



## ENERGY TRANSFER

December 13, 2017

Reference: Application for Plan Approval

Mr. George Eckert  
Facilities Permitting Section  
Pennsylvania Department of Environmental Protection  
Bureau of Air Quality  
2 East Main Street  
Norristown, PA 19401

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PROGRAM A/Q  
FAC NAME SPMT  
COUNTY DEL  
MUNICIPALITY Marcus Hook  
FILE ID # \_\_\_\_\_  
FILE TYPE # Permit

Dear Mr. Eckert:

Enclosed please find an application for Plan Approval for the Sunoco Partners Marketing and Terminals, L.P. (SPMT), Marcus Hook Industrial Complex. The Marcus Hook Industrial Complex is proposing to add process equipment to the Marcus Hook Industrial Complex to receive approximately 70,000 standard barrels per day (BPD) of ethane. A detailed report of the project is provided.

The application package includes the following:

**Attachment A** – PADEP Forms including: General Information Form (GIF), Compliance Review Form (CRF), and Pennsylvania Plan Approval application forms including Addendum A.

**Attachment B** – Plot Plan and Process Flow Diagram;

**Attachment C** – Flare Connection List (CONFIDENTIAL);

**Attachment D** – Back-up Emissions Calculations;

**Attachment E** – Contemporaneous Tables; and

**Attachment F** – County and Municipal Notifications.

Additionally, certain information attached to this response and any other similar information that may be provided by SPMT in the future related to the foregoing are being submitted subject to SPMT's contention and request that such information be treated as confidential, proprietary and/or trade secrets pursuant to Pennsylvania Law and Pennsylvania Administrative Code Title 25, Section 127.512 and any other appropriate sections in state and, if applicable, federal law and regulation.

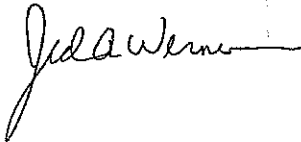
Pursuant to the Air Pollution Control Act of 1959, P.L. 2119, No. 787, Section 13.2, in particular and without limitation, SPMT claims confidentiality for the Flare Connection List (Attachment C) in the attached on the basis that, if such information was acquired by a competitor of SPMT, such competitors would be capable of determining individual throughput and/or proprietary design information and would be likely to cause substantial harm to SPMT's competitive position.

This letter is based on knowledge, information and reasonable belief that SPMT has spent significant effort to develop the information and the attached information is not known to have been disclosed or become available outside SPMT or related entities in the format or to the extent provided in the attached except, at most, where such has been subject to confidentiality agreements/provisions. As such, reasonable measures to protect the confidentiality of the information have been undertaken by SPMT and SPMT intends to do so in the future with respect to this information.

Further, the information is not known to be, and is not known to have been, reasonably obtainable by other persons (other than perhaps governmental bodies) by use of means (other than court enforced order) without prior consent from SPMT. SPMT is also unaware of any statute or regulation that specifically requires disclosure of the attached information which is claimed to be confidential. Accordingly, SPMT has watermarked the attached materials "Confidential" in bold font in the attached and will follow a similar procedure going forward, where it is deemed appropriate.

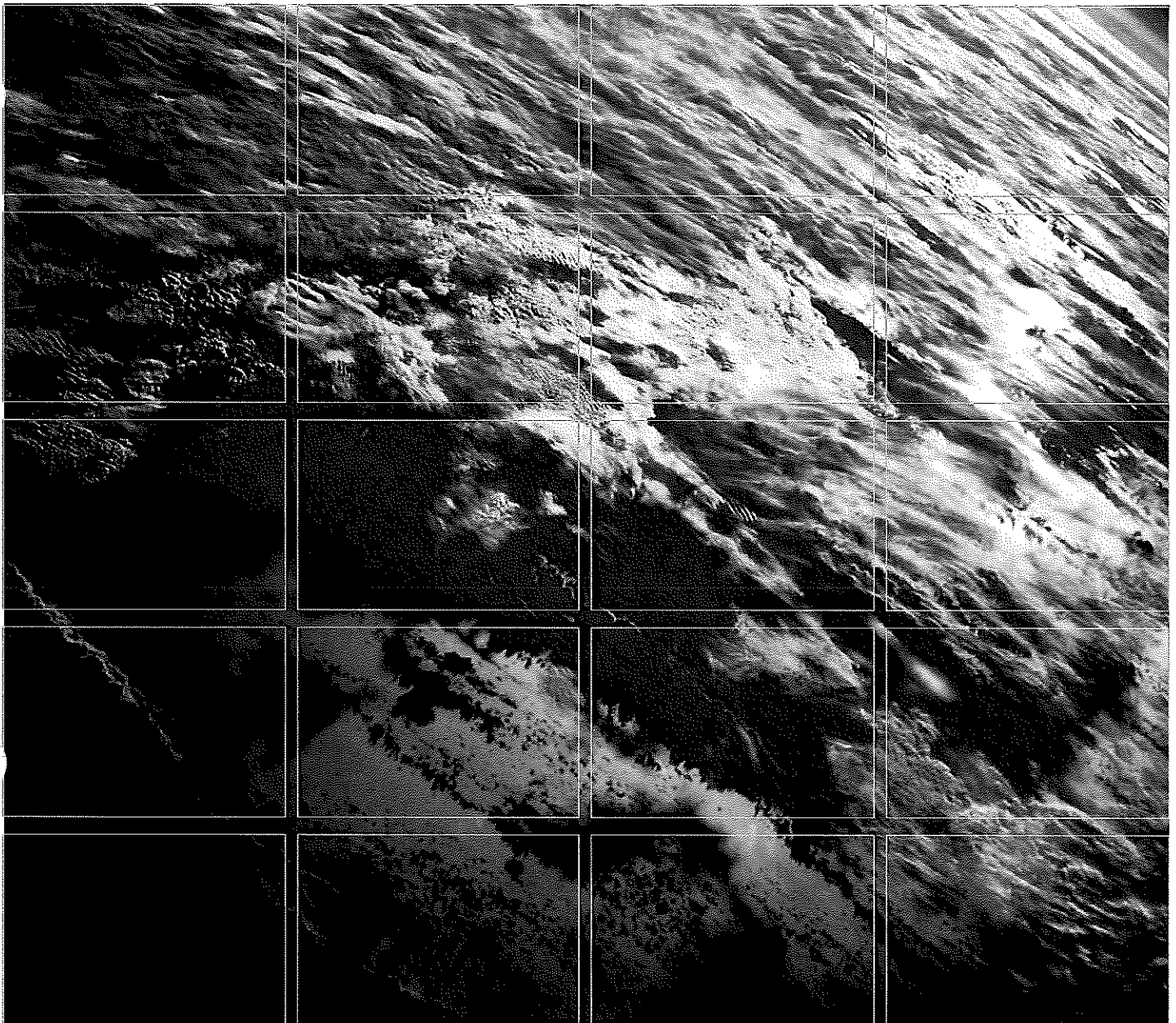
Please do not hesitate to call me at 610-670-3297 with any comments or questions regarding this plan approval application.

Sincerely,

A handwritten signature in black ink, appearing to read "Jed A. Werner", with a stylized flourish at the end.

Jed A. Werner,  
*Air Permitting Manager*  
*Energy Transfer Partners, L.P.*

Enclosures: Three copies of SPMT Plan Approval Application  
Check in the amount of \$1,000.00

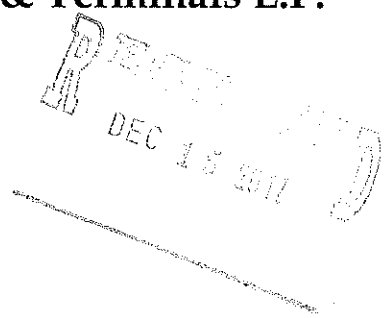


**Sunoco Partners Marketing & Terminals L.P.**  
**ME-2X Project**  
**Marcus Hook, Pennsylvania**

December 2017

Environmental Resources Management  
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## **LIST OF ATTACHMENTS**

- A *PADEP Plan Approval Forms*
- B *Plot Plan and Process Flow Diagram*
- C *Flare Connection List (CONFIDENTIAL)*
- D *Back-up Emissions Calculations*
- E *Contemporaneous Tables*
- F *Municipal and County Notifications*

## 1.0

### INTRODUCTION

Sunoco Partners Marketing & Terminals L.P. (SPMT), a subsidiary of Energy Transfer Partners L.P., is proposing to add process equipment to the Marcus Hook Industrial Complex (MHIC) to receive approximately 70,000 standard barrels per day (BPD) of ethane by installing equipment to upgrade the ethane to meet the applicable specifications; chill and store the ethane; and transfer the product from the MHIC. For the purposes of this application, the project will be referred to as the "ME-2X Project" or "the Project".

Only ethane feedstock is planned to be sent to the proposed new equipment associated with this Project. While other equipment associated with past projects at the MHIC process, chill, and store ethane; the ME-2X Project involves a specific process design for the planned ethane feedstock. The ME-2X Project will utilize the available capacity of existing utilities at the site including electricity, steam, the West Warm Flare header system<sup>1</sup>, amine treatment system, potable water, instrument air, nitrogen, and natural gas. Further discussion of the Project scope can be found in **Section 2** below.

The Project is fully described in this permit application submitted to the Pennsylvania Department of Environmental Protection (PADEP) by SPMT. SPMT has evaluated the emission changes associated with the Project and the facility and determined that the requirements of Prevention of Significant Deterioration (PSD) are not triggered by the Project. Further, SPMT has found through its evaluation of the expected emission changes from the Project that Nonattainment New Source Review is not triggered.

## 1.1

### ME-2X PROJECT

SPMT is proposing the new equipment to allow for processing and storage of cryogenic ethane to be transferred offsite.

The Project will:

- Install two (2) new 600,000 barrel (bbl) cryogenic ethane storage tanks;

<sup>1</sup> In July 2017, SPMT submitted a plan approval application to replace the Ethylene Complex Flare in Delaware with a new flare called the West Warm Flare. Because of the anticipated construction timelines for the ME-2X Project, it is assumed for the purposes of this plan approval application that the West Warm Flare will be in service. However, any reference to the West Warm Flare or the like is analogous with the wet flare or warm flare header system at the MHIC.

- Install one (1) new cold flare (HP ME-2X Cold Flare), equipped with low-pressure and high-pressure flare tips primarily for emergency depressurization events;
- Install the necessary piping for the cryogenic ethane process;
- Install one (1) new dehydration system;
- Install one (1) new closed-loop refrigeration system utilizing propane as the working fluid;
- Install one (1) new open-loop refrigeration system for final chilling of ethane;
- Install one (1) new demethanizer rectifier; and
- Install one (1) new wet surface air cooling system.

## 1.2

### ***PROPOSED PROJECT PERMITTING***

This plan approval application describes the proposed installation and regulatory analysis related to the Project. A detailed description of the Project and the related air emissions, along with the relevant regulatory analyses, are provided in **Sections 2 through 7**. Additional Project-related information is provided in the attachments as follows:

- PADEP Plan Approval Forms (Attachment A);
- Plot Plan and Process Flow Diagram (Attachment B);
- Flare Connection List - CONFIDENTIAL (Attachment C);
- Back-up Emission Calculations (Attachment D);
- Contemporaneous Tables (Attachment E); and
- Municipal and County Notifications (Attachment F).



***PRELIMINARY PROJECT SCHEDULE***

SPMT requests issuance by the Department of the Plan Approval to allow commencement of construction as soon as possible. The preliminary Project schedule is as follows:

- Begin construction of the Project in April 2018;
- Main process construction complete/start-up in 1st quarter 2020; and
- Cryogenic ethane storage tank construction complete/start-up in 3rd quarter 2020.

Each new cryogenic ethane storage tank is planned to contain three loading pumps and one circulation pump as part of the design. The loading pumps are utilized to transfer ethane via the existing loading docks. Based on construction timelines and due to the long lead time of certain equipment, it is possible that existing cryogenic ethane storage tanks, in particular the loading pumps within the tanks, will need to be temporarily utilized to store and/or transfer ethane while the proposed new cryogenic ethane storage tanks are being constructed.

SPMT recognizes that the preliminary Project construction schedule is projected to last more than 18 months, which is the normal permit term for Plan Approvals under 25 PA Code §127. The extended construction period is due to long-lead time materials that are needed for the construction of the cryogenic ethane storage tanks. Under 25 PA Code §127.13, SPMT is requesting that the Plan Approval be extended by an additional 12 months to facilitate shakedown of the sources.

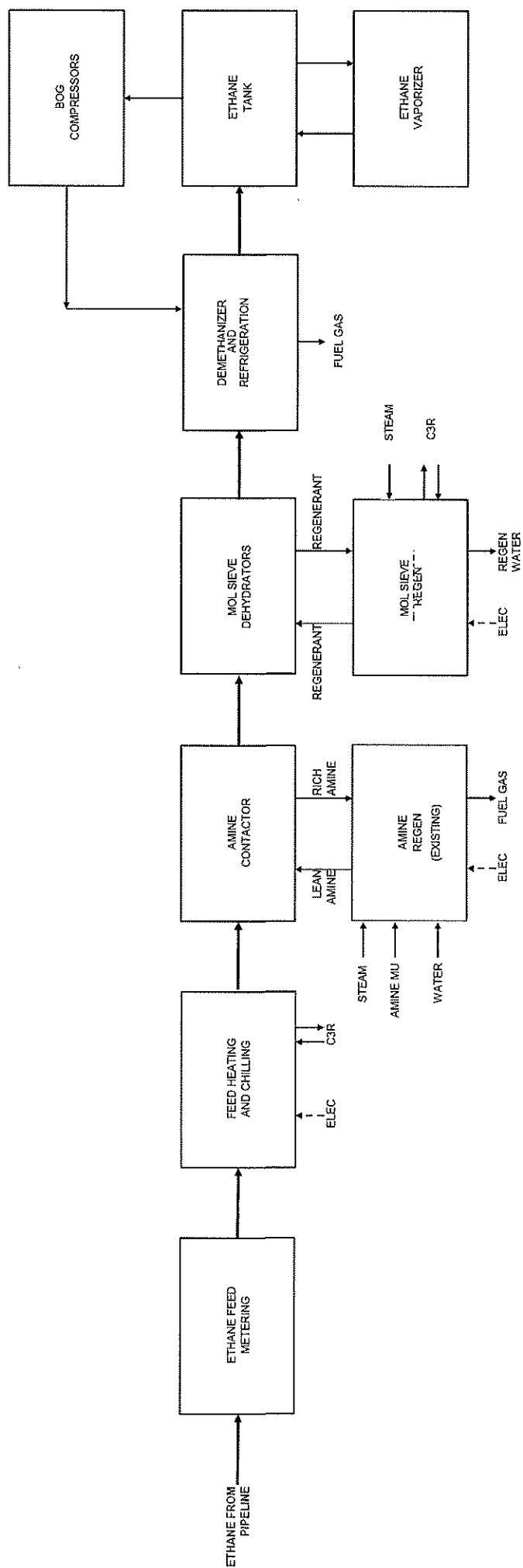
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## 2.0

### PROJECT OVERVIEW

This Project will provide for the storage of liquefied ethane products received through a pipeline that is planned to be dedicated to ethane transport. After exiting the pipeline, ethane will be treated to remove carbon dioxide via an amine treating system, and water via a dehydration system. Furthermore, methane impurities will be separated from the treated ethane feedstock by a demethanizer rectifier and the methane will be recovered to the MHIC fuel gas system. Treated, dry ethane will be refrigerated before being routed to cryogenic product storage tanks and ultimately transferred offsite. The sections below discuss the associated process equipment and **Figure 2-1** below shows an overall process flow diagram for the ME-2X Project.

Figure 2-1 ME-2X Project Simplified Process Flow Diagram



## 2.1

### **ME-2X AMINE TREATMENT SYSTEM**

Ethane feedstock received by SPMT is expected to contain carbon dioxide (CO<sub>2</sub>) at varying concentrations (up to 1,000 parts per million [ppm]). Feedstock which does not meet the product specifications will be treated to remove excess CO<sub>2</sub>. SPMT plans to install the ME-2X Amine Treatment System, consisting of an amine contactor and amine flash drum, to treat the additional ethane feedstock. Lean amine for the contactor and rich amine regeneration will be provided from excess capacity of the existing amine regeneration process. No modifications to the existing amine regeneration process are required to treat the proposed ethane feedstock. Ethane feedstock which meets the product specification for CO<sub>2</sub> (<100 ppm) prior to treatment may bypass the ME-2X Amine Treatment System and be routed to the Dehydration System (**Section 2.2**).

Additional piping, discussed in **Section 2.6.1** below, will be installed to allow the installation of the new amine contactor and the proposed ethane feedstock to utilize the excess capacity of the existing amine regeneration process. This piping includes components which could result in additional fugitive volatile organic compound (VOC) emissions.

As a result of the potential incremental increase in the CO<sub>2</sub> absorbed in the amine, an incremental increase in steam used in the existing amine regeneration system (amine stripper tower reboiler) is accounted for. Emissions associated with the incremental increase in steam demand by the existing amine regeneration process are discussed in **Section 2.7.1**.

The ME-2X Amine Treatment System will include maintenance and emergency connections to the HP ME-2X Cold Flare discussed in **Section 2.6.2**. Emissions resulting from these connections are accounted for at the flare.

Additionally, the ME-2X Amine Treatment System will include an operational connection to the West Warm Flare header associated with the amine flash drum, which will also require incremental sweep gas flow. Emissions associated with the incremental West Warm Flare connections are discussed in **Section 2.7.2**.

## 2.2

### **DEHYDRATION SYSTEM**

SPMT will remove water from ethane feedstock using a new molecular sieve desiccant dehydration system. Wet ethane feedstock will enter dehydration beds which contain a molecular sieve desiccant which adsorbs any water

contained in the hydrocarbon stream. Periodically, the beds will be regenerated to remove the water from the desiccant using dry ethane. During regeneration, superheated, dry ethane will be run through the system causing water contained in the system to flash off and exit the vessel with the wet regenerant ethane gas stream. Water is then condensed out of the regenerant ethane gas stream, degassed (flushed gas is sent to the West Warm Flare), and sent to the process sewer.

The Dehydration System (dehydrator regeneration vaporizer) will utilize incremental steam to preheat the dry ethane regenerant gas. Emissions associated with the incremental increase in steam demand by the Dehydration System are discussed in **Section 2.7.1**.

The Dehydration System will include maintenance and emergency connections to the HP ME-2X Cold Flare discussed in **Section 2.6.2**. Additionally, operational connections to the West Warm Flare are included, discussed in **Section 2.7.2**. Emissions resulting from these connections are accounted for as part of the overall project emissions.

No fugitive VOC emissions are expected from the piping, pumps, or other components in ethane service.

## 2.3

### ***DEMETHANIZER AND REFRIGERATION SYSTEM***

Following removal of CO<sub>2</sub> and moisture, the ethane will be cooled using a proprietary refrigeration system consisting of a closed loop propane system followed by an open loop ethane system. The chilling system is closely integrated with the Demethanizer to remove methane from the dry ethane. Methane and other hydrocarbons separated from the ethane feedstock will be routed to the MHIC fuel gas system.

The Demethanizer will include maintenance and emergency connections to the HP ME-2X Cold Flare discussed in **Section 2.6.2**. Emissions resulting from these connections are accounted for as part of the overall project emissions.

Propane will be used as the refrigerant for the Refrigeration System. Propane is compressed then cooled and condensed using Wet Surface Air Cooler (WSAC) System (**Section 2.6.3**). Chilled propane is then used to cool the ethane before being recycled.

Similar to propane, ethane vapors are compressed then cooled using the WSAC System (**Section 2.6.3**) and through heat exchange with chilled

propane. Depending upon the methane content of the ethane feedstock, methane-rich off-gases generated by the ethane Refrigeration System will be sent to the Demethanizer (**Section 2.3**). Refrigerated ethane product can be routed from the transfer pumps to the existing ethane storage tanks, TK-401 and TK-402 (Title V Operating Permit #23-00119, Source IDs 101 and 117) or the proposed new ME-2X Project Ethane Product Storage Tanks (**Section 2.4**) via a bi-directional transfer line.

The Refrigeration System will include operational, maintenance, and emergency connections to the HP ME-2X Cold Flare discussed in **Section 2.6.2**. Emissions resulting from these connections are accounted for as part of the overall project emissions.

No fugitive VOC emissions are expected from the piping, pumps, compressors, or other components in ethane or methane service. Fugitive components in propane service will be incorporated into the leak detection and repair (LDAR) program (See **Section 2.6.1**).

## **2.4 ETHANE PRODUCT STORAGE TANKS**

Two (2) new 600,000 barrel Ethane Product Storage Tanks, 130-TK-403 and 130-TK-404, are planned as part of the ME-2X Project. The new cryogenic storage tanks will be double-walled tanks that employ boil-off gas management systems, consisting of a series of compressors that allow the cryogenic liquids to auto-refrigerate and remain as liquids in the storage tanks. The Ethane Product Storage Tanks will be kept at a vapor pressure of approximately 1.0 pounds per square inch gauge (psig) and between approximately -135 and -125 degrees Fahrenheit (°F).

The ethane product storage tanks will include operational and maintenance connections to the LP ME-2X Cold Flare discussed in **Section 2.6.2**. Emissions resulting from these connections are accounted for as part of the overall project emissions.

No fugitive VOC emissions are expected from the piping, compressors, or other components in ethane service.

## **2.5 PRODUCT LOADING OPERATIONS**

SPMT plans to transfer ethane via the existing loading docks, which will operate within the existing loading capacity and will not be modified in any

way. No fugitive VOC emissions are expected from the piping, pumps, or other components in ethane service.

## 2.6 *NEW EMISSION SOURCES*

New emission sources included with the Project include fugitive VOC piping components, a new air-assisted Cold Flare with low-pressure and high-pressure flare tips, and the WSAC System.

### 2.6.1 *Fugitive Emissions – Piping Components*

Detailed engineering of this Project is on-going; however, for permitting purposes, SPMT has conservatively estimated the number of new piping components in VOC service expected for this Project, including additional components in the ME-2X Amine Treatment System and in the Refrigeration System.

The majority of piping components to be installed as part of the ME-2X Project will be in ethane service ( $\geq 94$  weight percent ethane). Since ethane is not a VOC, those lines were excluded from estimates of fugitive VOC leak emissions.

All new components in VOC service will be incorporated into the leak detection and repair (LDAR) program (see **Section 3.1** for details).

### 2.6.2 *ME-2X Cold Flare*

The ME-2X Project will involve the installation of one new air-assisted cold flare with both high-pressure (HP) and low-pressure (LP) flare tips to be used for flaring cryogenic streams that do not contain water. For the purposes of this narrative, the new flare will be referred to as the “ME-2X Cold Flare”. For safety purposes, any flaring streams containing water must be directed to the West Warm Flare header system (**Section 2.7.2**).

#### 2.6.2.1 *ME-2X Cold Flare Continuous Flows*

The ME-2X Cold Flare will have purge gas and pilot gas flowing to it on a regular basis to ensure safe and reliable operation. These flows are assumed to be on a continuous basis and are necessary for the safe operation of the flare. The pilot and purge gas will be introduced directly into the flare stack. SPMT will also introduce sweep gas (natural gas) into the cold flare header system upstream of the flare to prevent explosive conditions within the

pipng. See **Table 2-1** below for the pilot, purge and sweep gas flow rates in standard cubic feet per hour (scfh) for the planned new ME-2X Cold Flare.

**Table 2-1** *ME-2X Cold Flare Purge, Pilot and Sweep Gas Flow Rates*

Parameter	ME-2X Cold Flare Flow (scfh)
HP Pilot gas flow rate	500
HP Purge gas flow rate	261
HP Sweep gas flow rate	8,400
LP Pilot gas flow rate	500
LP Purge gas flow rate	24
LP Sweep gas flow rate	1,500
Total Continuous Flow Rate	11,184

#### 2.6.2.2 *ME-2X Cold Flare Operational & Maintenance Connections*

Processes included with this Project will be connected to the ME-2X Cold Flare and will send material to the flare on an operational or maintenance basis as part of normal operation to prevent atmospheric releases and/or control process vessel pressure. Operational flows are assumed to occur on a regular, routine, or continuous basis<sup>2</sup>. Maintenance flows occur at varying intervals depending upon the maintenance schedule, operational schedule, and condition of the equipment. The expected ME-2X Cold Flare connections for operational and maintenance flows are shown in **Table 2-2** below.

<sup>2</sup> There are operational flows that are listed in the ME-2X Cold Flare overview that are conservatively assumed to occur annually. However, in practice, these flows may not occur annually because they can be influenced by feedstock characteristics, non-routine process conditions, and weather conditions.



**Table 2-2**     *ME-2X Cold Flare Operational & Maintenance Connections*

ME-2X Project Process Area	Connection Type	Source Category
ME-2X Amine Treatment System	Maintenance	Exchanger
		Filter
Dehydration System	Operational	Pump Seal
	Maintenance	Exchanger
		Filter
		Pump
		Vessel
Refrigeration System	Operational	Compressor Seal
		Pump Seal
	Maintenance	Compressor
		Exchanger
		Pump
		Vessel
Demethanizer Rectifier	Maintenance	Exchanger
		Vessel
Ethane Product Storage Tanks	Operational - LP	Compressor Seal
		Pump Seal
	Maintenance - LP	Compressor
		Pump
		Tank

### 2.6.2.3     *ME-2X Cold Flare Emergency Connections*

A purpose of the new ME-2X Cold Flare is to provide safe and reliable control and destruction of process gases during emergency situations and the design capacity this flare is based on the worst case emergency relief scenarios. The planned flare header connections for emergency purposes are shown in **Table 2-3** below.

Emergency releases are not expected during normal operations nor can these conditions be reasonably predicted. Therefore, the exact emergency flow rates and associated emissions to the ME-2X Cold Flare are not included in the source's potential to emit.

**Table 2-3**     *ME-2X Cold Flare Emergency Connections*

ME-2X Project Process Area	Source Category
ME-2X Amine Treatment System	Exchanger
	Filter
Dehydration System	Pump Seals
	Vessel
	Exchanger
	Filter
Refrigeration System	Vessel
	Compressor Seals
	Exchanger
	Pump Seals
Demethanizer Rectifier	Exchanger
	Vessel
Ethane Product Storage Tanks	Boil-off Gas Compressor Seal

#### 2.6.2.4     *ME-2X Cold Flare Flow Overview*

SPMT performed an engineering analysis of the proposed ME-2X Cold Flare system, which included a line-by-line review of piping and instrumentation diagrams (P&IDs) to identify connections to the flare header system. The confidential ME-2X Cold Flare connection list can be found in **Attachment C (Confidential)**.

Through this engineering analysis, each ME-2X Cold Flare connection has been identified including its location, conservatively estimated composition, expected frequency of venting material into the flare system, expected duration of venting to the flare system, the estimated quantity (mass) of material vented to the flare system, and type of operation (sweep, operational, maintenance, or emergency as described previously). **Attachment C (Confidential)** also includes a confidential summary of expected flare flow, flow type, composition, and area of origin for material sent to the new flare.

**Table 2-4** below shows the expected overall flare flow, flow type, and composition for materials anticipated to be sent to the ME-2X Cold Flare.

**Table 2-4 ME-2X Cold Flare Flows Overview**

Flare	Flow Type	Flow Quantity (lb/year) and Composition				
		Ethane	Methane	Fuel Gas	Propane	Total
HP Cold	Emergency	0	0	0	0	0
	Maintenance	28,871	0	43	53,208	82,122
	Operational	50,896	29,200	0	2,868	82,964
	Sweep	0	3,106,449	0	0	3,106,449
LP Cold	Emergency	0	0	0	0	0
	Maintenance	1,909,278	0	0	100,488	2,009,767
	Operational	14,542	7,300	0	765	22,607
	Sweep	0	554,723	0	0	554,723
Total		2,003,588	3,697,672	43	157,329	5,858,631

### 2.6.3 Wet Surface Air Cooler System

A new WSAC System that is designed to process 21,000 gallons per minute (gpm) of cooling water will be required for the ethane and propane refrigeration systems. The WSAC System will be equipped with high efficiency drift eliminators. Cooling water make-up will be a mixture of potable water and low pressure steam condensate.

The WSAC System relies on evaporative cooling to transfer heat from process fluids. Since this evaporative cooling approach requires an open design of the heat exchange system, similar to an air-cooled fin-fan type heat exchange system, VOCs from the process will not accumulate in the unit's water basin. Due the high volatility and low water solubility of ethane and propane, these process fluids are directly transferred to the air if a leak occurs. Subsequently, only VOC emissions which result from fugitive leak components were estimated, as discussed in **Section 2.6.1**.

## 2.7 EXISTING UTILITY SOURCES

Incremental impacts on existing utility sources by the ME-2X Project include the Auxiliary Boilers and the West Warm Flare.

### 2.7.1 Incremental Steam Demand from the Auxiliary Boilers

The ME-2X Project will require low pressure steam for the dehydration regeneration vaporizer, amine stripper tower reboiler and the ME-2X Cold Flare. The steam will be generated by the three existing Auxiliary Boilers at

the MHIC. The steam demand from each of the proposed processes associated with the ME-2X Project is outlined below in **Table 2-5**.

**Table 2-5**      *Steam Demand from ME-2X Project Sources*

ME-2X Project Processes	Steam Demand (lb/hr)
Amine Stripper Tower Reboiler	706
Dehydrator Regeneration Vaporizer	2,941
Steam Tracing	9,500
Total Steam Demand	13,147

The site-wide MHIC steam demand broken down by project is shown in **Table 2-6** below.

**Table 2-6**      *MHIC Steam Demand by Project*

Project	Plan Approval	Steam Demand (lb/hr)
Project Mariner and Base Facility	23-0119	210,000
Project Mariner - Deethanizer	23-0119A	62,000
Natural Gasoline Project	23-0119B	53,000
Project Mariner - Cooling Tower	23-0119C	0
New Tanks Project	23-0119D	17,000
ETP Project Revolution and SXL Depropanizer Project	23-0119E	238,700
Storage Tank Update	23-0119F	0
Crude Storage	23-0119G	0
Flare Replacement (Warm Flare)	23-0119H	0
Methanol Removal Project	RFD 6484	2,292
ME-2X Project	23-0119I	13,147
Total Steam Demand		596,139

## 2.7.2 *Incremental Flows to the West Warm Flare*

For safety reasons due to potential water content, the ME-2X Amine Treatment System will include an operational and an emergency connection to the West Warm Flare header associated with the amine flash drum. Due to the distance to the West Warm Flare header, incremental sweep gas flow (natural gas) will be used.

Emergency releases are not expected during normal operations nor can these conditions be reasonably predicted. Therefore, the exact emergency flow rates and associated emissions to the West Warm Flare are not included in the incremental emissions.

**Table 2-7** below shows the expected overall flare flow, flow type, and composition for materials anticipated to be sent to the West Warm Flare.

**Table 2-7**     *ME-2X Flows to West Warm Flare*

Flow Type	Flow Quantity (lb/year) and Composition		
	Ethane	Propane	Natural Gas
Emergency	0	0	0
Operational	183,600	9,663	---
Sweep	---	---	210,795

### 3.0 DETAILED PROJECT EMISSIONS ANALYSIS

This section describes the calculations and assumptions associated with the estimated emissions from the ME-2X Project. The emissions from each source identified in **Section 2** including nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>), carbon monoxide (CO), VOC, particulate matter (PM), particulate matter less than 10 microns (PM<sub>10</sub>), particulate matter less than 2.5 microns (PM<sub>2.5</sub>), hazardous air pollutants (HAPs), and greenhouse gas emissions (carbon dioxide equivalents [CO<sub>2e</sub>]) are detailed below. **Table 3-7** at the end of this section shows the total ME-2X Project emissions. Detailed calculations are presented in **Attachment D**.

#### 3.1 FUGITIVE EMISSIONS - PIPING COMPONENTS

This Project includes the installation of new piping equipment, associated valves, pressure relief valves, and flanges. SPMT has conservatively estimated a component count, including valves, flanges, and relief valves, based on preliminary engineering design. The fugitive VOC components associated with the ME-2X Project will be subject to the requirements of 40 CFR 60 Subpart VVa for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry. Potential fugitive emissions are based on methodologies presented in United States Environmental Protection Agency's (USEPA) Protocol for Equipment Leak Emission Estimates, EPA-453/R-95-017 (emission factors from Table 2-1). The Texas Commission on Environmental Quality (TCEQ) implements an LDAR program (28VHP) that is as stringent as the LDAR requirements in 40 CFR 60 Subpart VVa. The TCEQ has published expected control efficiencies for the 28VHP LDAR program and these control efficiencies were used in conjunction with the USEPA methodology to estimate potential fugitive emissions from the new fugitive emission components.

Potential fugitive CO<sub>2e</sub> emissions are based on methodologies presented in United States Environmental Protection Agency's (USEPA) Protocol for Equipment Leak Emission Estimates, EPA-453/R-95-017 (emission factors from Table 2-4).

Estimated fugitive VOC and CO<sub>2e</sub> emissions in tons per year (TPY) from potential leaks from new equipment are presented below in **Tables 3-1 and 3-2**, respectively.

**Table 3-1 Potential Fugitive VOC Emissions**

ME-2X Project Units	New Fugitive Components	Number of Components	VOC Emissions <sup>1</sup> (TPY)
Refrigeration System Components	Valves	1,480	2.20
	Pump Seals	3	0.09
	Compressor Seals	8	2.62
	Pressure Relief Valves	30	0.90
	Flanges/Connectors	4,243	2.27
ME-2X Amine Treatment System Components	Valves	438	0.19
	Pump Seals	3	0.05
	Compressor Seals	0	0.00
	Pressure Relief Valves	5	0.03
	Flanges/Connectors	1,021	0.11
<b>Total VOC Fugitive Emissions</b>			<b>8.46</b>

<sup>1</sup> Potential fugitive emissions are estimated based on USEPA guidance correlations ("Protocol for Equipment Leak Emission Estimates", EPA-453/R-95-017).

**Table 3-2 Potential Fugitive CO<sub>2</sub>e Emissions**

ME-2X Project Units	New Fugitive Components	Number of Components	CO <sub>2</sub> e Emissions <sup>1</sup> (TPY)
Natural Gas Components	Valves	2,002	2,175
	Pump Seals	0	0
	Others	132	280
	Connectors	0	0
	Flanges	4,323	407
	Open-ended Lines	3	1.45
<b>Total CO<sub>2</sub>e Fugitive Emissions</b>			<b>2,864</b>

<sup>1</sup> Potential fugitive emissions are estimated based on USEPA guidance correlations ("Protocol for Equipment Leak Emission Estimates", EPA-453/R-95-017).

### 3.2 ME-2X COLD FLARE EMISSIONS

The ME-2X Project will involve the installation of one (1) new air-assisted cold flare to be used for flaring streams that are less than -20°F. As described above, there are pilot, purge, sweep, operational, maintenance, and emergency flows to the ME-2X Cold Flare. A purpose of the ME-2X Cold

Flare is to provide safe and reliable control and destruction of process gases during emergency situations.

These pilot, purge, sweep, operational, maintenance, and emergency flows, which vary in composition and VOC concentration, will contain methane, ethane, propane, and natural gas. An engineering analysis was conducted to determine the flow, composition, frequency, and origin of the expected flare flows at the planned flare. **Table 2-1** through **2-4** detail the flow (lb/year) of various materials expected to be sent to the flare. The HHV for each material was used to convert the flow (lb/yr) to heating duty (MMBtu/yr) for each material. SPMT then added the heating duty from each material to obtain the total heating duty sent to the flare due to operational and maintenance flows. That annual heating duty was then multiplied by industry accepted flare emission factors from AP-42 Chapters 1.4 and 13.5 and 40 CFR Part 98 for Mandatory Greenhouse Gas Reporting to calculate potential emissions from operational and maintenance flows.

To calculate VOC emission rates, SPMT used a conservative flare VOC destruction efficiency of 98% (i.e., compliance with 40 CFR §60.18) and the measured VOC content of the flare gas (based on composition data) in place of the standard emission factors from AP-42. This methodology more accurately represents the VOC emissions from the flare flows.

The ME-2X Cold Flare will be designed to comply with 40 CFR §60.18(c)(1) for visible emissions; therefore, no particulate matter (PM) emissions are expected during normal flare operation.

The ME-2X Cold Flare emissions, detailed by flow in **Table 3-3** below, are based on the expected purge and pilot gas flows, expected sweep flows, expected operational and maintenance flows, AP-42 Chapter 13.5 emission factors, and 40 CFR 98 Subpart W emission methodologies for GHG.



**Table 3-3**     *Potential Emissions from the ME-2X Cold Flare*

Parameter	Source			Total
	Pilot/Purge Flow	Sweep Continuous Flow	Operational / Maintenance Flow	
Heat Duty (MMBtu/hr) (annual average)	1.32	9.40	5.56	16.29
NO <sub>x</sub> Emissions (TPY)	0.39	2.80	1.66	4.85
VOC Emissions (TPY)	0.05	0.37	1.57	1.99
CO Emissions (TPY)	1.79	12.77	7.55	22.11
SO <sub>2</sub> Emissions (TPY)	0.003	0.02	0	0.03
CO <sub>2e</sub> Emissions (TPY)	759	5,848	2,993	9,600

### 3.3     **WET SURFACE AIR COOLER SYSTEM EMISSIONS**

The new 21,000 gpm WSAC System has the potential to emit trace amounts of particulates from solids in the cooling water. Cooling water will be a combination of steam condensate from the MHIC's existing steam generation system and potable water.

The emissions calculations assume a recirculation rate of 21,000 gpm, dissolved solids concentration of approximately 200 parts per million (ppm), and drift eliminator performance of 0.0005%. Emissions for PM, PM<sub>10</sub>, and PM<sub>2.5</sub> are estimated based on the Reisman/Frisbie methodology. **Table 3-4** below shows the potential emissions in TPY from the new WSAC System.

**Table 3-4**     *Potential Emissions from the WSAC System*

Pollutant	Potential Emissions (TPY)
PM	0.28
PM <sub>10</sub>	0.21
PM <sub>2.5</sub>	0.001

### 3.4     **INCREMENTAL STEAM DEMAND EMISSIONS**

The total future expected annual average steam demand for the MHIC, including the ME-2X Project, is approximately 596 thousand pounds per hour of steam (Mlb/hr) as shown in **Tables 2-5** and **2-6** above. As shown in

**Table 3-5** below, the emissions associated with this steam demand are calculated using baseline actual emissions and average actual steam production from calendar years 2009 and 2010. The overall MHIC steam demand including the ME-2X Project (approximately 596 Mlb/hr) is below the baseline steam demand (approximately 637 Mlb/hr) and the expected emissions associated with the MHIC steam demand are below the operating permit limits for the Auxiliary Boilers. Therefore, there is no incremental steam required by this Project and thus, there are no incremental emissions increases from the Auxiliary Boilers.

**Table 3-5 Incremental Steam Demand Emissions**

Parameter	Total Auxiliary Boiler Emissions				
	2009/2010 Baseline Average (TPY)	Average Emission Factors (lb/lb steam)	TV Operating Permit Limits for Auxiliary Boilers (TPY) <sup>1,2</sup>	Auxiliary Boiler Expected Emissions (TPY)	Facility Expected Emissions Below Operating Limits? (Yes/No)
NO <sub>x</sub>	68.31	2.45E-05	92.71	63.86	Yes
SO <sub>2</sub>	1.70	6.07E-07	41.10	1.59	Yes
VOC	2.09	7.48E-07	5.49	1.95	Yes
CO	8.21	2.94E-06	107.61	7.68	Yes
PM/PM <sub>10</sub> /PM <sub>2.5</sub>	12.54	4.49E-06	21.94	11.72	Yes
H <sub>2</sub> SO <sub>4</sub>	0.10	3.69E-08	3.15	0.10	Yes
CO <sub>2e</sub> (metric TPY)	212,276	7.60E-02	---	198,437	---
CO <sub>2e</sub> (TPY)	233,994	8.38E-02	---	218,739	---
Lead	0	2.26E-11	---	0	---
HAP	1.75	6.27E-07	---	1.64	---
Average Steam Load (lb/hr)	637,714 lb/hr steam	---	---	596,139 lb/hr steam	---

<sup>1</sup> The potential to emit for the Auxiliary Boilers was established with the Natural Gasoline Project (Plan Approval 23-0119B).

<sup>2</sup> Note that Auxiliary Boiler 2 (Source ID 032 of Title V Operating Permit 23-00119) has been permanently been taken out of service.

### 3.5 WEST WARM FLARE - INCREMENTAL EMISSIONS

As discussed in **Section 2.7.2**, operational and emergency flows will be sent to the West Warm Flare as part of normal operation to prevent atmospheric releases and/or control process vessel pressure. **Table 3-6** below shows the potential emissions from operational and maintenance flows at the West Warm Flare.

**Table 3-6 Incremental West Warm Flare Emissions**

Parameter	Source		Total
	Sweep Flow	Operational/ Maintenance Flow	
Heat Duty (MMBtu/hr) (annual average)	0.54	0.49	1.03
NO <sub>x</sub> Emissions (TPY)	0.16	0.15	0.31
VOC Emissions (TPY)	0.02	0.10	0.12
CO Emissions (TPY)	0.74	0.66	1.40
SO <sub>2</sub> Emissions (TPY)	0.001	0	0.001
CO <sub>2e</sub> Emissions (TPY)	337	263	599

### 3.6 PROJECT EMISSIONS SUMMARY

**Table 3-7** details the total ME-2X Project emissions broken down by source. Additional information can be found in **Attachment D**.

Table 3-7

## ME-2X Project Emissions Summary

Emissions	Pollutant (TPY)									
	VOC	NO <sub>x</sub>	CO	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	H <sub>2</sub> SO <sub>4</sub>	Lead	CO <sub>2</sub> e
Fugitive Components	8.46	---	---	---	---	---	---	---	---	2,864
ME-2X Cold Flare	1.99	4.85	22.11	---	---	---	0.03	---	---	9,600
Wet Surface Air Cooler System	0	---	---	0.28	0.21	0.001	---	---	---	---
Incremental West Warm Flare Flows	0.12	0.31	1.40	---	---	---	0.001	---	---	599
Total	10.57	5.16	23.51	0.28	0.21	0.001	0.03	0	0	13,063

#### 4.0

#### PSD & NANSR REGULATORY REVIEW

SPMT must comply with all federal and state requirements applicable to this proposed Project. The existing facility is a major stationary source for all criteria pollutants; therefore, the new sources in this plan approval must undergo a new source review analysis.

The MHIC is located in an area treated as severe nonattainment for ozone and nonattainment for PM<sub>2.5</sub>. It is designated as attainment for other pollutants. Because of the above designations, SPMT must evaluate the project related activities for the applicability of the NANSR program for VOC and NO<sub>x</sub> as ozone precursors along with PM<sub>2.5</sub> emissions, and the applicability of the PSD program for NO<sub>2</sub>, SO<sub>2</sub>, CO, PM, PM<sub>10</sub>, H<sub>2</sub>SO<sub>4</sub>, lead, and CO<sub>2e</sub>. Under the NANSR program, the project is considered a major modification for ozone if the VOC or NO<sub>x</sub> emissions exceed 25 TPY for the project alone or by aggregating with increases and decreases over the contemporaneous time period. For PM<sub>2.5</sub>, the modification is considered major if the project emissions exceed 10 TPY (or when NO<sub>2</sub> or SO<sub>2</sub> emissions exceed 40 TPY [as they are both PM<sub>2.5</sub> precursors]). Under PSD, a major modification occurs when NO<sub>2</sub> or SO<sub>2</sub> emissions exceed 40 TPY, CO emissions exceed 100 TPY, PM emissions exceed 25 TPY, PM<sub>10</sub> emissions exceed 15 TPY, sulfuric acid mist emissions exceed 7 TPY, CO<sub>2e</sub> emissions exceed 75,000 TPY<sup>3</sup>, or lead emissions exceed 0.6 TPY.

#### 4.1

#### PREVENTION OF SIGNIFICANT DETERIORATION ANALYSIS

The Prevention of Significant Deterioration regulations (40 CFR 52.21) are Federal regulations that apply to new major sources or "major modifications" of existing "major stationary sources" located in attainment or unclassifiable areas for a given pollutant. The SPMT Marcus Hook facility is a major stationary source, and adding a new source to the facility source that would result in a "significant net emissions increase" would trigger PSD applicability.

<sup>3</sup> Based on the Supreme Court's decision on June 23, 2014 in *Utility Air Regulatory Group v. EPA*, a project's GHG emissions can only trigger PSD if a conventional pollutant is triggered PSD first. For the CO<sub>2e</sub> emissions, the thresholds are 75,000 TPY for modified facilities and 100,000 TPY for new facilities.

As indicated in the **Table 4-1** below, there are no significant emissions increases associated with pollutants subject to PSD; therefore, no further PSD review is required.

**Table 4-1 PSD Emissions Analysis**

Emissions	Pollutant (TPY)								
	NO <sub>2</sub>	SO <sub>2</sub>	CO	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	H <sub>2</sub> SO <sub>4</sub>	Lead	CO <sub>2e</sub>
ME-2X Project	5.16	0.03	23.51	0.28	0.21	0.001	0	0	13,063
PSD Significant Level	40	40	100	25	15	10	7	0.6	75,000
PSD Triggered (Before Netting Analysis)	No	No	No	No	No	No	No	No	No

## 4.2 NONATTAINMENT NEW SOURCE REVIEW ANALYSIS - OZONE

Facilities located in nonattainment areas that plan construction or modification of a source must evaluate the applicability of nonattainment NSR. The requirements are defined in 25 PA Code §127.201 through §127.217. Sources located in a nonattainment area, ozone transport region, or attainment or unclassifiable area impacting a nonattainment area are subject to permit requirements defined in 25 PA Code §127.203. In Pennsylvania, facilities located in the five county area including Delaware County are subject to the special permit requirements codified at §127.203. Under the special permit requirements, proposed new sources are subject to the NANSR requirements if the cumulative emissions calculated using either one of the two scenarios below equals or exceeds 25 tons per year of NO<sub>x</sub> or VOC:

- Increases or decreases in emissions from the project are aggregated with other net emissions increases over the consecutive 5-calendar year period including the year in which the project is constructed; or
- Increases or decreases in emissions from the project are aggregated with other net emission increases or decreases over the previous 10-year period. In this case, the facility is subject only to the emissions offset requirements codified at §127.205.

Contemporaneous and creditable emissions increases included in the netting analysis are based on current facility permits. Detailed emissions estimates and netting analysis are provided in **Attachments D and E**, respectively.

SPMT has evaluated the applicability of NANSR for ozone to the proposed Project. **Table 4-2** below presents a summary of Project emissions for NO<sub>x</sub> and VOC aggregated with other net emissions increases over the consecutive 5-calendar year period including the year in which the Project construction is planned (calendar years 2013 through 2018).

**Table 4-2** *NANSR Netting Analysis for NO<sub>x</sub> and VOC Emissions (5-calendar year)*

Project	VOC Emissions (TPY)	NO <sub>x</sub> Emissions (TPY)
ME-2X Project	10.57	5.16
Previous Contemporaneous Projects	0.00	8.72
<b>Net Emissions Increase</b>	10.57	13.88
NANSR Significance Level	25	25
<b>NANSR Review Required</b>	No	No

As shown in Table 4-2, the net emissions increases of NO<sub>x</sub> and VOC are less than the NANSR regulatory threshold of 25 tons per year.

**Table 4-3** below presents a summary of Project emissions for NO<sub>x</sub> and VOC aggregated with other net emissions increases over the consecutive 10-calendar year period including the year in which the project construction is planned (calendar years 2008 through 2018).

**Table 4-3** *NANSR Netting Analysis for NO<sub>x</sub> and VOC Emissions (10-year)*

Project	VOC Emissions (TPY)	NO <sub>x</sub> Emissions (TPY)
ME-2X Project	10.57	5.16
Previous Contemporaneous Projects	0.00	-20.57
<b>Net Emissions Increase</b>	10.57	-15.41
NANSR Significance Level	25	25
<b>NANSR Review Required</b>	No	No

As shown in **Table 4-3**, the net emissions increases of NO<sub>x</sub> and VOC are less than the NANSR regulatory threshold of 25 tons per year. Therefore, the proposed Project is not subject to the special permit requirements in 25 PA Code §127.203.

As of December 2007, Delaware County was designated as nonattainment for PM<sub>2.5</sub>. 25 PA Code §127.201 through §127.217 provide the framework for reviewing NANSR applicability for PM<sub>2.5</sub>. These regulations require NANSR review both for direct PM<sub>2.5</sub> emissions, as well as emissions of SO<sub>2</sub> and NO<sub>x</sub> as a PM<sub>2.5</sub> precursor.

**Table 4-4** provides a summary of the Project emissions for PM<sub>2.5</sub> and SO<sub>2</sub> and NO<sub>x</sub> as precursors. It can be seen that the PM<sub>2.5</sub>, SO<sub>2</sub>, and NO<sub>x</sub> emissions from the Project are not greater than the new source thresholds for PM<sub>2.5</sub>. Therefore, nonattainment new source review is not triggered for PM<sub>2.5</sub> or its precursors.

**Table 4-4** *NANSR Analysis for SO<sub>2</sub>, NO<sub>x</sub>, and PM<sub>2.5</sub> Emissions*

Project	SO <sub>2</sub> Emissions (TPY)	NO <sub>x</sub> Emissions (TPY)	PM <sub>2.5</sub> Emissions (TPY)
ME-2X Project	0.03	5.16	0.001
NANSR Significance Level	40	40	10
NANSR Review Required	No	No	No



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## 5.0

### BAT DETERMINATION

In accordance with 25 PA Code §127.12, an applicant for Plan Approval must demonstrate that the emissions from a new source will be the minimum attainable through use of the Best Available Technology (BAT). BAT is defined as equipment, devices, methods or techniques as determined by the Department that will prevent, reduce or control emissions of air contaminants to the maximum degree possible and that are available or can be made available to the facility.

SPMT conducted a BAT analysis for the ME-2X Project. This analysis considers BAT determinations for the fugitive VOC emission components, the ME-2X Cold Flare, and Wet Surface Air Cooler System associated with ME-2X Project. In this analysis SPMT reviewed information from various databases to determine recent requirements and emission limits for the new sources associated with this Project, including:

- USEPA's New Source Review website;
- USEPA's RACT/BACT/LAER Clearinghouse (RBLC) Database;
- Various state air quality regulations and websites;
- Control technology vendors information;
- Technical books and articles; and
- State and federal guidance documents.

Note that BAT is a pollutant-specific determination. Based on a review of established emission limits in permits, the following sections document the results of the source and pollutant specific BAT determinations.

## 5.1

### FUGITIVE SOURCES

Fugitive emissions, by definition, are those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening. According to the *New Source Review Workshop Manual* (EPA 1990), it is "unreasonable to expect that relatively small quantities of VOC emissions, caused by leaking valves at outside storage tanks...could be captured and vented to a stack." Therefore, the only control technology for fugitive emissions is leak detection and repair program.

SPMT is proposing that the leak levels and LDAR requirements of 40 CFR 60 Subpart VVa for Equipment Leaks of VOC in the Synthetic Organic Chemical Manufacturing Industry (SOCMI) constitute BAT for the proposed new valves, flanges, and relief valves components in VOC service.

## 5.2 *ME-2X COLD FLARE*

The ME-2X Cold Flare associated with the Project is itself a control device. Therefore, SPMT will comply with 40 CFR §60.18 to satisfy BAT requirements for NO<sub>x</sub>, CO, and SO<sub>2</sub>.

To identify the VOC limits “achieved in practice” or that have been established for similar source types to satisfy BAT, a series of searches of USEPA’s RACT/BACT/LAER Clearinghouse (RBLC) database, individual state RBLC databases, and general literature was conducted. The majority of the items identified in the RBLC search were labeled as either “BACT” or “LAER” determinations.

**Table 5-1** below shows the results of an RBLC search as well as recent and ongoing permitting actions for similar facilities/sources.

Table 5-1 Summary of RBLC Findings

RBLC ID/ Permit	Facility Name	Permit Issuance	Process Description	Control Description	Control Efficiency	Control Efficiency Verified
TX-0793	Bayport polypropylene plant	04/04/16	Polypropylene Production Units	Vent streams from routine and maintenance, start-up, and shutdown (MSS) activities are controlled by the air-assisted LOG Flare (EPN 30) or the steam-assisted Elevated Flare (EPN 34). The flares are expected to achieve a volatile organic compound (VOC) destruction efficiency of at least 99 percent (as previously permitted - raw materials have three or fewer carbons). Flares are approved as control devices due to the VOC concentration, together with the variability in flow rate and composition. Flare shall meet 40 CFR §60.18 minimum Btu and maximum tip velocity requirements. 99% DRE for VOC molecules with three compounds or less, including methanol and CO (high hydrogen). 98% DRE for all other compounds.	99% (for C3 or less)	No
TX-0774	Bishop facility	11/12/15	Reformer Start up and Shutdown	Flare System. Facility will use the following three types of Flare: 1) Multipoint Ground Flare, 2) Mercox Flare, 3) Low Pressure Flare. Multipoint flare will operate in accordance with an Alternative Method of Control (AMOC) authorization from EPA. Mercox and Low pressure flare will meet 40 CFR §60.18 requirements.	99% (98% for C3+)	Unknown
TX-0754	Propane dehydrogenation unit	07/10/15	Propane Dehydrogenati on-Feed Treating and Product Recovery Process	The flare must conform to 40 CFR §60.18 requirements. Vent stream composition and flow must be continuously monitored to demonstrate compliance.	98%	Unknown
*TX-0812	Crude oil processing facility	10/31/16	Refinery Flares	Emissions minimized by limited venting, and waste stream controlled by flare. The flare must conform to 40 CFR §60.18 requirements. Vent stream composition and flow must be continuously monitored to demonstrate compliance.	98%	Unknown
*TX-0813	Odessa petrochemical plant	11/22/16	Polypropylene Process Vents		98%	Unknown

RBLC ID/ Permit	Facility Name	Permit Issuance	Process Description	Control Description	Control Efficiency	Control Efficiency Verified
Shell Petrochemicals Complex Plan Approval Application	Shell petrochemicals complex	6/18/2015	Ethylene/ Polyethylene Production	Shell uses a flare system to control VOCs. Flare operated to meet minimum net heating value requirements for gas streams combusted in the flares, as set forth at 40 CFR §60.18 & §63.11. Flare designed to meet limitations on maximum exit velocity, as set forth in the general provisions at 40 CFR §60.18 & §63.11.	98% (based on §60.18)	Unknown
Bay Area AQMD BACT/TBACT Workbook Guidance <sup>4</sup>	BACT Guidance; Section 3 petroleum Industry	N/A	Refinery Flare	Achieved in Practice: Elevated flare, steam- or air- assisted, w/ staged combustion; POC destruction efficiency ≥98%; use of natural gas or LPG as pilot fuel. Flare to be operated only during periods of emergency plant upset or breakdown; routine venting of process gases to be routed to fuel gas recovery system.	98%	N/A
Bay Area AQMD BACT/TBACT Workbook Guidance <sup>5</sup>	BACT Guidance; Section 3 Petroleum Industry	N/A	Pressure Relief Valves, Emergency - Process Units	Achieved in Practice: Vent to fuel gas recovery system, furnace, or flare with a recovery / destruction efficiency ≥98%.	98%	N/A
South Coast AQMD <sup>6</sup> App No. 353730	Van Waters & Rogers	10/1999	Fixed Roof Storage tank	The applicant is planning to install 18 organic liquid storage tanks at this facility. All tanks will be vented to the thermal oxidizer included in application number 353767. The assumed overall efficiency of the thermal oxidizer is 95% VOC control. A temperature of not less than 1400 degrees Fahrenheit will be maintained in the thermal oxidizer when the equipment it serves is in operation, and no liquid wastes will be burned in the thermal oxidizer.	95%	N/A

<sup>4</sup> Bay Area AQMD. "Section 3: Flare - Refinery" <http://www.baaqmd.gov/permits/permitting-manuals/bact-tbact-workbook>.

<sup>5</sup> Bay Area AQMD. "Section 3: Pressure Relief Valves, Emergency - Process Units. <http://www.baaqmd.gov/permits/permitting-manuals/bact-tbact-workbook>.

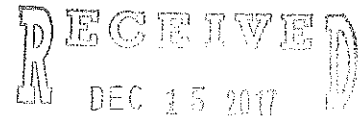
<sup>6</sup> South Coast AQMD BACT Guidelines. <http://www.aqmd.gov/home/permits/bact/guidelines>.

SPMT believes that the most analogous entry in **Table 5-1** to the ME-2X Cold Flare is the Shell project. Shell submitted a plan approval permit application to PADEP in May 2014 for the construction of a petrochemicals facility (specifically ethylene and polyethylene production). This petrochemical facility is proposed to operate with similar materials and operations as the SPMT MHIC. Shell conducted a Lowest Achievable Emission Rate (LAER) analysis for polyethylene manufacturing vents and proposed that a flare system was LAER for the associated sources. Shell proposed that the design and operating requirements from 40 CFR §60.18 and a VOC destruction efficiency of 98% was LAER for polyethylene manufacturing vents. The Plan Approval for construction of the facility was issued in June 2015. As shown by the VOC precedents shown in **Table 5-1** above, SPMT is proposing that 98% destruction removal efficiency (DRE) together with compliance with the design and operating requirements of 40 CFR §60.18 constitute BAT for VOC for the proposed ME-2X Cold Flare.

### 5.3

#### **WET SURFACE AIR COOLER SYSTEM**

A review of the RBLC database was conducted for the WSAC System. BAT for particulates was identified as utilization of a drift eliminator with maximum total drift of 0.0005% of the circulating water flow rate. This maximum drift rate will be the basis for vendor specifications for this Project. SPMT is proposing drift eliminators with maximum total drift of 0.0005% constitute BAT for particulates for the proposed new WSAC System.



New sources included with this Project include fugitive VOC components, the ME-2X Cold Flare, and the WSAC System. All other sources will continue to meet their existing permitted limits and requirements. **Table 6-1** summarizes the potentially applicable requirements identified for the Project.

**Table 6-1** *Federal Applicable Requirements - ME-2X Project*

Regulatory Citation	Description	Emission Limit and/or Operational Restriction
40 CFR 60 Subpart A §60.18	Standards of Performance for New Stationary Sources - General control device and work practice standards	<p>This subpart applies to certain control devices used to comply with applicable subparts of 40 CFR parts 60 and 61. Subject equipment includes flares.</p> <p>The ME-2X Cold Flare must be operated with no visible emissions, with flame present at all times, to meet exit velocity requirements, and maintain a minimum net heating value of the flare gas.</p>
40 CFR 60 Subpart VVa	Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006	<p>This subpart applies to the control of air emissions from equipment leaks associated with affected facilities in the organic chemicals manufacturing industry. Subject equipment includes each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, and flange or other connector in VOC service.</p> <p>Additionally, if a flare is used to control VOC emissions from pumps, compressors or sampling systems, the flare must comply with 40 CFR §60.18. SPMT does route or plans to route pump and compressor seal systems and sampling systems to the ME-2X Cold Flare for VOC control; therefore, the ME-2X Cold Flare will comply with the requirements of §60.18.</p>

Regulatory Citation	Description	Emission Limit and/or Operational Restriction
40 CFR 60 Subpart Kb	Standards Of Performance For Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) For Which Construction, Reconstruction, Or Modification Commenced After July 23, 1984	This subpart applies to each of the storage tanks at the storage facility with a capacity greater than or equal to 75 cubic meters (471 barrels) that is used to store volatile organic liquids for which construction or modification is commenced after July 23, 1984; therefore, the recordkeeping requirements of 40 CFR 60.115b are applicable. However, the VOC standards of 40 CFR 60.112b (i.e., requiring the installation of a floating roof and conducting periodic inspections) are not applicable because of the high vapor pressure of the material being stored (vapor pressure of 108 kiloPascal [kPa]). 40 CFR 60.112b is only applicable to storage vessels with a design capacity greater than 151 cubic meters (949 barrels) and storing a volatile organic liquid that has a maximum true vapor pressure greater than 5.2 kPa but less than 76.6 kPa.

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## 7.0 *REQUESTED PERMIT CONDITIONS*

The following section provides requested permit conditions. As discussed in **Section 1.3** above, SPMT requests issuance of the Plan Approval to allow the commencement of construction in April 2018. Additionally, SPMT is requesting a 12 month Plan Approval extension (expiration date that is 30 months from issuance) to allow for shakedown of the proposed new sources.



*Attachment A  
PADEP Facility General  
Information Form, PHMC Letter,  
Compliance Review Form,  
Processes Form, and  
Addendum A Form*


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**GENERAL INFORMATION FORM – AUTHORIZATION APPLICATION**

Before completing this General Information Form (GIF), read the step-by-step instructions provided in this application package. This version of the General Information Form (GIF) must be completed and returned with any program-specific application being submitted to the Department.

<b>Related ID#s (If Known)</b> Client ID# 161585      APS ID# Site ID# 270459      Auth ID# Facility ID#		<b>DEP USE ONLY</b> Date Received & General Notes
---	--	--

**CLIENT INFORMATION**

<b>DEP Client ID#</b>		<b>Client Type / Code</b>		
		NPACO		
<b>Organization Name or Registered Fictitious Name</b>		<b>Employer ID# (EIN)</b>	<b>Dun &amp; Bradstreet ID#</b>	
Sunoco Partners Marketing & Terminals L.P.		23-3102655		
<b>Individual Last Name</b>	<b>First Name</b>	<b>MI</b>	<b>Suffix</b>	<b>SSN</b>
<b>Additional Individual Last Name</b>	<b>First Name</b>	<b>MI</b>	<b>Suffix</b>	<b>SSN</b>
<b>Mailing Address Line 1</b>		<b>Mailing Address Line 2</b>		
100 Green Street				
<b>Address Last Line – City</b>		<b>State</b>	<b>ZIP+4</b>	<b>Country</b>
Marcus Hook		PA	19061-0426	U.S.A.
<b>Client Contact Last Name</b>	<b>First Name</b>	<b>MI</b>	<b>Suffix</b>	
Werner	Jed	A		
<b>Client Contact Title</b>		<b>Phone</b>	<b>Ext</b>	
Air Permitting Manager		(610) 670-3297		
<b>Email Address</b>		<b>FAX</b>		
jed.werner@energytransfer.com				

**SITE INFORMATION**

<b>DEP Site ID#</b>	<b>Site Name</b>			
	Marcus Hook Industrial Complex			
<b>EPA ID#</b>	<b>Estimated Number of Employees to be Present at Site</b>			
<b>Description of Site</b>				
Storage and Marine Loading Facility				
<b>County Name</b>	<b>Municipality</b>	<b>City</b>	<b>Boro</b>	<b>Twp</b>
Delaware	Marcus Hook	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>County Name</b>	<b>Municipality</b>	<b>City</b>	<b>Boro</b>	<b>Twp</b>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Site Location Line 1</b>		<b>Site Location Line 2</b>		
100 Green Street				
<b>Site Location Last Line – City</b>		<b>State</b>	<b>ZIP+4</b>	
Marcus Hook Facility		PA	19061-0426	
<b>Detailed Written Directions to Site</b>				
Follow I-95 S; Take the MARKET STREET / PA-452 exit- EXIT 2; Turn LEFT onto MARKET ST / PA-452. Continue to follow MARKET ST.; Turn RIGHT onto 11TH ST.; Turn LEFT onto GREEN ST. Enter at Visitors Entrance. Request escort by Environmental Dept. Personnel.				
<b>Site Contact Last Name</b>	<b>First Name</b>	<b>MI</b>	<b>Suffix</b>	
Bradley	Erika	W		
<b>Site Contact Title</b>		<b>Site Contact Firm</b>		
Environmental Compliance Specialist		Sunoco Partners Marketing & Terminals L.P.		
<b>Mailing Address Line 1</b>		<b>Mailing Address Line 2</b>		
100 Green Street				

<b>Mailing Address Last Line – City</b> Marcus Hook			<b>State</b> PA	<b>ZIP+4</b> 19061-0426
<b>Phone</b> (610) 859-3309	<b>Ext</b>	<b>FAX</b>	<b>Email Address</b> erika.bradley@energytransfer.com	
<b>NAICS Codes</b> (Two- & Three-Digit Codes – List All That Apply) 493			<b>6-Digit Code</b> (Optional) 493190	
<b>Client to Site Relationship</b> OWNOP				

### FACILITY INFORMATION

<b>Modification of Existing Facility</b>				<b>Yes</b>	<b>No</b>
1. Will this project modify an existing facility, system, or activity?				<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Will this project involve an addition to an existing facility, system, or activity?				<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>If "Yes", check all relevant facility types and provide DEP facility identification numbers below.</i>					
<b>Facility Type</b>	<b>DEP Fac ID#</b>	<b>Facility Type</b>	<b>DEP Fac ID#</b>		
<input type="checkbox"/> Air Emission Plant		<input type="checkbox"/> Industrial Minerals Mining Operation			
<input type="checkbox"/> Beneficial Use (water)		<input type="checkbox"/> Laboratory Location			
<input type="checkbox"/> Blasting Operation		<input type="checkbox"/> Land Recycling Cleanup Location			
<input type="checkbox"/> Captive Hazardous Waste Operation		<input type="checkbox"/> MineDrainageTrmt/LandRecyProjLocation			
<input type="checkbox"/> Coal Ash Beneficial Use Operation		<input type="checkbox"/> Municipal Waste Operation			
<input type="checkbox"/> Coal Mining Operation		<input type="checkbox"/> Oil & Gas Encroachment Location			
<input type="checkbox"/> Coal Pillar Location		<input checked="" type="checkbox"/> Oil & Gas Location	292970		
<input type="checkbox"/> Commercial Hazardous Waste Operation		<input type="checkbox"/> Oil & Gas Water Poll Control Facility			
<input type="checkbox"/> Dam Location		<input type="checkbox"/> Public Water Supply System			
<input type="checkbox"/> Deep Mine Safety Operation -Anthracite		<input type="checkbox"/> Radiation Facility			
<input type="checkbox"/> Deep Mine Safety Operation -Bituminous		<input type="checkbox"/> Residual Waste Operation			
<input type="checkbox"/> Deep Mine Safety Operation -Ind Minerals		<input type="checkbox"/> Storage Tank Location			
<input type="checkbox"/> Encroachment Location (water, wetland)		<input type="checkbox"/> Water Pollution Control Facility			
<input type="checkbox"/> Erosion & Sediment Control Facility		<input type="checkbox"/> Water Resource			
<input type="checkbox"/> Explosive Storage Location		<input type="checkbox"/> Other:			
<b>Latitude/Longitude Point of Origin</b>	<b>Latitude</b>		<b>Longitude</b>		
	<b>Degrees</b>	<b>Minutes</b>	<b>Seconds</b>	<b>Degrees</b>	<b>Minutes</b>
Plant Entrance (general)	39	48	41	-75	25
<b>Horizontal Accuracy Measure</b>	Feet	5	--or--	Meters	
<b>Horizontal Reference Datum Code</b>	<input type="checkbox"/> North American Datum of 1927 <input checked="" type="checkbox"/> North American Datum of 1983 <input type="checkbox"/> World Geodetic System of 1984				
<b>Horizontal Collection Method Code</b>					
<b>Reference Point Code</b>					
<b>Altitude</b>	Feet	12	--or--	Meters	
<b>Altitude Datum Name</b>	<input type="checkbox"/> The National Geodetic Vertical Datum of 1929 <input checked="" type="checkbox"/> The North American Vertical Datum of 1988 (NAVD88)				
<b>Altitude (Vertical) Location Datum Collection Method Code</b>					
<b>Geometric Type Code</b>					
<b>Data Collection Date</b>	7/29/2015				
<b>Source Map Scale Number</b>	Inch(es)	=	Feet		
	--or--	Centimeter(s)	=	Meters	

### PROJECT INFORMATION

<b>Project Name</b> SPMT ME-2X Project			
<b>Project Description</b> See attached report.			
<b>Project Consultant Last Name</b> McGroarty	<b>First Name</b> Colin	<b>MI</b>	<b>Suffix</b>
<b>Project Consultant Title</b> Principal Consultant		<b>Consulting Firm</b> Environmental Resources Management	
<b>Mailing Address Line 1</b> 75 Valley Stream Parkway		<b>Mailing Address Line 2</b> Suite 200	

<b>Address Last Line – City</b> Malvern		<b>State</b> PA	<b>ZIP+4</b> 19355
<b>Phone</b> 484-913-0409	<b>Ext</b> 409	<b>FAX</b>	<b>Email Address</b> colin.mcgroarty@erm.com
<b>Time Schedules</b>	<b>Project Milestone (Optional)</b>		

1. Have you informed the surrounding community and addressed any concerns prior to submitting the application to the Department? ☒ Yes ☐ No
2. Is your project funded by state or federal grants? ☐ Yes ☒ No  
**Note:** If "Yes", specify what aspect of the project is related to the grant and provide the grant source, contact person and grant expiration date.  
Aspect of Project Related to Grant \_\_\_\_\_  
Grant Source: \_\_\_\_\_  
Grant Contact Person: \_\_\_\_\_  
Grant Expiration Date: \_\_\_\_\_
3. Is this application for an authorization on Appendix A of the Land Use Policy? (For referenced list, see Appendix A of the Land Use Policy attached to GIF instructions) ☒ Yes ☐ No  
**Note:** If "No" to Question 3, the application is not subject to the Land Use Policy.  
If "Yes" to Question 3, the application is subject to this policy and the Applicant should answer the additional questions in the Land Use Information section.

### LAND USE INFORMATION

**Note:** Applicants are encouraged to submit copies of local land use approvals or other evidence of compliance with local comprehensive plans and zoning ordinances.

1. Is there an adopted county or multi-county comprehensive plan? ☒ Yes ☐ No
2. Is there an adopted municipal or multi-municipal comprehensive plan? ☒ Yes ☐ No
3. Is there an adopted county-wide zoning ordinance, municipal zoning ordinance or joint municipal zoning ordinance? ☒ Yes ☐ No  
**Note:** If the Applicant answers "No" to either Questions 1, 2 or 3, the provisions of the PA MPC are not applicable and the Applicant does not need to respond to questions 4 and 5 below.  
If the Applicant answers "Yes" to questions 1, 2 and 3, the Applicant should respond to questions 4 and 5 below.
4. Does the proposed project meet the provisions of the zoning ordinance or does the proposed project have zoning approval? If zoning approval has been received, attach documentation. ☒ Yes ☐ No
5. Have you attached Municipal and County Land Use Letters for the project? ☒ Yes ☐ No

## COORDINATION INFORMATION

**Note:** The PA Historical and Museum Commission must be notified of proposed projects in accordance with DEP Technical Guidance Document 012-0700-001 and the accompanying Cultural Resource Notice Form.

**If the activity will be a mining project** (i.e., mining of coal or industrial minerals, coal refuse disposal and/or the operation of a coal or industrial minerals preparation/processing facility), respond to questions 1.0 through 2.5 below.

**If the activity will not be a mining project**, skip questions 1.0 through 2.5 and begin with question 3.0.

1.0	Is this a coal mining project? If "Yes", respond to 1.1-1.6. If "No", skip to Question 2.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
1.1	Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be equal to or greater than 200 tons/day?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.2	Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be greater than 50,000 tons/year?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.3	Will this coal mining project involve coal preparation/ processing activities in which thermal coal dryers or pneumatic coal cleaners will be used?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.4	For this coal mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.5	Will this coal mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.6	Will this coal mining project involve underground coal mining to be conducted within 500 feet of an oil or gas well?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.0	Is this a non-coal (industrial minerals) mining project? If "Yes", respond to 2.1-2.6. If "No", skip to Question 3.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
2.1	Will this non-coal (industrial minerals) mining project involve the crushing and screening of non-coal minerals other than sand and gravel?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.2	Will this non-coal (industrial minerals) mining project involve the crushing and/or screening of sand and gravel with the exception of wet sand and gravel operations (screening only) and dry sand and gravel operations with a capacity of less than 150 tons/hour of unconsolidated materials?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.3	Will this non-coal (industrial minerals) mining project involve the construction, operation and/or modification of a portable non-metallic (i.e., non-coal) minerals processing plant under the authority of the General Permit for Portable Non-metallic Mineral Processing Plants (i.e., BAQ-PGPA/GP-3)?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.4	For this non-coal (industrial minerals) mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.5	Will this non-coal (industrial minerals) mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No

3.0	Will your project, activity, or authorization have anything to do with a well related to oil or gas production, have construction within 200 feet of, affect an oil or gas well, involve the waste from such a well, or string power lines above an oil or gas well? If "Yes", respond to 3.1-3.3. If "No", skip to Question 4.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
3.1	Does the oil- or gas-related project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water (including wetlands)?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
3.2	Will the oil- or gas-related project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system or storm water system? If "Yes", discuss in <i>Project Description</i> .	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
3.3	Will the oil- or gas-related project involve the construction and operation of industrial waste treatment facilities?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
4.0	Will the project involve a construction activity that results in earth disturbance? If "Yes", specify the total disturbed acreage.	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
4.0.1	Total Disturbed Acreage 32.3 acres				
5.0	Does the project involve any of the following? If "Yes", respond to 5.1-5.3. If "No", skip to Question 6.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
5.1	Water Obstruction and Encroachment Projects – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.2	Wetland Impacts – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a wetland?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.3	Floodplain Projects by the commonwealth, a Political Subdivision of the commonwealth or a Public Utility – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a floodplain?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
6.0	Will the project involve discharge of stormwater or wastewater from an industrial activity to a dry swale, surface water, ground water or an existing sanitary sewer system or separate storm water system?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
7.0	Will the project involve the construction and operation of industrial waste treatment facilities?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
8.0	Will the project involve construction of sewage treatment facilities, sanitary sewers, or sewage pumping stations? If "Yes", indicate estimated proposed flow (gal/day). Also, discuss the sanitary sewer pipe sizes and the number of pumping stations/treatment facilities/name of downstream sewage facilities in the <i>Project Description</i> , where applicable.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
8.0.1	Estimated Proposed Flow (gal/day)				
9.0	Will the project involve the subdivision of land, or the generation of 800 gpd or more of sewage on an existing parcel of land or the generation of an additional 400 gpd of sewage on an already-developed parcel, or the generation of 800 gpd or more of industrial wastewater that would be discharged to an existing sanitary sewer system?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
9.0.1	Was Act 537 sewage facilities planning submitted and approved by DEP? If "Yes" attach the approval letter. Approval required prior to 105/NPDES approval.	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
10.0	Is this project for the beneficial use of biosolids for land application within Pennsylvania? If "Yes" indicate how much (i.e. gallons or dry tons per year).	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
10.0.1	Gallons Per Year (residential septage)				
10.0.2	Dry Tons Per Year (biosolids)				

11.0	Does the project involve construction, modification or removal of a dam? If "Yes", identify the dam.		<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
11.0.1	Dam Name					
12.0	Will the project interfere with the flow from, or otherwise impact, a dam? If "Yes", identify the dam.		<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
12.0.1	Dam Name					
13.0	Will the project involve operations (excluding during the construction period) that produce air emissions (i.e., NOX, VOC, etc.)? If "Yes", identify each type of emission followed by the amount of that emission.		<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
13.0.1	Enter all types & amounts of emissions; separate each set with semicolons. VOC = 10.57 tons per year NOx = 5.16 tons per year CO = 23.51 tons per year PM = 0.28 tons per year PM10 = 0.21 tons per year PM2.5 = 0.001 tons per year SO2 = 0.03 tons per year CO2e = 13,063 tons per year					
14.0	Does the project include the construction or modification of a drinking water supply to serve 15 or more connections or 25 or more people, at least 60 days out of the year? If "Yes", check all proposed sub-facilities.		<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
14.0.1	Number of Persons Served					
14.0.2	Number of Employee/Guests					
14.0.3	Number of Connections					
14.0.4	Sub-Fac: Distribution System		<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.5	Sub-Fac: Water Treatment Plant		<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.6	Sub-Fac: Source		<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.7	Sub-Fac: Pump Station		<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.8	Sub Fac: Transmission Main		<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.9	Sub-Fac: Storage Facility		<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
15.0	Will your project include infiltration of storm water or waste water to ground water within one-half mile of a public water supply well, spring or infiltration gallery?		<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
16.0	Is your project to be served by an existing public water supply? If "Yes", indicate name of supplier and attach letter from supplier stating that it will serve the project.		<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
16.0.1	Supplier's Name Chester Water Authority					
16.0.2	Letter of Approval from Supplier is Attached		<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
17.0	Will this project involve a new or increased drinking water withdrawal from a stream or other water body? If "Yes", should reference both Water Supply and Watershed Management.		<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
17.0.1	Stream Name					
18.0	Will the construction or operation of this project involve treatment, storage, reuse, or disposal of waste? If "Yes", indicate what type (i.e., hazardous, municipal (including infectious & chemotherapeutic), residual) and the amount to be treated, stored, re-used or disposed.		<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
18.0.1	Type & Amount Refer to Section 3 of the Site Restoration/Post Construction Stormwater Management Plan					
19.0	Will your project involve the removal of coal, minerals, etc. as part of any earth disturbance activities?		<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
20.0	Does your project involve installation of a field constructed underground storage tank? If "Yes", list each Substance & its Capacity. <b>Note:</b> Applicant may need a Storage Tank Site Specific Installation Permit.		<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
20.0.1	Enter all substances & capacity of each; separate each set with semicolons.					

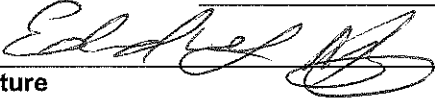
- 21.0 Does your project involve installation of an aboveground storage tank greater than 21,000 gallons capacity at an existing facility? If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. ☒ Yes ☐ No  
 21.0.1 Enter all substances & Two (2) Ethane - 600,000 Barrels. capacity of each; separate each set with semicolons.
- 22.0 Does your project involve installation of a tank greater than 1,100 gallons which will contain a highly hazardous substance as defined in DEP's Regulated Substances List, 2570-BK-DEP2724? If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. ☐ Yes ☒ No  
 22.0.1 Enter all substances & capacity of each; separate each set with semicolons.
- 23.0 Does your project involve installation of a storage tank at a new facility with a total AST capacity greater than 21,000 gallons? If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. ☐ Yes ☒ No  
 23.0.1 Enter all substances & capacity of each; separate each set with semicolons.
- 24.0 Will the intended activity involve the use of a radiation source? ☐ Yes ☒ No

### CERTIFICATION

I certify that I have the authority to submit this application on behalf of the applicant named herein and that the information provided in this application is true and correct to the best of my knowledge and information.

Type or Print Name Edward G. Human

Signature



Director of Marcus Hook Operations

Title

Date

12/17/17



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Environmental  
Resources  
Management

75 Valley Stream Parkway  
Suite 200  
Malvern, PA 19355  
(484) 913-0300  
www.erm.com

13 December 2017

Pennsylvania Historical and Museum Commission  
Bureau of Historic Preservation  
State Museum Building  
300 North Street  
Harrisburg, PA



Subject: Sunoco Partners Marketing & Terminals L.P.  
Marcus Hook Industrial Complex  
ME- 2X Project  
PADEP, Individual NPDES Permit  
Marcus Hook Borough, Delaware County, Pennsylvania

Dear Pennsylvania Historical and Museum Commission:

Sunoco Partners Marketing & Terminals L.P. (SXL) is proposing to install and operate a facility (ME-2X Project) at the Marcus Hook Industrial Complex (MHIC) in Marcus Hook, Delaware County, Pennsylvania as indicated on the attached Figure 1-Site Location Map. Please note that the construction activities associated with the proposed project do not include building demolition covered under federal approval or funding. However, the permit application for an individual NPDES permit for stormwater discharges associated with construction activities requires notifying The Pennsylvania Historical and Museum Commission when a project exceeds 10 acres of land disturbance. The proposed ME-2X Project land disturbance is estimated to be 32.3 acres. Please review this project narrative below and the attached site location map and indicate whether the design has any cultural resources impact, or provide a letter of consistency.

Sunoco Partners Marketing & Terminals L.P. (SXL) is proposing to install a system designed to process an incoming ethane stream into a saleable ethane product. Construction activities for the project are planned to occur in two phases. Phase 1 will consist of site preparation and demolition activities and Phase 2 will consist of the construction of the new facility. This Phase 1 ESCP solely addresses the demolition of existing process equipment, tankage, and buildings to a depth of 9 feet (necessary for site preparation) and minor storm sewer alterations. The "Project Area" shown on enclosed Figure 1 is inclusive of both Phase 1 and Phase 2 limits of disturbance.

If you have any questions, please do not hesitate to contact me at (484) 913-0300 and/or [tyler.gansner@erm.com](mailto:tyler.gansner@erm.com)

Sincerely,

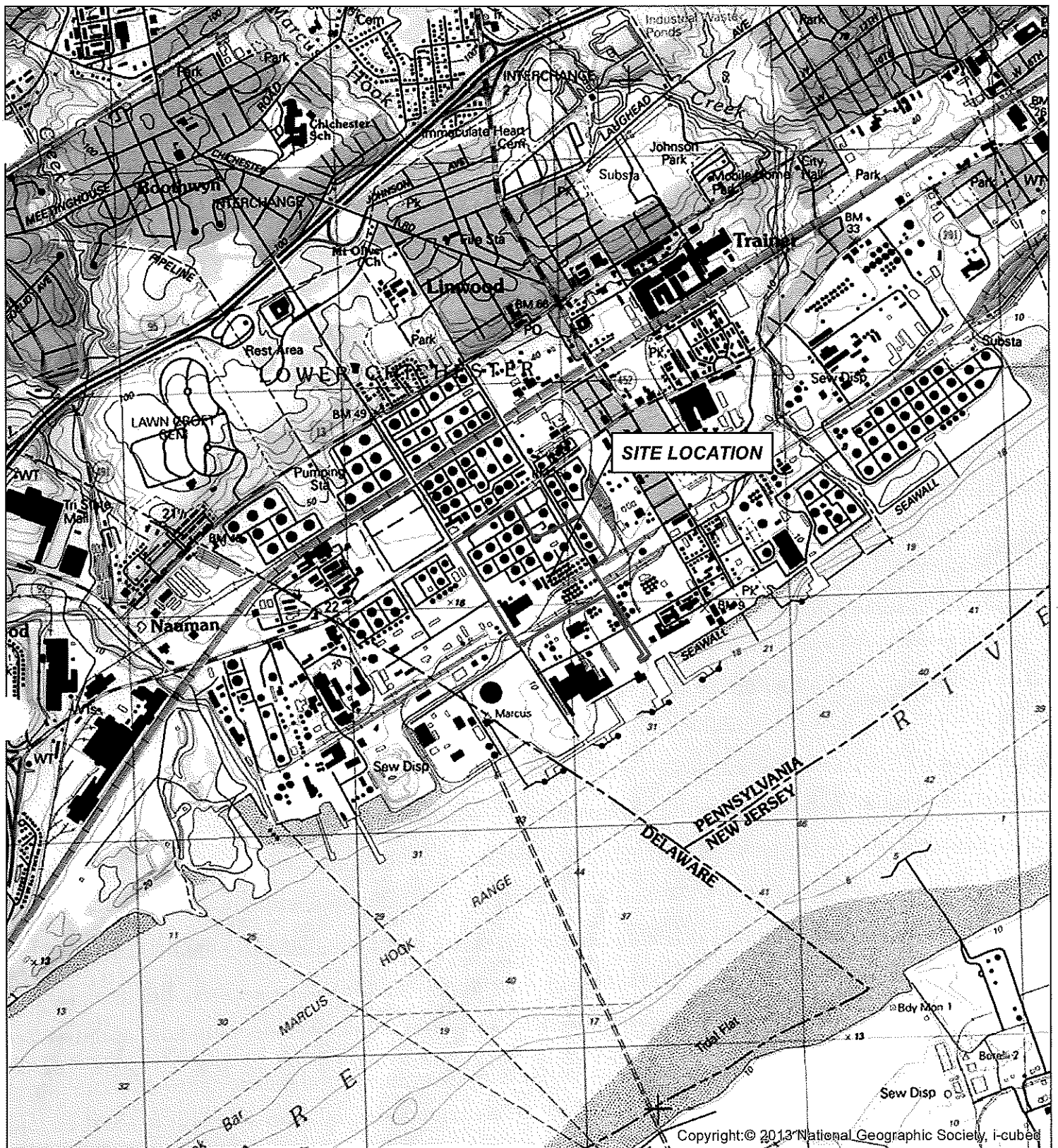
**Environmental Resources Management**

A handwritten signature in black ink, appearing to read 'T. Gansner', with a large, stylized 'G' and a horizontal line extending to the right.

Tyler Gansner  
*Senior Project Scientist*

**Attachments:**

Figure 1-Site Location Map  
Cultural Resource Notice Form and Checklist



## Legend

 Project Boundary

SOURCE: USGS Quad 7.5' Index: Marcus Hook, PA  
SCALE: 1:24,000

1,000 2,000

## SITE LOCATION MAP

Sunoco Partners Marketing & Terminals LP.  
Marcus Hook  
Delaware County, Pennsylvania

Figure

1





pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

## CULTURAL RESOURCE NOTICE

DEP USE ONLY

Date Received

Read the instructions before completing this form.

## SECTION A. APPLICANT IDENTIFIER

Applicant Name Sunoco Partners Marketing & Terminals L.P. (Erika Bradley, Applicant Rep)Street Address 100 Green StreetCity Marcus Hook State PA Zip 19061Telephone Number (610) 859-3309Project Title ME-2X

## SECTION B. LOCATION OF PROJECT

Municipality Marcus Hook Borough County Name Delaware DEP County Code 23

## SECTION C. PERMITS OR APPROVALS

Name of Specific DEP Permit or Approval Requested:

Anticipated federal permits:

- |  |   |
|--|---|
| <input type="checkbox"/> Surface Mining                  | <input type="checkbox"/> 404 Water Quality Permit   |
| <input type="checkbox"/> Army Corps of Engineers         | <input type="checkbox"/> Federal Energy Regulatory Commission                             |
| <input type="checkbox"/> 401 Water Quality Certification | <input checked="" type="checkbox"/> Other: <u>Associated with Construction Activities</u> |

## SECTION D. GOVERNMENT FUNDING SOURCES

- |  |  |
|--|--|
| <input type="checkbox"/> State: (Name) _____   | <input type="checkbox"/> Local: (Name) _____ |
| <input type="checkbox"/> Federal: (Name) _____ | <input type="checkbox"/> Other: (Name) _____ |

## SECTION E. RESPONSIBLE DEP REGIONAL, CENTRAL, DISTRICT MINING or OIL &amp; GAS MGMT OFFICE

DEP Regional Office Responsible for Review of Permit Application ☐ Central Office (Harrisburg)

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Southeast Regional Office (Norristown) | <input type="checkbox"/> Northeast Regional Office (Wilkes-Barre)    |
| <input type="checkbox"/> Southcentral Regional Office (Harrisburg)         | <input type="checkbox"/> Northcentral Regional Office (Williamsport) |
| <input type="checkbox"/> Southwest Regional Office (Pittsburgh)            | <input type="checkbox"/> Northwest Regional Office (Meadville)       |
| <input type="checkbox"/> District Mining Office: _____                     | <input type="checkbox"/> Oil & Gas Office: _____                     |

## SECTION F. RESPONSIBLE COUNTY CONSERVATION DISTRICT, if applicable.

County Conservation District Telephone Number, if known

Delaware County Conservation District (610) 892-9484

## SECTION G. CONSULTANT

Consultant, if applicable Tyler GansnerStreet Address 75 Valley Stream Parkway Suite 200City Malvern State PA Zip 19355Telephone Number (484) 913-0300

**SECTION H. PROJECT BOUNDARIES AND DESCRIPTION****REQUIRED**

Indicate the total acres in the property under review. Of this acreage, indicate the total acres of earth disturbance for the proposed activity.

Attach a 7.5' U.S.G.S. Map indicating the defined boundary of the proposed activity.

Attach photographs of any building over 50 years old. Indicate what is to be done to all buildings in the project area.

Attach a narrative description of the proposed activity.

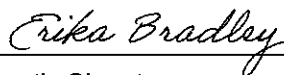
Attach the return receipt of delivery of this notice to the Pennsylvania Historical and Museum Commission.

**REQUESTED**

Attach photographs of any building over 40 years old.

Attach site map, if available.

**SECTION I. SIGNATURE BLOCK**

 Applicant's Signature	10/2/2017 Date of Submission of Notice to PHMC
--	---



**pennsylvania**  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

## CULTURAL RESOURCE NOTICE

### APPLICANT'S ✓ CHECKLIST

Please check the following list to make sure that you have included all the required information. Place a checkmark in the column provided for all items completed and/or provided.

Failure to provide all of the requested information will delay the processing of the application and may result in the application being placed on hold with no action, or will be considered withdrawn and the application file closed.

	Requirement	Check ✓ If Included
<b>1.</b>	<b>Attachments, where appropriate</b>	
	a) Section B - Additional municipality information.	
	b) Section B - Additional county information.	
	c) Section H - 7.5' USGS Map (with defined boundaries of proposed activity).	✓
	d) Section H - Narrative description of proposed activity.	✓
	e) Section H - Photographs of any buildings over 50 years old. Indicate what is to be done to all buildings in the project area.	
	f) Section H - Total acres in property under review. Of this acreage, total acres of earth disturbance for the proposed activity.	✓
	g) Return receipt of delivery of Cultural Resource Notice to the Pennsylvania Historical and Museum Commission.	✓
<b>2.</b>	<b>Mailings</b>	
	a) Notice mailed to PHMC on _____.	
	b) Received return receipt from PHMC on _____ (see attached FedEx proof of delivery).	
	c) Submitted application to DEP Regional, Central, District Mining or Oil and Gas Mgmt. Office on _____ with copy of return receipt from PHMC as proof of submittal. or	
	d) Submitted application to County Conservation District Office on _____ with copy of Return Receipt from PHMC as proof of submittal.	
	<b>Requests</b>	<b>Check ✓ If Included</b>
<b>3.</b>	<b>Attachments requested, where appropriate</b>	
	a) Section H - Photographs of any buildings over 40 years old.	
	b) Section H - Site maps of the proposed activity, if available.	

## Tyler Gansner

**From:** TrackingUpdates@fedex.com  
**Sent:** Tuesday, October 03, 2017 9:58 AM  
**To:** Tyler Gansner  
**Subject:** FedEx Shipment 770397082235 Delivered

RECEIVED  
DEC 15 2017

## Your package has been delivered

Tracking # 770397082235

Ship date:  
Mon, 10/2/2017

Missy Gonzalez  
Donna Bacon  
Malvern, PA 19355  
US

Delivery date:  
Tue, 10/3/2017  
9:50 am

**BUREAU OF HISTORIC  
PRESERVATION**  
PENN. HISTORICAL &  
MUSEUM COMMISSIO  
300 NORTH STREET  
STATE MUSEUM  
BUILDING  
HARRISBURG, PA  
17120  
US

**FedEx**



Delivered


### Shipment Facts

Our records indicate that the following package has been delivered.

<b>Tracking number:</b>	<u>770397082235</u>
<b>Status:</b>	Delivered: 10/03/2017 09:50 AM Signed for By: J.ZEIGLER
<b>Signed for by:</b>	J.ZEIGLER
<b>Delivery location:</b>	HARRISBURG, PA
<b>Delivered to:</b>	Shipping/Receiving
<b>Service type:</b>	FedEx Priority Overnight
<b>Packaging type:</b>	FedEx Envelope
<b>Number of pieces:</b>	1
<b>Weight:</b>	0.50 lb.
<b>Special</b>	Deliver Weekday

**handling/Services:**

**Standard transit:** 10/3/2017 by 10:30  
am

 Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 8:58 AM CDT on 10/03/2017.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Standard transit is the date and time the package is scheduled to be delivered by, based on the selected service, destination and ship date. Limitations and exceptions may apply. Please see the FedEx Service Guide for terms and conditions of service, including the FedEx Money-Back Guarantee, or contact your FedEx Customer Support representative.

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Thank you for your business.





COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF AIR QUALITY

RECEIVED  
DEC 15 2017

## AIR POLLUTION CONTROL ACT COMPLIANCE REVIEW FORM

Fully and accurately provide the following information, as specified. Attach additional sheets as necessary.

**Type of Compliance Review Form Submittal (check all that apply)**

☐ Original Filing  
☒ Amended Filing  
Date of Last Compliance Review Form Filing:  
06/20/2017

**Type of Submittal**

☐ New Plan Approval  
☐ Extension of Plan Approval  
☐ Other: \_\_\_\_\_  
☐ New Operating Permit  
☐ Change of Ownership  
☐ Renewal of Operating Permit  
☒ Periodic Submission (@ 6 mos)

### SECTION A. GENERAL APPLICATION INFORMATION

**Name of Applicant/Permittee/("applicant")**  
(non-corporations-attach documentation of legal name)

Sunoco Partners Marketing & Terminals, L.P.

**Address** 4041 Market Street  
Aston, PA 19014

**Telephone** 610-670-3297 **Taxpayer ID#** 23-310-2655

**Permit, Plan Approval or Application ID#**

**Identify the form of management under which the applicant conducts its business (check appropriate box)**

☐ Individual  
☐ Municipality  
☐ Proprietorship  
☐ Public Corporation  
☐ Private Corporation  
☐ Syndicate  
☐ Municipal Authority  
☐ Fictitious Name  
☐ Partnership  
☒ Limited Partnership  
☐ Government Agency  
☐ Joint Venture  
☐ Association  
☐ Other Type of Business, specify below:

**Describe below the type(s) of business activities performed.**

SIC Code: 4226 - Petroleum & Chemical Bulk Stations & Terminals for Hire

SIC Code: 4612 - Crude Petroleum Pipeline

SIC Code 4613 - Refined Petroleum Pipeline

SIC Code 1321- Natural Gas Liquids

**SECTION B. GENERAL INFORMATION REGARDING "APPLICANT"**

If applicant is a corporation or a division or other unit of a corporation, provide the names, principal places of business, state of incorporation, and taxpayer ID numbers of all domestic and foreign parent corporations (including the ultimate parent corporation), and all domestic and foreign subsidiary corporations of the ultimate parent corporation with operations in Pennsylvania. Please include all corporate divisions or units, (whether incorporated or unincorporated) and privately held corporations. (A diagram of corporate relationships may be provided to illustrate corporate relationships.) Attach additional sheets as necessary.

Unit Name	Principal Places of Business	State of Incorporation	Taxpayer ID	Relationship to Applicant
Sunoco Partners Marketing & Terminals I.P.	PA	TX	23-3102655	Applicant
Energy Transfer Partners L.P.	PA	DE	73-1493906	Parent of Sunoco Partners Marketing & Terminals L.P.
ETE Common Holdings LLC	PA	DE	46-2638935	Parent of Energy Transfer Partners L.P.
Subsidiaries of ultimate parent with operations in PA- See Attachment 2				

**SECTION C. SPECIFIC INFORMATION REGARDING APPLICANT AND ITS "RELATED PARTIES"**

**Pennsylvania Facilities.** List the name and location (mailing address, municipality, county), telephone number, and relationship to applicant (parent, subsidiary or general partner) of applicant and all Related Parties' places of business, and facilities in Pennsylvania. Attach additional sheets as necessary.

Unit Name	Street Address	County and Municipality	Telephone No.	Relationship to Applicant
see attachment #1				

Provide the names and business addresses of all general partners of the applicant and parent and subsidiary corporations, if any.

Name	Business Address
Sunoco Partners Marketing & Terminals L.P.	4041 Market Street, Aston, PA 19014

<b>List the names and business address of persons with overall management responsibility for the process being permitted (i.e. plant manager).</b>				
<b>Name</b>	<b>Business Address</b>			
see attachment #1				
<b>Plan Approvals or Operating Permits. List all plan approvals or operating permits issued by the Department or an approved local air pollution control agency under the APCA to the applicant or related parties that are currently in effect or have been in effect at any time 5 years prior to the date on which this form is notarized. This list shall include the plan approval and operating permit numbers, locations, issuance and expiration dates. Attach additional sheets as necessary.</b>				
<b>Air Contamination Source</b>	<b>Plan Approval/ Operating Permit#</b>	<b>Location</b>	<b>Issuance Date</b>	<b>Expiration Date</b>
see attachment #2				

**Compliance Background.** (Note: Copies of specific documents, if applicable, must be made available to the Department upon its request.) List all documented conduct of violations or enforcement actions identified by the Department pursuant to the APCA, regulations, terms and conditions of an operating permit or plan approval or order by applicant or any related party, using the following format grouped by source and location in reverse chronological order. Attach additional sheets as necessary. See the definition of "documented conduct" for further clarification. Unless specifically directed by the Department, deviations which have been previously reported to the Department in writing, relating to monitoring and reporting, need not be reported.

Date	Location	Plan Approval/ Operating Permit#	Nature of Documented Conduct	Type of Department Action	Status: Litigation Existing/Continuing or Corrected/Date	Dollar Amount Penalty
07/27/02	No. 2 Tank Farm	23-00044	The VOC RACT fugitive emissions monitoring did not occur during the 2 <sup>nd</sup> qtr. Of 2002. Failure to monitor	NOV	Monitoring was performed for 2 <sup>nd</sup> qtr. 2002 and the Department was notified.	\$ 0
05/20/04	Ft. Mifflin Terminal	23-00037	Product discovered on roof of a tank, as well as open hatch	NOV	Corrected within 30 days.	\$ 0
03/06/06	Twin Oaks Terminal	23-00045	Failure to submit 05/01/05-10/31/05 semiannual monitoring report	NOV	Confusion with reporting dates in new permit issued on 10/05/05 resulted in semiannual report being submitted late. Report was issued to the Department on 02/21/06.	\$ 0
03/06/06	Twin Oaks Terminal	23-00045	Failure to complete stack test in a timely manner.	NOV	New permit required stack test to be completed by 2/15/06. Stack test completed on 03/01/06.	\$ 0
06/12/07	Darby Creek Tank Farm	23-00011	Product on tank roofs, in oil/water boxes, around roof drain outlets, on ground below crude mixers, open vacuum breakers, open roof drain cover, absence of required records, absence of required seal gap notifications, lack of records of annual PRV checks.	NOV/CACP	Response to PADEP submitted on 6/29/07, challenging all findings of NOV and requesting NOV to be rescinded. Awaiting response. CACP issued May 2008. A review of the findings is pending.	\$37,730
03/01/07	Fort Mifflin Terminal	23-00037	Failure to submit semi-annual compliance certification/deviation report in a timely manner.	NOV	Response to PADEP, submitted on 4/4/07, requesting NOV to be rescinded. NOV issued before the due date of report. Awaiting response.	\$0
07/20/07	Fort Mifflin Terminal	23-00037	Observed seal gaps, observed torn seals, vapor pressure exceedances.	NOV/CACP	Response to PADEP submitted on 7/24/07, challenging all findings of NOV and requesting NOV to be rescinded. CACP issued May 2008. Entered into agreement to settle in order to avoid time and expense of challenging the findings.	\$2,700
07/20/07	No. 2 Tank Farm	23-00044	Failure to submit semiannual deviation report in a timely manner, absence of required records, absence of required seal gap notifications.	NOV/CACP	Response to PADEP submitted on 7/31/07, challenging two of three findings of NOV. CACP issued May 2008. Entered into agreement to settle in order to avoid time and expense of challenging the findings.	\$2,200

10/02/07	Willow Grove Terminal	46-00091	Failure to obtain required approval prior to installing a control device and operating a source without a permit.	NOV/CACP	Response to PADEP in July 2008 agreeing to violations and penalty	\$5,000
10/28/09	Montello Terminal	06-05064B	Construction of a Vapor Recovery Unit prior to approval from the department	NOV	Response to PADEP submitted 11/03/09 explaining problems associated with obtaining plan approval. Plan approval issued 11/19/09	\$1,500
02/09/11	Mechanicsburg Terminal	Plan Approval 21-05029B	Failure to submit an administrative amendment application to roll plan approval conditions into operating permit at least 15 days prior to the end of the initial 180-day shakedown period	NOV	Administrative amendment submitted to Department 12/10/2010.	\$0
02/09/11	Montello Terminal	Plan Approval 06-05064B	Failure to submit an administrative amendment application to roll plan approval conditions into operating permit at least 15 days prior to the end of the initial 180-day shakedown period	NOV	Administrative amendment submitted to Department 12/10/2010.	\$0
12/28/11	Willow Grove Terminal	46-0091	Failure to notify PADEP 30 days prior to conducting a stack test	NOV/FOV	Corrective Action submitted Jan 10, 2012	\$1,300
8/12/13	Delmont Terminal	65-00354	Exceedances of tank 701 and 702 annual VOC limitation	NOV	Correspondence with PADEP to revise permit	\$0
5/2014	Belmont Terminal	PLID No: 01507	Failure to submit annual compliance certification to the Philadelphia Depart. Of Health	NOV/FOV	SXL submitted report but it was not recorded by the AMS.	\$1,500
3/24/15	Marcus Hook Industrial Complex	23-00119	Failure to submit an extension for a plan approval.	NOV/FOV	The plan approval extension request was submitted on February 26, 2015.	\$4,000
5/11/15	Twin Oaks Terminal	23-00045	PADEP issued an NOV for late submittal of a Permit Application.	NOV	The abatement plan was submitted on June 11, 2015.	\$0
05/26/15	Ft. Mifflin Terminal	23-00037	PADEP issued an NOV for late submittal of a permit application.	NOV	Received a letter from PADEP stating that the application was administratively complete. The abatement plan was submitted on June 11, 2015.	\$0
6/16/15	Marcus Hook Industrial Complex	23-00119	Failure to maintain permit required records regarding tank repair work	NOV	Corrective action submitted to PADEP July 9, 2015	\$0
8/20/15	Marcus Hook Industrial Complex	23-00119	Failure to maintain permit records regarding sample collection of process gas to analyze for sulfur, for failure to maintain Stage II Vapor Recovery Test Results and for exceeding NOX emissions during ozone season in 2013 and 2014.	NOV	Corrective Action submitted to PADEP September 16, 2015 and October 30, 2015.	
10/23/15	Malvern Terminal	15-00043	PADEP issued a NOV for not having records available at the time of an unannounced inspection.	NOV	The requested information was provided on November 11, 2015.	\$0
11/09/15	Marcus Hook #2 Tank Farm	23-00044	Failure to post a Title V public notice within the required time frame.	NOV	Corrective Action was submitted on 11/9/15. On 12/15 no further action is required.	\$0

11/23/15	Marcus Hook #2 Tank Farm	23-00045	Operating without a valid permit for 9 days. Lost the permit shield during the permit renewal process because the public notice was not published within the required time period.	NOV	Talked with the PADEP on November 23, 2015 no action required.	\$0
05/05/16	Willow Grove	46-00091	Late submittal of permit application.	NOV	Talked with DEP permit application was submitted.	
06/07/16	MHIC	23-00119	Exceeded 12 month rolling emission limit for tanks 607, 611 and 23.	NOV	Submitted plan approval for increase in tank emissions.	
1/24/17	Fort Mifflin MHTF#2 Twin Oaks Terminal	23-00037 23-00044 23-00045	Penalty for late permit application and operating without a valid permit	FOV	Paid the penalty	\$2,000 \$3,750 \$3,750
1/24/17	Darby Creek	23-00011	Not providing records during an inspection	NOV	Provided the data to DEP upon request when the NOV was issued. No prior record of the data being requested	\$0
6/8/2017	MHIC	23-00119	Violations for missing required inspections.	NOV	Corrected inspection deficiencies.	\$0
7/7/2017	Twin Oaks Terminal	23-00045	Did not identify the cause of a delayed repair in the AVO log.	NOV	Corrected deficiency and conducted training to personnel to record delays and cause of delay on the log form.	\$0
9/15/17	Delmont Terminal	65-00354	Late submittal of the annual compliance certification	NOV	Submitted the annual compliance certification and ensured reporting deadline is correct in the EMS.	\$0

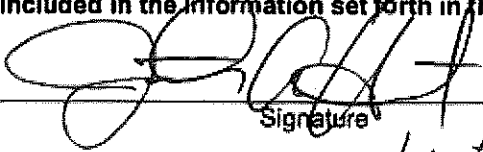
List all incidents of deviations of the APCA, regulations, terms and conditions of an operating permit or plan approval or order by applicant or any related party, using the following format grouped by source and location in reverse chronological order. This list must include items both currently known and unknown to the Department. Attach additional sheets as necessary. See the definition of "deviations" for further clarification.

Date	Location	Plan Approval/ Operating Permit#	Nature of Deviation	Incident Status: Litigation Existing/Continuing Or Corrected/Date
7/01/2014	Malvern Terminal	15-00043	VRU Daily Calibration Drift Check	7/02/2014
7/17/2014	Malvern Terminal	15-00043	VRU Daily Calibration Drift Check	7/19/2014
12/6/2014	Malvern	15-00043	VRU Daily Calibration Drift Check	12/7/2014
12/16/2014	Malvern Terminal	15-00043	VRU Daily Calibration Drift Check	12/18/2014
12/23/2014	Malvern Terminal	15-00043	VRU Daily Calibration Drift Check	1/02/2015

<b>CONTINUING OBLIGATION.</b> Applicant is under a continuing obligation to update this form using the Compliance Review Supplemental Form if any additional deviations occur between the date of submission and Department action on the application.				

**VERIFICATION STATEMENT**

Subject to the penalties of Title 18 Pa.C.S. Section 4904 and 35 P.S. Section 4009(b)(2), I verify under penalty of law that I am authorized to make this verification on behalf of the Applicant/Permittee. I further verify that the information contained in this Compliance Review Form is true and complete to the best of my belief formed after reasonable inquiry. I further verify that reasonable procedures are in place to ensure that "documented conduct" and "deviations" as defined in 25 Pa Code Section 121.1 are identified and included in the information set forth in this Compliance Review Form.



Signature

10/31/2017

Date

Jonathan A. Hunt

Name (Print or Type)

Vice President, Terminal Operations

Title



**Attachment #1: Names, Locations and Facility Managers for all Sunoco Partners Marketing & Terminals L.P. Related Parties in PA.**

Facility Name	Owner/Operator	Federal Tax ID #	SIC Code	Facility Address	City	Zip Code	County	Facility Manager	Office Number
Belmont Term.	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	2700 West Passyunk Ave	Philadelphia	19145	Philadelphia	Jacelyn Abdala	610-859-5752
Blawnox Term.	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	Freeport Road & Boyd	Pittsburgh	15238	Allegheny	Mark Whalen	412-828-7500
Darby Creek Tank Farm	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4612	Calcon Hook Road	Sharon Hill	19079	Delaware	Eric Scheivert	215-937-6242
Delmont Term.	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	Route 66	North Delmont	15826	Westmoreland	Mark Whalen	724-468-4072
Eldorado (Altoona) Term.	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	Rt. 764 N. & Sugar Run Road	Altoona	16601	Blair	Mark Whalen	814-944-8153
Exton Term.	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	601 E. Lincoln Highway	Exton	19134	Chester	Jacelyn Abdala	215-778-0206
Ft. Mifflin	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	Hog Island Road	Essington	19029	Delaware	Eric Scheivert	215-937-6242
Fullerton Term.	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	2480 Main Street	Fullerton	18852	Lehigh	Steve Kulney	610-264-0526
Hog Island Warf	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	4 Atlantic Avenue	Essington	19029	Delaware	Eric Scheivert	215-937-6242
Kingston Term.	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	Rt. 11, Box 1479	Kingston	18704-3102	Luzerne	Steve Kulney	570-288-2555
Malvern Term.	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	41 Malin Road	Malvern	10355	Chester	Jacelyn Abdala	215-778-0206
Marcus Hook Industrial Complex	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	100 Green Street	Marcus Hook	19061	Chester	Ed Human	610-859-1043
Mechanicsburg Term.	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	5145 Simpson Ferry Road	Mechanicsburg	17055	Cumberland	Terry Wolfe	717-766-2526
Montello Term.	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	PO Box 2089, Fritztown Road	Montello	19608	Berks	Terry Wolfe	610-927-2090
Northumberland Term.	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	Rd#1, Box 285 E	Northumberland	17857	Northumberland	Steve Kulney	570-473-3575
Pittsburgh Term.	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	5733 Butler Street	Pittsburgh	15210	Allegheny	Mark Whalen	412-784-3460
Tamaqua Term.	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	Tuscarara Street And Park	Tamaqua	18252	Schuylkill	Terry Wolfe	570-668-0430
Twin Oaks Term.	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	4041 Market Street	Aston	19014	Delaware	Mike Billman	610-859-5742
#2 Tank Farm	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4613	7 Commerce Drive	Aston	19014	Delaware	John D'Ambrosio	610-586-6240
Willow Grove Term.	Sunoco Partners Marketing & Terminals L.P.	23-3102655	4226	3290 Sunset Lane	Halboro	19040	Montgomery	Jacelyn Abdala	610-859-5752

**Attachment #2: Plan Approvals & Operating Permits**

Facility	Owner / Operator	State	Permit Type	Permit #	Effective	Expiration
Belmont	Sunoco Partners Marketing & Terminals L.P.	PA	Title V Permit	V04-004	08/01/2010	08/01/2015 (permit renewal submitted 1/29/15)
Blawnox	Sunoco Partners Marketing & Terminals L.P.	PA	Synthetic Minor	0011	06/28/2011	06/27/2016 Permit Renewal Submitted 12/18/2015
Darby Creek	Sunoco Partners Marketing & Terminals L.P.	PA	Title V Permit	23-00011	04/21/2017	04/20/2022
Delmont	Sunoco Partners Marketing & Terminals, L.P.	PA	Title V Permit	65-00354	07/12/2017	07/12/2022
Eldorado	Sunoco Partners Marketing & Terminals L.P.	PA	Synthetic Minor	07-05025	02/01/2014	01/31/2019
Exton	Sunoco Partners Marketing & Terminals L.P.	PA	Synthetic Minor	15-00044	05/28/2015	05/28/2020
Fort Mifflin	Sunoco Partners Marketing & Terminals L.P.	PA	Title V Permit	23-00037	11/01/2015	10/15/2020
Fullerton	Sunoco Partners Marketing & Terminals L.P.	PA	Synthetic Minor	39-00022	09/17/2014	09/17/2019
Hog Island Wharf	Sunoco Partners Marketing & Terminals L.P.	PA	Title V Permit	23-00043	6/14/2017	6/14/2022
Kingston	Sunoco Partners Marketing & Terminals L.P.	PA	Synthetic Minor	40-00025	09/17/2014	09/17/2019
Marcus Hook Industrial Complex	Sunoco Partners Marketing & Terminals L.P.	PA	Title V Permit	23-00119	4/01/2015	4/01/2020
Marcus Hook Industrial Complex	Sunoco Partners Marketing & Terminals L.P.	PA	Plan Approval	23-0119	2/05/2013	02/07/2018
Marcus Hook Industrial Complex	Sunoco Partners Marketing & Terminals, L.P.	PA	Plan Approval	23-0119A	9/05/2013	06/30/2017 Incorporated into TVOP
Marcus Hook Industrial Complex	Sunoco Partners Marketing & Terminals, L.P.	PA	Plan Approval	23-0119B	1/30/2015	01/28/2017 Incorporated into TVOP

Marcus Hook Industrial Complex	Sunoco Partners Marketing & Terminals, L.P.	PA	Plan Approval	23-0119C	11/19/2014	5/21/2017 Incorporated into TVOP
Marcus Hook Industrial Complex	Sunoco Partners Marketing & Terminals, L.P.	PA	Plan Approval	23-0119D	2/26/2015	2/26/2018 Incorporated into TVOP
Marcus Hook Industrial Complex	Sunoco Partners Marketing & Terminals, L.P.	PA	Plan Approval	23-0119E	04/01/2016	04/01/2018
Marcus Hook Industrial Complex	Sunoco Partners Marketing & Terminals, L.P.	PA	Plan Approval	23-0119F	08/15/2016	02/16/2018
Marcus Hook Industrial Complex	Sunoco Partners Marketing & Terminals, L.P.	PA	Plan Approval	23-0019G	03/10/2017	09/10/2018
Malvern	Sunoco Partners Marketing & Terminals L.P.	PA	Title V Permit	15-00043	05/01/2014	04/30/2019
Mechanicsburg	Sunoco Partners Marketing & Terminals L.P.	PA	Title V Permit	21-05029	04/01/2014	03/31/2019
Montello	Sunoco Partners Marketing & Terminals L.P.	PA	Title V Permit	06-05064	10/01/2014	9/30/2019
Northumberland	Sunoco Partners Marketing & Terminals L.P.	PA	Synthetic Minor	49-00019	12/26/2014	12/25/2019
#2 Tank Farm	Sunoco Partners Marketing & Terminals L.P.	PA	Title V Permit	23-00044	10/01/2015	10/08/2020
Pittsburgh	Sunoco Partners Marketing & Terminals L.P.	PA	Title V Permit	0007	06/30/2011	06/29/2016 Permit Renewal Submitted 12/22/2015
Tamaqua	Sunoco Partners Marketing & Terminals L.P.	PA	Synthetic Minor	54-00015	8/31/2009	8/31/2014 Facility Closed
Twin Oaks	Sunoco Partners Marketing & Terminals L.P.	PA	Title V Permit	23-00045	12/02/2015	12/01/2020
Willow Grove	Sunoco Partners Marketing & Terminals L.P.	PA	Title V Permit	46-00091	6/23/2011	6/23/2016 Facility Closed



Submit in Triplicate

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF AIR QUALITY

RECEIVED  
DEC 15 2017

**PROCESSES**

**Application for Plan Approval to Construct, Modify or Reactivate an  
Air Contamination Source and/or Install an Air Cleaning Device**

This application must be submitted with the General Information Form (GIF).

Before completing this form, read the instructions provided for the form.

**Section A - Facility Name, Checklist And Certification**

Organization Name or Registered Fictitious Name/Facility Name: Sunoco Partners Marketing & Terminals, L.P. Marcus Hook Industrial Complex

DEP Client ID# (if known): 161585

Type of Review required and Fees:

- ☒ Source which is not subject to NSPS, NESHAPs, MACT, NSR and PSD: ..... \$1,000
- ☐ Source requiring approval under NSPS or NESHAPs or both: ..... \$
- ☐ Source requiring approval under NSR regulations: ..... \$
- ☐ Source requiring the establishment of a MACT limitation: ..... \$
- ☐ Source requiring approval under PSD: ..... \$

**Applicant's Checklist**

Check the following list to make sure that all the required documents are included.

- ☒ General Information Form (GIF)
- ☒ Processes Plan Approval Application
- ☒ Compliance Review Form or provide reference of most recently submitted compliance review form for facilities submitting on a periodic basis: \_\_\_\_\_
- ☒ Copy and Proof of County and Municipal Notifications
- ☒ Permit Fees
- ☒ Addendum A: Source Applicable Requirements (only applicable to existing Title V facility)

**Certification of Truth, Accuracy and Completeness by a Responsible Official**

I, Edward G. Human, certify under penalty of law in 18 Pa. C. S. A. §4904, and 35 P.S. §4009(b) (2) that based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate and complete.

(Signature):   
Name (Print): Edward G. Human

Date: 12/13/17  
Title: Director of Marcus Hook Operations

**OFFICIAL USE ONLY**

Application No. \_\_\_\_\_ Unit ID \_\_\_\_\_ Site ID \_\_\_\_\_  
DEP Client ID # \_\_\_\_\_ APS. ID \_\_\_\_\_ AUTH. ID \_\_\_\_\_  
Date Received \_\_\_\_\_ Date Assigned \_\_\_\_\_ Reviewed By \_\_\_\_\_  
Date of 1<sup>st</sup> Technical Deficiency \_\_\_\_\_ Date of 2<sup>nd</sup> Technical Deficiency \_\_\_\_\_  
Comments: \_\_\_\_\_

## Section B - Processes Information

### 1. Source Information

Source Description (give type, use, raw materials, product, etc). Attach additional sheets as necessary.

Liquid ethane product storage, cold flare, wet surface air cooler, and product loading operations from existing loading docks. See attached report for additional source details.

Manufacturer N/A	Model No. N/A	Number of Sources 4
Source Designation	Maximum Capacity	Rated Capacity

Type of Material Processed  
Liquid hydrocarbons consisting of mostly ethane

#### Maximum Operating Schedule

Hours/Day 24	Days/Week 7	Days/Year 365	Hours/Year 8760
-----------------	----------------	------------------	--------------------

Operational restrictions existing or requested, if any (e.g., bottlenecks or voluntary restrictions to limit PTE)

#### Capacity (specify units)

Per Hour	Per Day	Per Week	Per Year
----------	---------	----------	----------

#### Operating Schedule

Hours/Day 24	Days/Week 7	Days/Year 365	Hours/Year 8760
-----------------	----------------	------------------	--------------------

Seasonal variations (Months) From to

If variations exist, describe them

### 2. Fuel – Not Applicable

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number _____	GPH @ 60°F	X 10 <sup>3</sup> Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number _____	GPH @ 60°F	X 10 <sup>3</sup> Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas	SCFH	X 10 <sup>6</sup> SCF	grain/100 SCF		Btu/SCF
Gas (other) _____	SCFH	X 10 <sup>6</sup> SCF	grain/100 SCF		Btu/SCF
Coal	TPH	Tons	% by wt		Btu/lb
Other *					

\*Note: Describe and furnish information separately for other fuels in Addendum B.

### Section B - Processes Information (Continued)

#### 3. Burner – Not Applicable

Manufacturer	Type and Model No.	Number of Burners
Description:		
Rated Capacity	Maximum Capacity	

#### 4. Process Storage Vessels

##### A. For Liquids:

Name of material stored Liquid Ethane		
Tank I.D. No. 130-TK-403	Manufacturer N/A	Date Installed To be determined
Maximum Pressure 2.0 psig	Capacity (gallons/Meter <sup>3</sup> ) 25,200,000 gallons	
Type of relief device (pressure set vent/conservation vent/emergency vent/open vent) Pressure Relief Valve		
Relief valve/vent set pressure (psig) 2 psig	Vapor press. of liquid at storage temp. (psia/kPa) 108 kPa at -135 to -125°F	
Type of Roof: Describe: Fixed roof, cryogenic tank		
Total Throughput Per Year Total Ethane approximately 25,550,000 barrels per year	Number of fills per day (fill/day): continuous Filling Rate (gal./min.): 1782 gpm Duration of fill hr./fill): continuous	

#### 4. Process Storage Vessels

##### A. For Liquids:

Name of material stored Liquid Ethane		
Tank I.D. No. 130-TK-404	Manufacturer N/A	Date Installed To be determined
Maximum Pressure 2.0 psig	Capacity (gallons/Meter <sup>3</sup> ) 25,200,000 gallons	
Type of relief device (pressure set vent/conservation vent/emergency vent/open vent) Pressure Relief Valve		
Relief valve/vent set pressure (psig) 2 psig	Vapor press. of liquid at storage temp. (psia/kPa) 108 kPa at -135 to -125°F	
Type of Roof: Describe: Fixed roof, cryogenic tank		
Total Throughput Per Year Total Ethane approximately 25,550,000 barrels per year	Number of fills per day (fill/day): continuous Filling Rate (gal./min.): 1782 gpm Duration of fill hr./fill): continuous	

### Section B - Processes Information (Continued)

**B. For Solids – Not Applicable**

Type: <input type="checkbox"/> Silo <input type="checkbox"/> Storage Bin <input type="checkbox"/> Other, Describe		Name of Material Stored	
Silo/Storage Bin I.D. No.	Manufacturer		Date Installed
State whether the material will be stored in loose or bags in silos		Capacity (Tons)	
Turn over per year in tons		Turn over per day in tons	
Describe fugitive dust control system for loading and handling operations			
Describe material handling system			
<b>5. Request for Confidentiality</b>			
Do you request any information on this application to be treated as "Confidential"? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, include justification for confidentiality. Place such information on separate pages marked " <b>confidential</b> ".			

## Section B - Processes Information (Continued)

### 6. Miscellaneous Information

Attach flow diagram of process giving all (gaseous, liquid and solid) flow rates. Also, list all raw materials charged to process equipment, and the amounts charged (tons/hour, etc.) at rated capacity (give maximum, minimum and average charges describing fully expected variations in production rates). Indicate (on diagram) all points where contaminants are controlled (location of water sprays, collection hoods, or other pickup points, etc.). Describe collection hoods location, design, airflow and capture efficiency. Describe any restriction requested and how it will be monitored.  
See process flow diagram included in attached report.

Describe fully the facilities provided to monitor and to record process operating conditions, which may affect the emission of air contaminants. Show that they are reasonable and adequate.

The majority of air contaminant emissions occur from fugitive leaking components, which are not affected by the throughput of the material in the process. All the fugitive leak components will be included in a facility LDAR program to detect and repair leaking components. The product storage sources will not be sources of emissions because they store non-VOC hydrocarbons (ethane). Air contaminant emissions from the product loading operations will be minimized through best management practices.

Describe each proposed modification to an existing source.

No modifications will be made as a result of this project. Incremental increases in utilization of utility sources and existing product loading equipment will result from the project. Additionally, the amine treatment system will process additional ethane feedstocks as a result of the project. Associated piping connections will need to be completed to utilize existing utilities and processes.

Identify and describe all fugitive emission points, all relief and emergency valves and any by-pass stacks.

See the back-up emissions calculations included in the attached report.

Describe how emissions will be minimized especially during start up, shut down, process upsets and/or disruptions.

As part of the project both the high pressure and low pressure cold flares, and the existing West Warm Flare, will be used to minimize releases of air contaminants to the atmosphere during emergency depressurizations.

#### Anticipated Milestones:

- |  |                                    |
|--|------------------------------------|
| i. Expected commencement date of construction/reconstruction/installation: | <u>April 2018</u>                  |
| ii. Expected completion date of construction/reconstruction/installation:  | <u>1<sup>st</sup> Quarter 2020</u> |
| iii. Anticipated date of start-up:   | <u>1<sup>st</sup> Quarter 2020</u> |



## Section C - Air Cleaning Device

### 1. Precontrol Emissions\*

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM		0.06	8760	0.28	See attached
PM <sub>10</sub>		0.05	8760	0.21	See attached
SO <sub>x</sub>		0.007	8760	0.03	See attached
CO		5.37	8760	23.51	See attached
NO <sub>x</sub>		1.18	8760	5.16	See attached
VOC		2.41	8760	10.57	See attached
Others: (e.g., HAPs)	-----	-----	-----	-----	-----
PM <sub>2.5</sub>		0.0002	8760	0.001	See attached
CO <sub>2e</sub>		2,982	8760	13,063	See attached

\* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

### 2. Gas Cooling – Not Applicable

Water quenching ☐ Yes ☐ No      Water injection rate \_\_\_\_\_ GPM

Radiation and convection cooling

☐ Yes ☐ No

Air dilution ☐ Yes ☐ No

If yes, \_\_\_\_\_ CFM

Forced Draft ☐ Yes ☐ No

Water cooled duct work ☐ Yes ☐ No

Other

Inlet Volume \_\_\_\_\_ ACFM

@ \_\_\_\_\_ °F \_\_\_\_\_ % Moisture

Outlet Volume \_\_\_\_\_ ACFM

@ \_\_\_\_\_ °F \_\_\_\_\_ % Moisture

Describe the system in detail.

### Section C - Air Cleaning Device (Continued)

#### 3. Settling Chambers – Not Applicable

Manufacturer	Volume of gas handled _____ ACFM @ _____ °F	Gas velocity (ft/sec.)	
Length of chamber (ft.)	Width of chamber (ft.)	Height of chamber (ft.)	Number of trays
Water injection <input type="checkbox"/> Yes <input type="checkbox"/> No		Water injection rate (GPM)	

#### Emissions Data

Inlet	Outlet	Removal Efficiency (%)

#### 4. Inertial and Cyclone Collectors – Not Applicable

Manufacturer	Type	Model No.
Pressure drop (in. of water)	Inlet volume _____ ACFM @ _____ °F	Outlet volume _____ ACFM @ _____ °F
Number of individual cyclone(s)	Outlet straightening vanes used? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Length of Cyclone(s) Cylinder (ft.)	Diameter of Cyclone(s) Cylinder (ft.)	Length of Cyclone(s) cone (ft.)
Inlet Diameter (ft.) or duct area (ft. <sup>2</sup> ) of cyclone(s)		Outlet Diameter (ft.) or duct area (ft. <sup>2</sup> ) of cyclone(s)

If a multi-clone or multi-tube unit is installed, will any of the individual cyclones or cyclone tubes be blanked or blocked off?

Describe any exhaust gas recirculation loop to be employed.

Attach particle size efficiency curve

#### Emissions Data

Inlet	Outlet	Removal Efficiency (%)

### Section C - Air Cleaning Device (Continued)

#### 5. Fabric Collector – Not applicable

##### Equipment Specifications

Manufacturer		Model No.		<input type="checkbox"/> Pressurized Design <input type="checkbox"/> Suction Design												
Number of Compartments	Number of Filters Per Compartment		Is Baghouse Insulated?													
			<input type="checkbox"/> Yes <input type="checkbox"/> No													
Can each compartment be isolated for repairs and/or filter replacement?																
<input type="checkbox"/> Yes <input type="checkbox"/> No																
Are temperature controls provided? (Describe in detail)																
<input type="checkbox"/> Yes <input type="checkbox"/> No																
Dew point at maximum moisture _____ °F			Design inlet volume _____ SCFM													
Type of Fabric																
<table style="width: 100%;"> <tr> <td style="width: 30%;">Material _____</td> <td style="width: 30%;"><input type="checkbox"/> Felted</td> <td style="width: 30%;"><input type="checkbox"/> Membrane</td> <td style="width: 10%;"></td> </tr> <tr> <td>Weight _____ oz/sq.yd</td> <td><input type="checkbox"/> Woven</td> <td><input type="checkbox"/> Others: List: _____</td> <td></td> </tr> <tr> <td>Thickness _____ in</td> <td><input type="checkbox"/> Felted-Woven</td> <td></td> <td></td> </tr> </table>					Material _____	<input type="checkbox"/> Felted	<input type="checkbox"/> Membrane		Weight _____ oz/sq.yd	<input type="checkbox"/> Woven	<input type="checkbox"/> Others: List: _____		Thickness _____ in	<input type="checkbox"/> Felted-Woven		
Material _____	<input type="checkbox"/> Felted	<input type="checkbox"/> Membrane														
Weight _____ oz/sq.yd	<input type="checkbox"/> Woven	<input type="checkbox"/> Others: List: _____														
Thickness _____ in	<input type="checkbox"/> Felted-Woven															
Fabric permeability (clean) @ ½" water-Δ P _____ CFM/sq.ft.																
Filter dimensions    Length _____    Diameter/Width _____																
Effective area per filter _____			Maximum operating temperature (°F) _____													
Effective air to cloth ratio    Minimum _____    Maximum _____																
Drawing of Fabric Filter																
A sketch of the fabric filter showing all access doors, catwalks, ladders and exhaust ductwork, location of each pressure and temperature indicator should be attached.																
<b>Operation and Cleaning</b>																
Volume of gases handled _____ ACFM @ _____ °F		Pressure drop across collector (in. of water). Describe the equipment to be used to monitor the pressure drop.														
Type of filter cleaning																
<table style="width: 100%;"> <tr> <td style="width: 30%;"><input type="checkbox"/> Manual Cleaning</td> <td style="width: 30%;"><input type="checkbox"/> Bag Collapse</td> <td style="width: 30%;"><input type="checkbox"/> Reverse Air Jets</td> <td style="width: 10%;"></td> </tr> <tr> <td><input type="checkbox"/> Mechanical Shakers</td> <td><input type="checkbox"/> Sonic Cleaning</td> <td><input type="checkbox"/> Other: _____</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Pneumatic Shakers</td> <td><input type="checkbox"/> Reverse Air Flow</td> <td></td> <td></td> </tr> </table>					<input type="checkbox"/> Manual Cleaning	<input type="checkbox"/> Bag Collapse	<input type="checkbox"/> Reverse Air Jets		<input type="checkbox"/> Mechanical Shakers	<input type="checkbox"/> Sonic Cleaning	<input type="checkbox"/> Other: _____		<input type="checkbox"/> Pneumatic Shakers	<input type="checkbox"/> Reverse Air Flow		
<input type="checkbox"/> Manual Cleaning	<input type="checkbox"/> Bag Collapse	<input type="checkbox"/> Reverse Air Jets														
<input type="checkbox"/> Mechanical Shakers	<input type="checkbox"/> Sonic Cleaning	<input type="checkbox"/> Other: _____														
<input type="checkbox"/> Pneumatic Shakers	<input type="checkbox"/> Reverse Air Flow															
Describe the equipment provided if dry oil free air is required for collector operation																
Cleaning Initiated By																
<input type="checkbox"/> Timer    Frequency if timer actuated _____ <input type="checkbox"/> Expected pressure drop range _____ in. of water <input type="checkbox"/> Other Specify _____																
Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If yes, describe.																
Describe the warning/alarm system that protects against operation when the unit is not meeting design requirements.																
<b>Emissions Data</b>																
<b>Pollutant</b>	<b>Inlet</b>	<b>Outlet</b>	<b>Removal Efficiency (%)</b>													

### Section C - Air Cleaning Device (Continued)

#### 6. Wet Collection Equipment – Not Applicable

##### Equipment Specifications

Manufacturer	Type	Model No.
Design Inlet Volume (SCFM)		Relative Particulate/Gas Velocity (ejector scrubbers only)
Describe the internal features (e.g., variable throat, gas/liquid diffusion plates, spray nozzles, liquid redistributors, bed limiters, etc.).		
Describe pH monitoring and pH adjustment systems, if applicable.		
Describe mist eliminator or separator (type, configuration, backflush capability, frequency).		
Attach particulate size efficiency curve.		

##### Operating Parameters

Inlet volume of gases handled _____ (ACFM) @ _____ °F	Outlet volume of gases handled _____ (ACFM) @ _____ °F _____ % Moisture
Liquid flow rates. Describe equipment provided to measure liquid flow rates to scrubber (e.g., quenching section, recirculating solution, makeup water, bleed flow, etc.)	
Describe scrubber liquid supply system (amount of make-up and recirculating liquid, capacity of recirculating liquid system, etc.)	
State pressure drop range (in water) across scrubber (e.g., venturi throat, packed bed, etc.) only. Describe the equipment provide to measure the pressure drop. Do not include duct or de-mister losses.	
Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.	

##### Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

### Section C - Air Cleaning Device (Continued)

#### 7. Electrostatic Precipitator – Not Applicable

##### Equipment Specifications

Manufacturer	Model No.	<input type="checkbox"/> Wet	<input type="checkbox"/> Dry
		<input type="checkbox"/> Single-Stage	<input type="checkbox"/> Two-Stage
Gas distribution grids <input type="checkbox"/> Yes <input type="checkbox"/> No		Design Inlet Volume (SCFM) _____	
		Maximum operating temperature (°F) _____	
Total collecting surface area _____ sq. ft.		Collector plates size length _____ ft. x width _____ ft.	
Number of fields _____		Number of collector plates/field _____	
Spacing between collector plates _____ inches.			
Maximum gas velocity _____ ft./sec.		Minimum gas treatment time: _____ sec.	
Total discharge electrode length _____ ft.			
Number of discharge electrodes _____		Number of collecting electrode rappers _____	
Rapper control <input type="checkbox"/> Magnetic <input type="checkbox"/> Pneumatic <input type="checkbox"/> Other _____ Describe in detail			

##### Operating Parameters

Inlet gas temperature (°F) _____	State pressure drop range (inches water gauge) across collector only _____
Outlet gas temperature (°F) _____	Describe the equipment _____
Volume of gas handled (ACFM) _____	Dust resistivity (ohm-cm). Will resistivity vary? _____

##### Power requirements

Number and size of Transformer Rectifier sets by electrical field			
Field No.	No. of Sets	Each Transformer KVA	Each Rectifier KV Ave./Peak      Ma DC
Current Density _____ Micro amperes/ft <sup>2</sup> .		Corona Power _____ Watts/1000 ACFM	Corona Power Density _____ Watts/ft <sup>2</sup> .
Will a flue gas conditioning system be employed? If yes, describe it.			
Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If yes, describe.			
Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.			
<b>Emissions Data</b>			
Pollutant	Inlet	Outlet	Removal Efficiency (%)

### Section C - Air Cleaning Device (Continued)

#### 8. Adsorption Equipment – Not Applicable

##### Equipment Specifications

Manufacturer	Type	Model No.	
Design Inlet Volume (SCFM)	Adsorbent charge per adsorber vessel and number of adsorber vessels		
Length of Mass Transfer Zone (MTZ), supplied by the manufacturer based upon laboratory data.			
Adsorber diameter (ft.) and area ft <sup>2</sup> .	Adsorption bed depth (ft.)		
<b>Adsorbent information</b>			
Adsorbent type and physical properties.			
Working capacity of adsorbent (%)	Heel percent or unrecoverable solvent weight % in the adsorbent after regeneration.		
<b>Operating Parameters</b>			
Inlet volume of gases handled _____ (ACFM) @ _____ °F			
Adsorption time per adsorption bed	Breakthrough capacity: Lbs. of solvent / 100 lbs. of adsorbent = _____		
Vapor pressure of solvents at the inlet temperature	Available steam in pounds to regenerate carbon adsorber (if applicable)		
Percent relative saturation of each solvent at the inlet temperature			
Attach any additional data including auxiliary equipment and operation details to thoroughly evaluate the control equipment.			
Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.			
<b>Emissions Data</b>			
<b>Pollutant</b>	<b>Inlet</b>	<b>Outlet</b>	<b>Removal Efficiency (%)</b>

### Section C - Air Cleaning Device (Continued)

#### 9. Absorption Equipment – Not Applicable

##### Equipment Specifications

Manufacturer	Type	Model No.	
Design Inlet Volume (SCFM)		Tower height (ft.) and inside diameter (ft.)	
Packing type and size (if applicable)		Height of packing (ft.) (if applicable)	
Number of trays (if applicable)		Number of bubble caps (if applicable)	
Configuration <input type="checkbox"/> Counter-current <input type="checkbox"/> Cross flow <input type="checkbox"/> Cocurrent flow			
Describe pH and/or other monitoring and controls.			
<b>Absorbent information</b>			
Absorbent type and concentration.		Retention time (sec.)	
Attach equilibrium data for absorption (if applicable)			
Attach any additional information regarding auxiliary equipment, absorption solution supply system (once through or recirculating, system capacity, etc.) to thoroughly evaluate the control equipment. Indicate the flow rates for makeup, bleed and recirculation.			
<b>Operating Parameters</b>			
Volume of gas handled (ACFM)	Inlet temperature (°F)	Pressure drop (in. of water) and liquid flow rate. Describe the monitoring equipment.	
State operating range for pH and/or absorbent concentration in scrubber liquid.			
Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.			
<b>Emissions Data</b>			
Pollutant	Inlet	Outlet	Removal Efficiency (%)

### Section C - Air Cleaning Device (Continued)

10. ☐ Selective Catalytic Reduction (SCR) – Not Applicable  
☐ Selective Non-Catalytic Reduction (SNCR) – Not Applicable  
☐ Non-Selective Catalytic Reduction (NSCR) – Not Applicable

#### Equipment Specifications

Manufacturer	Type	Model No.	
Design Inlet Volume (SCFM)		Design operating temperature (°F)	
Is the system equipped with process controls for proper mixing/control of the reducing agent in gas stream? If yes, give details.			
Attach efficiency and other pertinent information (e.g., ammonia slip)			
<b>Operating Parameters</b>			
Volume of gases handled _____ (ACFM) @ _____ °F			
Operating temperature range for the SCR/SNCR/NSCR system (°F) From _____ °F To _____ °F			
Reducing agent used, if any	Oxidation catalyst used, if any		
State expected range of usage rate and concentration.			
Service life of catalyst	Ammonia slip (ppm)		
Describe fully with a sketch giving locations of equipment, controls systems, important parameters and method of operation.			
Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.			
<b>Emissions Data</b>			
<b>Pollutant</b>	<b>Inlet</b>	<b>Outlet</b>	<b>Removal Efficiency (%)</b>



### Section C - Air Cleaning Device (Continued)

#### 11. Oxidizer/Afterburners – Not Applicable

##### Equipment Specifications

Manufacturer	Type <input type="checkbox"/> Thermal <input type="checkbox"/> Catalytic	Model No.
Design Inlet Volume (SCFM)	Combustion chamber dimensions (length, cross-sectional area, effective chamber volume, etc.)	
Describe design features, which will ensure mixing in combustion chamber.		
Describe method of preheating incoming gases (if applicable).		Describe heat exchanger system used for heat recovery (if applicable).
Catalyst used	Life of catalyst	Expected temperature rise across catalyst (°F) Dimensions of bed (in inches). Height: _____ Diameter or Width: _____ Depth: _____
Are temperature sensing devices being provided to measure the temperature rise across the catalyst? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe.		
Describe any temperature sensing and/or recording devices (including specific location of temperature probe in a drawing or sketch).		

##### Burner Information

Burner Manufacturer	Model No.	Fuel Used
Number and capacity of burners	Rated capacity (each)	Maximum capacity (each)
Describe the operation of the burner		Attach dimensioned diagram of afterburner

##### Operating Parameters

Inlet flow rate (ACFM) _____ @ _____ °F	Outlet flow rate (ACFM) _____ @ _____ °F
State pressure drop range across catalytic bed (in. of water).	Describe the method adopted for regeneration or disposal of the used catalyst.
Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.	

##### Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

### Section C - Air Cleaning Device (Continued)

#### 12. Flares – HP Flare Tip

##### Equipment Specifications

Manufacturer John Zink or equal	Type <input checked="" type="checkbox"/> Elevated flare <input type="checkbox"/> Ground flare <input type="checkbox"/> Other _____ Describe	Model No. To Be Determined
Design Volume (SCFM) 77,120	Dimensions of stack (ft.) Diameter <u>1.67</u> Height <u>195</u>	
Residence time (sec.) and outlet temperature (°F)	Turn down ratio	Burner details R1 smokeless for non-emergency vents
<p>Describe the flare design (air/steam-assisted or nonassisted), essential auxiliaries including pilot flame monitor of proposed flare with a sketch.</p> <p>Air-assisted HP cold flare for cryogenic liquids. Pilot flame monitoring using a thermocouple.</p>		
<p>Describe the operation of the flare's ignition system.</p> <p>In total for both the high pressure and low pressure flare tips, two or more flare pilots along with natural gas at total of 500 standard cubic feet per hour (scfh) will be used for the ignition system. Purge natural gas for the high pressure tip will be 261 scfh.</p>		
<p>Describe the provisions to introduce auxiliary fuel to the flare.</p> <p>Not Applicable</p>		
<b>Operation Parameters</b>		
Detailed composition of the waste gas Methane (0-100%) Ethane (0-100%) Propane (0-100%)	Heat content 1,000 - 2,503 BTU/SCF (HHV)	Exit velocity To Be Determined
Maximum and average gas flow burned (ACFM) To Be Determined	Operating temperature (°F)	
<p>Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.</p> <p>Remote alarms will be used when flare pilot is extinguished.</p>		
<b>Emissions Data</b>		
<b>Pollutant</b>	<b>Inlet</b>	<b>Outlet</b>
VOC		98%

### Section C - Air Cleaning Device (Continued)

#### 12. Flares – LP Flare Tip

##### Equipment Specifications

Manufacturer John Zink or equal	Type <input checked="" type="checkbox"/> Elevated flare <input type="checkbox"/> Ground flare <input type="checkbox"/> Other _____ Describe	Model No. To Be Determined
Design Volume (SCFM) 5,270	Dimensions of stack (ft.) Diameter 0.83      Height 195	
Residence time (sec.) and outlet temperature (°F)	Turn down ratio	Burner details R1 smokeless for non-emergency vents
Describe the flare design (air/steam-assisted or nonassisted), essential auxiliaries including pilot flame monitor of proposed flare with a sketch. Air-assisted LP cold flare for cryogenic liquids. Pilot flame monitoring using a thermocouple.		
Describe the operation of the flare's ignition system. In total for both the high pressure and low pressure flare tips, two or more flare pilots along with natural gas at total of 500 standard cubic feet per hour (scfh) will be used for the ignition system. Purge natural gas for the low pressure tip will be 24 scfh.		
Describe the provisions to introduce auxiliary fuel to the flare. Not Applicable		

##### Operation Parameters

Detailed composition of the waste gas Methane (0-100%) Ethane (0-100%)	Heat content 1,000 - 1,750 BTU/SCF (HHV)	Exit velocity To Be Determined
Maximum and average gas flow burned (ACFM) To Be Determined	Operating temperature (°F)	
Describe the warning/alarm system that protects against operation when unit is not meeting design requirements. Remote alarms will be used when flare pilot is extinguished.		

##### Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)
VOC			98%

<b>Section C - Air Cleaning Device (Continued)</b>			
<b>13. Other Control Equipment – Not Applicable</b>			
<b>Equipment Specifications</b>			
Manufacturer	Type	Model No.	
Design Volume (SCFM)		Capacity	
Describe pH monitoring and pH adjustment, if any.			
Indicate the liquid flow rate and describe equipment provided to measure pressure drop and flow rate, if any.			
Attach efficiency curve and/or other efficiency information.			
Attach any additional data including auxiliary equipment and operation details to thoroughly evaluate the control equipment.			
<b>Operation Parameters</b>			
Volume of gas handled _____ ACFM @ _____ °F _____ % Moisture			
Describe fully giving important parameters and method of operation.			
Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.			
<b>Emissions Data</b>			
<b>Pollutant</b>	<b>Inlet</b>	<b>Outlet</b>	<b>Removal Efficiency (%)</b>

### Section C - Air Cleaning Device (Continued)

#### 14. Costs – Not Applicable

Indicate cost associated with air cleaning device and its operating cost (attach documentation if necessary)

Device	Direct Cost	Indirect Cost	Total Cost	Annual Operating Cost

#### 15. Miscellaneous

Describe in detail the removal, handling and disposal of dust, effluent, etc. from the air cleaning device including proposed methods of controlling fugitive emissions.

Attach manufacturer's performance guarantees and/or warranties for each of the major components of the control system (or complete system).

Attach the maintenance schedule for the control equipment and any part of the process equipment that if in disrepair would increase air contaminant emissions.

### Section D - Additional Information

Will the construction, modification, etc. of the sources covered by this application increase emissions from other sources at the facility? If so, describe and quantify.

The project will utilize previously permitted sources at the Marcus Hook Industrial Complex including the Auxiliary Boilers, West Warm Flare, pipeline associated components, amine treatment system, existing storage tanks, and the product loading docks. However, these units will not be used outside of current permitted allowable emissions.

If this project is subject to any one of the following, attach a demonstration to show compliance with applicable standards. See attached report.

- |   |   |  |
|---|---|--|
| a. Prevention of Significant Deterioration permit (PSD), 40 CFR 52?   | <input type="checkbox"/> YES            | <input checked="" type="checkbox"/> NO |
| b. New Source Review (NSR), 25 Pa. Code Chapter 127, Subchapter E?  | <input type="checkbox"/> YES            | <input checked="" type="checkbox"/> NO |
| c. New Source Performance Standards (NSPS), 40 CFR Part 60?<br>(If Yes, which subpart) <u>Subparts A, Kb, and VVa</u>   | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO            |
| d. National Emissions Standards for Hazardous Air Pollutants (NESHAP),<br>40 CFR Part 61? (If Yes, which subpart) _____ | <input type="checkbox"/> YES            | <input checked="" type="checkbox"/> NO |
| e. Maximum Achievable Control Technology (MACT) 40 CFR Part 63?<br>(If Yes, which part) _____                           | <input type="checkbox"/> YES            | <input checked="" type="checkbox"/> NO |

Attach a demonstration showing that the emissions from any new sources will be the minimum attainable through the use of best available technology (BAT).

See attached report.

Provide emission increases and decreases in allowable (or potential) and actual emissions within the last five (5) years for applicable PSD pollutant(s) if the facility is an existing major facility (PSD purposes).

See attached report.

### Section D - Additional Information (Continued)

Indicate emission increases and decreases in tons per year (tpy), for volatile organic compounds (VOCs) and nitrogen oxides (NOx) for NSR applicability since January 1, 1991 or other applicable dates (see other applicable dates in instructions). The emissions increases include all emissions including stack, fugitive, material transfer, other emission generating activities, quantifiable emissions from exempted source(s), etc.

Permit number (if applicable)	Date issued	Indicate <b>Yes</b> or <b>No</b> if emission increases and decreases were used previously for netting	Source I. D. or Name	VOCs		NOx	
				Emission increases in potential to emit  (tpy)	Creditable emission decreases in actual emissions (tpy)	Emission increases in potential to emit (tpy)	Creditable emission decreases in actual emissions (tpy)
See attached report							

If the source is subject to 25 Pa. Code Chapter 127, Subchapter E, New Source Review requirements,

- a. Identify Emission Reduction Credits (ERCs) for emission offsets or demonstrate ability to obtain suitable ERCs for emission offsets.
- b. Provide a demonstration that the lowest achievable emission rate (LAER) control techniques will be employed (if applicable).
- c. Provide an analysis of alternate sites, sizes, production processes and environmental control techniques demonstrating that the benefits of the proposed source outweigh the environmental and social costs (if applicable).

Attach calculations and any additional information necessary to thoroughly evaluate compliance with all the applicable requirements of Article III and applicable requirements of the Clean Air Act adopted thereunder. The Department may request additional information to evaluate the application such as a standby plan, a plan for air pollution emergencies, air quality modeling, etc. See attached report.

**Section E - Compliance Demonstration – See Addendum A**

**Note: Complete this section if source is not a Title V facility. Title V facilities must complete Addendum A.**

**Method of Compliance Type:** Check all that apply and complete all appropriate sections below

- ☐ Monitoring      ☐ Testing      ☐ Reporting
- ☐ Recordkeeping      ☐ Work Practice Standard

**Monitoring:**

- a. Monitoring device type (Parameter, CEM, etc): See Addendum A
- b. Monitoring device location:
- c. Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

### Testing:

- Reference Test Method: Citation
- Reference Test Method: Description

**Recordkeeping:**

Describe what parameters will be recorded and the recording frequency:  
See Addendum A

### Reporting:

- a. Describe what is to be reported and frequency of reporting:
- b. Reporting start date: \_\_\_\_\_

**Work Practice Standard:**

Describe each:



## Section F - Flue and Air Contaminant Emission

### 1. Estimated Atmospheric Emissions\*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM		0.06	0.28	See attached report
PM <sub>10</sub>		0.05	0.21	See attached report
SO <sub>x</sub>		0.007	0.03	See attached report
CO		5.37	23.51	See attached report
NO <sub>x</sub>		1.18	5.16	See attached report
VOC		2.41	10.57	See attached report
Others: ( e.g., HAPs)	----	----	----	----
PM <sub>2.5</sub>		0.0002	0.001	See attached report
CO <sub>2e</sub>		2,982	13,063	See attached report

\* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

### 2. Stack and Exhauster – Not Applicable

Stack Designation/Number

List Source(s) or source ID exhausted to this stack:

% of flow exhausted to stack:

Stack height above grade (ft.)  
Grade elevation (ft.)

Stack diameter (ft) or Outlet duct area (sq. ft.)

f. Weather Cap  
☐ YES ☐ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.

Does stack height meet Good Engineering Practice (GEP)?

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions.

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Stack exhaust

Volume \_\_\_\_\_ ACFM

Temperature \_\_\_\_\_ °F

Moisture \_\_\_\_\_ %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.

Exhauster (attach fan curves) \_\_\_\_\_ in. of water \_\_\_\_\_ HP @ \_\_\_\_\_ RPM.

\*\* If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

### Section G - Attachments

Number and list all attachments submitted with this application below:

- A PADEP Plan Approval Forms
- B Plot Plan and Process Flow Diagram
- C Flare Connection List (CONFIDENTIAL)
- D Back-up Emissions Calculations
- E Contemporaneous Tables
- F Municipal and County Notifications



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## Addendum A: Source Applicable Requirements

Describe and cite all applicable requirements pertaining to this source.

**Note:** A Method of Compliance Worksheet (Addendum 1) must be completed for each requirement listed.

Citation Number	Citation Limitation	Limitation Used
40 CFR 60 Subpart A §60.18	<p>This subpart applies to certain control devices used to comply with applicable subparts of 40 CFR parts 60 and 61. Subject equipment includes flares.</p> <p>The ME-2X Cold Flare must be operated with no visible emissions, with flame present at all times, to meet exit velocity requirements, and maintain a minimum net heating value of the flare gas.</p>	Same
40 CFR 60 Subpart Kb	<p>This subpart applies to each of the storage tanks at the storage facility with a capacity greater than or equal to 75 cubic meters (471 barrels) that is used to store volatile organic liquids for which construction or modification is commenced after July 23, 1984; therefore, the recordkeeping requirements of 40 CFR 60.115b are applicable. However, the VOC standards of 40 CFR 60.112b (i.e., requiring the installation of a floating roof and conducting periodic inspections) are not applicable because of the high vapor pressure of the material being stored (vapor pressure of 108 kiloPascal [kPa]). 40 CFR 60.112b is only applicable to storage vessels with a design capacity greater than 151 cubic meters (949 barrels) and storing a volatile organic liquid that has a maximum true vapor pressure greater than 5.2 kPa but less than 76.6 kPa.</p>	Same
40 CFR 60 Subpart VVa	<p>This subpart applies to the control of air emissions from equipment leaks associated with affected facilities in the organic chemicals manufacturing industry. Subject equipment includes each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, and flange or other connector in VOC service.</p> <p>Additionally, if a flare is used to control VOC emissions from pumps, compressors or sampling systems, the flare must comply with 40 CFR §60.18. SPMT does not route or plans to route pump and compressor seal systems and sampling systems to the ME-2X Cold Flare for VOC control; therefore, the ME-2X Cold Flare will comply with the requirements of §60.18.</p>	Same



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## Addendum 1 Method Of Compliance Worksheet

### SECTION 1. APPLICABLE REQUIREMENT

Federal Tax Id: 23-1743283-12 Firm Name: Sunoco Partners Marketing & Terminals, L.P.

Plant Code: Plant Name: Marcus Hook Industrial Complex

Applicable Requirement for: (please check only one box below)

☐ The entire site

☐ A group of sources, Group ID: \_\_\_\_\_

☒ A single source, Unit ID: Cold Flare (ME2X), Source ID TBD

☐ Alternative Scenario, Scenario Name: \_\_\_\_\_

Citation #: 40 CFR § 60.18

Compliance Method based upon: ☒ Applicable Requirement ☐ Gap Filling Requirement

Method of Compliance Type: (Check all that applies and complete all appropriate sections below)

☒ Monitoring ☒ Testing ☒ Reporting

☒ Record Keeping ☒ Work Practice Standard

### Section 2: Monitoring

1. Monitoring device type (stack test, CEM, etc.): TBD

2. Monitoring device location: TBD

Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

(a) The permittee shall continuously monitor the presence of a pilot flame for this flare by using an infrared sensor or other device approved by the Department

(b) The permittee shall monitor the type and amount of fuel combusted in the flare on a daily basis.

3. How will data be reported: TBD

### **Section 3: Testing**

1. Reference Test Method Description: EPA Test Methods 22, 2(A, C, or D), 3A, 18, ASTM D 2504-67, ASTM D 2382-76

---

2. Reference Test Method Citation: 40 CFR § 60.18

---

### **Section 4: Record Keeping**

Describe what parameters will be recorded and the frequency of recording:

(a) The permittee shall maintain hourly records for the presence of a pilot flame on this flare

---

(b) The permittee shall maintain daily records of the type and amount of fuel combusted in this flare

---

### **Section 5: Reporting**

Describe what is to be reported and the frequency of reporting:

The permittee shall submit to the Department semi-annual exception reports of the date and time the pilot flame was not working.

---

1. Reporting start date: TBD

---

### **Section 6: Work Practice Standard**

Describe any work practice standards:

The permittee shall ensure that the flare is operated and maintained in conformance with its design.

---

(a) The flare shall be operated with a flame present at all times

---

(b) The flare shall be used only with the net heating value of the gas being combusted is 300 BTU/SCF or greater.

---

The net heating value of the gas being combusted shall be determined by the methods specified in 40 CFR §60.18(f)

---

(c) The air-assisted flare shall be designed and operated with an exit velocity less than the maximum velocity (Vmax) as determined by the method specified in 40 CFR §60.18(f)(6)

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**Addendum 1**  
**Method Of Compliance Worksheet**

**SECTION 1. APPLICABLE REQUIREMENT**

Federal Tax Id: 23-1743283-12 Firm Name: Sunoco Partners Marketing & Terminals, L.P.

Plant Code: Plant Name: Marcus Hook Industrial Complex

Applicable Requirement for: (please check only one box below)

☐ The entire site

☐ A group of sources, Group ID: \_\_\_\_\_

☒ A single source, Unit ID: Cryogenic Ethane Storage Tank, 130-TK-403 - Source ID TBD

☐ Alternative Scenario, Scenario Name: \_\_\_\_\_

Citation #: 40 CFR § 60.112b - 60.116b

Compliance Method based upon: ☒ Applicable Requirement ☐ Gap Filling Requirement

Method of Compliance Type: (Check all that applies and complete all appropriate sections below)

☐ Monitoring ☐ Testing ☒ Reporting

☒ Record Keeping ☒ Work Practice Standard

**Section 2: Monitoring**

1. Monitoring device type (stack test, CEM, etc.): \_\_\_\_\_

2. Monitoring device location: \_\_\_\_\_

Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

3. How will data be reported: \_\_\_\_\_

### **Section 3: Testing**

1. Reference Test Method Description: \_\_\_\_\_
2. Reference Test Method Citation: \_\_\_\_\_

### **Section 4: Record Keeping**

**Describe what parameters will be recorded and the frequency of recording:**

Refer to TVOP #23-00119 Section D, Source ID 101 Conditions #001-003

\_\_\_\_\_

\_\_\_\_\_

### **Section 5: Reporting**

**Describe what is to be reported and the frequency of reporting:**

Refer to TVOP #23-00119 Section D, Source ID 101 Conditions #004-005

\_\_\_\_\_

\_\_\_\_\_

2. Reporting start date: TBD

### **Section 6: Work Practice Standard**

**Describe any work practice standards:**

Refer to TVOP #23-00119 Section D, Source ID 101 Conditions #006

\_\_\_\_\_

\_\_\_\_\_



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**Addendum 1**  
**Method Of Compliance Worksheet**

**SECTION 1. APPLICABLE REQUIREMENT**

Federal Tax Id: 23-1743283-12 Firm Name: Sunoco Partners Marketing & Terminals, L.P.

Plant Code: Plant Name: Marcus Hook Industrial Complex

Applicable Requirement for: (please check only one box below)

☐ The entire site

☐ A group of sources, Group ID: \_\_\_\_\_

☒ A single source, Unit ID: Cryogenic Ethane Storage Tanks, 130-TK-404 - Source ID TBD

☐ Alternative Scenario, Scenario Name: \_\_\_\_\_

Citation #: 40 CFR § 60.112b - 60.116b

Compliance Method based upon: ☒ Applicable Requirement ☐ Gap Filling Requirement

Method of Compliance Type: (Check all that applies and complete all appropriate sections below)

☐ Monitoring

☐ Testing

☒ Reporting

☒ Record Keeping

☒ Work Practice Standard

**Section 2: Monitoring**

4. Monitoring device type (stack test, CEM, etc.): \_\_\_\_\_

5. Monitoring device location: \_\_\_\_\_

Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

6. How will data be reported: \_\_\_\_\_



### **Section 3: Testing**

3. Reference Test Method Description: \_\_\_\_\_

4. Reference Test Method Citation: \_\_\_\_\_

### **Section 4: Record Keeping**

**Describe what parameters will be recorded and the frequency of recording:**

Refer to TVOP #23-00119 Section D, Source ID 101 Conditions #001-003

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### **Section 5: Reporting**

**Describe what is to be reported and the frequency of reporting:**

Refer to TVOP #23-00119 Section D, Source ID 101 Conditions #004-005

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. Reporting start date: TBD \_\_\_\_\_

### **Section 6: Work Practice Standard**

**Describe any work practice standards:**

Refer to TVOP #23-00119 Section D, Source ID 101 Conditions #006

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



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**Addendum 1**  
**Method Of Compliance Worksheet**

**SECTION 1. APPLICABLE REQUIREMENT**

**Federal Tax Id:** 23-1743283-12 **Firm Name:** Sunoco Partners Marketing & Terminals, L.P.

**Plant Code:** **Plant Name:** Marcus Hook Industrial Complex

Applicable Requirement for: (please check only one box below)

☐ The entire site

☒ A group of sources, Group ID: Fugitive Equipment Leaks from equipment in VOC service, ID 103

☐ A single source, Unit ID:

☐ Alternative Scenario, Scenario Name:

**Citation #:** 40 CFR § 60.485a

**Compliance Method based upon:** ☒ Applicable Requirement ☐ Gap Filling Requirement

**Method of Compliance Type:** (Check all that applies and complete all appropriate sections below)

☒ Monitoring ☒ Testing ☒ Reporting

☒ Record Keeping ☒ Work Practice Standard

**Section 2: Monitoring**

**7. Monitoring device type (stack test, CEM, etc.):** Refer to TVOP #23-00119 Section D, Source ID 103 Conditions #002-004

**8. Monitoring device location:** Refer to TVOP #23-00119 Section D, Source ID 103 Conditions #002-004

**Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:**

Refer to TVOP #23-00119 Section D, Source ID 103 Conditions #002-004

**9. How will data be reported:** Refer to TVOP #23-00119 Section D, Source ID 103 Conditions #002-004

### **Section 3: Testing**

5. Reference Test Method Description: Refer to TVOP #23-00119 Section D, Source ID 103 Condition #001

6. Reference Test Method Citation: Refer to TVOP #23-00119 Section D, Source ID 103 Condition #001

### **Section 4: Record Keeping**

**Describe what parameters will be recorded and the frequency of recording:**

Refer to TVOP #23-00119 Section D, Source ID 103 Conditions #005-006

---

---

### **Section 5: Reporting**

**Describe what is to be reported and the frequency of reporting:**

Refer to TVOP #23-00119 Section D, Source ID 103 Condition #007

---

---

4. Reporting start date: TBD

---

### **Section 6: Work Practice Standard**

**Describe any work practice standards:**

Refer to TVOP #23-00119 Section D, Source ID 103 Conditions #008-024

---

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*Attachment B*  
*Plot Plan and*  
*Process Flow Diagram*

*Attachment C*  
*Flare Connection List*

CONFIDENTIAL BUSINESS  
INFORMATION

*Attachment D*  
*Back-up Emissions Calculations*

Sunoco Partners Marketing & Terminals L.P.  
ME-2X Project  
Project Emissions Summary  
December 2017

Source	Emissions (TPY)							
	NO <sub>x</sub>	VOC	CO	PM	PM10	PM2.5	SO <sub>2</sub>	CO <sub>2</sub> e
Fugitive Equipment	---	8.46	---	---	---	---	---	2,864
Cold Flare HP/LP	4.85	1.99	22.11	---	---	---	0.03	9,600
Wet Surface Air Cooler System	---	0	---	0.28	0.21	0.001	---	---
Incremental Flows to West Warm Flare	0.31	0.12	1.40	---	---	---	0.001	599
<b>Total</b>	<b>5.16</b>	<b>10.57</b>	<b>23.51</b>	<b>0.28</b>	<b>0.21</b>	<b>0.001</b>	<b>0.03</b>	<b>13,063</b>

Source	Emissions (lb/hour)							
	NO <sub>x</sub>	VOC	CO	PM	PM10	PM2.5	SO <sub>2</sub>	CO <sub>2</sub> e
Fugitive Equipment	---	1.93	---	---	---	---	---	654
Cold Flare HP/LP	1.11	0.45	5.05	---	---	---	0.006	2,192
Wet Surface Air Cooler System	---	0	---	0.06	0.05	0.0002	---	---
Incremental Flows to West Warm Flare	0.07	0.03	0.32	---	---	---	3.2E-04	137
<b>Total</b>	<b>1.18</b>	<b>2.41</b>	<b>5.37</b>	<b>0.06</b>	<b>0.05</b>	<b>0.0002</b>	<b>0.007</b>	<b>2,982</b>

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ME-2X Project  
December 2017  
Fugitive Component Emissions

Equipment Type	Service	Emission Factor (kg/hr/source) <sup>a</sup>	Propane Refrigeration System Component Counts	Amine Treatment System Component Counts	Control Efficiency <sup>e</sup>	VOC Emissions (tons/year)
Valves	Gas <sup>b</sup>	0.00597	875	0	97%	1.50
	Light Liquid <sup>c</sup>	0.00403	605	0	97%	0.70
	Heavy Liquid <sup>d</sup>	0.00023	0	438	0%	0.19
Pump Seals	Light Liquid <sup>c</sup>	0.0199	3	0	85%	0.09
	Heavy Liquid <sup>d</sup>	0.00862	0	3	0%	0.05
Compressor Seals	Gas	0.228	8	0	85%	2.62
Pressure Relief Valves	Gas	0.104	30	5	97%	0.93
Connectors	All	0.00183	4,234	1,017	97%	2.34
Open-ended Lines	All	0.0017	0	0	97%	0.00
Sampling Connections	All	0.015	9	4	97%	0.04
<b>Total</b>						<b>8.46</b>

Speciation <sup>f</sup>	Propane Refrigeration System - Weight %	Amine Treatment System - Weight %
Methane		
Ethane	1%	
Propane	97%	
i-Butane	2%	
DEA		20%
Water		80%
<b>Total VOC</b>	<b>99%</b>	<b>20%</b>
<b>Total GHG</b>	<b>0%</b>	<b>0%</b>

<sup>a</sup> Emission Factors from EPA's *Protocol for Equipment Leak Emission Estimates*, EPA-453/R-95-017, Table 2-1

<sup>b</sup> Gas/vapor - material in a gaseous state at operating conditions

<sup>c</sup> Light liquid - material in a liquid state in which the sum of the concentration of individual constituents with a vapor pressure over 0.3 kilopascals (kPa) at 20 degree C is greater than or equal to 20 weight percent

<sup>d</sup> Heavy liquid - not in gas/vapor service or light liquid service

<sup>e</sup> Control Efficiency from Texas Commission on Environmental Quality (TCEQ) 28VHP Leak Detection and Repair Program.

<sup>f</sup> The composition (weight %) is an engineering estimate only and should not be considered a permit representation.

Equipment Type	Service	Emission Factor (kg/hr/source) <sup>a</sup>	Natural Gas Component Counts	CO <sub>2</sub> e Emissions (tons/year)
Valves	Gas	4.50E-03	2,002	2,175
Pump Seals	Gas	2.40E-03	0	0.00
Others <sup>b</sup>	Gas	8.80E-03	132	280.42
Connectors	Gas	2.00E-04	0	0.00
Flanges	Gas	3.90E-04	4,323	407.00
Open-ended Lines	Gas	2.00E-03	3	1.45
				<b>2,864</b>

<sup>a</sup> Emission Factors from EPA's *Protocol for Equipment Leak Emission Estimates*, EPA-453/R-95-017, Table 2-4

<sup>b</sup> The "other" equipment type was derived from compressors, diaphragms, drains, dump arms, hatches, instruments, meters, pressure relief valves, polished rods, relief valves, and vents.



Sunoco Partners Marketing & Terminals L.P.  
ME-2X Project  
December 2017  
Flare Emissions Summary

New Cold Flare	MMBtu/hr	Emissions (TPY)				
		NO <sub>x</sub>	CO	VOC	SO <sub>2</sub>	CO <sub>2</sub> e
ME-2X HP Cold Flare						
Pilot & Purge Continuous Flows	0.78	0.23	1.06	0.03	0.002	449
Sweep Continuous Flows	7.98	2.38	10.83	0.31	0.02	4,962
Operational & Maintenance Flows	0.42	0.12	0.57	0.56	2.8E-07	231
ME-2X LP Cold Flare						
Pilot & Purge Continuous Flows	0.54	0.16	0.73	0.02	0.001	309
Sweep Continuous Flows	1.42	0.42	1.93	0.06	0.004	886
Operational & Maintenance Flows	5.14	1.53	6.98	1.01	0	2,762
Total	16.29	4.85	22.11	1.99	0.03	9,600

Incremental Flows to West Warm Flare	MMBtu/hr	Emissions (TPY)				
		NO <sub>x</sub>	CO	VOC	SO <sub>2</sub>	CO <sub>2e</sub>
Sweep Continuous Flows	0.54	0.16	0.74	0.02	0.001	337
Operational & Maintenance Flows	0.49	0.15	0.66	0.10	0	263
<b>Total</b>	<b>1.03</b>	<b>0.31</b>	<b>1.40</b>	<b>0.12</b>	<b>0.001</b>	<b>599</b>

	ME-2X HP Cold		ME-2X LP Cold		Notes
	Flare	Value	Flare	Value	
<b>Continuous Flow</b>					
[A] Pilot Flow Rate	=	500		500	Design
[B] Purge Flow Rate	=	261		24	Design
[C] Total Flow	=	0.0008		0.0005	= ([A] + [B]) / 1,000,000
[D] Total Flow	=	32.9		22.6	= ([A] + [B]) / 385 * [F]
[E] HHV (natural gas)	=	1026		1026	40 CFR Part 98, Table C-1
[F] Molecular weight (natural gas)	=	16.65		16.65	Supplier Data
[G] Heating Duty	=	0.78		0.54	= [C] * [E]
[H] Annual Heating Duty	=	6,837		4,707	= [G] * 8760
<b>Flare Emissions</b>					
[I] NO <sub>x</sub> Emission Factor	=	0.068		0.068	AP-42 Ch 13.5, Table 13.5-1
[J] VOC Destruction Efficiency	=	98%		98%	Compliance with 40 CFR 60.18
[K] VOC Content of natural gas	=	1%		1%	Composition Data
[L] CO Emission Factor	=	0.31		0.31	AP-42 Ch 13.5, Table 13.5-2 (Updated April 2015)
[M] SO <sub>2</sub> Emission Factor	=	0.0006		0.0006	AP-42 Table 1.4-2 (converted to lb/MMBtu)
[N] NO <sub>x</sub> Emission Rate	=	0.05		0.04	= [G] * [I]
[O] VOC Emission Rate	=	0.01		0.005	= [D] * (1 - [J]) * [K]
[P] CO Emission Rate	=	0.24		0.17	= [G] * [L]
[Q] SO <sub>2</sub> Emission Rate	=	0.0005		0.0003	= [G] * [M]
[R] NO <sub>x</sub> Emissions	=	0.23		0.16	= [N] * 8760 / 2000
[S] VOC Emissions	=	0.03		0.02	= [O] * 8760 / 2000
[T] CO Emissions	=	1.06		0.73	= [P] * 8760 / 2000
[U] SO <sub>2</sub> Emissions	=	0.002		0.001	= [Q] * 8760 / 2000
[V] Volumetric CO <sub>2</sub> Emissions <sup>1</sup>	=	6,530,309		4,495,766	40 CFR Part 98, Equation W-20
[W] Volumetric CH <sub>4</sub> Emissions <sup>1</sup>	=	133,272		91,750	40 CFR Part 98, Equation W-19
[X] N <sub>2</sub> O Emission factor for Natural Gas	=	0.0001		0.0001	40 CFR Part 98, Equation W-40
[Y] CO <sub>2</sub> Emissions	=	379		261	40 CFR Part 98, Equation W-36
[Z] CH <sub>4</sub> Emissions	=	2.82		1.94	40 CFR Part 98, Equation W-36
[AA] CH <sub>4</sub> Global Warming Potential	=	25		25	40 CFR Part 98, Table A-1
[AB] N <sub>2</sub> O Emissions	=	0.001		0.001	40 CFR Part 98, Equation W-40
[AC] N <sub>2</sub> O Global Warming Potential	=	298		298	40 CFR Part 98, Table A-1
[AD] CO <sub>2</sub> e Emissions	=	449		309	= [Y] + [Z] * [AA] + [AB] * [AC]

<sup>1</sup> Assuming composition of 100% methane.

## Flare Sweep Gas Flow Emissions

Sweep Gas Flow		ME-2X HP Cold Flare	ME-2X LP Cold Flare	ME-2X HP Warm Flare	Notes
[A]	Natural Gas Mass Flow	= 3,106,449	554,723	210,795	Engineering Analysis
[B]	Natural Gas Volume Flow	8,400	1,500	570	Engineering Analysis
[C]	Natural Gas HHV	22,500	22,500	22,500	Engineering Analysis
[D]	Heating Duty (Natural Gas)	69,895	12,481	4,743	= [A] * [C] / 1000000
[E]	Operating Hours	8,760	8,760	8,760	Assumption
[F]	SPMT Heating Duty	7.98	1.42	0.54	= [D] / [E]
Flare Emissions		Value	Value	Value	Notes
[G]	NO <sub>x</sub> Emission Factor	0.068	0.068	0.068	AP-42 Ch 13.5, Table 13.5-1
[H]	VOC Destruction Efficiency	98%	98%	98%	Compliance with 40 CFR 60.18
[I]	VOC Content of natural gas	1%	1%	1%	Composition Data
[J]	CO Emission Factor	0.31	0.31	0.31	AP-42 Ch 13.5, Table 13.5-2 (Updated April 2015)
[K]	SO <sub>2</sub> Emission Factor	0.0006	0.0006	0.0006	AP-42 Table 1.4-2 (converted to lb/MMBtu)
[L]	NO <sub>x</sub> Emission Rate	0.54	0.10	0.04	= [F] * [G]
[M]	VOC Emission Rate	0.07	0.01	0.005	= [A] / [E] * (1 - [H]) * [I]
[N]	CO Emission Rate	2.47	0.44	0.17	= [F] * [J]
[O]	SO <sub>2</sub> Emission Rate	0.0047	0.0008	0.0003	= [F] * [K]
[P]	NO <sub>x</sub> Emissions	2.98	0.42	0.16	= [L] * 8760/2000
[Q]	VOC Emissions	0.31	0.06	0.02	= [M] * 8760/2000
[R]	CO Emissions	10.83	1.93	0.74	= [N] * 8760/2000
[S]	SO <sub>2</sub> Emissions	0.02	0.004	0.001	= [O] * 8760/2000
[T]	Volumetric CO <sub>2</sub> Emissions <sup>1</sup>	72,112,320	12,877,200	4,893,336	40 CFR Part 98, Equation W-20
[U]	Volumetric CH <sub>4</sub> Emissions <sup>1</sup>	1,471,680	262,800	99,864	40 CFR Part 98, Equation W-19
[V]	N <sub>2</sub> O Emission factor for Natural Gas	0.0001	0.0001	0.0001	40 CFR Part 98, Equation W-40
[W]	CO <sub>2</sub> Emissions	4,181	747	284	40 CFR Part 98, Equation W-36
[X]	CH <sub>4</sub> Emissions	31.15	5.56	2.11	40 CFR Part 98, Equation W-36
[Y]	CH <sub>4</sub> Global Warming Potential	25	25	25	40 CFR Part 98, Table A-1
[Z]	N <sub>2</sub> O Emissions	0.0077	0.0014	0.0005	40 CFR Part 98, Equation W-40
[AA]	N <sub>2</sub> O Global Warming Potential	298	298	298	40 CFR Part 98, Table A-1
[AB]	CO <sub>2</sub> e Emissions	4,962	886	337	= [W] + [X] * [Y] + [Z] * [AA]

Operational & Maintenance Flow		ME-2X HP Cold Flare	ME-2X LP Cold Flare	ME-2X HP Warm Flare	Notes
		Value	Value	Value	Units
[A]	Ethane Mass Flow	79,768	1,923,820	183,600	lb/yr Engineering Analysis
[B]	Methane Mass Flow	29,200	7,300	0	lb/yr Engineering Analysis
[C]	Natural Gas Mass Flow	43	0	0	lb/yr Engineering Analysis
[D]	Propane Mass Flow	56,075	101,254	9,663	lb/yr Engineering Analysis
[E]	Ethane HHV	22,198	22,198	22,198	Btu/lb Engineering Analysis
[F]	Methane HHV	23,811	23,811	23,811	Btu/lb Engineering Analysis
[G]	Natural Gas HHV	22,500	22,500	22,500	Btu/lb Engineering Analysis
[H]	Propane HHV	21,564	21,564	21,564	Btu/lb Engineering Analysis
[I]	Ethane Heating Duty	1,771	42,705	4,076	MMBtu/yr = [A] * [E] / 1000000
[J]	Methane Heating Duty	695	174	0	MMBtu/yr = [B] * [F] / 1000000
[K]	Natural Gas Heating Duty	0.97	0	0	MMBtu/yr = [C] * [G] / 1000000
[L]	Propane Heating Duty	1,209	2,183	208	MMBtu/yr = [C] * [H] / 1000000
[M]	Total Heating Duty	3,676	45,062	4,284	MMBtu/yr = [I] + [J] + [K] + [L]
[N]	Operating Hours	8,760	8,760	8,760	hrs/yr Assumption
[O]	SPMT Heating Duty	0.42	5.14	0.49	MMBtu/hr = [M] / [N]

Flare Emissions		Value	Units	Notes
[P]	NO <sub>x</sub> Emission Factor	0.068	lb/MMBtu	AP-42 Ch 13.5, Table 13.5-1
[Q]	VOC Destruction Efficiency	98%	% DRE	Compliance with 40 CFR 60.18
[R]	VOC Content of natural gas	1%	% VOC	Composition Data
[S]	CO Emission Factor	0.31	lb/MMBtu	AP-42 Ch 13.5, Table 13.5-2 (Updated April 2015)
[T]	SO <sub>2</sub> Emission Factor (Natural Gas Only)	0.0006	lb/MMBtu	AP-42 Table 1.4-2 (converted to lb/MMBtu)
[U]	NO <sub>x</sub> Emission Rate	0.03	lb/hr	= [O] * [P]
[V]	VOC Emission Rate	0.13	lb/hr	= ([([C] * [R]) + [D]) * (1 - [Q])) / [N]
[W]	CO Emission Rate	1.59	lb/hr	= [O] * [S]
[X]	SO <sub>2</sub> Emission Rate	0	lb/hr	= [K] * [T] / [N] (Natural gas only)
[Y]	NO <sub>x</sub> Emissions	1.53	TPY	= [U] * 8760 / 2000
[Z]	VOC Emissions	1.01	TPY	= [V] * 8760 / 2000
[AA]	CO Emissions	6.98	TPY	= [W] * 8760 / 2000
[AB]	SO <sub>2</sub> Emissions	0	TPY	= [X] * 8760 / 2000
[AC]	Volumetric CO <sub>2</sub> Emissions	3,848,304	scf CO <sub>2</sub> /year	40 CFR Part 98, Equation W-20
[AD]	CO <sub>2</sub> density	0.0526	kg/scf	40 CFR Part 98 (t)
[AE]	CO <sub>2</sub> Emissions	223	TPY	40 CFR Part 98, Equation W-36
[AF]	Volumetric CH <sub>4</sub> Emissions	13,817	scf CH <sub>4</sub> /year	40 CFR Part 98, Equation W-19
[AG]	CH <sub>4</sub> Density	0.0192	kg/scf	40 CFR Part 98 (t)
[AH]	CH <sub>4</sub> Emissions	0.29	TPY	40 CFR Part 98, Equation W-36
[AI]	CH <sub>4</sub> Global Warming Potential	25		40 CFR Part 98, Table A-1
[AJ]	N <sub>2</sub> O Emission Factor	0.0001	kg/MMBtu	40 CFR Part 98, Equation W-40
[AK]	N <sub>2</sub> O Emissions	0.0004	TPY	40 CFR Part 98, Equation W-40
[AL]	N <sub>2</sub> O Global Warming Potential	298		40 CFR Part 98, Table A-1
[AM]	CO <sub>2</sub> e Emissions	231	TPY	= [AE] + [AH] * [AI] + [AK] * [AL]

Sunoco Partners Marketing & Terminals L.P.

ME-2X Project

December 2017

Wet Surface Air Cooler System

Parameter	Value
Number of Units	1
Design Water Flow Rate (gpm)	21,000
Design Water Flow Rate in VOC-service (gpm)	0
Cooling Tower Drift Rate (% of circulating water)	0.0005
Total Dissolved Solids (ppm)	200
Cycles of Concentration Ratio (tower/makeup water)	6
VOC EF (lb/MMgal)	0.7
PM <sub>10</sub> Fraction	0.7763
PM <sub>2.5</sub> Fraction	0.0024

Parameter	PM <sup>1</sup>	PM <sub>10</sub> <sup>2</sup>	PM <sub>2.5</sub> <sup>2</sup>	VOC
Hourly (lb/hr)	0.06	0.05	0.0002	0
Daily (lb/day)	1.51	1.18	0.004	0
Annual (tpy)	0.28	0.21	0.001	0

<sup>1</sup> PM calculated based on flow rate, drift rate, and total dissolved solids.

<sup>2</sup> Reisman, J. and Frisbie, G., "Calculating Realistic PM10 Emissions From Cooling Towers."

Factors:

60 min/hr  
8.345 water density (CWS)  
8760 hr/yr  
2000 lb/ton

Example from Reisman/Frisbie Paper

	Eq2	Eq 3	Eq 4		Eq 7	
EPRI Droplet Diameter (μm)	Droplet Volume (μm <sup>3</sup> )	Droplet Mass (μg)	Particle Mass (Solids) (μg)	Solid Particle Volume (μm <sup>3</sup> )	Solid Particle Diameter (μm)	EPRI % Mass Smaller
10	524	5.24E-04	6.29E-07	0.29	0.817	0.000
20	4189	4.19E-03	5.03E-06	2.29	1.634	0.196
30	14137	1.41E-02	1.70E-05	7.72	2.452	0.226
40	33510	3.35E-02	4.02E-05	18.29	3.269	0.514
50	65450	6.55E-02	7.86E-05	35.72	4.086	1.816
60	113097	1.13E-01	1.36E-04	61.73	4.903	5.702
70	179594	1.80E-01	2.16E-04	98.02	5.721	21.348
90	381704	3.82E-01	4.58E-04	208.33	7.355	49.812
110	696910	6.97E-01	8.37E-04	380.36	8.989	70.509
130	1150347	1.15E+00	1.38E-03	627.84	10.624	82.023
150	1767146	1.77E+00	2.12E-03	964.48	12.258	88.012
180	3053628	3.06E+00	3.67E-03	1666.61	14.710	91.032
210	4849048	4.85E+00	5.82E-03	2646.52	17.162	92.468
240	7238229	7.24E+00	8.69E-03	3950.49	19.613	94.091
270	10305995	1.03E+01	1.24E-02	5624.82	22.065	94.689
300	14137167	1.41E+01	1.70E-02	7715.80	24.517	96.288
350	22449298	2.25E+01	2.70E-02	12252.41	28.603	97.011
400	33510322	3.35E+01	4.02E-02	18289.32	32.689	98.340
450	47712938	4.77E+01	5.73E-02	26040.84	36.775	99.071
500	65449847	6.55E+01	7.86E-02	35721.32	40.861	99.071
600	113097336	1.13E+02	1.36E-01	61726.44	49.033	100.000

PM2.5  
0.24

PM10  
77.63

Constants:

PI 3.14159  
Density of water 1.000600  
Total Dissolved Solids (ppm) 1,200 Test  
Density of TDS 2.2

Sunoco Partners Marketing & Terminals L.P.

ME-2X Project

December 2017

Auxiliary Boiler Emissions

ME-2X Project	Steam Demand (lb/hr)
Dehydrator regeneration vaporizer	2,941
Amine stripper tower reboiler	706
Steam Tracing	9,500
<b>Total ME-2X Project Steam Demand</b>	<b>13,147</b>

Project	Plan Approval	Steam Demand (lb/hr)
Project Mariner and Base Facility	23-0119	210,000
Project Mariner - Deethanizer	23-0119A	62,000
Natural Gasoline Project	23-0119B	53,000
Project Mariner - Cooling Tower	23-0119C	0
New Tanks Project	23-0119D	17,000
ETP Project Revolution and SXL Depropanizer Project	23-0119E	238,700
Storage Tank Update	23-0119F	0
Crude Storage	23-0119G	0
Flare Replacement (Warm Flare)	23-0119H	0
Methanol Removal Project	RFD 6484	2,292
ME-2X Project	23-0119I	13,147
<b>Total MHIC Steam Demand</b>		<b>596,139</b>

Auxiliary Boiler Emissions (AB1, AB3, AB4)	Average Emission Factors (lb/lb steam)	2009/2010 Baseline Average (BAE)	Total Future Expected Emissions (FEE) <sup>3</sup>	Baseline to Future Expected Difference (FEE - BAE) <sup>4</sup>	TV Operating Permit Limits for Auxiliary Boilers (TPY)
Steam Demand (lb/hr)	---	637,714	596,139	-41,575	---
NO <sub>x</sub> (TPY)	2.45E-05	68.31	63.86	-4.45	92.71
SO <sub>2</sub> (TPY)	6.07E-07	1.70	1.59	-0.11	41.10
VOC (TPY)	7.48E-07	2.09	1.95	-0.14	5.49
CO (TPY)	2.94E-06	8.21	7.68	-0.54	107.61
PM/PM <sub>10</sub> /PM <sub>2.5</sub> (TPY)	4.49E-06	12.54	11.72	-0.82	21.94
H <sub>2</sub> SO <sub>4</sub> (TPY)	3.69E-08	0.10	0.10	-0.01	3.15
CO <sub>2e</sub> (metric TPY)	7.60E-02	212,276	198,437	-13,839	---
CO <sub>2e</sub> (TPY)	8.38E-02	233,994	218,739	-15,255	---
Lead (TPY)	2.26E-11	6.32E-05	5.90E-05	-4.12E-06	---
HAP (TPY)	6.27E-07	1.75	1.64	-0.11	---

1 - The term "Project Actual Emissions (PAE)" only applies to emission sources that are "new" or "modified". The Auxiliary Boilers are not considered modified; therefore, SPMT represents the incremental emissions from the Auxiliary Boilers from each project as "Future Expected Emissions (FEE)".

2 - The total overall MHIC steam demand (604,962 lb/hr) is less than the baseline steam demand (637,714 lb/hr). For emissions sources that have not been modified where the baseline emission rates remain the same, it is not possible to have emissions increases when the future expected activity level is less than the baseline activity level.

3 - The Baseline to Future Expected Emissions analysis shows a decrease in emissions (negative numbers shown in red to illustrate this). For the total of all current and future permitted projects to date, the Auxiliary Boilers are not expected to operate at an activity level greater than the baseline activity level. Because the total steam demand does not result in a "significant emissions increase" or a "significant net emissions increase" at the Auxiliary Boilers, then the PSD/NSR regulations at 40 CFR 52.21 or 25 Pa Code 127.203a do not apply to those sources. For these reasons presented here, no emissions increases should be represented from the Auxiliary Boilers for permitting purposes.

4 - Title V Operating Permit Limits found in Permit #23-00119 for the combined emissions from Source IDs 031, 033, and 034 are shown for reference.

*Attachment E*  
*Contemporaneous Emissions*  
*Tables*

**Table E-1**  
**Evaluation of Applicability of 40 CFR §52.21**  
**Facility Emission Aggregation Occurring Within 5 Years of Application**  
**Marcus Hook Industrial Complex**

PA/ RFD No.	Source Description	Date	Emission Rates							
			NO <sub>2</sub> (tons/ yr)	SO <sub>2</sub> (tons/ yr)	CO (tons/ yr)	PM (tons/ yr)	PM <sub>10</sub> (tons/ yr)	H <sub>2</sub> SO <sub>4</sub> (tons/ yr)	Lead (tons/ yr)	CO <sub>2</sub> e (tons/ yr)
Marcus Hook Industrial Complex										
Pa23-0001AD	CO controls for 6 WWT A diesels	5/17/2012	0.44	0.53	-1.27	0.05	0.05			363.81
ERC Application	Shutdown of Delaware Sources (SRU1/SRU2, Ethylene Cooling Tower, 17-1P heater, 17-1P Cooling Tower)	11/ 5/ 2012	-29.29	-20.62	-17.52	-3.93	-3.93			-20,425
Pa23-0119	Project Mariner - Ethane/Propane Storage	2/5/2013	0.02	0.00	0.09	0.00	0.00			48.02
Pa23-0119A	Project Mariner - Deethanizer	9/5/2013	0.00	0.00	0.00	0.00	0.00			13.29
Pa23-0119B	Natural Gasoline	1/30/2014	24.40	39.40	99.40	8.13	8.13			74,400
Pa23-0119C	Project Mariner - Cooling Tower	11/19/2014	0.00	0.00	0.00	0.25	0.23	0.00	0.00	0
Pa23-0119D	New Tanks Project	2/26/2015	0.09	0.0008	0.50	0.40	0.38	0.00	0.00	178
RFD 5236	New Spheres Project	8/13/2015	---	---	---	---	---	---	---	---
RFD 5340	Tank 609 Vapor Pressure Update	10/1/2015	---	---	---	---	---	---	---	---
De Minimis	607/ 611 Tanks Bridge	1/13/2016	---	---	---	---	---	---	---	---
Pa23-0119E	ETP Project Revolution/SXL Depropanizer Project	4/1/2016	0.27	0.002	1.23	0.86	0.83	0.00	0.00	556
RFD 5597	15-2B Cooling Tower Expansion	4/11/2016	---	---	---	-0.04	-0.04	---	---	---
Pa23-0119F	Storage Tank Update Plan Approval	8/16/2016	---	---	---	---	---	---	---	---
RFD 5865	Diesel Tanks and Pumps	8/29/2016	1.56	---	0.32	0.03	---	---	---	---
Pa23-0119G	Crude Storage Plan Approval	Sept. 2016	---	---	---	---	---	---	---	---
RFD 5918	Increased Propane Railcar Offloading Spots	9/26/2016	0.0004	---	2.0E-03	---	---	---	---	0.92
RFD 5944	Portable Flare for Metering Maintenance	9/26/2016	0.0002	---	1.0E-05	---	---	---	---	0.48
De Minimis	Mobile Thermal Oxidizer	10/3/2016	---	---	---	---	---	---	---	---
De Minimis	Crude Pump	11/14/2016	---	---	---	---	---	---	---	---
RFD 6484	Methanol Removal Project	8/17/2017	---	---	---	---	---	---	---	---
Pa23-0119H	Warm Flare Replacement Project Plan Approval	November 2017	7.16	0.03	32.64	0	0	0	0	14,616
Marcus Hook Industrial Complex 5-Year Sub-total			4.65	19.34	115.40	5.76	5.65	0.00	0.00	69,752
TOTAL			4.65	19.34	115.40	5.76	5.65	0.00	0.00	69,752
PSD Emission Thresholds			40	40	100	25	15	7	0.6	75,000

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**Table E-2**  
**Evaluation of Applicability of 25 PA Code §127.203(b)(1)(i)**  
**Facility Emission Aggregation for Consecutive 5 Calendar-Year Period**  
**Marcus Hook Industrial Complex**

Permit No.	Source Description	Date	Emission Rates	
			NO <sub>x</sub> (tons/yr)	VOC (tons/yr)
Marcus Hook Industrial Complex				
Pa23-0119	Project Mariner - Ethane/Propane Storage	2/5/2013	---	---
Pa23-0119A	Project Mariner - Deethanizer	9/5/2013	---	---
Pa23-0119B	Natural Gasoline <sup>1</sup>	1/30/2014	---	---
Pa23-0119C	Project Mariner - Cooling Tower <sup>2</sup>	11/19/2014	---	---
Pa23-0119D	New Tanks Project	2/26/2015	---	---
RFD 5236	New Spheres Project	8/13/2015	---	---
RFD 5340	Tank 609 Vapor Pressure Update <sup>3</sup>	10/1/2015	---	---
De Minimis	607/611 Tanks Bridge <sup>4</sup>	1/13/2016	---	---
Pa23-0119E	ETP Project Revolution/SXL Depropanizer Project <sup>5</sup>	4/1/2016	---	---
RFD 5597	15-2B Cooling Tower Expansion	4/11/2016	---	---
Pa23-0119F	Storage Tank Update Plan Approval <sup>6</sup>	8/16/2016	---	---
RFD 5865	Diesel Tanks and Pumps	8/29/2016	1.56	---
Pa23-0119G	Crude Storage Plan Approval	Sept. 2016	---	---
RFD 5918	Increased Propane Railcar Offloading Spots	9/26/2016	0.0004	---
RFD 5944	Portable Flare for Metering Maintenance	9/26/2016	0.0002	---
De Minimis	Mobile Thermal Oxidizer	10/3/2016	---	---
De Minimis	Crude Pump	11/14/2016	---	---
RFD 6484	Methanol Removal Project	8/17/2017	---	---
Pa23-0119H	Flare Replacement Project Plan Approval <sup>7</sup>	November 2017	7.16	0
Marcus Hook Industrial Complex 5-Calendar Year Sub-total			8.72	0.00
	TOTAL		8.72	0.00
	NSR Emission Thresholds		25	25

Notes:

<sup>1</sup> The Natural Gasoline Project triggered NANSR requirements for ozone for the precursor VOC. SPMT provided VOC offsets for the project and contemporaneous emissions of VOC.

<sup>2</sup> SPMT surrendered 7.17 tons of VOC offsets for the 5.52 tons of VOC increases from the cooling tower as it is considered a contemporaneous increase associated with Project Mariner that would have been offset as part of the Natural Gasoline Project permitting.

<sup>3</sup> The VOC emission limit Tank 609 was increased to 5.02 TPY with Request for Determination (RFD) No. 5340 on October 1, 2015. This Storage Tank Update Plan Approval (23-0119F) revised and superseded the VOC emission limit approved by RFD No. 5340.

<sup>4</sup> The emissions for Tank 607 and Tank 611 were offset as part of the Storage Tank Update Plan Approval (23-0119F).

<sup>5</sup> ETP Project Revolution/SXL Depropanizer Project triggered NANSR requirements for ozone for the precursors NO<sub>x</sub> and VOC. SPMT provided NO<sub>x</sub> and VOC offsets for the projects and contemporaneous emissions from 2011 through 2015.

<sup>6</sup> The Storage Tank Update Plan Approval (23-0119F) is linked to Natural Gasoline Project because the VOC emissions limits set forth for Tanks 607, 609, and 611 in the Natural Gasoline Plan Approval (23-0119B) were revised. A total of 17.77 tons of VOC offsets were surrendered for the 13.67 tons VOC emissions increase from those three storage tanks.

<sup>7</sup> The Flare Replacement Project triggered NANSR requirements for ozone for the precursor VOC. SPMT provided VOC offsets for the project and contemporaneous emissions of VOC.

**Table E-3**  
**Evaluation of Applicability of 25 PA Code §127.203(b)(1)(ii)**  
**Facility Emission Aggregation Occurring Within 10 Years of Application**  
**Marcus Hook Industrial Complex**

Permit No.	Source Description	Date	Emission Rates	
			NO <sub>x</sub> (tons/yr)	VOC (tons/yr)
Marcus Hook Industrial Complex				
Pa23-0001AA	12 - 3 New Cooling Tower 10/28/2009	10/28/2009	---	---
Pa23-0001AD	CO controls for 6 WWTAs diesels	5/17/2012	---	---
ERC Application	Shutdown of Delaware Sources (SRU1/SRU2, Ethylene Cooling T	11/5/2012	-29.29	---
Pa23-0119	Project Mariner - Ethane/Propane Storage	2/5/2013	---	---
Pa23-0119A	Project Mariner - Deethanizer	9/5/2013	---	---
Pa23-0119B	Natural Gasoline <sup>1</sup>	1/30/2014	---	---
Pa23-0119C	Project Mariner - Cooling Tower <sup>2</sup>	11/19/2014	---	---
Pa23-0119D	New Tanks Project	2/26/2015	---	---
RFD 5236	New Spheres Project	8/13/2015	---	---
RFD 5340	Tank 609 Vapor Pressure Update <sup>3</sup>	10/1/2015	---	---
De Minimis	607/611 Tanks Bridge <sup>4</sup>	1/13/2016	---	---
Pa23-0119E	ETP Project Revolution/SXL Depropanizer Project <sup>5</sup>	4/1/2016	---	---
RFD 5597	15-2B Cooling Tower Expansion	4/11/2016	---	---
Pa23-0119F	Storage Tank Update Plan Approval <sup>6</sup>	8/16/2016	---	---
RFD 5865	Diesel Tanks and Pumps	8/29/2016	1.56	---
Pa23-0119G	Crude Storage Plan Approval	Sept. 2016	---	---
RFD 5918	Increased Propane Railcar Offloading Spots	9/26/2016	0.0004	---
RFD 5944	Portable Flare for Metering Maintenance	9/26/2016	0.0002	---
De Minimis	Mobile Thermal Oxidizer	10/3/2016	---	---
De Minimis	Crude Pump	11/14/2016	---	---
RFD 6484	Methanol Removal Project	8/17/2017	---	---
Pa23-0119H	Flare Replacement Project Plan Approval <sup>7</sup>	November 2017	7.16	0
Marcus Hook Industrial Complex 5-Calendar Year Sub-total			-20.57	0.00
	TOTAL		-20.57	0.00
	NSR Emission Thresholds		25	25

Notes:

<sup>1</sup> The Natural Gasoline Project triggered NANSR requirements for ozone for the precursor VOC. SPMT provided VOC offsets for the project and contemporaneous emissions of VOC.

<sup>2</sup> SPMT surrendered 7.17 tons of VOC offsets for the 5.52 tons of VOC increases from the cooling tower as it is considered a contemporaneous increase associated with Project Mariner that would have been offset as part of the Natural Gasoline Project permitting.

<sup>3</sup> The VOC emission limit Tank 609 was increased to 5.02 TPY with Request for Determination (RFD) No. 5340 on October 1, 2015. This Storage Tank Update Plan Approval (23-0119F) revised and superseded the VOC emission limit approved by RFD No. 5340.

<sup>4</sup> The emissions for Tank 607 and Tank 611 were offset as part of the Storage Tank Update Plan Approval (23-0119F).

<sup>5</sup> ETP Project Revolution/SXL Depropanizer Project triggered NANSR requirements for ozone for the precursors NO<sub>x</sub> and VOC. SPMT provided NO<sub>x</sub> and VOC offsets for the projects and contemporaneous emissions from 2011 through 2015.

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<sup>7</sup> The Flare Replacement Project triggered NANSR requirements for ozone for the precursor VOC. SPMT provided VOC offsets for the project and contemporaneous emissions of VOC.

*Attachment F*  
*Municipal and County*  
*Notifications*



RECEIVED  
DEC 15 2017

December 13, 2017

Josephine M. Laird  
President  
Borough Council  
Borough of Marcus Hook  
1015 Green Street  
Marcus Hook, Pennsylvania, U.S. 19061

**RE: Sunoco Partners Marketing & Terminals L.P. – Marcus Hook  
Municipal Notification**

Dear Ms. Laird:

In accordance with the Commonwealth of Pennsylvania's Administrative Code, Section 1905-A, please be advised that Sunoco Partners Marketing & Terminals, L.P., located in the Borough of Marcus Hook, Delaware County, Pennsylvania, has submitted an Application for Plan Approval in order to construct and operate ethane storage tanks and associated equipment at its Marcus Hook Industrial Complex.

This letter serves to satisfy the requirements in DEP 127.43a for municipal and county notification upon application for a Plan Approval Application. A 30 day comment period begins upon receipt of this notice.

Please contact me at 610-670-3297 if you require any additional information on this matter.

Sincerely,

A handwritten signature in cursive script, reading 'Jed A. Werner'.

Jed A. Werner,  
Air Permitting Manager



RECEIVED  
DEC 15 2017

December 14, 2017

Dear Customer:

The following is the proof-of-delivery for tracking number **770984675898**.

---

**Delivery Information:**

<b>Status:</b>	Delivered	<b>Delivered to:</b>	Receptionist/Front Desk
<b>Signed for by:</b>	C.PACE	<b>Delivery location:</b>	1015 GREEN ST MARCUS HOOK, PA 19061
<b>Service type:</b>	FedEx Priority Overnight	<b>Delivery date:</b>	Dec 14, 2017 15:04
<b>Special Handling:</b>	Deliver Weekday		

---

**Shipping Information:**

<b>Tracking number:</b>	770984675898	<b>Ship date:</b>	Dec 13, 2017
		<b>Weight:</b>	0.5 lbs/0.2 kg

**Recipient:**  
JOSEPHINE M. LAIRD, PRESIDENT  
BOROUGH OF MARCUS HOOK  
BOROUGH COUNCIL  
1015 GREEN STREET  
MARCUS HOOK, PA 19061 US  
**Reference**

**Shipper:**  
Missy Gonzalez  
Donna Bacon  
75 VALLEY STREAM PRKWY  
Suite 200  
Malvern, PA 19355 US  
0410329

Thank you for choosing FedEx.



December 13, 2017

Mario Civera, Jr., Chairman  
Delaware County Council  
201 West Front Street  
Media, PA 19063

RECEIVED  
DEC 15 2017

**RE: Sunoco Partners Marketing & Terminals L.P. – Marcus Hook  
County Notification**

Dear Mr. Civera, Jr.:

In accordance with the Commonwealth of Pennsylvania's Administrative Code, Section 1905-A, please be advised that Sunoco Partners Marketing & Terminals, L.P., located in the Borough of Marcus Hook, Delaware County, Pennsylvania, has submitted an Application for Plan Approval in order to construct and operate ethane storage tanks and associated equipment at its Marcus Hook Industrial Complex.

This letter serves to satisfy the requirements in DEP 127.43a for municipal and county notification upon application for a Plan Approval Application. A 30 day comment period begins upon receipt of this notice.

Please contact me at 610-670-3297 if you require any additional information on this matter.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jed A. Werner'.

Jed A. Werner,  
Air Permitting Manager



RECEIVED  
DEC 15 2017

December 14, 2017

Dear Customer:

The following is the proof-of-delivery for tracking number **770984738624**.

---

**Delivery Information:**

Status:	Delivered	Delivered to:	Shipping/Receiving
Signed for by:	D.WHITTAKER	Delivery location:	201 W FRONT ST MEDIA, PA 19063
Service type:	FedEx Priority Overnight	Delivery date:	Dec 14, 2017 10:19
Special Handling:	Deliver Weekday		

---

**Shipping Information:**

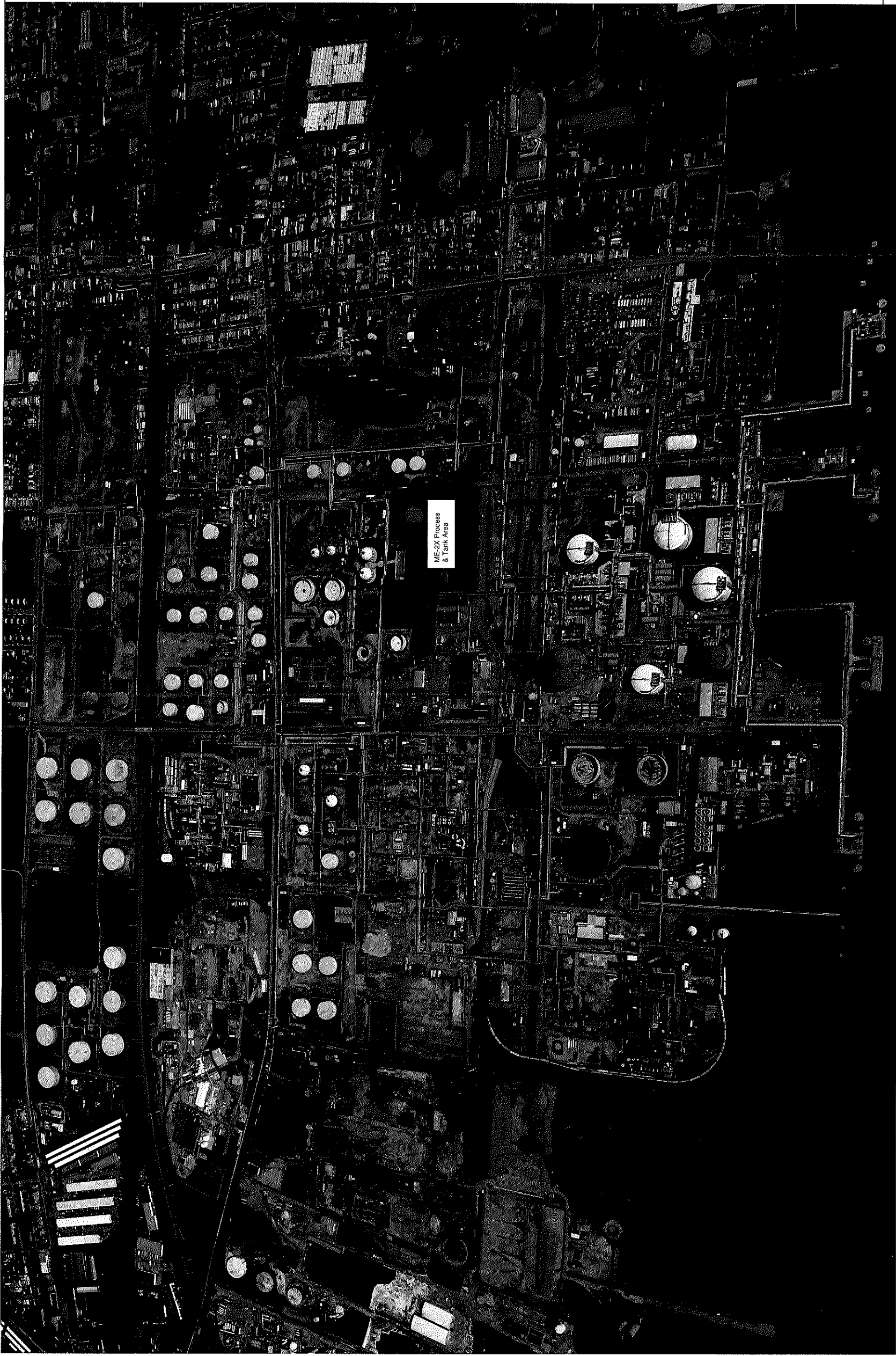
Tracking number:	770984738624	Ship date:	Dec 13, 2017
		Weight:	0.5 lbs/0.2 kg

**Recipient:**  
MARIO CIVERA, JR, CHAIRMAN  
DELAWARE COUNTY COUNCIL  
201 WEST FRONT STREET  
MEDIA, PA 19063 US

**Shipper:**  
Missy Gonzalez  
Donna Bacon  
75 VALLEY STREAM PRKWY  
Suite 200  
Malvern, PA 19355 US  
0410329 MCGROARTY

**Reference**


Thank you for choosing FedEx.



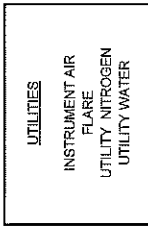
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PRELIMINARY - NOT  
FOR CONSTRUCTION

**BURNS  
MEDONNELL**  
9400 WARD PARKWAY  
KANSAS CITY, MO 64114  
916-333-9400  
100328

1	09/26/17	0350-03586-1	ISSUED FOR REFERENCE	DG
REV.	DATE	APP #	DESCRIPTION	APPROVAL
<div><b>Sunoco Logistics Partners L.P.</b></div> <div><b>MARCUS HOOK INDUSTRIAL COMPLEX</b> <b>ME-2X</b> <b>MECHANICAL</b> <b>PERMIT OVERVIEW PLOT PLAN</b></div>				
ENGINEERING RECORD				
DRAWN BY	J. STONE			
CHECKED BY	D. GILL			
APPROVED BY	R. FEECHER			
DATE	09/26/17			
SCALE	NO SCALE			
SCADA				
OLD DRAWING NO.				
DWG. NO.				
100328-PD-SK-003				
REV. NO.				1





<p align="center"><b>ETHANE TERMINAL</b> Block Flow Diagram</p> <p align="center">Sunoco Logistics - Marcus Hook, PA</p>		Drawing: SK-100-0002	Job Number: Sheet: 1 of 1	Rev. J
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