KINDER MORGAN
PLANTATION PIPE LINE COMPANY

February 17, 2016

Engineering Services Division Director
SC Department of Health and Environmental Control
Bureau of Air Quality
2600 Bull Street
Columbia, SC 29201

RECEIVED
FEB 26 2016
BUREAU OF AIR QUALITY

Subject: Palmetto Products Pipe Line LLC
Palmetto Belton Tank Farm and Pump Station
Construction Permit Application

Air Permit # 0200-0236

Dear Director:

Please find enclosed original and one (1) copy of the Construction Permit Application for the proposed Palmetto Products Pipe Line LLC's Palmetto Belton Tank Farm and Pump Station located in Belton, South Carolina. This new facility will consist of eight new petroleum product storage tanks and ancillary piping and pumps.

Also, please find attached original and one (1) copy of Expedited Review Request – Construction Permits form for this application. We understand that if chosen for expedited review, we will be notified by phone for verbal acceptance into the program and that the associated fee must be paid within five business days of acceptance.

Should you have any questions concerning this submittal, please call me at (704) 249-9936 or Joe Sullivan of AECOM at (919) 461-1237.

Sincerely,

Johnny Tapia,
Senior EHS Specialist
Kinder Morgan

Enclosures: Construction Permit Application (original and 1 copy)
Expedited Review Request – Construction Permits (original and 1 copy)

cc: Christopher Fleck – Kinder Morgan
Joe Sullivan – AECOM

AIR PERMIT APPLICATION

PALMETTO PRODUCTS PIPE LINE LLC
PALMETTO BELTON TANK FARM
AND PUMP STATION

FEBRUARY 2016

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1.0 INTRODUCTION

1.1 Permit Application

Palmetto Products Pipe Line LLC is submitting this permit application for the construction of a new tank farm facility located in Belton, South Carolina (Palmetto Belton Tank Farm and Pump Station). The new facility will consist of eight new petroleum product storage tanks and ancillary piping and pumps.

As discussed in this application, the new proposed storage tanks will trigger certain New Source Performance Standards (NSPS). The new tank farm facility is considered a minor stationary source of air emissions under the South Carolina Department of Health and Environmental Control (DHEC) regulations, and therefore must be processed in accordance with Regulation 61-62.1, Section II (A) Construction Permits and (C) Construction Permit Applications.

1.2 Application Organization

This application provides information required by the DHEC for construction permitting of the Palmetto Belton Tank Farm and Pump Station. This application is arranged as follows:

- Section 2.0 presents facility information, a description of the facility project operations, and information on all emissions sources at the Palmetto Belton Tank Farm and Pump Station.
- Section 3.0 discusses estimated potential emissions from the Palmetto Belton Tank Farm and Pump Station and emission calculation methodologies.
- Section 4.0 provides an assessment of regulatory applicability for this new facility.
- Appendix A presents the permit application forms.
- Appendix B includes an aerial photo and a general layout of the Palmetto Belton Tank Farm and Pump Station.
- Appendix C contains a summary of emissions calculations.
- Appendix D presents the Level 1 Modeling Analysis for the facility's air toxics listed in Standard No. 8, and includes a CD ROM containing modeling input and output files.
- Appendix E includes Safety Data Sheets (MSDS).
- Appendix F includes a copy of the Co-Location Applicability Determination letter issued by DHEC for the existing KMST Belton Terminal and the new proposed Palmetto Belton Tank Farm and Pump Station.

The location within this permit application of the information required in Section II.C.3.a through C.3.p (Construction Permit Applications) of Regulation 61-62.1 is described below in italics:

a. The facility name; and the name, mailing address, and telephone number of the owner or operator for the facility: *DHEC Form 2566 (Page 2 of 2).*

b. The location of the facility including its street address and the name, mailing address, and telephone number of the facility's contact person: *DHEC Form 2566 (Page 1 of 2).*

c. The facility's Federal Employer Identification Number or Federal Tax ID Number: *DHEC Form 2566 (Page 1 of 2).*

d. A description and the U. S. Standard Industrial Classification (SIC) Code and North American Industry Classification System (NAICS) Code of the products or product lines to be produced by the proposed sources covered by this application: *DHEC Form 2566 (Page 1 of 2).*

e. The facility's planned operating schedules: *Section 2.2 Proposed Project of this permit application report, and DHEC Form 2567 (Page 1 of 3).*

f. A description of the facility's proposed new or altered processes, including the physical and chemical properties and feed rate of the materials used and produced (in pounds per hour), from which the facility determined potential emissions: *Section 2.2 Proposed Project of this permit application report.*

g. A process flow diagram/production process layout of all new or altered sources showing the flow of materials and intermediate and final products. The process flow diagram/production process layout must identify all equipment, machines, and process steps or product lines within the production process; all product streams; all exhaust streams (emission points) including fugitive within the production process; all waste streams; and all control devices including inherent process control devices used within the production process: *Appendix B – Figure 3 (Flow Diagram).*

h. A detailed description of each proposed or existing source that is being altered, including the size and type along with the make and model of the source and any associated air pollution control equipment: *DHEC Form 2567 (Page 1 of 3).*

i. A description, including physical and chemical properties and the Chemical Abstract Service (CAS) number (if applicable), of all emissions from each proposed source or existing source that is being altered. Mass emission data and emission calculations, including the potential uncontrolled and controlled mass emission rate of each criteria pollutant and other air contaminants such as VOCs, toxic air pollutants (TAPs), and HAPs, that will be emitted from each source covered by the application. Emission calculations must be based on proper documentation that supports the basis of the emission rates such as stack test data, AP-42 emission factors, material balance, and/or engineering estimates. All assumptions used in the emission calculations must be provided. Fugitive emissions (for example, emissions from filling operations, pumps, valves, flanges, etc.) must be included in the emission calculations: *Section 3.0 - Emission Calculations of this permit application report, Appendix C Emission*

Calculations (including fugitive emissions), and Appendix D Safety Data Sheets (stress crack corrosion inhibitor, and fluorescent dye).

j. A description of all air pollution control devices or systems on the new or altered sources, whether inherent or add-on. The description shall include, but not be limited to, the manufacturer specifications and ratings, the engineering design and operating characteristics, the projected capture and destruction, the control or removal efficiencies at expected contaminant loading levels, and the monitoring data collection and recordkeeping necessary to ensure proper operation of the air pollution control devices: *Not applicable.*
k. Source information and calculations to demonstrate compliance with "Good Engineering Practice Stack Height" rules: *Not applicable.*

l. A description of each stack or vent related to the proposed and/or existing source(s), including the minimum anticipated height above ground, maximum anticipated internal dimensions, discharge orientation, exhaust volume flow rate, exhaust gas temperature, and rain protection device, if any: *DHEC Form 2573 (Page 3 of 5).*

m. Scale drawings showing a plan view of the property lines, the location of the source, all stacks, and other emission points related to the source: *Appendix B – Figure 1(Aerial Photo) and Figure 2 (General Layout).*

n. An air dispersion modeling analysis or other information demonstrating that emissions from the facility, including those in the application, will not interfere with the attainment or maintenance of any ambient air quality standard: *Section 4.7.6 (Regulation 61-62.5 - Standard No. 8 - Toxic Air Pollutants) of this permit application report, and Appendix D. All TAPs at the facility, except Benzene, will be emitted below the de minimis levels as listed in Table 1 of Appendix D of the DHEC's Air Quality Modeling Guidelines. Screening modeling using the EPA's SCREEN3 model was performed to compare and demonstrate that the modeled concentrations of benzene are below the Maximum Allowable Ambient Concentration (MAAC) of 150μg/m^3, and in compliance with Standard No. 8 for benzene.*

o. A summary of facility-wide potential uncontrolled and controlled emissions with a regulatory applicability determination: *DHEC Form 2569 (Page 1 of 6) and DHEC Form 2570.*

p. Other information as may be necessary for proper evaluation of the source as determined by the Department: *Appendix F –Co-Location Applicability Determination letter issued by DHEC.*

2.0 FACILITY INFORMATION AND PROJECT DESCRIPTION

The Palmetto Belton Tank Farm and Pump Station is owned by Palmetto Products Pipe Line LLC. Detailed information regarding the site location, facility operations and project description are provided in the following subsections.

2.1 Facility Location

The Palmetto Belton Tank Farm and Pump Station (SIC Code 4613) is located in Belton, Anderson County, South Carolina. The latitude of the facility front gate is (34.5521) 34 degrees 33 minutes 8 seconds and the longitude of the front gate is (-82.4940) -82 degrees 29 minutes 38 seconds.
Appendix B presents an aerial photo and general layout of the facility.

2.2 Proposed Project

The Palmetto Belton Tank Farm and Pump Station will receive gasoline and other refined petroleum products pumped from a nearby interstate common carrier pipeline system. The Palmetto Belton Tank Farm and Pump Station will receive denatured ethanol from the adjacent Kinder Morgan Southeast Terminals, LLC – Belton 1 facility via railcar unloading and pumping directly to a denatured ethanol storage tank to be located at the Palmetto Belton Tank Farm and Pump Station. It should be noted that ethanol may be received at the Palmetto Belton Tank Farm and Pump Station by other means in the future. These materials will be temporarily stored in tanks prior to shipment in a downstream multi-product pipeline. The emission sources associated with this facility are breakout storage tanks (withdrawal, standing, and landing emission losses), pipeline components (fugitives), and several small exempt storage tanks handling additives. The facility has the potential to operate seven days per week, 24 hours per day.

The tank farm will consist of eight petroleum product storage tanks: four (4) gasoline storage tanks, three (3) distillate fuel storage tanks, and one (1) denatured ethanol storage tank. The gasoline storage tanks will be three 150,000 bbl Regular Unleaded (RUL) storage tanks, and one 100,000 bbl Premium (PREM)/swing tank. The distillate fuel storage tanks will be comprised of two 125,000 bbl Ultra Low Sulfur Diesel (USLD) storage tanks, and one 100,000 bbl swing tank. Although it is likely that these distillate fuel tanks will only store distillate products, for purposes of permitting, Palmetto Pipe Line requests that all of the gasoline and distillate tanks be permitted to store gasoline, and diesel. All tanks storing petroleum petroleum products will have cable suspended internal floating roofs to minimize evaporative emissions. The ethanol storage tank will be an 80,000 bbl storage tank. There are also additional smaller tanks at the facility that will be used for miscellaneous purposes.

Also, the Tank Farm will have a butane blending injection system consisting of a railcar and truck butane offloading facility with 3 offloading points and 1 injection skid, and four (4) 90,000 gallon horizontal bullet tanks for storage. The butane storage vessels are pressurized vessels and therefore do not emit to the atmosphere. The skid mounted injection system is a closed system. The butane injection into the pipeline will increase the vapor pressure of the gasoline within federally allowable limits and levels used in potential-to-emit calculations presented in this application.

Minor fugitive emissions from equipment components (e.g., pumps, valves and connectors) in liquid butane and gasoline service will also be associated with the proposed new butane blending injection system.

In addition, emission sources at the facility will include minor fugitive emissions from equipment components throughout the terminal, as estimated by using EPA default emission factors. Several emissions sources and activities qualify for an exemption under Regulation 61-62.1, Section II (B) from the requirement to obtain a construction permit. The facility will have a processing capacity of up to 196,000 barrels per day of petroleum products.

The Palmetto Belton Tank Farm and Pump Station will likely require four buildings. The first building will be a warehouse with office space, restroom, garage and electrical/communications room. The second building will be an EDCC housing one VFD lineup for Unit #1, electrical distribution equipment and control panels. Most field equipment and instrumentation will wire to this EDCC, including: station & trap valves, meter runs and provers, manifold valves, boosters & Unit #1 valves, boosters & Unit #1 power and control, tank instrumentation, miscellaneous facility equipment & associated instrumentation. The third building will be an EDCC housing one VFD lineup for Unit #2, electrical distribution equipment and control panels. Field equipment and instrumentation associated with Unit #2 will wire to this EDCC, including: Unit #2 valves, Unit #2 power and control. The fourth building is a small sample house.

In addition, the following exempt activity/sources will be constructed at the facility:

- 5,000 gal stress crack corrosion inhibitor (SCCI) storage tank
- 500 bbl relief storage tank
- 8,000 gal sump storage tank
- 500 gal fluorescent dye storage tank
- 10,000 gal water draw storage tank
- 200 kW diesel-driven emergency generator
- 597 kW diesel-driven emergency fire pump engine

3.0 EMISSION CALCULATIONS

This section identifies each emission unit and discusses the calculation methodology to estimate maximum potential emissions. Appendix C presents a summary of the potential to emit emissions estimates from the Palmetto Belton Tank Farm and Pump Station.

3.1 Storage Tanks

For calculation purposes, volatile organic compounds (VOCs) emitted due to storage tank breathing and working losses were estimated using a spreadsheet following methodology and equations under the U.S. Environmental Protection Agency's (USEPA) AP-42 Section 7.1 (Organic Liquid Storage Tanks). For gasoline storage tanks, Reid Vapor Pressures (RVP) for the twelve months were conservatively estimated at 10, 12.5, and 14.5 RVP. The total throughput for gasoline tanks (501, 502, 503, and 504), and distillate tanks (505, 506, and 507) (whose emissions estimates were based on gasoline as a worst-case fuel) was conservatively assumed to be equal to 100% of the facility total fuel throughput.
VOC emissions from the denatured ethanol tank 508 were calculated assuming a mixture of 95% ethanol and 5% gasoline. Also, the annual throughputs used in the emissions estimates were assumed to be distributed evenly over the 12 month period. Except for tanks 504 and 505, emission estimates for internal floating roof (IFR) landings were based on the assumption of having an annual average of four landings per tank in the months of January, March, April, and September. Emissions estimates for tanks 504 and 505 include one floating roof drain dry landing every month.

Please note that the tank throughput values and annual average number of landings per tank indicated above were used strictly for emissions estimate purposes; therefore, to maintain operational flexibility at the facility, these throughput values and landings average number are not intended to be permit limits for individual tanks.

Appendix C includes a summary of estimated total VOC and Hazardous Air Pollutants (HAP) in tons per year from the storage tanks and calculations used for estimating storage tank emissions.

The facility also has some insignificant sources, including one (1) 10,000 water draw storage tank, one (1) 5,000 gal corrosion inhibitor storage tanks, one (1) 8,000 gal sump storage tank, and one (1) 500 gal fluorescent dye storage tank. VOC emissions from these tanks are below the 1,000 lb/month de minimis threshold. Appendix C includes also an emission estimate for these exempt storage tanks. Appendix E presents Safety Data Sheets (MSDS) for the products being stored in these insignificant sources.

3.2 Equipment Leaks

Fugitive emissions from the proposed emissions sources, including component counts of the butane blending injection system, were calculated using factors based on EPA Protocol for Equipment Leak Emission Estimates, Table 2-3, Marketing Terminal Average Emission Factors, EPA-453/R-95-017, November 1995. Component counts at the facility were estimated based on process knowledge. Estimated annual potential VOC and HAP fugitive emissions from equipment leaks are shown in Appendix C. Estimated potential HAP

emissions are calculated as the product of total VOC emissions and the speciation data (vapor weight percent) shown also in Appendix C.

3.3 Emergency Fire Pump Engine

Emissions from the emergency fire pump engine have been estimated using emission factors based on the emission limits specified in Table 4 of 40 CFR 60 Subpart IIII. Emission limits specified in the rule include a combined rate for NO_X + NMHC of 4.0 g/kW-hr. In order to provide conservative emissions estimates, the 6.4 g/kW-hr emission factor has been used for both NO_X and VOC. Because the engine is an emergency use engine, emissions have been estimated assuming maximum annual operations of 500 hours per year. Estimated potential criteria and HAP emissions, and GHG emissions are presented in Appendix C.

3.4 Emergency Generator

Emissions from the standby emergency generator have been estimated using emission factors based on EPA Tier 3 Standards. The standby emergency generator is certified as meeting Tier 3 Standards. Because the engine is an emergency use engine, emissions have been estimated assuming maximum annual operations of 500 hours per year. Estimated potential criteria and HAP emissions, and GHG emissions are presented in Appendix C.

4.0 REGULATORY ANALYSIS

4.1 Permit Application

This permit application is submitted to comply with the requirements specified in Regulation 61-62.1, Section II (C) regarding the construction of any stationary source.

4.2 NSR Applicability

New source review (NSR) applies to major sources and major modifications in attainment and non-attainment areas. Emissions of pollutants for which an area is designated attainment are subject to the Prevention of Significant Deterioration (PSD) regulation. Emissions of pollutants for which an area is designated non-attainment are subject to the Non-attainment New Source Review (NNSR) regulation.

Belton, Anderson County, South Carolina is designated an attainment area for all criteria pollutants, including ozone, for which VOC and NO_x are regulated precursor for ozone formation. Therefore, emissions from a new or modified source must be reviewed for applicability under PSD.

4.2.1 Prevention of Significant Deterioration (PSD)

As indicated before PSD applies to major stationary sources and major modifications at major stationary sources. Potential emissions for the Palmetto Belton Tank Farm and Pump Station are less than the major source definition of 250 tons per year for the air pollutant regulated under PSD; therefore, this regulation is not applicable.

A summary of the Potential to Emit (PTE) for the facility is presented in Table 4.1 below. A detailed summary of emissions is provided in the emission calculations in Appendix C.

Table 4.1 – VOC Facility Potential to Emit (PTE)

Emission Source	VOC PTE (ton/yr)
Tank 501	8.11
Tank 502	8.11
Tank 503	8.11
Tank 504	8.52
Tank 505	8.52
Tank 506	7.17
Tank 507	7.17
Tank 508	0.75
Exempt Sources (Storage Tanks)	2.89
Exempt Sources (Emergency Engines)	2.55
Fugitive Emissions (Piping)	0.22
FACILITY-WIDE TOTAL EMISSIONS	**62.11**

4.3 Title V Applicability

The potential emissions from the facility are less than the 100 ton per year Title V thresholds for all criteria pollutants (including VOC), and less than 10 tpy for any individual HAP, and a combined HAP emission rate less than 25 tpy. Accordingly, the facility is not a major source with respect to Title V, and the requirements of the Title V permitting program are not applicable.

Total estimated potential emissions of VOC, HAPs, and other pollutants for the proposed storage tanks, and exempt emission sources at the Palmetto Belton Tank Farm and Pump Station facility are shown in Appendix C.

4.4 Hazardous Air Pollutants

Title III, Section 112 of the 1970 Clean Air Act established National Emission Standards for Hazardous Air Pollutants (NESHAPs) and National Emission Standards for Hazardous Air Pollutants for Source Categories. These standards are codified in 40 CFR Parts 61 and Part 63. Part 61 standards apply to specific categories of sources that do not include bulk petroleum terminals.

Part 63 standards are applicable to sources whose estimated potential emissions of hazardous air pollutants (HAPs) exceed the major source threshold levels of 10 tons/year and 25 tons/ year for a single HAP and total HAPs, respectively.

Potential aggregate hazardous air pollutant (HAP) emissions are less than 25 tpy, and potential individual HAP emissions are less than 10 tpy for a single HAP; therefore, the Palmetto Belton Tank Farm and Pump Station facility is classified as a HAP minor stationary source under the Part 63 NESHAP regulations.

It should be noted that the DHEC has concluded that the Palmetto Belton Tank Farm and Pump Station will be a collocated source with the adjacent Kinder Morgan Southeast Terminals, LLC – Belton 1 (KMST) facility because the proposed Tank Farm and KMST facility are under common control and are adjacent. A copy of the DHEC determination is provided as Appendix F of this application.

4.4.1 40 CFR 63 Subpart EEEE – National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)

Subpart EEEE of 40 CFR 63, "NESHAP for Organic Liquids Distribution (Non-Gasoline) applies to Organic Liquids Distribution (OLD) (non-gasoline) facilities that are located at or are part of a major source of HAP emissions. Since the Palmetto Belton Tank Farm and Pump Station is not considered a major source of HAP; therefore, the facility is not subject to this subpart.

4.4.2 40 CFR 63 Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Subpart ZZZZ of 40 CFR 63, "NESHAP for Stationary Reciprocating Internal Combustion Engines (RICE) applies to stationary reciprocating internal combustion engines at major or area sources of HAP emissions. The Palmetto Belton Tank Farm and Pump Station is

considered an area source of HAP and is equipped with a 597 bkW emergency diesel-fired firewater pump engine and a 200 kW emergency generator.

The firewater pump engine is considered new stationary RICE; therefore, the engine must meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR 60 Subpart IIII. No further requirements apply for this engine under Subpart ZZZZ (40 CFR §63.6590(c)). The facility will comply with the requirements of this subpart by meeting the requirements of 40 CFR 60 Subpart IIII. See Section 4.5.2 below for applicable requirements for the fire water pump engine to be installed.

The emergency generator is considered a new stationary RICE because it was constructed after June 12, 2006, and is located at an area source [§63.6590(a)(2)(iii)]. However, per 40 CFR 63.6590(c), a new or reconstructed stationary RICE located at an area source must meet the requirements of Subpart ZZZZ by meeting the requirements of NSPS 40 CFR 60, Subpart IIII for CI engines, and no further requirements apply for such engines under Subpart ZZZZ. See Section 4.5.2 below for applicable requirements for the emergency generator.

Section 63.6640(f) of the RICE NESHAP specifies operating requirements for existing emergency stationary RICE located at an area source (non-major for HAPs). These requirements include limiting operation of the engine to emergency use, maintenance and readiness testing, and less than 50 hours per year for operation in non-emergency situations.

It should be noted that although these engines are exempt from permitting, Palmetto Pipe Line will comply with all federal regulatory requirements discussed above.

4.4.3 40 CFR 63 Subpart BBBBBB – National Emission Standards for Hazardous Air Pollutants for Gasoline Distribution Bulk Terminals, Bulk, Plants, and Pipeline Facilities

Subpart BBBBBB of 40 CFR 63, "NESHAP for Gasoline Distribution Bulk Terminals, Bulk, Plants, and Pipeline Facilities", applies to the Palmetto Belton Tank Farm and Pump Station because the facility is an area (minor) source of HAP emissions. All internal floating roof tanks storing gasoline, as well as all equipment in gasoline liquid/vapor service will be subject to emission limits, management practices, monitoring, recordkeeping and reporting requirements under this subpart, including submittal of semi-annual compliance reports.

4.5 New Source Performance Standards (NSPS)

Section 111 of the Clean Air Act establishes standards of performance for New Stationary Sources. These standards are codified in 40 CFR Part 60 and DEHC Regulation 61-62.60. Potentially applicable NSPS requirements for the facility operations are found in 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.

Tanks 501, 502, 503, 504 will be an internal floating roof (cable suspended) storage tank and will store gasoline or diesel fuels, therefore these tanks will be subject to Subpart Kb. The facility will comply with all applicable requirements of Subpart Kb for Tanks 501, 502, 503, and 504.

Tanks 505, 506, and 507 will be an internal floating roof (cable suspended) storage tank and will store diesel fuels or gasoline, as a worst-case fuel; therefore they will also be subject to Subpart Kb.

Tank 508 will be an internal floating roof (cable suspended) storage tank and will store denatured ethanol; therefore they will also be subject to Subpart Kb.

4.5.1 40 CFR 60 Subpart Kb – Volatile Organic Liquid Storage Vessels for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984

Subpart Kb of 40 CFR 60 "VOL Storage Vessels" applies to each storage vessel with a capacity greater than or equal to 75 m^3 that is used to store volatile organic liquids (VOL) [40 CFR §60.110b(a)]. As indicated above all of the storage tanks to be installed at the Palmetto Belton Tank Farm and Pump Station will be subject to this standard, including the ethanol tank which will be equipped with a fixed roof in combination with an internal floating roof according to the requirements in 40 CFR §60.112b(1). The facility will comply with the inspection, recordkeeping, monitoring, and reporting requirements as specified in the rule.

4.5.2 40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

This subpart applies to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) based on the date of manufacture.

The 597 kW emergency fire water pump engine will be subject to Subpart IIII. Owners and operators of fire pump engines with a displacement of less than 30 liters must comply with the emissions standards included in Table 4 of Subpart IIII. Operators of CI fire pump engines must comply with Subpart IIII by purchasing a certified engine (40 CFR §60.4211(c)). Additionally, owners and operators must install a non-resettable hour meter prior to operation of the engine and keep a record of hours of operation. The Palmetto Belton Tank Farm and Pump Station will purchase an engine that meets the appropriate certification requirements and comply with the monitoring and recordkeeping requirements.

The 200 kW emergency generator will also be subject to Subpart IIII. Per 40 CFR 60.4202 (2), owners and operators of 2007 model year and later emergency stationary RICE with a maximum engine power greater than or equal to 37 kW and a displacement of less than 10 liters per cylinder that are not fire pump engines must comply with the emission standards for new nonroad CI engines in 40 CFR 89.112 and 89.113 for all pollutants beginning in model year 2007.

Also, per 40 CFR 60.4209(a), the facility will install a non-resettable hour meter prior to startup of the engine. Per 40 CFR 60.4211 (a, f), the emergency generator may be operated for the purpose of maintenance checks and readiness testing and the facility will comply with the 100 hours per year limitation. Also, the emergency generator may operate up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing.

4.6 Other Federal Regulations

4.6.1 40 CFR 64 – Compliance Assurance Monitoring

This rule applies to pollutant-specific emission units at a major source that is required to obtain a part 70 or 71 permit and meets certain requirements. The Palmetto Belton Tank Farm and Pump Station is not considered a major source; therefore, the facility is not subject to this rule.

4.6.2 40 CFR 68 – Risk Management Program

This rule establishes accidental release prevention and risk management plan requirements as part of the Chemical Accident Prevention Provisions of 40 CFR Part 68. This part lists regulated substances along with thresholds for determining the applicability of the associated requirements. Since the Palmetto Belton Tank Farm and Pump Station will store Butane (a regulated substance under 40 CFR 68) above the threshold quantities, the facility is subject to 40 CFR 68. Accordingly, a risk management plan will be prepared and implemented prior to commencement of operations of the Palmetto Belton Tank Farm and Pump Station.

4.6.3 40 CFR 98 – Mandatory Greenhouse Gas Reporting

This rule establishes mandatory greenhouse gas (GHG) reporting requirements for owners and operators of certain facilities that directly emit GHG. The Palmetto Belton Tank Farm and Pump Station is not of a source type specifically listed in 40 CFR 98 Tables A-3, A-4, or A-5, does not have an aggregate maximum heat capacity of 30 MMBtu/hr or greater, and does not emit 25,000 tons CO_2e or more per year. Therefore, according to 40 CFR 98.2(a) (3), the facility does not need to report GHG emissions.

4.7 South Carolina State Rules

4.7.1 Regulation 61-62.1, Section II (B) Permit Requirements, Exemptions from the Requirement to Obtain a Construction Permit

The Palmetto Belton Tank Farm and Pump Station operates several sources that qualify as exempt from the requirement to obtain a construction permit. Under Section II.B.2.f.ii and updated DHEC Exemption List based on the revisions to SC Regulation 61-62.1, the emergency generator and the fire water pump engine, which are installed for emergency purposes, are exempt from construction permit requirements. Additionally, the facility's 10,000 gal water draw storage tank, 5,000 gal corrosion inhibitor storage tank, 500 gal relief storage tank, 8,000 gal sum tank, and 500 gal fluorescent dye tank are exempt from the requirement to obtain a construction permit under Section II.B.2.h since their uncontrolled VOC emissions total will be less than 1,000 pounds per month. Detailed emission calculations from these sources are included in Attachment C.

4.7.2 Regulation 61-62.5, Standard No. 2 – Ambient Air Quality Standards

As part of the air permitting process, facilities in South Carolina are required to demonstrate that the emissions coming from their sources will not cause the violation of any applicable South Carolina pollution control regulations or standards.

As indicated above, DHEC exempt certain sources from permitting based on the size, emission levels and operating characteristics of the source. In addition, per the Air Quality Modeling Guidelines, Section 1.2 – Facilities/Sources Exempt from Modeling, DHEC exempt the following sources from air dispersion modeling requirements:

- Emergency power generators, or other emergency equipment, of less than or equal to 150 kW rated capacity, or those which operate 500 hours per year or less and have a method to record the actual hours of use such as an hour meter.

Therefore, the proposed 597 kW fire water pump engine, and 200 kW emergency generator (exempt from permitting requirements since they will be operated no more than 500 hours per year for testing and maintenance and have a method to record the actual hours of use), are exempt from air dispersion modeling requirements.

4.7.3 Regulation 61-62.5, Standard No. 5 – Volatile Organic Compounds

This standard applies to existing processes (including petroleum liquid storage in fixed roof tanks) statewide except in the following six counties: Anderson, Bamberg, Barnwell, Chesterfield, Darlington and Hampton. The Palmetto Belton Tank Farm and Pump Station is located in Anderson County; however, the net VOC emissions will not exceed 100 tons/year. Therefore, this standard is not applicable.

4.7.4 Regulation 61-62.6 Control of Fugitive Particulate Matter

This standard applies to control of fugitive particulate matter and includes provisions applicable to non-attainment areas, problem areas, and statewide control. The Palmetto Belton Tank Farm and Pump Station is not located in a non-attainment area or a problem area; therefore, only statewide requirements apply. The facility's paved roads are the sole source of fugitive dust from the facility. Emissions due to truck traffic are minimal; however, traffic is monitored to ensure that emissions do not create an undesirable level of air pollution.

4.7.5 Regulation 61-62.5, Standard No. 7 – Prevention of Significant Deterioration

This regulation applies to the construction of any new major stationary source or any project at an existing major stationary sources in an area designated as attainment or unclassified. The Palmetto Belton Tank Farm and Pump Station is located in Anderson County; an area designated as attainment for all criteria pollutants. Also, the facility is not a major stationary source of air emissions; therefore, this standard is not applicable.

4.7.6 Regulation 61-62.5, Standard No. 8 – Toxic Air Pollutants

This standard applies to sources of all toxic air pollutants listed in Standard 8. All Palmetto Belton Tank Farm and Pump Station's emissions of toxic air pollutants (TAPs) were compared to the de minimis emission rates as specified in the South Carolina Department of Health and Environmental Control's Air Quality Modeling Guidelines (July 2001). All TAPs, except Benzene, will be emitted below the de minimis levels as listed in Table 1 of Appendix D of the modeling guidance and are not required to further demonstrate compliance with Standard No. 8; therefore, the facility is considered in compliance with this standard for those pollutants. The Level I modeling analysis is included in Appendix D of this permit application.

Screening modeling was performed for the facility to compare modeled concentrations of benzene to the Maximum Allowable Ambient Concentration (MAAC) using the EPA's SCREEN3 model. A worst-case scenario was modeled, consisting of all tank emissions (0.072 lb/hr) being released from the tank location that is closest to the property boundary. Therefore, an elevated area source was modeled at the location of Tank 504 to simulate emissions from vents located along the circumference of the tanks. The area source was a square with each side equal to the diameter of the tank (39.6 m), and with a release height of 15.24 meters. The maximum modeled 24-hour concentration for the tanks was 1.7 $\mu g/m^3$.

Another screening run was performed for the fugitive emissions. An area source was created covering the entire area of the tanks (275 m x 170 m). The release height was set to 1 meter, assuming that most emissions are being released near ground level. An emission rate of 7.1×10^{-4} lb/hr was modeled. The maximum modeled 24-hour concentration for the fugitives was 0.08 $\mu g/m^3$.

The two concentrations were summed to obtain the facility's maximum modeled 24-hour concentration of 1.8 $\mu g/m^3$. The modeled concentration is below the MAAC of 150 $\mu g/m^3$ and therefore demonstrates compliance with Standard No. 8 for benzene.

A CD ROM containing modeling input and output files is included in Appendix D of this application.

APPENDIX A

PERMIT APPLICATION FORMS

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Bureau of Air Quality
Expedited Review Request
Construction Permits

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To be eligible for expedited review, the appropriate Construction Permit Application Forms must be included with this sheet.

APPLICATION IDENTIFICATION		
Facility Name *(This should be the name used to identify the facility)* Palmetto Products Pipe Line LLC - Palmetto Belton Tank Farm and Pump Station	SC Air Permit Number (8-digits only) *(Leave blank if one has never been assigned)* - 0200-0236	Request Date February 2016

PRIMARY AIR PERMIT CONTACT			
Title/Position: Senior EHS Specialist	Salutation: Mr.	First Name: Johnny	Last Name: Tapia
E-mail Address: johnny_tapia@kindermorgan.com		Phone No.: (704) 399-6327	Cell No.: (704) 249-9936

SECONDARY AIR PERMIT CONTACT *(If the Department is unable to contact the primary air permit contact please provided a secondary contact.)*			
Title/Position: EHS Supervisor	Salutation: Mr.	First Name: Christopher	Last Name: Fleck
E-mail Address: christopher_fleck@kindermorgan.com		Phone No.: (813) 241-1144	Cell No.: (813) 415-1698

Check One	Permit Type	Fee*
☒	Minor Source Construction Permit	$3,000
☐	Synthetic Minor Construction Permit	$4,000
☐	Prevention of Significant Deterioration (PSD) not impacting a Class I Area (no Class I modeling required)	$20,000
☐	Prevention of Significant Deterioration (PSD) impacting a Class I Area (Class I modeling required)	$25,000
	General Permit Program	
☐	Minor Source Construction Permit / Relocation Request (Concrete)	$1,500
☐	Minor Source Construction Permit / Relocation Request (Asphalt)	$2,000
☐	Synthetic Minor Source Construction Permit / Relocation Request (Concrete)	$3,000
☐	Synthetic Minor Source Construction Permit / Relocation Request (Asphalt)	$3,500

*** DO NOT send fee payment with this form. If chosen for expedited review, you will be notified by phone for verbal acceptance into the program. Fees must be paid within five business days of acceptance.**

PRIMARY AIR PERMIT CONTACT SIGNATURE
I have read the Expedited Review Program Standard Operating Procedures and accept all of the terms and conditions within. I understand that it is my responsibility to ensure an application of the highest quality is submitted in a timely manner, and to address any requests for additional information by the deadline specified. I understand that submittal of this request form is not a guarantee that expedited review will be granted.

Signature of Primary Air Permit Contact — Date: 02/17/2016

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South Carolina Department of Health and Environmental Control

Bureau of Air Quality
Construction Permit Application
Facility Information
Page 1 of 2

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FACILITY IDENTIFICATION	
SC Air Permit Number (8-digits only) *(Leave blank if one has never been assigned)* 0200-0236	Application Date February 2016
Facility Name *(This should be the name used to identify the facility at the physical address listed below)* Palmetto Products Pipe Line LLC - Palmetto Belton Tank Farm and Pump Station	Facility Federal Tax Identification Number *(Established by the U.S. Internal Revenue Service to identify a business entity)* 76-0561780

FACILITY PHYSICAL ADDRESS		
Physical Address: 14044 Highway 20		County: Anderson
City: Belton	State: SC	Zip Code: 29627
Facility Coordinates *(Facility coordinates should be based at the front door or main entrance of the facility.)*		
Latitude: 34.5521 Degrees	Longitude: -82.4940 Degrees	☐ NAD27 *(North American Datum of 1927)* Or ☒ NAD83 *(North American Datum of 1983)*

CO-LOCATION DETERMINATION
Are there other facilities in close proximity that could be considered co-located? ☐ No ☒ Yes*
List potential co-located facilities, including air permit numbers if applicable: Kinder Morgan Southeast Terminals, LLC - Belton 1, CM-0200-0206.

**If yes, please submit co-location applicability determination details in an attachment to this application.*

COMMUNITY OUTREACH
What are the potential air issues and community concerns? Please provide a brief description of potential air issues and community concerns about the entire facility and/or specific project. Include how these issues and concerns are being addressed, if the community has been informed of the proposed construction project, and if so, how they have been informed. There are no air issues that would generate community concerns. The facility is a de minimis emitter of HAP and VOC emissions at the facility and are not expected to be a community concern.

FACILITY'S PRODUCTS / SERVICES	
Primary Products / Services *(List the primary product and/or service)* Petroleum Products Tank Farm	
Primary SIC Code *(Standard Industrial Classification Codes)* 4613	Primary NAICS Code *(North American Industry Classification System)* 486910
Other Products / Services *(List any other products and/or services)*	
Other SIC Code(s):	Other NAICS Code(s):

AIR PERMIT FACILITY CONTACT *(Person at the facility who can answer technical questions about the facility and permit application.)*			
Title/Position: Senior EHS Specialist	Salutation: Mr.	First Name: Johnny	Last Name: Tapia
Mailing Address: 502 Tom Sadler Rd.			
City: Charlotte		State: NC	Zip Code: 28214
E-mail Address: johnny_tapia@kindermorgan.com		Phone No.: (704) 399-6327	Cell No.: (704) 249-9936
One hard copy of the signed permit will be mailed to the designated Air Permit Contact. If additional individuals need electronic copies of the permit, please provide their names and e-mail addresses.			
Name		**E-mail Address**	
Christopher Fleck		christopher_fleck@kindermorgan.com	
Jamie Chapman		jamie_chapman@kindermorgan.com	

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South Carolina Department of Health and Environmental Control

Bureau of Air Quality
Construction Permit Application
Facility Information

CONFIDENTIAL INFORMATION / DATA
Does this application contain confidential information or data? ☒ No ☐ Yes*

If yes, include a sanitized version of the application for public review and **ONLY ONE COPY OF CONFIDENTIAL INFORMATION SHOULD BE SUBMITTED*

LIST OF FORMS INCLUDED (Identify all forms included in the application package)	
Form Name	**Included (Y/N)**
Expedited Review Request (DHEC Form 2212)	☒ Yes ☐ No
Equipment/Processes (DHEC Form 2567)	☒ Yes
Emissions (DHEC Form 2569)	☒ Yes
Regulatory Review (DHEC Form 2570)	☒ Yes
Emissions Point Information (DHEC Form 2573)	☒ Yes ☐ No (If No, Explain)

OWNER OR OPERATOR			
Title/Position: Director Operations	Salutation: Mr.	First Name: Richard	Last Name: Krejci
Mailing Address: 1000 Windward Concourse, Suite 450			
City: Alpharetta		State: GA	Zip Code: 30005
E-mail Address: krejcir@kindermorgan.com		Phone No.: (770) 751-4157	Cell No.: (770) 853-1896

OWNER OR OPERATOR SIGNATURE

I certify, to the best of my knowledge and belief, that no applicable standards and/or regulations will be contravened or violated. I certify that any application form, report, or compliance certification submitted in this permit application is true, accurate, and complete based on information and belief formed after reasonable inquiry. I understand that any statements and/or descriptions, which are found to be incorrect, may result in the immediate revocation of any permit issued for this application.

Signature of Owner or Operator — Date: 2/23/2016

PERSON AND/OR FIRM THAT PREPARED THIS APPLICATION (If not the same person as the Professional Engineer who has reviewed and signed this application.)			
Consulting Firm Name: AECOM			
Title/Position: Senior Project Manager	Salutation: Mr.	First Name: Joe	Last Name: Sullivan
Mailing Address: 1600 Perimeter Park Drive, Suite 400			
City: Morrisville		State: NC	Zip Code: 27560
E-mail Address: joe.w.sullivan@aecom.com		Phone No.: (919) 461-1237	Cell No.: (919) 685-7915
SC Professional Engineer License/Registration No. (if applicable):			

PROFESSIONAL ENGINEER INFORMATION			
Consulting Firm Name: AECOM			
Title/Position: Senior Project Manager	Salutation: Mr.	First Name: Joe	Last Name: Sullivan
Mailing Address: 1600 Perimeter Park Drive, Suite 400			
City: Morrisville		State: NC	Zip Code: 27560
E-mail Address: joe.w.sullivan@aecom.com		Phone No.: (919) 461-1237	Cell No.: (919) 685-7915
SC License/Registration No.: 18804			

PROFESSIONAL ENGINEER SIGNATURE

I have placed my signature and seal on the engineering documents submitted, signifying that I have reviewed this construction permit application as it pertains to the requirements of *South Carolina Regulation 61-62, Air Pollution Control Regulations and Standards.*

Joe Warren Sullivan — Signature of Professional Engineer — Date: 2/19/16

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 18804 JOE WARREN SULLIVAN

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South Carolina Department of Health and Environmental Control

Bureau of Air Quality
Construction Permit Application
Equipment / Processes

APPLICATION IDENTIFICATION		
(Please ensure that the information list in this table is the same on all of the forms and required information submitted in this construction permit application package.)		
Facility Name *(This should be the name used to identify the facility)*	SC Air Permit Number (8-digits only) *(Leave blank if one has never been assigned)*	Application Date
Palmetto Products Pipe Line LLC – Palmetto Belton Tank Farm and Pump Station	-	February 2016

PROJECT DESCRIPTION

Brief Project Description (What, why, how, etc.): The Palmetto Belton Tank Farm and Pump Station is a new tank farm facility in Belton, Anderson County, South Carolina. The facility will consist of several storage tanks storing gasoline and/or distillate fuels, as well as a dedicated tank storing denatured ethanol. Various exempt emission sources are also present at the site, including an emergency generator, an emergency fire water pump engine, and exempt storage tanks. The facility will have the potential to emit < 100 tpy of VOCs, <10 tpy of a single HAP, and <25 tpy of total HAP; therefore, the facility is considered a minor emission source under SCDHEC regulations. The facility has the potential to operate seven days per week, 24 hours per day.

ATTACHMENTS

☒ Process Flow Diagram	Location in Application: Section 2 and Attachment B of the application package.
☒ Detailed Project Description	Location in Application: Section 2 of the application package.

EQUIPMENT / PROCESS INFORMATION

Equipment ID Process ID	Action	Equipment / Process Description	Maximum Design Capacity (Units)	Control Device ID(s)	Pollutants Controlled (Include CAS#)	Capture System Efficiency and Description	Emission Point ID(s)
Tank 501	☒ Add ☐ Remove ☐ Modify ☐ Other	Gasoline/Distillate Internal Floating Roof (Cable-Suspended) Storage Tank	6,300,000 (gallons)				
Tank 502	☒ Add ☐ Remove ☐ Modify ☐ Other	Gasoline/Distillate Internal Floating Roof (Cable-Suspended) Storage Tank	6,300,000 (gallons)				
Tank 503	☒ Add ☐ Remove ☐ Modify ☐ Other	Gasoline/Distillate Internal Floating Roof (Cable-Suspended) Storage Tank	6,300,000 (gallons)				
Tank 504	☒ Add ☐ Remove ☐ Modify ☐ Other	Gasoline Distillate Internal Floating Roof (Cable-Suspended) Storage Tank	4,200,000 (gallons)				
Tank 505	☒ Add ☐ Remove ☐ Modify ☐ Other	Gasoline/Distillate Internal Floating Roof (Cable-Suspended) Storage Tank	4,200,000 (gallons)				

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Tank 506	☒ Add ☐ Remove ☐ Modify ☐ Other	Gasoline/Distillate Internal Floating Roof (Cable-Suspended) Storage Tank	5,250,000 (gallons)				
Tank 507	☒ Add ☐ Remove ☐ Modify ☐ Other	Gasoline/Distillate Internal Floating Roof (Cable-Suspended) Storage Tank	5,250,000 (gallons)				
Tank 508	☒ Add ☐ Remove ☐ Modify ☐ Other	Denatured Ethanol Internal Floating Roof (Cable-Suspended) Storage Tank	3,360,000 (gallons)				

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South Carolina Department of Health and Environmental Control

Bureau of Air Quality
Construction Permit Application
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CONTROL DEVICE INFORMATION					
Control Device ID	**Action**	**Control Device Description**	**Maximum Design Capacity (Units)**	**Inherent/Required/Voluntary (Explain)**	**Destruction/Removal Efficiency Determination**
	☐ Add ☐ Remove ☐ Modify ☐ Other				
	☐ Add ☐ Remove ☐ Modify ☐ Other				
	☐ Add ☐ Remove ☐ Modify ☐ Other				
	☐ Add ☐ Remove ☐ Modify ☐ Other				

RAW MATERIAL AND PRODUCT INFORMATION			
Equipment ID Process ID Control Device ID	**Raw Material(s)**	**Product(s)**	**Fuels Combusted**

MONITORING AND REPORTING INFORMATION					
Equipment ID Process ID Control Device ID	**Pollutant(s)/Parameter(s) Monitored**	**Monitoring Frequency**	**Reporting Frequency**	**Monitoring/Reporting Basis**	**Averaging Period(s)**
Tanks 501 - 508	VOC & HAPs: Benzene, Cumene (Isopropylbenzene), Ethylbenzene, Hexane, Methyl t-Butyl Ether, Toluene, 2,2,4 Trimethylpentane (Isooctane), Xylenes	Visually inspect internal floating roof and repair defects within 45 days of identification: (1) prior to filling; (2) annually for liquid mounted or mechanical shoe primary seals; (3) every 5 years for primary/secondary seal systems. Monthly sight, sound and smell inspection for leaks.	Keep records of each inspection. Report any defects found within 30 days. Report control device description and performance. Record volatile organic liquid stored, period of storage, and maximum true vapor pressure. Record in logbook leak detection and repair (LDAR) monthly inspection results and required information. Keep all records for 5 years. Notify DHEC prior to filling or refilling storage vessel for which an inspection is required.	40 CFR 60 Subpart Kb 40 CFR 63 Subpart 6B (MACT)	N/A
Fugitives	VOC & HAPs: Benzene, Cumene (Isopropylbenzene), Ethylbenzene, Hexane, Methyl t-Butyl Ether, Toluene, 2,2,4 Trimethylpentane (Isooctane), Xylenes	Perform monthly LDAR of gasoline liquid/vapor equipment by sight, sound, and smell. Housekeeping provisions are: minimize gas spills, clean up spills expeditiously, cover and use gasketed seals on gas containers, minimize gasoline sent to open waste collection systems.	Maintain a log book with a list of affected equipment. For each leak, record: equipment leaking, date found, dates of repair attempts, reasons for any repair delays, expected date of delayed repair, date of successful repair.	40 CFR 63 Subpart 6B (MACT)	N/A

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South Carolina Department of Health and Environmental Control

Bureau of Air Quality
Construction Permit Application
Emissions

APPLICATION IDENTIFICATION *(Please ensure that the information list in this table is the same on all of the forms and required information submitted in this construction permit application package.)*		
Facility Name *(This should be the name used to identify the facility)* Palmetto Products Pipe Line LLC – Palmetto Belton Tank Farm and Pump Station	SC Air Permit Number (8-digits only) *(Leave blank if one has never been assigned)* -	Application Date February 2016

ATTACHMENTS *(Check all the appropriate checkboxes if included as an attachment)*	
☒ Sample Calculations, Emission Factors Used, etc.	☒ Detailed Explanation of Assumptions, Bottlenecks, etc.
☐ Supporting Information: Manufacturer's Data, etc.	☐ Source Test Information
☐ Details on Limits Being Taken for Limited Emissions	☒ NSR Analysis

SUMMARY OF PROJECTED CHANGE IN FACILITY WIDE POTENTIAL EMISSIONS
(Calculated at maximum design capacity.)

Pollutants	Emission Rates Prior to Construction / Modification (tons/year)			Emission Rates After Construction / Modification (tons/year)		
	Uncontrolled	Controlled	Limited	Uncontrolled	Controlled	Limited
Particulate Matter (PM)						
Particulate Matter <10 Microns (PM_{10})						
Particulate Matter <2.5 Microns ($PM_{2.5}$)						
Sulfur Dioxide (SO_2)						
Nitrogen Oxides (NO_x)						
Carbon Monoxide (CO)						
Volatile Organic Compounds (VOC)				62.11	62.11	62.11
Lead (Pb)						
Highest HAP Prior to Construction (CAS #:)						
Highest HAP After Construction (CAS #: 108-88-3)				0.49	0.49	0.49
Total HAP Emissions*				2.15	2.15	2.15

Include emissions from exempt equipment and emission increases from process changes that were exempt from construction permits.
(*All HAP emitted from the various equipment or processes must be listed in the appropriate "Potential Emission Rates at Maximum Design Capacity" Table)

POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY

Equipment ID / Process ID	Emission Point ID	Pollutants (Include CAS #)	Calculation Methods / Limits Taken / Other Comments	Uncontrolled		Controlled		Limited	
				lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
Piping		Benzene 71-43-2	EPA-453/R-95-017, Protocol for Equipment Leak Emission Estimates, Table 2-3. Marketing Terminal Avg. Em. Fac.	7.05E-04	0.0031	7.05E-04	0.0031	7.05E-04	0.0031

POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY									
Equipment ID / Process ID	**Emission Point ID**	**Pollutants** (Include CAS #)	**Calculation Methods / Limits Taken / Other Comments**	**Uncontrolled**		**Controlled**		**Limited**	
				lbs/hr	**tons/yr**	**lbs/hr**	**tons/yr**	**lbs/hr**	**tons/yr**
Piping		Cumene 98-82-8	EPA-453/R-95-017, Protocol for Equipment Leak Emission Estimates, Table 2-3. Marketing Terminal Avg. Em. Fac.	1.96E-04	8.6E-04	1.96E-04	8.6E-04	1.96E-04	8.6E-04
Piping		Ethylbenzene 100-41-4	EPA-453/R-95-017, Protocol for Equipment Leak Emission Estimates, Table 2-3. Marketing Terminal Avg. Em. Fac.	5.49E-04	0.0024	5.49E-04	0.0024	5.49E-04	0.0024
Piping		Hexane 110-54-3	EPA-453/R-95-017, Protocol for Equipment Leak Emission Estimates, Table 2-3. Marketing Terminal Avg. Em. Fac.	3.92E-04	0.0017	3.92E-04	0.0017	3.92E-04	0.0017
Piping		MTBE 1634-04-4	EPA-453/R-95-017, Protocol for Equipment Leak Emission Estimates, Table 2-3. Marketing Terminal Avg. Em. Fac.	1.96E-04	8.6E-04	1.96E-04	8.6E-04	1.96E-04	8.6E-04
Piping		Trimetylpentane 540-84-1	EPA-453/R-95-017, Protocol for Equipment Leak Emission Estimates, Table 2-3. Marketing Terminal Avg. Em. Fac.	0.0016	0.0069	0.0016	0.0069	0.0016	0.0069
Piping		Toluene 108-88-3	EPA-453/R-95-017, Protocol for Equipment Leak Emission Estimates, Table 2-3. Marketing Terminal Avg. Em. Fac.	0.0027	0.012	0.0027	0.012	0.0027	0.012
Piping		Xylene 1330-20-7	EPA-453/R-95-017, Protocol for Equipment Leak Emission Estimates, Table 2-3. Marketing Terminal Avg. Em. Fac.	0.0027	0.012	0.0027	0.012	0.0027	0.012
Piping		Total HAP	EPA-453/R-95-017, Protocol for Equipment Leak Emission Estimates, Table 2-3. Marketing Terminal Avg. Em. Fac.	0.0091	0.040	0.0091	0.040	0.0091	0.040
Tank 501		Benzene 71-43-2	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.010	0.045	0.010	0.045	0.010	0.045
Tank 501		Cumene 98-82-8	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	4.12E-04	0.0018	4.12E-04	0.0018	4.12E-04	0.0018
Tank 501		Ethylbenzene 100-41-4	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0015	0.0068	0.0015	0.0068	0.0015	0.0068
Tank 501		Hexane 110-54-3	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0089	0.039	0.0089	0.039	0.0089	0.039
Tank 501		MTBE 1634-04-4	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0079	0.035	0.0079	0.035	0.0079	0.035

POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY									
Equipment ID / Process ID	Emission Point ID	Pollutants (Include CAS #)	Calculation Methods / Limits Taken / Other Comments	Uncontrolled		Controlled		Limited	
				lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
Tank 501		Trimetylpentane 540-84-1	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.013	0.057	0.013	0.057	0.013	0.057
Tank 501		Toluene 108-88-3	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.015	0.064	0.015	0.064	0.015	0.064
Tank 501		Xylene 1330-20-7	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0084	0.037	0.0084	0.037	0.0084	0.037
Tank 501		Total HAP	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.065	0.28	0.065	0.28	0.065	0.28
Tank 502		Benzene 71-43-2	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.010	0.045	0.010	0.045	0.010	0.045
Tank 502		Cumene 98-82-8	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	4.12E-04	0.0018	4.12E-04	0.0018	4.12E-04	0.0018
Tank 502		Ethylbenzene 100-41-4	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0015	0.0068	0.0015	0.0068	0.0015	0.0068
Tank 502		Hexane 110-54-3	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0089	0.039	0.0089	0.039	0.0089	0.039
Tank 502		MTBE 1634-04-4	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0079	0.035	0.0079	0.035	0.0079	0.035
Tank 502		Trimetylpentane 540-84-1	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.013	0.057	0.013	0.057	0.013	0.057
Tank 502		Toluene 108-88-3	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.015	0.064	0.015	0.064	0.015	0.064
Tank 502		Xylene 1330-20-7	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0084	0.037	0.0084	0.037	0.0084	0.037
Tank 502		Total HAP	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.065	0.28	0.065	0.28	0.065	0.28
Tank 503		Benzene 71-43-2	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.010	0.045	0.010	0.045	0.010	0.045
Tank 503		Cumene 98-82-8	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	4.12E-04	0.0018	4.12E-04	0.0018	4.12E-04	0.0018
Tank 503		Ethylbenzene 100-41-4	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0015	0.0068	0.0015	0.0068	0.0015	0.0068
Tank 503		Hexane 110-54-3	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0089	0.039	0.0089	0.039	0.0089	0.039

POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY									
Equipment ID / Process ID	Emission Point ID	Pollutants (Include CAS #)	Calculation Methods / Limits Taken / Other Comments	Uncontrolled		Controlled		Limited	
				lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
Tank 503		MTBE 1634-04-4	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0079	0.035	0.0079	0.035	0.0079	0.035
Tank 503		Trimetylpentane 540-84-1	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.013	0.057	0.013	0.057	0.013	0.057
Tank 503		Toluene 108-88-3	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.015	0.064	0.015	0.064	0.015	0.064
Tank 503		Xylene 1330-20-7	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0084	0.037	0.0084	0.037	0.0084	0.037
Tank 503		Total HAP	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.065	0.28	0.065	0.28	0.065	0.28
Tank 504		Benzene 71-43-2	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.011	0.048	0.011	0.048	0.011	0.048
Tank 504		Cumene 98-82-8	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	4.78E-04	0.0021	4.78E-04	0.0021	4.78E-04	0.0021
Tank 504		Ethylbenzene 100-41-4	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0017	0.0077	0.0017	0.0077	0.0017	0.0077
Tank 504		Hexane 110-54-3	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0094	0.041	0.0094	0.041	0.0094	0.041
Tank 504		MTBE 1634-04-4	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0084	0.037	0.0084	0.037	0.0084	0.037
Tank 504		Trimetylpentane 540-84-1	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.014	0.061	0.014	0.061	0.014	0.061
Tank 504		Toluene 108-88-3	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.016	0.070	0.016	0.070	0.016	0.070
Tank 504		Xylene 1330-20-7	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0094	0.041	0.0094	0.041	0.0094	0.041
Tank 504		Total HAP	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.070	0.31	0.070	0.31	0.070	0.31
Tank 505		Benzene 71-43-2	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.011	0.048	0.011	0.048	0.011	0.048
Tank 505		Cumene 98-82-8	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	4.78E-04	0.0021	4.78E-04	0.0021	4.78E-04	0.0021
Tank 505		Ethylbenzene 100-41-4	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0017	0.0077	0.0017	0.0077	0.0017	0.0077

POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY									
Equipment ID / Process ID	Emission Point ID	Pollutants (Include CAS #)	Calculation Methods / Limits Taken / Other Comments	Uncontrolled		Controlled		Limited	
				lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
Tank 505		Hexane 110-54-3	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0094	0.041	0.0094	0.041	0.0094	0.041
Tank 505		MTBE 1634-04-4	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0084	0.037	0.0084	0.037	0.0084	0.037
Tank 505		Trimetylpentane 540-84-1	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.014	0.061	0.014	0.061	0.014	0.061
Tank 505		Toluene 108-88-3	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.016	0.070	0.016	0.070	0.016	0.070
Tank 505		Xylene 1330-20-7	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0094	0.041	0.0094	0.041	0.0094	0.041
Tank 505		Total HAP	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.070	0.31	0.070	0.31	0.070	0.31
Tank 506		Benzene 71-43-2	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0093	0.041	0.0093	0.041	0.0093	0.041
Tank 506		Cumene 98-82-8	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	4.20E-04	0.0018	4.20E-04	0.0018	4.20E-04	0.0018
Tank 506		Ethylbenzene 100-41-4	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0015	0.0067	0.0015	0.0067	0.0015	0.0067
Tank 506		Hexane 110-54-3	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0079	0.035	0.0079	0.035	0.0079	0.035
Tank 506		MTBE 1634-04-4	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0070	0.031	0.0070	0.031	0.0070	0.031
Tank 506		Trimetylpentane 540-84-1	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.012	0.052	0.012	0.052	0.012	0.052
Tank 506		Toluene 108-88-3	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.014	0.060	0.014	0.060	0.014	0.060
Tank 506		Xylene 1330-20-7	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0082	0.036	0.0082	0.036	0.0082	0.036
Tank 506		Total HAP	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.060	0.26	0.060	0.26	0.060	0.26
Tank 507		Benzene 71-43-2	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0093	0.041	0.0093	0.041	0.0093	0.041
Tank 507		Cumene 98-82-8	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	4.20E-04	0.0018	4.20E-04	0.0018	4.20E-04	0.0018

POTENTIAL EMISSION RATES AT MAXIMUM DESIGN CAPACITY									
Equipment ID / Process ID	Emission Point ID	Pollutants (Include CAS #)	Calculation Methods / Limits Taken / Other Comments	Uncontrolled		Controlled		Limited	
				lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
Tank 507		Ethylbenzene 100-41-4	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0015	0.0067	0.0015	0.0067	0.0015	0.0067
Tank 507		Hexane 110-54-3	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0079	0.035	0.0079	0.035	0.0079	0.035
Tank 507		MTBE 1634-04-4	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0070	0.031	0.0070	0.031	0.0070	0.031
Tank 507		Trimetylpentane 540-84-1	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.012	0.052	0.012	0.052	0.012	0.052
Tank 507		Toluene 108-88-3	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.014	0.060	0.014	0.060	0.014	0.060
Tank 507		Xylene 1330-20-7	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.0082	0.036	0.0082	0.036	0.0082	0.036
Tank 507		Total HAP	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	0.060	0.26	0.060	0.26	0.060	0.26
Tank 508		Benzene 71-43-2	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	1.82E-04	7.95E-04	1.82E-04	7.95E-04	1.82E-04	7.95E-04
Tank 508		Cumene 98-82-8	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	1.71E-05	7.50E-05	1.71E-05	7.50E-05	1.71E-05	7.50E-05
Tank 508		Ethylbenzene 100-41-4	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	5.37E-05	2.35E-04	5.37E-05	2.35E-04	5.37E-05	2.35E-04
Tank 508		Hexane 110-54-3	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	1.43E-04	6.25E-04	1.43E-04	6.25E-04	1.43E-04	6.25E-04
Tank 508		MTBE 1634-04-4	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	1.19E-04	5.20E-04	1.19E-04	5.20E-04	1.19E-04	5.20E-04
Tank 508		Trimetylpentane 540-84-1	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	2.68E-04	1.18E-03	2.68E-04	1.18E-03	2.68E-04	1.18E-03
Tank 508		Toluene 108-88-3	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	3.62E-04	1.59E-03	3.62E-04	1.59E-03	3.62E-04	1.59E-03
Tank 508		Xylene 1330-20-7	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	2.79E-04	1.22E-03	2.79E-04	1.22E-03	2.79E-04	1.22E-03
Tank 508		Total HAP	AP-42, Chapter 7.1 - Organic Liquid Storage Tanks	1.42E-03	6.23E-03	1.42E-03	6.23E-03	1.42E-03	6.23E-03

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South Carolina Department of Health and Environmental Control

Bureau of Air Quality
Construction Permit Application
Regulatory Review

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BUREAU OF AIR QUALITY

APPLICATION IDENTIFICATION *(Please ensure that the information list in this table is the same on all of the forms and required information submitted in this construction permit application package.)*		
Facility Name *(This should be the name used to identify the facility)* Palmetto Products Pipe Line LLC - Palmetto Belton Tank Farm and Pump Station	SC Air Permit Number (8-digits only) *(Leave blank if one has never been assigned)* -	Application Date February 2016

STATE AND FEDERAL AIR POLLUTION CONTROL REGULATIONS AND STANDARDS
(If not listed below add any additional regulations that are triggered.)

Regulation	Applicable		Include all limits, work practices, monitoring, record keeping, etc.		
	Yes	No	Explain Applicability Determination	List the specific limitations and/or requirements that apply.	How will compliance be demonstrated?
Regulation 61-62.1, Section II(E) Synthetic Minor Construction Permits	☐	☒			
Regulation 61-62.1, Section II(G) Conditional Major Operating Permits	☐	☒			
Regulation 61-62.5, Standard No. 1 Emissions from Fuel Burning Operations	☐	☒			
Regulation 61-62.5, Standard No. 2 Ambient Air Quality Standards	☐	☒	Emergency equipment to be installed is exempt by DHEC from air dispersion modeling requirements.	None	Emergency equipment exempt from modeling per DEHC Air Quality Modeling Guidelines, Section 1.2 - Facilities/Sources Exempt from Modeling.
Regulation 61-62.5, Standard No. 3 Waste Combustion and Reduction	☐	☒			
Regulation 61-62.5, Standard No. 4 Emissions from Process Industries	☐	☒	Proposed project does not qualify as a process industry.	N/A	N/A
Regulation 61-62.5, Standard No. 5 Volatile Organic Compounds	☐	☒	The facility is located in Anderson County. The net VOC emission increase will not exceed 100 tons per year.	N/A	N/A
Regulation 61-62.5, Standard No. 5.2 Control of Oxides of Nitrogen	☐	☒	All NOx emitting units at the facility are listed under the exemption section of this standard (Section I, (b)(2), (3), and (4)).	N/A	N/A
Regulation 61-62.5, Standard No. 7 Prevention of Significant Deterioration*	☐	☒	Facility is not a major stationary source of air emissions.	N/A	N/A

STATE AND FEDERAL AIR POLLUTION CONTROL REGULATIONS AND STANDARDS
(If not listed below add any additional regulations that are triggered.)

Regulation	Applicable		Include all limits, work practices, monitoring, record keeping, etc.		
	Yes	No	Explain Applicability Determination	List the specific limitations and/or requirements that apply.	How will compliance be demonstrated?
Regulation 61-62.5, Standard No. 7.1 Nonattainment New Source Review*	☐	☒	Facility is not a major stationary source of air emissions.	N/A	N/A
Regulation 61-62.5, Standard No. 8 Toxic Air Pollutants	☒	☐	Facility emits TAP	Compliance demonstration must be made through modeling.	Potential emissions have been compared to de minimis levels according to South Carolina's Air Quality Modeling Guidelines. Emissions of all TAP, except benzene, will be below de minimis levels. Therefore, screening modeling was performed using EPA's SCREEN Model to compare and demonstrate that modeled concentrations of benzene are below the Maximum Allowable Ambient Concentration (MAAC) of 150 µg/m3, and in compliance with Standard No. 8 for benzene.
Regulation 61-62.6 Control of Fugitive Particulate Matter	☒	☐	Facility has a minimal amount of fugitive dust from truck traffic on paved roads.	Fugitive dust must be controlled in a manner that prevents an undesirable level of air pollution and VOC may not be used for dust control.	Truck traffic is monitored to ensure fugitive dust does not pose an undesirable level of air pollution. No VOC or oil is used for dust control.
Regulation 61-62.68 Chemical Accident Prevention Provisions	☒	☐	Facility will store Butane above threshold quantities.	A Risk Management Plan (RMP) will be prepared.	RMP plan will be implemented prior to commencement of facility's operations.
Regulation 61-62.70 Title V Operating Permit Program	☐	☒	Facility is not a major stationary source of air emissions.	N/A	N/A
40 CFR Part 64 - Compliance Assurance Monitoring (CAM)	☐	☒	The facility is not considered a major source.	N/A	N/A
40 CFR 60 Subpart A - General Provisions	☒	☐			

STATE AND FEDERAL AIR POLLUTION CONTROL REGULATIONS AND STANDARDS
(If not listed below add any additional regulations that are triggered.)

Regulation	Applicable		Include all limits, work practices, monitoring, record keeping, etc.		
	Yes	No	Explain Applicability Determination	List the specific limitations and/or requirements that apply.	How will compliance be demonstrated?
40 CFR 60 Subpart Kb - NSPS for VOL Storage Vessels	☒	☐	Facility includes storage vessels with a capacity greater than 151m3 storing a liquid with a true vapor pressure greater than 3.5 kPa.	Must equip the storage vessels with appropriate controls as specified under 40 CFR §60.112b(a).	The denatured ethanol storage tank has been equipped with a fixed roof in combination with an internal floating roof as specified in 40 CFR §60.112b(a)(1).
40 CFR 60 Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	☒	☐	Facility includes a fire water pump engine and an emergency generator.	Must comply with the emissions standards listed in the subpart.	Compliance will be demonstrated by purchasing engines that meet the appropriate certification requirements, and by complying with applicable monitoring and recordkeeping requirements.
	☐	☐			
	☐	☐			
40 CFR 61 Subpart A - General Provisions	☐	☒	No applicable requirements under 40 CFR 61.		
	☐	☐			
40 CFR 63 Subpart A - General Provisions	☒	☐			
Subpart EEEE - NESHAP: Organic Liquids Distribution (Non-Gasoline)	☐	☒	The facility is not a major source of HAP.		
Subpart ZZZZ - NESHAP: Reciprocating Internal Combustion Engines	☒	☐	Facility includes an emergency fire water pump engine and an emergency generator. These engines are exempt from permitting.	Must comply with Subpart ZZZZ requirements by meeting the requirements of 40 CFR 60, Subpart IIII.	Compliance will be demonstrated by complying with 40 CFR 60, Subpart IIII requirements.
Subpart BBBBBB - NESHAP: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities	☒	☐	Facility is a minor source of HAP emissions.	Monitoring, Recordkeeping, and Reporting requirements indicated in attached DHEC Form 2567.	Compliance will be demonstrated by maintaining records of applicable monitoring, and reporting activities.

STATE AND FEDERAL AIR POLLUTION CONTROL REGULATIONS AND STANDARDS *(If not listed below add any additional regulations that are triggered.)*					
Regulation	**Applicable**		**Include all limits, work practices, monitoring, record keeping, etc.**		
	Yes	**No**	**Explain Applicability Determination**	**List the specific limitations and/or requirements that apply.**	**How will compliance be demonstrated?**
40 CFR 98 - Mandatory Greenhouse Gas Reporting	☐	☒	The facility is not a source type specifically listed in 40 CFR 98 Tables A-3, A-4, or A-5, does not have an aggregate maximum heat capacity of 30 MMBtu/hr or greater, and does not emi 25,000 tons CO2e or more per year.	N/A	N/A

* Green House Gas emissions must be quantified if these regulations are triggered.

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South Carolina Department of Health and Environmental Control

Bureau of Air Quality
Emission Point Information

A. APPLICATION IDENTIFICATION	
1. Facility Name: Palmetto Products Pipe Line LLC – Palmetto Belton Tank Farm and Pump Station	
2. SC Air Permit Number (if known; 8-digits only): -	3. Application Date: February 2016
4. Project Description: The Palmetto Belton Tank Farm and Pump Station is a new tank farm facility in Belton, Anderson County, South Carolina. The facility will consist of several storage tanks storing gasoline and/or distillate fuels, as well as a dedicated tank storing denatured ethanol. Various exempt emission sources are also present at the site, including an emergency generator, an emergency fire water pump engine, and exempt storage tanks. The facility will have the potential to emit < 100 tpy of VOCs, <10 tpy of a single HAP, and <25 tpy of total HAP; therefore, the facility is considered a minor emission source under SCDHEC regulations. The facility has the potential to operate seven days per week, 24 hours per day.	

B. FACILITY INFORMATION	
1. Is your company a Small Business? ☐ Yes ☒ No	2. If a Small Business or small government facility, is Bureau assistance being requested? ☐ Yes ☐ No
3. Are other facilities collocated for air compliance? ☒ Yes ☐ No	4. If Yes, provide permit numbers of collocated facilities: Kinder Morgan Southeast Terminals, LLC Belton 1 - CM-0200-0206

C. AIR CONTACT			
Consulting Firm Name (if applicable):			
Title/Position: Senior EHS Specialist	Salutation: Mr.	First Name: Johnny	Last Name: Tapia
Mailing Address: 502 Tom Sadler Rd.			
City: Charlotte		State: NC	Zip Code: 28214
E-mail Address: johnny_tapia@kindermorgan.com		Phone No.: (704) 399-6237	Cell No.: (704) 249-9936

D. EMISSION POINT DISPERSION PARAMETERS
Source data requirements are based on the appropriate source classification. Each emission point is classified as a point, area, volume, or flare source. Contact the Bureau of Air Quality for clarification of data requirements. Include sources on a scaled site map. Also, a picture of area or volume sources would be helpful but is not required. A user generated document or spreadsheet may be substituted in lieu of this form provided all of the required emission point parameters are submitted in the same order, units, etc. as presented in these tables.
Abbreviations / Units of Measure: UTM = Universal Transverse Mercator; °N = Degrees North; °W = Degrees West; m = meters; AGL = Above Ground Level; ft = feet; ft/s = feet per second; ° = Degrees; °F = Degrees Fahrenheit

E. POINT SOURCE DATA

(Point sources such as stacks, chimneys, exhaust fans, and vents.)

Emission Point ID	Description/Name	Point Source Coordinates Projection:				Release Height AGL (ft)	Temp. (°F)	Exit Velocity (ft/s)	Inside Diameter (ft)	Discharge Orientation	Rain Cap? (Y/N)	Distance To Nearest Property Boundary (ft)	Building		
		UTM E (m)	UTM N (m)	Lat (°N)	Long (°W)								Height (ft)	Length (ft)	Width (ft)
	NOT APPLICABLE														

F. AREA SOURCE DATA

(Area sources such as storage piles, and other sources that have low level or ground level releases with no plumes.)

Emission Point ID	Description/Name	Area Source Coordinates Projection:				Release Height AGL (ft)	Easterly Length (ft)	Northerly Length (ft)	Angle From North (°)	Distance To Nearest Property Boundary (ft)
		UTM E (m)	UTM N (m)	Lat (°N)	Long (° W)					
FUG	Fugitives	362809.8	3824469.7	34.55	-82.50	3.28	393.7	853.0	11.5	82

G. VOLUME SOURCE DATA

(Volume sources such as building fugitives that have initial dispersion vertical depth prior to release.)

Emission Point ID	Description/Name	Volume Source Coordinates Projection:				Release Height AGL (ft)	Initial Horizontal Dimension (ft)	Initial Vertical Dimension (ft)	Distance To Nearest Property Boundary (ft)
		UTM E (m)	UTM N (m)	Lat (°N)	Long (° W)				
	NOT APPLICABLE								

H. FLARE SOURCE DATA

(Point sources where the combustion takes place at the tip of the stack.)

Emission Point ID	Description/Name	Flare Source Coordinates Projection:				Release Height AGL (ft)	Heat Release Rate (BTU/hr)	Distance To Nearest Property Boundary (ft)	Building		
		UTM E (m)	UTM N (m)	Lat (°N)	Long (°W)				Height (ft)	Length (ft)	Width (ft)
	NOT APPLICABLE										

I. AREA CIRCULAR SOURCE DATA

Emission Point ID	Description/Name	Area Circular Source Coordinates Projection:				Release Height AGL (ft)	Radius of Area (ft)	Distance To Nearest Property Boundary (ft)
		UTM E (m)	UTM N (m)	Lat (°N)	Long (°W)			
Tank 501	Gasoline/Distillate Internal Floating Roof (Cable-Suspended) Storage Tank	362,843.28	3,824,489.50	34.553	-82.49491	50	78	235
Tank 502	Gasoline/Distillate Internal Floating Roof (Cable-Suspended) Storage Tank	362,855.98	3,824,560.94	34.55365	-82.49479	50	78	190
Tank 503	Gasoline/Distillate Internal Floating Roof (Cable-Suspended) Storage Tank	362,868.15	3,824,632.91	34.5543	-82.49467	50	78	160
Tank 504	Gasoline/Distillate Internal Floating Roof (Cable-Suspended) Storage Tank	362,883.77	3,824,698.26	34.55489	-82.49451	50	65	165
Tank 505	Gasoline/Distillate Internal Floating Roof (Cable-Suspended) Storage Tank	362,937.91	3,824,630.17	34.55428	-82.494391	50	65	280
Tank 506	Gasoline/Distillate Internal Floating Roof (Cable-Suspended) Storage Tank	362,927.33	3,824,570.90	24.55375	.82.49401	50	72.5	270
Tank 507	Gasoline/Distillate Internal Floating Roof (Cable-Suspended) Storage Tank	362,945.68	3,824,686.62	34.55479	-82.49383	50	72.5	210
Tank 508	Denatured Ethanol Internal Floating Roof (Cable-Suspended) Storage Tank	362,914.37	3,824,517.20	34.55326	-82.49414	50	59.5	300

J. AREA POLY SOURCE DATA

Emission Point ID	Description/Name	Area Poly Source Coordinates Projection:		Release Height AGL (ft)	Number of Vertices
		UTM E (m)	UTM N (m)		
	NOT APPLICABLE				

K. OPEN PIT SOURCE DATA

Emission Point ID	Description/Name	Open Pit Source Coordinates Projection:		Release Height AGL (ft)	Easterly Length (ft)	Northerly Length (ft)	Volume (ft^3)	Angle From North (°)
		UTM E (m)	UTM N (m)					
	NOT APPLICABLE							

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South Carolina Department of Health and Environmental Control

Bureau of Air Quality
Emission Point Information

L. EMISSION RATES						
Emission Point ID	**Pollutant Name**	**CAS #**	**Emission Rate (lb/hr)**	**Same as Permitted (1)**	**Controlled or Uncontrolled**	**Averaging Period**
	See emission rates provided on DHEC Form 2569 - Emissions. No pollutants are above modeling de minimis on a facility-wide basis, as documented in Appendix C.			☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		
				☐ Yes ☐ No		

(1) Any difference between the rates used for permitting and the air compliance demonstration must be explained in the application report.

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PROMOTE PROTECT PROSPER

South Carolina Department of Health and Environmental Control

Bureau of Air Quality
Exempt Source Log

This document may be used to identify activities/sources that the Bureau of Air Quality (BAQ) has exempted from the construction permitting requirements. The log and all supporting documentation must be maintained on-site. Please note that these exempt sources may be required to be included in any subsequent construction or operating permit review to ensure that there is no cause or contribution to an exceedance of any ambient air quality standard or limit.

Facility Information			
Facility Name: Palmetto Products Pipe Line LLC - Palmetto Belton Tank Farm and Pump Station	SC Air Permit Number (8-digits only): -		
Operating Permit Type:	☒ State Operating	☐ Conditional Major	☐ N/A
Date Activity Occurred: February 2016			

Exempt Source Details

Select the category that describes the basis for exemption from construction permitting requirements.

☒ Regulation 61-62.1, Section II (http://www.scdhec.gov/environment/baq/docs/regs/pdf/r61-62_1.pdf#page=1)
☐ BAQ published exempt activities list
☐ Non-PSD Like for Like Replacement
☐ PSD Like for Like Replacement
(http://www.scdhec.gov/environment/baq/Permitting/exempt_sources.asp)

Provide a brief description of the exempt activity/source.
10,000 gal Water Draw Storage Tank; 5,000 gal Corrosion Inhibitor Storage Tank; 500 gal Relief Storage Tank; 8,000 gal Sump Tank; 500 gal Fluorescent Dye Tank, 597 kW Emergency Fire Water Pump Engine, 200 kW Emergency Generator.

Provide equipment specification and all other supporting information to document the exemption status.
See equipment specifications and emissions estimates in Appendix C - Emission Calculations.
These storage tank sources are exempt per Regulation 61-62.1, Section II.B.2.h, because their uncontrolled VOC emissions total will be less than 1,000 pounds/month. The emergency generator and fire water pump engine sources are exempt because their emergency purpose per Regulation 61-62.1, Section II.B.2.f.ii, and updated DHEC Exemption List based on revisions to Regulation 61-62.1.

Signature of Owner or Operator

2/23/16
Date

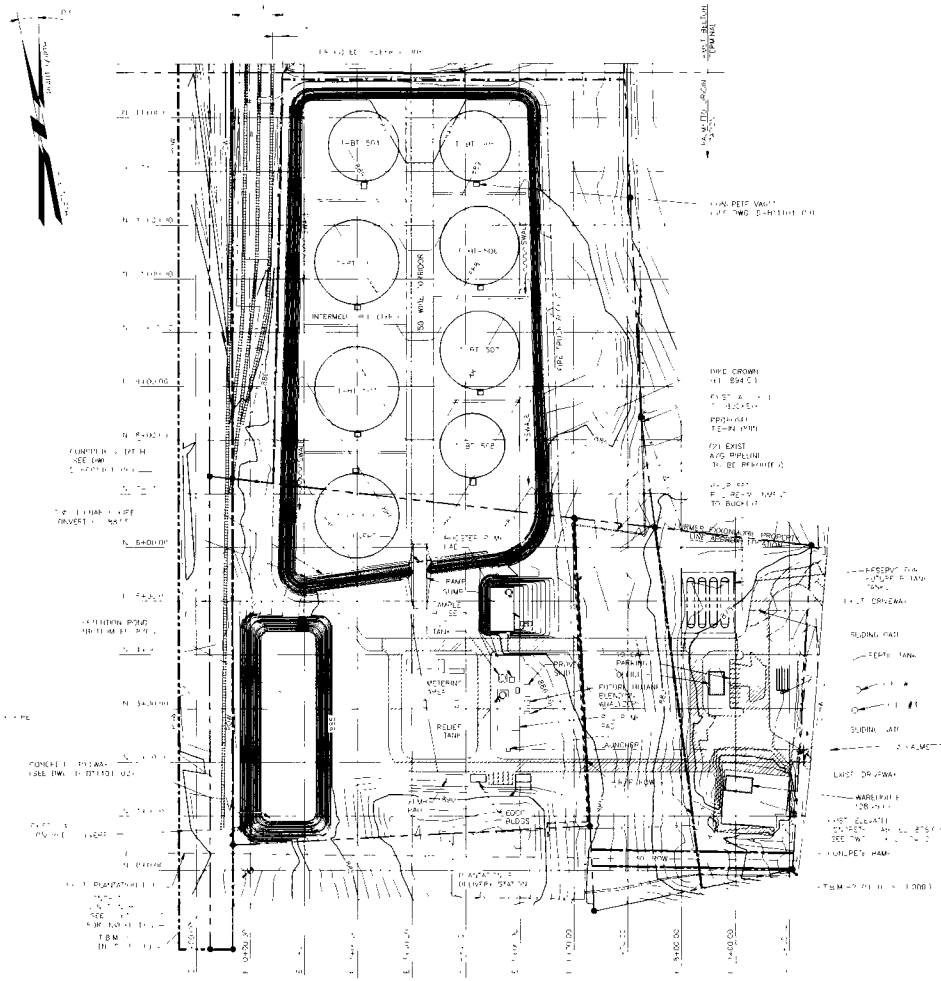
Reporting requirements for permitted facilities: A report of allowed activities shall be submitted to the Director of Engineering Services as indicated in your permit.

APPENDIX B

FACILITY DIAGRAMS

Figure 1 – Aerial Photo
Figure 2 – General Layout
Figure 3 – Flow Diagram

FIGURE 1 – AERIAL PHOTO **10 / 02 / 2015**	**PALMETTO PRODUCTS PIPE LINE LLC**	**PALMETTO BELTON TANK FARM AND PUMP STATION** **ANDERSON COUNTY**



GENERAL LAYOUT

SCALE: 1" = 100'

PROJECT CONTROL POINTS

CONTROL POINT #	ELEV.	STATE PLANE NAD83 TM (UTM 17) NORTHING	EASTING	PLANT COORDINATES NORTHING	EASTING
[illegible]	(+) 868.74	17,547,043.09	1,191,25[illegible].94	[illegible]	[illegible]
[illegible]	+ 868.[illegible]	17,547,007.1	1,191,27[illegible].[illegible]	[illegible]	[illegible]

PRELIMINARY BENCH MARKS

	ELEV.	STATE COORDINATES (UTM 17) NORTHING	EASTING	PLANT COORDINATES NORTHING	EASTING
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	(+) 868.[illegible]	12,548,[illegible]	[illegible]	[illegible]	900

PAVEMENT KEYING
- AREWALK
- WALK

TANK SCHEDULE

TANK #	PRODUCT	WORKING CAPACITY	TANK DIA	BUILT ELEVATION	STATE COORDINATES (UTM 17) NORTHING	EASTING	PLANT COORDINATES NORTHING	EASTING
T-BT 501	RUL	[illegible] BBLS	[illegible]	[illegible]	[illegible]	1,190,[illegible]19.5'	659'	199
T-BT 502	RUL	[illegible] BBLS	156	[illegible]	[illegible]	[illegible]	805	199'
T-BT 503	RUL	[illegible] BBLS	156	[illegible]	[illegible]	[illegible]	[illegible]	199
T-BT 504	PREM	[illegible] BBLS	130	832	12,548,[illegible]5.33	[illegible]	347	212
[illegible]	[illegible]	[illegible] BBLS	[illegible]	[illegible]	[illegible] 167.75	1,190,776.65	[illegible]	[illegible]
T-BT [illegible]	[illegible]	[illegible] BBLS	45	[illegible]	12,547,184.5'	1,190,750.33'	1,182	426
T-BT [illegible]	DIESEL	[illegible] BBLS	45	[illegible]	[illegible]	1,190,714.83	987	426
T-BT 508	ETHANOL	30,000 BBLS	[illegible]	[illegible]	[illegible]	[illegible]	790	413

PRELIMINARY
12/21/2015

NOTES:
[illegible]

REV	DATE	REVISION	BY
[illegible]	[illegible]	ISSUED FOR BOID	[illegible]
[illegible]	[illegible]	PRELIMINARY PROJECT [illegible]	[illegible]
[illegible]	[illegible]	ISSUED FOR AFE REVIEW	[illegible]
[illegible]	[illegible]	REVISED CONTROL POINT TANKS	[illegible]
[illegible]	[illegible]	REVISED LOCATION DUE TO ALIGNMENT	[illegible]
[illegible]	[illegible]	PRELIMINARY	[illegible]
[illegible]	[illegible]	REVISED [illegible]	[illegible]
[illegible]	[illegible]	PRELIMINARY - [illegible]	[illegible]

Keystone ENGINEERING INC.

REVIEWED BY: [illegible]
PREPARED BY: [illegible] 4/1/15
PROJECT NUMBER: 6178A15

KINDER MORGAN
SOUTHEAST REGION / PALMETTO PIPE LINE LLC

BELTON ORIGIN PUMP STATION
ANDERSON CO., SC

GENERAL LAYOUT
PALMETTO PIPELINE FACILITIES

APPROVAL: [illegible]

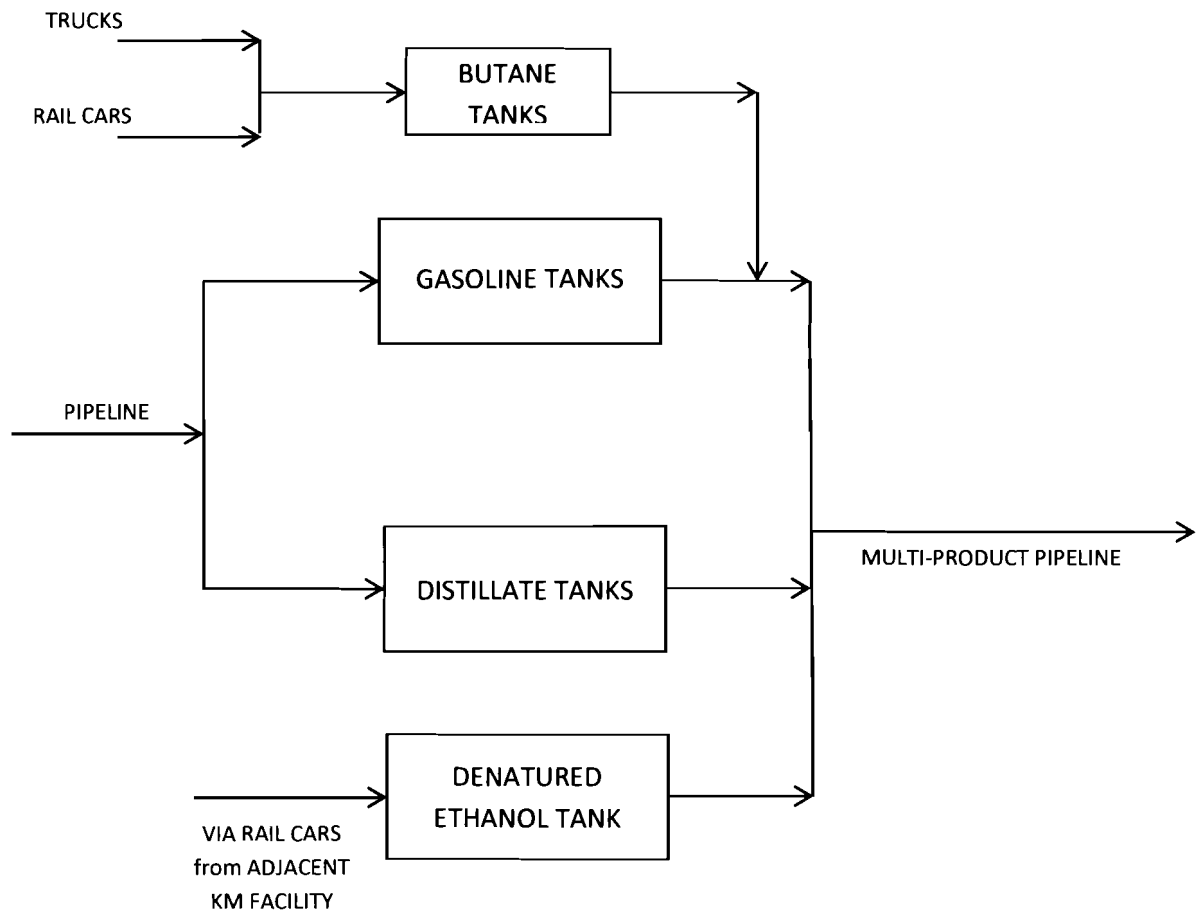


FIGURE 3 – FLOW DIAGRAM FEBRUARY 2016	PALMETTO PRODUCTS PIPE LINE LLC	PALMETTO BELTON TANK FARM AND PUMP STATION ANDERSON COUNTY

APPENDIX C

EMISSION CALCULATIONS

Palmetto Belton Tank Farm
Belton, SC
Proposed VOC Emissions

Tank	Rim Seal Losses	Withdrawal Losses	Deck Fitting Losses	Deck Seam Losses	Floating Roof Landing Losses	Total
Piping	N/A	N/A	N/A	N/A	N/A	439.2
Tank 501	1,036.1	518.9	3,563.4	7,543.1	3,562.1	16,223.7
Tank 502	1,036.1	518.9	3,563.4	7,543.1	3,562.1	16,223.7
Tank 503	1,036.1	518.9	3,563.4	7,543.1	3,562.1	16,223.7
Tank 504	863.4	622.7	2,779.6	5,238.3	7,531.9	17,036.0
Tank 505	863.4	622.7	2,779.6	5,238.3	7,531.9	17,036.0
Tank 506	963.1	558.3	3,218.0	6,516.8	3,077.5	14,333.7
Tank 507	963.1	558.3	3,218.0	6,516.8	3,077.5	14,333.7
Tank 508	69.3	555.4	218.0	384.7	268.7	1,496.0
Fire Water Pump	N/A	N/A	N/A	N/A	N/A	4,211.7
Generator	N/A	N/A	N/A	N/A	N/A	881.9
Total (lbs)	6,830.7	4,474.3	22,903.4	46,524.1	32,173.8	118,439.1
Total (tons)	**3.42**	**2.24**	**11.45**	**23.26**	**16.09**	**59.22**

Notes:

1. Rim seal losses are based on a mechanical shoe seal with a rim-mounted secondary seal.
2. Withdrawal/working losses are based on an annual gasoline throughput of 196 kbpd divided evenly between tanks 501-507. Tank 508 (denatured ethanol) throughput is 10% of the total gasoline throughput (19.6 kbpd).
3. All deck fittings are gasketed/bolted per the requirements of 40 CFR Part 60, Subpart K(b).
4. Deck seams are 5 foot wide bolted sheets.
5. Except for tanks 504 and 505, emissions include one floating roof drain dry landing in January, March, April and September. Tanks 504 and 505 emissions include one floating roof drain dry landing every month. The roof leg height is one (1) foot.

Palmetto Belton Tank Farm
Belton, SC
Proposed VOC and HAP Emissions

Source	VOC	Benzene	Cumene	Ethyl-benzene	Hexane	MTBE	Trimethyl-pentane	Toluene	Xylene	Aggregate HAPs
Piping	439.2	6.18	1.72	4.81	3.43	1.72	13.74	24.04	24.04	79.7
Tank 501	16,223.7	90.31	3.61	13.51	77.83	69.49	113.41	128.10	73.40	569.7
Tank 502	16,223.7	90.31	3.61	13.51	77.83	69.49	113.41	128.10	73.40	569.7
Tank 503	16,223.7	90.31	3.61	13.51	77.83	69.49	113.41	128.10	73.40	569.7
Tank 504	17,036.0	96.38	4.19	15.32	82.54	73.27	122.45	140.36	82.77	617.3
Tank 505	17,036.0	96.38	4.19	15.32	82.54	73.27	122.45	140.36	82.77	617.3
Tank 506	14,333.7	81.09	3.68	13.30	69.31	61.48	103.63	119.62	71.61	523.7
Tank 507	14,333.7	81.09	3.68	13.30	69.31	61.48	103.63	119.62	71.61	523.7
Tank 508	1,496.0	1.59	0.15	0.47	1.25	1.04	2.35	3.17	2.44	12.5
Fire Water Pump	4,211.7	0.79	0.00	0.00	0.00	0.00	0.00	0.29	0.20	1.7
Generator	881.9	0.26	0.00	0.00	0.00	0.00	0.00	0.10	0.07	0.6
Total (lbs)	118,439.1	634.68	28.44	103.06	541.88	480.71	808.50	931.87	555.71	4,085.5
Total (tons)	**59.22**	**0.32**	**0.01**	**0.05**	**0.27**	**0.24**	**0.40**	**0.47**	**0.28**	**2.04**

VOC and HAP Emissions from Exempt Sources

Source	VOC	Benzene	Cumene	Ethyl-benzene	Hexane	MTBE	Trimethyl-pentane	Toluene	Xylene	Aggregate HAPs
SCCI Tank	2.0	0.01	0.00	0.04	0.03	0.00	0.00	0.13	0.12	0.3
Wastewater Tank	4,768.7	33.24	0.44	2.67	29.54	26.81	38.28	38.42	15.79	185.2
Sump	998.2	6.50	0.08	0.49	5.86	5.44	7.41	7.29	2.91	36.0
Dye Tank	7.5	0.07	0.00	0.01	0.27	0.00	0.00	0.07	0.03	0.4
Total (lbs)	5,776.4	39.82	0.52	3.21	35.69	32.24	45.69	45.90	18.87	221.9

Facility-wide VOC and HAP Potential-to-Emit (combined Proposed and Exempt Sources)

Equipment	VOC	Benzene	Cumene	Ethyl-benzene	Hexane	MTBE	Trimethyl-pentane	Toluene	Xylene	Aggregate HAPs
Total (lbs)	124,215.5	674.50	28.96	106.27	577.57	512.96	854.18	977.77	574.58	4,307.4
Total (tons)	**62.11**	**0.34**	**0.01**	**0.05**	**0.29**	**0.26**	**0.43**	**0.49**	**0.29**	**2.15**

Note:
1. See calculaton sheets attached.

Palmetto Belton Tank Farm
Belton, SC
Piping Fugitive Emissions

Gasoline Piping Fugitive Emissions					
Equipment Type	**Service**	**Quantity**	**Emission Factor (kgs/hr/ source)**	**Hours in Service**	**Emissions (lbs/yr)**
Valves	Light Liquid	133	4.3E-05	8,760	110.2
Pump Seals	Light Liquid	10	5.4E-04	8,760	104.1
Others	Light Liquid	30	1.3E-04	8,760	75.2
Fittings	Light Liquid	350	8.0E-06	8,760	54.0
Total					**343.4**

Gasoline HAP Speciation		
HAP	**Liquid Weight %**	**HAP Emissions (lbs/yr)**
Benzene	1.80%	6.18
Cumene	0.50%	1.72
Ethylbenzene	1.40%	4.81
Hexane	1.00%	3.43
MTBE	0.50%	1.72
Trimethylpentane	4.00%	13.74
Toluene	7.00%	24.04
Xylene	7.00%	24.04
Aggregate HAPs	23.20%	79.67

Butane Piping Fugitive Emissions					
Equipment Type	**Service**	**Quantity**	**Emission Factor (kgs/hr/ source)**	**Hours in Service**	**Emissions (lbs/yr)**
Valves	Light Liquid	32	4.3E-05	8,760	26.5
Pump Seals	Light Liquid	3	5.4E-04	8,760	31.2
Fittings	Light Liquid	247	8.0E-06	8,760	38.1
Total					**95.8**

Note: The emission factors are per in EPA-453/R-95-017, Protocol for Equipment Leak Emission Estimates, Table 2-3. Marketing Terminal Average Emission Factors

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Tank
Tank Identification and Physical Characteristics

Identification	
User Identification	Tank #501
City	Belton
State	South Carolina
Company	Palmetto Belton Tank Farm
Description	Gasoline

Rim-Seal System
Mechanical Shoe, Rim-mounted Secondary

Deck Characteristics	
Deck Fitting Category	Detail
Deck Type	Bolted
Deck Seam	Sheet - 5 ft wide
Deck Seam Length (ft)	3,822.69

Deck Fitting	Quantity
Access Hatch (24-in Diam.)/Bolted Cover, Gasketed	2
Automatic Gauge Float Well, Unbolted Cover, Gasketed	1
Ladder Well (36-in. Diam.), Sliding Cover, Gasketed	1
Sample Pipe or Well (24 in. Diam.) Slit Fabric Seal 10% Open	1
Stub Drain (1-in. Diameter)	195
Vacuum Breaker (10-in. Diam.), Weighted Mech. Actuation, Gasketed	2
Column Well (24-in. Diam.) Built-Up Sliding Cover, Gasketed	0

Tank Dimensions	
Diameter (ft)	156.00
Volume (bbls)	150,000
Turnovers	2,861.60
Self Supp. Roof? (y/n)	Y
No. of Columns	0
Eff. Column Diameter (ft)	0

Paint Characteristics	
Internal Shell Condition	Light Rust
Shell Color/Shade	White/White
Shell Condition	Good
Roof Color/Shade	Aluminum_Diffuse
Roof Condition	Good

Tank Location		
Meteorological Data Used	Spartanburg	SC
Average Atmospheric Pressure	14.254	psia

Material Stored/Throughput	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Material Stored	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_12.5	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_12.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5
Product Type	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil
Throughput (gals)	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000
Number of Drain-Dry Landings	1	0	1	1	0	0	0	0	1	0	0	0
Number of Drain-Dry Refloats	1	0	1	1	0	0	0	0	1	0	0	0
Roof Leg Height (ft)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Liquid Contents of Storage Tank

Palmetto Belton Tank Farm **Belton**
Tank #501 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Product Stored	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_12.5	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_12.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5
Average Vapor Pressure, psia (eq 1-24)	5.7095	6.1786	6.2474	5.8059	6.8069	7.7708	8.2028	7.9739	8.9608	8.5885	7.1476	6.0515
Antoine Coefficient, A (Fig. 7.1-15)	11.610	11.610	11.656	11.724	11.724	11.724	11.724	11.724	11.656	11.610	11.610	11.610
Antoine Coefficient, B (Fig. 7.1-15)	4,963.0	4,963.0	5,072.5	5,237.3	5,237.3	5,237.3	5,237.3	5,237.3	5,072.5	4,963.0	4,963.0	4,963.0
Avg Liquid Surface Temperature, °F (eq 1-26)	43.3	47.3	56.7	65.9	74.4	81.7	84.8	83.2	76.4	65.0	55.0	46.2
Bulk Liquid Temperature, °R (eq 1-28)	501.0	504.3	512.7	520.8	528.9	535.9	539.2	538.1	532.1	521.4	512.5	504.3
Daily Avg Amb Temp, °R (eq 1-27)	499.7	503.0	511.4	519.5	527.6	534.6	537.9	536.8	530.8	520.1	511.2	503.0
Daily Max Amb Temp, °R (Table 7.1-7)	509.8	514.0	523.2	531.7	539.1	545.2	547.9	546.5	540.8	531.6	522.2	512.9
Daily Min Amb Temp, °R (Table 7.1-7)	489.7	492.1	499.6	507.3	516.1	524.1	528.0	527.1	520.9	508.7	500.2	493.1
Paint Solar Absortance, α	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Shell Paint Solar Abs, α (Table 7.1-6)	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Roof Paint Solar Abs, α (Table 7.1-6)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Daily Total Solar Ins (Table 7.1-7)	813.8	1,062.5	1,401.4	1,761.5	1,901.1	1,987.4	1,903.3	1,756.4	1,477.8	1,243.4	901.0	725.6
Liquid Molecular Weight	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Benzene												
Vapor Mass Fraction (eq 4-6)	0.0034	0.0036	0.0045	0.0059	0.0063	0.0067	0.0068	0.0068	0.0053	0.0042	0.0039	0.0035
Vapor Mole Fraction (eq 4-5)	0.0027	0.0028	0.0036	0.0050	0.0054	0.0057	0.0058	0.0057	0.0043	0.0033	0.0030	0.0028
Partial Vapor Pressure, psia (eq 4-3)	0.0153	0.0172	0.0226	0.0291	0.0364	0.0439	0.0474	0.0455	0.0383	0.0284	0.0215	0.0167
Saturated Vapor Pressure, psia (eq-1-25)	0.7203	0.8127	1.0648	1.3721	1.7192	2.0720	2.2354	2.1484	1.8086	1.3382	1.0142	0.7873
Liquid Mole Fraction (eq 4-4)	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212
Molecular Weight (Table 7.1-3)	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11
Liquid Mass Fraction	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180
Cumene												
Vapor Mass Fraction (eq 4-6)	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000
Vapor Mole Fraction (eq 4-5)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
Partial Vapor Pressure, psia (eq 4-3)	0.0001	0.0001	0.0002	0.0002	0.0003	0.0004	0.0004	0.0004	0.0003	0.0002	0.0002	0.0001
Saturated Vapor Pressure, psia (eq-1-25)	0.0250	0.0295	0.0425	0.0598	0.0810	0.1041	0.1153	0.1093	0.0868	0.0578	0.0398	0.0282
Liquid Mole Fraction (eq 4-4)	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038
Molecular Weight (Table 7.1-3)	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Ethylbenzene												
Vapor Mass Fraction (eq 4-6)	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0006	0.0006	0.0004	0.0003	0.0003	0.0002
Vapor Mole Fraction (eq 4-5)	0.0001	0.0001	0.0002	0.0003	0.0003	0.0003	0.0004	0.0004	0.0003	0.0002	0.0002	0.0001
Partial Vapor Pressure, psia (eq 4-3)	0.0007	0.0008	0.0012	0.0016	0.0021	0.0027	0.0030	0.0028	0.0023	0.0016	0.0011	0.0008
Saturated Vapor Pressure, psia (eq-1-25)	0.0591	0.0688	0.0966	0.1329	0.1763	0.2226	0.2448	0.2330	0.1878	0.1287	0.0909	0.0661
Liquid Mole Fraction (eq 4-4)	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140
Hexane												
Vapor Mass Fraction (eq 4-6)	0.0032	0.0033	0.0041	0.0053	0.0056	0.0059	0.0060	0.0059	0.0047	0.0038	0.0035	0.0033

Vapor Mole Fraction (eq 4-5)	0.0023	0.0024	0.0030	0.0041	0.0043	0.0045	0.0046	0.0045	0.0034	0.0027	0.0025	0.0023
Partial Vapor Pressure, psia (eq 4-3)	0.0130	0.0145	0.0187	0.0238	0.0294	0.0350	0.0376	0.0362	0.0308	0.0232	0.0179	0.0141
Saturated Vapor Pressure, psia (eq-1-25)	1.2162	1.3619	1.7546	2.2258	2.7507	3.2777	3.5200	3.3911	2.8848	2.1741	1.6763	1.3220
Liquid Mole Fraction (eq 4-4)	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107
Molecular Weight (Table 7.1-3)	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17
Liquid Mass Fraction	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100
MTBE												
Vapor Mass Fraction (eq 4-6)	0.0031	0.0032	0.0039	0.0050	0.0051	0.0053	0.0053	0.0053	0.0043	0.0036	0.0034	0.0032
Vapor Mole Fraction (eq 4-5)	0.0022	0.0022	0.0028	0.0037	0.0038	0.0039	0.0040	0.0039	0.0030	0.0025	0.0023	0.0022
Partial Vapor Pressure, psia (eq 4-3)	0.0124	0.0138	0.0174	0.0216	0.0261	0.0305	0.0326	0.0315	0.0273	0.0211	0.0167	0.0134
Saturated Vapor Pressure, psia (eq-1-25)	2.3735	2.6359	3.3279	4.1330	5.0034	5.8540	6.2382	6.0344	5.2220	4.0458	3.1915	2.5643
Liquid Mole Fraction (eq 4-4)	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052
Molecular Weight (Table 7.1-3)	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Trimethylpentane												
Vapor Mass Fraction (eq 4-6)	0.0038	0.0040	0.0051	0.0068	0.0073	0.0078	0.0079	0.0078	0.0061	0.0048	0.0043	0.0039
Vapor Mole Fraction (eq 4-5)	0.0020	0.0021	0.0028	0.0039	0.0042	0.0045	0.0046	0.0045	0.0034	0.0026	0.0023	0.0021
Partial Vapor Pressure, psia (eq 4-3)	0.0116	0.0132	0.0174	0.0227	0.0287	0.0348	0.0377	0.0362	0.0302	0.0221	0.0166	0.0127
Saturated Vapor Pressure, psia (eq-1-25)	0.3605	0.4087	0.5412	0.7043	0.8903	1.0808	1.1695	1.1222	0.9384	0.6862	0.5145	0.3954
Liquid Mole Fraction (eq 4-4)	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322
Molecular Weight (Table 7.1-3)	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300
Liquid Mass Fraction	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400
Toluene												
Vapor Mass Fraction (eq 4-6)	0.0035	0.0038	0.0049	0.0066	0.0073	0.0079	0.0081	0.0080	0.0062	0.0047	0.0042	0.0037
Vapor Mole Fraction (eq 4-5)	0.0023	0.0025	0.0033	0.0048	0.0052	0.0057	0.0058	0.0057	0.0042	0.0031	0.0028	0.0024
Partial Vapor Pressure, psia (eq 4-3)	0.0134	0.0154	0.0208	0.0277	0.0356	0.0439	0.0478	0.0457	0.0377	0.0269	0.0197	0.0148
Saturated Vapor Pressure, psia (eq-1-25)	0.1918	0.2197	0.2976	0.3956	0.5096	0.6284	0.6842	0.6544	0.5394	0.3847	0.2818	0.2120
Liquid Mole Fraction (eq 4-4)	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699
Molecular Weight (Table 7.1-3)	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700
Xylene												
Vapor Mass Fraction (eq 4-6)	0.0013	0.0014	0.0019	0.0027	0.0030	0.0033	0.0034	0.0034	0.0025	0.0019	0.0016	0.0014
Vapor Mole Fraction (eq 4-5)	0.0008	0.0008	0.0011	0.0017	0.0019	0.0021	0.0021	0.0021	0.0015	0.0011	0.0009	0.0008
Partial Vapor Pressure, psia (eq 4-3)	0.0043	0.0050	0.0070	0.0096	0.0127	0.0159	0.0175	0.0167	0.0135	0.0093	0.0066	0.0048
Saturated Vapor Pressure, psia (eq-1-25)	0.0712	0.0827	0.1155	0.1580	0.2087	0.2628	0.2886	0.2748	0.2222	0.1532	0.1087	0.0795
Liquid Mole Fraction (eq 4-4)	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700

Antoine Coefficients for HAPs (Table 7.1-5)	A	B	C
Benzene	6.905	1211.033	220.79
Cumene	6.93666	1460.793	207.78
Ethylbenzene	6.975	1424.255	213.21
Hexane	6.876	1171.17	224.41
MTBE	5.896	708.69	179.9
Trimethylpentane	6.8118	1257.84	220.74
Toluene	6.954	1344.8	219.48
Xylene	7.009	1426.266	215.11

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Storage Tank Withdrawal and Breathing Emissions

Palmetto Belton Tank Farm **Belton**
Tank #501 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rim Seal Losses, lbs (Eq. 2-2)	**61.71**	**61.81**	**71.72**	**66.03**	**84.42**	**98.74**	**110.70**	**106.04**	**117.64**	**109.92**	**80.85**	**66.57**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Seal Factor A, lb-mole/ft-yr (Table 7.1-8)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Tank Diameter, ft	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Average Vapor Pressure, psia (eq 1-24)	5.710	6.179	6.247	5.806	6.807	7.771	8.203	7.974	8.961	8.589	7.148	6.051
Average Atmospheric Pressure, psia	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Withdrawal Losses, lbs (Eq. 2-4)	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**
Net Throughput, gals	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000
Clingage Factor, bbl/1000 sq ft, (Table 7.1-10)	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Liquid Density, lb/gal (Tables 7.1-2 and 7.1-3)	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60
Tank Diameter, ft	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00
Number of Columns	0	0	0	0	0	0	0	0	0	0	0	0
Effective Column Diameter, ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deck Fitting Losses, lbs (Eq. 2-5)	**212.22**	**212.56**	**246.66**	**227.08**	**290.33**	**339.57**	**380.71**	**364.68**	**404.58**	**378.02**	**278.05**	**228.95**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Deck Fitting Loss Factor, lb-mole/yr (eq 2-6)	321.90	321.90	321.90	321.90	321.90	321.90	321.90	321.90	321.90	321.90	321.90	321.90
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Deck Seam Losses, lbs (Eq. 2-9)	**449.23**	**449.96**	**522.13**	**480.68**	**614.58**	**718.80**	**805.89**	**771.96**	**856.43**	**800.20**	**588.59**	**484.64**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Deck Seam Loss per Unit Length, lb-mole/ft-yr	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Deck Seam Length Factor, ft/ft2 (Table 7.1-16)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Tank Diameter, ft	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Deck Fitting	Quantity	Deck Fitting Loss Factors, Kfa (Table 7.1-12)
Access Hatch (24-in Diam.)/Bolted Cover, Gasketed	2	1.60
Automatic Gauge Float Well, Unbolted Cover, Gasketed	1	4.30
Ladder Well (36-in. Diam.), Sliding Cover, Gasketed	1	56.00
Sample Pipe or Well (24 in. Diam.) Slit Fabric Seal 10% Open	1	12.00
Stub Drain (1-in. Diameter)	195	1.20
Vacuum Breaker (10-in. Diam.), Weighted Mech. Actuation, Gasketed	2	6.20
Column Well (24-in. Diam.) Built-Up Sliding Cover, Gasketed	0	33.00

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Storage Tank Drain Dry Roof Landing Emissions

Palmetto Belton Tank Farm **Belton**
Tank #501 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Drain Dry Landing Losses (lbs)	**859.34**	**0.00**	**877.97**	**869.12**	**0.00**	**0.00**	**0.00**	**0.00**	**955.69**	**0.00**	**0.00**	**0.00**
Standing Idle Losses, lbs	674.32	0.00	674.32	674.32	0.00	0.00	0.00	0.00	674.32	0.00	0.00	0.00
Number of Drain-Dry Landings	1	0	1	1	0	0	0	0	1	0	0	0
Standing Idle Loss (eq. 2-22)	674.32	0.00	674.32	674.32	0.00	0.00	0.00	0.00	674.32	0.00	0.00	0.00
Average Organic Liquid Density, lb/gal	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60
Tank Diameter, ft	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00
Standing Idle Loss (eq. 2-23)	740.07	0.00	814.57	779.19	0.00	0.00	0.00	0.00	1,125.47	0.00	0.00	0.00
Average Vapor Pressure, psia (eq 1-24)	5.71	6.18	6.25	5.81	6.81	7.77	8.20	7.97	8.96	8.59	7.15	6.05
Volume of Vapor Space, ft3	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4
Leg Height, ft	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Tank Diameter, ft	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00
Ideal Gas Const, psia-ft3/lb-mol °R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Daily Avg Liq Surf Temp, °R	502.93	506.99	516.37	525.56	534.09	541.40	544.44	542.85	536.05	524.64	514.64	505.91
Vapor Molecular Weight	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Filling Losses, lbs (Eq. 2-26)	185.02	0.00	203.64	194.80	0.00	0.00	0.00	0.00	281.37	0.00	0.00	0.00
Number of Drain-Dry Refloats	1	0	1	1	0	0	0	0	1	0	0	0
Average Vapor Pressure, psia (eq 1-24)	5.71	6.18	6.25	5.81	6.81	7.77	8.20	7.97	8.96	8.59	7.15	6.05
Volume of Vapor Space, ft3	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4
Ideal Gas Const, psia-cuft/lb-mol °R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Avg Liquid Surface Temperature, °R (eq 1-26)	502.9	507.0	516.4	525.6	534.1	541.4	544.4	542.8	536.0	524.6	514.6	505.9
Vapor Molecular Weight	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Filling Saturation Factor, S	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Tank Emissions Summary

Palmetto Belton Tank Farm **Belton**
Tank #501 **Gasoline**

Month	VOC	Benzene	Cumene	Ethylbenzene	Hexane	MTBE	Trimethyl pentane	Toluene	Xylene	Aggregate HAPs
January	1,625.7	6.20	0.27	0.95	5.52	5.18	7.76	8.64	5.11	39.62
February	767.6	3.36	0.24	0.78	2.84	2.55	4.62	5.75	4.05	24.19
March	1,761.7	8.48	0.30	1.15	7.48	6.90	10.43	11.40	6.27	52.40
April	1,686.1	10.52	0.33	1.34	9.21	8.37	12.84	13.95	7.39	63.95
May	1,032.6	7.05	0.30	1.11	6.01	5.28	8.94	10.25	5.99	44.93
June	1,200.3	8.52	0.32	1.25	7.24	6.29	10.70	12.16	6.85	53.33
July	1,340.5	9.65	0.34	1.36	8.19	7.09	12.04	13.59	7.48	59.75
August	1,285.9	9.18	0.33	1.31	7.80	6.77	11.48	12.98	7.21	57.06
September	2,377.6	13.16	0.38	1.61	11.41	10.15	16.01	17.39	8.94	79.05
October	1,331.4	6.23	0.28	1.01	5.35	4.79	7.94	9.12	5.45	40.17
November	990.7	4.43	0.26	0.86	3.78	3.41	5.84	6.97	4.55	30.10
December	823.4	3.53	0.24	0.79	3.00	2.71	4.81	5.91	4.11	25.10
Total	**16,223.7**	**90.31**	**3.61**	**13.51**	**77.83**	**69.49**	**113.41**	**128.10**	**73.40**	**569.66**

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Tank
Tank Identification and Physical Characteristics

Identification	
User Identification	Tank #502
City	Belton
State	South Carolina
Company	Palmetto Belton Tank Farm
Description	Gasoline

Rim-Seal System
Mechanical Shoe, Rim-mounted Secondary

Deck Characteristics	
Deck Fitting Category	Detail
Deck Type	Bolted
Deck Seam	Sheet - 5 ft wide
Deck Seam Length (ft)	3,822.69

Deck Fitting	Quantity
Access Hatch (24-in Diam.)/Bolted Cover, Gasketed	2
Automatic Gauge Float Well, Unbolted Cover, Gasketed	1
Ladder Well (36-in. Diam.), Sliding Cover, Gasketed	1
Sample Pipe or Well (24 in. Diam.) Slit Fabric Seal 10% Open	1
Stub Drain (1-in. Diameter)	195
Vacuum Breaker (10-in. Diam.), Weighted Mech. Actuation, Gasketed	2
Column Well (24-in. Diam.) Built-Up Sliding Cover, Gasketed	0

Tank Dimensions	
Diameter (ft)	156.00
Volume (bbls)	150,000
Turnovers	2,861.60
Self Supp. Roof? (y/n)	Y
No. of Columns	0
Eff. Column Diameter (ft)	0

Paint Characteristics	
Internal Shell Condition	Light Rust
Shell Color/Shade	White/White
Shell Condition	Good
Roof Color/Shade	Aluminum_Diffuse
Roof Condition	Good

Tank Location		
Meteorological Data Used	Spartanburg	SC
Average Atmospheric Pressure	14.254	psia

Material Stored/Throughput	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Material Stored	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_12.5	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_12.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5
Product Type	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil
Throughput (gals)	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000
Number of Drain-Dry Landings	1	0	1	1	0	0	0	0	1	0	0	0
Number of Drain-Dry Refloats	1	0	1	1	0	0	0	0	1	0	0	0
Roof Leg Height (ft)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Liquid Contents of Storage Tank

Palmetto Belton Tank Farm **Belton**
Tank #502 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Product Stored	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_12.5	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_12.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5
Average Vapor Pressure, psia (eq 1-24)	5.7095	6.1786	6.2474	5.8059	6.8069	7.7708	8.2028	7.9739	8.9608	8.5885	7.1476	6.0515
Antoine Coefficient, A (Fig. 7.1-15)	11.610	11.610	11.656	11.724	11.724	11.724	11.724	11.724	11.656	11.610	11.610	11.610
Antoine Coefficient, B (Fig. 7.1-15)	4,963.0	4,963.0	5,072.5	5,237.3	5,237.3	5,237.3	5,237.3	5,237.3	5,072.5	4,963.0	4,963.0	4,963.0
Avg Liquid Surface Temperature, °F (eq 1-26)	43.3	47.3	56.7	65.9	74.4	81.7	84.8	83.2	76.4	65.0	55.0	46.2
Bulk Liquid Temperature, °R (eq 1-28)	501.0	504.3	512.7	520.8	528.9	535.9	539.2	538.1	532.1	521.4	512.5	504.3
Daily Avg Amb Temp, °R (eq 1-27)	499.7	503.0	511.4	519.5	527.6	534.6	537.9	536.8	530.8	520.1	511.2	503.0
Daily Max Amb Temp, °R (Table 7.1-7)	509.8	514.0	523.2	531.7	539.1	545.2	547.9	546.5	540.8	531.6	522.2	512.9
Daily Min Amb Temp, °R (Table 7.1-7)	489.7	492.1	499.6	507.3	516.1	524.1	528.0	527.1	520.9	508.7	500.2	493.1
Paint Solar Absorbance, α	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Shell Paint Solar Abs, α (Table 7.1-6)	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Roof Paint Solar Abs, α (Table 7.1-6)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Daily Total Solar Ins (Table 7.1-7)	813.8	1,062.5	1,401.4	1,761.5	1,901.1	1,987.4	1,903.3	1,756.4	1,477.8	1,243.4	901.0	725.6
Liquid Molecular Weight	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Benzene												
Vapor Mass Fraction (eq 4-6)	0.0034	0.0036	0.0045	0.0059	0.0063	0.0067	0.0068	0.0068	0.0053	0.0042	0.0039	0.0035
Vapor Mole Fraction (eq 4-5)	0.0027	0.0028	0.0036	0.0050	0.0054	0.0057	0.0058	0.0057	0.0043	0.0033	0.0030	0.0028
Partial Vapor Pressure, psia (eq 4-3)	0.0153	0.0172	0.0226	0.0291	0.0364	0.0439	0.0474	0.0455	0.0383	0.0284	0.0215	0.0167
Saturated Vapor Pressure, psia (eq-1-25)	0.7203	0.8127	1.0648	1.3721	1.7192	2.0720	2.2354	2.1484	1.8086	1.3382	1.0142	0.7873
Liquid Mole Fraction (eq 4-4)	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212
Molecular Weight (Table 7.1-3)	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11
Liquid Mass Fraction	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180
Cumene												
Vapor Mass Fraction (eq 4-6)	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000
Vapor Mole Fraction (eq 4-5)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
Partial Vapor Pressure, psia (eq 4-3)	0.0001	0.0001	0.0002	0.0002	0.0003	0.0004	0.0004	0.0004	0.0003	0.0002	0.0002	0.0001
Saturated Vapor Pressure, psia (eq-1-25)	0.0250	0.0295	0.0425	0.0598	0.0810	0.1041	0.1153	0.1093	0.0868	0.0578	0.0398	0.0282
Liquid Mole Fraction (eq 4-4)	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038
Molecular Weight (Table 7.1-3)	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Ethylbenzene												
Vapor Mass Fraction (eq 4-6)	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0006	0.0006	0.0004	0.0003	0.0003	0.0002
Vapor Mole Fraction (eq 4-5)	0.0001	0.0001	0.0002	0.0003	0.0003	0.0003	0.0004	0.0004	0.0003	0.0002	0.0002	0.0001
Partial Vapor Pressure, psia (eq 4-3)	0.0007	0.0008	0.0012	0.0016	0.0021	0.0027	0.0030	0.0028	0.0023	0.0016	0.0011	0.0008
Saturated Vapor Pressure, psia (eq-1-25)	0.0591	0.0688	0.0966	0.1329	0.1763	0.2226	0.2448	0.2330	0.1878	0.1287	0.0909	0.0661
Liquid Mole Fraction (eq 4-4)	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140
Hexane												
Vapor Mass Fraction (eq 4-6)	0.0032	0.0033	0.0041	0.0053	0.0056	0.0059	0.0060	0.0059	0.0047	0.0038	0.0035	0.0033

Vapor Mole Fraction (eq 4-5)	0.0023	0.0024	0.0030	0.0041	0.0043	0.0045	0.0046	0.0045	0.0034	0.0027	0.0025	0.0023
Partial Vapor Pressure, psia (eq 4-3)	0.0130	0.0145	0.0187	0.0238	0.0294	0.0350	0.0376	0.0362	0.0308	0.0232	0.0179	0.0141
Saturated Vapor Pressure, psia (eq-1-25)	1.2162	1.3619	1.7546	2.2258	2.7507	3.2777	3.5200	3.3911	2.8848	2.1741	1.6763	1.3220
Liquid Mole Fraction (eq 4-4)	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107
Molecular Weight (Table 7.1-3)	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17
Liquid Mass Fraction	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100
MTBE												
Vapor Mass Fraction (eq 4-6)	0.0031	0.0032	0.0039	0.0050	0.0051	0.0053	0.0053	0.0053	0.0043	0.0036	0.0034	0.0032
Vapor Mole Fraction (eq 4-5)	0.0022	0.0022	0.0028	0.0037	0.0038	0.0039	0.0040	0.0039	0.0030	0.0025	0.0023	0.0022
Partial Vapor Pressure, psia (eq 4-3)	0.0124	0.0138	0.0174	0.0216	0.0261	0.0305	0.0326	0.0315	0.0273	0.0211	0.0167	0.0134
Saturated Vapor Pressure, psia (eq-1-25)	2.3735	2.6359	3.3279	4.1330	5.0034	5.8540	6.2382	6.0344	5.2220	4.0458	3.1915	2.5643
Liquid Mole Fraction (eq 4-4)	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052
Molecular Weight (Table 7.1-3)	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Trimethylpentane												
Vapor Mass Fraction (eq 4-6)	0.0038	0.0040	0.0051	0.0068	0.0073	0.0078	0.0079	0.0078	0.0061	0.0048	0.0043	0.0039
Vapor Mole Fraction (eq 4-5)	0.0020	0.0021	0.0028	0.0039	0.0042	0.0045	0.0046	0.0045	0.0034	0.0026	0.0023	0.0021
Partial Vapor Pressure, psia (eq 4-3)	0.0116	0.0132	0.0174	0.0227	0.0287	0.0348	0.0377	0.0362	0.0302	0.0221	0.0166	0.0127
Saturated Vapor Pressure, psia (eq-1-25)	0.3605	0.4087	0.5412	0.7043	0.8903	1.0808	1.1695	1.1222	0.9384	0.6862	0.5145	0.3954
Liquid Mole Fraction (eq 4-4)	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322
Molecular Weight (Table 7.1-3)	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300
Liquid Mass Fraction	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400
Toluene												
Vapor Mass Fraction (eq 4-6)	0.0035	0.0038	0.0049	0.0066	0.0073	0.0079	0.0081	0.0080	0.0062	0.0047	0.0042	0.0037
Vapor Mole Fraction (eq 4-5)	0.0023	0.0025	0.0033	0.0048	0.0052	0.0057	0.0058	0.0057	0.0042	0.0031	0.0028	0.0024
Partial Vapor Pressure, psia (eq 4-3)	0.0134	0.0154	0.0208	0.0277	0.0356	0.0439	0.0478	0.0457	0.0377	0.0269	0.0197	0.0148
Saturated Vapor Pressure, psia (eq-1-25)	0.1918	0.2197	0.2976	0.3956	0.5096	0.6284	0.6842	0.6544	0.5394	0.3847	0.2818	0.2120
Liquid Mole Fraction (eq 4-4)	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699
Molecular Weight (Table 7.1-3)	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700
Xylene												
Vapor Mass Fraction (eq 4-6)	0.0013	0.0014	0.0019	0.0027	0.0030	0.0033	0.0034	0.0034	0.0025	0.0019	0.0016	0.0014
Vapor Mole Fraction (eq 4-5)	0.0008	0.0008	0.0011	0.0017	0.0019	0.0021	0.0021	0.0021	0.0015	0.0011	0.0009	0.0008
Partial Vapor Pressure, psia (eq 4-3)	0.0043	0.0050	0.0070	0.0096	0.0127	0.0159	0.0175	0.0167	0.0135	0.0093	0.0066	0.0048
Saturated Vapor Pressure, psia (eq-1-25)	0.0712	0.0827	0.1155	0.1580	0.2087	0.2628	0.2886	0.2748	0.2222	0.1532	0.1087	0.0795
Liquid Mole Fraction (eq 4-4)	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700

Antoine Coefficients for HAPs (Table 7.1-5)	A	B	C
Benzene	6.905	1211.033	220.79
Cumene	6.93666	1460.793	207.78
Ethylbenzene	6.975	1424.255	213.21
Hexane	6.876	1171.17	224.41
MTBE	5.896	708.69	179.9
Trimethylpentane	6.8118	1257.84	220.74
Toluene	6.954	1344.8	219.48
Xylene	7.009	1426.266	215.11

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Storage Tank Withdrawal and Breathing Emissions

Palmetto Belton Tank Farm **Belton**
Tank #502 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rim Seal Losses, lbs (Eq. 2-2)	**61.71**	**61.81**	**71.72**	**66.03**	**84.42**	**98.74**	**110.70**	**106.04**	**117.64**	**109.92**	**80.85**	**66.57**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Seal Factor A, lb-mole/ft-yr (Table 7.1-8)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Tank Diameter, ft	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Average Vapor Pressure, psia (eq 1-24)	5.710	6.179	6.247	5.806	6.807	7.771	8.203	7.974	8.961	8.589	7.148	6.051
Average Atmospheric Pressure, psia	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Withdrawal Losses, lbs (Eq. 2-4)	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**
Net Throughput, gals	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000
Clingage Factor, bbl/1000 sq ft, (Table 7.1-10)	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Liquid Density, lb/gal (Tables 7.1-2 and 7.1-3)	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60
Tank Diameter, ft	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00
Number of Columns	0	0	0	0	0	0	0	0	0	0	0	0
Effective Column Diameter, ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deck Fitting Losses, lbs (Eq. 2-5)	**212.22**	**212.56**	**246.66**	**227.08**	**290.33**	**339.57**	**380.71**	**364.68**	**404.58**	**378.02**	**278.05**	**228.95**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Deck Fitting Loss Factor, lb-mole/yr (eq 2-6)	321.90	321.90	321.90	321.90	321.90	321.90	321.90	321.90	321.90	321.90	321.90	321.90
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Deck Seam Losses, lbs (Eq. 2-9)	**449.23**	**449.96**	**522.13**	**480.68**	**614.58**	**718.80**	**805.89**	**771.96**	**856.43**	**800.20**	**588.59**	**484.64**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Deck Seam Loss per Unit Length, lb-mole/ft-yr	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Deck Seam Length Factor, ft/ft2 (Table 7.1-16)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Tank Diameter, ft	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Deck Fitting	Quantity	Deck Fitting Loss Factors, Kfa (Table 7.1-12)
Access Hatch (24-in Diam.)/Bolted Cover, Gasketed	2	1.60
Automatic Gauge Float Well, Unbolted Cover, Gasketed	1	4.30
Ladder Well (36-in. Diam.), Sliding Cover, Gasketed	1	56.00
Sample Pipe or Well (24 in. Diam.) Slit Fabric Seal 10% Open	1	12.00
Stub Drain (1-in. Diameter)	195	1.20
Vacuum Breaker (10-in. Diam.), Weighted Mech. Actuation, Gasketed	2	6.20
Column Well (24-in. Diam.) Built-Up Sliding Cover, Gasketed	0	33.00

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Storage Tank Drain Dry Roof Landing Emissions

Palmetto Belton Tank Farm **Belton**
Tank #502 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Drain Dry Landing Losses (lbs)	**859.34**	**0.00**	**877.97**	**869.12**	**0.00**	**0.00**	**0.00**	**0.00**	**955.69**	**0.00**	**0.00**	**0.00**
Standing Idle Losses, lbs	674.32	0.00	674.32	674.32	0.00	0.00	0.00	0.00	674.32	0.00	0.00	0.00
Number of Drain-Dry Landings	1	0	1	1	0	0	0	0	1	0	0	0
Standing Idle Loss (eq. 2-22)	674.32	0.00	674.32	674.32	0.00	0.00	0.00	0.00	674.32	0.00	0.00	0.00
Average Organic Liquid Density, lb/gal	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60
Tank Diameter, ft	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00
Standing Idle Loss (eq. 2-23)	740.07	0.00	814.57	779.19	0.00	0.00	0.00	0.00	1,125.47	0.00	0.00	0.00
Average Vapor Pressure, psia (eq 1-24)	5.71	6.18	6.25	5.81	6.81	7.77	8.20	7.97	8.96	8.59	7.15	6.05
Volume of Vapor Space, ft3	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4
Leg Height, ft	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Tank Diameter, ft	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00
Ideal Gas Const, psia-ft3/lb-mol °R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Daily Avg Liq Surf Temp, °R	502.93	506.99	516.37	525.56	534.09	541.40	544.44	542.85	536.05	524.64	514.64	505.91
Vapor Molecular Weight	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Filling Losses, lbs (Eq. 2-26)	185.02	0.00	203.64	194.80	0.00	0.00	0.00	0.00	281.37	0.00	0.00	0.00
Number of Drain-Dry Refloats	1	0	1	1	0	0	0	0	1	0	0	0
Average Vapor Pressure, psia (eq 1-24)	5.71	6.18	6.25	5.81	6.81	7.77	8.20	7.97	8.96	8.59	7.15	6.05
Volume of Vapor Space, ft3	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4
Ideal Gas Const, psia-cuft/lb-mol °R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Avg Liquid Surface Temperature, °R (eq 1-26)	502.9	507.0	516.4	525.6	534.1	541.4	544.4	542.8	536.0	524.6	514.6	505.9
Vapor Molecular Weight	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Filling Saturation Factor, S	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Tank Emissions Summary

Palmetto Belton Tank Farm **Belton**
Tank #502 **Gasoline**

Month	VOC	Benzene	Cumene	Ethylbenzene	Hexane	MTBE	Trimethylpentane	Toluene	Xylene	Aggregate HAPs
January	1,625.7	6.20	0.27	0.95	5.52	5.18	7.76	8.64	5.11	39.62
February	767.6	3.36	0.24	0.78	2.84	2.55	4.62	5.75	4.05	24.19
March	1,761.7	8.48	0.30	1.15	7.48	6.90	10.43	11.40	6.27	52.40
April	1,686.1	10.52	0.33	1.34	9.21	8.37	12.84	13.95	7.39	63.95
May	1,032.6	7.05	0.30	1.11	6.01	5.28	8.94	10.25	5.99	44.93
June	1,200.3	8.52	0.32	1.25	7.24	6.29	10.70	12.16	6.85	53.33
July	1,340.5	9.65	0.34	1.36	8.19	7.09	12.04	13.59	7.48	59.75
August	1,285.9	9.18	0.33	1.31	7.80	6.77	11.48	12.98	7.21	57.06
September	2,377.6	13.16	0.38	1.61	11.41	10.15	16.01	17.39	8.94	79.05
October	1,331.4	6.23	0.28	1.01	5.35	4.79	7.94	9.12	5.45	40.17
November	990.7	4.43	0.26	0.86	3.78	3.41	5.84	6.97	4.55	30.10
December	823.4	3.53	0.24	0.79	3.00	2.71	4.81	5.91	4.11	25.10
Total	**16,223.7**	**90.31**	**3.61**	**13.51**	**77.83**	**69.49**	**113.41**	**128.10**	**73.40**	**569.66**

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Tank
Tank Identification and Physical Characteristics

Identification	
User Identification	Tank #503
City	Belton
State	South Carolina
Company	Palmetto Belton Tank Farm
Description	Gasoline

Rim-Seal System
Mechanical Shoe, Rim-mounted Secondary

Deck Characteristics	
Deck Fitting Category	Detail
Deck Type	Bolted
Deck Seam	Sheet - 5 ft wide
Deck Seam Length (ft)	3,822.69

Deck Fitting	Quantity
Access Hatch (24-in Diam.)/Bolted Cover, Gasketed	2
Automatic Gauge Float Well, Unbolted Cover, Gasketed	1
Ladder Well (36-in. Diam.), Sliding Cover, Gasketed	1
Sample Pipe or Well (24 in. Diam.) Slit Fabric Seal 10% Open	1
Stub Drain (1-in. Diameter)	195
Vacuum Breaker (10-in. Diam.), Weighted Mech. Actuation, Gasketed	2
Column Well (24-in. Diam.) Built-Up Sliding Cover, Gasketed	0

Tank Dimensions	
Diameter (ft)	156.00
Volume (bbls)	150,000
Turnovers	2,861.60
Self Supp. Roof? (y/n)	Y
No. of Columns	0
Eff. Column Diameter (ft)	0

Paint Characteristics	
Internal Shell Condition	Light Rust
Shell Color/Shade	White/White
Shell Condition	Good
Roof Color/Shade	Aluminum_Diffuse
Roof Condition	Good

Tank Location		
Meteorological Data Used	Spartanburg	SC
Average Atmospheric Pressure	14.254	psia

Material Stored/Throughput	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Material Stored	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_12.5	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_12.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5
Product Type	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil
Throughput (gals)	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000
Number of Drain-Dry Landings	1	0	1	1	0	0	0	0	1	0	0	0
Number of Drain-Dry Refloats	1	0	1	1	0	0	0	0	1	0	0	0
Roof Leg Height (ft)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Liquid Contents of Storage Tank

Palmetto Belton Tank Farm **Belton**
Tank #503 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Product Stored	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_12.5	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_12.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5
Average Vapor Pressure, psia (eq 1-24)	5.7095	6.1786	6.2474	5.8059	6.8069	7.7708	8.2028	7.9739	8.9608	8.5885	7.1476	6.0515
Antoine Coefficient, A (Fig. 7.1-15)	11.610	11.610	11.656	11.724	11.724	11.724	11.724	11.724	11.656	11.610	11.610	11.610
Antoine Coefficient, B (Fig. 7.1-15)	4,963.0	4,963.0	5,072.5	5,237.3	5,237.3	5,237.3	5,237.3	5,237.3	5,072.5	4,963.0	4,963.0	4,963.0
Avg Liquid Surface Temperature, °F (eq 1-26)	43.3	47.3	56.7	65.9	74.4	81.7	84.8	83.2	76.4	65.0	55.0	46.2
Bulk Liquid Temperature, °R (eq 1-28)	501.0	504.3	512.7	520.8	528.9	535.9	539.2	538.1	532.1	521.4	512.5	504.3
Daily Avg Amb Temp, °R (eq 1-27)	499.7	503.0	511.4	519.5	527.6	534.6	537.9	536.8	530.8	520.1	511.2	503.0
Daily Max Amb Temp, °R (Table 7.1-7)	509.8	514.0	523.2	531.7	539.1	545.2	547.9	546.5	540.8	531.6	522.2	512.9
Daily Min Amb Temp, °R (Table 7.1-7)	489.7	492.1	499.6	507.3	516.1	524.1	528.0	527.1	520.9	508.7	500.2	493.1
Paint Solar Absorbance, α	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Shell Paint Solar Abs, α (Table 7.1-6)	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Roof Paint Solar Abs, α (Table 7.1-6)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Daily Total Solar Ins (Table 7.1-7)	813.8	1,062.5	1,401.4	1,761.5	1,901.1	1,987.4	1,903.3	1,756.4	1,477.8	1,243.4	901.0	725.6
Liquid Molecular Weight	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Benzene												
Vapor Mass Fraction (eq 4-6)	0.0034	0.0036	0.0045	0.0059	0.0063	0.0067	0.0068	0.0068	0.0053	0.0042	0.0039	0.0035
Vapor Mole Fraction (eq 4-5)	0.0027	0.0028	0.0036	0.0050	0.0054	0.0057	0.0058	0.0057	0.0043	0.0033	0.0030	0.0028
Partial Vapor Pressure, psia (eq 4-3)	0.0153	0.0172	0.0226	0.0291	0.0364	0.0439	0.0474	0.0455	0.0383	0.0284	0.0215	0.0167
Saturated Vapor Pressure, psia (eq-1-25)	0.7203	0.8127	1.0648	1.3721	1.7192	2.0720	2.2354	2.1484	1.8086	1.3382	1.0142	0.7873
Liquid Mole Fraction (eq 4-4)	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212
Molecular Weight (Table 7.1-3)	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11
Liquid Mass Fraction	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180
Cumene												
Vapor Mass Fraction (eq 4-6)	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000
Vapor Mole Fraction (eq 4-5)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
Partial Vapor Pressure, psia (eq 4-3)	0.0001	0.0001	0.0002	0.0002	0.0003	0.0004	0.0004	0.0004	0.0003	0.0002	0.0002	0.0001
Saturated Vapor Pressure, psia (eq-1-25)	0.0250	0.0295	0.0425	0.0598	0.0810	0.1041	0.1153	0.1093	0.0868	0.0578	0.0398	0.0282
Liquid Mole Fraction (eq 4-4)	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038
Molecular Weight (Table 7.1-3)	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Ethylbenzene												
Vapor Mass Fraction (eq 4-6)	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0006	0.0006	0.0004	0.0003	0.0003	0.0002
Vapor Mole Fraction (eq 4-5)	0.0001	0.0001	0.0002	0.0003	0.0003	0.0003	0.0004	0.0004	0.0003	0.0002	0.0002	0.0001
Partial Vapor Pressure, psia (eq 4-3)	0.0007	0.0008	0.0012	0.0016	0.0021	0.0027	0.0030	0.0028	0.0023	0.0016	0.0011	0.0008
Saturated Vapor Pressure, psia (eq-1-25)	0.0591	0.0688	0.0966	0.1329	0.1763	0.2226	0.2448	0.2330	0.1878	0.1287	0.0909	0.0661
Liquid Mole Fraction (eq 4-4)	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140
Hexane												
Vapor Mass Fraction (eq 4-6)	0.0032	0.0033	0.0041	0.0053	0.0056	0.0059	0.0060	0.0059	0.0047	0.0038	0.0035	0.0033

Vapor Mole Fraction (eq 4-5)	0.0023	0.0024	0.0030	0.0041	0.0043	0.0045	0.0046	0.0045	0.0034	0.0027	0.0025	0.0023
Partial Vapor Pressure, psia (eq 4-3)	0.0130	0.0145	0.0187	0.0238	0.0294	0.0350	0.0376	0.0362	0.0308	0.0232	0.0179	0.0141
Saturated Vapor Pressure, psia (eq-1-25)	1.2162	1.3619	1.7546	2.2258	2.7507	3.2777	3.5200	3.3911	2.8848	2.1741	1.6763	1.3220
Liquid Mole Fraction (eq 4-4)	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107
Molecular Weight (Table 7.1-3)	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17
Liquid Mass Fraction	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100
MTBE												
Vapor Mass Fraction (eq 4-6)	0.0031	0.0032	0.0039	0.0050	0.0051	0.0053	0.0053	0.0053	0.0043	0.0036	0.0034	0.0032
Vapor Mole Fraction (eq 4-5)	0.0022	0.0022	0.0028	0.0037	0.0038	0.0039	0.0040	0.0039	0.0030	0.0025	0.0023	0.0022
Partial Vapor Pressure, psia (eq 4-3)	0.0124	0.0138	0.0174	0.0216	0.0261	0.0305	0.0326	0.0315	0.0273	0.0211	0.0167	0.0134
Saturated Vapor Pressure, psia (eq-1-25)	2.3735	2.6359	3.3279	4.1330	5.0034	5.8540	6.2382	6.0344	5.2220	4.0458	3.1915	2.5643
Liquid Mole Fraction (eq 4-4)	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052
Molecular Weight (Table 7.1-3)	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Trimethylpentane												
Vapor Mass Fraction (eq 4-6)	0.0038	0.0040	0.0051	0.0068	0.0073	0.0078	0.0079	0.0078	0.0061	0.0048	0.0043	0.0039
Vapor Mole Fraction (eq 4-5)	0.0020	0.0021	0.0028	0.0039	0.0042	0.0045	0.0046	0.0045	0.0034	0.0026	0.0023	0.0021
Partial Vapor Pressure, psia (eq 4-3)	0.0116	0.0132	0.0174	0.0227	0.0287	0.0348	0.0377	0.0362	0.0302	0.0221	0.0166	0.0127
Saturated Vapor Pressure, psia (eq-1-25)	0.3605	0.4087	0.5412	0.7043	0.8903	1.0808	1.1695	1.1222	0.9384	0.6862	0.5145	0.3954
Liquid Mole Fraction (eq 4-4)	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322
Molecular Weight (Table 7.1-3)	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300
Liquid Mass Fraction	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400
Toluene												
Vapor Mass Fraction (eq 4-6)	0.0035	0.0038	0.0049	0.0066	0.0073	0.0079	0.0081	0.0080	0.0062	0.0047	0.0042	0.0037
Vapor Mole Fraction (eq 4-5)	0.0023	0.0025	0.0033	0.0048	0.0052	0.0057	0.0058	0.0057	0.0042	0.0031	0.0028	0.0024
Partial Vapor Pressure, psia (eq 4-3)	0.0134	0.0154	0.0208	0.0277	0.0356	0.0439	0.0478	0.0457	0.0377	0.0269	0.0197	0.0148
Saturated Vapor Pressure, psia (eq-1-25)	0.1918	0.2197	0.2976	0.3956	0.5096	0.6284	0.6842	0.6544	0.5394	0.3847	0.2818	0.2120
Liquid Mole Fraction (eq 4-4)	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699
Molecular Weight (Table 7.1-3)	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700
Xylene												
Vapor Mass Fraction (eq 4-6)	0.0013	0.0014	0.0019	0.0027	0.0030	0.0033	0.0034	0.0034	0.0025	0.0019	0.0016	0.0014
Vapor Mole Fraction (eq 4-5)	0.0008	0.0008	0.0011	0.0017	0.0019	0.0021	0.0021	0.0021	0.0015	0.0011	0.0009	0.0008
Partial Vapor Pressure, psia (eq 4-3)	0.0043	0.0050	0.0070	0.0096	0.0127	0.0159	0.0175	0.0167	0.0135	0.0093	0.0066	0.0048
Saturated Vapor Pressure, psia (eq-1-25)	0.0712	0.0827	0.1155	0.1580	0.2087	0.2628	0.2886	0.2748	0.2222	0.1532	0.1087	0.0795
Liquid Mole Fraction (eq 4-4)	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700

Antoine Coefficients for HAPs (Table 7.1-5)	A	B	C
Benzene	6.905	1211.033	220.79
Cumene	6.93666	1460.793	207.78
Ethylbenzene	6.975	1424.255	213.21
Hexane	6.876	1171.17	224.41
MTBE	5.896	708.69	179.9
Trimethylpentane	6.8118	1257.84	220.74
Toluene	6.954	1344.8	219.48
Xylene	7.009	1426.266	215.11

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AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Storage Tank Withdrawal and Breathing Emissions

Palmetto Belton Tank Farm **Belton**
Tank #503 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rim Seal Losses, lbs (Eq. 2-2)	**61.71**	**61.81**	**71.72**	**66.03**	**84.42**	**98.74**	**110.70**	**106.04**	**117.64**	**109.92**	**80.85**	**66.57**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Seal Factor A, lb-mole/ft-yr (Table 7.1-8)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Tank Diameter, ft	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Average Vapor Pressure, psia (eq 1-24)	5.710	6.179	6.247	5.806	6.807	7.771	8.203	7.974	8.961	8.589	7.148	6.051
Average Atmospheric Pressure, psia	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Withdrawal Losses, lbs (Eq. 2-4)	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**	**43.25**
Net Throughput, gals	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000
Clingage Factor, bbl/1000 sq ft, (Table 7.1-10)	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Liquid Density, lb/gal (Tables 7.1-2 and 7.1-3)	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60
Tank Diameter, ft	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00
Number of Columns	0	0	0	0	0	0	0	0	0	0	0	0
Effective Column Diameter, ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deck Fitting Losses, lbs (Eq. 2-5)	**212.22**	**212.56**	**246.66**	**227.08**	**290.33**	**339.57**	**380.71**	**364.68**	**404.58**	**378.02**	**278.05**	**228.95**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Deck Fitting Loss Factor, lb-mole/yr (eq 2-6)	321.90	321.90	321.90	321.90	321.90	321.90	321.90	321.90	321.90	321.90	321.90	321.90
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Deck Seam Losses, lbs (Eq. 2-9)	**449.23**	**449.96**	**522.13**	**480.68**	**614.58**	**718.80**	**805.89**	**771.96**	**856.43**	**800.20**	**588.59**	**484.64**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Deck Seam Loss per Unit Length, lb-mole/ft-yr	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Deck Seam Length Factor, ft/ft2 (Table 7.1-16)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Tank Diameter, ft	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Deck Fitting	Quantity	Deck Fitting Loss Factors, Kfa (Table 7.1-12)
Access Hatch (24-in Diam.)/Bolted Cover, Gasketed	2	1.60
Automatic Gauge Float Well, Unbolted Cover, Gasketed	1	4.30
Ladder Well (36-in. Diam.), Sliding Cover, Gasketed	1	56.00
Sample Pipe or Well (24 in. Diam.) Slit Fabric Seal 10% Open	1	12.00
Stub Drain (1-in. Diameter)	195	1.20
Vacuum Breaker (10-in. Diam.), Weighted Mech. Actuation, Gasketed	2	6.20
Column Well (24-in. Diam.) Built-Up Sliding Cover, Gasketed	0	33.00

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Storage Tank Drain Dry Roof Landing Emissions

Palmetto Belton Tank Farm **Belton**
Tank #503 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Drain Dry Landing Losses (lbs)	**859.34**	**0.00**	**877.97**	**869.12**	**0.00**	**0.00**	**0.00**	**0.00**	**955.69**	**0.00**	**0.00**	**0.00**
Standing Idle Losses, lbs	674.32	0.00	674.32	674.32	0.00	0.00	0.00	0.00	674.32	0.00	0.00	0.00
Number of Drain-Dry Landings	1	0	1	1	0	0	0	0	1	0	0	0
Standing Idle Loss (eq. 2-22)	674.32	0.00	674.32	674.32	0.00	0.00	0.00	0.00	674.32	0.00	0.00	0.00
Average Organic Liquid Density, lb/gal	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60
Tank Diameter, ft	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00
Standing Idle Loss (eq. 2-23)	740.07	0.00	814.57	779.19	0.00	0.00	0.00	0.00	1,125.47	0.00	0.00	0.00
Average Vapor Pressure, psia (eq 1-24)	5.71	6.18	6.25	5.81	6.81	7.77	8.20	7.97	8.96	8.59	7.15	6.05
Volume of Vapor Space, ft3	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4
Leg Height, ft	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Tank Diameter, ft	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00	156.00
Ideal Gas Const, psia-ft3/lb-mol °R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Daily Avg Liq Surf Temp, °R	502.93	506.99	516.37	525.56	534.09	541.40	544.44	542.85	536.05	524.64	514.64	505.91
Vapor Molecular Weight	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Filling Losses, lbs (Eq. 2-26)	185.02	0.00	203.64	194.80	0.00	0.00	0.00	0.00	281.37	0.00	0.00	0.00
Number of Drain-Dry Refloats	1	0	1	1	0	0	0	0	1	0	0	0
Average Vapor Pressure, psia (eq 1-24)	5.71	6.18	6.25	5.81	6.81	7.77	8.20	7.97	8.96	8.59	7.15	6.05
Volume of Vapor Space, ft3	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4	19,113.4
Ideal Gas Const, psia-cuft/lb-mol °R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Avg Liquid Surface Temperature, °R (eq 1-26)	502.9	507.0	516.4	525.6	534.1	541.4	544.4	542.8	536.0	524.6	514.6	505.9
Vapor Molecular Weight	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Filling Saturation Factor, S	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Tank Emissions Summary

Palmetto Belton Tank Farm **Belton**
Tank #503 **Gasoline**

Month	VOC	Benzene	Cumene	Ethylbenzene	Hexane	MTBE	Trimethylpentane	Toluene	Xylene	Aggregate HAPs
January	1,625.7	6.20	0.27	0.95	5.52	5.18	7.76	8.64	5.11	39.62
February	767.6	3.36	0.24	0.78	2.84	2.55	4.62	5.75	4.05	24.19
March	1,761.7	8.48	0.30	1.15	7.48	6.90	10.43	11.40	6.27	52.40
April	1,686.1	10.52	0.33	1.34	9.21	8.37	12.84	13.95	7.39	63.95
May	1,032.6	7.05	0.30	1.11	6.01	5.28	8.94	10.25	5.99	44.93
June	1,200.3	8.52	0.32	1.25	7.24	6.29	10.70	12.16	6.85	53.33
July	1,340.5	9.65	0.34	1.36	8.19	7.09	12.04	13.59	7.48	59.75
August	1,285.9	9.18	0.33	1.31	7.80	6.77	11.48	12.98	7.21	57.06
September	2,377.6	13.16	0.38	1.61	11.41	10.15	16.01	17.39	8.94	79.05
October	1,331.4	6.23	0.28	1.01	5.35	4.79	7.94	9.12	5.45	40.17
November	990.7	4.43	0.26	0.86	3.78	3.41	5.84	6.97	4.55	30.10
December	823.4	3.53	0.24	0.79	3.00	2.71	4.81	5.91	4.11	25.10
Total	**16,223.7**	**90.31**	**3.61**	**13.51**	**77.83**	**69.49**	**113.41**	**128.10**	**73.40**	**569.66**

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Tank
Tank Identification and Physical Characteristics

Identification	
User Identification	Tank #504
City	Belton
State	South Carolina
Company	Palmetto Belton Tank Farm
Description	Gasoline

Rim-Seal System
Mechanical Shoe, Rim-mounted Secondary

Deck Characteristics	
Deck Fitting Category	Detail
Deck Type	Bolted
Deck Seam	Sheet - 5 ft wide
Deck Seam Length (ft)	2,654.65

Deck Fitting	Quantity
Access Hatch (24-in Diam.)/Bolted Cover, Gasketed	2
Automatic Gauge Float Well, Unbolted Cover, Gasketed	1
Ladder Well (36-in. Diam.), Sliding Cover, Gasketed	1
Sample Pipe or Well (24 in. Diam.) Slit Fabric Seal 10% Open	1
Stub Drain (1-in. Diameter)	136
Vacuum Breaker (10-in. Diam.), Weighted Mech. Actuation, Gasketed	2
Column Well (24-in. Diam.) Built-Up Sliding Cover, Gasketed	0

Tank Dimensions	
Diameter (ft)	130.00
Volume (bbls)	100,000
Turnovers	4,292.40
Self Supp. Roof? (y/n)	Y
No. of Columns	0
Eff. Column Diameter (ft)	0

Paint Characteristics	
Internal Shell Condition	Light Rust
Shell Color/Shade	White/White
Shell Condition	Good
Roof Color/Shade	Aluminum_Diffuse
Roof Condition	Good

Tank Location		
Meteorological Data Used	Spartanburg	SC
Average Atmospheric Pressure	14.254	psia

Material Stored/Throughput	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Material Stored	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_12.5	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_12.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5
Product Type	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil
Throughput (gals)	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000
Number of Drain-Dry Landings	1	1	1	1	1	1	1	1	1	1	1	1
Number of Drain-Dry Refloats	1	1	1	1	1	1	1	1	1	1	1	1
Roof Leg Height (ft)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Liquid Contents of Storage Tank

Palmetto Belton Tank Farm **Belton**
Tank #504 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Product Stored	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_12.5	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_12.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5
Average Vapor Pressure, psia (eq 1-24)	5.7095	6.1786	6.2474	5.8059	6.8069	7.7708	8.2028	7.9739	8.9608	8.5885	7.1476	6.0515
Antoine Coefficient, A (Fig. 7.1-15)	11.610	11.610	11.656	11.724	11.724	11.724	11.724	11.724	11.656	11.610	11.610	11.610
Antoine Coefficient, B (Fig. 7.1-15)	4,963.0	4,963.0	5,072.5	5,237.3	5,237.3	5,237.3	5,237.3	5,237.3	5,072.5	4,963.0	4,963.0	4,963.0
Avg Liquid Surface Temperature, °F (eq 1-26)	43.3	47.3	56.7	65.9	74.4	81.7	84.8	83.2	76.4	65.0	55.0	46.2
Bulk Liquid Temperature, °R (eq 1-28)	501.0	504.3	512.7	520.8	528.9	535.9	539.2	538.1	532.1	521.4	512.5	504.3
Daily Avg Amb Temp, °R (eq 1-27)	499.7	503.0	511.4	519.5	527.6	534.6	537.9	536.8	530.8	520.1	511.2	503.0
Daily Max Amb Temp, °R (Table 7.1-7)	509.8	514.0	523.2	531.7	539.1	545.2	547.9	546.5	540.8	531.6	522.2	512.9
Daily Min Amb Temp, °R (Table 7.1-7)	489.7	492.1	499.6	507.3	516.1	524.1	528.0	527.1	520.9	508.7	500.2	493.1
Paint Solar Absorbance, α	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Shell Paint Solar Abs, α (Table 7.1-6)	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Roof Paint Solar Abs, α (Table 7.1-6)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Daily Total Solar Ins (Table 7.1-7)	813.8	1,062.5	1,401.4	1,761.5	1,901.1	1,987.4	1,903.3	1,756.4	1,477.8	1,243.4	901.0	725.6
Liquid Molecular Weight	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Benzene												
Vapor Mass Fraction (eq 4-6)	0.0034	0.0036	0.0045	0.0059	0.0063	0.0067	0.0068	0.0068	0.0053	0.0042	0.0039	0.0035
Vapor Mole Fraction (eq 4-5)	0.0027	0.0028	0.0036	0.0050	0.0054	0.0057	0.0058	0.0057	0.0043	0.0033	0.0030	0.0028
Partial Vapor Pressure, psia (eq 4-3)	0.0153	0.0172	0.0226	0.0291	0.0364	0.0439	0.0474	0.0455	0.0383	0.0284	0.0215	0.0167
Saturated Vapor Pressure, psia (eq-1-25)	0.7203	0.8127	1.0648	1.3721	1.7192	2.0720	2.2354	2.1484	1.8086	1.3382	1.0142	0.7873
Liquid Mole Fraction (eq 4-4)	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212
Molecular Weight (Table 7.1-3)	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11
Liquid Mass Fraction	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180
Cumene												
Vapor Mass Fraction (eq 4-6)	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000
Vapor Mole Fraction (eq 4-5)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
Partial Vapor Pressure, psia (eq 4-3)	0.0001	0.0001	0.0002	0.0002	0.0003	0.0004	0.0004	0.0004	0.0003	0.0002	0.0002	0.0001
Saturated Vapor Pressure, psia (eq-1-25)	0.0250	0.0295	0.0425	0.0598	0.0810	0.1041	0.1153	0.1093	0.0868	0.0578	0.0398	0.0282
Liquid Mole Fraction (eq 4-4)	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038
Molecular Weight (Table 7.1-3)	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Ethylbenzene												
Vapor Mass Fraction (eq 4-6)	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0006	0.0006	0.0004	0.0003	0.0003	0.0002
Vapor Mole Fraction (eq 4-5)	0.0001	0.0001	0.0002	0.0003	0.0003	0.0003	0.0004	0.0004	0.0003	0.0002	0.0002	0.0001
Partial Vapor Pressure, psia (eq 4-3)	0.0007	0.0008	0.0012	0.0016	0.0021	0.0027	0.0030	0.0028	0.0023	0.0016	0.0011	0.0008
Saturated Vapor Pressure, psia (eq-1-25)	0.0591	0.0688	0.0966	0.1329	0.1763	0.2226	0.2448	0.2330	0.1878	0.1287	0.0909	0.0661
Liquid Mole Fraction (eq 4-4)	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140
Hexane												
Vapor Mass Fraction (eq 4-6)	0.0032	0.0033	0.0041	0.0053	0.0056	0.0059	0.0060	0.0059	0.0047	0.0038	0.0035	0.0033

Vapor Mole Fraction (eq 4-5)	0.0023	0.0024	0.0030	0.0041	0.0043	0.0045	0.0046	0.0045	0.0034	0.0027	0.0025	0.0023
Partial Vapor Pressure, psia (eq 4-3)	0.0130	0.0145	0.0187	0.0238	0.0294	0.0350	0.0376	0.0362	0.0308	0.0232	0.0179	0.0141
Saturated Vapor Pressure, psia (eq-1-25)	1.2162	1.3619	1.7546	2.2258	2.7507	3.2777	3.5200	3.3911	2.8848	2.1741	1.6763	1.3220
Liquid Mole Fraction (eq 4-4)	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107
Molecular Weight (Table 7.1-3)	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17
Liquid Mass Fraction	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100
MTBE												
Vapor Mass Fraction (eq 4-6)	0.0031	0.0032	0.0039	0.0050	0.0051	0.0053	0.0053	0.0053	0.0043	0.0036	0.0034	0.0032
Vapor Mole Fraction (eq 4-5)	0.0022	0.0022	0.0028	0.0037	0.0038	0.0039	0.0040	0.0039	0.0030	0.0025	0.0023	0.0022
Partial Vapor Pressure, psia (eq 4-3)	0.0124	0.0138	0.0174	0.0216	0.0261	0.0305	0.0326	0.0315	0.0273	0.0211	0.0167	0.0134
Saturated Vapor Pressure, psia (eq-1-25)	2.3735	2.6359	3.3279	4.1330	5.0034	5.8540	6.2382	6.0344	5.2220	4.0458	3.1915	2.5643
Liquid Mole Fraction (eq 4-4)	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052
Molecular Weight (Table 7.1-3)	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Trimethylpentane												
Vapor Mass Fraction (eq 4-6)	0.0038	0.0040	0.0051	0.0068	0.0073	0.0078	0.0079	0.0078	0.0061	0.0048	0.0043	0.0039
Vapor Mole Fraction (eq 4-5)	0.0020	0.0021	0.0028	0.0039	0.0042	0.0045	0.0046	0.0045	0.0034	0.0026	0.0023	0.0021
Partial Vapor Pressure, psia (eq 4-3)	0.0116	0.0132	0.0174	0.0227	0.0287	0.0348	0.0377	0.0362	0.0302	0.0221	0.0166	0.0127
Saturated Vapor Pressure, psia (eq-1-25)	0.3605	0.4087	0.5412	0.7043	0.8903	1.0808	1.1695	1.1222	0.9384	0.6862	0.5145	0.3954
Liquid Mole Fraction (eq 4-4)	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322
Molecular Weight (Table 7.1-3)	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300
Liquid Mass Fraction	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400
Toluene												
Vapor Mass Fraction (eq 4-6)	0.0035	0.0038	0.0049	0.0066	0.0073	0.0079	0.0081	0.0080	0.0062	0.0047	0.0042	0.0037
Vapor Mole Fraction (eq 4-5)	0.0023	0.0025	0.0033	0.0048	0.0052	0.0057	0.0058	0.0057	0.0042	0.0031	0.0028	0.0024
Partial Vapor Pressure, psia (eq 4-3)	0.0134	0.0154	0.0208	0.0277	0.0356	0.0439	0.0478	0.0457	0.0377	0.0269	0.0197	0.0148
Saturated Vapor Pressure, psia (eq-1-25)	0.1918	0.2197	0.2976	0.3956	0.5096	0.6284	0.6842	0.6544	0.5394	0.3847	0.2818	0.2120
Liquid Mole Fraction (eq 4-4)	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699
Molecular Weight (Table 7.1-3)	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700
Xylene												
Vapor Mass Fraction (eq 4-6)	0.0013	0.0014	0.0019	0.0027	0.0030	0.0033	0.0034	0.0034	0.0025	0.0019	0.0016	0.0014
Vapor Mole Fraction (eq 4-5)	0.0008	0.0008	0.0011	0.0017	0.0019	0.0021	0.0021	0.0021	0.0015	0.0011	0.0009	0.0008
Partial Vapor Pressure, psia (eq 4-3)	0.0043	0.0050	0.0070	0.0096	0.0127	0.0159	0.0175	0.0167	0.0135	0.0093	0.0066	0.0048
Saturated Vapor Pressure, psia (eq-1-25)	0.0712	0.0827	0.1155	0.1580	0.2087	0.2628	0.2886	0.2748	0.2222	0.1532	0.1087	0.0795
Liquid Mole Fraction (eq 4-4)	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700

Antoine Coefficients for HAPs (Table 7.1-5)	A	B	C
Benzene	6.905	1211.033	220.79
Cumene	6.93666	1460.793	207.78
Ethylbenzene	6.975	1424.255	213.21
Hexane	6.876	1171.17	224.41
MTBE	5.896	708.69	179.9
Trimethylpentane	6.8118	1257.84	220.74
Toluene	6.954	1344.8	219.48
Xylene	7.009	1426.266	215.11

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Storage Tank Withdrawal and Breathing Emissions

Palmetto Belton Tank Farm **Belton**
Tank #504 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rim Seal Losses, lbs (Eq. 2-2)	**51.42**	**51.51**	**59.77**	**55.02**	**70.35**	**82.28**	**92.25**	**88.36**	**98.03**	**91.60**	**67.37**	**55.48**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Seal Factor A, lb-mole/ft-yr (Table 7.1-8)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Tank Diameter, ft	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Average Vapor Pressure, psia (eq 1-24)	5.710	6.179	6.247	5.806	6.807	7.771	8.203	7.974	8.961	8.589	7.148	6.051
Average Atmospheric Pressure, psia	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Withdrawal Losses, lbs (Eq. 2-4)	**51.89**	**51.89**	**51.89**	**51.89**	**51.89**	**51.89**	**51.89**	**51.89**	**51.89**	**51.89**	**51.89**	**51.89**
Net Throughput, gals	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000
Clingage Factor, bbl/1000 sq ft, (Table 7.1-10)	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Liquid Density, lb/gal (Tables 7.1-2 and 7.1-3)	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60
Tank Diameter, ft	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
Number of Columns	0	0	0	0	0	0	0	0	0	0	0	0
Effective Column Diameter, ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deck Fitting Losses, lbs (Eq. 2-5)	**165.54**	**165.81**	**192.41**	**177.13**	**226.47**	**264.88**	**296.97**	**284.47**	**315.60**	**294.88**	**216.89**	**178.59**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Deck Fitting Loss Factor, lb-mole/yr (eq 2-6)	251.10	251.10	251.10	251.10	251.10	251.10	251.10	251.10	251.10	251.10	251.10	251.10
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Deck Seam Losses, lbs (Eq. 2-9)	**311.96**	**312.47**	**362.59**	**333.81**	**426.79**	**499.17**	**559.65**	**536.08**	**594.74**	**555.69**	**408.74**	**336.56**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Deck Seam Loss per Unit Length, lb-mole/ft-yr	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Deck Seam Length Factor, ft/ft2 (Table 7.1-16)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Tank Diameter, ft	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Deck Fitting	Quantity	Deck Fitting Loss Factors, Kfa (Table 7.1-12)
Access Hatch (24-in Diam.)/Bolted Cover, Gasketed	2	1.60
Automatic Gauge Float Well, Unbolted Cover, Gasketed	1	4.30
Ladder Well (36-in. Diam.), Sliding Cover, Gasketed	1	56.00
Sample Pipe or Well (24 in. Diam.) Slit Fabric Seal 10% Open	1	12.00
Stub Drain (1-in. Diameter)	136	1.20
Vacuum Breaker (10-in. Diam.), Weighted Mech. Actuation, Gasketed	2	6.20
Column Well (24-in. Diam.) Built-Up Sliding Cover, Gasketed	0	33.00

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Storage Tank Drain Dry Roof Landing Emissions

Palmetto Belton Tank Farm **Belton**
Tank #504 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Drain Dry Landing Losses (lbs)	**596.76**	**606.21**	**609.70**	**603.56**	**624.35**	**644.04**	**652.77**	**648.15**	**663.67**	**653.56**	**625.46**	**603.66**
Standing Idle Losses, lbs	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28
Number of Drain-Dry Landings	1	1	1	1	1	1	1	1	1	1	1	1
Standing Idle Loss (eq. 2-22)	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28
Average Organic Liquid Density, lb/gal	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60
Tank Diameter, ft	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
Standing Idle Loss (eq. 2-23)	513.94	551.71	565.68	541.10	624.26	703.04	737.97	719.49	781.57	741.10	628.74	541.51
Average Vapor Pressure, psia (eq 1-24)	5.71	6.18	6.25	5.81	6.81	7.77	8.20	7.97	8.96	8.59	7.15	6.05
Volume of Vapor Space, ft3	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2
Leg Height, ft	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Tank Diameter, ft	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
Ideal Gas Const, psia-ft3/lb-mol °R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Daily Avg Liq Surf Temp, °R	502.93	506.99	516.37	525.56	534.09	541.40	544.44	542.85	536.05	524.64	514.64	505.91
Vapor Molecular Weight	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Filling Losses, lbs (Eq. 2-26)	128.49	137.93	141.42	135.28	156.07	175.76	184.49	179.87	195.39	185.28	157.18	135.38
Number of Drain-Dry Refloats	1	1	1	1	1	1	1	1	1	1	1	1
Average Vapor Pressure, psia (eq 1-24)	5.71	6.18	6.25	5.81	6.81	7.77	8.20	7.97	8.96	8.59	7.15	6.05
Volume of Vapor Space, ft3	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2
Ideal Gas Const, psia-cuft/lb-mol °R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Avg Liquid Surface Temperature, °R (eq 1-26)	502.9	507.0	516.4	525.6	534.1	541.4	544.4	542.8	536.0	524.6	514.6	505.9
Vapor Molecular Weight	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Filling Saturation Factor, S	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Tank Emissions Summary

Palmetto Belton Tank Farm **Belton**
Tank #504 **Gasoline**

Month	VOC	Benzene	Cumene	Ethylbenzene	Hexane	MTBE	Trimethylpentane	Toluene	Xylene	Aggregate HAPs
January	1,177.6	4.79	0.30	0.97	4.14	3.79	6.36	7.63	5.11	33.09
February	1,187.9	4.99	0.30	0.99	4.30	3.91	6.61	7.90	5.24	34.24
March	1,276.4	6.42	0.32	1.11	5.54	5.02	8.27	9.60	5.95	42.23
April	1,221.4	7.87	0.34	1.25	6.77	6.06	9.99	11.41	6.74	50.42
May	1,399.8	9.48	0.37	1.41	8.11	7.17	11.91	13.48	7.67	59.58
June	1,542.3	10.90	0.40	1.56	9.28	8.08	13.63	15.39	8.55	67.80
July	1,653.5	11.89	0.42	1.66	10.10	8.75	14.81	16.67	9.13	73.42
August	1,609.0	11.46	0.41	1.61	9.75	8.47	14.29	16.10	8.87	70.97
September	1,723.9	9.81	0.38	1.44	8.38	7.37	12.30	13.92	7.87	61.48
October	1,647.6	7.68	0.34	1.23	6.61	5.93	9.77	11.18	6.64	49.38
November	1,370.4	6.01	0.31	1.08	5.18	4.70	7.80	9.12	5.75	39.96
December	1,226.2	5.08	0.30	1.00	4.39	4.01	6.70	7.98	5.26	34.72
Total	**17,036.0**	**96.38**	**4.19**	**15.32**	**82.54**	**73.27**	**122.45**	**140.36**	**82.77**	**617.29**

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Tank
Tank Identification and Physical Characteristics

Identification	
User Identification	Tank #505
City	Belton
State	South Carolina
Company	Palmetto Belton Tank Farm
Description	Gasoline

Rim-Seal System
Mechanical Shoe, Rim-mounted Secondary

Deck Characteristics	
Deck Fitting Category	Detail
Deck Type	Bolted
Deck Seam	Sheet - 5 ft wide
Deck Seam Length (ft)	2,654.65

Deck Fitting	Quantity
Access Hatch (24-in Diam.)/Bolted Cover, Gasketed	2
Automatic Gauge Float Well, Unbolted Cover, Gasketed	1
Ladder Well (36-in. Diam.), Sliding Cover, Gasketed	1
Sample Pipe or Well (24 in. Diam.) Slit Fabric Seal 10% Open	1
Stub Drain (1-in. Diameter)	136
Vacuum Breaker (10-in. Diam.), Weighted Mech. Actuation, Gasketed	2
Column Well (24-in. Diam.) Built-Up Sliding Cover, Gasketed	0

Tank Dimensions	
Diameter (ft)	130.00
Volume (bbls)	100,000
Turnovers	4,292.40
Self Supp. Roof? (y/n)	Y
No. of Columns	0
Eff. Column Diameter (ft)	0

Paint Characteristics	
Internal Shell Condition	Light Rust
Shell Color/Shade	White/White
Shell Condition	Good
Roof Color/Shade	Aluminum_Diffuse
Roof Condition	Good

Tank Location		
Meteorological Data Used	Spartanburg	SC
Average Atmospheric Pressure	14.254	psia

Material Stored/Throughput	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Material Stored	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_12.5	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_12.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5
Product Type	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil
Throughput (gals)	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000
Number of Drain-Dry Landings	1	1	1	1	1	1	1	1	1	1	1	1
Number of Drain-Dry Refloats	1	1	1	1	1	1	1	1	1	1	1	1
Roof Leg Height (ft)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Liquid Contents of Storage Tank

Palmetto Belton Tank Farm **Belton**
Tank #505 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Product Stored	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_12.5	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_12.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5
Average Vapor Pressure, psia (eq 1-24)	5.7095	6.1786	6.2474	5.8059	6.8069	7.7708	8.2028	7.9739	8.9608	8.5885	7.1476	6.0515
Antoine Coefficient, A (Fig. 7.1-15)	11.610	11.610	11.656	11.724	11.724	11.724	11.724	11.724	11.656	11.610	11.610	11.610
Antoine Coefficient, B (Fig. 7.1-15)	4,963.0	4,963.0	5,072.5	5,237.3	5,237.3	5,237.3	5,237.3	5,237.3	5,072.5	4,963.0	4,963.0	4,963.0
Avg Liquid Surface Temperature, °F (eq 1-26)	43.3	47.3	56.7	65.9	74.4	81.7	84.8	83.2	76.4	65.0	55.0	46.2
Bulk Liquid Temperature, °R (eq 1-28)	501.0	504.3	512.7	520.8	528.9	535.9	539.2	538.1	532.1	521.4	512.5	504.3
Daily Avg Amb Temp, °R (eq 1-27)	499.7	503.0	511.4	519.5	527.6	534.6	537.9	536.8	530.8	520.1	511.2	503.0
Daily Max Amb Temp, °R (Table 7.1-7)	509.8	514.0	523.2	531.7	539.1	545.2	547.9	546.5	540.8	531.6	522.2	512.9
Daily Min Amb Temp, °R (Table 7.1-7)	489.7	492.1	499.6	507.3	516.1	524.1	528.0	527.1	520.9	508.7	500.2	493.1
Paint Solar Absortance, α	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Shell Paint Solar Abs, α (Table 7.1-6)	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Roof Paint Solar Abs, α (Table 7.1-6)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Daily Total Solar Ins (Table 7.1-7)	813.8	1,062.5	1,401.4	1,761.5	1,901.1	1,987.4	1,903.3	1,756.4	1,477.8	1,243.4	901.0	725.6
Liquid Molecular Weight	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Benzene												
Vapor Mass Fraction (eq 4-6)	0.0034	0.0036	0.0045	0.0059	0.0063	0.0067	0.0068	0.0068	0.0053	0.0042	0.0039	0.0035
Vapor Mole Fraction (eq 4-5)	0.0027	0.0028	0.0036	0.0050	0.0054	0.0057	0.0058	0.0057	0.0043	0.0033	0.0030	0.0028
Partial Vapor Pressure, psia (eq 4-3)	0.0153	0.0172	0.0226	0.0291	0.0364	0.0439	0.0474	0.0455	0.0383	0.0284	0.0215	0.0167
Saturated Vapor Pressure, psia (eq-1-25)	0.7203	0.8127	1.0648	1.3721	1.7192	2.0720	2.2354	2.1484	1.8086	1.3382	1.0142	0.7873
Liquid Mole Fraction (eq 4-4)	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212
Molecular Weight (Table 7.1-3)	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11
Liquid Mass Fraction	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180
Cumene												
Vapor Mass Fraction (eq 4-6)	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000
Vapor Mole Fraction (eq 4-5)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
Partial Vapor Pressure, psia (eq 4-3)	0.0001	0.0001	0.0002	0.0002	0.0003	0.0004	0.0004	0.0004	0.0003	0.0002	0.0002	0.0001
Saturated Vapor Pressure, psia (eq-1-25)	0.0250	0.0295	0.0425	0.0598	0.0810	0.1041	0.1153	0.1093	0.0868	0.0578	0.0398	0.0282
Liquid Mole Fraction (eq 4-4)	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038
Molecular Weight (Table 7.1-3)	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Ethylbenzene												
Vapor Mass Fraction (eq 4-6)	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0006	0.0006	0.0004	0.0003	0.0003	0.0002
Vapor Mole Fraction (eq 4-5)	0.0001	0.0001	0.0002	0.0003	0.0003	0.0003	0.0004	0.0004	0.0003	0.0002	0.0002	0.0001
Partial Vapor Pressure, psia (eq 4-3)	0.0007	0.0008	0.0012	0.0016	0.0021	0.0027	0.0030	0.0028	0.0023	0.0016	0.0011	0.0008
Saturated Vapor Pressure, psia (eq-1-25)	0.0591	0.0688	0.0966	0.1329	0.1763	0.2226	0.2448	0.2330	0.1878	0.1287	0.0909	0.0661
Liquid Mole Fraction (eq 4-4)	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140
Hexane												
Vapor Mass Fraction (eq 4-6)	0.0032	0.0033	0.0041	0.0053	0.0056	0.0059	0.0060	0.0059	0.0047	0.0038	0.0035	0.0033

Vapor Mole Fraction (eq 4-5)	0.0023	0.0024	0.0030	0.0041	0.0043	0.0045	0.0046	0.0045	0.0034	0.0027	0.0025	0.0023
Partial Vapor Pressure, psia (eq 4-3)	0.0130	0.0145	0.0187	0.0238	0.0294	0.0350	0.0376	0.0362	0.0308	0.0232	0.0179	0.0141
Saturated Vapor Pressure, psia (eq-1-25)	1.2162	1.3619	1.7546	2.2258	2.7507	3.2777	3.5200	3.3911	2.8848	2.1741	1.6763	1.3220
Liquid Mole Fraction (eq 4-4)	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107
Molecular Weight (Table 7.1-3)	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17
Liquid Mass Fraction	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100
MTBE												
Vapor Mass Fraction (eq 4-6)	0.0031	0.0032	0.0039	0.0050	0.0051	0.0053	0.0053	0.0053	0.0043	0.0036	0.0034	0.0032
Vapor Mole Fraction (eq 4-5)	0.0022	0.0022	0.0028	0.0037	0.0038	0.0039	0.0040	0.0039	0.0030	0.0025	0.0023	0.0022
Partial Vapor Pressure, psia (eq 4-3)	0.0124	0.0138	0.0174	0.0216	0.0261	0.0305	0.0326	0.0315	0.0273	0.0211	0.0167	0.0134
Saturated Vapor Pressure, psia (eq-1-25)	2.3735	2.6359	3.3279	4.1330	5.0034	5.8540	6.2382	6.0344	5.2220	4.0458	3.1915	2.5643
Liquid Mole Fraction (eq 4-4)	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052
Molecular Weight (Table 7.1-3)	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Trimethylpentane												
Vapor Mass Fraction (eq 4-6)	0.0038	0.0040	0.0051	0.0068	0.0073	0.0078	0.0079	0.0078	0.0061	0.0048	0.0043	0.0039
Vapor Mole Fraction (eq 4-5)	0.0020	0.0021	0.0028	0.0039	0.0042	0.0045	0.0046	0.0045	0.0034	0.0026	0.0023	0.0021
Partial Vapor Pressure, psia (eq 4-3)	0.0116	0.0132	0.0174	0.0227	0.0287	0.0348	0.0377	0.0362	0.0302	0.0221	0.0166	0.0127
Saturated Vapor Pressure, psia (eq-1-25)	0.3605	0.4087	0.5412	0.7043	0.8903	1.0808	1.1695	1.1222	0.9384	0.6862	0.5145	0.3954
Liquid Mole Fraction (eq 4-4)	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322
Molecular Weight (Table 7.1-3)	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300
Liquid Mass Fraction	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400
Toluene												
Vapor Mass Fraction (eq 4-6)	0.0035	0.0038	0.0049	0.0066	0.0073	0.0079	0.0081	0.0080	0.0062	0.0047	0.0042	0.0037
Vapor Mole Fraction (eq 4-5)	0.0023	0.0025	0.0033	0.0048	0.0052	0.0057	0.0058	0.0057	0.0042	0.0031	0.0028	0.0024
Partial Vapor Pressure, psia (eq 4-3)	0.0134	0.0154	0.0208	0.0277	0.0356	0.0439	0.0478	0.0457	0.0377	0.0269	0.0197	0.0148
Saturated Vapor Pressure, psia (eq-1-25)	0.1918	0.2197	0.2976	0.3956	0.5096	0.6284	0.6842	0.6544	0.5394	0.3847	0.2818	0.2120
Liquid Mole Fraction (eq 4-4)	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699
Molecular Weight (Table 7.1-3)	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700
Xylene												
Vapor Mass Fraction (eq 4-6)	0.0013	0.0014	0.0019	0.0027	0.0030	0.0033	0.0034	0.0034	0.0025	0.0019	0.0016	0.0014
Vapor Mole Fraction (eq 4-5)	0.0008	0.0008	0.0011	0.0017	0.0019	0.0021	0.0021	0.0021	0.0015	0.0011	0.0009	0.0008
Partial Vapor Pressure, psia (eq 4-3)	0.0043	0.0050	0.0070	0.0096	0.0127	0.0159	0.0175	0.0167	0.0135	0.0093	0.0066	0.0048
Saturated Vapor Pressure, psia (eq-1-25)	0.0712	0.0827	0.1155	0.1580	0.2087	0.2628	0.2886	0.2748	0.2222	0.1532	0.1087	0.0795
Liquid Mole Fraction (eq 4-4)	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700

Antoine Coefficients for HAPs (Table 7.1-5)	A	B	C
Benzene	6.905	1211.033	220.79
Cumene	6.93666	1460.793	207.78
Ethylbenzene	6.975	1424.255	213.21
Hexane	6.876	1171.17	224.41
MTBE	5.896	708.69	179.9
Trimethylpentane	6.8118	1257.84	220.74
Toluene	6.954	1344.8	219.48
Xylene	7.009	1426.266	215.11

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Storage Tank Withdrawal and Breathing Emissions

Palmetto Belton Tank Farm **Belton**
Tank #505 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rim Seal Losses, lbs (Eq. 2-2)	**51.42**	**51.51**	**59.77**	**55.02**	**70.35**	**82.28**	**92.25**	**88.36**	**98.03**	**91.60**	**67.37**	**55.48**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Seal Factor A, lb-mole/ft-yr (Table 7.1-8)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Tank Diameter, ft	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Average Vapor Pressure, psia (eq 1-24)	5.710	6.179	6.247	5.806	6.807	7.771	8.203	7.974	8.961	8.589	7.148	6.051
Average Atmospheric Pressure, psia	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Withdrawal Losses, lbs (Eq. 2-4)	**51.89**	**51.89**	**51.89**	**51.89**	**51.89**	**51.89**	**51.89**	**51.89**	**51.89**	**51.89**	**51.89**	**51.89**
Net Throughput, gals	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000
Clingage Factor, bbl/1000 sq ft, (Table 7.1-10)	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Liquid Density, lb/gal (Tables 7.1-2 and 7.1-3)	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60
Tank Diameter, ft	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
Number of Columns	0	0	0	0	0	0	0	0	0	0	0	0
Effective Column Diameter, ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deck Fitting Losses, lbs (Eq. 2-5)	**165.54**	**165.81**	**192.41**	**177.13**	**226.47**	**264.88**	**296.97**	**284.47**	**315.60**	**294.88**	**216.89**	**178.59**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Deck Fitting Loss Factor, lb-mole/yr (eq 2-6)	251.10	251.10	251.10	251.10	251.10	251.10	251.10	251.10	251.10	251.10	251.10	251.10
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Deck Seam Losses, lbs (Eq. 2-9)	**311.96**	**312.47**	**362.59**	**333.81**	**426.79**	**499.17**	**559.65**	**536.08**	**594.74**	**555.69**	**408.74**	**336.56**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Deck Seam Loss per Unit Length, lb-mole/ft-yr	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Deck Seam Length Factor, ft/ft2 (Table 7.1-16)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Tank Diameter, ft	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Deck Fitting	Quantity	Deck Fitting Loss Factors, Kfa (Table 7.1-12)
Access Hatch (24-in Diam.)/Bolted Cover, Gasketed	2	1.60
Automatic Gauge Float Well, Unbolted Cover, Gasketed	1	4.30
Ladder Well (36-in. Diam.), Sliding Cover, Gasketed	1	56.00
Sample Pipe or Well (24 in. Diam.) Slit Fabric Seal 10% Open	1	12.00
Stub Drain (1-in. Diameter)	136	1.20
Vacuum Breaker (10-in. Diam.), Weighted Mech. Actuation, Gasketed	2	6.20
Column Well (24-in. Diam.) Built-Up Sliding Cover, Gasketed	0	33.00

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Storage Tank Drain Dry Roof Landing Emissions

Palmetto Belton Tank Farm **Belton**
Tank #505 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Drain Dry Landing Losses (lbs)	**596.76**	**606.21**	**609.70**	**603.56**	**624.35**	**644.04**	**652.77**	**648.15**	**663.67**	**653.56**	**625.46**	**603.66**
Standing Idle Losses, lbs	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28
Number of Drain-Dry Landings	1	1	1	1	1	1	1	1	1	1	1	1
Standing Idle Loss (eq. 2-22)	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28	468.28
Average Organic Liquid Density, lb/gal	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60
Tank Diameter, ft	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
Standing Idle Loss (eq. 2-23)	513.94	551.71	565.68	541.10	624.26	703.04	737.97	719.49	781.57	741.10	628.74	541.51
Average Vapor Pressure, psia (eq 1-24)	5.71	6.18	6.25	5.81	6.81	7.77	8.20	7.97	8.96	8.59	7.15	6.05
Volume of Vapor Space, ft3	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2
Leg Height, ft	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Tank Diameter, ft	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
Ideal Gas Const, psia-ft3/lb-mol °R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Daily Avg Liq Surf Temp, °R	502.93	506.99	516.37	525.56	534.09	541.40	544.44	542.85	536.05	524.64	514.64	505.91
Vapor Molecular Weight	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Filling Losses, lbs (Eq. 2-26)	128.49	137.93	141.42	135.28	156.07	175.76	184.49	179.87	195.39	185.28	157.18	135.38
Number of Drain-Dry Refloats	1	1	1	1	1	1	1	1	1	1	1	1
Average Vapor Pressure, psia (eq 1-24)	5.71	6.18	6.25	5.81	6.81	7.77	8.20	7.97	8.96	8.59	7.15	6.05
Volume of Vapor Space, ft3	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2	13,273.2
Ideal Gas Const, psia-cuft/lb-mol °R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Avg Liquid Surface Temperature, °R (eq 1-26)	502.9	507.0	516.4	525.6	534.1	541.4	544.4	542.8	536.0	524.6	514.6	505.9
Vapor Molecular Weight	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Filling Saturation Factor, S	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15

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AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Tank Emissions Summary

Palmetto Belton Tank Farm **Belton**
Tank #505 **Gasoline**

Month	VOC	Benzene	Cumene	Ethylbenzene	Hexane	MTBE	Trimethylpentane	Toluene	Xylene	Aggregate HAPs
January	1,177.6	4.79	0.30	0.97	4.14	3.79	6.36	7.63	5.11	33.09
February	1,187.9	4.99	0.30	0.99	4.30	3.91	6.61	7.90	5.24	34.24
March	1,276.4	6.42	0.32	1.11	5.54	5.02	8.27	9.60	5.95	42.23
April	1,221.4	7.87	0.34	1.25	6.77	6.06	9.99	11.41	6.74	50.42
May	1,399.8	9.48	0.37	1.41	8.11	7.17	11.91	13.48	7.67	59.58
June	1,542.3	10.90	0.40	1.56	9.28	8.08	13.63	15.39	8.55	67.80
July	1,653.5	11.89	0.42	1.66	10.10	8.75	14.81	16.67	9.13	73.42
August	1,609.0	11.46	0.41	1.61	9.75	8.47	14.29	16.10	8.87	70.97
September	1,723.9	9.81	0.38	1.44	8.38	7.37	12.30	13.92	7.87	61.48
October	1,647.6	7.68	0.34	1.23	6.61	5.93	9.77	11.18	6.64	49.38
November	1,370.4	6.01	0.31	1.08	5.18	4.70	7.80	9.12	5.75	39.96
December	1,226.2	5.08	0.30	1.00	4.39	4.01	6.70	7.98	5.26	34.72
Total	**17,036.0**	**96.38**	**4.19**	**15.32**	**82.54**	**73.27**	**122.45**	**140.36**	**82.77**	**617.29**

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Tank
Tank Identification and Physical Characteristics

Identification	
User Identification	Tank #506
City	Belton
State	South Carolina
Company	Palmetto Belton Tank Farm
Description	Gasoline

Rim-Seal System
Mechanical Shoe, Rim-mounted Secondary

Deck Characteristics	
Deck Fitting Category	Detail
Deck Type	Bolted
Deck Seam	Sheet - 5 ft wide
Deck Seam Length (ft)	3,302.60

Deck Fitting	Quantity
Access Hatch (24-in Diam.)/Bolted Cover, Gasketed	2
Automatic Gauge Float Well, Unbolted Cover, Gasketed	1
Ladder Well (36-in. Diam.), Sliding Cover, Gasketed	1
Sample Pipe or Well (24 in. Diam.) Slit Fabric Seal 10% Open	1
Stub Drain (1-in. Diameter)	169
Vacuum Breaker (10-in. Diam.), Weighted Mech. Actuation, Gasketed	2
Column Well (24-in. Diam.) Built-Up Sliding Cover, Gasketed	0

Tank Dimensions	
Diameter (ft)	145.00
Volume (bbls)	125,000
Turnovers	3,433.92
Self Supp. Roof? (y/n)	Y
No. of Columns	0
Eff. Column Diameter (ft)	0

Paint Characteristics	
Internal Shell Condition	Light Rust
Shell Color/Shade	White/White
Shell Condition	Good
Roof Color/Shade	Aluminum_Diffuse
Roof Condition	Good

Tank Location		
Meteorological Data Used	Spartanburg	SC
Average Atmospheric Pressure	14.254	psia

Material Stored/Throughput	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Material Stored	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_12.5	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_12.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5
Product Type	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil
Throughput (gals)	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000
Number of Drain-Dry Landings	1	0	1	1	0	0	0	0	1	0	0	0
Number of Drain-Dry Refloats	1	0	1	1	0	0	0	0	1	0	0	0
Roof Leg Height (ft)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Liquid Contents of Storage Tank

Palmetto Belton Tank Farm **Belton**
Tank #506 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Product Stored	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_12.5	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_12.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5
Average Vapor Pressure, psia (eq 1-24)	5.7095	6.1786	6.2474	5.8059	6.8069	7.7708	8.2028	7.9739	8.9608	8.5885	7.1476	6.0515
Antoine Coefficient, A (Fig. 7.1-15)	11.610	11.610	11.656	11.724	11.724	11.724	11.724	11.724	11.656	11.610	11.610	11.610
Antoine Coefficient, B (Fig. 7.1-15)	4,963.0	4,963.0	5,072.5	5,237.3	5,237.3	5,237.3	5,237.3	5,237.3	5,072.5	4,963.0	4,963.0	4,963.0
Avg Liquid Surface Temperature, °F (eq 1-26)	43.3	47.3	56.7	65.9	74.4	81.7	84.8	83.2	76.4	65.0	55.0	46.2
Bulk Liquid Temperature, °R (eq 1-28)	501.0	504.3	512.7	520.8	528.9	535.9	539.2	538.1	532.1	521.4	512.5	504.3
Daily Avg Amb Temp, °R (eq 1-27)	499.7	503.0	511.4	519.5	527.6	534.6	537.9	536.8	530.8	520.1	511.2	503.0
Daily Max Amb Temp, °R (Table 7.1-7)	509.8	514.0	523.2	531.7	539.1	545.2	547.9	546.5	540.8	531.6	522.2	512.9
Daily Min Amb Temp, °R (Table 7.1-7)	489.7	492.1	499.6	507.3	516.1	524.1	528.0	527.1	520.9	508.7	500.2	493.1
Paint Solar Absorbance, α	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Shell Paint Solar Abs, α (Table 7.1-6)	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Roof Paint Solar Abs, α (Table 7.1-6)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Daily Total Solar Ins (Table 7.1-7)	813.8	1,062.5	1,401.4	1,761.5	1,901.1	1,987.4	1,903.3	1,756.4	1,477.8	1,243.4	901.0	725.6
Liquid Molecular Weight	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Benzene												
Vapor Mass Fraction (eq 4-6)	0.0034	0.0036	0.0045	0.0059	0.0063	0.0067	0.0068	0.0068	0.0053	0.0042	0.0039	0.0035
Vapor Mole Fraction (eq 4-5)	0.0027	0.0028	0.0036	0.0050	0.0054	0.0057	0.0058	0.0057	0.0043	0.0033	0.0030	0.0028
Partial Vapor Pressure, psia (eq 4-3)	0.0153	0.0172	0.0226	0.0291	0.0364	0.0439	0.0474	0.0455	0.0383	0.0284	0.0215	0.0167
Saturated Vapor Pressure, psia (eq-1-25)	0.7203	0.8127	1.0648	1.3721	1.7192	2.0720	2.2354	2.1484	1.8086	1.3382	1.0142	0.7873
Liquid Mole Fraction (eq 4-4)	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212
Molecular Weight (Table 7.1-3)	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11
Liquid Mass Fraction	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180
Cumene												
Vapor Mass Fraction (eq 4-6)	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000
Vapor Mole Fraction (eq 4-5)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
Partial Vapor Pressure, psia (eq 4-3)	0.0001	0.0001	0.0002	0.0002	0.0003	0.0004	0.0004	0.0004	0.0003	0.0002	0.0002	0.0001
Saturated Vapor Pressure, psia (eq-1-25)	0.0250	0.0295	0.0425	0.0598	0.0810	0.1041	0.1153	0.1093	0.0868	0.0578	0.0398	0.0282
Liquid Mole Fraction (eq 4-4)	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038
Molecular Weight (Table 7.1-3)	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Ethylbenzene												
Vapor Mass Fraction (eq 4-6)	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0006	0.0006	0.0004	0.0003	0.0003	0.0002
Vapor Mole Fraction (eq 4-5)	0.0001	0.0001	0.0002	0.0003	0.0003	0.0003	0.0004	0.0004	0.0003	0.0002	0.0002	0.0001
Partial Vapor Pressure, psia (eq 4-3)	0.0007	0.0008	0.0012	0.0016	0.0021	0.0027	0.0030	0.0028	0.0023	0.0016	0.0011	0.0008
Saturated Vapor Pressure, psia (eq-1-25)	0.0591	0.0688	0.0966	0.1329	0.1763	0.2226	0.2448	0.2330	0.1878	0.1287	0.0909	0.0661
Liquid Mole Fraction (eq 4-4)	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140
Hexane												
Vapor Mass Fraction (eq 4-6)	0.0032	0.0033	0.0041	0.0053	0.0056	0.0059	0.0060	0.0059	0.0047	0.0038	0.0035	0.0033

Vapor Mole Fraction (eq 4-5)	0.0023	0.0024	0.0030	0.0041	0.0043	0.0045	0.0046	0.0045	0.0034	0.0027	0.0025	0.0023
Partial Vapor Pressure, psia (eq 4-3)	0.0130	0.0145	0.0187	0.0238	0.0294	0.0350	0.0376	0.0362	0.0308	0.0232	0.0179	0.0141
Saturated Vapor Pressure, psia (eq-1-25)	1.2162	1.3619	1.7546	2.2258	2.7507	3.2777	3.5200	3.3911	2.8848	2.1741	1.6763	1.3220
Liquid Mole Fraction (eq 4-4)	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107
Molecular Weight (Table 7.1-3)	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17
Liquid Mass Fraction	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100
MTBE												
Vapor Mass Fraction (eq 4-6)	0.0031	0.0032	0.0039	0.0050	0.0051	0.0053	0.0053	0.0053	0.0043	0.0036	0.0034	0.0032
Vapor Mole Fraction (eq 4-5)	0.0022	0.0022	0.0028	0.0037	0.0038	0.0039	0.0040	0.0039	0.0030	0.0025	0.0023	0.0022
Partial Vapor Pressure, psia (eq 4-3)	0.0124	0.0138	0.0174	0.0216	0.0261	0.0305	0.0326	0.0315	0.0273	0.0211	0.0167	0.0134
Saturated Vapor Pressure, psia (eq-1-25)	2.3735	2.6359	3.3279	4.1330	5.0034	5.8540	6.2382	6.0344	5.2220	4.0458	3.1915	2.5643
Liquid Mole Fraction (eq 4-4)	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052
Molecular Weight (Table 7.1-3)	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Trimethylpentane												
Vapor Mass Fraction (eq 4-6)	0.0038	0.0040	0.0051	0.0068	0.0073	0.0078	0.0079	0.0078	0.0061	0.0048	0.0043	0.0039
Vapor Mole Fraction (eq 4-5)	0.0020	0.0021	0.0028	0.0039	0.0042	0.0045	0.0046	0.0045	0.0034	0.0026	0.0023	0.0021
Partial Vapor Pressure, psia (eq 4-3)	0.0116	0.0132	0.0174	0.0227	0.0287	0.0348	0.0377	0.0362	0.0302	0.0221	0.0166	0.0127
Saturated Vapor Pressure, psia (eq-1-25)	0.3605	0.4087	0.5412	0.7043	0.8903	1.0808	1.1695	1.1222	0.9384	0.6862	0.5145	0.3954
Liquid Mole Fraction (eq 4-4)	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322
Molecular Weight (Table 7.1-3)	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300
Liquid Mass Fraction	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400
Toluene												
Vapor Mass Fraction (eq 4-6)	0.0035	0.0038	0.0049	0.0066	0.0073	0.0079	0.0081	0.0080	0.0062	0.0047	0.0042	0.0037
Vapor Mole Fraction (eq 4-5)	0.0023	0.0025	0.0033	0.0048	0.0052	0.0057	0.0058	0.0057	0.0042	0.0031	0.0028	0.0024
Partial Vapor Pressure, psia (eq 4-3)	0.0134	0.0154	0.0208	0.0277	0.0356	0.0439	0.0478	0.0457	0.0377	0.0269	0.0197	0.0148
Saturated Vapor Pressure, psia (eq-1-25)	0.1918	0.2197	0.2976	0.3956	0.5096	0.6284	0.6842	0.6544	0.5394	0.3847	0.2818	0.2120
Liquid Mole Fraction (eq 4-4)	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699
Molecular Weight (Table 7.1-3)	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700
Xylene												
Vapor Mass Fraction (eq 4-6)	0.0013	0.0014	0.0019	0.0027	0.0030	0.0033	0.0034	0.0034	0.0025	0.0019	0.0016	0.0014
Vapor Mole Fraction (eq 4-5)	0.0008	0.0008	0.0011	0.0017	0.0019	0.0021	0.0021	0.0021	0.0015	0.0011	0.0009	0.0008
Partial Vapor Pressure, psia (eq 4-3)	0.0043	0.0050	0.0070	0.0096	0.0127	0.0159	0.0175	0.0167	0.0135	0.0093	0.0066	0.0048
Saturated Vapor Pressure, psia (eq-1-25)	0.0712	0.0827	0.1155	0.1580	0.2087	0.2628	0.2886	0.2748	0.2222	0.1532	0.1087	0.0795
Liquid Mole Fraction (eq 4-4)	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700

Antoine Coefficients for HAPs (Table 7.1-5)	A	B	C
Benzene	6.905	1211.033	220.79
Cumene	6.93666	1460.793	207.78
Ethylbenzene	6.975	1424.255	213.21
Hexane	6.876	1171.17	224.41
MTBE	5.896	708.69	179.9
Trimethylpentane	6.8118	1257.84	220.74
Toluene	6.954	1344.8	219.48
Xylene	7.009	1426.266	215.11

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Storage Tank Withdrawal and Breathing Emissions

Palmetto Belton Tank Farm **Belton**
Tank #506 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rim Seal Losses, lbs (Eq. 2-2)	**57.36**	**57.45**	**66.66**	**61.37**	**78.47**	**91.77**	**102.89**	**98.56**	**109.35**	**102.17**	**75.15**	**61.88**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Seal Factor A, lb-mole/ft-yr (Table 7.1-8)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Tank Diameter, ft	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Average Vapor Pressure, psia (eq 1-24)	5.710	6.179	6.247	5.806	6.807	7.771	8.203	7.974	8.961	8.589	7.148	6.051
Average Atmospheric Pressure, psia	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Withdrawal Losses, lbs (Eq. 2-4)	**46.53**	**46.53**	**46.53**	**46.53**	**46.53**	**46.53**	**46.53**	**46.53**	**46.53**	**46.53**	**46.53**	**46.53**
Net Throughput, gals	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000
Clingage Factor, bbl/1000 sq ft, (Table 7.1-10)	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Liquid Density, lb/gal (Tables 7.1-2 and 7.1-3)	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60
Tank Diameter, ft	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00
Number of Columns	0	0	0	0	0	0	0	0	0	0	0	0
Effective Column Diameter, ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deck Fitting Losses, lbs (Eq. 2-5)	**191.65**	**191.96**	**222.75**	**205.07**	**262.19**	**306.65**	**343.81**	**329.33**	**365.37**	**341.38**	**251.10**	**206.76**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Deck Fitting Loss Factor, lb-mole/yr (eq 2-6)	290.70	290.70	290.70	290.70	290.70	290.70	290.70	290.70	290.70	290.70	290.70	290.70
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Deck Seam Losses, lbs (Eq. 2-9)	**388.11**	**388.74**	**451.10**	**415.28**	**530.96**	**621.01**	**696.25**	**666.93**	**739.91**	**691.33**	**508.51**	**418.71**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Deck Seam Loss per Unit Length, lb-mole/ft-yr	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Deck Seam Length Factor, ft/ft2 (Table 7.1-16)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Tank Diameter, ft	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Deck Fitting	Quantity	Deck Fitting Loss Factors, Kfa (Table 7.1-12)
Access Hatch (24-in Diam.)/Bolted Cover, Gasketed	2	1.60
Automatic Gauge Float Well, Unbolted Cover, Gasketed	1	4.30
Ladder Well (36-in. Diam.), Sliding Cover, Gasketed	1	56.00
Sample Pipe or Well (24 in. Diam.) Slit Fabric Seal 10% Open	1	12.00
Stub Drain (1-in. Diameter)	169	1.20
Vacuum Breaker (10-in. Diam.), Weighted Mech. Actuation, Gasketed	2	6.20
Column Well (24-in. Diam.) Built-Up Sliding Cover, Gasketed	0	33.00

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Storage Tank Drain Dry Roof Landing Emissions

Palmetto Belton Tank Farm **Belton**
Tank #506 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Drain Dry Landing Losses (lbs)	**742.42**	**0.00**	**758.52**	**750.87**	**0.00**	**0.00**	**0.00**	**0.00**	**825.66**	**0.00**	**0.00**	**0.00**
Standing Idle Losses, lbs	582.58	0.00	582.58	582.58	0.00	0.00	0.00	0.00	582.58	0.00	0.00	0.00
Number of Drain-Dry Landings	1	0	1	1	0	0	0	0	1	0	0	0
Standing Idle Loss (eq. 2-22)	582.58	0.00	582.58	582.58	0.00	0.00	0.00	0.00	582.58	0.00	0.00	0.00
Average Organic Liquid Density, lb/gal	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60
Tank Diameter, ft	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00
Standing Idle Loss (eq. 2-23)	639.38	0.00	703.75	673.18	0.00	0.00	0.00	0.00	972.34	0.00	0.00	0.00
Average Vapor Pressure, psia (eq 1-24)	5.71	6.18	6.25	5.81	6.81	7.77	8.20	7.97	8.96	8.59	7.15	6.05
Volume of Vapor Space, ft3	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0
Leg Height, ft	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Tank Diameter, ft	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00
Ideal Gas Const, psia-ft3/lb-mol °R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Daily Avg Liq Surf Temp, °R	502.93	506.99	516.37	525.56	534.09	541.40	544.44	542.85	536.05	524.64	514.64	505.91
Vapor Molecular Weight	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Filling Losses, lbs (Eq. 2-26)	159.85	0.00	175.94	168.29	0.00	0.00	0.00	0.00	243.09	0.00	0.00	0.00
Number of Drain-Dry Refloats	1	0	1	1	0	0	0	0	1	0	0	0
Average Vapor Pressure, psia (eq 1-24)	5.71	6.18	6.25	5.81	6.81	7.77	8.20	7.97	8.96	8.59	7.15	6.05
Volume of Vapor Space, ft3	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0
Ideal Gas Const, psia-cuft/lb-mol °R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Avg Liquid Surface Temperature, °R (eq 1-26)	502.9	507.0	516.4	525.6	534.1	541.4	544.4	542.8	536.0	524.6	514.6	505.9
Vapor Molecular Weight	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Filling Saturation Factor, S	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Tank Emissions Summary

Palmetto Belton Tank Farm **Belton**
Tank #506 **Gasoline**

Month	VOC	Benzene	Cumene	Ethylbenzene	Hexane	MTBE	Trimethylpentane	Toluene	Xylene	Aggregate HAPs
January	1,426.1	5.56	0.28	0.95	4.90	4.56	7.12	8.15	5.07	36.59
February	684.7	3.12	0.26	0.80	2.59	2.29	4.41	5.65	4.16	23.26
March	1,545.6	7.55	0.31	1.13	6.61	6.06	9.45	10.56	6.09	47.75
April	1,479.1	9.33	0.34	1.29	8.12	7.34	11.55	12.78	7.06	57.81
May	918.1	6.36	0.30	1.09	5.37	4.70	8.22	9.62	5.86	41.54
June	1,066.0	7.66	0.33	1.22	6.46	5.59	9.77	11.30	6.62	48.94
July	1,189.5	8.65	0.34	1.32	7.30	6.29	10.95	12.56	7.18	54.59
August	1,141.3	8.24	0.34	1.28	6.96	6.01	10.45	12.02	6.94	52.23
September	2,086.8	11.66	0.38	1.53	10.06	8.91	14.34	15.81	8.43	71.12
October	1,181.4	5.64	0.29	1.01	4.80	4.26	7.33	8.62	5.39	37.35
November	881.3	4.05	0.27	0.88	3.42	3.04	5.49	6.73	4.60	28.47
December	733.9	3.27	0.26	0.81	2.73	2.43	4.57	5.80	4.21	24.07
Total	**14,333.7**	**81.09**	**3.68**	**13.30**	**69.31**	**61.48**	**103.63**	**119.62**	**71.61**	**523.73**

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Tank
Tank Identification and Physical Characteristics

Identification	
User Identification	Tank #507
City	Belton
State	South Carolina
Company	Palmetto Belton Tank Farm
Description	Gasoline

Rim-Seal System
Mechanical Shoe, Rim-mounted Secondary

Deck Characteristics	
Deck Fitting Category	Detail
Deck Type	Bolted
Deck Seam	Sheet - 5 ft wide
Deck Seam Length (ft)	3,302.60

Deck Fitting	Quantity
Access Hatch (24-in Diam.)/Bolted Cover, Gasketed	2
Automatic Gauge Float Well, Unbolted Cover, Gasketed	1
Ladder Well (36-in. Diam.), Sliding Cover, Gasketed	1
Sample Pipe or Well (24 in. Diam.) Slit Fabric Seal 10% Open	1
Stub Drain (1-in. Diameter)	169
Vacuum Breaker (10-in. Diam.), Weighted Mech. Actuation, Gasketed	2
Column Well (24-in. Diam.) Built-Up Sliding Cover, Gasketed	0

Tank Dimensions	
Diameter (ft)	145.00
Volume (bbls)	125,000
Turnovers	3,433.92
Self Supp. Roof? (y/n)	Y
No. of Columns	0
Eff. Column Diameter (ft)	0

Paint Characteristics	
Internal Shell Condition	Light Rust
Shell Color/Shade	White/White
Shell Condition	Good
Roof Color/Shade	Aluminum_Diffuse
Roof Condition	Good

Tank Location		
Meteorological Data Used	Spartanburg	SC
Average Atmospheric Pressure	14.254	psia

Material Stored/Throughput	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Material Stored	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_12.5	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_12.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5
Product Type	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil
Throughput (gals)	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000
Number of Drain-Dry Landings	1	0	1	1	0	0	0	0	1	0	0	0
Number of Drain-Dry Refloats	1	0	1	1	0	0	0	0	1	0	0	0
Roof Leg Height (ft)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Liquid Contents of Storage Tank

Palmetto Belton Tank Farm **Belton**
Tank #507 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Product Stored	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_12.5	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_10	Gasoline_ RVP_12.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5	Gasoline_ RVP_14.5
Average Vapor Pressure, psia (eq 1-24)	5.7095	6.1786	6.2474	5.8059	6.8069	7.7708	8.2028	7.9739	8.9608	8.5885	7.1476	6.0515
Antoine Coefficient, A (Fig. 7.1-15)	11.610	11.610	11.656	11.724	11.724	11.724	11.724	11.724	11.656	11.610	11.610	11.610
Antoine Coefficient, B (Fig. 7.1-15)	4,963.0	4,963.0	5,072.5	5,237.3	5,237.3	5,237.3	5,237.3	5,237.3	5,072.5	4,963.0	4,963.0	4,963.0
Avg Liquid Surface Temperature, °F (eq 1-26)	43.3	47.3	56.7	65.9	74.4	81.7	84.8	83.2	76.4	65.0	55.0	46.2
Bulk Liquid Temperature, °R (eq 1-28)	501.0	504.3	512.7	520.8	528.9	535.9	539.2	538.1	532.1	521.4	512.5	504.3
Daily Avg Amb Temp, °R (eq 1-27)	499.7	503.0	511.4	519.5	527.6	534.6	537.9	536.8	530.8	520.1	511.2	503.0
Daily Max Amb Temp, °R (Table 7.1-7)	509.8	514.0	523.2	531.7	539.1	545.2	547.9	546.5	540.8	531.6	522.2	512.9
Daily Min Amb Temp, °R (Table 7.1-7)	489.7	492.1	499.6	507.3	516.1	524.1	528.0	527.1	520.9	508.7	500.2	493.1
Paint Solar Absortance, α	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Shell Paint Solar Abs, α (Table 7.1-6)	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Roof Paint Solar Abs, α (Table 7.1-6)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Daily Total Solar Ins (Table 7.1-7)	813.8	1,062.5	1,401.4	1,761.5	1,901.1	1,987.4	1,903.3	1,756.4	1,477.8	1,243.4	901.0	725.6
Liquid Molecular Weight	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Benzene												
Vapor Mass Fraction (eq 4-6)	0.0034	0.0036	0.0045	0.0059	0.0063	0.0067	0.0068	0.0068	0.0053	0.0042	0.0039	0.0035
Vapor Mole Fraction (eq 4-5)	0.0027	0.0028	0.0036	0.0050	0.0054	0.0057	0.0058	0.0057	0.0043	0.0033	0.0030	0.0028
Partial Vapor Pressure, psia (eq 4-3)	0.0153	0.0172	0.0226	0.0291	0.0364	0.0439	0.0474	0.0455	0.0383	0.0284	0.0215	0.0167
Saturated Vapor Pressure, psia (eq-1-25)	0.7203	0.8127	1.0648	1.3721	1.7192	2.0720	2.2354	2.1484	1.8086	1.3382	1.0142	0.7873
Liquid Mole Fraction (eq 4-4)	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212
Molecular Weight (Table 7.1-3)	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11
Liquid Mass Fraction	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180
Cumene												
Vapor Mass Fraction (eq 4-6)	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000
Vapor Mole Fraction (eq 4-5)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
Partial Vapor Pressure, psia (eq 4-3)	0.0001	0.0001	0.0002	0.0002	0.0003	0.0004	0.0004	0.0004	0.0003	0.0002	0.0002	0.0001
Saturated Vapor Pressure, psia (eq-1-25)	0.0250	0.0295	0.0425	0.0598	0.0810	0.1041	0.1153	0.1093	0.0868	0.0578	0.0398	0.0282
Liquid Mole Fraction (eq 4-4)	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038
Molecular Weight (Table 7.1-3)	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Ethylbenzene												
Vapor Mass Fraction (eq 4-6)	0.0002	0.0002	0.0003	0.0004	0.0005	0.0006	0.0006	0.0006	0.0004	0.0003	0.0003	0.0002
Vapor Mole Fraction (eq 4-5)	0.0001	0.0001	0.0002	0.0003	0.0003	0.0003	0.0004	0.0004	0.0003	0.0002	0.0002	0.0001
Partial Vapor Pressure, psia (eq 4-3)	0.0007	0.0008	0.0012	0.0016	0.0021	0.0027	0.0030	0.0028	0.0023	0.0016	0.0011	0.0008
Saturated Vapor Pressure, psia (eq-1-25)	0.0591	0.0688	0.0966	0.1329	0.1763	0.2226	0.2448	0.2330	0.1878	0.1287	0.0909	0.0661
Liquid Mole Fraction (eq 4-4)	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140
Hexane												
Vapor Mass Fraction (eq 4-6)	0.0032	0.0033	0.0041	0.0053	0.0056	0.0059	0.0060	0.0059	0.0047	0.0038	0.0035	0.0033

Vapor Mole Fraction (eq 4-5)	0.0023	0.0024	0.0030	0.0041	0.0043	0.0045	0.0046	0.0045	0.0034	0.0027	0.0025	0.0023
Partial Vapor Pressure, psia (eq 4-3)	0.0130	0.0145	0.0187	0.0238	0.0294	0.0350	0.0376	0.0362	0.0308	0.0232	0.0179	0.0141
Saturated Vapor Pressure, psia (eq-1-25)	1.2162	1.3619	1.7546	2.2258	2.7507	3.2777	3.5200	3.3911	2.8848	2.1741	1.6763	1.3220
Liquid Mole Fraction (eq 4-4)	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107
Molecular Weight (Table 7.1-3)	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17
Liquid Mass Fraction	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100
MTBE												
Vapor Mass Fraction (eq 4-6)	0.0031	0.0032	0.0039	0.0050	0.0051	0.0053	0.0053	0.0053	0.0043	0.0036	0.0034	0.0032
Vapor Mole Fraction (eq 4-5)	0.0022	0.0022	0.0028	0.0037	0.0038	0.0039	0.0040	0.0039	0.0030	0.0025	0.0023	0.0022
Partial Vapor Pressure, psia (eq 4-3)	0.0124	0.0138	0.0174	0.0216	0.0261	0.0305	0.0326	0.0315	0.0273	0.0211	0.0167	0.0134
Saturated Vapor Pressure, psia (eq-1-25)	2.3735	2.6359	3.3279	4.1330	5.0034	5.8540	6.2382	6.0344	5.2220	4.0458	3.1915	2.5643
Liquid Mole Fraction (eq 4-4)	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052
Molecular Weight (Table 7.1-3)	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Trimethylpentane												
Vapor Mass Fraction (eq 4-6)	0.0038	0.0040	0.0051	0.0068	0.0073	0.0078	0.0079	0.0078	0.0061	0.0048	0.0043	0.0039
Vapor Mole Fraction (eq 4-5)	0.0020	0.0021	0.0028	0.0039	0.0042	0.0045	0.0046	0.0045	0.0034	0.0026	0.0023	0.0021
Partial Vapor Pressure, psia (eq 4-3)	0.0116	0.0132	0.0174	0.0227	0.0287	0.0348	0.0377	0.0362	0.0302	0.0221	0.0166	0.0127
Saturated Vapor Pressure, psia (eq-1-25)	0.3605	0.4087	0.5412	0.7043	0.8903	1.0808	1.1695	1.1222	0.9384	0.6862	0.5145	0.3954
Liquid Mole Fraction (eq 4-4)	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322
Molecular Weight (Table 7.1-3)	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300	114.2300
Liquid Mass Fraction	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400
Toluene												
Vapor Mass Fraction (eq 4-6)	0.0035	0.0038	0.0049	0.0066	0.0073	0.0079	0.0081	0.0080	0.0062	0.0047	0.0042	0.0037
Vapor Mole Fraction (eq 4-5)	0.0023	0.0025	0.0033	0.0048	0.0052	0.0057	0.0058	0.0057	0.0042	0.0031	0.0028	0.0024
Partial Vapor Pressure, psia (eq 4-3)	0.0134	0.0154	0.0208	0.0277	0.0356	0.0439	0.0478	0.0457	0.0377	0.0269	0.0197	0.0148
Saturated Vapor Pressure, psia (eq-1-25)	0.1918	0.2197	0.2976	0.3956	0.5096	0.6284	0.6842	0.6544	0.5394	0.3847	0.2818	0.2120
Liquid Mole Fraction (eq 4-4)	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699
Molecular Weight (Table 7.1-3)	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700
Xylene												
Vapor Mass Fraction (eq 4-6)	0.0013	0.0014	0.0019	0.0027	0.0030	0.0033	0.0034	0.0034	0.0025	0.0019	0.0016	0.0014
Vapor Mole Fraction (eq 4-5)	0.0008	0.0008	0.0011	0.0017	0.0019	0.0021	0.0021	0.0021	0.0015	0.0011	0.0009	0.0008
Partial Vapor Pressure, psia (eq 4-3)	0.0043	0.0050	0.0070	0.0096	0.0127	0.0159	0.0175	0.0167	0.0135	0.0093	0.0066	0.0048
Saturated Vapor Pressure, psia (eq-1-25)	0.0712	0.0827	0.1155	0.1580	0.2087	0.2628	0.2886	0.2748	0.2222	0.1532	0.1087	0.0795
Liquid Mole Fraction (eq 4-4)	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700

Antoine Coefficients for HAPs (Table 7.1-5)	A	B	C
Benzene	6.905	1211.033	220.79
Cumene	6.93666	1460.793	207.78
Ethylbenzene	6.975	1424.255	213.21
Hexane	6.876	1171.17	224.41
MTBE	5.896	708.69	179.9
Trimethylpentane	6.8118	1257.84	220.74
Toluene	6.954	1344.8	219.48
Xylene	7.009	1426.266	215.11

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Storage Tank Withdrawal and Breathing Emissions

Palmetto Belton Tank Farm **Belton**
Tank #507 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rim Seal Losses, lbs (Eq. 2-2)	**57.36**	**57.45**	**66.66**	**61.37**	**78.47**	**91.77**	**102.89**	**98.56**	**109.35**	**102.17**	**75.15**	**61.88**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Seal Factor A, lb-mole/ft-yr (Table 7.1-8)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Tank Diameter, ft	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Average Vapor Pressure, psia (eq 1-24)	5.710	6.179	6.247	5.806	6.807	7.771	8.203	7.974	8.961	8.589	7.148	6.051
Average Atmospheric Pressure, psia	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Withdrawal Losses, lbs (Eq. 2-4)	**46.53**	**46.53**	**46.53**	**46.53**	**46.53**	**46.53**	**46.53**	**46.53**	**46.53**	**46.53**	**46.53**	**46.53**
Net Throughput, gals	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000	35,770,000
Clingage Factor, bbl/1000 sq ft, (Table 7.1-10)	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Liquid Density, lb/gal (Tables 7.1-2 and 7.1-3)	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60
Tank Diameter, ft	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00
Number of Columns	0	0	0	0	0	0	0	0	0	0	0	0
Effective Column Diameter, ft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deck Fitting Losses, lbs (Eq. 2-5)	**191.65**	**191.96**	**222.75**	**205.07**	**262.19**	**306.65**	**343.81**	**329.33**	**365.37**	**341.38**	**251.10**	**206.76**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Deck Fitting Loss Factor, lb-mole/yr (eq 2-6)	290.70	290.70	290.70	290.70	290.70	290.70	290.70	290.70	290.70	290.70	290.70	290.70
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Deck Seam Losses, lbs (Eq. 2-9)	**388.11**	**388.74**	**451.10**	**415.28**	**530.96**	**621.01**	**696.25**	**666.93**	**739.91**	**691.33**	**508.51**	**418.71**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Deck Seam Loss per Unit Length, lb-mole/ft-yr	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Deck Seam Length Factor, ft/ft2 (Table 7.1-16)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Tank Diameter, ft	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00
Value of Vapor Pressure Function (eq 2-3)	0.1273	0.1411	0.1432	0.1300	0.1609	0.1945	0.2110	0.2021	0.2427	0.2267	0.1723	0.1373
Vapor Molecular Weight (Table 7.1-2)	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Deck Fitting	Quantity	Deck Fitting Loss Factors, Kfa (Table 7.1-12)
Access Hatch (24-in Diam.)/Bolted Cover, Gasketed	2	1.60
Automatic Gauge Float Well, Unbolted Cover, Gasketed	1	4.30
Ladder Well (36-in. Diam.), Sliding Cover, Gasketed	1	56.00
Sample Pipe or Well (24 in. Diam.) Slit Fabric Seal 10% Open	1	12.00
Stub Drain (1-in. Diameter)	169	1.20
Vacuum Breaker (10-in. Diam.), Weighted Mech. Actuation, Gasketed	2	6.20
Column Well (24-in. Diam.) Built-Up Sliding Cover, Gasketed	0	33.00

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Storage Tank Drain Dry Roof Landing Emissions

Palmetto Belton Tank Farm **Belton**
Tank #507 **Gasoline**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Drain Dry Landing Losses (lbs)	**742.42**	**0.00**	**758.52**	**750.87**	**0.00**	**0.00**	**0.00**	**0.00**	**825.66**	**0.00**	**0.00**	**0.00**
Standing Idle Losses, lbs	582.58	0.00	582.58	582.58	0.00	0.00	0.00	0.00	582.58	0.00	0.00	0.00
Number of Drain-Dry Landings	1	0	1	1	0	0	0	0	1	0	0	0
Standing Idle Loss (eq. 2-22)	582.58	0.00	582.58	582.58	0.00	0.00	0.00	0.00	582.58	0.00	0.00	0.00
Average Organic Liquid Density, lb/gal	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.60
Tank Diameter, ft	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00
Standing Idle Loss (eq. 2-23)	639.38	0.00	703.75	673.18	0.00	0.00	0.00	0.00	972.34	0.00	0.00	0.00
Average Vapor Pressure, psia (eq 1-24)	5.71	6.18	6.25	5.81	6.81	7.77	8.20	7.97	8.96	8.59	7.15	6.05
Volume of Vapor Space, ft3	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0
Leg Height, ft	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Tank Diameter, ft	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00
Ideal Gas Const, psia-ft3/lb-mol °R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Daily Avg Liq Surf Temp, °R	502.93	506.99	516.37	525.56	534.09	541.40	544.44	542.85	536.05	524.64	514.64	505.91
Vapor Molecular Weight	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Filling Losses, lbs (Eq. 2-26)	159.85	0.00	175.94	168.29	0.00	0.00	0.00	0.00	243.09	0.00	0.00	0.00
Number of Drain-Dry Refloats	1	0	1	1	0	0	0	0	1	0	0	0
Average Vapor Pressure, psia (eq 1-24)	5.71	6.18	6.25	5.81	6.81	7.77	8.20	7.97	8.96	8.59	7.15	6.05
Volume of Vapor Space, ft3	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0	16,513.0
Ideal Gas Const, psia-cuft/lb-mol °R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Avg Liquid Surface Temperature, °R (eq 1-26)	502.9	507.0	516.4	525.6	534.1	541.4	544.4	542.8	536.0	524.6	514.6	505.9
Vapor Molecular Weight	61.00	61.00	63.00	66.00	66.00	66.00	66.00	66.00	63.00	61.00	61.00	61.00
Filling Saturation Factor, S	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Tank Emissions Summary

Palmetto Belton Tank Farm **Belton**
Tank #507 **Gasoline**

Month	VOC	Benzene	Cumene	Ethylbenzene	Hexane	MTBE	Trimethylpentane	Toluene	Xylene	Aggregate HAPs
January	1,426.1	5.56	0.28	0.95	4.90	4.56	7.12	8.15	5.07	36.59
February	684.7	3.12	0.26	0.80	2.59	2.29	4.41	5.65	4.16	23.26
March	1,545.6	7.55	0.31	1.13	6.61	6.06	9.45	10.56	6.09	47.75
April	1,479.1	9.33	0.34	1.29	8.12	7.34	11.55	12.78	7.06	57.81
May	918.1	6.36	0.30	1.09	5.37	4.70	8.22	9.62	5.86	41.54
June	1,066.0	7.66	0.33	1.22	6.46	5.59	9.77	11.30	6.62	48.94
July	1,189.5	8.65	0.34	1.32	7.30	6.29	10.95	12.56	7.18	54.59
August	1,141.3	8.24	0.34	1.28	6.96	6.01	10.45	12.02	6.94	52.23
September	2,086.8	11.66	0.38	1.53	10.06	8.91	14.34	15.81	8.43	71.12
October	1,181.4	5.64	0.29	1.01	4.80	4.26	7.33	8.62	5.39	37.35
November	881.3	4.05	0.27	0.88	3.42	3.04	5.49	6.73	4.60	28.47
December	733.9	3.27	0.26	0.81	2.73	2.43	4.57	5.80	4.21	24.07
Total	**14,333.7**	**81.09**	**3.68**	**13.30**	**69.31**	**61.48**	**103.63**	**119.62**	**71.61**	**523.73**

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Tank
Tank Identification and Physical Characteristics

Identification	
User Identification	Tank #508
City	Belton
State	South Carolina
Company	Palmetto Belton Tank Farm
Description	Denatured Ethanol

Rim-Seal System
Mechanical Shoe, Rim-mounted Secondary

Deck Characteristics	
Deck Fitting Category	Detail
Deck Type	Bolted
Deck Seam	Sheet - 5 ft wide
Deck Seam Length (ft)	2,224.40

Deck Fitting	Quantity
Access Hatch (24-in Diam.)/Bolted Cover, Gasketed	2
Automatic Gauge Float Well, Unbolted Cover, Gasketed	1
Ladder Well (36-in. Diam.), Sliding Cover, Gasketed	1
Sample Pipe or Well (24 in. Diam.) Slit Fabric Seal 10% Open	1
Stub Drain (1-in. Diameter)	114
Vacuum Breaker (10-in. Diam.), Weighted Mech. Actuation, Gasketed	2
Column Well (24-in. Diam.) Built-Up Sliding Cover, Gasketed	0

Tank Dimensions	
Diameter (ft)	119.00
Volume (bbls)	80,000
Turnovers	3,755.85
Self Supp. Roof?	Y
No. of Columns	0
Eff. Column Diameter (ft)	0

Paint Characteristics	
Internal Shell Condition	Light Rust
Shell Color/Shade	White/White
Shell Condition	Good
Roof Color/Shade	Aluminum_Diffuse
Roof Condition	Good

Tank Location		
Meteorological Data Used	Spartanburg	SC
Average Atmospheric Pressure	14.254	psia

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Material Stored	Denatured _Ethanol	Denatured _Ethanol	Denatured _Ethanol	Denatured _Ethanol	Denatured _Ethanol	Denatured _Ethanol	Denatured _Ethanol	Denatured _Ethanol	Denatured _Ethanol	Denatured _Ethanol	Denatured _Ethanol	Denatured _Ethanol
Product Type	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil
Throughput (gals)	25,039,000	25,039,000	25,039,000	25,039,000	25,039,000	25,039,000	25,039,000	25,039,000	25,039,000	25,039,000	25,039,000	25,039,000
Number of Drain-Dry Landings	1	0	1	1	0	0	0	0	1	0	0	0
Number of Drain-Dry Refloats	1	0	1	1	0	0	0	0	1	0	0	0
Roof Leg Height (ft)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Liquid Contents of Storage Tank

Palmetto Belton Tank Farm **Belton**
Tank #508 **Denatured Ethanol**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Denatured_Ethanol												
Average Vapor Pressure, psia	0.505	0.575	0.769	1.015	1.306	1.612	1.758	1.680	1.382	0.987	0.729	0.555
Vapor Molecular Weight	50.27	50.07	49.64	49.26	48.96	48.72	48.63	48.67	48.89	49.30	49.71	50.12
Ethanol												
Vapor Mass Fraction	0.640	0.656	0.690	0.721	0.746	0.766	0.774	0.770	0.752	0.718	0.684	0.652
Vapor Mole Fraction	0.698	0.713	0.744	0.771	0.793	0.810	0.817	0.813	0.798	0.768	0.738	0.709
Partial Vapor Pressure (psia)	0.353	0.410	0.572	0.782	1.035	1.306	1.435	1.366	1.103	0.759	0.538	0.394
Saturated Vapor Pressure (psia)	0.362	0.420	0.587	0.803	1.063	1.340	1.473	1.402	1.132	0.779	0.552	0.404
Antoine Coefficient, A	8.321	8.321	8.321	8.321	8.321	8.321	8.321	8.321	8.321	8.321	8.321	8.321
Antoine Coefficient, B	1,718.2	1,718.2	1,718.2	1,718.2	1,718.2	1,718.2	1,718.2	1,718.2	1,718.2	1,718.2	1,718.2	1,718.2
Antoine Coefficient, C	237.52	237.52	237.52	237.52	237.52	237.52	237.52	237.52	237.52	237.52	237.52	237.52
Avg Liquid Surface Temp, °F	43.3	47.3	56.7	65.9	74.4	81.7	84.8	83.2	76.4	65.0	55.0	46.2
Bulk Liquid Temperature, °R	501.0	504.3	512.7	520.8	528.9	535.9	539.2	538.1	532.1	521.4	512.5	504.3
Daily Avg Amb Temp, °R	499.7	503.0	511.4	519.5	527.6	534.6	537.9	536.8	530.8	520.1	511.2	503.0
Daily Max Amb Temp, °R	509.8	514.0	523.2	531.7	539.1	545.2	547.9	546.5	540.8	531.6	522.2	512.9
Daily Min Amb Temp, °R	489.7	492.1	499.6	507.3	516.1	524.1	528.0	527.1	520.9	508.7	500.2	493.1
Paint Solar Absorbance, α	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Shell Paint Solar Absorbance, α	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Roof Paint Solar Absorbance, α	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Daily Total Solar Ins on Hor Surf	813.8	1,062.5	1,401.4	1,761.5	1,901.1	1,987.4	1,903.3	1,756.4	1,477.8	1,243.4	901.0	725.6
Liquid Mole Fraction	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974	0.974
Molecular Weight	46.07	46.07	46.07	46.07	46.07	46.07	46.07	46.07	46.07	46.07	46.07	46.07
Liquid Mass Fraction	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Gasoline_RVP_15												
Vapor Mass Fraction	0.360	0.344	0.310	0.279	0.254	0.234	0.226	0.230	0.248	0.282	0.316	0.348
Vapor Molecular Weight	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00
Vapor Mole Fraction	0.302	0.287	0.256	0.229	0.207	0.190	0.183	0.187	0.202	0.232	0.262	0.291
Partial Vapor Pressure, psia	0.153	0.165	0.197	0.233	0.270	0.306	0.322	0.314	0.280	0.229	0.191	0.162
Saturated Vap Pres, psia	5.939	6.424	7.668	9.064	10.531	11.931	12.556	12.225	10.893	8.915	7.426	6.293
Antoine Coefficient, A	11.600	11.600	11.600	11.600	11.600	11.600	11.600	11.600	11.600	11.600	11.600	11.600
Antoine Coefficient, B	4,937.9	4,937.9	4,937.9	4,937.9	4,937.9	4,937.9	4,937.9	4,937.9	4,937.9	4,937.9	4,937.9	4,937.9
Avg Liq Surface Temp, °F	43.3	47.3	56.7	65.9	74.4	81.7	84.8	83.2	76.4	65.0	55.0	46.2
Liquid Mole Fraction	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257
Liquid Molecular Weight	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00
Liquid Mass Fraction	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzene												
Vapor Mass Fraction	0.0012	0.0012	0.0012	0.0012	0.0011	0.0011	0.0011	0.0011	0.0011	0.0012	0.0012	0.0012
Vapor Mole Fraction	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0008	0.0008
Partial Vapor Pressure (psia)	0.0004	0.0004	0.0006	0.0007	0.0009	0.0011	0.0012	0.0012	0.0010	0.0007	0.0006	0.0004
Saturated Vapor Pressure (psia)	0.7203	0.8127	1.0648	1.3721	1.7192	2.0720	2.2354	2.1484	1.8086	1.3382	1.0142	0.7873
Liquid Mole Fraction	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Molecular Weight	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11

Liquid Mass Fraction	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
Cumene												
Vapor Mass Fraction	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vapor Mole Fraction	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Partial Vapor Pressure (psia)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Saturated Vapor Pressure (psia)	0.0250	0.0295	0.0425	0.0598	0.0810	0.1041	0.1153	0.1093	0.0868	0.0578	0.0398	0.0282
Liquid Mole Fraction	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Molecular Weight	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20
Liquid Mass Fraction	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Ethylbenzene												
Vapor Mass Fraction	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Vapor Mole Fraction	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Partial Vapor Pressure (psia)	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000
Saturated Vapor Pressure (psia)	0.0591	0.0688	0.0966	0.1329	0.1763	0.2226	0.2448	0.2330	0.1878	0.1287	0.0909	0.0661
Liquid Mole Fraction	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Molecular Weight	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
Hexane												
Vapor Mass Fraction	0.0011	0.0011	0.0011	0.0011	0.0010	0.0010	0.0010	0.0010	0.0010	0.0011	0.0011	0.0011
Vapor Mole Fraction	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0006	0.0006	0.0006	0.0006	0.0007
Partial Vapor Pressure (psia)	0.0003	0.0004	0.0005	0.0006	0.0008	0.0009	0.0010	0.0009	0.0008	0.0006	0.0005	0.0004
Saturated Vapor Pressure (psia)	1.2162	1.3619	1.7546	2.2258	2.7507	3.2777	3.5200	3.3911	2.8848	2.1741	1.6763	1.3220
Liquid Mole Fraction	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Molecular Weight	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17
Liquid Mass Fraction	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
MTBE												
Vapor Mass Fraction	0.0011	0.0011	0.0010	0.0010	0.0009	0.0009	0.0009	0.0009	0.0009	0.0010	0.0010	0.0011
Vapor Mole Fraction	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0006	0.0006
Partial Vapor Pressure (psia)	0.0003	0.0004	0.0004	0.0006	0.0007	0.0008	0.0008	0.0008	0.0007	0.0005	0.0004	0.0003
Saturated Vapor Pressure (psia)	2.3735	2.6359	3.3279	4.1330	5.0034	5.8540	6.2382	6.0344	5.2220	4.0458	3.1915	2.5643
Liquid Mole Fraction	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Molecular Weight	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15
Liquid Mass Fraction	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Trimethylpentane												
Vapor Mass Fraction	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013
Vapor Mole Fraction	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Partial Vapor Pressure (psia)	0.0003	0.0003	0.0004	0.0006	0.0007	0.0009	0.0010	0.0009	0.0008	0.0006	0.0004	0.0003
Saturated Vapor Pressure (psia)	0.3605	0.4087	0.5412	0.7043	0.8903	1.0808	1.1695	1.1222	0.9384	0.6862	0.5145	0.3954
Liquid Mole Fraction	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
Molecular Weight	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23
Liquid Mass Fraction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Toluene												
Vapor Mass Fraction	0.0012	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013
Vapor Mole Fraction	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
Partial Vapor Pressure (psia)	0.0003	0.0004	0.0005	0.0007	0.0009	0.0011	0.0012	0.0012	0.0010	0.0007	0.0005	0.0004
Saturated Vapor Pressure (psia)	0.1918	0.2197	0.2976	0.3956	0.5096	0.6284	0.6842	0.6544	0.5394	0.3847	0.2818	0.2120
Liquid Mole Fraction	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
Molecular Weight	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13
Liquid Mass Fraction	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035
Xylene												
Vapor Mass Fraction	0.0005	0.0005	0.0005	0.0005	0.0005	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005

Vapor Mole Fraction	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002
Partial Vapor Pressure (psia)	0.0001	0.0001	0.0002	0.0002	0.0003	0.0004	0.0004	0.0004	0.0003	0.0002	0.0002	0.0001
Saturated Vapor Pressure (psia)	0.0712	0.0827	0.1155	0.1580	0.2087	0.2628	0.2886	0.2748	0.2222	0.1532	0.1087	0.0795
Liquid Mole Fraction	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016
Molecular Weight	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035

Antoine Coefficients for HAPs	A	B	C
Benzene	6.905	1211.033	220.79
Cumene	6.93666	1460.793	207.78
Ethylbenzene	6.975	1424.255	213.21
Hexane	6.876	1171.17	224.41
MTBE	5.896	708.69	179.9
Trimethylpentane	6.8118	1257.84	220.74
Toluene	6.954	1344.8	219.48
Xylene	7.009	1426.266	215.11

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AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Storage Tank Withdrawal and Breathing Emissions

Palmetto Belton Tank Farm **Belton**
Tank #508 **Denatured Ethanol**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rim Seal Losses, lbs (Eq. 2-2)	**2.75**	**2.82**	**4.17**	**5.34**	**7.13**	**8.58**	**9.70**	**9.25**	**7.32**	**5.37**	**3.83**	**3.02**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Seal Factor A, lb-mole/ft-yr	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Tank Diameter, ft	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00
Value of Vapor Pressure Function	0.0090	0.0103	0.0139	0.0185	0.0240	0.0300	0.0329	0.0313	0.0255	0.0179	0.0131	0.0099
Average Vapor Pressure, psia (eq 1-24)	0.505	0.575	0.769	1.015	1.306	1.612	1.758	1.680	1.382	0.987	0.729	0.555
Average Atmospheric Pressure, psia	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254
Vapor Molecular Weight	50.27	50.07	49.64	49.26	48.96	48.72	48.63	48.67	48.89	49.30	49.71	50.12
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Withdrawal Losses, lbs (Eq. 2-4)	**46.28**	**46.28**	**46.28**	**46.28**	**46.28**	**46.28**	**46.28**	**46.28**	**46.28**	**46.28**	**46.28**	**46.28**
Net Throughput, gals/mo	25,039,000	25,039,000	25,039,000	25,039,000	25,039,000	25,039,000	25,039,000	25,039,000	25,039,000	25,039,000	25,039,000	25,039,000
Shell Clingage Factor, bbl/1000 sq ft	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Average Organic Liquid Density, lb/gal	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53
Tank Diameter, ft	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00
Number of Columns	0	0	0	0	0	0	0	0	0	0	0	0
Effective Column Diameter, ft	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deck Fitting Losses, lbs (Eq. 2-5)	**8.66**	**8.88**	**13.13**	**16.80**	**22.43**	**26.99**	**30.52**	**29.11**	**23.02**	**16.89**	**12.05**	**9.50**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Total Deck Fitting Loss Factor, lb-mole/yr	224.70	224.70	224.70	224.70	224.70	224.70	224.70	224.70	224.70	224.70	224.70	224.70
Value of Vapor Pressure Function	0.0090	0.0103	0.0139	0.0185	0.0240	0.0300	0.0329	0.0313	0.0255	0.0179	0.0131	0.0099
Vapor Molecular Weight	50.27	50.07	49.64	49.26	48.96	48.72	48.63	48.67	48.89	49.30	49.71	50.12
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Deck Seam Losses, lbs (Eq. 2-9)	**15.28**	**15.66**	**23.16**	**29.65**	**39.59**	**47.63**	**53.86**	**51.37**	**40.62**	**29.80**	**21.26**	**16.77**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Deck Seam Loss per Lgt Factor, lb-mole/ft-yr	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Deck Seam Length Factor, ft/ft2	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Tank Diameter, ft	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00
Value of Vapor Pressure Function	0.0090	0.0103	0.0139	0.0185	0.0240	0.0300	0.0329	0.0313	0.0255	0.0179	0.0131	0.0099
Vapor Molecular Weight	50.27	50.07	49.64	49.26	48.96	48.72	48.63	48.67	48.89	49.30	49.71	50.12
Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Deck Fitting	Quantity	Deck Fitting Loss Factors KFa (lb-mole/yr)
Access Hatch (24-in Diam.)/Bolted Cover, Gasketed	2	1.60
Automatic Gauge Float Well, Unbolted Cover, Gasketed	1	4.30
Ladder Well (36-in. Diam.), Sliding Cover, Gasketed	1	56.00
Sample Pipe or Well (24 in. Diam.) Slit Fabric Seal 10% Open	1	12.00
Vacuum Breaker (10-in. Diam.), Weighted Mech. Actuation, Gasketed	2	6.20
Stub Drain (1-in. Diameter)	114	1.20
Column Well (24-in. Diam.) Built-Up Sliding Cover, Gasketed	0	33.00

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Storage Tank Drain Dry Roof Landing Emissions

Palmetto Belton Tank Farm **Belton**
Tank #508 **Denatured Ethanol**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Drain Dry Roof Landing Losses (lbs)	**39.28**	**0.00**	**57.43**	**73.97**	**0.00**	**0.00**	**0.00**	**0.00**	**98.00**	**0.00**	**0.00**	**0.00**
Standing Idle Losses, lbs	31.42	0.00	45.95	59.18	0.00	0.00	0.00	0.00	78.40	0.00	0.00	0.00
Number of Drain-Dry Landings	1	0	1	1	0	0	0	0	1	0	0	0
Standing Idle Loss (eq. 2-22)	457.64	0.00	457.64	457.64	0.00	0.00	0.00	0.00	457.64	0.00	0.00	0.00
Average Organic Liquid Density (lb/gal)	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53	6.53
Tank Diameter, ft	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00
Standing Idle Loss (eq. 2-23)	31.42	0.00	45.95	59.18	0.00	0.00	0.00	0.00	78.40	0.00	0.00	0.00
Vap Pres at Daily Avg Liq Surf Temp, psia	0.505	0.575	0.769	1.015	1.306	1.612	1.758	1.680	1.382	0.987	0.729	0.555
Volume of Vapor Space, ft3	11,122.0	11,122.0	11,122.0	11,122.0	11,122.0	11,122.0	11,122.0	11,122.0	11,122.0	11,122.0	11,122.0	11,122.0
Leg Height, ft	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Tank Diameter, ft	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00	119.00
Ideal Gas Const, psia-cuft/lb-mol °R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Daily Avg Liq Surf Temp, °R	502.9	507.0	516.4	525.6	534.1	541.4	544.4	542.8	536.0	524.6	514.6	505.9
Vapor Molecular Weight	50.27	50.07	49.64	49.26	48.96	48.72	48.63	48.67	48.89	49.30	49.71	50.12
Filling Losses, lbs (Eq. 2-26)	7.86	0.00	11.49	14.79	0.00	0.00	0.00	0.00	19.60	0.00	0.00	0.00
Number of Drain-Dry Refloats	1	0	1	1	0	0	0	0	1	0	0	0
Vap Pres at Daily Avg Liq Surf Temp, psia	0.505	0.575	0.769	1.015	1.306	1.612	1.758	1.680	1.382	0.987	0.729	0.555
Volume of Vapor Space, ft3	11,122.0	11,122.0	11,122.0	11,122.0	11,122.0	11,122.0	11,122.0	11,122.0	11,122.0	11,122.0	11,122.0	11,122.0
Ideal Gas Const, psia-cuft/lb-mol °R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Daily Avg Liq Surf Temp, °R	502.9	507.0	516.4	525.6	534.1	541.4	544.4	542.8	536.0	524.6	514.6	505.9
Vapor Molecular Weight	50.27	50.07	49.64	49.26	48.96	48.72	48.63	48.67	48.89	49.30	49.71	50.12
Filling Saturation Factor, S	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Internal Floating Roof Tank Emissions Summary

Palmetto Belton Tank Farm **Belton**
Tank #508 **Denatured Ethanol**

Month	VOC	Benzene	Cumene	Ethylbenzene	Hexane	MTBE	Trimethylpentane	Toluene	Xylene	Aggregate HAPs
January	112.3	0.12	0.01	0.04	0.10	0.08	0.18	0.24	0.19	0.97
February	73.6	0.07	0.01	0.03	0.05	0.04	0.13	0.20	0.17	0.72
March	144.2	0.16	0.01	0.04	0.13	0.11	0.22	0.29	0.21	1.18
April	172.1	0.19	0.01	0.04	0.16	0.13	0.26	0.33	0.23	1.35
May	115.4	0.12	0.01	0.04	0.09	0.08	0.18	0.25	0.20	0.98
June	129.5	0.13	0.01	0.04	0.11	0.08	0.20	0.27	0.21	1.06
July	140.4	0.15	0.01	0.04	0.11	0.09	0.21	0.29	0.21	1.12
August	136.0	0.14	0.01	0.04	0.11	0.09	0.21	0.28	0.21	1.10
September	215.2	0.23	0.01	0.05	0.19	0.17	0.31	0.39	0.25	1.61
October	98.3	0.10	0.01	0.04	0.08	0.06	0.16	0.23	0.19	0.87
November	83.4	0.09	0.01	0.04	0.06	0.05	0.14	0.21	0.18	0.78
December	75.6	0.08	0.01	0.03	0.06	0.04	0.13	0.20	0.18	0.73
Total	**1,496.0**	**1.59**	**0.15**	**0.47**	**1.25**	**1.04**	**2.35**	**3.17**	**2.44**	**12.46**

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Vertical Fixed Roof Tank
Tank Identification and Physical Characteristics

Identification	
Equipment Identification	SCCI Tank
City	Belton
State	South Carolina
Company	Palmetto Belton Tank Farm
Description	Corrosion Inhibitor

Tank Dimensions	
Shell Height (ft)	12.00
Diameter (ft)	7.00
Liquid Height (ft)	12.00
Average Liquid Height	6.00
Volume (gals)	3,000

Roof Characteristics	
Roof Type	Cone
Slope (ft/ft)	0.0625
Radius (ft) (Dome Roof)	7.00

Paint Characteristics	
Shell Color/Shade	Aluminum_Diffuse
Shell Condition	Good
Roof Color/Shade	Aluminum_Diffuse
Roof Condition	Good

Breather Vent Settings	
Vacuum Settings (psig)	-0.03
Pressure Settings (psig)	0.03

Tank Location		
Meteorological Data Used	Spartanburg	SC
Average Atmospheric Pressure	14.254	psia

Material Stored/Throughput	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Material	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene
Product Type	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil
Throughput (gals)	666.7	666.7	666.7	666.7	666.7	666.7	666.7	666.7	666.7	666.7	666.7	666.7

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Liquid Contents of Storage Tank

SCCI Tank **Palmetto Belton Tank Farm**
Belton **South Carolina**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Product Stored	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene	Jet_kerosene
Average Vapor Pressure, psia	0.0050	0.0058	0.0082	0.0112	0.0148	0.0186	0.0203	0.0192	0.0154	0.0106	0.0075	0.0055
Antoine Coefficient, A	12.390	12.390	12.390	12.390	12.390	12.390	12.390	12.390	12.390	12.390	12.390	12.390
Antoine Coefficient, B	8,933.0	8,933.0	8,933.0	8,933.0	8,933.0	8,933.0	8,933.0	8,933.0	8,933.0	8,933.0	8,933.0	8,933.0
Average Liquid Surface Temperature, °F	45.4	49.8	59.8	69.6	78.4	85.8	88.7	86.9	79.6	67.8	57.2	48.2
Bulk Liquid Temperature, °R	502.3	505.6	514.0	522.1	530.2	537.2	540.5	539.4	533.4	522.7	513.8	505.6
Daily Max Amb Temp, °R	509.8	514.0	523.2	531.7	539.1	545.2	547.9	546.5	540.8	531.6	522.2	512.9
Daily Min Amb Temp, °R	489.7	492.1	499.6	507.3	516.1	524.1	528.0	527.1	520.9	508.7	500.2	493.1
Paint Solar Absorbance, α	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Shell Paint Solar Absorbance, α	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Roof Paint Solar Absorbance, α	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Daily Total Solar Ins on Hor Surf	813.80	1,062.54	1,401.38	1,761.48	1,901.08	1,987.38	1,903.30	1,756.41	1,477.84	1,243.38	901.05	725.60
Maximum Vapor Pressure, psia	0.0064	0.0078	0.0114	0.0162	0.0213	0.0265	0.0284	0.0264	0.0207	0.0143	0.0097	0.0069
Maximum Liquid Surface Temperature, °F	52.4	58.2	69.9	81.4	90.5	98.0	100.3	97.8	89.4	77.1	65.0	54.8
Daily Vap Temp Range, °R	28.1	33.6	40.5	47.2	48.5	48.6	46.3	43.5	39.2	37.4	31.0	26.4
Minimum Vapor Pressure, psia	0.0039	0.0044	0.0058	0.0077	0.0101	0.0128	0.0143	0.0138	0.0113	0.0078	0.0058	0.0044
Minimum Liquid Surface Temperature, °F	38.3	41.4	49.7	57.8	66.2	73.7	77.2	76.0	69.8	58.5	49.5	41.6
Liquid Molecular Weight	162.00	162.00	162.00	162.00	162.00	162.00	162.00	162.00	162.00	162.00	162.00	162.00
Vapor Molecular Weight	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
Benzene												
Vapor Mass Fraction (eq 4-6)	0.0076	0.0075	0.0071	0.0067	0.0064	0.0062	0.0061	0.0061	0.0064	0.0068	0.0072	0.0075
Vapor Mole Fraction (eq 4-5)	0.0127	0.0124	0.0118	0.0112	0.0107	0.0102	0.0101	0.0102	0.0106	0.0113	0.0119	0.0125
Partial Vapor Pressure, psia (eq 4-3)	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001
Saturated Vapor Pressure, psia (eq-1-25)	0.7670	0.8751	1.1614	1.5154	1.9031	2.2943	2.4633	2.3546	1.9642	1.4443	1.0809	0.8340
Liquid Mole Fraction (eq 4-4)	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Molecular Weight (Table 7.1-3)	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11
Liquid Mass Fraction	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Cumene												
Vapor Mass Fraction (eq 4-6)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vapor Mole Fraction (eq 4-5)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Partial Vapor Pressure, psia (eq 4-3)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Saturated Vapor Pressure, psia (eq-1-25)	0.0272	0.0326	0.0477	0.0684	0.0929	0.1194	0.1314	0.1237	0.0969	0.0641	0.0433	0.0305
Liquid Mole Fraction (eq 4-4)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Molecular Weight (Table 7.1-3)	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20
Liquid Mass Fraction	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Ethylbenzene												
Vapor Mass Fraction (eq 4-6)	0.0202	0.0205	0.0209	0.0212	0.0214	0.0215	0.0216	0.0216	0.0214	0.0211	0.0208	0.0204
Vapor Mole Fraction (eq 4-5)	0.0248	0.0250	0.0255	0.0259	0.0262	0.0264	0.0264	0.0264	0.0262	0.0259	0.0254	0.0250
Partial Vapor Pressure, psia (eq 4-3)	0.0001	0.0001	0.0002	0.0003	0.0004	0.0005	0.0005	0.0005	0.0004	0.0003	0.0002	0.0001
Saturated Vapor Pressure, psia (eq-1-25)	0.0640	0.0755	0.1078	0.1505	0.2002	0.2529	0.2764	0.2613	0.2082	0.1417	0.0985	0.0711
Liquid Mole Fraction (eq 4-4)	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013

Hexane												
Vapor Mass Fraction (eq 4-6)	0.0161	0.0156	0.0145	0.0135	0.0127	0.0121	0.0119	0.0120	0.0126	0.0137	0.0148	0.0157
Vapor Mole Fraction (eq 4-5)	0.0242	0.0235	0.0219	0.0204	0.0192	0.0183	0.0179	0.0181	0.0191	0.0207	0.0223	0.0238
Partial Vapor Pressure, psia (eq 4-3)	0.0001	0.0001	0.0002	0.0002	0.0003	0.0003	0.0004	0.0003	0.0003	0.0002	0.0002	0.0001
Saturated Vapor Pressure, psia (eq-1-25)	1.2901	1.4597	1.9034	2.4433	3.0261	3.6071	3.8563	3.6962	3.1173	2.3355	1.7794	1.3953
Liquid Mole Fraction (eq 4-4)	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Molecular Weight (Table 7.1-3)	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17
Liquid Mass Fraction	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
MTBE												
Vapor Mass Fraction (eq 4-6)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vapor Mole Fraction (eq 4-5)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Partial Vapor Pressure, psia (eq 4-3)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Saturated Vapor Pressure, psia (eq-1-25)	2.5070	2.8103	3.5849	4.4969	5.4506	6.3754	6.7649	6.5151	5.5974	4.3171	3.3709	2.6957
Liquid Mole Fraction (eq 4-4)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Molecular Weight (Table 7.1-3)	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15
Liquid Mass Fraction	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Trimethylpentane												
Vapor Mass Fraction (eq 4-6)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vapor Mole Fraction (eq 4-5)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Partial Vapor Pressure, psia (eq 4-3)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Saturated Vapor Pressure, psia (eq-1-25)	0.3849	0.4414	0.5922	0.7809	0.9894	1.2015	1.2936	1.2344	1.0224	0.7428	0.5497	0.4198
Liquid Mole Fraction (eq 4-4)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Molecular Weight (Table 7.1-3)	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23
Liquid Mass Fraction	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Toluene												
Vapor Mass Fraction (eq 4-6)	0.0682	0.0677	0.0665	0.0652	0.0640	0.0629	0.0624	0.0627	0.0638	0.0654	0.0668	0.0679
Vapor Mole Fraction (eq 4-5)	0.0963	0.0956	0.0938	0.0920	0.0902	0.0887	0.0881	0.0885	0.0900	0.0923	0.0943	0.0958
Partial Vapor Pressure, psia (eq 4-3)	0.0005	0.0006	0.0008	0.0010	0.0013	0.0016	0.0018	0.0017	0.0014	0.0010	0.0007	0.0005
Saturated Vapor Pressure, psia (eq-1-25)	0.2059	0.2388	0.3281	0.4423	0.5712	0.7045	0.7630	0.7253	0.5918	0.4191	0.3027	0.2262
Liquid Mole Fraction (eq 4-4)	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023
Molecular Weight (Table 7.1-3)	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13
Liquid Mass Fraction	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013
Xylene												
Vapor Mass Fraction (eq 4-6)	0.0594	0.0599	0.0607	0.0614	0.0618	0.0620	0.0620	0.0620	0.0618	0.0613	0.0605	0.0597
Vapor Mole Fraction (eq 4-5)	0.0728	0.0733	0.0744	0.0751	0.0756	0.0759	0.0760	0.0759	0.0757	0.0750	0.0741	0.0731
Partial Vapor Pressure, psia (eq 4-3)	0.0004	0.0004	0.0006	0.0008	0.0011	0.0014	0.0015	0.0015	0.0012	0.0008	0.0006	0.0004
Saturated Vapor Pressure, psia (eq-1-25)	0.0769	0.0906	0.1286	0.1786	0.2366	0.2980	0.3253	0.3077	0.2460	0.1683	0.1176	0.0853
Liquid Mole Fraction (eq 4-4)	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031

Antoine Coefficients for HAPs (Table 7.1-5)	A	B	C
Benzene	6.905	1211.033	220.79
Cumene	6.93666	1460.793	207.78
Ethylbenzene	6.975	1424.255	213.21
Hexane	6.876	1171.17	224.41
MTBE	5.896	708.69	179.9
Trimethylpentane	6.8118	1257.84	220.74
Toluene	6.954	1344.8	219.48
Xylene	7.009	1426.266	215.11

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Vertical Fixed Roof Standing and Working Losses

SCCI Tank — **Palmetto Belton Tank Farm**
Belton — **South Carolina**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Standing Loss, lbs (eq. 1-2)	**0.04**	**0.06**	**0.10**	**0.15**	**0.21**	**0.25**	**0.26**	**0.23**	**0.17**	**0.12**	**0.07**	**0.05**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Vapor Space Volume, ft3	234	234	234	234	234	234	234	234	234	234	234	234
Tank Diameter, ft	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Vapor Space Outage, ft	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07
Shell Height, ft	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Average Liquid height, ft	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Roof Outage, ft	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Tank Roof Height, ft	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Shell Radius, ft	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
Vapor Density, lbs/ft3	0.0001	0.0001	0.0002	0.0003	0.0003	0.0004	0.0004	0.0004	0.0003	0.0002	0.0002	0.0001
Vapor Molecular Weight	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
Stock Vapor Pressure, psia	0.0050	0.0058	0.0082	0.0112	0.0148	0.0186	0.0203	0.0192	0.0154	0.0106	0.0075	0.0055
Ideal Gas Const, psia cuft/lb-mol-°R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Daily Avg Liq Surf Temp, °R	505.0	509.5	519.5	529.3	538.0	545.5	548.4	546.6	539.3	527.5	516.9	507.9
Vapor Space Exp. Factor, Ke	0.0517	0.0620	0.0742	0.0855	0.0867	0.0858	0.0812	0.0762	0.0690	0.0671	0.0560	0.0480
Daily Avg Liq Surf Temp, °R	505.0	509.5	519.5	529.3	538.0	545.5	548.4	546.6	539.3	527.5	516.9	507.9
Daily Vap Pres Range, psia	0.0025	0.0034	0.0056	0.0086	0.0112	0.0137	0.0141	0.0126	0.0093	0.0064	0.0039	0.0025
Vap Pres at Daily Max Temp, psia	0.0064	0.0078	0.0114	0.0162	0.0213	0.0265	0.0284	0.0264	0.0207	0.0143	0.0097	0.0069
Daily Max Surf Temp, °R	519.1	526.3	539.7	552.9	562.3	569.8	571.5	568.3	558.9	546.2	532.4	521.1
Vap Pres at Daily Min Temp, psia	0.0039	0.0044	0.0058	0.0077	0.0101	0.0128	0.0143	0.0138	0.0113	0.0078	0.0058	0.0044
Daily Min Surf Temp, °R	505.0	509.5	519.5	529.3	538.0	545.5	548.4	546.6	539.3	527.5	516.9	507.9
Breather Vent Pres, psia	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Vacuum Setting, psig	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Pressure Setting, psig	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03
Average Atmospheric Pressure, psia	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254
Stock Vapor Pressure, psia	0.0050	0.0058	0.0082	0.0112	0.0148	0.0186	0.0203	0.0192	0.0154	0.0106	0.0075	0.0055
Vented Vapor Sat. Factor, Ks	0.9984	0.9981	0.9974	0.9964	0.9953	0.9941	0.9935	0.9939	0.9951	0.9966	0.9976	0.9982
Stock Vapor Pressure, psia	0.0050	0.0058	0.0082	0.0112	0.0148	0.0186	0.0203	0.0192	0.0154	0.0106	0.0075	0.0055
Vapor Space Outage, ft	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07

Working Loss, lbs (eq. 1-29)	**0.01**	**0.01**	**0.02**	**0.02**	**0.03**	**0.04**	**0.04**	**0.04**	**0.03**	**0.02**	**0.02**	**0.01**
Vapor Molecular Weight	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
Stock Vapor Pressure, psia	0.0050	0.0058	0.0082	0.0112	0.0148	0.0186	0.0203	0.0192	0.0154	0.0106	0.0075	0.0055
Throughput, gals	667	667	667	667	667	667	667	667	667	667	667	667
Turnover Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Annual Turnovers	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67
Working Loss Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Vertical Fixed Roof Tank Emissions Summary

SCCI Tank **Palmetto Belton Tank Farm**
Belton **South Carolina**

Month	VOC	Benzene	Cumene	Ethylbenzene	Hexane	MTBE	Trimethylpentane	Toluene	Xylene	Aggregate HAPs
January	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
February	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
March	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02
April	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.03
May	0.24	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.01	0.04
June	0.29	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.02	0.05
July	0.30	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.02	0.05
August	0.27	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.02	0.04
September	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.03
October	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02
November	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
December	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Total	**2.00**	**0.01**	**0.00**	**0.04**	**0.03**	**0.00**	**0.00**	**0.13**	**0.12**	**0.33**

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Vertical Fixed Roof Tank
Tank Identification and Physical Characteristics

Identification	
Equipment Identification	Water Tank
City	Belton
State	South Carolina
Company	Palmetto Belton Tank Farm
Description	Wastewater

Tank Dimensions	
Shell Height (ft)	28.00
Diameter (ft)	12.00
Liquid Height (ft)	28.00
Average Liquid Height	14.00
Volume (gals)	21,000

Roof Characteristics	
Roof Type	Cone
Slope (ft/ft)	0.0625
Radius (ft) (Dome Roof)	12.00

Paint Characteristics	
Shell Color/Shade	Aluminum_Diffuse
Shell Condition	Good
Roof Color/Shade	Aluminum_Diffuse
Roof Condition	Good

Breather Vent Settings	
Vacuum Settings (psig)	-0.03
Pressure Settings (psig)	0.03

Tank Location		
Meteorological Data Used	Spartanburg	SC
Average Atmospheric Pressure	14.254	psia

Material Stored/Throughput	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Material	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9
Product Type	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil
Throughput (gals)	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Liquid Contents of Storage Tank

Water Tank **Palmetto Belton Tank Farm**
Belton **South Carolina**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Product Stored	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9
Average Vapor Pressure, psia	3.4283	3.7606	4.5929	5.5517	6.5380	7.4835	7.8794	7.6256	6.6887	5.3640	4.3650	3.6355
Antoine Coefficient, A	11.756	11.756	11.756	11.756	11.756	11.756	11.756	11.756	11.756	11.756	11.756	11.756
Antoine Coefficient, B	5,315.1	5,315.1	5,315.1	5,315.1	5,315.1	5,315.1	5,315.1	5,315.1	5,315.1	5,315.1	5,315.1	5,315.1
Average Liquid Surface Temperature, °F	45.4	49.8	59.8	69.6	78.4	85.8	88.7	86.9	79.6	67.8	57.2	48.2
Bulk Liquid Temperature, °R	502.3	505.6	514.0	522.1	530.2	537.2	540.5	539.4	533.4	522.7	513.8	505.6
Daily Max Amb Temp, °R	509.8	514.0	523.2	531.7	539.1	545.2	547.9	546.5	540.8	531.6	522.2	512.9
Daily Min Amb Temp, °R	489.7	492.1	499.6	507.3	516.1	524.1	528.0	527.1	520.9	508.7	500.2	493.1
Paint Solar Absorbance, α	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Shell Paint Solar Absorbance, α	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Roof Paint Solar Absorbance, α	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Daily Total Solar Ins on Hor Surf	813.80	1,062.54	1,401.38	1,761.48	1,901.08	1,987.38	1,903.30	1,756.41	1,477.84	1,243.38	901.05	725.60
Maximum Vapor Pressure, psia	3.9617	4.4543	5.5862	6.9097	8.1282	9.2527	9.6274	9.2178	7.9735	6.3924	5.0804	4.1589
Maximum Liquid Surface Temperature, °F	52.4	58.2	69.9	81.4	90.5	98.0	100.3	97.8	89.4	77.1	65.0	54.8
Daily Vap Temp Range, °R	28.1	33.6	40.5	47.2	48.5	48.6	46.3	43.5	39.2	37.4	31.0	26.4
Minimum Vapor Pressure, psia	2.9546	3.1570	3.7469	4.4163	5.2064	5.9945	6.3934	6.2602	5.5745	4.4727	3.7330	3.1668
Minimum Liquid Surface Temperature, °F	38.3	41.4	49.7	57.8	66.2	73.7	77.2	76.0	69.8	58.5	49.5	41.6
Liquid Molecular Weight	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00
Vapor Molecular Weight	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00
Benzene												
Vapor Mass Fraction (eq 4-6)	0.0055	0.0058	0.0062	0.0067	0.0072	0.0076	0.0077	0.0076	0.0073	0.0067	0.0061	0.0057
Vapor Mole Fraction (eq 4-5)	0.0047	0.0049	0.0054	0.0058	0.0062	0.0065	0.0066	0.0065	0.0062	0.0057	0.0052	0.0049
Partial Vapor Pressure, psia (eq 4-3)	0.0163	0.0186	0.0246	0.0321	0.0403	0.0486	0.0522	0.0499	0.0416	0.0306	0.0229	0.0177
Saturated Vapor Pressure, psia (eq-1-25)	0.7670	0.8751	1.1614	1.5154	1.9031	2.2943	2.4633	2.3546	1.9642	1.4443	1.0809	0.8340
Liquid Mole Fraction (eq 4-4)	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212
Molecular Weight (Table 7.1-3)	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11
Liquid Mass Fraction	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180
Cumene												
Vapor Mass Fraction (eq 4-6)	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Vapor Mole Fraction (eq 4-5)	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000
Partial Vapor Pressure, psia (eq 4-3)	0.0001	0.0001	0.0002	0.0003	0.0004	0.0005	0.0005	0.0005	0.0004	0.0002	0.0002	0.0001
Saturated Vapor Pressure, psia (eq-1-25)	0.0272	0.0326	0.0477	0.0684	0.0929	0.1194	0.1314	0.1237	0.0969	0.0641	0.0433	0.0305
Liquid Mole Fraction (eq 4-4)	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038
Molecular Weight (Table 7.1-3)	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Ethylbenzene												
Vapor Mass Fraction (eq 4-6)	0.0004	0.0004	0.0005	0.0005	0.0006	0.0006	0.0007	0.0007	0.0006	0.0005	0.0004	0.0004
Vapor Mole Fraction (eq 4-5)	0.0002	0.0002	0.0003	0.0003	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0002
Partial Vapor Pressure, psia (eq 4-3)	0.0008	0.0009	0.0013	0.0018	0.0024	0.0031	0.0034	0.0032	0.0025	0.0017	0.0012	0.0009
Saturated Vapor Pressure, psia (eq-1-25)	0.0640	0.0755	0.1078	0.1505	0.2002	0.2529	0.2764	0.2613	0.2082	0.1417	0.0985	0.0711
Liquid Mole Fraction (eq 4-4)	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140

Hexane												
Vapor Mass Fraction (eq 4-6)	0.0052	0.0053	0.0057	0.0060	0.0064	0.0066	0.0067	0.0067	0.0064	0.0060	0.0056	0.0053
Vapor Mole Fraction (eq 4-5)	0.0040	0.0041	0.0044	0.0047	0.0049	0.0051	0.0052	0.0052	0.0050	0.0046	0.0044	0.0041
Partial Vapor Pressure, psia (eq 4-3)	0.0138	0.0156	0.0203	0.0261	0.0323	0.0385	0.0412	0.0395	0.0333	0.0249	0.0190	0.0149
Saturated Vapor Pressure, psia (eq-1-25)	1.2901	1.4597	1.9034	2.4433	3.0261	3.6071	3.8563	3.6962	3.1173	2.3355	1.7794	1.3953
Liquid Mole Fraction (eq 4-4)	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107
Molecular Weight (Table 7.1-3)	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17
Liquid Mass Fraction	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100
MTBE												
Vapor Mass Fraction (eq 4-6)	0.0050	0.0051	0.0054	0.0056	0.0057	0.0058	0.0059	0.0059	0.0057	0.0055	0.0053	0.0051
Vapor Mole Fraction (eq 4-5)	0.0038	0.0039	0.0041	0.0042	0.0044	0.0044	0.0045	0.0045	0.0044	0.0042	0.0040	0.0039
Partial Vapor Pressure, psia (eq 4-3)	0.0131	0.0147	0.0187	0.0235	0.0284	0.0333	0.0353	0.0340	0.0292	0.0225	0.0176	0.0141
Saturated Vapor Pressure, psia (eq-1-25)	2.5070	2.8103	3.5849	4.4969	5.4506	6.3754	6.7649	6.5151	5.5974	4.3171	3.3709	2.6957
Liquid Mole Fraction (eq 4-4)	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052
Molecular Weight (Table 7.1-3)	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Trimethylpentane												
Vapor Mass Fraction (eq 4-6)	0.0062	0.0064	0.0071	0.0077	0.0083	0.0088	0.0090	0.0089	0.0084	0.0076	0.0069	0.0063
Vapor Mole Fraction (eq 4-5)	0.0036	0.0038	0.0042	0.0045	0.0049	0.0052	0.0053	0.0052	0.0049	0.0045	0.0041	0.0037
Partial Vapor Pressure, psia (eq 4-3)	0.0124	0.0142	0.0191	0.0252	0.0319	0.0387	0.0417	0.0398	0.0329	0.0239	0.0177	0.0135
Saturated Vapor Pressure, psia (eq-1-25)	0.3849	0.4414	0.5922	0.7809	0.9894	1.2015	1.2936	1.2344	1.0224	0.7428	0.5497	0.4198
Liquid Mole Fraction (eq 4-4)	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322
Molecular Weight (Table 7.1-3)	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23
Liquid Mass Fraction	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400
Toluene												
Vapor Mass Fraction (eq 4-6)	0.0058	0.0061	0.0069	0.0077	0.0084	0.0090	0.0093	0.0091	0.0085	0.0075	0.0067	0.0060
Vapor Mole Fraction (eq 4-5)	0.0042	0.0044	0.0050	0.0056	0.0061	0.0066	0.0068	0.0066	0.0062	0.0055	0.0048	0.0043
Partial Vapor Pressure, psia (eq 4-3)	0.0144	0.0167	0.0229	0.0309	0.0399	0.0492	0.0533	0.0507	0.0414	0.0293	0.0212	0.0158
Saturated Vapor Pressure, psia (eq-1-25)	0.2059	0.2388	0.3281	0.4423	0.5712	0.7045	0.7630	0.7253	0.5918	0.4191	0.3027	0.2262
Liquid Mole Fraction (eq 4-4)	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699
Molecular Weight (Table 7.1-3)	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700
Xylene												
Vapor Mass Fraction (eq 4-6)	0.0022	0.0023	0.0027	0.0031	0.0035	0.0038	0.0040	0.0039	0.0035	0.0030	0.0026	0.0023
Vapor Mole Fraction (eq 4-5)	0.0014	0.0015	0.0017	0.0020	0.0022	0.0024	0.0025	0.0024	0.0022	0.0019	0.0016	0.0014
Partial Vapor Pressure, psia (eq 4-3)	0.0047	0.0055	0.0078	0.0108	0.0144	0.0181	0.0197	0.0187	0.0149	0.0102	0.0071	0.0052
Saturated Vapor Pressure, psia (eq-1-25)	0.0769	0.0906	0.1286	0.1786	0.2366	0.2980	0.3253	0.3077	0.2460	0.1683	0.1176	0.0853
Liquid Mole Fraction (eq 4-4)	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700

Antoine Coefficients for HAPs (Table 7.1-5)	A	B	C
Benzene	6.905	1211.033	220.79
Cumene	6.93666	1460.793	207.78
Ethylbenzene	6.975	1424.255	213.21
Hexane	6.876	1171.17	224.41
MTBE	5.896	708.69	179.9
Trimethylpentane	6.8118	1257.84	220.74
Toluene	6.954	1344.8	219.48
Xylene	7.009	1426.266	215.11

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Vertical Fixed Roof Standing and Working Losses

Water Tank — **Palmetto Belton Tank Farm**
Belton — **South Carolina**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Standing Loss, lbs (eq. 1-2)	**84.28**	**99.35**	**161.50**	**224.46**	**293.88**	**349.09**	**375.04**	**332.28**	**235.87**	**175.58**	**112.57**	**83.18**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Vapor Space Volume, ft3	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597	1,597
Tank Diameter, ft	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Vapor Space Outage, ft	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13
Shell Height, ft	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
Average Liquid height, ft	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
Roof Outage, ft	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Tank Roof Height, ft	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
Shell Radius, ft	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Vapor Density, lbs/ft3	0.0424	0.0461	0.0552	0.0655	0.0759	0.0857	0.0897	0.0871	0.0774	0.0635	0.0527	0.0447
Vapor Molecular Weight	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00
Stock Vapor Pressure, psia	3.4283	3.7606	4.5929	5.5517	6.5380	7.4835	7.8794	7.6256	6.6887	5.3640	4.3650	3.6355
Ideal Gas Const, psia cuft/lb-mol-°R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Daily Avg Liq Surf Temp, °R	505.0	509.5	519.5	529.3	538.0	545.5	548.4	546.6	539.3	527.5	516.9	507.9
Vapor Space Exp. Factor, Ke	0.1432	0.1839	0.2622	0.3687	0.4611	0.5615	0.5824	0.5167	0.3818	0.2801	0.1901	0.1399
Daily Avg Liq Surf Temp, °R	505.0	509.5	519.5	529.3	538.0	545.5	548.4	546.6	539.3	527.5	516.9	507.9
Daily Vap Pres Range, psia	1.0071	1.2973	1.8392	2.4934	2.9218	3.2582	3.2340	2.9576	2.3990	1.9197	1.3474	0.9921
Vap Pres at Daily Max Temp, psia	3.9617	4.4543	5.5862	6.9097	8.1282	9.2527	9.6274	9.2178	7.9735	6.3924	5.0804	4.1589
Daily Max Surf Temp, °R	519.1	526.3	539.7	552.9	562.3	569.8	571.5	568.3	558.9	546.2	532.4	521.1
Vap Pres at Daily Min Temp, psia	2.9546	3.1570	3.7469	4.4163	5.2064	5.9945	6.3934	6.2602	5.5745	4.4727	3.7330	3.1668
Daily Min Surf Temp, °R	505.0	509.5	519.5	529.3	538.0	545.5	548.4	546.6	539.3	527.5	516.9	507.9
Breather Vent Pres, psia	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Vacuum Setting, psig	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Pressure Setting, psig	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03
Average Atmospheric Pressure, psia	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254
Stock Vapor Pressure, psia	3.4283	3.7606	4.5929	5.5517	6.5380	7.4835	7.8794	7.6256	6.6887	5.3640	4.3650	3.6355
Vented Vapor Sat. Factor, Ks	0.2804	0.2621	0.2253	0.1939	0.1696	0.1515	0.1450	0.1491	0.1665	0.1994	0.2343	0.2687
Stock Vapor Pressure, psia	3.4283	3.7606	4.5929	5.5517	6.5380	7.4835	7.8794	7.6256	6.6887	5.3640	4.3650	3.6355
Vapor Space Outage, ft	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13	14.13

Working Loss, lbs (eq. 1-29)	**114.85**	**125.98**	**153.86**	**185.98**	**219.02**	**250.70**	**263.96**	**255.46**	**224.07**	**179.70**	**146.23**	**121.79**
Vapor Molecular Weight	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00
Stock Vapor Pressure, psia	3.4283	3.7606	4.5929	5.5517	6.5380	7.4835	7.8794	7.6256	6.6887	5.3640	4.3650	3.6355
Throughput, gals	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000
Turnover Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Annual Turnovers	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Working Loss Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Vertical Fixed Roof Tank Emissions Summary

Water Tank **Palmetto Belton Tank Farm**
Belton **South Carolina**

Month	VOC	Benzene	Cumene	Ethylbenzene	Hexane	MTBE	Trimethylpentane	Toluene	Xylene	Aggregate HAPs
January	199.1	1.10	0.01	0.07	1.03	1.00	1.23	1.15	0.43	6.02
February	225.3	1.30	0.01	0.09	1.20	1.16	1.45	1.38	0.52	7.10
March	315.4	1.97	0.02	0.14	1.79	1.69	2.23	2.17	0.85	10.87
April	410.4	2.77	0.03	0.21	2.48	2.28	3.17	3.14	1.27	15.36
May	512.9	3.69	0.05	0.30	3.26	2.94	4.26	4.31	1.78	20.59
June	599.8	4.54	0.07	0.39	3.97	3.51	5.29	5.43	2.30	25.49
July	639.0	4.94	0.07	0.43	4.29	3.77	5.76	5.95	2.54	27.75
August	587.7	4.49	0.07	0.39	3.91	3.45	5.23	5.37	2.28	25.18
September	459.9	3.34	0.05	0.28	2.94	2.64	3.86	3.91	1.63	18.65
October	355.3	2.36	0.03	0.18	2.12	1.96	2.70	2.67	1.07	13.10
November	258.8	1.58	0.02	0.11	1.45	1.37	1.79	1.72	0.67	8.72
December	205.0	1.16	0.01	0.08	1.08	1.04	1.30	1.23	0.46	6.36
Total	**4,768.7**	**33.24**	**0.44**	**2.67**	**29.54**	**26.81**	**38.28**	**38.42**	**15.79**	**185.19**

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Horizontal Tank
Tank Identification and Physical Characteristics

Identification	
Equipment Identification	Sump
City	Belton
State	South Carolina
Company	Palmetto Belton Tank Farm
Description	Wastewater

Breather Vent Settings	
Vacuum Settings (psig)	-0.03
Pressure Settings (psig)	0.03

Tank Dimensions	
Shell Length (ft)	22.00
Diameter (ft)	8.00
Volume (gals)	8,000
Turnovers	16.06
Net Throughput (gal/yr)	128,480
Is Tank Heated?	N
Is Tank Underground?	Y

Paint Characteristics	
Shell Color/Shade	Aluminum_Diffuse
Shell Condition	Good

Tank Location		
Meteorological Data Used	Spartanburg	SC
Average Atmospheric Pressure	14.254	psia

Material Stored/Throughput	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Material	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9
Product Type	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil
Throughput (gals)	10,707	10,707	10,707	10,707	10,707	10,707	10,707	10,707	10,707	10,707	10,707	10,707

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Liquid Contents of Storage Tank

Sump **Palmetto Belton Tank Farm**
Belton **South Carolina**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Product Stored	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9	Gasoline_ RVP_9
Average Vapor Pressure, psia	3.1616	3.3887	4.0228	4.7263	5.5254	6.3059	6.7003	6.5607	5.8750	4.7868	4.0066	3.3851
Antoine Coefficient, A	11.756	11.756	11.756	11.756	11.756	11.756	11.756	11.756	11.756	11.756	11.756	11.756
Antoine Coefficient, B	5,315.1	5,315.1	5,315.1	5,315.1	5,315.1	5,315.1	5,315.1	5,315.1	5,315.1	5,315.1	5,315.1	5,315.1
Average Liquid Surface Temperature, °F	41.5	44.8	53.2	61.3	69.4	76.4	79.7	78.6	72.6	61.9	53.0	44.8
Bulk Liquid Temperature, °R	502.3	505.6	514.0	522.1	530.2	537.2	540.5	539.4	533.4	522.7	513.8	505.6
Daily Max Amb Temp, °R	509.8	514.0	523.2	531.7	539.1	545.2	547.9	546.5	540.8	531.6	522.2	512.9
Daily Min Amb Temp, °R	489.7	492.1	499.6	507.3	516.1	524.1	528.0	527.1	520.9	508.7	500.2	493.1
Tank Solar Absorbance, α	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Daily Total Solar Ins on Hor Surf	813.8	1,062.5	1,401.4	1,761.5	1,901.1	1,987.4	1,903.3	1,756.4	1,477.8	1,243.4	901.0	725.6
Maximum Vapor Pressure, psia	3.6615	4.0273	4.9176	5.9237	6.9203	7.8549	8.2416	7.9770	7.0359	5.7271	4.6751	3.8795
Maximum Liquid Surface Temperature, °F	48.5	53.2	63.3	73.0	81.5	88.6	91.3	89.4	82.4	71.3	60.7	51.4
Daily Vap Temp Range, °R	28.1	33.6	40.5	47.2	48.5	48.6	46.3	43.5	39.2	37.4	31.0	26.4
Minimum Vapor Pressure, psia	2.7184	2.8347	3.2643	3.7317	4.3654	5.0111	5.3980	5.3525	4.8726	3.9747	3.4175	2.9431
Minimum Liquid Surface Temperature, °F	34.5	36.4	43.0	49.5	57.2	64.3	68.1	67.7	62.8	52.6	45.2	38.1
Liquid Molecular Weight	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00	92.00
Vapor Molecular Weight	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00
Benzene												
Vapor Mass Fraction (eq 4-6)	0.0053	0.0055	0.0059	0.0063	0.0067	0.0071	0.0073	0.0072	0.0069	0.0064	0.0059	0.0055
Vapor Mole Fraction (eq 4-5)	0.0046	0.0047	0.0051	0.0054	0.0058	0.0061	0.0062	0.0062	0.0059	0.0055	0.0051	0.0047
Partial Vapor Pressure, psia (eq 4-3)	0.0145	0.0160	0.0204	0.0256	0.0319	0.0384	0.0417	0.0405	0.0348	0.0261	0.0203	0.0160
Saturated Vapor Pressure, psia (eq-1-25)	0.6832	0.7544	0.9630	1.2091	1.5054	1.8099	1.9689	1.9123	1.6400	1.2310	0.9575	0.7533
Liquid Mole Fraction (eq 4-4)	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212	0.0212
Molecular Weight (Table 7.1-3)	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11
Liquid Mass Fraction	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180	0.0180
Cumene												
Vapor Mass Fraction (eq 4-6)	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Vapor Mole Fraction (eq 4-5)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
Partial Vapor Pressure, psia (eq 4-3)	0.0001	0.0001	0.0001	0.0002	0.0003	0.0003	0.0004	0.0004	0.0003	0.0002	0.0001	0.0001
Saturated Vapor Pressure, psia (eq-1-25)	0.0233	0.0266	0.0371	0.0504	0.0678	0.0868	0.0973	0.0935	0.0761	0.0517	0.0368	0.0266
Liquid Mole Fraction (eq 4-4)	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038
Molecular Weight (Table 7.1-3)	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Ethylbenzene												
Vapor Mass Fraction (eq 4-6)	0.0003	0.0004	0.0004	0.0005	0.0005	0.0006	0.0006	0.0006	0.0005	0.0005	0.0004	0.0004
Vapor Mole Fraction (eq 4-5)	0.0002	0.0002	0.0003	0.0003	0.0003	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0002
Partial Vapor Pressure, psia (eq 4-3)	0.0007	0.0008	0.0010	0.0014	0.0018	0.0023	0.0025	0.0024	0.0020	0.0014	0.0010	0.0008
Saturated Vapor Pressure, psia (eq-1-25)	0.0553	0.0627	0.0852	0.1134	0.1492	0.1880	0.2089	0.2014	0.1661	0.1159	0.0846	0.0625
Liquid Mole Fraction (eq 4-4)	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140	0.0140

Hexane												
Vapor Mass Fraction (eq 4-6)	0.0050	0.0051	0.0055	0.0057	0.0060	0.0063	0.0064	0.0064	0.0062	0.0058	0.0054	0.0051
Vapor Mole Fraction (eq 4-5)	0.0039	0.0040	0.0042	0.0045	0.0047	0.0049	0.0050	0.0049	0.0048	0.0045	0.0042	0.0040
Partial Vapor Pressure, psia (eq 4-3)	0.0124	0.0136	0.0170	0.0211	0.0259	0.0308	0.0334	0.0325	0.0281	0.0215	0.0170	0.0135
Saturated Vapor Pressure, psia (eq-1-25)	1.1574	1.2702	1.5967	1.9768	2.4282	2.8867	3.1243	3.0398	2.6315	2.0103	1.5882	1.2684
Liquid Mole Fraction (eq 4-4)	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107	0.0107
Molecular Weight (Table 7.1-3)	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17
Liquid Mass Fraction	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100
MTBE												
Vapor Mass Fraction (eq 4-6)	0.0049	0.0050	0.0052	0.0054	0.0056	0.0057	0.0057	0.0057	0.0056	0.0054	0.0052	0.0050
Vapor Mole Fraction (eq 4-5)	0.0037	0.0038	0.0040	0.0041	0.0042	0.0043	0.0044	0.0044	0.0043	0.0041	0.0040	0.0038
Partial Vapor Pressure, psia (eq 4-3)	0.0118	0.0129	0.0159	0.0194	0.0233	0.0273	0.0293	0.0286	0.0251	0.0197	0.0158	0.0129
Saturated Vapor Pressure, psia (eq-1-25)	2.2666	2.4711	3.0522	3.7106	4.4717	5.2251	5.6087	5.4727	4.8081	3.7678	3.0372	2.4679
Liquid Mole Fraction (eq 4-4)	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052
Molecular Weight (Table 7.1-3)	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Trimethylpentane												
Vapor Mass Fraction (eq 4-6)	0.0059	0.0061	0.0067	0.0072	0.0077	0.0082	0.0084	0.0083	0.0079	0.0072	0.0066	0.0061
Vapor Mole Fraction (eq 4-5)	0.0035	0.0036	0.0039	0.0042	0.0045	0.0048	0.0049	0.0049	0.0046	0.0042	0.0039	0.0036
Partial Vapor Pressure, psia (eq 4-3)	0.0110	0.0122	0.0157	0.0199	0.0250	0.0303	0.0330	0.0320	0.0273	0.0203	0.0156	0.0122
Saturated Vapor Pressure, psia (eq-1-25)	0.3412	0.3783	0.4875	0.6176	0.7755	0.9391	1.0250	0.9944	0.8477	0.6292	0.4846	0.3777
Liquid Mole Fraction (eq 4-4)	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322	0.0322
Molecular Weight (Table 7.1-3)	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23
Liquid Mass Fraction	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400
Toluene												
Vapor Mass Fraction (eq 4-6)	0.0055	0.0057	0.0064	0.0070	0.0076	0.0082	0.0085	0.0084	0.0079	0.0070	0.0063	0.0057
Vapor Mole Fraction (eq 4-5)	0.0040	0.0042	0.0046	0.0051	0.0056	0.0060	0.0062	0.0061	0.0058	0.0051	0.0046	0.0042
Partial Vapor Pressure, psia (eq 4-3)	0.0126	0.0141	0.0186	0.0240	0.0307	0.0377	0.0415	0.0401	0.0338	0.0245	0.0185	0.0141
Saturated Vapor Pressure, psia (eq-1-25)	0.1808	0.2021	0.2658	0.3433	0.4390	0.5399	0.5934	0.5743	0.4833	0.3502	0.2641	0.2018
Liquid Mole Fraction (eq 4-4)	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699	0.0699
Molecular Weight (Table 7.1-3)	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700
Xylene												
Vapor Mass Fraction (eq 4-6)	0.0020	0.0021	0.0024	0.0027	0.0031	0.0034	0.0035	0.0035	0.0032	0.0028	0.0024	0.0021
Vapor Mole Fraction (eq 4-5)	0.0013	0.0013	0.0015	0.0017	0.0019	0.0021	0.0022	0.0022	0.0020	0.0018	0.0015	0.0013
Partial Vapor Pressure, psia (eq 4-3)	0.0040	0.0046	0.0062	0.0082	0.0107	0.0135	0.0150	0.0144	0.0119	0.0084	0.0061	0.0046
Saturated Vapor Pressure, psia (eq-1-25)	0.0667	0.0754	0.1020	0.1351	0.1772	0.2224	0.2468	0.2380	0.1969	0.1382	0.1013	0.0752
Liquid Mole Fraction (eq 4-4)	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607	0.0607
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700

Antoine Coefficients for HAPs (Table 7.1-5)	A	B	C
Benzene	6.905	1211.033	220.79
Cumene	6.93666	1460.793	207.78
Ethylbenzene	6.975	1424.255	213.21
Hexane	6.876	1171.17	224.41
MTBE	5.896	708.69	179.9
Trimethylpentane	6.8118	1257.84	220.74
Toluene	6.954	1344.8	219.48
Xylene	7.009	1426.266	215.11

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Horizontal Tank Standing and Working Losses

Sump **Palmetto Belton Tank Farm**
Belton **South Carolina**

Month:	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Standing Loss, lbs (eq. 1-2)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Vapor Space Volume, ft3	704.4	704.4	704.4	704.4	704.4	704.4	704.4	704.4	704.4	704.4	704.4	704.4
Effective Diameter, ft	14.97	14.97	14.97	14.97	14.97	14.97	14.97	14.97	14.97	14.97	14.97	14.97
Shell Length, ft	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00
Shell Height, ft	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Vapor Space Outage, ft	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Vapor Density, lbs/ft3	0.0394	0.0419	0.0490	0.0566	0.0652	0.0734	0.0776	0.0761	0.0689	0.0573	0.0488	0.0419
Vapor Molecular Weight	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00
Stock Vapor Pressure, psia	3.1616	3.3887	4.0228	4.7263	5.5254	6.3059	6.7003	6.5607	5.8750	4.7868	4.0066	3.3851
Daily Avg Liq Surf Temp, °R	501.2	504.5	512.8	520.9	529.0	536.1	539.4	538.2	532.3	521.6	512.6	504.4
Ideal Gas Const, psia ft3/lb-mol °R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Vapor Space Exp. Factor, KE	0.1358	0.1709	0.2348	0.3143	0.3775	0.4409	0.4544	0.4141	0.3246	0.2504	0.1773	0.1331
Daily Vap Temp Range, °R	28.1	33.6	40.5	47.2	48.5	48.6	46.3	43.5	39.2	37.4	31.0	26.4
Daily Avg Liq Surf Temp, °R	501.2	504.5	512.8	520.9	529.0	536.1	539.4	538.2	532.3	521.6	512.6	504.4
Daily Vap Pres Range, psia	0.9431	1.1926	1.6533	2.1920	2.5550	2.8438	2.8436	2.6245	2.1634	1.7523	1.2576	0.9365
Vap Pres at Daily Max Temp, psia	3.6615	4.0273	4.9176	5.9237	6.9203	7.8549	8.2416	7.9770	7.0359	5.7271	4.6751	3.8795
Vap Pres at Daily Min Temp, psia	2.7184	2.8347	3.2643	3.7317	4.3654	5.0111	5.3980	5.3525	4.8726	3.9747	3.4175	2.9431
Breather Vent Pres, psia	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Average Atmospheric Pressure, psia	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254
Stock Vapor Pressure, psia	3.1616	3.3887	4.0228	4.7263	5.5254	6.3059	6.7003	6.5607	5.8750	4.7868	4.0066	3.3851
Vented Vapor Sat. Factor, KS	0.5987	0.5819	0.5397	0.4995	0.4605	0.4279	0.4131	0.4183	0.4453	0.4963	0.5407	0.5822
Stock Vapor Pressure, psia	3.1616	3.3887	4.0228	4.7263	5.5254	6.3059	6.7003	6.5607	5.8750	4.7868	4.0066	3.3851
Vapor Space Outage, ft	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00

Working Loss, lbs (eq. 1-29)	**54.00**	**57.88**	**68.71**	**80.72**	**94.37**	**107.70**	**114.44**	**112.05**	**100.34**	**81.76**	**68.43**	**57.82**
Vapor Molecular Weight	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00	67.00
Stock Vapor Pressure, psia	3.1616	3.3887	4.0228	4.7263	5.5254	6.3059	6.7003	6.5607	5.8750	4.7868	4.0066	3.3851
Throughput, gals	10,707	10,707	10,707	10,707	10,707	10,707	10,707	10,707	10,707	10,707	10,707	10,707
Turnover Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Annual Turnovers	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1
Working Loss Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Horizontal Tank Emissions Summary

Sump **Palmetto Belton Tank Farm**
Belton **South Carolina**

Month	VOC	Benzene	Cumene	Ethylbenzene	Hexane	MTBE	Trimethylpentane	Toluene	Xylene	Aggregate HAPs
January	54.00	0.29	0.00	0.02	0.27	0.27	0.32	0.30	0.11	1.57
February	57.88	0.32	0.00	0.02	0.30	0.29	0.35	0.33	0.12	1.74
March	68.71	0.41	0.00	0.03	0.37	0.36	0.46	0.44	0.17	2.23
April	80.72	0.51	0.01	0.04	0.46	0.44	0.58	0.56	0.22	2.82
May	94.37	0.64	0.01	0.05	0.57	0.52	0.73	0.72	0.29	3.53
June	107.70	0.76	0.01	0.06	0.68	0.61	0.88	0.89	0.37	4.26
July	114.44	0.83	0.01	0.07	0.73	0.66	0.96	0.97	0.41	4.64
August	112.05	0.81	0.01	0.07	0.71	0.64	0.93	0.94	0.39	4.51
September	100.34	0.69	0.01	0.05	0.62	0.56	0.80	0.79	0.32	3.85
October	81.76	0.52	0.01	0.04	0.47	0.44	0.59	0.57	0.23	2.87
November	68.43	0.40	0.00	0.03	0.37	0.36	0.45	0.43	0.17	2.22
December	57.82	0.32	0.00	0.02	0.30	0.29	0.35	0.33	0.12	1.74
Total	**998.22**	**6.50**	**0.08**	**0.49**	**5.86**	**5.44**	**7.41**	**7.29**	**2.91**	**35.97**

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Vertical Fixed Roof Tank
Tank Identification and Physical Characteristics

Identification	
Equipment Identification	Dye Tank
City	Belton
State	South Carolina
Company	Palmetto Belton Tank Farm
Description	Additive

Tank Dimensions	
Shell Height (ft)	3.00
Diameter (ft)	2.50
Liquid Height (ft)	3.00
Average Liquid Height	1.50
Volume (gals)	100

Roof Characteristics	
Roof Type	Cone
Slope (ft/ft)	0.0625
Radius (ft) (Dome Roof)	2.50

Paint Characteristics	
Shell Color/Shade	Aluminum_Diffuse
Shell Condition	Good
Roof Color/Shade	Aluminum_Diffuse
Roof Condition	Good

Breather Vent Settings	
Vacuum Settings (psig)	-0.03
Pressure Settings (psig)	0.03

Tank Location		
Meteorological Data Used	Spartanburg	SC
Average Atmospheric Pressure	14.254	psia

Material Stored/Throughput	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Material	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha
Product Type	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil	Non-crude Oil
Throughput (gals)	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Liquid Contents of Storage Tank

Dye Tank **Palmetto Belton Tank Farm**
Belton **South Carolina**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Product Stored	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha	Jet_naphtha
Average Vapor Pressure, psia	0.9182	1.0155	1.2623	1.5516	1.8538	2.1474	2.2713	2.1918	1.9004	1.4946	1.1943	0.9788
Antoine Coefficient, A	11.368	11.368	11.368	11.368	11.368	11.368	11.368	11.368	11.368	11.368	11.368	11.368
Antoine Coefficient, B	5,784.3	5,784.3	5,784.3	5,784.3	5,784.3	5,784.3	5,784.3	5,784.3	5,784.3	5,784.3	5,784.3	5,784.3
Average Liquid Surface Temperature, °F	45.4	49.8	59.8	69.6	78.4	85.8	88.7	86.9	79.6	67.8	57.2	48.2
Bulk Liquid Temperature, °R	502.3	505.6	514.0	522.1	530.2	537.2	540.5	539.4	533.4	522.7	513.8	505.6
Daily Max Amb Temp, °R	509.8	514.0	523.2	531.7	539.1	545.2	547.9	546.5	540.8	531.6	522.2	512.9
Daily Min Amb Temp, °R	489.7	492.1	499.6	507.3	516.1	524.1	528.0	527.1	520.9	508.7	500.2	493.1
Paint Solar Absorbance, α	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Shell Paint Solar Absorbance, α	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Roof Paint Solar Absorbance, α	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Daily Total Solar Ins on Hor Surf	813.80	1,062.54	1,401.38	1,761.48	1,901.08	1,987.38	1,903.30	1,756.41	1,477.84	1,243.38	901.05	725.60
Maximum Vapor Pressure, psia	1.0747	1.2209	1.5621	1.9688	2.3495	2.7053	2.8247	2.6942	2.3008	1.8090	1.4088	1.1331
Maximum Liquid Surface Temperature, °F	52.4	58.2	69.9	81.4	90.5	98.0	100.3	97.8	89.4	77.1	65.0	54.8
Daily Vap Temp Range, °R	28.1	33.6	40.5	47.2	48.5	48.6	46.3	43.5	39.2	37.4	31.0	26.4
Minimum Vapor Pressure, psia	0.7810	0.8394	1.0115	1.2096	1.4469	1.6867	1.8093	1.7683	1.5586	1.2264	1.0074	0.8423
Minimum Liquid Surface Temperature, °F	38.3	41.4	49.7	57.8	66.2	73.7	77.2	76.0	69.8	58.5	49.5	41.6
Liquid Molecular Weight	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00
Vapor Molecular Weight	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00
Benzene												
Vapor Mass Fraction (eq 4-6)	0.0075	0.0078	0.0083	0.0088	0.0092	0.0096	0.0098	0.0097	0.0093	0.0087	0.0081	0.0077
Vapor Mole Fraction (eq 4-5)	0.0077	0.0079	0.0085	0.0090	0.0095	0.0098	0.0100	0.0099	0.0095	0.0089	0.0083	0.0079
Partial Vapor Pressure, psia (eq 4-3)	0.0071	0.0081	0.0107	0.0140	0.0175	0.0211	0.0227	0.0217	0.0181	0.0133	0.0100	0.0077
Saturated Vapor Pressure, psia (eq-1-25)	0.7670	0.8751	1.1614	1.5154	1.9031	2.2943	2.4633	2.3546	1.9642	1.4443	1.0809	0.8340
Liquid Mole Fraction (eq 4-4)	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092
Molecular Weight (Table 7.1-3)	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11	78.11
Liquid Mass Fraction	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060
Cumene												
Vapor Mass Fraction (eq 4-6)	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001
Vapor Mole Fraction (eq 4-5)	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Partial Vapor Pressure, psia (eq 4-3)	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	0.0003	0.0002	0.0002	0.0001	0.0001	0.0001
Saturated Vapor Pressure, psia (eq-1-25)	0.0272	0.0326	0.0477	0.0684	0.0929	0.1194	0.1314	0.1237	0.0969	0.0641	0.0433	0.0305
Liquid Mole Fraction (eq 4-4)	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Molecular Weight (Table 7.1-3)	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20	120.20
Liquid Mass Fraction	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Ethylbenzene												
Vapor Mass Fraction (eq 4-6)	0.0005	0.0006	0.0006	0.0007	0.0008	0.0009	0.0009	0.0009	0.0008	0.0007	0.0006	0.0005
Vapor Mole Fraction (eq 4-5)	0.0004	0.0004	0.0005	0.0005	0.0006	0.0007	0.0007	0.0007	0.0006	0.0005	0.0005	0.0004
Partial Vapor Pressure, psia (eq 4-3)	0.0004	0.0004	0.0006	0.0009	0.0011	0.0014	0.0016	0.0015	0.0012	0.0008	0.0006	0.0004
Saturated Vapor Pressure, psia (eq-1-25)	0.0640	0.0755	0.1078	0.1505	0.2002	0.2529	0.2764	0.2613	0.2082	0.1417	0.0985	0.0711
Liquid Mole Fraction (eq 4-4)	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050

Hexane												
Vapor Mass Fraction (eq 4-6)	0.0316	0.0323	0.0339	0.0354	0.0367	0.0378	0.0382	0.0379	0.0369	0.0352	0.0335	0.0321
Vapor Mole Fraction (eq 4-5)	0.0293	0.0300	0.0315	0.0329	0.0341	0.0351	0.0355	0.0352	0.0343	0.0326	0.0311	0.0298
Partial Vapor Pressure, psia (eq 4-3)	0.0269	0.0305	0.0398	0.0510	0.0632	0.0753	0.0806	0.0772	0.0651	0.0488	0.0372	0.0291
Saturated Vapor Pressure, psia (eq-1-25)	1.2901	1.4597	1.9034	2.4433	3.0261	3.6071	3.8563	3.6962	3.1173	2.3355	1.7794	1.3953
Liquid Mole Fraction (eq 4-4)	0.0209	0.0209	0.0209	0.0209	0.0209	0.0209	0.0209	0.0209	0.0209	0.0209	0.0209	0.0209
Molecular Weight (Table 7.1-3)	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17	86.17
Liquid Mass Fraction	0.0150	0.0150	0.0150	0.0150	0.0150	0.0150	0.0150	0.0150	0.0150	0.0150	0.0150	0.0150
MTBE												
Vapor Mass Fraction (eq 4-6)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vapor Mole Fraction (eq 4-5)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Partial Vapor Pressure, psia (eq 4-3)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Saturated Vapor Pressure, psia (eq-1-25)	2.5070	2.8103	3.5849	4.4969	5.4506	6.3754	6.7649	6.5151	5.5974	4.3171	3.3709	2.6957
Liquid Mole Fraction (eq 4-4)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Molecular Weight (Table 7.1-3)	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15	88.15
Liquid Mass Fraction	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Trimethylpentane												
Vapor Mass Fraction (eq 4-6)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vapor Mole Fraction (eq 4-5)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Partial Vapor Pressure, psia (eq 4-3)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Saturated Vapor Pressure, psia (eq-1-25)	0.3849	0.4414	0.5922	0.7809	0.9894	1.2015	1.2936	1.2344	1.0224	0.7428	0.5497	0.4198
Liquid Mole Fraction (eq 4-4)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Molecular Weight (Table 7.1-3)	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23	114.23
Liquid Mass Fraction	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Toluene												
Vapor Mass Fraction (eq 4-6)	0.0067	0.0071	0.0078	0.0086	0.0092	0.0098	0.0101	0.0099	0.0093	0.0084	0.0076	0.0069
Vapor Mole Fraction (eq 4-5)	0.0058	0.0061	0.0068	0.0074	0.0080	0.0085	0.0088	0.0086	0.0081	0.0073	0.0066	0.0060
Partial Vapor Pressure, psia (eq 4-3)	0.0054	0.0062	0.0085	0.0115	0.0149	0.0184	0.0199	0.0189	0.0154	0.0109	0.0079	0.0059
Saturated Vapor Pressure, psia (eq-1-25)	0.2059	0.2388	0.3281	0.4423	0.5712	0.7045	0.7630	0.7253	0.5918	0.4191	0.3027	0.2262
Liquid Mole Fraction (eq 4-4)	0.0261	0.0261	0.0261	0.0261	0.0261	0.0261	0.0261	0.0261	0.0261	0.0261	0.0261	0.0261
Molecular Weight (Table 7.1-3)	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13	92.13
Liquid Mass Fraction	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200	0.0200
Xylene												
Vapor Mass Fraction (eq 4-6)	0.0031	0.0033	0.0038	0.0043	0.0048	0.0052	0.0054	0.0053	0.0049	0.0042	0.0037	0.0033
Vapor Mole Fraction (eq 4-5)	0.0024	0.0025	0.0029	0.0033	0.0036	0.0039	0.0040	0.0040	0.0037	0.0032	0.0028	0.0025
Partial Vapor Pressure, psia (eq 4-3)	0.0022	0.0026	0.0036	0.0050	0.0067	0.0084	0.0092	0.0087	0.0070	0.0048	0.0033	0.0024
Saturated Vapor Pressure, psia (eq-1-25)	0.0769	0.0906	0.1286	0.1786	0.2366	0.2980	0.3253	0.3077	0.2460	0.1683	0.1176	0.0853
Liquid Mole Fraction (eq 4-4)	0.0283	0.0283	0.0283	0.0283	0.0283	0.0283	0.0283	0.0283	0.0283	0.0283	0.0283	0.0283
Molecular Weight (Table 7.1-3)	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17	106.17
Liquid Mass Fraction	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250

Antoine Coefficients for HAPs (Table 7.1-5)	A	B	C
Benzene	6.905	1211.033	220.79
Cumene	6.93666	1460.793	207.78
Ethylbenzene	6.975	1424.255	213.21
Hexane	6.876	1171.17	224.41
MTBE	5.896	708.69	179.9
Trimethylpentane	6.8118	1257.84	220.74
Toluene	6.954	1344.8	219.48
Xylene	7.009	1426.266	215.11

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Vertical Fixed Roof Standing and Working Losses

Dye Tank — **Palmetto Belton Tank Farm**
Belton — **South Carolina**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Standing Loss, lbs (eq. 1-2)	**0.21**	**0.26**	**0.44**	**0.63**	**0.82**	**0.95**	**0.99**	**0.89**	**0.65**	**0.49**	**0.30**	**0.21**
Days in Month	31	28	31	30	31	30	31	31	30	31	30	31
Vapor Space Volume, ft3	7	7	7	7	7	7	7	7	7	7	7	7
Tank Diameter, ft	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Vapor Space Outage, ft	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53
Shell Height, ft	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Average Liquid height, ft	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Roof Outage, ft	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Tank Roof Height, ft	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Shell Radius, ft	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Vapor Density, lbs/ft3	0.0136	0.0149	0.0181	0.0219	0.0257	0.0293	0.0309	0.0299	0.0263	0.0211	0.0172	0.0144
Vapor Molecular Weight	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00
Stock Vapor Pressure, psia	0.9182	1.0155	1.2623	1.5516	1.8538	2.1474	2.2713	2.1918	1.9004	1.4946	1.1943	0.9788
Ideal Gas Const, psia cuft/lb-mol-°R	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Daily Avg Liq Surf Temp, °R	505.0	509.5	519.5	529.3	538.0	545.5	548.4	546.6	539.3	527.5	516.9	507.9
Vapor Space Exp. Factor, Ke	0.0733	0.0903	0.1158	0.1442	0.1581	0.1682	0.1642	0.1513	0.1278	0.1118	0.0861	0.0695
Daily Avg Liq Surf Temp, °R	505.0	509.5	519.5	529.3	538.0	545.5	548.4	546.6	539.3	527.5	516.9	507.9
Daily Vap Pres Range, psia	0.2937	0.3815	0.5506	0.7592	0.9026	1.0185	1.0155	0.9259	0.7423	0.5825	0.4014	0.2908
Vap Pres at Daily Max Temp, psia	1.0747	1.2209	1.5621	1.9688	2.3495	2.7053	2.8247	2.6942	2.3008	1.8090	1.4088	1.1331
Daily Max Surf Temp, °R	519.1	526.3	539.7	552.9	562.3	569.8	571.5	568.3	558.9	546.2	532.4	521.1
Vap Pres at Daily Min Temp, psia	0.7810	0.8394	1.0115	1.2096	1.4469	1.6867	1.8093	1.7683	1.5586	1.2264	1.0074	0.8423
Daily Min Surf Temp, °R	505.0	509.5	519.5	529.3	538.0	545.5	548.4	546.6	539.3	527.5	516.9	507.9
Breather Vent Pres, psia	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Vacuum Setting, psig	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Pressure Setting, psig	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03
Average Atmospheric Pressure, psia	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254	14.254
Stock Vapor Pressure, psia	0.9182	1.0155	1.2623	1.5516	1.8538	2.1474	2.2713	2.1918	1.9004	1.4946	1.1943	0.9788
Vented Vapor Sat. Factor, Ks	0.9309	0.9241	0.9074	0.8885	0.8696	0.8520	0.8448	0.8494	0.8668	0.8922	0.9119	0.9266
Stock Vapor Pressure, psia	0.9182	1.0155	1.2623	1.5516	1.8538	2.1474	2.2713	2.1918	1.9004	1.4946	1.1943	0.9788
Vapor Space Outage, ft	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53

Working Loss, lbs (eq. 1-29)	**0.03**	**0.03**	**0.04**	**0.05**	**0.06**	**0.07**	**0.07**	**0.07**	**0.06**	**0.05**	**0.04**	**0.03**
Vapor Molecular Weight	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00
Stock Vapor Pressure, psia	0.9182	1.0155	1.2623	1.5516	1.8538	2.1474	2.2713	2.1918	1.9004	1.4946	1.1943	0.9788
Throughput, gals	17	17	17	17	17	17	17	17	17	17	17	17
Turnover Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Annual Turnovers	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Working Loss Product Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

AP-42 Chapter 7.1 - Organic Liquid Storage Tanks
Vertical Fixed Roof Tank Emissions Summary

Dye Tank **Palmetto Belton Tank Farm**
Belton **South Carolina**

Month	VOC	Benzene	Cumene	Ethylbenzene	Hexane	MTBE	Trimethylpentane	Toluene	Xylene	Aggregate HAPs
January	0.24	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01
February	0.29	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01
March	0.48	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.03
April	0.68	0.01	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.04
May	0.88	0.01	0.00	0.00	0.03	0.00	0.00	0.01	0.00	0.05
June	1.01	0.01	0.00	0.00	0.04	0.00	0.00	0.01	0.01	0.06
July	1.07	0.01	0.00	0.00	0.04	0.00	0.00	0.01	0.01	0.07
August	0.96	0.01	0.00	0.00	0.04	0.00	0.00	0.01	0.01	0.06
September	0.71	0.01	0.00	0.00	0.03	0.00	0.00	0.01	0.00	0.04
October	0.54	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.03
November	0.34	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02
December	0.25	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01
Total	**7.46**	**0.07**	**0.00**	**0.01**	**0.27**	**0.00**	**0.00**	**0.07**	**0.03**	**0.45**

Kinder Morgan Palmetto Pipe Line - Belton Tank Farm

Emergency Equipment

Emergency Fire Water Pump Engine	
Engine	Cat C18 ACERT
Power Rating (kw)	597
Heat Input (MMBtu/hr)[1]	2.04
Hours of Operation	500

1. Conversion from engine power rating in kilowatts to MMBtu/hr is completed using AP-42 Appendix A conversion factor

Criteria Pollutant	Emission Factor (g/kW-hr)[2,3]	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (tpy)
NO_x[4]	6.40	8.42	4211.73	2.106
VOC[4]	6.40	8.42	4211.73	2.106
CO	3.50	4.61	2303.29	1.152
$PM_{10}/PM_{2.5}$	0.20	0.26	131.62	0.066
Hazardous Air Pollutants	**Emission Factor (lb/MMBtu)[5]**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (tpy)**
Acetaldehyde	2.52E-05	5.13E-05	0.03	1.28E-05
Acrolein	7.88E-06	1.61E-05	0.01	4.01E-06
Benzene	7.76E-04	1.58E-03	0.79	3.95E-04
Formaldehyde	7.89E-05	1.61E-04	0.08	4.02E-05
Napthalene	1.30E-04	2.65E-04	0.13	6.62E-05
Toluene	2.81E-04	5.73E-04	0.29	1.43E-04
Total PAH	2.12E-04	4.32E-04	0.22	1.08E-04
Xylenes	1.93E-04	3.93E-04	0.20	9.83E-05
Total HAPs	--	3.47E-03	1.74	8.68E-04

Notes:

2. Emission factors for NOx, VOC, and PM10/PM2.5 are based on EPA standards as specified in Table 4 of 40 CFR 60 Subpart IIII
3. Emission factors for CO are based on EPA Tier 2 Nonroad Diesel Engine Emission Standards
4. Emission factors listed in 40 CFR 60, Subpart IIII are for NOX + NMHC. NOX emissions and VOC emissions are conservatively assumed to both be equivalent to that emission factor.
5. HAP emission factors are based on AP-42 Section 3.4.

Emergency Generator	
Engine	CAT Model D200-2
Power Rating (kw)	200
Heat Input (MMBtu/hr)[6]	0.68
Hours of Operation	500

6. Conversion from engine power rating in kilowatts to MMBtu/hr is completed using AP-42 Appendix A conversion factor

Criteria Pollutant	Emission Factor (g/kW-hr)[3, 7]	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (tpy)
NO_x[4]	4.00	1.76	881.85	0.44
VOC[4]	4.00	1.76	881.85	0.44
CO	3.50	1.54	771.62	0.39
$PM_{10}/PM_{2.5}$	0.20	0.09	44.09	0.02
Hazardous Air Pollutants	**Emission Factor (lb/MMBtu)[8]**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (tpy)**
Acetaldehyde	2.52E-05	1.72E-05	0.01	4.30E-06
Acrolein	7.88E-06	5.38E-06	0.00	1.34E-06
Benzene	7.76E-04	5.30E-04	0.26	1.32E-04
Formaldehyde	7.89E-05	5.39E-05	0.03	1.35E-05
Napthalene	1.30E-04	8.87E-05	0.04	2.22E-05
Toluene	2.81E-04	1.92E-04	0.10	4.80E-05
Total PAH	2.12E-04	1.45E-04	0.07	3.62E-05
Xylenes	1.93E-04	1.32E-04	0.07	3.29E-05
Total HAPs	--	1.16E-03	0.58	2.91E-04

Notes:

7. Emission factors for NOx, VOC, and PM10/PM2.5 are based on EPA Tier 3 Standards
8. HAP emission factors are based on AP-42 Section 3.4.

Emergency Fire Water Pump Engine	2.04	MMBtu/hr[1]		
Pollutant	Emission Factor (kg/MMBtu)[9]	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (metric tpy)
CO2	73.96	332.23	166,115.93	75.35
CH4	0.003	0.013	6.74	0.0031
N2O	0.0006	0.003	1.35	0.0006
CO2e				75.61

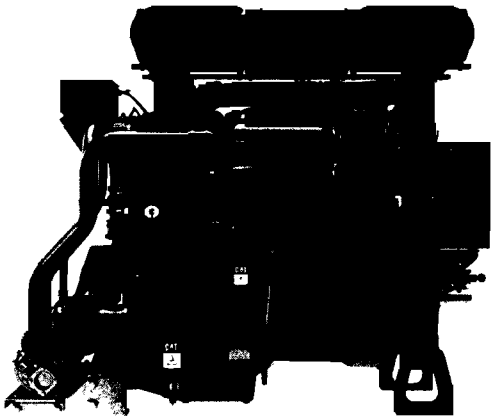
Notes:

9. GHG emission factors are based on 40 CFR 98 Table C-1 and C-2; CO2e and GWPs are based on 40 CFR 98 Subpart A

Emergency Generator	0.68	MMBtu/hr[6]		
Pollutant	Emission Factor (kg/MMBtu)[10]	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (metric tpy)
CO2	73.96	111.30	55,650.23	25.24
CH4	0.003	0.005	2.26	0.0010
N2O	0.0006	0.001	0.45	0.0002
CO2e				25.33

Notes:

10. GHG emission factors are based on 40 CFR 98 Table C-1 and C-2; CO2e and GWPs are based on 40 CFR 98 Subpart A



Cat® C18 ACERT™ Fire Pump Engines, with ratings: 447 -597 bkW (600-800 bhp)@ 1750-2100 rpm, meet U.S. EPA Tier 3 or U.S. EPA Tier 2 emission standards for stationary emergency fire pump engines. Rating: 522 bkW (700 bhp) @ 1500 rpm is Non-certified. All ratings are FM Approved and UL Listed. Starting on demand is a must for a fire pump engine - always. Cat® fire pump engines have a reputation for reliable starts and long efficient service. The Cat line of fire engine pumps covers a wide range of installations. At 447-597 bkW (600-800 bhp) the C18 ACERT is the newest addition to the Cat fire pump engine line and continues the strong legacy of dependable starts and long, durable life.

Specifications

Minimum Power	447 bkW	600 bhp
Maximum Power	**597 bkW**	**800 bhp**
Rated Speed		1500-2100 rpm

Emissions	U.S. EPA Tier 3, Tier 2 or Non-certified emission standards for stationary emergency fire pump engines. FM Approved, UL Listed

Engine Configuration	Inline 6, 4-Stroke-Cycle Diesel
Bore	**145 mm (5.71 in)**
Stroke	183 mm (7.2 in)
Displacement	**18.1 L (1104.53 in³)**
Aspiration	Turbocharged Aftercooled (TA)
Compression Ratio	**16.3:1**
Rotation (from flywheel end)	Counterclockwise

Width	1081.7 mm (42.6 in)
Height	**1379.6 mm (54.3 in)**
Length	1889 mm (74.37 in)
Weight - Approximate, Net Dry (Basic Operating Engine Without Optional Attachments)	**1953 kg (4306 lb)**

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Benefits And Features

Emissions

Ratings--447 bkW (600 bhp) @ 1750, 1900, 2100 rpm and 522 bkW (700 bhp) @ 1750, 1900 and 2100 rpm--meet U.S. EPA Tier 3 emission standards for stationary emergency fire pump engines. FM approved. UL listed - U.S. and Canada. Meets NFPA 20 standards.
Ratings--597 bkW (800 bhp) @ 1750, 1900 and 2100 rpm--meet U.S. EPA Tier 2 emission standards for stationary emergency fire pump engines. FM approved. UL listed - U.S. and Canada. Meets NFPA 20 standards.

Reliable, Quiet and Durable Power

World-class manufacturing capability and processes coupled with proven core engine designs assure reliability, quiet operation, and many hours of productive life.

Quality

Every Cat engine is manufactured to stringent standards in order to assure customer satisfaction.

World-class Product Support Offered Through Global Cat Dealer Network

- Scheduled maintenance, including SOSSM sample
- Customer Support Agreements (CSA)
- Caterpillar Extended Service Coverage (ESC)
- Superior dealer service network
- Extended dealer service network through the Cat Industrial Service Distributor (ISD) program

Standard Equipment

Air Inlet System

- Dual turbocharger: front and rear inlet 127.mm (5.0 in)
- Separate Circuit Aftercooled (SCAC)
- Optional Air Cleaner - dual element, installed

Charging System

- Charging alternator 24 volt, 50 amp

Control System

- Dual Electronic Control Units (ECU), primary and secondary with auto switching capability
- Electronic governing, PTO speed control
- Cold mode start strategy
- Automatic altitude compensation
- Power compensation for fuel temperature
- Programmable low and high idle and top engine limit
- Electronic diagnostics and fault logging
- Engine monitoring and protection system (speeds, temperature, pressure)
- SAE J1939 broadcast (diagnostic, engine status, and control)

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Cooling System

- Thermostats and housing, vertical outlet
- Jacket water pump, gear driven, centrifugal
- Heat exchanger installed
- Expansion tank
- FM Required Raw Water Cooling Loops: 1.5" iron, horizontal or vertical, 1.5" 316 stainless steel, horizontal or vertical, 2" iron, horizontal or vertical (2100 rated rpm only), or 2" 316 stainless steel, horizontal or vertical (2100 rated rpm only)

Exhaust System

- Exhaust manifold, dry
- Dual turbo: exhaust elbow, dry 203 mm (8 in)

Flywheels and Flywheel Housing

- SAE No. 1 flywheel
- SAE No. 1 flywheel housing
- SAE standard rotation

Fuel System

- Electronic unit injector
- Fuel filter, secondary (2 micron)
- Fuel transfer pump
- Fuel sample valve, mounted on fuel filter base
- Primary fuel filter / water separator

Instrumentation

- Digital Display mounted in Junction Box, LH side of engine. Displays: Oil pressure, Fuel pressure, Charging voltage, Coolant temperature, Raw water temperature, and Engine hours

Lube System

- Crankcase breather, front valve cover
- Oil cooler
- Lube oil filter
- Front sump oil pan
- Oil filler
- Oil dipstick
- Oil pump

Mounting System

- Front and rear support

Power Take-Offs

- Flywheel stub shaft

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Protection System

- Stop-Start System, automatic (compatible with NFPA 20 requirements, able to be energized from either of two battery sources and capable of manual starter actuation)

Starting System

- 24 volt, LH electric starting motor
- Jacket water heater (3 kW, 120-240 volt)

General

- Vibration damper and guard
- Lifting eyes
- Automatic variable timing, electronic
- Paint - fire pump red

The International System of Units (SI) is used in this publication. CAT, CATERPILLAR, their respective logos, ADEM, EUI, S•O•S, "Caterpillar Yellow" and the "Power Edge" trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

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DIESEL GENERATOR SET

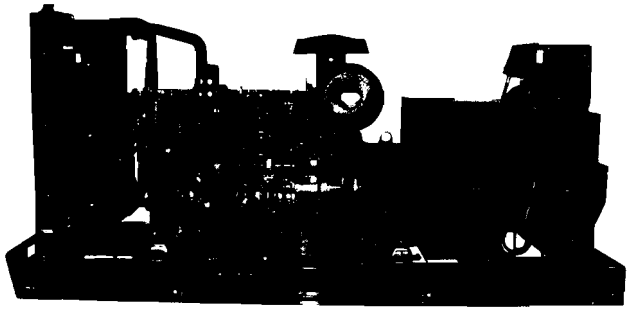

Image shown may not reflect actual package.

STANDBY
200 ekW 250 kVA

60 Hz 1800 rpm 480 Volts

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

FEATURES

FUEL/EMISSIONS STRATEGY
- EPA Certified for Stationary Emergency Application (Emits Equivalent U.S. EPA Tier 3 Nonroad Standards)

DESIGN CRITERIA
- The generator set meets NFPA 110, ISO 8528-5 transient response and can accept 100% rated load in one step
- Cooling system designed to operate in 50°C / 122°F ambient temperatures with an air flow restriction of 0.5 in. water

UL 2200 / CSA – Optional
- UL 2200 Listed
- CSA Certified

Certain restrictions may apply.

Consult with your Cat® Dealer.

FULL RANGE OF ATTACHMENTS
- Wide range of bolt-on system expansion attachments, factory designed and tested
- Flexible packaging options for easy and cost effective installation

SINGLE-SOURCE SUPPLIER
- Fully prototype tested with certified torsional vibration analysis available

WORLDWIDE PRODUCT SUPPORT
- Cat dealers provide extensive post sale support including maintenance and repair agreements
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- The Cat S•O•S℠ program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-product

Cat` Model D200-2, Three Phase

CAT C7.1 DIESEL ENGINE
- Reliable, rugged, durable design
- Four-stroke diesel engine combines consistent performance and excellent fuel economy with minimum weight
- Electronic engine control

GENERATOR SET
- Complete system designed and built at ISO 9001 certified facilities
- Factory tested to design specifications at full load conditions

CAT EMCP 4 CONTROL PANELS
- Simple user friendly interface and navigation
- Scalable system to meet a wide range of customer needs
- Integrated Control System and Communications Gateway
- Integrated Voltage Regulation

SEISMIC CERTIFICATION
- Seismic Certification available
- Anchoring details are site specific, and are dependent on many factors such as generator set size, weight, and concrete strength.
  IBC Certification requires that the anchoring system used is reviewed and approved by a Professional Engineer
- Seismic Certification per Applicable Building codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012 CBC 2007, CBC 2010

STANDBY 200 ekW 250 kVA
60 Hz 1800 rpm 480 Volts

FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	• Dry replaceable paper element type with restriction indicator	
Cooling	**• Radiator and cooling fan complete with protective guards** **• Standard ambient temperatures up to 50°C (122°F)**	**[ ] Radiator stone guard** **[ ] Radiator transition flange**
Exhaust		[ ] Industrial [ ] Residential [ ] Critical Mufflers [ ] Overhead silencer mounting kit
Fuel	**• Flexible fuel lines to base with NPT connections**	**[ ] Sub-base dual wall UL listed 354 gallon fuel tank** **[ ] Sub-base dual wall UL listed 690 gallon fuel tank** **[ ] Emergency vent 12ft extension** **[ ] 5 gallon spill containment**
Generator	• Class H insulation • Drip proof generator air intake (NEMA 2,IP23) • Electrical design in accordance with with BS5000 Part 99, EN61000-6, IEC60034-1, NEMA MG-1.33 • IP23 Protection	[ ] Generator upgrade 1 size [ ] Permanent Magnet Excitation [ ] Internal Excitation (IE) / AREP [ ] Anti-condensation space heater
Power Termination	**• Circuit breakers – 100% rated assembly, UL Listed** **• Power center houses EMCP controller and control terminations (CB)** **• Segregated low voltage wiring termination panel** **• NEMA 1 steel enclosure, vibration isolated** **• Electrical stub-up area directly below circuit breaker**	**[ ] Auxiliary contacts** **[ ] Shunt trip** **[ ] Overload shutdown via breaker**
Governor	• ADEM™A4	
Control Panels	**• EMCP 4.2 digital control panel** **• Vibration isolated NEMA 1 enclosure with lockable hinged door** **• DC and AC Wiring harnesses**	**[ ] NFPA110 upgrade** **[ ] Control panel chassis**
Lube		[ ] Lube oil heater
Mounting	**• Heavy-duty fabricated steel base with lifting points** **• Anti-vibration pads to ensure vibration isolation** **• Stub-up pipe ready for connection to silencer pipework**	**[ ] IBC Seismic certification per Applicable Building Codes: IBC2000, IBC2003, IBC2006, IBC 2009, IBC 2012, CBC 2007, CBC 2010**
Starting/Charging	• 12 volt starting motor • Batteries with rack and cables	[ ] Battery charger – UL 10 amp [ ] Battery disconnect switch [ ] Battery removal (does not remove rack and cables) [ ] Coolant Heater
General	**• High gloss polyurethane paint, Caterpillar Yellow except rails and radiators gloss black** **• Anticorrosive paint protection** **• All electroplated hardware**	**[ ] CSA Certified** **[ ] Sound attenuated protective enclosures** **[ ] Caterpillar tool set** **[ ] Caterpillar White paint**

STANDBY 200 ekW 250 kVA
60 Hz 1800 rpm 480 Volts

SPECIFICATIONS

STANDARD CAT GENERATOR	
Frame size	LC5014F
Excitation	Self excitation
Pitch	**0.6667**
Number of poles	4
Number of bearings	**Single bearing**
Number of leads	12
Insulation	**Class H**
IP Rating	IP23
Overspeed capability (%)	**125**
Wave form deviation (%)	2
Voltage regulator	**Three phase sensing**
Voltage regulation	+/- 0.25% (steady state)
Additional Voltage Information:	
Three Phase	**Standby**
208V Temp Rise	105°C / 189°F
240V Temp Rise	105°C / 189°F
480V Temp Rise	130°C / 234°F
600V Temp Rise	150°C / 270°F
– Consult your Cat dealer for other available voltages	
CAT DIESEL ENGINE	
C7.1 In-line 6, 4-cycle diesel	
Bore	105.0 mm (4,13 in)
Stroke	**135.0 mm (5.31 in)**
Displacement	7.01 L (427.8 in^3)
Compression ratio	**16.5:1**
Aspiration	Turbocharged, Air-to-Air Aftercooled
Fuel system	**Common rail**
Governor type	Electronic

CAT EMCP 4 SERIES CONTROLS

EMCP 4 controls including:
- Run / Auto / Stop Control
- Speed and Voltage Adjust
- Engine Cycle Crank
- 12 volt DC operation
- Environmental sealed front face
- Text alarm/event descriptions

Digital indication for:
- RPM
- DC volts
- Operating hours
- Oil pressure (psi, kPa or bar)
- Coolant temperature
- Volts (L-L & L-N), frequency (Hz)
- Amps (per phase & average)
- ekW, kVA, kVAR, kW-hr, %kW, PF

Warning/shutdown with common LED indication of:
- Low oil pressure
- High coolant temperature
- Overspeed
- Emergency stop
- Failure to start (overcrank)
- Low coolant temperature
- Low coolant level

Programmable protective relaying functions:
- Generator phase sequence
- Over/Under voltage (27/59)
- Over/Under frequency (81 o/u)
- Reverse power (kW) (32)
- Reverse reactive power (kVAr) (32RV)
- Overcurrent (50/51)

Communications:
- Six digital inputs
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU)
- Accessory module data link
- Serial annunciator module data link
- Emergency stop pushbutton

Compatible with the following:
- Digital I/O module
- Local annunciator
- Remote CAN annunciator
- Remote serial annunciator

STANDBY 200 ekW 250 kVA
60 Hz 1800 rpm 480 Volts

TECHNICAL DATA

Open Generator Set – 1800 rpm/60 Hz/480 Volts	P4364A	
EPA Certified for Stationary Emergency Application (Emits Equivalent U.S. EPA Tier 3 Nonroad Standards)	**Standby**	
Generator Set Package Performance		
Genset power rating @ 0.8 pf	250 kVA	
Genset power rating with fan	200 ekW	
Fuel Consumption		
100% load with fan	**56.4 L/hr**	**14.9 gal/hr**
75% load with fan	**45.8 L/hr**	**12.1 gal/hr**
50% load with fan	**32.6 L/hr**	**8.6 gal/hr**
Cooling System[1]		
Air flow restriction (system)	0.12 kPa	0.48 in. water
Air flow (max @ rated speed for radiator arrangement)	372 m³/min	13137 cfm
Engine coolant capacity with radiator/exp. tank	21.0 L	5.5 gal
Engine coolant capacity	9.5 L	2.5 gal
Radiator coolant capacity	11.5 L	3.0 gal
Inlet Air		
Combustion air inlet flow rate	**15.8 m³/min**	**558 cfm**
Exhaust System		
Exhaust stack gas temperature	697°C	1287°F
Exhaust gas flow rate	38.3 m³/min	1353 cfm
Exhaust flange size (internal diameter)	89.0 mm	3.5 in
Exhaust system back pressure	15.0 kPa	60.2 in. water
Heat Rejection		
Heat rejection to coolant (total)	**91.8 kW**	**5221 Btu/min**
Heat rejection to exhaust (total)	**183 kW**	**10407 Btu/min**
Heat rejection to aftercooler	**45.0 kW**	**2559 Btu/min**
Heat rejection to atmosphere from engine	**35.3 kW**	**2019 Btu/min**
Heat rejection to atmosphere from generator	**15.7 kW**	**892.8 Btu/min**
Alternator[2]		
Motor starting capability @ 30% voltage dip	454 skV	
Frame	LC5014F	
Insulation class	H	
Temperature rise	130°C	234°F
Lubrication System		
Total oil capacity	**16.5 L**	**4.4 gal**
Oil pan	**15.5 L**	**4.1 gal**
Emissions (Nominal)[3]		
NOx + HC	3.73 g/kWhr	
CO	1.31 g/kWhr	
PM	0.18 g/kWhr	

[1]For ambient and altitude capabilities consult your Cat dealer. Airflow restriction (system) is added to existing restriction from factory.

[2]Generator temperature rise is based on a 40°C (104°F) ambient per NEMA MG1-32.

[3]The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

RATING DEFINITIONS AND CONDITIONS

Applicable Codes and Standards: AS1359, CSA C22.2 No 100-04, UL142, UL489, UL601, UL869, UL2200, NFPA 37, NFPA 70, NFPA 99, NFPA 110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG 1-22, NEMA MG 1-33, 72/23/EEC, 98/37/EC, 2004/108/EC.

Standby – Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

Fuel rates are based on fuel oil to specification EPA 2D 89.330-96 with a density of 0.845 – 0.850 kg/L (7.052 – 7.094 lbs/U.S. gal.) @ 15°C (59°F) and fuel inlet temperature 40°C (104°F).

Additional ratings may be available for specific customer requirements, contact your Cat representative for details.

STANDBY 200 ekW 250 kVA

60 Hz 1800 rpm 480 Volts

DIMENSIONS

Package Dimensions		
Length	**3037 mm**	**119.6 in**
Width	1110 mm	43.7 in
Height	**1476 mm**	**58.1 in**
Weight*	2015 kg	4442 lb

*With oil and coolant.

NOTE: For reference only – do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #460-0863).

Performance No.: P4364A

Feature Code: NAC144P

Gen. Arr. Number: 3932561

Source: U.S. Sourced

LEHE0511-00 (05/14)

www.Cat-ElectricPower.com

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Materials and specifications are subject to change without notice. The International System of Units (SI) is used in this publication.

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APPENDIX D

LEVEL 1 MODELING ANALYSIS FOR AIR TOXICS IN STANDARD No. 8 AND CD ROM CONTAINING MODELING INPUT & OUTPUT FILES

Palmetto Products Pipe Line LLC - Palmetto Belton Tank Farm and Pump Station
Level 1 Modeling Analysis

Pollutant	Tanks 501 to 508 + Exempt Tanks + Fugitives			Total Emissions		De Minimis Rate[1]	Modeling Required?
	(lb/year)	(lb/day)	(lb/hr)	(lb/year)	(lb/day)	(lb/day)	(Y/N)
Benzene	673.45	1.85	0.077	673.45	1.85	1.800	Y
Cumene	28.96	0.08	0.003	28.96	0.08	0.108	N
Ethylbenzene	106.27	0.29	0.012	106.27	0.29	52.200	N
Hexane	577.57	1.58	0.066	577.57	1.58	10.800	N
MTBE	512.95	1.41	0.059	512.95	1.41	TBD	N
Trimethylpentane	854.19	2.34	0.098	854.19	2.34	105.000	N
Toluene	977.38	2.68	0.112	977.38	2.68	24.000	N
Xylene	574.31	1.57	0.066	574.31	1.57	52.200	N

Notes:
1. South Carolina Air Quality Modeling Guidelines, Appendix D, Table 1 - Modeling De Minimis Levels for Air Toxics Listed in Standard No. 8.

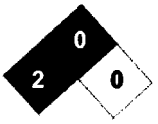
APPENDIX E
SAFETY DATA SHEETS (MSDS)

View Section : 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

SECTION 1: CHEMICAL PRODUCT and COMPANY IDENTIFICATION (N/A)

Product Name:	**MCC 5200**
Synonyms:	Bis(2-hydroxypropyl)amine; Bis(2-propanol)amine; Diisopropanolamine; DIPA (alcohol); Di-2-propanolamine; Dipropyl-2,2'-dihydroxy-amine; 1,1'-Iminobis-2-propanol; 1,1'-Iminodi-2-propanol; 2-Propanol; 1,1'-iminobis- (9CI)
Distributor Name:	MidContinental Chemical Company
Distributor Address:	1802 East 123rd Terrace Olathe, Kansas 66061-5876 USA
	24 Hour Emergency Numbers: ChemTrec (800) 424-9300 (U.S. 24 Hour)
Distributor Telephone:	(913) 390-5556
Revision Date:	07/31/08
General Use:	Industrial Stabilizer

NFPA



HMIS

HEALTH	2
FIRE	0
REACTIVITY	0
PPE	

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Ingredient Name	CAS#	Ingredient Percent
BIS(2-HYDROXYPROPYL)AMINE (DIPA)	110-97-4	70 - 90% by Weight
EC Index Number: 1		
Water	7732-18-5	10 - 30% by Weight
EC Index Number: 1		

Synonyms: Bis(2-hydroxypropyl)amine; Bis(2-propanol)amine; Diisopropanolamine; DIPA (alcohol); Di-2-propanolamine; Dipropyl-2,2'-dihydroxy-amine; 1,1'-Iminobis-2-propanol; 1,1'-Iminodi-2-propanol; 2-Propanol; 1,1'-iminobis- (9CI)

RTECS Number: UB6600000

SECTION 2 : COMPOSITION, INFORMATION ON INGREDIENTS : (N/A)

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SECTION 3 : HAZARDS IDENTIFICATION : (N/A)

Emergency Overview:	Hazards of product: WARNING! Causes eye irritation. May cause skin irritation. Isolate area.
Physical State:	Liquid
Color:	Clear
Odor:	Ammoniacal
	OSHA Hazard Communication Standard: This product is Hazardous Chemical as defined by OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Applies to All Ingredients :

Potential Health Effects:

Eye Contact:	May cause severe eye irritation. May cause severe corneal injury.
Skin Contact:	Prolonged contact may cause skin irritation with local redness. Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage. The data presented are for the following material: Diisopropanolamine. Not classified as corrosive to the skin according to DOT guidelines.
Skin Absorption:	Prolonged skin contact is unlikely to result in absorption of harmful amounts.
Inhalation:	At room temperature, exposure to vapor is minimal due to low volatility; vapor from heated material may cause respiratory irritation.
Ingestion:	Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.
Chronic Health Effects:	Effects of Repeated Exposure: In animals, effects have been reported on the following organs: Kidney. Bladder. These effects were only observed at exaggerated doses.
	HMIS RATING: HEALTH: 2 FLAMMABILITY: 0 REACTIVITY: 0

NFPA RATING:
HEALTH: 2
FLAMMABILITY: 0
REACTIVITY: 0

For additional information on toxicity, please refer to Section 11.

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SECTION 4 : FIRST AID MEASURES : (N/A)

Eye Contact:	Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist.
Skin Contact:	Wash skin with plenty of water.
Inhalation:	Move person to fresh air; if effects occur, consult a physician.
Ingestion:	If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.
Note to Physicians:	Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from the ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

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SECTION 5 : FIRE FIGHTING MEASURES : (N/A)

Fire:	FLAMMABILITY: Not Applicable
Flash Point:	275 deg F, 135 deg C
Flash Point Method:	Closed cup (Solution boils before flash point)
Upper Flammable or Explosive Limit:	In Air: No test data available
Lower Flammable or Explosive Limit:	In Air: No test data available
Auto Ignition Temperature:	Not Applicable
Extinguishing Media:	Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water stream. May spread fire. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.
Hazardous Combustion Byproducts:	During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Carbon monoxides. Carbon dioxide.
Fire Fighting Instructions:	Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.
Protective Equipment:	Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fir fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.
Unusual Fire Hazards:	Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

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SECTION 6 : ACCIDENTAL RELEASE MEASURES : (N/A)

Personal Precautions:	Isolate area. Refer to Section 7, Handling, for additional precautionary measures. Keep unnecessary and unprotected personnel from entering the area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and personal Protection.
Environmental Precautions:	Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See section 12, Ecological Information.
Large Spill:	Contain spilled material if possible. Pump into suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.
Small Spill:	Absorb with materials such as: Non-combustible material. Sand. Clay. Vermiculite. Zorb-all. Do NOT use absorbent materials such as: Sawdust. Cellulose.

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SECTION 7 : HANDLING and STORAGE : (N/A)

Handling:	General Handling: Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Do not use sodium nitrite or other nitrosating agents in formulations containing this product. Suspected cancer-causing nitrosamines could be formed. Other Precautions: Spills of these organic materials on hot fibrous insulations may lead to lowering of the auto ignition temperatures possibly resulting in spontaneous combustion.
Storage:	Store in the following material(s): Stainless steel. Do not store in: Zinc. Aluminum. Carbon steel. Copper. Copper alloys. Galvanized containers. Bulk 6 months Metal drums. 18 Months

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SECTION 8 : EXPOSURE CONTROLS, PERSONAL PROTECTION : (N/A)

Ventilation System:	Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.
Skin Protection Description:	When prolonged or frequently repeated contact could occur, use protective clothing chemically resistant to this material. Selection of specific items such as faceshield, boots, apron, or full-body suit will depend on the task.
Hand Protection Description:	Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate (EVAL). Examples or acceptable glove barrier materials include: Viton. Butyl rubber. Neoprene. Natural rubber (latex). Polyvinyl chloride (PVC or vinyl). Vitrile/butadiene rubber (nitrile or NBR). Avoid gloves made of: Polyvinyl alcohol (PVA). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reaction to glove materials, as well as the instruction/specifications provided by the glove supplier.
Eye/Face Protection:	Use chemical goggles.
Respiratory Protection:	Atmospheric levels should be maintained below the exposure guideline. For most conditions, no respiratory protection should be needed; however, if handling at elevated temperatures without sufficient ventilation, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge.
Other Protective:	Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.
Exposure Limits:	Component: Diisopropanolamine List: Dow IHG Type: TWA Value: 10 ppm

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SECTION 9 : PHYSICAL and CHEMICAL PROPERTIES : (N/A)

Color:	Clear
Odor:	Ammoniacal
Physical State:	Liquid
pH:	No test data available
Vapor Pressure:	.1 mmHg @ 20 deg C Literature
Vapor Density:	(Air = 1): No test data available
Flash Point:	Seta flash Closed Cup ASTMD3828 none below boiling point
Flash Point Method:	Seta flash Closed Cup ASTMD3828
Auto Ignition Temperature:	No test data available
Upper Explosive Limit:	In Air: No test data available
Lower Explosive Limit:	In Air: No test data available
Boiling Point:	(760 mmHg): 111 deg C (232 deg F) Literature
Freezing Point:	13 deg C (55 deg F) Literature (supercools; freezing point may therefore vary)
Melting Point:	Not applicable to liquids
Solubility:	In Water (by weight): Literature completely miscible with water
Specific Gravity:	(H2O = 1): 1.019 25 deg C/25 deg C Literature
Density:	Liquid: 8.50 lb/gal @ 25 deg C Literature
Viscosity:	@ 25 deg C: 350 cSt Dynamic Viscosity: 361 mPa.s @ 25 deg C Literature Kinematic Viscosity: 350 mm2/s @ 25 deg C Estimated

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SECTION 10 : STABILITY and REACTIVITY : (N/A)

Chemical Stability:	Instability: Stable under recommended storage conditions. See Storage, Section 7.
Conditions to Avoid:	Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.
Incompatibilities with Other Materials:	Avoid contact with: Nitrites. Strong Acids. Strong oxidizers. Product may potentially react with various halogenated organic solvents, resulting in temperature and/or pressure increases. Avoid contact with metals such as: Aluminum. Zinc. Copper. Galvanized metals. Heating above 60 deg C in the presence of aluminum can result in corrosion and generation of flammable hydrogen gas. Avoid unintended contact with: Halogenated hydrocarbons.
Hazardous Polymerization:	Will no occur.
Hazardous Decomposition Products:	Thermal Decomposition: Decomposition products depend upon temperature, air supply and the presence of other materials.

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SECTION 11 : TOXICOLOGICAL INFORMATION : (N/A)

Applies to All Ingredients :

Skin Effects:	Acute Toxicity: Skin Absorption: The dermal LD50 has not been determined. For the major component(s): LD50, Rabbit 8,000 mg/kg
Ingestion Effects:	Acute Toxicity: Single dose oral LD50 has not been determined. For the major component(s): LD50, Rat 2,000-4,000 mg/kg
Chronic Effects:	Repeated Dose Toxicity: In animals, effects have been reported on the following organs: Kidney. Bladder. These effects were only observed at exaggerated doses.
Carcinogenicity:	Contains component(s) which did not cause cancer in laboratory animals. The component(s) is/are: Diisopropanolamine.
Sensitization:	Skin: For the major component(s): Did not cause allergic skin reactions

when tested in guinea pigs.

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SECTION 12 : ECOLOGICAL INFORMATION : (N/A)

Ecotoxicity:	For the major component(s): Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50 > 100 mg/L in the most sensitive species tested).
Chemical Fate:	Data for Component: Diisopropanolamine

Movement & Partitioning: Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is very high (Koc between 0 and 50). Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Henrys Law Constant (H): 2.52 e-11 atm*m3/mole; 25 deg C Estimated from vapor Pressure and water solubility.
Partition coefficient, n-octanol/water (log Pow): -0.82 Measured
Partition coefficient, soil organic carbon/water (Koc): 1 Estimated
Distribution in Environment: Mackay Level 1 Fugacity Model:
Air: > 1%
Water: > 99%

Persistence and Degradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Biodegradation rate may increase in soil and/or water with acclimation. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

Indirect Photodegradation with OH Radicals: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Biodegradation rate may increase in soil and/or water with acclimation. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

Indirect Photodegradation with OH Radicals:
Rate Constant: 101.69e-12 cm3/s
Atmospheric Half-life: .105d
Method: Estimated

OECD Biodegradation Tests:
Biodegradation: 94%
Exposure Time: 28 d
Method: OECD 301F Test

Biodegradation: 90-100%
Exposure Time: 7 d
Method: DECD 302B Test

Biological oxygen demand (BOD):
BOD 5: < 2.5%
BOD 10: < 2.5%
BOD 20: 38.2%

Chemical Oxygen Demand: 1.86 mg/mg
Theoretical Oxygen Demand: 2.41 mg/mg

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SECTION 13 : DISPOSAL CONSIDERATIONS : (N/A)

Waste Disposal:	DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the water generator. MCC HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED AND UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer, Incinerator or other thermal destruction device.

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SECTION 14 : TRANSPORT INFORMATION : (N/A)

DOT Shipping Information:	Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.
DOT Shipping Name:	None
IATA:	Non-Hazardous for Air Transport: Non-hazardous for air transport.

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SECTION 15 : REGULATORY INFORMATION : (N/A)

Applies to All Ingredients :

TSCA 8(b): Inventory Status:	All components of this product are on the TSCA Inventory or are exempt from the TSCA Inventory requirements under 40 CFR 720.30
Section 312 Hazard Category:	Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and community Right-to-Know Act of 1986) Sections 311 and 312:
Acute:	Yes
Chronic:	Yes
Fire:	No
Reactive:	No
Pressure:	No
Section 313 Toxic Release	Superfund Amendments and Reauthorization Act of 1986 Title III

Form:	(Emergency Planning and Community Right-to-Know Act of 1986 Section 313: To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.
OSHA 29 CFR 1200:	OSHA Hazard Communication Standard: This product is a Hazardous Chemical as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
State:	Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List: To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statue. California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986) This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.
Canada WHMIS:	CEPA - Domestic Substances List (DSL): All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

BIS(2-HYDROXYPROPYL)AMINE (DIPA):

State:	Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List: The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting. Component: Diisopropanolamine CAS ##: 110-97-4 Amount: < = 85.0%

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SECTION 16 : ADDITIONAL INFORMATION : (N/A)

HMIS:	
Health Hazard:	2
Fire Hazard:	0
Reactivity:	0
NFPA:	
Health:	2
Fire Hazard:	0
Reactivity:	0
MSDS Revision Date:	07/31/08

Disclaimer:

MidContinental Chemical Disclaimer:
NOTE: The information on this MSDS is based on data which is considered to be accurate. MidContinental Chemical Company, however, makes no guarantees or warranty, either expressed or implied of the accuracy or completeness of this information.

The conditions or methods of handling, storage, use and disposal of the products are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of this product.

This MSDS was prepared and is to be used for this product. If the product is used as a component in another product, this MSDS information may not be applicable.

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APPENDIX F
CO-LOCATION APPLICABILITY DETERMINATION LETTER

D H E C
PROMOTE PROTECT PROSPER
Catherine E. Heigel, Director
Promoting and protecting the health of the public and the environment

December 22, 2015

Mr. Johnny Tapia
Kinder Morgan Southeast Terminals, LLC
502 Tom Sadler Road
Charlotte, NC 28214

Re: Collocation Determination for the existing Kinder Morgan Southeast Terminals LLC (KMST) Belton Terminal (0200-0206) and the Proposed New Palmetto Pipe Line LLC (Palmetto) Belton Tank Farm

Dear Mr. Tapia:

The Bureau of Air Quality (Bureau) has received and reviewed the information dated September 14, 2015 regarding a request for a collocation determination for Title V, PSD and Title III for the above referenced facilities. The Bureau has determined the facilities are two separate sources under Title V and PSD/NSR but collocated for Title III. This determination was based on the following information.

Title V and PSD/NSR Collocation determination:

The definition of a stationary source is the same under Title V and PSD/NSR permitting. To be considered one stationary source the facilities must meet all of the following criteria:

1. Are both facilities contiguous or adjacent?
2. Do the facilities share common SIC codes?
3. Are both facilities under common control?

If any of the above criteria are not met the facilities would be considered separate sources under Title V and PSD/NSR. The proposed Palmetto Belton Tank Farm will be located on a contiguous/adjacent property with respect to the existing Belton Terminal, both have been determined to be under common control but both have been determined not to be within the same SIC industrial grouping. Also, under the SIC criteria a support facility would meet the criteria, but the Department has determined the facilities are not support facilities. Since the second criteria of sharing the same primary SIC code is not met and the Department has determined that these facilities are not support facilities, it is the Bureau's determination that the facilities are not collocated under Title V and PSD/NSR.

Title III Collocation determination:

Under Title III the definition of a major source does not include the SIC code criteria. Therefore under Title III facilities need only meet the two criteria of being:

1. Are both facilities contiguous or adjacent?
2. Are both facilities under common control?

As previously stated the proposed Palmetto Belton Tank Farm will be located on a contiguous/adjacent property with respect to the existing Belton Terminal and both have been determined to be under common control. Since both criteria are met it is the Bureau's determination that the facilities are collocated under Title III.

Sincerely,

Kirk Schneider

Kirk Schneider
Engineering Services Division
Bureau of Air Quality

cc: Permit File: 0200-0206