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To: Oregon Energy Siting Council

From: Christopher M. Clark, Siting Policy Analyst & Rules Coordinator
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Date: February 12, 2021

Subject: Agenda Item D (Action Item):
Trojan ISFSI License Renewal Update and Initiation of Rulemaking for the
February 26, 2021 EFSC Meeting

STAFF RECOMMENDATION

Staff recommends Council initiate rulemaking to update the Council's rules under OAR 345-026-0170(2) and 345-026-0300 through 345-026-0390 to ensure the rules address changes to the terms and conditions of the renewed operating license for the Trojan Independent Spent Fuel Storage Installation (ISFSI) issued by the US Nuclear Regulatory Commission in August 2019, to incorporate changes to applicable state and federal policy, regulations, and safety guidelines since the rules were last updated, and to remove any unnecessary or outdated references to external documents.

BACKGROUND

The Trojan Nuclear Power Plant was an 1,130-megawatt nuclear power plant located in Columbia County, Oregon. Trojan began commercial operation in 1976 and was permanently shut down in 1993. The power plant was operated by the Portland General Electric Company (PGE), which co-owns the Trojan facility with the Eugene Water and Electric Board, and PacifiCorp.

To allow for the decommissioning of the power plant, PGE transferred the spent nuclear fuel and other radioactive materials that were generated by the power plant to dry cask storage in an Independent Spent Fuel Storage Installation (ISFSI) constructed on a portion of the Trojan site. The ISFSI is intended to provide temporary storage of spent nuclear fuel and other high-level radioactive wastes generated by the plant until the materials are removed from the site for permanent storage by the federal government.¹ The ISFSI consists of a reinforced concrete pad supporting 34 concrete dry storage casks. Each concrete storage cask is loaded with a

¹ See ORS 469.594

stainless-steel multipurpose canister (MPC) that contains up to 24 of the 791 complete or partial spent fuel assemblies that are stored in the ISFSI. The ISFSI also includes a transfer station, transfer cask, security equipment, and other ancillary facilities.

The ISFSI is considered to be part of the Trojan Nuclear Plant and continues to be governed by the Trojan site certificate, which was executed by Governor McCall in 1971.² Under the terms of the site certificate, the certificate holder, PGE, is responsible for ensuring ongoing compliance with the Council's rules. The Council has adopted rules for the monitoring and oversight of the ISFSI under OAR 345-026-0300 to 345-026-0390.

The federal regulatory and licensing authority for the ISFSI is the United States Nuclear Regulatory Commission (NRC). In 1999, shortly after the Council approved PGE's proposed design and the safety features and programs described in the Safety Analysis Report (SAR) submitted with the license application, the NRC issued a 20-year license to PGE authorizing the construction and operation of the ISFSI.³ In 2017, PGE submitted an application to the NRC requesting to renew the license for an additional 40 years. Permanent storage of spent nuclear fuel and other wastes from nuclear power plants is ultimately the responsibility of the federal government, and PGE stated that the license renewal application was submitted in part in response to delays in establishing a permanent federal storage facility after proceedings to establish a geologic repository at Yucca Mountain, Nevada were suspended in 2011.⁴

On August 9, 2019 the NRC renewed PGE's license to operate the Trojan ISFSI. The renewed license authorizes PGE to continue operating the ISFSI until March 31, 2059.⁵ Staff has conducted a preliminary review of the license renewal application, the revised SAR, and the associated evaluations and assessments conducted by the NRC. Based on this initial review, staff believes that the terms and conditions of the renewed license and revised SAR comply with the Council's current rules, but some rule revisions may be required to ensure that the monitoring and notification requirements in rule are consistent with new aging management programs and activities established by the revised SAR.

The next section of this staff report provides an overview of the license renewal process and the terms and conditions of the renewed license and its associated SAR, including the newly established Aging Management Programs. The following section provides staff's recommendations for the initiation of rulemaking, including the need and authority to adopt rules, the scope and objectives for the rulemaking process, potential fiscal and economic impacts, and the method for obtaining stakeholder input in the development of proposed rules. The report concludes with staff's recommendations for Council action, including a request to

² See ORS 469.300(19), (27) and 469.410(5).

³ ODOE, "Staff Evaluation of Holtec Design for Portland General Electric's Independent Spent Nuclear Fuel Installation (ISFSI)," 2002. The 2002 Staff Evaluation was prepared in support of alterations of the ISFSI design after discovery of a flaw in the fuel canister initially selected by PGE.

⁴ The NRC is currently reviewing two license applications from private entities who propose to construct Consolidated Interim Storage Facilities (CISF) in Texas and New Mexico, but it is not clear that the approval or construction of these facilities would affect the timeline for removal of the spent nuclear fuel currently stored Trojan.

⁵ 84 FR 65193

initiate the rulemaking process. The Council is not being asked to consider proposed rule amendments or the adoption of permanent rules at this time.

TROJAN ISFSI LICENSE RENEWAL

As described above, on August 9, 2019, the NRC issued a renewed license authorizing PGE to continue operating the ISFSI until March 31, 2059. In its Environmental Assessment of the license renewal application and its associated SAR, the NRC found that no significant radiological or non-radiological impacts are expected from continued normal operations of the ISFSI, and that occupational dose estimates associated with continued normal operation and maintenance of the ISFSI are expected to be at As Low As Reasonable Achievable levels (ALARA) and within the limits provided in 10 CFR 20.⁶

The renewed license does not authorize any major alterations or repairs to the ISFSI, however, the process did revise the Safety Analysis Report (SAR) for the ISFSI to establish new aging management activities intended to ensure that the structures, systems, and facility components that are “Important to Safety” (ITS) continue to function as intended during the renewal term.⁷

Aging management activities proposed for the ISFSI fall into two categories: Time Limited Aging Analyses and Aging Management Programs. Time Limited Aging Analyses are calculations made using observed data and time-based assumptions used to support conclusions that components will maintain their ability to perform their safety functions over a specified period of time. The revised SAR specifies Time Limited Aging Analyses for the MPCs, the fuel assemblies, and the certain subcomponents of the transfer cask. Before the ISFSI was constructed, PGE provided TLAAAs to support a finding that the facility could operate safely for a minimum 40-year design life. In the license renewal application, PGE updated the TLAAAs based on a new 60-year design life.

Aging Management Programs generally rely on visual inspections to verify that any aging relating effects on a particular component or subcomponent have not impaired its ability to perform as intended. The programs establish inspection procedures and specify what corrective actions will be taken if aging effects exceed acceptable criteria. The revised SAR specifies Aging Management Programs for the MPCs, concrete Casks, transfer cask, and transfer station. Under OAR 345-026-0390(6)(c), PGE may make changes to the SAR without prior approval from the Council or Department if the changes do not reduce commitments or change the assumptions and conclusions in the "Staff Evaluation of Holtec Design for Portland General Electric's Independent Spent Nuclear Fuel Installation (ISFSI)," published by the Department in 2002. Based on staff's preliminary review, it does not appear that implementation of the Aging Management Programs would reduce commitments or change the assumptions or conclusions relied on for initial approval of the SAR. Once implemented, however, the Aging Management Programs will replace the existing Structural Inspection Program currently required under OAR

⁶ 84 FR 32478.

⁷ Trojan ISFSI License Change Application 72-07, Jan. 23, 2019. A structure, system, or facility component is “important to safety” if it is necessary to provide one or more of the following safety functions: confinement, radiation shielding, sub-criticality control, heat-removal capability, structural integrity, retrievability.

345-026-0390(5). The scope and timing of inspections under the new Aging Management Program will be similar to the current inspections, but there will be some changes to procedures, acceptance criteria, and potential corrective actions. For example, where the concrete cask interior inspections are currently conducted by inserting a camera probe into the accessible areas of the cask, the Aging Management Program will include the extra step of removing the cask lid to allow for visual inspection of the MPC lid and closure ring. In addition to the new aging management activities, the revised SAR incorporates a new requirement for PGE to conduct “tollgate assessments” at five-year intervals. The tollgate assessments will consist of an evaluation of the effectiveness and revision of the Aging Management Programs based on a review of any new research, operating experience, monitoring data, and inspections results that has become available at the time the assessment is conducted.

As discussed in the following section recommending the initiation of rulemaking, staff believes the rules should be revised to incorporate these aging management programs into the Council’s ongoing monitoring and reporting requirements. As part of the rulemaking project, staff would provide a full evaluation of the terms and conditions of the renewed license and SAR, its potential safety implications, and recommendations for rule changes to the Council’s monitoring and reporting requirements of the facility.

INITIATION OF RULEMAKING

The Council authorized staff to begin preliminary work on a rulemaking project to review the Renewed ISFSI license and the applicable Council rules in OAR 345-026-0170 to 345-026-0390.

Staff has completed its preliminary review of the terms and conditions of the renewed license and provides its preliminary analysis and recommendations for rulemaking below. In addition, this section provides an overview of:

- The need and authority to adopt rules
- The recommended scope and objectives for the rulemaking, including the policy issues to be addressed
- The potential fiscal and economic impacts on stakeholders
- The recommended method for obtaining stakeholder input in the development of proposed rules
- The projected timeline for the rulemaking process

Need and Authority for Rules

The site certificate for the Trojan Nuclear Plant was executed by Governor McCall on July 20, 1971.⁸ Unlike the current site certificate which contains specific conditions of approval, the Trojan site certificate only requires that the certificate holder pay the necessary fees required under ORS 469.421 and abide by the rules of the Council. Under ORS 469.410(5), a site certificate executed by the governor prior to July 2, 1975, binds the Council to its terms and

⁸ The site certificate was issued under the requirements of 1971 Oregon Laws chapter 609, section 4
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requires the certificate holder to abide by the Council's rules, including rules for monitoring the environmental and ecological effects of the operation and the decommissioning of the facility established under ORS 469.410(4) and 469.470(2).

The Council has adopted rules establishing monitoring and reporting requirements that apply specifically to the operation and decommissioning of the Trojan ISFSI under OAR 345-026-0300 to 345-026-0390. An additional rule specifying the requirements for reporting safety or security incidents at the Trojan ISFSI is provided under OAR 345-026-0170(2). These rules amended or replaced rules that governed the Council's monitoring and oversight of Nuclear Power Plants that were formerly also located in OAR chapter 345, division 026.

The rules were last amended in 2005, however most of the substantive requirements date back to 1999, before the ISFSI was constructed. The rules refer to a number of regulatory requirements and procedures, documents, and assumptions which have since been superseded or amended. While the terms and conditions of the renewed ISFSI license and its associated SAR do not appear to violate any provisions of the current rules, the rules may not be directly applicable to the new aging management programs and activities that will be implemented in the coming years.

This rulemaking is needed to ensure that the monitoring and reporting requirements found in the Council's rules adequately address the new aging management activities established in the revised SAR and are consistent with current federal safety requirements and guidelines for nuclear installations.

Recommended Scope and Objectives for Rulemaking

Staff recommends the scope of this rulemaking be limited to making changes needed to address changes to the terms and conditions of the renewed ISFSI license, incorporate changes to applicable state and federal policy, regulations, and safety guidelines since the rules were last updated, and to remove any unnecessary or outdated references to external documents. Staff may also propose editorial changes to the rules to improve the clarity and consistency of the rules.

Any rule changes proposed should have the objective of ensuring that the ISFSI continues to be operated in a manner consistent with the protection of the public health and safety and the protection of the environment, to ensure that adequate monitoring and safety programs are in place to ensure exposures to radiation from the facility are As Low As Reasonably Achievable (ALARA), and to reduce costs of compliance for the certificate holder where possible by streamlining the process for verifying compliance and reducing duplication with NRC requirements. Potential rule changes that may be proposed for Council's consideration include:

- Clarifying that OAR 345-026-0300 through 345-026-0390 apply specifically to the Trojan ISFSI, and that the Council may adopt additional rules for the construction and operation of nuclear installations upon receipt of an application under ORS 469.320.
- Updating references to federal regulations and safety guidelines.
- Removing references to the Department's 2002 Staff Evaluation and establishing monitoring and reporting requirements directly in rule.

- Amending OAR 345-026-0350 to incorporate OAR 345-026-0170(2) and other emergency planning and response requirements and specify procedures for activation of the Oregon Emergency Response System during incident alerts or communications checks.
- Reviewing procedures and standards for approval of the ISFSI Decommissioning Plan under OAR 345-026-0370.
- Updating OAR 345-026-0390 to incorporate aging management programs and activities and reflect other changes to the Trojan ISFSI SAR and clarify and consolidate individual program requirements under current rule.

Potential Fiscal and Economic Impacts

The rules under consideration apply specifically to the Trojan ISFSI and its certificate holder, Portland General Electric. The Department does not expect to establish any new monitoring or reporting requirements as part of this rulemaking other than those required by the NRC under the terms and conditions of the revised SAR. Because no new requirements are expected this rulemaking is not expected to result in any significant fiscal or economic impacts to the certificate holder. We note that the expenses incurred by the council during this rulemaking will be recovered from the certificate holder as provided under ORS 469.421(1)(f). The Department believes the rulemaking will defray some of these costs in the future by including relevant information in the rule and reducing the need for review of archival information to interpret, apply, and enforce the rules.

Stakeholder Input

Because the rules under consideration apply specifically to the Trojan ISFSI and require the review and application of highly technical and potentially sensitive information, staff proposes to solicit written input from the certificate holder and independent technical experts to assist in the development of an update to the 2002 staff evaluation and draft proposed rules. The evaluation and draft proposed rules would be made available for public review prior to the Council’s consideration and a formal public comment period and rulemaking hearing would occur after proposed rules are approved by the Council.

Projected Timeline

While the renewed license does not require immediate action or approval by the Council, staff recommends that rulemaking should be concluded prior to PGE’s implementation of the new aging management activities, which the revised SAR requires to begin in 2022. A projected rulemaking timeline based on this consideration and the recommendations made in the preceding sections follows.

Projected Rulemaking Timeline

Council initiates rulemaking	February 2021
Staff prepares revised evaluation and draft proposed rules	March - June 2021
Council considers draft proposed rules/ issues Notice of Proposed Rulemaking	July 2021
Public Comment Period/ Rulemaking Hearing	August – October 2021

Projected Rulemaking Timeline

Council Consideration of Permanent Rules	October 2021 (or later)
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RECOMMENDED COUNCIL ACTION

Staff recommends that Council initiate rulemaking to update the Council's rules applicable to the Trojan Independent Spent Fuel Storage Installation in OAR 345-026-0170(2) and 345-026-0300 through 345-026-0390 to reflect changes to the terms and conditions of the renewed Special Nuclear Materials license issued by the US Nuclear Regulatory Commission in August 2019.

To assist in the development of draft proposed rules, staff requests the Council's authorization to solicit written input from the certificate holder and independent technical experts to update the "Staff Evaluation of Holtec Design for Portland General Electric's Independent Spent Nuclear Fuel Installation (ISFSI)" published by the department in 2002, and to identify potential rule changes needed to address changes to the terms and conditions of the renewed ISFSI license, incorporate changes to applicable state and federal policy, regulations, and safety guidelines since the rules were last updated, and to remove any unnecessary or outdated references to external documents.

Finally, staff recommends that the updated staff evaluation and draft proposed rules be made available for public review prior to the Council's consideration, and that a formal public comment period and rulemaking hearing be held on any proposed rules approved by Council.