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**North Anna Earthquake AIT Brief**  
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**Purpose of the AIT:**

To assess the circumstances surrounding the total loss of offsite power and dual unit reactor trip, 2H emergency diesel generator coolant leak and other plant equipment issues following a seismic event on August 23, 2011, at the North Anna Power Station.

**Observations**

- 1) Rx trips – For both U1 and U2, neutron negative rate flux signals resulted in reactor trips. These signals occurred early in the seismic event and prior to LOOP. The licensee continues a root cause investigation.
- 2) Electrical System Performance – Earthquake ground motion is the probable cause of the Generator Step Up Transformer bushing damage, sudden pressure trips, and Reserve Station Service Transformer sudden pressure trips.
- 3) On-Shift HU Performance – Operators responded to the event in accordance with approved procedures and in a manner that maintained public health and safety.
- 4) Plant parameter review – To this point, no significant damage to SSCs has been identified.
- 5) ISFSI – No significant damage is noted based on walkdowns.

**Potential Generic Issues**

- (1) Seismic panel power supply failure and EAL/OD reliance.
- (2) Seismic monitors are located on the structures and not located on the free surface in the free field; therefore, the recorded ground motion is not a good indicator for determining whether OBE and DBE was exceeded. No monitors for ISFSI are installed.

**URIs**

- (1) **2H EDG JW leak** – An incorrectly installed gasket appears to have contributed to the JW leak. Work order documents indicate that the failed gasket was installed on May 25, 2010.
- (2) **1J EDG Frequency Oscillations** – While the EDG performed its function during the event, frequency oscillations potentially exceeding TS limits were observed by operators. The licensee planned to test the EDG in isochronous mode.
- (3) **Seismic Panel Power** – Panel power was lost during the seismic event affecting EAL and Operability calls.
- (4) **Seismic Instrument Implementation** – training, labeling, data collection and orientation issues.
- (5) **1J and 2J EDG orifice plates** – missing JW orifice plates were identified by licensee. Impact of this is still under review.
- (6) **'A' AFW Terry Turbine LO level switch power** – low lube oil alarm came in because switch is powered from non-vital. Operators did not know why the alarm was in. This may be a knowledge and procedures deficiency for operators or possible design issue that could affect decisions on starting an AFW pump.
- (7) **Safety Related Instrument Qualification** – Anomalies were observed on some safety related equipment instrumentation calling into question instrument qualification (depending on determination of final cause and seismic acceleration experienced).

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