STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL
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March 14, 2016

Mr. Kelly Flint
Sr. Vice President and General Counsel
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901 W. Legacy Center Way
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Subject: Energy Facility Site Evaluation Council (EFSEC) Review Comments on the Application for Site Certification (ASC) – Notice of Construction Air permit application (NOC) for the Tesoro Savage Vancouver Energy Distribution Terminal Project (Project): Application No. 2013-0; Docket: EF-131590

Dear Mr. Flint:

The Energy Facility Site Evaluation Council (EFSEC) previously reviewed the revised Notice of Construction air permit application (NOC), dated August 2014, for the proposed Tesoro Savage Vancouver Energy Distribution Terminal project (Project). Subsequently, in March 2015 EFSEC determined the NOC application package to be complete. Since that time EFSEC has continued to coordinate with its permit contractors to begin preparation of preliminary draft documents for the draft NOC.

EFSEC has determined that additional information and clarification is needed to continue this effort. Please review and address the items listed below and provide your responses in-writing to EFSEC. Providing thorough and clearly written responses and clarification in a timely manner will assist EFSEC in moving forward with the processing of the ASC.

1) Maximum crude oil throughput. The current ASC cites two different annual throughput values. Marine vessel loading calculations assume 131,400,000 bbl/yr. Storage tank calculations assume 124,100,000 bbl/yr. The difference in assumed maximum throughput may be a reflection of direct transfer of crude oil from rail to vessel, but this is not apparent from the calculations. The Applicant needs to confirm the throughput values are different and explain the basis for each.

2) Process Boiler Emission Limits. The proposed process boilers are equipped with ultra-low NO_X burners. The specified NO_X emission rate of 0.0110 lb/MMBtu is equivalent to ~9 ppmv @ 3% O_2. Emission data for ultra-low burners is generally drawn from manufacturer's literature/guarantees, and is sometimes difficult to maintain these levels beyond the first few years of operation. A NO_X emission limit of 12 ppmv may be more appropriate to provide a margin of compliance for future operation. The Applicant needs to confirm that 9 ppmv @ 3% O_2 is a practical, long term emission limit, or propose an alternative limit.

3) Process Boiler Formaldehyde Emissions. The ASC cites EPA AP-42, Section 1.4 (*July 1998*) as the source of emission factors for HAP/TAP emissions from the natural gas fired process boilers. However, the emission factor for formaldehyde used in the application (0.01125 lb/10^6 scf) is not the same as the emission factor in Table 1.4-3 (0.075 lb/10^6 scf). There is no citation of an alternate source for the formaldehyde emission factor. The Applicant needs to provide the source of this emission factor or recalculate formaldehyde emissions using the emission factor from AP-42, Section 1.4.

4) Heated Storage Tanks. The original ASC (*dated Aug 2013*) proposed to install heating loops in two of the crude oil storage tanks. The tanks were to be heated with two dedicated process boilers. The tank heating boilers were removed from the revised application (*dated Aug 2014*), but no details were provided regarding the heated storage tanks. The Applicant needs to confirm whether any of the storage tanks will be heated, and if so, how this will be accomplished. If new combustion equipment will be used to provide process heat, technical specifications and applicable emission calculations need to be submitted.

5) HAP/TAP Emission Calculations. HAP/TAP emission calculations for natural gas combustion use emission factors taken from AP-42, Section 1.4. The emission factors used have varying levels of accuracy, and many have a low reliability rating (i.e., a factor rating of 'C' through 'E'). These emission factors may not be suitable/accurate for all emission sources. Does the applicant have access to HAP/TAP emission data taken from direct testing of similar units? If so, please provide this data as a supplement to the AP-42 emission factors.

6) HAP/TAP Weight Fractions. HAP/TAP emissions from storage tank operation and fugitive component leaks are calculated by multiplying total estimated VOC calculations by an assumed weight fraction. Emission calculations presented in the application use a different set of weight fractions for storage tank emissions than are used for component leak emissions. The material being handled is the same in both cases so the speciation profile of emitted vapors would presumably be the same. The Applicant needs to explain why two different speciation profiles were used to calculate emissions or recalculate emissions using a single speciation profile.

7) Marine Vessel Fill Configuration. The ASC does not specify the type of fill configuration to be used in marine vessel loading operations. A submerged fill/bottom fill configuration is typically required for vessel loading operations, but this is not specifically addressed. The Applicant needs to specify the fill configuration to be used for loading marine vessels.

8) VCU Emission Factors. VCU emission calculations in the application use emission factors of 0.023 lb/MMBtu for NO_X and 0.010 lb/MMBtu for CO. These factors were taken from information provided by the manufacturer (Jordon Technologies). Previous agency experience with similar equipment suggests that actual emissions of both pollutants during ongoing operation may be significantly higher. The Applicant should consult with the vendor, and then confirm the applicability of these emission factors. If emission test data for VCUs installed at similar facilities is available, it should be submitted in support of the ASC.

9) VCU VOC Control Efficiency. The ASC and associated emission calculations cite varying degrees of VOC destruction efficiency for the marine vessel loading vapor combustion units (VCUs). Available test data for VCU operation at similar facilities indicates actual destruction efficiencies ranging from 99.3% to 99.8%. The application BACT review cites destruction efficiencies of 99% or greater as being typical for similar projects, and based on performance at other facilities, this level of destruction efficiency has been demonstrated in practice. The VCU manufacturer expects to achieve a destruction efficiency of at least 99.8%, and emission calculations in the application reflect this level of control. However, this level of control may be difficult to maintain on an ongoing basis.

   The ASC estimates uncontrolled VOC emissions from vessel loading to be 1.5654 lb/1000 gal (~187.576 mg/L) of product transferred and 4,319 tpy (*Section 5.1 of the ASC, Attachment 2, p. 9*). Assuming a 99.8% destruction efficiency, emissions would be 0.375 mg/L and 8.64 tpy. Assuming a 99% destruction efficiency emissions would be ~1.875 mg/L (0.015654 lb/1000 gal) and 43.19 tpy. The difference in potential emissions is significant.

   The Applicant needs to confirm the minimum VOC destruction efficiency proposed for VCU operation at the facility.

EFSEC may request additional information in the future as needed. Any changes or modifications to the proposed Project may warrant additional evaluation, requests for information, and/or processing time by EFSEC.

If you have any questions or would like to discuss this matter further, please contact Sonia E. Bumpus at (360) 664-1363, or at sbumpus@utc.wa.gov.

Sincerely,

Stephen Posner
EFSEC Manager

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