



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

September 19, 2012

LICENSEE: Luminant Generation Company LLC

FACILITY: Comanche Peak Nuclear Power Plant, Units 1 and 2

SUBJECT: SUMMARY OF AUGUST 6, 2012, PRE-LICENSING CONFERENCE CALL PUBLIC MEETING WITH LUMINANT GENERATION COMPANY LLC TO DISCUSS THE PROPOSED LICENSE AMENDMENT REQUEST IN SUPPORT OF A PLANT MODIFICATION TO INSTALL A BACKUP TRANSFORMER FOR OFFSITE AC POWER SOURCE (TAC NOS. ME8615 AND ME8616)

On August 6, 2012, a conference call public meeting was held between the U.S. Nuclear Regulatory Commission (NRC), and representatives of Luminant Generation Company LLC (Luminant, the licensee), at NRC Headquarters, Rockville, Maryland. The meeting notice and agenda, dated July 11, 2012, is located in the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML12191A147. The purpose of the meeting was to have a follow-up discussion on the proposed license amendment request by the licensee for extended completion times (CTs) for Technical Specification (TS) 3.8.1, "AC [Alternating Current] Sources - Operating," in support of a plant modification to install a backup transformer for offsite power sources at Comanche Peak Nuclear Power Plant (CPNPP), Units 1 and 2. The topic was previously discussed in a public meeting on June 26, 2012. The meeting summary for the public meeting held on June 26, 2012, is located in ADAMS at Accession No. ML12188A697.

A list of meeting attendees is provided in Enclosure 1 to this meeting summary.

### **Meeting Summary**

The discussion was based on the meeting materials/handouts enclosed with this meeting summary including the following areas of discussion (Enclosure 2):

- Probabilistic Risk Analysis (PRA) Model Scope and Quality
- External Events
- Fire Analysis
- Summary of Configuration Risk Management Program – Risk Mitigation Actions (implemented during the extended CTs)
- Deterministic Evaluation (discussion of NRC staff concerns identified during the June 26, 2012, meeting)

### **Results of Discussions**

- The discussion on PRA primarily centered on CPNPP's fire analysis. The NRC staff suggested that the licensee should compare the quantitative assessments for its fire insights against the appropriate section of NRC Regulatory Guide (RG) 1.200, "An Approach for Determining the Technical Adequacy of

Probabilistic Risk Assessment Results for Risk-Informed Activities,” as suggested during the June 26, 2012, public meeting for the final submittal.

- During the discussion on fire scenarios, the licensee indicated that one of its fixed ignition sources was an electrical cabinet having a voltage greater than 440 Volts (V). The NRC staff indicated that according to Appendix M of NUREG/CR-6850, “EPRI/NRC-RES, Fire PRA Methodology for Nuclear Power Facilities,” September 2005<sup>\*</sup>, electrical cabinets of 440 V or greater were subject to a high-energy arcing fault (HEAF). The NRC staff stated that besides a specific frequency for HEAF, the HEAF model specifies a zone of influence for fire damage and ignition that needs to be considered in the licensee’s evaluation for CPNPP.
- The licensee indicated that it plans to limit its fire scenarios to those where fire damage occurs on startup transformer, XST2. The NRC staff asked if the licensee had considered fire-induced initiators combined with a random failure of XST2. In particular, the NRC staff wanted to know if the licensee had considered whether a fire-induced hot short had initiated an open power-operated relief valve (PORV) combined with the random failure of the XST2, which would lead to a loss-of-coolant accident (LOCA) with a loss of offsite power (LOOP). The licensee indicated that it was already examining a LOOP sequence with a reactor coolant pump (RCP) seal LOCA and since the RCP seal LOCA was comparable to the open PORV, and expressed the view that would seem to address the staff’s concern with the PORV. The NRC staff requested the licensee to clarify if the timing and plant response was the same for the sequence it had analyzed as the sequence with the hot-short open PORV. The licensee stated that it believed that the timing would be similar and/or bounding. However, the licensee agreed to perform additional review to confirm its assertions and address the NRC staff’s concern. The NRC staff suggested the licensee should document the methodology, assumptions made, and final conclusion in the proposed submittal.
- The NRC staff requested the licensee to clarify if any of the hot shorts could lead to loss of a train other than the train on which hot short occurred. An example of such an event is the drain down from a tank serving multiple trains of pumps. The licensee stated that based on the evaluations performed in the past, such a scenario is not applicable to CPNPP.
- The NRC staff asked the licensee to clarify if the cable raceway database from the individual plant examination of external events (IPEEE) was complete for the scenarios considered for the purposes of this evaluation in support of the proposed modification. The licensee agreed to provide this confirmation in its final submittal. The licensee also agreed to identify the tools used for fire damage evaluations in its submittal.

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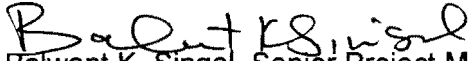
\* Electric Power Research Institute, “EPRI/NRC-RES, Fire PRA Methodology for Nuclear Power Facilities,” NUREG-CR-6850, Final Report, September 2005. Volume 1: Summary and Overview (ADAMS Accession No. ML052580075), and Volume 2: Detailed Methodology (ADAMS Accession No. ML052580118).

- The license stated that it would perform thermography of the fixed ignition sources relevant to the scenarios prior to entering the CT extension as a part of its risk mitigation actions. The NRC staff had previously suggested the use of thermography in the public meeting on June 26, 2012.
- NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Branch Technical Position (BTP) 8-8, "Onsite (Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time Extension," Initial – February 2012 (ADAMS Accession No. ML113640138), specifically discusses the defense-in-depth aspects for onsite and offsite power sources from a deterministic perspective. The NRC staff requested the licensee to discuss how it meets the guidance provided in the BTP for CPNPP in the final submittal. The licensee agreed to discuss defense-in-depth aspects for onsite and offsite power sources from a deterministic perspective.

No Public Meeting Feedback Forms were received for this meeting.

Please direct any inquiries to me at (301) 415-3016, or [balwant.singal@nrc.gov](mailto:balwant.singal@nrc.gov).

Sincerely,

  
Balwant K. Singal, Senior Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-445 and 50-446

Enclosures:

1. List of Attendees
2. Revised Handout

cc w/encl: Distribution via Listserv

LIST OF ATTENDEES

AUGUST 6, 2012, MEETING WITH LUMINANT GENERATION COMPANY LLC

REGARDING TECHNICAL SPECIFICATION 3.8.1 EXTENSION OF COMPLETION TIMES

COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 1 AND 2

DOCKET NOS. 50-445 AND 50-446

<b>NAME</b>	<b>TITLE</b>	<b>ORGANIZATION</b>
Gerry Waig	Senior Reactor Systems Engineer	U.S. Nuclear Regulatory Commission (NRC)
Rui Li	Electrical Engineer	NRC
Roy Matthew	Team Leader	NRC
JS Hyslop	Senior Risk and Reliability Engineer	NRC
Ben Beasley	Acting Branch Chief	NRC
Balwant K. Singal	Senior Project Manager	NRC
Fred Madden*	Director, Oversight and Regulatory Affairs	Luminant Generation Company LLC (Luminant)
Nathan Larson*	Senior Engineer, Probabilistic Risk Analysis (PRA)	Luminant
Robert Lichtenstein*	Project Manager	Luminant
Tamera J. Ervin-Walker*	Principal Engineer, Nuclear	Luminant
Jack Hicks*	Regulatory Affairs	Luminant
John Taylor*	Technical Support	Luminant
Munawar Hussain*	Technical Support	Luminant
Mark Wilk*	PRA	Luminant
Besty Luengas*	PRA	Luminant
Jeff Lamarca*	Project Manager	Luminant
Mike Acosta**	-	Shaw Group
Mateen Hashmi**	-	Shaw Group

\* Participated via phone

\*\* Participated via phone and represented Luminant

# Risk Analysis

- Areas for discussion
  - PRA Model Scope and Quality
  - External Events
  - Fire Analysis

# PRA Model Scope and Quality

- Internal Events and Internal Flooding models have been Peer Reviewed in 2011
- Subsequent to the Peer Review, Findings and Observations were addressed and incorporated into the current Revision 4A model
  - F&Os will be listed with resolutions

# External Events

- The following external events were reviewed qualitatively as to the applicability to this LAR for technical characteristics and attributes:
  - High Winds (Tornado)
  - Seismic
  - External Flood
  - Fire
    - Discuss on the next slides

# Fire Analysis

- Differences between RG 1.200 and IPEEE will be discussed
- Scenarios that solely affect XST2
  - Reason only fire scenarios with XST 2 evaluated
    - Results of change for a fire scenario not affecting offsite power feeds would be similar to that evaluated in the internal events analysis. Thus no additional insights would be provided beyond the internal events results.
  - Failure of XST2 with XST1 out of service results in LOOP
  - XST1 is already failed (out of service)
  - Walkdowns used to verify XST2 scenarios



# Fire Analysis (continued)

- Identify components affected
  - Used IPEEE database for cable data to identify component
  - All cable and associated equipment in identified fire zones were failed
  - Assessed failure impacts

# Fire Analysis (continued)

- Hot short analysis
  - Identify worst case conditions
    - Both failed and inadvertent operation were reviewed and the state that would have the most unfavorable configuration was used
  - Component failure modes were applied
  - Internal Events Model was modified
    - Used fire modeling techniques to insert the fire scenarios into the internal events model
    - NUREG 6850 fire initiating event frequency were not used

# Fire Analysis (continued)

- Four applicable fire scenarios
  - Unit 1 (3 scenarios – 2 fixed / 1 transient)
  - Unit 2 (1 scenario - transient)
- Scenarios were quantified
  - The results were used to support the qualitative analysis
  - The quantitative results were not meant to be used as a stand alone analysis, but were used for insights and perspective
- The results will be available for review

# **Configuration Risk Management Program – Risk Mitigation Actions**

[Implemented during the extended CTs]

1. **Restricted Access to and Suspension of Maintenance in the Switchyard.**
2. **Verifying operability of EDGs and TDAFWPs and the availability of APDGs within the Two (2) Weeks Prior to the Start of the XST1 extended CT.**
3. **Rescheduling of Testing and Maintenance on the EDGs, APDGs, TDAFWPs, XST2, CCWPs and SSWPs to occur outside the extended CT window.**
4. **Suspension of Hot Work Activities Near XST2 Power and Control Cabling.**
5. **Roving Hourly Fire Watch Along Paths of XST2 Power and Control Cabling.**
6. **Selection of Time of Year Due to Weather Considerations.**
7. **Operations preparations and weather / grid monitoring during the CT.**
8. **Walkdown of EDGs / TDAFWPs for seismic verification prior to CT.**
9. **Perform Thermography on the two Unit 1 components associated with the applicable fire scenarios.**
10. **Restriction of transient combustibles in areas determined in the fire analysis.**

# DETERMINISTIC EVALUATION

- OPTIONS AND RISKS OF PERFORMING WORK AT POWER VERSUS WORKING WHILE ONE UNIT IS IN AN OUTAGE
- ABILITY OF A SINGLE SOURCE (345KV LINE) TO WITHSTAND A DUAL UNIT TRIP
- SAFETY JUSTIFICATION OF WHY TWO, 14DAY CTS ARE NEEDED
- TRANSFORMER HEALTH/RELIABILITY PROGRAM
- WORK SCHEDULES (14-day CT for 138kV, at Power, and 14-day CT for 6.9kV)

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Sincerely,  
/RA/

Balwant K. Singal, Senior Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-445 and 50-446

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1. List of Attendees
2. Revised Handout

cc w/encl: Distribution via Listserv

DISTRIBUTION:

PUBLIC	RidsNrrDssStsb Resource	SKennedy, EDO RIV
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**ADAMS Accession No. ML12229A504**

**\*Via e-mail**

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	NRR/DRA/APLA/BC	NRR/DSS/STSB/BC
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