



Matt Blunt, Governor • Doyle Childers, Director

DEPARTMENT OF NATURAL RESOURCES

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JAN 27 2006

Mr. Clint Gill, Jr., Environmental Coordinator
ConocoPhillips Co. - Mt. Vernon Products Terminal
Rural Route 2, Box 115
Mt. Vernon, MO 65712

Re: ConocoPhillips Co. - Mt. Vernon Products Terminal, 109-0036
Permit Number: **OP2006-002**

Dear Mr. Gill:

Enclosed with this letter is your Part 70 operating permit. Please review this document carefully. Operation of your installation in accordance with the rules and regulations cited in this document is necessary for continued compliance. It is very important that you read and understand the requirements contained in your permit.

If you have any questions or need additional information regarding this permit, please contact the Air Pollution Control Program at (573) 751-4817, or you may write to the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Michael J. Stansfield, P.E.
Operating Permit Unit Chief

MJS:csb

Enclosures

c: Ms. Tamara Freeman, U.S. EPA Region VII
Mr. Richard Vani, Kansas City Regional Office
PAMS File: 2005-01-079



PERMIT TO OPERATE

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to operate the air contaminant source(s) described below, in accordance with the laws, rules, and conditions set forth here in.

Operating Permit Number: OP2006-002
Expiration Date: JAN 26 2011
Installation ID: 109-0036
Project Number: 2005-01-079

Installation Name and Address

ConocoPhillips Co. - Mt. Vernon Products Terminal
Rural Route 2, Box 115
Mt. Vernon, MO 65712
Lawrence County

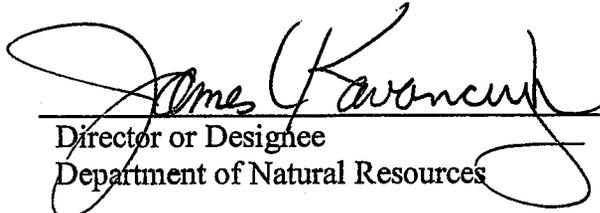
Parent Company's Name and Address

Conoco Phillips Co.
P.O. Box 1267
Ponca City, OK 74602

Installation Description: This is a bulk petroleum products terminal with two separate processes. One process stores general petroleum products such as gasoline and distillate fuel oil from a pipeline in tanks, and uses a loading rack to load them into trucks for distribution to retail outlets such as gas stations. The other process stores LPG from either a cavern, via a dryer, or from a pipeline in tanks, and uses a separate loading rack to load it into trucks for distribution. The loading racks have vapor recovery systems with flares, and small additive tanks. The facility also has an emergency generator; a rack sump and oil/water separator and wastewater tank to handle product-contaminated water at the racks; a seep and air stripper to handle it at the pumping station; and propane tank maintenance and metering processes.

JAN 27 2006

Effective Date



Director or Designee
Department of Natural Resources

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I. Installation Description and Equipment Listing

INSTALLATION DESCRIPTION

This is a bulk petroleum products terminal with two separate processes. One process takes general (non-LPG) products such as gasoline and distillate fuel oil from a pipeline, stores them in tanks, and uses a loading rack to load them into tanker trucks for distribution to retail outlets such as gas stations. The other process takes LPG (liquefied petroleum gas – propane or butane) either from the pipeline or from a propane cavern, stores it in tanks, and uses a separate loading rack to load it into tanker trucks for distribution. En route to the tanks, propane piped from the cavern goes through a five-foot-thick bed of calcium chloride called a dryer, to remove water. The facility has the ability to “re-originate” fuel, or send it from a tank back into the pipeline. Note: Different fuels are transported through pipelines in batches to the terminal. During the transportation of different products in the pipeline, the different products mix at the interface of the separate batches. This small volume of interface mixture is referred to as “transmix.” A tank may store either a specific fuel or transmix, but only stores one thing at a time.

Each loading rack has a vapor recovery system with a flare to burn off the recovered vapor. The loading racks also have six small tanks containing additives. These additives are blended with the petroleum product during the loading of a tank truck. The additives are things such as red dye, which is added to diesel fuel for off-road use to distinguish it from the higher-taxed regular diesel fuel; deicer, which is added to jet fuel; and mercaptan, which is added to propane to give it a detectable (bad) odor.

Leaks and spills can contaminate groundwater. These are most likely to happen at the racks and the pumping station. At the racks, the facility collects liquid in a rack sump, which has an oil/water separator. The oil from the separator is pumped into a transmix tank, and the water is pumped into a wastewater tank, from which it is taken offsite for disposal. At the pumping station, liquid seeps into gravel, collects in drains, and gets piped to an air stripper.

The facility has an emergency generator for use during power failures.

The emissions of most concern here are volatile organic compounds (VOC) and hazardous air pollutants (HAP.) Smaller amounts of PM-10, SO_x, NO_x, and CO are also emitted. Some emissions come from the individual tanks, especially during roof landings or flarings. (Emissions from the smaller LPG tanks are grouped together as “maintenance activities to propane system.”) There are also emissions from the loading processes at the rack; from the flare; from valves, flanges, pumps, etc. all over the facility; and emissions from miscellaneous smaller units such as the emergency generator.

Reported Air Pollutant Emissions, tons per year							
Year	Particulate Matter ≤ Ten Microns (PM-10)	Sulfur Oxides (SO _x)	Nitrogen Oxides (NO _x)	Volatile Organic Compounds (VOC)	Carbon Monoxide (CO)	Lead (Pb)	Hazardous Air Pollutants (HAP)
2004	0.00	0.00	4.88	41.09	12.19	0.00	0.00
2003	0.00	0.00	5.10	40.87	12.74	0.00	0.00
2002	0.00	0.01	4.92	40.02	11.79	0.00	0.00
2001	0.01	0.01	4.43	48.27	10.57	0.00	0.00

2000	0.01	0.01	4.51	50.94	10.76	0.00	0.00
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EMISSION UNITS WITH LIMITATIONS

The following list provides a description of the equipment at this installation which emit air pollutants and which are identified as having unit-specific emission limitations.

Emission Unit #	Description of Emission Unit	EIO Point No
<i>“Jet Kerosene” Tanks</i>		
EU0010	Tank for storage of jet kerosene or a general product or transmix with lower emissions than jet kerosene	301
EU0020	Tank for storage of jet kerosene or a general product or transmix with lower emissions than jet kerosene	305
<i>Pre-1984 “Gasoline” Tanks</i>		
EU0030	Tank for storage of gasoline or a general product or transmix with lower emissions than gasoline	302
EU0040	Tank for storage of gasoline or a general product or transmix with lower emissions than gasoline	304
EU0050	Tank for storage of gasoline or a general product or transmix with lower emissions than gasoline	310
EU0060	Tank for storage of gasoline or a general product or transmix with lower emissions than gasoline	311
EU0070	Tank for storage of gasoline or a general product or transmix with lower emissions than gasoline	314
<i>Post-1984 “Gasoline” Tank</i>		
EU0080	Tank for storage of gasoline or a general product or transmix with lower emissions than gasoline	303
<i>Additive Tanks</i>		
EU0090	Tank for storage of additives	8001
EU0100	Tank for storage of additives	8003
EU0110	Tank for storage of additives	8004
EU0120	Tank for storage of additives	8005
EU0130	Tank for storage of additives	8006
EU0140	Tank for storage of additives	8010
<i>Other</i>		
EU0150	Tank roof landings	ROOF LANDINGS
EU0160	Fugitive emissions from general product/light oil loading rack	GR/LOR
EU0170	Flare 1, for general product/light oil loading rack	FLARE 1
EU0180	Fugitive emissions from propane loading rack	PR
EU0190	Facility-wide fugitive emissions from valves, flanges, pumps, etc.	FUGITIVES
EU0200	Emergency generator	GENERATOR
EU0210	Meter proving process	PROVE
EU0220	Rack sump with oil/water separator	O/W SEP
EU0230	Wastewater tank	WW
EU0240	Air stripper	AIR STRIPPER

EMISSION UNITS WITHOUT LIMITATIONS

The following list provides a description of the equipment that does not have unit specific limitations at the time of permit issuance.

Description of Emission Source

Cavern for propane storage
Dryer for propane from cavern
Flare 2, for propane loading rack
Tank 308 for storage of LPG or transmix
Tank 318 for storage of LPG or transmix
Tank 328 for storage of LPG or transmix
Tank 338 for storage of LPG or transmix
Tank 348 for storage of LPG or transmix
Tank 358 for storage of LPG or transmix
Tank 368 for storage of LPG or transmix
Tank 378 for storage of LPG or transmix
Tank 388 for storage of LPG or transmix
Tank 398 for storage of LPG or transmix
Tank 390 for storage of LPG or transmix
Tank 391 for storage of LPG or transmix
Tank 392 for storage of LPG or transmix
Tank 393 for storage of LPG or transmix
Maintenance activities on propane tanks

DOCUMENTS INCORPORATED BY REFERENCE

No other documents have been incorporated by reference into this permit. Conditions from construction permits for this facility have been included in this permit where applicable. Some of these conditions have been changed. (See Statement of Basis which is attached to, but not part of, this permit.) Where a construction permit condition has been included in this permit, that construction permit is cited.

II. Plant Wide Emission Limitations

The installation shall comply with each of the following emission limitations. Consult the appropriate sections in the Code of Federal Regulations (CFR) and Code of State Regulations (CSR) for the full text of the applicable requirements. All citations, unless otherwise noted, are to the regulations in effect as of the date that this permit is issued.

<p style="text-align: center;">PERMIT CONDITION PW001 Voluntary Condition</p>
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Emission Limitations:

- 1) The permittee shall emit into the atmosphere less than 249.5 tons of volatile organic compounds from the entire installation in any consecutive 12-month period.
- 2) The permittee shall emit into the atmosphere less than 9.5 tons of any individual hazardous air pollutant (HAP) from the entire installation in any consecutive 12-month period.
- 3) The permittee shall emit into the atmosphere less than 24.5 tons total of all HAP from the entire installation in any consecutive 12-month period.

Monitoring, Recordkeeping, and Reporting.

When in compliance with all the emission unit-specific emission limitations in this permit, the permittee shall be assumed to be in compliance with this plant-wide emission limitation. No additional monitoring, recordkeeping, or reporting is required.

III. Emission Unit Specific Emission Limitations

The installation shall comply with each of the following emission limitations. Consult the appropriate sections in the Code of Federal Regulations (CFR) and Code of State Regulations (CSR) for the full text of the applicable requirements. All citations, unless otherwise noted, are to the regulations in effect as of the date that this permit is issued.

"JET KEROSENE" TANKS					
Emission Unit	Description	Manufacturer	Install Year	Max Storage Capacity (Gal)	2004 EIQ Point #
EU0010	Vertical fixed roof storage tank with cone roof	Chicago Bridge and Iron	1955	3,130,309.00	301
EU0020	Vertical fixed roof storage tank with cone roof	Chicago Bridge and Iron	1955	761,426.66	305

PERMIT CONDITION (EU0010 AND EU0020)-001
Voluntary Condition

Emission Limitations:

- 1) The permittee shall store only jet kerosene, general petroleum products which have lower emissions of volatile organic compounds (VOC) and hazardous air pollutants (HAP) than jet kerosene, and transmix which has lower emissions of VOC and HAP than jet kerosene in tanks 301 and 305 (EU0010 and EU0020.)
- 2) The permittee shall limit throughput for each of the two tanks 301 and 305 (EU0010 and EU0020) to 168,000,000 gallons in any consecutive 12-month period. Tank throughput includes tank to tank transfers, re-origination to pipeline, and product distributed via loading rack.
- 3) The permittee shall store only liquids or petroleum products with a maximum true vapor pressure equal to or less than 3.5 kiloPascals (0.51 pounds per square inch) in tanks 301 and 305 (EU0010 and EU0020.) The pressure shall be calculated at the temperature of storage.

Monitoring:

- 1) The permittee shall monitor that only jet kerosene, general petroleum products which have lower emissions of volatile organic compounds (VOC) and hazardous air pollutants (HAP) than jet kerosene, and transmix which has lower emissions of VOC and HAP than jet kerosene is stored in tanks 301 and 305 (EU0010 and EU0020.)
- 2) Each month, the permittee shall verify compliance with the consecutive 12-month throughput limitation on tanks 301 and 305 (EU0010 and EU0020.)

Recordkeeping:

- 1) The permittee shall maintain records of the product(s) stored in tanks 301 and 305 (EU0010 and EU0020.) For any product other than jet kerosene, the permittee shall maintain documentation demonstrating that the product has a maximum true vapor pressure equal to or less than 3.5 kiloPascals (0.51 pounds per square inch) at the temperature of storage. The permittee shall note the temperature of storage in this documentation.
- 2) The permittee shall maintain records of the monthly verifications of compliance with the consecutive 12-month throughput for tanks 301 and 305 (EU0010 and EU0020.)

- 3) These records shall be kept for at least five (5) years. They shall be kept on-site for at least two (2) years. They may be kept in either hard-copy form or on computer media.
- 4) These records shall immediately be made available for inspection by Department of Natural Resources personnel upon their verbal request and presentation of identification.

Reporting:

The permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after any other deviation from or exceedance of this permit condition.

PRE-1984 "GASOLINE" TANKS					
Emission Unit	Description	Manufacturer	Install Year	Max Storage Capacity (Gal)	2004 EIQ Point #
EU0030	Internal floating roof storage tank with mechanical shoe primary seal and no secondary seal	Chicago Bridge and Iron	1955	751,380.00	302
EU0040	Internal floating roof storage tank with mechanical shoe primary seal and no secondary seal	Chicago Bridge and Iron	1955	1,158,822.00	304
EU0050	Internal floating roof storage tank with vapor-mounted primary seal and rim-mounted secondary seal	Tonkawa Tank	1950's	100,212.00	310
EU0060	Internal floating roof storage tank with mechanical shoe primary seal and no secondary seal	Chicago Bridge and Iron	1962	2,149,980.00	311
EU0070	Domed external floating roof storage tank with cone roof with mechanical shoe primary seal and rim-mounted secondary seal (Note: EPA has determined that an external floating roof tank fitted with a geodesic dome, such as this one, meets the definition of an internal floating roof tank.)	Chicago Bridge and Iron	1963	963,984.00	314

PERMIT CONDITION (EU0030 THROUGH EU0070)-001
 10 CSR 10-6.075 Maximum Available Control Technology Regulations
 40 CFR Part 63, Subpart A General Provisions and Subpart R National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations)

Design and Operational Limitations:

Per 40 CFR §63.423(a), the permittee shall equip each gasoline storage vessel with a design capacity greater than or equal to 75 m³ according to the requirements in 40 CFR §60.112b(a) (1) through (4), except for the requirements in §§60.112b(a)(1) (iv) through (ix) and 60.112b(a)(2)(ii). These tanks have design capacities greater than or equal to 151 m³ and contain volatile organic liquids (VOLs) that, as stored, have a maximum true vapor pressure equal to or greater than 5.2 kiloPascals but less than 76.6 kiloPascals. The permittee has chosen to equip each tank with a fixed roof in combination with an internal floating roof, so 40 CFR §60.112b(a)(1) is the part of this regulation which applies, except for §§60.112b(a)(1) (iv) through (ix).

The permittee shall equip each tank with the following. [40 CFR §60.112b(a)]

- 1) A fixed roof in combination with an internal floating roof meeting the following specifications:
 - i) The internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside the tank. The internal floating roof shall be floating on the liquid surface at all times, except during initial fill and during those intervals when the tank is completely emptied or subsequently emptied and refilled. When the roof is resting on the leg supports, the process of

- filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible.
- ii) Each internal floating roof shall be equipped with one of the following closure device between the wall of the tank and the edge of the internal floating roof:
 - A) A foam- or liquid-filled seal mounted in contact with the liquid (liquid-mounted seal). A liquid-mounted seal means a foam- or liquid-filled seal mounted in contact with the liquid between the wall of the tank and the floating roof continuously around the circumference of the tank.
 - B) Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the tank and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous.
 - C) A mechanical shoe seal. A mechanical shoe seal is a metal sheet held vertically against the wall of the tank by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.
 - iii) Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface.

Monitoring:

Per 40 CFR §63.425(d), the permittee, shall comply with 40 CFR §60.113b. The permittee shall meet the requirements of paragraph (a), (b), or (c) of this section for each of these tanks. The applicable paragraph for a particular tank depends on the control equipment installed. The permittee has chosen to equip each tank with a fixed roof in combination with an internal floating roof, so 40 CFR §60.113b(a) is the part of this regulation which applies.

After installing a permanently affixed roof and internal floating roof, a permittee shall [40 CFR §60.113b(a)]

- 1) Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), prior to filling the tank with a VOL. If there are holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric or defects in the internal floating roof, or both, the permittee shall repair the items before filling the storage tank.
- 2) For tanks equipped with a liquid-mounted or mechanical shoe primary seal, visually inspect the internal floating roof and the primary seal or the secondary seal (if one is in service) through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill. If the internal floating roof is not resting on the surface of the VOL inside the tank, or there is liquid accumulated on the roof, or the seal is detached, or there are holes or tears in the seal fabric, the permittee shall repair the items or empty and remove the tank from service within forty-five (45) days. If a failure that is detected during inspections required in this paragraph cannot be repaired within 45 days and if the tank cannot be emptied within 45 days, a 30-day extension may be requested from the Director in the inspection report required in 40 CFR §60.115b(a)(3). Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions the company will take that will assure that the control equipment will be repaired or the tank will be emptied as soon as possible.
- 3) For tanks equipped with a double-seal system as specified in 40 CFR §60.112b(a)(1)(ii)(B), like this one:
 - i) Visually inspect the tank as specified in (4) below at least every five (5) years; or
 - ii) Visually inspect the tank as specified in (2) above.

- 4) Visually inspect the internal floating roof, the primary seal, the secondary seal (if one is in service), gaskets, slotted membranes and sleeve seals (if any) each time the tank is emptied and degassed. If the internal floating roof has defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric, or the secondary seal has holes, tears, or other openings in the seal or the seal fabric, or the gaskets no longer close off the liquid surfaces from the atmosphere, or the slotted membrane has more than 10 percent open area, the permittee shall repair the items as necessary so that none of the conditions specified in this paragraph exist before refilling the tank with VOL. In no event shall inspections conducted in accordance with this provision occur at intervals greater than ten (10) years in the case of tanks conducting the annual visual inspection as specified in (2) and (3)(ii) above and at intervals no greater than five (5) years in the case of tanks specified in (3)(i) above.
- 5) Notify the Director in writing at least thirty (30) days prior to the filling or refilling of each tank for which an inspection is required by (1) and (4) above, to afford the Director the opportunity to have an observer present. If the inspection required by (4) above is not planned and the permittee could not have known about the inspection 30 days in advance or refilling the tank, the permittee shall notify the Director at least seven (7) days prior to the refilling of the tank. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that the Director receives it at least 7 days prior to the refilling.

Recordkeeping:

Per 40 CFR §63.428(d), the permittee shall keep records as specified in 40 CFR §60.115b paragraph (a), (b), or (c) depending upon the control equipment installed, except records shall be kept for at least five (5) years. The permittee has chosen to equip each tank with a fixed roof in combination with an internal floating roof, so 40 CFR §60.115b(a) is the part of this regulation which applies.

Per 40 CFR §63.427(c), the permittee shall keep records as specified in 40 CFR §60.116b, except records shall be kept for at least five (5) years. The permittee has chosen to equip each tank with a fixed roof in combination with an internal floating roof, so 40 CFR §60.116b(g) does not apply. The requirements in §60.116b paragraphs (c) through (f) are identical to some in Permit Condition (EU0030 through EU0070)-002, and are not repeated here.

The permittee shall also fulfill all applicable recordkeeping requirements of 40 CFR Part 63, Subpart A.

- 1) For each tank equipped with a fixed roof in combination with an internal floating roof, the permittee shall keep a record of each inspection performed as required by 40 CFR §60.113b(a) in the Monitoring section above. Each record shall identify the tank on which the inspection was performed and shall contain the date the tank was inspected and the observed condition of each component of the control equipment (seals, internal floating roof, and fittings.) [40 CFR §60.115b(a)(2)]
- 2) The permittee shall keep readily accessible records showing the dimension of each tank and an analysis showing the capacity of each tank. [40 CFR §60.116b(b)]
- 3) All of these records may be kept in either hard-copy form or on computer media. The records showing the dimension of each tank and the analyses showing the capacity of each tank shall be kept, on-site, for the life of the source. All the rest of these records shall be kept for at least five (5) years, and shall be kept on-site for at least two (2) years. [40 CFR §60.116b(a)]

- 4) These records shall be made available for inspection by Department of Natural Resources personnel immediately upon their verbal request and presentation of identification.

Reporting:

Per 40 CFR §63.428(d), the permittee shall furnish reports as specified in 40 CFR §60.115b paragraphs (a), (b), or (c) depending upon the control equipment installed. The permittee has chosen to equip each tank with a fixed roof in combination with an internal floating roof, so 40 CFR §60.115b(a) is the part of this regulation which applies.

The permittee shall also fulfill all applicable reporting requirements of 40 CFR Part 63, Subpart A.

- 1) For each tank equipped with a fixed roof in combination with an internal floating roof, the permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than thirty (30) days after any of the conditions described in 40 CFR §60.113b(a)(2) in the Monitoring section above are detected during the annual visual inspection required by that paragraph. Each report shall identify the tank, the nature of the defects, and the date the tank was emptied or the nature of and date the repair was made. [40 CFR §60.115(a)(3)]
- 2) For each tank equipped with a fixed roof in combination with an internal floating roof, the permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than thirty (30) days after each inspection required by paragraph (3) in 40 CFR §60.113b(a) in the Monitoring section above that finds holes or tears in the seal or seal fabric, or defects in the internal floating roof, or other control equipment defects listed in subparagraph (ii) of that paragraph. The report shall identify the tank and the reason it did not meet the specifications of the Design and Operational Limitations section above or of paragraph (3) in 40 CFR §60.113b(a) in the Monitoring section above, and list each repair made. [40 CFR §60.115(a)(4)]
- 3) The permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after any other deviation from or exceedance of this permit condition.

PERMIT CONDITION (EU0030 THROUGH EU0070)-002
Voluntary Condition

Emission Limitations:

- 1) The permittee shall store only gasoline, general petroleum products which have lower emissions of volatile organic compounds (VOC) and hazardous air pollutants (HAP) than gasoline, and transmix which has lower emissions of VOC and HAP than gasoline in tanks 302, 304, 310, 311, and 314 (EU0030 through EU0070.)
- 2) The permittee shall limit the throughput for each of the six tanks 302, 303, 304, 310, 311, and 314 (EU0030 through EU0080) to 500,000,000 gallons in any consecutive 12-month period. Tank throughput includes tank to tank transfers, re-origination to pipeline, and product distributed via loading rack.

Monitoring:

- 1) The permittee shall monitor each volatile organic liquid (VOL) stored in tanks 302, 304, 310, 311, and 314 (EU0030 through EU0070), the amounts of those VOLs, the periods of storage, and the maximum true vapor pressure of those VOLs during the respective storage periods.

- 2) Each month, the permittee shall verify compliance with the consecutive 12-month throughput limitation on tanks 302, 304, 310, 311, and 314 (EU0030 through EU0070.)
- 3) Per 40 CFR §60.116b(f)(2), For tanks containing waste mixture of indeterminate or variable composition in which the vapor pressure of the anticipated liquid composition is above 5.2 kiloPascals (0.75 pounds per square inch) but below 76.6 kpa (11.1 psi), an initial physical test of the vapor pressure is required; and a physical test at least once every six (6) months thereafter is required as determined by the following methods:
 - i) ASTM D2879–83, 96, or 97 (Available for purchase at American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, PA 19428–2959.), or
 - ii) ASTM D323–82 or 94 (Available for purchase just as the previous item is.), or
 - iii) As measured by an appropriate method as approved by the Director.
- 4) Per 40 CFR §60.116b(f)(1), the permittee shall, prior to initially filling any of these tanks with a waste mixture of indeterminate or variable composition, determine the highest maximum true vapor pressure for the range of anticipated liquid compositions to be stored, using the methods described in the paragraph below from 40 CFR §60.116b(e).

Per 40 CFR §60.116b(e), available data on the storage temperature may be used to determine the maximum true vapor pressure as specified below.

- 1) For tanks operated above or below ambient temperatures, the maximum true vapor pressure is calculated based upon the highest expected calendar-month average of the storage temperature. For tanks operated at ambient temperatures, the maximum true vapor pressure is calculated based upon the maximum local monthly average ambient temperature as reported by the National Weather Service
- 2) For crude or refined petroleum products the vapor pressure may be obtained by the following:
 - i) Available data on the Reid vapor pressure and the maximum expected storage temperature based on the highest expected calendar-month average temperature of the stored product may be used to determine the maximum true vapor pressure from the nomographs in Tables 7.1-13a and 7.1-14a of the United States Environmental Protection Agency document *Compilation of Air Pollutant Emission Factors: AP-42, Fifth Edition, Volume I, Stationary Point and Area Sources*, unless the Director specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s).
 - ii) The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kPa or with physical properties that preclude determination by the recommended method is to be determined from available data and recorded if the estimated maximum true vapor pressure is greater than 3.5 kPa.
- 3) For other liquids, the vapor pressure
 - i) May be obtained from standard reference texts, or
 - ii) Determined by ASTM D2879–83, 96, or 97. (Available for purchase at American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, PA 19428–2959), or
 - iii) Measured by an appropriate method approved by the Director; or
 - iv) Calculated by an appropriate method approved by the Director.

Recordkeeping:

- 1) The permittee shall maintain records of each VOL stored in tanks 302, 304, 310, 311, and 314 (EU0030 through EU0070), the amounts of those VOLs, the periods of storage, and the maximum true vapor pressure of those VOLs during the respective storage periods.
- 2) The permittee shall maintain records of the monthly verifications of compliance with the consecutive 12-month throughput for tanks 302, 304, 310, 311, and 314 (EU0030 through EU0070.)
- 3) The permittee shall maintain records of the calculations and/or tests done to satisfy requirements 3) and 4) in the Monitoring section above.
- 4) These records shall be kept for at least five (5) years. They shall be kept on-site for at least two (2) years. They may be kept in either hard-copy form or on computer media.
- 5) These records shall immediately be made available for inspection by Department of Natural Resources personnel upon their verbal request and presentation of identification.

Reporting:

The permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after any deviation from or exceedance of this permit condition.

POST-1984 "GASOLINE" TANK					
Emission Unit	Description	Manufacturer	Install Year	Max Storage Capacity (Gal)	2004 EQ Point#
EU0080	Internal floating roof storage tank with vapor-mounted primary seal and rim-mounted secondary seal	Unknown	1996	5,040,000.00	303

PERMIT CONDITION EU0080-001
10 CSR 10-6.075 Maximum Available Control Technology Regulations
40 CFR Part 63, Subpart A General Provisions and Subpart R National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations)
10 CSR 10-6.070 New Source Performance Regulations
40 CFR Part 60, Subpart A General Provisions and Subpart Kb Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) After 7/23/84

Design and Operational Limitations:

Per 40 CFR §63.423(a), the permittee shall equip each gasoline storage vessel with a design capacity greater than or equal to 75 m³ according to the requirements in 40 CFR §60.112b(a) (1) through (4), except for the requirements in §§60.112b(a)(1) (iv) through (ix) and 60.112b(a)(2)(ii). This tank has a design capacity greater than or equal to 151 m³ and contains a volatile organic liquid (VOL) that, as stored, has a maximum true vapor pressure equal to or greater than 5.2 kiloPascals but less than 76.6 kiloPascals. The permittee has chosen to equip it with a fixed roof in combination with an internal floating roof, so 40 CFR §60.112b(a)(1) is the part of this regulation which applies, except for §§60.112b(a)(1) (iv) through (ix). The permittee has chosen to use a vapor-mounted primary seal and a rim-mounted secondary seal, so the option in subparagraph (B) of 40 CFR §60.112b(a)(1)(ii) applies.

40 CFR §60.112b(a)

- 1) The permittee shall ensure that the fixed roof in combination with the internal floating roof on this tank meet the following specifications.
 - i) The internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside the tank. The internal floating roof shall be floating on the liquid surface at all times, except during initial fill and during those intervals when the tank is completely emptied or subsequently emptied and refilled. When the roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible.
 - ii) Each internal floating roof shall be equipped with a closure device between the wall of the tank and the edge of the internal floating roof:
 - A) 40 CFR §60.112b(a)(1)(A) does not apply.
 - B) Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the tank and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous.
 - iii) Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface.

Monitoring:

Per 40 CFR §63.425(d), the permittee, shall comply with 40 CFR §60.113b. For this tank, which has a permanently fixed roof and internal floating roof, 40 CFR §60.113b(a) applies.

- 1) Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), prior to filling the tank with a VOL. If there are holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric or defects in the internal floating roof, or both, the permittee shall repair the items before filling the storage tank.
- 2) For tanks equipped with a liquid-mounted or mechanical shoe primary seal, visually inspect the internal floating roof and the primary seal or the secondary seal (if one is in service) through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill. If the internal floating roof is not resting on the surface of the VOL inside the tank, or there is liquid accumulated on the roof, or the seal is detached, or there are holes or tears in the seal fabric, the permittee shall repair the items or empty and remove the tank from service within forty-five (45) days. If a failure that is detected during inspections required in this paragraph cannot be repaired within 45 days and if the tank cannot be emptied within 45 days, a 30-day extension may be requested from the Director in the inspection report required in 40 CFR §60.115b(a)(3). Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions the company will take that will assure that the control equipment will be repaired or the tank will be emptied as soon as possible.
- 3) For tanks equipped with a double-seal system as specified in 40 CFR §60.112b(a)(1)(ii)(B), like this one:
 - (i) Visually inspect the tank as specified in (4) below at least every five (5) years; or
 - (ii) Visually inspect the tank as specified in (2) above.
- 4) Visually inspect the internal floating roof, the primary seal, the secondary seal (if one is in service), gaskets, slotted membranes and sleeve seals (if any) each time the tank is emptied and degassed. If the internal floating roof has defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric, or the secondary seal has holes, tears, or other openings in the seal or the seal fabric, or the gaskets no longer close off the liquid surfaces from the atmosphere, or the slotted membrane has more than 10 percent open area, the permittee shall repair the items as necessary so that none of the conditions specified in this paragraph exist before refilling the tank with VOL. In no event shall inspections conducted in accordance with this provision occur at intervals greater than ten (10) years in the case of tanks conducting the annual visual inspection as specified in (2) and (3)(ii) above and at intervals no greater than five (5) years in the case of tanks specified in (3)(i) above.
- 5) Notify the Director in writing at least thirty (30) days prior to the filling or refilling of each tank for which an inspection is required by (1) and (4) above, to afford the Director the opportunity to have an observer present. If the inspection required by (4) above is not planned and the permittee could not have known about the inspection 30 days in advance or refilling the tank, the permittee shall notify the Director at least seven (7) days prior to the refilling of the tank. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that the Director receives it at least 7 days prior to the refilling.

Recordkeeping:

Per 40 CFR §63.428(d), the permittee shall keep records as specified in 40 CFR §60.115b paragraph (a), (b), or (c) depending upon the control equipment installed, except records shall be kept for at least five

(5) years. The permittee has chosen to equip this tank with a fixed roof in combination with an internal floating roof, so 40 CFR §60.115b paragraph (a) is the part of this regulation which applies.

Per 40 CFR §63.427(c), the permittee shall keep records as specified in 40 CFR §60.116b, except records shall be kept for at least five (5) years. The permittee has chosen to equip this tank with a fixed roof in combination with an internal floating roof, so 40 CFR §60.116b(g) does not apply. The requirements in §60.116b paragraphs (c) through (f) are identical to some in Permit Condition EU0080-002, and are not repeated here.

The permittee shall also fulfill all applicable recordkeeping requirements of 40 CFR Part 60, Subpart A.

The permittee shall also fulfill all applicable recordkeeping requirements of 40 CFR Part 63, Subpart A.

- 1) Keep a record of each inspection performed as required by the Monitoring section above. Each record shall identify the tank on which the inspection was performed and shall contain the date the tank was inspected and the observed condition of each component of the control equipment (seals, internal floating roof, and fittings). [40 CFR §60.115b(a)(2)]
- 2) The permittee shall keep readily accessible records showing the dimension of the tank and an analysis showing the capacity of the tank. [40 CFR §60.116b(b)]
- 3) All of these records may be kept in either hard-copy form or on computer media. The records showing the dimension of each tank and the analyses showing the capacity of each tank shall be kept, on-site, for the life of the source. All the rest of these records shall be kept for at least five (5) years, and shall be kept on-site for at least two (2) years. [40 CFR §60.116b(a)]
- 4) These records shall be made available for inspection by Department of Natural Resources personnel immediately upon their verbal request and presentation of identification.

Reporting:

Per 40 CFR §63.428(d), the permittee shall keep records as specified in 40 CFR §60.115b paragraph (a), (b), or (c) depending upon the control equipment installed, except records shall be kept for at least five (5) years. The permittee has chosen to equip this tank with a fixed roof in combination with an internal floating roof, so 40 CFR §60.115b paragraph (a) is the part of this regulation which applies.

- 1) The permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than thirty (30) days after any of the conditions described in (2) in the Monitoring section above are detected during the annual visual inspection required by (2) in the Monitoring section above. Each report shall identify the tank, the nature of the defects, and the date the tank was emptied or the nature of and date the repair was made. [40 CFR §63.115(a)(3)]
- 2) The permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than thirty (30) days after each inspection required by (3) in the Monitoring section above that finds holes or tears in the seal or seal fabric, or defects in the internal floating roof, or other control equipment defects listed in (3)(ii) in the Monitoring section above. The report shall identify the tank and the reason it did not meet the specifications of the Design and Operational Limitations section above or of (3) in the Monitoring section above, and list each repair made. [40 CFR §63.115(a)(4)]
- 3) The permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after any other deviation from or exceedance of this permit condition.

PERMIT CONDITION EU0080-002
Voluntary Condition

Emission Limitations:

- 1) The permittee shall store only gasoline, general petroleum products which have lower emissions of volatile organic compounds (VOC) and hazardous air pollutants (HAP) than gasoline, and transmix which has lower emissions of VOC and HAP than gasoline in tank 303 (EU0080.)
- 2) The permittee shall limit the throughput for tank 303 (EU0080) to 500,000,000 gallons in any consecutive 12-month period. Tank throughput includes tank to tank transfers, re-origination to pipeline, and product distributed via loading rack.

Monitoring:

- 1) The permittee shall monitor each volatile organic liquid (VOL) stored in tank 303 (EU0080), the amounts of those VOLs, the periods of storage, and the maximum true vapor pressure of those VOLs during the respective storage periods.
- 2) Each month, the permittee shall verify compliance with the consecutive 12-month throughput limitation on tank 303 (EU0080.)
- 3) Per 40 CFR §60.116b(f)(2), for a tank containing waste mixture of indeterminate or variable composition in which the vapor pressure of the anticipated liquid composition is above 5.2 kiloPascals (0.75 pounds per square inch) but below 76.6 kpa (11.1 psi), an initial physical test of the vapor pressure is required; and a physical test at least once every 6 months thereafter is required as determined by the following methods:
 - i) ASTM D2879-83, 96, or 97 (Available for purchase at American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, PA 19428-2959.), or
 - ii) ASTM D323-82 or 94 (Available for purchase just as the previous item is.), or
 - iii) As measured by an appropriate method as approved by the Director.
- 4) Per 40 CFR §60.116b(f)(1), the permittee shall, prior to initially filling this tank with a waste mixture of indeterminate or variable composition, determine the highest maximum true vapor pressure for the range of anticipated liquid compositions to be stored, using the methods described in the paragraph below from 40 CFR §60.116b(e).

Per 40 CFR §60.116b(e), available data on the storage temperature may be used to determine the maximum true vapor pressure as determined below

- 1) For a tank operated above or below ambient temperatures, the maximum true vapor pressure is calculated based upon the highest expected calendar-month average of the storage temperature. For tanks operated at ambient temperatures, the maximum true vapor pressure is calculated based upon the maximum local monthly average ambient temperature as reported by the National Weather Service.
- 2) For crude or refined petroleum products the vapor pressure may be obtained by the following:
 - i) Available data on the Reid vapor pressure and the maximum expected storage temperature based on the highest expected calendar-month average temperature of the stored product may be used to determine the maximum true vapor pressure from the nomographs in Tables 7.1-13a and 7.1-14a of the United States Environmental Protection Agency document *Compilation of Air Pollutant Emission Factors: AP-42, Fifth Edition, Volume I, Stationary Point and Area Sources*,

unless the Director specifically requests that the liquid be sampled, the actual storage temperature determined, and the Reid vapor pressure determined from the sample(s).

- ii) The true vapor pressure of each type of crude oil with a Reid vapor pressure less than 13.8 kPa or with physical properties that preclude determination by the recommended method is to be determined from available data and recorded if the estimated maximum true vapor pressure is greater than 3.5 kPa.
- 3) For other liquids, the vapor pressure
 - i) May be obtained from standard reference texts, or
 - ii) Determined by ASTM D2879-83, 96, or 97. (Available for purchase at American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, PA 19428-2959), or
 - iii) Measured by an appropriate method approved by the Director; or
 - iv) Calculated by an appropriate method approved by the Director.

Recordkeeping:

- 1) The permittee shall maintain records of each VOL stored in tank 303 (EU0080), the amounts of those VOLs, the periods of storage, and the maximum true vapor pressure of those VOLs during the respective storage periods.
- 2) The permittee shall maintain records of the monthly verifications of compliance with the consecutive 12-month throughput limitation on tank 303 (EU0080.)
- 3) The permittee shall maintain records of the calculations and/or tests done to satisfy requirements 3) and 4) in the Monitoring section above.
- 4) These records shall be kept for at least five (5) years. They shall be kept on-site for at least two (2) years. They may be kept in either hard-copy form or on computer media.
- 5) These records shall immediately be made available for inspection by Department of Natural Resources personnel upon their verbal request and presentation of identification.

Reporting:

The permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after any deviation from or exceedance of this permit condition.

ADDITIVE TANKS					
Emission Unit	Description	Height or Length (ft)	Diameter (ft)	Max Storage Capacity (Gal)	2004 E Point
EU0090	Vertical fixed roof additive tank with cone roof	17	10	9,987.85	8001
EU0100	Horizontal additive tank	11	4	1,000.00	8003
EU0110	Horizontal additive tank	15	6	3,000.00	8004
EU0120	Vertical fixed roof additive tank with cone roof	16	8	6,016.21	8005
EU0130	Horizontal additive tank	11	4	1,000.00	8006
EU0140	Horizontal additive tank	16	8	6,000.00	8010

PERMIT CONDITION (EU0090 THROUGH EU0140)-001
Voluntary Condition

Emission Limitations:

The permittee shall limit throughput of petroleum additives for each of the tanks 8001, 8003, 8004, 8005, 8006, and 8010 (EU0090 through EU0140) to 675,000 gallons in any consecutive 12-month period.

Monitoring/Recordkeeping/Reporting:

When in compliance with Permit Conditions EU0160-002 and EU0180-001, the permittee will also be in compliance with this emission limitation. Attachment B contains calculations demonstrating this. The permittee shall keep this attachment with the rest of this permit. No additional monitoring, recordkeeping, or reporting is required.

TANK ROOF LANDINGS		
Emission Unit	Description	2004 EQ Point #
EU0150	Tank roof landings, when a floating roof is supported on its legs so a tank can be cleaned and/or inspected.	ROOF LANDINGS

<p align="center">PERMIT CONDITION EU0150-001 Voluntary Condition</p>
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Emission Limitations:

The permittee shall not emit 25.0 tons per year of volatile organic compounds (VOC) or more during tank roof landings and tank cleanings in any consecutive 12-month period.

Monitoring/Recordkeeping:

- 1) The permittee shall maintain a record for tanks 302, 303, 304, 310, 311, and 314 (EU0030 through EU0080) identifying the date when the floating roof was set on its legs and the date when the roof was refloated. The record shall also indicate whether this was a continuous operation.
- 2) If the number of tank roof landings for any of these six tanks exceeds three (3) in any consecutive 12-month period, then the permittee shall use the spreadsheet shown in Attachment A, VOC Emissions Tracking Record for Tank Roof Landings and Tank Cleanings, or an equivalent created by the permittee, to demonstrate that the facility is in compliance with this permit condition for that 12-month period. If the number of tank roof landings for each of these six tanks is three (3) or less in any consecutive 12-month period, the permittee shall be assumed to be in compliance with this permit condition, and is not required to demonstrate compliance with this permit condition for that period using a spreadsheet such as the one in Attachment A.
- 3) These records shall be kept for at least five (5) years. They shall be kept on-site for at least two (2) years. They may be kept in either hard-copy form or on computer media.
- 4) These records shall be made available for inspection by Department of Natural Resources personnel immediately upon their verbal request and presentation of identification.

Reporting:

The permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after any deviation from or exceedance of this permit condition.

FUGITIVE EMISSIONS FROM GENERAL PRODUCTS / LIGHT OIL LOADING RACK		
Emission Unit	Description	2004 EIQ Point #
EU0160	Fugitive emissions from the loading of gasoline, distillates, and transmix into gasoline cargo tank trucks. This rack is bottom-loading; four bays were installed in 1955 and an additional two bays were added after a 1999 construction permit.	GR/LOR

FLARE FOR GENERAL PRODUCTS / LIGHT OIL LOADING RACK				
Emission Unit	Description	Manufacturer	Model Number	2004 EIQ Point
EU0170	Flare to burn off vapors collected at general products / light oil loading rack	John Zink	GV-LH-7200-3	FLARE

PERMIT CONDITION (EU0160 AND EU0170)-001
10 CSR 10-6.075 Maximum Available Control Technology Regulations
40 CFR Part 63, Subpart A General Provisions and Subpart R National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations)

Emission Limitations:

40 CFR §63.422

Emissions to the atmosphere from the vapor collection and processing systems due to the loading of gasoline cargo tank trucks shall not exceed 10 milligrams of total organic compounds per liter of gasoline loaded.

Design and Operational Limitations/Monitoring:

40 CFR §63.422 and 40 CFR §60.502

The permittee shall comply with the requirements in 40 CFR §60.502 except paragraphs (b), (c), and (j):

- I) The loading rack (EU0160) shall be equipped with a vapor collection system designed to collect the total organic compounds vapors displaced from gasoline cargo tank trucks during product loading. [40 CFR §60.502(a)]
- II) Each vapor collection system shall be designed to prevent any total organic compounds vapors collected at one loading rack from passing to another loading rack. [40 CFR §60.502(d)]
- III) Loadings of liquid product into gasoline cargo tank trucks shall be limited to vapor-tight gasoline cargo tank trucks using the following procedures: [40 CFR §60.502(e)]
 - 1) The permittee shall obtain the vapor tightness documentation described in 40 CFR §60.505(b) for each gasoline cargo tank truck which is to be loaded at this loading rack. (This is the same documentation described in 40 CFR §63.428(b)(3). See the Recordkeeping section of this permit condition.)
 - 2) The permittee shall require the tank identification number to be recorded as each gasoline cargo tank truck is loaded at the affected facility.
 - 3) i) The permittee shall cross-check each tank identification number obtained in paragraph (2) above with the file of tank vapor tightness documentation within 2 weeks after

- the corresponding tank is loaded, unless either of the following conditions is maintained.
- A) If less than an average of one gasoline cargo tank truck per month over the last 26 weeks is loaded without vapor tightness documentation then the documentation cross-check shall be performed each quarter; or
 - B) If less than an average of one gasoline cargo tank truck per month over the last 52 weeks is loaded without vapor tightness documentation then the documentation cross-check shall be performed semiannually.
- ii) If either the quarterly or semiannual cross-check provided in paragraphs (III)(3)(i) (A) through (B) of this section reveals that these conditions were not maintained, the source must return to biweekly monitoring until such time as these conditions are again met.
- 4) The permittee shall notify the owner or operator of each non-vapor-tight gasoline cargo tank truck loaded at the affected facility within 1 week of the documentation cross-check in paragraph (e)(3) of this section.
 - 5) (As modified by 40 CFR §63.422(2)) The permittee shall take steps assuring that the nonvapor-tight gasoline cargo tank truck will not be reloaded at the affected facility until vapor tightness documentation for that tank is obtained which documents that:
 - i) The gasoline cargo tank truck meets the test requirements in 40 CFR §63.425(e).
 - ii) For each gasoline cargo tank truck failing the test in 40 CFR §63.425 (f) or (g) at the facility, the gasoline cargo tank truck either:
 - A) Before repair work is performed on the gasoline cargo tank truck, meets the test requirements in 40 CFR §63.425 (g) or (h), or
 - B) After repair work is performed on the gasoline cargo tank truck before or during the tests in 40 CFR §63.425 (g) or (h), subsequently passes the annual certification test described in 40 CFR §63.425(e).
 - 6) Alternate procedures to those described in paragraphs (1) through (5) above for limiting gasoline cargo tank truck loadings may be used upon application to, and approval by, the Director.
- IV) The permittee shall act to assure that loadings of gasoline cargo tank trucks at the affected facility are made only into tanks equipped with vapor collection equipment that is compatible with the terminal's vapor collection system. [40 CFR §60.502(f)]
- V) The permittee shall act to assure that the terminal's and the gasoline cargo tank truck's vapor collection systems are connected during each loading of a gasoline cargo tank truck at the affected facility. Examples of actions to accomplish this include training drivers in the hookup procedures and posting visible reminder signs at the affected loading racks. [40 CFR §60.502(g)]
- VI) The vapor collection and liquid loading equipment shall be designed and operated to prevent gauge pressure in the delivery tank from exceeding 4,500 pascals (450 mm of water) during product loading. This level is not to be exceeded when measured by the procedures below, which are specified in 40 CFR §60.503(d). [40 CFR §60.502(h)]
- 1) A pressure measurement device (liquid manometer, magnehelic gauge, or equivalent instrument), capable of measuring up to 500 mm of water gauge pressure with ± 2.5 mm of water precision, shall be calibrated and installed on the terminal's vapor collection system at a pressure tap located as close as possible to the connection with the gasoline cargo tank truck.
 - 2) During the performance test, the pressure shall be recorded every 5 minutes while a gasoline cargo tank truck is being loaded; the highest instantaneous pressure that occurs during each loading shall also be recorded. Every loading position must be tested at least once during the performance test.
- VII) No pressure-vacuum vent in the bulk gasoline terminal's vapor collection system shall begin to open at a system pressure less than 4,500 pascals (450 mm of water). [40 CFR §60.502(i)]

40 CFR §63.425 and 40 CFR §63.11(b)

The permittee shall demonstrate that the flare is in compliance with the requirements in §63.11(b).

- 1) The permittee shall monitor the flare to assure that it is operated and maintained in conformance with its designs.
- 2) The flare shall be steam-assisted, air-assisted, or non-assisted.
- 3) The flare shall be operated at all times when emissions may be vented to it.
- 4) The flare shall be designed for and operated with no visible emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. Test Method 22 in Appendix A of 40 CFR Part 60 shall be used to determine the compliance of flares with the visible emission provisions of this part. The observation period is 2 hours and shall be used according to Method 22.
- 5) The flare shall be operated with a flame present at all times. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.
- 6) A permittee has the choice of adhering to the heat content specifications in paragraph (6)(ii) of this section, and the maximum tip velocity specifications in paragraph (7) or (8) of this section, or adhering to the requirements in paragraph (6)(i) below.
 - i) A) A flare shall be used that has a diameter of 3 inches or greater, is nonassisted, has a hydrogen content of 8.0 percent (by volume) or greater, and is designed for and operated with an exit velocity less than 37.2 m/sec (122 ft/sec) and less than the velocity V_{max} , as determined by the following equation:

$$V_{max} = (X_{H_2} - K_1) * K_2$$

where: V_{max} = Maximum permitted velocity, m/sec.

K_1 = Constant, 6.0 volume-percent hydrogen.

K_2 = Constant, 3.9(m/sec)/volume-percent hydrogen.

X_{H_2} = The volume-percent of hydrogen, on a wet basis, as calculated by using the American Society for Testing and Materials (ASTM) Method D1946-77.

(Available for purchase at American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, PA 19428-2959)

B) The actual exit velocity of a flare shall be determined by the method specified in paragraph (7)(i) of this section.

- ii) The flare shall be used only with the net heating value of the gas being combusted at 11.2 MJ/scm (300 BTU/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted at 7.45 MJ/scm (200 BTU/scf) or greater if the flares is non-assisted. The net heating value of the gas being combusted in a flare shall be calculated using the following equation.

$$H_T = K \sum_{i=0}^n C_i H_i$$

where: H_T = Net heating value of the sample, MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25 °C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20 °C.

$$K = \text{Constant} = 1.74 \times 10^7 \left[\frac{1}{\text{ppmv}} \right] \left[\frac{\text{g-mole}}{\text{scm}} \right] \left[\frac{\text{MJ}}{\text{kcal}} \right]$$

where the standard temperature for (g-mole/scm) is 20 °C.

C_i = Concentration of sample component i in ppmv on a wet basis, as measured for

organics by Test Method 18 in Appendix A of 40 CFR Part 60 and measured for hydrogen and carbon monoxide by American Society for Testing and Materials (ASTM) D1946-77 or 90 (Reapproved 1994) (Available for purchase at American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, PA 19428-2959)

H_i = Net heat of combustion of sample component i , kcal/g-mole at 25 °C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382-76 or 88 or D4809-95 (Available for purchase as above.) if published values are not available or cannot be calculated.

n = Number of sample components.

- 7) i) Steam-assisted and nonassisted flares shall be designed for and operated with an exit velocity less than 18.3 m/sec (60 ft/sec), except as provided in paragraphs (7)(ii) and (7)(iii) of this section. The actual exit velocity of a flare shall be determined by dividing by the volumetric flow rate of gas being combusted (in units of emission standard temperature and pressure), as determined by Test Method 2, 2A, 2C, or 2D in Appendix A to 40 CFR Part 60, as appropriate, by the unobstructed (free) cross-sectional area of the flare tip.
- ii) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the method specified in paragraph (7)(i) of this section, equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec), are allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 BTU/scf).
- iii) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the method specified in paragraph (7)(i) of this section, less than the velocity V_{max} , as determined by the method specified in this paragraph, but less than 122 m/sec (400 ft/sec) are allowed. The maximum permitted velocity, V_{max} , for flares complying with this paragraph shall be determined by the following equation:

$$\text{Log}_{10}(V_{max}) = (H_T + 28.8) / 31.7$$

where V_{max} = Maximum permitted velocity, m/sec

28.8 = Constant

31.7 = Constant

H_T = The net heating value as determined in paragraph (6) of this section.

- 8) Air-assisted flares shall be designed and operated with an exit velocity less than the velocity V_{max} . The maximum permitted velocity, V_{max} , for air-assisted flares shall be determined by the following equation:

$$V_{max} = 8.71 + 0.708(H_T)$$

where: V_{max} = Maximum permitted velocity, m/sec.

8.71 = Constant.

0.708 = Constant.

H_T = The net heating value as determined in paragraph (6)(ii) of this section.

40 CFR §63.427(a)

The permittee shall install, calibrate, certify, operate, and maintain, according to the manufacturer's specifications, a continuous monitoring system (CMS) as specified in paragraph (a)(1), (a)(2), (a)(3), or (a)(4) of 40 CFR §63.427, except as allowed in paragraph (a)(5) of this section. The permittee has chosen a flare, so 40 CFR §63.427(a)(4) applies. Where a flare is used, a heat-sensing device, such as an ultraviolet beam sensor or a thermocouple, must be installed in proximity to the pilot light to indicate the presence of a flame

40 CFR §63.8

The permittee shall comply with all applicable monitoring requirements of 40 CFR §63.8.

Recordkeeping:

40 CFR §60.505

In order to demonstrate compliance with portions of 40 CFR §60.502, the permittee must comply with the corresponding portions of 40 CFR §60.505.

- I) The permittee shall keep documentation of all notifications required under 40 CFR §60.502(e)(4) on file at the terminal for at least two (2) years. (See the Operational Limitations/Monitoring section of this permit condition.) [40 CFR §60.505.(d)]
- II) As an alternative to keeping records at the terminal as required by (d) above, of this section, the permittee may comply with the requirements in either (e)(1) or (2) below. [40 CFR §60.505.(e)]
 - 1) An electronic copy of each record is instantly available at the terminal.
 - i) The copy of each record in paragraph (e)(1) of this section is an exact duplicate image of the original paper record with certifying signatures.
 - ii) The Director is notified in writing that each terminal using this alternative is in compliance with 40 CFR §60.505(e)(1).
 - 2) For facilities that utilize a terminal automation system to prevent gasoline cargo tanks that do not have valid cargo tank vapor tightness documentation from loading (e.g., via a card lock-out system), a copy of the documentation is made available (e.g., via facsimile) for inspection by permitting authority representatives during the course of a site visit, or within a mutually agreeable time frame.
 - i) The copy of each record in paragraph (e)(2) of this section is an exact duplicate image of the original paper record with certifying signatures.
 - ii) The permitting authority is notified in writing that each terminal using this alternative is in compliance with 40 CFR §60.505(e)(2).
- III) The permittee shall keep records of all replacements or additions of components performed on an existing vapor processing system for at least three (3) years. [40 CFR §60.505.(f)]

40 CFR §63.428

- I) The permittee shall keep records of the test results for each gasoline cargo tank truck loading at the facility as follows: [40 CFR §63.428(b)]
 - 1) Annual certification testing performed under 40 CFR §63.425(e) and
 - 2) Continuous performance testing performed at any time at that facility under §63.425 (f), (g), and (h).
 - 3) The documentation file shall be kept up-to-date for each gasoline cargo tank truck loading at the facility. The documentation for each test shall include, as a minimum, the following information:
 - i) Name of test: Annual Certification Test—Method 27 (§63.425(e)(1)); Annual Certification Test—Internal Vapor Valve (§63.425(e)(2)); Leak Detection Test (§63.425(f)); Nitrogen Pressure Decay Field Test (§63.425(g)); or Continuous Performance Pressure Decay Test (§63.425(h))
 - ii) Cargo tank owner's name and address.
 - iii) Cargo tank identification number.
 - iv) Test location and date.
 - v) Tester name and signature.
 - vi) Witnessing inspector, if any: Name, signature, and affiliation.

- vii) Vapor tightness repair: Nature of repair work and when performed in relation to vapor tightness testing.
 - viii) Test results: test pressure; pressure or vacuum change, mm of water; time period of test; number of leaks found with instrument; and leak definition.
- II) The permittee shall: [40 CFR §63.428(c)]
- 1) Keep an up-to-date, readily accessible record of the continuous monitoring data required under §63.427(a) in the Operational Limitations/Monitoring section above. This record shall indicate the time intervals during which loadings of gasoline cargo tank trucks have occurred or, alternatively, shall record the operating parameter data only during such loadings. The date and time of day shall also be indicated at reasonable intervals on this record.
 - 2) Record and report simultaneously with the notification of compliance status required under §63.9(h):
 - i) All data and calculations, engineering assessments, and manufacturer's recommendations used in determining the operating parameter value under 40 CFR §63.425(b); and
 - ii) The following information when using a flare under provisions of 40 CFR §63.11(b) to comply with §63.422(b):
 - A) Flare design (i.e., steam-assisted, air-assisted, or non-assisted); and
 - B) All visible emissions readings, heat content determinations, flow rate measurements, and exit velocity determinations made during the compliance determination required under 40 CFR §63.425(a).
 - 3) If the permittee requests approval to use a vapor processing system or monitor an operating parameter other than those specified in 40 CFR §63.427(a), the permittee shall submit a description of planned reporting and recordkeeping procedures. The Administrator will specify appropriate reporting and recordkeeping requirements as part of the review of the permit application.
- III) As an alternative to keeping records at the terminal of each gasoline cargo tank truck test result as required in paragraph (b) of this section, the permittee may comply with the requirements in either (1) or (2) of this paragraph. [40 CFR §63.428(k)]
- 1) An electronic copy of each record is instantly available at the terminal.
 - i) This copy is an exact duplicate image of the original paper record with certifying signatures.
 - ii) The Director is notified in writing that each terminal using this alternative is in compliance with 40 CFR §63.428(k)(1)
 - 2) For facilities that utilize a terminal automation system to prevent gasoline cargo tank trucks that do not have valid cargo tank vapor tightness documentation from loading (e.g., via a card lock-out system), a copy of the documentation is made available (e.g., via facsimile) for inspection by permitting authority representatives during the course of a site visit, or within a mutually agreeable time frame.
 - i) This copy is an exact duplicate image of the original paper record with certifying signatures.
 - ii) The Director is notified in writing that each terminal using this alternative is in compliance with 40 CFR §63.428 ((k)(2).

40 CFR §60.7

- I) The permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR §60.7(b)]

- II) The permittee shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this part recorded in a permanent form suitable for inspection. The file shall be retained for at least two (2) years following the date of such measurements, maintenance, reports, and records. [40 CFR §60.7(f)]
- III) The permittee shall comply with all other applicable recordkeeping requirements of 40 CFR §60.7.

40 CFR §63.10

The permittee shall comply with all applicable recordkeeping requirements of 40 CFR §63.10

General

- 1) If not otherwise specified, these records shall be kept for at least five (5) years. They shall be kept on-site for at least two (2) years. They may be kept in either hard-copy form or on computer media.
- 2) These records shall immediately be made available for inspection by Department of Natural Resources personnel upon their verbal request and presentation of identification.

Reporting:

40 CFR §63.428

The permittee shall include in a semiannual report to the Director each loading of a gasoline cargo tank truck for which vapor tightness documentation had not been previously obtained by the facility. [40 CFR §63.428(g)]

- I) The permittee shall submit an excess emissions report to the Administrator in accordance with §63.10(e)(3), whether or not a CMS is installed at the facility. The following occurrences are excess emissions events under this subpart, and the following information shall be included in the excess emissions report, as applicable: [40 CFR §63.428(h)]
- 1) Each exceedance or failure to maintain, as appropriate, the monitored operating parameter value determined under 40 CFR §63.425(b). The report shall include the monitoring data for the days on which exceedances or failures to maintain have occurred, and a description and timing of the steps taken to repair or perform maintenance on the vapor collection and processing systems or the CMS.
 - 2) Each instance of a nonvapor-tight gasoline cargo tank truck loading at the facility in which the permittee failed to take steps to assure that such gasoline cargo tank truck would not be reloaded at the facility before vapor tightness documentation for that gasoline cargo tank truck was obtained.
 - 3) Each reloading of a nonvapor-tight gasoline cargo tank truck at the facility before vapor tightness documentation for that gasoline cargo tank truck is obtained by the facility in accordance with 40 CFR §63.422(c)(2).

Note: This is the same excess emissions report specified in the Reporting section of Permit Condition EU0190-001.

40 CFR §§63.9 and 63.10

The permittee shall comply with all applicable reporting requirements of 40 CFR §§63.9 and 63.10

General

The permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after any deviation from or exceedance of this permit condition.

PERMIT CONDITION EU0160-002
Voluntary Condition

Emission Limitations:

- 1) The permittee shall limit total throughput of gasoline and petroleum products which have lower emissions of VOC and HAP than gasoline at this loading rack to 500,000,000 gallons in any consecutive 12-month period.
- 2) The permittee shall limit total throughput of jet kerosene and petroleum products which have lower emissions of volatile organic compounds (VOC) and hazardous air pollutants (HAP) than jet kerosene at this loading rack to 168,000,000 gallons in any consecutive 12-month period. This 168,000,000 gallons is in addition to, not part of, the 500,000,000 gallons in item 1 above.
- 3) The permittee shall limit total throughput of transmix at this loading rack to 15,000,000 gallons in any consecutive 12-month period. This 15,000,000 gallons is in addition to, not part of, the 500,000,000 gallons in item 1 above and the 168,000,000 gallons in item 2 above.

Monitoring:

The permittee shall monitor the kind and amount of each product passing through this loading rack each month.

Recordkeeping:

- 1) The permittee shall maintain records of the kind and amount of each product passing through this loading rack each month. The permittee shall maintain the rolling 12-month totals of these amounts.
- 2) These records shall be kept for at least five (5) years. They shall be kept on-site for at least two (2) years. They may be kept in either hard-copy form or on computer media.
- 3) These records shall immediately be made available for inspection by Department of Natural Resources personnel upon their verbal request and presentation of identification.

Reporting:

The permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after any deviation from or exceedance of this permit condition.

PERMIT CONDITION EU0160-003
10 CSR 10-6.060, Construction Permits Required
Construction Permit 022000-001, issued on January 6, 2000

Emission Limitations:

The permittee shall only transfer low sulfur diesel fuel (diesel fuel with a sulfur content of 0.05 percent by weight or less) or jet fuel oil with each respective new product arm on Bay 4 of the product terminal loading rack.

Monitoring:

The permittee shall monitor the amount and type of material transferred from these product loading arms each time they are used.

Recordkeeping:

- 1) The permittee shall maintain records of the amount and type of material transferred from these product loading arms each time they are used.
- 2) These records shall be kept for at least five (5) years. They shall be kept on-site for at least two (2) years. They may be kept in either hard-copy form or on computer media.
- 3) These records shall immediately be made available for inspection by Department of Natural Resources personnel upon their verbal request and presentation of identification.

Reporting:

The permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after any deviation from or exceedance of this permit condition.

FUGITIVE EMISSIONS FROM PROPANE LOADING RACK		
Emission Unit	Description	2004 EIO Point #
EU0180	Fugitive emissions from propane loading rack	PR

PERMIT CONDITION EU0180-001 Voluntary Condition

Emission Limitations:

The permittee shall limit throughput of liquid petroleum gas (LPG) at this loading rack to 105,000,000 gallons in any consecutive 12-month period.

Monitoring:

The permittee shall monitor the amount of LPG passing through this loading rack each month.

Recordkeeping:

- 1) The permittee shall maintain records of the amount of LPG passing through this loading rack each month. The permittee shall maintain the rolling 12-month totals of these amounts.
- 2) These records shall be kept for at least five (5) years. They shall be kept on-site for at least two (2) years. They may be kept in either hard-copy form or on computer media.
- 3) These records shall immediately be made available for inspection by Department of Natural Resources personnel upon their verbal request and presentation of identification.

Reporting:

The permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after any deviation from or exceedance of this permit condition.

FACILITY-WIDE FUGITIVE EMISSIONS FROM VALVES, FLANGES, PUMPS, ETC.		
Emission Unit	Description	2004 EQ Point #
EU0190	Facility-wide fugitive emissions from valves, flanges, pumps, etc.	FUGITIVES

<p align="center">PERMIT CONDITION EU0190-001 10 CSR 10-6.075 Maximum Available Control Technology Regulations 40 CFR Part 63, Subpart A General Provisions and Subpart R National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations)</p>
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Design and Operational Limitations/Monitoring:

The following limitations are from 40 CFR §63.424.

- 1) The permittee shall perform a monthly leak inspection of all equipment in gasoline service. For this inspection, detection methods incorporating sight, sound, and smell are acceptable. Each piece of equipment shall be inspected during the loading of a gasoline cargo tank truck.
- 2) A log book shall be used and shall be signed by the permittee at the completion of each inspection. A section of the log shall contain a list, summary description, or diagram(s) showing the location of all equipment in gasoline service at the facility.
- 3) Each detection of a liquid or vapor leak shall be recorded in the log book. When a leak is detected, an initial attempt at repair shall be made as soon as practicable, but no later than five (5) calendar days after the leak is detected. Repair or replacement of leaking equipment shall be completed within fifteen (15) calendar days after detection of each leak, except as provided in paragraph (d) of this section.
- 4) Delay of repair of leaking equipment will be allowed upon a demonstration to the Director that repair within 15 days is not feasible. The permittee shall provide the reason(s) a delay is needed and the date by which each repair is expected to be completed.
- 5) As an alternative to compliance with the provisions in paragraphs (a) through (d) of this section, the permittee may implement an instrument leak monitoring program that has been demonstrated to the Administrator as at least equivalent.
- 6) The permittee shall not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include, but are not limited to, the following:
 - i) Minimize gasoline spills;
 - ii) Clean up spills as expeditiously as practicable;
 - iii) Cover all open gasoline containers with a gasketed seal when not in use;
 - iv) Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.

Recordkeeping:

- 1) Per 40 CFR §63.428(e), the permittee shall record the following information in the log book for each leak that is detected:
 - i) The equipment type and identification number;
 - ii) The nature of the leak (i.e., vapor or liquid) and the method of detection (i.e., sight, sound, or smell);
 - iii) The date the leak was detected and the date of each attempt to repair the leak;

- iv) Repair methods applied in each attempt to repair the leak;
 - v) "Repair delayed" and the reason for the delay if the leak is not repaired within 15 calendar days after discovery of the leak;
 - vi) The expected date of successful repair of the leak if the leak is not repaired within 15 days; and
 - vii) The date of successful repair of the leak.
- 2) These records shall be kept for at least five (5) years. They shall be kept on-site for at least two (2) years. They may be kept in either hard-copy form or on computer media.
 - 3) These records shall immediately be made available for inspection by Department of Natural Resources personnel upon their verbal request and presentation of identification.

Reporting:

- 1) The permittee shall include in a semiannual report to the Director the number of equipment leaks not repaired within 5 days after detection. [40 CFR §63.428(g)]
- 2) The permittee shall submit an excess emissions report to the Administrator in accordance with §63.10(e)(3), whether or not a CMS is installed at the facility. Equipment leaks for which no repair attempt was made within 5 days or for which repair was not completed within 15 days after detection are excess emissions events under this subpart, and the following information shall be included in the excess emissions report for each occurrence of such a leak. [40 CFR §63.428(h)]
 - a) The date on which the leak was detected;
 - b) The date of each attempt to repair the leak;
 - c) The reasons for the delay of repair; and
 - d) The date of successful repair.
- 3) The permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after any deviation from or exceedance of this permit condition.

Note: this is the same excess emissions report specified in the Reporting section of Permit Condition (EU0160 and EU0170)-001.

EMERGENCY GENERATOR				
Emission Unit	Description	Manufacturer	Model	2004 EIO Point #
EU0200	Diesel generator for emergency power; 34 BHP @ 1800 rpm	Cummins	4A2.3-GI	GENERATO

PERMIT CONDITION EU0200-001
 10 CSR 10-6.260 Restriction of Emission of Sulfur Compounds

Emission Limitation:

- 1) Emissions from any existing source operation shall not contain more than two thousand parts per million by volume (2000 ppmv) of sulfur dioxide.
- 2) Stack gasses shall not contain more than seventy milligrams (70 mg) per cubic meter of sulfuric acid or sulfur trioxide or any combination of those gases averaged on any consecutive three-hour time period.
- 3) No person shall cause or permit the emission of sulfur compounds from any source which causes or contributes to concentrations exceeding those specified in 10 CSR 10-6.010 Ambient Air Quality Standards.

Pollutant	Concentration by Volume *	Remarks
Sulfur Dioxide (SO ₂)	0.03 ppm (80 µg/m ³)	Annual arithmetic mean
	0.14 ppm (365 µg/m ³)	24-hour average not to be exceeded more than once per year
	0.5 ppm (1300 µg/m ³)	3-hour average not to be exceeded more than once per year
Hydrogen Sulfide (H ₂ S)	0.05 ppm (70 µg/m ³)	½-hour average not to be exceeded over 2 times per year
	0.03 ppm (42 µg/m ³)	½-hour average not to be exceeded over 2 times in any 5 consecutive days
Sulfuric Acid (H ₂ SO ₄)	10 µg/m ³	24-hour average not to be exceeded more than once in any 90 consecutive days

* Concentration by Volume is given in both parts per million (ppm) and micrograms per cubic meter (µg/m³)

Equipment and Operation Parameters:

This emergency generator shall be limited to burning diesel fuel oil with a sulfur content of 0.2 percent (%) by weight or less (Number 2 diesel fuel oil or better.)

Monitoring/Recordkeeping:

- 1) The permittee shall maintain an accurate record of the sulfur content of fuel used. Fuel purchase receipts, analyzed samples or certifications that verify the fuel type and sulfur content will be acceptable.
- 2) These records shall be kept for at least five (5) years. They shall be kept on-site for at least two (2) years. They may be kept in either hard-copy form or on computer media.

- 3) These records shall immediately be made available for inspection by Department of Natural Resources personnel upon their verbal request and presentation of identification.

Reporting:

The permittee shall report to the Air Pollution Control Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after any deviation from or exceedance of any of the terms imposed by this regulation, or any malfunction which causes a deviation from or exceedance of this regulation.

METER PROVING PROCESS		
Emission Unit	Description	2004 EIO Point #
EU0210	Meter proving process	PROVE

PERMIT CONDITION EU0210-001 Voluntary Condition

Emission Limitation:

The permittee shall not emit more than 3500 pounds per year (1.75 tons per year) of volatile organic compounds (VOC) during meter provings in any consecutive 12-month period.

Monitoring/Recordkeeping/Reporting:

No monitoring, recordkeeping, or reporting is required for this permit condition. Since this emission unit has a potential to emit of 1.597 tons per year of VOC, the permittee is assumed always to be in compliance.

RACK SUMP WITH OIL/WATER SEPARATOR

Emission Unit	Description	2004 EIO Point #
EU0220	Rack sump with oil/water separator	O/W SEP

PERMIT CONDITION EU0220-001

Voluntary Condition

Emission Limitation:

The permittee shall emit less than 2.7 tons of volatile organic compounds (VOC) from this rack sump with oil/water separator in any consecutive 12-month period.

Monitoring/Recordkeeping/Reporting:

No monitoring, recordkeeping, or reporting is required for this permit condition. Since this emission unit has a potential to emit of 2.628 tons per year of VOC, the permittee is assumed always to be in compliance.

WASTEWATER TANK		
Emission Unit	Description	2004 EQ Point #
EU0230	Wastewater tank	WW

<p align="center">PERMIT CONDITION EU0230-001 Voluntary Condition</p>
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Emission Limitation:

The permittee shall emit less than 2.7 tons of volatile organic compounds (VOC) from this wastewater tank in any consecutive 12-month period.

Monitoring/Recordkeeping/Reporting:

No monitoring, recordkeeping, or reporting is required for this permit condition. This emission unit will emit no more than the rack sump with oil/water separator (EU0220) which feeds it. Since that emission unit has a potential to emit of 2.628 tons per year of VOC, the permittee is assumed always to be in compliance.

AIR STRIPPER		
Emission Unit	Description	2004 EIC Point #
EU0240	Air stripper	AIR STRIPPER

<p align="center">PERMIT CONDITION EU0240-001 Voluntary Condition</p>
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Emission Limitation:

- 1) The permittee shall emit less than 0.56 tons of benzene from this air stripper in any consecutive 12-month period.
- 2) The permittee shall emit less than 1.11 tons of toluene from this air stripper in any consecutive 12-month period.
- 3) The permittee shall emit less than 1.11 tons of ethylbenzene from this air stripper in any consecutive 12-month period.
- 4) The permittee shall emit less than 1.11 tons of xylene from this air stripper in any consecutive 12-month period.
- 5) The permittee shall emit less than 3.89 tons total of volatile organic compounds (VOC) from this air stripper in any consecutive 12-month period.

Monitoring/Recordkeeping/Reporting:

No monitoring, recordkeeping, or reporting is required for this permit condition. Since this emission unit has a potential to emit of only 0.55 tons per year (tpy) of benzene, 1.10 tpy of toluene, 1.10 tpy of ethylbenzene, 1.10 tpy of xylene, and 3.85 tpy of VOC, the permittee is assumed always to be in compliance.

IV. Core Permit Requirements

The installation shall comply with each of the following emission limitations. Consult the appropriate sections in the Code of Federal Regulations (CFR) and Code of State Regulations (CSR) for the full text of the applicable requirements.

10 CSR 10-6.050 Start-up, Shutdown, and Malfunction Conditions

- 1) In the event of a malfunction, which results in excess emissions that exceed one hour, the permittee shall submit to the Director within two (2) business days in writing the following information:
 - i) Name and location of installation;
 - ii) Name and telephone number of person responsible for the installation;
 - iii) Name of the person who first discovered the malfunction and precise time and date that the malfunction was discovered.
 - iv) Identity of the equipment causing the excess emissions;
 - v) Time and duration of the period of excess emissions;
 - vi) Cause of the excess emissions;
 - vii) Air pollutants involved;
 - viii) Best estimate of the magnitude of the excess emissions expressed in the units of the applicable requirement and the operating data and calculations used in estimating the magnitude;
 - ix) Measures taken to mitigate the extent and duration of the excess emissions; and
 - x) Measures taken to remedy the situation that caused the excess emissions and the measures taken or planned to prevent the recurrence of these situations.
- 2) The permittee shall submit the paragraph (1) information list to the Director in writing at least ten (10) days prior to any maintenance, start-up or shutdown, which is expected to cause an excessive release of emissions that exceed one hour. If notice of the event cannot be given 10 days prior to the planned occurrence, it shall be given as soon as practicable prior to the release. If an unplanned excess release of emissions exceeding one hour occurs during maintenance, start-up or shutdown, the Director shall be notified verbally as soon as practical during normal working hours and no later than the close of business of the following working day. A written notice shall follow within 10 working days.
- 3) Upon receipt of a notice of excess emissions issued by an agency holding a certificate of authority under section 643.140, RSMo, the permittee may provide information showing that the excess emissions were the consequence of a malfunction, start-up or shutdown. The information, at a minimum, should be the paragraph (1) list and shall be submitted not later than fifteen (15) days after receipt of the notice of excess emissions. Based upon information submitted by the permittee or any other pertinent information available, the Director or the commission shall make a determination whether the excess emissions constitute a malfunction, start-up or shutdown and whether the nature, extent and duration of the excess emissions warrant enforcement action under section 643.080 or 643.151, RSMo.
- 4) Nothing in this rule shall be construed to limit the authority of the Director or commission to take appropriate action, under sections 643.080, 643.090 and 643.151, RSMo to enforce the provisions of the Air Conservation Law and the corresponding rule.
- 5) Compliance with this rule does not automatically absolve the permittee of liability for the excess emissions reported.

10 CSR 10-6.065 Operating Permit

The permittee shall file for renewal of this operating permit no sooner than eighteen months, nor later than six months, prior to the expiration date of this operating permit. The permittee shall retain the most current operating permit issued to this installation on-site and shall immediately make such permit available to any Missouri Department of Natural Resources personnel upon request.

10 CSR 10-6.110 Submission of Emission Data, Emission Fees and Process Information

- 1) The permittee shall complete and submit an Emissions Inventory Questionnaire (EIQ) in accordance with the requirements outlined in this rule.
- 2) The permittee shall pay an annual emission fee per ton of regulated air pollutant emitted according to the schedule in the rule. This fee is an emission fee assessed under authority of RSMo. 643.079 to satisfy the requirements of the Federal Clean Air Act, Title V.
- 3) The fees shall be due April 1 each year for emissions produced during the previous calendar year. The fees shall be payable to the Department of Natural Resources and shall be accompanied by the Emissions Inventory Questionnaire (EIQ) form or equivalent approved by the Director.

10 CSR 10-6.130 Controlling Emissions During Episodes of High Air Pollution Potential

This rule specifies the conditions that establish an air pollution alert (yellow/orange/red/purple), or emergency (maroon) and the associated procedures and emission reduction objectives for dealing with each. The permittee shall submit an appropriate emergency plan if required by the Director.

10 CSR 10-6.150 Circumvention

The permittee shall not cause or permit the installation or use of any device or any other means which, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission or air contaminant which violates a rule of the Missouri Air Conservation Commission.

10 CSR 10-6.170 Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin

- 1) The permittee shall not cause or allow to occur any handling, transporting or storing of any material; construction, repair, cleaning or demolition of a building or its appurtenances; construction or use of a road, driveway or open area; or operation of a commercial or industrial installation without applying reasonable measures as may be required to prevent, or in a manner which allows or may allow, fugitive particulate matter emissions to go beyond the premises of origin in quantities that the particulate matter may be found on surfaces beyond the property line of origin. The nature or origin of the particulate matter shall be determined to a reasonable degree of certainty by a technique proven to be accurate and approved by the director.
- 2) The permittee shall not cause nor allow to occur any fugitive particulate matter emissions to remain visible in the ambient air beyond the property line of origin.
- 3) Should it be determined that noncompliance has occurred, the director may require reasonable control measures as may be necessary. These measures may include, but are not limited to, the following:
 - i) Revision of procedures involving construction, repair, cleaning and demolition of buildings and their appurtenances that produce particulate matter emissions;
 - ii) Paving or frequent cleaning of roads, driveways and parking lots;
 - iii) Application of dust-free surfaces;
 - iv) Application of water; and
 - v) Planting and maintenance of vegetative ground cover.

10 CSR 10-6.180 Measurement of Emissions of Air Contaminants

- 1) The Director may require any person responsible for the source of emission of air contaminants to make or have made tests to determine the quantity or nature, or both, of emission of air contaminants from the source. The Director may specify testing methods to be used in accordance with good professional practice. The Director may observe the testing. All tests shall be performed by qualified personnel.
- 2) The Director may conduct tests of emissions of air contaminants from any source. Upon request of the Director, the person responsible for the source to be tested shall provide necessary ports in stacks or ducts and other safe and proper sampling and testing facilities, exclusive of instruments and sensing devices as may be necessary for proper determination of the emission of air contaminants.
- 3) The Director shall be given a copy of the test results in writing and signed by the person responsible for the tests.

10 CSR 10-3.030 Open Burning Restrictions

- 1) The permittee shall not conduct, cause, permit or allow a salvage operation, the disposal of trade wastes or burning of refuse by open burning.
- 2) Exception - Open burning of trade waste or vegetation may be permitted only when it can be shown that open burning is the only feasible method of disposal or an emergency exists which requires open burning.
- 3) Any person intending to engage in open burning shall file a request to do so with the Director. The request shall include the following:
 - i) The name, address and telephone number of the person submitting the application; The type of business or activity involved; A description of the proposed equipment and operating practices, the type, quantity and composition of trade wastes and expected composition and amount of air contaminants to be released to the atmosphere where known;
 - ii) The schedule of burning operations;
 - iii) The exact location where open burning will be used to dispose of the trade wastes;
 - iv) Reasons why no method other than open burning is feasible; and
 - v) Evidence that the proposed open burning has been approved by the fire control authority which has jurisdiction.
- 4) Upon approval of the open burning permit application by the Director, the person may proceed with the operation under the terms of the open burning permit. Be aware that such approval shall not exempt Waterloo Industries, Incorporated from the provisions of any other law, ordinance or regulation.
- 5) The permittee shall maintain files with letters from the Director approving the open burning operation and previous DNR inspection reports.

10 CSR 10-3.090 Restriction of Emission of Odors

No person may cause, permit or allow the emission of odorous matter in concentrations and frequencies or for durations that odor can be perceived when one volume of odorous air is diluted with seven volumes of odor-free air for two separate trials not less than 15 minutes apart within the period of one hour.

This requirement is not federally enforceable.

Title VI - 40 CFR Part 82 Protection of Stratospheric Ozone

- 1) The permittee shall comply with the standards for labeling of products using ozone-depleting substances pursuant to 40 CFR Part 82, Subpart E:

- i) All containers in which a class I or class II substance is stored or transported, all products containing a class I substance, and all products directly manufactured with a class I substance must bear the required warning statement if it is being introduced into interstate commerce pursuant to §82.106.
 - ii) The placement of the required warning statement must comply with the requirements pursuant to §82.108.
 - iii) The form of the label bearing the required warning statement must comply with the requirements pursuant to §82.110.
 - iv) No person may modify, remove, or interfere with the required warning statement except as described in §82.112.
- 2) The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR part 82, Subpart F, except as provided for motor vehicle air conditioners (MVACs) in Subpart B:
- i) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to §82.156.
 - ii) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to §82.158.
 - iii) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to §82.161.
 - iv) Persons disposing of small appliances, MVACs, and MVAC-like appliances must comply with recordkeeping requirements pursuant to §82.166. ("MVAC-like" appliance as defined at §82.152).
 - v) Persons owning commercial or industrial process refrigeration equipment must comply with the leak repair requirements pursuant to §82.156.
 - vi) Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to §82.166.
- 3) If the permittee manufactures, transforms, imports, or exports a class I or class II substance, the permittee is subject to all the requirements as specified in 40 CFR part 82, Subpart A, Production and Consumption Controls.
- 4) If the permittee performs a service on motor (fleet) vehicles when this service involves ozone-depleting substance refrigerant (or regulated substitute substance) in the motor vehicle air conditioner (MVAC), the permittee is subject to all the applicable requirements as specified in 40 CFR part 82, Subpart B, Servicing of Motor Vehicle Air conditioners. The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed. The term "MVAC" as used in Subpart B does not include the air-tight sealed refrigeration system used as refrigerated cargo, or system used on passenger buses using HCFC-22 refrigerant.

The permittee shall be allowed to switch from any ozone-depleting substance to any alternative that is listed in the Significant New Alternatives Program (SNAP) promulgated pursuant to 40 CFR part 82, Subpart G, Significant New Alternatives Policy Program. *Federal Only - 40 CFR part 82*

10 CSR 10-6.280 Compliance Monitoring Usage

- 1) The permittee is not prohibited from using the following in addition to any specified compliance methods for the purpose of submission of compliance certificates:
 - i) Monitoring methods outlined in 40 CFR Part 64;

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- ii) Monitoring method(s) approved for the permittee pursuant to 10 CSR 10-6.065, "Operating Permits", and incorporated into an operating permit; and
 - iii) Any other monitoring methods approved by the Director.
- 2) Any credible evidence may be used for the purpose of establishing whether a permittee has violated or is in violation of any such plan or other applicable requirement. Information from the use of the following methods is presumptively credible evidence of whether a violation has occurred by a permittee:
- i) Monitoring methods outlined in 40 CFR Part 64;
 - ii) A monitoring method approved for the permittee pursuant to 10 CSR 10-6.065, "Operating Permits", and incorporated into an operating permit; and
 - iii) Compliance test methods specified in the rule cited as the authority for the emission limitations.
- 3) The following testing, monitoring or information gathering methods are presumptively credible testing, monitoring, or information gathering methods:
- i) Applicable monitoring or testing methods, cited in:
 - A) 10 CSR 10-6.030, "Sampling Methods for Air Pollution Sources";
 - B) 10 CSR 10-6.040, "Reference Methods";
 - C) 10 CSR 10-6.070, "New Source Performance Standards";
 - D) 10 CSR 10-6.080, "Emission Standards for Hazardous Air Pollutants"; or
 - ii) Other testing, monitoring, or information gathering methods, if approved by the Director, that produce information comparable to that produced by any method listed above.

V. General Permit Requirements

10 CSR 10-6.065(6)(C)1.B Permit Duration

This permit is issued for a term of five (5) years, commencing on the date of issuance. This permit will expire at the end of this period unless renewed.

10 CSR 10-6.065(6)(C)1.C General Record Keeping and Reporting Requirements

1) Record Keeping

- i) All required monitoring data and support information shall be retained for a period of at least five (5) years from the date of the monitoring sample, measurement, report or application.
- ii) Copies of all current operating and construction permits issued to this installation shall be kept on-site for as long as the permits are in effect. Copies of these permits shall be made immediately available to any Missouri Department of Natural Resources' personnel upon request.

2) Reporting

- i) The permittee shall submit a report of all required monitoring by:
 - A) October 1st for monitoring which covers the January through June time period, and
 - B) April 1st for monitoring which covers the July through December time period.
 - C) Exception: Monitoring requirements which require reporting more frequently than semi annually shall report no later than thirty (30) days after the end of the calendar quarter in which the measurements were taken.
- ii) Each report must identify any deviations from emission limitations, monitoring, record keeping, reporting, or any other requirements of the permit, this includes deviations or Part 64 exceedances.
- iii) All reports shall be submitted to the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102.
- iv) Submit supplemental reports as required or as needed. Supplemental reports are required no later than ten (10) days after any exceedance of any applicable rule, regulation or other restriction. All reports of deviations shall identify the cause or probable cause of the deviations and any corrective actions or preventative measures taken.
 - A) Notice of any deviation resulting from an emergency (or upset) condition as defined in paragraph (6)(C)7 of 10 CSR 10-6.065 (Emergency Provisions) shall be submitted to the permitting authority either verbally or in writing within two working days after the date on which the emission limitation is exceeded due to the emergency, if the permittee wish to assert an affirmative defense. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that indicate an emergency occurred and that the permittee can identify the cause(s) of the emergency. The permitted installation must show that it was operated properly at the time and that during the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or requirements in the permit. The notice must contain a description of the emergency, the steps taken to mitigate emissions, and the corrective actions taken.
 - B) Any deviation that poses an imminent and substantial danger to public health, safety or the environment shall be reported as soon as practicable.
 - C) Any other deviations identified in the permit as requiring more frequent reporting than the permittee's semiannual report shall be reported on the schedule specified in the permit.

- D) These supplemental reports shall be submitted to the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after any exceedance of any applicable rule, regulation, or other restriction.
- v) Every report submitted shall be certified by the responsible official, except that, if a report of a deviation must be submitted within ten (10) days after the deviation, the report may be submitted without a certification if the report is resubmitted with an appropriate certification within 10 days after that, together with any corrected or supplemental information required concerning the deviation.
- vi) The permittee may request confidential treatment of information submitted in any report of deviation.

10 CSR 10-6.065(6)(C)1.D Risk Management Plans Under Section 112(r)

The permittee shall comply with the requirements of 40 CFR Part 68, Accidental Release Prevention Requirements. If the permittee has more than a threshold quantity of a regulated substance in process, as determined by 40 CFR Section 68.115, the permittee shall submit a Risk Management Plan in accordance with 40 CFR Part 68 no later than the latest of the following dates:

- 1) June 21, 19992);
- 2) Three (3) years after the date on which a regulated substance is first listed under 40 CFR Section 68.130; or
- 3) The date on which a regulated substance is first present above a threshold quantity in a process.

10 CSR 10-6.065(6)(C)1.F Severability Clause

In the event of a successful challenge to any part of this permit, all uncontested permit conditions shall continue to be in force. All terms and conditions of this permit remain in effect pending any administrative or judicial challenge to any portion of the permit. If any provision of this permit is invalidated, the permittee shall comply with all other provisions of the permit.

10 CSR 10-6.065(6)(C)1.G General Requirements

- 1) The permittee must comply with all of the terms and conditions of this permit. Any noncompliance with a permit condition constitutes a violation and is grounds for enforcement action, permit termination, permit revocation and re-issuance, permit modification or denial of a permit renewal application.
- 2) The permittee may not use as a defense in an enforcement action that it would have been necessary for the permittee to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.
- 3) The permit may be modified, revoked, reopened, reissued or terminated for cause. Except as provided for minor permit modifications, the filing of an application or request for a permit modification, revocation and re-issuance, or termination, or the filing of a notification of planned changes or anticipated noncompliance, will not stay any permit condition.
- 4) This permit does not convey any property rights of any sort, nor grant any exclusive privilege.
- 5) The permittee shall furnish to the Air Pollution Control Program, upon receipt of a written request and within a reasonable time, any information that the Air Pollution Control Program reasonably may require to determine whether cause exists for modifying, reopening, reissuing or revoking the permit or to determine compliance with the permit. Upon request, the permittee also shall furnish to the Air Pollution Control Program copies of records required to be kept by the permittee. The permittee may make a claim of confidentiality for any information or records submitted pursuant to 10 CSR 10-6.065(6)(C)1.

10 CSR 10-6.065(6)(C)1.H Incentive Programs Not Requiring Permit Revisions

No permit revision will be required for any installation changes made under any approved economic incentive, marketable permit, emissions trading, or other similar programs or processes provided for in this permit.

10 CSR 10-6.065(6)(C)1.I Reasonably Anticipated Operating Scenarios

Calculations tying general product throughput limitations to emission limitations were done for a worst-case scenario by assuming that Tanks 301 and 305 (EU0010 and EU0020) stored jet kerosene and Tanks 302, 303, 304, 310, 311, and 314 (EU0030 through EU0080) stored gasoline. Furthermore, the calculations for each tank were done as if that one tank were handling the entire throughput of the kind of fuel it stored. (Tank 301 emissions were calculated as if all the jet kerosene went through it and none went through Tank 305. Then Tank 305 emissions were calculated as if all the jet kerosene went through it and none went through Tank 301. Emissions for each of the other six tanks were calculated as if the entire throughput of gasoline went through that tank and none went through the other seven tanks.)

Doing the calculations this way makes the following operating scenarios allowable.

- 1) Operating scenarios which involve handling one or more general products with emissions less than or equal to those of jet kerosene and storing these general product(s) in Tank 301 (EU0010) and/or Tank 305 (EU0020) are allowable, providing that:
 - i) the facility is in compliance with all other permit conditions, and
 - ii) the facility's total throughput of such other general product(s) and the jet kerosene, taken together, does not exceed the throughput limitation for jet kerosene specified in this permit.
- 2) Operating scenarios which involve handling one or more general products with emissions less than or equal to those of gasoline and storing these general product(s) in Tank 302 (EU0030), Tank 303 (EU0080), Tank 304 (EU0040), Tank 310 (EU0050), Tank 311 (EU0060), and/or Tank 314 (EU0070) are allowable, providing that:
 - i) the facility is in compliance with all other permit conditions, and
 - ii) the facility's total throughput of such other general product(s) and the gasoline, taken together, does not exceed the throughput limitation for gasoline specified in this permit.
- 3) There are no restrictions on how the total allowable throughput of jet kerosene and general products and transmix with lower emissions than jet kerosene is divided between Tank 301 (EU0010) and Tank 305 (EU0020).
- 4) There are no restrictions on how the total allowable throughput of gasoline and general products and transmix with lower emissions than gasoline is divided among Tank 302 (EU0030), Tank 303 (EU0080), Tank 304 (EU0040), Tank 310 (EU0050), Tank 311 (EU0060), and Tank 314 (EU0070).

10 CSR 10-6.065(6)(C)3 Compliance Requirements

- 1) Any document (including reports) required to be submitted under this permit shall contain a certification signed by the responsible official.
- 2) Upon presentation of credentials and other documents as may be required by law, the permittee shall allow authorized officials of the Missouri Department of Natural Resources, or their authorized agents, to perform the following (subject to the installation's right to seek confidential treatment of information submitted to, or obtained by, the Air Pollution Control Program):
 - i) Enter upon the premises where a permitted installation is located or an emissions-related activity is conducted, or where records must be kept under the conditions of this permit;
 - ii) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

- iii) Inspect, at reasonable times and using reasonable safety practices, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and
 - iv) As authorized by the Missouri Air Conservation Law, Chapter 643, RSMo or the Act, sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the terms of this permit, and all applicable requirements as outlined in this permit.
- 3) All progress reports required under an applicable schedule of compliance shall be submitted semiannually (or more frequently if specified in the applicable requirement). These progress reports shall contain the following:
- i) Dates for achieving the activities, milestones or compliance required in the schedule of compliance, and dates when these activities, milestones or compliance were achieved, and
 - ii) An explanation of why any dates in the schedule of compliance were not or will not be met, and any preventative or corrective measures adopted.
- 4) The permittee shall submit an annual certification that it is in compliance with all of the federally enforceable terms and conditions contained in this permit, including emissions limitations, standards, or work practices. These certifications shall be submitted annually by April 1st, unless the applicable requirement specifies more frequent submission. These certifications shall be submitted to EPA Region VII, 901 North 5th Street, Kansas City, Kansas 66101, as well as the Air Pollution Control Program, Enforcement Section, P.O. Box 176, Jefferson City, MO 65102. All deviations and Part 64 exceedances and excursions must be included in the compliance certifications. The compliance certification shall include the following:
- i) The identification of each term or condition of the permit that is the basis of the certification,
 - ii) The current compliance status, as shown by monitoring data and other information reasonably available to the installation,
 - iii) Whether compliance was continuous or intermittent,
 - iv) The method(s) used for determining the compliance status of the installation, both currently and over the reporting period, and
 - v) Such other facts as the Air Pollution Control Program will require in order to determine the compliance status of this installation.

10 CSR 10-6.065(6)(C)6 Permit Shield

- 1) Compliance with the conditions of this permit shall be deemed compliance with all applicable requirements as of the date that this permit is issued, provided that:
- i) The applicable requirements are included and specifically identified in this permit; or
 - ii) The permitting authority, in acting on the permit revision or permit application, determines in writing that other requirements, as specifically identified in the permit, are not applicable to the installation, and this permit expressly includes that determination or a concise summary of it.
- 2) Be aware that there are exceptions to this permit protection. The permit shield does not affect the following:
- i) The provisions of section 303 of the Act or section 643.090, RSMo concerning emergency orders,
 - ii) Liability for any violation of an applicable requirement which occurred prior to, or was existing at, the time of permit issuance,
 - iii) The applicable requirements of the acid rain program,
 - iv) The Director's authority to obtain information, or
 - v) Any other permit or extra-permit provisions, terms or conditions expressly excluded from the permit shield provisions.

10 CSR 10-6.065(6)(C)7 Emergency Provisions

- 1) An emergency or upset as defined in 10 CSR 10-6.065(6)(C)7. shall constitute an affirmative defense to an enforcement action brought for noncompliance with technology-based emissions limitations. To establish an emergency- or upset-based defense, the permittee must demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence, the following:
 - i) That an emergency or upset occurred and that the permittee can identify the source of the emergency or upset,
 - ii) That the installation was being operated properly,
 - iii) That the permittee took all reasonable steps to minimize emissions that exceeded technology-based emissions limitations or requirements in this permit, and
 - iv) That the permittee submitted notice of the emergency to the Air Pollution Control Program within two working days of the time when emission limitations were exceeded due to the emergency. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and any corrective actions taken.
- 2) Be aware that an emergency or upset shall not include noncompliance caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

10 CSR 10-6.065(6)(C)8 Operational Flexibility

An installation that has been issued a Part 70 operating permit is not required to apply for or obtain a permit revision in order to make any of the changes to the permitted installation described below if the changes are not Title I modifications, the changes do not cause emissions to exceed emissions allowable under the permit, and the changes do not result in the emission of any air contaminant not previously emitted. The permittee shall notify the Air Pollution Control Program and the Director at least seven (7) days in advance of these changes, except as allowed for emergency or upset conditions. Emissions allowable under the permit means a federally enforceable permit term or condition determined at issuance to be required by an applicable requirement that established an emissions limit (including a work practice standard) or a federally enforceable emissions cap that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject.

- 1) Section 502(b)(10) changes. Changes that, under section 502(b)(10) of the Act, contravene an express permit term may be made without a permit revision, except for changes that would violate applicable requirements of the Act or contravene federally enforceable monitoring (including test methods), record keeping, reporting or compliance requirements of the permit.
 - i) Before making a change under this provision, The permittee shall provide advance written notice to the Air Pollution Control Program and to the Director, describing the changes to be made, the date on which the change will occur, and any changes in emission and any permit terms and conditions that are affected. The permittee shall maintain a copy of the notice with the permit, and this agency shall place a copy with the permit in the public file. Written notice shall be provided to the Director and this agency at least seven (7) days before the change is to be made. If less than 7 days notice is provided because of a need to respond more quickly to these unanticipated conditions, The permittee shall provide notice to the Director and the permitting authority as soon as possible after learning of the need to make the change.
 - ii) The permit shield shall not apply to these changes.

10 CSR 10-6.065(6)(C)9 Off-Permit Changes

- 1) Except as noted below, The permittee may make any change in its permitted operations, activities or emissions that is not addressed in, constrained by or prohibited by this permit without obtaining a permit revision. Insignificant activities listed in the application, but not otherwise addressed in or prohibited by this permit, shall not be considered to be constrained by this permit for purposes of the off-permit provisions of this section. Off-permit changes shall be subject to the following requirements and restrictions:
 - i) The change must meet all applicable requirements of the Act and may not violate any existing permit term or condition; The permittee may not change a permitted installation without a permit revision, if this change is subject to any requirements under Title IV of the Act or is a Title I modification;
 - ii) The permittee must provide written notice of the change to the permitting authority and to the Director no later than the next annual emissions report. This notice shall not be required for changes that are insignificant activities under paragraph (6)(B)3. of this rule. This written notice shall describe each change, including the date, any change in emissions, pollutants emitted and any applicable requirement that would apply as a result of the change.
 - iii) The permittee shall keep a record describing all changes made at the installation that result in emissions of a regulated air pollutant subject to an applicable requirement and the emissions resulting from these changes; and
 - iv) The permit shield shall not apply to these changes.

10 CSR 10-6.020(2)(R)12 Responsible Official

The application utilized in the preparation of this was signed by C. A. Hill, Manager, Mid-Continent Pipelines and Terminals. Per 10 CSR 10-6.020(2)(R)12(A), either of the following duly authorized representatives may sign for the responsible official.

Margaret Yaege, General Manager, Pipelines and Terminals

Dave Bishop, Manager, Pipeline and Terminal Logistics

If any of these persons terminates employment, or is reassigned different duties such that a different person becomes a responsible person to represent and bind the installation in environmental permitting affairs, the permittee of this air contaminant source shall notify the Director of the Air Pollution Control Program of the change. Said notification shall be in writing and shall be submitted within thirty (30) days of the change. The notification shall include the name and title of the new person assigned by the source permittee to represent and bind the installation in environmental permitting affairs, and the name and title of the person he or she replaces. All representations, agreement to terms and conditions and covenants made by the former responsible persons that were used in the establishment of limiting permit conditions on this permit will continue to be binding on the installation until such time that a revision to this permit is obtained that would change said representations, agreements and covenants.

10 CSR 10-6.065(6)(E)6 Reopening Permit For Cause

In accordance with 10 CSR 10-6.065(6)(E)6.A., this permit may be reopened with cause if:

- 1) The Missouri Department of Natural Resources (MDNR) receives notice from the Environmental Protection Agency (EPA) that a petition for disapproval of a permit pursuant to 40 CFR § 70.8(d) has been granted, provided that the reopening may be stayed pending judicial review of that determination,
- 2) MDNR or EPA determines that the permit contains a material mistake or that inaccurate statements were made which resulted in establishing the emissions limitation standards or other terms of the permit,

- 3) Additional applicable requirements under the Act become applicable to the installation; however, reopening on this ground is not required if the permit has a remaining term of less than three (3) years, the effective date of the requirement is later than the date on which the permit is due to expire, or the additional applicable requirements are implemented in a general permit that is applicable to the installation and the installation receives authorization for coverage under that general permit,
- 4) The installation is an affected source under the acid rain program and additional requirements (including excess emissions requirements), become applicable to that source, provided that, upon approval by EPA, excess emissions offset plans shall be deemed to be incorporated into the permit; or
- 5) MDNR or EPA determines that the permit must be reopened and revised to assure compliance with applicable requirements.

10 CSR 10-6.065(6)(E)1.C Statement of Basis

This permit is accompanied by a statement setting forth the legal and factual basis for the draft permit conditions (including references to applicable statutory or regulatory provisions). This Statement of Basis, while referenced by the permit, is not an actual part of the permit.

VI. Attachments

Attachment A

VOC Emissions Tracking Record for Tank Roof Landings and Tank Cleanings

Company Name: ConocoPhillips Co. – Mt. Vernon Products Terminal
 Facility Location: Rural Route 2, Box 115, Mt. Vernon, MO 65712
 Facility ID: 109-0036 Lawrence County

Page 1 of 3
 Columns 1 through 20

This spreadsheet is used to calculate emissions from landing a floating roof on the support legs for such activities as change of service, seasonal Reid Vapor Pressure (RVP) change, tank emptying for cleaning, etc. The calculations are taken from "Tentative Method for Determining Storage Tank Evaporation Losses from Floating Roof Landings" prepared for the American Petroleum Institute by Robert L. Ferry and issued final on January 23, 2002.

For month of _____ in year of _____

1	2	3	4	5	6 (D)	7 (nd)
Tank ID	Date of Roof Landing	Product	Tank Type 1 = IFR 2 = EFR	Drain Method 0 = drain dry 1 = IFR liquid heal 2 = EFR liquid heal	Diameter (ft)	Idle Time (days) Default = 1
Example tank	05/27/2005	Gasoline RVP 13	1	1	134	1

...

8 (s)	9 (hd)	10 (H)	11 (H _e)	12 (H _v)	13 (V _v)	14 (a)
Bottom Slope (in/ft) Default = 0.25	Height of Roof Deck (ft) Default = 4	Height of Stock Liquid (ft) 0 for drain dry	Effective Stock Liquid Height (ft)	Height of Vapor Space (ft)	Volume of Vapor Space (ft ³)	Paint Solar Absorptance from AP-2 Table 7.1-6 (dimensionless)
0.25	4	0.5	0.965	3.5	49334.11	0.17

...

15 (T _{max})	16 (T _{min})	17 (I)	18 (T _{ave})	19 (T)	20 (ΔT _v)
Daily Maximum Ambient Temp from Tanks (°F)	Daily Minimum Ambient Temp from Tanks (°F)	Daily Total Solar Insolation from Tanks (BTU / ft ² day)	Average Ambient Daily Temp (°R) = 460 + (T _{max} + T _{min}) / 2	Stock Liquid Surface Temp (°R) = T _{ave} + [0.56(6a-1) + 0.0079af]	Vapor Space Temp Range (°F or °R)
76	53.2	1293.5	524.6	526.3	22.6

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Attachment A

VOC Emissions Tracking Record for Tank Roof Landings and Tank Cleanings

Company Name: ConocoPhillips Co. - Mt. Vernon Products Terminal
 Facility Location: Rural Route 2, Box 115, Mt. Vernon, MO 65712
 Facility ID: 109-0036 Lawrence County

Page 2 of 3
 Columns 21 through 38

For month of _____ in year of _____

21 (RVP)	22 (S _d)	23 (A)	24 (B)	25 (P)	26 (P _a)
Stock Reid Vapor Pressure (15, 13, 9, or 0.022)	Stock ASTM Distillation Slope (3, 3, 3, 2 respectively)	$= 15.64 - 1.854S_d^{0.5} - (0.8742 - 0.3280S_d^{0.5})\ln(RVP)$	$= 8742 - 1042S_d^{0.5} - (1049 - 179.4S_d^{0.5})\ln(RVP)$	Stock True Vapor Pressure (psia) = e ^x where x = A - (B/T)	Atmospheric Pressure (psia)
13	3	11.6	5041.800629	7.884	14.090
...					

27 (P*)	28 (M _v)	29 (W _l)	30 (KE)	31 (S)	32 (L _{swind}) _d
Vapor Pressure Function $= [P/P_a] / [1 + (1 - P/P_a)^{0.5}]^2$	Stock Vapor Molecular Weight (lb / lb mole)	Stock Liquid Density (lb / gal)	Vapor Space Expansion Factor $= \{\Delta T / T\} + \{0.5BPAT / [T^2(P_a - P)]\}$	Filling Saturation Factor from Table 1 In Ferry's API Document	Wind Losses from Equation 14 in Ferry's API Document (lb)
0.202	62	5.60	0.304	0.60	957.3802083
...					

33 (L _s)	34 (L _r)	35 (C _{sf})	36 (C _{sf} S)	37 (K _s)	38 (L _t)
Standing Losses from Equation 5 in Ferry's API Document (lb)	Filling Losses from Equation 20 in Ferry's API Document (lb)	Filling Saturation Correction Factor	Note if product of C _{sf} and S is greater than or equal to 0.15	Standing Idle Saturation Factor = 1 / (1 + 0.053PH _v)	Total Losses (lb) = L _s + L _r
526.788164	2561.711649	0.00		0.40609	3089
...					

Attachment A

VOC Emissions Tracking Record for Tank Roof Landings and Tank Cleanings

Company Name: ConocoPhillips Co. - Mt. Vernon Products Terminal
 Facility Location: Rural Route 2, Box 115, Mt. Vernon, MO 65712
 Facility ID: 109-0036 Lawrence County

Page 3 of 3
 Columns 39 through 41

For month of _____ in year of _____

39 (L_{event})	40 (L_{month})
Total Losses for This Event (tons) = $L_{event} / 2000$	Total Losses for This Month (tons) = running total of L_{event}
1.544	3.089
...	...

Total the final L_{month} (the bottom figure in Column 40) from this record and the L_{month} s from the records for the previous 11 months to get L_{year} , the running 12-month total of VOC emissions for tank roof landings and tank cleanings

L_{year} (tons) = _____

If L_{year} is less than 25.0 tons, the facility is in compliance with Permit Condition EU0150-001.

Attachment B
Calculation of Additive Throughput

Company Name: ConocoPhillips Co. – Mt. Vernon Products Terminal
Facility Location: Rural Route 2, Box 115, Mt. Vernon, MO 65712
Facility ID: 109-0036 Lawrence County

This attachment may be used to demonstrate that Tanks 8001, 8003, 8004, 8005, 8006, and 8010 for the storage of additives (EU0090 through EU0140) are in compliance with Permit Condition (EU0090-EU0140)-001 as long as the permittee is in compliance with Permit Conditions EU0160-002 and EU0180-001.

Since additives are injected at the loading racks when petroleum products are loaded into tank trucks, the additive throughput is dependent on the throughput of the petroleum products being loaded. The maximum injection rate for additives is 1.35 gallons of additive per thousand gallons of petroleum product.

Permit Condition EU0160-002 limits the throughput of petroleum products at the General Products / Light Oil Loading Rack to 500,000,000 gallons per year. Permit Condition EU0180-001 limits the throughput at the Propane Loading Rack to 105,000,000 gallons per year. Since different additives are used for different petroleum products, an additive tank may be used with only one loading rack, not both. For a worst-case scenario, assume that each tank is used at the loading rack with the higher throughput, and for its entire throughput. Then the maximum throughput for each additive tank can be calculated as follows.

$$\text{Additive Throughput} = \frac{1.35 \text{ gal Additive}}{1000 \text{ gal Petroleum Product}} \times \left(\frac{5 \times 10^8 \text{ gal Petroleum Product}}{\text{yr}} \right) = \frac{675000 \text{ gal Additive}}{\text{yr}}$$

Therefore, compliance with the throughput limitations for petroleum products at the racks will also result in compliance with the throughput limitations for additives, and no additional monitoring, recordkeeping, or reporting requirements are necessary for Permit Condition (EU0140-EU0190)-001.

In reality, at least one of the additive tanks will be used at the loading rack with the lower throughput, and multiple tanks will be used for the entire throughput. Furthermore, the emissions from the additives are so low that any fluctuation would not be significant enough to affect the facility's synthetic minor source status.

STATEMENT OF BASIS

Permit Reference Documents

These documents were relied upon in the preparation of the operating permit. Because they are not incorporated by reference, they are not an official part of the operating permit.

- 1) Part 70 Operating Permit Application, received January 21, 2005, revised March 21st, 2005 and May 19, 2005
- 2) 2004 Emissions Inventory Questionnaire, received March 14, 2005
- 3) United States Environmental Protection Agency document *Compilation of Air Pollutant Emission Factors: AP-42, Fifth Edition, Volume I, Stationary Point and Area Sources*
- 4) United States Environmental Protection Agency document *Gasoline Distribution Industry (Stage I) Background Information for Promulgated Standards Final EIS (EPA-453/R-94-002b)*, Chapter 7.0 Cargo Tank Requirements, Section 7.1 Emission Factors

Historical Notes on Emission Units

The following historical notes explain some of the differences between the emission units in this operating permit, Operating Permit OP-2000-118, and the construction permits and EIQs on file for this installation.

- 1) Tanks 390 through 393 were added under Construction Permit 1293-008 for a butane additive blending system. The butane was used to adjust the Reid vapor pressure (RVP) of gasoline. Butane/gasoline price margins changed, and the system became unprofitable and was abandoned. These tanks are now used for propane storage.
- 2) The air stripper was added under Construction Permit 0895-018 for use with the rack sump, oil/water separator, and wastewater tank process. It proved to be too expensive there. The wastewater is now sent offsite for disposal. The air stripper is now used at the pump station.

Applicable Requirements Included in the Operating Permit but Not in the Application or Previous Operating Permits

In the operating permit application, the installation indicated they were not subject to the following regulation(s). However, in the review of the application, the agency has determined that the installation is subject to the following regulation(s) for the reasons stated.

None.

Other Air Regulations Determined Not to Apply to the Operating Permit

The Air Pollution Control Program (APCP) has determined that the following requirements are not applicable to this installation at this time for the reasons stated.

- 1) 10 CSR 10-6.100, Alternate Emission Limits does not apply to this installation, because it is not in a non-attainment area for ozone.

Construction Permit Revisions

The following construction permit revisions are carried over from Operating Permit 2000-118, the previous operating permit.

- 1) Construction Permit 0895-018 lists 10 CSR 10-5.090, Restriction of Emission of Visible Air Contaminants, as applicable. This regulation does not apply to outstate Missouri.
- 2) Construction Permit 1293-008 established the special condition for the butane additive blending system that "all butane or liquid propane gas entering the bullets shall be received directly off the

- pipeline.” The bullets referred to are tanks 390 through 393. In the previous permit application, ConocoPhillips Co. – Mt. Vernon Products Terminal requested that the construction permit be revised to allow butane or liquid propane gas entering the bullets to be received either from the pipeline or from Mount Vernon Propane Cavern. The Missouri Department of Natural Resources agreed to this. Therefore, the bullets shall be allowed to receive butane or liquid propane gas either from the pipeline or from Mount Vernon Propane Cavern.
- 3) Construction Permit 0788-010A established the authority for ConocoPhillips Co. – Mt. Vernon Products Terminal to construct and operate Tank 310. The permit contained a condition that all emissions standards and construction, testing, reporting, recordkeeping, and monitoring requirements which are a part of 10 CSR 10-6.070, New Source Performance Regulations, and 10 CFR Part 60 Subpart Kb be adhered to throughout the operational life of the tank. ConocoPhillips Co. – Mt. Vernon Products Terminal pointed out that the tank was constructed prior to June 11, 1973 and then moved to Mt. Vernon in 1988 without any physical modifications, so it was exempt from NSPS Subpart Kb. The Missouri Department of Natural Resources agreed with this.
 - 4) Construction Permit 0798-038 lists 10 CSR 10-3.080, Restriction of Emission of Visible Air Contaminants, as applicable. This regulation does not apply, because emissions from diesel or fuel tanks are not visible.

NSPS Applicability

- 1) Tanks 301 and 305 (EU0010 and EU0020) are exempt from 10 CSR 10-6.070 New Source Performance Standards and 40 CFR 60 Subparts K, Ka, Kb, and A, per §60.110b(b), because they store only liquids with a maximum true vapor pressure less than 3.5 kiloPascals (kPa.) The emission limitation in Permit Condition (EU0010 and EU0020)-001 ensures this. Note: This permit condition does not require monitoring or reporting of vapor pressure, only documentation that the liquids stored are either Jet Kerosene or have a maximum true vapor pressure less than this limit. The chemical database in TANKS 4.0, software provided by the United States Environmental Protection Agency, gives the vapor pressure of Jet Kerosene at 100 °F as 0.029 pounds per square inch atmospheric (0.00056 kPa.). It is physically impossible, at atmospheric conditions, for the vapor pressure of Jet Kerosene to approach 3.5 kPa.
- 2) Tanks 302, 304, 310, 311, and 314 (EU0030 through EU0070) are exempt from 10 CSR 10-6.070 New Source Performance Standards and 40 CFR 60 Subparts Kb and A, per §60.110b(a), because they were constructed prior to June 11, 1973. However, this installation is subject to a MACT regulation (Subpart R.) That MACT regulation references parts of 40 CFR 60 Subparts Kb and A rather than repeating their wording.
- 3) Per 40 CFR §60.110b(a), Tank 303 (EU0080) is subject to 10 CSR 10-6.070, New Source Performance Standards and to 40 CFR 60, Subpart A General Provisions, and Subpart Kb Standards of Performance for Volatile Organic Liquid Storage Vessels. It has a design capacity greater than or equal to 75 cubic meters; contains a volatile organic liquid that, as stored, has a maximum true vapor pressure greater than or equal to 76.6 kiloPascals; and was constructed after July 23, 1984.

None of the other New Source Performance Standards (NSPS) apply to this installation.

MACT Applicability

- 1) This installation's current permit includes 10 CSR 10-6.075 Maximum Available Control Technology Regulations and 40 CFR Part 63, Subpart A General Provisions and Subpart R National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline

Breakout Stations). EPA policy for MACT, stated in a 1995 memo from the Director to the Regional Offices, is "once in, always in." Therefore this permit also includes these regulations.

- 2) Tanks 301 and 305 (EU0010 and EU0020) are exempt from this MACT because 40 CFR §63.423 only applies to *gasoline* storage tanks, and these two tanks are not used to store gasoline. The emission limitation in Permit Condition (EU0010 and EU0020)-001 ensures this.

None of the other Maximum Available Control Technology regulations (MACT) apply to this installation.

NESHAP Applicability

- 1) In the permit application and according to APCP records, there was no indication that any Missouri Air Conservation Law, Asbestos Abatement, 643.225 through 643.250; 10 CSR 10-6.080, Emission Standards for Hazardous Air Pollutants, Subpart M, National Standards for Asbestos; and 10 CSR 10-6.250, Asbestos Abatement Projects - Certification, Accreditation, and Business Exemption Requirements apply to this installation. The installation is subject to these regulations if they undertake any projects that deal with or involve any asbestos containing materials. None of the installation's operating projects underway at the time of this review deal with or involve asbestos containing material. Therefore, the above regulations were not cited in the operating permit. If the installation should undertake any construction or demolition projects in the future that deal with or involve any asbestos containing materials, the installation must follow all of the applicable requirements of the above rules related to that specific project.

None of the other National Emission Standards for Hazardous Air Pollutants (NESHAP) apply to this installation.

CAM Applicability

40 CFR Part 64 Compliance Assurance Monitoring (CAM) is not applicable because the facility is not a major source of hazardous air pollutants.

Other Regulatory Determinations

The reasons for classifying emission units as without limitations follows.

- 1) The underground cavern for propane storage has no air emissions other than those covered by "facility-wide fugitive emissions from valves, flanges, and pumps."
- 2) The dryer for propane from cavern has no air emissions other than those covered by "facility-wide fugitive emissions from valves, flanges, and pumps."
- 3) The air emissions from the flare used to control emissions from LPG truck disconnects and LPG maintenance events (FLARE 2) are insignificant. The application for this permit gives them as 0 tons per year (tpy) of PM-10, 0 tpy of SO_x, 5.0X10⁻⁵ tpy of NO_x, 1.03X10⁻⁴ tpy of VOC, 2.72X10⁻⁴ tpy of CO, 0 tpy of lead, and 0 tpy of HAP.
- 4) The fourteen tanks for storage of LPG or transmix have no air emissions other than those covered by "facility-wide fugitive emissions from valves, flanges, and pumps" and "maintenance activities on propane system."
- 5) The maintenance activities on propane tanks (PROP-MAINT) produce insignificant HAP and VOC emissions – 0.00 ton per year HAP and less than 0.01 tpy VOC

Other Regulations Not Cited in the Operating Permit or the Above Statement of Basis

Any regulation which is not specifically listed in either the Operating Permit or in the above Statement of Basis does not appear, based on this review, to be an applicable requirement for this installation for one or more of the following reasons:

- 1) The specific pollutant regulated by that rule is not emitted by the installation;
- 2) The installation is not in the source category regulated by that rule;
- 3) The installation is not in the county or specific area that is regulated under the authority of that rule;
- 4) The installation does not contain the type of emission unit which is regulated by that rule;
- 5) The rule is only for administrative purposes.

Should a later determination conclude that the installation is subject to one or more of the regulations cited in this Statement of Basis or other regulations which were not cited, the installation shall determine and demonstrate, to the Air Pollution Control Program's satisfaction, the installation's compliance with that regulation(s). If the installation is not in compliance with a regulation which was not previously cited, the installation shall submit to the ACP a schedule for achieving compliance for that regulation(s).

Calculations Related to Voluntary Conditions

ConocoPhillips – Mt. Vernon Products Terminal volunteered to comply with Permit Condition PW001 – less than 249.5 tons of volatile organic compounds (VOC), less than 9.5 tons of any individual hazardous air pollutant (HAP), and less than 24.5 tons total of all HAP from the entire installation in any consecutive 12-month period. This means that, even though the installation is a major source for purposes of Title IV (Part 70) permitting, its emissions are too low for New Source Review (NSR) regulations to apply. The plant wide permit condition is based on compliance with all the emission unit specific emission limitations. Many of these emission unit specific emission limitations are stated in units other than tons per year. For example, they may be stated in gallons of throughput or number of tank roof landings. The following calculations, most of which are taken from the permit application, demonstrate that if all of these varied limitations are met, then Permit Condition PW001 will be met.

See “10 CSR 10-6.065(6)(C)1.I Reasonably Anticipated Operating Scenarios” in the General Permit Requirements section of the permit before proceeding.

Calculations of VOC emissions from tanks were done with TANKS 4.0, software provided by the United States Environmental Protection Agency.

Unless otherwise specified, equations and tables used in the calculations are from the United States Environmental Protection Agency document *Compilation of Air Pollutant Emission Factors: AP-42, Fifth Edition, Volume I, Stationary Point and Area Sources*. Most are from Chapter 7.1 Organic Liquid Storage Tanks. Unless otherwise specified, when a table number or an equation number is given, it is the number in this document.

The calculations are in the following order.

- | | |
|-----------|--|
| Page SB-6 | Regular Gasoline Speciation for Mt. Vernon. This data is used in Table 1 to split VOC emitted from “gasoline” handling and storage into HAP. |
| Page SB-6 | Distillate (Kerosene and Diesel) Speciation for Mt. Vernon. This data is used in Table 1 to split VOC emitted from “jet kerosene” handling and storage |

into HAP.

- Page SB-7 Annual VOC and Speciated HAP Emissions Summary. This shows annual totals under the emission limitations of Permit Condition PW001. Each detail row is supported by one of the following tables or calculations.
- Page SB-11 Annual VOC Emissions from Tank 301
- Page SB-17 Annual VOC Emissions from Tank 305
- Page SB-23 Annual VOC Emissions from Tank 302
- Page SB-29 Annual VOC Emissions from Tank 304
- Page SB-35 Annual VOC Emissions from Tank 310
- Page SB-41 Annual VOC Emissions from Tank 311
- Page SB-47 Annual VOC Emissions from Tank 314
- Page SB-52 Annual VOC Emissions from Tank 303
- Page SB-58 Annual VOC Emissions from Tank 8001
- Page SB-64 Annual VOC Emissions from Tank 8003
- Page SB-70 Annual VOC Emissions from Tank 8004
- Page SB-76 Annual VOC Emissions from Tank 8005
- Page SB-82 Annual VOC Emissions from Tank 8006
- Page SB-88 Annual VOC Emissions from Tank 8010
- Page SB-94 Annual Fugitive VOC Emissions from Tank Roof Landings
- Page SB-99 Annual Fugitive VOC Emissions from General Products/Light Oil Loading Rack
- Page SB-100 Annual Emissions from Flare 1 for General Products/Light Oil Loading Rack
- Page SB-101 Annual Emissions from Maintenance of Propane System
- Page SB-102 Annual Fugitive VOC Emissions from Propane Loading Rack
- Page SB-103 Annual Facility-wide VOC Fugitive Emissions from Valves, Flanges, Pumps, etc.
- Page SB-104 Annual VOC Emissions from Emergency Generator
- Page SB-105 Annual VOC Emissions from Meter Provings
- Page SB-106 Annual VOC Emissions from Rack Sump with Oil/Water Separator
- Page SB-107 Annual VOC Emissions from Wastewater Tank
- Page SB-108 Annual VOC Emissions from Air Stripper

Regular Gasoline Speciation for Mt. Vernon

Compound	% Weight of Compound In Vapor	Source of Data
Benzene	0.5255	Data from 1995 Radian/API study
Toluene	0.5828	EPA 745-B00-002, Table 3-4 for Gasoline, various grades
Ethylbenzene	0.0416	EPA 745-B00-002, Table 3-4 for Gasoline, various grades
o-Xylene	0.0403	EPA 745-B00-002, Table 3-4 for Gasoline, various grades
m-Xylene	0.0515	EPA 745-B00-002, Table 3-4 for Gasoline, various grades
p-Xylene	0.0546	EPA 745-B00-002, Table 3-4 for Gasoline, various grades
Hexane	0.4734	EPA 745-B00-002, Table 3-4 for Gasoline, various grades
Isooctane	0.6962	Data from API study
Cumene	0.2333	Data from API study
Naphthalene	0.0002	EPA 745-B00-002, Table 3-4 for Gasoline, various grades
MTBE	0.4076	Maximum allowed under Missouri DNR regulations
TEL	1.59E-08	Data from EPA Guidance for Lead Compounds
Phenol	3.35E-05	EPA 745-B00-002, Table 3-4 for Gasoline, various grades

Distillate (Kerosene and Diesel) Speciation for Mt. Vernon

Compound	% Weight of Compound In Vapor	Source of Data
Benzene	0.6451	Data from EPA TRI Guidance Document
Toluene	5.8044	Data from EPA TRI Guidance Document
Ethylbenzene	1.8177	Data from EPA TRI Guidance Document
o-Xylene	0.9323	Data from EPA TRI Guidance Document
m-Xylene	1.1894	Data from EPA TRI Guidance Document
p-Xylene	1.2622	Data from EPA TRI Guidance Document
Hexane	26.1569	Assume Kerosene from 1995 Radian Study for API
Isooctane	1.4940	Data from API study
Cumene	0.7918	Data from API study
Naphthalene	0.2265	Data from API study
MTBE	0.0000	
TEL	5.55E-05	Data from EPA Guidance for Lead Compounds
Phenol	0.2592	Data from EPA TRI Guidance Document

Annual VOC and Speciated HAP Emissions Summary

Company Name: ConocoPhillips Co. – Mt. Vernon Products Terminal
 Facility Location: Rural Route 2, Box 115, Mt. Vernon, MO 65712 Lawrence County
 Facility ID: 109-0036

Page 1 of 4
 Columns 1, 2-9

Col. 1 Emission Point	Col. 2 VOC Emissions (tpy)	Col. 3 Benzene % by Weight	Col. 4 Toluene % by Weight	Col. 5 Ethyl- benzene % by Weight	Col. 6 o-Xylene % by Weight	Col. 7 m-Xylene % by Weight	Col. 8 p-Xylene % by Weight	Col. 9 Hexane % by Weight
301	1.764	0.6451	5.8044	1.8177	0.9323	1.1894	1.2622	26.1569
305	0.668	0.6451	5.8044	1.8177	0.9323	1.1894	1.2622	26.1569
302	4.767	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
304	5.552	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
310	3.633	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
311	8.518	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
314	1.329	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
303	9.582	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
8001	0.034	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
8003	0.010	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
8004	0.016	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
8005	0.023	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
8006	0.010	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
8010	0.024	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
ROOF LANDINGS	25.000	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
GR/LOR	20.534	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
FLARE 1	28.499	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
PROP MAINT	0.005							
PR	1.136							
FUGITIVES	1.996	1.8000	7.2120	1.6050	2.3900	2.3900	2.3900	1.0000
GENERATOR	0.368	0.6451	5.8044	1.8177	0.9323	1.1894	1.2622	26.1569
PROVE	1.750	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
O/W/SEP	2.628	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
WW	2.628	0.5255	0.5828	0.0416	0.0403	0.0515	0.0546	0.4734
AIR STRIPPER	3.836							
Total	126.2							

Annual VOC and Speciated HAP Emissions Summary, continued

Company Name: ConocoPhillips Co. - Mt. Vernon Products Terminal
 Facility Location: Rural Route 2, Box 115, Mt. Vernon, MO 65712 Lawrence County
 Facility ID: 109-0036

Page 2 of 4
 Columns 1, 10-15

Col. 1 Emission Point	Col. 10 Isooctane % by Weight	Col. 11 Cumene % by Weight	Col. 12 Naphtha- lene % by Weight	Col. 13 MBTE % by Weight	Col. 14 TEL % by Weight	Col. 15 Phenol % by Weight
301	1.4940	0.7918	0.2265	0.0000	5.55E-05	0.2592
305	1.4940	0.7918	0.2265	0.0000	5.55E-05	0.2592
302	0.6962	0.2333	0.0002	0.4076	1.59E-08	3.35E-5
304	0.6962	0.2333	0.0002	0.4076	1.59E-08	3.35E-5
310	0.6962	0.2333	0.0002	0.4076	1.59E-08	3.35E-5
311	0.6962	0.2333	0.0002	0.4076	1.59E-08	3.35E-5
314	0.6962	0.2333	0.0002	0.4076	1.59E-08	3.35E-5
303	0.6962	0.2333	0.0002	0.4076	1.59E-08	3.35E-5
8001	0.6962	0.2333	0.0002	0.0000	1.59E-08	3.35E-5
8003	0.6962	0.2333	0.0002	0.0000	1.59E-08	3.35E-5
8004	0.6962	0.2333	0.0002	0.0000	1.59E-08	3.35E-5
8005	0.6962	0.2333	0.0002	0.0000	1.59E-08	3.35E-5
8006	0.6962	0.2333	0.0002	0.0000	1.59E-08	3.35E-5
8010	0.6962	0.2333	0.0002	0.0000	1.59E-08	3.35E-5
ROOF LANDINGS	0.6962	0.2333	0.0002	0.4076	1.59E-08	3.35E-5
GR/LOR	0.6962	0.2333	0.0002	0.4076	1.59E-08	3.35E-5
FLARE 1	0.6962	0.2333	0.0002	0.4076	1.59E-08	3.35E-5
PROP MAINT						
PR						
FUGITIVES	4.7190	0.8500	0.4430	0.5000	7.90E-06	5.50E-2
GENERATOR	1.4940	0.7918	0.2265	0.0000	5.55E-05	0.2592
PROVE	0.6962	0.2333	0.0002	0.4076	1.59E-08	3.35E-5
O/W/SEP	0.6962	0.2333	0.0002	0.4076	1.59E-08	3.35E-5
WW	0.6962	0.2333	0.0002	0.4076	1.59E-08	3.35E-5
AIR STRIPPER						
Total						

Annual VOC and Speciated HAP Emissions Summary, continued

Company Name: ConocoPhillips Co. – Mt. Vernon Products Terminal
 Facility Location: Rural Route 2, Box 115, Mt. Vernon, MO 65712 Lawrence County
 Facility ID: 109-0036

Page 3 of 4
 Columns 1, 16-22

Col. 1 Emission Point	Col. 16 Benzene Emissions (tpy)	Col. 17 Toluene Emissions (tpy)	Col. 18 Ethyl- Benzene Emissions (tpy)	Col. 19 o-Xylene Emissions (tpy)	Col. 20 m-Xylene Emissions (tpy)	Col. 21 p-Xylene Emissions (tpy)	Col. 22 Hexane Emissions (tpy)
301	0.0014	0.1024	0.0321	0.0164	0.0210	0.0223	0.4614
305	0.0043	0.0388	0.0121	0.0062	0.0079	0.0084	0.1747
302	0.0251	0.0278	0.0020	0.0019	0.0025	0.0026	0.0226
304	0.0292	0.0324	0.0023	0.0022	0.0029	0.0030	0.0263
310	0.0191	0.0212	0.0015	0.0015	0.0019	0.0020	0.0172
311	0.0448	0.0496	0.0035	0.0034	0.0044	0.0047	0.0403
314	0.0070	0.0077	0.0006	0.0005	0.0007	0.0007	0.0063
303	0.0504	0.0558	0.0040	0.0039	0.0049	0.0052	0.0454
8001	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0002
8003	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
8004	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0001
8005	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0001
8006	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
8010	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0001
ROOF LANDINGS	0.1314	0.1457	0.0104	0.0101	0.0129	0.0137	0.1184
GR/LOR	0.10479	0.1197	0.0085	0.0083	0.0106	0.0112	0.0972
FLARE 1	0.1498	0.1661	0.0118	0.0115	0.0147	0.0156	0.1349
PROP MAINT							0.0000
PR							1.1356
FUGITIVES	0.0359	0.1440	0.0320	0.0477	0.0477	0.0477	0.0200
GENERATOR	0.0024	0.0214	0.0067	0.0034	0.0044	0.0046	0.0963
PROVE	0.0092	0.0102	0.0007	0.0007	0.0009	0.0010	0.0083
O/W/SEP	0.0138	0.0153	0.0011	0.0011	0.0014	0.0014	0.0124
WW	0.0138	0.0153	0.0011	0.0011	0.0014	0.0014	0.0124
AIR STRIPPER	0.5480	1.096	1.096	0.3653	0.3653	0.3653	
Total	1.20	2.07	1.23	0.49	0.51	0.51	1.29

Benzene Emissions (Col. 16) = VOC Emissions (Col. 2) X Benzene % by Weight (Col. 3) / 100
 Toluene Emissions (Col. 17) = VOC Emissions (Col. 2) X Toluene % by Weight (Col. 4) / 100
 Etc.

Annual VOC and Speciated HAP Emissions Summary, continued

Company Name: ConocoPhillips Co. - Mt. Vernon Products Terminal
 Facility Location: Rural Route 2, Box 115, Mt. Vernon, MO 65712 Lawrence County
 Facility ID: 109-0036

Page 4 of 4
 Columns 1, 23-29

Col. 1 Emission Point	Col. 23 Isooctane Emissions (tpy)	Col. 24 Cumene Emissions (tpy)	Col. 25 Naphtha- lene Emissions (tpy)	Col. 26 MBTE Emissions (tpy)	Col. 27 TEL Emissions (tpy)	Col. 28 Phenol Emissions (tpy)	Col. 29 All HAP Combined (tpy)
301	0.0254	0.0140	0.0040	0.0000	0.0000	0.0046	0.7158
305	0.0100	0.0053	0.0015	0.0000	0.0000	0.0017	0.2711
302	0.0332	0.0111	0.0000	0.0194	0.0000	0.0000	0.1481
304	0.0387	0.0130	0.0000	0.0226	0.0000	0.0000	0.1725
310	0.0253	0.0085	0.0000	0.0148	0.0000	0.0000	0.1129
311	0.0593	0.0199	0.0000	0.0347	0.0000	0.0000	0.2647
314	0.0093	0.0031	0.0000	0.0054	0.0000	0.0000	0.0413
303	0.0667	0.0224	0.0000	0.0391	0.0000	0.0000	0.2977
8001	0.0002	0.0001	0.0000	0.0001	0.0000	0.0000	0.0011
8003	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003
8004	0.0001	0.0000	0.0000	0.0001	0.0000	0.0000	0.0005
8005	0.0002	0.0001	0.0000	0.0001	0.0000	0.0000	0.0007
8006	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003
8010	0.0002	0.0001	0.0000	0.0001	0.0000	0.0000	0.0007
ROOF LANDINGS	0.1741	0.0583	0.0001	0.1019	0.0000	0.0000	0.7768
GR/LOR	0.1430	0.0479	0.0001	0.0837	0.0000	0.0000	0.6380
FLARE 1	0.1984	0.0665	0.0001	0.1162	0.0000	0.0000	0.8855
PROP MAINT							0.0000
PR							0.0000
FUGITIVES	0.0942	0.0170	0.0088	0.0100	0.0000	0.0011	0.5061
GENERATOR	0.0055	0.0029	0.0008	0.0000	0.0000	0.0010	0.0097
PROVE	0.0122	0.0041	0.0000	0.0071	0.0000	0.0000	0.0544
O/W/SEP	0.0183	0.0061	0.0000	0.0107	0.0000	0.0000	0.0817
WW	0.0183	0.0061	0.0000	0.0107	0.0000	0.0000	0.0817
AIR STRIPPER							3.836
Total	0.93	0.31	0.02	0.48	0.00	0.01	9.0

All HAP Combined (Column 29) = the sum of Columns 16 through 28

Total VOC (Total of Column 2) = 127.2 tons per year < 249.5 tpy

Highest total individual HAP (Highest Total in Columns 16 through 28) = 2.07 tpy < 9.5 tpy., and

Total HAP (Total of Column 29) = 9.0 tpy < 24.5 tpy

Installation is in compliance with Permit Condition PW001.

Annual VOC Emissions from Tank 301

The calculation for annual VOC emissions from Tank 301 was done with the TANKS 4.0 software provided by the United States Environmental Protection Agency. Since that software does not have the capability to transfer its output into Word documents, the output report was printed, scanned, and added to this document as scanned images. The following five pages are the TANKS 4.0 report for this tank.

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification: Tank 3D1
City: Springfield
State: Missouri
Company: ConocoPhillips - Mt. Vernon Products Terminal
Type of Tank: Vertical Fixed Roof Tank
Description: For 2005-01-079

Tank Dimensions

Shell Height (ft): 40.00
Diameter (ft): 120.00
Liquid Height (ft): 37.00
Avg. Liquid Height (ft): 20.00
Volume (gallons): 3,130,309.61
Turnovers: 53.67
Net Throughput (gal/yr): 168,000,000.00
Is Tank Heated (y/n): N

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: White/White
Roof Condition: Good

Roof Characteristics

Type: Cone
Height (ft): 1.00
Slope (ft/ft) (Cone Roof): 0.02

Breather Vent Settings

Vacuum Settings (psig): 0.00
Pressure Settings (psig): 0.00

Meteorological Data used in Emissions Calculations: Springfield, Missouri (Avg Atmospheric Pressure = 14.09 psia)

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Jet kerosene	All	57.66	51.98	63.34	55.81	0.0076	0.0063	0.0082	130.0000			162.00	Option 5: A=12.38, B=6993

TANKS 4.0 Emissions Report - Detail Format Detail Calculations (AP-42)

Annual Emission Calculations	
Standing Losses (lb):	655.1693
Vapor Space Volume (cu ft):	229,964.5620
Vapor Density (lb/cu ft):	0.0002
Vapor Space Expansion Factor:	0.0441
Vented Vapor Saturation Factor:	0.9919
Tank Vapor Space Volume	
Vapor Space Volume (cu ft):	229,964.5620
Tank Diameter (ft):	120.0000
Vapor Space Outage (ft):	20.3333
Tank Shell Height (ft):	40.0000
Average Liquid Height (ft):	20.0000
Roof Outage (ft):	0.3333
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.3333
Roof Height (ft):	1.0000
Roof Slope (ft/ft):	0.0200
Shell Radius (ft):	60.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0002
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0076
Daily Avg. Liquid Surface Temp. (deg. F):	517.3298
Daily Average Ambient Temp. (deg. F):	55.7917
Ideal Gas Constant R (psia cu ft / (lb-mol-deg F)):	10.731
Liquid Bulk Temperature (deg. F):	515.4617
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insolation Factor (Btu/sq ft day):	1,362.6691
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0441
Daily Vapor Temperature Range (deg. F):	22.7216
Daily Vapor Pressure Range (psia):	0.0029
Breather Vent Press. Setting Range (psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0076
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0063
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0092
Daily Avg. Liquid Surface Temp. (deg. F):	517.3298
Daily Min. Liquid Surface Temp. (deg. F):	511.8494
Daily Max. Liquid Surface Temp. (deg. F):	523.0102
Daily Ambient Temp. Range (deg. F):	22.4187
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9919
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0076
Vapor Space Outage (ft):	20.3333

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)- (Continued)

Working Losses (lb):	2,873.7298
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0078
Annual Net Throughput (gal/yr):	188,000.000.0
	000
Annual Turnovers:	53.8700
Turnover Factor:	0.7256
Maximum Liquid Volume (gal):	3,130,308.605
	0
Maximum Liquid Height (ft):	37.0000
Tank Diameter (ft):	120.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	3,528.9151

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

SB - 16
Project No. 2005-01-079

Vertical Fixed Roof Tank
Springfield, Missouri

TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Annual Emissions Report

Components	Losses(lbs)		Total Emissions
	Working Loss	Breathing Loss	
Jet kerosene	2,873.73	655.19	3,528.92

Annual VOC Emissions from Tank 305

The calculation for annual VOC emissions from Tank 305 was done with the TANKS 4.0 software provided by the United States Environmental Protection Agency. Since that software does not have the capability to transfer its output into Word documents, the output report was printed, scanned, and added to this document as scanned images. The following five pages are the TANKS 4.0 report for this tank.

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification: Tank 305
City: Springfield
State: Missouri
Company: ConocoPhillips - Mt. Vernon Products Terminal
Type of Tank: Vertical Fixed Roof Tank
Description: For 2005-01-079

Tank Dimensions

Shell Height (ft): 37.00
Diameter (ft): 60.00
Liquid Height (ft): 36.00
Avg. Liquid Height (ft): 19.00
Volume (gallons): 761,426.66
Turnovers: 220.64
Net Throughput (gal/yr): 168,000,000.00
Is Tank Heated (y/n): N

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: White/White
Roof Condition: Good

Roof Characteristics

Type: Cone
Height (ft): 3.00
Slope (ft/ft) (Cone Roof): 0.10

Breather Vent Settings

Vacuum Settings (psig): -0.03
Pressure Settings (psig): 0.03

Meteorological Data used in Emissions Calculations: Springfield, Missouri (Avg Atmospheric Pressure = 14.09 psia)

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Jet kerosene	All	57.66	51.98	63.34	55.81	0.0076	0.0063	0.0092	130.0000			182.00	Option 5: A=12.39, B=8933

TANKS 4.0

Emissions Report - Detail Format

Detail Calculations (AP-42)

SB - 20
Project No. 2005-01-079

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

Annual Emission Calculations	
Standing Losses (lb):	138.3654
Vapor Space Volume (cu ft):	53,721.2343
Vapor Density (lb/cu ft):	0.0002
Vapor Space Expansion Factor:	0.0388
Vented Vapor Saturation Factor:	0.9824
Tank Vapor Space Volume	
Vapor Space Volume (cu ft):	53,721.2343
Tank Diameter (ft):	60.0000
Vapor Space Outage (ft):	19.0000
Tank Shell Height (ft):	37.0000
Average Liquid Height (ft):	19.0000
Roof Outage (ft):	1.0000
Roof Outage (Cone Roof)	
Roof Outage (ft):	1.0000
Roof Height (ft):	3.0000
Roof Slope (ft/ft):	0.1000
Shell Radius (ft):	30.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0002
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	0.0076
Daily Avg. Liquid Surface Temp. (deg. F):	517.3298
Daily Average Ambient Temp. (deg. F):	55.7917
Ideal Gas Constant R	
(psia cu ft / (lb-mol-deg F)):	10.731
Liquid Bulk Temperature (deg. F):	515.4817
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation	
Factor (Btu/sq ft day):	1,382.6891
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0388
Daily Vapor Temperature Range (deg. F):	22.7216
Daily Vapor Pressure Range (psia):	0.0029
Breather Vent Press. Stalling Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	0.0076
Vapor Pressure at Daily Minimum Liquid	
Surface Temperature (psia):	0.0063
Vapor Pressure at Daily Maximum Liquid	
Surface Temperature (psia):	0.0092
Daily Avg. Liquid Surface Temp. (deg F):	517.3298
Daily Min. Liquid Surface Temp. (deg F):	511.6494
Daily Max. Liquid Surface Temp. (deg F):	523.0102
Daily Ambient Temp. Range (deg. F):	22.4167
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9824
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	0.0076
Vapor Space Outage (ft):	19.0000

SB - 21
Project No. 2005-01-079

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

Vertical Fixed Roof Tank
Springfield, Missouri

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)- (Continued)

Working Losses (lb):	1,188.5182
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0076
Annual Net Throughput (gal/yr.):	166,900,000.0
	000
Annual Turnovers:	220.6400
Turnover Factor:	0.3028
Maximum Liquid Volume (gal):	781,426.6600
Maximum Liquid Height (ft):	36.0000
Tank Diameter (ft):	60.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	1,336.8738

TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Annual Emissions Report

Components	Losses(lbs)		Total Emissions
	Working Loss	Breathing Loss	
Jet kerosene	1,198.52	138.36	1,336.87

Annual VOC Emissions from Tank 302

The calculation for annual VOC emissions from Tank 302 was done with the TANKS 4.0 software provided by the United States Environmental Protection Agency. Since that software does not have the capability to transfer its output into Word documents, the output report was printed, scanned, and added to this document as scanned images. The following five pages are the TANKS 4.0 report for this tank.

TANKS 4.0

Emissions Report - Detail Format

Tank Identification and Physical Characteristics

Identification

User Identification: Tank 302
 City: Springfield
 State: Missouri
 Company: ConocoPhillips - Mt. Vernon Products Terminal
 Type of Tank: Internal Floating Roof Tank
 Description: For 2005-01-079

Tank Dimensions

Diameter (ft): 60.00
 Volume (gallons): 751,380.00
 Turnovers: 665.44
 Self Supp. Roof? (y/n): N
 No. of Columns: 1.00
 Eff. Col. Diam. (ft): 1.00

Paint Characteristics

Internal Shell Condition: Light Rust
 Shell Color/Shade: White/White
 Shell Condition: Good
 Roof Color/Shade: White/White
 Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
 Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Typical
 Deck Type: Bolted
 Construction: Sheet
 Deck Seam: Sheet: 5 Ft Wide
 Deck Seam Len. (ft): 665.49

Deck Fitting/Status

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	1
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1
Roof Leg or Hanger Well/Adjustable	17
Sample Pipe or Well (24-in. Diam.)/Silt Fabric Seal 10% Open	1
Stub Drain (1-in. Diameter)/	29

SB - 25
Project No. 2005-01-079

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

Internal Floating Roof Tank
Springfield, Missouri

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Vacuum Breaker (10-in. Diam.) Weighted Mech. Actuation, Gask.

1

Meteorological Data used in Emissions Calculations: Springfield, Missouri (Avg Atmospheric Pressure = 14.09 psia)

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 13)	All	57.66	51.98	63.34	55.61	6.6488	N/A	N/A	62.0000			92.00	Option 4: RVP=13, ASTM Slope=3

SB - 27
Project No. 2005-01-079

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

Internal Floating Roof Tank
Springfield, Missouri

TANKS 4.0 Emissions Report - Detail Format Detail Calculations (AP-42)

Annual Emission Calculations	
Rim Seal Losses (lb):	3,413.3947
Seal Factor A (lb-mole/ft-yr):	5.8000
Seal Factor B (lb-mole/ft-yr (mph) ^{1/2}):	0.3000
Value of Vapor Pressure Function:	0.1582
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	8.6488
Tank Diameter (ft):	60.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000
Product Factor:	1.0000
Withdrawal Losses (lb):	1,597.8611
Number of Columns:	1.0000
Effective Column Diameter (ft):	1.0000
Annual Net Throughput (gal/yr):	500,000,000.0
	000
Shell Clingage Factor (bb/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	5.6000
Tank Diameter (ft):	60.0000
Deck Fitting Losses (lb):	3,534.0406
Value of Vapor Pressure Function:	0.1582
Vapor Molecular Weight (lb/lb-mole):	62.0000
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	360.3000
Deck Seam Losses (lb):	988.7141
Deck Seam Length (ft):	565.4900
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.1400
Deck Seam Length Factor(ft/sqft):	0.2000
Tank Diameter (ft):	60.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000
Product Factor:	1.0000

Deck Fitting/Status	Quantity	KFa (lb-mole/yr)	Deck Fitting Loss Factors		Losses (lb.)
			KFb (lb-mole/yr mph ^{1/2})	th	
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	26.00	5.90	1.20	353.1088
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	127.3205
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	1	47.00	0.00	0.00	461.0045
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1	78.00	0.00	0.00	745.4540
Roof Leg or Hanger Well/Adjustable	17	7.90	0.00	0.00	1,317.2957
Sample Pipe or Well (24-in. Diam.)/Silt Fabric Seal 10% Open	1	12.00	0.00	0.00	117.7033
Stub Drain (1-in. Diameter)/	28	1.20	0.00	0.00	341.3395
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	60.8134
Total Losses (lb):					9,534.0105

SB - 28
Project No. 2005-01-079

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

Internal Floating Roof Tank
Springfield, Missouri

TANKS 4.0 Emissions Report - Detail Format Individual Tank Emission Totals

Annual Emissions Report

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 13)	3,413.39	1,597.86	3,534.04	988.71	9,534.01

Annual VOC Emissions from Tank 304

The calculation for annual VOC emissions from Tank 304 was done with the TANKS 4.0 software provided by the United States Environmental Protection Agency. Since that software does not have the capability to transfer its output into Word documents, the output report was printed, scanned, and added to this document as scanned images. The following five pages are the TANKS 4.0 report for this tank.

TANKS 4.0

Emissions Report - Detail Format

Tank Identification and Physical Characteristics

Identification

User Identification: Tank 304
 City: Springfield
 State: Missouri
 Company: ConocoPhillips - Mt. Vernon Products Terminal
 Type of Tank: Internal Floating Roof Tank
 Description: For 2005-01-079

Tank Dimensions

Diameter (ft): 74.00
 Volume (gallons): 1,158,822.00
 Turnovers: 431.47
 Self Supp. Roof? (y/n): N
 No. of Columns: 1.00
 Eff. Col. Diam. (ft): 1.00

Paint Characteristics

Internal Shell Condition: Light Rust
 Shell Color/Shade: White/White
 Shell Condition: Good
 Roof Color/Shade: White/White
 Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
 Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Typical
 Deck Type: Bolted
 Construction: Sheet
 Deck Seam: Sheet: 5 Ft Wide
 Deck Seam Len. (ft): 860.17

Deck Fitting/Status

Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	Quantity
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	1
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1
Roof Leg or Hanger Well/Adjustable	1
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	22
Stub Drain (1-in. Diameter)/	44

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Internal Floating Roof Tank
Springfield, Missouri

Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.

1

Meteorological Data used in Emissions Calculations: Springfield, Missouri (Avg Atmospheric Pressure = 14.09 psia)

SB - 32
Project No. 2005-01-079

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

Internal Floating Roof Tank
Springfield, Missouri

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 13)	AM	87.66	51.98	63.34	55.81	6.6488	N/A	N/A	62.0000			92.00	Option 4: RVP=13, ASTM Slope=3

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)

SB - 33
Project No. 2005-01-079

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

Annual Emission Calculations	
Rim Seal Losses (lb):	4,209.8535
Seal Factor A (lb-mole/ft-yr):	5.8000
Seal Factor B (lb-mole/ft-yr (mph ² /in):	0.3000
Value of Vapor Pressure Function:	0.1582
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.6488
Tank Diameter (ft):	74.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000
Product Factor:	1.0000
Withdrawal Losses (lb):	1,291.6448
Number of Columns:	1.0000
Effective Column Diameter (ft):	1.0000
Annual Net Throughput (gal/yr.):	500,000,000.0
	000
Shell Clingage Factor (bbl/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	5.6000
Tank Diameter (ft):	74.0000
Deck Fitting Losses (lb):	4,098.0354
Value of Vapor Pressure Function:	0.1582
Vapor Molecular Weight (lb/lb-mole):	62.0000
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	417.8000
Deck Seam Losses (lb):	1,503.9399
Deck Seam Length (ft):	880.1673
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.1400
Deck Seam Length Factor(ft/sqft):	0.2000
Tank Diameter (ft):	74.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000
Product Factor:	1.0000

Deck Fitting/Status	Quantity	KFa (lb-mole/yr)	Deck Fitting Loss Factors		m	Losses (lb.)
			KFb (lb-mole/(yr mph ² /in))			
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	36.00	5.90		1.20	353.1098
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40		1.10	137.3205
Column Well (24-in. Diam.)/Built-Up Col., Sliding Cover, Ungask.	1	47.00	0.00		0.00	461.0045
Ladder Well (38-in. Diam.)/Sliding Cover, Ungasketed	1	78.00	0.00		0.00	745.4540
Roof Leg or Hanger Well/Adjustable	22	7.90	0.00		0.00	1,704.7356
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1	12.00	0.00		0.00	117.7093
Stub Drain (1-in. Diameter)/	44	1.20	0.00		0.00	517.8944
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20		0.94	60.8134

Total Losses (lb): 11,103.3676

SB - 34
Project No. 2005-01-079

Internal Floating Roof Tank
Springfield, Missouri

TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Annual Emissions Report

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 13)	4,209.85	1,291.54	4,098.04	1,503.93	11,103.37

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

Annual VOC Emissions from Tank 310

The calculation for annual VOC emissions from Tank 310 was done with the TANKS 4.0 software provided by the United States Environmental Protection Agency. Since that software does not have the capability to transfer its output into Word documents, the output report was printed, scanned, and added to this document as scanned images. The following five pages are the TANKS 4.0 report for this tank.

SB - 36
Project No. 2005-01-079

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification: Tank 310
City: Springfield
State: Missouri
Company: ConocoPhillips - Mt. Vernon Products Terminal
Type of Tank: Internal Floating Roof Tank
Description: For 2005-01-079

Tank Dimensions

Diameter (ft): 25.00
Volume (gallons): 100,212.00
Turnovers: 4,989.42
Self Supp. Roof? (y/n): N
No. of Columns: 1.00
Eff. Col. Diam. (ft): 1.00

Paint Characteristics

Internal Shell Condition: Light Rust
Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: White/White
Roof Condition: Good

Rim-Seal System

Primary Seal: Vapor-mounted
Secondary Seal: Rim-mounted

Deck Characteristics

Deck Fitting Category: Typical
Deck Type: Bolted
Construction: Sheet
Deck Seam: Sheet: 5 Ft Wide
Deck Seam Len. (ft): 98.17

Deck Fitting/Status

	Quantity
Access Hatch (24-in. Diam./Unbolted Cover, Ungasketed)	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Column Well (24-in. Diam./Built-Up Col.-Sliding Cover, Ungask.	1
Ladder Well (36-in. Diam./Sliding Cover, Ungasketed)	1
Roof Leg or Hanger Well/Adjustable	9
Sample Pipe or Well (24-in. Diam./Slit Fabric Seal 10% Open	1
Stub Drain (1-in. Diameter/	5

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.

1

Meteorological Data used in Emissions Calculations: Springfield, Missouri (Avg Atmospheric Pressure = 14.09 psia)

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasolina (RVP 13)	All	57.65	51.95	63.34	55.81	6.6488	N/A	N/A	62.0000			92.00	Option 4: RVP=13, ASTM Slope=3

TANKS 4.0

Emissions Report - Detail Format

Detail Calculations (AP-42)

Annual Emission Calculations	
Rim Seal Losses (lb):	539.4733
Seal Factor A (lb-mole/ft-yr):	2.2000
Seal Factor B (lb-mole/ft-yr (mph) ^{1/2}):	0.0030
Value of Vapor Pressure Function:	0.1582
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.6488
Tank Diameter (ft):	25.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000
Product Factor:	1.0000
Withdrawal Losses (lb):	3,922.8800
Number of Columns:	1.0000
Effective Column Diameter (ft):	1.0000
Annual Net Throughput (gal/yr):	500,000,000.0
	000
Shell Clingage Factor (bb/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	5.6000
Tank Diameter (ft):	25.0000
Deck Fitting Losses (lb):	2,831.5488
Value of Vapor Pressure Function:	0.1582
Vapor Molecular Weight (lb/lb-mole):	62.0000
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	286.3000
Deck Seam Losses (lb):	171.6424
Deck Seam Length (ft):	98.1700
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.1400
Deck Seam Length Factor(ft/sqft):	0.2000
Tank Diameter (ft):	25.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000
Product Factor:	1.0000

Deck Fitting/Status	Quantity	KFs (lb-mole/yr)	Deck Fitting Loss Factors KFs (lb-mole/yr mph ^{1/2})	m	Losses (lb.)
Access Hatch (24-in. Diam./Unbolted Cover, Ungasketed)	1	36.00	5.90	1.20	353.1098
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	137.3205
Column Well (24-in. Diam./Built-Up Col.-Sliding Cover, Ungask.	1	47.00	0.00	0.00	481.0045
Ladder Well (36-in. Diam./Sliding Cover, Ungasketed)	1	76.00	0.00	0.00	745.4540
Roof Leg or Hanger Well/Adjustable	9	7.90	0.00	0.00	697.3919
Sample Pipe or Well (24-in. Diam./Soft Fabric Seal 10% Open	1	12.00	0.00	0.00	117.7033
Sub Drain (1-in. Diameter)/	5	1.20	0.00	0.00	58.8516
Vacuum Breaker (10-in. Diam./Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	60.8134
Total Losses (lb):					7,265.6446

TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Annual Emissions Report

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 13)	539.47	3,922.88	2,631.65	171.64	7,265.64

SB - 40
Project No. 2005-01-079

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

Annual VOC Emissions from Tank 311

The calculation for annual VOC emissions from Tank 311 was done with the TANKS 4.0 software provided by the United States Environmental Protection Agency. Since that software does not have the capability to transfer its output into Word documents, the output report was printed, scanned, and added to this document as scanned images. The following five pages are the TANKS 4.0 report for this tank.

SB - 42
Project No. 2005-01-079

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

TANKS 4.0

Emissions Report - Detail Format

Tank Identification and Physical Characteristics

Identification

User Identification: Tank 311
 City: Springfield
 State: Missouri
 Company: ConocoPhillips - Mt. Vernon Products Terminal
 Type of Tank: Internal Floating Roof Tank
 Description: For 2005-01-079

Tank Dimensions

Diameter (ft): 100.00
 Volume (gallons): 2,149,980.00
 Turnovers: 232.56
 Self Supp. Roof? (y/n): N
 No. of Columns: 6.00
 Eff. Col. Diam. (ft): 1.00

Paint Characteristics

Internal Shell Condition: Light Rust
 Shell Color/Shade: White/White
 Shell Condition: Good
 Roof Color/Shade: White/White
 Roof Condition: Good

Rim-Seal System

Primary Seal: Mechanical Shoe
 Secondary Seal: None

Deck Characteristics

Deck Fitting Category: Typical
 Deck Type: Bolted
 Construction: Sheet
 Deck Seam: Sheet: 5 Ft Wide
 Deck Seam Len. (ft): 1,570.80

Deck Fitting/Status

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam./Unbolted Cover, Ungasketed)	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Column Well (24-in. Diam./Built-Up Col.-Sliding Cover, Ungask.	6
Ladder Well (36-in. Diam./Sliding Cover, Ungasketed)	1
Roof Leg or Hanger Well/Adjustable	32
Sample Pipe or Well (24-in. Diam./Slit Fabric Seal 10% Open	1
Stub Drain (1-in. Diameter)	80

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.

1

Meteorological Data used in Emissions Calculations: Springfield, Missouri (Avg Atmospheric Pressure = 14.09 psia)

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 13)	All	57.66	51.98	63.34	55.81	6.6468	N/A	N/A	62.0000			92.00	Option 4: RVP=13, ASTM Slope=3

TANKS 4.0 Emissions Report - Detail Format Detail Calculations (AP-42)

Annual Emission Calculations	
Rim Seal Losses (lb):	5,688.9912
Seal Factor A (lb-mole/ft-yr):	5.0000
Seal Factor B (lb-mole/ft-yr (mph) ²):	0.5000
Value of Vapor Pressure Function:	0.1582
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.6488
Tank Diameter (ft):	100.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000
Product Factor:	1.0000
Withdrawal Losses (lb):	999.5800
Number of Columns:	8.0000
Effective Column Diameter (ft):	1.0000
Annual Net Throughput (gal/yr):	500,000,000.0
	000
Shall Clingage Factor (bbl/1000 sqft):	0.0016
Average Organic Liquid Density (lb/gal):	5.6000
Tank Diameter (ft):	100.0000
Deck Fitting Losses (lb):	7,601.6693
Value of Vapor Pressure Function:	0.1582
Vapor Molecular Weight (lb/lb-mole):	62.0000
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	776.0000
Deck Seam Losses (lb):	2,746.4193
Deck Seam Length (ft):	1,570.8000
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.1400
Deck Seam Length Factor(ft/sqft):	0.2000
Tank Diameter (ft):	100.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000
Product Factor:	1.0000

Deck Fitting/Status	Quantity	Deck Fitting Loss Factors		m	Losses (lb.)
		KFa (lb-mole/yr)	KFb (lb-mole/yr mph ²)		
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	36.00	5.90	1.20	353.1098
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	137.3206
Column Well (24-in. Diam.)/Built-Up Cat.-Sliding Cover, Ungask.	8	47.00	0.00	0.00	2,766.0268
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1	76.00	0.00	0.00	745.4540
Roof Leg or Hanger Well/Adjustable	32	7.90	0.00	0.00	2,479.6155
Sample Pipe or Well (24-in. Diam.)/Silt Fabric Seal 10% Open	1	12.00	0.00	0.00	117.7033
Stub Drain (1-in. Diameter)	80	1.20	0.00	0.00	941.6261
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	60.8134
Total Losses (lb):					17,036.6587

SB - 46
Project No. 2005-01-079

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

Internal Floating Roof Tank
Springfield, Missouri

TANKS 4.0 Emissions Report - Detail Format Individual Tank Emission Totals

Annual Emissions Report

Components	Losses (lbs)				Total Emissions
	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 13)	5,688.99	999.58	7,601.67	2,746.42	17,036.66

Annual VOC Emissions from Tank 314

The calculation for annual VOC emissions from Tank 314 was done with the TANKS 4.0 software provided by the United States Environmental Protection Agency. Since that software does not have the capability to transfer its output into Word documents, the output report was printed, scanned, and added to this document as scanned images. The following four pages are the TANKS 4.0 report for this tank.

SB - 48
Project No. 2005-01-079

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

Domed External Floating Roof Tank
Springfield, Missouri

TANKS 4.0

Emissions Report - Detail Format

Tank Identification and Physical Characteristics

Identification

User Identification: Tank 314
 City: Springfield
 State: Missouri
 Company: ConocoPhillips - Mt. Vernon Products Terminal
 Type of Tank: Domed External Floating Roof Tank
 Description: For 2005-01-079

Tank Dimensions

Diameter (ft): 67.00
 Volume (gallons): 983,984.00
 Turnovers: 518.68

Paint Characteristics

Internal Shell Condition: Light Rust
 Shell Color/Shade: White/White
 Shell Condition: Good

Roof Characteristics

Type: Pontoon
 Fitting Category: Typical

Tank Construction and Rim-Seal System

Construction: Welded
 Primary Seal: Mechanical Shoe
 Secondary Seal: Rim-mounted

Deck Fitting/Status

	Quantity
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1

Meteorological Data used in Emissions Calculations: Springfield, Missouri (Avg Atmospheric Pressure = 14.09 psia)

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 13)	All	57.68	51.98	63.34	55.81	8.6488	N/A	N/A	92.0000			92.00	Option 4: RVP=13, ASTM Slope=3

SB - 50
Project No. 2005-01-079

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

Domed External Floating Roof Tank
Springfield, Missouri

TANKS 4.0 Emissions Report - Detail Format Detail Calculations (AP-42)

Annual Emission Calculations	
Rim Seal Losses (lb):	394.3059
Seal Factor A (lb-mole/ft-yr):	0.8000
Seal Factor B (lb-mole/ft-yr (mph) ⁿ):	0.4000
Average Wind Speed (mph):	0.8000
Seal-related Wind Speed Exponent:	1.0000
Value of Vapor Pressure Function:	0.1582
Vapor Pressure of Daily Average Liquid Surface Temperature (psia):	6.6488
Tank Diameter (ft):	67.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000
Product Factor:	1.0000
Withdrawal Losses (lb):	1,407,4627
Annual Net Throughput (gal/yr.):	500,000,000.0
	000
Shell Clingage Factor (bbl/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	5.6000
Tank Diameter (ft):	67.0000
Roof Fitting Losses (lb):	858.8798
Value of Vapor Pressure Function:	0.1582
Vapor Molecular Weight (lb/lb-mole):	62.0000
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	87.3600
Average Wind Speed (mph):	0.0000

Roof Fitting/Status	Quantity	KFa (lb-mole/yr)	Roof Fitting Loss Factors KFB (lb-mole/yr (mph) ⁿ)	n	Losses (lb.)
Access Hatch (24-in. Diam./Bolted Cover, Gasketed)	1	1.60	0.00	0.00	15.6938
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	137.3205
Vacuum Breaker (10-in. Diam./Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	60.8134
Unslotted Guide-Pole Well/Ungasketed Sliding Cover	1	31.00	150.00	1.40	304.0668
Gauge-Hatch/Sample Well (8-in. Diam./Weighted Mech. Actuation, Gask.	1	0.47	0.02	0.97	4.6100
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Ungasketed	13	2.00	0.37	0.91	255.0237
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Ungasketed	9	0.62	0.53	0.14	72.3876
Rim Vent (6-in. Diameter)/Weighted Mech. Actuation, Gask.	1	0.71	0.10	1.00	6.9641
Total Losses (lb):					2,658.8484

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

SB - 51
Project No. 2005-01-079

Domed External Floating Roof Tank
Springfield, Missouri

TANKS 4.0 Emissions Report - Detail Format Individual Tank Emission Totals

Annual Emissions Report

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 13)	384.31	1,407.46	856.88	0.00	2,658.65

Annual VOC Emissions from Tank 303

The calculation for annual VOC emissions from Tank 303 was done with the TANKS 4.0 software provided by the United States Environmental Protection Agency. Since that software does not have the capability to transfer its output into Word documents, the output report was printed, scanned, and added to this document as scanned images. The following five pages are the TANKS 4.0 report for this tank.

TANKS 4.0

Emissions Report - Detail Format

Tank Identification and Physical Characteristics

Identification

User Identification: Tank 303
 City: Springfield
 State: Missouri
 Company: ConocoPhillips - Mt. Vernon Products Terminal
 Type of Tank: Internal Floating Roof Tank
 Description: For 2005-01-079

Tank Dimensions

Diameter (ft): 134.00
 Volume (gallons): 5,040,000.00
 Turnovers: 99.21
 Self Supp. Roof? (y/n): N
 No. of Columns: 8.00
 Eff. Col. Diam. (ft): 1.00

Paint Characteristics

Internal Shell Condition: Light Rust
 Shell Color/Shade: White/White
 Shell Condition: Good
 Roof Color/Shade: White/White
 Roof Condition: Good

Rim-Seal System

Primary Seal: Vapor-mounted
 Secondary Seal: Rim-mounted

Deck Characteristics

Deck Fitting Category: Detail
 Deck Type: Bolted
 Construction: Sheet
 Deck Seam: Sheet: 5 Ft Wide
 Deck Seam Len. (ft): 2,820.52

Deck Fitting/Status

	Quantity
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	8
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1
Roof Leg or Hanger Well/Adjustable	49
Sample Pipe or Well (24-in. Diam.)/Slit Fabric Seal 10% Open	1
Stub Drain (1-in. Diameter)/	144

TANKS 4.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.

1

Meteorological Data used in Emissions Calculations: Springfield, Missouri (Avg Atmospheric Pressure = 14.09 psia)

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Gasoline (RVP 13)	All	57.68	51.98	63.34	55.81	6.6488	N/A	N/A	62.0000			62.00	Option 4: RVP=13, ASTM Slope=3

TANKS 4.0 Emissions Report - Detail Format Detail Calculations (AP-42)

Annual Emission Calculations	
Rim Seal Losses (lb):	2,891.5769
Seal Factor A (lb-mole/ft-yr):	2.2000
Seal Factor B (lb-mole/ft-yr (mph) ^{1/2}):	0.0030
Value of Vapor Pressure Function:	0.1582
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	6.6488
Tank Diameter (ft):	134.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000
Product Factor:	1.0000
Withdrawal Losses (lb):	745.7452
Number of Columns:	8.0000
Effective Column Diameter (ft):	1.0000
Annual Net Throughput (gal/yr.):	500,000,000.0
	000
Shell Clingage Factor (bbl/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	6.8000
Tank Diameter (ft):	134.0000
Deck Filling Losses (lb):	10,594.2748
Value of Vapor Pressure Function:	0.1582
Vapor Molecular Weight (lb/lb-mole):	62.0000
Product Factor:	1.0000
Tot. Roof Filling Loss Fact.(lb-mole/yr):	1,080.1000
Deck Seam Losses (lb):	4,931.4538
Deck Seam Length (ft):	2,820.5200
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.1400
Deck Seam Length Factor(ft/sqft):	0.2000
Tank Diameter (ft):	134.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000
Product Factor:	1.0000

Deck Filling/Status	Quantity	KFs (lb-mole/yr)	Deck Filling Loss Factors		Losses (lb.)
			KFb (lb-mole/yr mph ^{1/2})	m	
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	38.00	5.90	1.20	353.1098
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	137.3205
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	8	47.00	0.00	0.00	3,688.0357
Ladder Well (38-in. Diam.)/Sliding Cover, Ungasketed	1	76.00	0.00	0.00	745.4540
Roof Leg or Hanger Well/Adjustable	49	7.90	0.00	0.00	3,796.9112
Sample Pipe or Well (24-in. Diam.)/Sit Fabric Seal 10% Open	1	12.00	0.00	0.00	117.7093
Stub Drain (1-in. Diameter)	144	1.20	0.00	0.00	1,694.9270
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	60.8134

Total Losses (lb): 19,163.0507

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

SB - 57
Project No. 2005-01-079

Internal Floating Roof Tank
Springfield, Missouri

TANKS 4.0 Emissions Report - Detail Format Individual Tank Emission Totals

Annual Emissions Report

Components	Losses(lbs)				Total Emissions
	Rim Seal Loss	Withdrawal Loss	Deck Fitting Loss	Deck Seam Loss	
Gasoline (RVP 13)	2,891.58	745.75	10,594.27	4,931.45	19,163.05

Annual VOC Emissions from Tank 8001

The calculation for annual VOC emissions from Tank 8001 was done with the TANKS 4.0 software provided by the United States Environmental Protection Agency. Since that software does not have the capability to transfer its output into Word documents, the output report was printed, scanned, and added to this document as scanned images. The following five pages are the TANKS 4.0 report for this tank.

TANKS 4.0 Emissions Report - Detail Format Tank Identification and Physical Characteristics

Identification

User Identification:	Tank 8001
City:	Springfield
State:	Missouri
Company:	ConocoPhillips - Mt. Vernon Products Terminal
Type of Tank:	Vertical Fixed Roof Tank
Description:	For 2005-01-079

Tank Dimensions

Shell Height (ft):	17.00
Diameter (ft):	10.00
Liquid Height (ft):	17.00
Avg. Liquid Height (ft):	8.00
Volume (gallons):	9,987.85
Turnovers:	67.58
Net Throughput (gal/yr):	675,000.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition:	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

Roof Characteristics

Type:	Cone
Height (ft):	0.63
Slope (ft/ft) (Cone Roof):	0.12

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Meteorological Data used in Emissions Calculations: Springfield, Missouri (Avg Atmospheric Pressure = 14.09 psia)

ConocoPhillips Co. - Mt. Vernon Products Terminal
 Installation ID: 109-0036

SB - 60
 Project No. 2005-01-079

Vertical Fixed Roof Tank
 Springfield, Missouri

TANKS 4.0 Emissions Report - Detail Format Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Petroleum Additive	All	57.66	51.88	63.24	55.81	0.0441	0.0299	0.0584	130.0000			130.00	Option 1: VP50 = .026 VP80 = .05

TANKS 4.0

Emissions Report - Detail Format

Detail Calculations (AP-42)

Annual Emission Calculations	
Standing Losses (lb):	11.1330
Vapor Space Volume (cu ft):	723.2208
Vapor Density (lb/cu ft):	0.0010
Vapor Space Expansion Factor:	0.0417
Vented Vapor Saturation Factor:	0.9789
Tank Vapor Space Volume	
Vapor Space Volume (cu ft):	723.2208
Tank Diameter (ft):	10.0000
Vapor Space Outage (ft):	9.2083
Tank Shell Height (ft):	17.0000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	0.2083
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.2083
Roof Height (ft):	0.6250
Roof Slope (ft/ft):	0.1200
Shell Radius (ft):	5.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0010
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Daily Avg. Liquid Surface Temp. (deg. F):	517.3298
Daily Average Ambient Temp. (deg. F):	55.7917
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. F):	515.4817
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,382.8891
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0417
Daily Vapor Temperature Range (deg. F):	22.7216
Daily Vapor Pressure Range (psia):	0.0284
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0299
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0584
Daily Avg. Liquid Surface Temp. (deg F):	517.3298
Daily Min. Liquid Surface Temp. (deg F):	511.6464
Daily Max. Liquid Surface Temp. (deg F):	523.0102
Daily Ambient Temp. Range (deg. F):	22.4167
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9789
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Vapor Space Outage (ft):	9.2083

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)- (Continued)

Working Losses (lb):	58.3197
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Annual Net Throughput (gal/yr.):	676,000.0000
Annual Turnovers:	67.5821
Turnover Factor:	0.6108
Maximum Liquid Volume (gal):	9,987.8500
Maximum Liquid Height (ft):	17.0000
Tank Diameter (ft):	10.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	67.4527

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

SB - 63
Project No. 2005-01-079

Vertical Fixed Roof Tank
Springfield, Missouri

TANKS 4.0 Emissions Report - Detail Format Individual Tank Emission Totals

Annual Emissions Report

Components	Losses(lbs)		Total Emissions
	Working Loss	Breathing Loss	
Petroleum Additive	56.32	11.13	67.45

Annual VOC Emissions from Tank 8003

The calculation for annual VOC emissions from Tank 8003 was done with the TANKS 4.0 software provided by the United States Environmental Protection Agency. Since that software does not have the capability to transfer its output into Word documents, the output report was printed, scanned, and added to this document as scanned images. The following five pages are the TANKS 4.0 report for this tank.

TANKS 4.0

Emissions Report - Detail Format

Tank Identification and Physical Characteristics

Identification

User Identification: Tank 8003
City: Springfield
State: Missouri
Company: ConocoPhillips - Mt. Vernon Products Terminal
Type of Tank: Horizontal Tank
Description: For 2005-01-079

Tank Dimensions

Shell Length (ft): 11.00
Diameter (ft): 4.00
Volume (gallons): 1,000.00
Turnovers: 675.00
Net Throughput (gal/yr): 675,000.00
Is Tank Heated (y/n): N
Is Tank Underground (y/n): N

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good

Breather Vent Settings

Vacuum Settings (psig): -0.03
Pressure Settings (psig): 0.03

Meteorological Data used in Emissions Calculations: Springfield, Missouri (Avg Atmospheric Pressure = 14.09 psia)

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Petroleum Additive	All	57.66	51.98	63.34	55.81	0.0441	0.0299	0.0584	130.0000			130.00	Option 1: VP50 = .025 VP60 = .05

TANKS 4.0

Emissions Report - Detail Format

Detail Calculations (AP-42)

Annual Emission Calculations	
Standing Losses (lb):	1.3781
Vapor Space Volume (cu ft):	88.0448
Vapor Density (lb/cu ft):	0.0010
Vapor Space Expansion Factor:	0.0417
Vented Vapor Saturation Factor:	0.9953
Tank Vapor Space Volume	
Vapor Space Volume (cu ft):	88.0448
Tank Diameter (ft):	4.0000
Effective Diameter (ft):	7.4867
Vapor Space Outage (ft):	2.0000
Tank Shell Length (ft):	11.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0010
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Daily Avg. Liquid Surface Temp. (deg. F):	517.3288
Daily Average Ambient Temp. (deg. F):	55.7917
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. F):	516.4817
Tank Paint Solar Absorptance (Shell):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,382.6881
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0417
Daily Vapor Temperature Range (deg. F):	22.7216
Daily Vapor Pressure Range (psia):	0.0284
Breather Vent Press. Setting Range (psia):	0.0800
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0299
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0584
Daily Avg. Liquid Surface Temp. (deg. F):	517.3288
Daily Min. Liquid Surface Temp. (deg. F):	511.6494
Daily Max. Liquid Surface Temp. (deg. F):	523.0102
Daily Ambient Temp. Range (deg. F):	22.4167
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9953
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Vapor Space Outage (ft):	2.0000
Working Losses (lb):	
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Annual Net Throughput (gal/yr.):	675,000.0000
Annual Turnovers:	675.0000
Turnover Factor:	0.2111
Tank Diameter (ft):	4.0000

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

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Project No. 2005-01-079

Horizontal Tank
Springfield, Missouri

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)- (Continued)

Working Loss Product Factor:	1.0000
Total Losses (lb):	20.8512

TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Annual Emissions Report

Components	Losses(lbs)		Total Emissions
	Working Loss	Breathing Loss	
Petroleum Additive	19.47	1.38	20.85

Annual VOC Emissions from Tank 8004

The calculation for annual VOC emissions from Tank 8004 was done with the TANKS 4.0 software provided by the United States Environmental Protection Agency. Since that software does not have the capability to transfer its output into Word documents, the output report was printed, scanned, and added to this document as scanned images. The following five pages are the TANKS 4.0 report for this tank.

TANKS 4.0

Emissions Report - Detail Format

Tank Identification and Physical Characteristics

Identification

User Identification: Tank 8004
City: Springfield
State: Missouri
Company: ConocoPhillips - Mt. Vernon Products Terminal
Type of Tank: Horizontal Tank
Description: For 2005-01-09

Tank Dimensions

Shell Length (ft): 15.00
Diameter (ft): 6.00
Volume (gallons): 3,000.00
Turnovers: 225.00
Net Throughput (gal/yr): 675,000.00
Is Tank Heated (y/n): N
Is Tank Underground (y/n): N

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good

Breather Vent Settings

Vacuum Settings (psig): -0.03
Pressure Settings (psig): 0.03

Meteorological Data used in Emissions Calculations: Springfield, Missouri (Avg Atmospheric Pressure = 14.09 psia)

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Petroleum Additive	All	57.88	51.88	63.24	55.61	0.0441	0.0299	0.0584	130.0000			130.00	Option 1: VP50 = .025 VP60 = .05

TANKS 4.0 Emissions Report - Detail Format Detail Calculations (AP-42)

Annual Emission Calculations	
Standing Losses (lb):	4.2184
Vapor Space Volume (cu ft):	270.1389
Vapor Density (lb/cu ft):	0.0010
Vapor Space Expansion Factor:	0.0417
Vented Vapor Saturation Factor:	0.9930
Tank Vapor Space Volume	
Vapor Space Volume (cu ft):	270.1389
Tank Diameter (ft):	6.0000
Effective Diameter (ft):	10.7075
Vapor Space Outage (ft):	3.0000
Tank Shell Length (ft):	15.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0010
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Daily Avg. Liquid Surface Temp. (deg. R):	617.3298
Daily Average Ambient Temp. (deg. F):	55.7917
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	515.4817
Tank Paint Solar Absorptance (Shell):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,382.6891
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0417
Daily Vapor Temperature Range (deg. R):	22.7218
Daily Vapor Pressure Range (psia):	0.0284
Breather Vent Press. Setting Range (psia):	0.0800
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0299
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0584
Daily Avg. Liquid Surface Temp. (deg R):	617.3298
Daily Min. Liquid Surface Temp. (deg R):	511.6494
Daily Max. Liquid Surface Temp. (deg R):	623.0102
Daily Ambient Temp. Range (deg. R):	22.4167
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9930
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Vapor Space Outage (ft):	3.0000
Working Losses (lb):	
Working Losses (lb):	27.8723
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Annual Net Throughput (gal/yr.):	675,000.0000
Annual Turnovers:	225.0000
Turnover Factor:	0.3000
Tank Diameter (ft):	6.0000

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

SB - 74
Project No. 2005-01-079

Horizontal Tank
Springfield, Missouri

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)- (Continued)

Working Loss Product Factor:	1.0000
Total Losses (lb):	31.5907

TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Annual Emissions Report

Components	Losses (lbs)		Total Emissions
	Working Loss	Breathing Loss	
Petroleum Additive	27.67	4.22	31.89

Annual VOC Emissions from Tank 8005

The calculation for annual VOC emissions from Tank 8005 was done with the TANKS 4.0 software provided by the United States Environmental Protection Agency. Since that software does not have the capability to transfer its output into Word documents, the output report was printed, scanned, and added to this document as scanned images. The following five pages are the TANKS 4.0 report for this tank.

TANKS 4.0 Emissions Report - Detail Format Tank Identification and Physical Characteristics

Identification

User Identification: Tank 8005
City: Springfield
State: Missouri
Company: ConocoPhillips - Mt. Vernon Products Terminal
Type of Tank: Vertical Fixed Roof Tank
Description: For 2005-01-079

Tank Dimensions

Shell Height (ft): 16.00
Diameter (ft): 8.00
Liquid Height (ft): 16.00
Avg. Liquid Height (ft): 8.00
Volume (gallons): 6,016.21
Turnovers: 112.20
Net Throughput (gal/yr): 675,000.00
Is Tank Heated (y/n): N

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good
Roof Color/Shade: White/White
Roof Condition: Good

Roof Characteristics

Type: Cone
Height (ft): 0.50
Slope (ft/ft) (Cone Roof): 0.12

Breather Vent Settings

Vacuum Settings (psig): -0.03
Pressure Settings (psig): 0.03

Meteorological Data used in Emissions Calculations: Springfield, Missouri (Avg Atmospheric Pressure = 14.09 psia)

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Petroleum Additive	All	57.66	51.98	63.94	55.81	0.0441	0.0299	0.0584	130.0000			130.00	Option 1: VP50 = .025 VP60 = .05

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)

Annual Emission Calculations	
Standing Losses (lb):	6.3342
Vapor Space Volume (cu ft):	410.5014
Vapor Density (lb/cu ft):	0.0010
Vapor Space Expansion Factor:	0.0417
Vented Vapor Saturation Factor:	0.9812
Tank Vapor Space Volume	
Vapor Space Volume (cu ft):	410.5014
Tank Diameter (ft):	8.0000
Vapor Space Outage (ft):	8.1667
Tank Shell Height (ft):	16.0000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	0.1667
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.1667
Roof Height (ft):	9.5000
Roof Slope (ft/ft):	0.1200
Shell Radius (ft):	4.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0010
Vapor Molecular Weight (lb/lb-mole):	136.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Daily Avg. Liquid Surface Temp. (deg. F):	517.3298
Daily Average Ambient Temp. (deg. F):	55.7917
Ideal Gas Constant R (psia cu ft / (lb-mol-deg F)):	10.731
Liquid Bulk Temperature (deg. F):	515.4817
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insolation Factor (Btu/sq ft day):	1,382.6891
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0417
Daily Vapor Temperature Range (deg. F):	22.7216
Daily Vapor Pressure Range (psia):	0.0284
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0299
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0584
Daily Avg. Liquid Surface Temp. (deg. F):	517.3298
Daily Min. Liquid Surface Temp. (deg. F):	511.6494
Daily Max. Liquid Surface Temp. (deg. F):	523.0102
Daily Ambient Temp. Range (deg. F):	22.4167
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9812
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Vapor Space Outage (ft):	8.1667

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)- (Continued)

Working Losses (lb):	40.0376
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Annual Net Throughput (gal/yr.):	675,000.0000
Annual Turnovers:	112.1989
Turnover Factor:	0.4341
Maximum Liquid Volume (gal):	8,018.2107
Maximum Liquid Height (ft):	18.0000
Tank Diameter (ft):	8.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	46.3718

TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Annual Emissions Report

Components	Losses(lbs)		Total Emissions
	Working Loss	Breathing Loss	
Petroleum Additive	40.04	6.33	46.37

Annual VOC Emissions from Tank 8006

The calculation for annual VOC emissions from Tank 8006 was done with the TANKS 4.0 software provided by the United States Environmental Protection Agency. Since that software does not have the capability to transfer its output into Word documents, the output report was printed, scanned, and added to this document as scanned images. The following five pages are the TANKS 4.0 report for this tank.

TANKS 4.0 Emissions Report - Detail Format Tank Identification and Physical Characteristics

Identification

User Identification: Tank 8006
City: Springfield
State: Missouri
Company: ConocoPhillips - Mt. Vernon Products Terminal
Type of Tank: Horizontal Tank
Description: For 205-01-079

Tank Dimensions

Shell Length (ft): 11.00
Diameter (ft): 4.00
Volume (gallons): 1,000.00
Turnovers: 675.00
Net Throughput (gal/yr): 675,000.00
Is Tank Heated (y/n): N
Is Tank Underground (y/n): N

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good

Breather Vent Settings

Vacuum Settings (psig): -0.03
Pressure Settings (psig): 0.03

Meteorological Data used in Emissions Calculations: Springfield, Missouri (Avg Atmospheric Pressure = 14.09 psia)

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Petroleum Additive	All	57.66	51.98	63.34	55.51	0.0441	0.0299	0.0584	130.0000			130.00	Option 1: VP50 = .025 VP60 = .05

TANKS 4.0

Emissions Report - Detail Format

Detail Calculations (AP-42)

Annual Emission Calculations	
Standing Losses (lb):	1.3761
Vapor Space Volume (cu ft):	88.0448
Vapor Density (lb/cu ft):	0.0010
Vapor Space Expansion Factor:	0.0417
Vented Vapor Saturation Factor:	0.9953
Tank Vapor Space Volume	
Vapor Space Volume (cu ft):	88.0448
Tank Diameter (ft):	4.0000
Effective Diameter (ft):	7.4867
Vapor Space Outage (ft):	2.0000
Tank Shell Length (ft):	11.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0010
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Daily Avg. Liquid Surface Temp. (deg. R):	517.3298
Daily Average Ambient Temp. (deg. F):	55.7917
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):	10.781
Liquid Bulk Temperature (deg. R):	515.4817
Tank Paint Solar Absorbance (Shell):	0.1700
Daily Total Solar Insulation Factor (Btu/sq ft day):	1,382.6891
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0417
Daily Vapor Temperature Range (deg. R):	22.7218
Daily Vapor Pressure Range (psia):	0.0264
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0289
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0584
Daily Avg. Liquid Surface Temp. (deg R):	517.3298
Daily Min. Liquid Surface Temp. (deg R):	511.6494
Daily Max. Liquid Surface Temp. (deg R):	523.0102
Daily Ambient Temp. Range (deg. R):	22.4167
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9953
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Vapor Space Outage (ft):	2.0000
Working Losses (lb):	
Working Losses (lb):	19.4731
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Annual Net Throughput (gal/yr.):	675,000.0000
Annual Turnovers:	675.0000
Turnover Factor:	0.2111
Tank Diameter (ft):	4.0000

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)- (Continued)

Working Loss Product Factor:	1.0000
Total Losses (lb):	20.8512

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

SB - 87
Project No. 2005-01-079

Horizontal Tank
Springfield, Missouri

TANKS 4.0 Emissions Report - Detail Format Individual Tank Emission Totals

Annual Emissions Report

Components	Losses (lbs)		Total Emissions
	Working Loss	Breathing Loss	
Petroleum Additive	19.47	1.38	20.85

Annual VOC Emissions from Tank 8010

The calculation for annual VOC emissions from Tank 8010 was done with the TANKS 4.0 software provided by the United States Environmental Protection Agency. Since that software does not have the capability to transfer its output into Word documents, the output report was printed, scanned, and added to this document as scanned images. The following five pages are the TANKS 4.0 report for this tank.

TANKS 4.0

Emissions Report - Detail Format

Tank Identification and Physical Characteristics

Identification

User Identification: Tank 8010
City: Springfield
State: Missouri
Company: ConocoPhillips - Mt. Vernon Products Terminal
Type of Tank: Horizontal Tank
Description: For 2005-01-079

Tank Dimensions

Shell Length (ft): 16.00
Diameter (ft): 8.00
Volume (gallons): 6,000.00
Turnovers: 112.50
Net Throughput (gal/yr): 675,000.00
Is Tank Heated (y/n): N
Is Tank Underground (y/n): N

Paint Characteristics

Shell Color/Shade: White/White
Shell Condition: Good

Breather Vent Settings

Vacuum Settings (psig): -0.03
Pressure Settings (psig): 0.03

Meteorological Data used in Emissions Calculations: Springfield, Missouri (Avg Atmospheric Pressure = 14.09 psia)

TANKS 4.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Mixture/Component	Month	Daily Liquid Surf. Temperatures (deg F)			Liquid Bulk Temp. (deg F)	Vapor Pressures (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Petroleum Additive	All	57.66	51.85	63.34	55.81	0.0441	0.0299	0.0584	130.0000			130.00	Option 1: VP50 = .025 VP60 = .05

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)

Annual Emission Calculations	
Standing Losses (lb):	7.9907
Vapor Space Volume (cu ft):	512.2597
Vapor Density (lb/cu ft):	0.0010
Vapor Space Expansion Factor:	0.0417
Vented Vapor Saturation Factor:	0.9907
Tank Vapor Space Volume	
Vapor Space Volume (cu ft):	512.2597
Tank Diameter (ft):	8.0000
Effective Diameter (ft):	12.7894
Vapor Space Outage (ft):	4.0000
Tank Shell Length (ft):	16.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0010
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Daily Avg. Liquid Surface Temp. (deg. R):	517.3299
Daily Average Ambient Temp. (deg. F):	55.7917
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	515.4817
Tank Paint Solar Absorptance (Shell):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,362.6691
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0417
Daily Vapor Temperature Range (deg. R):	22.7216
Daily Vapor Pressure Range (psia):	0.0284
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0299
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0524
Daily Avg. Liquid Surface Temp. (deg R):	517.3299
Daily Min. Liquid Surface Temp. (deg R):	511.6494
Daily Max. Liquid Surface Temp. (deg R):	523.0102
Daily Ambient Temp. Range (deg. R):	22.4187
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9907
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Vapor Space Outage (ft):	4.0000
Working Losses (lb):	
Working Losses (lb):	39.9711
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0441
Annual Net Throughput (gal/yr.):	675,000.0000
Annual Turnovers:	112.5000
Turnover Factor:	0.4333
Tank Diameter (ft):	8.0000

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

SB - 92
Project No. 2005-01-079

Horizontal Tank
Springfield, Missouri

TANKS 4.0
Emissions Report - Detail Format
Detail Calculations (AP-42)- (Continued)

Working Loss Product Factor:	1.0000
Total Losses (lb):	47.9518

ConocoPhillips Co. - Mt. Vernon Products Terminal
Installation ID: 109-0036

SB - 93
Project No. 2005-01-079

Horizontal Tank
Springfield, Missouri

TANKS 4.0 Emissions Report - Detail Format Individual Tank Emission Totals

Annual Emissions Report

Components	Losses (lbs)		Total Emissions
	Working Loss	Breathing Loss	
Petroleum Additive	39.97	7.98	47.95

Annual Fugitive VOC Emissions from Tank Roof Landings

Tank roof landings can only be done on tanks with floating roofs – tanks 302, 303, 304, 310, 311, and 314 (EU0030 through EU0080.) The following spreadsheet shows that if the roof is landed on each of these tanks once for cleaning and twice for seasonal RVP changes, the total annual fugitive VOC emissions will be 18.106 tons. Tank roofs are landed once per year, in July, for cleaning. A ConocoPhillips company directive discourages tank roof landings for seasonal RVP changes, and deviation from this directive requires company approval under their Management of Change policy. However, business practices could change, and occasionally an operational need arises to land the floating roof. A total of less than 25 tons of VOC per year, instead of 18.106 tons, is used in the Annual VOC and Speciated HAP Emissions Summary, to allow for this.

Spreadsheet for Annual Fugitive VOC Emissions from Tank Roof Landings
 Page 1 of 4, Columns 1 through 14

1	2 (N _{Event})	3	4	5	6 (D)	7 (nd)
Tank ID	Number of Roof Landing Events	Product	Tank Type 1 = IFR 2 = EFR	Drain Method 0 = drain dry 1 = IFR liquid heal 2 = EFR liquid heal	Diameter (ft)	Idle Time (days) Default = 1
Tank 302	2	Gasoline RVP 13	1	1	60	1
Tank 304	2	Gasoline RVP	1	1	74	1
Tank 310	2	Gasoline RVP	1	1	25	1
Tank 311	2	Gasoline RVP	1	1	100	1
Tank 314	2	Gasoline RVP	1	1	67	1
Tank 303	2	Gasoline RVP	1	1	134	1
Tank 302	1	Tank Cleaning	1	1	60	5
Tank 304	1	Tank Cleaning	1	1	74	5
Tank 310	1	Tank Cleaning	1	1	25	5
Tank 311	1	Tank Cleaning	1	1	100	5
Tank 314	1	Tank Cleaning	1	1	67	5
Tank 303	1	Tank Cleaning	1	1	134	5

8 (s)	9 (hd)	10 (H)	11 (H _l)	12 (H _v)	13 (Vv)	14 (a)
Bottom Slope (in/ft) Default = 0.25	Height of Roof Deck (ft) Default = 4	Height of Stock Liquid (ft) 0 for drain dry	Effective Stock Liquid Height (ft)	Height of Vapor Space (ft)	Volume of Vapor Space (ft ³)	Paint Solar Absorptance from AP-2 Table 7.1-6 (dimensionless)
0.25	4	0.5	0.708	3.5	9891	0.17
0.25	4	0.5	0.757	3.5	15045.31	0.17
0.25	4	0.5	0.587	3.5	1717.1875	0.17
0.25	4	0.5	0.847	3.5	27475	0.17
0.25	4	0.5	0.733	3.5	12333.5275	0.17
0/25	4	0.5	0.965	3.5	49334.11	0.17
0.25	4	0.5	0.708	3.5	9891	0.17
0.25	4	0.5	0.757	3.5	15045.31	0.17
0.25	4	0.5	0.587	3.5	1717.1875	0.17
0.25	4	0.5	0.847	3.5	27475	0.17
0.25	4	0.5	0.733	3.5	12333.5275	0.17
0.25	4	0.5	0.965	3.5	49334.11	0.17

Spreadsheet for Annual Fugitive VOC Emissions from Tank Roof Landings
 Page 3 of 4, Columns 27 through 38

27 (P*)	28 (M _v)	29 (W _l)	30 (KE)	31 (S)	32 (L _{swind}) _d
Vapor Pressure Function = [P/P _a] / [1+(1-P/P _a) ^{0.2}] ²	Stock Vapor Molecular Weight (lb / lb mole)	Stock Liquid Density (lb / gal)	Vapor Space Expansion Factor = {ΔT _v /T _v } + {0.5BPAT _v /[T _v ² (Pa-P)]}	Filling Saturation Factor from Table 1 in Ferry's API Document	Wind Losses from Equation 14 in Ferry's API Document (lb)
0.202	62	5.60	0.304	0.60	428.6777052
0.202	62	5.60	0.304	0.60	508.7025031
0.202	62	5.60	0.304	0.60	178.6157105
0.202	62	5.60	0.304	0.60	714.462842
0.202	62	5.60	0.304	0.60	478.6901042
0.202	62	5.60	0.304	0.60	957.3822083
0.311	62	5.60	0.648	0.60	3300.674
0.311	62	5.60	0.648	0.60	4070.831
0.311	62	5.60	0.648	0.60	1375.281
0.311	62	5.60	0.648	0.60	5501.123
0.311	62	5.60	0.648	0.60	3685.753
0.311	62	5.60	0.648	0.60	7371.505

33 (L _s)	34 (L _f)	35 (C _{sf})	36 (C _{sf} S)	37 (K _s)	38 (L _{Event})
Standing Losses from Equation 5 in Ferry's API Document (lb)	Filling Losses from Equation 20 in Ferry's API Document (lb)	Filling Saturation Correction Factor	Note if product of C _{sf} and S is greater than or equal to 0.15	Standing Idle Saturation Factor = 1 / (1 + 0.053PH _v)	Total Losses Each Event (lb) = L _s + L _f
105.6158048	513.5978312	0.00		0.40609	619
160.6533742	781.2393676	0.00		0.40609	942
18.33607722	89.16629013	0.00		0.40609	108
293.3772355	1426.660642	0.00		0.40609	1720
131.697041	640.4279622	0.00		0.40609	772
526.788164	2561.711649	0.00		0.40609	3089
1207.859	646.816	0.00		0.34568	1855
1837.288	983.878	0.00		0.34568	2821
209.698	112.294	0.00		0.34568	322
3355.165	1796.710	0.00		0.34568	5152
1506.136	806.543	0.00		0.34568	2313
6024.534	3226.172	0.00		0.34568	9251

Spreadsheet for Annual Fugitive VOC Emissions from Tank Roof Landings
Page 4 of 4, Columns 39 and 40

39 (L _T)	40 (L _{month})
Total Losses (lb) $= L_{Event} \times N_{Event}$	Total Annual Losses (tons) $= LT / 2000$
1238	0.619
1884	0.942
216	0.108
3440	1.720
1544	0.772
6178	3.089
1855	0.9275
2821	1.411
322	0.161
5152	2.576
2313	1.156
9251	4.625
Grand Total	18.106

Annual Fugitive VOC Emissions from General Products/Light Oil Loading Rack

The equations below are from Chapter 5.2 Transportation and Marketing of Petroleum Liquids in the United States Environmental Protection Agency document *Compilation of Air Pollutant Emission Factors: AP-42, Fifth Edition, Volume I, Stationary Point and Area Sources*.

$$L_L = 12.46 S P M / T$$

where L_L = loading loss in pounds per 1000 gallons ($lb/10^3$ gal) of liquid loaded,

S = a saturation factor, assumed 1.0 for submerged loading, vapor balance service (From Table 5.2-1),

P = true vapor pressure of liquid loaded in pounds per square inch absolute (psia) (From TANKS 4.0),

M = molecular weight of vapors in pounds per pound-mole ($lb/lb\text{-mole}$) (From TANKS 4.0), and

T = temperature of bulk liquid loaded in $^{\circ}R$

Product	P (psia)	M ($lb/lb\text{-mole}$)	T $^{\circ}R$	L_L ($lb/10^3$ gal)
Gasoline (RVP 13)	6.65	62	516	9.96
Jet Kerosene	0.0076	130	516	0.0239
Transmix*	6.65	62	516	9.96

* As a worst case scenario, transmix is assumed to have the same properties as gasoline.

$$E = L_L Q$$

where E = total vapor generated, in pounds (lb),

L_L = loading loss in pounds per 1000 gallons ($lb/10^3$ gal) of liquid loaded, and

Q = total amount of liquid loaded, in thousands of gallons (10^3 gal)

Product	L_L ($lb/10^3$ gal)	Q (10^3 gal)	E (lb)	E (tpy)
Gasoline (RVP 13)	9.96	500,000	4,980,000	2490
Jet Kerosene	0.024	168,000	4,030	2.02
Transmix	9.96	15,000	149,400	74.7

$$L_F = E EF$$

where L_F = fugitive losses from loading rack,

E = total vapor generated, and

EF = emission factor, assumed 0.8% (From Section 7.1 Emission Factors of Chapter 7.0 Cargo Tank Requirements of United States Environmental Protection Agency document Gasoline Distribution Industry (Stage I) Background Information for Promulgated Standards (EPA-453/R-94-002b))

Product	E (tpy)	EF	L_F (tpy)
Gasoline (RVP 13)	2490	0.008	19.92
Jet Kerosene	2.02	0.008	0.016
Transmix	74.7	0.008	0.598
		Total	20.534

Annual Emissions from Flare 1 for General Products/Light Oil Loading Rack

As a worst-case scenario, assume that the maximum allowable emissions of 10 milligrams of total organic compounds (volatile organic compounds or VOC) per liter of gasoline loaded at the facility are all from this flare, and count the entire throughput of gasoline, jet kerosene, and transmix.

$$\text{Total throughput} = 500,000,000 + 168,000,000 + 15,000,000 = 683,000,000$$

$$\begin{aligned} \text{Annual VOC Emissions from Flare 1} &= (683,000,000 \text{ gal/yr}) \times 10 \text{ mg/L} \times (\text{lb} / 0.4536 \text{ kg}) \\ &\quad \times (\text{kg} / 10^6 \text{ mg}) \times (3.7854 \text{ L} / \text{Gal}) \times (\text{ton} / 2000 \text{ lb}) \\ &= 28.499 \text{ tpy} \end{aligned}$$

Nitrogen oxides and carbon monoxide emissions for the flare are de minimis. The calculations are the standard $E = L \times EF$, where E is emissions, L is load, and EF is an emission factor. The emissions factors used are from the manufacturer's information for the flare.

Pollutant	Load (10^3 gal/yr)	Emission factor (lb/ 10^3 gal)	Emission (lb/yr)	Emission (tpy)
CO	683,000	0.0835	57,030	28.5
NO _x	683,000	0.0334	22,810	11.4

Annual Emissions from Maintenance of Propane System

The permittee anticipates flaring only twelve or fewer propane tanks per year. The following spreadsheet assumes that each of the fourteen propane tanks has to be flared twice each year, once for cleaning and once for repair; that a tank is always full and needs the entire contents flared when it is cleaned or repaired; and that all tanks are the size of the largest tank (625 ft³). The total annual VOC emissions in this case will be 5.67 pounds (0.0028 ton) per year. To make a worst case scenario, a total of 10 pounds (0.0050 ton) of VOC per year, instead of 0.0028 ton, is used in the Annual VOC and Speciated HAP Emissions Summary.

The basic calculation is Emission (lb) = Number of flarings/yr X Volume (ft³) X Emission Factor (lb/ft³). The emission factors for propane given in Chapter 13 of the United States Environmental Protection Agency document Compilation of Air Pollutant Emission Factors: AP-42, Fifth Edition, Volume I, Stationary Point and Area Sources are:

EF for carbon monoxide (CO) = 0.37lb / 10⁶ BTU

EF for nitrogen oxides (NO_x) = 0.068lb / 10⁶ BTU

EF for volatile organic compounds (VOC) = 0.14lb / 10⁶ BTU

Since the emission factors are in lb/10⁶BTU, the calculation becomes Emission (lb) = Number of flarings (/yr) X Volume (ft³) X [Heating Value (BTU/ft³) / 10⁶] X Emission Factor (lb/10⁶ BTU).

Pollutant	Number of Flarings (/yr)	Volume of Propane Flared (ft ³)	Heating Value of Propane/ (BTU/ft ³)	Emission Factor	Emissions (lb/yr)	Emissions (tpy)
CO	28	625	2316	0.37	15.00	0.0075
NO _x	28	625	2316	0.068	2.76	0.0014
VOC	28	625	2316	0.14	5.67	0.0028

The CO and NO_x emissions are de minimis. The VOC emission is all propane, which is not on the list of HAP.

Annual Fugitive VOC Emissions from Propane Loading Rack

The maximum annual amount of propane through the propane loading rack is 105,000,000 gallons. The smallest propane truck, a "bobtail," holds 3,000 gallons, so the maximum number of trucks loaded annually is 35,000. This is a worst-case scenario. In actuality, it would be impossible for the facility to load this many trucks in a year; they would have to load a truck every fifteen minutes around the clock every day of the year. Each time a truck is loaded, the entire volume in the loading line is lost. Assuming that a loading line is 2 inches in diameter and 2.5 feet long, then 0.0545 ft³ of propane is lost each time a truck is loaded. This comes to 1907.5 ft³ of propane lost per year.

Assume that 90% of the propane lost is captured and sent to Flare 2. Then 1716.75 ft³ is sent to the flare and 190.75 ft³ is emitted directly to the atmosphere.

The density of liquid propane at 60°F is 31.75 lb/ft³. (From the application, which cited Perry's Table 3-272, sixth edition.) The propane emitted directly to the atmosphere is 190.75 ft³ X 31.75 lb/ft³ = 6056.3 lb = 3.0282 tons.

The emissions from the flare are calculated the same way flarings were calculated in the previous section, Annual Emissions from Maintenance of Propane System.

Pollutant	Volume of Propane Flared (ft ³)	Heating Value of Propane/ (BTU/ft ³)	Emission Factor	Emissions (lb/yr)	Emissions (tpy)
CO	1716.75	2316	0.37	1.4711	0.0007
NO _x	1716.75	2316	0.068	0.2704	0.0001
VOC	1716.75	2316	0.14	0.5566	0.0003

The CO and NO_x emissions are de minimis. The total VOC emission of 3.0282 tons + 0.0011 ton = 3.0293 tons is all propane, which is not on the list of HAP.

Annual Facility-wide VOC Fugitive Emissions from Valves, Flanges, Pumps, etc.

Emission Type	Component *1			Fluid Type *2	Emission Factor *3	Control Eff. (%)	Hrs in Service	VOC (lb/hr)	VOC (tpy)
	Type	Service	#						
Liquid	Pump Seal	Light Liquid	27	Gasoline	0.00117	0	8760	0.0316	0.1384
"	Pump Seal	Heavy Liquid	4	"	0.00117	0	"	0.0047	0.0206
"	Valve	Light Liquid	1647	"	0.0000948	0	"	0.1561	0.6837
"	Valve	Heavy Liquid	107	"	0.0000948	0	"	0.0101	0.0442
"	Connector	Light Liquid	5941	"	0.0000172	0	"	0.1022	0.4476
"	Connector	Heavy Liquid	385	"	0.0000172	0	"	0.0066	0.0289
"	Open-ended Line	Light Liquid	0	"	0.000287	0	"	0.0000	0.0000
"	Other	Light Liquid	321	"	0.000287	0	"	0.0921	0.4034
"	Relief Valve	Liquid	0	"	0.000287	0	"	0.0000	0.0000
Subtotal for Liquid Service								0.4036	1.7668
Vapor	Valve	Vapor	148	Gasoline	0.0000287	0	8760	0.0042	0.0184
"	Connector	Vapor	533	"	0.0000904	0	"	0.0482	0.2111
Subtotal for Vapor Service								0.0524	0.2295
Total									1.996

- *1 Emission factors for pump seals, valves and connectors in heavy liquid service were assumed to be the same as for those in light liquid service.
- *2 Since gasoline has the highest emissions, it was always used as the liquid.
- *3 Emission factors are from the United States Environmental Protection Agency document "New Equipment Leak Emission Factors for Petroleum Refineries, Gasoline marketing, and Oil & Gas Production Operations," February 1995

Annual VOC Emissions from Emergency Generator

All emissions from the emergency generator are de minimus. Following are calculations to demonstrate this. Even if the actual emission factors for the generator are higher than those in AP-42, this will be more than offset by the fact that it is run only occasionally and only for brief periods. Its usage will not come anywhere close to 8,760 hours per year.

INPUT PARAMETERS:

(1) Engine Make	Cummins Model 4A2.3-GI		
(2) Rating	34BHP @ 1800 rpm		
(3) Engine Type	Internal Combustion Engine		
(4) Engine Use	Diesel Generator for Emergency Power		
(5) Emission Factors (AP-42, Table 3.3-1)			
	Pollutant	Factor	Units
	NO _x	0.031	lb/hp-hr
	CO	6.68E-03	lb/hp-hr
	SO ₂	2.05E-03	lb/hp-hr
	PM-10	2.20E-03	lb/hp-hr
	Total VOC	2.47E-03	lb/hp-hr

CALCULATED PARAMETERS:

(6) Total Annual Potential Hours of Usage	8760 hrs/yr
(7) Emission Estimates	
NO _x Emissions	
0.031 lb/hp-hr X 8760 hr/yr X 34 hp (Full Load)	
= 9233 lb/yr = 4.617 ton/yr	
CO Emissions	
6.68E-03 lb/hp-hr X 8760 hr/yr X 34 hp (Full Load)	
= 1990 lb/yr = 0.995 ton/yr	
SO ₂ Emissions	
2.05E-03 lb/hp-hr X 8760 hr/yr X 34 hp (Full Load)	
= 610.6 lb/yr = 0.305 ton/yr	
PM-10 Emissions	
2.20E-03 lb/hp-hr X 8760 hr/yr X 34 hp (Full Load)	
= 655.2 lb/yr = 0.328 ton/yr	
VOC Emissions	
2.47E-03 lb/hp-hr X 8760 hr/yr X 34 hp (Full Load)	
= 735.7 lb/yr = 0.368 ton/yr	

Annual VOC Emissions from Meter Provings

The permittee anticipates doing only 52 meter provings per year. As a worst-case scenario, assume that 365 meter provings are done in a year. (In order to perform meter provings, the loading bay, which contains the meters, has to be shut down to truck loadings. This will not be done more than once a day. Realistically, it will not even be done that often.) Also, for the worst-case scenario, assume that the temperature is high (75°F), and the product is the one with the highest emissions (gasoline.). The total annual VOC emissions in this case will be 3,194 pounds (1.597 tons) per year. A total of 3,500 pounds (1.75 tons) of VOC per year, instead of 1.597 ton, is used in the Annual VOC and Speciated HAP Emissions Summary and in Permit Condition EU0210-001, so that the permittee can be assumed always to be in compliance.

The following spreadsheet was used to calculate emissions from meter provings. The equations are:

$$E = C V_F$$

$$C = (P M_V) / (R T_R)$$

$$T_R = T_F + 459.67^\circ$$

$$V_F = 0.13368 V_G$$

Where

C = vapor concentration in lb/ft³

E = maximum emission of volatile organic compounds (VOC) in lb

M_V = vapor molecular weight in lb/lb-mole

P = product partial pressure in psia. Note: The nomographs in Tables 7.1-13a and 7.1-14a of the United States Environmental Protection Agency document Compilation of Air Pollutant Emission Factors: AP-42, Fifth Edition, Volume I, Stationary Point and Area Sources, can be used to get this figure for a product with a given Reid vapor pressure at a given temperature.

R = Universal Gas Constant (10.732 psi ft³/lbmole °R)

T_F = maximum hourly temperature in °F

T_R = maximum hourly temperature in °R

V_G = meter prover volume (gal)

V_F = meter prover volume (ft³)

1	2	3	4	5	5	7	8	9	10	
T _F (°F)	T _R (°R)	Product	P (psia)	M _V (lb/lb-mole)	C Vapor Concentration (lb/ft ³)	V _G (gal)	V _F (ft ³)	E (lb)	Annual VOC Emissions = 365 X Col 9 (lb)	Annual VOC Emissions = Col 10 / 2000 (tons)
75	535	Gasoline, RVP 13	8.1	62	0.0875	750	100	8.75	3194	1.597

Annual VOC Emissions from Rack Sump with Oil/Water Separator

The sump pump has a maximum design flow rate of 50 gallons per minute, or 26,280,000 gallons per year.

$$E = Q EF$$

where

E = Total VOC emissions (lb/yr)

Q = Oil/water separator total throughput (gal/yr)

EF = Emission factor, assumed to be 0.2 lb/10³ gal (From Table 9.1-2 in the United States Environmental Protection Agency document *Compilation of Air Pollutant Emission Factors: AP-42, Fifth Edition, Volume I, Stationary Point and Area Sources.*)

$$E = 26,280,000 \text{ gal/yr} \times 0.2 \text{ lb/10}^3 \text{ gal} = 5256 \text{ lb/yr} = 2.628 \text{ tons/yr}$$

Annual VOC Emissions from Wastewater Tank

The VOC emissions from the wastewater tank will be no more than those from the rack sump with oil/water separator, so 2.628 tons/yr was also used for this in the Annual VOC and Speciated HAP Emissions Summary.

Annual VOC Emissions from Air Stripper

All emissions from the air stripper are de minimus. The following calculations are copied from the previous permit. The xylene emission of 1.096 ton/yr is split into three equal amounts of 0.365 ton/yr each for o-xylene, m-xylene, and p-xylene in the Annual VOC and Speciated HAP Emissions Summary.

INPUT PARAMETERS:

(1) Contaminant Concentrations in Exit Stream:

Benzene 5 mg/l (ppm)

Toluene 10 mg/l (ppm)

Ethylbenzene 10 mg/l (ppm)

Xylene 10 mg/l (ppm)

(2) Flow Rate 50 gpm

CALCULATED PARAMETERS

(3) Maximum Pollutant Emission Rates

Benzene Emission

5	ppm	1	lb	50	gallons	8.34	lbs	60	minutes
		1000000	lbs		minute		gallon		hr

0.125 lbs/hour or 0.548 ton/year

Toluene Emission

10	ppm	1	lb	50	gallons	8.34	lbs	60	minutes
		1000000	lbs		minute		gallon		hr

0.250 lbs/hour or 1.096 ton/year

Ethylbenzene Emission

10	ppm	1	lb	50	gallons	8.34	lbs	60	minutes
		1000000	lbs		minute		gallon		hr

0.250 lbs/hour or 1.096 ton/year

Xylene Emission

10	ppm	1	lb	50	gallons	8.34	lbs	60	minutes
		1000000	lbs		minute		gallon		hr

0.250 lbs/hour or 1.096 ton/year

Prepared by:



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