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BEFORE THE STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL

In the Matter of:
Application No. 2013-01

TESORO SAVAGE, LLC

TESORO SAVAGE DISTRIBUTION
TERMINAL

CASE NO. 15-001

PRE-FILED TESTIMONY OF
STEPHANIE BUTLER

I, Stephanie Butler, state as follows:

1. I swear under the penalty of perjury of the laws of Washington and the United States that the following testimony is true and correct.

2. I am over eighteen years of age and am otherwise competent to testify in this case. My testimony is based upon my education, training, experience, professional qualifications, and understanding of the matters herein.

3. Based on my professional experiences and training, I have developed an expertise in Archaeology.

4. The purpose of my declaration is to provide testimony regarding the Tesoro Savage Petroleum Terminal LLC, d/b/a Vancouver Energy (hereinafter, "TSPT" or the "Applicant") Application for Site Certification ("ASC") for the Vancouver Energy Terminal (the "Project") and its compliance with WAC 463-60-362(5), concerning impacts and mitigation of impacts to historic and cultural sites along the Columbia River from River Mile 1 to River Mile 107 from vessel wake during operation of the Project. Another witness, Jo Reese, of Archaeological Investigations Northwest, Inc., is providing testimony concerning historic and cultural impacts and mitigation at the project site during construction and operation.

SWORN PRE-FILED TESTIMONY OF STEPHANIE BUTLER - 1

68537-3

**Van Ness
Feldman** LLP
719 Second Avenue Suite 1150
Seattle, WA 98104
(206) 623-9372

1 5. I am a Senior Archaeologist at AECOM, located as 111 SW Columbia,
2 Suite 1500, Portland, Oregon 97201.

3 6. I am a Principal Investigator for AECOM's cultural resources program in
4 the Pacific Northwest region and a Registered Professional Archaeologist ("RPA"). I
5 have more than nineteen years of experience in cultural resources management and
6 archaeological investigations. I have supported Applications for Site Certification and
7 Conditional Use Permit applications for energy-related projects in Washington and
8 Oregon. My work on these projects have involved managing the cultural and
9 archaeological studies, preparing technical reports in compliance with SEPA and NHPA,
10 participating in agency and tribal consultation, and preparing presentations in support of
11 testimony for public hearings. I have also conducted several studies related to shoreline
12 erosion and potential impacts to cultural resources situated in river or reservoir shoreline
13 settings. A copy of my CV is attached as Attachment A.

14 7. I have reviewed relevant portions of the ASC, as well as the Draft
15 Environmental Impact Statement ("DEIS") and key comments thereto to form my
16 opinions and testimony.

17 **I. SUMMARY OF WAKE/CULTURAL RESOURCES WORK FOR**
18 **VANCOUVER ENERGY**

19 8. As a Senior Archaeologist at AECOM, I led an investigation to assess the
20 potential for Project-related vessel wakes to impact cultural resources (that includes
21 archaeological sites and districts, historic structures, as well as Traditional Cultural
22 Properties [TCP]) situated along the Oregon and Washington shorelines of the Columbia
23 River from River Mile 1 to River Mile 107. The investigation consisted of background
24 research, GIS analysis, field investigation, and preparation of a report that provides the
25 study results, conclusions, and recommendations. This report used the cultural resource

1 data from a previous study performed by AECOM for the Millennium Coal Export
2 Terminal Project that looked at the potential for identical types of impacts from River
3 Mile 1 to River Mile 63.

4 9. The methodology for the shoreline erosion study consisted of several
5 components. These components consisted of:

6 (a) A review of previous environmental studies conducted to analyze the
7 causes of shoreline erosion along the Columbia River;

8 (b) A review of Oregon State Historic Preservation Office and Washington
9 Department of Archaeology and Historic Preservation site files for previously recorded
10 cultural resources situated on the Columbia River;

11 (c) A review of existing anthropogenic (human-made) features such as
12 shoreline armoring, pile dikes, road fill, and rip rap, which can affect intensity of wave
13 erosion as represented in existing Geographic Information System (GIS) data;

14 (d) A review of geomorphic surfaces and bank soil texture in the vicinity of
15 the previously recorded cultural resources to determine relative susceptibility to erosion
16 and sediment transport; and

17 (e) Measuring of the distance from the Columbia River ship channel to
18 cultural resource locations (along the shoreline).

19 10. As a result of the file search, the study identified 94 cultural resources
20 along the Columbia River shoreline from RM 0 to RM 107 in Oregon and Washington.
21 Using three variables (soil types, distance from the ship channel, presence/absence of
22 anthropogenic features) as a screening mechanism, it was determined that 22 of the 94
23 cultural resources could be potentially susceptible to shoreline erosion from vessel wakes.
24 The 22 sites are situated near or in erodible soils, in close proximity to the Columbia
25 shipping channel, and noted by archaeologists in previous reports as subject to erosion.

1 11. A field team consisting of a geoarchaeologist, archaeologist, and historian
2 visited the 22 cultural resource locations to assess the relative susceptibility of the sites to
3 damage from boat wake-induced erosion. As a result of the field assessment, this
4 shoreline erosion study concluded that there is a low probability that Project-related vessel
5 wake erosion would impact previously recorded cultural resources along the shoreline
6 from RM 0 to RM 107 in Oregon and Washington. In general, the study found that
7 several of the previously recorded cultural resources have already been impacted by
8 shoreline erosion, development, recreation, looting, or the placement of dredge spoils. It
9 was also found that many of the individual sites exhibited some form of shoreline
10 protection, such as vegetation, forebeaches, rip rap, or pile dikes, that would tend to
11 inhibit or reduce boat wake energy thus minimizing the potential for measurable erosion
12 from boat wakes. I did not recommend any additional work, including any mitigation for
13 potential Project impacts to cultural resources in the study.

14 12. I do not agree with statements made in the DEIS Section 3.6.5 that
15 mitigation measures are needed to address potential wake effects on cultural resources.

16 13. In our study, there are additional variables that were not considered in the
17 DEIS that contribute to analyzing the magnitude and intensity of potential impacts to
18 archaeological sites from wake. Our study describes these variables to include the
19 proximity of the site to the shipping channel, the geomorphology and structure of the
20 shoreline where the site exists, the erodibility of the existing soil types, exposure of the
21 shoreline to river currents and winds, seasonal fluctuations in river flows and elevations,
22 presence of anthropomorphic features (such as dikes, roads, riprap, dredge fill, etc.), and
23 the relative physical integrity of the site. Our data showed that individual archaeological
24 site conditions would tend to inhibit, reduce, and/or minimize boat wake energy thus
25 minimizing the potential for measurable erosion from vessel wakes. The study also

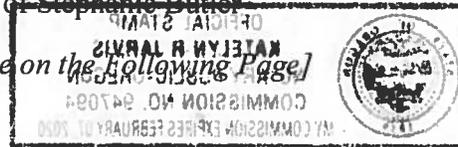
1 revealed that the existing sites had already been impacted by manmade or natural erosion,
2 manmade structures, looting, or destruction due to use as modern fishing locations. This
3 combination of factors suggests that the potential for Project effects on shoreline cultural
4 resources would be low and mitigation measures would not be required.

5 14. Given our recommendations, it is my opinion that the mitigation measures
6 in DEIS Section 3.6.5 would not be effective, as the areas studied for impacts to aquatic
7 species from wake stranding (such as County Line Park, Sauvie Island, and Barlow Point)
8 have been significantly modified by levees, dredged materials, pile dikes, and shoreline
9 armoring thus reducing the likelihood of these locations featuring intact cultural resources.
10 All of these locations also feature broad forebeaches with a slope that is less than 5%.
11 Pearson, W. H., Fleece, W.C., Gabel, K., Jenniges, S., and Skalski, J. R. 2008. *Spatial*
12 *Analysis of Beach Susceptibility for Stranding of Juvenile Salmonids by Ship Wakes*. Final
13 Report Prepared for the Port of Vancouver, Vancouver, Washington by ENTRIX, Inc.,
14 Olympia, Washington, Project No. 4154501. Due to the minimal slope, wave energy
15 would be significantly reduced prior to reaching any potentially exposed shore bank.
16 Lastly, no previously recorded cultural resources were identified at Barlow Point or
17 County Line Park and previously recorded cultural resources situated on Sauvie Island
18 would have little potential to be affected by vessel wakes due to the types of sites
19 identified along the Island's shoreline, the shoreline structure, the placement of dredged
20 materials, and other shoreline protection measures that have been undertaken.

21 15. The following document is attached to my testimony for reference:

22 Attachment A: Curriculum Vitae of ~~Stephanie Butler~~

23 [Signature on the following page]



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DATED this 13th day of May, 2016.

Stephanie Butler
Stephanie Butler, Declarant

STATE OF Oregon)
COUNTY OF Multnomah)

Stephanie Butler, being duly sworn upon oath, deposes and says: The foregoing testimony is true, correct and complete to the best of my knowledge, information and belief and is given subject to the laws of perjury in the State of Washington.

GIVEN under my hand and official seal this 12 day of May, 2016.

NOTARY PUBLIC in and for the State of:
Oregon
Residing at: Multnomah
My Commission Expires: Feb 07 2020
Katelyn Jarvis
Printed Name of Notary:
[Signature]

