Concise Explanatory Statement
Chapter 173-180 WAC – Facility oil handling standards and Chapter 173-184 WAC – Vessel oil transfer advance notice and containment requirements

Summary of Rulemaking and Response to Comments

Washington State Department of Ecology

Olympia, Washington

June 2023, Publication 23-08-007

Publication Information

This document is available on the Department of Ecology's website at:
https://apps.ecology.wa.gov/publications/summarypages/2308007.html

Contact Information

Spill Prevention, Preparedness, and Response Program
P.O. Box 47600
Olympia, WA 98504-7600
Phone: 360-407-7455

Website: Washington State Department of Ecology[1]

ADA Accessibility

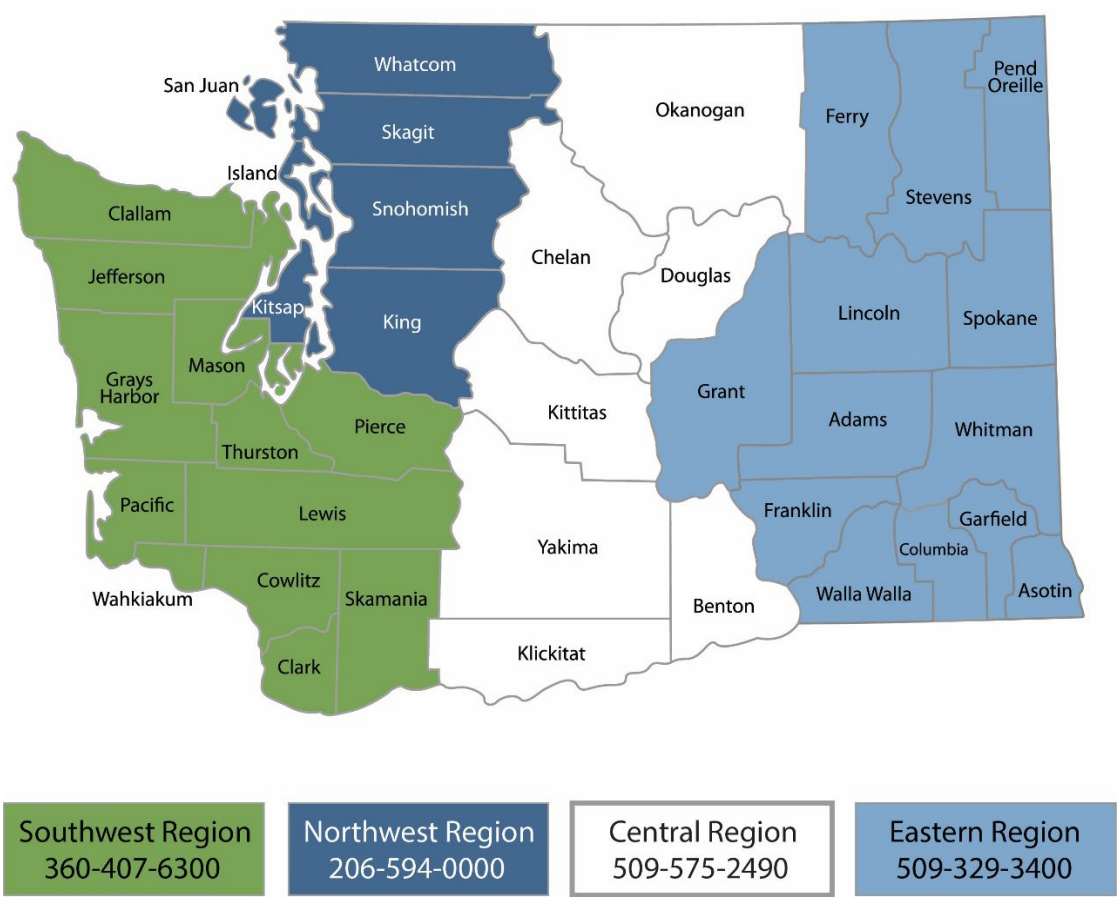
The Department of Ecology is committed to providing people with disabilities access to information and services by meeting or exceeding the requirements of the Americans with Disabilities Act (ADA), Section 504 and 508 of the Rehabilitation Act, and Washington State Policy #188.

To request an ADA accommodation, contact Ecology by phone at 360-407-6831 or email at ecyadacoordinator@ecy.wa.gov. For Washington Relay Service or TTY call 711 or 877-833-6341. Visit Ecology's website for more information.

[1] http://www.ecology.wa.gov/contact

Department of Ecology's Regional Offices

Map of Counties Served



Region	Counties served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	PO Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	PO Box 330316 Shoreline, WA 98133	206-594-0000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 W Alder St Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 N Monroe Spokane, WA 99205	509-329-3400
Headquarters	Across Washington	PO Box 46700 Olympia, WA 98504	360-407-6000

Concise Explanatory Statement

Chapter 173-180 WAC – Facility oil handling standards
Chapter 173-184 WAC – Vessel oil transfer advance notice and containment requirements

Spill Prevention, Preparedness, and Response Program
Washington State Department of Ecology
Olympia, WA

June 2023 | Publication 23-08-007

DEPARTMENT OF
ECOLOGY
State of Washington

This page is purposely left blank

Table of Contents

Introduction

The purpose of a Concise Explanatory Statement is to:

- Meet the Administrative Procedure Act (APA) requirements for agencies to prepare a Concise Explanatory Statement (RCW 34.05.325).
- Provide reasons for adopting the rule.
- Describe any differences between the proposed rule and the adopted rule.
- Provide Ecology's response to public comments.

This Concise Explanatory Statement provides information on The Washington State Department of Ecology's (Ecology) rule adoption for:

Title:	Facility oil handling standards; Vessel oil transfer advance notice and containment requirements
WAC Chapter(s):	173-180; 173-184
Adopted date:	June 6, 2023
Effective date:	July 7, 2023

To see more information related to this rulemaking or other Ecology rulemakings please visit our website: https://ecology.wa.gov/About-us/How-we-operate/Laws-rules-rulemaking.

Reasons for Adopting the Rule

Ecology is adopting amendments to Chapter 173-180 WAC, Facility oil handling standards and Chapter 173-184 WAC, Vessel oil transfer advance notice and containment requirements. Chapter 173-180 WAC establishes oil spill prevention and oil transfer requirements for regulated oil handling facilities. Chapter 173-184 WAC establishes oil transfer requirements for vessels delivering oil in bulk on or over waters of the state.

Ecology amended both rules to align with statutory changes made in the 2019 legislative session. Through Engrossed Substitute House Bill (ESHB) 1578, codified in RCW 88.46.165, the Legislature expanded advance notice of oil transfer reporting requirements for Class 1, 2, and 3 facilities and for vessels delivering oil in bulk on or over waters of the state. Expanded advance notice reporting requirements allow Ecology to better prepare for and respond to spills that may impact waters of the state.

Amendments include necessary administrative updates that provide clear direction to the regulated community. Consistent standards provide ease of compliance with Ecology's rules and ensure they are not overly burdensome.

Amendments also include broader policy changes. As oil spill risk continues to change and new risks emerge, Ecology's rules must adapt to address these risks and ensure we are requiring the necessary safeguards to prevent, prepare for, and respond to spills. These amendments are essential to address gaps identified and provide stronger oil spill protection to the waters of the state.

Expanded requirements for Class 1 facilities address gaps identified in oil spill prevention standards. Specifying criteria for reporting secondary containment permeability allows facilities and Ecology to determine whether they are meeting existing standards. Providing criteria for facility spill risk analyses improves the quality and consistency of risk assessments. Addressing requirements for seismic protection of storage tanks and transfer pipelines ensures safeguards are in place to help prevent spills during seismic events. Establishing out of service and decommissioning requirements provides oil spill prevention measures during the entirety of a facility's life cycle.

Expanded Oil Transfer Response Plan requirements for Class 2 facilities provide an additional layer of oil spill preparedness, as oil transfers for these facilities occur broadly throughout the state. Routine exercise of response equipment and notification procedures strengthens the state's readiness when a spill occurs.

Facilities and delivering vessels must ensure safeguards are maintained before and during oil transfer operations. Ecology's requirements take into consideration each aspect of the transfer, minimizing the risk and impact of a spill. This includes ensuring containment measures are in place, effective communication is being practiced, and recovery equipment is readily available in case of an incident. Rule updates for oil transfer operations implement lessons learned through years of implementation and provide oil spill prevention improvements in areas where gaps have been identified.

Updated advance notice reporting timeframe requirements for oil transfer information to Ecology allow inspectors time to prepare for and conduct oil transfer inspections. Oil transfer inspections provide enhanced protection to the waters of the state.

This rulemaking, in Chapters 173-180 and 173-184 WAC:

- Makes changes to address inconsistent or unclear direction in the rule(s), and makes any corrections needed.
- Evaluates and updates codes and standards throughout the rule(s).
- Updates and clarifies enforcement provisions for expired plans, manuals, reports, and programs requiring re-approval for Class 1 and 2 facilities and delivering vessels.
- Updates submittal requirements, recordkeeping requirements, and compliance schedules throughout the rule(s).
- For Rate A deliverers:
    - Clarifies safe and effective determination and Boom Reporting Form submission requirements.
    - Expands Safe and Effective Threshold Determination Report content requirements and aligns report and review requirements.
- Expands advance notice of oil transfer reporting requirements for Class 1, 2, and 3 facilities and delivering vessels.

In Chapter 173-180 WAC:

- Clarifies and expands plan content and drill requirements for Class 2 facility Oil Transfer Response Plans.
- For Class 1 facilities:
    - Establishes facility out of service and decommissioning requirements.
    - Establishes seismic protection requirements for transfer pipelines and storage tanks.
    - Clarifies and expands plan preparation and plan content requirements for Prevention Plans, including secondary containment permeability and facility spill risk analysis criteria.
    - Clarifies training and certification requirements.

In Chapter 173-184 WAC:

- Updates advance notice reporting timeframe requirements for delivering vessels.
- Updates and clarifies pre-booming and safe and effective threshold determination requirements for lightering operations, and for short-term transfer location approval requests for Rate A deliverers.

Differences Between the Proposed Rule and Adopted Rule

RCW 34.05.325(6)(a)(ii) requires Ecology to describe the differences between the text of the proposed rule as published in the Washington State Register and the text of the rule as adopted, other than editing changes, stating the reasons for the differences.

There are some differences between the proposed rule filed on January 3, 2023, and the adopted rules filed on June 6, 2023. Ecology made these changes for all or some of the following reasons:

- In response to comments we received.
- To ensure clarity and consistency.
- To meet the intent of the authorizing statute.

The following content describes the changes and Ecology's reasons for making them.

Chapter 173-180 WAC

WAC 173-180-025 Definitions:

- The definition of boom was updated to reference the 2022 version of ASTM F625/F625M-94. The definition previously referenced the 2017 version of this standard. This update does not change any regulatory requirements.
- The definition of Class 3 facility was updated to correct a grammatical error. This update does not change any regulatory requirements.
- The definition of storage tank was updated to include the conversion between gallons and barrels. Ecology received feedback during the public comment period that it is useful to maintain the conversion between gallons and barrels where it previously existed in the language. This update does not change any regulatory requirements.
- The definition of transfer pipeline was updated to the definition that previously existed in the language. Ecology received feedback during the public comment period that the proposed changes made to this definition created confusion. This update does not change any regulatory requirements.

WAC 173-180-080 Compliance Schedule

- A compliance schedule for operations manual requirements for Class 1 and 2 facilities in WAC 173-180-420 and 173-180-421 was added to this section. Ecology received feedback during the public comment period that it would be helpful to specify a compliance schedule for Operations Manuals and Training and Certification Programs. Additionally, Ecology received feedback that the compliance schedule for Operations Manuals should allow for alignment with Safe and Effective Threshold Determination Reports. This change requires facilities to incorporate updates by their current operations manual's expiration date, instead of by the effective date of the rule.
- A compliance schedule for Training and Certification Program requirements for Class 1 and 2 facilities in WAC 173-180-510 and 173-180-511 was added to this section. Ecology received feedback during the public comment period that it would be helpful to

specify a compliance schedule for Operations Manuals and Training and Certification Programs. This change requires facilities to incorporate updates by their current Training and Certification Program's expiration date, instead of the by the effective date of the rule.

WAC 173-180-221 Rate A prebooming and alternative measures requirements.

- Subsection (2) of this section was updated for clarity. This update does not change any regulatory requirements.

WAC 173-180-320 Secondary containment requirements for storage tanks.

- Subsection (4) of this section was updated to align with federal requirements in 40 C.F.R. Part 112.12(c)(2). This update does not change any regulatory requirement as the requirement already exists in federal law for the same regulated entities.
- Subsection (8) of this section was updated to include the conversion between gallons and barrels. Ecology received feedback during the public comment period that it is useful to maintain the conversion between gallons and barrels where it previously existed in the language. This update does not change any regulatory requirements.

WAC 173-180-330 Storage tank requirements.

- Subsection (3)(a)(iii) of this section was updated to reference the latest publication of API Standard 620, Design and construction of large welded, low-pressure tanks. The proposed language did not include the correct published year of 2013. This update also includes addendum 1 (2014), 2 (2018), and 3 (2021). This update does not change any regulatory requirements.

WAC 173-180-340 Transfer pipeline requirements.

- Subsection (5)(a) of this section was updated to reference the latest publication of ASME B31.3-2022, published in 2023, and ASME B31.4-2022, published in 2022. This update does not change any regulatory requirements.
- Subsection (10) of this section was updated to remove an error in the proposed language. The year 1991 was included with ASME B31G-2012 (R2017). This is incorrect and was removed. This update does not change any regulatory requirements.

WAC 173-180-525 Class 1 and 2 facilities – Training and certification program approval process.

- Subsection (7) of this section was updated to provide clarity. This update does not change any regulatory requirements.

WAC 173-180-630 Class 1 facility – Prevention plan content requirements.

- Subsection (10)(g)(ii) of this section was updated to provide clarity. Ecology received feedback that this requirement was unclear. This update does not change any regulatory requirements.
- Subsection (12) of this section was updated to include the conversion between gallons and barrels. Ecology received feedback during the public comment period that it is useful

to maintain the conversion between gallons and barrels where it previously existed in the language. This update does not change any regulatory requirements.

- Subsection (13)(b)(ii) of this section was updated to provide a correction. Ecology received feedback requesting clarity as to whether this requirement should apply to each secondary containment system or the entire facility. This update states the requirement is to evaluate spill minimization and containment systems using the worst case spill volume for each secondary containment system.

WAC 173-180-815 Drill scheduling, design, evaluation, and records.

- Subsection (1)(b) of this section was updated to correct a typographical error. This update does not change any regulatory requirements.

Chapter 173-184 WAC

WAC 173-184-025 Definitions

- The definition of boom was updated to reference the 2022 version of ASTM F625/F625M-94. The definition previously referenced the 2017 version of this standard. This update does not change any regulatory requirements.
- The definition of Class 3 facility was updated to correct a grammatical error. This update does not change any regulatory requirements.

WAC 173-184-115 Rate A prebooming and alternative measures requirements.

- Subsection (2) of this section was updated for clarity. This update does not change any regulatory requirements.
- Subsection (2)(a) of this section was updated to correct a grammatical error. This update does not change any regulatory requirements.

List of Commenters and Response to Comments

Ecology accepted comments from January 3, 2023, to March 5, 2023. Comments were accepted by mail, through our online public comment tool, and verbally at three public hearings that were held via webinar.

We received 889 comment submissions during the 60 day formal public comment period. Of these, we received 53 unique comments from individuals, organizations, businesses, and agencies. Some of the comment submissions received included several comments. Several of the comment submissions were submitted on behalf of multiple individuals or organizations.

Below is a table depicting the commenter name, affiliation, and associated comment number. The comments are included verbatim below the table in order of comment number. Each unique comment is addressed separately, and the individual response to the comment is included below the comment. Comments that were submitted as letter attachments are included in Appendix B and referenced in the text below.

We also received 836 duplicate comments from individual commenters. Some of these duplicate comments received were not exactly identical, but did not differ substantially. These duplicate comments received a single response. The comments, responses, and list of names of individual commenters can be found in Appendix A of this document. To review the original comments received by each of the commenters, the comments can be accessed from our online public comment tool.

Table 1. List of commenters

Commenter name	Affiliation	Comment number
15 non-governmental organizations	Other	OTH-1-1
Alderton, Janet	Individual	I-5-1
Alderton, Janet	Individual	I-175-1
Anonymous, Anonymous	Individual	I-12-1
Anonymous, Anonymous	Individual	I-13-1
Anonymous, Anonymous	Individual	I-16-1
Capson, Kathleen	Individual	I-140-1
Chastain, LeeAnn	Individual	I-10-1
Daffron, Jeff	Individual	I-57-1
DeBin, Joseph	Individual	I-11-1
Douglass, Andronetta	Individual	I-131-1
Edmark, Kristin	Individual	I-173-1
Ferm, Mary	Individual	I-6-1
Friends of the San Juans	Organization	O-6-1

Friends of the San Juans	Organization	O-7-1
Hall, Martha	Individual	I-130-1
Hammer, Krista	Individual	I-132-1
HF Sinclair Puget Sound Refining LLC	Business	B-2-1
Holder, Mary	Individual	I-31-1
Howe, Jon	Individual	I-143-1
Hubbard, Shaun	Individual	I-179-1
Keller, Barbara	Individual	I-8-1
Keller, Barbara	Individual	I-148-1
Kimball, Susan	Individual	I-2-1
Larsen, Amber	Individual	I-177-1
Lombard, Jim	Individual	I-149-1
Lyles, Richard	Individual	I-141-1
Manz, Paul	Individual	I-21-1
Michaelson, Elizabeth	Individual	I-166-1
Miller, Victoria	Individual	I-9-1
Mitchell, Robert	Individual	I-111-1
Rotondi, Paula	Individual	I-153-1
Roundtable Engineering Solutions, LLC	Business	B-4-1
San Juan Preservation Trust	Organization	O-2-1
San Juan Preservation Trust	Organization	O-3-1
Scheer, David	Individual	I-28-1
Swan, Alice	Individual	I-4-1
Trusty, Candice	Individual	I-118-1
Turnoy, David	Individual	I-7-1
US Oil & Refining Co	Business	B-3-1
U.S. Navy, Manchester Fuel Depot	Agency	A-1-1
Vahid, Aaron	Business	B-5-1
Vermeeren, Dirk	Individual	I-67-1
Washington Conservation Action	Organization	O-1-1
Washington Conservation Action	Organization	O-4-1

O-4-1 included 698 individual comment letters. Nine of these are unique letters and are included here by page number. The remaining can be found in Appendix A.	Allen, Noel	Page 538
	Barry, Chapman	Page 447
	Bhakti, Sara	Page 178
	Dawson, Kathy	Page 649
	Hickey, Jennifer	Page 236
	Jaillet, Helene	Page 85
	Parks, Carrie	Page 683
	Robinson, David	Page 483
WSPA	Organization	O-5-1

I-2: Susan Kimball

Comment I-2-1

I definitely support tighter regulation of oil transfers and oil spill prevention.

Response to I-2-1

Thank you for your support.

As oil spill risk continues to change and new risks emerge, Ecology's rules adapt to address these risks and ensure we are requiring the necessary safeguards to prevent, prepare for, and respond to spills. These rule amendments are essential to address gaps identified over the years of implementing both rules. The amendments provide stronger oil spill protection to the waters of the state.

Ecology's amended rules provide enhanced oil spill prevention measures to oil transfer operations on or over waters of Washington State. Ecology's requirements take into consideration each aspect of the transfer. This includes ensuring containment measures are in place, effective communication is being practiced, and recovery equipment is readily available in case of an incident. The amended rules strengthen pre-booming requirements by clarifying that equipment used must be able to perform in all conditions up to and including the upper limits of the approved safe and effective thresholds.

The rule amendments expand advance notice of oil transfer reporting requirements for facilities and vessels that are delivering oil in bulk on or over waters of the state. The expanded requirements allow Ecology to better prepare for and respond to spills that may impact Washington State waters.

Amendments to the advance notice reporting timeframe requirements for oil transfer information to Ecology allow inspectors time to prepare for and conduct oil transfer inspections. Oil transfer inspections provide enhanced protection to the waters of the state.

Ecology's expanded requirements for Safe and Effective Threshold Determination Reports ensure data utilized in the reports is up-to-date and that accepted industry standards for boom performance are included.

I-4: Alice Swan

Comment I-4-1

This is critically important.

I support the new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines, requiring additional seismic protection measures for oil storage tanks and transfer pipelines to help prevent oil spills during earthquakes, and updating the requirements to mitigate the impacts of spills from oil transfer operations.

To implement ESHB 1578, Reducing threats to southern resident killer whales by improving the safety of oil transportation, this rule should also:

1) Require all secondary containment structures (that prevent spilled oil from reaching waters of the state) to withstand seismic forces;

2) Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming;

3) Restrict all oil transfer operations to daylight hours or, at the very least, restrict all oil transfer operations to daylight hours when it's not safe and effective to pre-boom.

Response to I-4-1

See response to comment I-2-1.

Ecology's out of service and decommissioning requirements improve oil spill prevention for out of service oil storage tanks and transfer pipelines. Oil storage tanks and transfer pipelines that are taken out of service could create oil spill risks if there is oil left in either the storage tanks or transfer pipelines. The rule amendment ensures decommissioning storage tanks and transfer pipelines is done in a way that reduces the potential for an oil spill and includes spill prevention measures for the entirety of a facility's life cycle.

A major earthquake could cause catastrophic damage to oil facilities in Washington, as many Class 1 facilities are located on areas with potentially active fault lines. The new seismic protection measures for storage tanks and transfer pipelines ensure safeguards are in place to help prevent spills during seismic events and are required to provide the best achievable protection to the public health and the environment during an earthquake. The goal of the amended rule is to further reduce the likelihood that any storage tanks or transfer pipelines are critically damaged and that the resulting damage leads to a release of oil.

Requiring secondary containment systems at Class 1 facilities constructed before 1994 to withstand seismic forces, requiring all oil transfer operations to be pre-boomed and eliminate Rate B oil transfer requirements, and restricting oil transfer operations to daylight hours only are all outside the scope of this rulemaking.

When the Legislature passed Engrossed Substitute House Bill (ESHB) 1578 in 2019, Section 8 of the bill expanded Advance Notice of Oil Transfer (ANT) reporting requirements for Class 1, 2, and 3 facilities and for vessels delivering oil in bulk on or over waters of the state. The amended rules align with changes made to RCW 88.46.165.

Since both rules had not been opened since 2007, Ecology utilized this opportunity to make necessary administrative updates and other broader policy changes to both rules. The rulemaking was scoped to address areas that we believe will provide the greatest improvements, either to provide clarity, expand requirements in some cases, or to fill in gaps in others.

I-5: Janet Alderton

Comment I-5-1

I am very concerned about the negative impacts of fossil fuels that are spilled on our lands and into our waters. Spilled oils can spread rapidly unless they are contained by barriers, such as booms that are put in place before oil is transferred. I oppose the 500 gallon per minute threshold for the pre-booming requirement. There should be no threshold. When oil will be transferred in marine waters, there must be pre-booming.

I also support the new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines as well as requirements for additional seismic protection measures for oil storage tanks and transfer pipelines to help prevent oil spills during earthquakes.

To implement ESHB 1578, Reducing threats to southern resident killer whales by improving the safety of oil transportation, this rule should also:

1) Require all secondary containment structures (that prevent spilled oil from reaching waters of the state) to withstand seismic forces;

2) Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming;

3) Restrict all oil transfer operations to daylight hours or, at the very least, restrict all oil transfer operations to daylight hours when it's not safe and effective to pre-boom.

Response to I-5-1

See response to comment I-4-1.

Pre-booming can help prevent the spread of oil after a spill. The rules require oil transfers to be pre-boomed depending on the rate of transfer and the type of oil being transferred. However, not all oil transfer operations can be boomed for a few reasons:

First, oil transfers that transfer oil at a Rate B, meaning the oil is transferred at a rate of 500 gallons per minute or less, are not required to be pre-boomed. Ecology is required by statute to scale our rules for the deployment of containment equipment to the risk posed to people and the environment, and to categorize the type of transfer, volume of oil, frequency of transfers, and other risk factors. Rate B transfers are scaled to the risk of an oil spill due to the lower volume of oil transferred and lower transfer rate per the requirements in statute. The majority of oil transferred over Washington waters takes place through Rate A transfers. Over the past five years (2017 – 2022), Rate B transfers accounted for less than 2% of the volume of oil transferred over water. Over 98%, 49 billion gallons, of the volume of oil was transferred in Rate A transfers, which require pre-booming when it is safe and effective to do so. On a per-transfer basis, there is a lower volume of oil transferred during a Rate B transfer, with the average less than 20,000 gallons, and with about 20% of all transfers under 1,000 gallons. The average volume for Rate A transfers is above 1.5 million gallons. Rate B transfer rates are commonly

between 80 and 250 gallons per minute and are infrequently above 300 gallons per minute. Due to the slower transfer rate, if a spill were to occur, the volume of oil spilled during the reaction time to shut down a Rate B transfer would likely be much less than during a Rate A transfer.

Second, Chapter 173-180 WAC and Chapter 173-184 WAC are designed so delivering vessels and facilities can use the safe and effective thresholds in their approved Safe and Effective Threshold Determination Reports to determine when environmental conditions do not allow for pre-booming to occur. Based on those thresholds, it may not be safe and/or effective to pre-boom, which means the current environmental conditions are either unsafe for personnel that are deploying boom or the conditions would prevent the boom from effectively containing a spill.

And finally, some products, including gasoline, aviation gasoline, ethanol, and nonene, and other highly volatile products, cannot be pre-boomed because of safety concerns with containing flammable liquids. In addition to Ecology's rules, the Northwest Area Contingency Plan (NWACP) includes a gasoline response policy that suggests booming of gasoline spills should be prohibited for this reason.

All oil transfers that are not pre-boomed must meet alternative measure requirements in Chapter 173-180 WAC or Chapter 173-184 WAC. These alternative measures provide requirements for immediate response actions when a spill occurs. It is the responsibility of the delivering facility or vessel to meet alternative measure requirements. They may meet this in different ways, including bringing out additional or different equipment to assist with boom deployment. One requirement includes having access to boom to surround the vessel(s) and/or facility/terminal dock area where the transfer is taking place. In addition, the deliverer must also have sorbent materials and other recovery equipment such as non-sparking hand scoops, shovels, and buckets available on-site. Deliverers are required to confirm that they can meet alternative measures when they submit a Boom Reporting Form. If a spill happens, the alternative measures apply and the Contingency Plan for that facility or vessel is activated. Chapters 173-180 and 173-184 WAC are designed to work in concert with Chapter 173-182 WAC.

Chapter 173-180 and 173-184 WAC are designed to be protective in all situations, regardless of the weather or daylight conditions. Over the last five years, less than 20 percent of oil transfers took place between 6:00 p.m. and 6:00 a.m.

Chapter 173-182 WAC includes additional resources that would be brought in if a spill were to occur and when a response is underway. This rule includes planning standard areas throughout Puget Sound to ensure that equipment can be moved around in prescriptive timeframes.

If a spill does occur, in addition to the alternative measure and planning standard requirements, Ecology's response team provides a rapid, aggressive, and well-coordinated response to any oil spills to waters of our state, providing year-round, statewide, and 24-hour a day response coverage. The response community can implement different cleanup strategies to reduce the impact and damage caused by the spill.

I-6: Mary Ferm

Comment I-6-1

As the granddaughter of marine biologists who worked at Friday Harbor labs, and then retired on San Juan Island, I am very concerned about the dangers presented by outdated oil spill containment systems for ships passing around the San Juans. We also now know a lot more about possible earthquakes in our area than we did in 1994 when standards were set, and need to

take appropriate measures to limit the damage from them. I strongly support the suggestions below:

I support the new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines, requiring additional seismic protection measures for oil storage tanks and transfer pipelines to help prevent oil spills during earthquakes, and updating the requirements to mitigate the impacts of spills from oil transfer operations.

To implement ESHB 1578, Reducing threats to southern resident killer whales by improving the safety of oil transportation, this rule should also:

1) Require all secondary containment structures (that prevent spilled oil from reaching waters of the state) to withstand seismic forces;

2) Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming;

3) Restrict all oil transfer operations to daylight hours or, at the very least, restrict all oil transfer operations to daylight hours when it's not safe and effective to pre-boom.

Response to I-6-1

See response to comment I-4-1.

Oil spill prevention and containment requirements for ships are defined in the International Maritime Organization (IMO) Convention for the Prevention of Pollution from Ships (MARPOL). These requirements are incorporated into laws and regulations by member countries of the IMO. In U.S. waters, oil spill pollution prevention requirements are codified in Title 33 C.F.R. and enforced by the U.S. Coast Guard.

Washington State requirements for vessels delivering oil in bulk on or over the waters of the state are defined in Chapter 173-184 WAC. Vessels must meet transfer containment and recovery requirements. This includes ensuring “the equipment used to deploy the boom, must be of the appropriate size and design for safe and effective deployment in the expected environmental conditions encountered in the transfer area(s)” (WAC 173-184-110(4)).

In addition, all boom required under Chapter 173-184 WAC must meet the definition of boom as described in WAC 173-184-025(2) “means floatation boom or other effective barrier containment material suitable for containment, protection, or recovery of oil that is discharged on the surface of the water. Boom will be classified using criteria found in the ASTM International F 1523-94 (2018) and ASTM International ASTM F625/F625M-94 (2022), and the *Resource Typing Guidelines* found in the Worldwide Response Resource List (WRRL) user manual.” This ensures oil spill containment meets the most current standards.

Chapter 173-184 WAC also requires delivering vessels to include in their Safe and Effective Threshold Determination Reports the following under WAC 173-184-130(2)(e)(i) “type of boom (e.g., internal flotation, fence, inflation) and total height; and (ii) accepted industry standards regarding the performance of boom and associated deployment equipment in various operating environments”. Ecology reviews and approves all Safe and Effective Threshold Determination Reports that meet these requirements.

Chapter 173-180 WAC requires all secondary containment systems constructed after 1994 at Class 1 facilities to withstand seismic forces. The rule amendments prioritize seismic protection measures for storage tanks and transfer pipelines at Class 1 facilities, as these requirements did not exist previously.

I-7: David Turnoy

Comment I-7-1

I want to second the comments of Janet Alderton:

I am very concerned about the negative impacts of fossil fuels that are spilled on our lands and into our waters. Spilled oils can spread rapidly unless they are contained by barriers, such as booms that are put in place before oil is transferred. I oppose the 500 gallon per minute threshold for the pre-booming requirement. There should be no threshold. When oil will be transferred in marine waters, there must be pre-booming.

I also support the new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines as well as requirements for additional seismic protection measures for oil storage tanks and transfer pipelines to help prevent oil spills during earthquakes. To implement ESHB 1578, Reducing threats to southern resident killer whales by improving the safety of oil transportation, this rule should also:

1) Require all secondary containment structures (that prevent spilled oil from reaching waters of the state) to withstand seismic forces;

2) Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming;

3) Restrict all oil transfer operations to daylight hours or, at the very least, restrict all oil transfer operations to daylight hours when it's not safe and effective to pre-boom.

Response to I-7-1

See response to comments I-4-1 and I-5-1.

I-8: Barbara Keller

I want to thank you for finally taking on this important and timely update. There is probably no one other more dangerous threat to our waters than an uncontained oil spill. While I have personally taken training in oil spill response, the one real lesson I learned from it was that once released, with our tides, currents, storms, etc., stopping the damage is virtually impossible.

I want you to know of my support for the new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines, requiring additional seismic protection measures for oil storage tanks and transfer pipelines to help prevent oil spills during earthquakes, and updating the requirements to mitigate the impacts of spills from oil transfer operations.

To implement ESHB 1578, Reducing threats to southern resident killer whales and all other, though less dramatic species, by improving the safety of oil transportation, this rule should also:

1) Require ALL secondary containment structures (that prevent spilled oil from reaching waters of the state) to withstand seismic forces - it's not like we don't have earthquakes!

2) Require ALL oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming;

3) Restrict all oil transfer operations to daylight hours or, at the very least, restrict all oil transfer operations to daylight hours when it's not safe and effective to pre-boom. (But, hey, maybe they should not be done under those conditions at all!)

Thank you for your consideration.

Response to I-8-1

See response to comments I-4-1 and I-5-1.

I-9: Victoria Miller

Comment I-9-1

Americans have never paid the true cost of oil and gas production and transportation in this country. Keeping our waterways safe (clean) is a common sense priority, and if the cost per gallon of fuel is slightly increased by doing so, we are willing to bear that expense.

Response to I-9-1

The cost of oil and gas is outside the scope of both Chapter 173-180 WAC and Chapter 173-184 WAC. The cost per gallon of fuel that consumers experience is not determined by the requirements in these two rules. There is cost associated with implementation of the additional requirements in the amended rules on the regulated community, which is described in the Final Regulatory Analyses, and these may play a role in the internal business decisions and marketing choices made by oil industry businesses. However, whether and how those costs are distributed to price per gallon for consumers is determined by multiple complex market factors that are not affected by the rule and not determined by Ecology.

I-10: LeeAnn Chastain

Comment I-10-1

Washington must pass more effective measures to regulate oil transfers from vessels in our coastal waters. I support advance notification of such transfers but also the requirement of pre-booming to mitigate any potential oil spill. The oil and gas industry has been highly profitable and must be required to act as responsible corporate entities in all operations. This industry is certainly able to absorb related costs, even without passing them on to consumers. Secondly, Washington must require seismic protection measures that will prevent oil spills during earthquakes, and such measures should include secondary containment systems.

Response to I-10-1

See response to comments I-2-1, I-4-1, I-5-1, and I-9-1.

I-11: Joseph DeBin

Comment I-11-1

Please take action to prevent future disasters.

I support the new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines, requiring additional seismic protection measures for oil storage tanks and

transfer pipelines to help prevent oil spills during earthquakes, and updating the requirements to mitigate the impacts of spills from oil transfer operations.

To implement ESHB 1578, Reducing threats to southern resident killer whales by improving the safety of oil transportation, this rule should also:

1) Require all secondary containment structures (that prevent spilled oil from reaching waters of the state) to withstand seismic forces;

2) Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming;

3) Restrict all oil transfer operations to daylight hours or, at the very least, restrict all oil transfer operations to daylight hours when it's not safe and effective to pre-boom

Response to I-11-1

See response to comment I-4-1.

I-12: Anonymous Anonymous

Comment I-12-1

jjkjk

Response to I-12-1

This comment did not provide any content for Ecology to consider.

I-13: Anonymous Anonymous

Comment I-13-1

jknnjknjk

Response to I-13-1

This comment did not provide any content for Ecology to consider.

I-16: Anonymous Anonymous

Comment I-16-1

asf

Response to I-16-1

This comment did not provide any content for Ecology to consider.

I-21: Paul Manz

Comment I-21-1

For the interdependent health of our communities and our environment, I strongly urge you to make decisions to reasonably keep oil transportation as safe as possible. This is especially important to consider in an area predisposed to earthquakes with potentials for flooding and tsunamis. The ongoing crisis in Ohio highlights how important foresight is in transportation of hazardous materials and how devastating the failure of a single transport can be for an entire

population. Please put our communities first on this issue. Thank you for your time and consideration for our concerns.

Response to I-21-1

Chapter 173-180 WAC establishes oil spill prevention and oil transfer requirements for regulated oil handling facilities. Chapter 173-184 WAC establishes oil transfer requirements for vessels delivering oil in bulk on or over waters of the state. Both rules provide enhanced oil spill prevention measures for oil transfers happening on or over waters of the state from delivering facilities and vessels. These prevention measure requirements reduce the risk of an oil spill and reduce the impact of an oil spill should one occur.

These rules do not cover the transportation of oil over rail, water, or roadways.

I-28: David Scheer

Comment I-28-1

Thank you sovery much for 'leading' a process with interested stakeholders to AMEND regulations associated with facility oil handling standards and vessel oil transfer advance notice ...PLUS containment requirements to implement ESHB 1578...which would REDUCE threats to southern resident killer whales by improving the safety of oil transportation!!

I VERY STRONGLY SUPPORT requiring additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines...PLUS new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines...PLUS additional advance notice of oil transfers....AND disclosure of the type, origin and characteristics of the crude oil being transferred! Get all of these done, would you?!?

IN ADDITION...this rulemaking should 'ALSO':

REQUIRE all new and existing containment structures---that prevent spilled oil from reaching the waters of the state---to withstand seismic forces!

REQUIRE 'all' oil transfer operations to be pre-boomed---when safe and effective to do so --- AND eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming!

RESTRICT 'all' oil transfer operations to daylight hours...PARTICULARLY when it's not safe and effective to pre-boom!

And...THANK YOU SO MUCH for your efforts to improve the safety of oil transportation in Washington State (!!)

Response to I-28-1

See response to comments I-2-1 and I-4-1.

I-31: Mary Holder

Comment I-31-1

I live in Skagit County and am concerned about that vessel oil transfers at our two refineries can cause irreparable harm to the Orca whales, fish and birds that depend on the Salish Sea for their continued survival. I thank you for leading a process with interested stakeholders to amend regulations associated with facility oil handling standards and vessel oil transfer advance notice

and containment requirements to implement ESHB 1578, Reducing threats to southern resident killer whales by improving the safety of oil transportation. These regulations must be strong and effective at preventing harm to our fragile environment.

Specifically, I support requiring additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines, new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines, additional advance notice of oil transfers, and disclosure of the type, origin and characteristics of the crude oil being transferred.

However, this rulemaking should also:

Require all new and existing containment structures (that prevent spilled oil from reaching the waters of the state) to withstand seismic forces:

Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.

Restrict all oil transfer operations to daylight hours, particularly when it's not safe and effective to pre-boom.

Thank you for your efforts to improve the safety of oil transportation in Washington State.

Response to I-31-1

See response to comments I-2-1 and I-4-1.

I-57: Jeff Daffron

Comment I-57-1

Please implement ESHB 1578, Reducing threats to southern resident killer whales by improving the safety of oil transportation.

I support requiring additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines, new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines, additional advance notice of oil transfers, and disclosure of the type, origin and characteristics of the crude oil being transferred.

However, this rulemaking should also:

Require all new and existing containment structures (that prevent spilled oil from reaching the waters of the state) to withstand seismic forces:

Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.

Restrict all oil transfer operations to daylight hours, particularly when it's not safe and effective to pre-boom.

Thank you for your efforts to improve the safety of oil transportation in Washington State.

Response to I-57-1

See response to comments I-2-1 and I-4-1.

I-67: Dirk Vermeeren

Comment I-67-1

As a retired oil industry professional and having managed the Chevron Pt Wells Refinery at Richmond Beach I fully support requiring additional seismic protection measures, retrofits for oil storage tanks and transfer pipelines, updating decommissioning requirements for out of service oil storage tanks and oil transfer pipelines. In addition to advance notice of oil transfers, and disclosure of the type, origin and characteristics of the crude oil being transferred.

Your leadership in the process with interested stakeholders to amend regulations is timely. Reducing threats to our Salish Sea and specifically southern resident killer whales by improving the safety of oil transportation, facility oil handling standards and vessel oil transfer advance notices and containment requirements to implement ESHB 1578.

However, this rulemaking should also:

To address a forecasted Cascadia Rising I suggest requiring all new and existing containment structures (that prevent spilled oil from reaching the waters of the state) to withstand seismic forces:

Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.

Restrict all oil transfer operations to daylight hours, particularly when it's not safe and effective to pre-boom.

Thank you for your efforts to improve the safety of oil transportation in Washington State.

Response to I-67-1

See response to comments I-2-1 and I-4-1.

I-111: Robert Mitchell

Comment I-111-1

I am writing to express my support for the regulations that have been developed to implement ESHB 1578, Reducing threats to southern resident killer whales by improving the safety of oil transportation. I appreciate the effort that has gone into this process to ensure the safety of our environment and communities.

I would like to request that the rulemaking also includes the following measures to further enhance the safety of oil transportation in Washington State:

* Requiring all new and existing containment structures to withstand seismic forces to prevent spilled oil from reaching the waters of the state.

* Requiring all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminating the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.

* Restricting all oil transfer operations to daylight hours, particularly when it's not safe and effective to pre-boom.

These measures are necessary to ensure that the safety of our environment and communities is not compromised during oil transportation operations. By implementing these measures, we can reduce the risk of oil spills and protect our natural resources.

Once again, thank you for your efforts to improve the safety of oil transportation in Washington State.

Sincerely,

Robert Mitchell

Olympia, Wa

Response to I-111-1

See response to comments I-2-1 and I-4-1.

I-118: Candice Trusty

Comment I-118-1

Our state needs to do all it can to protect water quality within Puget Sound. Please consider amending regulations associated with facility oil handling standards and vessel oil transfer advance notice and containment requirements.

I support requiring additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines, new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines, additional advance notice of oil transfers, and disclosure of the type, origin and characteristics of the crude oil being transferred.

However, this rulemaking should also:

Require all new and existing containment structures (that prevent spilled oil from reaching the waters of the state) to withstand seismic forces:

Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.

Restrict all oil transfer operations to daylight hours, particularly when it's not safe and effective to pre-boom.

Thank you for your efforts.

Response to I-118-1

See response to comments I-2-1 and I-4-1.

I-130: Martha Hall

Comment 1-130-1

I support closing loopholes in the existing rulemaking and added further protections as recommended because I live in Anacortes and I see the threats posed by our two refineries everyday. I know these refineries and the tanker traffic they generate could mean the end of orcas in Puget Sound. One very unfortunate accident happening at the wrong time, which is when accidents often happen, and we could easily have serious problems. I watch the tankers from our house as they go in and out of the refineries all day and night.

They are enormous. The noise they make wake me up at night. I Also look out from our house and shoreline and see the tankers anchored off Guemes Island waiting to load and unload crude and refined oil and oil products. I see tankers being loaded and unloaded at the refinery docks. All of this loading and unloading is going on next to Padilla Bay which has the second largest eelgrass beds on our west coast, second only to one in Alaska. An oil spill in any of these places would be a disaster for Padilla Bay and all of the marine resources found there, fish, birds, shellfish. I also know the extreme currents we have in these same areas around Fidalgo and Guemes Islands and the mainland. We could sail in our sailboat for hours headed towards Anacortes in Guemes Channel and never make much headway because of the strong current. We watch the current from this current from the windows of our house as the ferry fights to cross the channel. I've also spent time on the beaches of Guemes Island and seen the fierce winds and waves on a north or northeast wind.

This was the wrong place to build refineries and the wrong place to be transferring oil and oil products. We can't seem to get rid of these refineries, but we can at least protect our orcas and other marine resources that can be destroyed by these refineries.

The WA Department of Ecology's draft rule closes a major loophole that exists in current booming requirements. Until this is addressed, oil spills during oil transfers are dangerous. For these orcas, this loophole could be a matter of life and death. The current requirements for advance notice of oil transfer operations helps with the regulation of these. Pre-booming oil transfers is extremely important. These rules need to address transfers of less than 500 gallons per minute as well as those over 500 gallons per minute. Those under 500 per minute could turn out to be just as deadly.

New decommissioning requirements are also needed for out-of-service oil storage tanks and o8il transfers. More protections are needed to prevent oil spills during earthquakes which we should expect and plan for. Seismic updates for all transfer pipelines and storage tanks are needed including secondary containment systems. Most of the refinery and bulk oil handling facilities in our state were built before 1994. This means they pose a serious threat. We have too many aging facilities who can and do pollute Puget Sound. More and better requirements are needed to make these safer.

I hope the Department of Ecology will do whatever is possible to add further protections like those in this proposal. Our state is spending millions and millions of dollars to try to save our resident orcas because Washingtonians care about these orcas. Ecology must be part of this effort.

There is a good chance that these orcas will disappear from our waters in our lifetimes IF we do notdo everything possible to reduce the many threats they face every day they spend time in Puget Sound. We have done a very poor job of keeping our waters clean and healthy in the past. We need to do much better in the future. This draft rule may be the one thing that saves orcas in case of an accident during an oil tranfer operation or an earthquake.

Thank you for this opportunity to comment,

Martha Hall

Anacortes, WA 98221

Response to I-130-1

See response to comments I-2-1, I-4-1, I-5-1, and I-21-1.

I-131: Andronetta Douglas

Comment I-131-1

Bellingham citizens have great concerns about safe train transport of flammable products. We have had a pipeline explosion, a train crash with a fire and a smokestack fire at BP oil refinery. Thank you for leading a process with interested stakeholders to amend regulations associated with facility oil handling standards and vessel oil transfer advance notice and containment requirements to implement ESHB 1578, Reducing threats to southern resident killer whales by improving the safety of oil transportation.

I support requiring additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines, new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines, additional advance notice of oil transfers, and disclosure of the type, origin and characteristics of the crude oil being transferred.

However, this rulemaking should also:

Require all new and existing containment structures (that prevent spilled oil from reaching the waters of the state) to withstand seismic forces:

Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.

Restrict all oil transfer operations to daylight hours, particularly when it's not safe and effective to pre-boom.

Thank you for your efforts to improve the safety of oil transportation in Washington State.

Response to I-131-1

See response to comments I-2-1, I-4-1, and I-21-1.

I-132: Krista Hammer

Comment I-132-1

I live on the water at Birch Bay and also boat frequently in the Salish Sea. This ecosystem is so fragile, and our Orca whales are at great risk from oil spills. It would be devastating for the whales, our regional tourism, fisheries. Please do everything possible to put the most strict standards in place regarding oil transportation safety. This is absolutely critical.

I support requiring additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines, new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines, additional advance notice of oil transfers, and disclosure of the type, origin and characteristics of the crude oil being transferred.

However, this rulemaking should also:

Require all new and existing containment structures (that prevent spilled oil from reaching the waters of the state) to withstand seismic forces:

Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.

Restrict all oil transfer operations to daylight hours, particularly when it's not safe and effective to pre-boom.

Thank you for your efforts to improve the safety of oil transportation in Washington State.

Response to I-132-1

See response to comments I-2-1, I-4-1, and I-21-1.

I-140: Kathleen Capson

Comment I-140-1

My husband and I have read the information associated with this issue and agree with all points presented in our commentary. We would like to add that we live a few blocks from the railroad tracks in Blaine and that the action requested in the following text is critical. Making certain to protect the ecology of the shoreline is CRITICAL TO THE SURVIVAL OF BLAINE'S OYSTER BEDS AND SEAFOOD INDUSTRY. It is also CRITICAL TO THE AQUATIC INDUSTRIES OF THE LUMMI NATION. It is also CRITICAL TO THE SURVIVAL OF OUR ENDANGERED ORCA POPULATION and all marine life, is CRITICAL TO HUMAN HEALTH AND SAFETY, and is CRITICAL TO WASHINGTON STATE'S ECONOMY . Please act to restrict all oil transfer operations to daylight hours; to require all containment structures to withstand seismic forces; to require all oil transfer operations to be pre-boomed; to eliminate the Rate B loophole; and to take any and all additional actions to safeguard our shorelines, our health, and the health of Whatcom County's, and the State's economy.

A few years ago Blaine's fire chief resigned because he said that a rail accident (such as the one which just occurred in East Palestine, Ohio) WILL eventually occur on the tracks in Blaine, and that he had insufficient equipment to fight such an occurance, and therefore he was compelled to save his professional reputation, resign as Blaine's fire chief, and move on to a different community. Which he did. We are pointing this out at this time to bring attention to the fact that regulations to prevent any problems with Whatcom County's and Washington's oil refining industry ultimately ensure the health and safety of everyone. Implementing not only the measures proposed here, but also a broad array of regulations and safeguards, will keep Whatcom County's refinery operations safe, will keep Whatcom County's and WA State's economy strong, will ensure a thriving maritime industry, will protect critical shoreline habitat, and will keep residents safe from problematic oil transfer operations, as well as rail disasters. This is the chief concern of my husband and myself as residents (since 1990) of Whatcom County and Washington Sate.

Thank you for leading a process to amend regulations associated with (a) facility oil handling standards, (b) vessel oil transfer advance notice and (c) containment requirements to IMPLEMENT ESHB 1578, thereby reducing threats to our shorelines, our maritime industry, human health and safety, and the state mandated protection of southern resident Orca whales by taking all necessary measures to oversee and improve the safety of oil transportation.

We unequivocally support: (1) requiring additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines, (2) new decommissioning requirements for out of service

oil storage tanks and oil transfer pipelines, (3) additional advance notice of oil transfers, and (4) disclosure of the type, origin and characteristics of the crude oil being transferred.

IN ADDITION, this rulemaking should also:

Require all new and existing containment structures (that prevent spilled oil from reaching the waters of the state) to WITHSTAND SEISMIC FORCES and,

Require all oil transfer operations to be PRE-BOOMED (when safe) and,

ELIMINATE THE RATE B LOOPHOLE that allows oil transfers at 500 gallons per minute or less to occur without pre-booming and,

RESTRICT ALL OIL TRANSFER OPERATIONS TO DAYLIGHT HOURS, particularly at times when it is not safe and effective to pre-boom.

Your efforts to IMPROVE ALL ASPECTES CONCERNING THE SAFETY OF ALL OIL TRANSPORTATION in Washington State are CRITICAL, especially for the Lummi Nation, Blaine's oyster beds, Blaine and Bellingham's seafood industry, the existance our our Orca population, the safety of all marine creatures and their habitat, the economy of our region, and many other aspects of this issue too numerous to mention here. Thank you for your service and for DOING THE RIGHT THING to safeguard our precious enviornment.

Kathleen and Zdenek Capson

2/28/2023

Response to I-140-1

See response to comments I-2-1, I-4-1, I-5-1, and I-21-1.

I-141: Richard Lyles

Comment I-141-1

Thanks so much for considering my comments on Chapter 173-180 WAC, Facility Oil Handling Standards and Chapter 173-184 WAC, Vessel Oil Transfer Advance Notice and Containment Requirements.

As a resident of the San Juan Islands, I am deeply concerned about the risk to my community and our way of life that is posed by potential oil spills! Every single spill, large or small, has economic impacts, environmental impacts, cultural impacts, and human impacts.

Decommissioning requirements for out-of-service oil storage tanks and oil transfer pipelines must include additional seismic protection measures for oil storage tanks and transfer pipelines to help prevent oil spills during earthquakes. Importantly, I also ask that you update the requirements to mitigate the impacts of spills from oil transfer operations.

To implement ESHB 1578, Reducing threats to southern resident killer whales by improving the safety of oil transportation, this rule must also:

1) Require all secondary containment structures (that prevent spilled oil from reaching waters of the state) to withstand seismic forces;

2) Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming;

3) Restrict all oil transfer operations to daylight hours or, at the very least, restrict all oil transfer operations to daylight hours when it's not safe and effective to pre-boom.

Respectfully,

R. Brent Lyles

Friday Harbor, Washington

Response to I-141-1

See response to comments I-4-1 and I-5-1.

I-143: Jon Howe

Comment I-143-1

Pre-booming for commercial oil transfers should not have a minimum. Have you seen the way oil spreads on the surface?! A minimum is like asking "how much damage is too much" when any amount of damage is too much.

Response to I-143-1

See response to comment I-5-1.

I-148: Barbara Keller

Comment I-148-1

I have long been studying the, what I believe to be, impossibility of cleaning up a spill in our San Juan Islands, given the currents, tides and intricate coastlines. And I certainly don't see us giving up fossil fuels any time soon, no matter the supposed concerns over climate change. That means that we have to take what preventative steps we can. We humans have not been good at doing that. You have the opportunity to do one of the few things that can make a change NOW.

I support the new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines, requiring additional seismic protection measures for oil storage tanks and transfer pipelines to help prevent oil spills during earthquakes, and updating the requirements to mitigate the impacts of spills from oil transfer operations.

To implement ESHB 1578, Reducing threats to southern resident killer whales by improving the safety of oil transportation, this rule should also:

1) Require all secondary containment structures (that prevent spilled oil from reaching waters of the state) to withstand seismic forces;

2) Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming;

3) Restrict all oil transfer operations to daylight hours or, at the very least, restrict all oil transfer operations to daylight hours when it's not safe and effective to pre-boom.

Response to I-148-1

See response to comment I-4-1.

I-149: Jim Lombard

Comment I-149-1

This legislation should make it mandatory for transfers to be scheduled so the can be monitored, and it is a must that there be pre-booming in understanding the damage done in any spill to the Salish Sea.

Response to I-149-1

See response to comments I-4-1 and I-5-1.

Requiring oil transfers to be scheduled is outside the scope of both rules. The amended rules require advance notification 24 hours prior to the transfer to Ecology. This notification must include the scheduled start time of the transfer and must be updated if that start time changes by more than six hours. Having this information allows Ecology's inspectors time to conduct oil transfer inspections. These inspections provide enhanced protection to the waters of the state by ensuring Ecology's oil spill prevention measures are followed during oil transfer operations.

I-153: Paula Rotondi

Comment I-153-1

I'm a resident of Whatcom County who has walked the Cherry Point beach many times, taken tours of the BP refinery, spent days in a small sailboat in the the Salish sea - oftentimes within sight of BP's and Conoco Phillips' piers and ships. The glaring, significant and serious risks of these facilities is frightening. I urge you to please take a few meager steps to try to avert some of the most horrific consequences that will result from human error and/or natural forces at these sites.

Please require additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines, new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines, additional advance notice of oil transfers, and disclosure of the type, origin and characteristics of the crude oil being transferred.

I ask that the new rules:

Require all new and existing containment structures (that prevent spilled oil from reaching the waters of the state) to withstand seismic forces:

Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.

Restrict all oil transfer operations to daylight hours, particularly when it's not safe and effective to pre-boom.

BP and Conoco Phillips have been making record profits and the cost of these new requirements is a small amount in comparison. I still hope these corporations will consider it their responsibility to take steps to prevent their operations from destroying our shared natural treasures upon which we and all after us depend.

Thank you for leading this process with interested stakeholders to amend regulations associated with facility oil handling standards and vessel oil transfer advance notice and containment requirements per ESHB 1578. Thank you for your efforts to improve the safety of oil transportation in Washington State.

Response to I-153-1

See response to comments I-2-1 and I-4-1.

In response to the comment related to regulated entities, under both rules, regulated entities will need to comply with rule amendments on the effective date of the rule or respective compliance schedule date. Ecology works closely with the regulated community to ensure compliance and enforce requirements as needed.

I-166: Elizabeth Michaelson

Comment I-166-1

Pre booming seems like an obvious and basic precaution to me! Once we loose our pristine water and its fragile ecosystems, how will we ever retrieve it?

- Require ALL oil transfer operations to be pre-boomed (when safe and effective to do so).
- Restrict ALL oil transfer operations to daylight hours, especially when it's not safe and effective to pre-boom.
- Restrict ALL oil transfer operations to daylight hours, especially when it's not safe and effective to pre-boom.

Response to I-166-1

See response to comments I-4-1 and I-5-1.

I-173: Kristin Edmark

Comment I-173-1

Please update the rules regarding spill prevention, preparedness and preparedness to better protect our major Washington waterways which are now being used for increased shipping. I support the draft rule's new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines, and the updates that mitigate the impacts of spills from oil transfer operations.

Please also revise the draft to address:

• Include secondary containment systems, including those before 1994, which can withstand seismic forces in addition to additional seismic protection measures for oil storage tanks and transfer pipelines to help prevent oil spills during earthquakes.

• Eliminate the Rate B loophole and instead require operations to be pre-boomed. Please analyze the safety of any operations which cannot be pre-boomed and restrict those operations to daylight hours.

Thank you for addressing this issue which is so important to the health of wildlife and people of Washington. Thank you for addressing the strengthening of prevention because clean-up, at best, cannot avoid huge destruction in most cases.

Respectfully submitted, Kristin Edmark. MPH RD

Response to I-173-1

See response to comments I-2-1 and I-4-1.

I-175: Janet Alderton

Comment I-175-1

Rulemaking Comment Period for Chapter 173-180 WAC and Chapter 173-184 WAC

I'm grateful for the excellent job Governor Inslee does to protect the environment of Washington state. I also very much appreciate the work done by the Washington Dept. of Ecology led by Laura Watson.

I am writing to urge Ecology to protect the Salish Sea by tightening the rules to improve the safety of oil transfer operations in remote anchorages. I have deep concerns over the damage that oil spills do to the marine waters of the San Juan Archipelago, which is a nursery for juvenile salmon.

Many oil transfer operations occur over water in remote anchorage areas. I live on Orcas Island, not far from Vendovi Island. The Vendovi Island Preserve is one of the wildest private islands in the San Juan archipelago. It was a priority for permanent conservation for many years leading up to its protection in perpetuity by the San Juan Preservation Trust in 2010.

There are five anchorage areas near Vendovi Island that are also in proximity to the federally protected San Juan Islands National Monument, San Juan Islands National Wildlife Refuge, and the Padilla Bay National Estuarine Research Reserve.

No oil transfer operations occurred before 2014 in the Vendovi anchorages. But the total volume of oil transfer operations there has increased from 82,500 gallons in 2014 to 18,236,304 gallons in 2021. The Rate B oil transfer operations that were not pre-boomed increased from two in 2014 to a high of 15 in 2020, and 13 in 2021. The volume of oil transferred close to the Vendovi Island Preserve rose from 82,500 gallons in 2014 to 705,567 gallons in 2020.

These oil transfers pose a huge risk because they are in relatively remote areas and lack the spill response resources immediately available like those at terminals and refineries. If an oil spill occurs in a remote anchorage area, it takes time for oil spill response resources to arrive from other locations.

Specifically, I urge the Washington Department of Ecology to take the following actions:

1. Reduce the threats to southern resident killer whales by requiring all oil transfer operation to be PRE-BOOMED when safe and effective to do so.

2. Eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.

3. With a major earthquake in Washington state a real possibility, require all secondary containment structures that prevent spilled oil from reach waters of the state to withstand seismic forces.

4. Restrict all oil transfer operations to daylight hours.

These actions by Ecology would improve the regulations that went into effect in 2007 in response tothe 2003 Foss Barge Point Wells oil spill involving about 5,000 gallons of heavy fuel oil spilled in an oil transfer operation.

Serious damage to about 400 acres of the Suquamish Indian Reservation's prime cultural and environmental lands, including saltwater marsh, old growth timber, beaches, and clam beds. That spill occurred WITHOUT pre-booming and in the middle of the night.

It's extremely important for Ecology to tighten these oil transfer and oil containment regulations so that we reduce the likelihood of such a disaster.

Thank you for considering my views.

Sincerely,

Janet Alderton

Response to I-175-1

See response to comments I-2-1, I-4-1, and I-5-1.

Chapters 173-180 and 173-184 WAC regulate oil transfers from facilities and delivering vessels that are transferring oil in bulk on or over waters of the state. The two rules have oil spill prevention measure requirements for these transfers to reduce the risk of an oil spill and to reduce the impact of an oil spill should one occur.

Delivering vessels need to meet transfer containment and recovery requirements in WAC 173-184-110, and depending on the rate of the oil transfer, they need to meet requirements in either WAC 173-184-115 for a Rate A transfer and requirements in WAC 173-184-120 for a Rate B transfer. Regardless of the rate, delivering vessel companies need to meet alternative measure requirements for transfers that are not pre-boomed, which describe immediate response actions when a spill occurs. They may meet these requirements in several ways, including bringing out additional or different equipment to assist with boom deployment. These requirements apply to transfers that take place at anchor as well as at facilities. The proposed changes to Chapter 173-180 WAC and Chapter 173-184 WAC are intended to clarify and strengthen requirements for pre-booming and for preparing Safe and Effective Threshold Determination Reports.

Because our rules are designed to protect the environment regardless of location or transfer rate, Ecology did not include changes to requirements for anchorages in the scope of the rulemaking or conduct new analyses of oil transfer data. Ecology data on oil transfer locations and use of boom reporting forms is available to the public through a public disclosure records request.

I-177: Amber Larsen

Comment I-177-1

See comment letter I-177-1 in Appendix B.

Response to I-177-1

Response to comment #1 regarding compliance schedules:

- WAC 173-180-080 requires facilities to meet seismic protection measures for existing storage tanks and transfer pipelines within the next ten years or by their next scheduled inspections, whichever is later. This provides each facility at least ten years or more to best determine how they will implement rule amendments. Facilities that may have an internal API inspection soon still have ten years to implement required changes. The rule amendments do not prevent Class 1 facilities from completing the risk analysis required in WAC 173-180-630 before planning and implementing measures to comply with WAC

173-180-330. In addition, the compliance schedule is intended to allow Class 1 facilities to modify storage tanks or transfer pipelines to meet seismic protection requirements during scheduled inspections if they choose to do so. This could include modifying storage tanks and transfer pipelines at the same time.

- Rule amendments in WAC 173-180-330 and 173-180-340, outside of seismic protection requirements, consist of updated codes that apply to new construction after the rule effective date.
- Based on comments received, Ecology amended WAC 173-180-080 to include compliance schedules for Class 1 and 2 facilities Operations Manuals and Training and Certification Programs. Facilities are required to meet amended requirements for both the Operations Manual and Training and Certification Program by the current manual or program's expiration date.
- WAC 173-180-420(3)(c) requires the safe and effective threshold values to be included in the Operations Manual, but does not require that the entire Safe and Effective Threshold Determination Report is included in the Operations Manual.
- Facilities are required to meet current rule requirements in effect at the time those requirements are due for review and approval. Amended rule requirements are not required to be met until the effective date of the rule or respective compliance schedule effective date. Ecology will work with facilities on a case-by-case basis for any plans, programs, reports, or manuals required for submission or review before the effective date, but with an expiration date after the effective date. Ecology may request additional information from facilities if the plans, manuals, reports, or programs are determined to be incomplete. Prior to the expiration date, Ecology will issue approval, conditional approval, or disapproval. Updated requirements do not need to be included before the effective date, however, Ecology may issue conditional approval once the effective date has passed to allow facilities time to incorporate the updated requirements. Conditional approval allows facilities additional time to come into compliance. The amended rules allow conditional approval to be extended up to 18 months.
- The compliance schedule in WAC 173-180-080 provides additional time for expanded rule requirements. Rule amendments without specific compliance schedules listed in WAC 173-180-080(1)(a)-(j) are amendments that provide clarity to the language and do not result in new requirements. These requirements go into effect on the rule effective date as described in WAC 173-180-080(1).
- Ecology determined thirty calendar days from rule effective date to be an appropriate amount of time to implement updated requirements in WAC 173-180-215. Rule amendments to WAC 173-180-215 include additional reporting requirements for crude oil products such as region of origin, API or specific gravity, sulfur content, and viscosity. This information should be readily available on the bill of lading to facilities and vessels that are delivering oil in bulk on or over waters of the state.
- Ecology determined sixty calendar days from rule effective date provides facilities enough time for implementation as amended requirements in WAC 173-180-221 provide clarity to existing requirements.

<u>Response to comment #2 regarding design standards:</u>

The existing rule language for WAC 173-180-330(1), before amendments were adopted, stated specific standards that storage tanks "constructed after the adoption date of this section must meet or exceed…". The original adoption date for that language was May 1994, in a previous chapter of WAC (173-180A) that was repealed when incorporated into Chapter 173-180 WAC in 2006. The rule amendments clarify that storage tanks constructed between May 1994, when these requirements went into effect, and the effective date of this rule, July 7, 2023, would still need to meet the existing construction requirements. Ecology deemed it overly burdensome to require all storage tanks constructed after May 1994 to now meet updated construction standard codes and only applies these updates to any storage tank constructed after the effective date of this rule.

The amended section WAC 173-180-330(2) applies to all storage tanks constructed before the effective date of this rule, including those constructed before May 1994, and is focused solely on seismic protection measures and does not include NFPA No. 30 (1993), UL No. 142 (1993), API Standard 650 (1988), and API Standard 620 (1990) requirements.

Response to comment #3 regarding seismic modeling:

Ecology appreciates that seismic modeling can help facilities and Ecology understand the potential performance of storage tanks and transfer pipelines under seismic conditions. This understanding can inform facilities' planning for how to address seismic risks. Ecology anticipates that facilities may incorporate model results into their proposals for seismic protection measures as described in WAC 173-180-330(2)(d). However, the usefulness of model results depends on the accuracy of the model and the input parameters selected. Modeling on its own is not a risk reduction measure and does not independently verify the design standards to which a tank or pipeline was built, and therefore has not been included in the adopted rule.

Response to comment #4 regarding STI SP001 Standard:

Ecology reviewed STI SP001 Standard and did not include this standard in the amended rule. WAC 173-180-330(6) provides facilities the option to propose an equivalent inspection strategy to Ecology for review and approval.

Response to comment #5 regarding transfer pipelines:

Each paragraph of WAC 173-180-340 states that the paragraph applies to all transfer pipelines or describes the pipelines the paragraph applies to. This includes pipelines that were replaced, relocated, or constructed in specific date ranges, transfer pipelines that are buried, and those that are located in areas not controlled by the facility.

Response to comment #6 regarding conversion between barrels and gallons:

In response to comments received and to provide clarity, Ecology amended Chapter 173-180 WAC to include conversions between gallons and barrels where they had been previously stated in the rule.

Response to comment #7 regarding the Prevention Plan's risk analysis:

Each Class 1 facility is responsible for carrying out their own analysis, design, and implementation to meet the compliance schedule under WAC 173-180-080. The rule amendments do not prevent Class 1 facilities from completing the risk analysis described in

WAC 173-180-630 before planning and implementing measures to comply with WAC 173-180-330.

Under the amended rule, updated requirements to the Prevention Plan must be incorporated by the currently approved Prevention Plan's expiration date after the planned effective date of the rule, July 7, 2023. Ecology will work with facilities on a case-by-case basis for any Prevention Plans required to submit their updated plan before the effective date, but with an expiration date after the effective date. Updated requirements do not need to be included before the effective date, however, Ecology may issue conditional approval once the effective date has passed to allow facilities time to incorporate the updated requirements. Conditional approval allows facilities additional time to come into compliance. The amended rules allow conditional approval to be extended up to 18 months.

The compliance schedule is intended to allow Class 1 facilities to modify storage tanks or transfer pipelines to meet seismic protection requirements during scheduled inspections if they choose to do so. WAC 173-180-080 requires facilities to meet seismic protection measures for existing storage tanks and transfer pipelines within the next ten years or by their next scheduled inspections, whichever is later.

Response to comment #8 regarding Prevention Plan requirements:

Ecology revised the amended rule language for WAC 173-180-630(10)(g)(ii) and 173-180-630(13)(b)(ii) to specify secondary containment system.

Response to comment #9 regarding secondary containment permeability:

Ecology reviewed these recommendations and does not agree that the presence of stormwater provides an effective barrier between the oil and soil. Some oil types, such as gasoline and crude oil, have constituents (e.g., benzene, toluene, ethylbenzene, xylene) which are partially soluble, and groundwater may still be impacted. For other oil fractions, adding water to secondary containment after a spill may mobilize and isolate a portion of the oil from the oil-impacted sediments. Adding water to secondary containment after a spill may only serve to substantially increase the waste volume. Additionally, any volume of water added to secondary containment would decrease that secondary containment's capacity, reducing the ability to hold oil in the event the largest tank releases its contents.

Response to comment #10 regarding out of service requirements:

Ecology anticipates for many tanks, an air gap can be created between a blank flange on piping and a blank flange on the tank by removing a valve or other connector between the piping and tank. If a facility encounters a situation where creating an air gap requires modifications to the piping, they can choose to permanently close the container per 40 C.F.R. Part 112, as described in the amended rule.

I-179: Shaun Hubbard

Comment I-179-1

See comment letter I-179-1 in Appendix B.

Response to I-179-1

See response to comments I-2-1 and I-4-1.

A-1: U.S. Navy, Manchester Fuel Depot

Comment A-1-1

Chapter 173-180 WAC incorporates by reference 40 CFR 112, Federal Oil Pollution Prevention regulations. Federal facilities in Washington State are regulated by the Environmental Protection Agency (EPA) with the rules contained in 40 CFR 112. To our knowledge the EPA has not delegated authority to the Washington State Department of Ecology, nor has the Federal government waived sovereign immunity to Washington State to allow Federal facilities to be regulated by the state under 40 CFR 112, or state rules incorporating 40 CFR 112. Washington Ecology currently conducts inspections of upland tanks, pipelines, fuel dispensing equipment and related upland facilities on Federal installations under Chapter 173-180 WAC. Due to the nature of these inspections we assume these inspections to be conducted under sections of 173-180 WAC that are incorporating 40 CFR 112 provisions. Additionally, Ecology requests reviews, and provides approval letters for, Federal Spill Prevention, Control, and Countermeasure (SPCC) Plans prepared under 40 CFR 112 regulations. As Federal facilities are already regulated by the EPA under 40 CFR 112 regulations, the Navy appears to be double regulated by the state via sections of 173-180 WAC that are incorporating 40 CFR 112 provisions. The Navy requests that the State clearly outline in the updated Chapter 173-180 WAC the authority by which it can conduct announced or unannounced compliance inspections of upland Federal fuel facilities and conduct reviews and approvals of Federal SPCC plans under sections of 173-180 WAC. For better clarity in parsing the applicability of 173-180 WAC to Federal facilities we suggest that the sections or individual provisions of 173-180 WAC incorporating 40 CFR 112 regulations be clearly identified/footnoted in the updated Chapter 173-180 WAC.

Response to A-1-1

Ecology has authority to conduct announced or unannounced compliance inspections under Chapters 90.56 and 88.46 RCW as stated in WAC 173-180-035(1).

In Chapter 173-180 WAC, 40 C.F.R. Part 112 is referenced three times:

1. Under WAC 173-180-030, Ecology incorporates the following Code of Federal Regulations (C.F.R.) by reference: 33 C.F.R. Parts 156.120, 156.150, and 156.170; 33 C.F.R. Parts 154.300, 154.310, 154.570, 154.710, 154.1050, and 154.1055; 40 C.F.R. Part 112; and 49 C.F.R. Part 195. These are federal requirements the regulated community must already comply with. They are included in this section to clarify the requirement that "any person with oil handling and transfer duties must comply with applicable provisions of federal law and regulation governing licensing, documentation, equipment, operations, and oil transfers" as stated in WAC 173-180-030.
2. In section WAC 173-180-630(2), the regulation states that information required under the spill prevention, control, and countermeasure plan standards in 40 C.F.R. Part 112 "may be used to satisfy requirements under this chapter…". This allows Class 1 facilities the opportunity to include information from their Spill Prevention, Control, and Countermeasure (SPCC) Plan in their Prevention Plan. Ecology does not review and approve SPCC Plans. Instead, Ecology reviews Prevention Plans, as required under RCW 90.56.200.

3. Under WAC 173-180-910(1)(c), the amended regulation states that storage tanks and transfer pipelines that are permanently closed as defined in 40 C.F.R. Part 112, will be considered decommissioned under Ecology's new requirements.

B-2 and B-5: HF Sinclair Puget Sound Refining LLC

Comment B-2-1 and B-5-1

Two copies of the same comment letter submitted, one online and one by mail. See comment letter B-2-1 and B-5-1 in Appendix B.

Response to B-2-1 and B-5-1

Response to comment regarding the cost analysis:

Ecology did not include the direct costs of replacing or making significant changes to secondary containment in the Preliminary Regulatory Analyses because these are existing requirements and are part of the baseline for Chapter 173-180 WAC. The amended rule language for WAC 173-180-320(1)(c) clarifies the requirement that is described in both the current and amended WAC 173-180-320(1)(a) for secondary containment systems to be "Designed, constructed, maintained and operated to prevent discharged oil from entering waters of the state at any time during use of the tank system". Additionally, both the current and amended WAC 173-180-320 require spills to secondary containment to be "sufficiently contained and readily recoverable". Existing federal requirements under 40 C.F.R. Part 112.7(c) states "the entire containment system, including walls and floor, must be capable of containing oil and must be constructed so that any discharge from a primary containment system, such as a tank, will not escape the containment system before cleanup occurs".

The cost analysis for changes to WAC 173-180-330 are included in the Final Regulatory Analyses, and do not reflect costs or benefits of activities that are required under the baseline of existing laws and rules.

Response to comment regarding risk analyses:

Each Class 1 facility is responsible for carrying out their own analysis, design, and implementation to meet the compliance schedule under WAC 173-180-080. The rule amendments do not prevent Class 1 facilities from completing the risk analysis described in WAC 173-180-630 before planning and implementing measures to comply with WAC 173-180-330.

Response to comment regarding inadequate timelines and secondary containment permeability:

Chapter 173-180 WAC establishes requirements for secondary containment permeability and for Class 1 facility Prevention Plans to document secondary containment capacity, permeability, and material design. The amended language clarifies the existing requirements, by stating secondary containment systems must be constructed to prevent any discharge from a primary containment system (e.g., tank) from escaping the secondary containment system before cleanup occurs. The amended rule also specifies the level of detail facilities must provide in their Prevention Plans to describe secondary containment permeability. Ecology will work with each facility to review the details for their secondary containment systems to determine whether the requirements of Chapter 173-180 WAC are met.

The compliance schedule for WAC 173-180-320 is appropriate as the updated requirements in this section provide clarity to existing requirements, align with federal requirements, and update an outdated code. The compliance schedule for WAC 173-180-330 provides each facility at least ten years or more to meet seismic protection requirements for existing storage tanks. Rule amendments outside of seismic protection requirements consist of updated codes that apply to new construction after the rule effective date.

Response to comment regarding WAC 173-180-215:

The amended rules require facilities to submit an Advance Notice of Oil Transfer (ANT) 24 hours prior to an oil transfer operation, or as soon as possible prior to the oil transfer. Advance notice information must be updated if the start time changes by more than six hours. Ecology expects updated notifications will be submitted prior to the oil transfer operation and would not cause a burden or distraction during the operation itself.

Response to comment regarding WAC 173-180-217:

Thank you for your comment.

Response to comment regarding WAC 173-180-221:

Amending Rate A alternative measure requirements is outside the scope of this rulemaking. The requirement in WAC 173-180-221(9)(d) to completely surround the vessel and facility/dock within one hour of being made aware of a spill is an existing requirement which became effective in October 2006. There are no U.S. Coast Guard requirements regarding deployment of boom before a transfer.

WAC 173-180-221 requires delivering facilities to pre-boom oil transfers when it is safe and effective to do so. The determination of safe and effective must be made prior to starting a transfer or if conditions change during a transfer. Ecology included re-submission of the Boom Reporting Form every six hours at a terminal to clarify this existing requirement for facilities to evaluate conditions throughout a transfer. Adding in re-submission of the Boom Reporting Form allows Ecology to verify compliance with this existing requirement. The amended rules do not specify that the Person in Charge must submit Boom Reporting Forms.

Response to comment regarding WAC 173-184-115:

Thank you for your comment.

Response to comment regarding WAC 173-180-224:

We included this 10 year requirement to ensure the data being used by companies to determine when it is safe and effective to pre-boom is up-to-date. As the environment and conditions continue to change, it is helpful to utilize current information. Ecology can work with companies on data sources if needed.

WAC 173-180-224 requires Rate A deliverers to include site-specific data for sea state values and water current velocity in their safe and effective threshold determination report, the amended rule language does not change these requirements.

Response to comments regarding WAC 173-180-320:

Chapter 173-180 WAC requires all secondary containment systems constructed after 1994 at Class 1 facilities to withstand seismic forces. Amendments to seismic requirements for

secondary containment is outside the scope of this rulemaking, and therefore defining seismic forces is outside of this rulemaking scope as well.

Ecology's amended rule did not include definitions for seismic events or seismic forces, as each Class 1 facility's location is unique. Ecology's review of available literature on storage tank and transfer pipeline performance during earthquakes indicates a high degree of variability in damage to facilities based on factors including the magnitude and location of the earthquake and the design of the tanks and pipelines.

API Standard 650 Annex E includes criteria that guide the design of storage tanks, including definitions for Seismic Use Groups and soil classification. Other sources of design information include ASCE-7, which defines risk categories for buildings and structures. The U.S. Geological Survey makes seismic design parameter values available to engineers, who may obtain the data through a third-party interface such as the ASCE-7 Hazard Tool. The amended rule provides facilities an option of proposing seismic protection measures for Ecology's approval. Ecology will review the criteria used by facilities in the design of proposed measures as part of our approval process.

Response to comments regarding WAC 173-180-330:

See response to comments above regarding risk analyses and WAC 173-180-320.

The amended rule provides Class 1 facilities with flexibility to meet the new seismic protection measure requirements and does not prescribe specific measures that all facilities must implement. Ecology acknowledges some measures may produce the need for additional processes to ensure the integrity of the storage tank or transfer pipeline. The amended language for WAC 173-180-330(2) and 173-180-340(3) includes requirements that seismic protection measures must be "…designed, installed, and maintained to reduce risk…". Facilities also have the option to propose other seismic protection measures to Ecology for review and approval.

Response to comments regarding WAC 173-180-630/650:

Chapter 173-180 WAC establishes requirements for secondary containment permeability and for Class 1 facility Prevention Plans to document secondary containment capacity, permeability, and material design. The amended language clarifies the existing requirements by stating secondary containment systems must be constructed to prevent any discharge from a primary containment system (e.g., tank) from escaping the secondary containment system before cleanup occurs. The amended rules also specify the level of detail facilities must provide in their Prevention Plans to describe secondary containment permeability. Ecology does not define numerical standards for permeability because multiple factors can influence whether a spill to secondary containment would be sufficiently contained and readily recoverable. As noted in comments Ecology received, these factors include the type of oil stored in tanks within the secondary containment system, the amount of oil in the largest tank, the depth to groundwater, the depth to tank footings, and the facility's ability to respond to an oil discharge from primary containment. Ecology works with each facility to review the details for their secondary containment systems to determine whether the requirements of Chapter 173-180 WAC are met.

Facilities are required to meet current rule requirements in effect at the time those requirements are due for review and approval. Amended rule requirements are not required to be met until the effective date of the rule or respective compliance schedule effective date. Ecology will work

with facilities on a case-by-case basis for any plans required for submission or review before the effective date, but with an expiration date after the effective date.

Ecology may request additional information from facilities if the plan is determined to be incomplete. Prior to the expiration date, Ecology will issue approval, conditional approval, or disapproval. Updated requirements do not need to be included before the effective date, however, Ecology may issue conditional approval once the effective date has passed to allow facilities time to incorporate the updated requirements. Conditional approval allows facilities additional time to come into compliance. The amended rules allow conditional approval to be extended up to 18 months.

Ecology reviews and approves Prevention Plans. Ecology does not review nor approve Spill, Prevention, Control, and Countermeasure (SPCC) Plans. Facilities can include information from their SPCC Plan in their Prevention Plans under WAC 173-180-630(2).

Ecology updated the Prevention Plans submission and re-submission timeframe from 65 to 120 days to provide consistent timeframes and ease of compliance across requirements for Class 1 facilities. This includes the Operations Manual, Safe and Effective Threshold Determination Report, Training and Certification Program, and Equivalent Compliance Plan.

B-3: US Oil & Refining Co

Comment B-3-1

See comment letter B-3-1 in Appendix B.

Response to B-3-1

Response to comments regarding WAC 173-180-320 (1)(c):

- See response to comment B-2-1 and B-5-1 regarding the cost analysis.
- See response to comment B-2-1 and B-5-1 regarding WAC 173-180-630/650.
- Under the amended rule, updated requirements to the Prevention Plan must be incorporated by the currently approved Prevention Plan's expiration date after the planned effective date of the rule, July 7, 2023. Ecology will work with facilities on a case-by-case basis to assist with implementation of clarified and expanded requirements in the Prevention Plan. Ecology may issue conditional approval to allow facilities time to incorporate the updated requirements. The amended rules allow conditional approval to be extended up to 18 months.
- See response to I-177-1 comment #9 regarding secondary containment permeability.
- Ecology appreciates U.S. Oil's commitment to respond to an oil spill as quickly as possible. However, rule amendments are needed to address gaps identified over the years of implementing this rule.
- The comment regarding "Performance Based Rule" is outside the scope of this rulemaking. Chapter 173-180 WAC focuses on oil spill prevention requirements for oil handling facilities.

Response to comments regarding WAC 173-180-630(10)(g) and (13):

- See response to comment B-2-1 and B-5-1 regarding the cost analysis.
- See response to comment B-2-1 and B-5-1 regarding WAC 173-180-630/650.

B-4: Roundtable Engineering Solutions, LLC

Comment B-4-1

See comment letter B-4-1 in Appendix B.

Response to B-4-1

Thank you for your comment. Ecology appreciates the thorough description of an approach to analyzing seismic risks to storage tanks and transfer pipelines.

The amended rule language for WAC 173-180-330(2) and 173-180-340(3) allows facilities the option of proposing seismic protection measures. This can include demonstrating that storage tanks and transfer pipelines meet current seismic design requirements.

Ecology appreciates that seismic modeling can help facilities and Ecology understand the potential performance of storage tanks and transfer pipelines under seismic conditions. This understanding can inform facilities' planning for how to address seismic risks. Ecology anticipates that facilities may incorporate model results into their proposals for seismic protection measures as described in WAC 173-180-330(2)(d). However, the usefulness of model results depends on the accuracy of the model and the input parameters selected. Modeling on its own is not a risk reduction measure and does not independently verify the design standards to which a tank or pipeline was built, and therefore has not been included in the adopted rule.

Most of the proposed modifications listed in paragraph four align with the seismic measures in the amended rule or are measures that could be proposed by facilities. When reviewing a proposed measure that includes operational controls, such as lowering the maximum design liquid level of a storage tank, Ecology would expect to see modifications that would make the operational controls a permanent feature of the tank.

The design of piping should provide for minimum displacements as listed in Table E.8 of API Standard 650 Annex E unless otherwise calculated. The design should tolerate the specified safety factor multipled by the working stress as described by API Standard 650 Annex E without rupture. Other conditions such as effects of foundation movement, mechanical loading on the tank, and total displacement capacity of the mechanical devices intended to add flexibility should be included in the design of the piping system.

O-1: Washington Conservation Action

Comment O-1-1

Thank you Fran. For the record, Rein Attemann, Washington Conservation Action. I would like to start off by thanking Ecology staff for leading a process with all these interested stakeholders to amend regulations associated with the facility oil handling standards and the vessel oil transfer advance notice and containment requirements. And we support the requirements for additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines, new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines, and additional advance notice of oil transfer, and some of the other amendments that have been made

and Brittany alluded to earlier. However, this rulemaking, we believe, should also include some additional measures like requiring all secondary containment structures to withstand seismic forces. I think, Lovel's comments or questions in the Q&A need to be addressed more clearly because W, the WAC 173-180-320(8)(b) states that secondary containment systems must be designed to withstand seismic forces. And we know that spills from storage tanks and pipelines are likely to occur in major earthquakes, making secondary containment all more important to contain that spilled oil. And given that earthquakes will happen, secondary containment systems are not required to be updated and maintained to withstand seismic forces do not comply with the definition of secondary containment in WAC 173-180-025, which says that secondary containment means containment systems would prevent the discharge of oil from reaching waters of the State. And just a reminder that Rcw 90.56.005(2) concludes that the primary objective of the State and Ecology is to achieve a zero spill strategy to prevent any oil or hazardous substances from entering waters of the state. So the draft rule should be revised to require all Class 1 facility's secondary containment systems to be updated and maintained to withstand seismic forces. And also, second big loophole that we see is the need to require all oil transfer operations to be pre-boomed when safe and effective to do so and this rulemaking should eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming. We feel that the oil spill risk associated with the rate B oil transfer warrants protective and preventative measures which are more cost effective now, then, the damages and costs occured from an oil spill in the future. So thank you for all your efforts and the opportunity to provide public comment, and we'll be submitting some written comments by the fifth of March. Thank you.

Response to O-1-1

See response to comments I-2-1 and I-4-1.

Chapter 173-180 WAC and Chapter 173-184 WAC strive to attain RCW 90.56.005(2)'s goal of achieving a zero spill strategy to prevent any oil or hazardous substances from entering waters of the state. The amendments to both rules address oil spill prevention gaps that have been identified over the many years of implementation. The amended rules do not change the definition of secondary containment in WAC 173-180-025 or the requirement in WAC 173-180-320(9) for secondary containment systems built after May 1994 to be designed to withstand seismic forces, as these topics are outside the scope of this rulemaking.

O-2: San Juan Preservation Trust

Comment O-2-1

Hello, my name is Elaina Thompson and I am the Vendovi Island caretaker for the San Juan Preservation Trust. If you hear my daughter in the background, I apologize, she is with me in this meeting. So I'm the caretaker, and I've been asked to represent the Trust in this matter and similar to Rein's suggestions, we, on Vendovi Island witness tanker traffic every single day outside. We see violent conditions. And we have a really important interest in conserving the ecology around this island, and the ecology of our waterways. And our primary concern that I wanted to advocate and testify for was the oil transfer operations and the loophole that allows transfers at 500 gallons per minute or less to occur without pre-booming. The San Juan Preservation Trust would like to advocate that the rules be considered to just require pre-booming for the same reasons. You know it's safer and more efficient and less cost effective to do that versus the, apologies, versus the opposite, which is having to clean up a spill. I think

there's also additional wording that allows no pre-booming in the instance of weather conditions and I don't think those weather conditions are outlined clearly other than if they're too bad to pre-boom and I guess we also ask the question if it's not weather allowed to pre-boom than oil transfers might be a dangerous thing in that kind of weather as well. I think if this wording were considered, or this rule was considered to require pre-booming, it would encourage industry to look into new technology that might be more efficient than pre-booming. We understand that that's very time consuming and it's very labor intensive to pre-boom every time transfers occur, but as technology increases, as the demand for technology goes up to make things more efficient, it helps everyone in protecting our environment. And I appreciate you letting me speak and being patient with my daughter in the background. And thank you guys for having this hearing and for spending all the time re-wording all of this and doing all of the rulemaking. I know it's a laborious process and we appreciate your efforts. Thank you.

Response to O-2-1

See response to comment I-5-1.

Ecology did not evaluate other technology that industry could use that would be more efficient than pre-booming, as this is outside of the rulemaking scope. Chapter 173-180 WAC and Chapter 173-184 WAC require vessels and facilities delivering oil over Washington waters to pre-boom transfers that take place at a rate greater than 500 gallons per minute (Rate A) when it is safe and effective to do so. Facilities and vessels that deliver oil at Rate A must submit a Safe and Effective Threshold Determination Report to Ecology. This report describes how the equipment will meet the conditions for the oil transfer location(s) described in the report for each facility or vessel company. Based on the transfer locations, there may be certain weather conditions that exceed the approved safe and effective values for a particular transfer site.

O-3: San Juan Preservation Trust

Comment O-3-1

Well, thank you. Again this is Dean Dougherty. I'm with the San Juan Preservation Trust and Brittany has my contact information. But I will email it to you just to confirm that. First of all, I wanted to thank everyone at Ecology for going through this process and I understand that you know your efforts are to protect the waters of Washington State and we appreciate that. I wanted to, so I wanted to start by saying, you know, when we kicked off this meeting it was, it was mentioned that the reason that this is all happening is because of the passage of EHH, ESHB 1578, reducing the threats to Southern resident killer whales by improving the safety of oil transportation. Now I'm going to limit my comments just about the vessel transfer rule and I'm not really seeing how the proposed rule changes are reducing the threats for oil spills. My preference would be to see two changes: First, for all oil transfers to be pre-boomed when it is safe and effective to do so, and secondly, to restrict all transfers to daylight hours. I understand that there are constraints to accomplish those changes, but even if they're not possible I would like for you to explore ways to move closer to that ideal. Ecology is required to scale requirements to risk. When the rules were written, the cutoff between Rate A and B transfers was set at 500 gallons per minute, and those levels may have been appropriate at the time, but at least for Vendovi Island much has changed since the rules were written. When the rules were written, the number of Rate B oil transfers were two in 2014 and they've increased to 15, the high point in 2020. And also 13 in 2021. And the volume of Rate B oil transfers was only 82,000 gallons in

2014 but they've risen to over 700,000 gallons in 2020. Well that 500 gallon per minute cutoff may have been defensible if you're talking about less than a 100,000 gallons, it gets less defensible when you approach a million gallons of oil being transferred near the shores of the nature preserves at Vendovi and Jack Island. So in conclusion, I'm just, I just like to say, I don't think that we are accomplishing reducing threats to killer whales unless the rules either reduce oil transfers at night or make sure that a higher percentage of oil transfers are pre-boomed. Thank you.

Response to O-3-1

See response to comments I-2-1, I-4-1, and I-5-1.

O-4: Washington Conservation Action[2]

Comment O-4-1, page 85, Helene Jaillet

Dear Department of Ecology,

Our waters are a precious resource that should be protected and maintained to ensure clean water for not only the people but also the marine life that lives in these waters.

Thank you for leading a process with interested stakeholders to amend regulations associated with facility oil handling standards and vessel oil transfer advance notice and containment requirements to implement ESHB 1578, improving oil transportation safety and reducing threats to southern resident killer whales, people, marine mammals, salmon and all who live in and around the Salish Sea.

I support requiring additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines, new decommissioning requirements for out-of-service oil storage tanks and oil transfer pipelines, additional advance notice of oil transfers, and disclosure of the type, origin and characteristics of the crude oil being transferred.

However, this rulemaking should also:

- Require all secondary containment structures (that prevent spilled oil from reaching the waters of the state) to withstand seismic forces;
- Require all oil transfer operations to be pre-boomed (when safe and effective to do so.) This rulemaking should eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.
- Restrict all oil transfer operations to daylight hours, and at the very least, restrict all oil transfer operations to daylight hours if it's not safe and effective to pre-boom.

Thank you for your efforts to improve the safety of oil transportation in Washington State.

Sincerely,

Helene Jaillet

16814 119th Pl NE

[2] Washington Conservation Action submitted 698 individual comments as one submission. The unique comments are identified by page number.

Bothell, WA 98011

Response to O-4-1, page 85, Helene Jaillet

See response to comments I-2-1 and I-4-1.

Comment O-4-1, page 178, Sara Bhakti

Dear Department of Ecology,

Re: ESHB 1578

Please approve and implement the strongest possible regulations on oil handling standards and vessel oil transfer. (ESHB 1578)

Oil transfer and transportation safety regulations will be good for southern resident killer whales, marine mammals, salmon and all who live in and around the Salish Sea.

Any proposed rule-making should:

Require all secondary containment structures (that prevent spilled oil from reaching the waters of the state) to withstand seismic forces;

Require all oil transfer operations to be pre-boomed (when safe and effective to do so.) This rulemaking should eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming;

Restrict all oil transfer operations to daylight hours, and at the very least, restrict all oil transfer operations to daylight hours if it's not safe and effective to pre-boom.

Thank you for the opportunity to comment,

Sincerely,

Sara Bhakti

22975 SE Black Nugget Rd

Issaquah, WA 98029

Response to O-4-1, page 178, Sara Bhakti

See response to comments I-2-1 and I-4-1.

Comment O-4-1, page 236, Jennifer Hickey

Dear Department of Ecology,

As a retired professional mariner, I think I'm qualified to say that there is no excuse for spilling oil during transfer operations.

I support requiring additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines, new decommissioning requirements for out-of-service oil storage tanks and oil transfer pipelines, additional advance notice of oil transfers, and disclosure of the type, origin and characteristics of the crude oil being transferred.

This rulemaking should also:

- Require all secondary containment structures (that prevent spilled oil from reaching the waters of the state) to withstand seismic forces;

- Require all oil transfer operations to be pre-boomed (when safe and effective to do so.) This rulemaking should eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.
- Restrict all oil transfer operations to daylight hours, and at the very least, restrict all oil transfer operations to daylight hours if it's not safe and effective to pre-boom.

Thank you for your efforts to improve the safety of oil transportation in Washington State.

Sincerely,

Jennifer Hickey

5720 Crow Haven Rd

Langley, WA 98260

Response to O-4-1, page 236, Jennifer Hickey

See response to comments I-2-1 and I-4-1.

Comment O-4-1, page 447, Chapman Barry

Dear Department of Ecology,

I appreciate your leading the process to amend regulations associated with facility oil handling standards and vessel oil transfer advance notice and containment requirements; that is, to implement ESHB 1578, improving oil transportation safety and reducing threats to southern resident killer whales, people, marine mammals, salmon and all who live in and around the Salish Sea.

Oil spillage and leakage is an ongoing scourge of the marine environment. Regardless of size, leaks and spills have long-lasting detrimental effects.

To the end of protecting against leaks and spills, I support (a) requiring additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines; (b) new decommissioning requirements for out-of-service oil storage tanks and oil transfer pipelines; (c) additional advance notice of oil transfers; and (d) disclosure of the type, origin and characteristics of the crude oil being transferred.

However, this rulemaking should also:

- Require all secondary containment structures (that prevent spilled oil from reaching the waters of the state) to withstand seismic forces;
- Require all oil transfer operations to be pre-boomed (when safe and effective to do so.) Eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.
- Restrict all oil transfer operations to daylight hours, and at the very least, restrict all oil transfer operations to daylight hours if it's not safe and effective to pre-boom.

Thank you for your efforts to improve the safety of oil transportation in Washington State.

Sincerely,

Chapman Barry

2922 W Dean Ave

Spokane, WA 99201

Response to O-4-1, page 447, Chapman Barry

See response to comments I-2-1 and I-4-1.

Comment O-4-1, page 483, David Robinson

Dear Department of Ecology,

The Salish Sea has suffered enough assaults and we must protect it from any more.

Thank you for leading a process with interested stakeholders to amend regulations associated with facility oil handling standards and vessel oil transfer advance notice and containment requirements to implement ESHB 1578, improving oil transportation safety and reducing threats to southern resident killer whales, people, marine mammals, salmon and all who live in and around the Salish Sea.

I support requiring additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines, new decommissioning requirements for out-of-service oil storage tanks and oil transfer pipelines, additional advance notice of oil transfers, and disclosure of the type, origin and characteristics of the crude oil being transferred.

However, this rulemaking should also:

- Require all secondary containment structures (that prevent spilled oil from reaching the waters of the state) to withstand seismic forces;
- Require all oil transfer operations to be pre-boomed (when safe and effective to do so.) This rulemaking should eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.
- Restrict all oil transfer operations to daylight hours, and at the very least, restrict all oil transfer operations to daylight hours if it's not safe and effective to pre-boom.

Thank you for your efforts to improve the safety of oil transportation in Washington State.

Sincerely,

David Robison

341 Lighthouse Ln

Friday Harbor, WA 98250

Response to O-4-1, page 483, David Robinson

See response to comments I-2-1 and I-4-1.

Comment O-4-1, page 538, Noel Allen

Dear Department of Ecology,

I am writing you because I am extremely concerned about the levels of pollution on our planet, which are frightening. Ecosystems are beginning to break down, and people are suffering as a result, not to mention to vast number of animals species going extinct. We need more regulation and protection for innocent bystanders!

Thank you for leading a process with interested stakeholders to amend regulations associated with facility oil handling standards and vessel oil transfer advance notice and containment requirements to implement ESHB 1578, improving oil transportation safety and reducing threats to southern resident killer whales, people, marine mammals, salmon and all who live in and around the Salish Sea.

I support requiring additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines, new decommissioning requirements for out-of-service oil storage tanks and oil transfer pipelines, additional advance notice of oil transfers, and disclosure of the type, origin and characteristics of the crude oil being transferred.

However, this rulemaking should also:

- Require all secondary containment structures (that prevent spilled oil from reaching the waters of the state) to withstand seismic forces;
- Require all oil transfer operations to be pre-boomed (when safe and effective to do so.) This rulemaking should eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.
- Restrict all oil transfer operations to daylight hours, and at the very least, restrict all oil transfer operations to daylight hours if it's not safe and effective to pre-boom.

Thank you for your efforts to improve the safety of oil transportation in Washington State.

Sincerely,

Noel Allen

3610 Ashworth Ave N

Seattle, WA 98103

Response to O-4-1, page 538, Noel Allen

See response to comments I-2-1 and I-4-1.

Comment O-4-1, page 649, Kathy Dawson

Dear Department of Ecology,

Thank you for leading a process with interested stakeholders to amend regulations associated with facility oil handling standards and vessel oil transfer advance notice and containment requirements to implement ESHB 1578, improving oil transportation safety and reducing threats to southern resident killer whales, people, marine mammals, salmon and all who live in and around the Salish Sea.

It is critical that we protect this precious environment, especially between now and when we've fully transitioned away from fossil fuels.

I support requiring additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines, new decommissioning requirements for out-of-service oil storage tanks and oil transfer pipelines, additional advance notice of oil transfers, and disclosure of the type, origin and characteristics of the crude oil being transferred.

However, this rulemaking should also:

- Require all secondary containment structures (that prevent spilled oil from reaching the waters of the state) to withstand seismic forces;
- Require all oil transfer operations to be pre-boomed (when safe and effective to do so.) This rulemaking should eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.
- Restrict all oil transfer operations to daylight hours, and at the very least, restrict all oil transfer operations to daylight hours if it's not safe and effective to pre-boom.

Thank you for your efforts to improve the safety of oil transportation in Washington State.

Sincerely,

Kathy Dawson

5806 Greenwood Ave N

Seattle, WA 98103

Response to O-4-1, page 649, Kathy Dawson

See response to comments I-2-1 and I-4-1.

Comment O-4-1, page 683, Carrie Parks

Dear Department of Ecology,

I grew up on Hood Canal and boating in the Salish Sea. It is distressing now for me to hear that the orcas and salmon are endangered, and to see shorebirds covered in oil when spills occur. The Salish Sea is a precious part of our most beautiful state, and it needs protection.

Thank you for leading a process with interested stakeholders to amend regulations associated with facility oil handling standards and vessel oil transfer advance notice and containment requirements to implement ESHB 1578, improving oil transportation safety and reducing threats to southern resident killer whales, people, marine mammals, salmon and all who live in and around the Salish Sea.

I support requiring additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines, new decommissioning requirements for out-of-service oil storage tanks and oil transfer pipelines, additional advance notice of oil transfers, and disclosure of the type, origin and characteristics of the crude oil being transferred.

However, this rulemaking should also:

- Require all secondary containment structures (that prevent spilled oil from reaching the waters of the state) to withstand seismic forces;
- Require all oil transfer operations to be pre-boomed (when safe and effective to do so.) This rulemaking should eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.
- Restrict all oil transfer operations to daylight hours, and at the very least, restrict all oil transfer operations to daylight hours if it's not safe and effective to pre-boom.

Thank you for your efforts to improve the safety of oil transportation in Washington State.

Sincerely,

Carrie Parks

13009 NE 93rd St

Vancouver, WA 98682

Response to O-4-1, page 683, Carrie Parks

See response to comments I-2-1 and I-4-1.

O-5: WSPA

Comment O-5-1

See comment letter O-5-1 in Appendix B.

Response to O-5-1

Response to comments regarding the cost analysis:

See response to comment B-2-1 and B-5-1 regarding the cost analysis.

Thank you for including the Turner Mason Report and providing additional information regarding the potential costs to WSPA-member company facilities in order to implement the amended requirements. The results of the analysis are within the range of total retrofit costs estimated in the Final Regulatory Analyses for this rulemaking, which are based on variable assumptions regarding retrofit activities and timing. We agree that actual retrofit costs will depend on multiple and complex site-specific attributes, including economics or diseconomics of scale, and have clarified this in Final Regulatory Analyses discussions of tank and pipeline retrofit cost estimates – including factors that may increase costs or change the timing of when costs are incurred. Our analysis assumed that seismic retrofit work would be performed during least-loss times, given the extended compliance schedule for these requirements. We have, however, added discussion around this assumption in the Final Regulatory Analyses.

Response to comments regarding risk analyses:

See response to comment B-2-1 and B-5-1 regarding the risk analyses and WAC 173-180-330.

Response to comment regarding inadequate timelines and secondary containment permeability:

See response to comment B-2-1 and B-5-1 regarding inadequate timelines and secondary containment permeability.

Response to comment regarding WAC 173-180-221:

See response to comments I-5-1, B-2-1 and B-5-1 regarding WAC 173-180-221, and O-2-1.

Safety of transfer personnel is critical. WAC 173-180-221(5) clarifies an existing requirement for facilities to evaluate conditions throughout a transfer. Adding resubmission of the Boom Reporting Form allows Ecology to verify compliance with this existing requirement. Reevaluation of conditions during an oil transfer does not necessarily require on-water boat crews. Under current requirements, facilities should be monitoring and adjusting boom as needed throughout the transfer.

Response to comment regarding WAC 173-180-320(1)(c):

Ecology included WAC 173-180-320(1)(c) to provide clarity to existing requirements.

Response to comment regarding WAC 173-180-320(9)(b):

See response to comment B-2-1 and B-5-1 regarding WAC 173-180-320.

Response to comment regarding WAC 173-180-330(2):

See response to comment B-2-1 and B-5-1 regarding risk analyses.

The amended language for WAC 173-180-330(2)(d) allows facilities to demonstrate that storage tanks meet API Standard 650 (2020) seismic design requirements, which appears to meet the intent of the comment. The proposed revision would remove language requiring seismic protection measures to be designed, installed, and maintained to reduce risks. Ecology believes these are important elements to include.

Response to comment regarding WAC 173-180-330(6):

See response to I-177-1 comment #4 regarding STI SP001 Standard.

Response to comment regarding WAC 173-180-630(10)(g):

See response to comment B-2-1 and B-5-1 regarding WAC 173-180-630/650, and I-177-1 #9 regarding secondary containment permeability.

Response to comment regarding rule effective date and existing storage tank requirements (comment O-5-1 attachment A):

The rule amendments do not extend the requirements on existing storage tanks built between June 1 through 3, 1994. The existing language in WAC 173-180-330(1) applied to storage tanks constructed after May 1994. The amended language states that storage tanks constructed after May 1994 and before the effective date of this rule will need to meet requirements in WAC 173-180-330(1)(a) through (d).

Response to comment regarding transfer pipeline definition (comment O-5-1 attachment A):

Ecology removed the proposed edits from the definition of transfer pipeline to avoid confusion.

Response to comment regarding compliance schedule effective dates (comment O-5-1 attachment A):

The effective date of WAC 173-180-080, 173-180-330, and 173-180-340 is July 7, 2023.

O-6: Friends of the San Juans

Comment O-6-1

See comment letter O-6-1 in Appendix B.

Response to O-6-1

See response to comments I-2-1, I-4-1, and I-5-1.

Ecology did not conduct an analysis regarding the distinction between Rate A and B transfer requirements because this is outside the scope of the rulemaking. Over the years of implementing the two rules, Ecology determined that the rate differentiation is not a significant area to change in the rules. For the current rulemaking, Ecology focused on clarifying and enhancing

requirements for safe and effective threshold determinations and pre-booming performance and reporting.

Thank you for the suggested re-organization of discussion of potential San Juan County property value losses associated with large spills. We have added cross-reference and clarifying language to the property value discussion in the Final Regulatory Analyses for this rulemaking. We have, however, retained the illustrative values reflecting properties within a consistent radius of Class 1 facilities, but we have clarified existing language around variability of spill impacts to reflect impacts in neighboring counties.

O-7: Friends of the San Juans

Comment O-7-1

The Western States Petroleum Association's comments include the report from Turner, Mason & Company (February 16, 2023) ECONOMIC IMPACT ASSESSMENT OF WASHINGTON STATE PROPOSED AMENDMENT TO WAC CHAPTER 173-180, 184, which states (on page 4): "The existing tankage infrastructure is aged, with 89% of the tanks being built prior to the first implementation of WAC 173-180-330 in 1994." "Some API STD 650 tanks could require significant modifications or even a rebuild to meet the more demanding loads accounted for in Annex E." The MEMBER FACILITY STATISTICS, Storage Tank Construction Year / Design Standard (page 16) states that of the 283 storage tanks (out of 291) with a known year of construction that would potentially be impacted by a change in the rules, 60% are more than 63 years old and 69% are more than 53 years old. Ecology should answer these questions: What is the life span of a storage tank? At what age should storage tanks be required to be rebuilt or replaced? How many Class 1 facility storage tanks exceed that age?

To comply with the legislature's direction and to meet existing state requirements, this rule should require the rebuild/replacement of storage tanks that have exceeded their safe usage. All storage tanks should be required to meet API Standard 650 (2020) seismic design requirements, including Annex E and section E.7.3 Piping Flexibility. Also, at the very least, the 10-year compliance schedule should be the effective date of WAC 173-180-080, and not the effective date of this rule.

Response to O-7-1

Determining the life span of oil storage tanks and conducting an evaluation of current Class 1 storage tanks for age is outside the scope of this rule. However, the rule amendments require that storage tanks at Class 1 facilities “must be maintained, repaired, and inspected in accordance with the requirements of API Standard 653 (2014 with Addendum 1 (2018) and 2 (2020)), unless the operator proposes an equivalent inspection strategy which is approved by ecology”. API Standard 653 inspections include determining the corrosion rate and calculated remaining life of storage tank shells and roofs. Inspections also identify mandatory and optional repairs. Ecology reviews API inspection reports and the status of repair items through our annual inspection of Class 1 facilities.

The effective date of WAC 173-180-080 is the same as the effective date for the amended rule, Chapter 173-180 WAC, as WAC 173-180-080 is a new section. The compliance schedules in WAC 173-180-080 include extended effective dates for expanded rule requirements.

OTH-1: 15 non-governmental organizations (Friends of the San Juans, Washington Conservation Action, Puget Soundkeeper, San Juan Preservation Trust, RE Sources, Communities for a Healthy Bay, Seattle Aquarium, Earth Ministry/Washington Interfaith Power & Light, Citizens for a Clean Harbor, 350 Tacoma, San Juan Islanders for Safe Shipping, 350 Seattle, Washington Physicians for Social Responsibility, Friends of the Earth, and Evergreen Islands)

Comment OTH-1-1

See comment letter OTH-1-1 in Appendix B.

Response to OTH-1-1

Response to comments regarding secondary containment seismic protection measures:

See response to comments I-2-1, I-4-1, and I-6-1.

The amended rule states that secondary containment systems constructed after May 1994 must be designed to withstand seismic forces. This is an existing requirement in WAC 173-180-320(9). As mentioned above, Ecology did not include updates to secondary containment seismic measures in the rulemaking scope, as we prioritized including seismic protection measures for storage tanks and transfer pipelines. In developing seismic protection requirements for storage tanks and transfer pipelines, we determined the phrasing "designed, installed, and maintained to reduce risk from seismic events" was appropriate.

Response to comments regarding Rate B transfers:

See response to comments I-4-1, I-5-1, and O-6-1.

Response to comments regarding remote anchorage areas:

See response to comment I-175-1. Ecology did not conduct risk analyses recommended in the comments. This rulemaking focused on clarifying existing requirements for Rate A oil transfers and expanding requirements for Safe and Effective Threshold Determination Reports. Ecology utilized existing studies and data, and the program's knowledge and expertise from implementing the existing rules to develop the rulemaking scope and subsequent adopted rules.

Response to comments regarding daylight only transfers:

See response to comment I-2-1, I-4-1, I-5-1, and comment response above regarding remote anchorage areas.

Requiring the rule's conditional approval measures as requirements on oil transfer operations until risk analyses are conducted by Ecology for the pieces outlined in the comment letter are outside the scope of this rulemaking.

Appendix A: Summarized Comment Response

Ecology received multiple identical comments. All identical comments are included in this appendix.

We received the following summarized comment from 689 individuals from O-4-1.

Thank you for leading a process with interested stakeholders to amend regulations associated with facility oil handling standards and vessel oil transfer advance notice and containment requirements to implement ESHB 1578, improving oil transportation safety and reducing threats to southern resident killer whales, people, marine mammals, salmon and all who live in and around the Salish Sea.

I support requiring additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines, new decommissioning requirements for out-of-service oil storage tanks and oil transfer pipelines, additional advance notice of oil transfers, and disclosure of the type, origin and characteristics of the crude oil being transferred.

However, this rulemaking should also:

- Require all secondary containment structures (that prevent spilled oil from reaching the waters of the state) to withstand seismic forces;
- Require all oil transfer operations to be pre-boomed (when safe and effective to do so.) This rulemaking should eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.
- Restrict all oil transfer operations to daylight hours, and at the very least, restrict all oil transfer operations to daylight hours if it's not safe and effective to pre-boom.

Thank you for your efforts to improve the safety of oil transportation in Washington State.

Response to comment:

See response to comment I-2-1 and I-4-1.

List of commenters:

Abreu, Sharon	Anderson, Barbara	Aslakson, Jean
Ackerman, Laura	Anderson, Lyle	Atkins, Gail
Adams, Audrey	Anderson, Mary	Austerman, Darla
Adams, James	Anderson, Matthew	Austin, Gayle
Adams, Marsha	Anderson, Sharon	Avery, Jean
Alavi, Shan-e-Zahra	Anderson, William	Avery, Judy
Albert, Kathy	Angell, Kirsten	Avni, Andrea
Alexander, J.	Antman, Iris	B, Shary
Allen, Teresa	Arcos, Gilbert	Babiak, Katherine
Almuti, Theresa	Arntson, David	Bahr, Dennis

Baine, Dave
Baker, Darlene
Baker, Norman
Baker, Sonia
Baldwin, Gordon
Banks, Wesley
Bannerman, Lynne
Barats, Elizabeth
Barnes, Christine
Bartlett, Faye
Bartlett, Tina
Bartlett, Vivian
Bartlett, Wendy
Bass, Emily
Bauman, Sarah
Baumann, William
Bebbington, Phil
Becherer, Ann
Bedirian, George
Bein, Jeanie
Beldin, Joan
Bell, Stephanie
Benedict, Derek
Bergner, Richard
Bergquist-Moody, Sharon
Bestier, Sabine
Betz-Zall, Jonathan
Biale, Cheryl
Bielma, Pamela
Bishop, Scott
Bittner, Evelyn
Blackwood, Barbara
Blalack, Kristin
Blitzer, Mark
Blumenthal, Robert
Boguske, Matthew
Boli, Carlo
Bordelon, Tika
Boudreau, Carol
Bowdish, Caroline
Bowlby, Ed
Bowling, Gregory
Brent, Patti
Bricker, Jacki
Brock, Barbara
Brown, Paul
Brown, SF
Brown, Tina
Bubelis, Wally
Buczek, Judith
Burger, Carole
Burgess, Sara
Burke, Sally
Burke, Sharon
Burns, Cathleen
Burrows, John
Byrnes, Coleman
Caicco, Jody
Campbell, Liz
Campbell, Sarah
Canright, Lois
Carey, Barbara
Carlson, Cheri
Carroll, Linda
Cassato, Candice
Chapman, Linda
Chestney, Karen
Christ, M'lou
Christenson, Brian
Ciske, Sandra
Clark, Maxine
Clark, Nova
Clark, Sally
Cleland, Katherine
Cleveland, Maureen
Cochran, Deirdre
Coffey, Patricia
Cohan, Linda
Cohen, Judith
Cole, Jackie
Colvin, Marie
Conley, Maria
Conn, Patrick
Conrad, Norm
Cooke, Sarah
Cooper, Rebecca
Copps, Carlann
Correia, Eileen
Cotter, Stephen
Covert-Bowlds, Chris
Covich, Sandy
Cox, Enid
Cox, Lanie
Cox, Thomas
Craighead, Tom
Critchlow, Lisa
Cronin, James
Crosby, Amy
Culbert, Laurette

Curry, Linda
Curtis, Colleen
Curtis, Richard
Custy, Judith
Davidson, Barbara
Davis, Christina
Davis, Erika
Davis, Virginia
Dawn, April
Deal, Brandie
DeBroeck, Lynn
De Cecco, Jorge
DeGrasse, Ellen
de la Rosa, Marco
Deller, Jeanne
Denny, Mary
Denton, Gregory
Detering, Brandt
Deusen, Millard
Devlin, Felicity
Dick, Norman
Dickinson, Amanda
Dillenberger, Joyce
Dils, Laurie
Dixon, Angie
Donaghy, Howarrd
Douglass, Andronetta
Dowson, Eleanor
Dreyfus, Charles
Druffel, Pauline
DuBois, Barbara
Dudley, William
Duhring, Frederick
Dunn, John
Dunn, Sharon
Durr, Rebecca
Dyson, Christina
Easley, Jacquelyn
Eckert, Carol
Edmison, Sean
Ehle, Lisa
Ehler, Noah
Elledge, Vicki
Ellingham, Nancy
Ellis, Catherine
Ellsworth, Linda
Elohim, Shemayim
England, Jennifer
Englund, Klaudia
Erbs, Lori
Ervin, Cecile
Espe, Gregory
Eulberg, Lois
Evans, Bee
Evans, Bronwen
Evans, Chad
Fabian, Dagmar
Fahrenwald, Gill
Fails, Annette
Fairow, Michelle
Falk, Diane
Falotico, Georgann
Farhoud, Aisha
Faste, Andrea
Favors, Reine
Fay, Alex
Feit, James
Feldman, Sheryl
Ferm, Mary
Ferrari, Paul
Ferraris, Alfred
Finch, Suzann
Finley, Susan
Flanagan, Lucy
Flegel, Alice
Fortier, Karen
Foster, Barbara
France, Laureen
Frank, Rebecca
French, James
Frey, Mark
Fritch, Alyce
Froebe, Brel
Fujita-Sacco, Noreen
Gardner, Hannah
Garey, Steve
Garten, Michael
Gartner, Crystal
Garttmeier, Mary
Gary, Steven
Gemmell, Douglas
Gerecke, Harry
Gieser, John
Gill, Gary
Gilmore, Thomas
Gipe, Robert
Glass, Rebecca
Gmeiner, Kjersten
Gogic, Laurie

Golbuff, Graham
Golding, William
Golic, Kathy
Golley, Linda
Goodwin, Greg
Gordon, Richard
Gosney-Wrede, Gail
Gould, Tim
Grajczyk, Joyce
Greef, Fred
Green, Steve
Greenwald, Beatrice
Gregory, Barbara
Gregory-Raffel, Linda
Grout, Richard
Gruszecki, Andrea
Guard, Mary
Gunn, Brian
Gylland, Kathleen
Gyncild, Brie
H, Carole
Habib, David
Hagen-Lukens, Deborah
Haggin, Lindell
Hall, Dorothy
Hall, Linda
Halpern, Charles
Hamilton, Michelle
Hampel, Susan
Hannahs, Mechelle
Hapke, Peter
Hartmann, Lorraine
Harty, Florence
Harvey, Jo
Hastings, Anne
Haugh, Laura
Hawkins, Lee
Heath, Elizabeth
Heavyrunner, Mia
Hedgepath, Janet
Hedt, Michael
Heidergott, Sandy
Heller, Margie
Hemphill, Patricia
Henling, Daniel
Henry, Carole
Henry, Marilee
Herndon, Sandra
Heron, Carrie
Heyer, Nicholas
Hickey, Patrick
Hickman, Elaine
Hill, Michael
Hobbs, Jana
Holder, Lehman
Hollingsworth, Jay
Holman, Cheron
Holroyde, Paula
Horn, Diane
Howe, Jared
Hoyt, Debra
Hubbard, Shaun
Huddlestone, Laura
Hudson, Glenn
Hughes, Thomas
Hulick, Stephen
Hunner, Walter
Hunziker, Kristi
Hurd, Janet
Hurt, Janet
Hurst, Sally
Hurwicz, Michael
Hutchinson, Barry
Ierulli, Barbara
Jacobs, Kathryn
Jacobsen, Michelle
Jamerson, Isabel
Jamieson, Robert
Jamison, Vanessa
Johansen, Penelope
Johnson, Angeline
Johnson, Elizabeth
Johnson, Lawrence
Johnson, Lorraine
Johnson, Lucy
Johnson, Richard
Johnson, Sandra
Johnston, Emily
Johnston, Lloyd
Jones, Clayton
Jones, David
Jones, Kaija
Jordan, Dorothy
Josund, Kim
Joy, Mark
Juhl, Brandon
K, J
Kaeufer, Edward
Kalahan, Deb

Kane, Susan
Katayama, Jean
Kaufman, Ronald
Kaye, Deborah
Keeler, Timothy
Keenan, JoAnn
Keller, Sophia
Kelly, Joanne
Kemmick, John
Kemp, Kindy
Kempton, Rebecca
Kessinger, Jerry
Keyes, Jeannie
Khalil, Ra'id
Kimmerling, Marilyn
Kine, Carolyn
King, Ruth
King, Theodore
Kitson, Jamie
Knowles, Lorelette
Korneliussen, Vivian
Korten, Fran
Krakauer, Wendy
Krantz, Marquam
Krohner, Mary
Kromminga, Geri
Kunz, Cheri
Kutter, Bob
L, Therese
Lachance, Cynthia
Lague, Rich
Lamb, Barbara
Lambert, John
Lamb-McMurray, Aminah
Lambros, Kathryn
Langgin, Diane
Larsen, Julia
Larson, R.
LaRue, Erik
Lawrence, Lisa
Ledden, Dennis
Lee, John
Lee, Kathleen
Leifker, Karen
Leigh, Steve
Lepore, Sue
Leveen, Larry
Lieberman-Brill, Joan
Lindell, Ashley
Link-New, Virgene
Liu, Hannah
Loehlein, Ken
Lofton, Saab
Logan, Teresa
Lombard, Jim
Loomis, Gregry
Loomis, Susan
Lopez, Josefina
Lopez, William
Louchard, Ed
Lovelady, Delorse
Loynd, Kylie
Lucht, Lane
Lucky, Lorie
Lufkin, Thom
Lunceford, Kate
Lux, Tom
Lyman, Mike
MacArthur, Ron
MacGregor, Susan
MacLeod, Dianna
Madole, Catherine
Magana, Maria
Magliola, Lawrence
Magner, Millie
Mahder, Debbie
Mahlis, Larry
Mallalieu, Kathy
Manns, Timothy
Mansfield, Clarissa
Marcus, Lisa
Maris, Celeste
Markley, Shannon
Markman, Sheila
Marks, Diane
Martinez, Priscilla
Matheson, Sandra
Mathews, Holger
Matinjussi, Valarie
Maurer, Jim
May, Ann
McAtee, Cheryl
McClintock, Gloria
McGill, John
Mcgrath, Doreen
McGunagle, William
McKee, Patrick
McLaughlin, Julia
McMahon, Nancy

McMurray, Paul
McNiel, Betty
Megraw, Robert
Mendez, Lauren
Menne, Barbara
Merrill, John
Meston, Kristen
Meyer, Marilee
Michaelson, Elizabeth
Milatz, Paige
Miller, Bonnie
Miller, Susan
Miller, Travis
Millner, Marjorie
Mincin, Ken
Misek, Jolie
Mitchell, Mariah
Mork, Stuart
Morris, Eleanor
Morris, Kim
Mower, Amy
Moyer, Paul
Muir, Guila
Mulcare, James
Murawski, Heather
Murray, Linda
Musgrave, Lee
N, Mary
Nagyfy, Desiree
Neary, Sally
Nelson, Connie
Nelson, Katherine
Nemeth, Lisa
Nequette, Anne
Newman, Virginia
Nicholls, Nance
Nichols, Joe
Nichols, Nikki
Nichols, Tayler
Nightingale, Terry
Noedel, Francis
Nolasco, Chris
Nordby, Patti
Norvell, Chelsea
Oaks, Stacy
Odonnell, J
O'Grady, Darlene
O'Halloran, E.
Olson, Carl
Omenn, Larkin
O'Steen, Barbara
Ostrander, Lucy
Oulman, Lynne
P, Cece
Packard, Elaine
Padelford, Grace
Pakker-Kozicki, Pamela
Paladin, John
Palajac, Jane
Palios, Philip
Palmer, Judy
Pan, Michael
Parker, Barry
Parker, Deborah
Parsley, Adina
Pauley, Jean
Pavcovich, Michelle
Pavlovic, Valentina
Peacey, Janet
Pearl-Thomas, Dina
Pencheon, Gregory
Perfrement, Eileen
Perron, Patricia
Perstein, A
Pfitzenmeier, Dyan
Phelps, Kathy
Phillips, PJ
Pila, Bernadette
Poncz, Louis
Potts, Paul
Pratt, Debbi
Preston, Elmer
Price, Mara
Printz, Peggy
Proa, Mark
Quinn, Alison
Rabenstein, Lynn
Rahm, Don
Ramon, Laura
Rasmussen, Nancy
Reagel, Peter
Rettmann, Tim
Richardson, Kate
Richter, Karen
Riggs, Elizabeth
Ring, Susan
Riordan, Janet
Ripp, Jeanne
Roberts, Melissa

Robinson, D
Roda, Anne
Roger, Dan
Rose, Anita
Rosen, Michael
Rosenbalm, Constance
Rosenthal, Elizabeth
Rothenberg, Florie
Rowland, Danielle
Rozler, Jennifer
Ruggles, Derya
Rumiantseva, Elena
Russell, Karen
Ryan, Kathryn
S, John
Sacks, Ivy
Samaras, John
Sandvig, Daniel
Sarnoski, Michelle
Saunders, Michael
Scavezze, Barbara
Schaffer, Crystal
Scherer, Mary
Scherer, Taen
Scheunemann, Anita
Schille, June
Schneider, Dan
Schneider, Sari
Schuessler, Bob
Schwartz, Phebe
Schwinberg, Jean
Scott, Amy
Scott, Carol
Scribner, Denee
Sellers, Rebecca
Senour, Dan
Shank, Genevieve
Shankman, Leslie
Shapiro, Steve
Sharp, Kathryn
Sharples, Vivien
Shea, Jillian
Sheck, Sally
Sheehan, Thomas
Sherman, Laurie
Shilling, Bruce
Shomer, Forest
Shouse, Susan
Shubert, Stephen
Silverman, Goldie
Simanton, John
Siptroth, Michael
Skager, Theresa
Smets, Martine
Smith, D
Smith, Dennis
Smith, Kristen
Snapp, Seth
Sneiderwine, William
Snow, Donna
Snyder, Dan
Spear, Debbie
Spear, Vana
Speed, Andrea
Speer, Cheryl
Spencer, Arlene
Stefano, Lori
Steijn, Jacob
Stetler, David
Stevens, Katie
Stewart, Kristin
Stiffler, Tonya
Stiles, Allen
Stone, Judith
Stoppani, Pete
Strang, Arnold
Stroble, Sharon
Stroud, Lucinda
Sullivan, Diane
Summers, George
Swainson, LuAnne
Swanson, Craig
Sweet, Selina
Sydnor, Giles
T, W
Tampi, Carolyn
Tanner, Leah
Taylor, Karla
Taylor, Nancy
Taylor, Polly
Teed, Cornelia
Tennyson, Karen
Teraberry, Kimberly
Ternes, Randal
Thiel, Susan
Thoma, Chris
Thomas, Kat
Thomas, Shirley
Thomas, Vicki

Thompson, Eileen
Thompson, John
Thomsen, Don
Thorn, Debbie
Todd, Carolyn
Trasoff, Stephanie
Underwood, Dennis
Ungar, Arthur
Urias, Victoria
Uyenishi, Steve
Vail, Cameron
Valentine, Jennifer
Van Alyne, Emily
Vandenberg, Nancy
Villasenor, Victor
Vining, Jennifer
Vossler, Susan
Wale, Liisa
Wallace, Nadine
Waltman, Claire
Walton, Bruce
Wang, Tracy
Ward, Karla
Warner, Cherie
Watson, Jeffrey
Waytz, Jack
WE, Barbara
Webb, Dean
Weedman, Ruth
Weinstein, Elyette
Weir, Kristi
Weis, Karen
Weiss, Laura
Wesley, James
Weyer, Dora
Wheeler, Jerry
Wheeler, Kathleen
Whirledge-Karp, Anne
White, Nancy
Whitesell, Edward
Whitney, Calista
Wiederhold, Joe
Wildermuth, Kevin
Wilfing, Janice
Wilkins, MaryJo
Williams, Steve
Williamson, Shira
Wilson, Howard
Wilson, Rachel
Wineman, Marian
Winskowski, Pat
Wiseman, Jack
Wittman, Sidonie
Woestwin, Carl
Wood, Karen
Wood, Marilee
Woodworth, J.
Worley, Don
Wynne, Janet
Yanagihara, Keiko
Yogev, Yonit
York, Julia
Yoshida, Adam
Zerr, Laura
Zirinsky, Kenneth
Zizza, Daniel

We received the following summarized comments from 137 individuals.

Thank you for leading a process with interested stakeholders to amend regulations associated with facility oil handling standards and vessel oil transfer advance notice and containment requirements to implement ESHB 1578, Reducing threats to southern resident killer whales by improving the safety of oil transportation.

I support requiring additional seismic protection measures and retrofits for oil storage tanks and transfer pipelines, new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines, additional advance notice of oil transfers, and disclosure of the type, origin and characteristics of the crude oil being transferred.

However, this rulemaking should also:

- Require all new and existing containment structures (that prevent spilled oil from reaching the waters of the state) to withstand seismic forces:
- Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming;
- Restrict all oil transfer operations to daylight hours, particularly when it's not safe and effective to pre-boom.

Thank you for your efforts to improve the safety of oil transportation in Washington State.

Response to comment:

See response to comment I-2-1 and I-4-1.

List of commenters:

Commenter name	Affiliation	Comment number
Albert, Susan	Individual	I-135-1
Alexander, Kathryn	Individual	I-172-1
Allen, Teresa	Individual	I-88-1
Allison, Joanne	Individual	I-30-1
Anderson, Glen	Individual	I-76-1
Anderson, Lyle	Individual	I-45-1
Bailey, Stephen	Individual	I-61-1
Bakke, Paul	Individual	I-102-1
Bakke, Simon	Individual	I-129-1
Ball, Corbin	Individual	I-106-1
Banks, Wesley	Individual	I-75-1
Barats, Betty	Individual	I-65-1
Barcott, Nick	Individual	I-52-1

Barrett, Rhonda	Individual	I-74-1
Bartlett, Faye	Individual	I-79-1
Bartlett, Wendy	Individual	I-51-1
Bauman, Sarah	Individual	I-39-1
Beck, Kathryn	Individual	I-158-1
Bensuaski, Andria	Individual	I-114-1
Billington, Lynn	Individual	I-78-1
Bordelon, Tika	Individual	I-72-1
Brinson, Leslie	Individual	I-66-1
Brown, Laurence	Individual	I-139-1
Campbell, Jennifer	Individual	I-43-1
Carlson, Darcy	Individual	I-90-1
Carlton, Kimberly	Individual	I-107-1
Charlton, Kirsti	Individual	I-49-1
Conrad, Norm	Individual	I-38-1
Crediford, Dana	Individual	I-174-1
Crediford, Dana	Individual	I-176-1
Cucinotta, Wanda	Individual	I-112-1
Cunningham-Armstrong, Angi	Individual	I-116-1
Davidson, Barbara	Individual	I-96-1
Davis, Andrew	Individual	I-50-1
Davis, Virginia	Individual	I-133-1
Dawson, Scott	Individual	I-69-1
Day, Valerie	Individual	I-70-1
Donaldson, Jamie	Individual	I-157-1
Donaldson, Jamie	Individual	I-160-1
Donelson, Rowena	Individual	I-163-1
Eakle, Wendy	Individual	I-100-1
Eberharter, Jann	Individual	I-128-1
Edmison, Sean	Individual	I-154-1
Edwards, Susie	Individual	I-33-1

Erbs, Lori	Individual	I-104-1
Fabian, Dagmar	Individual	I-84-1
Froebe, Jillian	Individual	I-94-1
Garey, Steve	Individual	I-27-1
Golden, Carl	Individual	I-115-1
Goldman, Debra	Individual	I-125-1
Gordon, Jan	Individual	I-93-1
Graber, John	Individual	I-161-1
Grace, Lise	Individual	I-83-1
Grant, Margarette	Individual	I-47-1
Guthrie, Randy	Individual	I-171-1
Hamill, Janet	Individual	I-54-1
Hansen, James	Individual	I-134-1
Harrison-Smith, Jeremy	Individual	I-42-1
Hines, Eleanor	Individual	I-80-1
Hinz, Sonja	Individual	I-64-1
Hipp, James	Individual	I-89-1
Hirst, Eric	Individual	I-119-1
Hovde-Klingman, Belinda	Individual	I-34-1
Johnson, Lorraine	Individual	I-145-1
Jordan, Dorothy	Individual	I-124-1
Kay, Morgan	Individual	I-35-1
Kaye, Deborah	Individual	I-85-1
Kemp, Elizabeth	Individual	I-25-1
Kiera, Eileen	Individual	I-24-1
Korn, Meryle	Individual	I-97-1
Kosa, Jay	Individual	I-23-1
Lamb, Barbara	Individual	I-40-1
Lane, Jonathan	Individual	I-167-1
Large, Pamela	Individual	I-164-1
Larson, R.	Individual	I-159-1

LaRue, Erik	Individual	I-55-1
Lawrence, Lisa	Individual	I-155-1
Laws, David	Individual	I-81-1
Le Fay, Rhiannon	Individual	I-144-1
Lehwalder, Janet	Individual	I-108-1
Lengel, Elizabeth	Individual	I-110-1
Loar, Christopher	Individual	I-36-1
M, Tom	Individual	I-37-1
Mahlis, Larry	Individual	I-165-1
Maliszewski, Charlie	Individual	I-73-1
Marguiles, Miriam	Individual	I-19-1
Mass, Ursula	Individual	I-26-1
McClintock, Gloria	Individual	I-101-1
McKim, Tina	Individual	I-60-1
Mendoza, Jean	Individual	I-113-1
Merchant, Heather	Individual	I-152-1
Meyers, Barry	Individual	I-48-1
Monke, Celeste	Individual	I-92-1
Mooney, Mary	Individual	I-146-1
Mower, Amy	Individual	I-71-1
Neill, Dorothy	Individual	I-63-1
Nordal, Rondi	Individual	I-151-1
Nunley, Shellee	Individual	I-169-1
Olson, Janis	Individual	I-56-1
Ouellette, Tracy	Individual	I-99-1
Palajac, Jane	Individual	I-126-1
Parker, Deborah	Individual	I-87-1
Parker, Stan	Individual	I-98-1
Pendleton, Lynne	Individual	I-82-1
Perl, Daniel	Individual	I-170-1
Pevonak, Susan	Individual	I-156-1

Reams, Donita	Individual	I-109-1
Reding, Andrew	Individual	I-44-1
Rietz, Marguerite	Individual	I-95-1
Ripp, Jeanne	Individual	I-142-1
Ritchie, Daniel	Individual	I-147-1
Romito, Rick	Individual	I-59-1
Rose, Valerie	Individual	I-68-1
Rosenblum, Lynn	Individual	I-58-1
Rumiantseva, Elena	Individual	I-62-1
Savoian, Sasha	Individual	I-103-1
Sheehan, Laura	Individual	I-122-1
Spencer, Julia	Individual	I-150-1
Stewart, Deborah	Individual	I-117-1
Stuckey, Matthew	Individual	I-162-1
Swan, Alice	Individual	I-138-1
Tisovec, Kimberly	Individual	I-120-1
Trasoff, Stephanie	Individual	I-168-1
Ulrich, Friedrich	Individual	I-53-1
Vanlandingham, Alissa	Individual	I-32-1
Warren, Gail	Individual	I-105-1
Weeks, Denise	Individual	I-123-1
Weiss, Tristan	Individual	I-86-1
Whitacre, Julie	Individual	I-136-1
White, Jan	Individual	I-41-1
Wight, Dean	Individual	I-77-1
Wilson, Glenn	Individual	I-46-1
Wilson, Stephen	Individual	I-121-1
Woll, Margaret	Individual	I-91-1
Wright, Shannon	Individual	I-127-1
Zimmer, Cheryn	Individual	I-29-1

We received the following identical comments from six individuals.

I support the new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines, requiring additional seismic protection measures for oil storage tanks and transfer pipelines to help prevent oil spills during earthquakes, and updating the requirements to mitigate the impacts of spills from oil transfer operations.

To implement ESHB 1578, Reducing threats to southern resident killer whales by improving the safety of oil transportation, this rulemaking should also:

1) Require all secondary containment structures (that prevent spilled oil from reaching waters of the state) to withstand seismic forces;

2) Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming; and,

3) Restrict all oil transfer operations to daylight hours or, at the very least, restrict all oil transfer operations to daylight hours when it's not safe and effective to pre-boom.

Response to comment:

See response to comment I-4-1.

List of commenters:

Commenter name	Affiliation	Comment number
Cope, Elise	Individual	I-1-1
Hampel, Susan	Individual	I-3-1
Hampel, Susan	Individual	I-18-1
Shank, Genevieve	Individual	I-22-1
Turnoy, David	Individual	I-20-1
Wolfe, Chris	Individual	I-137-1

We received the following identical comments from four individuals.

body content

Response to comment:

This comment did not provide any content for Ecology to consider.

List of commenters:

Commenter name	Affiliation	Comment number
Tester, John	Individual	I-14-1
Tester, John	Individual	I-15-1
Tester, John	Individual	I-17-1
Tester, John	Business	B-1-1

Appendix B: Comment Letters

This section contains all of the comment letters submitted as attachments, rather than text.

Comment I-177-1

Tesoro Refining & Marketing Company LLC,
A subsidiary of Marathon Petroleum Corporation
Anacortes Refinery
10200 March Point Road
P. 0. Box 700
Anacortes, WA 98221
Fax: (360) 293-9190

March 5, 2023

Sent via upload to: https://sppr.ecology.commentinput.com/?id=6Mx2s

Ms. Brittany Flittner Department of Ecology
Spill Prevention, Preparedness, and Response Program
P.O. Box 47600
Olympia, WA 98504-7600

Re: Marathon Comments on WAC 173-180 and WAC 173-184 Amendments

Dear Ms. Flittner,

Tesoro Refining & Marketing Company LLC, a subsidiary of Marathon Petroleum Corporation (Marathon) is hereby providing public comment on the proposed amendments to Chapter 173-180 WAC, Facility oil handling standards and Chapter 173-184 WAC, Vessel oil transfer advance notice and containment requirements, issued on January 4, 2023.

The comments provided below are primarily focused on the proposed amendments to the compliance schedule, design standards, and prevention plan, along with some additional comments for Ecology review. The comments are formatted sequentially in accordance with the rule. Most comments include example rule language enclosed in a text box at the end of each comment, intended to illustrate how the rule can be modified to address the comment.

Comment #1: WAC-173-180-080 Compliance Schedule

The schedule for compliance proposed in this section raises significant concerns as it does not allow sufficient time for a facility to meet the new requirements in the proposed rules. The proposed amendments will apply to numerous facilities in the State and impact a significant number of compliance points - in Marathon alone, our facilities combined have more than 100 storage tanks, and each with associated transfer pipelines. Each of the new or modified requirements will take substantial time and effort to review rule changes, conduct analyses, evaluate design changes, follow responsible project management practices, apply updates to documents, train employees, and prepare agency submittals. Some examples of the challenges posed by the proposed compliance schedule are provided below.

The proposed amended Design Standards in WAC 173-180-330 and WAC 173-180-340 and the proposed amended Prevention Plan Risk Analysis (RA) in WAC 173-180-630(13) require thoughtful review that must coincide with one another. The combined review has the potential outcome to reduce risk by installing physical upgrades to existing equipment to demonstrate the best available protection. Marathon follows a methodical process to safely engineer, budget, and execute physical changes in accordance with all applicable rules and regulations, however, Ecology has not proposed a compliance schedule to consider the time required to cohesively analyze, design, and implement thoughtful changes. Each change would require a detailed project management process, starting with the RA to final execution.

Additionally, modifications to storage tanks and transfer piping must follow the API Inspection Schedule to prevent unintended consequences (such as unnecessarily increasing emissions that would result from degassing and opening equipment on a shorter timeframe than the normal inspection cycle, which is termed "short-cycling"). It is critical to get this evaluation right the first time and Marathon requests Ecology to provide adequate time in the rule for a facility to conduct a thorough and complete RA, identify risk reduction opportunities, including required seismic upgrades, and design and implement opportunities under a reasonable timeline by adjusting the compliance schedule to align with the API inspection schedule. Furthermore, it is imperative that the seismic evaluation and potential upgrades for the storage tank and associated transfer piping be considered as a system. Marathon recommends that facilities have the option to include the associated transfer piping with the storage tank, to align with the storage tank compliance schedule.

With respect to the Safe and Effective Threshold Determination Report, the additional proposed requirements will require extensive review and updating. After that is complete, the rule requires the Safe and Effective Threshold Determination to be included in the Operations Manual, which also will require time for review and update to incorporate other proposed requirements. Additionally, there are elements that would impact the training and certification programs which in turn will take time to complete. Therefore, Ecology must consider adopting a thoughtful, coordinated compliance schedule that gives the regulated community adequate time after the rule effective date to meet the several interrelated additional requirements.

Under the proposed compliance schedule, modifications and updates to some of the plans and programs are required to be completed on the effective date of the rule, however, this is not feasible, particularly given the interrelatedness of the various plans, programs and requirements. Accordingly, the rules should provide a reasonable timeframe to come into compliance with all the proposed amendments. In addition, some specified plans and programs are required to meet the rules by the current plan's expiration date. This too is not feasible, as certain of those plans/programs' expiration dates may occur shortly after the rule effective date and a facility will not have sufficient time to complete the necessary updates. Further, under the current rules, facilities are required to submit renewal plans and programs to Ecology within 120 days prior to the expiration date, including but not limited to the Safe and Effective Threshold Determination, Operations Manual, the Certification Program and the Prevention Plan. Thus, facilities with plans and programs whose expiration dates are within 120 days of the amended rule's effective date will be out of compliance because the compliance date lands prior to the rule effective date. Ecology must review and ensure that these anomalies are addressed.

It is important to both the regulated facilities and Ecology to have compliance schedules that are reasonably achievable. It is also important for Ecology to acknowledge a case-by-case need for a modified schedule based on unforeseen consequences and individual circumstances. Each facility can have unique situations whereby established compliance deadlines are not possible to achieve, for example additional time could be required to complete the engineering around a new technology. Ecology has worked with the regulated community in the past by offering permit language and rule language that allow facilities to request and Ecology to grant a compliance extension. Ecology has granted conditional extensions in the past, giving facilities the ability to remain in compliance during the execution of requirements taking additional time to complete. So, in addition to defining achievable compliance schedules for the proposed requirements, Marathon requests Ecology to provide rule language to allow for facilities to request and Ecology to grant compliance extensions.

Some proposed revisions to the compliance schedules are offered below.

NEW SECTION

WAC 173-180-080 Compliance schedule.

(1) Owners and operators of all facilities in operation at the time this rule is effective must meet the requirements in this rule within 180 calendar days after ~~on~~ the effective date of this rule, except where specified below.

(a) Within ~~30~~ 60 calendar days from rule effective date, all delivering facilities must meet advance notice requirements in WAC 173-180-215.

(b) Within ~~60~~ 150 calendar days from rule effective date, any delivering facility conducting Rate A transfers must meet prebooming requirements in WAC 173-180-221.

(c) By the current safe and effective threshold determination report's expiration date, any delivering facility conducting Rate A transfers must meet report requirements in WAC 173-180- 224, except where the expiration date is within 180 calendar days after the rule effective date, the facility must meet the report requirements by the report's subsequent expiration date.

(d) ~~Within 10 years from rule effective date or by the next scheduled internal API Standard 653 (2014 with Addendum 1 (2018) and 2 (2020)) inspection, whichever is later, a~~Any Class 1 facility storage tank constructed before the effective date of this rule must meet seismic protection measures in WAC 173-180-330 by the next scheduled API Standard 653 (2014 with Addendum 1 (2018) and 2 (2020)) internal inspection except where a storage tank's API 653 internal inspection due date is within 5 years of the effective date, such tanks must meet the seismic protection measures by their subsequent API 653 inspection due date. Facilities have the option to include transfer piping seismic protection measures in a systematic review with the associated storage tank.

(e) Within 10 years from rule effective date or by the next scheduled API Standard 570 (2016 with Addendum 1 (2017) and 2 (2018), and Errata 1 (2018)) inspection, whichever is later, any Class 1 facility transfer pipeline constructed before the effective date of this rule must

meet seismic protection measures in WAC 173-180-340, except for transfer pipeline following the provisions in WAC 173-180-080 (d).

(f) Within 5 years of the rule effective date, ~~By the current prevention plan's expiration date,~~ all Class 1 facilities must meet plan requirements in WAC 173-180-630.~~except where the prevention plan's expiration date is within 3 years of the rule effective date, facilities must meet the plan requirements by the plan's subsequent expiration date.~~

(g) For all other plans and programs not otherwise specified above, including the Operations Manual and the Training and Certification programs, the plans and programs must meet the rule requirements by the current plan or program expiration date, except for those expiration dates that are within 180 days from the rule effective date, facilities must meet the requirements by the relevant plan or programs' subsequent expiration date.

(~~g~~h) Within 12 months from rule effective date, all Class 2 facilities must meet oil transfer response plan requirements in WAC 173-180-730.

(~~h~~i) The triennial cycle of the drill program, as required in WAC 173-180-810 and 173-180-815, will begin once the oil transfer response plan for the Class 2 facility has been approved.

(2) Owners and operators of new facilities must meet requirements in this chapter prior to beginning operations in the state, including submittal deadlines outlined in this chapter.

(3) When there is a change in the owner or operator of a facility, the new owner or operator of the facility must meet the requirements in this chapter prior to beginning operations in the state, including submittal deadlines outlined in this chapter.

(4) A facility requiring additional time for compliance can submit an extension request to Ecology for their review and approval. Such extension request shall be submitted no less than 60 calendar days before the relevant deadline stating the reason for the request and Ecology shall endeavor to reply within 30 calendar days. In granting such extension, Ecology's response shall state the extension conditions. In the event the extension request is denied, the time period for Ecology's reply to the extension request shall be added to the facility's relevant deadline for compliance.

Comment #2: WAC 173-180-330 (1) and (3) Design Standard for Class 1 Facilities

Marathon sees an opportunity to simplify the language of WAC 173-180-330 (1) and (3) to improve readability and reduce redundancy. From Marathon's perspective there is no benefit to include a section related to storage tanks constructed between May 1994 and before the rule effective date (WAC 173-180- 330(1)) when the subsequent citation is applicable to facilities constructed before the rule effective date. (WAC 173-180-330(2)).

Please consider if the amended proposed language of WAC 173-180-330 (1) can be deleted, and the proposed amended language of WAC-173-180-330 (3) can be moved to paragraph (1) in its place.

Comment #3: WAC 173-180-330 (2) Design Standard for Class 1 Facilities

Marathon is committed to reduce spill risk from seismic events and in doing so has initiated third-party seismic modeling on a sample set of storage tanks and transfer piping to inform our

comments. Marathon has devoted attention to this evaluation because it is imperative that the analysis is conducted in accordance with best industry practice and that potential physical retrofits are designed correctly the first time around, to ensure that the risk reductions we are seeking are effectively and safely achieved.

Seismic modeling is a data-driven, fact-based analysis that allows us to evaluate the current seismic rating of storage tanks and transfer piping. The model will provide the information to determine if a system meets the amended proposed design standards or if a system requires design revisions or operational changes to meet the standard. Therefore, Marathon requests Ecology to include *seismic modeling* as an acceptable system to be included in WAC 173-180-330 (2).

Proposed rule language revisions are offered below.

(2) Storage tanks constructed before the effective date of this rule must include protective measures that are designed, installed, and maintained to reduce risk from seismic events and that include one or more of the following:

(a) Flexible mechanical device(s) between storage tank and piping or sufficient piping flexibility to protect the tank and pipe connection and prevent the release of product;

(b) Foundation driven pilings;

(c) Anchored storage tanks; ~~or~~

(d) Seismic modeling to compare to API Standard 650 (2020) seismic design requirements, including Annex E and section E.7.3 Piping Flexibility; or

(~~d~~e) Another seismic protection measure proposed by the facility and approved by ecology, as long as such protection measure equals or exceeds those required in this section. This may include demonstrating the storage tank meets API Standard 650 (2020) seismic design requirements, including Annex E and section E.7.3 Piping Flexibility.

Comment #4: WAC 173-180-330 (6) Design Standard for Class 1 Facilities

This comment is to provide Ecology with a reference to an industrial code that is applicable to horizontal storage tanks and that should be included in WAC 173-180-330 (6).

The proposed amended rule allows for tanks to be constructed to UL 142. The UL 142 standard includes construction and design requirements for both vertical and horizontal tanks. API 650 only includes construction and design requirements for vertical tanks. API 653 is an inspection standard that complements tanks constructed to API 650. It is common and acceptable to inspect vertical storage tanks constructed to varying code to the API 653 inspection standard, however API 653 does not provide guidance for the inspection of horizontal storage tanks. To inspect a horizontal storage tank, the industry uses the STI (Steel Tank Institute) SPOO1 standard "Standard for the Inspection of Aboveground Storage Tanks". Therefore, Marathon requests that Ecology specifically include this standard in the rule language.

Specific rule language revisions are offered below.

(6) Storage tanks must be maintained, repaired, and inspected in accordance with the requirements of API Standard 653 (2014 with Addendum 1 (2018) and 2 (2020)) or Steel Tank

Institute SP001 6th edition September 2018, unless the operator proposes an equivalent inspection strategy which is approved by ecology.

Comment #5: WAC 173-180-340 Design Standard for Class 1 Facilities

Transfer pipeline requirements are addressed under section WAC 173-180-340, and under paragraph (1) of this section, it refers to applicability for transfer pipelines "which are located in areas not controlled by the facility." Ecology added proposed paragraphs (2) through (5) in this section, however it is not clear whether those new requirements are also only applicable to those transfer pipelines that are outside the control of the facility. If the intent is for those provisions to also apply only to pipeline in areas not controlled by the facility, proposed clarification language is offered in the box below. If this is not the intent, Marathon requests Ecology to consider revised rule language to improve flow and clarity.

Specific rule language revisions are offered below.

WAC 173-180-340, Transfer pipeline requirements

This section applies to transfer pipelines located in areas not controlled by the facility.

(1) ...

Comment #6: WAC 173-180-630 (12) Prevention Plan for Class 1 Facilities

The amended proposed changes to WAC 173-180-630 (12) includes a strike-out of the parenthetical phrase *"(one thousand fifty gallons)"* that previously served as a precise conversion of barrels to gallons. Marathon recommends retaining this parenthetical phrase to clearly illustrate the conversion of barrels to gallons. In general, industry has multiple numerical conversions of barrels to gallons depending on the industrial context. In this situation, it is intended that one-barrel equals 42 gallons.

Comment #7: WAC 173-180-630 (13) Prevention Plan for Class 1 Facilities

The Prevention Plan proposed amendments would require a facility to complete a risk analysis (RA) (under WAC 173-180-630) in parallel to completing the Design Standard seismic control evaluation (under WAC 173-180-330 and 173-180-340). However, a more effective method is to start with the RA first, and as part of that process, allow it to direct the priority of the seismic design evaluation in accordance with WAC 173-180-330 and WAC 173-180-340. The outcome of the seismic design evaluation will determine the opportunity to reduce spill risk with seismic design changes. Additionally, the RA will not be limited to only evaluating the seismic design standards but will also look at other opportunities with the goal to cohesively identify the overall best achievable protection.

Collectively, both the RA and the seismic evaluation will require a substantial effort to complete and appropriate time should be allowed to ensure a detailed and thorough review. As noted earlier, within Marathon's facilities alone, there are more than 100 storage tanks and associated transfer piping systems to assess and to identify best achievable protection. Marathon suggests that a reasonable time to complete the initial RA is 5 years with subsequent seismic analyses following the API inspection schedule set forth in WAC-173-180-080.

Comment #8: WAC 173-180-630 (13)(b)(ii) Prevention Plan for Class 1 Facilities

Marathon is requesting clarity on WAC 173-180-630(13)(b) (ii) to determine if Ecology intended for it to be applicable to the "system" instead of "facility".

Under a related citation, WAC 173-180-630(10)(g)(ii), which was recently updated, the term "facility" was changed to "system." If it is Ecology's intent to focus on the "system," please consider the following rule language change.

WAC 173-180-630 (13)(b)(ii)
Evaluate spill minimization and containment systems within the facility for a discharge of one percent and one hundred percent of the worse case spill volume for the ~~facility.~~ system.

Comment #9: WAC 173-180-630 (10) and (13) Prevention Plan for Class 1 Facilities

The proposed revisions in these sections regarding the Prevention Plan speak to concerns regarding permeability of secondary containment and preventing oil from reaching waters of the state. One measure that can provide a barrier to reduce or eliminate contact and permeability of oil to soil is the presence of stormwater in the containment basin (which is not uncommon). Additionally, facilities can add water to the basin to purposefully float the oil to provide a barrier between the oil and soil, and subsequently clean up the oil through skimming and other recovery and clean-up techniques. Marathon requests Ecology to examine if these types of tertiary protections need to be specifically listed in the rule, or if facilities should simply include this in their RA as a statement of additional safeguard and recommendation per WAC 173-180-630 (13)(a)(v).

Comment #10: WAC 173-180-910 (b)(iv) Class 1 facility-Out of service requirements.

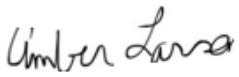
In Ecology's amended proposed rule, WAC 173-180-910(b)(iv) requires facilities to "air-gap" lines to out-of-service tanks. However, in WAC 173-180-910(c), the rule provides that storage tanks meeting the definition of permanently closed in 40 CFR 112 will be considered decommissioned. Under 40 CFR 112, tanks are required to be disconnected and blanked and valves closed and locked, but lines are not required to be air-gapped. Air-gapping will require modification of the piping that will inhibit returning a tank to service. Marathon supports adopting language consistent with 40 CFR 112 to avoid conflicting requirements in the rules, and to avoid the unnecessary piping revisions and inhibition of taking a tank in and out of service.

Please remove the following language below.

WAC 173-180-910 (b)(iv)
~~(iv) All oil piping connected to the storage tank must be airgapped from the storage tank; and~~

Marathon appreciates the opportunity to provide comments on this important proposed regulation. If you have any questions regarding this submittal, please contact Chad Tuttle via email at mctuttle@marathonpetroleum.com or by phone at 618-553-0586.

Sincerely,



Amber Larsen

Environmental Regional Manager-West Coast New Regulations

cc:

Chad Tuttle – Senior Environmental Specialist

Comment I-179-1

March 1, 2023

Brittany Flittner
Department of Ecology
Spill Prevention, Preparedness, and Response Program
PO BOX 47600
Olympia, WA 98504-7600

Comments re: ESHB 1578, Reducing Threats to Southern Resident Killer Whales by Improving the Safety of Oil Transportation

Dear Ms. Flittner,

I am a resident of San Juan Island where the SRKWs are considered our icon as well as indicators of the health of the Salish Sea. They are already in jeopardy for a myriad of human-induced factors, but then add one more oil spill and it could be the end of their population.

This is a preventable strategy. It's up to us to tighten the regulations that are put into place to prevent spills from happening, or if they do happen, to prevent them from causing further harm.

Pre-booming for ALL over-the-water oil transfers (the only exception being containment of highly volatile materials) is how we Improve the Safety of Oil Transportation and Reduce Threats to SRKWs (to reference the name of ESHB 1578).

To give ESHB 1578 teeth and to be most effective, it should also:

1) Require all secondary containment structures (that prevent spilled oil from reaching waters of the state) to withstand seismic forces;

2) Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming;

3) Restrict oil transfer operations to daylight hours or, at the very least, restrict all oil transfer operations to daylight hours when it's not safe and effective to pre-boom.

In addition, I support the new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines, requiring additional seismic protection measures for oil storage tanks and transfer pipelines to help prevent oil spills during earthquakes, and updating the requirements to mitigate the impacts of spills from oil transfer operations.

Thank you for your consideration of these comments.

Ms. Shaun Hubbard
PO Box 805
Friday Harbor WA 98250

Comment B-2-1 and B-5-1

February 27, 2023

Sent via upload to: https: //sppr.ecology.commentinput.com/?id=6Mx2s
and emails to: Brittany Flittner (brittany.fliittner@ecy.wa.gov), Brian Kirk (blcir461@ecy.wag.ov)

Brittany Flittner Department of Ecology
Spill Prevention, Preparedness, and Response Program
PO Box 47600
Olympia, WA 98504-7600

RE: Comments on Proposed WAC 173-180/184 Rulemaking

Dear Ms. Flittner,

HF Sinclair Puget Sound Refining LLC appreciates the opportunity to comment on the Washington State Department of Ecology (Ecology) proposed rulemaking (CR-102) for amendments to WAC 173-180 (Facility Oil Handling Standards) and WAC 173-184 (Vessel Oil Transfer Advance Notice and Containment Requirements).

General Comments

Need for Detailed Cost Analysis. It is concerning that no analysis was provided in the Preliminary Regulatory Analyses (dated January 2023 - Publication 23-08-001) regarding the direct costs of replacing or making significant changes to large secondary containment systems currently in place at Tier 1 facilities pursuant to WAC 173-180-320(1)(c). In addition, Ecology staff indicated during CR-101 consultation meetings and workshops that a cost analysis of proposed WAC 173-180-330 control measures to be installed at existing Tier 1 facilities would not be performed by the agency. The costs to comply with the proposed changes could be significant and take several years to complete.

Risk Analyses Should Precede Control Measures. As written, the proposed rule language would have a facility complete a formal risk analysis (pursuant to WAC 173-180-630) after and independent of seismic control measure requirements (pursuant to WAC 173-180-330). Facilities should be able to assess the full scope of any equipment and operational changes through completion of a risk analysis in order to properly determine the effective and safe installation of any seismic-related tank, pipe, and/ or containment modifications/upgrades. The proposed rule language should clearly address the role of the risk analysis process in determining the need for additional control measures.

Timeline Inadequate. The timeline to comply with the proposed changes to 173-180 has not been completely and thoroughly addressed by Ecology. For example, containment and/ or control system modifications pursuant to the proposed changes to WAC 173-180-320 and WAC 173-180-330 could take years to complete. Ecology needs to provide stakeholders with guidance on implementation of rule changes and provide a grace period so that facilities have a realistic timeline to complete these secondary containment changes or upgrades. Furthermore, Ecology should provide facilities with sufficient time after rules go into effect to complete requirements related to secondary containment permeability measurements, seismic/hydrostatic calculations and spill risk analysis in updating spill prevention plans.

Specific Comments

WAC 173-180-215 (Advanced Notice of Transfer)

The requirement to update the start time of the oil transfer operation if the start of transfer operations changes by more than 6 hours is unreasonable. The requirement would place undue burden on a Person-In-Charge (PIC) who should be focused on safe transfer operations. This burden and distraction can increase the risk for leaks/ spills and is not consistent with USCG's requirements of the PIC's responsibility during transfer operation. Recommend the requirement to update be made as soon as practicable or no later than 24-hour notice.

WAC 173-180-217 (Equivalent Compliance Plan)

The Equivalent Compliance Plan option to comply with requirements in WAC 173-180-221 and 173-180-222 while factoring in site/location specific conditions is helpful and appreciated.

WAC 173-180-221 (Rate A prebooming requirements and Rate A alternative measures requirements)

The WAC 173-180-221 requirement to completely surround the vessel and facility/ dock area in oil transfer operation is not consistent with USCG requirements. The one-hour requirement to pull boom can present significant risk to personnel especially if weather/tidal conditions were to change during boom deployment. Submission of follow-up Ecology Boom Report Forms every 6 hours is not consistent with the USCG's requirements for the PIC's responsibility and would place undue burden on the PIC who should be focused on a safe transfer operation. We recommend aligning with the USCG requirement so there are no discrepancies and confusion and that the submittal requirement of follow up boom report forms be made as soon as practicable or within 24 hours.

WAC 173-184-115 Rate A prebooming and Rate A alternative measures requirements

WAC 173-184-115 (6)(c) provides clarity on pre-booming requirements when multiple oil transfers are occurring, especially on the portion of transfer that is appropriate to pre-boom. In addition to the requirements of safe and effective and that pumping is complete for the product that is not appropriate to pre-boom, more clarity and specificity has been provided on the requirement of at least three hours remaining in transfer which is appreciated.

WAC 173-180-224 (Safe and effective threshold determination)

We do not agree with the new requirement for supporting data to be no more than 10 years old from the date of the safe and effective threshold determination report, especially if surrounding conditions remain unchanged. In addition, while it makes sense to include "weather" equipment in making that determination, facilities should not be required to provide on-site "water" conditions/velocity measurements as even NOAA is not doing this on or near the site in real time and any instrumentation from the dock would be inaccurate due to vessel/berth shadowing.

WAC 173-180-320 (Secondary containment requirements for aboveground storage tanks)

Risks due to seismic events or forces are described in the facility risk analysis required by WAC 173-180-630. As stated previously, the risk assessment process should guide evaluation and adoption of seismic-related improvements and upgrades. Concerns with the seismic protection requirements for secondary containment are provided below:

(i) The proposed rules don't define the terms "seismic event" and/or "seismic forces."

(ii) It is yet not clear what Richter Scale earthquake or magnitude of tsunami is considered significant by Ecology. This needs to be identified and clarified before secondary containment design can be consistent with the proposed rule.

(iii) Risks due to seismic events or forces are described in the facility risk analysis required by WAC 173-180-630. As stated previously, the risk assessment process should guide evaluation and adoption of seismic-related improvements and upgrades.

WAC 173-180-330 (Storage tank requirements)

As discussed above, we believe that the risk analysis and the required evaluation therein of measures that will protect against identified seismic risks should be used to determine whether additional measures are needed, and if so, what those measures will be. In particular, we have the following concerns with the seismic protection requirements prescribed for storage tanks.

(i) Ecology is asldng for adoption of API 650 Annex E without a clear definition of seismic event/forces.

(ii) Industry has seen several instances of failure in flexible bellows style piping connectors. Use of bellows style piping connectors may increase the potential spill risk for facilities.

(iii) Other methods of compliance to existing storage tanks are not feasible or prohibitively expensive (foundation driven pilings, anchored storage tanks, compliance with API 650 Annex E).

(iv) Historically, in earthquake prevalent areas, API 650 Standard tanks have not sustained damage regardless of age (earthquake standards were included in API 650 in 1978).

(v) Risks due to potential earthquakes are described in the facility risk analysis required by WAC 173-180-630. As stated previously, the risk assessment process should guide evaluation and adoption of seismic-related improvements and upgrades.

WAC 173-180-630/650 (Class 1 facility-Prevention plan content requirements, Prevention plan review and approval process)

Concerns with the plan preparation and plan content requirements for Prevention Plans, including secondary containment permeability and facility spill risk analysis criteria are described below:

(i) The new WAC 173-180-630(10)(g) states that each plan must describe spill prevention technology currently installed and in use, including; "Secondary containment, capacity, permeability, and material design. Permeability must meet requirements in WAC 173- 180- 320(1)(e)." The proposed language however does not contain any specific numerical reference to permeability, or criteria outlining acceptable limits or benchmarks.

(ii) Ecology should grant sufficient time after the rule goes into effect for facilities to make permeability measurements. A credible sampling plan to measure permeability data will need time, resources and planning given the presence of utilities/pipelines present in tank farms. For facilities with plan updates coinciding with final period of rulemaking, Ecology should grant additional time to complete permeability measurements that comply with final rule language and guidance on sampling requirements. The permeability evaluation should take into account other factors beyond the soil permeability measurement such as response time and capabilities of a facility to recover a spill, the viscosity of oil that spilled, depth of water table and location of surface water relative to spill area etc, all of which could reduce risk of hydrocarbon infiltration to ground or surface water.

(iii) For facilities that have an SPCC or OSP plan update that coincide with period of rulemaking, Ecology should grant additional time to submit spill risk analysis so as to conform with requirements in the final rule language.

(iv) Related to plan review and approval process, it is unclear why the prevention plan submission date has been changed to 120 days from the current submission requirement of 65 days. However, the provision that the facility may request Ecology review the plan currently on file at Ecology is helpful and appreciated.

If you have any questions regarding our comments, please contact Dr. Gautam Kini at gautam.kini@HFSinclair.com

Sincerely

Aaron Valrid

Environmental Manager, HSSE Department,

HF Sinclair Puget Sound Refining LLC

8505 S. Texas Rd, Anacortes WA 98221

Comment B-3-1

U.S. Oil & Refining Co.

March 2, 2023

Ms. Brittany Flittner Department of Ecology
Spill Prevention, Preparedness, and Response Program
P.O. Box 47600
Olympia, WA 98504-7600

Subject: Proposal to amend Chapter 173-180 WAC and Chapter 173-184 WAC

Dear Ms. Flittner,

US Oil & Refining (USOR) appreciates the opportunity to comment on the "Proposal to amend Chapter 173-180 WAC and Chapter 173-184 WAC." that has been facilitated by the Washington Department of Ecology (DOE). Due to the complexity and capital investment requirements of the revisions to these rules USOR anticipates that significant time and resources will be required to understand and comply with the full set of interrelated impacts that will result from the proposed changes to these rules. USOR formally requests that DOE provide clarification on several items, as well as completing a more thorough due diligence review on how these rules economically impact Class 1 facilities like USOR in Tacoma.

Changes or Additions To:

WAC 173-180-320 Secondary containment requirements for storage tanks
Addition of: (1)(c) Constructed to prevent any discharge from a primary containment system (e.g., tank) from escaping the secondary containment system before cleanup occurs;

USOR Comments on Changes to WAC 173-180-320 (1)(c) –

1.) No analysis was completed by the DOE in their Preliminary Regulatory Analyses (Dated January 2023 – Publication 23-08-001) on the direct costs of having to replace or make significant changes to large secondary containment systems currently in place at several Class 1 facilities in response to the addition of WAC 173-180-320 (1)(c). The costs to comply with the proposed changes could range over $20 million dollars per facility and take several years to complete. Some rudimentary labor analysis was done by DOE on the costs and effects of permeability studies on secondary containment systems, but no analysis or due diligence was completed on the costs or resources needed to ensure that all secondary containment systems can comply with WAC 170-180-320. Therefore, DOE has not performed the required due diligence to make a sound decision in relation to this regulatory change and how it will ultimately affect Class 1 facilities and the real world economic feasibility of these changes.

2.) Changes to WAC 173-180-320 places USOR at a significant economic disadvantage to its peers in Washington that have larger capital expense budgets or are located in areas that have native soil types that are more conducive to containment of different types of petroleum. Since Class 1 facilities in Washington can vary widely in size, precipitation, and soil type, a "one size fits all" approach to secondary containment issues may cause more burdens for some facilities then others in many respects.

3.) The timeline to comply with these changes to section 173-180-320 has not been completely and thoroughly addressed by DOE. If any secondary containment systems are found to be non-compliant with the proposed changes to section 173-180-320, the resulting secondary containment upgrades could take years to complete and bring into compliance. DOE needs to provide guidance on implementation of rule changes and provide a grace period so that facilities have a realistic timeline to complete these secondary containment changes or upgrades.

4.) DOE has not adequately taken into account the higher amount of precipitation in some parts of Washington lends itself to oil spill response clean-ups in secondary containment areas, where petroleum floats on stormwater water inside of secondary containment systems and delays direct contact and penetration into soil containment systems. This delayed penetration of petroleum spills by storm water, allows more time for spill clean-up and would affect the permeability (k) factor in many situations.

5.) One tactic for responding to a large oil spill response of lighter hydrocarbons in a secondary containment is to quickly add manageable amounts of water to the spill in the secondary containment area. This method of response quickly helps to avoid ground penetration of the secondary containment structure. Some of these quick response actions would negate the concern of fast ground penetration of lighter hydrocarbons. DOE hasn’t completely considered and analyzed how light hydrocarbon spills can be managed quickly to avoid rapid ground penetration.

6.) The nature of these regulatory changes are contradictory to the product recovery interests of oil refining sites, where oil related spills are voluntarily cleaned-up as expeditiously as possible. Refineries have a substantial fiduciary interest to clean-up, recover, and reprocess any spilled material as fast as possible in order to minimize the operational loss of any spilled petroleum inputs or products. Therefore, much of this regulation is unnecessary as all Class 1 refineries will always be fiduciarily motivated to recover as much spilled petroleum as fast as possible and then re-refine the spilled material to offset costs.

7.) These regulatory changes would be better suited as a “Performance Based Rule” where Class 1 facilities are penalized for not cleaning up spills in a timely manner or are found to have released petroleum to a usable aquifer. Implementing a one size fits all regulation that forces responsible operators to spend large amounts of capital and time on unnecessary upgrades is unfair. DOE should examine revising this regulation to a

"Performance Based Rule' that places the burden of meeting these additional performance requirements on poor performers.

Changes or Additions To:

WAC 173-180-630 Class 1 facility—Prevention plan content requirements.

(10) Each plan must describe spill prevention technology currently installed and in use, including:
(g) Secondary containment, including capacity, permeability, and material design. Permeability must meet requirements in WAC 173-180-320(1)(e).
When reviewing these requirements for approval, ecology will evaluate the requirements in this subsection (10)(g)(i) through (vi) and the facility's ability to respond to an oil discharge from primary containment. The description of permeability for each secondary containment system must include the following:
(i) Type of oil stored;
(ii) A calculation of a discharge of the worst case spill volume for each system;
(iii) Type of soil media or material used;
(iv) Depth to tank footing;
(v) Depth and distance to waters of the state; and
(vi) A calculation of the time in which the oil reaches the tank footing or waters of the state.

USOR Comments on Changes to WAC 173-180-630 (10)(g)-

1.) DOE Regulatory Analysis of WAC 173-180-630 revisions - *"If this analysis identifies needed changes to secondary containment permeability, a facility may incur additional costs. These costs would vary, depending on the identified needs. If no such changes are identified, no additional costs would be incurred."*
DOE's regulatory analysis conducted a light labor review on the costs and effects of permeability studies on secondary containment systems, but no analysis or due diligence was completed on the costs or resources needed to ensure that all secondary containment systems can comply with the permeability requirements of WAC 170-180-630 based on any findings from permeability studies. Therefore, DOE has not performed the required due diligence to make a sound decision in relation to this regulatory change and how it will ultimately affect Class 1 facilities and has failed to outline the real world economic feasibility of these changes.

1.) DOE added WAC 173-180-630 "(g) Secondary containment, including capacity, permeability, and material design Permeability must meet requirements in WAC 173-180- 320(1)(e)." DOE fails to identify what permeability value is acceptable or what value represents non-compliance with the rule. DOE also fails to define what constitutes a ground penetration release from secondary containment if high permeability is a contributing factor. Is any penetration of a soil containment system a violation of this rule or is a release of material to ground water before the spill can be completely cleaned up the deciding factor of compliance? DOE needs to be more specific on what permeability (K) value is compliant for secondary containment systems.

2.) The timeline to comply with changes to section 173-180-630 has not been completely and thoroughly addressed by DOE. If any secondary containment systems are found to be non- compliant with the proposed changes to section 173-180-630, the resulting secondary containment upgrades could cost millions of dollars and take years to complete and bring into compliance. DOE needs to provide guidance on implementation or provide a grace period so that facilities have a realistic timeline to complete these required changes or upgrades.

Changes or Additions To:

WAC 173-180-630 Class 1 facility—Prevention plan content requirements.

173-180-630 (13) Each plan must include a detailed and comprehensive risk analysis of facility's risk of spills to waters of the state. As part of the risk analysis, a formal process must be used to evaluate the facility based on the information required in subsections (9) through (12) of this section, the requirements in WAC 173-180-330(4), and other relevant information.

USOR Comments on Changes to WAC 173-180-630 (13)-

1.) The proposed rule does not contain any specific numerical reference to permeability, or criteria outlining acceptable limits or benchmarks. The impetus is put on the ability of the owner/operator to demonstrate their combined ability to respond to a spill using all aspects – including existing physical conditions, response time, available equipment, transfer pumping, etc. This is made clear in newly revised section 173-180-630(13) – Facility Spill Risk Analysis Criteria.

USOR thanks you for the opportunity to provide the Washington Department of Ecology with insights and comments on this proposed rule, and we look forward to constructive engagement as the rulemaking process proceeds. In the meantime, please do not hesitate to contact me with any questions or if we can provide any additional information that would assist The Department of Ecology in its deliberations.

Sincerely,

Daniel Bourne, CHMM
Senior Environmental Engineer
U.S. Oil & Refining Co. Phone: 253-617-7742
Email: dbourne@parpacific.com

Cc: AJT, TJG, MHH
F:/grp/eh&s/documents/dnb/dnb23003.docx

3001 Marshall Ave., Tacoma WA 98421-0116
Telephone (253) 383-1651 • Facsimile (253) 383-9970

Comment B-4-1

ROUNDTABLE™
ENGINEERING SOLUTIONS

March 3, 2023

Attn: Brittany Flittner
Department of Ecology
Spill Prevention, Preparedness, and Response Program
PO Box 47600, Olympia, WA 98504-7600

Re: Public Comments for Proposed Rules Related to Chapter 173-180 WAC issued on January 4, 2023.

Introduction:

The purpose of this letter is to provide public comments for proposed rules related to Chapter 173-180 WAC issued on January 4, 2023. Our comments will be focusing on seismic protection and retrofit measures for storage tanks and transfer pipelines.

Proposed Rules:

Proposed Rules for Existing Storage Tanks – 173-180

The proposed rule would add seismic protection requirements for storage tanks at Class 1 facilities. It would require tanks installed before the effective date of the proposed rule to install and maintain one or more of the following:
• Flexible mechanical devices between tanks and pipe connections.
• Foundation driven pilings.
• Anchored storage tanks.
• Another equally protective measure approved by Ecology

Proposed Rules for Existing Transfer Pipelines – 173-180

The proposed rule would add seismic protection requirements for transfer pipelines at Class 1 facilities. It would require pipelines installed before the effective date of the proposed rule to install and maintain one or more of the following:
• Flexible mechanical devices between tanks and pipe connections.
• Flexible mechanical devices between pipe connections.
• Pipeline supports that protect against seismic motion.
• Automatic isolation shutoff valves triggered by seismic events.
• Another equally protective measure approved by Ecology.

Comments on Rules:

Roundtable Engineering would like to provide comments on the above proposed rules on seismic protection and retrofit measures for storage tanks and transfer pipelines. It is our opinion that the proposed rules do not effectively address seismic protection of storage tanks and transfer pipelines. Instead of focusing only on retrofitting certain parts of the tank system, the rules should be written to focus on a comprehensive seismic evaluation of storage tanks and their transfer pipelines. There are many components beyond the scope of the proposed rules that can be adversely affected by earthquakes which require a robust seismic analysis to determine whether tank and transfer piping are fit-for- continued-service. Without proper analysis, the proposed rules may not provide the safety intended. We would like to propose the following:

Analysis of Existing Storage Tanks:

The proposed rule would add seismic protection requirements for storage tanks at Class 1 facilities. It would require tanks installed before the effective date of the proposed rule to perform a seismic evaluation based on following:

1. Perform seismic evaluation in accordance with API 650, API 653, and ASCE 7-22. If the evaluation above shows that the entire tank and the piping connection is adequate, then no further evaluation or retrofit is required and tank & piping connections are deemed to be fit-for-service.

2. Perform rigorous non-linear response history analysis using finite element analysis (FEA). FEA should incorporate fluid structure interaction to verify the current tank structural integrity. This analysis must be performed by a professional engineer with extensive experience in storage tank design and the proper use of FEA. If the evaluation shows that the entire tank and the piping connection is adequate in its current condition, then no further evaluation is required, and the tank & piping connections are deemed to be fit-for-service.

3. If the evaluation above shows structural deficiencies, modifications will be required. Modifications include changes in operating conditions and retrofits of the storage tank. Additional seismic evaluations should be performed on the modified storage tank in accordance with API 650 or rigorous non-linear FEA evaluations. Modifications should be approved by a professional engineer with extensive experience in storage tank design.

4. Modifications may include one or more of the following:
    a. Lower maximum design liquid level.
    b. Install new double bottom.
    c. Install new bottom annular ring.
    d. Install new anchorage.
    e. Install new or retrofit existing foundation.
    f. Install flexible mechanical devices between tanks and pipe connections.
    g. Modify existing piping system to provide needed flexibility to resist seismic forces and displacements.

Analysis of Existing Transfer Piping:

1. Perform a seismic evaluation in accordance ASCE 7-22 and ASME B31.3 for the transfer piping system. The analysis should focus on the strength and flexibility of the piping system, especially at the tank to piping connection. If the evaluation shows the piping system is adequate, then no further analysis is required, and the piping is deemed to be fit-for-service.

2. If the evaluation above shows deficiencies for the current seismic demand, modifications will be required. Modifications include changes in operating conditions and retrofits of transfer piping. Additional seismic evaluations should be performed on the modified transfer piping.

3. Modifications may include one or more of the following:
    a. Install flexible mechanical devices between tanks and pipe connections.
    b. Modify existing piping system to provide needed flexibility to resist seismic forces and displacements.
    c. Install new or retrofit existing piping supports.

Note: Tank modifications may impact the flexibility requirements for the piping system.

Closing:

Roundtable Engineering appreciates the opportunity to provide these public comments. Please contact us if you need further information.

Best regards,

KahKan Chan

KahKan Chan, P.E., API 653
COO/EVP
Roundtable Engineering Solutions
(918)260-0856
chan@rtesglobal.com

Brian Lewis

Brian Lewis, P.E., S.E.
President
Roundtable Engineering Solutions

Roundtable Engineering Solutions, LLC
2155 Reliable Circle
Colorado Springs, CO 80906

Comment O-5-1

WSPA
Jim Verburg
Senior Director, NW and SW Climate and Fuels

March 4, 2023

Sent via upload to: https://sppr.ecology.commentinput.com/?id=6Mx2s

Ms. Brittany Flittner
Department of Ecology
Spill Prevention, Preparedness, and Response Program
P.O. Box 47600
Olympia, WA 98504-7600

Re: WSPA Comments on CR-102 for WAC 173-180 and WAC 173-184 Amendments

Dear Ms. Flittner,

Western States Petroleum Association (WSPA) appreciates the opportunity to comment on the Washington State Department of Ecology (Ecology) proposed rulemaking (CR-102) for amendments to WAC 173-180 (oil spill prevention and oil transfer requirements for regulated oil handling facilities) and WAC 173-184 (oil transfer requirements for vessels delivering oil in bulk on or over waters of the state). WSPA is a trade association that represents companies which provide diverse sources of transportation energy throughout the west, including Washington. This includes the transporting and marketing of petroleum, petroleum products, natural gas, and other energy supplies.

Ecology has published draft rule language for WAC 173-180 and WAC 173-184. WSPA appreciates the stakeholder input process employed by Ecology during the CR-101 phase of the rulemaking for example the removal at our request of certain process safety management (PSM) elements from the spills analysis portion of the draft WAC 173-184 rules that were not fit for purpose.

This letter addresses WSPA's remaining concerns with the draft rule language. In general, we request that Ecology change its approach in several sections to ensure that the amended regulations are appropriately tailored to achieve Ecology's objective of reducing spill risk while avoiding unreasonable requirements that create a burden on the regulated entities that is disproportionate to the risk and impact Ecology seeks to address.[3]

General Comments

Need for Detailed Cost Analysis. It is concerning that no analysis was provided in the Preliminary Regulatory Analyses (dated January 2023 – Publication 23-08-001) regarding the direct costs of replacing or making significant changes to large secondary containment systems

[3] *See, e.g., Nollan v. Cal. Coastal Comm'n*, 483 U.S 825 (1987); *Dolan v. City of Tigard*, 512 U.S. 374 (1994); *Chong Yim v. City of Seattle*, 194 Wn. 2d 651, 684, 451 P.3d 675 (2019); (Washington adopts federal standard for takings).

already in place at Tier 1 facilities pursuant to proposed WAC 173-180-320(1)(c). In addition, Ecology staff indicated during CR-101 consultation meetings and workshops that a detailed cost analysis of proposed WAC 173-180-330 control measures to be installed at existing Tier 1 facilities would not be performed by the agency. A range of potential costs of implementing the proposed rule for storage tanks and transfer piping (using "standardized cost estimates") are presented in Ecology's Preliminary Regulatory Analyses (PRA), dated January 2023.[4] As shown in Ecology's PRA, the costs to comply with the proposed rule changes could be significant which re-enforces that need for a detailed cost (and operability) analysis.

In order to further inform Ecology further of the potential cost and operational limitations of this rulemaking, WSPA has retained an independent third-party contractor, Turner Mason, to conduct a cost and operability analysis focused on the proposed requirements of WAC 173-180-330 (Turner Mason Report). This independent, third-party assessment is provided in Attachment A to this comment letter.[5] The Turner Mason Report found that the costs for retrofits to existing tank systems can widely range with potential expenditures approaching $100 million for just WSPA-member company facilities. While the independent Turner Mason Report is a robust analysis, it is important to note that it does not consider all associated operational costs of retrofits. Other key findings from the Turner Mason cost and operability assessment include:

- A significant amount of the cost for seismic-related upgrades is associated with smaller sized tanks (despite smaller potential spill volumes).

- Bellows-style connections (with continued expansion, retraction, and vibration) are not expected to last as long as hard pipe (i.e., require replacement) with additional inspection and maintenance needed to manage these piping connections.

Note that the additional costs associated with piling foundations, piping retrofits, out-of-service tank usage during retrofits, and loss of capacity from short-cycling or reducing tank fill height operating levels were not considered in the Turner Mason Report due to the wide-range of tank and facility designs. These additional costs must be taken into account by Ecology.

Risk Analyses Should Precede Control Measures. As the proposed amendments are written, a facility would be required to complete spill risk analysis (under WAC 173-180-630(13)) pursuant to an expanded formal process. However, Ecology's amendments to the rules appear to require modifications to existing facilities to address seismic risk without reference to, and potentially in advance of, the risk analysis. WAC 173-180-330 and 173-180-340. Facilities must be able to assess current seismic status and the full scope of any equipment and operational changes through completion of a risk analysis in order to properly determine the effective and safe installation of any seismic-related tank, pipe, and/or containment system modifications/upgrades, or if the system currently meets seismic event criteria. As noted in the Turner Mason Report regarding operability:

- Flexible piping may not be as reliable as the existing hard piping and may be more prone to leakage.

[4] Washington State Department of Ecology. "Preliminary Regulatory Analyses: Chapter 173-180 WAC and Chapter 173- 184 WAC", Publication 23-08-001. January 2023.
[5] Turner Mason & Company. "Refining Industry Economic Impact Assessment Washington State Amendment to WAC Chapter 173-180, 184", February 16, 2023.

- Control measures identified in the proposed WAC 173-180-330 and WAC 173-180-340 may not be appropriate for certain tanks and piping (i.e., one size does not fit all).

Given the importance of the risk analysis in informing operators as to the most appropriate and safe control measures, WSPA requests that the proposed rule language clearly addresses the role of the risk analysis process in determining the need for additional control measures. The oil spill risk assessment should be completed before seismic control modifications are prescribed to ensure that the regulatory burden is tailored to and not disproportionate to the risk and impact Ecology seeks to address.[6]

Timeline Inadequate. The timeline to comply with the proposed changes to WAC 173-180 has not been completely and thoroughly addressed by Ecology. For example, containment and/or control system modifications pursuant to the proposed changes to WAC 173-180-320 and WAC 173-180- 330 could take up to a decade or more to complete. Ecology needs to provide stakeholders with guidance on implementation of rule changes and provide a grace period so that facilities have a realistic timeline to complete these secondary containment changes or upgrades. For plans, tanks, piping due for inspections or updates soon after the rule effective date, no time is available for front- end risk analysis, engineering and project definition and project approval cycles. Furthermore, Ecology should provide facilities with sufficient time after rules go into effect to complete requirements related to secondary containment permeability measurements, seismic/hydrostatic calculations, and spill risk analysis in updating Spill Prevention Plans.

Specific Comments

WAC 173-180-221 Rate A Prebooming. In certain inlet/bay areas, the rapidly changing conditions, in conjunction with high currents often present in these environments have made prebooming difficult. Regulatory agency acceptance of alternatives to prebooming, places have routinely been considered acceptable in these situations to limit the additional operational logistical complexity and risk at facilities located in these outlying areas along tidally affected rivers. It appears that proposed regulatory language would require frequent tending by boat crews and undermine the use of alternatives. This increased frequency of on-water crew interaction at all hours, as required in proposed WAC 173-180-221 (5) would result in an increased risk of personal injury, thereby violating the safe aspect of the safe and effective requirements for prebooming. WSPA requests that include in the proposed regulatory language the historic flexibility to use alternatives to prebooming that account for rapidly changing conditions of inlet and bay areas.

WAC 173-180-320(1)(c) Secondary Containment Requirements. The addition of new WAC 173- 180-320(1)(c) appears to serve the same purpose of existing WAC 173-180-320(1)(a). The addition of WAC 173-180-320(1)(c) makes WAC 173-180-320(1)(a) redundant and potentially confusing to regulated parties. WSPA suggests that new WAC 173-180-320(1)(c) be integrated into or replace WAC 173-180-320(1)(a).

WAC 173-180-320(9)(b) Secondary Containment Requirements. The proposed WAC 173-180-320(9)(b) states that *"secondary containment systems must be designed to withstand*

[6] *See, e.g., Nollan v. Cal. Coastal Comm'n*, 483 U.S 825 (1987); *Dolan v. City of Tigard*, 512 U.S. 374 (1994); *Chong Yim v. City of Seattle*, 194 Wn. 2d 651, 684, 451 P.3d 675 (2019); (Washington adopts federal standard for takings).

seismic forces." However, the term *"seismic forces"* is not adequately defined in the rule, nor are the related terms "seismic events" and "seismic motion" defined. For example, it is not clear what Richter Scale earthquake or magnitude of Tsunami is considered significant by Ecology to require API 650 Annex E adoption. By their own terms, the standards in Annex E are only required for tank construction if specified by the purchaser. By contrast, the proposed regulations require adoption of Annex E without a clear definition of seismic event/forces). WSPA requests that the terms *"seismic forces", "seismic events" and "seismic motions"* be defined further in this subsection or in WAC 173-180-025 (Definitions).

WAC 173-180-330(2) Storage Tank Requirements. Ecology's proposed seismic requirements impose a potentially significant burden on existing operations without adequately recognizing that many storage tanks may already be designed to a standard that is sufficient to address seismic risk (API 650 Annex E). Additionally, any required modifications appear to be imposed independent from the risk assessment required by the rules that would inform the nature of the modifications that would meet Ecology's stated goal. Accordingly, to recognize that existing tanks may not require modifications because they were built to API 650 Annex E or meet the requirements of API 650 Annex E or other seismic risk and additional risk mitigation methods, WSPA suggests that the proposed subsection (2) language below amended as follows:

> *"(2) Storage tanks constructed before the effective date of this rule must either: demonstrate to Ecology that the storage tank is designed in accordance with and satisfies the performance goal of the seismic design requirements of API Standard 650 (2020), including Annex E and section E.7.3 Piping Flexibility; or, modify the existing tanks and piping system to include protective measures that are designed, installed, and maintained to reduce risk from seismic events. Acceptable system modification designs should be identified as part of the risk analysis required by WAC 173-180-630(13) and and that include one or more of the following:*
>
> *(a) Flexible mechanical device(s) between storage tank and piping or sufficient piping flexibility to protect the tank and pipe connection and prevent the release of product;*
>
> *(b) Foundation driven pilings;*
>
> *(c) Anchored storage tanks; or*
>
> *(d) Another seismic protection measure proposed by the facility and approved by ecology, as long as such protection measure equals or exceeds those required in this section. This may include demonstrating the storage tank meets API Standard 650 (2020) seismic design requirements, including Annex E and section E.7.3 Piping Flexibility."*

WAC 173-180-330(6) Storage Tank Requirements. To include the industry standard for inspecting horizontal tanks, the following addition to this subsection is recommended:

> *"(6) Storage tanks must be maintained, repaired, and inspected in accordance with the requirements of API Standard 653 ((dated January 1991)) (2014 with Addendum 1 (2018) and 2 (2020)), or Steel Tank Institute SP001 5th edition September 2011, unless the operator proposes an equivalent inspection strategy which is approved by ecology. (((4) A record of all inspection results and corrective actions taken must be kept for the*

service life of the tank and must be available to ecology for inspection and copying upon request.))"

WAC 173-180-630(10)(g) Class 1 Facility Prevention Plan Content Requirements. New WAC 173-180-630(10)(g) states that each plan must describe spill prevention technology currently installed and in use, including; *"Secondary containment, including capacity, permeability, and material design Permeability must meet requirements in WAC 173-180-320(1)(e)."* The proposed language does not contain any specific numerical reference to permeability, criteria outlining acceptable limits or benchmarks, or consideration of variable permeability factors. As a result, the impetus is put on the owner/operator to demonstrate their ability to respond to a spill using all aspects such as existing physical conditions, response time, available equipment, transfer pumping, etc.

The proposed rule also does not identify what permeability value is acceptable or what value represents non-compliance with the rule or define what constitutes a ground penetration release from secondary containment if high permeability is a contributing factor. Further, the proposed regulations do not take into account that the high amount of precipitation in Washington limits the permeability in secondary containment areas due to oil products floating on stormwater inside of secondary containment systems which delays the oil spills from directly penetrating into soil containment systems. The delayed penetration into soils of petroleum spills due to the collection of storm water in secondary containment systems allows more time for spill clean-up and would negate the permeability (k) factor in many situations. WSPA suggests that Ecology reconsider how permeability is assessed in the proposed rule.

WSPA appreciates the opportunity to provide comments on this important proposed regulation. If you have any questions regarding this submittal, please contact me at (360) 296-0692 or via email at jverburg@wspa.org.

Sincerely,

James Verburg
Senior Director, NW and SW Climate and Fuels
WSPA

Attachment A: Turner Mason & Company. "Refining Industry Economic Impact Assessment Washington State Amendment to WAC Chapter 173-180, 184", February 16, 2023

Western States Petroleum Association P.O. Box 6069, Olympia, WA 98507 360.296.0692 wspa.org

WSPA

ATTACHMENT A

ECONOMIC IMPACT ASSESSMENT OF WASHINGTON STATE PROPOSED AMENDMENT TO WAC CHAPTER 173-180, 184

Turner, Mason & Company – February 16, 2023

Western States Petroleum Association P.O. Box 6069, Olympia, WA 98507 360.296.0692 wspa.org

REFINING INDUSTRY

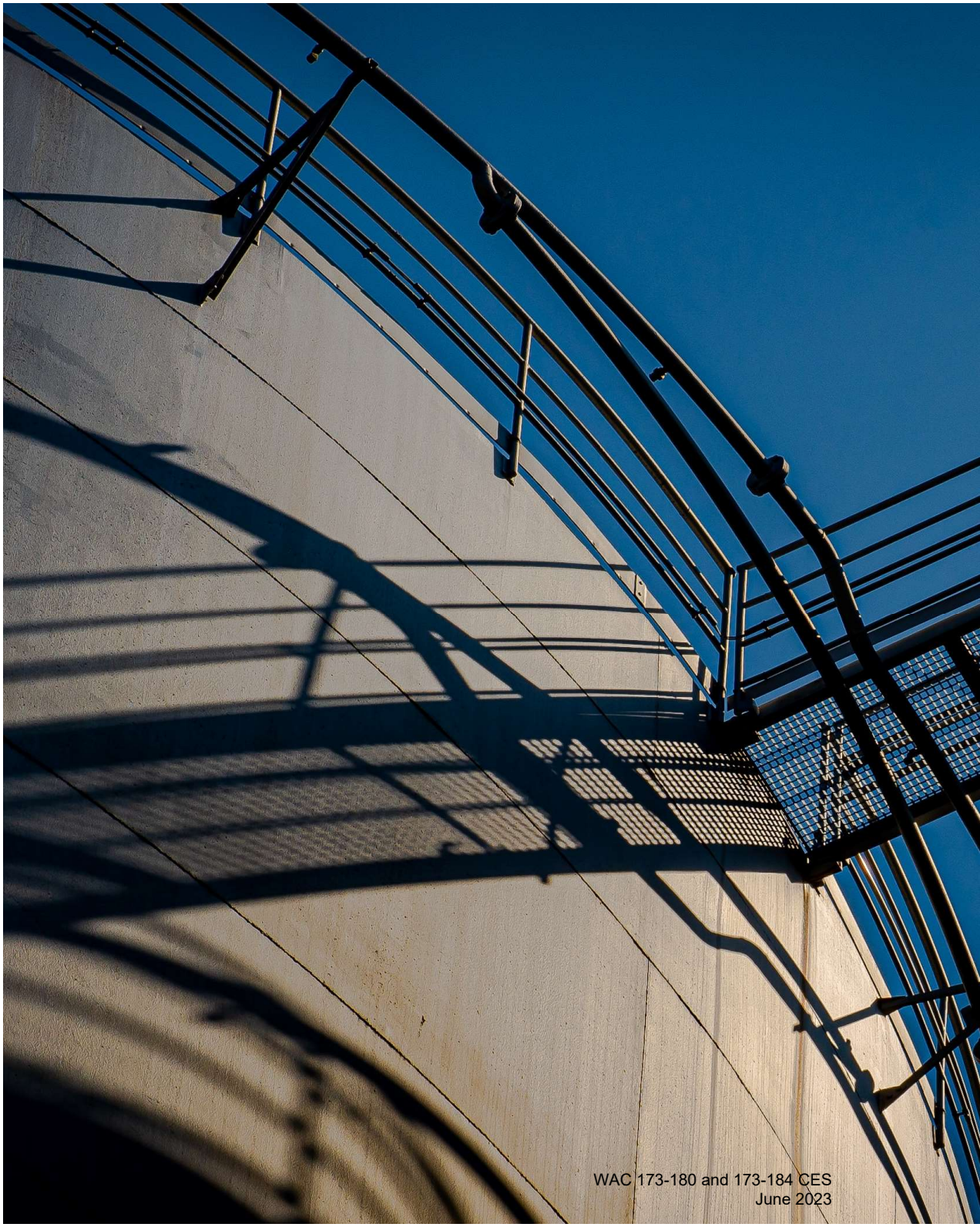
ECONOMIC IMPACT ASSESSMENT OF WASHINGTON STATE PROPOSED AMENDMENT TO WAC CHAPTER 173-180, 184

FEBRUARY 16, 2023

WSPA

Turner, Mason & Company
energy consulting & advisory

Publication 23-08-007
94



WAC 173-180 and 173-184 CES
June 2023

TABLE OF CONTENTS

SCOPE OF WORK:

Turner, Mason & Company (TM&C) was engaged to undertake an independent assessment of the measures which WSPA Washington refiner members currently have in place to satisfy API STD 650, Annex E and the proposed amendments to WAC Chapter 173-180 and 173-184, as well as an independent assessment of the measures which would need to be taken to reach full Annex E compliance. This assessment also factored in any incremental benefit / risk of the proposed amendments, including operability / feasibility.

APPROACH:

1. Analysis of API STD 650 Requirements
2. Survey of WSPA Washington refiner member companies
3. Networked with various Engineering Procurement and Construction (EPC) contractors, equipment vendors, and facility project teams
4. Perform API STD 650 design calculations on data provided by member facilities

EXECUTIVE SUMMARY:

TM&C expects the WAC 173-180 revisions, in their current form, to cost WSPA Washington refiner members up to an estimated $18MM combined to update existing tanks. This assumes that either tank anchoring or flexible piping would be enough to satisfy the requirements and that existing ringwalls are sufficient for seismic anchoring purposes. The total cost could be higher if additional tanks are included.

If companies were required to update existing tanks to meet Annex E, the total cost would be difficult to predict given the large amount of unknown factors. However, it could be as much as $178MM to modify the tank shells, floors, and foundations. Operational decisions could significantly reduce this amount.

SUMMARY:

- The existing tankage infrastructure is aged, with 89% of the tanks being built prior to the first implementation of WAC 173-180-330 in 1994.
- The larger-volume tanks tend to be permitted to self-anchor per Annex E.
- The cost-effectiveness between flexible piping and anchoring can vary from tank to tank.
- Some API STD 650 tanks could require significant modifications or even a rebuild to meet the more demanding loads accounted for in Annex E.

BACKGROUND

HISTORY OF API STD 650, ANNEX E

Welded Steel Tanks for Oil Storage

API STD 650

API STD 12C preceded API STD 650. The first version of API STD 12C was published in July 1936. The final version, the 15th Edition, was published in March 1958.

API STD 650 replaced API STD 12C in December 1961. The 13th Edition, the most recent version of the document, was published in March 2020.

Annex E

Annex E, which covers seismic considerations, was added to the standard in the 1979 publication (1977 Edition).

Annex E has gone under several significant revisions since its introduction. API STD 650 states that the specifications in Annex E are only required for tank construction if specified by the purchaser.

WAC CHAPTER 173-180 AND 173-184

Current Regulatory Text

173-180 Facility Oil Handling Standards

173-180-330 Storage Tank Requirements

Storage tanks constructed after the adoption date of this section must meet or exceed the 1993 version of the NFPA No. 30 requirements and one of the following . . .

(a) . . .

(b) API STD 650, Welded Steel Tanks for Oil Storage dated November 1988,

(c) . . ., or

(d) Otherwise approved by ecology . . .

173-184 Vessel Oil Transfer Advance Notice and Containment Requirements

No specific mention of API STD 650

WAC CHAPTER 173-180

Proposed Regulatory Text

173-180: Facility Oil Handling Standards

173-180-330: Storage Tank Requirements

Storage tanks constructed after ~~the adoption date of this section~~ May 1994 and before the effective date of this rule must meet or exceed the 1993 version of the NFPA No. 30 requirements and one of the following . . .

(a) . . .

(b) . . . API STD 650, Welded Steel Tanks for Oil Storage (1988) unless otherwise approved

(c) . . ., or

(d) Otherwise approved by ecology . . .

Commentary

While rule 173-180-330 was adopted in 2006, it superseded rule 173-180A-090 which became effective on June 4, 1994. Thus, this rewrite of 173-180-330 extends new rules to tanks built on June 1 – 3, 1994.

According to the data provided, we did not identify any tank construction dates which were commissioned during this three-day period.

WAC CHAPTER 173-180

Proposed Regulatory Text for Storage Tanks – 173-180-330

(2) Storage tanks **constructed before the effective date of this rule** must include protective measures that are designed, installed, and maintained to reduce risk from seismic events and that include **one or more** of the following:

(a) Flexible mechanical device(s) between storage tank and piping or sufficient piping flexibility to protect the tank and pipe connection and prevent the release of product;

(b) Foundation driven pilings;

(c) Anchored storage tanks; or

(d) Another seismic protection measure proposed by the facility and approved by ecology, as long as such protection measure equals or exceeds those required in this section. This may include demonstrating the storage tank meets API Standard 650 (2020) seismic design requirements, including Annex E and section E.7.3 Piping Flexibility.

WAC CHAPTER 173-180

Proposed Regulatory Text for Storage Tanks – 173-180-330

(3) Storage tanks **constructed after the effective date of this rule must meet the following requirements:**

(a) **Meet or exceed** the 2021 version of the NFPA No. 30 requirements **and one of the following** design and manufacturing standards:

(i) . . .

(ii) API Standard 650, Welded Steel Tanks for Oil Storage (2020);

(iii) . . .

(iv) . . .

(b) **Must be designed to meet** the following seismic design requirements:

(i) API Standard 650 (2020) seismic design requirements, including Annex E and section E.7.3 Piping Flexibility;

(ii) American Society of Civil Engineers (ASCE) 7-22 Risk Category III or IV, including Site Class A, B, C, D, E, or F based on on-site soil properties, and meet seismic design requirements under chapter 16 of the 2021 International Building Code (IBC) and WAC 51-50-1613 and 51-50-1615

WAC CHAPTER 173-180

Proposed Regulatory Text for Pipelines – 173-180-340

(3) All pipelines constructed **before the effective date of this rule** must include protective measures that are designed, installed, and maintained to reduce risk from seismic events and include **one or more** of the following, and are also installed under the provisions of chapter 57 of the 2021 International Fire Code (IFC), where applicable:

(a) Flexible mechanical device(s) between storage tank and piping or sufficient piping flexibility to protect the tank and pipe connection and prevent the release of product;

(b) Flexible mechanical device(s) or adequate pipeline flexibility between pipes;

(c) Pipeline supports that protect against seismic motion;

(d) Automatic emergency isolation shutoff valves that are triggered to close during seismic events; or

(e) Another seismic protection measure proposed by the facility and approved by ecology, as long as such protection measure equals or exceeds those required in this section.

WAC CHAPTER 173-180

Proposed Regulatory Text for Pipelines – 173-180-340

(5) Pipelines constructed **after the effective date** of this rule **must also**:

(b) Be **designed to API Standard 650 (2020), Annex E, section E.7.3 Piping Flexibility** when connected to storage tanks;

(c) Be installed under the provisions of chapter 57 of the 2021 IFC, where applicable, and **include one or more** of the following:

(i) Flexible mechanical device(s) or adequate pipeline flexibility between pipes;

(ii) Pipeline supports that protect against seismic motion;

(iii) Automatic emergency isolation shutoff valves that are triggered to close during seismic events; or

(iv) Another seismic protection measure proposed by the facility and approved by ecology, as long as such protection measure equals or exceeds those required in this section.

WAC CHAPTER 173-180

Storage Tank Definition – 173-180-025

API STD 650 defines a storage tank as containers that meet both of the following criteria:

- aboveground connected to **transfer pipelines** or any aboveground greater than 10,000 gal (238 bbl)
- used to store bulk quantities of oil (crude oil, gasoline, diesel, oil sludge, biological oils, etc.)

Specifically excluded by WAC 173-180-025:

- Tanks regulated by 90.76 RCW (underground storage tanks, now changing to say 70A.355 RCW), rolling stock, wastewater treatment equipment, process pressurized vessels or other tanks used in the process flow through portions of the facility

Member data which did not meet the above criteria was excluded from this study.

While the definition of "storage tank" did not change much, the definition of "transfer pipeline" did

WAC CHAPTER 173-180

Transfer Pipeline Definition – 173-180-025

Definition

"Transfer pipeline" is a buried or aboveground pipeline used to carry oil to or from a tank, ~~vessel or~~ transmission pipeline, or ~~to a~~ vessel, ~~and the first valve inside secondary containment at the facility~~ provided that any discharge on the facility side of ~~that~~ the first valve inside secondary containment will not directly impact waters of the state…

"Tank vessel" means a ship that is constructed or adapted to carry, or that carries, oil in bulk as cargo or cargo residue…

Commentary

By changing the definition of a transfer pipeline from a "pipeline used to carry oil to or from a tank vessel" to a "pipeline used to carry oil to or from a tank," the meaning of the sentence is changed. However, the code states "a transfer pipeline does not include process ~~pipelines~~ piping" and the definition of "process piping" clearly states that it includes tankage interconnecting piping (tank to tank). Thus having process piping still does not make a tank a storage tank.

While the net result of these definition changes may not be significant, they should be taken under consideration

CURRENT STATUS OF MEMBER FACILITIES

Publication 23-08-007
108

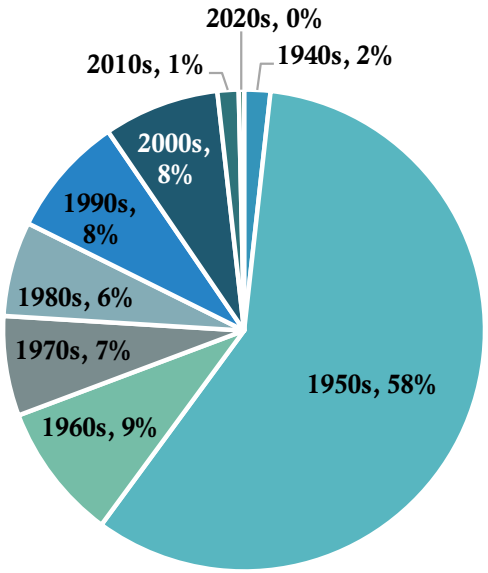
WAC 173-180 and 173-184 CES
June 2023

MEMBER FACILITY STATISTICS

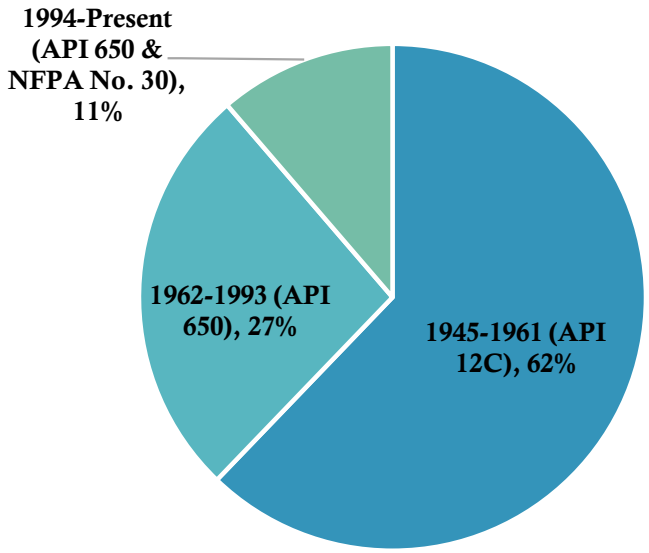
Storage Tank – Construction Year / Design Standard

Of the tank data which was submitted, 291 storage tanks would potentially be impacted by a change in the rules. Of those, 283 have a known year of construction.

Storage Tank Construction Year



Applicable Storage Tank Standard



62% of storage tanks were built on API 12C, and 89% were built prior to the implementation of WAC 173-180-330 in 1994

MEMBER FACILITY STATISTICS

Storage Tank – Construction Year / Design Standard

Of the 291 storage tanks, 25 were confirmed to have been built to Annex E.

Many facilities have already resorted to building tanks in recent years to Annex E, with some making Annex E the standard for new tanks

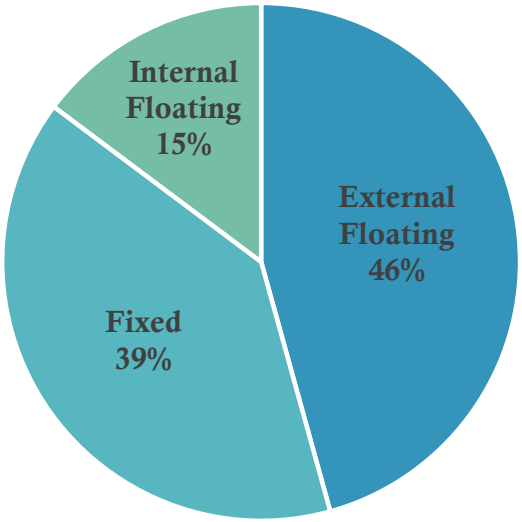
99 of the tanks listed in the data submitted lacked adequate information to determine whether or not this study was applicable. These tanks were excluded from the assessment.

MEMBER FACILITY STATISTICS

Storage Tank – Roof / Foundation Designs

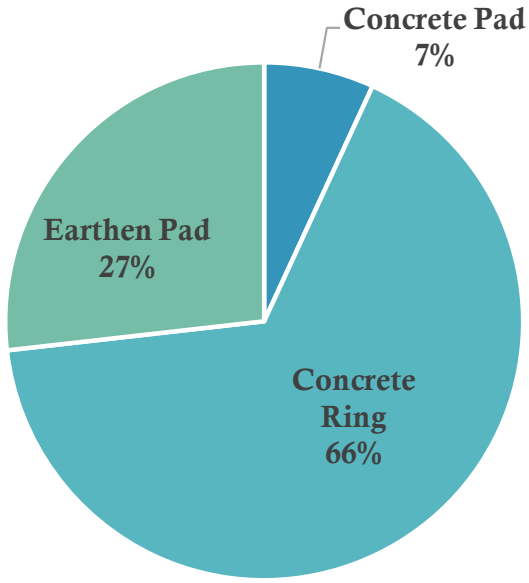
Roofs

An estimated 40% of the tanks have a fixed roof, 15% have internal floating, and 45% have an external floating roof.



Foundations

It's estimated that 73% of the member tanks covered under this regulation have a concrete pad or a concrete ringwall. About 18% of those tanks are mechanically-anchored, making 13% overall.



MEMBER FACILITY STATISTICS

Storage Tank – Anchorage Description

Tanks are either mechanically anchored or self-anchored. Mechanical anchors consist primarily of bolts or straps that attach the tank to concrete to hold it in place.

Self-anchored tanks have no anchor, but are instead held in-place by the weight of the tank and product.

Annex E explains how to calculate an Anchorage Ratio to determine whether or not a tank needs to be mechanically-anchored to comply with Annex E:

Table E.6—Anchorage Ratio Criteria

Anchorage Ratio J	Criteria
$J \leq 0.785$	No calculated uplift under the design seismic overturning moment. The tank is self-anchored.
$0.785 < J \leq 1.54$	Tank is uplifting, but the tank is stable for the design load providing the shell compression requirements are satisfied. Tank is self-anchored.
$J > 1.54$	Tank is not stable and cannot be self-anchored for the design load. Modify the annular ring if $L < 0.035D$ is not controlling or add mechanical anchorage.

MEMBER FACILITY TANK GROUPS

Grouping Methodology and Observations

In order to provide consistent costing, the tanks were grouped by volume with other like tanks. They were then further divided by foundation type, resulting in the formation of 14 tank groups.

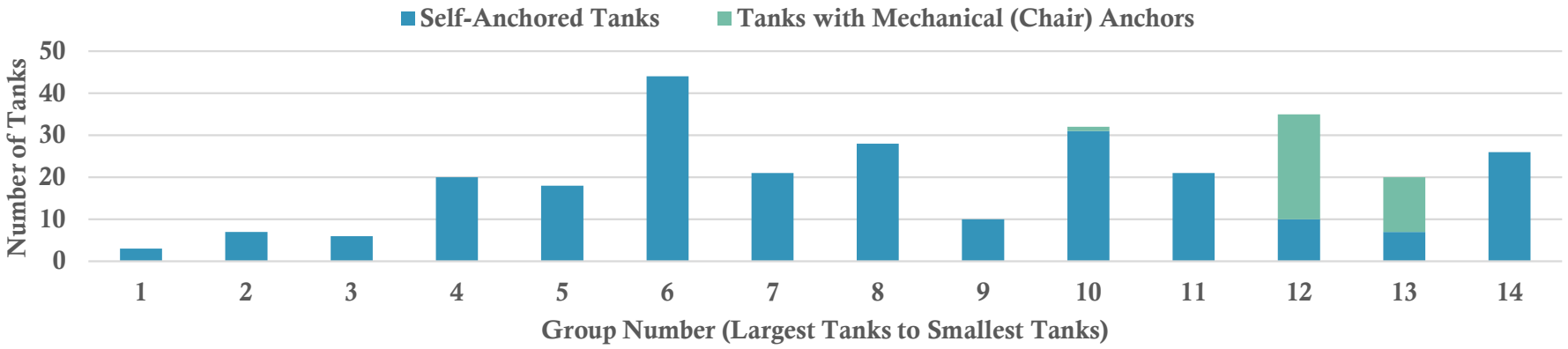
Tanks that did not have an assigned roof type, foundation type, or anchor method were categorized based on key data and the ratios of the known tanks.

After group formation, the number of mechanically-anchored and self-anchored tanks were counted.

MEMBER FACILITY TANK GROUPS

Combined Tank Information								
Group	Shell Capacity (bbl)	Tank Height (ft)	Tank Diameter (ft)	Year Constructed	Roof Type	Foundation Type	Self-Anchored Tanks	Mechanically-Anchored
1	600,000-705,000	64	260-280	1970s	External Floating	Concrete Ring	2 (1)	0
2	295,000-350,000	48-60	190-210	1970s-Present	External Floating	Concrete Ring	6 (1)	0
3	200,000-250,000	42-53	166-200	1950s-1990s	External Floating	Concrete Ring	6	0
4	150,000-200,000	40-60	140-180	1950s-1990s	External Floating, Internal Floating, & Fixed	Concrete Ring	20	0
5	100,000-150,000	40-56	120-160	1950s-1990s	External Floating, Internal Floating, & Fixed	Concrete Ring	10 (8)	0
6	75,000-100,000	38-48	118-130	1950s-1990s	External Floating, Internal Floating, & Fixed	Concrete Ring	35 (9)	0
7	75,000-100,000	38-48	118-130	1950s-1990s	External Floating, Internal Floating, & Fixed	Earthen Pad	17 (4)	0
8	35,000-65,000	39-48	78-104	1940s-1960s	External Floating, Internal Floating, & Fixed	Concrete Ring	23 (5)	0
9	35,000-65,000	40	80-107	1940s-1950s	External Floating, Internal Floating, & Fixed	Earthen Pad	8 (2)	0
10	20,000-30,000	40-50	60-73	1950s-2000s	External Floating, Internal Floating, & Fixed	Concrete Ring	24 (7)	1
11	15,000-30,000	32-43	52-73	1940s-1990s	External Floating, Internal Floating, & Fixed	Earthen Pad	17 (4)	0
12	238-15,000	12-46	10-46	1950s-2010s	External Floating, Internal Floating, & Fixed	Concrete Ring	6 (4)	25
13	238-4,000	14-35	10-35	1950s-2000s	Fixed	Concrete Pad	6 (1)	13
14	238-4,000	14-35	10-35	1950s-2000s	Fixed	Earthen Pad	24 (2)	0

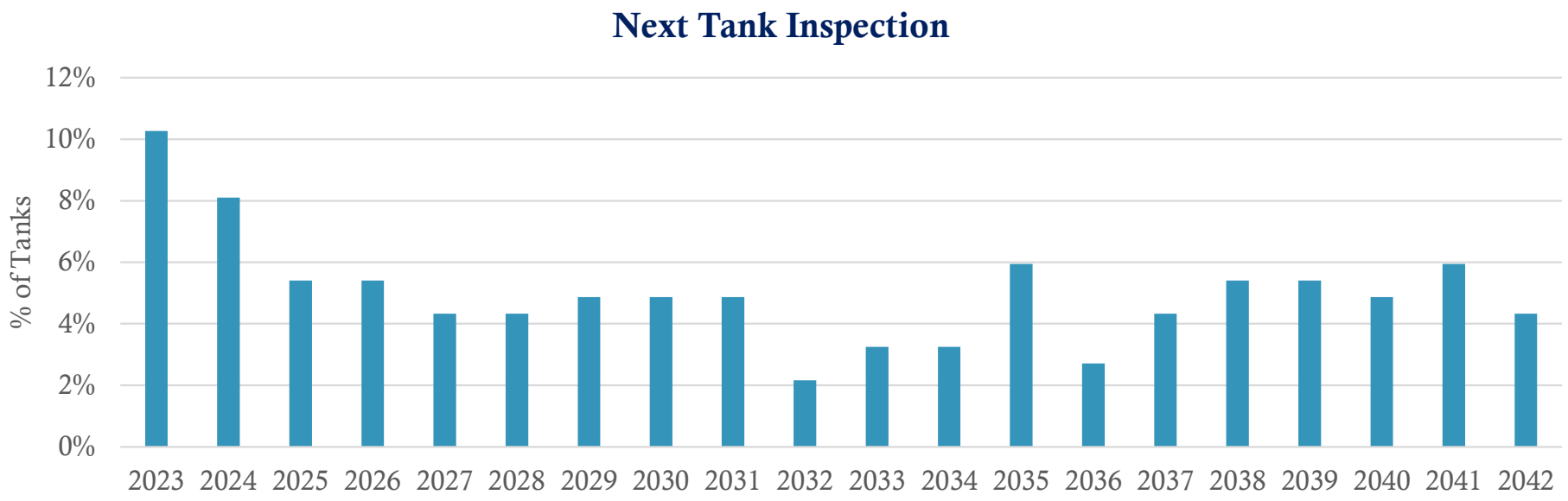
*Tanks in parenthesis don't have a known foundation type. They were categorized according to the ratios of the known tanks.



COMPLIANCE SCHEDULE

Future Tank Inspections

The tank inspection schedule is an important consideration in the timeline of any compliance implementation schedule.



55% of tanks are due for an inspection in the next 10 years, with 45% due in the following 10 years

COMPLIANCE SCHEDULE

WAC 173-180-080

Storage Tanks

Within 10 years from rule effective date or by the next scheduled internal API Standard 653 (2014 with Addendum 1 (2018) and 2 (2020)) inspection, whichever is later, any Class 1 facility storage tank constructed before the effective date of this rule must meet seismic protection measures in WAC 173-180-330.

Transfer Pipelines

Within 10 years from rule effective date or by the next scheduled API Standard 570 (2016 with Addendum 1 (2017) and 2 (2018), and Errata 1 (2018)) inspection, whichever is later, any Class 1 facility transfer pipeline constructed before the effective date of this rule must meet seismic protection measures in WAC 173-180-340.

WAC 173-180-080, allows tanks to reach compliance according to their inspection schedule. We do, however, recommend updating the wording to ensure that the 10-year period is from the effective date of the new changes to WAC 173-180-330 and WAC 173-180-340, rather than the effective date of WAC 173-180-080.

ECONOMIC IMPACT ASSESSMENT

Publication 23-08-007
117

WAC 173-180 and

ECONOMIC IMPACT ASSESSMENT

Calculation Methodology – API STD 650, Annex E

Tank data was received with varying levels of completeness. The data was compiled together, and any incomplete data was populated using engineering judgement based on similar tank data and industry best practices.

API STD 650 calculations, including Annex E calculations, were made on each tank. These calculations provided direction on whether the tanks needed to be mechanically-anchored and how many anchors to use, whether the tank design was sufficient for the hoop stresses, and the adequacy of the shell thickness.

Compliance costs were calculated for each individual tank based on the Annex E calculation results.

The cost analysis in this document excludes certain aspects mentioned in this document. The high case and low case are not meant to set the extreme limits of the total cost, but rather to identify the range of likely scenarios.

ECONOMIC IMPACT ASSESSMENT

Key Assumptions

The following are key assumptions that were made for this analysis:

- Unless otherwise stated, facilities were assumed to be in SUG I with Site Classification D
- Tank shells were calculated at a single thickness vertically. This impacts the weight of the tank, the ringwall moment, and other variables
- Assumptions were made on roof weights and centers of gravity
- Where data was missing, tanks were assigned a foundation type, roof type, material stored, and anchor type based on available data from other tanks
- An anchor bolt diameter of 1.5" was used for these calculations. Changing this number will affect the number of anchors to be installed
- Inspection costs, construction mobilization and demobilization, and equipment rental costs were excluded from this analysis
- Existing ringwalls were assumed to be sufficient for seismic anchoring purposes. If not, this could have a significant impact on the estimated cost

ECONOMIC IMPACT ASSESSMENT

Key Assumptions

Annex E states that "where the soil properties are not known in sufficient detail to determine the site class, **Site Class D shall be assumed** unless the authority having jurisdiction determines that Site Class E or F should apply at the site."

The Seismic Use Group (SUG) is based on tank's need, the risk of the tank to public health and the presence of secondary controls. Per Annex E, **"if it is not specified, the SUG shall be assigned to be SUG I."** The SUG can have a significant impact on the loads the tank must be designed to withstand.

Site Class	Description
A	Hard rock
B	Rock
C	Very dense soil and soft rock
D	Stiff soil
E	Soft soil or soft clay
F	Soils requiring site-specific evaluations

Table E.5—Importance Factor (*I*) and Seismic Use Group Classification

Seismic Use Group	*I*
I	1.0
II	1.25
III	1.5

ECONOMIC IMPACT ASSESSMENT

Tank Anchors, Unit Cost

API STD 650 5.12 covers tank anchors. A mechanically anchored tank must have at least 4 anchors with maximum spacing of 10 ft.

E.6.2.1 Self-anchored tanks are permitted if Anchorage Ratio J ≤ 1.54, providing shell compression requirements are met.

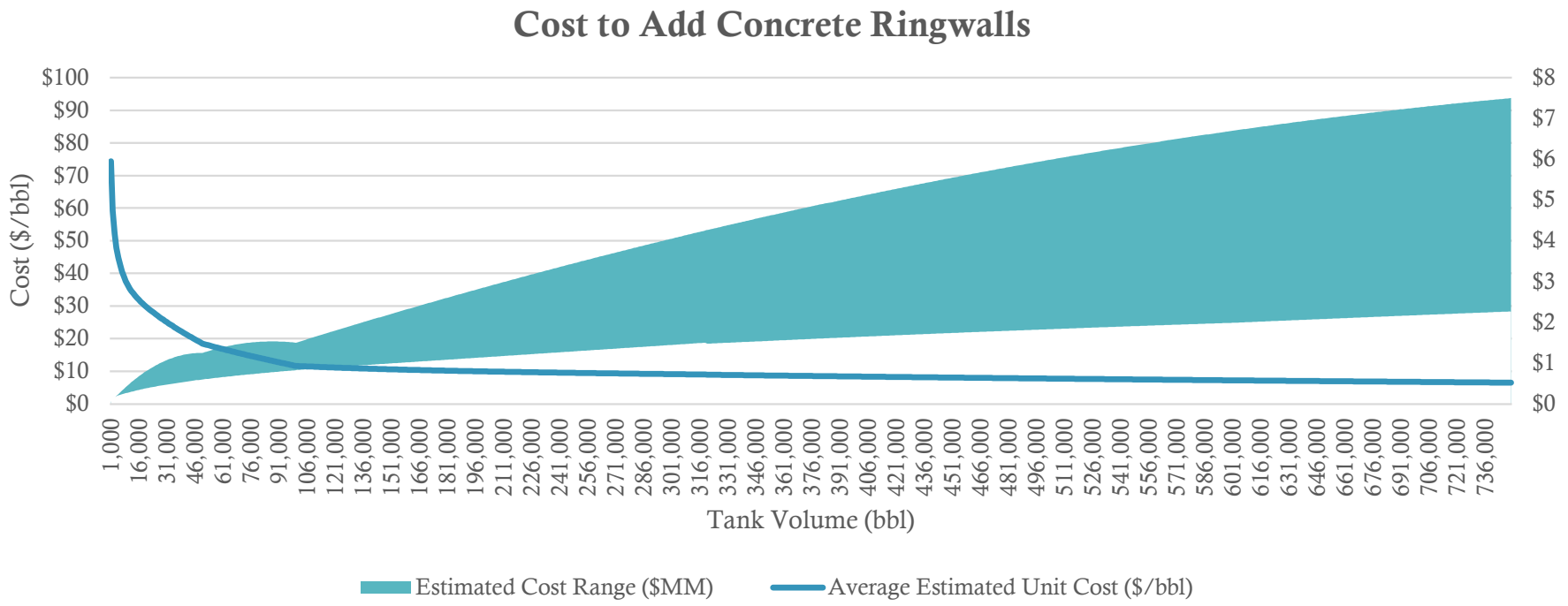
Anchor bolts must have a protruding slab or ring wall to anchor to. An existing slab or ring wall may not be sufficient.

Anchor Materials	Labor (Manhours)	Labor Cost ($/hr)	Engineering & Design ($)	Total Cost ($/Anchor)
$1,000	5	$122	$242	$1,851.50

ECONOMIC IMPACT ASSESSMENT

Concrete Ringwalls, Unit Cost

Concrete ringwall installation costs for existing tanks varied greatly. Costs are heavily dependent on whether segmented or monolithic (single pour) foundations are installed and whether or not the tank floor must be replaced.



ECONOMIC IMPACT ASSESSMENT

Flexible Piping, Unit Cost

API STD 650 Table E.8

	Condition	ASD Design Displacement (in.)
Mechanically-Anchored Tanks	Upward Vertical Displacement	1
	Downward Vertical Displacement	0.5
	Range of Horizontal Displacement	0.5
Self-Anchored Tanks	Upward Vertical Displacement	1 (Anchorage Ratio ≤ 0.785) – 4 (if > 0.785)
	Downward Vertical Displacement	0.5 (Ringwall/Mat) – 1 (Berm Foundation)
	Range of Horizontal Displacement	2

Some of the WSPA member facilities have analyzed their piping and found that some of the existing configurations meet the ASD Design Displacement requirements in this table, especially where there are longer runs of pipe. This is expected to satisfy the proposed requirement that piping have "sufficient piping flexibility to protect the tank and pipe connection and prevent the release of product." (WAC 173-180-330)

Flexibility requirements are much lower for mechanically-anchored tanks, though flexible piping may be more cost-effective than mechanically-anchoring

ECONOMIC IMPACT ASSESSMENT

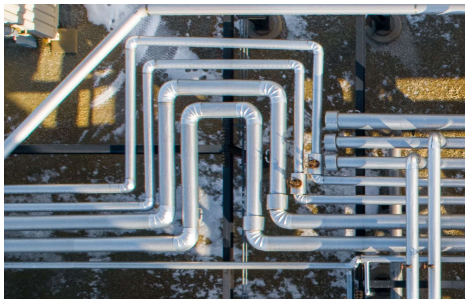
Flexible Piping, Unit Cost

There are various methods to add piping flexibility. Some, such as thermal expansion loops, are often built into longer runs of pipe and add flexibility to the system. Sorter runs of pipe and stiffer configurations may need to use ball joints, expansion joints, or other means to achieve this flexibility.

Expansion joints and ball joints are much more likely to leak than expansion loops and therefore are less desirable and require more maintenance. WSPA members reported numerous failures of expansion joints.

The low case estimate assumes that the existing piping configurations are sufficient to satisfy requirements in all cases where the anchorage ratio ≤ 0.785 and all but 30% of cases where the anchorage ratio > 0.785.

The high case estimate assumes that single expansion joints are needed to satisfy requirements for mechanically-anchored and self-anchored tanks with an anchorage ratio ≤ 0.785. Universal expansion joints are assumed for all other connections.



Thermal Expansion Loop

Ball Joint

Single Expansion Joint

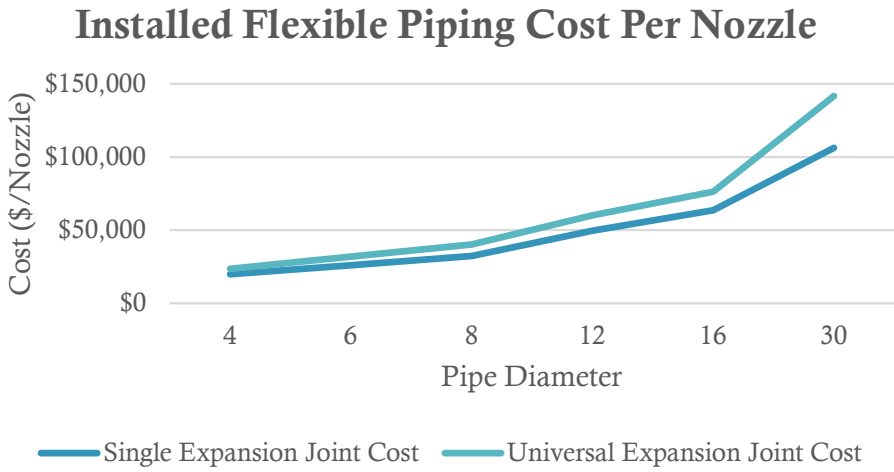
Tied Universal Expansion Joint

ECONOMIC IMPACT ASSESSMENT

Flexible Piping, Unit Cost

Flexible piping costs were derived from multiple quotes from various vendors. Expansion joints were SS bellows-style with CL 150 carbon steel flanges.

The estimate included 2 nozzles per tank, with nozzle sizes increasing with the tank volume.



Pipe Dia. (in.)	Single Expansion Joint Cost	Valves, Flanges, & Materials	Labor (Man-hours)	Labor Cost ($)	Pipe Clean-out & Hydro	Single Exp. Joint Eng. & Design	Single Expansion Joint Total Cost	Universal Expansion Joint Cost	Universal Exp. Joint Eng. & Design	Universal Exp. Joint Total Cost
4	$700	$6,792	11	$1,281	$10,000	$1,316	$20,089	$4,000	$1,811	$23,884
6	$900	$9,917	15	$1,769	$12,000	$1,888	$26,474	$6,000	$2,653	$32,339
8	$1,125	$13,052	18	$2,196	$14,000	$2,456	$32,829	$8,000	$3,487	$40,735
12	$3,000	$20,232	26	$3,203	$20,000	$3,965	$50,399	$11,951	$5,308	$60,693
16	$5,000	$25,125	36	$4,331	$25,000	$5,168	$64,624	$16,000	$6,818	$77,274
30	$10,000	$45,051	69	$8,467	$35,000	$9,528	$108,046	$40,838	$14,153	$143,509

Source: Estimator's Piping Man-Hour Manual

ECONOMIC IMPACT ASSESSMENT

Option Comparison

Anchors & Ringwalls

Tanks were analyzed to determine the cost to install anchors on all existing tanks, and concrete ringwalls where necessary.

The API STD 650 calculations were then performed to determine which tanks required anchoring, and the cost to only add anchors where determined by API STD 650.

Flexible Piping & Cost Efficiency

The cost to add flexible piping to all applicable tanks was reviewed and compared with the cost to add anchors. Results were split as to which option was more cost effective.

The estimate included 2 nozzles per tank, with nozzle sizes increasing with the tank volume.

COST ANALYSIS

Cost Case Summary

The cost data on the following page can be divided into four groupings:

1. Cost to add ringwall and anchors to all tanks that don't already have them, regardless of whether or not the anchorage ratio is acceptable for a self-anchoring tank. This scenario is likely in the event that the code calls for tanks to be anchored rather than just fitted with flexible piping. This is because there's a chance that many of the existing tanks don't have an appropriate annulus to allow for self-anchoring per Annex E. The high case uses the top of the range for the ringwall cost and the low case uses the bottom. The low case also only adds ringwalls and anchors where required and to 30% of the remaining tanks that can be self-anchored.

2. Cost to add ringwalls and anchors when prescribed by the anchorage ratio. This only covers tanks that don't already have them and assumes that the tank annulus won't have an impact. The high case uses the top of the range for the ringwall cost and the low case uses the bottom.

3. Cost to add flexible piping to tank nozzles. The difference between the high and low case is explained on page 31.

4. Cost-effective option: cost to add flexible piping or anchors, whichever is more cost-effective, when prescribed; flexible piping is not added to mechanically-anchored tanks. This case assumes that either mechanically-anchoring a tank or meeting pipe flexibility requirements will satisfy the regulation, and that both aren't required on the same tank.

The cases are not absolute highs and lows but are high and low approximations, relative to each other, of the expected cost given the stated set of assumptions

ESTIMATED COST TO COMPLY WITH PROPOSED RULE AS WRITTEN – HIGH CASE

Group	Add Ringwalls to All Tanks	Add Anchors to All Tanks	Add Concrete Ringwall if Prescribed	Add Chair Anchors if Prescribed	Add Flexible Piping to All Tanks	Cost-Effective Option
1	$0	$860,948	$0	$0	$387,746	$387,746
2	$0	$1,584,884	$0	$0	$930,042	$930,042
3	$0	$827,621	$0	$0	$775,493	$761,393
4	$0	$2,512,486	$0	$0	$2,098,321	$2,088,462
5	$0	$1,951,481	$0	$0	$1,855,549	$1,784,803
6	$0	$3,543,771	$0	$0	$3,252,644	$3,147,048
7	$31,860,439	$1,486,755	$0	$0	$1,378,820	$1,378,820
8	$0	$2,042,205	$0	$1,005,365	$2,154,677	$1,860,785
9	$12,547,972	$549,896	$0	$0	$704,018	$704,018
10	$0	$1,631,172	$0	$1,049,801	$2,011,015	$1,582,405
11	$20,001,541	$953,523	$9,423,414	$488,796	$1,252,648	$1,252,648
12	$0	$486,945	$0	$486,945	$1,482,100	$338,081
13	$0	$129,605	$0	$129,605	$849,083	$118,496
14	$8,070,963	$640,619	$6,947,879	$583,223	$1,234,355	$1,223,784
Total	**$72,480,914**	**$19,201,907**	**$16,371,292**	**$3,743,733**	**$20,366,510**	**$17,558,531**
Combined	**$91,682,821**		**$20,115,025**		**$20,366,510**	**$17,558,531**

ESTIMATED COST TO COMPLY WITH PROPOSED RULE AS WRITTEN – LOW CASE

Group	Add Ringwalls as Required & to 30% of Self-Anchored Tanks	Add Anchors as Required & to 30% of Self-Anchored Tanks	Add Concrete Ringwall as Required	Add Chair Anchors as Required	Add Flexible Piping to 30% of High Displacement Nozzles	Cost-Effective Option
1	$0	$258,284	$0	$0	$0	$0
2	$0	$475,465	$0	$0	$46,365	$46,365
3	$0	$248,286	$0	$0	$0	$0
4	$0	$753,746	$0	$0	$145,663	$145,663
5	$0	$585,444	$0	$0	$72,832	$72,832
6	$0	$1,063,131	$0	$0	$562,147	$562,147
7	$4,700,423	$446,026	$0	$0	$0	$0
8	$0	$1,316,417	$0	$1,005,365	$488,824	$488,824
9	$1,728,703	$164,969	$0	$0	$73,324	$73,324
10	$0	$1,224,212	$0	$1,049,801	$523,884	$523,884
11	$5,737,995	$628,214	$4,298,615	$488,796	$232,837	$232,837
12	$0	$486,945	$0	$486,945	$143,301	$143,301
13	$0	$129,605	$0	$129,605	$85,981	$82,760
14	$5,286,109	$600,441	$5,103,379	$583,223	$358,254	$358,254
Total	**$17,453,231**	**$8,381,185**	**$9,401,993**	**$3,743,733**	**$2,733,410**	**$2,730,189**
Combined	**$25,834,416**		**$13,145,726**		**$2,733,410**	**$2,730,189**

API STD 650, ANNEX E CONVERSION ANALYSIS

Publication 23-08-007
130

WAC 173-180 and 173-184 CES
June 2023

ANNEX E CONVERSION RISKS

Risks Associated with Annex E Conversion

Annex E contains some fundamental, ground-level requirements that many API STD 650 tanks will not meet without significant renovations, and in some cases full rebuilds. Examples of these requirements are:

- Shell Thickness: Annex E engineers to look at ground motions, vibrations, fluid motions, and other factors that are not factored into a standard API STD 650 tank. These calculations have the potential to require a thicker shell than would otherwise be needed. This requirement could quite possibly necessitate a full rebuild of a tank to be in compliance. If the site is classified with a high Importance Factor (higher than SUG I) or an unfavorable Site Classification these issues could be compounded.
- Annulus Requirements: In a typical tank floor, the sketch plates make up the center and can extend to the shell. The annulus lines the interior circumference of the floor, providing strength and resisting uplift at the shell. While we don't currently have much data about the floor structures that are in the existing tanks, Annex E has several requirements for tank floor construction. It requires a uniformly supported annulus under the shell. This annulus is a key part of the design and a requisite for self-anchored tanks. Mechanically-anchored tanks require their floor to be shimmed and grouted.

  There are methods to go in and change out the floor of a tank, but it is a costly endeavor. The shell can be lifted by hydraulic jack or crane.

ANNEX E CONVERSION RISKS

Risks Associated with Annex E Conversion

Cont.

- The structural support for the roof may need to be modified to handle the additional stresses.
- Penetrations, manholes, and openings in shell components may need to be reinforced.
- Equipment and accessories that are internal to the tanks would need to be guided or supported to resist lateral loads
- Equipment, piping, and walkways or other appurtenances attached to the tank or adjacent structures would need to be designed to accommodate the elastic displacements of the tank imposed by design seismic forces amplified by a factor of 3.0 plus the amplified displacement of the other structure.
- Additional foundation work could be needed, including the use of additional pilings.

Many of these risks are not built into the cases in this document

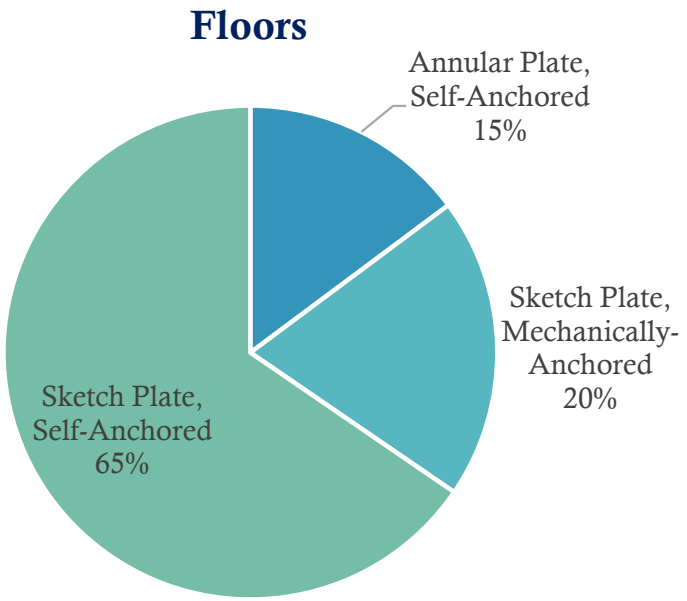
MEMBER FACILITY ANALYSIS

Annex E Conversion Issues

Annulus

While this particular piece of data was far from complete, 15% of the tanks that had a floor type identified were shown to have an annular plate.

65% of the floors were indicated to have sketch plates while being self-anchored. While sketch plates and annular plates can be part of the same floor, if these tanks are missing an adequate annulus they would either need the floors to be rebuilt or would need to be mechanically-anchored as part of the process of coming into compliance with Annex E.



MEMBER FACILITY ANALYSIS

Annex E Conversion Issues

Shell Thickness

Shell thickness is heavily dependent on assumptions made in the calculations, and thus can vary.

Some of the tank data that was supplied did not include a shell thickness. Thus TM&C used standard API STD 650 calculations to determine an appropriate thickness. That thickness was then compared to the seismic requirements of Annex E, and in most cases was sufficient.

Causes of Deficiencies

Reducing the tanks that were calculated under SUG II (66 out of 291 tanks) to be SUG I would reduce the tanks that fail to 1%.

MEMBER FACILITY ANALYSIS

Annex E Conversion Issues

Annex E Deficiencies

The API STD 650 calculations prescribed that anchors be installed on 30% of the existing tanks. A few tanks that are already anchored required additional anchors.

5% of tanks also have hoop stress concerns that would need to be addressed. This could require a significant rebuild of the tanks to reach Annex E compliance.

5% of the tanks did not pass the wall thickness checks. This again would require major renovations or a change in tank operations.

Causes of Deficiencies

While many of these deficiencies are caused by the increased rigor of Annex E, it's likely that some of the assumptions that have been made in the calculations have contributed to them.

COST ANALYSIS

Cost Case Summary – High Case

The cost data on the following page can be divided into four groupings:

1. The Annex E conversion high case was done under the assumption that all of the tanks that showed an insufficient shell thickness would need to have the shell replaced. This involved many of the largest tanks in the facilities.

2. Cost to add ringwall and anchors to all tanks that don't already have them, regardless of whether or not the anchorage ratio is acceptable for a self-anchoring tank. Data on tank floors was limited, but shows that a large majority of the self-anchored tanks were likely constructed without an annular ring. In addition, with a lack of data on floor thickness, etc., we were unable to make an assumption about the number of tanks that would need a new floor. By adding a ringwall to all tanks that do not have one, the tanks can be anchored to avoid the issue. The high case uses the top of the range for the ringwall cost.

3. Cost to add anchor bolts to all tanks to avoid issues with the tank annulus, as explained in #2 above.

4. Flexible piping was added to all of the tanks.

Please note that the costs in these four groups are additive, and that the estimate does not include any cost for structural support modifications, modifications to internal components, manway or penetration reinforcement, foundation modification or pilings, or other unforeseen costs.

The cases are not absolute highs and lows but are high and low approximations, relative to each other, of the expected cost given the stated set of assumptions

ESTIMATED COSTS OF ANNEX E CONVERSION – HIGH CASE

Group	Replace Shell for Increased Thickness	Add Ringwalls to All Tanks	Add Anchors to All Tanks	Add Flexible Piping to All Tanks
1	$20,788,331	$0	$860,948	$387,746
2	$23,828,849	$0	$1,584,884	$930,042
3	$9,533,387	$0	$827,621	$775,493
4	$2,680,551	$0	$2,512,486	$2,098,321
5	$4,117,990	$0	$1,951,481	$1,855,549
6	$3,286,062	$0	$3,543,771	$3,252,644
7	$0	$31,860,439	$1,486,755	$1,378,820
8	$697,267	$0	$2,042,205	$2,154,677
9	$0	$12,547,972	$549,896	$704,018
10	$555,329	$0	$1,631,172	$2,011,015
11	$0	$20,001,541	$953,523	$1,252,648
12	$0	$0	$486,945	$1,482,100
13	$62,941	$0	$129,605	$849,083
14	$0	$8,070,963	$640,619	$1,234,355
Total	**$65,550,706**	**$72,480,914**	**$19,201,907**	**$20,366,510**
Combined	**$177,600,037**			

COST ANALYSIS

Cost Case Summary – Low Case

The cost data on the following page can be divided into four groupings:

1. Rather than replacing an insufficient tank shell, the operator would likely select to operate the tank at a lower operating level or to change the service of the tank. The economic impact related to this operational change is out of the scope of this study, but should be accounted for.

2. Cost to add ringwall to all tanks where required and 30% of the remaining self-anchored tanks that don't already have them. Data on tank floors was limited, but shows that a large majority of the self-anchored tanks were likely constructed without an annular ring. In addition, with a lack of data on floor thickness, etc., we were unable to make an assumption about the number of tanks that would need a new floor. By adding a ringwall to all tanks that do not have one, the tanks can be anchored to avoid the issue. The low case also uses the bottom of the range for the ringwall cost.

3. Cost to add anchor bolts to all tanks where required and 30% of the remaining self-anchored tanks. This is to avoid issues with the tank annulus, as explained in #2 above.

4. Cost to add flexible piping to 30% of the nozzles where the anchorage ratio > 0.785. Everywhere else it was assumed that the existing piping would be sufficient to satisfy the ASD Design Displacement requirements.

Please note that the costs in these four groups are additive, and that the estimate does not include any cost for structural support modifications, modifications to internal components, manway or penetration reinforcement, foundation modification or pilings, or other unforeseen costs.

The cases are not absolute highs and lows but are high and low approximations, relative to each other, of the expected cost given the stated set of assumptions

ESTIMATED COSTS OF ANNEX E CONVERSION - LOW CASE

Group	Reduce Operating Level (Does Not Include Economic Impact)	Add Ringwalls as Required & to 30% of Self-Anchored Tanks	Add Anchors as Required & to 30% of Self-Anchored Tanks	Add Flexible Piping to 30% of High Displacement Nozzles
1	$0	$0	$258,284	$0
2	$0	$0	$475,465	$46,365
3	$0	$0	$248,286	$0
4	$0	$0	$753,746	$145,663
5	$0	$0	$585,444	$72,832
6	$0	$0	$1,063,131	$562,147
7	$0	$4,700,423	$446,026	$0
8	$0	$0	$1,316,417	$488,824
9	$0	$1,728,703	$164,969	$73,324
10	$0	$0	$1,224,212	$523,884
11	$0	$5,737,995	$628,214	$232,837
12	$0	$0	$486,945	$143,301
13	$0	$0	$129,605	$85,981
14	$0	$5,286,109	$600,441	$358,254
Total	**$0**	**$17,453,231**	**$8,381,185**	**$2,733,410**
Combined	**$28,567,827**			

OPERATIONAL CONSIDERATIONS

The existing proposal to allow tank-owners to address the larger seismic concerns with anchors and flexible piping, and to do so on a schedule that coincides with tank turnarounds, makes the operational impact manageable. However, there are still considerations that should be taken into account.

Some of the flexible piping options are not as reliable as the existing hard piping, as it is more prone to leakage. While there are various technologies that have different strengths, we looked at bellows-style connections in this study. One concern with this technology is that with continued expansion, retraction, and vibration, these piping connections would not be expected to last as long as hard pipe. Companies will likely expend energy managing these piping connections to ensure they don't leak or have other issues.

There are additional operational issues surrounding the possibility of requiring the adoption of Annex E in existing tanks. The potential significant costs will take resources that could be used to employ operational or maintenance improvements elsewhere. Rather than repair the tanks, they may be forced to reduce operating levels in the tanks or change tank service in order to meet Annex E requirements. This would have a financial cost to the facilities that is outside the scope of this study.

ECONOMIC IMPACT SUMMARY

As written, the proposed changes to WAC 173-180 and 173-184 give affected companies the ability to address the existing seismic concerns in various ways. While all options have potential to be costly, the ability to install flexible piping gives companies an alternative to anchoring. It is estimated that the cost to the member companies will be about $18MM, with the assumptions laid out in this document. If the WAC were to require the implementation of anchoring a tank and installing flexible piping simultaneously, this cost would more than double.

The potential of requiring the adoption of Annex E in existing tanks could leave the industry with a significant hurdle. While the high case cost of $178MM is a substantial investment, there are many factors that could drive the cost up, including unforeseen repairs, significant foundation work (pilings, existing ringwall strength, etc.), and additional tanks that were not included in the original data. In addition, other factors and practices could bring costs down. These may include changing assumptions (such as reducing the SUG where appropriate) and adjusting operational tank levels where possible, among others.

PRINCIPAL AUTHORS

Cinda Lohmann, P.E.
Vice President

Brian Graham, P.E., PMP
Senior Consultant

Turner, Mason & Company provides technical, commercial and strategic consulting services to clients globally in the crude oil, midstream, refining, refined products, and biofuels industries.

214-754-0898
contact@turnermason.com
www.turnermason.com
Dallas, Texas

Comment O-6-1

Friends *of the* **San Juans**
360.378.2319 P.O. Box 1344
www.sanjuans.org Friday Harbor, WA 98250

March 4, 2023

Brittany Flittner
Project Specialist
Department of Ecology
Spill Prevention, Preparedness, and Response Program

Submitted via public comment form: https://sppr.ecology.commentinput.com/?id=6Mx2s

Dear Ms. Flittner,

Thank you for the opportunity to submit comments on Ecology's draft rule to amend Chapter 173- 180 WAC, Facility Oil Handling Standards and Chapter 173-184 WAC, Vessel Oil Transfer Advance Notice and Containment Requirements. These comments are in addition to the comments from 15 non-governmental organizations that included Friends of the San Juans.

The distinction between the requirements for 'Rate A' and 'Rate B' oil transfer operations were based on the transfer amounts, times and rates reported to Ecology by deliverers and facilities during the 2006 rulemaking process. No such analysis was provided during the current rulemaking process. See the CONCISE EXPLANTORY STATEMENT AND RESPONSIVENESS SUMMARY FOR THE ADOPTION OF Chapter 173-184 WAC, Vessel Oil Transfer Advanced Notice and Containment Requirements (09/25/2006, Publication: 06-08-026 – received via public records request P014513-021923). Response to comments, page 64 of 151:

> It is actually a combination of the flow rate and the reaction time which defines these requirements. A spill from a transfer occurring at 500 gallons per minute will mean potentially 5000 gallons of oil in the water in 10 minutes. The quicker the reaction time to the spill the less the spill amount, but this is exponential to the transfer rate.
>
> So, essentially, Ecology took these two things into account when looking at risk: the time required to stop the oil pumping and the amount of oil flowing through the hoses or piping.
>
> The amount was set at 500 gallons per minute based on Ecology's determination that this is an approximate cut off limit for higher volume oil deliverers. Based on the transfer amounts, times and rates reported to Ecology by deliverers and facilities during the rule writing process, Ecology calculated that 500 gallons per minute would fulfill the legislative mandate to require prebooming at the majority of oil transfers

> conducted in the state while providing a [*sic*] economic relief from these requirements for smaller businesses.

Ecology should document whether "the legislative mandate to require prebooming at the majority of oil transfers conducted in the state while providing a [*sic*] economic relief from these requirements for smaller businesses" is being achieved with the current regulations and/or the draft rule. Revisions to the draft rule should be made to comply with the legislative mandate.

Regarding the Preliminary Regulatory Analyses, Section 4.2.1.6.1 *Quantified benefits*, subsection, *Avoided property value impacts*, the surveyed property values of properties near Class 1 facilities omitted counties that could be impacted by major oil spills from Class 1 facilities. For example, in the subsection, *Population-wide values for avoiding spills*, this report addresses the impacts an oil spill would have to San Juan County's $156 million dollar per year tourism industry. San Juan County's property value impacts, and those of other counties in proximity to Class 1 facilities, should be addressed in the subsection, *Avoided property value impacts*.

Finally, in conducting the cost benefit analysis of the seismic upgrade requirements for Class 1 facilities, and in considering the economic impacts and whether the requirements would impose an additional burden on facilities, the profits of the Class 1 facilities should be addressed. For example, 2022 profits for BP were $28 billion (see Reuters *BP makes record profit in 2022, slows shift from oil*); Phillips 66: $8.9 billion; and Marathon: $16 billion (*see* Accountable.US *Price Gouging Payout: Exxon, Marathon & Phillips 66 Posts $82.5B in Profits After Record High Gas Prices, Vows to Give $54B to Wealthy Shareholders*).

Thank you for your attention to these comments. I look forward to Ecology's responses.

Sincerely,

Lovel Pratt

Lovel Pratt
Marine Protection and Policy Director

Comment OTH-1-1

Friends of the San Juans • Washington Conservation Action • Puget Soundkeeper San Juan Preservation Trust • RE Sources • Communities for a Healthy Bay Seattle Aquarium • Earth Ministry/Washington Interfaith Power & Light Citizens for a Clean Harbor • 350 Tacoma • San Juan Islanders for Safe Shipping • 350 Seattle Washington Physicians for Social Responsibility • Friends of the Earth • Evergreen Islands

March 3, 2023

Brittany Flittner
Project Specialist
Department of
Ecology
Spill Prevention, Preparedness, and Response Program

Submitted via public comment form: https://sppr.ecology.commentinput.com/?id=6Mx2s

Dear Ms. Flittner,

Thank you for the opportunity to submit comments on Ecology's draft rule to amend Chapter 173-180 WAC, Facility Oil Handling Standards and Chapter 173-184 WAC, Vessel Oil Transfer Advance Notice and Containment Requirements. These rules were established in 2006 for refueling, bunkering, or lightering operations and the availability and use of containment and recovery equipment and are now being updated. According to the Department of Ecology, each year in Washington State there are "more than 10 billion gallons of oil moved through over 12,000 oil transfers. These activities create a risk for oil spills that are toxic and pose a significant risk to Washington's environment, economy, public health, and historical and cultural resources."[7]

The undersigned represent 15 organizations that work on environmental and conservation issues in Washington State which include protecting the Salish Sea watershed, wildlife, conservation values, human health, and public safety. We support the draft rule's new decommissioning requirements for out of service oil storage tanks and oil transfer pipelines, and the updates that mitigate the impacts of spills from oil transfer operations. However, the draft rule does not fulfill the legislative intent and does not adequately implement ESHB 1578 *Reducing threats to southern resident killer whales by improving the safety of oil transportation*. The draft rule should be revised to also:

[7] 2023-25 Budget Request — Operating, page 12, request #32. (2022). Washington State Department of Ecology. https://ecology.wa.gov/DOE/files/76/76341e14-904a-405b-a fb1-ee0a8a3489a4.pdf.

1) Require all secondary containment systems to withstand seismic forces.

We support the draft rule's requirement for additional seismic protection measures for oil storage tanks and transfer pipelines to help prevent oil spills during earthquakes. The draft rule states (in WAC 173-180-340 (3) and WAC 173-180-330 (2)) that pipelines and storage tanks "constructed before the effective date of this rule must include protective measures that are designed, installed, and maintained to reduce risk from seismic events;" however, (in WAC 173- 180-320 (9)(b)) only secondary containment systems constructed after May 1994 "must be designed to withstand seismic forces." According to Ecology, almost all of the Class 1 facilities' secondary containment systems were constructed before May 1994, and all of Washington State's refineries' secondary containment systems were constructed before May 1994.

There is an important distinction in the draft rule's intent for all storage tanks and pipelines "to reduce risk from seismic events" as compared with secondary containment systems built after May 1994 to "withstand seismic forces." While pipelines and storage tanks, at best, can reduce the risk from seismic events, secondary containment systems that withstand seismic forces are essential in preventing oil spills from reaching the waters of the state, including marine waters as needed to reduce threats to Southern Resident killer whales.

Requiring all secondary containment structures, including those constructed before May 1994, to withstand seismic forces, is necessary to comply with WAC 173-180-025 (32):

> "Secondary containment" means containment systems, which prevent the discharge of oil from reaching the waters of the state.

Given that earthquakes will happen, secondary containment systems built before May 1994 that are not required to be updated and maintained to withstand seismic forces cannot be relied upon to prevent the discharge of oil from reaching the waters of the state. The state knows what's needed for earthquake preparedness and that should be required for all refinery and bulk oil handling facilities' secondary containment systems.

2) Require all oil transfer operations to be pre-boomed (when safe and effective to do so) and eliminate the Rate B loophole that allows oil transfers at 500 gallons per minute or less to occur without pre-booming.

Pre-booming is a critical oil spill mitigation for over-water oil transfer operations. If a spill happens, it is contained and more easily collected before it can oil shorelines and cause extensive impacts. Rate A transfers (defined as greater than 500 gallons per minute) require pre-booming if it's "safe and effective" – a determination that's based on the current and weather conditions. Pre-booming is prohibited for highly volatile products, like gasoline, that are an explosion hazard when contained in boom. Pre-booming is not required for Rate B oil transfer operations (defined as a transfer rate of 500 gallons per minute or less).

The Preliminary Regulatory Analyses states in section 6.3.12 Universal prebooming when safe and effective:

> Removing the categories of 'Rate A' and 'Rate B' transfers to have the same requirements for all transfer rates would likely increase the number of preboomed transfers. However, under RCW 88.46.165(1) Ecology must scale requirements to risk and has done so by having more stringent requirements for transfers at a rate of over 500 gallons per minute.

RCW 88.46.165(1) states:

> The department's rules authorized under RCW 88.46.160 and this section shall be scaled to the risk posed to people and to the environment, and be categorized by type of transfer, volume of oil, frequency of transfers, and such other risk factors as identified by the department.

We question whether oil transfer operations at 500 gallons per minute (Rate B) are less risky than oil transfer operations greater than 500 gallons per minute if there are no restrictions on the volume of oil and/or the frequency of transfers.

Ecology staff present during the 2006 rulemaking stated that the intent was for all refueling, bunkering, or lightering operations to be Rate A transfers. Rate B transfers are not limited by the volume of oil or the frequency of transfers. Ecology staff also stated, "A Rate B transfer is scaled to the risk of an oil spill due to the lower volume of oil transferred and lower transfer
rate… The types of entities transferring at a Rate B are different than a Rate A as well. They are usually smaller vessels, fixed, and mobile facilities." This analysis of Ecology's Advance Notice of Transfer (ANT) data through the third quarter of 2022 (ANT ID 1-232021) does not support these statements. Five percent of all oil transfer operations were Rate B transfers of 100,000 gallons or more.

	Total Number of Transfers	% of All Oil Transfers	% of all Rate B Transfers
Rate B Transfers From 2,500 - 5000 gallons	12,012	5%	8%
Rate B Transfers From 5,001 - 10,000 gallons	17,547	7%	12%
Rate B Transfers From 10,001 - 21,000 gallons	10,931	5%	7%
Rate B Transfers From 21,001 - 42,000 gallons	8,369	4%	6%
Rate B Transfers From 42,001 - 99,999 gallons	6,117	3%	4%
Rate B Transfers ≥ 100,000 gallons	11,331	5%	8%

If the intent of the 2006 rulemaking was for large volume oil transfer operations to be pre-boomed (when safe and effective to do so), regardless of the transfer rate, Rate B transfers should be limited by the volume of oil transferred.

Analyze risks from oil transfer operations that occur when it is not safe and effective to pre-boom

We are concerned about the oil transfer operations that occur in remote anchorage areas, and especially those oil transfer operations that occur without pre-booming. In particular, we are concerned by the increase in oil transfer operations and the associated increased oil spill risk and impacts at the anchorage areas near Vendovi Island. The August 3, 2022, presentation, Ecology Spill Prevention Pre-Booming Data July 1, 2021 – June 30, 2022, documents that in the five years from 2017-2022, the number of oil transfer operations and the total volume of oil transferred at the Vendovi anchorages has more than doubled.

In addition to the risk analyses needed on the volume of oil and the frequency of transfers, analyses are also needed to evaluate the risk posed to people and to the environment by transfer location. The location-specific risk analyses should include the potential location-specific impacts and evaluate the proximity and response time(s) of staged oil spill response resources (personnel and equipment) that would be needed if a spill occurs.
An analysis is also needed on the risks posed by the allowance of oil transfer operations when it is not safe and effective to pre-boom.

An example of the wind speed, wave height, and/or water current velocity that would determine that it would not be safe and effective to pre-boom can be found in WAC 173-184-115 Rate A prebooming and Rate A alternative measures requirements:

> (2)(c) For a transfer at a location not covered by an approved safe and effective threshold determination report, the deliverer must use the following safe and effective threshold values:
>
> (i) Wind speed: Sustained 20 knots or gusts of 30 knots;
> (ii) Waves: Greater than three feet;
> (iii) Water current velocity: 1.5 knots or greater; and
> (iv) Any combination of the above that make deploying and retrieving boom and equipment at the transfer location unsafe.

Ecology's presentation on pre-booming data also documented the Rate A pre-booming rates, excluding those product transfers that are not safe to pre-boom. The transfer operations that were not pre-boomed were presumably due to a safe and effective threshold determination where the wind speed, wave height, and/or water current velocity made it not safe and effective to pre-boom:

- All transfer locations: 16% not pre-boomed
- All anchorage areas: 17% not pre-boomed
- Vendovi anchorage areas: 29% not pre-boomed

An analysis is needed on the risks posed to people and to the environment from oil transfer operations that occur when it is not safe and effective to pre-boom due to the wind speed, wave height, and/or water current velocity.

3) Restrict all oil transfer operations to daylight hours or, at the very least, restrict all oil transfer operations to daylight hours when it's not safe and effective to pre-boom.

WA State's oil transfer regulations went into effect in 2007 in response to the 2003 Foss Barge – Point Wells oil spill. Just after midnight on December 30, 2003, approximately 5,000 gallons of heavy fuel oil was spilled during an oil transfer operation in Edmonds. Because the delivering and receiving vessels were not pre-boomed (to contain the spilled oil) and also because the spill happened in the middle of the night such that hours elapsed before oil spill response containment and recovery could be initiated; in less than 24 hours of the spill, almost all the oil had moved ashore damaging 400 acres of the Suquamish Indian Reservation's prime cultural and environmental lands, including salt-water marsh, old growth timber, beaches, and clam beds.

The Seattle PI reported on January 21, 2004, in the article, *State considers adopting Navy strategies to avoid oil spills*:

> Today, the Navy requires every ship in this region to be "boomed" whenever it docks, even if no fuel transfer is going on. The boom remains in place until the ship leaves. "This is where industry would complain about the cost," says Willie Robohn, the Navy's fuel department director at Manchester. But he added, "When you're talking millions for a spill, I don't understand that. Prebooming is the name of the game."
>
> Daylight refueling is also a hard-and-fast rule for the Navy. Exceptions are made only for special purposes when they are critical to the success of a mission, and even then require the personal approval of the admiral overseeing the Northwest-based fleet.

For example, oil transfer operations that were not pre-boomed (both Rate A and Rate B) and that occurred in the dark at the anchorages near Vendovi Island increased from 30% in 2020 to 46% in 2021. An analysis is needed to evaluate the risk posed to people and to the environment by oil transfer operations that occur in the dark and, in particular, if the transfers occur without pre-booming.

Risk analyses are needed to support or re-evaluate the current and proposed requirements for refueling, bunkering, or lightering operations and the availability and use of containment and recovery equipment.

Restricting oil transfer operations to daylight hours or favorable weather conditions may be required when Ecology conditionally approves a facility to operate with specific precautionary measures until their operations manual is approved by Ecology. These precautionary measures should be required for all oil transfer operations until risk analyses have been confirmed or conducted on 1) the volume of oil transferred; 2) the frequency of transfers; 3) the transfer locations, including location-specific potential impacts and the proximity of staged oil spill response resources; 4) oil transfer operations that occur when it is not safe and effective to pre- boom; and 5) transfers that occur in the dark.

Thank you for addressing these comments as you amend Chapter 173-180 WAC, Facility Oil Handling Standards and Chapter 173-184 WAC, Vessel Oil Transfer Advance Notice and Containment Requirements.

Sincerely,

Lovel Pratt
Marine Protection and Policy Director
Friends of the San Juans

Rein Attemann
Puget Sound Campaigns Manager
Washington Conservation Action (formerly Washington Environmental Council/Washington Conservation Voters)

Emily Gonzalez
Director of Law and Policy Puget Soundkeeper

Dean Dougherty Director of Stewardship
San Juan Preservation Trust

Ander Russell
Program Director
RE Sources

Erin Dilworth
Deputy Director
Communities for a Healthy Bay

Nora Nickum
Senior Ocean Policy Manager Seattle Aquarium

Rev. AC Churchill
Executive Director
Earth Ministry/Washington Interfaith Power & Light

Tammy Domike
Community Organizer
Citizens for a Clean Harbor

Stacy Oaks
Organizer
350 Tacoma

Shaun Hubbard
Co-founder
San Juan Islanders for Safe Shipping

Shemona Moreno
Executive Director
350 Seattle

Riley Lynch
Climate & Health Program Manager
Washington Physicians for Social Responsibility

Marcie Keever
Oceans & Vessels Program Director
Friends of the Earth

Marlene Finley
Board President
Evergreen Islands