



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, ILLINOIS 60532-4352

June 7, 2018

MEMORANDUM TO: Charles Phillips, Project Engineer  
Division of Reactor Projects, Branch 1

FROM: Patrick L. Loudon, Director */RA/*  
Division of Reactor Projects

SUBJECT: SPECIAL INSPECTION TEAM CHARTER FOR INOPERABILITY  
OF THE CLINTON POWER STATION DIVISION 1 AND  
DIVISION 2 EMERGENCY DIESEL GENERATORS

On Thursday, May 17, 2018, a non-licensed operator discovered the Division 2 emergency diesel generator (EDG) was inoperable due to the air receiver outlet valves being in the closed position. At the time of this discovery, the Division 1 EDG was inoperable and unavailable to complete planned outage maintenance on the Division 1 alternating current (AC) electrical power system. The licensee determined operations personnel failed to open the Division 2 EDG air receiver outlet valves when the EDG was returned to service on May 11, 2018. The licensee subsequently removed the Division 1 EDG from service on May 14, 2018. Once the concurrent inoperability and unavailability of the Division 1 and Division 2 EDGs was identified, operations personnel opened the Division 2 EDG air receiver outlet valves to restore the EDG to an operable status.

The inoperability and unavailability of the Division 1 and Division 2 EDGs resulted in a loss of safety function for the onsite AC electrical power system and placed the Unit in an unplanned shutdown risk red condition for the electrical power key safety function. This condition also caused an unplanned shutdown risk orange condition for the decay heat removal key safety function due to the unavailability of safety-related electrical power to the primary and alternate decay heat removal systems.

Based on the deterministic criteria provided in Management Directive (MD) 8.3, "NRC Incident Investigation Program," the event met MD 8.3 criterion (d), in that there was a loss of safety function for the Division 1 and Division 2 EDGs. The event also met MD 8.3 criterion (h), in that the event raised concerns pertaining to operational performance in the areas of configuration control, risk management and oversight. The risk assessment resulted in an estimated Conditional Core Damage Probability (CCDP) range of E-6 and put the event in the Routine Inspection/Special Inspection overlap region.

In addition to this event, Region III also noted the licensee's recent performance in the areas of configuration control, risk management and oversight. Between May 1 and May 13, 2018, three self-revealing events occurred indicating weaknesses in configuration control, risk management and oversight may be more widespread. The issues included:

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Inability to Trip a Reactor Recirculation Pump Breaker – During activities to trip the pump breaker, the breaker would not trip. Although the licensee initially believed the breaker's failure to trip was due to circuitry issue, a subsequent review determined licensee personnel were unaware the breaker's control power configuration had changed from energized to de-energized due to planned maintenance on the Division 4 NSPS system.

Unexpected SCRAM Signal due to Maintenance Activities – On May 7, 2018, with one division of the instrument range monitoring system (IRMs) out of service, the licensee performed maintenance and testing on another IRM division which caused a SCRAM signal to be generated. The work instructions in use did not specify an order for disconnecting the test equipment used during this activity. In addition, operations and maintenance personnel did not recognize a SCRAM signal could occur based upon the order the test equipment was removed.

Failure to Verify Valve Position Prior to Operation Results in Equipment Damage – On May 9, 2018, operations personnel directed an equipment operator into the plant to relax the high pressure core spray minimum flow valve off of its seat. Based upon the direction provided, the equipment operator assumed the minimum flow valve was in the closed position and the valve needed to be opened to relax it off its seat. Neither the operations personnel providing the direction nor the equipment operator sent into the plant used configuration control information to validate the minimum flow valve's position. As the operator applied force and attempted to open the valve, the valve was forced into its backseat (due to being in the open position) and over torqued shearing the valve's stem.

Based on the deterministic and risk criteria in MD 8.3, the licensee's recent performance discussed above, and after consultation with NRR, Region III has decided to commence a Special Inspection on June 20, 2018. The Special Inspection will be led by you and will include Robert Murray and Jason Draper. In addition, Laura Kozak, RIII Senior Reactor Analyst, and Jeff Mitman, Senior Reliability and Risk Engineer, will assist the team as needed. The focus of the inspection is to gather information to determine the cause of the EDG event, understand the increased plant shutdown risk condition, and evaluate the licensee's immediate and planned corrective actions for the personnel and process weaknesses that led to the event. On a daily basis, the team should evaluate the need for increasing the scope of the inspection if conditions warrant.

The Team's charter is enclosed.

Docket No. 50-461  
License No. NPF-62

Enclosure: Clinton Special Inspection Team Charter

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## **DRAFT CLINTON SPECIAL INSPECTION TEAM CHARTER**

This special inspection team is chartered to assess the circumstances surrounding the concurrent inoperability and unavailability of the Division 1 and Division 2 emergency diesel generators (EDGs) during the 2018 Refueling Outage. The Special Inspection will be conducted in accordance with Inspection Procedure 93812, "Special Inspection." The special inspection will include, but is not limited to, the items listed below. This charter may be revised based on the results and findings of the inspection. The inspection results will be documented in NRC Inspection Report 2018050.

1. Develop a complete sequence of events related to the inoperability and unavailability of the Division 1 and Division 2 AC power systems from May 9 through May 17, 2018. The chronology should include plant mode changes, changes in the electrical power, decay heat removal and inventory control shutdown safety/risk areas.
2. Understand the increased shutdown risk condition which existed when no emergency AC power sources were available for a period of approximately 3.5 days. Review the planned shutdown safety configuration compared to the actual configuration that existed. Understand the licensee's ability to respond to and mitigate a loss of offsite power event given the unavailability of both onsite emergency AC power sources.
3. Review the licensee's cause analysis efforts and determine if the evaluation's level of detail is commensurate with the significance of the problem.
4. Determine the probable cause(s) for the unavailability of the Division 1 and Division 2 EDGs during the 2018 refueling outage.
5. Understand whether there were any deficiencies in operator training (both licensed and non-licensed operators) which contributed to the EDG unavailability and the failure to identify the condition across multiple operating shifts.
6. Evaluate the licensee's compliance with, and adequacy of, procedural guidance for performing system alignments, controlling equipment configuration, performing equipment tag-outs and control room log keeping as it pertains to the cause(s) of the event.
7. Evaluate licensee planned and completed corrective actions following the EDG event to the extent possible and assess if prior opportunities (e.g., surveillances, maintenance, and self or nuclear oversight assessments) existed to have identified the problem at an earlier point in time.
8. Determine whether recent internal and external operating experience involving configuration control, risk management and oversight of activities were appropriately evaluated and determine the adequacy of any corrective actions planned or completed.
9. Continually evaluate the complexity and significance of the event to determine if the circumstances warrant escalation of the inspection to an augmented inspection team.
10. Identify any lessons learned from the Special Inspection, and prepare a feedback form on recommendations for improving reactor oversight process (ROP) baseline inspection procedures.

Enclosure

### **Special Inspection Team**

Charles Phillips, Project Engineer, DRP, Special Inspection Team Leader

Robert Murray, Senior Resident Inspector, Quad Cities

Jason Draper, Health Physicist, DNMS

### **Charter Approval**

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**/RA/**      **6/5/18**      K. Stodter, Chief, Branch 1, Division of Reactor Projects

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**/RA/**      **6/6/18**      K. O'Brien, Director, Division of Reactor Safety

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**/RA/**      **6/7/18**      P. Loudon, Director, Division of Reactor Projects

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