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To: Energy Facility Siting Council

From: Sarah Esterson, Senior Policy Advisor

Date: May 2, 2025

Subject: Agenda Item G (Information Item):
Soil Protection and Structural Standards Overview for the May 16, 2025 EFSC Meeting

PURPOSE OF AGENDA ITEM

Oregon Department of Energy (Department) staff will present to the Energy Facility Siting Council (Council) an overview of the Structural and Soil Protection standards; staff's process for evaluating the adequacy and accuracy of facts and analysis provided in applications for site certificate and requests for site certificate amendments; and approach for recommending mitigation/site certificate conditions.

OVERVIEW OF STRUCTURAL AND SOIL PROTECTION STANDARDS

Council's standards are encompassed in Oregon Administrative Rule (OAR) Chapter 345 Division 22, 23 and 24. Council standards include requirements of the standard *and* the information necessary to evaluate compliance with the standard.[1] The requirements and information requirements for the Structural and Soil Protection standards are presented below.

In order to comply with the **Structural Standard** (OAR 345-022-0020(1)), the Council must find that:

(a) The applicant, through appropriate site specific study, has adequately characterized the seismic hazard risk of the site.
(b) The applicant can design, engineer, and construct the facility to avoid dangers to human safety and the environment presented by seismic hazard affecting the site, as identified in subsection (1)(a).
(c) The applicant, through appropriate site-specific study, has adequately characterized the potential geological and soils hazards of the site and its vicinity that could, in the absence of a seismic event, adversely affect, or be aggravated by, the construction and operation of the proposed facility; and
(d) The applicant can design, engineer and construct the facility to avoid dangers to human safety and the environment presented by the hazards identified in

[1] OAR 345-021-0010(1) allows the Department to determine whether information requirements identified in the standard must be provided by an applicant/certificate holder. In other words, while the information requirements are included with the language of the standard, the information requirements may be modified or waived by the Department if determined unnecessary or irrelevant to the analysis to be conducted for evaluation of compliance with the standard.

subsection (c).

Information requirements established as a baseline for the **Structural Standard** (OAR 345-022-0020(2) are as follows:

(a) A geologic report meeting the Oregon State Board of Geologist Examiners geologic report guidelines. Current guidelines must be determined based on consultation with the Oregon Department of Geology and Mineral Industries, as described in paragraph (B) of this subsection;
(b) A summary of consultation with the Oregon Department of Geology and Mineral Industries regarding the appropriate methodology and scope of the seismic hazards and geology and soil-related hazards assessments, and the appropriate site-specific geotechnical work that must be performed before submitting the application for the Department to determine that the application is complete;
(c) A description and schedule of site-specific geotechnical work that will be performed before construction for inclusion in the site certificate as conditions;
(d) For all transmission lines, and for all pipelines that would carry explosive, flammable or hazardous materials, a description of locations along the proposed route where the applicant proposes to perform site specific geotechnical work, including but not limited to railroad crossings, major road crossings, river crossings, dead ends (for transmission lines), corners (for transmission lines), and portions of the proposed route where geologic reconnaissance and other site specific studies provide evidence of existing landslides, marginally stable slopes or potentially liquefiable soils that could be made unstable by the planned construction or experience impacts during the facility's operation;

<u>Seismic Hazards</u>

(e) An assessment of seismic hazards, in accordance with standard-of-practice methods and best practices, that addresses all issues relating to the consultation with the Oregon Department of Geology and Mineral Industries described in paragraph (B) of this subsection, and an explanation of how the applicant will design, engineer, construct, and operate the facility to avoid dangers to human safety and the environment from these seismic hazards. Furthermore, an explanation of how the applicant will design, engineer, construct and operate the facility to integrate disaster resilience design to ensure recovery of operations after major disasters. The applicant must include proposed design and engineering features, applicable construction codes, and any monitoring and emergency measures for seismic hazards, including tsunami safety measures if the site is located in the DOGAMI-defined tsunami evacuation zone; and

<u>Non-Seismic Hazards (Geology and Soil-Related)</u>

(f) An assessment of geology and soil-related hazards which could, in the absence of a seismic event, adversely affect or be aggravated by the construction or operation of the facility, in accordance with standard-of-practice methods and best practices, that address all issues relating to the consultation with the Oregon Department of Geology and Mineral Industries described in paragraph (B) of this subsection. An explanation of how the applicant will design, engineer, construct and operate the facility to adequately avoid dangers to human safety and the environment presented by these hazards, as well as:
(A) An explanation of how the applicant will design, engineer, construct and operate the facility to integrate disaster resilience design to ensure recovery of operations after major disasters; and

(B) An assessment of future climate conditions for the expected life span of the proposed facility and the potential impacts of those conditions on the proposed facility.

In order to comply with the **Soil Protection** standard (OAR 345-022-0022(1)), the Council must find that:

..the design, construction and operation of a proposed facility or proposed change to an approved facility, taking into account mitigation, are not likely to result in a significant adverse impact to soils including, but not limited to, erosion and chemical factors such as salt deposition from cooling towers, land application of liquid effluent, and chemical spills.

Information requirements established as a baseline for the **Soil Protection** standard (OAR 345-022-0022(2) are as follows:

(a) A materials analysis, including:
  (A) An inventory of substantial quantities of industrial materials flowing into and out of the proposed facility during construction and operation;
  (B) The applicant's plans to manage hazardous substances during construction and operation, including measures to prevent and contain spills; and
  (C) The applicant's plans to manage non-hazardous waste materials during construction and operation.
(b) Information from reasonably available sources regarding soil conditions and uses in the analysis area, providing evidence to support findings by the Council as required by OAR 345-022-0022, including;
  (A) Identification and description of the major soil types in the analysis area;
  (B) Identification and description of current land uses in the analysis area, such as growing crops, that require or depend on productive soils;
  (C) Identification and assessment of significant potential adverse impact to soils from construction, operation and retirement of the facility, including, but not limited to, erosion and chemical factors such as salt deposition from cooling towers, land application of liquid effluent, and chemical spills;
  (D) A description of any measures the applicant proposes to avoid or mitigate adverse impact to soils; and
  (E) The applicant's proposed monitoring program, if any, for adverse impact to soils during construction and operation.

EVALUATION OF THE STANDARDS

Structural Standard (OAR 345-022-0020)

Staff's approach to evaluating a Structural Standard Exhibit prepared for an application for site certificate or request for site certificate amendment includes the following steps:

1. Evaluate whether the information requirements in OAR 345-022-0020(2) or as modified in the Project Order have been provided.
2. Evaluate the accuracy of the information based on review of source citations (i.e., are the sources current and representative of reasonably available sources) and actual sources as is feasible/available, and recommendations provided in the required consultation with the Oregon Department of Geology and Mineral Industries (DOGAMI).

3. Evaluate whether the DOGAMI consultation covered the required topics of methods/approach for evaluating seismic and non-seismic hazards; re-consult with applicant/certificate holder and DOGAMI if initial consultation omitted required subject matter.
4. Consult with DOGAMI and/or ODOE's third-party consultant (subject matter expert) on the adequacy of the proposed scope of work for the site-specific geotechnical investigation.
5. For a draft proposed order, draft findings of fact based on information confirmed through Steps 1-4 by Staff to be factual.
6. For a draft proposed order, incorporate the mandatory conditions under OAR 345-025-0006(12-14), applicable to all facilities under EFSC jurisdiction, designed to minimize potential risk from seismic and non-seismic hazards.
7. For a draft proposed order, draft analysis and recommendations, based on consultation with DOGAMI and/or ODOE's third-party consultant, on the adequacy of the proposed geotechnical work, site design and literature review to ensure that the proposed facility can be sited in the proposed location without resulting in significant risks to public health and safety following a seismic or non-seismic hazard event.

Soil Protection Standard (OAR 345-022-0022)

Staff's approach to evaluating a Soil Protection Exhibit prepared for an application for site certificate or request for site certificate amendment includes the following steps:

1. Evaluate whether the information requirements required in OAR 345-022-0022(2) or as modified in the Project Order have been provided.
2. Evaluate the accuracy of the information based on review of source citations (i.e., are the sources current and representative of reasonably available sources) and actual sources as is feasible/available.
3. For a draft proposed order, draft findings of fact based on information confirmed through Steps 1-2 by Staff to be factual.
4. For a draft proposed order, draft analysis of the significance of impacts to soils within the proposed facility site; evaluate the adequacy of proposed mitigation proposed in the exhibit (e.g., evaluate level of detail, feasibility and firm commitments provided in the exhibit). Draft conditions with clear, firm language to ensure that highly impactful activities, like construction disturbance, are adequate to minimize any potentially significant impacts to soils.

Staff will provide specific examples during the May 16, 2025 Council presentation.