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ENERGY FACILITY SITE  
EVALUATION COUNCIL

BEFORE THE STATE OF WASHINGTON ENERGY  
FACILITY SITE EVALUATION COUNCIL

In the Matter of: Application No. 2013-01

CASE NO. 15-001

TESORO SAVAGE, LLC

PREFILED TESTIMONY OF FIRE CHIEF  
JOSEPH B. MOLINA, SUBMITTED BY  
THE CITY OF VANCOUVER

VANCOUVER ENERGY DISTRIBUTION  
TERMINAL

Q: Please state your name, place of employment and title, and address.

A: My name is Joseph B. Molina. I am the Fire Chief for the City of Vancouver, Washington ("Vancouver"). My office address is Vancouver Fire Department, 7110 NE 63rd Street, Vancouver, WA 98661.

Q: Describe how long you have held your current position and summarize your current job responsibilities as they relate to the subject matter of your testimony.

A: I have been Vancouver's Fire Chief since February 2011. I plan, direct, manage and oversee the activities of the Vancouver Fire Department ("VFD") emergency services, including fire suppression, fire investigation, advanced life support emergency medical services, hazardous materials response and mitigation, confined space and trench rescue, water rescue and marine firefighting.

ORIGINAL

1 Q: Identify the previous professional positions you have held and summarize the  
2 corresponding job responsibilities related to the subject matter of your testimony.

3 A: I began my fire service career with the Waco, Texas Fire Department in 1992 as a  
4 firefighter. I later served as an Engineer, Lieutenant and Captain. In 2003, I was  
5 promoted to Assistant Fire Chief. In January 2008, I joined VFD as the Deputy Chief of  
6 Operations.

7 Q: Review your professional experience related to emergency and fire preparedness and  
8 response.

9 A: I have served as both a responder as well as an Incident Commander for a variety of  
10 emergencies including hazardous materials incidents. I have over 23 years of experience  
11 with all levels of fire service responsibility, including training as a Hazardous Materials  
12 Technician for fire department response and as part of a FEMA USAR Team response.

13 Q: Describe your educational degrees and professional certifications.

14 A: I have a Bachelor of Arts degree in Fire Administration and Management from Western  
15 Illinois University; an Associate degree in Applied Science/Paramedic Management from  
16 McLennan Community College in Waco, Texas; and an Associate degree of Applied  
17 Science/Fire Service Administration from Weatherford College in Weatherford, Texas.

18 Q: Identify any organizations of which you are a member related to emergency and fire  
19 preparedness and response.

20 A: I am a member of the International Association of Fire Chiefs and the Washington State  
21 Association of Fire Chiefs.

22 Q: Provide an overview of the oil terminal proposed by the Applicant Tesoro Savage, LLC  
23 (“Tesoro”) as it relates to the opinions expressed in your testimony.

1 A: Tesoro has proposed to construct and operate a new crude oil terminal (“Terminal”) at the  
2 Port of Vancouver, Washington (“Port”). An average of 360,000 barrels per day of  
3 Bakken crude oil and diluted bitumen (“Oil Mixture”) would be delivered to the  
4 Terminal. The crude oil would be transported over the BNSF railroad to the Port using  
5 High Hazard Flammable Trains (“HHFTs”)<sup>1</sup> consisting of up to 118 oil tank cars. An  
6 average of four HHFTs per day would unload crude oil through a combination of  
7 aboveground and belowground transfer pipelines. These pipelines would transfer the  
8 crude oil either directly onto marine vessels or into the Terminal’s six above-ground  
9 storage tanks, each having a storage capacity of up to 370,000 barrels of crude oil.  
10 Portions of the pipelines and two of the storage tanks would have electric heaters for  
11 handling higher viscosity crude oil. From the storage tanks, oil would be loaded onto  
12 marine vessels that would deliver crude oil to refineries primarily located on the U.S.  
13 West Coast.

14 Q: Explain the hazardous characteristics of the Oil Mixture.

15 A: A recent report from the Transportation Safety Board of Canada shows that Bakken oil  
16 produces flammable vapors at temperatures as low as minus 31 degrees Fahrenheit,  
17 which is similar to gasoline. Thus the Oil Mixture would readily form explosive vapor  
18 mixtures with air. Both the Oil Mixture and the vapors it would generate would be  
19 highly flammable and easily ignited by heat, static discharges, sparks or flames. If these  
20 vapors were exposed to a source of ignition, they could transmit the ignition back to the  
21 Oil Mixture and cause a sudden, intense fire known as a flash fire. Anyone in close  
22

23 \_\_\_\_\_  
24 <sup>1</sup> HHFTs are trains having a continuous block of 20 or more tank cars loaded with a flammable liquid or 35 or more cars loaded with a flammable liquid dispersed through a train.

1 proximity when the flash fire ignites, including firefighters in protective equipment,  
2 would be at risk for serious injury or death.

3 In addition, as noted in the Prefiled Testimony of Michael S. Hildebrand, these  
4 vapors would tend to spread along the ground and collect in confined areas such as storm  
5 sewers,<sup>2</sup> causing secondary fires to erupt unpredictably, even hours later, when the  
6 vapors come into contact with an ignition source. The natural topography of the rail line,  
7 running in close proximity and parallel to the northern bank of the Columbia River, will  
8 affect the potential for a fire to spread to surrounding vegetation and improvements.  
9 Certain weather events and Columbia River Gorge wind effect may have significant  
10 impact on the progression and spread of a fire. A fire next to an upward slope will  
11 generally intensify local winds, which makes the fire more likely to spread uphill. The  
12 dynamics of these local winds also affect the spread of flammable vapors. Thus  
13 secondary fires from flammable vapors are particularly dangerous because they may  
14 occur at a distance from the main incident, in an area that is considered safe, and they  
15 may occur later in time.

16 Q: Describe VFD's current firefighting and emergency response capabilities and capacity.

17 A: VFD's complement of sworn firefighters is 188 firefighters to staff 10 stations, over three  
18 shifts, with a minimum 24/7 staffing of 40 on-duty personnel. VFD runs an average of  
19 70 calls per day or 25,500 runs a year. VFD serves a population of approximately  
20 255,000 people within the service area shown on the map attached to this testimony as  
21 Exhibit B. Any HHFT derailment scenario or fire at the Terminal would not stop daily  
22 call volume. VFD would still need to provide service and would rely on mutual aid, not

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23 <sup>2</sup> In general, the vapor density of crude oil vapor is heavier than ambient air, so the oil vapor will sink and settle  
24 in low lying areas. See the Materials Safety Data Sheet for Bakken crude oil, attached to this testimony as  
Exhibit A.

1 only for response to the regular emergencies and covering stations, but also for the  
2 emergency incident. In addition, not all of the responding units would arrive at once.

3 VFD uses the following protocol for an initial response for a typical commercial  
4 fire (i.e., not involving hazmat):

5 First Alarm: 2 Battalion Chiefs; 4 Engines (12 personnel); 2 Trucks (8 personnel)

6 Second Alarm: 4 more Engines (would be VFD and mutual aid companies based on  
7 closest unit dispatching); 2 Trucks (mutual aid)

8 VFD has the following resources staffed each day:

- 9 • 10 Engine companies with 3 personnel each on duty
- 10 • 2 Trucks with 4 personnel each on duty
- 11 • 2 Battalion Chiefs
- 12 • Minimum, 24/7 staffing of 40 total on-duty personnel

13 Consequently, a two-alarm commercial fire would require 75 percent of the on-duty  
14 complement of 40 firefighters, reducing the VFD firefighters available to cover the rest of  
15 Vancouver to two engine companies (six personnel). A recall of off-duty firefighters  
16 could take up to an hour to staff reserve engines.

17 As incidents are reported computer software in dispatch determines what to move,  
18 where to move it and when to move it to continue coverage. This process is also used to  
19 move mutual aid companies into and out of Vancouver to maintain emergency response.  
20 With every move and opening in a station area, response times are affected, usually by  
21 increasing response times. An incident of any magnitude will have an adverse effect on  
22 VFD's ability to respond within its adopted Standard of Cover time of 7 minutes and 59  
23 seconds.

24 While an incident is continuing and companies are committed, coverage  
throughout Vancouver and the mutual aid areas must be maintained. Fires, heart attacks,

1 car wrecks and any number of other emergency calls will continue. As additional  
2 resources are requested and committed a “ripple effect” is created within and across the  
3 regional emergency response system.

4 VFD does not staff specialty response assets, such as a Hazmat Team, Technical  
5 Rescue Team or Marine response. If these assets were required, off-duty personnel  
6 would be called in to respond and to staff the specialized equipment. The performance  
7 response standard for these services is 60 minutes. Consequently, it is not realistic to  
8 expect that specialty response assets would be available during the first phase of an  
9 HHFT fire described by Michael Hildebrand at pages 15 to 16 in his prefiled testimony.

10 Q: Describe how VFD would respond to an incident involving the first scenario posited by  
11 Michael Hildebrand at pages 19 to 20 in his prefiled testimony.

12 A: VFD’s initial response would include a first alarm assignment as described above:  
13 4 engines, 2 trucks and 2 Battalion Chiefs. A second alarm would be quickly initiated for  
14 an additional 4 engines, 2 trucks and a VFD Duty Chief. The Incident Commander  
15 (“IC”) would also request additional ambulances in the event there are injuries associated  
16 with the accident or subsequent fire. Notification would be made to the U.S. Coast Guard  
17 and Washington Department of Ecology to notify them of the potential impact to the  
18 water. The IC would initiate a call back of the Hazmat Team to respond. The IC would  
19 initiate evacuations and initial actions based on DOT Guide 128, which would include  
20 closing I-5 and the I-5 bridge. A third alarm would be requested for additional mutual  
21 aid assets.

22 Q: Describe how VFD would respond to an incident involving the second scenario posited  
23 by Michael Hildebrand at pages 20 to 21 in his prefiled testimony.

1 A: VFD's initial response would be the same as for the first incident with respect to  
2 initiating first and second alarms. Likewise, the IC would request additional ambulances,  
3 the Coast Guard and Ecology would be notified, and the IC would initiate a Hazmat  
4 Team call back. The IC would initiate evacuations and initial actions based on DOT  
5 Guide 128, which would include closing State Route 14. Mutual Aid for marine assets  
6 would be requested to evacuate people that may be unprotected along the shoreline. A  
7 third alarm would be requested for additional mutual aid assets.

8 Q: Explain mutual aid and describe the challenges VFD would face in using mutual aid  
9 forces to assist in firefighting and evacuation activities in the event of major fire.

10 A: Mutual aid is a voluntary reciprocal exchange of resources and services for mutual  
11 benefit. Since emergency response actions are inherently episodic and everyone benefits  
12 from improved response capabilities, many firefighting and police forces enter into  
13 mutual aid agreements with one another. However, mutual aid would be of limited  
14 assistance to VFD for an incident involving the Terminal or HHFTs transporting the Oil  
15 Mixture. Many of the mutual aid fire districts in Clark County are rural districts staffed  
16 by volunteers who do not have training in fighting industrial fires. Portland firefighters  
17 might have the necessary training or experience, but the mutual aid agreement with  
18 Portland excludes assistance for hazardous materials incidents. Portland's ability to  
19 respond is further restricted by congestion and bridge lifts on the century old Interstate-5  
20 bridge crossing the Columbia River.<sup>3</sup> Nonetheless, due to resource constraints, VFD  
21 must rely heavily on mutual aid to fill gaps in it capabilities.

22  
23  
24 <sup>3</sup> In addition, an evacuation area of one-half mile surrounding the Terminal would require closure of I-5. (See n.4 and accompanying text.)

1 Q: Describe a gap analysis as it relates to emergency response, and discuss whether the draft  
2 Environmental Impact Statement (“DEIS”) for Tesoro’s proposal includes such an  
3 analysis.

4 A: For emergency management personnel to make accurate and timely decisions, they must  
5 have an accurate perception of reality, with respect to both what resources are available  
6 and what resources are necessary to respond to the specific hazards and risks they face.  
7 A gap analysis involves assessing actual emergency response capabilities and the needed  
8 capabilities for a given risk, and comparing them to identify shortfalls in available  
9 resources. Then plans can be made to remedy these shortfalls.

10 I reviewed the DEIS, and it did not contain such a gap analysis of VFD’s ability  
11 to respond to HHFT spills or fires or spills or fires at the Terminal. For example, the  
12 DEIS did not adequately address the ongoing impacts as they relate to the need for the  
13 training and staffing for the VFD. Rather, the DEIS acknowledged VFD’s concerns that  
14 additional ongoing planning, training and equipment would be necessary to respond to  
15 spills or fires involving HHFTs, marine transport vessels and the Terminal. It also  
16 acknowledged VFD’s concern that responding to such an incident would seriously impair  
17 VFD’s ability to maintain its current service levels for the community. However, having  
18 acknowledged these concerns, the DEIS does not identify and quantify the gaps in current  
19 capabilities compared to the demands for services created by the proposal, and it does not  
20 identify measures to close these gaps.

21 Q: Explain what additional resources in your opinion VFD would need to address the  
22 hazards and risks associated with Tesoro’s proposed project.

1 A: Similarly to the Vancouver Police Department, a substantial share of VFD's overtime  
2 budget is used due to funding shortfalls for meeting basic service needs. Thus, VFD's  
3 ability to fund overtime necessitated by a major incident response will have a significant  
4 impact on its budget to provide current service levels. VFD is also constrained in funding  
5 overtime to backfill positions to allow staff to attend training. In particular, VFD needs  
6 additional resources for training in industrial and storage tank firefighting. To maintain  
7 service levels in the long term VFD needs sustained funding for training, backfilling and  
8 equipment maintenance. In addition, VFD needs assistance in planning and training with  
9 foam and other specialty equipment to improve deployment speed and mobility for use of  
10 specialized equipment and specialty teams such as hazmat, technical rescue and marine  
11 responses. Being able to deploy foam trucks, specialized equipment and trained staff  
12 early in an incident may be a reasonable capability, particularly given the importance of  
13 mobilizing a rapid response during the initial phase of an HHFT fire, as discussed in  
14 Michael Hildebrand's prefiled testimony.

15 Q: Describe the transportation corridor through Vancouver for HHFTs to deliver the Oil  
16 Mixture to the Terminal.

17 A: Vancouver is Washington's fourth largest city with a population of about 170,000 people.  
18 HHFTs would travel for 11.3 miles through areas of Vancouver typifying a highly  
19 populated, urban environment consisting of residential and commercial areas as well as  
20 the city's downtown. Due to the potential severity of an HHFT fire, VFD would initiate  
21 an evacuation extending for one-half mile in all directions around the fire as  
22 recommended in the DOT Emergency Response Guidebook, Guide 128.<sup>4</sup> The maps  
23 attached to this testimony as Exhibit C illustrate Vancouver's critical infrastructure

24 <sup>4</sup> Available at <http://www.caslab.com/ERG/Guide-128.pdf>.

1 located within one-half mile on either side of the HHFT corridor and the Terminal. As  
2 discussed in the Prefiled Testimony of Assistant Police Chief Michael S. Lester, such as  
3 evacuation would pose significant challenges and put additional resource demands on all  
4 emergency responders.

5 There are 27 at-grade rail crossings within Vancouver along the route to the  
6 Terminal, and 13 of these provide the only access for ingress or egress for the area they  
7 serve. These crossings are the only access to homes for thousands of residents. The  
8 standard for an emergency 9-1-1 response time to priority 1 and 2 calls is 7 minutes and  
9 59 seconds. The HHFTs traveling to and from the Terminal would cause additional “gate  
10 downtime” delays of over 5 minutes, which for an emergency call is quite significant.  
11 An accident could cause delays lasting hours. For example, on December 14, 2015, a  
12 BNSF freight train carrying grain collided with a vehicle near a public at-grade crossing.  
13 The freight train, which was 1.25 miles long, blocked the only access for police, fire and  
14 emergency responders and the only roads for egress to 450 residents living south of the  
15 railroad tracks for three hours, as shown on the map attached to this testimony as  
16 Exhibit D.

17 The four to five HHFTs making daily deliveries to and from the Terminal would  
18 each be about 1.5 miles long. If the Terminal is developed, the number of HHFTs  
19 traveling to or through Vancouver would approximately double, causing the risk of  
20 delays attributable to HHFTs to likewise increase. The DEIS specifically recognizes that  
21 this increased risk to the Vancouver population constitutes a major, unavoidable impact  
22 of Tesoro’s proposal. (DEIS at ES-41, § 3.15.3.2 at 3.15-14.) The only recommended  
23 mitigation is that the affected public and private entities “[i]nvestigate the need for and  
24

1 feasibility of constructing new grade-separated railroad crossings.” (*Id.* § 3.15.5 at 3.15-  
2 15.)

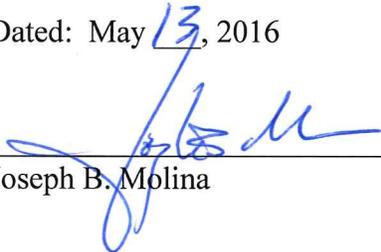
3 Q: Discuss VFD’s ability to respond to an Oil Mixture fire on a marine vessel at the  
4 Terminal.

5 A: VFD has a quick-response vessel that could be deployed to a vessel fire. However, this  
6 vessel has significant limitations. First, this vessel is not staffed. Its crew cross-staffs an  
7 engine at VFD Station No. 1. If there are no operators and deckhands on duty it could  
8 take an hour to call back staffing for the vessel, which consists of 3 people, a captain,  
9 pilot and deckhand. Second, although the vessel has the capability to pump 3,000 gallons  
10 per minute of water, it has a limited reach. As a result, the fireboat may be unable to  
11 reach the location of a fire on a large, deep draft oil tanker used to transport the Oil  
12 Mixture from the Terminal. Third, the fireboat does not have the quantities of foam that  
13 could be necessary for a crude oil fire onboard a tanker. As noted above, the logistics for  
14 deployment of foam on a large scale to such a fire are problematic. Fourth, given the  
15 substantial vessel traffic at the Port it is likely that the fireboat would be needed to ensure  
16 that other vessels in the vicinity remain at a safe distance from the fire, to provide any  
17 necessary waterside rescue operations, and to protect exposures that could be threatened.  
18 Finally, as noted above, VFD’s fireboat is cross-staffed by an engine company, and any  
19 additional marine response with a fireboat would be from mutual aid departments.  
20 Moreover, regional planning for a vessel fire incident at the Port is wholly inadequate.  
21 For example, the Marine Fire Safety Association’s Lower Columbia Maritime Fire Safety  
22 Plan has not been updated in 24 years.

1 STATE OF WASHINGTON )  
2 COUNTY OF CLARK ) ss.

3  
4 I, Joseph B. Molina, do hereby solemnly affirm: (i) I am competent to testify in this  
5 adjudication; (ii) I have personal knowledge of the facts and professional opinions stated in the  
6 foregoing prefiled testimony and they are true, accurate and complete to the best of my  
7 knowledge, information and belief; and (iii) I adopt the foregoing prefiled testimony as my own.

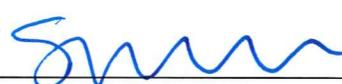
8 Dated: May 13, 2016

9  
10   
11 \_\_\_\_\_  
12 Joseph B. Molina

13 I certify that I know or have satisfactory evidence that Joseph B. Molina is the person  
14 who appeared before me, and said person acknowledged that he signed this instrument and  
15 acknowledged it to be his free and voluntary act for the uses and purposes mentioned in the  
16 instrument.

17 Dated: May 13, 2016



20   
21 \_\_\_\_\_  
22 Notary Public

23 My appointment expires:

24 \_\_\_\_\_  
11/1/16

1 Dated: May 13, 2016

2 Respectfully Submitted,  
3 CITY ATTORNEY'S OFFICE  
4 VANCOUVER, WASHINGTON

5 By: 

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