Prairie Island Nuclear Generating Plant

Pre-Application Meeting

License Amendment Request

Revise Technical Specifications to Adopt Risk Informed Completion Times TSTF-505, Revision 2, “Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b”

September 26, 2019

Meeting Agenda

- Describe future license amendment request
  - Scope of the request
  - Variations from TSTF-505
  - PRA Models and CRMP Summary
- Schedule

Scope of the Request

- Based on TSTF-505, Revision 2, and NEI 06-09, “Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines”
- RICTs apply to 18 PINGP LCOs
  - Applicable in Modes 1 and 2
  - No “loss of function” consistent with template
- New TS 5.5 program called the “Risk Informed Completion Time Program”
- Precedent approved and under review considered

Variations

- Differences in Condition/RA wording
  - PINGP TS are based on Revision 1 of NUREG-1431, “Standard Technical Specifications Westinghouse Plants”
- PINGP plant-specific Conditions/RAs not in TSTF-505
- TSTF-505 Conditions/RAs not applicable to PINGP
- Administrative changes
  - TS formatting changes
- Cross-reference list for TSTF-505 markups to PINGP site-specific TS RAs provided
- Re-typed/clean TS pages not included

TS 3.3.1 – Reactor Trip System (RTS) Instrumentation

- Condition not in TSTF-505
  - TS 3.3.1.L.1 – for one or both channel(s) inoperable on one bus, place channel(s) in trip
    - Bus undervoltage and underfrequency reactor trip function
  - 6 hour CT front stop
  - Function is modeled in PRA
  - RICT added to RA consistent with TSTF-505 changes

TS 3.3.2 – Engineered Safety Feature System (ESFAS) Instrumentation

- Condition not in TSTF-505
  - TS 3.3.2.I.1 – for one or both channel(s) inoperable on one bus, place channel(s) in trip
    - Bus undervoltage AFW start function
  - 6 hour CT front stop
  - Function is modeled in PRA
  - RICT added to RA consistent with TSTF-505 changes

TS 3.6.5 – Containment Spray and Cooling Systems

- PINGP has two trains of Containment Cooling and both trains are required to be operable by TS LCO 3.6.5.
- Conditions not in TSTF-505
  - TS 3.6.5.C.1 – one or both containment cooling FCU(s) in one train inoperable, restore containment cooling FCU(s) to OPERABLE status
  - TS 3.6.5.D.2 – one containment cooling FCU in each train inoperable, restore all FCUs to OPERABLE status
  - 7 day CT front stops
  - FCUs are not modeled in PRA
    - Analysis has shown FCUs are not required to prevent a Large Early Release
  - RICT added to RAs consistent with TSTF-505 changes

TS 3.7.1 – Main Steam Safety Valves (MSSVs)

- TS 3.7.1 LCO requires PINGP to have five MSSVs per steam generator operable or the unit is required to shut down
- Condition not in TSTF-505
  - TS 3.7.1.A.1 – for one MSSV inoperable, restore inoperable MSSV to OPERABLE status
  - 4 hour CT front stop
  - MSSVs are modeled in PRA
  - RICT added to RAs consistent with TSTF-505 changes

TS 3.7.8 – Cooling Water (CL) System

- CL is a shared system between PINGP units. TS 3.7.8 LCO requires PINGP to have two CL trains OPERABLE or both units are required to shut down
- Conditions not in TSTF-505
  - TS 3.7.8.A.1 – for no safeguards CL pumps OPERABLE for one train, restore one safeguards CL pump to OPERABLE status
    - Remove NOTE 3 which limits the Condition existing for greater than 7 days in any consecutive 30 day period
    - 7 day CT front stop
  - TS 3.7.8.B.3 – for one CL supply header inoperable, restore CL supply header to OPERABLE status
    - 72 hour CT front stop
  - CL System modeled in PRA
  - RICT added to RAs consistent with TSTF-505 changes

PRA Technical Adequacy

- Internal Events including Internal Flooding
  - RG 1.200 peer reviewed
  - Appendix X to NEI 05-04 finding closure review complete
  - One open F&O related to Abeyance RCP seal
- Fire
  - RG 1.200 peer reviewed
  - Appendix X to NEI 05-04 finding closure review complete
  - No open Fire PRA F&Os
  - Fire PRA reflects future state of the as-built/as-operated plant following NFPA 805 modifications
    - Unit 1 – Fall 2020 RFO; Unit 2 – Fall 2019 RFO
    - RICT Program will not be used until modifications are complete on both units and PRA models updated

PRA Technical Adequacy (continued)

- Seismic
  - No PINGP seismic PRA
  - NRC staff assessment of PINGP seismic (ML15341A162):
    - Seismic hazard bounded by existing design-basis SSE,
    - Therefore, seismic risk evaluation not merited
  - Seismic penalty will be applied to all RICTs based on current seismic hazard for CDF & LERF
- Other External Hazards
  - Bounding analysis concludes that other external hazards can be screened out from calculations in the RICT Program

RICT Program Real-Time Risk Model

- A Real-Time Risk Model similar to existing Maintenance Rule a(4) Configuration Risk Management Program
  - Uses EPRI Phoenix Risk Analysis Software
  - Incorporates RICT/RMAT calculation features
  - Incorporates seismic penalty factor

Impact of Ongoing NRC/Industry Risk-Informed Activities

- Development of an alternative to the administrative TS addressing use of newly developed PRA methods
  - Intend to supplement PINGP application if becomes available while PINGP application is under review

Schedule

- Projected submission in November 2019 with a requested issuance of December 2020
- Request an implementation period of 180 days

Acronyms

- AFW – Auxiliary Feedwater
- CDF – Core Damage Frequency
- CT – Completion Time
- CRMP – Configuration Risk Management Program
- F&O – Facts and Observations
- FCU – Fan Coil Unit
- LAR – License Amendment Request
- LCO – Limiting Condition of Operation
- NEI – Nuclear Energy Institute
- PINGP – Prairie Island Nuclear Generating Plant
- PRA – Probabilistic Risk Assessment

Acronyms (continued)

- RA – Required Action
- RCP – Reactor Coolant Pump
- RFO – Refueling Outage
- RICT – Risk Informed Completion Time
- RMA – Risk Management
- RMAT – Risk Management Action Time
- SE – Safety Evaluation
- SSE – Safe Shutdown Earthquake
- TS – Technical Specification
- TSTF – Technical Specification Task Force


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