BergerABAM

210 East 13th Street, Suite 300, Vancouver, Washington 98660-3231
360/823-6100 • 360/823-6101 Fax • www.abam.com

1 April 2015

Mr. Stephen Posner
Energy Facility Site Evaluation Council
Washington Utilities and Transportation Commission
P.O. Box 43172
Olympia, WA 98504-3172

Subject: Vancouver Energy
EFSEC Application No. 2013-01, Docket No. EF131590
Response to EFSEC Request for Review of Draft Environmental Impact Statement (EIS) Chapter 2 - Proposal Description

Dear Mr. Posner:

On behalf of Tesoro Savage Petroleum Terminal LLC (the Applicant), BergerABAM is providing a response to the Energy Facility Site Evaluation Council's (EFSEC) request that the Applicant "verify the project description" in EFSEC's Draft EIS Chapter 2, dated 24 March 2015.

The response below is organized in two attached tables.

- Table 1 responds to specific clarifications noted in the transmittal to the Applicant.
- Table 2 identifies other text the Applicant believes merits editing to correctly describe the project. For the most part these changes request consistency with project description language submitted by the Applicant in its PDEIS. These changes do not change the description of the proposal, nor do they result in any changes in the analysis of impacts of the Facility.

A CD-ROM with electronic data relative to recommended figure revisions is also enclosed.

Please feel free to contact me at 206/431-2373, or irina.makarow@abam.com, if you have any questions about this submittal. We look forward to further coordination with you, your staff, and EFSEC's consultants.

Sincerely,

Irina Makarow
Senior Environmental Project Manager

IM:nb
Enclosure

cc w/encl: Kelly Flint, Savage Companies
Jay Derr, Van Ness Feldman

Table 1: Response to Clarification Requests

Section and Page	Original Text and Clarification Requested by EFSEC	Applicant Response
Page 2-9 Section 2.2.2.3	"Five collection pipeline headers would be located along each 30-car track within the railcar unloading facility." Clarification: Applicant to confirm	The collection headers are short sections of pipe. To avoid confusion between the "collection headers" and the "transfer pipelines," the Applicant recommends that the word "pipeline" only be used in terms of description of "transfer pipelines," which are part of Area 500. The Applicant recommends the following revisions to the text: "The railcar unloading facility would be a structure enclosing three parallel tracks and within which the unit trains on each track would be secured for tank car unloading. Each track would include 30 tank car unloading stations for a total of 90 tank car unloading stations within the entire structure. A crude oil collection ~~pipeline~~ header would collect the flow of crude oil from each group of six railcars. Five collection pipeline headers would be located along each 30-car track within the railcar unloading facility. Each collection header is directly connected to a dedicated pumping station that transfers crude oil into a 24-inch-diameter transfer pipeline. One transfer pipeline serves each unloading track as described further in Section 2.2.2.4 below."
Page 2-21 Section 2.2.2.6	"As additional protection, two 24-inch-high intermediate berms would be installed within the larger containment area." Clarification: Two would not separate all six tanks. Also not shown in figure. Applicant to clarify location of these berms.	The Applicant recommends the text be revised as follows: "As additional protection, ~~two~~ 24-inch-high intermediate berms would be installed within the larger containment area to separate each of the six tanks." A revised Figure 2.9 (and associated GIS layers) is provided on the enclosed CD-ROM.
Page 2-21 Section 2.2.2.5	"The E-house would have a footprint of approximately 1,250 square feet and would be single story." Clarification: There appear to be two control rooms for the same thing; one at storage area and one at marine terminal. Applicant to explain which control room controls what. See pages 2- 24 and 2-28 in PDEIS.	The references to control rooms at Area 300 should be deleted. Area 300 operations will be controlled from Area 200 and Area 400, as described in Section 2.2.3 of the PDEIS, *as revised* below: "The primary and secondary control systems of the Facility would manage the flow of crude oil from the unloading facility to the storage tanks and finally to the marine loading facility, and would also control the fire protection systems. The primary control system would be located in the E-houses constructed adjacent to the rail car unloading elements. The primary control system would monitor and control the tank car unloading operations and crude oil transfer to the storage tanks. The secondary control system would be located adjacent to the

EX-0018-000002-PCE

Section and Page	Original Text and Clarification Requested by EFSEC	Applicant Response
		dock. This system would control the flow of product from the storage tanks to the marine loading system. The primary control system would be able to override the secondary system. ~~An additional E-house would control the adjacent facilities supporting storage operations.~~ Separate fire suppression control and gas detection systems would be provided at Areas 200, 300, and 400."
Page 2-22 Section 2.2.2.7	"One E-house would be located at the marine terminal to xxx [placeholder for info from Applicant]." Clarification: Applicant to provide information on the purpose of this E-house.	Please see the response to the item above.
Page 2-27 Section 2.3.1.2	Table 2-2. Construction Workforce by Construction Element Clarification: Applicant to confirm: Does this table include the numbers in Table 2.3-2 (e.g., the entire Proposed Action, including deferred elements)?	No, Table 2-2 does not include the numbers in Table 2.3. Table 2-3 indicates the construction workforce that would be on site during construction of the "previously potentially deferred construction elements."
Page 2-30 Section 2.3.2.2	Applicant to confirm if approximately 130,000 cy of aggregate materials would be required for ground improvements.	The Applicant confirms that approximately 130,000 cy of aggregate materials would be required for ground improvements, per the information transmitted to EFSEC as part of response to DEIS Data Request 1.
Page 2-33 Section 2.3.3.3	"The pipelines would be cathodically protected at all belowground locations and coated to prevent corrosion." Clarification: This sentence is just a little unclear. Do you mean that all pipelines will be coated to prevent corrosion? Some commas would help to be clearer about which pipelines would be coated (all or just belowground). Applicant to confirm whether aboveground pipelines would also be cathodically protected or coated.	The Applicant recommends the text be replaced with the following: "Pipeline sections located below ground would be cathodically protected and coated to prevent corrosion."
Page 2-46 Section 2.4.2.6	"The waste from the marine terminal would be hauled off site." Clarification: Is this referring to solid waste? If yes, should probably be mentioned somewhere else, not	The Applicant recommends the text be revised as follows: "~~The~~ Sanitary waste from the marine terminal would be hauled off site."

EX-0018-000003-PCE

Section and Page	Original Text and Clarification Requested by EFSEC	Applicant Response
	here. If not solid waste, I have no idea what it refers to. Applicant to confirm if this is solid or liquid waste and provide additional detail as necessary.	
Page 2-48 Section 2.4.2.6	Natural Gas and Electricity Clarification: Applicant to provide estimates of gas and electricity consumption during construction and operations: Gas: • Minimum delivery pressure required • Peak hourly load or total connected load per hour • Firm or interruptible	*Natural Gas* Construction: Regarding an estimate of natural gas usage during construction, Section 4.7.2.1 of the PDEIS addressed anticipated usage of fuels during construction. Incidental use of propane during construction (for temporary space heating, powering of mobile construction equipment, such as forklifts, or heating of cooking grills used for authorized construction staff events (e.g., BBQ, etc.) is possible.[1] Such use of propane would be in very limited quantities and cannot be estimated. Natural gas per-se is not anticipated to be used to support construction activities. Operations: The maximum hourly gas usage is estimated to be the following: • Area 600 boilers: 0.1852 MMscf/hr, assuming all three unloading area boilers are operating • Assist gas for the eight MVCUs (total) in Area 400: 0.0305 MMscf/hr, based on the maximum gas usage provided by the vendor Jordan/Flare (30,600 cf/hr), The minimum natural gas delivery pressure is estimated to be 30-35 PSIG for the dock safety unit, and 10 PSIG for the natural gas-fired boilers. The service will be interruptible; if gas supply is lost, operations where it is in use will be shut down.

[1] Such activities would be conducted at locations permitted under the applicable fire codes, for example only in areas that are not rated as class 1 div-2 or class 1 div-1 (i.e., office areas or parking lots).

EX-0018-000004-PCE

Section and Page	Original Text and Clarification Requested by EFSEC	Applicant Response
		Electricity Construction: As indicated in the PDEIS, Section 4.7.2.1: " The amount of electricity consumed would be similar to other medium sized industrial construction projects, and would not be significant in terms of overall regional supply." The Applicant does not have an estimate of the amount of electricity to be specifically consumed during construction. Operations: As indicated in Section 4.7.2.2 of the PDEIS" "Electricity—Electricity would be used to heat and light indoor spaces; for outdoor lighting; and to power pumps, equipment, control systems and storage tank heaters. Facility load at full operation is estimated to be 231,100 kilowatt-hours per day."
Page 2-56 Section 2.5.1	"The unit trains would then be positioned on the appropriate on-site rail loop and placed under the control of the proposed Facility operator for the duration of unloading and returned to the railroad prior to departure." Clarification: Can we explicitly state or show in a figure, where the Facility operator will take custody of the train and whereupon leaving the Facility, the custody will transfer back to BNSF? Applicant to provide this information.	The hand off from the Class 1 railroad carrier to Facility operators will take place just before the vehicle traffic overpass at the Terminal 5 loop track entrance. Facility operators will then move the trains onto the loop and index the cars as needed. Following unloading, when the trains are ready for departure the railroad carrier will be notified and the cars will be moved to the departure tracks to the east of the Terminal 5 loop. The hand off back the BNSF or other Class 1 railroad carrier will take place at this location. Please also note that the Applicant has committed to having trains on the Port property manned from the time they arrive until they are completely unloaded.

Table 2: Other Applicant-Recommended Factual Revisions

Section and Page	Original Text	Applicant Recommended Revisions
Page 2-1 Section 2.1.1	"The Applicant is proposing to construct and operate a Facility that would receive an average of 360,000 bbl of crude oil per day by rail, temporarily store the oil on site, and then load the oil onto marine vessels for transport to existing refineries located on the West Coast of the United States."	The Applicant recommends the addition of the word "primarily" to the statement as indicated in the revisions below (emphasis added). As correctly captured in EFSEC's DEIS Section 2.5.3, crude oil could be received in refineries on the West Coast (California, Oregon, and Washington), Alaska and Hawaii, or terminals that offload to pipeline distribution systems.

EX-0018-000005-PCE

Section and Page	Original Text	Applicant Recommended Revisions
		"The Applicant is proposing to construct and operate a Facility that would receive an average of 360,000 bbl of crude oil per day by rail, temporarily store the oil on site, and then load the oil onto marine vessels for transport to existing refineries *primarily* located on the West Coast of the United States."
Page 2-1 Section 2.1.1	"Crude oil would be sourced primarily from Williston Basin in North Dakota and delivered to the proposed Facility by railroad within "unit trains" comprised of up to 120 sole purpose crude oil tank cars. "	The statement is not factually correct, in that the modifier "up to" assigns a maximum number to the number of tank cars that are anticipated to arrive in a unit train. Because unit train configuration is determined by the rail carrier, it is not possible for the Applicant to establish a precise number of cars to be received for each arriving unit train. Please refer to Section 1.5.1.2 of the PDEIS (emphasis added below)" An average of four unit trains per day would be delivered onto the Port's rail network via a Class 1 railroad for staging on the rail infrastructure serving the Facility. Trains would arrive at Terminal 5 from the east where they would exit the mainlines and enter the Port's industrial rail network and travel to the rail unloading building located on the north side of the Terminal 5 rail loop. Each unit train would include *approximately 100 to 120 tank cars*. Typical unit train length would be approximately 7,800 feet. Tank cars typically hold between 650 and 750 bbl of crude oil. A typical unit train would deliver between 65,000 and 90,000 bbl of crude oil.
Page 2-1 Section 2.1.1	"Existing railroad tracks belonging to BNSF Railway (a Class I Railroad) would be used to transport the crude oil from its source to the Port of Vancouver."	The statement is not factually correct; although the BNSF system is expected to be the *primary* rail-carrier to the Facility, it may not be the *only* carrier, as explained in Section 1.5.1.2 of the PDEIS (emphasis added): "The Port is served by dual Class 1 railroads (BNSF and Union Pacific), and mainline rails travel north, south and east from the Port. As indicated previously, it is expected that one of the primary sources of the crude oil delivered to the Facility would be existing unit train facilities located in the Williston and Powder River formations in North Dakota and Montana. *Both railroads operate numerous rail lines that could be used by trains serving the Facility*. However, Union Pacific does not have rail lines directly serving the area, and BNSF is anticipated to be *the primary carrier* serving the Facility. No specific route has been identified for trains serving the Facility and the railroads make routing decisions based on numerous factors."

EX-0018-000006-PCE

Section and Page	Original Text	Applicant Recommended Revisions
Page 2-1 Section 2.1.1	"An average of four unit trains per day would arrive at the proposed Facility. However on occasion, a fifth train may arrive within the daily 24-hour period. However, although an additional train could arrive at the Facility within a single 24 hour window, only 3 trains per day would arrive on occasion, thus equating to an average of four trains per day. The Facility is designed for a maximum through- put equivalent of the four deliveries per day."	As stated, the last sentence is not factually correct, as on occasion a fifth train can arrive and begin unloading within a "24-hour period", and complete unloading within the following "day." Also, as indicated in the Applicant's letter, dated 5 February 2015, to Stephen Posner and Sonia Bumpus (emphasis added): "The proposed throughput does not drive the Facility rail infrastructure, but rather it is the other way around. The Port's rail infrastructure is driving what is available within the Terminal 5 area. The Port's West Vancouver Freight Access project (WVFA) is permitted for 5 loop tracks in the Terminal 5 area. The WVFA project added grade separation between the north/south mainline rail and the *360,000 bpd throughput (4 trains) is based on tank car capacity and the number of tank cars in a unit train, using high-end assumptions regarding volumes per train so that potential impacts related to these volumes are not underestimated in the environmental documents*." Also refer to Response PD-6 (DEIS Data Request 2): "Typically four trains will be received and unloaded each day. However on occasion, a fifth train may arrive within the daily 24 hour period, and begin unloading within that current 24 hour period, but would complete unloading in the following 24 hour period. It is anticipated that receipts would average out at 360,000 bpd." It is recommended that this text be revised as follows to factually describe the proposal: "An average of four unit trains per day would arrive at the proposed Facility. However on occasion, a fifth train may arrive within ~~the~~ a daily 24-hour period, and begin unloading within that current 24-hour period, but would complete unloading in the following 24-hour period. ~~However, although an additional train could arrive at the Facility within a single 24 hour window,~~ On other days (or subsequent days), only 3 trains may arrive within certain 24-hour periods ~~per day would arrive on occasion~~, thus equating to an overall average of four train~~s~~ arrivals per day. The Facility is designed ~~for a maximum through- put equivalent of the four deliveries per day.~~ to receive an average of 360,000 bpd."
Page 2-6 Section 2.2.2.1	"Support buildings located near the storage tanks include a building that would also provide restrooms for workers."	The Applicant believes this is an inadvertent insertion of text from the description of Area 300, and should be deleted. Further, the Area 200 description does not include the containment tanks; however, these are addressed elsewhere in the document, but their location relative to the

EX-0018-000007-PCE

Section and Page	Original Text	Applicant Recommended Revisions
		administrative/support area is not clearly stated. The Applicant recommends the following revisions: "~~Support buildings located near the storage tanks include a building that would also provide restrooms for workers.~~Two double-shelled holding tanks, with a total capacity of approximately 1,000 bbl, would be constructed or installed adjacent to the administrative/support area.'
Page 2-6 Section 2.2.2.2 (see also Page 2-36, Section 2.3.4.1)	"All of the track improvements described above have been permitted as part of the WVFA and the Port would construct, operate, and maintain them. As such, they are considered "on-site connected actions" related to the proposed Facility."	This statement is not correct. The Applicant is proposing to construct two new rail loops (tracks 4106 and 4107) which have not been permitted under WVFA. As described in Section 2.6.1 and 2.6.2 of the Applicant-prepared PDEIS, the shifting of existing tracks and the construction of one additional track by the Port (track 4105) have been previously permitted under WVFA.
Page 2-9 Section 2.2.2.3	"Containment tanks (also known as holding tanks) would be installed to collect inadvertent releases of crude oil. Leaked or spilled crude oil would initially be captured in a collection pan, would then flow by gravity into a dedicated line, and would then be conveyed from the unloading facility to two secondary containment tanks. The tanks would be constructed of steel, covered, and anchored in accordance with applicable seismic design requirements. The two secondary containment tanks would have a total capacity of 900 bbl, enough to contain 110 percent of the contents of a single tank car. If a discharge to these tanks occurs, the contents of the tanks would be removed by vacuum trucks and disposed at an approved off-site location."	The Applicant has revised the design of the containment tanks, which would now be able to contain 1,000 bbl, which is still in excess of 110 percent of the contents of a single tank car.
Page 2-16 Section 2.2.2.5	"The building would house two primary electrically powered boilers and one standby natural gas-fired boiler, each with a capacity of 62 million British thermal units per hour, to provide steam (typically the two electric boilers would operate concurrently) for the heating of tank cars during unloading of crude oil."	As indicated in PDEIS Section 2.2.2.11, all three Area 600 boilers are natural gas fired. "The building would house two primary and one standby natural gas-fired boilers, each with a capacity of 62 million British thermal units (MMBTU) per hour, to provide steam (two boilers operating) for the heating of tank cars during unloading."

EX-0018-000008-PCE

Section and Page	Original Text	Applicant Recommended Revisions
Page 2-22 Section 2.2.2.7	"An MVCU would be installed to combust the hydrocarbons in the vapors that are expelled from empty marine vessels when loading with crude oil. Up to eight MVCUs would be installed dockside on a 100- by 50-foot concrete slab, housing equipment that has eight 8-foot-diameter steel stacks approximately 25 feet in height."	This text should be revised as follows, as eight MVCUs are proposed: "~~An~~ MVCUs would be installed to combust the hydrocarbons in the vapors that are expelled from empty marine vessels when loading with crude oil. Up to eight MVCUs would be installed dockside on a 100- by 50-foot concrete slab, housing equipment that has eight 8-foot-diameter steel stacks approximately 25 feet in height."
Page 2-24 Section 2.2.2.8	"The fire foam water systems installed throughout the proposed Facility would use foam that is fluorosurfactant-free. This type of foam does not contain surfactants that persist and bioaccumulate in the environment (Scheffey and Hanauska 2002). However, foams that do not contain fluorocarbon surfactants do not currently have the same performance as existing foams. The lack of capability could be compensated for by increased agent volumes and applications rates."	The Applicant recommends that the second sentence be removed from Chapter 2 as it extends beyond a "project description". It may however be relevant to discuss the effectiveness of fuorosurfactant-free fire-fighting foams elsewhere in the DEIS. To that end, and for the DEIS writer's consideration, the Applicant is providing additional information wherein the effectiveness of modern C-6 foams has been tested and demonstrated "without sacrifice in fire performance" (see Attachment 1).
Page 2-26 Section 2.2.2.8	"In the transfer pipeline area (Area 500), expansion loops would be included in the design of the transfer pipelines to ensure that the pipelines can expand and contract to accommodate changes in ambient temperature."	The description of design measures for fire and explosion prevention measures in Area 500 omits mention of fire hydrants that will serve for fire response, as follows (see Section 2.2.8.1 of the PDEIS): "The pipeline area would be served by existing and new (as constructed to serve specific Facility areas) hydrants in the vicinity of the pipeline alignment."
Pages 2-27, 2-28 Section 2.3.2.1	"The laydown areas would be on or adjacent to the proposed Facility site (Figure 2-12). "	The Applicant requests that the statement be revised to reflect that the final configuration of the laydown areas will be based on construction needs, and is not necessarily bound to the locations indicated in Figure 2-12. See PDEIS Section 2.3.1: "The laydown areas would be on or adjacent to the proposed Facility site. Final configuration would be determined based on construction needs."
Page 2-28 Section 2.3.2.1	"Some foundations and utility and pipeline excavations may require dewatering during construction. The design of dewatering systems would be the responsibility of the contractor and it is anticipated that groundwater inflow, if encountered, would be controlled by pumping from sumps. A waste	The Applicant requests that the last sentence be revised as indicated below. The Port of Vancouver does not require groundwater testing for groundwater extracted from locations where there is no contamination. PDEIS 4.16.1 Spent Pot Liner Storage Area – Environmental Covenant Conditions (pg. 285), and PDEIS 4.16.1 Ingot Pot Cap – Environmental

EX-0018-000009-PCE

Section and Page	Original Text	Applicant Recommended Revisions
	determination would be required for any water that is extracted during dewatering activities and water must be handled, stored, and managed according to applicable laws and regulations."	Covenant Conditions (pg. 287), identified the requirements for a waste determination for water extracted specifically from these areas. "A waste determination would be required for any water that is extracted during dewatering activities in locations subject to restrictive covenants and water from such locations must be handled, stored, and managed according to applicable laws and regulations."
Page 2-30 Section 2.3.2.2	"These soil stabilization measures would adhere to API 650 (or more conservative settlement criteria) and standard foundation design for the proposed Facility structures and buildings."	This statement does not factually describe all of the settlement design criteria the Applicant proposed to incorporate into design. API 650 only establishes minimum settlement criteria to prevent deformation of storage tanks and associated oil handling equipment. The statement should also incorporate (or refer to) the provisions cited in PDEIS Section 2.3.1.2: "The proposed final design of the Facility would comply with the provisions of the building codes and requirements for seismic hazards that apply to the proposed location, including: • 2012 International Building Code (IBC), Chapters 16, 17, 18, 19, 22 and 23 • ASCE 7-10, Minimum Design Loads for Buildings and Other Structures, Chapters 11, 12, 13, 14, 15, and 23 • ACI 318-11, Building Code Requirements for Structural Concrete, Chapter 21 and Appendix D • AISC Steel Construction Manual, Fourteenth Edition, including AISC 360-10, Specifications for Structural Steel Buildings, Part 2 • AISC Seismic Design Manual, Second Edition, including AISC 341-10, Seismic Provisions for Structural Steel Buildings, general sections • AF&PA SDPWS 2008, AF&PA Special Design Provisions for Wind and Seismic, general sections"
Page 2-31 Section 2.3.2.5	"Prior to commissioning the proposed Facility, the pipeline systems and storage tanks would be hydrostatically tested."	The Applicant requests that the DEIS acknowledge hydro testing will be conducted in accordance with industry standards, as described in PDEIS Section 2.3.1.9, and as indicated in EFSEC's DEIS Section 2.3.2.6:

EX-0018-000010-PCE

Section and Page	Original Text	Applicant Recommended Revisions
		"Prior to commissioning the Facility, the piping systems and storage tanks would be hydrostatically tested to ensure they are free of leaks in accordance with industry standards."
Page 2-34 Section 2.3.3.5	"The storage tanks would likely be constructed on a concrete ringwall foundation."	The Applicant requests that the word "likely" be stricken, as the design does incorporate concrete ringwall foundations as indicated in PDEIS Section 2.2.7.2: "Tanks would be constructed on a concrete foundation/ringwall with a double tank bottom, including interstitial monitoring to detect leaks, if they were to occur (Section2.2.2.9)."
Page 2-36 Section 2.3.4.1	"The Port would construct two new 7,700-foot-long rail loops (tracks 4106 and 4107) and in the process would also shift the locations of 5,200 linear feet of two existing rail loops (tracks 3333 and 3334)."	The Applicant requests that EFSEC review its categorization of connected actions. The Applicant proposes to construct two additional rail loops (tracks 4106 and 4107). These two loops are not part of the WVFA as approved. These tracks would only serve the Facility and therefore the Applicant believes they are part of the Proposed Action. Shifting of existing tracks and construction of track 4105 by the Port are connected actions. Section 2.3.4.1 should be edited to reflect the above and moved to the description of the Proposed Action.
Page 2-37 Section 2.3.4.4	"Hydrostatic test water would be either purchased from the Port or from the City of Vancouver."	Hydrostatic testing of natural gas lines is a common procedure and was, therefore, included in the discussion in Section 2.6.3 of the PDEIS. However, the Applicant is not responsible for conducting the work to be conducted by Williams Pipeline and cannot corroborate the source of the hydrostatic test water.
Page 2-38 Section 2.4.2.1	"Up to four crude oil unit trains per day would arrive at the proposed Facility. The railroad would provide at least 1-day notice prior to unit train arrival at the proposed Facility. The railroad would deliver the unit train to the loop area or a holding track designated by the proposed Facility. Each unit train would include between 100 to 140 tank cars (typically 120 tank cars) each with a crude oil capacity ranging between 650 and 750 bbl (total unit train capacity ranging between 65,000 and 105,000 bbl), 2 buffer cars, and 3 locomotives. A typical unit train length would be approximately 7,800 feet. The unloading of a unit train would take approximately 12 to 14 hours."	Please refer to Table 1, clarification relative to the issue of train arrivals (page 2-1, Section 2.1.1). The first sentence should be revised to the following to be factually correct: "~~Up to~~ An average of four crude oil unit trains per day would arrive at the proposed Facility." Please also refer to Section 1.5.1.2 of the PDEIS (emphasis added): "An average of four unit trains per day would be delivered onto the Port's rail network via a Class 1 railroad for staging on the rail infrastructure serving the Facility. Trains would arrive at Terminal 5 from the east where they would exit the mainlines and enter the Port's industrial rail network and travel to the rail unloading building located on the north side of the Terminal 5 rail loop. Each unit train would include *approximately 100 to 120 tank cars*. Typical unit train length would be approximately 7,800 feet. Tank cars typically hold between 650 and

EX-0018-000011-PCE

Section and Page	Original Text	Applicant Recommended Revisions
		750 bbl of crude oil. A typical unit train would deliver between 65,000 and *90,000 bbl* of crude oil." The Applicant requests that the text be made consistent with this and other similar statements made in the Application for Site Certification and PDEIS. The Applicant also requests that an additional sentence be added to the paragraph to explicitly state that several trains can be unloaded concurrently on each of the unloading Facility tracks as follows: "A typical unit train length would be approximately 7,800 feet. The unloading of a unit train would take approximately 12 to 14 hours. Unit trains staged concurrently on each of the unloading tracks can be unloaded at the same tame."
Page 2-40 Section 2.4.2.3	"The direct transfer piping system connecting the railcar unloading facility to the marine terminal would allow for the occasional topping off of vessel loads and would potentially allow the proposed Facility to begin limited operation during the construction of the storage tanks."	The Applicant requests this statement be corrected to reflect the information provided in response PD-8 to DEIS Data Request 2: "A separate "direct transfer system" is not being proposed; rather the permanent transfer pipelines will be equipped with valves to direct crude oil flow towards Area 400 instead of Area 300 when this capability is needed."
Page 2-40 Section 2.4.2.4	"Additionally, the six tanks provide the proposed Facility the flexibility to receive and segregate crude oil from multiple shippers."	The Applicant requests that the word "shippers" be replaced by "Facility clients" or "Facility customers." The railroad carrier transports the oil but does not own it. Please refer to the Applicant's letter, dated 5 February 2015, to Stephen Posner and Sonia Bumpus (see Attachment 2): "We note again that the Applicant will not source or own any crude oil. Rather, the Applicant will receive its customers' crude oil by rail, unload and stage that crude oil in the onsite tanks, and load the crude oil onto vessels provided by those customers."
Page 2-42 Section 2.4.2.5	"Tankers arriving at the proposed Facility would likely be in ballast, having previously flooded their ballast water tanks to maintain vessel stability."	The Applicant requests the statement be replaced with the following, which more accurately reflects how vessels arriving at the Facility will be compliant with applicable Washington, Oregon, and federal ballast water management and discharge regulations.

EX-0018-000012-PCE

Section and Page	Original Text	Applicant Recommended Revisions
		"Tankers arriving at the proposed Facility will be in ballast. The segregated clean ballast tanks will contain seawater that has been treated with an approved on-board ballast water treatment system or exchanged at sea in order to rid the ballast water of non-indigenous organisms. The purpose of the segregated clean ballast is to allow the ship to maintain vessel trim and stability."
Page 2-48 Section 2.4.2.6	"[16] This CPU substation has been planned to serve the Port and is not a connected action in relationship to the Proposed Action."	Usage of the term "Port" in this statement is not factually correct. The CPU substation will serve multiple customers located at the Port, not just the Port of Vancouver (as a customer) specifically. Please see PDEIS Section 2.2.11. "This CPU substation has been planned to serve *multiple customers at the Port* and is not a connected action in relationship to the Proposed Action."
Page 2-51 Section 2.4.3	"Aboveground crude oil storage tank integrity tests on an industry-prescribed basis to assess tank physical condition and determine suitability for continued use (API Standard 653). The basic requirements for tank tests include:"	The Application requests that a citation to 40 CFR 112 also be added to this sentence to reflect the applicable regulatory requirement, as indicated in PDEIS Section 2.4.2: "40 CFR § 112.8(c)(6)—Above-ground storage tanks must be integrity tested on an industry prescribed basis. The crude oil storage tanks would be inspected in accordance with API Standard 653 to assess their physical condition and determine their suitability for continued use. The basic requirements that would be used to test the tanks include:"
Page 2-52 Section 2.4.3	"Liquid level sensing devices would be tested regularly (40 CFR STI SP-001112.8(c)(8))."	The correct regulatory citation is: 40 CFR 112.8(c)(8)(v).
Page 2-65 Section 2,6	"If sufficient infrastructure remains in place to justify an amendment to the Site Certification, the Applicant could pursue an amendment to allow continued operation at some level or could decide to terminate the agreement."	The Applicant requests that this sentence be revised to reflect the language in PDEIS Section 2.6, as follows. As written, the statement implies that a mimum amount of infrastructure remaining in place would justify the need for a Site Certification Agreement amendent. This statement is speculative at this time. "~~If sufficient infrastructure remains in place to justify an amendment to the Site Certification~~, Based on the nature and extent of removal or retention, the Applicant could pursue an amendment of the Site Certification Agreement ~~to allow continued operation at some level~~ or could decide to terminate the agreement."

EX-0018-000013-PCE

Attachment 1

Additional Information regarding SOLBERG® RE-HEALING™ Fluorine-Free Foam

EX-0018-000014-PCE

SOLBERG

June 6, 2014

Press Release - Global Release
FOR IMMEDIATE RELEASE

SOLBERG® RE-HEALING™ Fluorine-Free Foam Achieves FM Approval Certification

Green Bay, Wisconsin - The Solberg Company, the world's foremost innovator of firefighting foam concentrates and systems hardware, announced today the company has achieved FM Approval on the company's RE-HEALING™ RF3, 3% and ARCTIC™ 3x3% ATC™ foam concentrates.

RE-HEALING Foam concentrate is a high performance fluorine-free foam concentrate for use on Class B hydrocarbon fuel fires. RE-HEALING is also used to prevent re-ignition of a liquid spill and control hazardous vapors. The new FM Approval for RE-HEALING RF3, 3% foam includes bladder tanks, proportioners, foam chambers, foam makers and fire sprinklers.

The FM Approval with multiple standard automatic sprinklers includes RELIABLE F-1 upright and pendent style (5.6 and 8.0 K-Factors), RELIABLE Model G upright and pendent style (5.6 and 8.0 K-Factors), and the RELIABLE upright G XLO (11.2 K-Factor).

"Advances in foam technology have completed another revolution of the fire science world. We have passed from protein to fluorine containing foam in the 20th century to high performance non-halide containing RE-HEALING foam for the 21st century" explained Solberg's General Manager Steve Hansen. "All of the ingredients in RE-HEALING foam concentrates have been individually tested under the HOCNF protocol and are safe for use from the North Sea to the South Pacific. Every question that has been asked of RE-HEALING foam has been answered without a sacrifice in fire performance. From this generation of products we see a great beginning for the next generation of RE-HEALING Foams."

RE-HEALING RF3, 3% Foam Concentrate
Applied to a Large Diameter Storage Tank

RE-HEALING RF3, 3% foam concentrate is both UL Listed and FM Approved for use in automatic sprinkler systems at exactly the same application rates and sprinkler operating pressures as Aqueous Film Forming Foam (AFFF) concentrates. Equal system performance has been achieved with a completely fluorine-free concentrate that also happens to be high performance firefighting foam.

"This is yet another singular milestone for The Solberg Company, achieving the world's only FM Approved foam concentrate that is completely free of all fluorine, whether called fluorosurfactant or fluoropolymer.

AMERICAS
THE SOLBERG COMPANY
2701 Larsen Road, Suite #BA140
Green Bay, WI 54303
USA
Tel: +1 920 593 9445

EMEA
SOLBERG SCANDINAVIAN AS
Radøyvegen 721 - Olsvollstranda
N-5938 Sæbøvågen
Norway
Tel: +47 56 34 97 00

ASIA-PACIFIC
SOLBERG ASIA PACIFIC PTY LTD
PO Box 182
Kingswood NSW 2747
Australia
Tel: +61 2 9673 5300

As with Underwriters Laboratories, this is the direct result of the hard work and dedication of all Solberg employees around the world. Solberg now offers the world's only truly fluorine free foam concentrate that is both UL Listed and FM Approved, backed up by the world's only Foam Concentrate Environmental Warranty." stated Dennis Kennedy, Executive Vice President of Amerex Corporation, the parent Company of Solberg.

In addition to the FM Approval on RE-HEALING RF3, Solberg also obtained FM Approval on ARCTIC 3x3% ATC foam concentrate, for use with foam chambers, foam makers, and the same sprinklers as identified for RE-HEALING RF3. ARCTIC foam concentrates are 2015 compliant to the U.S. EPA Stewardship Program on C_6 fluorine chemistry.

Based in Green Bay, Wisconsin, with operations in Bergen, Norway and Sydney, Australia, Solberg (an Amerex Corporation company) has been involved with the manufacture of firefighting foams since the mid-1970s. Solberg's unique technology and foam systems hardware is preferred by customers in the aerospace, aviation, chemical, defense, energy, fire services, marine, mining, oil and gas, petrochemical, pharmaceutical, pipeline, solvent & coatings and utilities industries.

###

About Solberg

Solberg is an Amerex Corporation company with a European heritage. The company is a global one-stop resource for firefighting foam concentrates and custom-designed foam suppression systems hardware and accessories. Solberg offers environmentally sustainable fluorosurfactant and fluoropolymer-free foam concentrate products, an innovation in Class B firefighting foam and traditional firefighting foam concentrates. Solberg's people and processes are committed to quality, service and safety along with environmental responsibility. This philosophy enables the company to flourish while delivering innovations and value. More information can be found at: www.solbergfoam.com

For more information, contact:
Dave Pelton
Vice President, Global Marketing
The Solberg Company
Tel: +1 920 593 9447
E-mail: dave.pelton@solbergfoam.com

SOLBERG

The new standard in firefighting foam technology — worldwide

Next Generation Firefighting Foam Technology

Steve Hansen
General Manager
Mark Pillow
Director Americas Sales

An Amerex Corporation Company

For Generations

Privately Held Family Business
Approx. $2B in Annual Sales
Birmingham, Alabama

Approx. 400 Employees
Trussville, Alabama

Founded in 1978
European Manufacturer for National Foam and 3M
Acquired by Amerex in 2011
Green Bay, Wisconsin

The Solberg Company
Global Footprint

SOLBERG

Green Bay, WI

Bergen, Norway

Sydney, Australia

Solberg - What We Do…

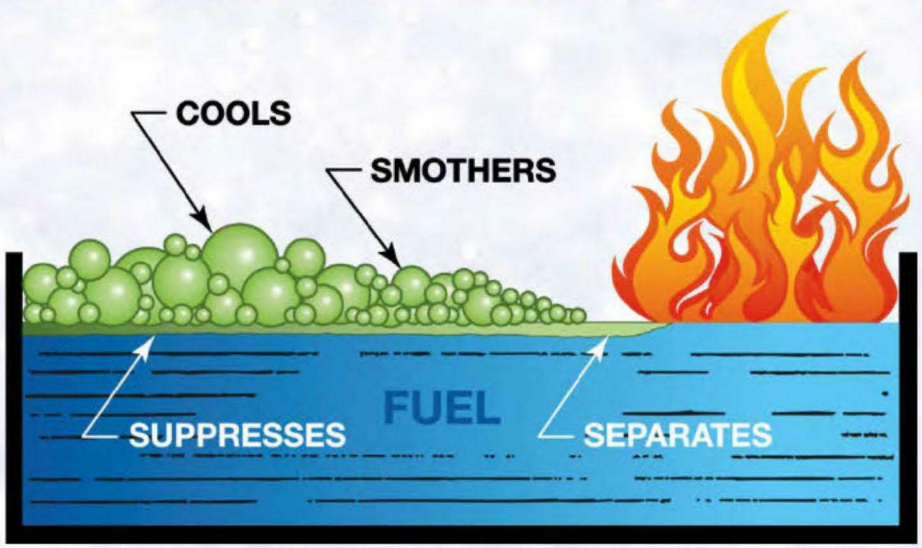
SOLBERG

- **FOAM CONCENTRATES**
  - Authentic Fluoro-Free
  - AFFF's
  - AR-AFFF's
  - Synthetic Detergent
  - Class "A"
  - Specialty Concentrates
- **SERVICES**
  - Analysis & Testing

RE-HEALING™ FOAM
AUTHENTIC FLUORO-FREE

FIRE-BRAKE™ FOAM
CLASS A

ARCTIC™ FOAM
AFFF AND ATC



Solberg - What We Do…

SOLBERG

- **FOAM HARDWARE**
  - System Tanks
    - Bladder Tanks (Inc. pre-piped)
    - Atmospheric
    - Pump Skids
  - Proportioning Devices
    - Ratio Controllers
    - Variable Range Proportioner
  - Discharge Devices
    - Foam Chambers, Foam Makers
  - Mobile Products
    - Foam Carts
    - Foam Trailers
  - Specialized Equipment / Services

Headquarters & Americas Facility

SOLBERG

Main Office
Manufacturing
Warehouse
Total 16,650 ft²
(1547 m²)

Fire Test Lab
State of the Art
Environmentally Controlled
- 4100 ft² (381 m²) - 64ft high (20 m)
Observation Viewing Room

World Class - Fire Test Laboratory

SOLBERG

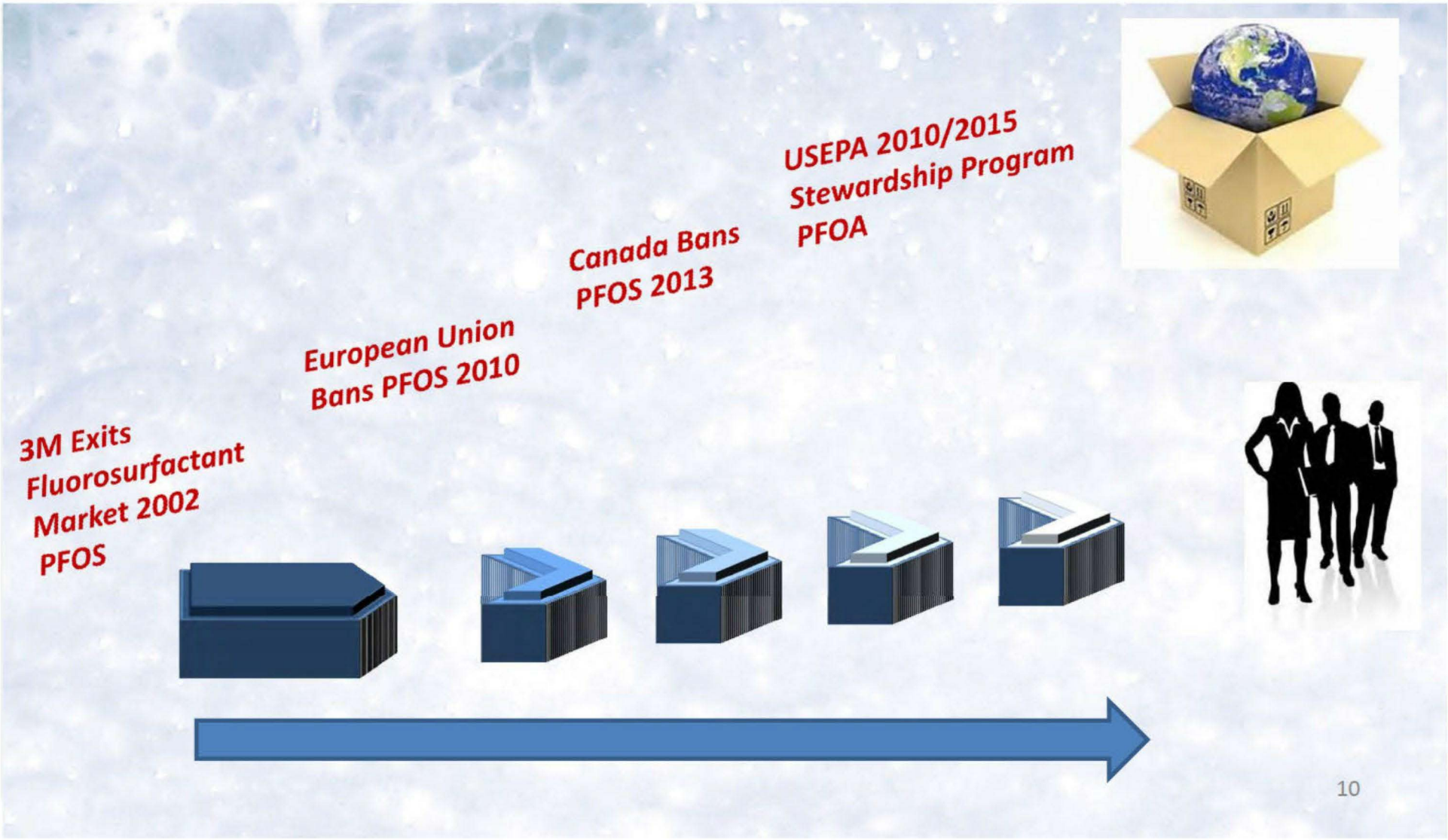
Indoor UL and FM Fire Testing

Complete Laboratory Facilities

Burn Back Resistance Testing

Change is coming!

USEPA 2010 and 2015 Stewardship Program



Reformulating to Environmentally Improved AFFF?

SOLBERG

Changing to C_6 Chemistry

- Fluorinated surfactants are the key component for AFFF performance
- Changing from C_8 to C_6 formulations provides for improved environmental profile with shorter chain molecule
- Formulation chemists are faced with two options
  - Accept a lesser performing AFFF product
  - Increase quantity of surfactant to produce equal performance

- Increased surfactant results in significant cost increase in product
- UL recertification testing is required

Change is Coming!

USEPA 2010 and 2015 Stewardship Program

SOLBERG

Changing to C_6 Chemistry

Composition	90% Control	Extinguishment	Burn Back
Base C_8 Chemistry	0:31 0:33	1:42 1:50	8% @ 5:00 10% @ 5:00
Base C_6 Chemistry	0:37	3:36	Not Done
+ 1.4% C_6 Chemistry	0:33	2:15	20% @ 2:00
+ 11.4% C_6 Chemistry	0:36	1:48	20% @ 3:45
+ 32.9% C_6 Chemistry	0:37 0:29	1:30 1:25	S.E. @ 3:00 20% @ 4:00
+ 39.7% C_6 Chemistry	0:29 0:48	2:00 2:07	6% @ 5:00 16% @ 5:00

Fire Fighting Foam Advancements
The Next Generation

SOLBERG

Evolution of Firefighting Foam

SOLBERG

Chemical
1915 - 1933

Protein
1933

Synthetic AFFF
1963

Fluoroprotein
1965

Environmentally
Safe Foams
2005

Next Generation Firefighting Foam Technology

SOLBERG

Fluoro Compound Free Firefighting Foam

RE-HEALING™ FOAM
AUTHENTIC FLUORO-FREE

Next Generation Fire Fighting Foam Technology

SOLBERG

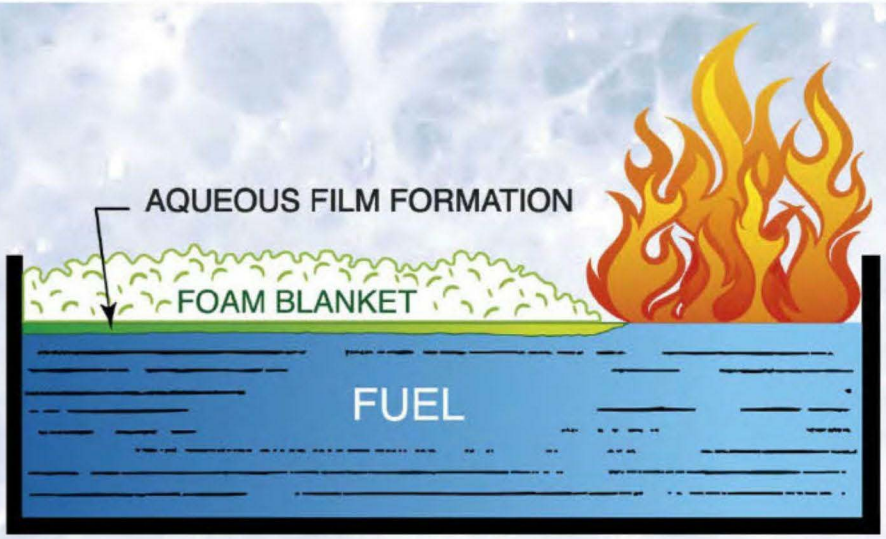
Solberg RE-HEALING ™Foam (RF)

RE-HEALING™ FOAM
AUTHENTIC FLUORO-FREE

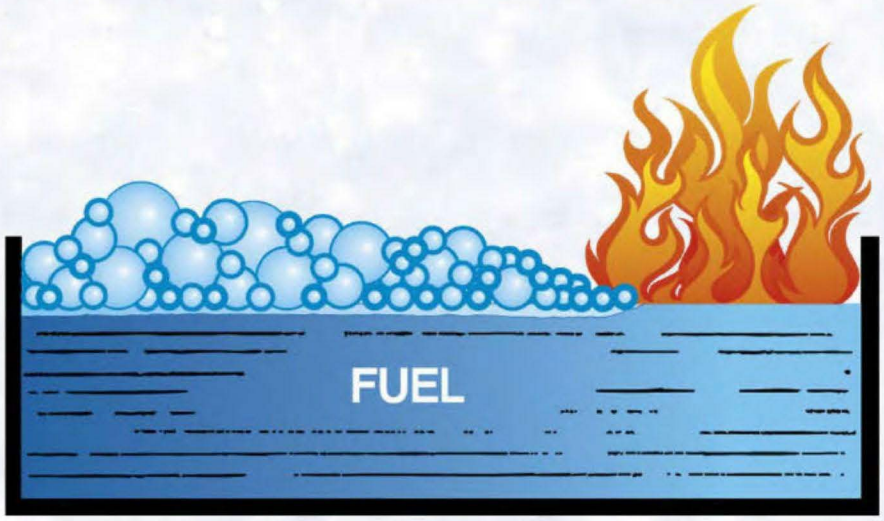
- ***100% Fluorine Free and Fluoro Compound Free***
- High performance fire fighting foam without the use of film formation
- RF-3 RE-HEALING™ Foam has successfully passed UL 162 Fire Testing UL File Number ***GFGV.EX15969***
- RF-6 RE-HEALING™ Foam is UL Listed
- RF 3x3 RE-HEALING™ RF 3x3 ATC™ available 2014
- Developed from complex carbohydrates using hydrocarbon surfactants to create a fluid and stable foam bubble structure

How RE-HEALING FOAM™ Works

SOLBERG



AFFF Concentrates



RF Concentrates

UL 162, RE-HEALING FOAM FIRE TEST

SOLBERG

Solberg Fire Test Lab Green Bay, Wisconsin

UL 162, RE-HEALING FOAM
Topside Discharge Fire Test

SOLBERG

[redacted]

- **UL 162 Fire Test Protocol**
  - 50 Sq. Ft. Heptane Fire
  - 3 GPM Application
  - One Minute Preburn
  - 5 Minutes Foam Application
  - First Torch Test
  - 15 Minute Drain Period
  - Insert 1 sq. ft. Stovepipe
  - Second Torch Test
  - Ignite Stovepipe
  - One Minute Preburn
  - Remove Stovepipe
  - Measure Fire Size
    - 20% of Fire Area after 5 mins.

Beaumont Fire Test

SOLBERG

Foam Terminology

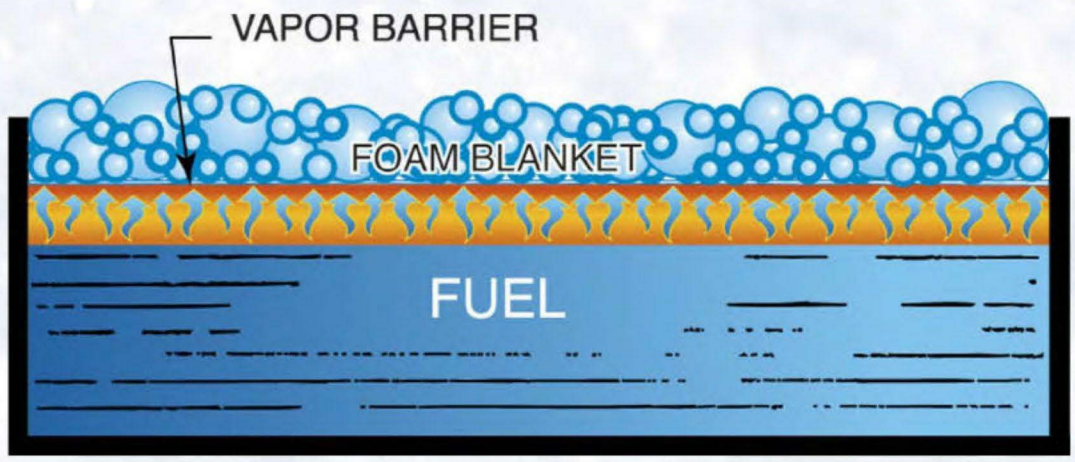
SOLBERG

- **QUARTER DRAIN TIME:**
  - Time required for 25% of the "foam" to drain back into "liquid solution" (considered to render the foam ineffective)

RE-HEALING Foam Vapor Suppressing Safety Advantage

SOLBERG

- UL 162 certification testing confirms RF-3 up to 5x longer drain time compared to traditional AFFF and ATC
- Longer vapor suppression
- Improved safety to fire fighters
- Less foam required to secure an emergency event

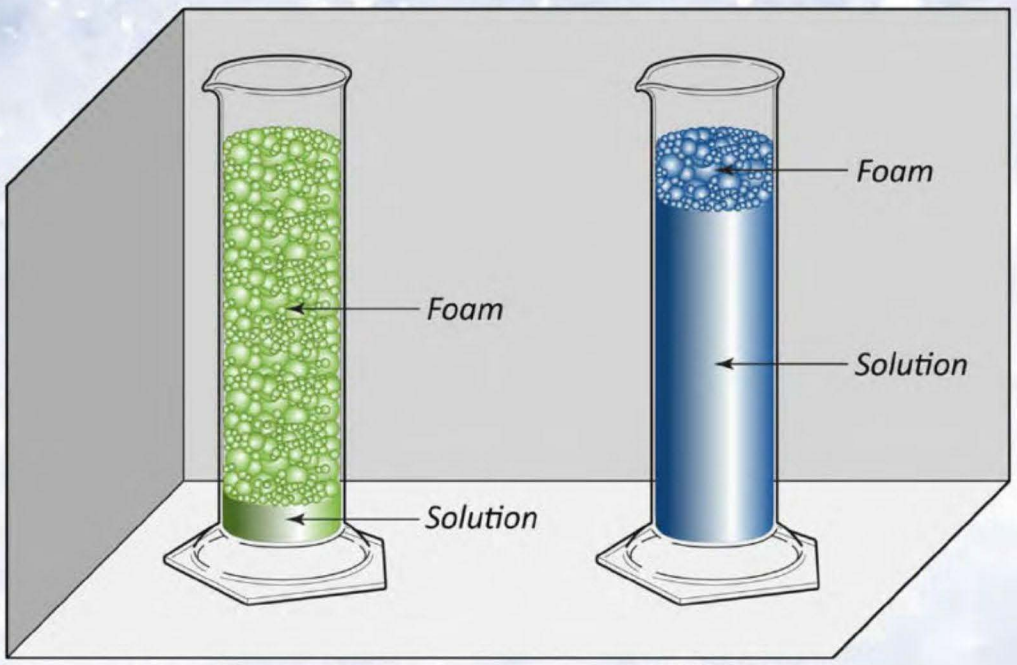


Foam Quality Testing UL – 162

SOLBERG

- **Foam Drain Time:**
  - *"The rate at which the foam solution drops out from the foam mass is called the drainage time and is a specific indication of degree of water retention ability and the fluidity of the foam."* (NFPA 11)

25% DRAIN TIME



RE-HEALING™ Foam ***AFFF/AR-AFFF***

RE-HEALING RF3, 3%	30 – 75 min.
3% AFFF	3 - 4 min.
3x3% AR-AFFF	11 min.

How is RE-HEALING Foam The Same?

SOLBERG

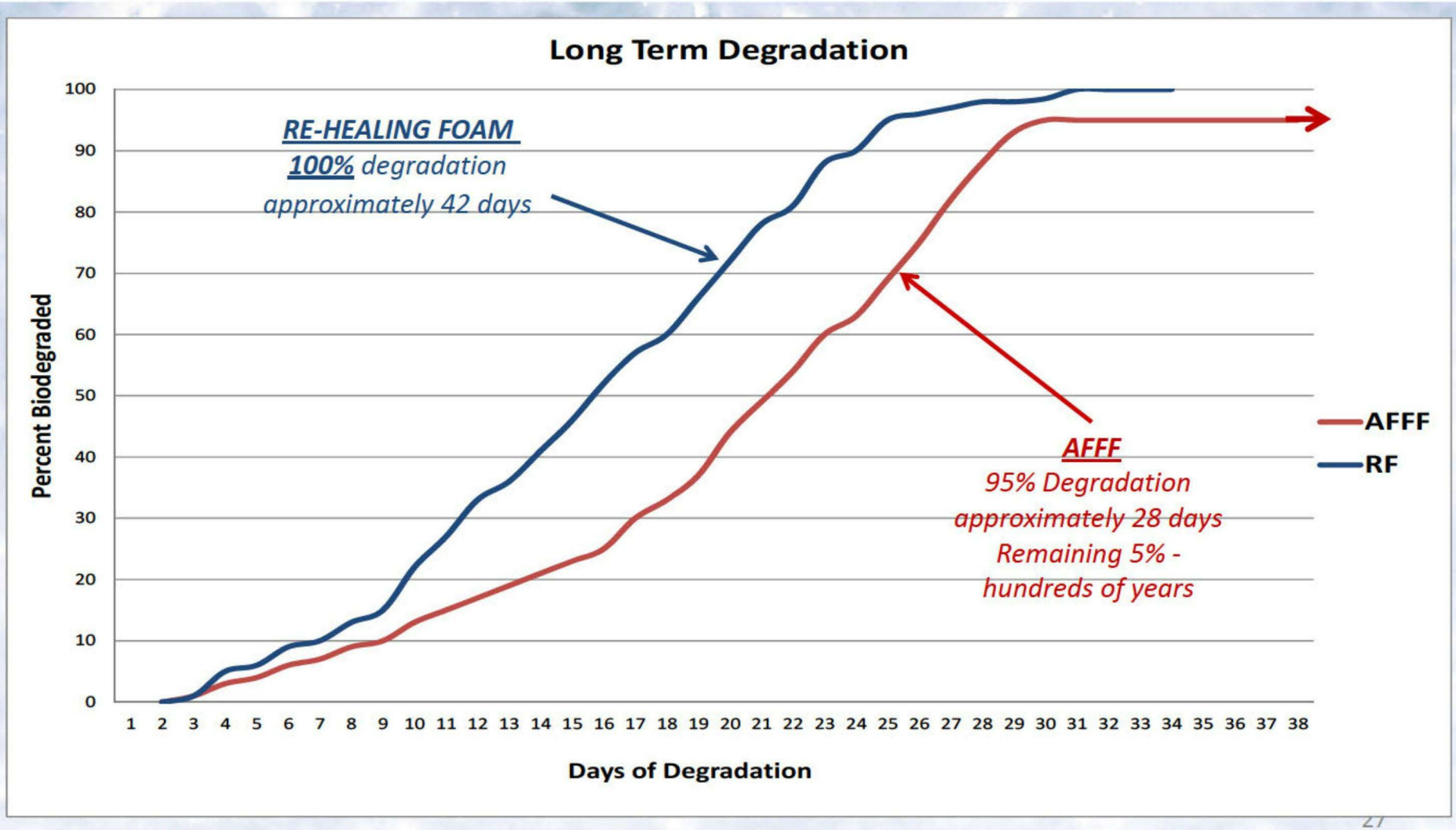
- 100% Synthetic Foam Concentrate
- Long Shelf Life – 20 Years
- UL Listed and FM Approved
  - Exactly the Same Application Rates - per Certification Standards
  - Listed and Approved With Standard Sprinklers
  - Foam Makers, Foam Chambers, Proportioners, Bladder Tanks
- Does Not Require Special Discharge Devices
- High Heat Resistance
- Flows Freely Over Flammable Liquid Surfaces
- Same Price As AFFF – No Premium Price

Proven Firefighting Performance

SOLBERG

- Rapid Knockdown
- Vapor Suppression
- Enhanced Securement / Burn-back Resistance
- Firefighter Protection
- Live Fire Training
- NO USE RESTRICTIONS

Rate of Bio-Degradation



RE-HEALING FOAM™ Environmental Warranty

SOLBERG

SOLBERG

SOLBERG® RE-HEALING™ FOAM ENVIRONMENTAL WARRANTY

The Solberg Company will warrant to the purchaser of RE-HEALING™ foam concentrate, that for twenty (20) years after the purchase, whether as part of a foam/water fire protection system or as foam concentrate only, the use of RE-HEALING foam will not be regulated in any way due to the presence of any organohalogens, whether in surfactants, polymers, or any other form. This environmental warranty also includes the provision that SOLBERG RE-HEALING foam concentrate will not be banned by any governmental entity or regulatory body for any of the following environmental issues:

- No Governmental restrictions related to the presence of fluorine
- No persistence in the environment
- No bioaccumulation
- No PFOS or PFOA
- No biodegradion into PFOS or PFOA

Should environmental regulations enacted after the purchase of SOLBERG RE-HEALING foam require removal of the RE-HEALING foam concentrate from the market for one of these environmental issues, Solberg will replace the RE-HEALING foam concentrate with a new foam concentrate that meets such newly enacted environmental regulations.

In order to be eligible for this warranty, the original purchaser must maintain a semi-annual service agreement using an authorized Solberg channel partner, and must also provide RE-HEALING foam concentrate samples on an annual basis for laboratory analysis as required by NFPA II to their regional Solberg factory.

This Warranty will not apply in the event that Solberg determines that there is no fluorine-free foam concentrate available on the market that exceeds the environmental profile of RE-HEALING foam with respect to the environmental issues listed above.

Unless provided by Solberg above or otherwise in writing, SOLBERG DOES NOT WARRANT, WHETHER EXPRESSED OR IMPLIED, THE SUITABILITY OF THE PRODUCT FOR A PARTICULAR PURPOSE. SOLBERG SHALL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL OR SIMILAR DAMAGES, NOR WILL SOLBERG BE LIABLE FOR ANY DAMAGES DUE TO DELAY IN REPLACING THE FOAM CONCENTRATE UNDER THIS WARRANTY. SOLBERG'S MAXIMUM LIABILITY UNDER THIS WARRANTY IS LIMITED TO THE REPLACEMENT OF THE FOAM CONCENTRATE.

This Warranty applies to the original purchaser of the original RE-HEALING foam concentrate and is not transferrable.

THIS WARRANTY IS NOT EFFECTIVE UNLESS PAGE #2 WARRANTY FORM IS FILLED IN, SIGNED AND RETURNED TO SOLBERG WITHIN TEN DAYS OF THE PURCHASE OF THE RE-HEALING FOAM CONCENTRATE. FAILURE TO COMPLETELY FILL OUT THIS CARD AND RETURN THE FORM WITHIN THE STATED TIME PERIOD WILL INVALIDATE THE RE-HEALING FOAM ENVIRONMENTAL WARRANTY.

- Global Warranty for Environmental Compliance
- Contains no PFOS, PFOA
- Will not Biodegrade into PFOS, PFOA
- No Environmental Persistence
- 20 Year Warranty

Next Generation Firefighting Foam Technology

SOLBERG

RE-HEALING™ FOAM

AUTHENTIC FLUORO-FREE

SOLBERG

Solberg is a global company that is a one-stop resource for firefighting foam concentrates and custom-designed foam suppression systems hardware, offering both traditional and innovative firefighting foam technology. www.solbergfoam.com
SOLBERGFOAM.COM
AMERICAS
ASIA PACIFIC
SOLBERG ASIA PACIFIC PTY LTD
USA
213
214
215

ONLINE CERTIFICATIONS DIRECTORY

GFGV.EX15969
Foam Liquid Concentrates

Page Bottom

Foam Liquid Concentrates

See General Information for Foam Liquid Concentrates

THE SOLBERG CO, DIV OF AMEREX CORP EX15969
1520 BROOKFIELD AVE
GREEN BAY, WI 54313 USA

Solberg ARCTIC 1% AFFF, nominal 1 percent Aqueous Film Forming Foam, +35 F minimum storage and use temperature. Hydrocarbon fuels only.

Solberg ARCTIC 3% AFFF, nominal 3 percent Aqueous Film Forming Foam, +35 F minimum storage and use temperature. Hydrocarbon fuels only.

Solberg ARCTIC 1x3 ATC AR-AFFF, nominal 1 or 3 percent Alcohol Resistant Aqueous Film Forming Foam, +35 F minimum storage and use temperature. Hydrocarbon fuels at 1 percent, polar solvent fuels at 3 percent.

Solberg ARCTIC 3x3 ATC AR-AFFF, nominal 3 percent Alcohol Resistant Aqueous Film Forming Foam, +35 F minimum storage and use temperature. Hydrocarbon and polar solvent fuels at 3 percent.

Solberg RE-HEALING RF3 Synthetic, nominal 3 percent Synthetic, +35 F minimum storage and use temperature. Hydrocarbon fuels only.

Solberg RE-HEALING RF6 Synthetic, nominal 6 percent Synthetic, +35 F minimum storage and use temperature. Hydrocarbon fuels only.

Foam concentrates for use with the following equipment.

SOLBERG ARCTIC 1% AFFF, 1 PERCENT

PROPORTIONERS - PORTABLE IN-LINE INDUCTORS

Solberg, Model MATRE BS1400 LG2, 1/2 in. size, with a 0.086 in. diameter fixed orifice, 50 ft. of 1-1/2 in. hose between inductor and Solberg, Model RF60 nozzle.

NOZZLES

Description	Size In.	Inlet Pressure psi
Solberg, Model RF60	1-1/2	100

PROPORTIONERS-BLADDER TANKS WITH CONTROLLERS

Solberg bladder tanks with the following controllers:

Description	Controller Size In.	Orifice Size In.	Flow GPM
Solberg	4	0.269	201-1497
Solberg	6	0.410	557-2672

FIXED FOAM DISCHARGE OUTLETS

		Orifice	Inlet

Description	Fuel	Diam In.	Pressure psi
Solberg, Model SFS-825	Hydrocarbons	0.625-0.938	60-100
Solberg, Model SFS-1030	Hydrocarbons	0.875	60-100
Solberg, Model SFS-1030	Hydrocarbons	1.250	60-100
Solberg, Model SFS-1240	Hydrocarbons	1.125	60
Solberg, Model SFS-1240	Hydrocarbons	1.125-1.875	80-100

SOLBERG ARCTIC 3% AFFF, 3 PERCENT

PROPORTIONERS - PORTABLE IN-LINE INDUCTORS

Solberg, Model MATRE BS1400 LG2, 1/2 in. size, with a 0.144 in. diameter fixed orifice, 50 ft. of 1-1/2 in. hose between inductor and Solberg, Model RF60 nozzle.

NOZZLES

Description	Size In.	Inlet Pressure psi
Solberg, Model RF60	1-1/2	100

PROPORTIONERS-BLADDER TANKS WITH CONTROLLERS

Solberg bladder tanks with the following controllers:

Description	Controller Size In.	Orifice Size In.	Flow GPM
Solberg	2	0.189	42-263
Solberg	3	0.354	93-768
Solberg	4	0.499	207-1532
Solberg	6	0.755	318-2680

FIXED FOAM DISCHARGE OUTLETS

Description	Fuel	Orifice Diam In.	Inlet Pressure psi
Solberg, Model SFS-825	Hydrocarbons	0.625	60, 100
Solberg, Model SFS-825	Hydrocarbons	0.938	60-100
Solberg, Model SFS-1030	Hydrocarbons	0.875	60-100
Solberg, Model SFS-1030	Hydrocarbons	1.250	60-100
Solberg, Model SFS-1240	Hydrocarbons	1.125-1.875	80-100

SPRINKLERS

Fuel	Style	Min Application Rate GPM/Sq Ft	Min Inlet Pressure psi
Reliable Automatic Sprinkler Co. Inc., SIN RA1314 K-Factor 5.6 (1/2)			
Hydrocarbons	Pendent	0.16	7.0
Reliable Automatic Sprinkler Co. Inc., SIN R2921 K-Factor 5.6 (1/2)			

Hydrocarbons	Upright	0.16	7.0

SOLBERG ARCTIC 1X3 ATC AR-AFFF, 1 PERCENT

PROPORTIONERS - PORTABLE IN-LINE INDUCTORS

Solberg, Model MATRE BS1400 LG2, 1/2 in. size, with a 0.119 in. diameter fixed orifice, 50 ft. of 1-1/2 in. hose between inductor and Solberg, Model RF60 nozzle.

Solberg, Model MATRE BS1400 LG2, 1/2 in. size, with a 0.119 in. diameter fixed orifice, 50 ft. of 1-1/2 in. hose between inductor and Ansul Inc., Model HL-60 nozzle.

NOZZLES

Description	Size In.	Inlet Pressure psi
Solberg, Model RF60	1-1/2	100
Ansul Inc., Model HL-60	1-1/2	100

SOLBERG ARCTIC 1X3 ATC AR-AFFF, 3 PERCENT

PROPORTIONERS-BLADDER TANKS WITH CONTROLLERS

Solberg bladder tanks with the following controllers:

Description	Controller Size In.	Orifice Size In.	Flow GPM
Solberg	3	0.360	177-725

FIXED FOAM DISCHARGE OUTLETS

Description	Fuel	Orifice Diam In.	Inlet Pressure psi
Solberg, Model SFS-825	Alc	0.625	40-100

Where:

Fuel	Min Application Rate GPM/Sq Ft
Alc (Alcohols)	0.15

SOLBERG ARCTIC 3X3 ATC AR-AFFF, 3 PERCENT

PROPORTIONERS - PORTABLE IN-LINE INDUCTORS

Solberg, Model MATRE BS1400 LG2, 1/2 in. size, with a 0.196 in. diameter fixed orifice, 50 ft. of 1-1/2 in. hose between inductor and Solberg, Model RF60 nozzle.

NOZZLES

Description	Size In.	Inlet Pressure psi
Solberg, Model RF60	1-1/2	100

PROPORTIONERS-BLADDER TANKS WITH CONTROLLERS

Solberg bladder tanks with the following controllers:

Description	Controller Size In.	Orifice Size In.	Flow GPM
Solberg	2	0.204	90-166
Solberg	3	0.354	206-812
Solberg	4	0.530	329-1530
Solberg	6	0.780	736-2667

FIXED FOAM DISCHARGE OUTLETS

Description	Fuel	Orifice Diam In.	Inlet Pressure psi
Solberg, Model SFS-825	Alc	0.625-0.938	40-60
Solberg, Model SFS-1030	Alc	0.875	40-80
Solberg, Model SFS-1030	Alc	1.250	40, 80
Solberg, Model SFS-1240	Alc	1.125	40
Solberg, Model SFS-1240	Alc	1.875	60-100

Where:

Fuel	Min Application Rate GPM/Sq Ft
Alc (Alcohols)	0.15

SPRINKLERS

Fuel	Style	Min Application Rate GPM/Sq Ft	Min Inlet Pressure psi
Reliable Automatic Sprinkler Co. Inc., SIN R1712 K-Factor 8.0 (17/32)			
Hydrocarbons	Pendent	0.22	7.0
Alcohols	Pendent	0.26	9.5
Reliable Automatic Sprinkler Co. Inc., SIN R1722 K-Factor 8.0 (17/32)			
Hydrocarbons	Upright	0.22	7.0
Alcohols	Upright	0.26	9.5
Reliable Automatic Sprinkler Co. Inc., SIN R1015 K-Factor 5.6 (1/2)			
Hydrocarbons	Pendent	0.16	7.0
Alcohols	Pendent	0.26	19.0
Reliable Automatic Sprinkler Co. Inc., SIN R1025 K-Factor 5.6 (1/2)			
Hydrocarbons	Upright	0.16	7.0
Alcohols	Upright	0.26	19.0
Reliable Automatic Sprinkler Co. Inc., SIN R1017 K-Factor 8.0 (17/32)			
Hydrocarbons	Pendent	0.22	7.0
Alcohols	Pendent	0.26	9.5
Reliable Automatic Sprinkler Co. Inc., SIN R1027 K-Factor 8.0 (17/32)			

Hydrocarbons	Upright	0.22	7.0
Alcohols	Upright	0.22	7.0
Reliable Automatic Sprinkler Co. Inc., SIN R2921 K-Factor 11.2 (5/8)			
Hydrocarbons	Pendent	0.32	7.0
Alcohols	Pendent	0.37	9.5
Reliable Automatic Sprinkler Co. Inc., SIN RA1314 K-Factor 5.6 (1/2)			
Hydrocarbons	Upright	0.16	7.0
Alcohols	Upright	0.26	19.0
Reliable Automatic Sprinkler Co. Inc., SIN RA1325 K-Factor 5.6 (1/2)			
Hydrocarbons	Upright	0.16	7.0
Alcohols	Upright	0.26	19.0

FOAM WATER SPRINKLERS

Tyco Fire & Building Products, Model B-1 and Star Sprinkler Inc., Model B-1 upright and pendant styles, 30 psi minimum pressure, hydrocarbon fuels only

SOLBERG RE-HEALING RF3 SYNTHETIC, 3 PERCENT

PROPORTIONERS - PORTABLE IN-LINE INDUCTORS

Solberg, Model MATRE BS1400 LG2, 1/2 in. size, with a 0.350 in. diameter fixed orifice, 50 ft. of 1-1/2 in. hose between inductor and Solberg, Model RF30 nozzle.

NOZZLES

Description	Size In.	Inlet Pressure psi
Solberg, Model RF30	1-1/2	100

PROPORTIONERS-BLADDER TANKS WITH CONTROLLERS

Solberg bladder tanks with the following controllers:

Description	Controller Size In.	Orifice Size In.	Flow GPM
Solberg	2	0.220	147-232
Solberg	3	0.410	423-689
Solberg	4	0.530	752-1257
Solberg	6	1.000	1564-2027

FIXED FOAM DISCHARGE OUTLETS

Description	Fuel	Orifice Diam In.	Inlet Pressure psi
SFS-825	Hydrocarbons	0.625-0.938	40-100
SFS-1030	Hydrocarbons	0.875	40-100
SFS-1030	Hydrocarbons	1.250	40-100
SFS-1240	Hydrocarbons	1.125	40-100

SFS-1240	Hydrocarbons	1.875	40-84

SPRINKLERS

Fuel	Style	Min Application Rate GPM/Sq Ft	Min Inlet Pressure psi
Reliable Automatic Sprinkler Co. Inc., SIN R1015 K-Factor 5.6 (1/2)			
Hydrocarbons	Pendent	0.16	7.0
Reliable Automatic Sprinkler Co. Inc., SIN R1025 K-Factor 5.6 (1/2)			
Hydrocarbons	Upright	0.16	7.0
Reliable Automatic Sprinkler Co. Inc., SIN R1017 K-Factor 8.0 (17/32)			
Hydrocarbons	Pendent	0.22	7.0
Reliable Automatic Sprinkler Co. Inc., SIN R1027 K-Factor 8.0 (17/32)			
Hydrocarbons	Upright	0.22	7.0
Reliable Automatic Sprinkler Co. Inc., SIN R1712 K-Factor 8.0 (17/32)			
Hydrocarbons	Pendent	0.22	7.0
Reliable Automatic Sprinkler Co. Inc., SIN R1722 K-Factor 8.0 (17/32)			
Hydrocarbons	Upright	0.22	7.0
Reliable Automatic Sprinkler Co. Inc., SIN R2921 K-Factor 11.2 (5/8)			
Hydrocarbons	Pendent	0.32	7.0
Reliable Automatic Sprinkler Co. Inc., SIN RA1314 K-Factor 5.6 (1/2)			
Hydrocarbons	Pendent	0.16	7.0
Reliable Automatic Sprinkler Co. Inc., SIN RA1325 K-Factor 5.6 (1/2)			
Hydrocarbons	Upright	0.16	7.0

FOAM WATER SPRINKLERS

Tyco Fire & Building Products, Model B-1 and Star Sprinkler Inc., Model B-1 upright and pendant styles, 30 psi minimum pressure, hydrocarbon fuels only.

SOLBERG RE-HEALING RF6 SYNTHETIC, 6 PERCENT

PROPORTIONERS - PORTABLE IN-LINE INDUCTORS

Solberg, Model MATRE BS1400 LG2-RF6, 1/2 in. size, with a 0.630 in. diameter fixed orifice, 50 ft. of 1-1/2 in. hose between inductor and Solberg, Model RF60 nozzle.

NOZZLES

Description	Size In.	Inlet Pressure psi
Solberg, Model RF60	1-1/2	100

Last Updated on 2013-10-11

© 2014 UL LLC

When the UL Leaf Mark is on the product, or when the word "Environment" is included in the UL Mark, please search the UL Environment database

for additional information regarding this product's certification.

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Assemblies, Constructions, Designs, Systems, and/or Certifications (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from UL" must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "© 2014 UL LLC".

Attachment 2

Letter to EFSEC, dated 5 February 2015

EX-0018-000051-PCE

February 5, 2015

Stephen Posner, Manager

Sonia Bumpus, EFS Specialist

Energy Facility Site Evaluation Council

Utilities & Transportation Commission

P.O. Box 43172

Olympia, Washington 98504-3172

Re: Tesoro SavageVancouver Energy Distribution Terminal

Application No. 2013-01 | Docket No. EF131590

Request for Additional Information to Assess EIS Alternatives

Dear Stephen and Sonia:

You have asked the Applicant to provide additional clarification regarding the project objectives and additional information regarding the distribution terminal facility (Facility) design to assist the Energy Facility Site Evaluation Council (EFSEC) and its Environmental Impact Statement (EIS) consultant team in its evaluation of possible alternatives for the DEIS. This letter responds to those questions. If, after your review of these responses, you or your EIS team requires additional information or clarification, we encourage EFSEC to schedule a peer-to-peer discussion with EIS consultants, EFSEC EIS staff, and Vancouver Energy employees to provide you with any further information or clarification.

We note by way of introduction that many aspects of the facility's design are based on the characteristics of crude oil, market forces and demands, and the Applicant's and its owners' extensive experience in operating crude oil terminals. With this letter, we are providing an explanation of key principles and considerations in a manner that hopefully gives you an adequate level of information upon which to make your SEPA judgments.

Project Objectives (purpose and need):

The project objectives were described at Section 2.22 of the Application for Site Certification (ASC) and Section 1.2.3 of the Applicant-prepared Preliminary Draft Environmental Impact Statement (PDEIS). In summary, the project's objective is to serve the market demand for mid-continent North American crude at the Petroleum Administration Defense District (PADD) 5 refineries, in particular those along the West Coast (as described in PDEIS Section 1.3). This project objective encompasses both a market demand component (the PADD 5 refinery demand) and a market supply component (the mid-continent North American crude source). Based on production projections for the various mid-continent North American sources, the Bakken is expected to continue being one of the primary mid-continent sources[1]. As explained in PDEIS Sections 1.2.5.2 and 1.3.7.2, there are no oil pipeline routes from the Bakken to PADD 5; and, therefore, transportation by rail is the only feasible option for transporting this crude to the PADD 5 refineries. The project objectives clearly stated that "Implementation of Facility elements that accommodate the flexibility to serve multiple clients through the appropriate capacity for receipt, segregation and loading of the crude oil" was a necessary development criteria (*see* PDEIS Section 1.2.3.1).

California and Alaska crude production delivered to PADD 5 is declining. *See* PDEIS Figure 1.3.7. This decline in production has been replaced by foreign imports (via marine vessel) to meet the PADD 5 demand. *See also* PDEIS Figure 1.3.7. The foreign import portion of the PADD 5 demand accounts for 1 million to 1.2 million barrels per day. (*See* PDEIS, Table 1.3-10, taking those annual totals, multiply by 1,000 and divide by 365 days to convert the annual totals shown in that table to the

[1] U. S. Energy Information Administration, January 2015 Drilling Productivity Report for the Tight Oil and Shale Gas regions. http://www.eia.gov/petroleum/drilling/pdf/dpr-full.pdf

daily average stated here). Therefore, at a proposed average daily throughput of 360,000 barrels per day, the project does not satisfy the full demand for PADD 5 refineries to replace foreign sources, but satisfies approximately 1/3 of that current demand. The California and Alaska supplies are projected to continue to decline[2]; and thus, the PADD 5 market demand for alternative sources of crude, including alternative mid-continent North American sources, is expected to continue to increase. Accordingly, as described in more detail below, market demand would not limit the facility to the proposed 360,000 barrels per day throughput capacity. That throughput capacity limit is a function of the terminal site's physical and rail access constraints.

To accomplish the project's objective, an EIS alternative should consider how this PADD 5 demand for mid-continent North American crude can be addressed either through the proposed Facility or through other facilities in Washington State. The Applicant described some of these alternative scenarios in Chapter 6 of the PDEIS.

You also asked us to comment on what the Port of Vancouver's purpose and objectives are for this project and why or how the Port arrived at the project scale defined in its request for proposals. PDEIS Section 1.2.2 provides a brief statement of the Port's objectives. However, if EFSEC staff and its EIS team need additional detail or have additional questions about the Port's objectives for the project, the Applicant believes that information is best obtained in a direct conversation with (or request to) the Port. While we would be happy to participate in or facilitate that discussion, we assume that EFSEC would prefer to make that request directly to the Port.

Factors that Led the Applicant to Choose the Port of Vancouver Location

As mentioned above, the Applicant anticipates that the primary source of crude oil that the Facility's customers will deliver to the Facility will be the Bakken. Crude may also come from other North American formations, such as the Niobrara and Uinta, depending on market conditions and the needs of the Facility's customers. We note again that the Applicant will not source or own any crude oil. Rather, the Applicant will receive its customers' crude oil by rail, unload and stage that crude oil in the on-site tanks, and load the crude oil onto vessels provided by those customers. However, it is really not possible to project future market conditions that might favor a different source with any degree of certainty. Based on the strength of Bakken production (*see* EIA productivity report) and market conditions known at this time, assuming Bakken as the primary source seemed and still seems to the Applicant to be the most reasonable and appropriate assumption regarding the likely source of the mid-continent North American crude.

Existing marine port infrastructure on the Washington coast and water ways leading to the coast are geographically the closest outlets for Bakken crude to PADD 5 refineries. BNSF owns or controls the rail infrastructure in the Bakken region. BNSF is, therefore, the likely rail transporter out of the Bakken. Because rail transport agreements and rates tend to favor a single carrier wherever possible, BNSF is also the likely carrier all the way from the Bakken to any marine terminal facility on the Washington coast. Therefore, both because of physical geography (Washington's closest proximity to the Bakken) and because of the ownership of existing rail infrastructure, the BNSF lines and the Port of Vancouver terminal site offer the shortest distance between the Bakken crude source and a deep water marine terminal site that can receive the crude oil directly by rail and load it onto marine vessels for transport to the PADD 5 refineries. Chapter 5 of the PDEIS analyzed at length the most likely route loaded unit trains would be expected to travel through Washington State. Other potential terminal locations elsewhere along the Washington coast, for the same reasons, are likely to receive unit trains using the same BNSF route, but such trains will travel a longer distance past the Port of Vancouver Facility location to reach other terminal facility destinations or the PADD 5 refineries in Washington directly. As described in PDEIS Section 1.2.3.1, the Port of Vancouver Facility location provided the best opportunity in Washington, and along the entire North American West Coast, for a crude-by-rail marine terminal to address the PADD 5 market demand described above. These criteria include:

- A site that can be constructed and placed into operation within a time frame that allows expeditious West Coast refinery access to mid-continent crude oil;
- A location that is centrally located with respect to shipping the oil to West Coast refineries;
- A location that already has the necessary transportation infrastructure to accommodate receipt by rail (unit train) and shipment by marine vessel;
- A site with deep draft access to accept the range of Jones Act vessels;
- A location that is already zoned and developed for industrial use; and
- A site that can be designed to provide flexibility to serve multiple clients through the appropriate capacity for receipt, segregation and loading of the crude oil.

[2] U. S. Energy Information Administration, U. S. Crude Oil and Natural Gas Proved Reserves, 2013, December 2014, http//www.eia.gov/naturalgas/crudeoilreserves/pdf/usreserves.pdf.

Receipt and Storage Capacity (Why 6 tanks are required? and Whether a reduced number of tanks could accomplish the project objectives?)

The Applicant notes, at the outset, that reducing the number of storage tanks does not necessarily reduce the requirements for spill containment, since those requirements are based upon the largest single tank volume (not the total aggregate tank volume) plus a factor of safety. *See* PDEIS Section 2.2.9. It was not clear as posed whether this question relates to spill containment requirements or some other probable significant impact issue or mitigation required.

A number of factors contribute to the determination of what storage volume and how many tanks of what size are required:

1) For example, the storage capacity at the terminal must be sized to accommodate periodic surges in capacity needs due to unplanned fluctuations in the timing of rail deliveries and marine vessel loading. In a typical year, for example (based on information from Columbia River Bar pilots), the Columbia River entrance may shut down approximately 6-10 days over the course of the winter due to severe weather. Because these closures will impact marine vessel arrival and loading, but do not necessarily impact rail traffic to the terminal, the storage must be sized to accommodate these unexpected (yet temporary) surges in storage needs.
2) As explained in PDEIS Section 5.2, ocean-going Jones Act crude oil vessels that are able to navigate the Columbia River are currently primarily sized for the 300,000 to 360,000 barrel range (comparable to the project designed throughput).
3) The need to segregate different types of crude and customer requirements to segregate crudes by ownership also drives the number of tanks and the amount of storage potential beyond total throughput volume. For example, Tesoro will be an anchor customer for this Facility. Two of the 6 tanks will be dedicated to Tesoro's use, leaving 4 tanks for other customer storage needs. Other customer factors that might dictate segregation of the crude into separate tanks include:
    a. Different refineries accept different grades of crude;
    b. Refiners must know the specific characteristics of the crude they will be receiving ahead of time, to make sure the refinery can appropriately handle and process the crude received;
    c. Customers want to retain control of their crude oil quality from its source to delivery, to avoid any unintended or unexpected blending that might change the quality (and value) of the crude they have or are purchasing; and
    d. Even a single customer (such as Tesoro) may well source crude for different refineries and thus, require segregation into separate tanks.

It is expected that the Facility will have as many as 10 customers. The more customers, the greater the amount of storage required to keep the product segregated for the reasons described above. The 6 tanks proposed were determined to be the appropriate number to accommodate these customers' needs within the size constraints of the site. Because individual customer contracts have not (and cannot) be entered into at this time, it is not possible to provide any more specifics regarding individual customer contract requirements.

Throughput Capacity (Why the proposal is for an average daily throughput of 360,000 barrels per day? and What would be the consequence if the project were scaled to accept a smaller daily volume?)

As noted above in the project objective response, inland crude could replace up to the current 1 million to 1.2 million barrels per day of foreign source waterborne crude. The Facility as proposed only meets a portion of this need (approximately 1/3 of the foreign waterborne imports to PADD 5 refineries). Thus, even larger volumes would be required to meet this PADD 5 demand. The proposed Facility throughput was actually limited by the physical terminal site and rail infrastructure constraints, not by limitation in PADD 5 demand. The project phasing proposed in the ASC was originally proposed to allow operations to start as soon as possible, not as a suggestion that the Facility would operate at a reduced capacity long term. When the Applicant originally began development of the project, phasing was also proposed to allow the Applicant time to gauge the market, commence operations as soon as possible, and allow time to negotiate additional customer contracts. With all of the time that has passed since that original August 29, 2013 ASC, all indications continue to show that the demand is present and sustainable to support the proposed 360,000 bpd throughput (the site limiting factor); and the Applicant expects to begin construction of Phase 2 as soon as Phase 1 is in operation.

The proposed throughput does not drive the Facility rail infrastructure, but rather it is the other way around. The Port's rail infrastructure is driving what is available within the Terminal 5 area. The Port's West Vancouver Freight Access project (WVFA) is permitted for 5 loop tracks in the Terminal 5 area. The WVFA project added grade separation between the North/South mainline rail and the entrance into the Port. In the Terminal 5 area, a grade separated overpass was added to

change the traffic flow within the port and keep trucks and rail cars moving unimpeded. Vancouver Energy will permit and build one additional loop track outside of the 5 permitted (for a total of 6 loops at the Terminal) on WVFA. The loop track is an

efficiency for rail and terminal operations because an entire train (unit train) can be staged and unloaded without being broken up and stacked on parallel tracks (e.g., the ladder tracks at other facilities) and without impeding rail access to other Port users, or without impeding mainline rail traffic. Because the Terminal 5 area does not have the property available to add any additional rail loops sized for unit train operations beyond those described in this paragraph, the facility cannot receive more than the stated average of 4 trains per day, without creating impact to other existing and future Port rail operations and the BNSF mainline traffic. The 360,000 bpd throughput (4 trains) is based on tank car capacity and the number of tank cars in a unit train, using high-end assumptions regarding volumes per train so that potential impacts related to these volumes are not underestimated in the environmental documents.

For the vessel berth, the size and types of vessels used to transport the crude dictate the dock improvements, not the number of vessels that will be loaded on a weekly basis. A smaller volume Facility would not change the requirements to modify the dock or the scale or nature of those modifications.

Given the somewhat standard ocean-going Jones Act vessels used to transport crude oil, the storage requirements and the transfer pipelines must be sized to allow efficient vessel loading when the vessel arrives to avoid "demurrage"—additional charges for a vessel lease for overtime use. Thus, the transfer pipelines must be sized to efficiently load a 300,000 to 360,000 barrel vessel when it arrives, regardless of how many arrive in any given period of time. Transfer pipe size does not change with fewer vessels that might be associated with smaller daily volumes. *See* PDEIS Section 5.2.

Because the rail infrastructure investment; the dock improvement investment; the size and configuration of the transfer pipeline; the number and size of tanks required to segregate product; and the anticipated unexpected surges in storage needs (due to river closure or rail traffic backups) would not change with reduced throughput volume at this facility, the initial investment costs for the facility would not be expected to vary significantly, if at all, with a reduced volume throughput.

Additionally, if the proposed Facility throughput were reduced, project objectives and PADD 5 demand would then need to be satisfied with other, smaller scale facilities at other terminal locations or with direct delivery by rail to the refineries. A greater number of smaller facilities could introduce a greater number of transfer points, and the potential for an associated greater number of failure points (or at least opportunity for failure points) since the point of transfer is often the point at which elevated risk of a release could occur.

Why are Other Crude-by-Rail Marine Terminal Proposals in the State of Washington Proposing Smaller Scale Projects?

Because the Applicant is not involved in any of the other proposed terminal facilities under review in the State of Washington, the Applicant is not in a position to comment with any specific detail on what might be the reasons why those other facilities are proposed at a smaller throughput volume. However, based on information that is generally publicly available through the existing public SEPA information[3], the Applicant believes that the following factors might contribute to the size of the facilities proposed:

- The terminal proposals at the Port of Grays Harbor, for example, do not appear to have loop rail access, and the maneuvering required to cut the train and stack the cars on ladder tracks for unloading may be a factor that limits daily throughput size. The Grays Harbor sites are also served by a short-line railroad and not exclusively by the BNSF Class I rail line. Short line operational requirements or constraints may contribute to lower proposed throughput volumes for those projects;
- The Westway and Imperium sites have other existing operations (methanol and biofuels processing, respectively) that may limit throughput volumes that those sites can accommodate;
- The NuStar site at the Port of Vancouver is simply a repurposing part of an existing facility; and
- The Applicant did note, based on public SEPA information (referenced in the PDEIS at Table 7.1-1), that the ratio of storage capacity to daily throughput proposed in the Grays Harbor facilities exceeds that same ratio proposed by the Applicant at the Port of Vancouver Facility. This is presumably for reasons similar to the reasons described above—to accommodate anticipated customer requirements for product segregation.

[3] Shoemaker, R.K. 2014, Westway Terminal expansion joint aquatic resources permit application (JARPA) form. February 13, 2014. Available at http://www.ecy.wa.gov/geographic/graysharbor/20140211-Westway-JARPAapp.pdf, accessed August 22, 2014. Plaza, J. 2013. Imperium Terminal Services, LLC. Imperium bulk liquid terminal facility project proposal environmental checklist resubmittal. February 22, 2013. Available at http://www.ecy.wa.gov/geographic/graysharbor/20130222-Imperium-SEPAchecklist.pdf, accessed August 22, 2014.

The Applicant cannot otherwise comment on what may be economic or other business reasons why those other facilities are proposed with smaller throughput. However, the Applicant does believe for that reason, it is not possible to assume that the fact that those facilities are smaller is any indication of whether a smaller throughput at the proposed Vancouver Energy Facility would be feasible, nor whether a smaller throughput at the proposed Vancouver Energy Facility would have less probable significant adverse impacts.

Will Blending of Crude Oil Types or Grades Occur? and What Impact does this have on the Number or Size of Tanks?

Some minor blending will occur out of necessity, given that on average approximately 4 unit trains will be required to load 1 vessel, and some minor variation in crude qualities among those trains is almost inevitable. In addition, some amount of blending may occur among customers within similar crude grades if permitted by customer specifications to be stored in the same tank. However, as described above in the section on size and number of tanks, customers who use the Facility will likely be interested in ensuring that the quality of the crude oil they sourced remains unaltered because they are managing that crude to feed their specific refinery systems. These customers may, therefore, specify independent storage of their specific crudes at the Facility. These requirements drive the number and size of tanks, as described above.

Why are Heated Tanks and Heated Transport Pipelines within the Site Proposed, and Could those 2 Tanks be Eliminated if the Facility did not receive the Lower API (i.e., "heavier") Crude Oils?

As described in Section 2.10.1.2 of the ASC, the Facility is being designed to accept what is known as "pipeline quality" crude oils, with a range of API from approximately 15 to 45, all of which fall within the range that will flow in a pipeline. The project is not being designed to receive or handle bitumens or other ultra-heavy crudes in their natural state. Heated tanks (and the heated transfer pipelines) are proposed to accommodate the lower API grades within this range, or higher viscosity crudes (due to characteristics such as high wax content present in the Uinta Basin), which depending on ambient conditions, may require heating to flow at appropriate vessel loading rates, particularly if the transfer pipeline is shut down for any reason with lower grade crudes in the pipeline. Because the sources of crude will vary from customer to customer and from source to source, it is not feasible to eliminate the tanks or heated transfer pipeline components of the project as part of any reduced volume throughput.

Hopefully, we have accurately captured and responded to the questions you have raised to assist EFSEC and its EIS team in the evaluation of DEIS alternatives and project objectives. Again, if you or your team require any additional explanation of the items described in this letter, please do not hesitate to contact the Applicant for any additional clarification.

Sincerely,

David Corpron
Senior Project Manager
Savage Services

Irina Makarow
Senior Environmental Project Manager
BergerABAM

Cc: Ann Essko