Holly Energy Partners – Operating, L.P.
Tucson Terminal
Air Quality Operating Permit #5014

Technical Support Document (TSD)

I. General Comments:

A. Company Information

1. Source Name: Holly Energy Partners – Operating, L.P.
2. Source Address: 3605 S. Dodge Blvd, Tucson AZ 85713

B. Background

The facility is a bulk fuel products distribution terminal and operates under the following industrial classification:

- Petroleum Bulk Stations and Terminals, SIC code: 5171
  (North American Industry Classification System (NAICS): 424710)

The facility receives, stores, and distributes gasoline, ethanol, diesel fuel, and product additives.

The facility consists of two non-contiguous but interconnected properties. The terminal consists of two pipeline manifolds, seven product storage tanks (5- gasoline storage tanks, 1 diesel storage tank, and 1 – ethanol storage tank), and a two-bay truck loading rack that utilizes a thermal oxidizer to control TOC emissions from the truck loading operations. The terminal has a total product storage capacity of 171, 000 bbl.

Air pollution sources at the facility include point and fugitive emission sources as a result of the storage, handling, and transfer of fuel products into tank or cargo trucks for delivery to service stations, and the processing of fuel vapors collected by the loading rack in a thermal oxidizer.

This is the first renewal of the 5 year individual air quality operating permit # 5014 issued to Holly Energy Partners – Operating, L.P. – Tucson Terminal, the Permittee. The permit was originally issued under ST Services, Permit #1176 on August 24, 2004 and transferred to Holly Energy Partners – Operating, L.P. on August 21, 2008. A copy of the previous PTE document is attached (Attachment 1).

The storage capacity of the facility is less than 300, 000 barrels and is therefore not a categorical source for the purpose of Title V of the Clean Air Act and the fugitive emissions from the truck and cargo loading operations are not considered in determining whether the source is a major stationary source.

The source has accepted a voluntary limitation on the annual throughput of gasoline and ethanol through the storage vessels to limit the emissions below the major source threshold of 100 tons of VOC for purposes of Title V of the Clean Air Act.

The facility is a Class II synthetic minor source of VOC and an area source of HAPs.

Table 1
Summary of Permit Actions since the previous permit was issued

Date	Permit Action
08/21/2008	Ownership Change and permit transfer to Holly Energy Partners – Operating, L.P. Permit #5014
07/01/2009	Received permit renewal application
06/22/2010	Permit Amendment to process change of responsible official
07/08/2011	Processed notification to update mailing addresses for responsible officials

C. Attainment Classification

The facility is located in a region that is designated attainment for all criteria pollutants.

II. Source Description:

A. Process Description

The air pollutant emitting equipment and operations at facility consists of the following:

- 7 product storage tanks (5 gasoline storage tanks, 1 diesel storage tank, and 1 ethanol storage tank) with a capacity of 171,000 bbl or 7,182,000 gallons.
- 2-bay cargo/truck loading rack
- 1-thermal oxidizer vapor control unit (VCU)

B. Operating Capacity and Schedule

The operating schedule at the facility is not limited and the facility can operate 7 days/week, 24hours a day, 365 days a year.

The potential operating capacity of the facility is limited by the pumping capacity of the loading rack to 10,011,428 bbl/yr or 420,480,018 gallons of product/yr. This operating capacity had been voluntarily limited in the previous permit to 240,000,000 gallons of gasoline and ethanol product to reduce the potential emissions below major source thresholds.

C. Air Pollution Control Equipment

NAO Thermal Oxidizer with propane pilot to limit the emissions from the fuel vapors collected from the loading rack during fuel transfer to less than the NSPS standard of 35 mg/liter of gasoline loaded.

III. Emission Estimates:

Table 2

Potential to Emit (PTE)

Emission Sources	Pollutant (ton/yr)								
	PM_{10}	$PM_{2.5}$	NO_X	SO_2	CO	VOC	Lead	HAP Total [4]	HAP Single [4]
Thermal Oxidizer	0.21	0.21	4.01	0.08	10.01	35.05 [1]	ND	1.84	0.56
Storage Vessels [2]	ND	ND	ND	ND	ND	17.59 [2]	ND	0.92	0.28
Loading Fugitives [3]	ND	ND	ND	ND	ND	9.76 [3]	ND	0.51	0.16
Pipeline Component and Pump Fugitives [3]	ND	ND	ND	ND	ND	0.31 [3]	ND	0.02	0.00
Facility Wide PTE (Including Fugitives)	0.21	0.21	4.01	0.08	10.01	62.71	ND	3.29	1.01
Facility Wide PTE (Without Fugitives)	**0.21**	**0.21**	**4.01**	**0.08**	**10.01**	**52.64**	**ND**	**2.76**	**0.84**

ND – No Data

[1] VOC PTE emissions from the thermal oxidizer are estimated using a maximum throughput limit of gasoline and ethanol of 240 million gallons.

[2] Emissions from the non-diesel storage vessels were modeled by the Permittee using Tanks 4.0.9d using the throughput limitation of 240 million gallons of gasoline + ethanol through the storage tanks. Working losses from the diesel storage tank were estimated using the maximum capacity minus the gasoline and ethanol throughput limitation (180,480,018 gallons of diesel).

[3] Fugitive emissions from loading (truck loss) and equipment leaks are not considered when determining potential to emit for non-categorical petroleum storage and transfer sources in accordance with PCC 17.04.340 (128).

[4] HAP baseline total = 5.25% of VOC; 1.6% of VOC as Hexane (HAP Single) [Ref. EIIP Volume III: Chapter 11, Gasoline Marketing (Stage I and Stage II), Table 11,3-2.

See Attachment 2 for detailed emission calculations provided by the Source.

IV. Applicable Requirements:

40 CFR, Part 60 Standards of Performance for New Stationary Sources

Appendix A	Test Methods
Subpart A	General Provisions
Subpart K	Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and prior to May 19, 1978.

Subpart Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984
Subpart XX	Standards of Performance for Bulk Gasoline Terminals

40 CFR Part 63 National Emission Standards for Hazardous Air Pollutants for Source Categories

Subpart A	General Provisions
Subpart BBBBBB	National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Distribution Bulk Terminal, Bulk Plants, and Pipeline Facilities

Pima County Code Title 17, Chapter 17.12 – Permits and Permit Revisions

Article I – General Provisions

17.12.010	Statutory Authority
17.12.020	Planning, Constructing, or Operating Without a Permit
17.12.035	Affirmative defenses for excess emissions due to malfunctions, startup, and shutdown
17.12.040	Reporting requirements
17.12.045	Test methods and procedures
17.12.050	Performance tests
17.12.080	Permit Display or Posting

Article II – Individual Source Permits

17.12.165	Permit application processing procedures for Class II and Class III permits
17.12.185	Permit contents for Class II and Class III permits
17.12.235	Facility Changes that require a permit revision
17.12.240	Procedures for certain changes that do not require a permit revision Class II or Class III
17.12.255	Minor Permit Revision
17.12.260	Significant Permit Revision
17.12.270	Permit Reopenings – Revocation and reissuance – Termination
17.12.350	Material permit condition

Article VI – Fees

17.12.520	Fees related to Class II and Class III permits

Pima County Code Title 17, Chapter 17.16 – Emission Limiting Standards

Article I – General Provisions

17.16.010	Local rules and standards; Applicability of more than one standard
17.16.020	Noncompliance with applicable standards
17.16.030	Odor limiting standards

Article II – Visible Emission Standards

17.16.040	Standards and applicability (includes NESHAP)
17.16.050	Visibility limiting standard

Article III – Emissions from Existing and New Nonpoint Sources

17.16.055	General
17.16.060	Fugitive dust producing activities
17.16.070	Fugitive dust emissions standards for motor vehicle operation
17.16.080	Vacant lots and open spaces
17.16.090	Roads and streets
17.16.100	Particulate materials
17.16.110	Storage piles

Article IV – New and Existing Stationary Source Performance Standards

17.16.130	Applicability
17.16.230	Standards of performance for storage vessels for petroleum liquids
17.16.400	Organic Solvents and other organic materials
17.16.430	Standards of performance for unclassified sources

Pima County Code Title 17, Chapter 17.20 – Emissions Source Testing and Monitoring

17.20.010	Source sampling, monitoring and testing
17.20.040	Concealment of emissions

Pima County Code Title 17, Chapter 17.24 – Emissions Source Recordkeeping and Reporting

17.24.020	Recordkeeping for compliance determination

V. Permit Changes and Applicability Determinations:

A. Permit and Permit Summary

The facility is now subject to 40 CFR Part 63, Subpart BBBBBB in addition to 40 CFR Subpart K, Kb, and XX in the previous permit.

B. Applicability

Section 1 of the permit provides a reference for the applicability of affected sources, PCC and federal rules to the facility and operations, and to help organize the permit sections.

C. Facility-Wide Operations

Section 2 incorporates the applicable facility wide provisions to include the following: Voluntary synthetic minor limitations, general control standards, materials handling standards, and requirements for asbestos demolition and renovation activities.

This section also includes periodic monthly monitoring of the throughput limitation, as well as general requirements for recordkeeping and facility changes.

D. GD GACT Requirements

Section 3 incorporates the requirements in 40 CFR Part 63, Subpart BBBBBB. II.A.1.a.i of Section 3 incorporates the presence or absence of a system pilot flame for the thermal oxidizer (TO) as a continuous monitoring system (CMS), and requires the Permittee to develop and submit a monitoring and inspection plan for the TO.

III.C, D, and E of Section 3 adds a provision that semiannual compliance reports, semiannual excess emission reports, and semiannual malfunction reports required by the GD GACT are not required to be submitted to the control officer if there have not been any excess emissions or emission events but instead shall be maintained on site for review by the control officer. Any excess emissions or emissions event or malfunction as defined by the rule are to be reported to the control officer in accordance with PCC 17.12.040.

E. NSPS Storage Vessel Requirements

Section 4 organizes the NSPS Subpart K, and Kb storage vessel requirements in the previous permit.

F. NSPS Loading Rack Requirements

Section 5 organizes the NSPS Subpart XX loading rack requirements in the previous permit.

G. Local Performance Standards for Storage Vessels

Section 6 contains local performance standards for petroleum liquid storage vessels, pumps and compressors, and facilities for dock loading of petroleum products that are not affected NSPS facilities. Non-NSPS storage vessels and all pumps and compressors that handle VOC are subject to the standards in this section as applicable. The non-NSPS gasoline storage tanks and other gasoline affected facilities are required to meet the requirements in Section 3 of this section whichever is more stringent.

VI. Periodic Monitoring:

This is a class II permit and does not require the submittal of a semiannual summary report of required monitoring or annual compliance certifications to the Control Officer. The permit requires the facility to maintain the required monitoring records on site or as requested by the control officer in order to demonstrate compliance with the standards.

VII. Insignificant Activities:

The insignificant activities per PCC are listed in a Table in Attachment 3.

VIII. Impact to Ambient Air Quality:

Not a major source so no impact studies are required.

IX. Control Technology Determination:

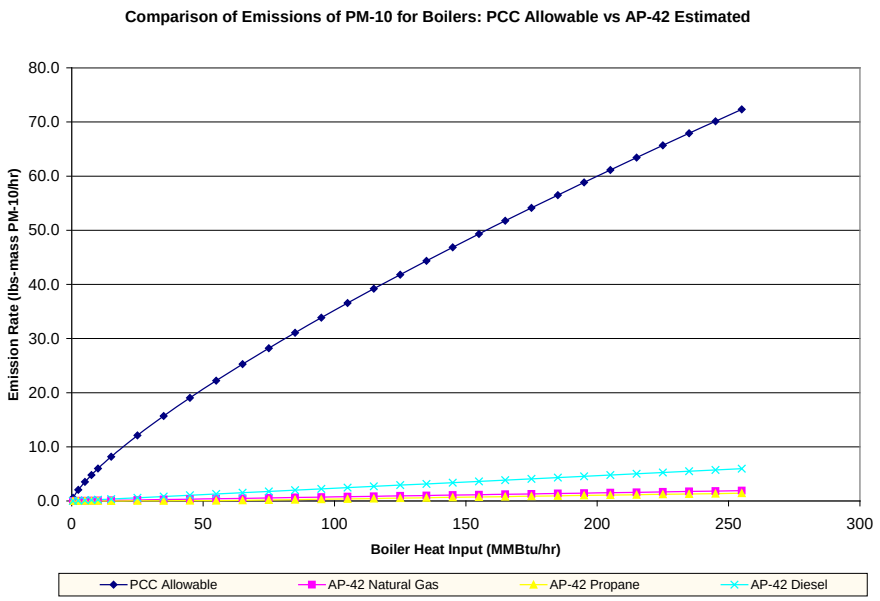
No control technologies needed to be determined; the source is not subject to RACT, BACT or LAER. The primary TO control device is compliant with the NSPS and GD GACT requirements.

X. Exclusion of PCC Particulate Matter Discharge Rate Standards:

The applicable PCC rules for the maximum particulate discharge rates are not normally included for Class II and III area source permits as explained below.

- For particulate matter sources, the calculated maximum particulate matter discharge rate, as provided in Title 17, yields maximum rates that far exceed the emissions expected from most typical area sources. For example a 200 ton/hour process source, which is typical for an average construction aggregate screening operation, would be limited to a maximum discharge rate of 40 lbs/hour or 176 tons/year. This limit far exceeds estimated emissions from typical sources using AP-42 emission factors and the source is far more likely to exceed opacity and visibility limiting standards well before reaching this limit.

- With regard to fuel burning equipment, PCC 17.16.165.C limits the emissions of particulate matter from commercial and industrial fossil-fuel fired equipment (including but not limited to boilers). This limit is not normally included in permits because allowable emissions are consistently over an entire order of magnitude higher than EPA AP-42 estimated potential emissions. The chart below, illustrates the point.



Comparative Chart of Allowable Particulate Emissions Under Pima County Code, Title 17, and Estimated Potential Emissions based on EPA AP-42 Estimates for External Combustion Sources. Allowable emissions are consistently over ten times estimated potential emissions. Therefore, it is not necessary to include the standard in the permit explicitly, but by reference in Attachment 1.

ATTACHMENT 1

Copy of the previous Potential To Emit Document

Holly Energy Partners Operating L.P.
PTE Document (Fwd Pemit 1176)
Permit # 5014

SUMMARY	
NOx	**14.1**
CO	**11.8**
VOC	**75.9**
HAPs	**11.9**

Based upon data provided by the applicant

At a maximum pumping rate of	1200	gpm for loading trucks
The potential throughput is	449,703,360	gallons per year*

* The calculation includes a factor of 0.713 which specifies how much of the total is gasoline.

Loading loss from tanks is	0.31	lb/1000 gal
Potential loading losses from tanks:	69.70	tons per year
Loading loss from racks is	0.31	lb/1000 gal
Potential loading losses from racks:	69.70	tons per year
Total VOC Potential Emissions:	**139.41**	**tons per year**

As required by the permit

The max allowable throughput is	240,000,000	gallons per year
Loading loss from tanks is	0.31	lb/1000 gal
Potential loading losses from tanks:	37.20	tons per year
Loading loss from racks is	0.31	lb/1000 gal
Potential loading losses from racks:	37.20	tons per year
Total VOC Potential Emissions:	**74.40**	**tons per year**

Thermal Oxidizer consumes 4000 gpm of propane
100 lbs of Nox per MM scf

4000 gpm is equal to:	534.72222	scf per minute
Scf/yr:	281049998.8	
NOx Tpy	14.052	
CO Tpy	11.804	
VOC	1.546	

Emission Factors from Table 1.4-1

HAPs =	16	% of VOC in gasoline vapor w/ MTBE
HAPs =	11	% of VOC in gasoline vapor w/o MTBE
HAPs w/ MTBE=	11.90	
HAPs w/o MTBE=	8.184	

Data from: Gasoline Distribution Industry (Stage I) Background Information for Proposed Standards" (EPA-453/R-94-002a). Appendix C "Calculation of HAP Vapor Profiles for Gasoline"

ATTACHMENT 2

Updated Emission Estimates and Calculations
Provided by the Source Dated July 2015

Pima County Department of Environmental Quality
Permit No. 5014 Renewal Application
Revised Emission Calculations

Holly Energy Partners – Operating, L.P.
Tucson Terminal

Tucson, Pima County

July 2015

Prepared and Approved by:

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EMISSION RATE SUMMARY

Unit ID	Description	NOx (tons/yr)	CO (tons/yr)	VOC (tons/yr)	SO2 (tons/yr)	PM-10 (tons/yr)	HAP (tons/yr)
1601	EFR Tank + Geodome - Gasoline	-	-	2.05	-	-	0.13
1801	IFR Tank - Gasoline	-	-	3.17	-	-	0.20
2001	EFR Tank + Geodome - Ethanol	-	-	0.23	-	-	0.004
3001	FX Tank - Diesel	-	-	0.89	-	-	0.00
3002	IFR Tank - Gasoline	-	-	3.29	-	-	0.21
3003	IFR Tank - Gasoline	-	-	3.29	-	-	0.21
3004	IFR Tank - Gasoline	-	-	3.12	-	-	0.20
LOAD	Loading Fugitives	-	-	9.76	-	-	0.32
VCU	Vapor Combustion Unit	4.01	10.01	35.05	0.076	0.21	1.12
FUG	Equipment Fugitives	-	-	0.31	-	-	0.19
TOTALS		**4.01**	**10.01**	**61.14**	**0.076**	**0.21**	**2.61**

FUGITIVE EMISSION ESTIMATES

BASIS FOR FUGITIVE EMISSION ESTIMATES:

The fugitive emission estimates provided below are based on the Petroleum Marketing Terminal factors and estimated source count.

Fugitive Source	Source Count	Emission Factors (lb/hr•source)	Control Factor	Emissions (lb/hr)	Emissions (tons/yr)
Valves (gas)	7	2.87E-05	0.00	0.0002	0.001
Valves (light liquid)	191	9.48E-05	0.00	0.0181	0.079
Valves (heavy liquid)	35	9.48E-05	0.00	0.0033	0.015
Pump seals (light liquid)	13	1.19E-03	0.00	0.0155	0.068
Pump seals (heavy liquid)	2	1.19E-03	0.00	0.0024	0.010
Compressor seals (gas)	0	2.65E-04	0.00	0.0000	0.000
Relief Valves (gas)	1	2.65E-04	0.00	0.0003	0.001
Flanges (gas)	98	9.26E-05	0.00	0.0091	0.040
Flanges (light liquid)	948	1.76E-05	0.00	0.0167	0.073
Flanges (heavy liquid)	198	1.76E-05	0.00	0.0035	0.015
Process drains (all)	1	2.70E-03	0.00	0.0027	0.012
Total gas/LL Emissions				0.06	0.27
Total heavy liq. Emissions				0.01	0.04
Total Fugitive Emissions				0.07	0.31

Sample Calculation:

Hourly Fugitive Emissions from Flanges in Gas Service

$$\frac{98 \text{ flanges}}{} \quad \frac{0.00009 \text{ lb}}{\text{hr} \cdot \text{flange}} \quad (1 - 0.00) \quad = \quad 0.0091 \text{ lb/hr VOC}$$

Annual Fugitive Emissions from Flanges in Gas Service

$$\frac{98 \text{ flanges}}{} \quad \frac{0.00009 \text{ lb}}{\text{hr} \cdot \text{flange}} \quad (1 - 0.00) \quad \frac{8760 \text{ hr}}{\text{yr}}$$

$$= \quad 0.04 \text{ ton/yr VOC}$$

Gas/LL Emissions Speciation

Material	Liquid Weight Percent	Emissions (lb/hr)	Emissions (tons/yr)
Benzene	6.0	0.004	0.016
Cumene	1.2	0.001	0.003
Cyclohexane	1.1	0.001	0.003
Ethylbenzene	10.6	0.007	0.029
Hexane	1.0	0.001	0.003
Pseudocumene	11.97	0.007	0.033
Toluene	23.7	0.015	0.065
2,2,4-Trimethylpentane	4.0	0.003	0.011
Xylene	23.5	0.015	0.064

Speciation based on conservative MSDS composition and EPA TANKS gasoline speciation profile.

Heavy Liq. Emissions Speciation

Material	Liquid Weight Percent	Emissions (lb/hr)	Emissions (tons/yr)
Naphthalene	1.15	0.0001	0.0005

Speciation based on MSDS composition.

Total Emissions Speciation

Material	Emissions (lb/hr)	Emissions (tons/yr)
Benzene	0.004	0.016
Cumene	0.001	0.003
Cyclohexane	0.001	0.003
Ethylbenzene	0.007	0.029
Hexane	0.001	0.003
Naphthalene	0.0001	0.0005
Pseudocumene	0.007	0.033
Toluene	0.015	0.065
2,2,4-Trimethylpentane	0.003	0.011
Xylene	0.015	0.064
Total HAP	0.044	0.192

Gasoline

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Temperature (°F)	62.33	64.14	66.55	70.28	74.23	78.63	79.39	78.32	76.25	71.45	65.97	62.56	70.8
Vapor Pressure (psia)	7.57	7.82	6.85	6.31	6.06	6.57	6.66	6.53	6.29	6.44	6.78	7.60	6.79
Emission Rate (lbs/month)	378.76	398.02	344.11	311.06	299.16	333.73	340.14	331.14	314.49	320.27	338.95	381.12	4090.95

Annual Emissions from Storage Tank 1601

CAS No.	Base Compound	Liquid Molecular Weight (lb/lb-mol)	Vapor Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Annual Temper-ature (°F)	Annual Vapor Pressure (psia)	Annual Emission Rate (ton/yr)
	Gasoline	92	65	6.1	70.8	6.79	2.05

Speciated Annual Emission Rates:

CAS No.	Material	Liquid Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Temper-ature (°F)	Vapor Press. (psia)	Liquid Weight Percent	Liquid Mole Fraction	Partial Pressure (psia)	Vapor Mole Fraction	Vapor Weight Fraction	Emission Rate (ton/yr)
71432	Benzene	78.1	7.28	70.8	1.566	6.0	7.03E-02	1.10E-01	1.62E-02	1.95E-02	0.040
92524	Biphenyl	154.21	8.27	70.8	0.0004	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
98828	Cumene	120.2	7.17	70.8	0.076	1.2	9.00E-03	6.83E-04	1.01E-04	1.86E-04	0.000
110827	Cyclohexane	84.2	6.5	70.8	1.655	1.1	1.16E-02	1.93E-02	2.84E-03	3.68E-03	0.008
100414	Ethylbenzene	106.2	6.45	70.8	0.157	10.6	9.16E-02	1.44E-02	2.11E-03	3.46E-03	0.007
110543	Hexane	86.2	5.45	70.8	2.519	1.0	1.07E-02	2.69E-02	3.96E-03	5.25E-03	0.011
1634044	MTBE	88.2	6.14	70.8	4.190	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
91203	Naphthalene	128.17	8.16	70.8	0.003	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
95636	Pseudocumene	120.2	7.3	70.8	0.033	12.0	9.16E-02	3.04E-03	4.48E-04	8.29E-04	0.002
108883	Toluene	92.1	7.22	70.8	0.459	23.7	2.36E-01	1.08E-01	1.60E-02	2.26E-02	0.046
540841	2,2,4-Trimethylpentane	114.2	5.69	70.8	0.809	4.0	3.22E-02	2.61E-02	3.84E-03	6.74E-03	0.014
95476	Xylene	106.2	7.18	70.8	0.139	23.5	2.04E-01	2.83E-02	4.17E-03	6.82E-03	0.014
	Other VOC										1.904

Sample Calculations:

Liquid Weight Fraction = (6.0 % Benzene) (7.28 lb/gal Benzene) / (6.1 lb/gal Gasoline) = 0.0007
Liquid Mole Fraction = (0.07 lb Benzene) (92.0 lb/lb-mol Gasoline) / ((100 lb Gasoline) (78.1 lb/lb-mol)) = 0.1101
Vapor Mole Fraction = (0.1101) (1.57 psia Benzene) / (6.79 psia Gasoline) = 0.0195
Vapor Weight Fraction = (0.0195) (78.1 lb/lb-mol Benzene) / (65.0 lb/lb-mol Gasoline) = 0.0398

Gasoline

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Temperature (°F)	62.33	64.14	66.55	70.28	74.23	78.63	79.39	78.32	76.25	71.45	65.97	62.56	70.8
Vapor Pressure (psia)	7.57	7.82	6.85	6.31	6.06	6.57	6.66	6.53	6.29	6.44	6.78	7.60	6.79
Emission Rate (lbs/month)	587.16	617.27	533.00	481.75	463.13	517.18	527.20	513.13	487.10	496.14	524.94	590.86	6338.85

Annual Emissions from Storage Tank 1801

CAS No.	Base Compound	Liquid Molecular Weight (lb/lb-mol)	Vapor Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Annual Temper-ature (°F)	Annual Vapor Pressure (psia)	Annual Emission Rate (ton/yr)
	Gasoline	92	65	6.1	70.8	6.79	3.17

Speciated Annual Emission Rates:

CAS No.	Material	Liquid Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Temper-ature (°F)	Vapor Press. (psia)	Liquid Weight Percent	Liquid Mole Fraction	Partial Pressure (psia)	Vapor Mole Fraction	Vapor Weight Fraction	Emission Rate (ton/yr)
71432	Benzene	78.1	7.28	70.8	1.566	6.0	7.03E-02	1.10E-01	1.62E-02	1.95E-02	0.062
92524	Biphenyl	154.21	8.27	70.8	0.0004	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
98828	Cumene	120.2	7.17	70.8	0.076	1.2	9.00E-03	6.83E-04	1.01E-04	1.86E-04	0.001
110827	Cyclohexane	84.2	6.5	70.8	1.655	1.1	1.16E-02	1.93E-02	2.84E-03	3.68E-03	0.012
100414	Ethylbenzene	106.2	6.45	70.8	0.157	10.6	9.16E-02	1.44E-02	2.11E-03	3.46E-03	0.011
110543	Hexane	86.2	5.45	70.8	2.519	1.0	1.07E-02	2.69E-02	3.96E-03	5.25E-03	0.017
1634044	MTBE	88.2	6.14	70.8	4.190	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
91203	Naphthalene	128.17	8.16	70.8	0.003	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
95636	Pseudocumene	120.2	7.3	70.8	0.033	12.0	9.16E-02	3.04E-03	4.48E-04	8.29E-04	0.003
108883	Toluene	92.1	7.22	70.8	0.459	23.7	2.36E-01	1.08E-01	1.60E-02	2.26E-02	0.072
540841	2,2,4-Trimethylpentane	114.2	5.69	70.8	0.809	4.0	3.22E-02	2.61E-02	3.84E-03	6.74E-03	0.021
95476	Xylene	106.2	7.18	70.8	0.139	23.5	2.04E-01	2.83E-02	4.17E-03	6.82E-03	0.022
	Other VOC										2.950

Sample Calculations:

Liquid Weight Fraction = (6.0 % Benzene) (7.28 lb/gal Benzene) / (6.1 lb/gal Gasoline) = 0.0007
Liquid Mole Fraction = (0.07 lb Benzene) (92.0 lb/lb-mol Gasoline) / ((100 lb Gasoline) (78.1 lb/lb-mol)) = 0.1101
Vapor Mole Fraction = (0.1101) (1.57 psia Benzene) / (6.79 psia Gasoline) = 0.0195
Vapor Weight Fraction = (0.0195) (78.1 lb/lb-mol Benzene) / (65.0 lb/lb-mol Gasoline) = 0.0617

Ethanol

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Temperature (°F)	62.33	64.14	66.55	70.28	74.23	78.63	79.39	78.32	76.25	71.45	65.97	62.56	70.8
Vapor Pressure (psia)	0.7123	0.7572	0.8210	0.9288	1.0561	1.2158	1.2453	1.2039	1.1271	0.9649	0.8051	0.7179	0.9630
Emission Rate (lbs/month)	30.351	31.641	33.486	36.625	40.363	45.111	45.992	44.755	42.467	37.680	33.026	30.510	452.007

Annual Emissions from Tank 2001

CAS No.	Base Compound	Liquid Molecular Weight (lb/lb-mol)	Vapor Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Annual Temper-ature (°F)	Annual Vapor Pressure (psia)	Annual Emission Rate (ton/yr)
	Ethanol	46.07	46.07	6.61	70.8	0.82	0.23

Speciated Annual Emission Rates:

CAS No.	Material	Liquid Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Temper-ature (°F)	Vapor Press. (psia)	Liquid Weight Percent	Liquid Mole Fraction	Partial Pressure (psia)	Vapor Mole Fraction	Vapor Weight Fraction	Emission Rate (ton/yr)
71432	Benzene	78.1	7.28	70.8	1.566	0.3	1.76E-03	2.76E-03	3.38E-03	5.73E-03	0.0013
92524	Biphenyl	154.21	8.27	70.8	0.0004	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000
98828	Cumene	120.2	7.17	70.8	0.076	0.06	2.25E-04	1.71E-05	2.10E-05	5.47E-05	0.0000
110827	Cyclohexane	84.2	6.5	70.8	1.655	0.05	2.92E-04	4.82E-04	5.92E-04	1.08E-03	0.0002
100414	Ethylbenzene	106.2	6.45	70.8	0.157	0.53	2.29E-03	3.60E-04	4.41E-04	1.02E-03	0.0002
110543	Hexane	86.2	5.45	70.8	2.519	0.05	2.67E-04	6.73E-04	8.26E-04	1.55E-03	0.0003
1634044	MTBE	88.2	6.14	70.8	4.190	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000
91203	Naphthalene	128.17	8.16	70.8	0.003	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000
95636	Pseudocumene	120.2	7.3	70.8	0.033	0.6	2.29E-03	7.62E-05	9.35E-05	2.44E-04	0.0001
108883	Toluene	92.1	7.22	70.8	0.459	1.18	5.92E-03	2.72E-03	3.33E-03	6.66E-03	0.0015
540841	2,2,4-Trimethylpentane	114.2	5.69	70.8	0.809	0.2	8.07E-04	6.53E-04	8.01E-04	1.98E-03	0.0004
95476	Xylene	106.2	7.18	70.8	0.139	1.18	5.11E-03	7.10E-04	8.71E-04	2.01E-03	0.0005
	Ethanol	46.1	6.6	70.8	0.9458	95.0	9.49E-01	8.98E-01	1.10E+00	1.10E+00	0.2492
	Other VOC										0.2214

Sample Calculations:

Liquid Weight Fraction = (0.30 % Benzene) (7.28 lb/gal Benzene) / (6.6 lb/gal Ethanol) = 0.0000
Liquid Mole Fraction = (0.00 lb Benzene) (46.1 lb/lb-mol Ethanol) / ((100 lb Ethanol) (78.1 lb/lb-mol)) = 0.0028
Vapor Mole Fraction = (0.0028) (1.57 psia Benzene) / (0.82 psia Ethanol) = 0.0057
Vapor Weight Fraction = (0.0057) (78.1 lb/lb-mol Benzene) / (46.1 lb/lb-mol Ethanol) = 0.0013

Diesel

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Temperature (°F)	62.33	64.14	66.55	70.28	74.23	78.63	79.39	78.32	76.25	71.45	65.97	62.56	70.84
Vapor Pressure (psia)	0.0078	0.0081	0.0084	0.0091	0.0103	0.0116	0.0118	0.0115	0.0109	0.0094	0.0084	0.0078	0.0096
Emission Rate (lbs/month)	116.04	120.45	131.10	143.76	165.51	184.97	182.13	175.57	165.06	144.38	125.48	115.62	1770.08

Annual Emissions from Storage Tank 3001

CAS No.	Base Compound	Liquid Molecular Weight (lb/lb-mol)	Vapor Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Annual Temper-ature (°F)	Annual Vapor Pressure (psia)	Annual Emission Rate (ton/yr)
	Diesel	188	130	7.1	70.8	0.01	0.89

Speciated Annual Emission Rates:

CAS No.	Material	Liquid Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Temper-ature (°F)	Vapor Press. (psia)	Liquid Weight Percent	Liquid Mole Fraction	Partial Pressure (psia)	Vapor Mole Fraction	Vapor Weight Fraction	Emission Rate (ton/yr)
71432	Benzene	78.1	7.28	70.8	1.566	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000
92524	Biphenyl	154.21	8.27	70.8	0.0004	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000
98828	Cumene	120.2	7.17	70.8	0.076	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000
110827	Cyclohexane	84.2	6.5	70.8	1.655	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000
100414	Ethylbenzene	106.2	6.45	70.8	0.157	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000
110543	Hexane	86.2	5.45	70.8	2.519	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000
1634044	MTBE	88.2	6.14	70.8	4.190	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000
91203	Naphthalene	128.17	8.16	70.8	0.003	1.0	1.47E-02	5.05E-05	5.27E-03	5.19E-03	0.0046
95636	Pseudocumene	120.2	7.3	70.8	0.033	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000
108883	Toluene	92.1	7.22	70.8	0.459	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000
540841	2,2,4-Trimethylpentane	114.2	5.69	70.8	0.809	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000
95476	Xylene	106.2	7.18	70.8	0.139	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000
	Ethanol	46.1	6.6	70.8	0.9458	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0000
	Other VOC										0.8804

Sample Calculations:

Liquid Weight Fraction = (1.00 % Naphthalene) (8.16 lb/gal Benzene) / (7.1 lb/gal Diesel) = 0.0001
Liquid Mole Fraction = (0.01 lb Naphthalene) (188.0 lb/lb-mol Diesel) / ((100 lb Diesel) (128.2 lb/lb-mol)) = 0.0001
Vapor Mole Fraction = (0.0001) (0.00 psia Naphthalene) / (0.01 psia Diesel) = 0.0052
Vapor Weight Fraction = (0.0052) (128.2 lb/lb-mol Naphthalene) / (130.0 lb/lb-mol Diesel) = 0.0046

Gasoline

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Temperature (°F)	62.33	64.14	66.55	70.28	74.23	78.63	79.39	78.32	76.25	71.45	65.97	62.56	70.8
Vapor Pressure (psia)	7.57	7.82	6.85	6.31	6.06	6.57	6.66	6.53	6.29	6.44	6.78	7.60	6.79
Emission Rate (lbs/month)	608.82	639.79	553.10	499.98	480.83	536.43	546.74	532.27	505.49	514.79	544.80	612.63	6575.66

Annual Emissions from Storage Tank 3002

CAS No.	Base Compound	Liquid Molecular Weight (lb/lb-mol)	Vapor Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Annual Temper-ature (°F)	Annual Vapor Pressure (psia)	Annual Emission Rate (ton/yr)
	Gasoline	92	65	6.1	70.8	6.79	3.29

Speciated Annual Emission Rates:

CAS No.	Material	Liquid Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Temper-ature (°F)	Vapor Press. (psia)	Liquid Weight Percent	Liquid Mole Fraction	Partial Pressure (psia)	Vapor Mole Fraction	Vapor Weight Fraction	Emission Rate (ton/yr)
71432	Benzene	78.1	7.28	70.8	1.566	6.0	7.03E-02	1.10E-01	1.62E-02	1.95E-02	0.064
92524	Biphenyl	154.21	8.27	70.8	0.0004	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
98828	Cumene	120.2	7.17	70.8	0.076	1.2	9.00E-03	6.83E-04	1.01E-04	1.86E-04	0.001
110827	Cyclohexane	84.2	6.5	70.8	1.655	1.1	1.16E-02	1.93E-02	2.84E-03	3.68E-03	0.012
100414	Ethylbenzene	106.2	6.45	70.8	0.157	10.6	9.16E-02	1.44E-02	2.11E-03	3.46E-03	0.011
110543	Hexane	86.2	5.45	70.8	2.519	1.0	1.07E-02	2.69E-02	3.96E-03	5.25E-03	0.017
1634044	MTBE	88.2	6.14	70.8	4.190	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
91203	Naphthalene	128.17	8.16	70.8	0.003	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
95636	Pseudocumene	120.2	7.3	70.8	0.033	12.0	9.16E-02	3.04E-03	4.48E-04	8.29E-04	0.003
108883	Toluene	92.1	7.22	70.8	0.459	23.7	2.36E-01	1.08E-01	1.60E-02	2.26E-02	0.074
540841	2,2,4-Trimethylpentane	114.2	5.69	70.8	0.809	4.0	3.22E-02	2.61E-02	3.84E-03	6.74E-03	0.022
95476	Xylene	106.2	7.18	70.8	0.139	23.5	2.04E-01	2.83E-02	4.17E-03	6.82E-03	0.022
	Other VOC										3.061

Sample Calculations:

Liquid Weight Fraction = (6.0 % Benzene) (7.28 lb/gal Benzene) / (6.1 lb/gal Gasoline) = 0.0007
Liquid Mole Fraction = (0.07 lb Benzene) (92.0 lb/lb-mol Gasoline) / ((100 lb Gasoline) (78.1 lb/lb-mol)) = 0.1101
Vapor Mole Fraction = (0.1101) (1.57 psia Benzene) / (6.79 psia Gasoline) = 0.0195
Vapor Weight Fraction = (0.0195) (78.1 lb/lb-mol Benzene) / (65.0 lb/lb-mol Gasoline) = 0.0640

Gasoline

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Temperature (°F)	62.33	64.14	66.55	70.28	74.23	78.63	79.39	78.32	76.25	71.45	65.97	62.56	70.8
Vapor Pressure (psia)	7.57	7.82	6.85	6.31	6.06	6.57	6.66	6.53	6.29	6.44	6.78	7.60	6.79
Emission Rate (lbs/month)	608.90	639.87	553.18	500.06	480.91	536.50	546.81	532.34	505.56	514.86	544.88	612.71	6576.59

Annual Emissions from Storage Tank 3003

CAS No.	Base Compound	Liquid Molecular Weight (lb/lb-mol)	Vapor Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Annual Temper-ature (°F)	Annual Vapor Pressure (psia)	Annual Emission Rate (ton/yr)
	Gasoline	92	65	6.1	70.8	6.79	3.29

Speciated Annual Emission Rates:

CAS No.	Material	Liquid Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Temper-ature (°F)	Vapor Press. (psia)	Liquid Weight Percent	Liquid Mole Fraction	Partial Pressure (psia)	Vapor Mole Fraction	Vapor Weight Fraction	Emission Rate (ton/yr)
71432	Benzene	78.1	7.28	70.8	1.566	6.0	7.03E-02	1.10E-01	1.62E-02	1.95E-02	0.064
92524	Biphenyl	154.21	8.27	70.8	0.0004	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
98828	Cumene	120.2	7.17	70.8	0.076	1.2	9.00E-03	6.83E-04	1.01E-04	1.86E-04	0.001
110827	Cyclohexane	84.2	6.5	70.8	1.655	1.1	1.16E-02	1.93E-02	2.84E-03	3.68E-03	0.012
100414	Ethylbenzene	106.2	6.45	70.8	0.157	10.6	9.16E-02	1.44E-02	2.11E-03	3.46E-03	0.011
110543	Hexane	86.2	5.45	70.8	2.519	1.0	1.07E-02	2.69E-02	3.96E-03	5.25E-03	0.017
1634044	MTBE	88.2	6.14	70.8	4.190	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
91203	Naphthalene	128.17	8.16	70.8	0.003	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
95636	Pseudocumene	120.2	7.3	70.8	0.033	12.0	9.16E-02	3.04E-03	4.48E-04	8.29E-04	0.003
108883	Toluene	92.1	7.22	70.8	0.459	23.7	2.36E-01	1.08E-01	1.60E-02	2.26E-02	0.074
540841	2,2,4-Trimethylpentane	114.2	5.69	70.8	0.809	4.0	3.22E-02	2.61E-02	3.84E-03	6.74E-03	0.022
95476	Xylene	106.2	7.18	70.8	0.139	23.5	2.04E-01	2.83E-02	4.17E-03	6.82E-03	0.022
	Other VOC										3.061

Sample Calculations:

Liquid Weight Fraction = (6.0 % Benzene) (7.28 lb/gal Benzene) / (6.1 lb/gal Gasoline) = 0.0007
Liquid Mole Fraction = (0.07 lb Benzene) (92.0 lb/lb-mol Gasoline) / ((100 lb Gasoline) (78.1 lb/lb-mol)) = 0.1101
Vapor Mole Fraction = (0.1101) (1.57 psia Benzene) / (6.79 psia Gasoline) = 0.0195
Vapor Weight Fraction = (0.0195) (78.1 lb/lb-mol Benzene) / (65.0 lb/lb-mol Gasoline) = 0.0640

Gasoline

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Temperature (°F)	62.33	64.14	66.55	70.28	74.23	78.63	79.39	78.32	76.25	71.45	65.97	62.56	70.8
Vapor Pressure (psia)	7.57	7.82	6.85	6.31	6.06	6.57	6.66	6.53	6.29	6.44	6.78	7.60	6.79
Emission Rate (lbs/month)	578.26	607.70	525.30	474.85	456.65	509.49	519.29	505.53	480.08	488.92	517.42	581.88	6245.35

Annual Emissions from Storage Tank 3004

CAS No.	Base Compound	Liquid Molecular Weight (lb/lb-mol)	Vapor Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Annual Temper-ature (°F)	Annual Vapor Pressure (psia)	Annual Emission Rate (ton/yr)
	Gasoline	92	65	6.1	70.8	6.79	3.12

Speciated Annual Emission Rates:

CAS No.	Material	Liquid Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Temper-ature (°F)	Vapor Press. (psia)	Liquid Weight Percent	Liquid Mole Fraction	Partial Pressure (psia)	Vapor Mole Fraction	Vapor Weight Fraction	Emission Rate (ton/yr)
71432	Benzene	78.1	7.28	70.8	1.566	6.0	7.03E-02	1.10E-01	1.62E-02	1.95E-02	0.061
92524	Biphenyl	154.21	8.27	70.8	0.0004	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
98828	Cumene	120.2	7.17	70.8	0.076	1.2	9.00E-03	6.83E-04	1.01E-04	1.86E-04	0.001
110827	Cyclohexane	84.2	6.5	70.8	1.655	1.1	1.16E-02	1.93E-02	2.84E-03	3.68E-03	0.011
100414	Ethylbenzene	106.2	6.45	70.8	0.157	10.6	9.16E-02	1.44E-02	2.11E-03	3.46E-03	0.011
110543	Hexane	86.2	5.45	70.8	2.519	1.0	1.07E-02	2.69E-02	3.96E-03	5.25E-03	0.016
1634044	MTBE	88.2	6.14	70.8	4.190	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
91203	Naphthalene	128.17	8.16	70.8	0.003	0.0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.000
95636	Pseudocumene	120.2	7.3	70.8	0.033	12.0	9.16E-02	3.04E-03	4.48E-04	8.29E-04	0.003
108883	Toluene	92.1	7.22	70.8	0.459	23.7	2.36E-01	1.08E-01	1.60E-02	2.26E-02	0.071
540841	2,2,4-Trimethylpentane	114.2	5.69	70.8	0.809	4.0	3.22E-02	2.61E-02	3.84E-03	6.74E-03	0.021
95476	Xylene	106.2	7.18	70.8	0.139	23.5	2.04E-01	2.83E-02	4.17E-03	6.82E-03	0.021
	Other VOC										2.907

Sample Calculations:

Liquid Weight Fraction = (6.0 % Benzene) (7.28 lb/gal Benzene) / (6.1 lb/gal Gasoline) = 0.0007
Liquid Mole Fraction = (0.07 lb Benzene) (92.0 lb/lb-mol Gasoline) / ((100 lb Gasoline) (78.1 lb/lb-mol)) = 0.1101
Vapor Mole Fraction = (0.1101) (1.57 psia Benzene) / (6.79 psia Gasoline) = 0.0195
Vapor Weight Fraction = (0.0195) (78.1 lb/lb-mol Benzene) / (65.0 lb/lb-mol Gasoline) = 0.0608

ESTIMATE FOR LOADING LOSSES

Gasoline*

EMISSION FACTOR EQUATIONS

$$L = \frac{12.46\ S\ P\ M}{T}$$ (AP-42, Fifth Edition, Equation 5.2-1)

where:
L = Loading loss (lb/1000 gal liquid loaded)
M = Vapor molecular weight of liquid loaded (lb/lb-mol
P = True vapor pressure of liquid loaded (psia)
T = Temperature of bulk liquid loaded (°R)
S = Saturation factor (0.6 for submerged loading: dedicated normal service, from Table 5.2-1)

Gasoline VCU Emission Rating (mg/liter)	35
Truck Loss (% of uncontrolled)	1.3
VCU NO_x Emission Rate (mg/liter)	4
VCU CO Emission Rate (mg/liter)	10

ANNUAL VOC EMISSIONS

Month	Liquid Loaded	Type of Loading	Saturation Factor S	Average Temp. (°F)	Average Temp. (°R)	Vapor Mol. Wt. (lb/lb-mol)	Reid Vapor Pressure (psia)	True Vapor Pressure (psia)	Uncontrolled Loading Loss (lb/1000 gal)	Fugitive Losses (%)	VOC Emission Rate lb/1000 gal	Loading Rate (gal)	Fugitive Loading Emissions (tons)	VCU Loading Emissions (tons)	VCU NO_x Loading Emissions (tons)	VCU CO Loading Emissions (tons)
January	gasoline	submerged	0.6	62	522	62	13.5	7.567	6.715	1.3	0.2921	20,000,000	0.87	2.921	0.33	0.83
February	gasoline	submerged	0.6	64	524	62	13.5	7.822	6.918	1.3	0.2921	20,000,000	0.90	2.921	0.33	0.83
March	gasoline	submerged	0.6	67	527	65	11.5	6.854	6.325	1.3	0.2921	20,000,000	0.82	2.921	0.33	0.83
April	gasoline	submerged	0.6	70	530	66	10	6.306	5.868	1.3	0.2921	20,000,000	0.76	2.921	0.33	0.83
May	gasoline	submerged	0.6	74	534	67	9	6.056	5.678	1.3	0.2921	20,000,000	0.74	2.921	0.33	0.83
June	gasoline	submerged	0.6	79	539	67	9	6.570	6.109	1.3	0.2921	20,000,000	0.79	2.921	0.33	0.83
July	gasoline	submerged	0.6	79	539	67	9	6.662	6.186	1.3	0.2921	20,000,000	0.80	2.921	0.33	0.83
August	gasoline	submerged	0.6	78	538	67	9	6.532	6.078	1.3	0.2921	20,000,000	0.79	2.921	0.33	0.83
September	gasoline	submerged	0.6	76	536	67	9	6.288	5.873	1.3	0.2921	20,000,000	0.76	2.921	0.33	0.83
October	gasoline	submerged	0.6	71	531	66	10.5	6.795	6.309	1.3	0.2921	20,000,000	0.82	2.921	0.33	0.83
November	gasoline	submerged	0.6	66	526	65	11.5	6.781	6.265	1.3	0.2921	20,000,000	0.81	2.921	0.33	0.83
December	gasoline	submerged	0.6	63	523	62	13.5	7.599	6.740	1.3	0.2921	20,000,000	0.88	2.921	0.33	0.83
Average				70.8		65		6.82	6.255		*Annual Total*	*240,000,000.00*	*9.76*	*35.047*	*4.01*	*10.01*

* The calcuation is based on a maximum loading rate throught the Tucson rack, and gasoline represents the worst case scenario for VOC and HAP emissions

Sample calculations:

Gasoline

$$\text{Loading loss} = \frac{12.46\ S\ P\ M}{T}$$

$$= \frac{(12.46)\ (0.60)\ (7.567\ \text{psia})\ (62\ \text{lb/lb-mol})}{(522\ °\text{R})} = 6.715\ \text{lb/1000 gal loaded}$$

Annual TO emissions = (Loading loss emission factor) (Annual loading rate)
= (0.292 lb/1000 gal) (ton/ 2000 lb) (240,000,000 gal/yr)
= 35.05 tons/yr

Annual fugitive emissions = (Loading loss emission factor) (Annual loading rate) (Fraction not captured)
= (6.255 lb/1000 gal) (ton/ 2000 lb) (240,000,000 gal/yr) (1.300 fraction not captured)
= 9.76 tons/yr

Loading Fugitive Emissions Speciation Calculation

Annual Emissions from Gasoline (worst case scenario)

CAS No.	Base Compound	Liquid Molecular Weight (lb/lb-mol)	Vapor Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Annual Temper-ature (°F)	Annual Vapor Pressure (psia)	Annual Emission Rate (ton/yr)
	Gasoline	92	65	6.1	70.8	6.82	9.76

Speciated Annual Emission Rates:

CAS No.	Material	Liquid Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Temper-ature (°F)	Vapor Press. (psia)	Liquid Volume Percent	Liquid Weight Percent	Liquid Mole Fraction	Partial Pressure (psia)	Vapor Mole Fraction	Vapor Weight Fraction	Emission Rate (ton/yr)
71432	Benzene	78.1	7.28	70.8	1.566	1.47	1.75	2.06E-02	3.23E-02	4.73E-03	5.69E-03	5.55E-02
98828	Cumene	120.2	7.17	70.8	0.076	0.19	0.22	1.68E-03	1.28E-04	1.87E-05	3.47E-05	3.38E-04
110827	Cyclohexane	84.2	6.5	70.8	1.655	0.23	0.24	2.62E-03	4.34E-03	6.36E-04	8.24E-04	8.04E-03
100414	Ethylbenzene	106.2	6.45	70.8	0.157	1.41	1.49	1.29E-02	2.02E-03	2.97E-04	4.85E-04	4.73E-03
110543	Hexane	86.2	5.45	70.8	2.519	2.48	2.22	2.37E-02	5.97E-02	8.75E-03	1.16E-02	1.13E-01
1634044	MTBE	88.2	6.14	70.8	4.190	0.00	0.00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
91203	Naphthalene	128.17	8.16	70.8	0.003	0.31	0.41	2.94E-03	1.01E-05	1.49E-06	2.93E-06	2.86E-05
95636	Pseudocumene	120.2	7.3	70.8	0.033	2.51	3.00	2.30E-02	7.63E-04	1.12E-04	2.07E-04	2.02E-03
108883	Toluene	92.1	7.22	70.8	0.459	6.55	7.75	7.74E-02	3.55E-02	5.21E-03	7.38E-03	7.20E-02
540841	2,2,4-Trimethylpentane	114.2	5.69	70.8	0.809	3.15	2.94	2.37E-02	1.92E-02	2.81E-03	4.94E-03	4.82E-02
95476	Xylene	106.2	7.18	70.8	0.139	5.57	6.56	5.68E-02	7.90E-03	1.16E-03	1.89E-03	1.85E-02
	Other VOC											9.44E+00

Sample Calculations:

Liquid Weight Fraction = (1.47 % Benzene) (7.28 lb/gal Benzene) / (6.1 lb/gal Gasoline) = 0.0175

Liquid Mole Fraction = (1.75 lb Benzene) (92.0 lb/lb-mol Gasoline) / ((100 lb Gasoline) (78.1 lb/lb-mol)) = 0.0206

Vapor Mole Fraction = (0.0206) (1.57 psia Benzene) / (6.82 psia Gasoline) = 0.0047

Vapor Weight Fraction = (0.0047) (78.1 lb/lb-mol Benzene) / (65.0 lb/lb-mol Gasoline) = 0.0057

Vapor Combustion Unit Emissions Speciation Calculation

Annual Emissions from Gasoline

CAS No.	Base Compound	Liquid Molecular Weight (lb/lb-mol)	Vapor Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Annual Temper-ature (°F)	Annual Vapor Pressure (psia)	Annual Emission Rate (ton/yr)
	Gasoline	92	65	6.1	70.8	6.82	35.05

Speciated Annual Emission Rates:

CAS No.	Material	Liquid Molecular Weight (lb/lb-mol)	Liquid Density (lb/gal)	Temper-ature (°F)	Vapor Press. (psia)	Liquid Volume Percent	Liquid Weight Percent	Liquid Mole Fraction	Partial Pressure (psia)	Vapor Mole Fraction	Vapor Weight Fraction	Emission Rate (ton/yr)
71432	Benzene	78.1	7.28	70.8	1.566	1.47	1.75	2.06E-02	3.23E-02	4.73E-03	5.69E-03	1.99E-01
98828	Cumene	120.2	7.17	70.8	0.076	0.19	0.22	1.68E-03	1.28E-04	1.87E-05	3.47E-05	1.21E-03
110827	Cyclohexane	84.2	6.5	70.8	1.655	0.23	0.24	2.62E-03	4.34E-03	6.36E-04	8.24E-04	2.89E-02
100414	Ethylbenzene	106.2	6.45	70.8	0.157	1.41	1.49	1.29E-02	2.02E-03	2.97E-04	4.85E-04	1.70E-02
110543	Hexane	86.2	5.45	70.8	2.519	2.48	2.22	2.37E-02	5.97E-02	8.75E-03	1.16E-02	4.07E-01
1634044	MTBE	88.2	6.14	70.8	4.190	0.00	0.00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
91203	Naphthalene	128.17	8.16	70.8	0.003	0.31	0.41	2.94E-03	1.01E-05	1.49E-06	2.93E-06	1.03E-04
95636	Pseudocumene	120.2	7.3	70.8	0.033	2.51	3.00	2.30E-02	7.63E-04	1.12E-04	2.07E-04	7.25E-03
108883	Toluene	92.1	7.22	70.8	0.459	6.55	7.75	7.74E-02	3.55E-02	5.21E-03	7.38E-03	2.59E-01
540841	2,2,4-Trimethylpentane	114.2	5.69	70.8	0.809	3.15	2.94	2.37E-02	1.92E-02	2.81E-03	4.94E-03	1.73E-01
95476	Xylene	106.2	7.18	70.8	0.139	5.57	6.56	5.68E-02	7.90E-03	1.16E-03	1.89E-03	6.63E-02
	Other VOC											3.39E+01

Sample Calculations:

Liquid Weight Fraction = (1.47 % Benzene) (7.28 lb/gal Benzene) / (6.1 lb/gal Gasoline) = 0.0175

Liquid Mole Fraction = (1.75 lb Benzene) (92.0 lb/lb-mol Gasoline) / ((100 lb Gasoline) (78.1 lb/lb-mol)) = 0.0206

Vapor Mole Fraction = (0.0206) (1.57 psia Benzene) / (6.82 psia Gasoline) = 0.0047

Vapor Weight Fraction = (0.0047) (78.1 lb/lb-mol Benzene) / (65.0 lb/lb-mol Gasoline) = 0.0057

ESTIMATES OF PM AND SO2 EMISSIONS FROM THE VCU

Annual Product Loading Information

	Physical Property Data			Annual Loading Information		
Material	Molecular Weight (lb/lb-mol)	Density (lb/gal)	LHV (BTU/gal)	Throughput (gal/yr)	T_{avg} (°F)	VP @ T_{avg} (psia)
Gasoline	65	6.1	130,000	240,000,000	68	6.82
Diesel	130	7.1	137,000	56,716,132	68	0.009

Annual Estimates of Loading Losses Routed to VCU

Multiply the loading loss by the annual loading rate to get the annual amount sent to the VCU.

$L_{L\ \text{Annual Gasoline}}$ (lb/yr) = $\frac{10.50 \text{ lb gasoline loss}}{1000 \text{ gal loaded}} \cdot \frac{240{,}000{,}000 \text{ gal gasoline loaded}}{\text{yr}}$ = 2,520,113 lb/yr gasoline vapors to VCU

Annual Summary of Loading Losses Captured and Routed to VCU

	Losses Routed to VCU	
Material	(lb/1000 gal)	(lb/yr)
Gasoline	10.50	2,520,113
Diesel	0.0276	1,566

Annual Estimates of PM Emissions From VCU

Captured loading vapors are controlled by the VCU, which is non-assisted and has a pilot.
Neither the EPA (in AP-42) nor the VCU vendor has an emission factor for PM from a VCU in gasoline terminal service, as emissions are assumed to be negligible.
The Pima County DEQ has requested an estimate of PM emissions nevertheless. We have used the AP-42 emission factor for total PM for propane combustion, as the VCU pilot light burns propane. Please note that this emission factor has a rating of E for boilers combusting propane. The VCU combusts vapors from loading gasoline and diesel fuel. The estimate is therefore rough.

Contaminant	Emission Factor (lb/MM Btu)
PM	0.0077

Sample calculations for PM emissions associated with combustion of gasoline loading losses are developed below. Emissions from diesel loading are computed in the same manner.

PM Emissions from VCU (lb/hr) = $\frac{2{,}520{,}113 \text{ lb gasoline routed to VCU}}{\text{yr}} \cdot \frac{130{,}000 \text{ Btu}}{\text{gal Gasoline}} \cdot \frac{\text{gal Gasoline}}{6.1 \text{ lb gasoline}} \cdot \frac{0.0077 \text{ lb PM}}{\text{MM Btu}} \cdot \frac{\text{ton}}{2000 \text{ lb}} \cdot \frac{1 \text{ MM Btu}}{10^6 \text{ Btu}}$

= 0.21 ton PM/yr due to combustion of gasoline vapors

Annual Summary of PM Emissions from VCU

Material	PM Emissions (ton/yr)
Gasoline	0.21
Diesel	0.00012
Total	0.21

SO2 Emission Summary from Gasoline and Diesel Loading Losses Captured and Routed to VCU

The Bulk Fuels industry has a sulfur content limit on diesel of 15 ppmv and an annual limit on gasoline of 30 ppmv.
The following shows the loading loss emissions calculated for the typical year at the loading rack.

S Molecular Weight	32.065	(lb/lbmol)
SO2 Molecular Weight	64.066	(lb/lbmol)
Diesel Sulfur Content Limit	15	ppmw
Gasoline Annual Sulfur Content Limit	30	ppmw

	Uncontrolled Loading Loss (TPY)	Sulfur (TPY)
Diesel Loading Losses	0.783	0.00001
Gasoline Loading Losses	1260.057	0.0378

Using this sulfur rate, and assuming that it all becomes sulfur dioxide, the following emisisons of SO2 are estimated:

SO2 Emissions from Annual Diesel Losses (ton/yr) = $\frac{0.000012 \text{ ton S loss}}{\text{yr}} \cdot \frac{1 \text{ lbmol}}{32.065 \text{ lb S}} \cdot \frac{64.066 \text{ lb SO2}}{1 \text{ lbmol}}$ = 0.0000235 ton/yr SO2 from Diesel Loading

Material	SO2 Emissions (TPY)
Gasoline	0.0755
Diesel	0.00002
Total	0.076

PRODUCT COMPOSITION

* Values reflect range maximums.

Gasoline Composition

CAS No.	Material	Liquid Weight Percent
71432	Benzene	6.0
92524	Biphenyl	0
98828	Cumene	1.2
110-82-7	Cyclohexane	1.1
100414	Ethylbenzene	10.6
110543	Hexane	1.0
1634044	MTBE	0.0
91203	Naphthalene	0.0
95636	Pseudocumene	11.97
108883	Toluene	23.7
540841	2,2,4-Trimethylpentane	4.0
1330207	Xylene	23.5

"unleaded gasoline"

Ethanol Composition

CAS No.	Material	Liquid Weight Percent
71432	Benzene	0.3
92524	Biphenyl	0.0
98828	Cumene	0.06
110-82-7	Cyclohexane	0.05
100414	Ethylbenzene	0.53
110543	Hexane	0.05
1634044	MTBE	0.0
91203	Naphthalene	0.0
95636	Pseudocumene	0.6
108883	Toluene	1.18
540841	2,2,4-Trimethylpentane	0.2
95476	Xylene	1.18
	Ethanol	95.0

Diesel Composition

CAS No.	Material	Liquid Weight Percent
71432	Benzene	0
92524	Biphenyl	0
98828	Cumene	0.0
110-82-7	Cyclohexane	0.0
100414	Ethylbenzene	0.0
110543	Hexane	0.0
1634044	MTBE	0.0
91203	Naphthalene	1.00
95-63-6	Pseudocumene	0.0
108883	Toluene	0.0
540841	2,2,4-Trimethylpentane	0.0
1330207	Xylene	0.0

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	1601
City:	Tucson
State:	Arizona
Company:	Holly Energy Partners
Type of Tank:	Internal Floating Roof Tank
Description:	Tank 1601 - Gasoline

Tank Dimensions

Diameter (ft):	55.00
Volume (gallons):	672,000.00
Turnovers:	40.00
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	Rim-mounted

Deck Characteristics

Deck Fitting Category:	Typical
Deck Type:	Welded

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	16
Gauge-Hatch/Sample Well (8-in. Diam.)/Slit Fabric Seal 10% Open	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1

Meterological Data used in Emissions Calculations: Tucson, Arizona (Avg Atmospheric Pressure = 13.41 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

1601 - Internal Floating Roof Tank
Tucson, Arizona

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Gasoline (RVP 13.5)	Jan	62.33	56.48	68.19	68.42	7.5653	N/A	N/A	62.0000			92.00	Option 4: RVP=13.5, ASTM Slope=3
Gasoline (RVP 13.5)	Feb	64.14	57.64	70.63	68.42	7.8197	N/A	N/A	62.0000			92.00	Option 4: RVP=13.5, ASTM Slope=3
Gasoline (RVP 11.5)	Mar	66.55	59.34	73.76	68.42	6.8530	N/A	N/A	65.0000			92.00	Option 4: RVP=11.5, ASTM Slope=3
Gasoline (RVP 10)	Apr	70.28	62.07	78.50	68.42	6.3057	N/A	N/A	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 9)	May	74.23	65.50	82.96	68.42	6.0559	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Jun	78.63	69.86	87.41	68.42	6.5700	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Jul	79.39	72.08	86.70	68.42	6.6617	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Aug	78.32	71.35	85.29	68.42	6.5327	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Sep	76.25	69.34	83.17	68.42	6.2882	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 10)	Oct	71.45	64.57	78.32	68.42	6.4436	N/A	N/A	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 11.5)	Nov	65.97	59.65	72.28	68.42	6.7790	N/A	N/A	65.0000			92.00	Option 4: RVP=11.5, ASTM Slope=3
Gasoline (RVP 13.5)	Dec	62.56	56.96	68.16	68.42	7.5971	N/A	N/A	62.0000			92.00	Option 4: RVP=13.5, ASTM Slope=3

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

1601 - Internal Floating Roof Tank
Tucson, Arizona

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Rim Seal Losses (lb):	34.8886	36.7012	31.6271	28.5794	27.4587	30.7127	31.3161	30.4691	28.9017	29.4461	31.1417	35.1113
Seal Factor A (lb-mole/ft-yr):	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000
Value of Vapor Pressure Function:	0.2046	0.2153	0.1769	0.1575	0.1490	0.1667	0.1700	0.1654	0.1569	0.1622	0.1742	0.2059
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.5653	7.8197	6.8530	6.3057	6.0559	6.5700	6.6617	6.5327	6.2882	6.4436	6.7790	7.5971
Tank Diameter (ft):	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000	62.0000	65.0000	66.0000	67.0000	67.0000	67.0000	67.0000	67.0000	66.0000	65.0000	62.0000
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Withdrawal Losses (lb):	8.0932	8.0932	8.0932	7.4298	7.4298	7.4298	7.4298	7.4298	7.4298	7.4298	8.0932	8.0932
Number of Columns:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Effective Column Diameter (ft):	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Net Throughput (gal/mo.):	2,128,000.0000	2,128,000.0000	2,128,000.0000	2,128,000.0000	2,128,000.0000	2,128,000.0000	2,128,000.0000	2,128,000.0000	2,128,000.0000	2,128,000.0000	2,128,000.0000	2,128,000.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Average Organic Liquid Density (lb/gal):	6.1000	6.1000	6.1000	5.6000	5.6000	5.6000	5.6000	5.6000	5.6000	5.6000	6.1000	6.1000
Tank Diameter (ft):	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000
Deck Fitting Losses (lb):	335.7766	353.2215	304.3868	275.0546	264.2690	295.5860	301.3938	293.2421	278.1569	283.3965	299.7156	337.9197
Value of Vapor Pressure Function:	0.2046	0.2153	0.1769	0.1575	0.1490	0.1667	0.1700	0.1654	0.1569	0.1622	0.1742	0.2059
Vapor Molecular Weight (lb/lb-mole):	62.0000	62.0000	65.0000	66.0000	67.0000	67.0000	67.0000	67.0000	67.0000	66.0000	65.0000	62.0000
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	317.6000	317.6000	317.6000	317.6000	317.6000	317.6000	317.6000	317.6000	317.6000	317.6000	317.6000	317.6000
Deck Seam Losses (lb):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Deck Seam Length (ft):	475.1655	475.1655	475.1655	475.1655	475.1655	475.1655	475.1655	475.1655	475.1655	475.1655	475.1655	475.1655
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Deck Seam Length Factor(ft/sqft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tank Diameter (ft):	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000	55.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000	62.0000	65.0000	66.0000	67.0000	67.0000	67.0000	67.0000	67.0000	66.0000	65.0000	62.0000
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	378.7584	398.0159	344.1070	311.0638	299.1575	333.7284	340.1396	331.1409	314.4884	320.2724	338.9505	381.1242

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	36.00	5.90	1.20	410.2126
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	159.5271
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	1	47.00	0.00	0.00	535.5554
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1	76.00	0.00	0.00	866.0044
Roof Leg or Hanger Well/Adjustable	16	7.90	0.00	0.00	1,440.3021
Gauge-Hatch/Sample Well (8-in. Diam.)/Slit Fabric Seal 10% Open	1	12.00	0.00	0.00	136.7375
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	70.6477

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

1601 - Internal Floating Roof Tank
Tucson, Arizona

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Gasoline (RVP 10)	58.03	14.86	558.45	0.00	631.34
Gasoline (RVP 11.5)	62.77	16.19	604.10	0.00	683.06
Gasoline (RVP 13.5)	106.70	24.28	1,026.92	0.00	1,157.90
Gasoline (RVP 9)	148.86	37.15	1,432.65	0.00	1,618.65

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	1801
City:	Tucson
State:	Arizona
Company:	Holly Energy Partners
Type of Tank:	Internal Floating Roof Tank
Description:	Tank 1801 - Gasoline

Tank Dimensions

Diameter (ft):		65.00
Volume (gallons):		723,282.00
Turnovers:		40.00
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	Rim-mounted

Deck Characteristics

Deck Fitting Category:	Detail	
Deck Type:	Bolted	
Construction:	Sheet	
Deck Seam:	Sheet: 5 Ft Wide	
Deck Seam Len. (ft):		664.00

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	19
Gauge-Hatch/Sample Well (8-in. Diam.)/Slit Fabric Seal 10% Open	1
Stub Drain (1-in. Diameter)/Slit Fabric Seal 10% Open	34
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1

Meterological Data used in Emissions Calculations: Tucson, Arizona (Avg Atmospheric Pressure = 13.41 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

1801 - Internal Floating Roof Tank
Tucson, Arizona

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Gasoline (RVP 13.5)	Jan	62.33	56.48	68.19	68.42	7.5653	N/A	N/A	62.0000			92.00	Option 4: RVP=13.5, ASTM Slope=3
Gasoline (RVP 13.5)	Feb	64.14	57.64	70.63	68.42	7.8197	N/A	N/A	62.0000			92.00	Option 4: RVP=13.5, ASTM Slope=3
Gasoline (RVP 11.5)	Mar	66.55	59.34	73.76	68.42	6.8530	N/A	N/A	65.0000			92.00	Option 4: RVP=11.5, ASTM Slope=3
Gasoline (RVP 10)	Apr	70.28	62.07	78.50	68.42	6.3057	N/A	N/A	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 9)	May	74.23	65.50	82.96	68.42	6.0559	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Jun	78.63	69.86	87.41	68.42	6.5700	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Jul	79.39	72.08	86.70	68.42	6.6617	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Aug	78.32	71.35	85.29	68.42	6.5327	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Sep	76.25	69.34	83.17	68.42	6.2882	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 10)	Oct	71.45	64.57	78.32	68.42	6.4436	N/A	N/A	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 11.5)	Nov	65.97	59.65	72.28	68.42	6.7790	N/A	N/A	65.0000			92.00	Option 4: RVP=11.5, ASTM Slope=3
Gasoline (RVP 13.5)	Dec	62.56	56.96	68.16	68.42	7.5971	N/A	N/A	62.0000			92.00	Option 4: RVP=13.5, ASTM Slope=3

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

1801 - Internal Floating Roof Tank
Tucson, Arizona

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Rim Seal Losses (lb):	41.2320	43.3742	37.3775	33.7756	32.4512	36.2968	37.0099	36.0089	34.1565	34.8000	36.8039	41.4952
Seal Factor A (lb-mole/ft-yr):	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000
Value of Vapor Pressure Function:	0.2046	0.2153	0.1769	0.1575	0.1490	0.1667	0.1700	0.1654	0.1569	0.1622	0.1742	0.2059
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.5653	7.8197	6.8530	6.3057	6.0559	6.5700	6.6617	6.5327	6.2882	6.4436	6.7790	7.5971
Tank Diameter (ft):	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000	62.0000	65.0000	66.0000	67.0000	67.0000	67.0000	67.0000	67.0000	66.0000	65.0000	62.0000
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Withdrawal Losses (lb):	7.7373	7.7373	7.7373	7.1031	7.1031	7.1031	7.1031	7.1031	7.1031	7.1031	7.7373	7.7373
Number of Columns:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Effective Column Diameter (ft):	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Net Throughput (gal/mo.):	2,410,940.0000	2,410,940.0000	2,410,940.0000	2,410,940.0000	2,410,940.0000	2,410,940.0000	2,410,940.0000	2,410,940.0000	2,410,940.0000	2,410,940.0000	2,410,940.0000	2,410,940.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Average Organic Liquid Density (lb/gal):	6.1000	6.1000	6.1000	5.6000	5.6000	5.6000	5.6000	5.6000	5.6000	5.6000	6.1000	6.1000
Tank Diameter (ft):	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000
Deck Fitting Losses (lb):	413.0602	434.5203	374.4456	338.3622	325.0941	363.6192	370.7637	360.7357	342.1785	348.6241	368.6993	415.6966
Value of Vapor Pressure Function:	0.2046	0.2153	0.1769	0.1575	0.1490	0.1667	0.1700	0.1654	0.1569	0.1622	0.1742	0.2059
Vapor Molecular Weight (lb/lb-mole):	62.0000	62.0000	65.0000	66.0000	67.0000	67.0000	67.0000	67.0000	67.0000	66.0000	65.0000	62.0000
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	390.7000	390.7000	390.7000	390.7000	390.7000	390.7000	390.7000	390.7000	390.7000	390.7000	390.7000	390.7000
Deck Seam Losses (lb):	125.1344	131.6356	113.4363	102.5050	98.4855	110.1565	112.3208	109.2829	103.6611	105.6138	111.6955	125.9330
Deck Seam Length (ft):	664.0000	664.0000	664.0000	664.0000	664.0000	664.0000	664.0000	664.0000	664.0000	664.0000	664.0000	664.0000
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400
Deck Seam Length Factor(ft/sqft):	0.2001	0.2001	0.2001	0.2001	0.2001	0.2001	0.2001	0.2001	0.2001	0.2001	0.2001	0.2001
Tank Diameter (ft):	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000	62.0000	65.0000	66.0000	67.0000	67.0000	67.0000	67.0000	67.0000	66.0000	65.0000	62.0000
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	587.1638	617.2673	532.9965	481.7459	463.1339	517.1755	527.1975	513.1307	487.0993	496.1409	524.9359	590.8621

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	36.00	5.90	1.20	410.2126
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	159.5271
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	1	47.00	0.00	0.00	535.5554
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1	76.00	0.00	0.00	866.0044
Roof Leg or Hanger Well/Adjustable	19	7.90	0.00	0.00	1,710.3587
Gauge-Hatch/Sample Well (8-in. Diam.)/Slit Fabric Seal 10% Open	1	12.00	0.00	0.00	136.7375
Stub Drain (1-in. Diameter)/	34	1.20	0.00	0.00	464.9076
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	70.6477
Unslotted Guide-Pole Well/Gasketed Sliding Cover, w. Sleeve	1	8.60	12.00	0.81	97.9952

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

1801 - Internal Floating Roof Tank
Tucson, Arizona

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Gasoline (RVP 10)	68.58	14.21	686.99	208.12	977.89
Gasoline (RVP 11.5)	74.18	15.47	743.14	225.13	1,057.93
Gasoline (RVP 13.5)	126.10	23.21	1,263.28	382.70	1,795.29
Gasoline (RVP 9)	175.92	35.52	1,762.39	533.91	2,507.74

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	2001
City:	Tucson
State:	Arizona
Company:	Holly Energy Partners
Type of Tank:	Internal Floating Roof Tank
Description:	Tank 2001 - Ethanol

Tank Dimensions

Diameter (ft):		65.00
Volume (gallons):		798,000.00
Turnovers:		45.11
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	Rim-mounted

Deck Characteristics

Deck Fitting Category:	Typical
Deck Type:	Welded

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	19
Gauge-Hatch/Sample Well (8-in. Diam.)/Slit Fabric Seal 10% Open	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1

Meterological Data used in Emissions Calculations: Tucson, Arizona (Avg Atmospheric Pressure = 13.41 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

2001 - Internal Floating Roof Tank
Tucson, Arizona

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Ethyl alcohol	Jan	62.33	56.48	68.19	68.42	0.7123	N/A	N/A	46.0700			46.07	Option 2: A=8.321, B=1718.21, C=237.52
Ethyl alcohol	Feb	64.14	57.64	70.63	68.42	0.7572	N/A	N/A	46.0700			46.07	Option 2: A=8.321, B=1718.21, C=237.52
Ethyl alcohol	Mar	66.55	59.34	73.76	68.42	0.8210	N/A	N/A	46.0700			46.07	Option 2: A=8.321, B=1718.21, C=237.52
Ethyl alcohol	Apr	70.28	62.07	78.50	68.42	0.9288	N/A	N/A	46.0700			46.07	Option 2: A=8.321, B=1718.21, C=237.52
Ethyl alcohol	May	74.23	65.50	82.96	68.42	1.0561	N/A	N/A	46.0700			46.07	Option 2: A=8.321, B=1718.21, C=237.52
Ethyl alcohol	Jun	78.63	69.86	87.41	68.42	1.2158	N/A	N/A	46.0700			46.07	Option 2: A=8.321, B=1718.21, C=237.52
Ethyl alcohol	Jul	79.39	72.08	86.70	68.42	1.2453	N/A	N/A	46.0700			46.07	Option 2: A=8.321, B=1718.21, C=237.52
Ethyl alcohol	Aug	78.32	71.35	85.29	68.42	1.2039	N/A	N/A	46.0700			46.07	Option 2: A=8.321, B=1718.21, C=237.52
Ethyl alcohol	Sep	76.25	69.34	83.17	68.42	1.1271	N/A	N/A	46.0700			46.07	Option 2: A=8.321, B=1718.21, C=237.52
Ethyl alcohol	Oct	71.45	64.57	78.32	68.42	0.9649	N/A	N/A	46.0700			46.07	Option 2: A=8.321, B=1718.21, C=237.52
Ethyl alcohol	Nov	65.97	59.65	72.28	68.42	0.8051	N/A	N/A	46.0700			46.07	Option 2: A=8.321, B=1718.21, C=237.52
Ethyl alcohol	Dec	62.56	56.96	68.16	68.42	0.7179	N/A	N/A	46.0700			46.07	Option 2: A=8.321, B=1718.21, C=237.52

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

2001 - Internal Floating Roof Tank
Tucson, Arizona

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Rim Seal Losses (lb):	2.0427	2.1749	2.3641	2.6860	3.0694	3.5563	3.6466	3.5198	3.2851	2.7943	2.3170	2.0590
Seal Factor A (lb-mole/ft-yr):	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000
Value of Vapor Pressure Function:	0.0136	0.0145	0.0158	0.0179	0.0205	0.0238	0.0244	0.0235	0.0219	0.0187	0.0155	0.0138
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.7123	0.7572	0.8210	0.9288	1.0561	1.2158	1.2453	1.2039	1.1271	0.9649	0.8051	0.7179
Tank Diameter (ft):	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000
Vapor Molecular Weight (lb/lb-mole):	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Withdrawal Losses (lb):	10.4326	10.4326	10.4326	10.4326	10.4326	10.4326	10.4326	10.4326	10.4326	10.4326	10.4326	10.4326
Number of Columns:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Effective Column Diameter (ft):	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Net Throughput (gal/mo.):	3,000,000.0000	3,000,000.0000	3,000,000.0000	3,000,000.0000	3,000,000.0000	3,000,000.0000	3,000,000.0000	3,000,000.0000	3,000,000.0000	3,000,000.0000	3,000,000.0000	3,000,000.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Average Organic Liquid Density (lb/gal):	6.6100	6.6100	6.6100	6.6100	6.6100	6.6100	6.6100	6.6100	6.6100	6.6100	6.6100	6.6100
Tank Diameter (ft):	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000
Deck Fitting Losses (lb):	17.8758	19.0335	20.6888	23.5063	26.8612	31.1220	31.9128	30.8027	28.7489	24.4533	20.2765	18.0186
Value of Vapor Pressure Function:	0.0136	0.0145	0.0158	0.0179	0.0205	0.0238	0.0244	0.0235	0.0219	0.0187	0.0155	0.0138
Vapor Molecular Weight (lb/lb-mole):	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	341.3000	341.3000	341.3000	341.3000	341.3000	341.3000	341.3000	341.3000	341.3000	341.3000	341.3000	341.3000
Deck Seam Losses (lb):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Deck Seam Length (ft):	663.6609	663.6609	663.6609	663.6609	663.6609	663.6609	663.6609	663.6609	663.6609	663.6609	663.6609	663.6609
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Deck Seam Length Factor(ft/sqft):	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tank Diameter (ft):	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000	65.0000
Vapor Molecular Weight (lb/lb-mole):	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700	46.0700
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	30.3511	31.6411	33.4855	36.6249	40.3632	45.1108	45.9920	44.7552	42.4666	37.6802	33.0261	30.5102

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	36.00	5.90	1.20	30.9729
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	12.0450
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	1	47.00	0.00	0.00	40.4368
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1	76.00	0.00	0.00	65.3872
Roof Leg or Hanger Well/Adjustable	19	7.90	0.00	0.00	129.1397
Gauge-Hatch/Sample Well (8-in. Diam.)/Slit Fabric Seal 10% Open	1	12.00	0.00	0.00	10.3243
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	5.3342

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

2001 - Internal Floating Roof Tank
Tucson, Arizona

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Ethyl alcohol	33.52	125.19	293.30	0.00	452.01

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	3001
City:	Tucson
State:	Texas
Company:	Holly Energy Partners
Type of Tank:	Vertical Fixed Roof Tank
Description:	Tank 3001 - Diesel

Tank Dimensions

Shell Height (ft):	39.00
Diameter (ft):	75.00
Liquid Height (ft) :	39.00
Avg. Liquid Height (ft):	20.00
Volume (gallons):	1,289,003.00
Turnovers:	44.00
Net Throughput(gal/yr):	56,716,132.00
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)	2.00
Slope (ft/ft) (Cone Roof)	0.05

Breather Vent Settings

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

Meterological Data used in Emissions Calculations: Tucson, Arizona (Avg Atmospheric Pressure = 13.41 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

3001 - Vertical Fixed Roof Tank
Tucson, Texas

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Distillate fuel oil no. 2	Jan	62.33	56.48	68.19	68.42	0.0078	0.0064	0.0087	130.0000			188.00	Option 1: VP60 = .0074 VP70 = .009
Distillate fuel oil no. 2	Feb	64.14	57.64	70.63	68.42	0.0081	0.0067	0.0092	130.0000			188.00	Option 1: VP60 = .0074 VP70 = .009
Distillate fuel oil no. 2	Mar	66.55	59.34	73.76	68.42	0.0084	0.0072	0.0101	130.0000			188.00	Option 1: VP60 = .0074 VP70 = .009
Distillate fuel oil no. 2	Apr	70.28	62.07	78.50	68.42	0.0091	0.0077	0.0115	130.0000			188.00	Option 1: VP70 = .009 VP80 = .012
Distillate fuel oil no. 2	May	74.23	65.50	82.96	68.42	0.0103	0.0083	0.0132	130.0000			188.00	Option 1: VP70 = .009 VP80 = .012
Distillate fuel oil no. 2	Jun	78.63	69.86	87.41	68.42	0.0116	0.0090	0.0150	130.0000			188.00	Option 1: VP70 = .009 VP80 = .012
Distillate fuel oil no. 2	Jul	79.39	72.08	86.70	68.42	0.0118	0.0096	0.0147	130.0000			188.00	Option 1: VP70 = .009 VP80 = .012
Distillate fuel oil no. 2	Aug	78.32	71.35	85.29	68.42	0.0115	0.0094	0.0141	130.0000			188.00	Option 1: VP70 = .009 VP80 = .012
Distillate fuel oil no. 2	Sep	76.25	69.34	83.17	68.42	0.0109	0.0089	0.0133	130.0000			188.00	Option 1: VP70 = .009 VP80 = .012
Distillate fuel oil no. 2	Oct	71.45	64.57	78.32	68.42	0.0094	0.0081	0.0115	130.0000			188.00	Option 1: VP70 = .009 VP80 = .012
Distillate fuel oil no. 2	Nov	65.97	59.65	72.28	68.42	0.0084	0.0073	0.0097	130.0000			188.00	Option 1: VP60 = .0074 VP70 = .009
Distillate fuel oil no. 2	Dec	62.56	56.96	68.16	68.42	0.0078	0.0065	0.0087	130.0000			188.00	Option 1: VP60 = .0074 VP70 = .009

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

3001 - Vertical Fixed Roof Tank
Tucson, Texas

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):	19.5491	20.3764	26.2386	30.9961	38.0579	41.1063	35.4471	32.8625	30.0604	27.2841	21.7778	18.6756
Vapor Space Volume (cu ft):	86,884.6717	86,884.6717	86,884.6717	86,884.6717	86,884.6717	86,884.6717	86,884.6717	86,884.6717	86,884.6717	86,884.6717	86,884.6717	86,884.6717
Vapor Density (lb/cu ft):	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002
Vapor Space Expansion Factor:	0.0406	0.0453	0.0505	0.0578	0.0613	0.0612	0.0502	0.0477	0.0474	0.0475	0.0438	0.0386
Vented Vapor Saturation Factor:	0.9920	0.9917	0.9913	0.9906	0.9894	0.9881	0.9878	0.9882	0.9888	0.9903	0.9914	0.9919
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):	86,884.6717	86,884.6717	86,884.6717	86,884.6717	86,884.6717	86,884.6717	86,884.6717	86,884.6717	86,884.6717	86,884.6717	86,884.6717	86,884.6717
Tank Diameter (ft):	75.0000	75.0000	75.0000	75.0000	75.0000	75.0000	75.0000	75.0000	75.0000	75.0000	75.0000	75.0000
Vapor Space Outage (ft):	19.6667	19.6667	19.6667	19.6667	19.6667	19.6667	19.6667	19.6667	19.6667	19.6667	19.6667	19.6667
Tank Shell Height (ft):	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000
Average Liquid Height (ft):	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000
Roof Outage (ft):	0.6667	0.6667	0.6667	0.6667	0.6667	0.6667	0.6667	0.6667	0.6667	0.6667	0.6667	0.6667
Roof Outage (Cone Roof)												
Roof Outage (ft):	0.6667	0.6667	0.6667	0.6667	0.6667	0.6667	0.6667	0.6667	0.6667	0.6667	0.6667	0.6667
Roof Height (ft):	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000
Roof Slope (ft/ft):	0.0533	0.0533	0.0533	0.0533	0.0533	0.0533	0.0533	0.0533	0.0533	0.0533	0.0533	0.0533
Shell Radius (ft):	37.5000	37.5000	37.5000	37.5000	37.5000	37.5000	37.5000	37.5000	37.5000	37.5000	37.5000	37.5000
Vapor Density												
Vapor Density (lb/cu ft):	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002
Vapor Molecular Weight (lb/lb-mole):	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0078	0.0081	0.0084	0.0091	0.0103	0.0116	0.0118	0.0115	0.0109	0.0094	0.0084	0.0078
Daily Avg. Liquid Surface Temp. (deg. R):	522.0050	523.8081	526.2213	529.9524	533.8976	538.3038	539.0600	537.9935	535.9235	531.1156	525.6369	522.2330
Daily Average Ambient Temp. (deg. F):	51.2500	54.4000	58.7000	65.8000	73.9500	83.7500	86.5000	84.4500	80.4000	70.4500	59.1500	52.0500
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731	10.731
Liquid Bulk Temperature (deg. R):	528.0942	528.0942	528.0942	528.0942	528.0942	528.0942	528.0942	528.0942	528.0942	528.0942	528.0942	528.0942
Tank Paint Solar Absorptance (Shell):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,092.6779	1,403.2852	1,791.3064	2,243.4162	2,510.8748	2,580.9915	2,243.0989	2,120.6327	1,906.1582	1,586.0327	1,208.7987	1,000.3523
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:	0.0406	0.0453	0.0505	0.0578	0.0613	0.0612	0.0502	0.0477	0.0474	0.0475	0.0438	0.0386
Daily Vapor Temperature Range (deg. R):	23.4171	25.9756	28.8306	32.8547	34.9198	35.1095	29.2532	27.8782	27.6493	27.4935	25.2659	22.4017
Daily Vapor Pressure Range (psia):	0.0023	0.0025	0.0029	0.0038	0.0049	0.0060	0.0051	0.0047	0.0044	0.0034	0.0024	0.0022
Breather Vent Press. Setting Range(psia):	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0078	0.0081	0.0084	0.0091	0.0103	0.0116	0.0118	0.0115	0.0109	0.0094	0.0084	0.0078
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0064	0.0067	0.0072	0.0077	0.0083	0.0090	0.0096	0.0094	0.0089	0.0081	0.0073	0.0065
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0087	0.0092	0.0101	0.0115	0.0132	0.0150	0.0147	0.0141	0.0133	0.0115	0.0097	0.0087
Daily Avg. Liquid Surface Temp. (deg R):	522.0050	523.8081	526.2213	529.9524	533.8976	538.3038	539.0600	537.9935	535.9235	531.1156	525.6369	522.2330
Daily Min. Liquid Surface Temp. (deg R):	516.1507	517.3142	519.0136	521.7388	525.1677	529.5264	531.7467	531.0240	529.0112	524.2422	519.3205	516.6326
Daily Max. Liquid Surface Temp. (deg R):	527.8593	530.3021	533.4289	538.1661	542.6276	547.0812	546.3733	544.9631	542.8358	537.9890	531.9534	527.8334
Daily Ambient Temp. Range (deg. R):	25.3000	26.8000	28.2000	30.8000	31.9000	31.7000	25.8000	24.7000	25.8000	27.7000	27.1000	24.5000
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:	0.9920	0.9917	0.9913	0.9906	0.9894	0.9881	0.9878	0.9882	0.9888	0.9903	0.9914	0.9919
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.0078	0.0081	0.0084	0.0091	0.0103	0.0116	0.0118	0.0115	0.0109	0.0094	0.0084	0.0078

Vapor Space Outage (ft):	19.6667	19.6667	19.6667	19.6667	19.6667	19.6667	19.6667	19.6667	19.6667	19.6667	19.6667	19.6667
Working Losses (lb):	96.4908	100.0718	104.8643	112.7653	127.4564	143.8640	146.6800	142.7087	135.0003	117.0966	103.7039	96.9436
Vapor Molecular Weight (lb/lb-mole):	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0078	0.0081	0.0084	0.0091	0.0103	0.0116	0.0118	0.0115	0.0109	0.0094	0.0084	0.0078
Net Throughput (gal/mo.):	4,726,344.3330	4,726,344.3330	4,726,344.3330	4,726,344.3330	4,726,344.3330	4,726,344.3330	4,726,344.3330	4,726,344.3330	4,726,344.3330	4,726,344.3330	4,726,344.3330	4,726,344.3330
Annual Turnovers:	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000	44.0000
Turnover Factor:	0.8485	0.8485	0.8485	0.8485	0.8485	0.8485	0.8485	0.8485	0.8485	0.8485	0.8485	0.8485
Maximum Liquid Volume (gal):	1,289,003.0000	1,289,003.0000	1,289,003.0000	1,289,003.0000	1,289,003.0000	1,289,003.0000	1,289,003.0000	1,289,003.0000	1,289,003.0000	1,289,003.0000	1,289,003.0000	1,289,003.0000
Maximum Liquid Height (ft):	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000	39.0000
Tank Diameter (ft):	75.0000	75.0000	75.0000	75.0000	75.0000	75.0000	75.0000	75.0000	75.0000	75.0000	75.0000	75.0000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	116.0398	120.4483	131.1029	143.7614	165.5143	184.9703	182.1271	175.5712	165.0607	144.3807	125.4817	115.6192

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

3001 - Vertical Fixed Roof Tank
Tucson, Texas

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	1,427.65	342.43	1,770.08

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	3002
City:	Tucson
State:	Arizona
Company:	Holly Energy Partners
Type of Tank:	Internal Floating Roof Tank
Description:	Tank 3002 - Gasoline

Tank Dimensions

Diameter (ft):		68.00
Volume (gallons):		1,246,812.00
Turnovers:		40.00
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	Rim-mounted

Deck Characteristics

Deck Fitting Category:	Typical	
Deck Type:	Bolted	
Construction:	Sheet	
Deck Seam:	Sheet: 5 Ft Wide	
Deck Seam Len. (ft):		726.00

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	20
Gauge-Hatch/Sample Well (8-in. Diam.)/Slit Fabric Seal 10% Open	1
Stub Drain (1-in. Diameter)/Slit Fabric Seal 10% Open	37
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1

Meterological Data used in Emissions Calculations: Tucson, Arizona (Avg Atmospheric Pressure = 13.41 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

3002 - Internal Floating Roof Tank
Tucson, Arizona

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Gasoline (RVP 13.5)	Jan	62.33	56.48	68.19	68.42	7.5653	N/A	N/A	62.0000			92.00	Option 4: RVP=13.5, ASTM Slope=3
Gasoline (RVP 13.5)	Feb	64.14	57.64	70.63	68.42	7.8197	N/A	N/A	62.0000			92.00	Option 4: RVP=13.5, ASTM Slope=3
Gasoline (RVP 11.5)	Mar	66.55	59.34	73.76	68.42	6.8530	N/A	N/A	65.0000			92.00	Option 4: RVP=11.5, ASTM Slope=3
Gasoline (RVP 10)	Apr	70.28	62.07	78.50	68.42	6.3057	N/A	N/A	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 9)	May	74.23	65.50	82.96	68.42	6.0559	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Jun	78.63	69.86	87.41	68.42	6.5700	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Jul	79.39	72.08	86.70	68.42	6.6617	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Aug	78.32	71.35	85.29	68.42	6.5327	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Sep	76.25	69.34	83.17	68.42	6.2882	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 10)	Oct	71.45	64.57	78.32	68.42	6.4436	N/A	N/A	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 11.5)	Nov	65.97	59.65	72.28	68.42	6.7790	N/A	N/A	65.0000			92.00	Option 4: RVP=11.5, ASTM Slope=3
Gasoline (RVP 13.5)	Dec	62.56	56.96	68.16	68.42	7.5971	N/A	N/A	62.0000			92.00	Option 4: RVP=13.5, ASTM Slope=3

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

3002 - Internal Floating Roof Tank
Tucson, Arizona

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Rim Seal Losses (lb):	43.1350	45.3761	39.1026	35.3345	33.9489	37.9720	38.7181	37.6709	35.7330	36.4061	38.5025	43.4103
Seal Factor A (lb-mole/ft-yr):	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000
Value of Vapor Pressure Function:	0.2046	0.2153	0.1769	0.1575	0.1490	0.1667	0.1700	0.1654	0.1569	0.1622	0.1742	0.2059
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.5653	7.8197	6.8530	6.3057	6.0559	6.5700	6.6617	6.5327	6.2882	6.4436	6.7790	7.5971
Tank Diameter (ft):	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000	62.0000	65.0000	66.0000	67.0000	67.0000	67.0000	67.0000	67.0000	66.0000	65.0000	62.0000
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Withdrawal Losses (lb):	12.7407	12.7407	12.7407	11.6964	11.6964	11.6964	11.6964	11.6964	11.6964	11.6964	12.7407	12.7407
Number of Columns:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Effective Column Diameter (ft):	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Net Throughput (gal/mo.):	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Average Organic Liquid Density (lb/gal):	6.1000	6.1000	6.1000	5.6000	5.6000	5.6000	5.6000	5.6000	5.6000	5.6000	6.1000	6.1000
Tank Diameter (ft):	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000
Deck Fitting Losses (lb):	416.1262	437.7456	377.2249	340.8737	327.5072	366.3182	373.5157	363.4133	344.7184	351.2118	371.4360	418.7821
Value of Vapor Pressure Function:	0.2046	0.2153	0.1769	0.1575	0.1490	0.1667	0.1700	0.1654	0.1569	0.1622	0.1742	0.2059
Vapor Molecular Weight (lb/lb-mole):	62.0000	62.0000	65.0000	66.0000	67.0000	67.0000	67.0000	67.0000	67.0000	66.0000	65.0000	62.0000
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	393.6000	393.6000	393.6000	393.6000	393.6000	393.6000	393.6000	393.6000	393.6000	393.6000	393.6000	393.6000
Deck Seam Losses (lb):	136.8186	143.9268	124.0282	112.0763	107.6814	120.4422	122.8086	119.4871	113.3403	115.4753	122.1249	137.6918
Deck Seam Length (ft):	726.0000	726.0000	726.0000	726.0000	726.0000	726.0000	726.0000	726.0000	726.0000	726.0000	726.0000	726.0000
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400
Deck Seam Length Factor(ft/sqft):	0.1999	0.1999	0.1999	0.1999	0.1999	0.1999	0.1999	0.1999	0.1999	0.1999	0.1999	0.1999
Tank Diameter (ft):	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000	62.0000	65.0000	66.0000	67.0000	67.0000	67.0000	67.0000	67.0000	66.0000	65.0000	62.0000
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	608.8205	639.7892	553.0964	499.9809	480.8339	536.4287	546.7388	532.2677	505.4881	514.7896	544.8041	612.6250

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	36.00	5.90	1.20	410.2126
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	159.5271
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	1	47.00	0.00	0.00	535.5554
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1	76.00	0.00	0.00	866.0044
Roof Leg or Hanger Well/Adjustable	20	7.90	0.00	0.00	1,800.3776
Gauge-Hatch/Sample Well (8-in. Diam.)/Slit Fabric Seal 10% Open	1	12.00	0.00	0.00	136.7375
Stub Drain (1-in. Diameter)/	37	1.20	0.00	0.00	505.9289
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	70.6477

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

3002 - Internal Floating Roof Tank
Tucson, Arizona

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Gasoline (RVP 10)	71.74	23.39	692.09	227.55	1,014.77
Gasoline (RVP 11.5)	77.61	25.48	748.66	246.15	1,097.90
Gasoline (RVP 13.5)	131.92	38.22	1,272.65	418.44	1,861.23
Gasoline (RVP 9)	184.04	58.48	1,775.47	583.76	2,601.76

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	3003
City:	Tucson
State:	Arizona
Company:	Holly Energy Partners
Type of Tank:	Internal Floating Roof Tank
Description:	Tank 3003 - Gasoline

Tank Dimensions

Diameter (ft):		68.00
Volume (gallons):		1,254,708.00
Turnovers:		40.00
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	Rim-mounted

Deck Characteristics

Deck Fitting Category:	Typical	
Deck Type:	Bolted	
Construction:	Sheet	
Deck Seam:	Sheet: 5 Ft Wide	
Deck Seam Len. (ft):		726.00

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	20
Gauge-Hatch/Sample Well (8-in. Diam.)/Slit Fabric Seal 10% Open	1
Stub Drain (1-in. Diameter)/Slit Fabric Seal 10% Open	37
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1

Meterological Data used in Emissions Calculations: Tucson, Arizona (Avg Atmospheric Pressure = 13.41 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

3003 - Internal Floating Roof Tank
Tucson, Arizona

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Gasoline (RVP 13.5)	Jan	62.33	56.48	68.19	68.42	7.5653	N/A	N/A	62.0000			92.00	Option 4: RVP=13.5, ASTM Slope=3
Gasoline (RVP 13.5)	Feb	64.14	57.64	70.63	68.42	7.8197	N/A	N/A	62.0000			92.00	Option 4: RVP=13.5, ASTM Slope=3
Gasoline (RVP 11.5)	Mar	66.55	59.34	73.76	68.42	6.8530	N/A	N/A	65.0000			92.00	Option 4: RVP=11.5, ASTM Slope=3
Gasoline (RVP 10)	Apr	70.28	62.07	78.50	68.42	6.3057	N/A	N/A	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 9)	May	74.23	65.50	82.96	68.42	6.0559	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Jun	78.63	69.86	87.41	68.42	6.5700	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Jul	79.39	72.08	86.70	68.42	6.6617	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Aug	78.32	71.35	85.29	68.42	6.5327	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Sep	76.25	69.34	83.17	68.42	6.2882	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 10)	Oct	71.45	64.57	78.32	68.42	6.4436	N/A	N/A	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 11.5)	Nov	65.97	59.65	72.28	68.42	6.7790	N/A	N/A	65.0000			92.00	Option 4: RVP=11.5, ASTM Slope=3
Gasoline (RVP 13.5)	Dec	62.56	56.96	68.16	68.42	7.5971	N/A	N/A	62.0000			92.00	Option 4: RVP=13.5, ASTM Slope=3

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

3003 - Internal Floating Roof Tank
Tucson, Arizona

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Rim Seal Losses (lb):	43.1350	45.3761	39.1026	35.3345	33.9489	37.9720	38.7181	37.6709	35.7330	36.4061	38.5025	43.4103
Seal Factor A (lb-mole/ft-yr):	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000
Value of Vapor Pressure Function:	0.2046	0.2153	0.1769	0.1575	0.1490	0.1667	0.1700	0.1654	0.1569	0.1622	0.1742	0.2059
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.5653	7.8197	6.8530	6.3057	6.0559	6.5700	6.6617	6.5327	6.2882	6.4436	6.7790	7.5971
Tank Diameter (ft):	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000	62.0000	65.0000	66.0000	67.0000	67.0000	67.0000	67.0000	67.0000	66.0000	65.0000	62.0000
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Withdrawal Losses (lb):	12.8214	12.8214	12.8214	11.7705	11.7705	11.7705	11.7705	11.7705	11.7705	11.7705	12.8214	12.8214
Number of Columns:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Effective Column Diameter (ft):	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Net Throughput (gal/mo.):	4,182,360.0000	4,182,360.0000	4,182,360.0000	4,182,360.0000	4,182,360.0000	4,182,360.0000	4,182,360.0000	4,182,360.0000	4,182,360.0000	4,182,360.0000	4,182,360.0000	4,182,360.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Average Organic Liquid Density (lb/gal):	6.1000	6.1000	6.1000	5.6000	5.6000	5.6000	5.6000	5.6000	5.6000	5.6000	6.1000	6.1000
Tank Diameter (ft):	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000
Deck Fitting Losses (lb):	416.1262	437.7456	377.2249	340.8737	327.5072	366.3182	373.5157	363.4133	344.7184	351.2118	371.4360	418.7821
Value of Vapor Pressure Function:	0.2046	0.2153	0.1769	0.1575	0.1490	0.1667	0.1700	0.1654	0.1569	0.1622	0.1742	0.2059
Vapor Molecular Weight (lb/lb-mole):	62.0000	62.0000	65.0000	66.0000	67.0000	67.0000	67.0000	67.0000	67.0000	66.0000	65.0000	62.0000
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	393.6000	393.6000	393.6000	393.6000	393.6000	393.6000	393.6000	393.6000	393.6000	393.6000	393.6000	393.6000
Deck Seam Losses (lb):	136.8186	143.9268	124.0282	112.0763	107.6814	120.4422	122.8086	119.4871	113.3403	115.4753	122.1249	137.6918
Deck Seam Length (ft):	726.0000	726.0000	726.0000	726.0000	726.0000	726.0000	726.0000	726.0000	726.0000	726.0000	726.0000	726.0000
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400
Deck Seam Length Factor(ft/sqft):	0.1999	0.1999	0.1999	0.1999	0.1999	0.1999	0.1999	0.1999	0.1999	0.1999	0.1999	0.1999
Tank Diameter (ft):	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000	68.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000	62.0000	65.0000	66.0000	67.0000	67.0000	67.0000	67.0000	67.0000	66.0000	65.0000	62.0000
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	608.9012	639.8699	553.1771	500.0550	480.9080	536.5028	546.8129	532.3418	505.5622	514.8637	544.8848	612.7057

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Unbolted Cover, Ungasketed	1	36.00	5.90	1.20	410.2126
Automatic Gauge Float Well/Unbolted Cover, Ungasketed	1	14.00	5.40	1.10	159.5271
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Ungask.	1	47.00	0.00	0.00	535.5554
Ladder Well (36-in. Diam.)/Sliding Cover, Ungasketed	1	76.00	0.00	0.00	866.0044
Roof Leg or Hanger Well/Adjustable	20	7.90	0.00	0.00	1,800.3776
Gauge-Hatch/Sample Well (8-in. Diam.)/Slit Fabric Seal 10% Open	1	12.00	0.00	0.00	136.7375
Stub Drain (1-in. Diameter)/	37	1.20	0.00	0.00	505.9289
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	70.6477

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

3003 - Internal Floating Roof Tank
Tucson, Arizona

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Gasoline (RVP 10)	71.74	23.54	692.09	227.55	1,014.92
Gasoline (RVP 11.5)	77.61	25.64	748.66	246.15	1,098.06
Gasoline (RVP 13.5)	131.92	38.46	1,272.65	418.44	1,861.48
Gasoline (RVP 9)	184.04	58.85	1,775.47	583.76	2,602.13

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	3004
City:	Tucson
State:	Arizona
Company:	Holly Energy Partners
Type of Tank:	Internal Floating Roof Tank
Description:	Tank 3004 - Gasoline

Tank Dimensions

Diameter (ft):	74.00
Volume (gallons):	1,246,812.00
Turnovers:	40.00
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	Rim-mounted

Deck Characteristics

Deck Fitting Category:	Detail
Deck Type:	Bolted
Construction:	Sheet
Deck Seam:	Sheet: 5 Ft Wide
Deck Seam Len. (ft):	860.00

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1
Automatic Gauge Float Well/Bolted Cover, Gasketed	1
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Gask.	1
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1
Roof Leg or Hanger Well/Adjustable	22
Gauge-Hatch/Sample Well (8-in. Diam.)/Slit Fabric Seal 10% Open	1
Stub Drain (1-in. Diameter)/Slit Fabric Seal 10% Open	44
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1

Meterological Data used in Emissions Calculations: Tucson, Arizona (Avg Atmospheric Pressure = 13.41 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

3004 - Internal Floating Roof Tank
Tucson, Arizona

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Gasoline (RVP 13.5)	Jan	62.33	56.48	68.19	68.42	7.5653	N/A	N/A	62.0000			92.00	Option 4: RVP=13.5, ASTM Slope=3
Gasoline (RVP 13.5)	Feb	64.14	57.64	70.63	68.42	7.8197	N/A	N/A	62.0000			92.00	Option 4: RVP=13.5, ASTM Slope=3
Gasoline (RVP 11.5)	Mar	66.55	59.34	73.76	68.42	6.8530	N/A	N/A	65.0000			92.00	Option 4: RVP=11.5, ASTM Slope=3
Gasoline (RVP 10)	Apr	70.28	62.07	78.50	68.42	6.3057	N/A	N/A	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 9)	May	74.23	65.50	82.96	68.42	6.0559	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Jun	78.63	69.86	87.41	68.42	6.5700	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Jul	79.39	72.08	86.70	68.42	6.6617	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Aug	78.32	71.35	85.29	68.42	6.5327	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 9)	Sep	76.25	69.34	83.17	68.42	6.2882	N/A	N/A	67.0000			92.00	Option 4: RVP=9, ASTM Slope=3
Gasoline (RVP 10)	Oct	71.45	64.57	78.32	68.42	6.4436	N/A	N/A	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
Gasoline (RVP 11.5)	Nov	65.97	59.65	72.28	68.42	6.7790	N/A	N/A	65.0000			92.00	Option 4: RVP=11.5, ASTM Slope=3
Gasoline (RVP 13.5)	Dec	62.56	56.96	68.16	68.42	7.5971	N/A	N/A	62.0000			92.00	Option 4: RVP=13.5, ASTM Slope=3

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

3004 - Internal Floating Roof Tank
Tucson, Arizona

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Rim Seal Losses (lb):	46.9411	49.3798	42.5528	38.4522	36.9444	41.3225	42.1344	40.9948	38.8859	39.6184	41.8998	47.2407
Seal Factor A (lb-mole/ft-yr):	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000
Value of Vapor Pressure Function:	0.2046	0.2153	0.1769	0.1575	0.1490	0.1667	0.1700	0.1654	0.1569	0.1622	0.1742	0.2059
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	7.5653	7.8197	6.8530	6.3057	6.0559	6.5700	6.6617	6.5327	6.2882	6.4436	6.7790	7.5971
Tank Diameter (ft):	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000	62.0000	65.0000	66.0000	67.0000	67.0000	67.0000	67.0000	67.0000	66.0000	65.0000	62.0000
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Withdrawal Losses (lb):	11.6939	11.6939	11.6939	10.7354	10.7354	10.7354	10.7354	10.7354	10.7354	10.7354	11.6939	11.6939
Number of Columns:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Effective Column Diameter (ft):	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Net Throughput (gal/mo.):	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000	4,156,040.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Average Organic Liquid Density (lb/gal):	6.1000	6.1000	6.1000	5.6000	5.6000	5.6000	5.6000	5.6000	5.6000	5.6000	6.1000	6.1000
Tank Diameter (ft):	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000
Deck Fitting Losses (lb):	357.5556	376.1320	324.1297	292.8951	281.4099	314.7581	320.9426	312.2622	296.1986	301.7780	319.1556	359.8377
Value of Vapor Pressure Function:	0.2046	0.2153	0.1769	0.1575	0.1490	0.1667	0.1700	0.1654	0.1569	0.1622	0.1742	0.2059
Vapor Molecular Weight (lb/lb-mole):	62.0000	62.0000	65.0000	66.0000	67.0000	67.0000	67.0000	67.0000	67.0000	66.0000	65.0000	62.0000
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	338.2000	338.2000	338.2000	338.2000	338.2000	338.2000	338.2000	338.2000	338.2000	338.2000	338.2000	338.2000
Deck Seam Losses (lb):	162.0716	170.4919	146.9204	132.7625	127.5565	142.6725	145.4758	141.5412	134.2599	136.7889	144.6658	163.1060
Deck Seam Length (ft):	860.0000	860.0000	860.0000	860.0000	860.0000	860.0000	860.0000	860.0000	860.0000	860.0000	860.0000	860.0000
Deck Seam Loss per Unit Length Factor (lb-mole/ft-yr):	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400
Deck Seam Length Factor(ft/sqft):	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000	0.2000
Tank Diameter (ft):	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000	74.0000
Vapor Molecular Weight (lb/lb-mole):	62.0000	62.0000	65.0000	66.0000	67.0000	67.0000	67.0000	67.0000	67.0000	66.0000	65.0000	62.0000
Product Factor:	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	578.2622	607.6976	525.2969	474.8452	456.6462	509.4886	519.2882	505.5336	480.0798	488.9208	517.4152	581.8783

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	1	1.60	0.00	0.00	18.2317
Automatic Gauge Float Well/Bolted Cover, Gasketed	1	2.80	0.00	0.00	31.9054
Column Well (24-in. Diam.)/Built-Up Col.-Sliding Cover, Gask.	1	33.00	0.00	0.00	376.0282
Ladder Well (36-in. Diam.)/Sliding Cover, Gasketed	1	56.00	0.00	0.00	638.1085
Roof Leg or Hanger Well/Adjustable	22	7.90	0.00	0.00	1,980.4153
Gauge-Hatch/Sample Well (8-in. Diam.)/Slit Fabric Seal 10% Open	1	12.00	0.00	0.00	136.7375
Stub Drain (1-in. Diameter)/	44	1.20	0.00	0.00	601.6452
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	70.6477

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: January, February, March, April, May, June, July, August, September, October, November, December

3004 - Internal Floating Roof Tank
Tucson, Arizona

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Gasoline (RVP 10)	78.07	21.47	594.67	269.55	963.77
Gasoline (RVP 11.5)	84.45	23.39	643.29	291.59	1,042.71
Gasoline (RVP 13.5)	143.56	35.08	1,093.53	495.67	1,767.84
Gasoline (RVP 9)	200.28	53.68	1,525.57	691.51	2,471.04