

***SAFE AND EFFECTIVE THRESHOLD
DETERMINATION REPORT***

**TLP Management Services
SEATTLE TERMINAL**

Originally Prepared by:

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SAFE AND EFFECTIVE THRESHOLD DETERMINATION REPORT

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DISTRIBUTION LIST	
COPY NUMBER	PLAN HOLDER
1	Terminal Operations Seattle Terminal 1652 SW Lander Street Seattle, WA 98134
2	Environmental Coordinator TLP Management Services e-copy
3	The Department of Ecology Spill Prevention, Preparedness, and Response Program 300 Desmond Drive Lacey, WA 98503

Note: Plan review and update procedures are provided in Section 1.2 of the WAC-180 Facility Oil Handling Manual.

Terminal Points of Contact:

Terminal Manager, Sammy Makalena, smakalena@transmontaigne.com

Terminal Environmental Coordinator, Brenda Donovan, bdonovan@transmontaigne.com

1.0 INTRODUCTION

The Seattle Terminal, here in referred to as Facility, has prepared this Safe and Effective Threshold Determination Report, here in referred to as Report, with the intent of providing guidelines for determining the use of pre-booming or alternative measures during marine transfers. Additional safety and operational procedures can be found in the Facility USCG Dock Operations Manual.

1.1 REGULATORY COMPLIANCE

This Report has been prepared to address the regulatory requirements under WAC 173-180-224. The thresholds in this Report are to be used, along with other resources, to ensure Pre-booming of marine transfers is only conducted when it is safe and effective based on environmental conditions.

1.2 Advance Notice of Transfer (ANT)

Within 24 hours and before beginning any marine transfer operations the Facility will submit an **ANT** to Ecology via the Secure Access Washington Website <https://secureaccess.wa.gov/myAccess/saw/select.do>. In the event internet access is not available, the ANT can be submitted via facsimile. The ANT will contain all of the required information per WAC 173-180-215.

1.3 SUMMARY OF THRESHOLD VALUES

The Facility will pre-boom transfers when it is safe and effective to do so. When it is not safe and effective or when conditions require the removal of boom during a transfer, the Facility will report this finding to Ecology using the **Ecology Boom Reporting Form** found in the back of this document.

The thresholds in this Report are to be used, along with other resources, to ensure Pre-booming of marine transfers is only conducted when it is safe and effective based on environmental conditions. Weather forecasts are watched and monitored real time using a weather station (wind, temp., barometer, etc). Tides charts are used for tide conditions. A summary of those thresholds is provided below.

Note: In all cases, the final decision of whether or not to pre-boom will be at the discretion of the Terminal Person-in-Charge (TPIC) and the Terminal Manager. These decisions will be made on a case-by-case basis using local weather forecasts.

THRESHOLD (SAFE/EFFECTIVE)		BASIS
Personnel Safety	Ability to maintain safe operations given all factors below	PIC/Vessel Master
Sea State Values	2.5' -3.0'	PIC/Vessel Master
Water Current Velocity	1knot	PIC/Vessel Master
Wind Speed	Sustained 20 knots	PIC/Vessel Master
Vessel Traffic	Based on scheduling, the PIC can determine pre-booming	PIC/Vessel Master
Others	Based on judgment of the PIC can determine pre-booming	PIC/Vessel Master

1.0 INTRODUCTION

1.4 PRE-BOOMING AND ALTERNATIVE MEASURES

The Facility utilizes pre-booming and alternative measures as described in the WAC-180 Facility Oil Handling Manual Section 4.0.

1.5 FACILITY DESCRIPTION/OPERATIONAL CONDITIONS

The Duwamish River flows along the west and east sides of Harbor Island emptying into Elliot Bay. Average weather conditions for the Facility area include temperatures ranging between 35-40° F during winter months and 70-80° F in summer. Temperatures have been known to fall into single digits during winter months and range between 90-100°F in summer months. However, these are extreme cases and should not be included when determining typical climate conditions. Typical sea state conditions are flat and calm with 0.5-1 knot water current velocities. Wind speeds during spring and winter months can be expected to exceed sustained speeds of 25 knots on average 5-10 days out of a month. Fall and summer month wind speeds may exceed sustained winds of 25 knots on average of 0-5 days out of a month. During the spring months, wind directions from the south can cause a three-foot chop within the Bay.

1.4 FACILITY DESCRIPTION/OPERATIONAL CONDITIONS (Cont'd)

The following chart portrays monthly averages of several meteorological conditions within the vicinity of Seattle including daily temperatures, monthly precipitation, and prevailing wind velocities and directions:

Month	Temperature		Precipitation	Wind	
	Daily Max. (°F)	Daily Min. (°F)	Normal Total (IN)	Mean Hourly Speed (MPH)	Prevailing Direction
January	43.4	33.0	5.79	10.5	S
February	48.5	36.0	4.19	10.1	S
March	51.5	36.6	3.61	10.4	S
April	57.0	40.3	2.46	10.1	S
May	64.1	45.6	1.70	9.3	S
June	69.0	50.6	1.53	9.1	SW
July	75.1	53.8	0.71	8.6	NNW
August	73.8	53.7	1.08	8.2	NNW
September	68.7	50.4	1.99	8.4	SSE
October	59.4	44.9	3.91	9.1	SSE
November	50.4	38.8	5.88	9.4	SSE
December	45.4	35.5	5.94	10.2	SSE

The tidally influenced Elliott Bay experiences two (2) high tides and two (2) low tides daily. The range of tidal fluctuation can reach an extreme of approximately thirteen (13) feet, but are variable and typically less. Tidal currents are weak (0.1 knot) inside Elliott Bay. Tidal currents at the mouth of Elliott Bay typically range from 0.1 knot to 0.6 knots.

All equipment to be used during pre-boom operations is rated for these conditions.

1.5 PRE-BOOMING SCHEME

Permanent boom is installed under the Seattle Terminal Dock. It runs the full length of both the dock and adjoining catwalks. Prior to product transfer, NRCES will tether additional containment boom to the permanent boom and proceed to wrap the vessel. The containment boom will be allowed to rise and fall with the tide.

2.0 BACKGROUND INFORMATION

All threshold values in this Report are based on research and documentation of containment and deployment equipment capabilities. In determining these threshold values, all public data resources were reviewed along with manufacturer's equipment specifications. The data was reviewed to determine typical conditions, but cannot effectively predict future scenarios. In all cases, the TPIC will rely on real time information to access the situation and determine if Pre-booming is appropriate.

2.1 SAFETY THRESHOLD VALUES

Personnel Safety is the top priority in all situations. While actual safety threshold values may be greater; the TPIC will use effectiveness threshold values as guidelines for determining safety of operations. These values are based upon equipment specifications described in the *WA Department of Ecology Guidance Document for Review of Safe and Effective Threshold Determination Reports*.

2.2 BOOMING EFFECTIVENESS THRESHOLD VALUES

Prior to and during pre-boom operations, NRCES will monitor environmental conditions with VHF radios. If conditions exceed pre-boom safe and effective guideline thresholds, operations will be stopped. Vessel masters have the authority to call off operations under these conditions.

2.2.1 Sea State Conditions

The final determination on pre-booming will be made by the TPIC based on weather conditions and equipment ratings. The effectiveness guidelines for the Facility's boom are 2.5 to 3.0 feet of seas. Therefore, if sea state conditions exceed, or are forecasted to exceed this value, the TPIC can determine pre-booming is not appropriate and rely on alternative measures.

2.2.2 Water Current Velocities

The final determination on pre-booming in situations of high-water current velocities will be made by the TPIC based on weather conditions and equipment ratings. The effectiveness guidelines for the Facility's boom are water current velocities of 1 knot. Therefore, if current velocities exceed, or are forecasted to exceed this value, the TPIC can determine pre-booming is not appropriate and rely on alternative measures or make the determination to delay the transfer until safer conditions are present.

The TPIC will consider peak and sustained currents, as well as direction of flow and any tidal influences as part of the determination.

2.2.3 Wind Conditions

The final determination on pre-booming in situations of high wind conditions will be made by the TPIC based on weather conditions and equipment ratings. The effectiveness guidelines for the Facility's boom are Sustained winds of greater than 20 knots. Therefore, if wind conditions exceed, or are forecasted to exceed this value, the TPIC and Terminal Manager can determine pre-booming is not appropriate and rely on alternative measures or delay transfer until safer conditions are present.

2.2 BOOMING EFFECTIVENESS THRESHOLD VALUES (Cont'd)

2.2.4 Other Conditions

Temperature will not be a limiting factor for NRCES boat crews. During periods of extreme low temperatures, exposure suits will be worn by crewmembers. FRV's are equipped with Radar, which allows operations at night and during low visibility conditions.

Constant vessel traffic in and out of Elliot Bay should not be a cause for concern during pre-booming operations

Many other conditions may effect the transfer operations at the dock. The TPIC will evaluate these conditions and adjust operations as is appropriate for each situation.

2.3 EQUIPMENT GUIDELINES

RESPONSE / DEPLOYMENT EQUIPMENT SPECIFICATIONS			
EQUIPMENT	THRESHOLD		BASIS
1000 ft. 21" Acme Environmental Fence Boom*	Wind speed	Sustained 25 knots Gusts 30 knots	Manufacturer's guidelines
	Sea State	2.5' -3.0'	
	Water Current Velocities	1-1.5 knots	

*The 21" Acme Environmental Fence Boom is a 22oz. Orange Jatton fabric and is equipped with an 8" rolled foam float and 12" skirt depth. It is also equipped with 5/16" chain ballast in a double fabric sleeve and Weather line top tension cable. In addition, aluminum quick latch couplers with floats and SS pins have been installed.

Within one hour of a spill, Global Diving & Salvage will provide a spill response vessel and personnel for initial spill response. The Global Diving & Salvage vessel and personnel will arrive on-site and be ready to deploy terminal owned boom within 1 hr. of discovery, 24 hrs./day, 7 days/week. Global will utilize the >2,000 ft. of company containment boom stored in the warehouse to contain any spilled product.

3.0 SUPPLEMENTAL INFORMATION

3.1 SUPPORTING DATA

Threshold values are based in part by recommendations by the designated pre-booming contractor (NRCES) and by equipment guidelines provided by the WA Department of Ecology.

Average/typical climatic, sea state, wind and water current conditions are based in part by The Weather Underground, Inc. (www.weatherunderground.com) and NOAA's National Data Buoy Center (www.ndby.noaa.gov/). Station EBSW1-9447130 contains historical meteorological data for the Seattle, WA area.



**Spill Prevention, Preparedness, and Response Program
Prevention Section**

NORTHWEST REGIONAL OFFICE
3190 – 160TH Ave. SE
Bellevue, Washington 98008-5452
Office: 425-649-7000
Fax: 425-649-7098

BELLINGHAM FIELD OFFICE
1204 Railroad Ave, Suite 200
Bellingham, WA 98225
Office: 360-738-6250
Fax: 360-738-6253

VANCOUVER FIELD OFFICE
Spill Prevention Unit
2108 Grand Boulevard
Vancouver, WA 98661-4622
Office: 360-690-4782; Fax: 360-690-7166

RATE A DELIVERERS - BOOM REPORTING FORM

Rate A deliverers must complete and submit Ecology's *Boom Reporting Form* when it is not safe and/or effective to pre-boom, or when conditions develop during a pre-boomed transfer that requires removal of the boom. The form must be submitted prior to the transfer or immediately if conditions change requiring boom removal.

Submit completed form by fax to 800-664-9184 or by e-mail to OilTransferNotifications@ecv.wa.gov
For more information about pre-booming requirements call (360) 407-7455 or the local office listed above.

Part I: Delivering Owner or Operator Information

Delivering company name: _____

Delivering facility name (if different from above) or vessel name: _____

Transfer location - address and city: _____

Today's date and time: _____

Contact person making report: _____

Phone number of contact person: (_____) _____ --- _____

Part II: Receiving Party Information

Facility or vessel name: _____

Part III: Environmental and Safety Conditions Summary

Indicate and describe the environmental and/or safety condition(s) that existed or developed which exceeded the safe & effective (S&E) thresholds found in the facility's operations manual or the company's approved Safe and Effective Threshold Determination Report.

Significant wave height (feet):	Sustained winds (knots) of 5 minutes duration or more and wind direction:
Current velocity (knots):	Personnel safety (describe condition):

Other factors involved that exceed S&E thresholds or safety conditions - describe events and/or conditions:

Part IV: Certification of Accuracy

I submit that the information contained in this form is true and complete to the best of my knowledge. I understand that a false statement may be punishable as non-conformance with the law and regulations of the state of Washington. I also understand that Ecology may request more detailed information if what I submit does not fully describe the conditions or meet the intent of the law or regulations. (Authority: RCW 88.46.160)

Signature of delivering facility or vessel PIC _____ Date _____ Title (if applicable) _____

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Inland & Nearshore Oil Spill Containment Boom



8" Oil Spill Containment Boom

Specifications

8" Oil Spill Containment Boom

Qty:

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REQUEST QUOTE

When deployment is necessary for large lakes, bays, or harbors we recommend our 8" Oil Spill Containment Boom. Capable of withstanding tidal flows, open water, and currents, this containment boom is perfect for large bodies of water and close-shore ocean areas. Request a quote for our 8" containment boom, today!

- Various skirt sizes are available.
- When planning to deploy several hundred feet or more, top cable is suggested.
- When tidal flows are present, a 3/8" chain ballast is recommended.

Specifications:

- 8" Diameter Flotation
- Choice of skirt depth (12", 16", 24", or Custom – choose from drop down)
- 1/4" / 5/16" / 3/8" Galvanized Chain Ballast
- 22 oz. / sq. yd. Jaton or 24 oz. / sq. yd Jaton Plus fabric: orange or yellow
- ASTM aluminum quick latch (Z) or slide couplers are recommended
- Top tension cable available on request

Boom Fabric Information and Choices

Recommended Section Lengths: 50' and 100'

Recommended Use: These boom are recommended for large lakes, bays or harbors. Top cable is recommended when several hundred feet are deployed. 3/8" chain ballast is recommended when tidal flows or currents exist.

ACME Boom & Baffle Fabrics



ACME uses only premium, top-grade coated fabrics. With a true chemical bond between the polymer coating and base-weave yarns, our coated fabrics offer big advantages over laminated fabrics: superior seam strength and non-wicking characteristics – without the risk of delamination.

Jaton Coated Fabric



- Standard Color: International Yellow or Orange
- Base Fabric: Nylon @ 6 oz. / sq. yd.
- Finished Coated Weight: 22 oz. / sq. yd.
- Hydrocarbon / U.V. Exposure Rating: Good

Jaton Fabric provides a unique combination of high tear strength and high coating adhesion, resulting in exceptional resistance to abrasion, rips, tears, punctures and thermal shock. Jaton is recommended for use where exposure to hydrocarbons and U.V. light are intermittent.

Jaton Plus Coated Fabric



- Jaton Plus Coated Fabric
- Standard Color: Orange
- Base Fabric: Polyester @ 6 oz. / sq. yd.
- Finished Coated Weight: 24 oz. / sq. yd.
- Hydrocarbon / U.V. Exposure Rating: Very Good

Jaton Plus Fabric uses a specially formulated coating with "Elvaloy" plasticizer, which extends fabric life under U.V. and hydrocarbon exposure by up to 50% compared with regular Jaton. Jaton Plus Fabric is recommended for use where exposure to hydrocarbon and U.V. light are continuous and extended over long periods of time.