



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION IV
1600 E. LAMAR BLVD.
ARLINGTON, TX 76011-4511

July 9, 2017

Ken J. Peters, Senior Vice President
and Chief Nuclear Officer
Attention: Regulatory Affairs
Vistra Operations Company LLC
P.O. Box 1002
Glen Rose, TX 76043

**SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 1 AND 2 –
INSPECTION OF THE IMPLEMENTATION OF MITIGATION STRATEGIES
AND SPENT FUEL POOL INSTRUMENTATION ORDERS, AND EMERGENCY
PREPAREDNESS COMMUNICATION/STAFFING/MULTI-UNIT DOSE
ASSESSMENT PLANS – INSPECTION REPORT 05000445/2017009 AND
05000446/2017009**

Dear Mr. Peters:

On May 19, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed the onsite portion of the inspection at the Comanche Peak Nuclear Power Plant, Units 1 and 2. On June 26, 2017, the NRC inspectors discussed the results of this inspection with Mr. Tom McCool, Site Vice President, and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

The inspection examined activities conducted under your license as they relate to the implementation of mitigation strategies and spent fuel pool instrumentation orders (EA-12-049 and EA-12-051) and Emergency Preparedness Communication, Staffing, and Multi-Unit Dose Assessment Plans, your compliance with the Commission's rules and regulations, and with the conditions of your operating license. Within these areas, the inspection involved examination of selected procedures and records, observation of activities, and interviews with station personnel.

The NRC inspectors did not identify any findings or violations of more than minor significance associated with this inspection.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public

K. Peters

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Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Mark S. Haire, Chief
Project Branch A
Division of Reactor Projects

Docket Nos. 50-445 and 50-446
License Nos. NPF-87 and NPF-89

Enclosure:
Inspection Report 05000445/2017009 and
05000446/2017009
w/ Attachment: Supplemental Information

cc w/ encl: Electronic Distribution

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000445, 05000446
License: NPF-87, NPF-89
Report: 05000445/2017009 and 05000446/2017009
Licensee: Vistra Operations Company LLC
Facility: Comanche Peak Nuclear Power Plant, Units 1 and 2
Location: 6322 N. FM-56, Glen Rose, Texas
Dates: May 15 – June 26, 2017
Inspectors: R. Alexander, Sr. Project Engineer (Team Leader)
E. Uribe, Project Engineer
T. Sullivan, Project Engineer
Approved By: Mark S. Haire
Chief, Project Branch A
Division of Reactor Projects

SUMMARY

IR 05000445/2017009 and 05000446/2017009; 05/15/2017 – 06/26/2017; Comanche Peak Nuclear Power Plant; Temporary Instruction 2515/191, Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans, issued December 23, 2015.

The inspection covered a one week inspection by three inspectors from the Region IV office. No findings were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

A. NRC-Identified and Self-Revealing Findings

None

B. Licensee-Identified Violations

None

REPORT DETAILS

4. Other Activities

40A5 Other Activities (TI 2515/191)

The objective of Temporary Instruction (TI) 2515/191 “Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans” is to verify that licensees have adequately implemented the mitigation strategies as described in the licensee’s Final Integrated Plan (ADAMS Accession No. ML16214A251) and the NRC’s plant safety evaluation (ADAMS Accession No. ML16334A173) and to verify that the licensees installed reliable water-level measurement instrumentation in their spent fuel pools. The purpose of this TI is also to verify the licensees have implemented Emergency Preparedness (EP) enhancements as described in their site-specific submittals and NRC safety assessments, including multi-unit dose assessment capability and enhancements to ensure that staffing is sufficient and communications can be maintained during such an event.

The inspection verified that plans for complying with NRC Orders EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (ADAMS Accession No. ML12229A174) and EA-12-051, Order Modifying Licenses With Regard to Reliable Spent Fuel Pool Instrumentation (ADAMS Accession No. ML12056A044) are in place and are being implemented by the licensee. Additionally, the inspection verified implementation of staffing and communications information provided in response to the March 12, 2012 request for information letter and multi-unit dose assessment information provided per COMSECY-13-0010, Schedule and Plans for Tier 2 Order on Emergency Preparedness for Japan Lessons Learned, dated March 27, 2013 (ADAMS Accession No. ML12339A262).

The team discussed the plans and strategies with plant staff, reviewed documentation, and where appropriate, performed plant walk downs to verify that the strategies could be implemented as stated in the licensee’s submittals and the NRC staff-prepared safety evaluation. For most strategies, this included verification that the strategy was feasible, procedures and/or guidance had been developed, training had been provided to plant staff, and required equipment had been identified and staged. Specific details of the team’s inspection activities are described in the following sections.

1. Mitigation Strategies for Beyond-Design-Basis External Events

a. Inspection Scope

The team examined the licensee’s established guidelines and implementing procedures for the beyond-design-basis mitigation strategies. The team assessed how the licensee coordinated and documented the interface/transition between existing off-normal and Emergency Operating Procedures with the newly developed mitigation strategies. The team selected a number of mitigation strategies and conducted plant walk downs with licensed operators and responsible plant staff to assess: the adequacy and completeness of the procedures; familiarity of operators with the procedure objectives

and specific guidance; staging and compatibility of equipment; and the practicality of the operator actions prescribed by the procedures, consistent with the postulated scenarios.

The team verified that a preventive maintenance program had been established for the Diverse and Flexible Coping Strategies (FLEX) portable equipment and that periodic equipment inventories were in place and being conducted. Additionally, the team examined the introductory and planned periodic/refresher training provided to the Operations and Security staffs most likely to be tasked with implementation of the FLEX mitigation strategies. The team also reviewed the introductory and planned periodic training provided to the Emergency Response Organization personnel.

b. Assessment

Based on samples selected for review, the inspectors verified that the licensee satisfactorily implemented appropriate elements of the FLEX strategy as described in the plant specific submittals and the associated safety evaluation and determined that the licensee is generally in compliance with NRC Order EA-12-049. The inspectors verified that the licensee satisfactorily:

- Developed and issued FLEX Support Guidelines (FSGs, called FLEX Support Instructions (FSI) at Comanche Peak) to implement the FLEX strategies for postulated external events;
- Integrated their FSIs into their existing plant procedures such that entry into and departure from the FSIs are clear when using existing plant procedures;
- Protected FLEX equipment from site-specific hazards;
- Developed and implemented adequate testing and maintenance of FLEX equipment to ensure their availability and capability;
- Trained their staff to assure personnel proficiency in the mitigation of beyond-design-basis events; and
- Developed means to ensure that the necessary off-site FLEX equipment will be available from off-site locations.

The inspectors verified that any non-compliances with current licensing requirements, and other issues identified during the inspection were entered into the licensee's corrective action program.

c. Findings

No findings identified.

2. Spent Fuel Pool (SFP) Instrumentation

a. Inspection Scope

The team examined the licensee's newly installed spent fuel pool instrumentation. Specifically, the inspectors verified the sensors were installed as described in the plant

specific submittals and the associated safety evaluation and that the cabling for the power supplies and the indications for each channel are physically and electrically separated. Additionally, environmental conditions and accessibility of the instruments were evaluated. Documents reviewed are listed in the attachment.

b. Assessment

Based on samples selected for review, the inspectors determined that the licensee satisfactorily installed and established control of the SFP instrumentation as described in the plant specific submittals and the associated safety evaluation and determined that the licensee is generally in compliance with NRC Order EA-12-051. The inspectors verified that the licensee satisfactorily:

- Installed the SFP instrumentation sensors, cabling and power supplies to provide physical and electrical separation as described in the plant specific submittal and safety evaluation;
- Installed the SFP instrumentation display in the location, environmental conditions and accessibility as described in the plant specific submittals; and
- Trained their staff to assure personnel proficiency with the maintenance, testing, and use of the SFP instrumentation.

The inspectors verified that any non-compliances with current licensing requirements, and other issues identified during the inspection were entered into the licensee's corrective action program.

c. Findings

No findings identified.

3. Staffing and Communication Request for Information

a. Inspection Scope

Through discussions with plant staff, review of documentation and plant walk downs, the team verified that the licensee has implemented required changes to staffing, communications equipment and facilities to support an Extended Loss of All AC Power (ELAP) scenario as described in the licensee's staffing assessment and the NRC safety assessment. The team also verified that the licensee has implemented dose assessment (including releases from SFPs) capability using the licensee's site-specific dose assessment software and approach as described in the licensee's dose assessment submittal. Documents reviewed are listed in the attachment.

b. Assessment

The inspectors reviewed information provided in the licensee's multi-unit dose submittal and in response to the NRC's March 12, 2012, request for information letter and verified that the licensee satisfactorily implemented enhancements pertaining to Near-Term Task Force Recommendation 9.3 response to a large scale natural emergency event that results in an extended loss of all ac power to the site and impedes access to the site.

The inspectors verified the following:

- Licensee satisfactorily implemented required staffing change(s) to support an ELAP scenario;
- Emergency preparedness communications equipment and facilities are sufficient for dealing with an ELAP scenario; and
- Implemented dose assessment capabilities (including releases from SFPs) using the licensee's site-specific dose assessment software and approach.

The inspectors verified that any non-compliances with current licensing requirements, and other issues identified during the inspection were entered into the licensee's corrective action program.

c. Findings

No findings identified.

4OA6 Exit

Exit Meeting Summary

On May 19, 2017, the inspectors presented the on-site inspection results in a management debrief to Mr. T. McCool, Site Vice President, and other members of the site staff. The inspectors confirmed that proprietary information examined during the inspection had been returned. The inspectors completed an exit meeting with Mr. T. McCool, Site Vice President, and other members of the site staff, via telephone on June 26, 2017, to discuss the final results of the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

J. Brau, FLEX Procedure Writer, Operations Support
G. Bryan, Unit Supervisor, Emergency Preparedness
B. Clark, Sr. Reactor Operator, Operations
C. Corbin, Principal Engineer, Regulatory Affairs
R. Deppi, Director, Engineering Projects
J. Dreyfus, Plant Manager
B. Henley, Engineer, Engineering
J. Hull, Manager, Emergency Preparedness
J. Jank, FLEX Procedure Writers, Operations Support
T. McCool, Site Vice President
M. McNally, Manager, Security
M. Reeves, Director, Maintenance
R. Reible, Sr. Project Engineer/FLEX Project Manager, Engineering Projects
B. St. Louis, Director, Operations
J. Taylor, Director, Site Engineering
L. Wandall, Engineer, Engineering

NRC Personnel

J. Josey, Senior Resident Inspector
S. Janicki, Acting Resident Inspector
N. Sanfilippo, Branch Chief, Office of Nuclear Reactor Regulation, Japan Lessons Learned Div.

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

2515/191	TI	Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans, issued December 23, 2015
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LIST OF DOCUMENTS REVIEWED

Section 40A5: Other Activities

Corrective Action Documents

CR-2013-002652	CR-2014-012443	CR-2014-012945	CR-2015-000369
CR-2015-001503	CR-2015-002099	CR-2015-003153	CR-2015-003907
CR-2015-003994	CR-2015-004831	CR-2015-006167	CR-2015-007415
CR-2015-008963	CR-2015-010749	CR-2016-010177	EV-CR-2015-003153-1
CR-2017-006551*	CR-2017-006568*	CR-2017-006529*	CR-2017-006501*
CR-2017-006488*	CR-2017-006462*	CR-2017-006470*	CR-2017-006432*
CR-2017-007796*	IR-2017-005822	IR-2017-006370	IR-2017-006372
IR-2017-006373	IR-2017-006566	IR-2017-006594*	TR-2015-000369
TR-2016-010177	TR-2017-000369	TR-2017-002586	TR-2017-004075
TR-2017-005777	TR-2017-005787	TR-2017-005822	TR-2017-006291

* - indicates corrective action document written by the licensee as a result of the NRC inspection

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
E1-0007-A	Safeguard and Auxiliary Buildings Safeguard 480V MCC's One Line Diagram	CP-35
E1-0019-A	24/48V DC One Line Diagram	CP-18
E2-0019-A	24/48V DC One Line Diagram	CP-11
M1-0225-06	Flow Diagram Fire Protection System Main Loop	CP-34
M1-0225	Flow Diagram Fuel Building Fire Protection	CP-12
E1-0024-01C	Plant Support 480V AC Distribution Panels One Line Diagram	CP-16
E1-0024-01A	Common Normal Load 480/208/120V/3 ϕ One Line Diagram	CP-21
E2-0019	125/250V DC One Line Diagram	CP-18
E1-0019	125/250V DC Switchboard 1D2 One Line Diagram	CP-27
S-0156	FLEX Equipment Storage Building	1

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
38-9238001-002	AREVA Document SAFER Response Plan for CPNPP	3

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ABN-601	Response to a 138/345kV System Malfunction	13
ABN-907	Acts of Nature	15
ECA-0.0A/B	Loss of All AC Power	9
ECE-5.08	Design Change Process	2
FSI-1.0A/B	Long Term Inventory Control	0
FSI-10.0A/B	Accumulator Venting	0
FSI-11.0	Alternate SFP Makeup	0
FSI-20.0A/B	Loss of All AC Power While on Shutdown Cooling	0
FSI-21.0A/B	Shutdown RCS Makeup	0
FSI-22.0A/B	Shutdown SG Makeup	0
FSI-24.0A/B	Mode 5/6 DC Bus Load Management and Phase 2 480 VAC Generator Alignment	0
FSI-3.0A/B	Alternate AFW Pump Operation	0
FSI-30.0	Phase 3 Equipment Operation	0
FSI-30.501	Phase 3 Alternate SSW System Restoration	0
FSI-30.502	Phase 3 CCW System Restoration	0
FSI-30.506	Phase 3 Spent Fuel Pool Cooling System Restoration	0
FSI-30.507	Phase 3 Reactor Makeup Water System Restoration	0
FSI-30.509	Phase 3 Instrument Air System Restoration	0
FSI-30.802	Phase 3 Control Room Ventilation System Restoration	0
FSI-30.814	Phase 3 Ventilation Chilled Water System Restoration	0
FSI-30.815	Phase 3 Safety Chilled Water System Restoration	0
FSI-30.816	Phase 3 Primary Plant Ventilation System Restoration	0
FSI-4.0A/B	DC Bus Load Management and Phase 2 480 VAC Generator Alignment	0
FSI-5.0	Initial Assessment and FLEX Equipment Staging	0
FSI-6.0	Alternate CST Makeup	0
FSI-7.0A/B	Loss of Vital Instrumentation or Control Power	0
FSI-8.0A/B	Alternate RCS Boration	0
IPO-003A	Power Operations	30
IPO-005A	Plant Cooldown from Hot Standby to Cold Shutdown	26

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
SEC-950	Security Response – Beyond Design Basis Event – FLEX (OUO-SRI)	0
SOP-907A	Containment Personnel Airlocks	16
STA-634	Extreme Temperature Equipment Protection Program	6
STA-677	Preventive Maintenance	11
STI-140.01	Station Non-Accredited Training	2
STI-204.01	FSI Rules of Usage	0
STI-204.01-6	FLEX 12KW Generator Local Job Aid	0
STI-204.01-7	FLEX Phase 2 480 VAC Generator	0
STI-250.02-05	FLEX RCS Boration System Inspection and Inventory	1
STI-250.02-11	FLEX Emergency Plan Equipment Inspection and Inventory	2
STI-250.03	NSRC FLEX Equipment Staging, Receipt and Control	0
STI-716.06	Impact Assessments Reviews	0

Parent/Model Work Orders

<u>Number</u>	<u>Title</u>	<u>Revision / Date</u>
5364556	SR/RVLIS FLEX UPS Unit 1 and 2	{No Date}
5370628	FLEX Bobcat Compact Track Loader	{No Date}
5377309	Multipurpose High Flow FLEX Pump	{No Date}
5377391	SG/AFW LP FLEX Pump	{No Date}
5383157	RCS Boration HP FLEX Pump	{No Date}
5383629	FLEX Fuel Caddy Trailer	{No Date}
5405326	Phase 2 480 VAC 500 KW Diesel Generator	{No Date}
5410242	FLEX Portable 12 KW Diesel Generator 120/240	{No Date}
5428642	FLEX Equipment Storage Building	{No Date}

Calculations

FDA 2013-000008-28-01

Miscellaneous Documents/Reports

<u>Number</u>	<u>Title</u>	<u>Revision / Date</u>
	Comanche Peak Nuclear Power Plant Units 1 and 2 Safety Evaluation	December 14, 2016
	FLEX Validation Integrated Review – Comanche Peak	November 6, 2015
	Training Program Curriculum - LORT Requal 2017-2018	March 23, 2017
	Training Program Curriculum - NEO Requal 2017-2018	March 23, 2017
DBD-ME-012	Beyond Design Basis Events	2
ER-ME-133	Beyond-Design-Basis External Event Mitigation Strategies	1
IC25SYSSF1	Training Material/Lab Guide – Spent Fuel Pool Level Instrumentation	April 28, 2015
LGC13555	CPNPP FLEX Equipment Storage Building Geotechnical Investigation Report	January 2014
LO44.FLX.01	Simulator Exercise Guide – Loss of All AC – FLEX	July 22, 2015
MD31.ADM.FLS	Lesson Plan – FLEX System Mods	November 6, 2014
OPD1.ADM.FLD	FLEX Delta Training	October 22, 2015
OPD1.ADM.FLX	Lesson Plan - FLEX Intro	March 4, 2014
TXX-13081	Revised Phase 1 Staffing Assessment Submitted in Response to Request for Information Pursuant to 10 CFR 50.54(f) Regarding Recommendation 9.3 of the Near-Term Task Force Review of Insights	April 30, 2013
TXX-16002	Comanche Peak Nuclear Power Plant, Docket Nos. 50-445 And 50-446, Submittal of Updated Phase 2 Staffing Assessment Regarding Recommendation 9.3 (Staffing) (TAC NOS. ME8686 and ME8687)	January 20, 2016
TXX-16051	Comanche Peak Nuclear Power Plant Final Integrated Plan	July 28, 2016
VDRT 4889620	Specification for 4160 VAC – 6900 VAC Three Phase Step Up Transformer	February 28, 2014
PO S08098296D6	Purchase Order for ABB Power 4160-to-6900 VAC Transformers	May 6, 2015
Requisition 611-6R 429687	Purchase Order for ABB Power 4160-to-6900 VAC Transformer	January 6, 2015

COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 1 AND 2 – INSPECTION OF THE
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