

EXHIBIT H

GEOLOGICAL AND SOIL STABILITY

Information from reasonably available sources regarding the geological and soil stability within the analysis area, providing evidence to support findings by the Council as required by OAR 345-022-0020, including:

(A) A geologic report meeting the guidance in Oregon Department of Geology and Mineral Industries open file report 00-04 "Guidelines for Engineering Geologic reports and Site-Specific Seismic Hazard Reports."

(B) A description and schedule of site-specific geotechnical work that will be performed before construction for inclusion in the site certificate as conditions.

(C) Evidence of consultation with the Oregon Department of Geology and Mineral Industries regarding the appropriate site-specific geotechnical work that must be performed before submitting the application for the Department to determine that the application is complete.

(D) For all transmission lines, a description of locations along the proposed route where the applicant proposes to perform site specific geotechnical work, including but not limited to railroad crossing, major road crossings, river crossing, dead ends, corners, and portions of the proposed route where geologic reconnaissance and other site specific studies provide evidence of existing landslides or marginally stable slopes that could be made unstable by the planned construction.

(E) 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, and portions of the proposed alignment where geologic reconnaissance and other site specific studies provide evidence of existing landslides or marginally stable slopes that could be made unstable by the planned construction.

(F) An assessment of seismic hazards. For the purposes of this assessment, the maximum probable earthquake (MPE) is the maximum earthquake that could occur under the known tectonic framework with a 10 percent chance of being exceeded in a 50 year period. If seismic sources are not mapped sufficiently to identify the ground motions above, the applicant shall provide a probabilistic seismic hazard analysis to identify the peak ground accelerations expected at the site for a 500 year recurrence interval and a 5000 year recurrence interval. In the assessment, the applicant shall include:

(i) Identification of the Maximum Considered Earthquake Ground Motion as shown for the site under the 2009 International Building Code.

(ii) Identification and characterization of all earthquake sources capable of generating median peak ground accelerations greater than 0.05g on rock at the site. For each earthquake source, the applicant shall assess the magnitude and minimum epicentral distance of the maximum credible earthquake (MCE).

(iii) A description of any recorded earthquakes within 50 miles of the site and of recorded earthquakes greater than 50 miles from the site that caused ground shaking at the site more intense than the Modified Mercalli III intensity. The applicant shall include the date of occurrence and a description of the earthquake that includes its magnitude and highest intensity and its epicenter location or region of highest intensity.

(iv) Assessment of the median ground response spectrum from the MCE and the MPE and identification of the spectral accelerations greater than the design spectrum provided in the 2010 Oregon Structural Specialty Code. The applicant shall include a description of the probable behavior of the subsurface materials and amplification by subsurface materials and any topographic or subsurface conditions that could result in expected ground motions greater than those characteristic of the Maximum Considered Earthquake Ground Motion identified above.

(v) An assessment of seismic hazards expected to result from reasonably probable seismic events. As used in this rule “seismic hazard” includes ground shaking, landslide, lateral spreading, liquefaction, tsunami inundation, fault displacement, and subsidence.

(G) An assessment of soil-related hazards such as landslides, flooding and erosion which could, in the absence of a seismic event, adversely affect or be aggravated by the construction or operation of the facility.

(H) An explanation of how the applicant will design, engineer and construct the facility to avoid dangers to human safety from the seismic hazards identified in paragraph (F). The applicant shall include proposed design and engineering features, applicable construction codes, and any monitoring for seismic hazards.

(I) An explanation of how the applicant will design, engineer and construct the facility to adequately avoid dangers to human safety presented by the hazards identified in paragraph (G).

In its First Amended Project Order dated July 12, 2011, the Department expanded upon the requirements of Exhibit H as follows:

All paragraphs apply.

Applicant’s seismic hazard assessment may be found at Attachment H-1.
Applicant’s geotechnical exploration plan may be found at Attachment H-2.