TECHNICAL SUPPORT DOCUMENT

Air Discharge Permit ADP 21-3469
ADP Application CL-3159

Tesoro Logistics Operations - Vancouver Terminal
SWCAA ID - 131

Issued: July 1, 2021

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Abbreviations

acfm	actual cubic feet per minute
ADP	Air Discharge Permit
AP-42	Compilation of Emission Factors, AP-42, Fifth Edition, Volume 1, Stationary Point and Area Sources – published by the US Environmental Protection Agency
bph	Barrels per hour
Btu	British thermal unit
Btu/gal	Heat content expressed in British thermal units per gallon
CAS #	Chemical Abstracts Service registry number
cfm	Cubic feet per minute
CPM	Condensable particulate matter
CFR	Code of Federal Regulations
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent as defined in 40 CFR 98
dscfm	Dry standard cubic feet per minute
EPA	U.S. Environmental Protection Agency
ft^2	Square feet
gpm	Gallons per minute
gr/dscf	Grains per dry standard cubic foot (68 °F, 1 atmosphere)
HAP	Hazardous air pollutant listed pursuant to Section 112 of the Federal Clean Air Act
$lb/10^3$ gal	Pounds per thousand gallons
lb/hr	Pounds per hour
lb/MMBtu	Pounds per million British thermal units
lb/yr	Pounds per year
MMBtu/hr	Millions of British thermal units per hour
MSDS	Material Safety Data Sheet
NO_x	Nitrogen oxides
oz/yd^2	Once per square yard
PM	Total particulate matter (includes both filterable and condensable particulate matter as measured by EPA Methods 5 and 202)
PM_{10}	Particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (includes both filterable and condensable particulate matter as measured by EPA Methods 5 and 202)
$PM_{2.5}$	Particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers (includes both filterable and condensable particulate matter as measured by EPA Methods 5 and 202)
ppm	Parts per million
ppmv	Parts per million by volume
ppmvd	Parts per million by volume, dry
PSD	Prevention of Significant Deterioration
psig	Pounds per square inch, gauge
PVCU	Portable vapor combustion unit
RCW	Revised Code of Washington
SQER	Small Quantity Emission Rate listed in WAC 173-460
SO_2	Sulfur dioxide
SWCAA	Southwest Clean Air Agency
TAP	Toxic air pollutant pursuant to Chapter 173-460 WAC
T-BACT	Best Available Control Technology for toxic air pollutants
tpy	Tons per year
VCU	Vapor combustion unit
VOC	Volatile organic compound
WAC	Washington Administrative Code

1. FACILITY IDENTIFICATION

Applicant Name:	Tesoro Logistics Operations LLC
Applicant Address:	539 South Main St, Findlay, OH 95840
Facility Name:	Vancouver Terminal
Facility Address:	2211 St. Francis Lane, Vancouver, WA 98666
Contact Person:	Don Hughes, Terminal Manager
SWCAA Identification:	131
Primary Process:	Terminal Operations / Petroleum
SIC / NAICS Code:	5171 / 454311
Facility Classification:	Minor Source

2. FACILITY DESCRIPTION

Tesoro Logistics Operations LLC (Tesoro) operates a bulk gasoline terminal located at 2211 St. Francis Lane, Vancouver, WA. The terminal has been in operation at this location since 1961. The terminal is located on property owned by the Port of Vancouver.

3. CURRENT PERMITTING ACTION

This permitting action is in response to Air Discharge Permit application number CL-3159 (ADP Application CL-3159) dated April 29, 2021. Tesoro submitted ADP Application CL-3159 requesting approval of the following:

3.a Portable Vapor Combustion Unit. Tesoro proposes to use a portable vapor combustion unit (PVCU) to control emissions from loading operations when the primary vapor recovery unit (VRU) is offline for inspection and maintenance.

3.b Connect Tank 60002 to VRU. Tank 93501 currently serves as the supply and return tank for the loading rack VRU. Tank 93501 will be out of service for an extended period for inspection and repairs as part of an API 653 tank project. Another tank will be needed as a supply and return tank to maintain gasoline sales at the loading rack and allow continued use of the VRU. Tank 60002 is a neighboring storage tank to 93501 and has nozzles that may be plumbed to the VRU via hard piping. Tesoro proposes to install piping from tank 60002 to the VRU so it can function as an alternate supply and return tank.

3.c Multiple Product Storage. Tesoro proposes to modify storage tank approval conditions to allow storage of multiple volatile products in each floating roof tank (Tanks 7006, 40003, 40004, 60002, 93501). The technical support document for the existing facility permit lists single products for most of the tanks. Tesoro wishes to have the flexibility to store products in any available tank.

3.d Emission Calculation Methodology. The technical support document for the existing facility permit specifies the use of the EPA TANKS program to calculate emissions from storage tank operation. The TANKS program is no longer actively supported by EPA so Tesoro proposes to change the methodology reference to cite EPA AP-42, Section 7.1. Tesoro plans to use ESP BREEZE software to calculate emissions from storage tank operation.

The current permitting action provides approval for the modifications proposed by Tesoro. ADP 12-3023 will be superseded in its entirety by this permitting action.

4. PROCESS DESCRIPTION

4.a Pipeline Terminal. Bulk liquid products (distillate, denatured ethanol, gasoline) are received from various offsite sources and stored onsite prior to reshipment to other locations. Most gasoline and distillate is received from the Olympic pipeline at a rate of 3,500 gpm to 4,200 gpm. Gasoline, distillate, and biodiesel can also be received by barge or truck. Biodiesel and denatured ethanol are delivered to the facility by rail or truck.

Historically the terminal has stored the following products:

Product	Storage Tank
Gasoline	Tanks 40003, 93501, 40004
Denatured ethanol	Tanks 7006, 40004
Distillate	Tank 60002
Biodiesel	Tank 10007

Stored product is shipped by truck and barge. The truck loading rack is configured with submerged fill and a vapor balance system. Displaced headspace vapors are controlled with a VRU with a lockout that prevents loading if the VRU is not in operation. Diesel is loaded to and unloaded from barges at Berth #5 in the Port of Vancouver. Diesel and biodiesel are loaded to trucks at the facility truck loading rack. At this time, denatured ethanol is not loaded at the loading rack even though it is permitted.

ADP Application CL-3159. Tesoro proposes to use a PVCU to control loading emissions when the VRU is offline for inspection and maintenance. Use of the PVCU will not require any physical changes to the loading rack or vapor balance system. Tesoro has requested the ability to store any of the terminal's regular products (gasoline, ethanol, distillate) in any of the five primary storage tanks (Tanks 7006, 40003, 40004, 60002, 93501). This will allow more operational flexibility for the terminal. The affected tanks are already equipped with compliant floating roof systems. No physical changes will be necessary to maintain compliance with applicable emission control requirements.

5. EQUIPMENT/ACTIVITY IDENTIFICATION

5.a Tank 10007 (*existing*). Cone fixed roof storage tank installed in 2012 with a working capacity of 393,826 gallons (shell capacity - 414,553 gallons). This tank is single walled, made of carbon steel, and equipped with an electric heater to maintain a liquid temperature between 55 and 90 degrees Fahrenheit. This tank is 40' high with a diameter of 42'. Currently used to store biodiesel.

5.b Tank 40003 (*existing*). External floating roof storage tank (pontoon type) installed in July 1961 with a working capacity of 1,542,240 gallons. The floating roof is equipped with a mechanical shoe primary seal and a rim mounted secondary seal. This tank is 48' high with a diameter of 78'. The primary seal was replaced October 1998. Currently used to store gasoline.

ADP Application CL-3159. Tesoro proposes to use this tank for storage of distillate, gasoline and denatured ethanol. Tesoro is not proposing to make any physical changes to the tank.

5.c Tank 60002 (*existing*). External floating roof storage tank (pontoon type) installed in July 1961 with a working capacity of 2,294,544 gallons. The floating roof is equipped with a mechanical shoe primary seal and a rim mounted secondary seal. This tank is 48' high with a diameter of 95'. Currently used to store low sulfur diesel.

ADP Application CL-3159. Tesoro proposes to use this tank for storage of distillate, gasoline and denatured ethanol. Tesoro also proposes to install piping between Tank 60002 and the VRU, allowing it to function as an alternate supply and return tank.

5.d Tank 7006 (*existing*). Internal floating roof storage tank (pontoon type) installed in August 1992 with a working capacity of 244,734 gallons (shell capacity - 309,918 gallons). The floating roof is fitted with a liquid mounted resilient primary seal and no secondary seal. This tank is 32' high with a diameter of 42'. The primary seal was replaced November 1999. Currently used to store denatured ethanol.

ADP Application CL-3159. Tesoro proposes to use this tank for storage of distillate, gasoline and denatured ethanol. Tesoro is not proposing to make any physical changes to the tank.

5.e Tank 93501 (*existing*). External floating roof storage tank (pontoon type) installed in July 1961 with a working capacity of 3,340,180 gallons. The floating roof is equipped with a mechanical shoe primary seal and a rim mounted secondary seal. The primary and secondary seals were replaced in August 2005. This tank is 48' high with a diameter of 118'. Currently used to store gasoline.

ADP Application CL-3159. Tesoro proposes to use this tank for storage of distillate, gasoline and denatured ethanol. Tesoro is not proposing to make any physical changes to the tank.

5.f Tank 40004 (*existing*). Internal floating roof storage tank installed in July 1961 with a working capacity of 1,676,304 gallons. The floating roof is equipped with a mechanical shoe primary seal and an HMT Vaporflex secondary seal. This tank is 48' high with a diameter of 78'. Currently used to store diesel, denatured ethanol, and gasoline.

ADP Application CL-3159. Tesoro proposes to use this tank for storage of distillate, gasoline and denatured ethanol. Tesoro is not proposing to make any physical changes to the tank.

5.g Truck Loading Rack – Vapor Recovery Unit (*existing*). 10 arm truck loading rack installed in 1981. The rack is configured with bottom loading and vapor recovery. Captured vapors are controlled with a dedicated VRU. Each loading arm is 4" in diameter and transfers product at up to 650 gpm. Two additional loading arms for ethanol service were installed in Bay 2 in 2008.

Vapor Recovery Unit (*existing*). One John Zink model S3-AAD-3-80-80-8 hydrocarbon VRU. This unit has two carbon adsorption vessels approximately 8' in diameter by 8' high each. The vessels are designed for full vacuum at 25 psig and 300 °F. The adsorbers have double carbon bed support screens to minimize the potential for carbon leakage into the VRU regeneration equipment. While one adsorber is on stream and is receiving vapors in adsorption mode, the other adsorber is off stream in the regeneration mode. The adsorbers are automatically alternated between adsorption and regeneration. During adsorption, activated carbon adsorbs the hydrocarbon vapors from the air stream, allowing clean air to vent from the bed. During regeneration, the previously adsorbed hydrocarbon vapors are removed from the carbon using a combination of high levels of vacuum and purge air stripping, restoring the carbon's ability to adsorb more hydrocarbon vapors. The adsorption cycle for the VRU is 12 minutes and the regeneration time is 10 minutes.

The VRU utilizes a dry vacuum pump (DVP), Busch model AC-1000, as the source of vacuum. It has a pumping capacity of 800 acfm. The DVP strips the hydrocarbons from the carbon bed and discharges them directly into the recovery device, a vertically packed absorption column. The absorption column is 3' in diameter by 19' high. The hydrocarbon vapors from the DVP flow through the packing of the absorber (recovery device), while the hydrocarbon liquid (for example, gasoline for a gasoline stream) flows down through the packing where the vapor and liquid come into contact. Inside the absorber, the vapor is liquefied and recovered hydrocarbon is returned back to the absorbent storage tank.

Manufacturer specifications rate the unit for maximum loading rates of 7,200 gal/min, 90,000 gal/hr and 1,800,000 gal/24-hour period.

5.h Truck Loading Rack – Portable Vapor Combustion Unit (*new*). Tesoro uses a PVCU to combust organic vapors captured by the truck loading vapor recovery system when the primary vapor control system is offline. Captured vapor travels to the PVCU through approximately 300 feet of 10-inch vapor line. Captured vapor is dispersed through a 3000 gallon saturator tank prior to being routed to the combustion unit. Each PVCU is mounted on a trailer skid. PVCUs will be located in the northeast corner of the facility, approximately 100 feet east of the western property when onsite.

Tesoro maintains a group of three PVCUs identified as follows:

Manufacturer:	Robert A. Nichols
Model:	RANE
Unit ID:	RANE1 (*s/n E19/B9*), RANE2 (*s/n E21/B10*), RANE3 (*s/n E23/B12*)
Manufacture Date:	7/1/2002
Heat Rate:	~40 MMBtu/hr
Supplemental Fuel:	Propane
Destruction Efficiency:	>98%
Rated Capacity:	1,100 cfm (*vapor*)
Exhaust Stack:	6' 6" dia, vertical at ~13' above ground level

ADP Application CL-3159. Tesoro maintains a group of three identical PVCUs for use at various bulk terminals located across the United States. Tesoro proposes to use any available unit from the group to control truck loading emissions at this facility when the primary VRU is offline for inspection and repairs. Use of a PVCU will not require any physical changes to the loading rack vapor capture system. Use of the PVCUs is temporary and will cease as soon as the primary VRU comes back online.

5.i Barge Loading Dock (*existing*). Barge loading dock located at Terminal #2, Berth #5 in the Port of Vancouver. The dock is configured with a single 12" product line with a maximum transfer rate of 2,900 bph. The dock can both load and unload bulk product. The barge loading dock uses submerged fill but is not equipped with active VOC emission controls.

Other Equipment at the facility:

5.j Tank 60005 (*existing*). Fixed cone roof storage tank installed in July 1961 with a working capacity of 2,460,654 gallons. This tank is 48' high with a diameter of 95'. Currently used to store diesel.

5.k Tank 8000 (*existing*). Horizontal storage tank installed in September 1994 with a working capacity of 8,000 gallons. This tank has a diameter of 14.7'. Currently used to store paraffin detergent additive.

5.l Tank 11007 (*existing*). Vertical storage tank installed in 2002 with a safe fill capacity of 244 bbl. This tank is 22' high with a diameter of 10'. Currently used to store runoff water from trucks and tank rack. Stored material is sent to refinery for processing.

5.m Tank 11008 (*existing*). Vertical storage tank installed in 2002 with a safe fill capacity of 244 bbl. This tank is 22' high with a diameter of 10'. Currently used to store runoff water from trucks and tank rack. Stored material is sent to refinery for processing.

5.n Equipment/Activity Summary.

ID No.	Generating Equipment/Activity	# of Units	Control Equipment	# of Units
1	Tank 10007	1	Fixed roof	1

ID No.	Generating Equipment/Activity	# of Units	Control Equipment	# of Units
2	Tank 40003	1	External floating roof, pontoon type, fitted with a mechanical shoe primary seal and rim mounted secondary seal	1
3	Tank 60002	1	External floating roof, pontoon type, fitted with a mechanical shoe primary seal and rim mounted secondary seal	1
4	Tank 7006	1	Internal floating roof, pontoon type, fitted with liquid mounted resilient primary seal, no secondary seal	1
5	Tank 93501	1	External floating roof, pontoon type, fitted with a mechanical shoe primary seal and rim mounted secondary seal	1
6	Tank 40004	1	Internal floating roof with primary and secondary seals	1
7	Truck Loading Rack – VRU	1	Vapor Recovery Unit (John Zink model S3-AAD-3-80-80-8)	1
8	Truck Loading Rack – PVCU	1	Portable Vapor Combustion Units (Robert A. Nichols model RANE)	3
9	Barge Loading Dock	1	Submerged fill	N/A

6. EMISSIONS DETERMINATION

Emissions to the ambient atmosphere from bulk gasoline terminal operations, as proposed in ADP Application CL-3159, consist of nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), particulate matter (PM) sulfur dioxide (SO_2), toxic air pollutants (TAPs), and hazardous air pollutants (HAPs).

6.a Storage Tanks (*existing*). Evaporative and breathing losses from storage tank operation are calculated based on 350,000,000 gal/yr of gasoline, 250,000,000 gal/yr of diesel, and 36,957,500 gal/yr of ethanol using estimation software employing the methodology found in EPA AP-42 Section 7.1 (EPA TANKS, ESP BREEZE, etc). Emission estimates incorporate local meteorological data and the appropriate Reid vapor pressure of the liquid being handled. Potential VOC emissions are estimated to be 5.17 tpy.

Annual emissions will be calculated based on actual product throughput using estimation software employing the methodology found in EPA AP-42 Section 7.1.

6.b Truck Loading Rack – Fugitive Emissions (*existing*). Fugitive emissions from truck loading operations are calculated based on 350,000,000 gal/yr of gasoline throughput, 36,957,500 gal/yr of ethanol throughput and an emission rate of 8.0 mg VOC/L. Fugitive emissions from diesel loadout are considered negligible. Potential VOC emissions are estimated to be 12.92 tpy.

Annual emissions will be calculated based on actual gasoline and ethanol throughput and an emission rate of 8.0 mg VOC/L.

6.c Truck Loading Rack - Vapor Recovery Unit (*existing*). VRU emissions from truck loading operations are calculated based on 350,000,000 gal/yr of gasoline throughput, 36,957,500 gal/yr of ethanol throughput and an emission rate of 17.0 mg VOC/L. Emissions from diesel loadout are considered negligible. Potential VOC emissions are estimated to be 27.45 tpy.

Annual emissions will be calculated based on actual product throughput and the most recently tested VOC emission rate.

ADP Application CL-3159. Only one vapor control unit (VRU/VCU) operates at the loading rack at one time. The allowed VOC emission rate is higher for the VRU so facility VOC potential to emit is based on all product being loaded while the VRU is in use.

6.d Truck Loading Rack – Vapor Combustion Unit (*new*). VCU emissions from truck loading operations are calculated based on 175,000,000 gal/yr of gasoline throughput and applicable emission factors. The VOC emission factor is taken from manufacturer's specifications. NOx and CO emission factors are taken from test data for a similar John Zink unit. Emissions from diesel loadout are considered negligible. Potential emissions are estimated to be:

Pollutant	Emission Rate	Emissions
NOx	0.0334 lb/1000 gal	2.92 tpy
CO	0.0835 lb/1000 gal	7.31 tpy
VOC	10.0 mg VOC/L (0.08345 lb/1000 gal)	7.30 tpy

Annual emissions will be calculated based on actual product throughput, the NOx and CO emission factors listed above, and the most recently tested emission rate for VOC. The most recent emission test data for each proposed VCU is listed below.

RANE1	Florida 10/22/2021	VOC = 5.64 mg/L gasoline (as C) Eff = 99.99%
RANE2	Ohio 4/18/2007	VOC = 3.49 mg/L gasoline (as C) Eff = 99.98%
RANE3	Ohio 4/20/2021	VOC = 3.95 mg/L gasoline (as C) Eff = 99.48%

ADP Application CL-3159. Only one vapor control unit (VRU/VCU) operates at the loading rack at one time. The allowed VOC emission rate is higher for the VRU so facility VOC potential to emit is based on all product being loaded while the VRU is in use. Potential to emit for NOx and CO is based on the parameters listed above.

Tesoro is proposing intermittent use of a VCU at this facility with no operation in most years. When onsite, operation is expected to last ≤4 months. A 6 month operating period has been used as a worst case scenario.

6.e Component Fugitive Emissions (*existing*). Fugitive VOC emissions from leaking pumps, valves, connectors (including flanges), and other fittings are calculated using an equipment count provided by the applicant and Table 2-3 of EPA's "Protocol for Leak Emission Rates" (EPA-453/R-95-17), Nov. 1995. For the purposes of calculating potential annual emissions, the facility is assumed to operate for 8,760 hours per year. An control percentage from EPA-453/R-15-17 may be applied if a leak detection and repair program is implemented. Potential VOC emissions are presented below.

Equipment	Equipment Count	Leak Rate (kg/hr/source)	Control (%)	Emissions (lb/hr)	Emissions (tpy)
Connectors	8,230	$8.0*10^{-6}$	0%	0.145	0.64
Valves	1,835	$4.3*10^{-5}$	0%	0.174	0.76
Pump Seals	32	$5.4*10^{-4}$	0%	0.038	0.17
Other	48	$1.3*10^{-4}$	0%	0.014	0.06

Annual emissions will be calculated based on actual component usage using the same methodology cited above.

6.f Toxic and Hazardous Air Pollutants. Potential TAP and HAP emissions from gasoline storage and handling are calculated based on estimated gasoline emissions and the percentages of TAP and HAP compounds in gasoline. Based on EPA Speciate 3.2 profile number 2455 (Composite Gasoline Vapors from Seattle (5 brands, 3 grades) – 1997), approximately 50.0% of the total VOC emissions are TAPs as defined by WAC 173-460 [August 21, 1998], and approximately 12.9% of the total VOC emissions are federally listed hazardous air pollutants (HAPs). With maximum gasoline vapor emissions of 41.80 tpy, annual HAP emissions are 5.34 tpy and annual TAP emissions are 24.90 tpy.

Ethanol is a TAP but not a HAP. Total fugitive ethanol emissions from valves, pumps, and other fittings could add between 5 and 265 pounds per year, however a total count of ethanol wetted fittings is not available at this time and a total of 5 pounds per year has been assumed for the purposes of estimating potential TAP emissions. Potential TAP emissions from ethanol storage and handling are 3.99 tpy.

6.g Emissions Summary/Facility-wide Potential to Emit. Facility-wide potential to emit as calculated in the sections above is summarized below

Pollutant	Potential Emissions (tpy)	Project Increase (tpy)
NO_X	2.92	0.00
CO	7.31	0.00
VOC	47.15	0.00
SO_2	0.00	0.00
Lead	0.00	0.00
PM	0.00	0.00
PM_{10}	0.00	0.00
$PM_{2.5}$	0.00	0.00
TAP	24.91	0.00
HAP	5.35	0.00

Pollutant	CAS Number	Category	Facility-wide Emissions (lb/yr)	Project Increase (lb/yr)	WAC 173-460 SQER (lb/yr)
Benzene	71-43-2	HAP/TAP A	1,171.1	0.0	20
n-Butane	106-97-8	TAP B	19,599.9	0.0	43,748
Cyclohexane	110-82-7	TAP B	209.1	0.0	43,748
Cyclopentane	287-92-3	TAP B	644.1	0.0	43,748
Ethanol	64-17-5	TAP B	7,986	0.0	43,748
Ethyl Benzene	100-41-4	HAP/TAP B	552.1	0.0	43,748
n-Heptane	142-82-5	TAP B	384.8	0.0	43,748
n-Hexane	110-54-3	HAP/ TAP B	1,790.2	0.0	22,750

Pollutant	CAS Number	Category	Facility-wide Emissions (lb/yr)	Project Increase (lb/yr)	WAC 173-460 SQER (lb/yr)
Isopropylbenzene	98-82-8	HAP/ TAP B	33.5	0.0	43,748
Methylcyclohexane	108-87-2	TAP B	75.3	0.0	43,748
n-Nonane	111-84-2	TAP B	41.8	0.0	43,748
n-Octane	111-65-9	TAP B	108.7	0.0	43,748
n-Pentane	109-66-0	TAP B	10,080.2	0.0	43,748
Toluene	108-88-3	HAP / TAP B	3,647.3	0.0	43,748
2,2,4-Trimethylpentane	540-84-1	HAP / TAP B	744.5	0.0	--
m/p-Xylene	108-38-3	HAP / TAP B	1,999.3	0.0	43,748
o-Xylene	95-47-6	HAP / TAP B	752.9	0.0	43,748

7. REGULATIONS AND EMISSION STANDARDS

Regulations that have been used to evaluate the acceptability of the proposed facility and establish emission limits and control requirements include, but are not limited to, the regulations, codes, or requirements listed below.

7.a Title 40 Code of Federal Regulations (40 CFR) 51.166(c) "Ambient air increments" requires approved State Implementation Plans to contain emission limitations and other measures as may be necessary to assure that increases in pollutant concentration over the baseline concentration in areas designated as Class I, II, or III shall not exceed the incremental limits contained 40 CFR 51.166(c).

7.b 40 CFR 60 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" applies to each storage vessel with a capacity greater than or equal to 151,412 liters (40,000 gallons) that is used to store petroleum liquids for which construction is commenced after June 11, 1973 and prior to May 19, 1978. This regulation does not apply to tanks at this facility.

7.c 40 CFR 60 Subpart Ka "Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978 and Prior to July 23, 1984" applies to each storage vessel with a capacity greater than or equal to 151,416 liters (40,000 gallons) that is used to store petroleum liquids for which construction is commenced after May 18, 1978 and prior to July 23, 1984. This regulation does not apply to tanks at this facility.

7.d 40 CFR 60 Subpart Kb "Standards of Performance for Volatile Organic Liquid Storage Vessels for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984" applies to each storage vessel with a capacity greater than or equal to 75 m^3 but less than 151 m^3 storing volatile organic liquids (VOL) with a maximum true vapor pressure (TVP) greater than or equal to 15.0 kilopascal (kPa), or each storage vessel with a capacity greater than 151 m^3 storing VOL with a maximum TVP of greater than or equal to 3.5 kPa for which construction commenced after July 23, 1984. This regulation only applies to Tank 7006 and Tank 40004.

7.e 40 CFR 60 Subpart XX "Standards of Performance for Bulk Gasoline Terminals" applies to loading racks at bulk gasoline terminals for which construction or modification commenced after December 17, 1980. Initial construction of the loading rack commenced in 1961. There have been no changes to the loading rack since December 17, 1980 that would constitute a modification under Subpart XX. Replacement of the vapor recovery unit (ADP 12-3015) and use of a portable vapor combustion unit as proposed in this permitting action do not constitute a modification (40 CFR 60.14(e)(5)). The only other modification to the loading rack occurred in 1980 to comply with Washington State Regulations, which is not considered a modification (40 CFR 60.500(c)). Therefore, the loading rack at this facility is not subject to this regulation.

7.f 40 CFR 63 Subpart R "National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations)" establishes emission limits for bulk gasoline terminals at major HAP sources. This facility is not a major HAP source. Therefore, this regulation is not applicable to this facility.

7.g 40 CFR 63 Subpart WW "National Emission Standards for Storage Vessels (Tanks) – Control Level 2" establishes provisions that apply to the control of air emissions from storage vessels when referenced by another subpart for air emission control. The regulation is not applicable on its own. 40 CFR 60 Subpart Kb and 40 CFR 63 Subpart BBBBBB reference provisions of this subpart as a possible control option for affected facilities. Therefore, this regulation may be applicable to this facility.

7.h 40 CFR 63 Subpart BBBBBB "National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities" applies to area source gasoline distribution bulk terminals, bulk plants, and pipeline facilities. This regulation is applicable to this facility. The facility is considered an existing source for the purposes of this subpart.

7.i 40 CFR 68 "Chemical Accident Prevention Provisions" requires affected stationary sources to compile and submit a risk management plan, as provided in Sections 68.150 to 68.185. Applicability is determined by the type and quantity of material stored at the facility. Regulated substances in gasoline are exempt from the requirements of Part 68 when in distribution or related storage for use as fuel for internal combustion engines pursuant to 40 CFR 68.115. Therefore, this regulation is not applicable to this facility.

7.j 40 CFR 70 "State Operating Permit Programs" requires facilities with site emissions of any regulated air pollutant greater than 100 tpy, any single hazardous air pollutant greater than 10 tpy, and/or any aggregate combination of hazardous air pollutants greater than 25 tpy to obtain a Title V permit. This facility has accepted a federally enforceable limit on emissions of volatile organic compounds and hazardous air pollutants in order to remain exempt from the provisions of this regulation.

7.k Revised Code of Washington (RCW) 70A.15.2040 empowers any activated air pollution control authority to prepare and develop a comprehensive plan or plans for the prevention, abatement and control of air pollution within its jurisdiction. An air pollution control authority may issue such orders as may be necessary to effectuate the purposes of the Washington Clean Air Act and enforce the same by all appropriate administrative and judicial proceedings subject to the rights of appeal as provided in Chapter 62, Laws of 1970 ex. sess.

7.l RCW 70A.15.2210 provides for the inclusion of conditions of operation as are reasonably necessary to assure the maintenance of compliance with the applicable ordinances, resolutions, rules and regulations when issuing an Air Discharge Permit for installation and establishment of an air contaminant source.

7.m Washington Administrative Code (WAC) 173-401 "Operating Permit Regulation" requires all major sources and other sources as defined in WAC 173-401-300 to obtain an operating permit. This regulation is not applicable because this source is not a potential major source and does not meet the applicability criteria set forth in WAC 173-401-300.

7.n WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" requires Best Available Control Technology for toxic air pollutants (T-BACT), identification and quantification of emissions of toxic air pollutants and demonstration of protection of human health and safety. SWCAA implements WAC 173-460 as in effect on August 21, 1998.

7.o WAC 173-476 "Ambient Air Quality Standards" establishes ambient air quality standards for PM_{10}, $PM_{2.5}$, lead, sulfur dioxide, nitrogen dioxide, ozone, and carbon monoxide in the ambient air, which shall not be exceeded.

7.p SWCAA 400-040 "General Standards for Maximum Emissions" requires all new and existing sources and emission units to meet certain performance standards with respect to Reasonably Available Control Technology (RACT), visible emissions, fallout, fugitive emissions, odors, emissions detrimental to persons or property, sulfur dioxide, concealment and masking, and fugitive dust.

7.q SWCAA 400-050 "Emission Standards for Combustion and Incineration Units" requires that all provisions of SWCAA 400-040 be met and that no person shall cause or permit the emission of particulate matter from any combustion or incineration unit in excess of 0.23 grams per dry cubic meter (0.1 grains per dry standard cubic foot) of exhaust gas at standard conditions.

7.r SWCAA 400-060 "Emission Standards for General Process Units" prohibits particulate matter emissions from all new and existing process units in excess of 0.1 grains per dry standard cubic foot of exhaust gas.

7.s SWCAA 400-109 "Air Discharge Permit Applications" requires that an Air Discharge Permit application be submitted for all new installations, modifications, changes, or alterations to process and emission control equipment consistent with the definition of "new source". Sources wishing to modify existing permit terms may submit an Air Discharge Permit application to request such changes. An Air Discharge Permit must be issued, or written confirmation of exempt status must be received, before beginning any actual construction, or implementing any other modification, change, or alteration of existing equipment, processes, or permits.

7.t SWCAA 400-110 "New Source Review" requires that SWCAA issue an Air Discharge Permit in response to an Air Discharge Permit application prior to establishment of the new source, emission unit, or modification.

7.u SWCAA 400-111 "Requirements for Sources in a Maintenance Plan Area" requires that no approval to construct or alter an air contaminant source shall be granted unless it is evidenced that:

(1) The equipment or technology is designed and will be installed to operate without causing a violation of the applicable emission standards;
(2) Emissions will be minimized to the extent that the new source will not exceed emission levels or other requirements provided in the maintenance plan;
(3) Best Available Control Technology will be employed for all air contaminants to be emitted by the proposed equipment;
(4) The proposed equipment will not cause any ambient air quality standard to be exceeded; and
(5) If the proposed equipment or facility will emit any toxic air pollutant regulated under WAC 173-460, the proposed equipment and control measures will meet all the requirements of that Chapter.

7.v SWCAA 490-040(2) "Petroleum Liquid Storage Tanks" establishes control requirements for fixed-roof tanks storing volatile organic petroleum liquids with a true vapor pressure as stored greater than 78 mm of Hg (1.5 psi) at actual monthly average storage temperatures and having a capacity greater than one hundred fifty thousand liters (40,000 gallons). This regulation applies to facilities located or operating within designated ozone nonattainment areas and areas covered by a maintenance plan within the jurisdiction of SWCAA.

7.w SWCAA 490-040(3) "Gasoline Loading Terminals" establishes control requirements for gasoline transport tanks and loading terminals with an average annual daily gasoline throughput greater than 75,000 L (20,000 gallons). This regulation applies to facilities located or operating within designated ozone nonattainment areas and areas covered by a maintenance plan within the jurisdiction of SWCAA.

7.x SWCAA 490-201 "Petroleum Liquid Storage in External Floating Roof Tanks" establishes control and inspection requirements for petroleum liquid storage vessels equipped with external floating roofs and having capacities greater than 150,000 liters (40,000 gallons).

7.y SWCAA 490-202 "Leaks from Gasoline Transport Tanks and Vapor Collection Systems" establishes control and operational requirements for gasoline transport tanks equipped for gasoline vapor collection and all vapor collection systems at gasoline loading terminals.

7.z SWCAA 491-040(2) "Gasoline Loading Terminals" establishes control requirements for gasoline loading terminals with an average annual gasoline throughput greater than 7.2 million gallons.

7.aa SWCAA 491-040(5) "Loading or Unloading Gasoline into Marine Tank Vessels" establishes control and operational requirements for each berth that loads gasoline into marine tank vessels.

7.bb SWCAA 491-050 "Failures, Certification, Testing and Recordkeeping" establishes control requirements for gasoline transport tanks and gasoline loading terminals.

8. RACT/BACT/BART/LAER/PSD/CAM DETERMINATIONS

The proposed equipment and control systems incorporate Best Available Control Technology (BACT) for the types and amounts of air contaminants emitted by the processes as described below:

BACT Determinations

8.a BACT Determination – Bulk Storage Tanks. The proposed use of storage tanks equipped with floating roofs and seals meeting the requirements of 40 CFR 60 Subpart Kb has been determined to meet the requirements of BACT and T-BACT for the storage of volatile liquids at this facility.

8.b BACT Determination – Truck Loading – PVCU. The proposed use of process enclosure, vapor balancing and a vapor combustion unit with a demonstrated destruction efficiency of 98% has been determined to meet the requirements of BACT and T-BACT for the loading of gasoline and ethanol into tanker trucks at this facility.

Previous BACT Determinations

8.c Previous BACT Determination – Biodiesel Storage (Tank 10007). Tank 10007 has a fixed roof configuration. A review of the RACT/BACT/LAER Clearinghouse for diesel/biodiesel storage tanks indicates no use of additional emission controls. A fixed roof configuration with no add-on controls was determined to meet the requirements of BACT for this tank. [ADP 12-3023]

8.d Previous BACT Determination – Truck Loading Operations. The proposed use of a carbon bed-based vapor recovery system, to maintain truck loading emissions at or below 17.0 mg/L (0.14 lb/1,000 gallons) of fuel loaded for both ethanol and gasoline loadout was determined to meet the requirements of BACT for truck loading of gasoline and ethanol. This emission standard was derived from a study of EPA's RACT/BACT/LAER Clearinghouse for six similar units permitted since 1980 with limits ranging from 7 mg/L to 35 mg/L (average ~17 mg/L). [ADP 12-3015]

8.e Previous BACT Determination – Gasoline and Denatured Ethanol Storage (Tank 40004). The proposed use of an internal floating roof with primary and secondary seals meeting the requirements of 40 CFR 60 Subpart Kb was determined to meet the requirements of BACT for the storage of gasoline and denatured ethanol. [ADP 08-2838]

Other Determinations

8.f Prevention of Significant Deterioration (PSD) Applicability Determination: The potential to emit of this facility is less than applicable PSD applicability thresholds. Likewise, this permitting action will not result in a potential increase in emissions equal to or greater than the PSD thresholds. Therefore, PSD review is not applicable to this action.

8.g Compliance Assurance Monitoring (CAM) Applicability Determination. CAM is not applicable to any emission unit at this facility because it is not a major source and is not required to obtain a Part 70 permit.

9. AMBIENT IMPACT ANALYSIS

9.a TAP Small Quantity Review. The new equipment and modifications proposed in ADP Application CL-3159 will not affect the type or quantity of TAP emissions from the storage and handling of volatile liquids.

Conclusions

9.b Operation of portable vapor combustion units, as proposed in ADP Application CL-3159, will not cause the ambient air quality requirements of Title 40 Code of Federal Regulations (CFR) Part 50 "National Primary and Secondary Ambient Air Quality Standards" to be violated.

9.c Operation of portable vapor combustion units, as proposed in ADP Application CL-3159, will not cause the requirements of WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" (as in effect 8/21/98) or WAC 173-476 "Ambient Air Quality Standards" to be violated.

9.d Operation of portable vapor combustion units, as proposed in ADP Application CL-3159, will not cause a violation of emission standards for sources as established under SWCAA General Regulations Sections 400-040 "General Standards for Maximum Emissions," 400-050 "Emission Standards for Combustion and Incineration Units," and 400-060 "Emission Standards for General Process Units."

10. DISCUSSION OF APPROVAL CONDITIONS

SWCAA has made a determination to issue ADP 21-3469 in response to ADP Application CL-3159. ADP 21-3469 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

10.a Supersession of Previous Permits. ADP 21-3469 supersedes ADP 12-3023 in its entirety.

10.b General Basis. Permit requirements for equipment affected by this permitting action incorporate the operating schemes proposed by the applicant in ADP Application CL-3159. Permit requirements established by this action are intended to implement BACT, minimize emissions, and assure compliance with applicable requirements on a continuous basis. Emission limits for approved equipment are based on the maximum potential emissions calculated in Section 6 of this Technical Support Document.

10.c Monitoring and Recordkeeping Requirements. ADP 21-3469 establishes monitoring and recordkeeping requirements sufficient to document compliance with applicable emission limits, ensure proper operation of approved equipment and provide for compliance with generally applicable requirements. Specific requirements are established for tank inspections, product throughput and air quality related complaints.

This facility is subject to the requirements of 40 CFR 63 Subpart BBBBBB, which allows the use of more than one control option. Monitoring requirements vary depending on the option chosen.

10.d Reporting Requirements. ADP 21-3469 establishes general reporting requirements for annual air emissions, upset conditions and excess emissions. Specific reporting requirements are established for product throughput and air emissions. Reports are to be submitted on an annual basis.

40 CFR 63 Subpart BBBBBB requires the submittal of a semi-annual report but does not establish a date by which the report must be submitted. SWCAA has determined that the reports should be submitted within 30 days of the end of each calendar half consistent with 40 CFR 63.10.

10.e Operating Limits and Requirements. 40 CFR 60 Subpart Kb is applicable to tank 7006 and Tank 40004. Some of the more relevant operating requirements found in Subpart Kb were included in the permit. The facility is also subject to the requirements of 40 CFR 63 Subpart BBBBBB. Subpart BBBBBB allows the use of more than one control option and operating requirements vary depending on the option chosen.

10.f Requirements for Unmodified Emission Units. Permit requirements for existing emission units not affected by ADP Application CL-3159 are carried forward unchanged from ADP 12-3023.

11. START-UP AND SHUTDOWN/ALTERNATIVE OPERATING SCENARIOS/POLLUTION PREVENTION

11.a Start-up and Shutdown Provisions. Pursuant to SWCAA 400-081 "Start-up and Shutdown", technology based emission standards and control technology determinations shall take into consideration the physical and operational ability of a source to comply with the applicable standards during start-up or shutdown. Where it is determined that a source is not capable of achieving continuous compliance with an emission standard during start-up or shutdown, SWCAA shall include appropriate emission limitations, operating parameters, or other criteria to regulate performance of the source during start-up or shutdown.

The applicant did not identify any start-up and shutdown periods during which affected equipment is not capable of achieving continuous compliance with applicable technology determinations or approval conditions. To SWCAA's knowledge, this facility can comply with all applicable standards during startup and shutdown.

11.b Alternate Operating Scenarios. SWCAA conducted a review of alternate operating scenarios applicable to equipment affected by this permitting action. The permittee did not propose or identify any applicable alternate operating scenarios. Therefore, none were included in the permit requirements.

11.c Pollution Prevention Measures. SWCAA conducted a review of possible pollution prevention measures for the facility. No pollution prevention measures were identified by either the permittee or SWCAA separate or in addition to those measures required under BACT considerations. Therefore, none were included in the permit requirements.

12. EMISSION MONITORING AND TESTING

12.a Emission Testing – Truck Loading Rack VRU – Denatured Ethanol. Emission testing of the truck loading rack vapor recovery unit is required on a continuing 60-month cycle. All emission testing shall be conducted in accordance with ADP 21-3469, Appendix A.

12.b Emission Testing – Truck Loading Rack VRU – Gasoline. Emission testing of the truck loading rack vapor recovery unit is required on a continuing 60-month cycle. All emission testing shall be conducted in accordance with ADP 21-3469, Appendix A.

12.c Emission Testing – Truck Loading Rack PVCU. Emission testing of portable vapor combustion units used in support of the truck loading rack is required within 90 days after commencing operation onsite. Periodic emission testing is required on a continuing 60-month cycle. All emission testing shall be conducted in accordance with ADP 21-3469, Appendix B.

12.d Emission Testing – 40 CFR 63 Subpart BBBBBB. Subpart BBBBBB (40 CFR 63.11092(a)) requires an initial test of gasoline loading racks. Facilities in compliance with a permit requiring loading racks to meet an emission limit of 80 mg/L or less may be exempted from this requirement. The permit for this facility requires the loading rack to emit no more than 17.0 mg/L. Therefore, an initial source emissions test is not required by this regulation.

12.e Leak Inspections – Gasoline Equipment. All equipment in gasoline service is required to be inspected monthly for leaks in accordance with the requirements of 40 CFR 63.11089.

12.f Cargo Tank Certification. All gasoline cargo tanks loaded at the facility are required to be certified vapor tight in accordance with 40 CFR 63.11092(f).

13. FACILITY HISTORY

13.a Previous Permitting Actions. SWCAA has previously issued the following Permits for this facility:

Date	Application Number	Permit Number	Purpose
7-31-2012	CL-1974	12-3023	Installation of new 414,553 gallon fixed roof biodiesel storage tank, piping to the loading rack and barge loading dock, and upgrades to rail and truck unloading area. Biodiesel throughput of 17,000 bbl/mth.
6-12-2012	CL-1963	12-3015	Replacement of temporary flare and older carbon canister gasoline vapor capture unit with increased capacity carbon adsorption unit on gasoline/ethanol truck loading rack. Modification of ethanol testing schedule. Superseded by 12-3023.
3-08-2012	CL-1957	12-3006	Approval to operate a portable vapor combustion unit during loading operations while new vapor recovery unit is installed. Superseded by 12-3015.
1-20-2009	CL-1857	08-2838	Conversion of Tank 40004 to service for denatured ethanol and gasoline. Internal floating roof installed in tank. Superseded 12-3006.
5-6-2008	CL-1826	08-2783	Installation of two ethanol loading arms at Bay 2 for ethanol at existing truck loading rack. Increase in emission limits and approved throughputs. Superseded by 08-2838.
7/1/2004	CL-1639	04-2541	Installation of new transmix tank (Tank 10).
10-13-2000	Ltr 7/7/00	95-1767R2	Modified the Title V opt-out emission limits. Revision of 40 CFR 60 Subpart XX applicability determination. VOC emission limit changed to 40 tpy. Superseded by 08-2783.
10-28-1999	CL-1437	99-2232	Approval of primary seal replacement on Tank 7000. Superseded by 08-2783.
7-20-1999	CL-1425	95-1767R1	Modification of Title V opt-out emission limits. Superseded by 95-1767R2.
8-31-1998	CL-1369	98-2142	Approval of primary seal replacement on Tank 40003. Superseded by 08-2783.
11-13-1997	CL-1311	97-2046	Approval of primary seal replacement on Tank 60002. Modification of existing approval conditions. Superseded by 08-2783.
6-23-1995	CL-1118	95-1767	Establishment of Title V opt-out emission limits. Superseded by 95-1767R1.

9-21-1992	CL-959	92-1460	Installation of Tank 7000 and approval of ethanol storage. Superseded by 08-2783.
11-26-1980	CL-424	80-551	Installation of new truck rack and VRU. Superseded by 08-2783.

13.b Compliance Status. A search of source records on file at SWCAA did not identify any outstanding compliance issues at this facility.

14. PUBLIC INVOLVEMENT OPPORTUNITY

14.a Public Notice for ADP Application CL-3159. Public notice for ADP Application CL-3159 was published on the SWCAA internet website for a minimum of (15) days beginning on May 6, 2021.

14.b Public/Applicant Comment for ADP Application CL-3159. SWCAA did not receive specific comments, a comment period request or any other inquiry from the public regarding this ADP application. Therefore, no public comment period was provided for this permitting action.

14.c State Environmental Policy Act. A complete SEPA checklist was submitted by Tesoro Logistics Operations - Vancouver Terminal in conjunction with ADP Application CL-3159. After reviewing the checklist, SWCAA made a Determination of Non Significance (DNS 21-019) concurrent with issuance of ADP 21-3469.