

# Comanche Peak Nuclear Power Plant (CPNPP)

First License Renewal (60 years) Application:  
Safety Pre-Application Submittal Meeting

September 2021



**Luminant**

# Opening Remarks and Introductions

## Speakers

- Steven Sewell (Luminant)
- Todd Evans (Luminant)
- Taylor Smith (Luminant)
- Amit Kalia (Luminant)

## Participants

- Ramiz Gilada (Luminant)
- Carl Corbin (Luminant)
- Burns Cunningham (ENERCON)
- Mitch McFarland (ENERCON)
- Gary Adkins (ENERCON)
- Tom Zalewski (Westinghouse)

# AGENDA

- General Information
- Application Preparation Approach
  - Scoping and Screening
  - Aging Management Review
  - Aging Management Programs
  - TLAA and Exemption Identification
  - Operating Experience
- Topics of Interest
  - Environmentally Assisted Fatigue
  - MRP-227
  - EOL Fluence and Capsule Fluence
- Discussion, Future Activities and Q&A

# General Information

- Project Team Experience
  - Luminant engaged in NEI Working Groups (LRA and LRI) and extensive benchmarking since 2017
  - Luminant conducted extensive LR Feasibility Study in 2019
  - Luminant attends LR related public meetings
  - Experienced Luminant technical personnel
  - Engaged resources with extensive LR experience
    - ENERCON & Westinghouse
  - Consultant review of selected documents
- Building a high-quality application
  - Review and address recent applicant RCIs, RAIs and Supplements (Byron-Braidwood, Waterford, Turkey Point, Peach Bottom, Surry)
  - Monitoring on-going applicant processes
  - Industry Peer Review to be conducted prior to submittal

## General Information (cont.)

- Licensee information
  - Operator – Vistra Operations Company LLC (Vistra OpCo)
    - Luminant commonly used to denote CPNPP operator
  - Owner – Comanche Peak Power Company LLC (CP Power Co)
  - Vistra OpCo is indirect, wholly owned subsidiary of Vistra Corp

## General Information (cont.)

- CPNPP Units 1 and 2
  - Four Loop Westinghouse PWRs that are nearly identical
  - Located in north Texas, southwest of Dallas–Fort Worth

CPNPP Upgrade History	Unit 1	Unit 2
Initial License, 3411 MWt	1990	1993
Leading Edge Flow Meter Technology, 3458 MWt	2001	1999 / 2001
Stretch Power Uprate, 3612 MWt	2008	2008
SG & RVCH Replacements*	2008	N/A
Mechanical Stress Improvement Process	2019	2021
Structural Weld Overlay for Pressurizer Nozzles	2007	2008
Current License Expiration Date	2/8/2030	2/2/2033
*Included Alternate Containment Access	-	-

- LRA written to NUREG-1801 Rev. 2 and LR-ISGs
- LRA submittal planned for Oct-Dec 2022



# General Information (cont.)



# Application Approach to Scoping and Screening

- Nuclear Safety Related, 10 CFR 54.4(a)(1)
- Regulated Events 10 CFR 54.4(a)(3)
  - Fire Protection 10 CFR 50.48
  - Environmental Qualification 10 CFR 50.49
  - Pressurized Thermal Shock 10 CFR 50.61
  - Anticipated Transient Without Scram 10 CFR 50.62
  - Station Black Out 10 CFR 50.63
- SSC Intended Functions
  - System Intended Function Sources: FSAR, DBDs, TS, TRMs, FPR, Docketed Correspondence
  - Component Intended Functions consistent with NEI 95-10 Rev. 6



# Application Approach to Scoping and Screening (cont)

- Non-Safety Affecting Safety, 10 CFR 54.4(a)(2)
  - Spaces Approach Consistent with NEI 95-10, App. F
    - ANSI B31.1 piping attached to ASME Class (1, 2 or 3) Piping
    - Other ANSI B31.1 piping inside Seismic Category I Buildings (Spatial)
    - Protection Design Features for Flooding, Missiles, Tornadoes, Pipe Whip, and Jet Impingement

# Application Approach to Aging Management Review

- System/Structure AMR (9-column) Tables
  - Generic Notes
    - Majority are Note A through E – consistent with GALL
  - Plant-Specific Notes
    - Majority are to cite NUREG-2191 line items considered as applicable operating experience
  - Unique Materials
    - Fiberglass piping (Equipment and Floor Drain system) and pump casings (Chemical Transfer Condensate Deox Pumps)

# Application Approach to Aging Management Programs

- 44 AMPs
  - 37 Existing
  - 7 New
- AMPs with Exceptions (Preliminary)
  - XI.M2 Water Chemistry
  - XI.M17 Flow-Accelerated Corrosion
  - XI.M19 Steam Generators
  - XI.M21A Closed Treated Water Systems
  - XI.M27 Fire Water System
  - XI.M30 Fuel Oil Chemistry
  - XI.M41 Buried and Underground Piping and Tanks
  - XI.M42 Internal Coatings/Linings
  - XI.S3 ASME Section XI, Subsection IWF
- No plant specific AMPs

# Application Approach to TLAA and Exemptions Identification

- Search Methods
  - Keyword Searches of CPNPP plant records, plant licensing documents, and OEM document management system
    - TLAA search and screening performed against requirements in 10 CFR 54.21 and Section 54.3
- No Exemptions based on TLLAs are anticipated
- Plant Specific TLAAs for CPNPP
  - U2 SG tube corrosion allowance
  - SG tube vibration wear projections
  - Effect of radiation on containment coatings

# Application Approach to Operating Experience

- Initial Review Period: 1/1/2011 through 12/31/2020
  - Formal OE cutoff date will be 12/31/2021 (2021 OE to be reflected in application)
- CPNPP CAP Database is ActionWay
- Keyword Searches
  - ~200 Keywords Developed From Recent SLR OE Audits
  - ~51,000 Results (IRs, CRs, TRs, OERs)
  - ~5,500 relevant to LR
- Lessons learned from recent RAIs/RCIs and supplements are incorporated in AMPs and AMRs
- GALL-SLR and SLR-ISGs are considered as Operating Experience
- No New Aging Effects Identified

# Topics of Interest

## Environmentally Assisted Fatigue

- NUREG/CR-6260 sample set locations are being evaluated
- Performing EAF screening consistent with GALL Revision 2, X.M1 to identify additional plant-specific component locations that are more limiting than NUREG/CR-6260 locations
- Additional sentinel locations will be addressed prior to entering the PEO



# Topics of Interest (cont.)

## MRP-227

- CPNPP is the first 60 year application post issuance of MRP-227 Rev 1-A and as supplemented by SLR-ISG-2021-01-PWRVI
- The MRP provides Aging Management guidelines for 60 years of operation
- CPNPP LR Application, including the RVI AMP, will reference the MRP and will be consistent with the ISG
- CPNPP RVI AMP will be implemented prior to the PEO

## Topics of Interest (cont.)

### EOL Fluence vs Capsule Fluence

- Both Comanche Peak units have already withdrawn and tested a surveillance capsule intended to bound 60-year operation
- Fluence values for these capsules are slightly below the peak 60-year reactor vessel fluence based on the latest projections
- Luminant intends to re-insert one previously withdrawn surveillance capsule at each unit in order to obtain higher fluence data which bounds the PEO
- These capsules are intended to be removed and tested prior to the end of the PEO and after reaching a fluence value equivalent to the 80-year reactor vessel fluence
  - Capsule will be removed with a fluence that is between once and twice the peak RV fluence consistent with ASTM E185-82 and GALL Revision 2

# Discussion and Future Activities

- Luminant would like the NRC's perspective on any currently developing topics that the NRC is aware whose timing could impact Luminant's application or the NRCs review of the application, e.g.
  - Additional guidance, e.g. additional ISGs
  - Good practices from current LR application reviews
  - Process changes
- Continue quarterly check-ins
- Plan Pre-Application Submittal meeting ~6 months prior to submittal
  - Some potential topics
    - Use of RCIs and Supplements
    - OE Searches by NRC
    - Sufficiency Review
    - Audits
    - Portal

# Closing Remarks

CPNPP application will be consistent with industry practices and lessons learned from recent LR/SLRs and meet NRC requirements

Luminant will submit a high-quality application that can support an 18 month staff review

CPNPP application is on track to be submitted to the NRC in October to December 2022



**Luminant**

## **Additional Information**

# Aging Management Review – LRBD Example

