

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE -- PNO-I-06-010A

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by the Region I staff on this date.

Facility

Seabrook Power Station
Seabrook, NH
Docket: 05000443

Licensee Emergency Classification

☐ Notification of Unusual Event
☐ Alert
☐ Site Area Emergency
☐ General Emergency
☒ Not Applicable

SUBJECT: SHUTDOWN GREATER THAN 72 HOURS - BOTH EMERGENCY DIESEL GENERATORS INOPERABLE DUE TO PROBLEMS IN THE VOLTAGE REGULATION CIRCUITRY

On August 31, 2006, at 3:30 p.m., FPL Seabrook operators initiated a plant shutdown per Technical Specification (TS) 3.8.1.1 due to two inoperable emergency diesel generators (EDGs). The shutdown was necessitated by problems in the voltage regulation circuitry of both the "A" and "B" EDGs.

Previously, on August 28, the "A" EDG was removed from service for planned maintenance and declared inoperable. During a slow start maintenance run on August 30, the "A" EDG came up to rated speed and voltage and was loaded to the E5 safety bus for 1 hour. During a fast start run on the evening of August 30, the "A" EDG initially came up to rated speed and voltage (not loaded). However, a diode trouble light illuminated on the local EDG panel during the run. Because of the potential operability implications of this light, the licensee decided to shutdown the "A" EDG and to schedule a run of the "B" EDG per the TS. Concurrently, licensee personnel began troubleshooting activities on the "A" EDG. During a subsequent fast start operability run on August 31, the "A" EDG came up to rated speed and voltage (not loaded) with no anomalous indications. The licensee further refined its troubleshooting activities by developing a plan which identified seven likely causes. Later that day, the "B" EDG was tested per technical specifications and initially came up to rated speed, but output voltage failed high. The "B" EDG was promptly shutdown and declared inoperable per TS 3.8.1.1 at 2:15 p.m., on August 31. This TS required the restoration of one EDG to an operable status within 2 hours, or a plant shut down to hot standby within the next 6 hours. Based on the lack of a clearly definable success path, FPL Seabrook management initiated a plant shutdown per the TS at 3:30 p.m., on August 31. The plant reached Mode 3 (hot shutdown) at normal operating temperature and pressure at approximately 9:00 p.m., August 31.

Throughout the event, the licensee considered the "A" EDG functional. All off-site power lines, and the supplemental emergency power system (a separate EDG capable of supplying a safety bus), have been maintained available.

The NRC Resident Inspector staff has been following EDG troubleshooting activities since August 28 and observed portions of the Unit shutdown and cooldown. The Senior Resident Inspector accompanied the licensee during its Mode 3 Containment walkdown in which a Safety Injection Vent Valve (SI-V-265) was noted to have a very small active leak which will be addressed prior to startup.

On September 1, at approximately 2:00 p.m., following replacement of several failed capacitors on "B" EDG and satisfactory post maintenance testing, the "B" EDG was declared operable.

The facts of this PN were verified with John Dent, Assistant Plant Manager. This information is current as of 2:30 p.m. EST on September 1, 2006.

UPDATED INFORMATION - Restart of Seabrook Power Station: On September 2, at approximately 7:00 p.m., following replacement of several components in the voltage regulation circuit (capacitors, an internal transformer, inductors, and a gate firing card), the "A" EDG was declared operable. The resident inspectors observed portions of the post maintenance testing and reviewed test data to independently assess equipment performance and ensure operability.

The small active leak from SI-V-265 was corrected by adjusting the valve packing and ensuring the valve was tightly closed against the shut valve seat. There were no indications of reactor coolant system pressure boundary leakage. The licensee performed a boric acid evaluation with no adverse consequences noted. The resident inspectors reviewed the boric acid evaluation and examined the valve to ensure the source of the leak had been stopped and there were no detrimental effects on adjacent material or components.

The licensee also replaced two source range nuclear instrument detectors following indication and display problems that were noted while the reactor was shutdown. While a redundant wide-range nuclear instrument remained available, technical specifications required actions to open the reactor trip breakers, suspend positive reactivity changes, and shut a reactor makeup water dilution valve. This ensured the reactor was maintained in a shutdown condition while the detectors were replaced. Replacement of both source range detectors was required prior to reactor startup.

The licensee commenced a reactor startup at approximately 4:30 p.m. on September 3 with criticality achieved at 6:36 p.m. The main turbine was synchronized to the electrical grid at approximately 2:15 a.m. on September 4. The resident inspectors observed the reactor startup, synchronization of the turbine to the grid, and initial power ascension activities.

The licensee has formed a root cause determination team to review the problems in the voltage regulation circuitry of both the "A" and "B" EDGs. The Region plans to followup with the licensee concerning repetitive EDG issues that have occurred over the last two years.

This update was verified with Damon Ritter, Operations Manager. This information is current as of 10:00 a.m. EST on September 4, 2006, when reactor power was approximately 31 percent.

The Region I Public Affairs Office will respond to media inquiries. The States of New Hampshire and Massachusetts have been informed of this update.

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