555 N Carancahua Street | Suite 820 | Corpus Christi, TX 78401 | P (361) 883-1668 | F (361) 883-1620
trinityconsultants.com

Trinity Consultants

VIA E-MAIL: Robinson.Jeffery@epa.gov

August 31, 2018

Mr. Jeff Robinson
Air Permits Section Chief
Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Re: TGTI Second Response to NSR Air Permit Completeness Determination - Questions 2, 3, 5, & 7

Dear Mr. Robinson:

Texas Gulf Terminals Inc. (TGTI) submitted a New Source Review (NSR) Air Permit Application as part of the TGTI project to obtain a license for the operation of a Deepwater Port (DWP) in Federal waters of the U.S. Gulf of Mexico. On August 10, 2018, TGTI received a letter from the Environmental Protection Agency (EPA) requesting additional information to support the Prevention of Significant Deterioration (PSD) technical review process.

The responses below are numbered corresponding to the questions in the August 10, 2018 letter. This letter responds to questions 2, 3, 5, and 7 of the letter. TGTI submitted responses to Questions 1, 4, 6, 8, 9, and 10 through a separate letter on August 29, 2018.

If it would assist with EPA's technical review process, TGTI can meet to discuss in more detail compliance monitoring for the project and Best Available Control Technology (BACT) considerations including: standard design and operating procedures, VOC Management Plans, International Convention for the Prevention of Pollution from Ships (MARPOL) regulations, TGTI's vessel vetting process, and emission calculations.

EPA Question 2

The PSD permit application on page 9-5 states that the SPM buoy will be in compliance with all applicable regulatory requirements in 30 TAC Chapter 101 regarding "emission events and startup / shutdown / maintenance". However, the permit application does not appear to include emission calculations for Maintenance, Startup and Shutdown (MSS) emissions (i.e., pigging. hydrostatic pressure tests on the SPM and hoses, or inspection/replacement of hoses) from the marine loading operation. The startup/shutdown/maintenance emissions need to be authorized in the permit. Typically, EPA will permit or authorize these emissions by either establishing a separate alternative BACT that applies during MSS, or by including the emissions as part of our BACT determination for an individual unit(s) with the expectation that the unit(s) will meet BACT at all times. For the permitting record, please provide additional information regarding the facility's MSS emissions and TGTI's BACT preferences for MSS emissions.

TGTI Response:
MSS activities that occur at the SPM buoy system are inherently different than MSS activities typically performed for on-shore pipelines and terminals. Specific considerations to avoid marine water pollution

also avoid the generation of MSS activity air emissions at the SPM buoy system. Multiple mitigation techniques are incorporated into the overall design of the system including its closed loop design, breakaway couplings, and safety controls.

To ensure the marine environment is not polluted, the pipeline system will be flushed out with water from shore prior to the beginning of any maintenance activities. To accomplish this, a piece of pipe that is shaped like a "U" is used to connect the two hoses at the SPM buoy system together. This creates a closed loop with the onshore facility. Water is then used to flush the pipeline and hoses before maintenance activities commence. As a result, emissions are not generated from maintenance activities for SPM components that handle product (pipeline, hoses, etc.). All pigging operations will be performed in a closed loop system that originates, ends, and are accounted for at TGTI's on-shore facilities.

The hoses that connect the SPM to the VLCC manifold are equipped with flanges that close butterfly valves in the hose system when loading is complete. This assures the liquid product is retained in the loading hose or directed to the enclosed tank system on board the VLCC. Furthermore, breakaway couplings are employed that join segments of the floating hose together. By design these couplings immediately seal shut the ends of the hose by valves if necessary.

Hydrostatic pressure tests are performed during the initial commissioning and after a major repair to the SPM buoy system. These tests will be performed with water supplied from the on-shore terminal and will be a closed-loop process that avoids generation of emissions to the atmosphere.

Inspection of hoses does not require opening the system to the atmosphere. The hoses incorporate a double carcass system. The primary carcass is surrounded by the secondary carcass and both carcasses are independently secured to integral hose end fittings. The two carcasses function independently of each other and during normal operation the secondary carcass does not fatigue. Therefore if the primary carcass fails, the secondary carcass is capable of containing the leak from the primary carcass. The leak detection system on the hose is based on a visual inspection through a transparent window near the flexible hose couplings. Under normal circumstances, the site glass will be empty, indicating the integrity of the primary carcass is not compromised. If the site glass shows fluid, then the primary carcass has been compromised and the hoses will be replaced.

EPA Question 3

The PSD permit application does not provide a compliance monitoring strategy for the proposed marine vessel loading operation BACT. EPA requests that TGTI propose a monitoring, recordkeeping and reporting strategy to ensure enforceability of the proposed BACT pursuant to 40 CFR 52.21(n).

TGTI Response:
TGTI proposed BACT as submerged loading into vessels which have a VOC Management Plan as required by Regulation 15.6 of MARPOL, Annex VI and adopted in Marine Environment Protection Committee (MEPC) Resolution MEPC.185(59). The VOC Management Plan is a ship-specific management plan that is carried on-board the tanks being loaded. TGTI proposes the following for monitoring, recordkeeping, and reporting:

1. Monitoring
    a. TGTI will monitor the loading rate of the VLCC to ensure the maximum flow rate does not exceed 60,000 bbl/hr.[1]
    b. TGTI will monitor the annual volume of product loading to ensure the maximum annual product volume loaded does not exceed 192 million bbl/yr.
2. Recordkeeping
    a. TGTI will request and keep a copy of the VOC Management Plan for each VLCC that is loaded from the proposed SPM buoy system.
    b. TGTI will record the loading rate of the VLCC continuously.
    c. TGTI will confirm and document that the VLCC is being loaded via submerged loading.
3. Reporting
    a. TGTI will submit annual reports that certify the above monitoring and recordkeeping requirements.

EPA Question 5

The 5-Step BACT analysis for VOC emissions from Ship Loading does not propose any Best Management Practices for the SPM buoy system. Starting on page 7-7 of the permit application, a 5-step BACT analysis is provided for the VOC emissions associated with ship loading. The first step of the analysis is to identify all "available" control options for the emission unit, process or activity. A VOC Management Plan is included in the analysis as an available control option. However, the VOC Management Plan is a ship-specific management plan that is required by the Regulation 15.6 of the International Convention for the Prevention of Pollution from Ships, Annex VI and is carried on-board the tankers carrying crude oil. This plan is unique to the tanker itself and does not cover any Best Management Practices for the operation and maintenance of a SPM buoy system. Are there any specific operational requirements from MEPC.185(59), MEPC.1/Circ.680, or Regulation 15 of MARPOL that TGTI would recommend for inclusion into the BACT determination to minimize VOC emissions? Also, the Best Management Practices for a SPM buoy system should provide an effective plan for ship/shore interface, cargo transfer operations (i.e., minimizing gas formation in cargo tanks), maintenance (i.e., pigging if applicable), environmental (i.e., LDAR program), safety and health considerations and emergency preparedness. Specifically, are there any specific management practices at the SPM buoy system that will be undertaken by Texas Gulf itself to minimize VOC emissions?

TGTI Response:
TGTI will ensure that each VLCC loaded at the SPM buoy system has a VOC Management Plan that meets the requirements of MEPC.185(59) and that submerged loading is always utilized. Additionally, TGTI will ensure the loading rate does not exceed the maximum loading rate of 60,000 barrels per hour or the maximum loading rate of the VLCC being loaded, whichever is lower. TGTI will maintain constant communication with the crew aboard the VLCC during the loading process and will adjust the loading rate as necessary during loading to ensure vessel tank conditions are managed according to the VLCC's VOC Management Plan for the minimization of VOC emissions during loading.

As discussed in the response to Question 2, prior to MSS activities on the SPM buoy system, the pipeline will be flushed with water to remove residual product. This is inherently different than how MSS is performed on

[1] TGTI will be in constant communication with the crew on the vessel during the loading process and will adjust the loading flowrate as necessary to enable the vessel to adhere to its VOC Management Plan. 60,000 bbl/hr is the maximum allowable flow rate for the proposed SPM buoy system but does not necessarily correspond to the maximum loading rate of a particular VLCC. TGTI will not exceed 60,000 bbl/hr or the maximum allowable loading rate of the VLCC being loaded, whichever is lower.

liquid product pipelines and terminals that are located on-shore. As such, typical MSS activities will not generate air emissions at the SPM buoy system.

Please see Question 7 below for a discussion on the feasibility of an LDAR program at the SPM buoy system.

EPA Question 7

Table 6-1 on page 6-1 of the PSD permit application includes a VOC annual emission estimate from fugitives but does not appear to include a five-step BACT analysis. The PSD permit application states in Table 7-2 – Summary of Proposed BACT, page 7-13, that TGTI will comply with the VOC management requirements in MEPC.185(59). It is unclear what specific requirements TGTI proposes to follow and how the MEPC.185(59) will demonstrate continuous compliance. Are there any fugitive emissions associated with the SPM or any pipeline components located offshore that could be or should be monitored to minimize emissions? Please consider if a proposed fugitive monitoring program could include monitoring for methane (CH4) and please identify if any of the following technologies will be utilized in your design:

- *Installing leakless technology components to eliminate fugitive emission sources;*
- *Implementing an alternative monitoring program using a remote sensing technology such as infrared camera monitoring;*
- *Designing and constructing facilities with high quality components and materials of construction compatible with the process known as the Enhanced LDAR standards;*
- *Monitoring of flanges for leaks;*
- *Using a lower leak detection level for components; and*
- *Implementing an audio/visual/olfactory (AVO) monitoring program for compounds.*

TGTI Response:
The potential VOC emission rate for fugitive components on the SPM buoy system is 0.22 tpy. The SPM equipment layout is designed to minimize pipe run lengths and associated connectors, this inherently minimizes potential emissions. Texas Commission on Environmental Quality (TCEQ) BACT requirements for equipment leak fugitives do not a require Leak Detection and Repair (LDAR) program when a facility is designed such that the potential to emit from piping component equipment leak fugitives is less than 10 tpy for VOC.[2] As a result, BACT for fugitive component equipment leaks for the proposed SPM buoy system is minimization of fugitive emissions through equipment layout and design.

Furthermore, TGTI will comply with the VOC management plan requirements in MEPC.185(59) by ensuring that vessels that are loaded at the proposed SPM buoy system have a VOC Management Plan in place. Vessels are required under Regulation 15.6 of MARPOL to develop and adhere to the requirements of the ship-specific plan. TGTI will work with the appropriate crew on the vessel to moderate the loading flow rate such that it allows the vessel to ensure the requirements of the VOC Management Plan are followed; resulting in the minimization of VOC emissions from loading of the VLCCs.

[2] https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/bact/bact_fugitives.pdf

TGTI appreciates EPA's timely technical review of the permit application. If it would assist in the technical review process, TGTI can meet to discuss in more detail the proposed compliance monitoring strategy and BACT considerations. If you have any questions, comments, or need additional information, do not hesitate to contact Denise Rogers at (832) 203-6493 or me at (972) 661-8100.

Sincerely,

TRINITY CONSULTANTS

Brian Burdorf

Brian Burdorf
Director

cc: Denise Rogers, Compliance Manager - TGTI