



Meeting Summary

Fuel Tanks Seismic Stability 2023
Advisory Committee Meeting 1

Oct. 26, 2022

Meeting Summary

Purpose of Meeting

On Oct. 26, 2022, DEQ convened the first meeting of the Fuel Tanks Seismic Stability Rulemaking via Zoom webinar. The purpose of the meeting was to:

- Introduce the purpose and intent of the rulemaking process and RAC involvement
- Provide an overview of SB 1567 requirements, rulemaking timeline and rule concepts topics
- Introduce concepts of environmental justice considerations for fuel tanks seismic stability program and seismic stability regulations in other jurisdictions
- Introduce engineering considerations for assessment and mitigation

Meeting Attendees

The meeting attendees included members of the FTSS Rulemaking Advisory Committee:

- Paul Edison-Lahm - Environmental justice interests, NAACP
- Randy Groves - Eugene Springfield Fire Chief (retired) & City Councilor
- Nancy Hiser - Linnton Neighborhood Association
- Andrew Holbrook - Kinder Morgan NW Operations Manager
- Lindsey Hutchison - Attorney for Willamette Riverkeeper
- Holli Johnson - Western States Petroleum Assn.
- Amit Kumar - Structural engineer at City of Portland
- Doug Lenz - Columbia Pacific Bio-Refinery plant manager
- Warren Seely - Seely Mint Farm
- Chris Voss - Multnomah County Director of Emergency Management
- Jacque Wurster - Director of neighborhood emergency team in Eugene, Community Emergency Response Team certified

DEQ and technical support team members:

- Mike Korten Hof - DEQ Fuel Tank Compliance Program Manager
- Svetlana Lazarev - DEQ Project Manager
- Lauren Wirtis - DEQ Public Affairs Specialist
- Abby Boudouris - DEQ Senior Legislative Analyst
- Allison Pynch - Haley and Aldrich, Inc. Project Engineer
- Yumei Wang- PSU Senior Advisor on Infrastructure Resilience and Risk
- Beth Gilden - PSU Institute for Sustainable Solutions
- Luke Hanst - PSU Institute for Sustainable Solutions

There were approximately 47 members of the public in attendance.

Welcome, Introductions and Program overview

DEQ welcomed everyone to the meeting and provided an overview of Zoom webinar, meeting agenda, advisory committee composition and charter, public involvement options, SB 1567 requirements, commitment to environmental justice and racial equity, rulemaking timeline and rule concepts topics: vulnerability assessments, risk mitigation program and criteria to minimize risk. SB 1567 requires operators of fuel storage facilities with tank capacity over 2 million gallons located in Multnomah, Lane and Columbia counties to assess their facilities for vulnerability to a magnitude 9 earthquake. DEQ will develop assessment and mitigation criteria and design an implementation program. Three rule concept topics about the scope of the requirements were presented:

- Vulnerability Assessments
 - Seismic risk assessment of buildings and structures
 - Vulnerability of site to liquefaction and lateral spread
 - Designs reduce significant damage in magnitude 9 event
 - Potential of structures to maintain operations, or safely shut down
- Risk Mitigation Program
 - Provisions for training, response exercises, external peer reviews, inspections and tests to verify ability to sustain safe operations and respond to releases
 - Requirement to minimize harmful impacts
 - Inspection requirements
 - Standards
- Criteria to Minimize Risk
 - Geotechnical engineering assessment including liquefaction
 - Structural integrity assessment and analysis
 - Seismic building codes and industry standards
 - Methodology used in other states and countries
 - Additional provisions needed to achieve magnitude 9 event safety

Summary of Questions and Discussion

Q: Describe the receptors mentioned in assessing risk at facilities?

A: We use the word “receptors” to describe the workers, residents and ecologic life in the immediate neighborhoods of north and northwest Portland, for example, that would be directly affected by any spills, releases and impaired air quality. We understand that the impacts of a large earthquake would go beyond the immediate neighborhoods and the entire state is vulnerable to the consequences.

Q: Mitigation Cascadia M9 event versus Portland fault event that could present more building structural issues?

A: The Portland Hills fault zone is not discussed in SB 1567 but is relevant concern. It is believed to produce smaller, less frequent earthquakes but the close location is significant. The bill talks specifically about Cascadia magnitude 9 earthquake.

Q: Define resilience. Is mitigation for resilience to reduce impacts to people and the environment or is it building resilience and ensuring fuel availability after an earthquake?

A: The bill addresses both. DEQ is responsible for approving assessments and mitigation plans to minimize risk to people and environment. ODOE is tasked with fuel security. Resilience is getting things back to operational conditions as quickly as possible to enable recovery.

Q. Is there a shareable map of where the tanks are located?

A: DEQ will follow up and share a map.

Facilitated RAC Discussion

DEQ facilitated a discussion focused on topics in SB 1567 that might need more definition in rule, performance goals to measure against the vulnerability, required components of the assessments, safety of the employees, nearby communities and the environment as the highest priority, the role of local jurisdictions and public involvement. The RAC also discussed the meaning of minimize risk, mitigation strategies, best practices and risk areas.

PSU Analysis of Environmental Justice Considerations

Jola Ajibadem PhD, assistant professor of geography and PhD student Arun Pallathadka will conduct the vulnerability analysis of impacted communities and the need to understand the impacts of fuel terminals and their safety for nearby population.

Q. What sort of data will be used?

A: The data will involve different social vulnerability indexes that are used in emergency planning. There will need to be different concepts of vulnerabilities used for each terminal location - CEI Hub and its impacts are very urban compared to elsewhere. Eugene and Columbia County terminals are likely to be approached differently.

Q. How would you define nearby communities?

A: The communities near fuel terminals who are at risk of exposure to plumes or may have challenges in evacuation.

PSU Analysis of Similar Regulations in Other Jurisdictions

The goals are to identify model policies for reducing risk of fuel releases from earthquakes, provide state of practice recommendations for mitigation planning for earthquake-induced fuel releases and outline existing framework of response and mitigation plans for large fuel terminals.

Q. Will the existing policies include engineering criteria such as an American Society of Civil Engineers code designed for seismic evaluations of petrochemical facilities?

A: PSU will focus on more general policies such as directive from the EU.

Q. Japan 2011 was the latest magnitude 9 earthquake, it would be good to learn from that.

A: PSU will study include Japan.

Haley and Aldrich, Inc. Engineering Considerations

The goal of the Haley and Aldrich team supporting the DEQ work is to help DEQ decide on engineering considerations. The engineering approaches to make facilities resistant to both a local crustal fault and a Cascadia Subduction Zone event exists. H&A will help define the earthquake hazard based on existing code design, will define a regulation earthquake and performance criteria for tanks and infrastructure. The performance criteria is based on the earthquake and the desired goals such as protecting life safety versus withstanding the earthquake with minimal damage and remaining operational. Results of failure, acceptable risk and earthquake science were also discussed.

Q. Will aftershocks be addressed?

A: Most codes do not address aftershocks because there is not enough data to understand where they will happen.

Q. Will dam failures be considered?

A: There are some dams that are at risk.

RAC comments:

- There are tank farms in Eugene that are in a possible inundation zone
- Army Corps of Engineers will present Dam Safety Risk and Flood Inundation Mapping for Eugene/Springfield in a November 14, 7-8 pm Zoom meeting. All are welcome to attend, more info here:
https://docs.google.com/document/d/1cUO27IJv_cb4I5wLtBbtG30eNdHILss5/edit

Q. Are you looking at design standards for tanks and retrofit strategies?

A: Yes, this is being integrated into the scope of work for Haley and Aldrich.

Q. Are you looking into the ASCE 7 standards and their ongoing process to update seismic codes?

A: Yes, ASCE 7 standards will be accounted for.

Q. Does ASCE 7 work consider magnitude 9 quakes?

A. Yes, 9.0 earthquakes are a big deal for us and exist globally, they are considered when these standards are introduced.

Facilitated RAC Discussion

DEQ facilitated a discussion focused on pipelines and connections being weak points, new soil studies versus existing ones and concerns about fuel facility impacts from potential Willamette River dam failures. Interest in setting aside time for a public comment in future meetings was expressed. Mitigation plans approval process and public involvement through a public comment period were also discussed.

Next Steps

Discussion of program design elements and review of assessment and mitigation scenarios is planned for the next RAC meeting in December with overview of draft rules, equity analysis and fiscal impacts analysis planned for the February meeting.

Meeting adjourned at 12 pm

Meeting materials are available:

<https://www.oregon.gov/deq/rulemaking/Pages/seismicstability2023.aspx>

Next RAC meeting is scheduled for 9 a.m. – 12 p.m. on Friday, Dec. 16, 2022

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