 1/2-CH-P-1A/B/C 1-EG-P-1HA/F 1-EG-P-1JA/B 1-EP-BUS-1/2 1-EP-BUS-3/4 1-EP-RST-1A/B/C 2-EP-SW-1A/B/C 2-EG-P-2HA/B 2-EG-P-2JA/B 2-GN-TK-1A/B 1/2-IA-C-1** 2-MS-SV-201A/B/C 2-RC-E-1A/B/C 2-RC-PCV-2455A/B 2-RH-P-1A/B 2-SI-TK-2	Unit 2 Green FEGs
*The stub bus that powers the available CC pump is Orange. The stub bus that powers the unavailable CC pump is Green. {970812B}		** 2-IA-C-1 is Red during 1-PT-36.1A		** 2-IA-C-1 is Yellow during 2-PT-36.1B	

Attachment 2

OLM CONFIGURATION MATRIX North Annz Units 1 & 2					
Configuration		Configuration + One FEG			
FEG	Unit Specific PSA AOT	"Red"	"Orange"	"Yellow"	"Green"
Description / Mark Numbers	CLF	Not Acceptable Equipment Combinations 0 Hours	Equipment Combinations Acceptable for 24 Hours	Equipment Combinations Acceptable for 3 Days	Equipment Combinations Acceptable for 7 Days
(PSA Run number)					
U1/2 CC Heat Exchange: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C U1/2 CC Pump: 1/2-CC-P-1A/B SW Header B 1-PT-36.1B (1-EE-EG-1J,1-SW-P-1B) OR 2-PT-36.1A (2-EE-EG-2H, 2-SW-P-1A)	Unit 1 Green 7 Days CDF = 8.383E-5	Unit 1 Red FEGs 1/2-EE-EG-1H/J 1-EE-MCC-1H1-2N 1-EE-MCC-1H1-2S 1-EP-SW-1D/E/F 1-FW-P-2/3A/3B 1-IA-C-1** 1-SW HEADER -A 2-EE-SS-2H/H1 2-EE-SS-2J/J1 2-EE-SW-2H/J 2-EP-CB-12A/C	Unit 1 Orange FEGs 0-AAC-DG-0M 1-BC-101/102 1/2-CC-E-1A/B 1/2-CC-P-1A/B 1H/J Stub Bus* 1-RC-PCV-1455C 1-RC-PCV-1456 1/2-SW-P-1A/B 1-RS-E-1A/B/C/D 2-EE-MCC-2H1-2N 2-EE-MCC-2H1-2S 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1	Unit 1 Yellow FEGs 1/2-CH-P-1A/B/C 1-EG-P-1HA/B 1-EG-P-1JA/B 1-EP-BUS-1/2 1-EP-BUS-3/4 1-EP-RST-1A/B/C 1-EP-SW-1A/B/C 1-GN-TK-1A/B 1/2-IA-C-1** 1-MS-SV-101A/B/C 1-RC-E-1A/B/C 1-RC-PCV-1455A/B 1-RH-P-1A/B 1-SI-TK-2 2-EG-P-2HA/B 2-EG-P-2JA/B	Unit 1 Green FEGs
*The stub bus that powers the available CC pump is Orange. The stub bus that powers the unavailable CC pump is Green.				** 1-IA-C-1 is Yellow during 1-PT-36.1B	
{970812B}		** 1-IA-C-1 is Red during 2-PT-36.1A			

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C U1/2 CC Pump: 1/2-CC-P-1A/B SW Header B 1-PT-36.1B (1-EE-EG-1J, 1-SW-P-1B) OR 2-PT-36.1A (2-EE-EG-2H, 2-SW-P-1A)	Unit 2 Green 7 Days CDF = 8.383E-5	Unit 2 Red FEGs 1/2-EE-EG-1H/J 1-EP-SW-1D/E/F 1-SW HEADER -A 1-EE-SS-1H/H1 1-EE-SS-1J/J1 1-EE-SW-1H/J 1-EP-CB-12A/C 2-EE-MCC-2H1-2N 2-EE-MCC-2H1-2S 2-FW-P-2/3A/3B 2-1A-C-1**	Unit 2 Orange FEGs 0-AAC-DG-0M 1-BC-101/102 1/2-CC-E-1A/B 1/2-CC-P-1A/B 1/2-SW-P-1A/B 2-RS-E-1A/B/C/D 1-EE-MCC-1H1-2N 1-EE-MCC-1H1-2S 1-EE-MCC-1H1-1 1-EE-MCC-1J1-1 2H/J Stub Bus* 2-RC-PCV-2455C 2-RC-PCV-2456	Unit 2 Yellow FEGs 1/2-CH-P-1A/B/C 1-EG-P-1HA/B 1-EG-P-1JA/B 1-EP-BUS-1/2 1-EP-BUS-3/4 1-EP-RST-1A/B/C 2-EP-OW-1A/B/C 2-EG-P-2HA/B 2-EG-P-2JA/B 2-GN-TK-1A/B 1/2-1A-C-1** 2-MS-SV-201A/B/C 2-RC-E-1A/B/C 2-RC-PCV-2455A/B 2-RH-P-1A/B 2-SI-TK-2	Unit 2 Green FEGs
*The stub bus that powers the available CC pump is Orange. The stub bus that powers the unavailable CC pump is Green. (970812B)		** 1-1A-C-1 is Red during 2-PT-36.1A		** 1-1A-C-1 is Yellow during 1-PT-36.1B	

Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
"A" Reserve Station Service Transformer: 1-EP-RST-1A "D" Transfer Bus: 1-EP-SW-1D One LSGR Chiller: 1/2-HV-E-4A/B/C (9708191)	Unit 1 Yellow 86 Hours CDF = 1.396E-4 This configuration is Yellow during maintenance activities around the transformers and power lines. Otherwise, it is green(e.g. on night shift when work stops)	Unit 1 Red FEGs Unit 1 Orange FEGs 1-EE-EG-1H/I 1-FW-P-2/3A/3B 1/2-1A-C-1 2-EE-EG-2H/I 2-EE-SS-2H/I*1 2-EE-SS-2H/I*2	Unit 1 Yellow FEGs 0-AAC-DG-0M 0-AAC-SW-0L1 1-CH-P-1A/B/C 1-EP-BUS-1/2 1-EP-BUS-3/4 1-EP-RST-1B/C 1-EP-SW-1E/F 1-GN-TK-1A/B 1-MS-TV-101A/B/C 1-RC-PCV-1455C 1-RC-PCV-1456 1-SI-MOV-1857A-D 1-SI-TK-2 2-EE-MCC-2H1-2N 2-EE-MCC-2H1-2S 2-EP-CB-12A/C 2-EP-SW-2A/B/C	Unit 1 Green FEGs 2-CH-P-1A/B/C 2-EG-P-2HA/B 2-EG-P-2JA/B 2-HV-AC-6/7 2-HV-E-4A/B/C	No Unit 1 FEGs

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
"A" Reserve Station Service Transformer: 1-EP-RST-1A "D" Transfer Bns: 1-EP-SW-1D One ESGR Chiller: 1/2-HV-E-4A/B/C (970819F)	Unit 2 Yellow 86 Hours CDF = 1.396E-4 This configuration is Yellow during maintenance activities around the transformers and power lines. Otherwise, it is green(e.g. on night shift when work stops)	Unit 2 Red FEGs Unit 2 Orange FEGs 1-EE-EG-1H/I 1-EE-SS-2H/H1 1-EE-SS-2J/J1 1/2-IA-C-1 2-EE-EG-2H/I 2-FW-P-2/3A/3B	Unit 2 Yellow FEGs 0-AAC-DG-OM 0-AAC-SW-OL1 1-EE-MCC-1H1-2N 1-EE-MCC-1H1-2S 1-EP-CB-12A/C 1-EP-SW-1A/B/C 1-EP-BUS-1/2 1-EP-BUS-3/4 1-EP-RST-1B/C 1-EP-SW-1E/F 2-CH-P-1A/B/C 2-GN-TK-1A/B 2-MS-TV-201A/B/C 2-RC-PCV-245SC 2-RC-PCV-2456 2-SI-MOV-2867A-D 2-SI-TK-2	Unit 2 Green FEGs 1-CH-P-1A/B/C 1-EG-P-1HA/B 1-EG-P-1JA/B 1-HV-AC-6/7 1-HV-E-4A/B/C	No Unit 2 FEGs

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Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C "A" Reserve Station Service Transformer: 1-EP-RST-1A "D" Transfer Bus: 1-EP-SW-1D One ESGR Chiller: 1/2-HV-E-4A/B/C A/B SW Header	Unit 1 Orange 53 Hours CDF = 2.031E-4	Unit 1 Red FEGs Unit 1 Orange FEGs Unit 1 Yellow FEGs 1/2-CC-E-1A/B 1-EE-EG-1H/J 1-EP-BUS-1/2 1-EP-BUS-3/4 1-EP-RST-1B/C 1-EP-SW-1E/F 1-FW-P-2/3A/3B 1/2-1A-C-1 1-RC-PCV-1455C 1-RC-PCV-1456 1-RS-E-1A/B/C/D 1/2-SW-P-1A/B 1-SW-MOV-108A/B A/B SW Header 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1 2-EE-MCC-2H1-4 2-EE-EG-2H/J 2-EE-SS-2H/H1 2-EE-SS-2J/J1 2-EP-CB-12A/C 2-EP-SW-2A/B/C	Unit 1 Green FEGs 0-AAC-DG-0M 0-AAC-SW-0L1 1/2-CH-P-1A/B/C 1-GN-TK-1A/B 1-MS-TV-101A/B/C 1-SI-MOV-1867A-D 1-SI-TK-2 2-EE-MCC-2H1-2N 2-EE-MCC-2H1-2S 2-EG-P-2HA/B 2-EG-P-2JA/B 2-HV-AC-6/7 2-HV-E-4A/B/C	No Unit 1 FEGs	No Unit 1 FEGs
(970819G)	This configuration is Orange during maintenance activities around the transformers and power lines. Otherwise, it is green(e.g. on night shift when work stops)				

Attachment 2

Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C "A" Reserve Station Service Transformer: 1-EP-RST-1A "D" Transfer Bus: 1-EP-SW-1D One ESGR Chiller: 1/2-HV-E-4A/B/C A/B SW Header	Unit 2 Orange 53 Hours CDF = 2.031E-4	Unit 2 Red FEGs Unit 2 Orange FEGs Unit 2 Yellow FEGs 1/2-CC-E-1A/B 1-EE-EG-1H/I 1-EE-MCC-1H1-1 1-EE-MCC-1J1-1 1-EE-MCC-1H1-4 1-EE-SS-1H/H1 1-EE-SS-1J/J1 1-EP-CB-12A/C 1-EP-SW-1A/B/C 1-EP-BUS-1/2 1-EP-BUS-3/4 1-EP-RST-1B/C 1-EP-SW-1E/F 1/2-1A-C-1 1/2-SW-P-1A/B A/B SW Header 2-EE-EG-2H/I 2-FW-P-2/3A/3B 2-RC-PCV-2455C 2-RC-PCV-2456 2-RS-E-1A/B/C/D 2-SW-MOV-208A/B	Unit 2 Green FEGs 0-AAC-DG-0M 0-AAC-SW-0L1 1/2-CH-P-1A/B/C 1-EE-MCC-1H1-2N 1-EE-MCC-1H1-2S 1-EG-P-1HA/B 1-EG-P-1JA/B 1-HV-AC-6/7 1-HV-E-4A/B/C 2-GN-TK-1A/B 2-MS-TV-201A/B/C 2-SI-MOV-2867A-D 2-SI-TK-2	No Unit 2 FEGs	No Unit 2 FEGs
(970819G)	This configuration is Orange during maintenance activities around the transformers and power lines. Otherwise, it is green(e.g. on night shift when work stops)				

Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C U1/2 Low Head SI Pump: 1/2-SI-P-1A/B (970826A)	Unit 1 Orange 47 Hours CDF = 2.230E-4	Unit 1 Red FEGs Unit 1 Orange FEGs Unit 1 Yellow FEGs 1/2-CC-E-1A/B 1/2-CH-P-1A/B/C 1-SI-TK-2	Unit 1 Green FEGs 2-EE-EG-2H/I 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1 2-EE-SS-2H/H1 2-EE-SS-2J/J1 2-EG-P-2HA/B 2-EG-P-2JA/B 2-EP-CB-12A/C 2-HV-AC-6/7 2-HV-E-4A/B/C 2-IA-C-1	No Unit 1 FEGs	No Unit 1 FEGs
	Unit 2 Orange 47 Hours CDF = 2.230E-4	Unit 2 Red FEGs Unit 2 Orange FEGs Unit 2 Yellow FEGs 1/2-CC-E-1A/B 1/2-CH-P-1A/B/C 2-SI-TK-2	Unit 2 Green FEGs 1-EE-EG-1H/I 1-EE-MCC-1H1-1 1-EE-MCC-1J1-1 1-EE-SS-1H/H1 1-EE-SS-1J/J1 1-EG-P-1HA/B 1-EG-P-1JA/B 1-EP-CB-12A/C 1-HV-AC-6/7 1-HV-E-4A/B/C 1-IA-C-1	No Unit 2 FEGs	No Unit 2 FEGs

[illegible]

{9708.26B}

[illegible]

Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C One ESGR Chiller: 1/2-HV-E-4A/B/C 1/2-HV-AC-6/7	Unit 1 Green 51 Days CDF = 4.562E-5	Unit 1 Red FEGs 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1 2-EE-SS-2H/H1 2-EE-SS-2J/J1	Unit 1 Orange FEGs 1/2-CC-E-1A/B 1-HV-AC-6/7	Unit 1 Yellow FEGs 1-CH-P-1A/B/C 1-FW-P-2/3A/B 2-EE-MCC-2H1-4	Unit 1 Green FEGs
	Unit 2 Green 51 Days CDF = 4.562E-5	Unit 2 Red FEGs 1-EE-MCC-1H1-1 1-EE-MCC-1J1-1 1-EE-SS-1H/H1 1-EE-SS-1J/J1	Unit 2 Orange FEGs 1/2-CC-E-1A/B 2-HV-AC-6/7	Unit 2 Yellow FEGs 2-CH-P-1A/B/C 2-FW-P-2/3A/B 1-EE-MCC-1H1-4	Unit 2 Green FEGs

(970326E)

Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C One ESGR Chiller: 1/2-HV-E-4A/B/C 0-AAC-BKR-05L1 OR 0-AAC-BKR-05L3 OR 0-AAC-BKK-15F5 (970901A)	Unit 1 Green 82 Days CDF = 4.290E-5	Unit 1 Red FEGs 1-EE-MCC-1H1-2S	Unit 1 Orange FEGs 1/2-CC-E-1A/B 1-EP-EG-1H/J 1-FW-P-3A/3B 1/2-1A-C-1 2-EE-EG-2H/J 2-EE-SS-2H/J 2-EE-SS-2H1/J1	Unit 1 Yellow FEGs 1/2-CH-P-1A/B/C 1-FW-P-2 2-EP-CB-12A/C	Unit 1 Green FEGs
	Unit 2 Green 82 Days CDF = 4.290E-5	Unit 2 Red FEGs 2-EE-MCC-2H1-2S	Unit 2 Orange FEGs 1/2-CC-E-1A/B 1-EE-EG-2H/J 1-EE-SS-2H/J 1-EE-SS-2H1/J1 2-FW-P-3A/3B 1/2-1A-C-1	Unit 2 Yellow FEGs 1/2-CH-P-1A/B/C 1-EP-CB-12A/C 2-EE-EG-2H/J 2-FW-P-2	Unit 2 Green FEGs

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Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C One ESGR Chiller: 1/2-HV-E-4A/B/C 0-AAC-DG-0M	Unit 1 Green 26 Days CDF = 5.238E-5	Unit 1 Red FEGs 1-EE-MCC-1H1-2S	Unit 1 Orange FEGs 1/2-CC-E-1A/B 1-EE-EG-1H/J 1-FW-P-3A/3B 1-IA-C-1 2-EE-EG-2H/J 2-EE-SS-2H/J 2-EE-SS-2H1/J1 2-EP-CB-12A/C	Unit 1 Yellow FEGs 1/2-CH-P-1A/B/C 1-EP-BUS-1/2 1-EP-BUS-3/4 1-FW-P-2	Unit 1 Green FEGs
	Unit 2 Green 26 Days CDF = 5.238E-5	Unit 2 Red FEGs 2-EE-MCC-2H1-2S	Unit 2 Orange FEGs 1/2-CC-E-1A/B 1-EE-EG-1H/J 1-EE-SS-1H/J 1-EE-SS-1H1/J1 1-EP-CB-12A/C 2-IA-C-1 2-EE-EG-2H/J 2-FW-P-3A/3B	Unit 2 Yellow FEGs 1/2-CH-P-1A/B/C 1-EP-BUS-1/2 1-EP-BUS-3/4 2-FW-P-2	Unit 2 Green FEGs

(970901B)

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C One ESGR Chiller: 1/2-HV-E-4A/B/C 1/2-PT-213.38: 1/2-MS-PCV-101/201A/B/C isolated one at a time.	Unit 1 Green 365 Days CDF = 3.916E-5	Unit 1 Red FEGs	Unit 1 Orange FEGs 1/2-CC-E-1A/B	Unit 1 Yellow FEGs	Unit 1 Green FEGs
	Unit 2 Green 365 Days CDF = 3.916E-5	Unit 2 Red FEGs	Unit 2 Orange FEGs 1/2-CC-E-1A/B	Unit 2 Yellow FEGs	Unit 2 Green FEGs
(970901C)					

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1-2-CC-E-1A/B CH Pump: 1-CH-P-1A/B/C OR 2-CH-P-1A/B/C SW Header A/B 1-SW-MOV-103A AND 1-SW-MOV-104A OR 2-SW-MOV-203A AND 2-SW-MOV-204A (970916A)	Unit 1 Green 26 Days CDF = 5.226E-5	Unit 1 Red FEGs 1-EE-MCC-1H1-2S 1-SW-P-1A/B* 2-SW-P-1A/B* SW Header A/B* * Opposite SW Header and associated SW pumps	Unit 1 Orange FEGs Unit 1 Yellow FEGs 1-BC-101/102 1/2-CC-E-1A/B 1-SW-MOV-101A/B 1-SW-MOV-101C/D	1-CH-P-1A/B/C 1-EE-EG-1H/J 1-FW-P-2/3A/3B 1/2-1A-C-1 1-SI-TK-2 2-EE-EG-2H/J 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1 2-EE-SS-2H/J 2-EE-SS-2H1/J1	Unit 1 Green FEGs
	Unit 2 Green 26 Days CDF = 5.226E-5	Unit 2 Red FEGs 1-SW-P-1A/B* 2-SW-P-1A/B* SW Header A/B* 2-EE-MCC-2H1-2S * Opposite SW Header and associated SW pumps	Unit 2 Orange FEGs Unit 2 Yellow FEGs 1-BC-101/102 1/2-CC-E-1A/B 2-SW-MOV-201A/B 2-SW-MOV-201C/D	1-EE-EG-1H/J 1-EE-MCC-1H1-1 1-EE-MCC-1J1-1 1-EE-SS-1H/J 1-EE-SS-1H1/J1 1/2-1A-C-1 2-CH-P-1A/B/C 2-EE-EG-2H/J 2-FW-P-2/3A/3B 2-SI-TK-2	Unit 2 Green FEGs

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEC			
FEG Description / Mark Numbers {PSA Run number}	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B SW Header B Two RS Heat Exchangers supplied by the B SW Header: 1-RS-E-1B&C OR 2-RS-E-1A&D {970916D}	Unit 1 Green 26 Days CDF = 5.213E-5	Unit 1 Red FEGs 1-EE-MCC-1H1-2S 1-SW-P-1A 2-SW-P-1B 1-SW-MOV-101A/B SW Header A	Unit 1 Orange FEGs Unit 1 Yellow FEGs 1-BC-101/102 1/2-CC-E-1A/B	1-CH-P-1A/B/C 1-EE-EG-1H/J 1-FW-P-2/3A/3B 1/2-1A-C-1 1-SI-TK-2 2-EE-EG-2H/J 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1 2-EE-SS-2H/J 2-EE-SS-2H1/J1	Unit 1 Green FEGs
	Unit 2 Green 26 Days CDF = 5.213E-5	Unit 2 Red FEGs 1-SW-P-1A 2-SW-P-1B SW Header A 2-EE-MCC-2H1-2S 2-SW-MOV-201A/B	Unit 2 Orange FEGs Unit 2 Yellow FEGs 1-BC-101/102 1/2-CC-E-1A/B	1-EE-EG-1H/J 1-EE-MCC-1H1-1 1-EE-MCC-1J1-1 1-EE-SS-1H/J 1-EE-SS-1H1/J1 1/2-1A-C-1 2-CH-P-1A/B/C 2-EE-EG-2H/J 2-FW-P-2/3A/3B 2-SI-TK-2	Unit 2 Green FEGs

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers [PSA Run number]	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C One ESGR Chiller: 1/2-HV-E-4A/B/C 1/2-HV-AC-6/7 PT-36.9.1J (1/2-EE-EG-1H/2J; 1/2-FW-P-3B; 1/2-CC-P-1B; 1/2-RS-P-1B/2/3, 1-SW-P-1B) (970917A)	Unit 1 Yellow 6 Days CDF = 8.741E-5	U1 Red FEGs 1-EE-EG-1H/J 1-EE-SW-1D/E/F 1-EP-BUS-1/2 1-EP-BUS-3/4 1-FW-P-2 1-FW-P-3A 1SA System 1SW-HEADER-A 2-EE-EG-2H/J 2-EE-MCC-2J1-1 2-EE-SS-2H/J 2-EE-SS-2H1/J1 2-EP-CB-12A/C	U1 Orange FEGs U1 Yellow FEG 0-AAC-DG-0M 1/2-CC-E-1A/B 1/2-CC-P-1A 1/2-CH-P-1A/B/C 1-EE-SW-1H STUB 1/2-HV-AC-6/7 1-RC-E-1A/B/C 1-RC-PCV-1455C 1-RC-PCV-1456 1-SI-TK-2 2-EE-MCC-2H1-1 2-EE-MCC-2H1-4	U1 Green FEGs 1/2-1A-C-1 2-EE-MCC-2H1-2N 2-EP-CB-16A/B 2-EP-CB-4A/C 2-EP-DB-16A/B 2-HV-E-4A/B/C	No FEGs
	Unit 2 Yellow 6 Days CDF = 8.741E-5	U2 Red FEGs 1-EE-EG-1H/J 1-EE-SW-1D/E/F 1-EP-BUS-1/2 1-EP-BUS-3/4 2-FW-P-2 2-FW-P-3A 2-EE-EG-2H/J 2SA System 1-EE-SS-1H/J 1-EE-SS-1H1/J1 1-EP-CB-12A/C 1SW-HEADER-A	U2 Orange FEGs U2 Yellow FEGs 0-AAC-DG-0M 1/2-CC-E-1A/B 1/2-CC-P-1A 1/2-CH-P-1A/B/C 1/2-HV-AC-6/7 2-EE-SW-2H STUB 2-RC-E-1A/B/C 2-RC-PCV-2455C 2-RC-PCV-2456 2-SI-TK-2 1-EE-MCC-1H1-1 1-EE-MCC-1H1-4	U2 Green FEGs 1-EE-MCC-1H1-2N 1-EP-CB-16A/B 1-EP-CB-4A/C 1-EP-DB-16A/B 1-HV-E-4A/B/C 1/2-1A-C-1	No FEGs

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers [PSA Run number]	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C One ESGR Chiller: 1/2-HV-E-4A/B/C 1/2-HV-AC-6/7 Switchyard Maintenance {970917B}	Unit 1 Yellow 89 Hours CDF = 1.365E-4	Unit 1 Red FEGs Unit 1 Orange FEGs 1-EE-EG-1H/I 1-FW-P-2/3A/3B 1/2-1A-C-1 2-EE-EG-2H/I 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1 2-EE-SS-2H/I 2-EE-SS-2H1/I1	Unit 1 Yellow FEGs 0-AAC-DG-0M 1/2-CC-E-1A/B 1/2-CH-P-1A/B/C 1/2-HV-AC-6/7 1-RC-PCV-1455C 1-RC-PCV-1456 1-SI-TK-2 2-EE-MCC-2H1-2N/S 2-EE-MCC-2H1-4	Unit 1 Green FEGs 2-EG-P-2HA/B 2-EG-P-2JA/B 2-EP-CB-12A/C 2-EP-CB-16A/B 2-EP-CB-4A/C 2-EP-DB-16A/B 2-HV-E-4A/B/C	No Unit 1 FEGs
	Unit 2 Yellow 89 Hours CDF = 1.365E-4	Unit 2 Red FEGs Unit 2 Orange FEGs 1-EE-EG-1H/I 1-EE-MCC-1H1-1 1-EE-MCC-1J1-1 1-EE-SS-1H/I 1-EE-SS-1H1/I1 1/2-1A-C-1 2-EE-EG-2H/I 2-FW-P-2/3A/3B	Unit 2 Yellow FEGs 0-AAC-DG-0M 1/2-CC-E-1A/B 1/2-CH-P-1A/B/C 1-EE-MCC-1H1-2N/S 1-EE-MCC-1H1-4 1/2-HV-AC-6/7 2-RC-PCV-1455C 2-RC-PCV-1456 2-SI-TK-2	Unit 2 Green FEGs 1-EG-P-1HA/B 1-EG-P-1JA/B 1-EP-CB-12A/C 1-EP-CB-16A/B 1-EP-CB-4A/C 1-EP-DB-16A/B 1-HV-E-4A/B/C	No Unit 2 FEGs

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C One ESGR Chiller: 1/2-HV-E-4A/B/C 1/2-HV-AC-6/7 1/2-IA-C-1 {970917C}	Unit 1 Green 8 Days CDF = 8.211E-5	Unit 1 Red FEGs 1-EE-EG-1H* 1-EE-MCC-1H1-2N 1-EE-MCC-1H1-2S 1-EP-SW-1D/E/F 2-SA-TK-2 2-EE-EG-2H* 2-EE-MCC-2H1-1 2-EE-MCC-2H1-2N 2-EE-MCC-2H1-2S 2-EE-MCC-2J1-1 2-EE-SS-2H/J 2-EE-MCC-2H1/J1 2-E2-CB-12A/C 1/2-IA-C-1 *1-EE-EG-1H is Red when 2-IA-C-1 is OOS. 2-EE-EG-2H is Red when 1-IA-C-1 is OOS.	Unit 1 Orange FEGs 0-AAC-DG-0M 1/2-CC-E-1A/B 1/2-CH-P-1A/B/C 1-FW-P-2/3A/3B 1/2-HV-AC-6/7	Unit 1 Yellow FEGs 1-EE-EG-1H/J* 1-EP-BUS-1/2 1-EP-BUS-3/4 1-EP-SW-1A/B/C 1-HV-E-4A/B/C 1-RC-E-1A/B/C 1-RC-PCV-1455A/B 1-RC-PCV-1455C 1-RC-PCV-1456 1-RH-P-1A/B 1/2-SA-C-1 1-SI-TK-2 2-EE-EG-2H/J* 2-EE-MCC-2H1-4 2-EG-P-2HA/B 2-EG-P-2JA/B *1-EE-EG-1H is Yellow when 1-IA-C-1 is OOS. 2-EE-EG-2H is Yellow when 2-IA-C-1 is OOS.	Unit 1 Green FEGs

Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C One ESGR Chiller: 1/2-HV-E-4A/B/C 1/2-HV-AC-6/7 1/2-1A-C-1 (970917C)	Unit 2 Green 8 Days CDF = 8.211E-5	Unit 2 Red FEGs 1-EP-SW-1D/E/F 2-SA-TK-2 1/2-EE-EG-1/2H* 1-EE-MCC-1H1-1 1-EE-MCC-1H1-2N 1-EE-MCC-1H1-2S 1-EE-MCC-1J1-1 1-EE-SS-1H/J 1-EE-MCC-1H1/J1 1-EP-CB-12A/C 1/2-1A-C-1 2-EE-MCC-2H1-2N 2-EE-MCC-2H1-2S *1-EE-EG-1H is Red when 2-1A-C-1 is OOS. 2-EE-EG-2H is Red when 1-1A-C-1 is OOS.	Unit 2 Orange FEGs 0-AAC-DG-0M 1/2-CC-E-1A/B 1/2-CH-P-1A/B/C 1/2-HV-AC-6/7 2-FW-P-2/3A/3B	Unit 2 Yellow FEGs 1-EE-EG-1H/J* 1-EE-MCC-1H1-4 1-EG-P-1HA/B 1-EG-P-1JA/B 1-EP-BUS-1/2 1-EP-BUS-3/4 1/2-SA-C-1 2-SI-TK-2 2-EE-EG-2H/J* 2-EP-SW-1A/B/C 2-HV-E-4A/B/C 2-RC-E-1A/B/C 2-RC-PCV-2455A/B 2-RC-PCV-2455C 2-RC-PCV-2456 2-RH-P-1A/B *1-EE-EG-1H is Yellow when 1-1A-C-1 is OOS. 2-EE-EG-2H is Yellow when 2-1A-C-1 is OOS.	Unit 2 Green FEGs

Attachment 2

Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C One ESGR Chiller: 1/2-HV-E-4A/B/C 1/2-HV-AC-6/7 A/B SW Header	Unit 1 Green 27 Days CDF = 4.215E-5	Unit 1 Red FEGs 1-EE-MCC-1H1-2S 1-SW-P-1A* 1-SW-P-1B** 2-SW-P-1A** 2-SW-P-1B* A SW Header* B SW Header**	Unit 1 Orange FEGs Unit 1 Yellow FEG 1/2-CC-E-1A/B 1-HV-AC-6/7 1-SW-11/* 1-SW-116** 2-SW-68* 2-SW-70** 1-SW-MOV-108A/B* 2-SW-MOV-208A/B**	1-EE-EG-1H/J 1-FW-P-2/3A/B 1/2-CH-P-1A/B/C 1/2-IA-C-1 1-SI-TK-2 2-EE-EG-2H/J 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1 2-EE-SS-2H/J 2-EE-SS-2H1/J1	Unit 1 Green FEGs

* When B SW Header is OOS.
 ** When A SW Header is OOS.

* When B SW Header is OOS.
 ** When A SW Header is OOS.

{970922B}

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Attachment 2

OLM CONFIGURATION MATRIX North Anna Units 1 & 2					
Configuration		Configuration + One FEG			
FEG Description / Mark Numbers (PSA Run number)	Unit Specific PSA AOT CDF	"Red" Not Acceptable Equipment Combinations 0 Hours	"Orange" Equipment Combinations Acceptable for 24 Hours	"Yellow" Equipment Combinations Acceptable for 3 Days	"Green" Equipment Combinations Acceptable for 7 Days
U1/2 CC Heat Exchanger: 1/2-CC-E-1A/B U1 CH Pump: 1-CH-P-1A/B/C U2 CH Pump: 2-CH-P-1A/B/C 1/2-EE-EG-1J/2J 1/2-HV-E-4A/B/C (971002A)	Unit 1: Green 11 Days CDF = 7.069E-5	U1 Red FEGs 1/2-CC-E-1A/B 1-EE-EG-1H/1J 1-EE-MCC-1H1-2S 1-EP-SW-1D/E/F 1-FWP-3A 1-EP-CB-4A/C 1 RH System 2-EE-EG-2H/J 2-EE-SS-2H/J 2-EE-SS-2H1/J1 2-EP-CB-12A/C	U1 Orange FEGs U1 Yellow FEG 0-AAC-DG-0M 0-AAC-SW-0L1 1-EP-BUS-1/2 1-EP-BUS-3/4 1-FW-P-2 1-FW-P-3B 1-RC-PCV-1455C 1-RC-PCV-1456	U2 Yellow FEGs 1/2-CH-P-1A/B/C 1-EP-RST-1A/B/C 1/2-IA-C-1 1-SI-MOV-1867A 1-SI-MOV-1867C 1-SI-TK-2 2-EE-MCC-2J1-2N 2-EE-MCC-2H1-1 2-EE-MCC-2J1-1	U1 Green FEGs
	Unit 2: Green 11 Days CDF = 7.069E-5	U2 Red FEGs 1/2-CC-E-1A/B 1-EE-EG-1H/1J 1-EP-SW-1D/E/F 2-EE-MCC-2H1-2S 2-FWP-3A 2-EE-EG-2H/J 2-EP-CB-4A/C 2 RH System 1-EE-SS-2H/J 1-EE-SS-2H1/J1 1-EP-CB-12A/C	U2 Orange FEGs U2 Yellow FEG 0-AAC-DG-0M 0-AAC-SW-0L1 1-EP-BUS-1/2 1-EP-BUS-3/4 2-FW-P-2 2-FW-P-3B 2-RC-PCV-2455C 2-RC-PCV-2456	U1 Yellow FEG 1/2-CH-P-1A/B/C 1-EP-RST-1A/B/C 1/2-IA-C-1 2-SI-TK-2 2-SI-MOV-2867A 2-SI-MOV-2867C 2-SI-TK-2 1-EE-MCC-1J1-2N 1-EE-MCC-1H1-1 1-EE-MCC-1J1-1	U2 Green FEGs