Statement of Basis

Permit to Construct No. P-2011.0102
Project ID 61938

Tesoro Logistics Operations LLC - Burley
Burley, Idaho

Facility ID 031-00017

Final

February 16, 2018
Christina Boulay CB
Permit Writer

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
BMP	best management practices
Btu	British thermal units
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CAS No.	Chemical Abstracts Service registry number
CBP	concrete batch plant
CEMS	continuous emission monitoring systems
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CI	compression ignition
CMS	continuous monitoring systems
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent emissions
COMS	continuous opacity monitoring systems
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
FEC	Facility Emissions Cap
GACT	Generally Available Control Technology
GHG	greenhouse gases
gph	gallons per hour
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
HHV	higher heating value
HMA	hot mix asphalt
hp	horsepower
hr/yr	hours per consecutive 12 calendar month period
ICE	internal combustion engines
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
iwg	inches of water gauge
km	kilometers
lb/hr	pounds per hour
lb/qtr	pound per quarter
m	meters
MACT	Maximum Achievable Control Technology
mg/dscm	milligrams per dry standard cubic meter
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides

NSPS	New Source Performance Standards
O&M	operation and maintenance
O_2	oxygen
PAH	polyaromatic hydrocarbons
PC	permit condition
PCB	polychlorinated biphenyl
PERF	Portable Equipment Relocation Form
PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
POM	polycyclic organic matter
ppm	parts per million
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
PW	process weight rate
RAP	recycled asphalt pavement
RFO	reprocessed fuel oil
RICE	reciprocating internal combustion engines
Rules	*Rules for the Control of Air Pollution in Idaho*
scf	standard cubic feet
SCL	significant contribution limits
SIP	State Implementation Plan
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO_2	sulfur dioxide
SO_x	sulfur oxides
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per consecutive 12 calendar month period
T2	Tier II operating permit
TAP	toxic air pollutants
TEQ	toxicity equivalent
T-RACT	Toxic Air Pollutant Reasonably Available Control Technology
ULSD	ultra-low sulfur diesel
U.S.C.	United States Code
VCU	vapor combustion unit
VOC	volatile organic compounds
yd^3	cubic yards
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

Tesoro operates a petroleum products terminal. The Burley Terminal consists of 15 storage tanks, a truck loading rack controlled by a vapor combustion unit (VCU), various piping components such as valves, flanges, connectors, and a natural gas fired heater.

The terminal receives and distributes gasoline, distillate fuels, and additives. Gasoline and diesel tanker truck loading is done at the loading rack, when emissions are controlled by the VCU. The VCU is a source of volatile organic compounds (VOC), nitric oxides (NOx), and carbon monoxide (CO) emissions. Particulate matter and sulfur dioxide emissions from the VCU are considered negligible. VOC emissions also occur from product storage, product loading, and as fugitives from equipment leaks.

Permitting History

The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

October 24, 1989	PTC 031-00017 (S)
May 27, 1993	PTC 031-00017 (S)
April 16, 2002	P-020404 installation of distillate fuel storage tank 1004 (S)
January 5, 2007	P-060442, Truck loading rack upgrade and vapor combustion system installation (S)
June 2, 2011	P-2011.0102, Project No. 60869 Name change, (S)
December 20, 2011	P-2011.0102, Project No. 60886 Install two 19,446 gallon denatured ethanol tanks, (A, but will become S upon issuance of this permit)
November 24, 2017	P-2011.0102, Project No. 61938 Update the storage tank inventory list and add an indirect natural gas-fired heater to the regulated sources listed in Table 1.1 of the permit.

Application Scope

This PTC is for a minor modification at an existing minor facility. Tesoro has proposed the following:

- Install Tank 1015, a 6,006 gallon capacity tank of fuel additive. This storage tank will be a source of volatile organic compounds and toxic air pollutants, however the emissions increase to the addition of this tank are below regulatory concern as defined in IDAPA 58.01.01.221.01.
- Change the stored contents of Tank 1006 from gasoline to storm water.
- List the two 19,320 gallon capacity tanks which store ethanol only, separately and label them as Tank 1016 and Tank 1017.
- Add the natural gas fired heater in the permit. The oil heater has historically never been listed on a permit for this facility, however at the facility's request; the natural gas heater is listed in this PTC as a regulated source which qualifies for a Category II Exemption under IDAPA 58.01.01.222.d.

Application Chronology

August 28, 2017	DEQ received an application and an application fee.
September 28, 2017	DEQ determined that the application incomplete
October 26, 2017	DEQ received supplemental information from the applicant.
November 14, 2017	DEQ determined that the application was complete.

December 6, 2017	DEQ made available the draft permit and statement of basis for peer and regional office review.
Nov. 30 – December 15, 2017	DEQ provided a public comment opportunity period on the proposed action.
December 19, 2017	DEQ made available the draft permit and statement of basis for applicant review.
December 20, 2018	DEQ received the permit processing fee.
January 8 – February 7, 2018	DEQ provided a public comment period on the proposed action.
February 16, 2018	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Source Descriptions	Emission Controls
Tank 1001 – 1,382,976 gallon capacity, gasoline	Internal Floating Roof
Tank 1002 – 1,786,428 gallon capacity, gasoline	Internal Floating Roof
Tank 1003 – Vertical Fixed Roof 1,353,800 gallon capacity, distillate	None
Tank 1004 – Vertical Fixed Roof 805,986 gallon capacity, distillate	None
Tank1005 – Vertical Fixed Roof 42,840 gallon capacity, distillate	None
Tank 1006 – Horizontal Tank 15,000 gallon capacity, storm water	None
Tank 1008 – Horizontal Tank 3,990 gallon capacity, fuel additive	None
Tank 1009 – Horizontal Tank 4,200 gallon capacity, fuel additive	None
Tank 1010 – Horizontal Tank 6,510 gallon capacity, fuel additive	None
Tank 1011 – Horizontal Tank 2,016 gallon capacity, not in use	None
Tank 1012 – Horizontal Tank 2,982 gallon capacity, fuel additive	None
Tank 1014 – Horizontal Tank 572 gallon capacity, fuel additive	None
Tank 1015 – Horizontal Tank 6,006 gallon capacity, fuel additive	None
Tank 1016 – Vertical Fixed Roof 19,320 gallon capacity, denatured ethanol only	None
Tank 1017 – Vertical Fixed Roof 19,320 gallon capacity, denatured ethanol only	None
Fuel Loading Rack: 288,000 gallons per hour gasoline	Vapor Combustion System 1 for Fuel Loading Rack· 288,000 gallons per hour Gasoline Loading / Uncontrolled for Distillate Loading
Vapor Combustion Unit (VCU)[1]	No Control
Bulk gasoline terminal (refer to 40 CFR 63 Subpart BBBBBB for details)	Varies
Indirect Natural Gas Fired Heater Less Than 1MMBtu/hr	No Control

[1]For the purposes of this permit, the term vapor combustion unit (VCU) refers solely to the vapor combustor. The term "vapor combustion system" refers to the vapor combustion unit and the associated piping, equipment, and knockout drum.

Emissions Inventories

Potential to Emit

IDAPA 58.01.01 defines Potential to Emit as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is state or federally enforceable. Secondary emissions do not count in determining the potential to emit of a facility or stationary source.

Using this definition of Potential to Emit, an emission inventory was developed for the 16 tanks, one fuel loading rack, and one vapor combustion unit at the facility (see Appendix A). Emissions estimates of criteria pollutants, TAPs, and HAP PTE were based on emission factors from AP-42 chapter 5.2 and 7.1, "Transportation and Marketing of Petroleum Liquids" and "Organic Liquid Storage Tanks", operation of 8,760 hours per year, and process information specific to the facility.

Pre-Project Potential to Emit

Pre-project Potential to Emit is used to establish the change in emissions at a facility as a result of this project.

The following table presents the pre-project potential to emit for all criteria pollutants from all emissions units at the facility as generated from Permit P-060442 issued January 5, 2007 (2011AAG2369), by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 2 PRE-PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS[a] & [b]

Source	$PM_{10}/PM_{2.5}$	SO_2	NO_X	CO	VOC
	T/yr	T/yr	T/yr	T/yr	T/yr
Point Sources					
Tank Emissions	N/A	N/A	N/A	N/A	9.19
Loading Rack and VCU	N/A	N/A	8.17	12.30	29.20
Leaks	N/A	N/A	N/A	N/A	1.04E-02
Natural Gas Fired Heater	N/A	N/A	N/A	N/A	N/A
Pre Project Totals	**N/A**	**N/A**	**8.17**	**12.30**	**38.40**

a) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.
b) The PTE emission values were taken from PTC P-060442 January 5, 2007 2011AAG2368 and SOB December 28, 2006, 2011AAG2369.

Post Project Potential to Emit

Post project Potential to Emit is used to establish the change in emissions at a facility and to determine the facility's classification as a result of this project. Post project Potential to Emit includes all permit limits resulting from this project.

The following table presents the post project Potential to Emit for criteria pollutants from all emissions units at the facility as determined by DEQ staff. See Appendix B for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 3 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS[a]

Source	$PM_{10}/PM_{2.5}$	SO_2	NO_X	CO	VOC
	T/yr	T/yr	T/yr	T/yr	T/yr
Point Sources					
Tank Emissions	N/A	N/A	N/A	N/A	<9.20 [b]
Loading Rack and VCU	N/A	N/A	8.17	12.30	29.20
Leaks	N/A	N/A	NA	NA	1.04E-02
Natural Gas Fired Heater	2.61E-03	2.06E-04	1.76E-05	N/A	N/A
Post Project Totals	**2.61E-03**	**2.06E-04**	**8.17**	**12.30**	**<38.41**

a) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.
b) The annual VOC emission rate could be lower than this value due to Tank 1006 changing from storing gasoline to storm water.

Change in Potential to Emit

The change in facility-wide potential to emit is used to determine if a public comment period may be required and to determine the processing fee per IDAPA 58.01.01.225. The following table presents the facility-wide change in the potential to emit for criteria pollutants. This is an insignificant increase in emissions.

Table 4 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$	SO_2	NO_X	CO	VOC
	T/yr	T/yr	T/yr	T/yr	T/yr
Pre-Project Potential to Emit	0.00E+00	0.00E+00	8.17	12.30	38.40
Post Project Potential to Emit	2.61E-03	2.06E-04	8.17	12.30	38.41
Changes in Potential to Emit	**2.61E-03**	**2.06E-04**	**0.00**	**0.00**	**0.01**

Non-Carcinogenic TAP Emissions

A summary of the estimated PTE for emissions increase of non-carcinogenic toxic air pollutants (TAP) is provided in the following table.

Pre- and post-project, as well as the change in, non-carcinogenic TAP emissions are presented in the following table:

Table 5 PRE-AND POST PROJECT POTENTIAL TO EMIT FOR NON-CARCINOGENIC TOXIC AIR POLLUTANTS[a]

Non-Carcinogenic Toxic Air Pollutants	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
1,2,4 Trimethylbenzene	1.42E-03	9.67E-02	0.10	8.20	No
Cumene (Isopropylbenzene)	2.05E-04	1.66E-02	0.02	16.30	No
Cobalt	0.00E+00	6.59E-09	6.59E-09	3.30E-03	No
Dichlorobenzene	0.00E+00	9.41E-08	9.41E-08	20.00	No
Ethylbenzene	2.26E-03	2.26E-03	0.00	29.00	No
Hexane(N)	1.19E-04	2.60E-04	1.41E-04	12.00	No
Manganese	0.00E+00	2.98E-08	2.98E-08	3.33E-01	No
Methylcyclohexane	6.60E-01	6.60E-01	0.00E+00	107.00	No
Naphthalene	1.82E-02	1.82E-02	4.78E-08	3.33	No
Nonane	1.94E-03	1.94E-03	0.00E+00	70.00	No
N-Pentane	1.72E-04	1.72E-04	0.00E+00	118.00	No
Octane	1.51E-03	1.51E-03	0.00	93.30	No
Toluene	3.40E-03	3.40E-03	2.67E-07	25.00	No
Xylene (m)	6.38E-03	6.38E-03	0.00E+00	29.00	No
Xylene (o)	4.45E-03	4.45E-03	0.00E+00	29.00	No
Xylene (p)	2.55E-03	2.55E-03	0.00E+00	29.00	No
Xylene (mixed)	1.70E-01	2.02E-01	0.03	29.00	No

(a) The Pre-Project PTE emission values were taken from PTC P-060442 January 5, 2007 and SOB December 28, 2006.

None of the PTEs for non-carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is not required for any non-carcinogenic TAP because none of the 24-hour average non-carcinogenic screening ELs identified in IDAPA 58.01.01.585 were exceeded.

Carcinogenic TAP Emissions

A summary of the estimated PTE for emissions increase of carcinogenic toxic air pollutants (TAP) is provided in the following table.

Table 6 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR CARCINOGENIC TOXIC AIR POLLUTANTS

Carcinogenic Toxic Air Pollutants	Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Acenaphthene	0.00E+00	1.41E-10	1.41E-10	1.40E-02	No
Acenaphthylene	0.00+E00	1.41E-10	1.41E-10	1.40E-02	No
Anthracene	0.00E+00	1.88E-10	1.88E-10	1.40E-02	No
Arsenic	0.00E+00	1.57E-08	1.57E-08	1.50E-06	No
Benzene	1.39E-07	3.04E-07	1.65E-07	8.00E-04	No
Benzo(g,h,i)perylene	0.00E+00	9.41E-11	9.41E-11	1.40E-02	No
Beryllium	0.00E+00	9.41E-10	9.41E-10	2.80E-05	No
Cadmium	0.00E+00	8.63E-08	8.63E-08	3.70E-06	No
Chromium	0.00E+00	1.10E-07	1.10E-07	5.60E-07	No
7,12-Dimethylbenz(a)anthracene	0.00+E00	1.25E-09	1.25E-09	1.40E-02	No
Formaldehyde	4.95E-06	1.08E-05	5.88E-06	5.10E-04	No
Mercury	0.00E+00	2.04E-08	2.04E-08	2.85E-03	No
2-Methylnaphthalene	0.00E+00	1.88E-09	1.88E-09	1.40E-02	No
3-Methylchloranthrene	0.00E+00	1.41E-10	1.41E-10	2.50E-06	No
Nickel	0.00E+00	1.65E-07	1.65E-07	2.70E-05	No
7-PAH	7.92E-11	8.94E-10	8.15E-10	2.00E-06	No
PAH	7.52E-10	2.93E-09	2.18E-09	9.10E-05	No
Selenium	0.00E+00	1.88E-09	1.88E-09	1.30E-02	No

None of the PTEs for carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is not required for any carcinogenic TAP because none of the annual average carcinogenic screening ELs identified in IDAPA 58.01.01.586 were exceeded.

Post Project HAP Emissions

The following table presents the post project potential to emit for HAP pollutants from all emissions units at the facility as submitted by the Applicant and verified by DEQ staff. See Appendix B for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 7 HAZARDOUS AIR POLLUTANTS EMISSIONS POTENTIAL TO EMIT SUMMARY

Hazardous Air Pollutants	PTE (T/yr)
2,2,4 Trimethylpentane	5.50E-01
Arsenic	1.57E-08
Benzene	3.04E-07
Beryllium	9.41E-10
Cadmium	8.63E-08
Chromium	1.10E-07
Cumene	1.66E-02
Cobalt	6.59E-09
Dichlorobenzene	9.41E-08
Ethylbenzene	2.26E-03
Formaldehyde	1.08E-05
Hexane	2.60E-04
Manganese	2.98E-08
Naphthalene	1.82E-02
Nickel	1.65E-07
Toluene	3.40E-03
Xylene (m)	6.38E-03
Xylene (o)	4.45E-03
Xylene (p)	2.55E-03
Xylene (mixed)	2.02E-01
7-PAH	8.94E-10
PAH	2.93E-09
Other HAPs	1.40E-03
Totals	**0.81**

Note: The PTE emission values were taken from PTC P-060442 January 5, 2007 and SOB December 28, 2006 and added to the current emission inventory submitted with this application.

Ambient Air Quality Impact Analyses

The proposed project will only result in an emissions increase in VOC, and that increase is only 0.01 ton/year. There will be no emissions increase of any other criteria pollutants. VOCs are regulated as a precursor to ozone and $PM_{2.5}$, and there is no National Ambient Air Quality Standard (NAAQS) for VOCs. EPA has determined it is unlikely that a source emitting below 100 tons/year of VOCs would contribute to a violation of the ozone NAAQS. This assertion was stated in a letter from Gina McCarthy, Assistant Administrator, US EPA, to Robert Ukeiley, January 4, 2012. Therefore, modeling analysis is not required for this permitting action.

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Cassia County, which is designated as attainment or unclassifiable for $PM_{2.5}$, PM_{10}, SO_2, NO_2, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

Facility Classification

The AIRS/AFS facility classification codes are as follows:

For HAPs (Hazardous Air Pollutants) Only:

A = Use when any one HAP has actual or potential emissions ≥ 10 T/yr or if the aggregate of all HAPS (Total HAPs) has actual or potential emissions ≥ 25 T/yr.

SM80 = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the permit sets limits ≥ 8 T/yr of a single HAP or ≥ 20 T/yr of THAP.

SM = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the potential HAP emissions are limited to < 8 T/yr of a single HAP and/or < 20 T/yr of THAP.

B = Use when the potential to emit without permit restrictions is below the 10 and 25 T/yr major source threshold

UNK = Class is unknown

For All Other Pollutants:

A = Actual or potential emissions of a pollutant are ≥ 100 T/yr.

SM80 = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are ≥ 80 T/yr.

SM = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are < 80 T/yr.

B = Actual and potential emissions are < 100 T/yr without permit restrictions.

UNK = Class is unknown.

Table 8 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	<100	<100	**100**	B
PM_{10}	<100	<100	**100**	B
$PM_{2.5}$	<100	<100	**100**	B
SO_2	<100	<100	**100**	B
NO_X	<100	<100	**100**	B
CO	<100	<100	**100**	B
VOC	>100	<100	**100**	SM
HAP (single)	<10	<10	**10**	B
HAP (total)	<25	<25	**25**	B
Pb	<100	<100	**100**	B

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 ..... Permit to Construct Required

The permittee has requested a PTC for a minor modification be issued to the facility to update the storage tank inventory list and add an indirect natural gas fired heater. Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401 ..... Tier II Operating Permit

The application was submitted for a permit to construct (refer to the Permit to Construct section), and an optional Tier II operating permit has not been requested. Therefore, the procedures of IDAPA 58.01.01.400–410 were not applicable to this permitting action.

Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)

IDAPA 58.01.01.301 ..... Requirement to Obtain Tier I Operating Permit

Post project facility-wide emissions from this facility do not have a potential to emit greater than 100 tons per year for NO_X, CO, VOC, or 10 tons per year for any one HAP or 25 tons per year for all HAPs combined as demonstrated previously in the Emission Inventory Section of this analysis. Therefore, the facility is not a Tier I source in accordance with IDAPA 58.01.01.006, and the requirements of IDAPA 58.01.01.301 do not apply.

Table 9 PTE FOR THE HAZARDOUS AIR POLLUTANTS COMPARED TO THE MAJOR SOURCE THRESHOLDS

Hazardous Air Pollutants	PTE (T/yr)	Major Source Threshold (T/yr)	Exceeds the Major Source Threshold?
2,2,4 Trimethylpentane	5.50E-01	10	No
2,2,4 Trimethylpentane	1.57E-08	10	No
Arsenic	3.04E-07	10	No
Benzene	9.41E-10	10	No
Beryllium	8.63E-08	10	No
Cadmium	1.10E-07	10	No
Chromium	1.66E-02	10	No
Cumene	6.59E-09	10	No
Cobalt	9.41E-08	10	No
Dichlorobenzene	2.26E-03	10	No
Ethylbenzene	1.08E-05	10	No
Formaldehyde	2.60E-04	10	No
Hexane	2.98E-08	10	No
Manganese	1.82E-02	10	No
Naphthalene	1.65E-07	10	No
Nickel	3.40E-03	10	No
Toluene	6.38E-03	10	No
Xylene (m)	4.45E-03	10	No
Xylene (o)	2.55E-03	10	No
Xylene (p)	2.02E-01	10	No
Xylene (mixed)	8.94E-10	10	No
7-PAH	2.93E-09	10	No
PAH	1.40E-03	10	No
Other HAPs	5.50E-01	10	No
Total	**0.81**	**25**	**No**

The PTE emission values were taken from PTC P-060442 issued January 5, 2007 (2011AAG2369) and its SOB dated December 28, 2006 (2011AAG2369) and added to the current emission inventory submitted with this application.

As presented in the preceding table the PTE for each HAP is less than 10 T/yr, and the PTE for all HAPs combined is less than 25 T/yr. Therefore, this facility is not a HAP Major Source subject to Tier I requirements.

PSD Classification (40 CFR 52.21)

40 CFR 52.21 ..... Prevention of Significant Deterioration of Air Quality

The facility is not a major stationary source as defined in 40 CFR 52.21(b)(1), nor is it undergoing any physical change at a stationary source not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source, that would constitute a major stationary source by itself as defined in 40 CFR 52. Therefore in accordance with 40 CFR 52.21(a)(2), PSD requirements are not applicable to this permitting action. The facility is not a designated facility as defined in 40 CFR 52.21(b)(1)(i)(a) and does not have facility-wide emissions of any criteria pollutant that exceed 250 T/yr.

NSPS Applicability (40 CFR 60)

This permitting action does not trigger any new NSPS requirements.

The facility is currently subject to 40 CFR 60 Subpart XX - Standards of Performance for Bulk Gasoline Terminals. The requirements were incorporated into PTC No. P-060442 issued on January 5, 2007 (2011AAG2369) .

40 CFR 60 Subpart XX applies to all loading racks at bulk gasoline terminals constructed or modified after December 17, 1980. The loading rack was modified after 1980; it was modified with a vapor combustion unit in January 5, 2007. Therefore, the facility is subject to 40 CFR 60 Subpart XX.

DEQ is the Administrator of 40 CFR 60 Subpart XX because this subpart has been delegated to DEQ.

NESHAP Applicability (40 CFR 61)

The facility is not subject to any NESHAP requirements in 40 CFR 61.

GACT/MACT Applicability (40 CFR 63)

This permitting action does not trigger any new GACT requirements.

The facility is currently subject to 40 CFR 63 Subpart BBBBBB incorporated into the PTC, and the applicability determination can be found in the statement of basis for PTC No. P-060442 issued January 5, 2007 (2011AAG2369).

Permit Conditions Review

This section describes the permit conditions that have been added, revised, modified or deleted as a result of this permitting action. The numbering within this permit has been revised to reflect the current PTC template; therefore the permit conditions from the previous PTC will have different section numbers from the current PTC permit.

Table 1.1

Tank 1007, 1013, and 1006 have been removed, tank 1016 and 1017 are now listed separately, and an indirect natural gas fired heater has been added. All of the capacities have been revised to accurately reflect the true tank capacities. Tank 1006 was changed from storing gasoline to stormwater runoff, therefore no longer meets the criteria to be monitored for air pollution control measures.

Table 2.1

This table has been added to list the control devices on all emission units. All of the capacities have been revised to accurately reflect the true tank capacities. Tank 1007, 1013, and 1006 have been removed, tank 1016 and 1017 are now listed separately. Tank 1006 was changed from storing gasoline to stormwater runoff, therefore no longer meets the criteria to be monitored for air pollution control measures.

Permit Condition 2.4

Permit Condition 2.4 has been revised to every 12 months to meet the federal regulation requirements listed under permit condition 4.8. 40 CFR 63.11092 Subpart e, using 2(b) from Table 1 of this subpart, 40 CFR 60.113b(a)(2) for inspection requirements.

Permit Condition Table 3.1

This table has been added to list the control devices on the loading rack.

Permit Condition 3.5

The loading rack was removed from this permit condition as there is no potential for opacity from this process, just VOC's.

Permit Condition 3.9.6

Has been removed from this Permit To Construct because the current loading rack and VCU are designed to meet the NSPS requirement, and the requirement is not applicable, "The vapor combustion system and loading rack shall be designed and operated to prevent gauge pressure into the delivery tank from exceeding 4,500 Pascals during product loading". This requirement is listed under permit condition 23 from Permit To Construct P-2011.0102 Revision Date 12/20/2011 (2011AAG5216).

Permit Condition 3.9.7

Has been removed from this Permit To Construct because the current loading rack and VCU are designed to meet the NSPS requirement, and the requirement is not applicable, "No pressure-vacuum vent in the vapor combustion system shall begin to open at a system pressure less than 4,500 Pascals". This requirement is listed under permit condition 24 from Permit To Construct P-2011.0102 Revision Date 12/20/2011 (2011AAG5216).

Permit Condition 3.13 Performance Test NSPS Requirements – 40 CFR 60.500

This permit condition and sub-permit conditions have been removed from this Permit To Construct because this requirement was satisfied by the May 8, 2008 performance test. The results were approved by DEQ on July 31, 2008. No further testing is required after the initial compliance verification performance test.

- For the purpose of Performance Test NSPS Requirements section and Permit to Construct General Provisions, the term "maximum production rate" as used in this PTC is defined to be a maximum hourly loading rack throughput of 288,000 gallons per hour.

  Any subsequent performance tests conducted to demonstrate compliance shall be performed in accordance with IDAPA 58.01.01.157, General Provisions of this permit, and the following four requirements. This requirement is listed under permit condition 40 from Permit To Construct P-2011.0102 Revision Date 12/20/2011 (2011AAG5216).

- *Performance Test NSPS Requirements* - This requirement is listed under permit condition 41 from Permit To Construct P-2011.0102 Revision Date 12/20/2011 (2011AAG5216). "Immediately before the performance tests required in Permit Condition 3.13.2 and 3.13.3, the permittee shall use EPA Method 21 to monitor for leakage of vapor from all potential sources in the vapor combustion system while a gasoline tank truck is being loaded. All leaks of 10,000 ppm or greater, as methane, shall be repaired prior to conducting the performance tests in Permit Condition 3.13.2 and 3.13.3."

- *Performance Test NSPS Requirements* - This requirement is listed under permit condition 42 from Permit To Construct P-2011.0102 Revision Date 12/20/2011 (2011AAG5216). "The permittee shall conduct performance tests in accordance with 40 CFR 60.503(c) to determine compliance with Permit Condition 3.4. The three-run requirement of 40 CFR 60.8(f) does not apply to this test. The test shall use the equation in 40 CFR 60.503(c)(3) to determine the TOC emissions rate. The volume of air-vapor mixture exhausted at each interval shall be determined using EPA Method 2B. The TOC concentration at each interval shall be determined using EPA Method 25A or 25B, and the calibration gas shall be either propane or butane. The total volume of gasoline loaded shall be determined from facility records or from dispensing meters at the loading rack.

- *Performance Test NSPS Requirements* - This requirement is listed under permit condition 43 from Permit To Construct P-2011.0102 Revision Date 12/20/2011 (2011AAG5216). "The permittee shall conduct performance tests in accordance with 40 CFR 60.503(d) to determine compliance with Permit Condition 3.9.6. The three-run requirement of 40 CFR 60.8(f) does not apply to this test. The permittee shall calibrate and install a pressure measurement device capable of measuring up to 500 mm of water gauge pressure, with an accuracy of ±2.5 mm of water, on the vapor combustion system at a pressure tap located as close as possible to the connection with the gasoline tank truck. During the performance test, the pressure shall be recorded every five minutes while a gasoline tank truck is being loaded. The highest instantaneous pressure that occurs during each loading shall also be recorded. Every loading position must be tested at least once during the performance test."
- Should there be a conflict between 40 CFR 60.500 and Permit Condition 3.13 of this permit, 40 CFR 60.500 shall govern. This requirement is listed under permit condition 44 from Permit To Construct P-2011.0102 Revision Date 12/20/2011 (2011AAG5216).

Permit Condition 3.14

Performance Test Report Protocol - Has been removed from this Permit To Construct because this requirement was satisfied by the May 8, 2008 performance test. The results were approved by DEQ on July 31, 2008. No further testing is required after the initial compliance verification performance test. This requirement is listed under permit condition 45 from Permit To Construct P-2011.0102 Revision Date 12/20/2011 (2011AAG5216). "The permittee is encouraged to submit a test protocol to DEQ for approval at least 30 days prior to the performance test required in the Performance Test – NSPS Requirement section. If the permittee fails to obtain prior written approval by DEQ for any testing deviations, DEQ may determine that the test does not satisfy the testing requirements."

Permit Condition 3.17

The Twin Falls Regional Office address has been updated to the current address.

Permit Condition 3.18

This permit condition sets standards for the permittee to ensure compliance with 40 CFR 60 Subpart A

Permit Condition 3.19

This permit condition sets standards for the permittee to ensure compliance with 40 CFR 60 Subpart XX

Permit Condition 4.3

Compliance Date 40 CFR 63.11083 – Has been removed from this Permit To Construct because this requirement has been satisfied. This requirement is listed under permit condition 51 from Permit To Construct P-2011.0102 Project 60886 issued 12/20/2011 (2011AAG5216). "In accordance with 40 CFR 63.11083, the permittee shall comply with the applicable standards in 40 CFR 63 Subpart BBBBBB specified in this permit no later than January 10, 2011."

Permit Condition 4.4.1

Has been removed as the federal regulation 40 CFR 63.11087 was only applicable to gasoline storage tanks with a capacity less than 75 cubic meters or less than 151 cubic meters and a gasoline throughput of 480 gallons per day or less. The only two remaining gasoline storage tanks at the facility are 4,690.13 cubic meters and 7,710.88 cubic meters in volume.

Permit Condition 4.9

Initial Notification 40 CFR 63.11093(a) – Has been removed from this Permit To Construct because this requirement has been satisfied. This requirement is listed under permit condition 63 from Permit To Construct P-2011.0102 Project 60886 issued 12/20/2011 (2011AAG5216). "The permittee shall submit an Initial Notification to EPA, as specified in 40 CFR 63.9(b), by May 9, 2008 in accordance with 40 CFR 63.11093(a)."

Permit Condition 4.10

Notification of Compliance Status 40 CFR 63.11093(b) – Has been removed from this Permit To Construct because this requirement has been satisfied. This requirement is listed under permit condition 64 from Permit To Construct P-2011.0102 Project 60886 issued 12/20/2011 (2011AAG5216). "The permittee shall submit a Notification of Compliance Status as specified in §63.9(h) on or before March 11, 2011 in accordance with 40 CFR 63.11093(b)."

Permit Condition 5.1

The capacity of the tanks have been revised from 19,446 gallons to 19,320 gallons each.

General Provisions

The General Provisions have been replaced with the most recent PTC template.

PUBLIC REVIEW

Public Comment Opportunity

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c or IDAPA 58.01.01.404.01.c. During this time, there was a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

Public Comment Period

A public comment period was made available to the public in accordance with IDAPA 58.01.01.209.01.c. During this time, comments were submitted in response to DEQ's proposed action. Refer to the chronology for public comment period dates.

A response to public comments document has been crafted by DEQ based on comments submitted during the public comment period. That document is part of the final permit package for this permitting action.

APPENDIX A – DEQ DEVELOPED EMISSIONS INVENTORY

Pre Project HAPS and TAPS

HAPs

	Loading Rack Emissions (Gasoline) T/yr	Loading Rack Emissions (Diesel) T/yr	Storage Tanks T/yr	Component Leaks T/yr	Pilot Flame T/yr	**Totals** T/yr
Other HAPS				1.38E-03	2.50E-05	0.001404
2,2,4 Trimethylpentane(585)	0.423		0.129	6.21E-04		0.552621
Benzene(586)	0.2		0.054			0.254
Ethylbenzene(585)	0.0143	6.00E-04	0.0214			0.0363
Formaldehyde(586)					5.20E-04	0.00052
Hexane(585)	0.28		0.0763			0.3563
Naphthalene(585)		4.80E-03	0.021			0.0258
Toluene(585)	0.143	9.00E-04	0.122			0.2659
Xylene (m)(585)	0.029	1.70E-03	0.0494			0.0801
Xylene (o)(585)	0.0143	1.20E-03	0.0266			0.0421
Xylene (p)(585)	0.0114	6.70E-04	0.0213			0.03337
Xylene (mixed)(585)	0.054	3.50E-03	0.113			0.1705
	1.169	0.01337	0.634	2.00E-03	5.45E-04	**1.818915**

TAPs

	Loading Rack Emissions (Gasoline) lb/hr	Loading Rack Emissions (Diesel) lb/hr	Storage Tanks lb/hr	Diesel Additive Tank New lb/hr	Component Leaks lb/hr	Pilot Flame lb/hr	Vapor Combustion Unit lb/hr	**Totals** lb/hr
1,2,4 Trimethylbenzene			1.42E-03					1.42E-03
Benzene							1.39E-07	1.39E-07
Benzo(a)pyrene							7.92E-11	7.92E-11
Cumene (Isopropylbenzene)			2.05E-04					2.05E-04
Ethylbenzene			2.26E-03					2.26E-03
Formaldehyde							4.95E-06	4.95E-06
Hexane(N)							1.19E-04	1.19E-04
Methycyclohexane			0.66	2.28E-06				6.60E-01
Naphthalene			1.82E-02				4.03E-08	1.82E-02
Nonane			1.94E-03	1.14E-06				1.94E-03
N-Pentane							1.72E-04	1.72E-04
Octane			1.51E-03	1.14E-06				1.51E-03
PAH							7.52E-10	7.52E-10
Toluene			3.40E-03	1.14E-06			2.24E-07	3.40E-03
Xylene (m)			6.38E-03	1.71E-06				6.38E-03
Xylene (o)			4.45E-03	1.71E-06				4.45E-03
Xylene (p)			2.55E-03					2.55E-03
			7.02E-01	9.12E-06			0.000296354	7.03E-01

HAPs

	Storage Tanks T/yr	
Cumene (Isopropylbenzene)	0.0162	0.0162

Criteria Pollutants

	Loading Rack Emissions (Gasoline) T/yr	Loading Rack Emissions (Diesel) T/yr	Storage Tanks T/yr	Component Leaks T/yr	Vapor Combustion Unit T/yr	**Totals** T/yr
Nox					8.17	8.17
CO					12.3	12.3
VOC		0.6	9.19	1.04E-02	28.6	38.4004

Post Project HAPS and TAPS

HAPs

	Loading Rack Emissions (Gasoline) T/yr	Loading Rack Emissions (Diesel) T/yr	Storage Tanks T/yr	Component Leaks T/yr	Pilot Flame T/yr	**Totals** T/yr
Other HAPS				1.38E-03	2.50E-05	0.001404
2,2,4 Trimethylpentane(585)	0.423		0.129	6.21E-04		0.552621
Benzene(586)	0.2		0.054			0.254
Ethylbenzene(585)	0.0143	6.00E-04	0.0214			0.0363
Formaldehyde(586)					5.20E-04	0.00052
Hexane(585)	0.28		0.0763			0.3563
Naphthalene(585)		4.80E-03	0.021			0.0258
Toluene(585)	0.143	9.00E-04	0.122			0.2659
Xylene (m)(585)	0.029	1.70E-03	0.0494			0.0801
Xylene (o)(585)	0.0143	1.20E-03	0.0266			0.0421
Xylene (p)(585)	0.0114	6.70E-04	0.0213			0.03337
Xylene (mixed)(585)	0.054	3.50E-03	0.1445			0.202
	1.169	0.01337	0.6655	2.00E-03	5.45E-04	**1.850415**

TAPs

	Loading Rack Emissions (Gasoline) lb/hr	Loading Rack Emissions (Diesel) lb/hr	Storage Tanks lb/hr	Diesel Additive Tank New lb/hr	Component Leaks lb/hr	Pilot Flame lb/hr	Vapor Combustion Unit lb/hr	**Totals** lb/hr
1,2,4 Trimethylbenzene			9.67E-02					9.67E-02
Benzene							1.39E-07	1.39E-07
Benzo(a)pyrene							7.92E-11	7.92E-11
Cumene (Isopropylbenzene)			1.66E-02					1.66E-02
Ethylbenzene			2.26E-03					2.26E-03
Formaldehyde							4.95E-06	4.95E-06
Hexane(N)							1.19E-04	1.19E-04
Methycyclohexane			0.66	2.28E-06				6.60E-01
Naphthalene			1.82E-02				4.03E-08	1.82E-02
Nonane			1.94E-03	1.14E-06				1.94E-03
N-Pentane							1.72E-04	1.72E-04
Octane			1.51E-03	1.14E-06				1.51E-03
PAH							7.52E-10	7.52E-10
Toluene			3.40E-03	1.14E-06			2.24E-07	3.40E-03
Xylene (m)			6.38E-03	1.71E-06				6.38E-03
Xylene (o)			4.45E-03	1.71E-06				4.45E-03
Xylene (p)			2.55E-03					2.55E-03
			8.14E-01	9.12E-06			0.000296354	8.14E-01

HAPs

	Storage Tanks T/yr	
Cumene (Isopropylbenzene)	0.0162	0.0162

APPENDIX B – APPLICANT DEVELOPED EMISSIONS INVENTORY

Table 1. Tank 1015 Potential Throughput

Tank #	Additive	Tank Volume (gal)	Short Term Tank Throughput (gal/hr)	Annual Tank Throughput (gal/yr)	Tank Turnovers	Tank Type	Hottest Month
1015	OGA 72040	6,006	2,000	2,000	0.33	Horizontal	July

[1] Short term throughput is set assuming that the entire annual throughput is used to refill the tank in one hour. For the tank calculations, this throughput is applied to the month of July, since it is the hottest month.

Table 2. Annual Storage Tank Emissions

Tank No.	Tank Description	Tank Contents	VOC Emissions (tpy)	BRC Level (tpy)	Below BRC?
1015	Tank 1015	Additive-OGA 72040	0.01	4	Yes

[1] Tank emissions are calculated using Trinity's TANKS Tool.

Table 3a. Speciated Storage Tank Emissions

Tank No.	Tank Description	Tank Contents	1,2,4-Trimethylbenzene 95-63-6 (lb/hr)	Cumene 98-82-8 (lb/hr)	Xylenes (mixed) 1330-20-7 (lb/hr)	VOC Emissions (lb/hr)
1015	Tank 1015	Additive-OGA 72040	0.10	0.02	0.03	3.15
	TOTAL Tank Emissions		**0.10**	**0.02**	**0.03**	**3**

[1] Tank emissions are calculated using Trinity's TANKS Tool.

Table 3b. Additive Tank Speciation

Liquid Weight Percents [1]			1,2,4-Trimethylbenzene 95-63-6	Cumene 98-82-8	Xylenes (mixed) 1330-20-7
Tank 1015		Additive-OGA 72040	14.0%	1.0%	1.0%
Vapor Weight Percents					
Tank 1015		Additive-OGA 72040	3.02%	0.52%	1.00%
Chemical Properties [2]					
		Antoine A	7.04383	6.93666	7.009
		Antoine B	1573.267	1460.793	1462.266
		Antoine C	208.56	207.78	215.11
		P_{vap} (psia)	0.0141	0.0340	0.0652
		P_{vap} (mixture) (psia)	0.0652	0.0652	0.0652
		Liquid Molar Mass (mixture)	106.17	106.17	106.17
		Vapor Molar Mass (mixture)	106.17	106.17	106.17
		Component Molar Mass	120.19	120.19	106.17
	Daily Average Ambient Temperature:	10.51 °C			

[1] Liquid speciation data obtained from product MSDS.

[2] Chemical properties are as follows:

MW_L = molecular weight of liquid stock, lb/lbmol.

MW_V = molecular weight of vapor stock, lb/lbmol.

P_{VAP} = total vapor pressure of liquid mixture, psia

$T_{L,AVG}$ = average liquid surface temperature, degrees C

$P_{VAP,i}$ = vapor pressure of component i at liquid surface temperature, psia

P_i = partial pressure of component i, psia

x_i = liquid mole fraction of component i, lbmol/lbmol

y_i = vapor mole fraction of component i, lbmol/lbmol

$Z_{i,V}$ = weight fraction of component i in the vapor, lb/lb

Calculation methodology, referenced from AP-42 Section 7.1, in order of computation:

$P_{VAP,i} = (10^{A - (B/(T_{L,AVG} + C))})(0.0193368 \text{ psia/mm Hg})$

$x_i = ((\text{Liquid wt.\% component i})(MW_L))/Mwi$

$P_i = (P_{VAP,i})(x_i)$

$y_i = P_i/P_{VAP}$

$Z_{i,V} = ((y_i)(MW_i)) / MW_V = (10^{A - (B/(T_{L,AVG} + C))})(0.0193368 \text{ psia/mm Hg})(\text{liquid wt.\% i})(MW_L)/P_{VAP}/MW_V)$

Table 4. TAP Emission Comparison

Pollutant	CAS No.	Screening Emission Level [1] (lb/hr)	Project Emissions (lb/hr)	Exceeds Screening EL?	Exceeds 10% of Screening EL?
1,2,4-Trimethylbenzene	95-63-6	8.2	9.53E-02	No	No
Isopropyl benzene (cumene)	98-82-8	16.3	1.64E-02	No	No
Xylenes	1330-20-7	29	3.15E-02	No	No

[1] Screening emission levels are given in Sections 585 and 586 of IDAPA 58.01.01.

Fixed-Roof Tank Emissions - Monthly

Based on AP-42, November 2006, Section 7.1.3.1.
Tool Last Updated: 12/14/15 *Click Here to Go Back to Cover Page*

Reporting Year	*2017*

Tank Reference Parameters				
Parameter Title	**Notes**	**Parameter Symbol**	**Units**	**Value**
Tank ID	Enter only Tank ID in this tab.			Tank 1015
Tank Name	Text Description of Tank Name	TK_{name}		Tank 1015
Actual Location		Loc_{Act}		Burley, ID
Location for Calculation Purposes		Loc_{Calc}		Pocatello, Idaho
Tank/Roof Type		TK_{Roof}		HFR
Normal Capacity		Cap	gal	6,006
Diameter		D	ft	8
Shell Height or Length		H_S	ft	16
Effective Diameter	= $((H_S * D) / (\pi/4))^{0.5}$ {horiz. tanks only, Eqn. 1-13} = D {all other fixed roof tanks}	D_E	ft	12.8
Effective Height	= $\pi/4 * D$ {horiz. tanks only, Eqn. 1-14} = H_S {all other fixed roof tanks}	H_E	ft	6.3
External Shell Color		SC_{ext}		White
External Shell Paint Condition		PC_{Shell}		Good
Roof Color/Shade		RC		White
Roof Paint Condition		PC_{Roof}		Good
Tank Shell Solar Absorbance		α_{Shell}		0.17
Tank Roof Paint Solar Absorbance		α_{Roof}		0.17
Total Tank Paint Solar Absorbance	= $(\alpha_{Shell} + \alpha_{Roof}) / 2$ {Note A, Table 7.1-6}	α_{Tot}		0.17
Ideal Gas Constant,		R	psia ft^3 / lbmole °R	10.731
Ambient Pressure		P_A	psia	12.528

Tank Reference Parameters				
Parameter Title	**Notes**	**Parameter Symbol**	**Units**	**Value**
Underground Tank?		UT		Aboveground
Heated Tank?		HT		No
Liquid Bulk Temperature	Heated Tanks Only	T_B	Degrees F	-
Insulated Tank?		IT		No
Pressure Tank?		PT		Atmospheric
Normal Operating Pressure	Only for Pressure Tanks	P_I	psig	0.0
Vapor Tight Roof		VTR		No
Control Device	= *None (No vapor tight roof)* = *User Specified*	CD		None
Control Device Efficiency		CD_{Eff}	%	-
Maximum Liquid Height		H_{LX}	ft	6.3
Dome Tank Roof Height	= $R_R - (R_R^2 - (D / 2)^2)^{0.5}$ {dome roof with D = 2 * R_R, Eqn. 1-19}	H_R	ft	-
Roof Outage	= $S_R * (D / 2) / 3$ {cone roof, Eqn. 1-16 and 1-17} = $H_R * (^1/_2 + {}^1/_6 (H_R / (D / 2))^2)$ {dome roof, Eqn. 1-18}	H_{RO}	ft	-
Breather Vent Pressure Setting	= 0 {No vapor tight roof, AP-42 Pg. 7.1-13 Note 3}	P_{BP}	psig	0.00
Breather Vent Vacuum Setting	= User Specified = Default +/-0.03 psig if unknown	P_{BV}	psig	0.00
Breather Vent Pressure Setting Range	= *0 {No vapor tight roof}* = $P_{BP} - P_{BV}$ *(Eqn. 1-11)*	ΔP_B	psig	0.00
Dome Roof Radius	Dome Roofs Only = user input between 0.8 to 1.2 * D {AP-42 7.1-15} = 1.0 * D {default if blank}	R_R	ft	-
Cone Roof Slope	Cone Roofs Only Default = 0.0625 ft/ft	S_R	ft/ft	-
Tank Maximum Liquid Volume	= $\pi/4 * D_E^2 * H_{LX}$ {Eqn. 1-31} Though not stated in AP-42, use DE in place of D for hor. tanks.	V_{LX}	ft^3	803
Days per Year	For leap years, days = 366	t_Y	days/yr	365

Emission Summary			
Annual Throughput, gal	2,000	**Annual Emissions**	0.01
Annual Turnovers	0.33		
Month	**Emissions, lbs**	**Emissions, tons**	
Jan	0.16	0.000	
Feb	0.21	0.000	
Mar	0.37	0.000	
Apr	0.61	0.000	
May	0.99	0.000	
Jun	1.65	0.001	
Jul	3.15	0.002	
Aug	2.19	0.001	
Sep	1.18	0.001	
Oct	0.70	0.000	
Nov	0.27	0.000	
Dec	0.17	0.000	

Note: The emission summary table is pulled into the Tank Emissions tab using cell references A31:B42. The emission summary must remain at this cell reference to function properly.

Calculations					1	2	3	4	5	6	7	8
Parameter Title	**Notes**	**Parameter Symbol**	**Units**	**Reference or Equation**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**
Service					**Main Service**	**Main Service**	**Main Service**	**Main Service**	**Main Service**	**Main Service**	**Main Service**	**Main Service**
Type of Substance	Select Organic Liquid, Petroleum Distillate, or Crude Oil				Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid
Contents of Tank	Select from list (add new compounds in 'VOLs' tab)			= User specified	Xylenes (mixed isomers)	Xylenes (mixed isomers)	Xylenes (mixed isomers)	Xylenes (mixed isomers)	Xylenes (mixed isomers)	Xylenes (mixed isomers)	Xylenes (mixed isomers)	Xylenes (mixed isomers)
Speciation Profile	Select from list (add new in 'Speciation Input' tab)			= User specified	--	--	--	--	--	--	--	--
Speciation Profile Type				= User specified	None	None	None	None	None	None	None	None
Monthly Throughput		Q	gal/month	= User specified	0	0	0	0	0	0	2,000	0
Days-In-Service	Total days per month minus the days tank has a service change, is out of service, or for non-routine events.	t_{RS}	days		31	28	31	30	31	30	31	31
Constant in the vapor pressure equation	Used in ΔP_V only for petroleum liquids. If full speciation profile specified, leave blank.	B	°R	= Not Applicable {Organic liquids and full speciation profiles}	--	--	--	--	--	--	--	--
Average Liquid Height	Leave blank if unknown. Not applicable for horizontal Tanks. Fill out for tanks operating on level control.	H_L	ft	= User specified if known = H_{LX} / 2 {default}	--	--	--	--	--	--	--	--
Vapor Space Outage		H_{VO}	ft	= (H_E / 2) {horizontal tanks only, Eqn. 1-14} = H_S - H_L + H_{RO} {all other fixed roof tanks, Eqn. 1-15}	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Daily Total Solar Insolation Factor		I	Btu / ft^2 day		541	820	1,215	1,613	1,953	2,213	2,309	2,009
Vent Setting Correction Factor		K_S		= 1 {($P_{BP} \le 0.03$ or $P_{BV} \ge -0.03$ psig) and ($K_N * (P_{BP} + P_A) / (P_I + P_A)$) ≤ 1.0, Eqn. 1-36} = $(((P_I + P_A) / K_N) - P_{VA,Tla}) / (P_{BP} + P_A - P_{VA,Tla})$ {Eqn. 1-37}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Vapor Space Expansion Factor	Per AP-42 7.1-12, use Eqn. 1-6 if P_{VA}Tb < 0.1 psia. Tank location is always known for this tool. True vapor pressure based on liquid stock. If KE < 0, no standing losses occur. Per API MPMS Ch. 19.1.2.1.4.2, $K_E \ge 0$.	K_E		= (ΔT_V / (T_{LA} + 459.67 °R)) + (($\Delta P_V - \Delta P_B$) / ($P_A - P_{VA,Tla}$)) ≥ 0 {$P_{VA,Tla} \ge 0.1$ psia or $P_{BP} > 0.03$ psig or $P_{BV} < -0.03$ psig, Eqn. 1-7} = (0.0018 °R^{-1}) * ΔT_V {$P_{VA,Tla} < 0.1$ psia, Eqn. 1-5}	0.0277	0.0311	0.0374	0.0465	0.0529	0.0671	0.0750	0.0723
Working Loss Turnover (Saturation) Factor	Per Eqn. 1-29, annual threshold for turnovers is 36. Equation modified to a monthly form by converting the monthly turnovers to a theoretical annual turnover equivalent.	K_N		= (180 + (N * t_{vr} / t_{RS})) / (6 * (N * t_{vr} / t_{RS})) {(N * t_{vr} / t_{RS}) > 36, Eqn. 1-29} = 1 {(N * t_{vr} / t_{RS}) ≤ 36, Eqn. 1-29}	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Working Loss Product Factor		K_P		= 0.75 {crude oils, Eqn. 1-25} = 1 {all other organic liquids}	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Vented Vapor Saturation Factor	Constant 0.053 has units of 1/(psia-ft). True vapor pressure based on liquid surface.	K_S		= 1 / (1 + 0.053 * $P_{VA,Tla}$ * H_{VO}) {Eqn. 1-20}	0.996	0.995	0.993	0.991	0.987	0.982	0.977	0.978
Vapor Molecular Weight	When using full speciation profiles, calculated as the weighted average of the M_V of each component.	M_V	lb/lb-mole	= VOL data of tank contents {partial speciation} $M_V = \Sigma (M_{vi} * (P_{VA,Tla}/P_{VA,Tla}))$	106.2	106.2	106.2	106.2	106.2	106.2	106.2	106.2
Liquid Molecular Weight		M_L	lb/lb-mole	$M_L = 1 / \Sigma (Z_{Li} / M_{Li})$ {full speciation, Eqn. 1-22}	106.2	106.2	106.2	106.2	106.2	106.2	106.2	106.2
Number of Turnovers per Month	Constant 5.614 has units of ft^3/bbl.	N		= 5.614 * Q * (bbl / 42 gal) / V_{LX} {Eqn. 1-30}	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00
Average Daily Minimum Ambient Temperature		T_{AN}	°F		14.40	19.80	25.90	32.30	39.60	47.30	53.00	50.90
Average Daily Maximum Ambient Temperature		T_{AX}	°F		32.20	38.40	46.70	57.50	67.50	78.00	88.10	86.30
Daily Average Ambient Temperature		T_{AA}	°F	= (T_{AX} + T_{AN}) / 2 {Eqn. 1-27}	23.30	29.10	36.30	44.90	53.55	62.65	70.55	68.60
Daily Minimum Liquid Surf. Temperature, F		T_{LN}	°F	= T_{LA} - 0.25 * ΔT_V {Fig. 7.1-17}	20.19	25.89	32.75	40.62	48.84	57.47	64.60	62.55
Daily Maximum Liquid Surf. Temperature, F		T_{LX}	°F	= T_{LA} + 0.25 * ΔT_V {Fig. 7.1-17}	27.89	34.54	43.13	53.53	63.53	73.79	82.73	80.07
Daily Vapor Temperature Range	Constant 0.028 has units of (°R-ft^2-day/Btu)	ΔT_V	°R	= 0 {heated and fully insulated tanks only} = 0.72 * (T_{AX} - T_{AN}) + 0.028 * α_{Tot} * I {Eqn. 1-8}	15.39	17.30	20.76	25.82	29.39	32.64	36.26	35.05

Calculations		9	10	11	12
Parameter Title	**Notes**	**Sep**	**Oct**	**Nov**	**Dec**
Service		**Main Service**	**Main Service**	**Main Service**	**Main Service**
Type of Substance	Select Organic Liquid, Petroleum Distillate, or Crude Oil	Organic Liquid	Organic Liquid	Organic Liquid	Organic Liquid
Contents of Tank	Select from list (add new compounds in 'VOLs' tab):	Xylenes (mixed isomers)	Xylenes (mixed isomers)	Xylenes (mixed isomers)	Xylenes (mixed isomers)
Speciation Profile	Select from list (add new in 'Speciation Input' tab):	–	–	–	–
Speciation Profile Type		None	None	None	None
Monthly Throughput		0	0	0	0
Days-In-Service	Total days per month minus the days tank has a service change, is out of service, or for non-routine events.	30	31	30	31
Constant in the vapor pressure equation	Used in ΔP_V only for petroleum liquids. If full speciation profile specified, leave blank.	–	–	–	–
Average Liquid Height	Leave blank if unknown. Not applicable for horizontal Tanks. Fill out for tanks operating on level control.	–	–	–	–
Vapor Space Outage		3.1	3.1	3.1	3.1
Daily Total Solar Insolation Factor		1,588	1,095	623	471
Vent Setting Correction Factor		1.000	1.000	1.000	1.000
Vapor Space Expansion Factor	Per AP-42 7.1-12, use Eqn. 1-6 if PVA,Tb < 0.1 psia. Tank location is always known for this tool. True vapor pressure based on liquid stock. If KE < 0, no standing losses occur. Per API MPMS Ch. 19.1.2.1.4.2, $K_E \geq 0$.	0.0555	0.0470	0.0302	0.0272
Working Loss Turnover (Saturation) Factor	Per Eqn. 1-29, annual threshold for turnovers is 36. Equation modified to a monthly form by converting the monthly turnovers to a theoretical annual turnover equivalent.	1.00	1.00	1.00	1.00
Working Loss Product Factor		1.00	1.00	1.00	1.00
Vented Vapor Saturation Factor	Constant 0.053 has units of 1/(psia-ft). True vapor pressure based on liquid surface.	0.985	0.990	0.994	0.996
Vapor Molecular Weight	When using full speciation profiles, calculated as the weighted average of the M_V of each component.	106.2	106.2	106.2	106.2
Liquid Molecular Weight		106.2	106.2	106.2	106.2
Number of Turnovers per Month	Constant 5.614 has units of ft^3/bbl.	0.00	0.00	0.00	0.00
Average Daily Minimum Ambient Temperature		42.80	33.50	26.00	15.80
Average Daily Maximum Ambient Temperature		75.10	62.50	45.20	33.70
Daily Average Ambient Temperature		58.95	48.00	35.60	24.75
Daily Minimum Liquid Surf. Temperature, F		53.39	42.96	32.25	21.61
Daily Maximum Liquid Surf. Temperature, F		68.80	56.01	40.64	29.18
Daily Vapor Temperature Range	Constant 0.028 has units of (°R-ft^2-day/Btu)	30.81	26.09	16.79	15.13

Calculations					2	3	4	5	6	7	8	9
Parameter Title	Notes	Parameter Symbol	Units	Reference or Equation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Service					Main Service	Main Service	Main Service	Main Service	Main Service	Main Service	Main Service	Main Service
Daily Average Liquid Surf. Temperature	Constant 0.0079 has units of (°R-ft²-day/btu).	T_{LA}	°F	= T_B {heated and/or fully insulated tanks only} = (0.44 * T_{AA}) + (0.56 * T_B) + (0.0079 * α_{TOT} * I) {Eqn. 1-26}	24.04	30.21	37.94	47.08	56.18	65.63	73.66	71.31
Liquid Bulk Temperature	If T_{LA} is unknown, see AP-42 7.1-23 Note 3. Not included here as T_B is always calculated. α_{TOT} is not applicable for fully insulated tanks.	T_B	°F	= specified by user {heated tanks only} = T_{AA} {fully insulated but not heated tanks only} = T_{AA} + (6 * α_{TOT} - 1) {Eqn. 1-28}	23.32	29.12	36.32	44.92	53.57	62.67	70.57	68.62
Vapor Pressure at Daily Av. Liquid Surf. Temp.	Used for speciated emissions and most vapor pressures. $P_{VA,Tlt}$ uses T_{LA}.	$P_{VA,Tlt}$	psia	*{full speciation profiles, Eqn. 1-22}:* Sum of partial true vapor pressures components, *{partial/no speciation profiles}:* Vapor pressures at T (°F) based on P_{VA} values in VOLs tab at ΔT (°F) increments by interpolating between the P_{VA} values at the next highest/lowest T_{LA}. $P_{VA,T} = (T - T_{Low}) / (T_{High} - T_{Low}) * (P_{VA,T,High} - P_{VA,T,Low}) + P_{VA,T,Low}$	0.0226	0.0292	0.0398	0.0565	0.0789	0.1099	0.1439	0.1331
Vapor Pressure at Daily Min. Liquid Surf. Temp.	Used for ΔP_V. Per AP-42 7.1-13 Note 5, P_{VN} uses T_{LN}.	P_{VN}	psia		0.0192	0.0245	0.0324	0.0442	0.0604	0.0827	0.1060	0.0988
Vapor Pressure at Daily Max. Liquid Surf. Temp.	Used for ΔP_V. Per AP-42 7.1-13 Note 5, P_{VX} uses T_{LX}.	P_{VX}	psia		0.0266	0.0348	0.0487	0.0717	0.1022	0.1445	0.1928	0.1772
Daily Vapor Pressure Range	Eqn. 1-10 is alt. method per AP-42 7.1-13. Used as primary method for Petroleum Distillates & Crude. True vapor pressure based on liquid surface.	ΔP_V	psia	= P_{VX} - P_{VN} {Eqn. 1-9} = (0.50 * B * $P_{VA,Tlt}$ * ΔT_V) / (T_{LA} + 459.67 °R)² {petroleum liquids if B is known, Eqn. 1-10}	0.007	0.010	0.016	0.028	0.042	0.062	0.087	0.078
Vapor Density		W_V	lb/ft³	= (M_V * $P_{VA,Tlt}$) / (R * (T_{LA} + 459.67 °R)) {Eqn. 1-21}	0.00046	0.00059	0.00079	0.00110	0.00151	0.00207	0.00267	0.00248
Vapor Space Volume		V_V	ft³	= (π/4 * D_E^2) * H_{VO} {Eqn. 1-3}	402	402	402	402	402	402	402	402
Standing Storage Loss	Uncontrolled emissions. No standing or breathing losses occur for underground tanks per AP-42 7.1-14.	L_S	lbs/month	= 0 {underground tanks only} = t_{fS} * V_V * W_V * K_E * K_S {Eqns. 1-2 and 1-4}	0.16	0.21	0.37	0.61	0.99	1.65	2.44	2.19
Working Loss	Uncontrolled emissions. True vapor pressure based on liquid surface. Constant 0.0010 derived from Eqn. 1-32, 1-33, and 1-35 assuming T_{LA} = 63 °F.	L_W	lbs/month	= Q * (5.614 ft³/bbl) * (bbl / 42 gal) * (M_V * $P_{VA,Tlt}$) / (R * (T_{LA} + 459.67 °R)) * K_N * K_P * K_B {Eqn. 1-29}	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.00
Total Losses	**Uncontrolled emissions.**	**L_T**	**lbs/month**	**= (L_S + L_W) {Eqn. 1-1}**	**0.16**	**0.21**	**0.37**	**0.61**	**0.99**	**1.65**	**3.15**	**2.19**
Total Losses	**Controlled emissions, if applicable. Note: some species have 0% efficiencies with activated carbon.**	**$L_{T,CD}$**	**lbs/month**	**= Not Applicable {no CD} = L_T * (1 - CD_{Eff}) {CD}**	**0.16**	**0.21**	**0.37**	**0.61**	**0.99**	**1.65**	**3.15**	**2.19**

Calculations		10	11	12	13
Parameter Title	**Notes**	Sep	Oct	Nov	Dec
Service		Main Service	Main Service	Main Service	Main Service
Daily Average Liquid Surf. Temperature	Constant 0.0079 has units of (°R-ft²-day/btu).	61.09	49.48	36.45	25.39
Liquid Bulk Temperature	If T_{LA} is unknown, see AP-42 7.1-23 Note 3. Not included here as T_B is always calculated. α_{TOT} is not applicable for fully insulated tanks.	58.97	48.02	35.62	24.77
Vapor Pressure at Daily Av. Liquid Surf. Temp.	Used for speciated emissions and most vapor pressures. $P_{VA,TB}$ uses T_{LA}.	0.0939	0.0618	0.0376	0.0240
Vapor Pressure at Daily Min. Liquid Surf. Temp.	Used for ΔP_V. Per AP-42 7.1-13 Note 5, P_{VN} uses T_{LN}.	0.0714	0.0484	0.0318	0.0204
Vapor Pressure at Daily Max. Liquid Surf. Temp.	Used for ΔP_V. Per AP-42 7.1-13 Note 5, P_{VX} uses T_{LX}.	0.1223	0.0784	0.0443	0.0280
Daily Vapor Pressure Range	Eqn. 1-10 is alt. method per AP-42 7.1-13. Used as primary method for Petroleum Distillates & Crude. True vapor pressure based on liquid surface.	0.051	0.030	0.012	0.008
Vapor Density		0.00178	0.00120	0.00075	0.00049
Vapor Space Volume		402	402	402	402
Standing Storage Loss	Uncontrolled emissions. No standing or breathing losses occur for underground tanks per AP-42 7.1-14.	1.18	0.70	0.27	0.17
Working Loss	Uncontrolled emissions. True vapor pressure based on liquid surface. Constant 0.0010 derived from Eqn. 1-32, 1-33, and 1-35 assuming T_{LA} = 63 °F.	0.00	0.00	0.00	0.00
Total Losses	**Uncontrolled emissions.**	**1.18**	**0.70**	**0.27**	**0.17**
Total Losses	**Controlled emissions, if applicable. Note: some species have 0% efficiencies with activated carbon.**	**1.18**	**0.70**	**0.27**	**0.17**

Monthly Emissions Summary

Reporting Year	*2017*

Tank ID	Tab Name (Manually fill in if not equal to Tank ID)	*Tank Name*	Tank Roof Type	Annual VOC Total (tpy)	Check that Routine Emissions are In Range of Speciation Profiles. If "Error", refer to row 93 on individual tabs.
Note: Must match exactly.		TK_{name}	TK_{roof}		
Tank 1015	Tank 1015	*Tank 1015*	*HFR*	*0.01*	All In Range

Monthly Emissions Summary

Tank ID	Tab Name (Manually fill in if not equal to Tank ID)	Total Losses (lbs)											
		1	2	3	4	5	6	7	8	9	10	11	12
Note: Must match exactly.		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Tank 1015	Tank 1015	0.2	0.2	0.4	0.6	1.0	1.6	3.2	2.2	1.2	0.7	0.3	0.2

Monthly Emissions Summary

Tank ID	Tab Name (Manually fill in if not equal to Tank ID)	Normal Operation Loss (lbs)											
		1	2	3	4	5	6	7	8	9	10	11	12
Note: Must match exactly.		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Tank 1015	Tank 1015	0.2	0.2	0.4	0.6	1.0	1.6	3.2	2.2	1.2	0.7	0.3	0.2

Monthly Emissions Summary

Check that Non-Routine Emissions are In Range of Speciation Profiles. If "Error", refer to Non-Routine Emission Calcs tab.	#REF!

Tank ID	Tab Name (Manually fill in if not equal to Tank ID)	Non-Routine Events - Roof Landings and Tank Cleanings (lbs)											
		1	2	3	4	5	6	7	8	9	10	11	12
Note: Must match exactly.		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Tank 1015	Tank 1015	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 4. Speciated Short-Term Combustion Emissions

	CAS No.	Emission Factor [a] (lb/MMscf)	Heater Combustion Emissions [c] (lb/hr)
PM_{10}	--	7.60E+00	5.96E-04
$PM_{2.5}$	--	7.60E+00	5.96E-04
SO_2	--	6.00E-01	4.71E-05
	CAS No.	**Emission Factor [a] (lb/MMscf)**	**Heater Combustion Emissions [c] (lb/hr)**
2-Methylnaphthalene	91-57-6	2.40E-05	1.88E-09
3-Methylchloranthrene	56-49-5	1.80E-06	1.41E-10
7,12-Dimethylbenz(a)anthracene	57-97-6	1.60E-05	1.25E-09
Acenaphthene	83-32-9	1.80E-06	1.41E-10
Acenaphthylene	203-96-8	1.80E-06	1.41E-10
Anthracene	120-12-7	2.40E-06	1.88E-10
Benz(a)anthracene	56-55-3	1.80E-06	1.41E-10
Benzene	71-43-2	2.10E-03	1.65E-07
Benzo(a)pyrene	50-32-8	1.20E-06	9.41E-11
Benzo(b)fluoranthene	205-99-2	1.80E-06	1.41E-10
Benzo(g,h,i)perylene	191-24-2	1.20E-06	9.41E-11
Benzo(k)fluoranthene	205-82-3	1.80E-06	1.41E-10
Chrysene	218-01-9	1.80E-06	1.41E-10
Dibenzo(a,h)anthracene	53-70-3	1.20E-06	9.41E-11
Dichlorobenzene	25321-22-6	1.20E-03	9.41E-08
Fluoranthene	206-44-0	3.00E-06	2.35E-10
Fluorene	86-73-7	2.80E-06	2.20E-10
Formaldehyde	50-00-0	7.50E-02	5.88E-06
Hexane	110-54-3	1.80E+00	1.41E-04
Indeno(1,2,3-cd)pyrene	193-39-5	1.80E-06	1.41E-10
Naphthalene	91-20-3	6.10E-04	4.78E-08
Nitrous Oxide	10024-97-2	2.25E-01	1.76E-05
Phenanthrene	85-01-8	1.70E-05	1.33E-09
Pyrene	129-00-0	5.00E-06	3.92E-10
Toluene	108-88-3	3.40E-03	2.67E-07
Arsenic	7440-38-2	2.00E-04	1.57E-08
Beryllium	7440-41-7	1.20E-05	9.41E-10
Cadmium	7440-43-9	1.10E-03	8.63E-08
Chromium	7440-47-3	1.40E-03	1.10E-07
Cobalt	7440-48-4	8.40E-05	6.59E-09
Manganese	7439-96-5	3.80E-04	2.98E-08
Mercury	7439-97-6	2.60E-04	2.04E-08
Nickel	7440-02-0	2.10E-03	1.65E-07
Selenium	7782-49-2	2.40E-05	1.88E-09

[a] Emission factor for nitrous oxide from 40 CFR 98 Subpart C, Table C-2. Converted to lb/MMscf from kg/MMBtu using the AP-42 default HHV of 1020 Btu/scf for natural gas. Other emission factors from AP-42, Section 1.4, Combustion of Natural Gas (7/98).

[b] Heater MMscfh combustion rate: 7.84E-05 MMscfh

Table 5. Toxic Air Pollutant Threshold Comparisons

Pollutant	CAS No.	Tank Short-Term Emissions [a] (lb/hr)	Heater Emissions [b] (lb/hr)	Total Emissions (lb/hr)	Screening Emission Level [c] (lb/hr)	Exceeds Screening EL?	Exceeds 10% of Screening EL?
1,2,4-Trimethylbenzene	95-63-6	0.10		9.53E-02	8.2	No	No
2,2,4-Trimethylpentane	540-84-1				23.3	No	No
Benzene	71-43-2		1.65E-07	1.65E-07	8.00E-04	No	No
Biphenyl	92-52-4				0.1	No	No
Cresols	1319-77-3				1.47	No	No
Ethylbenzene	100-41-4				29	No	No
Hexane (-n)	110-54-3		1.41E-04	1.41E-04	12	No	No
Isopropyl benzene (cumene)	98-82-8	0.02		1.64E-02	16.3	No	No
Methanol	67-56-1				17.3	No	No
Naphthalene	91-20-3		4.78E-08	4.78E-08	9.1E-05	No	No
Naphthalene	91-20-3		4.78E-08	4.78E-08	3.33	No	No
Phenol	108-95-2				1.27	No	No
Styrene	100-42-5				6.67	No	No
Toluene	108-88-3		2.67E-07	2.67E-07	25	No	No
Xylenes	1330-20-7	0.03		3.15E-02	29	No	No
Dichlorobenzene	25321-22-6		9.41E-08	9.41E-08	20	No	No
Formaldehyde	50-00-0		5.88E-06	5.88E-06	5.10E-04	No	No
Nitrous Oxide	10024-97-2		1.76E-05	1.76E-05	6	No	No
Arsenic	7440-38-2		1.57E-08	1.57E-08	1.5E-06	No	No
Beryllium	7440-41-7		9.41E-10	9.41E-10	2.8E-05	No	No
Cadmium	7440-43-9		8.63E-08	8.63E-08	3.7E-06	No	No
Chromium	7440-47-3		1.10E-07	1.10E-07	0.033	No	No
Cobalt	7440-48-4		6.59E-09	6.59E-09	0.0033	No	No
Manganese	7439-96-5		2.98E-08	2.98E-08	0.067	No	No
Mercury	7439-97-6		2.04E-08	2.04E-08	--	--	--
Nickel	7440-02-0		1.65E-07	1.65E-07	2.7E-05	No	No
Selenium	7782-49-2		1.88E-09	1.88E-09	0.013	No	No
7-PAH			8.94E-10	8.94E-10	2.0E-06	No	No
Benz(a)anthracene	56-55-3		1.41E-10	1.41E-10	--	--	--
Benzo(a)pyrene	50-32-8		9.41E-11	9.41E-11	2.00E-06	No	No
Benzo(b)fluoranthene	205-99-2		1.41E-10	1.41E-10	--	--	--
Benzo(k)fluoranthene	205-82-3		1.41E-10	1.41E-10	--	--	--
Dibenzo(a,h)anthracene	53-70-3		9.41E-11	9.41E-11	--	--	--
Chrysene	218-01-9		1.41E-10	1.41E-10	--	--	--
Indeno(1,2,3-cd)pyrene	193-39-5		1.41E-10	1.41E-10	--	--	--
Other PAH			6.02E-09	6.02E-09	9.1E-05	No	No
2-Methylnaphthalene	91-57-6		1.88E-09	1.88E-09	--	--	--
7,12-Dimethylbenz(a)anthracene	57-97-6		1.25E-09	1.25E-09	--	--	--
Benzo(g,h,i)perylene	191-24-2		9.41E-11	9.41E-11	--	--	--
3-Methylcholanthrene	56-49-5		1.41E-10	1.41E-10	2.50E-06	No	No
Acenaphthene	83-32-9		1.41E-10	1.41E-10	--	--	--
Acenaphthylene	203-96-8		1.41E-10	1.41E-10	--	--	--
Anthracene	120-12-7		1.88E-10	1.88E-10	--	--	--
Fluoranthene	206-44-0		2.35E-10	2.35E-10	--	--	--
Fluorene	86-73-7		2.20E-10	2.20E-10	--	--	--
Phenanthrene	85-01-8		1.33E-09	1.33E-09	--	--	--
Pyrene	129-00-0		3.92E-10	3.92E-10	--	--	--

[a] Tank short-term emissions are calculated in Table 3a.

[b] Heater emissions are calculated in Table 4.

[c] Screening emission levels and Allowable Ambient Concentrations (AACs) are given in Sections 585 and 586 of IDAPA 58.01.01. The EL for naphthalene is set to the PAH EL and annual averaging period.

APPENDIX C – FACILITY DRAFT COMMENTS

The following comments were received from the facility on December 27, 2017:

Facility Comment: Modifications to Tank Volumes in Table 1.1 and Table 2.1 in the PTC; Table 1 SOB

	Tank #	Gross Tank Shell Capacity (gallons)
1.		
2.	1001	1,382,976
3.	1002	1,786,428
4.	1003	1,353,800
5.	1004	805,896
6.	1005	42,840– DOT breakout tank, typically empty but may contain transmix
7.	1006	15,000 – underground tank in a vault
8.	1008	3,990
9.	1009	4,200
10.	1010	6,510
11.	1011	2,016
12.	1012	2,982
13.	1014	572
14.	1015	6,006
15.	1016	19,320
16.	1017	19,320

DEQ Response: The volumes of the tanks have been revised to reflect the true capacities of the tanks located at the facility.

Facility Comment: Section 2.4 of the PTC requires a visual inspection of "the floating roof seals/gaskets through the top hatch on the external fixed roof of Tank 1001 and 1002 at least once every two years." This conflicts with the monitoring requirement contained in Section 4.8 Gasoline Storage Tanks – Testing and Monitoring Requirements – 40 CFR 63.11092, subpart b., and 40 CFR 60.113b(a)(2), which requires an inspection at least once every 12 months after initial fill. Burley Terminal currently performs an annual inspection of the floating roof seals/gaskets to meet permit requirements.

DEQ Response: Permit Condition 2.4 has been revised to every 12 months to meet the federal regulation requirements listed under permit condition 4.8. 40 CFR 63.11092 Subpart e, using 2(b) from Table 1 of this subpart, 40 CFR 60.113b(a)(2) for inspection requirements.

Facility Comment: Change tank numbers to Tank 1016 and 1017, third bullet on page 5 of SOB.

DEQ Response: The tank numbers have been changed from 1015 and 1016 to 1016 and 1017.

APPENDIX D – PROCESSING FEE

PTC Processing Fee Calculation Worksheet

Instructions:
Fill in the following information and answer the following questions with a Y or N. Enter the emissions increases and decreases for each pollutant in the table.

Company:	**Tesoro Logistics Operations LLC - Burley**
Address:	**429 E Highway 81**
City:	**Burley**
State:	**Idaho**
Zip Code:	**83318**
Facility Contact:	**Kirt Rhoads**
Title:	**Sr. Environmental Specialist**
AIRS No.:	**031-00017**

N Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N

Y Did this permit require engineering analysis? Y/N

N Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_x	0.0	0	0.0
SO_2	0.0	0	0.0
CO	0.0	0	0.0
PM10	0.0	0	0.0
VOC	0.0	0	0.0
TAPS/HAPS	0.0	0	0.0
Total:	0.0	0	**0.0**
Fee Due	**$ 1,000.00**		

Comments: