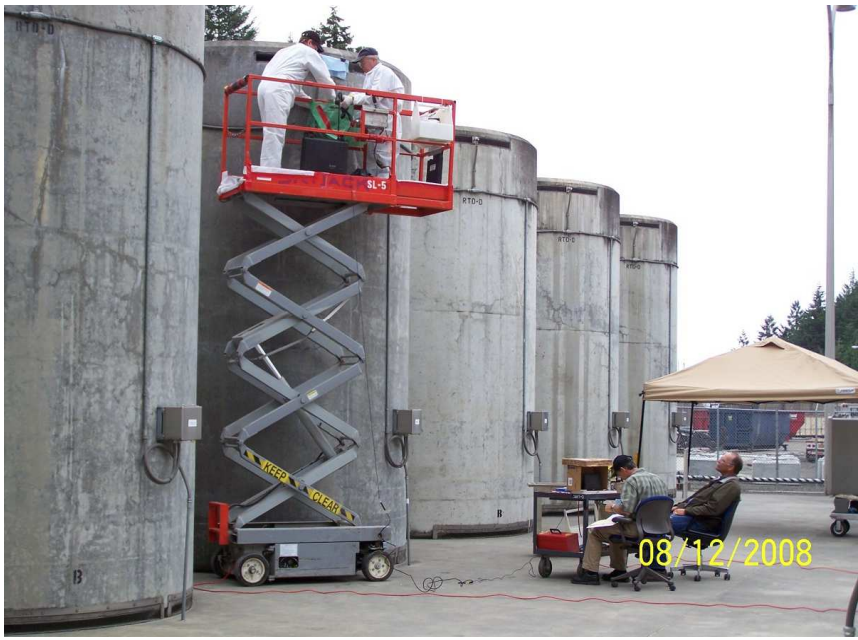
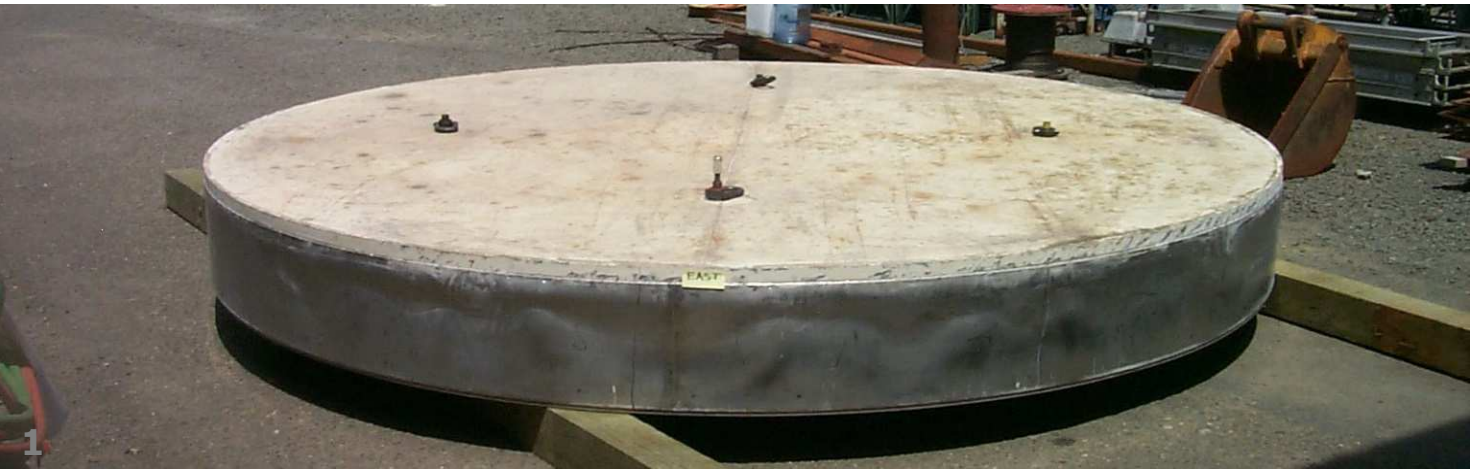


Portland General Electric

Trojan ISFSI
License Renewal Application

Pre-Submittal Meeting

April 5, 2016



Meeting Purpose / Goals

Portland General Electric

- Provide background to the NRC staff on the Trojan ISFSI
- Provide preliminary information to the NRC staff on the license renewal application
- Obtain feedback from the NRC staff on the license renewal application

Trojan ISFSI Site

- Approximately 45 miles north of Portland, Oregon
- Located on the banks of the Columbia River, a fresh water source
- ISFSI positioned on basalt outcrop with natural berms on north and east sides of site

Trojan ISFSI License

- Site-specific license
- Fuel loaded December 2002 – September 2003 in single, continuous loading campaign (34 casks total)
- No high-burnup fuel
- Heat loads at time of fuel load were in the 6-17 kW range
- License expires on March 31, 2019; must submit relicensing application by March 31, 2017

Trojan ISFSI Facility

Portland General Electric

- Storage pad on engineered fill / bedrock foundation
- Sierra Nuclear VSC-24 ventilated Concrete Casks
- Holtec MPC-24E and MPC-24EF fuel canisters
- Transfer Station for MPC transfers between Concrete Casks and Shipping Casks
- Impact limiter embedded in Transfer Station Pad for use during MPC transfers
- Holtec Transfer Cask, for use during MPC transfers

Trojan ISFSI Cask Inspections

Portland General Electric

- Concrete Cask interior inspection required on 5-year interval
- First two inspections took place in 2008 and 2013
- Inspections involved first loaded canister
- Scope included all inlet and outlet vents, and MPC / Concrete Cask annulus
- Inspections were videotaped
- No significant findings: minor dirt accumulation, minor surface rust on some areas of Concrete Cask liner, some calcium deposits

Trojan ISFSI License Renewal Application

Portland General Electric

- Following guidance in draft NUREG-1927 Revision 1 and NEI 14-03
- Apply for 40 year extension of existing license
- Using Calvert Cliffs and Prairie Island renewed licenses as guidance to the extent practicable

Trojan ISFSI Renewal Application Overview

Portland General Electric

- Chapter 1 – General Information
- Chapter 2 – Scoping Evaluation
- Chapter 3 – Aging Management Review
- Chapter 4 – Aging Management Tollgates
- Appendix A – AMPs
- Appendix B – TLAAs
- Appendix C – Tollgates
- Appendix D – Proposed ISFSI SAR Updates
- Appendix E – Proposed License / Tech Spec Changes
- Appendix F – Lead Canister Inspection

Trojan ISFSI Scoping

SSC	Scoping Results		In-Scope SSC
	Criterion 1	Criterion 2	
MPC	Yes	N/A	Yes
Transfer Cask	Yes	N/A	Yes
Concrete Cask	Yes	N/A	Yes
Fuel Assembly	Yes	N/A	Yes
ISFSI Pad	No	Yes	Yes
ISFSI Security Equipment	No	No	No
Transfer Station (including Transfer Station Pad and Impact Limiter)	Yes	N/A	Yes
Fuel Transfer and Auxiliary Equipment	No	No	No

Trojan ISFSI Scoping

Portland General Electric

- Application breaks down into sub-components and intended function
- Further evaluation only based on those that have intended safety function
  - Safety function based on confinement, criticality control, heat transfer, structural integrity, and shielding
  - Example: MPC drain tube not considered for aging as it does not serve those functions during extended storage period
- Tables in application go into detail on materials, environment, etc.

Trojan MPC AMP

Portland General Electric

- Borescope inspection of MPC surface
  - Utilize existing Concrete Cask interior inspection
  - Inspect the same canister previously inspected, to allow for trending (oldest cask / canister)
- Acceptance criterion is no indications
  - If indications found, evaluate by qualified individual
  - Indications sent to site's CAP for evaluation and disposition
- Operating experience: Trojan's previous two inspections (5 years, 10 years) have shown no indications

Trojan Transfer Cask AMP

Portland General Electric

- Transfer Cask stored inside building on site
- AMP based on pre-service inspections only
  - Only required prior to use
  - Once every year while in use
  - Use current procedure
- Visual inspections of Transfer Cask and trunnions
- Acceptance criterion is no structurally significant loss of material due to corrosion
- Corrective actions referred to site CAP program

Trojan Concrete Cask AMP

- Concrete Cask overpack broken into internal and external
- External
  - Exposed surfaces and vent assemblies
  - Existing Trojan SAR describes “Structural Inspection Program” – will be used for external portion of AMP
  - Includes all casks, performed annually
  - Acceptance criteria based on ACI-349 – 3 tier criteria

Trojan Concrete Cask AMP

- Internal
  - Internal annulus area and interior of vents
  - Existing Trojan SAR describes a concrete internal inspection – will be used for AMP
  - One cask every 5 years
  - Performed on the same cask as MPC inspection and that was previously inspected
  - Acceptance criterion is no structurally significant corrosion
- Both internal and external will refer to site CAP for disposition

Trojan ISFSI Pad AMP

Portland General Electric

- Annual inspections of concrete pad currently, add AMP inspections, approximately every 5 years
- AMP planned to follow ACI-349 standard – 3 tier criteria
  - Acceptance without further evaluation – free of significant deficiencies
  - Acceptance after review – some degradation, but can maintain design basis function
  - Acceptance requiring further evaluation – degradation that could prevent design basis function from being maintained
- May also involve periodic groundwater monitoring
- Corrective actions from tier 2 and 3 are referred to the site's QA program
- Allowance for deviation from ACI-349 with site documenting technical justification

Trojan Transfer Station AMP

Portland General Electric

- Transfer Station for transfer of MPC between Concrete Cask, Transfer Cask, and Transport Cask
- AMP based on pre-service inspection only
  - Only required prior to use
  - Once every year while in use
  - Use current procedure
- Visual inspections of exposed surfaces
- Impact limiter stored inside building on site
- Acceptance criterion is no structurally significant loss of material due to corrosion
- Corrective actions referred to site CAP program

Other Items

- Fuel assemblies
  - Trojan does not have high burnup fuel
  - Utilize existing EPRI demonstration for moderate burnup fuel
- Categorization of analyses that are not TLAAs, but provide value in aging evaluation
- TLAAs – in process

Trojan Pre-Application / Baseline Inspections

Portland General Electric

- Have already performed interior inspections at 5 years and 10 years loaded time
- These inspections achieve the same intent as pre-application inspections
- “Baseline” inspection will be the 20 year inspection
- Previous inspection reports submitted to the NRC
- No indications found
- Same procedure is planned for AMP inspections

Trojan Inspections

Portland General Electric

- Conclusion (10 year):

"The concrete cask cooling passages were found to be free from air flow blockages. The concrete cask air inlet and outlet vent assemblies, the concrete cask inner liner, and the MPC exterior were inspected and found to be in a condition expected for the service environment and specified materials of construction described in the SAR. The inspection did not identify any degradation mechanisms (not identified in the SAR) that may affect system performance."

Conclusion

- Renewal submittal planned for early 2017
- Following existing guidance and previous approved applications as much as possible
- Use of existing inspections and procedures to support AMPs in application
- Questions?