# Watts Bar Unit 2
## Tritium Production Planning Discussion

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# Agenda

- ❑ Introduction and Background
- ❑ Project Scope
- ❑ Licensing Strategy
- ❑ Licensing Schedule
- ❑ Closing

# Introduction and Background (1/2)

- Tritium Production Program
  - Watts Bar Unit 1 tritium production began in October 2003
- Department of Energy (DOE) identified the need to expand production which requires a second reactor
  - In December 2015, DOE notified TVA of future tritium needs
  - In June 2016, TVA agreed to assess potential for tritium production for Watts Bar Unit 2

# Introduction and Background (2/2)

- Watts Bar tritium production target
  - Steady ramp-up of tritium production to approximately 2800 grams every 18 months by December 2025
    - Current production is less than 700 grams per fuel cycle with 704 TPBARS in Unit 1
  - July 2016 Unit 1 license amendment authorized 1792 TPBAR production
  - Unit 2 tritium production would need to begin in Cycle 4 (currently scheduled to begin November 2020)

# Project Scope

- Plant Modifications
  - Replace seven CCS and ERCW relief valves
  - Add reverse osmosis unit to Liquid Radwaste System
  - Replace Upper Compartment Coolers (contingency)
- TVA Engineering Documentation
  - Westinghouse analyses
  - PNNL engineering documentation
  - Holtec analyses
- License Amendment Request to operate with 1792 TPBARs at Watts Bar Unit 2

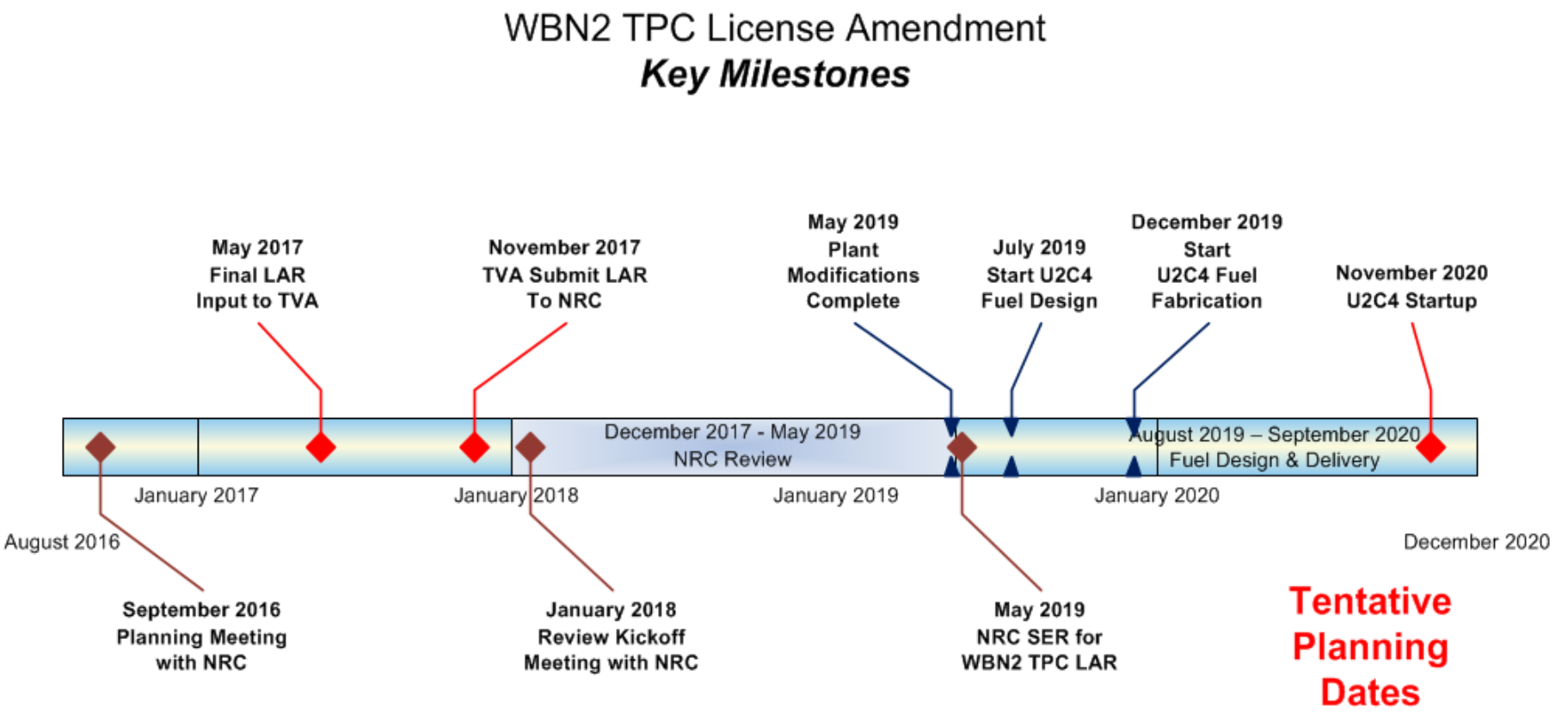
# Licensing Strategy (1/2)

- Key planning assumptions based on Watts Bar Unit 1 precedents
  - Unit 2 LAR would address 17 plant-specific interface items from NUREG 1672 Safety Evaluation Report for DOE Tritium Production Core Topical Report
  - Address post-LOCA subcriticality
  - No update to DOE Topical Report would be made
  - No Environment Impact Statement would be required
  - Effect on thermal conductivity degradation would be treated in same manner as for Unit 1
    - PAD4TCD licensing issue for Unit 2 License Condition would not be coupled with Unit 2 TPBAR LAR

# Licensing Strategy (2/2)

- Lessons learned from Unit 1 and emergent industry issues will be incorporated
  - New effluent assessments will address effect of two unit tritium production on liquid waste management
    - Needs to be developed for two-unit operation and credit additional release dilution flow and reverse osmosis unit decontamination
  - Reactor vessel fluence evaluations will address issues documented in RIS 2014-11
  - Rack criticality analyses will address lessons learned from NEI 12-16 and GL 2016-01

# Licensing Schedule



# Closing

- Based on DOE need to expand tritium production, TVA agreed to assess potential for tritium production at Watts Bar Unit 2
- A LAR is scheduled to be submitted in November 2017 requesting approval to operate with 1792 TPBARs at Watts Bar Unit 2