

**PERMIT APPLICATION REVIEW  
COVERED SOURCE PERMIT NO. 0080-01-C  
Application for Minor Modification No. 0080-08  
Application for Renewal No. 0080-09**

**Company:** Chevron Products Company

**Mailing Address:** 260 Aka'ula Street  
Eleele, Hawaii 96705

**Facility:** Port Allen Marketing Terminal

**Location:** 260 Aka'ula Street, Eleele, Kauai 96705  
UTM: Zone 4, 436,100 m E, 2,421,807 m N (NAD 83)

**SIC Code:** 5171 (Petroleum Bulk Stations and Terminals)

**Responsible Official:** Hugh Meshell  
Terminal Manager  
Ph: (808) 357-1041

**Site Contact:** John Aweeka  
Environmental, Safety and Health Specialist  
Ph: (808) 492-7806  
Email: [JohnAweeka@chevron.com](mailto:JohnAweeka@chevron.com)

**BACKGROUND**

Chevron Products Company has submitted applications to modify and renew its Covered Source Permit no. 0080-01-C that was issued on July 2, 2010.

Gasoline, distillate products, additives and denatured ethanol are received primarily from the Chevron Honolulu Marine Terminal on Oahu via barges, and then stored in the aboveground storage tanks at the Port Allen Terminal. Occasionally product is received from other sources. Denatured ethanol and other additives are blended into the gasoline at the loading rack in order to meet current state gasoline blending requirements. Although the terminal is currently only storing and distributing motor gasoline, diesel fuel and denatured ethanol, terminal operational flexibility and market variations may dictate distribution of other petroleum products in the future.

Products are dispensed into trucks for distribution to wholesale or retail markets. Trucks are loaded at a bottom loading load rack. The load rack is equipped with a vapor combustion unit (VCU) along with a vapor collection system (VCS) to control volatile organic compounds (VOCs) and hazardous air pollutants (HAPs). The total combined throughput of the load rack is limited to 5,631,429 barrels (236,520,018 gallons) per year of gasoline (e.g., motor gasoline, aviation gasoline, naphtha/whole straight run gasoline, etc.).

The following modifications are proposed:

1. Remove Tank 16 (capacity  $\leq$  40,000 gallons and storing transmix only) from the list of permitted storage tanks and add it to the list of insignificant activities.

The exclusion of transmix as a regulated product under 40 Code of Federal Regulations (CFR) Part 63 Subpart BBBBBB is based on the Federal Register Vol. 76, No. 15 (1/24/2011) statement that transmix is not "gasoline" because it is not "used as a fuel for internal combustion engines".

2. Remove Attachment IIE from the permit in its entirety that applied to activities prior to January 10, 2011.

The bottom loading rack and associated appurtenances shall operate in accordance with the conditions in Attachment IIC on and after January 10, 2011.

The proposed modification is considered a minor modification since it:

1. Does not increase the emissions of any air pollutant above the permitted emission limits;
2. Does not result in or increase the emissions of any air pollutant not limited by permit to levels equal to or above:
  - a. 500 pounds per year of a hazardous air pollutant (HAP), except lead;
  - b. 300 pounds per year of lead;
  - c. twenty-five (25) percent of significant amounts of emission as defined in section 11-60.1-1, paragraph (1) in the definition of "significant"; or
  - d. two (2) tons per year of each regulated air pollutant not already identified above.
3. Does not violate any applicable requirement;
4. Does not involve significant changes to existing monitoring requirements or any relaxation or significant change to existing reporting or recordkeeping requirements in the permit. Any change to the existing monitoring, reporting, or recordkeeping requirements that reduces the enforceability of the permit is considered a significant change;
5. Does not require or change a case-by-case determination of an emission limitation or other standard, a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis;
6. Does not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement, and that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject. Such terms and conditions include:
  - a. A federally enforceable emissions cap assumed to avoid classification as a modification pursuant to any provision of Title I of the Act or subchapter 7; and
  - b. An alternative emissions limit approved pursuant to regulations promulgated pursuant to Section 112(i)(5) of the Act or subchapter 9.
7. Is not a modification pursuant to any provision of Title I of the Clean Air Act.

**EQUIPMENT DESCRIPTION**

1. Bottom loading load rack with one (1) loading lane and nine (9) product load arms;
2. VCS with 4,800 gallon per minute capacity John Zink VCU, model no. ZCT-2-8-35-X-2/8-X-X, serial no. VC-954547; and
3. Five (5) storage tanks that are storing gasoline or will store gasoline as a worst-case scenario:

<b>Tank No.</b>	<b>Working Capacity (gal)</b>	<b>Tank Description</b>	<b>Current Liquid Content<sup>1</sup></b>
1	1,023,120	Internal floating roof with mechanical shoe primary seal	Naphtha
2	614,670	Internal floating roof with mechanical shoe primary seal	Regular Unleaded Gasoline
4	182,868	Internal floating roof with mechanical shoe primary seal	Super Unleaded Gasoline
5	97,104	Internal floating roof with mechanical shoe primary seal	Denatured Ethanol
12	46,788	Internal floating roof with mechanical shoe primary seal	Denatured Ethanol

<sup>1</sup> Based on the annual inspection conducted by the Clean Air Branch on 7/28/2014.

**AIR POLLUTION CONTROLS**

The bottom loading load rack is equipped with a VCU and a VCS to control VOC and HAP emissions. Tank Nos. 1, 2, 4, 5, and 12 are equipped with internal floating roofs and tank seal systems to control VOC and HAP emissions.

**APPLICABLE REQUIREMENTS**

Hawaii Administrative Rules (HAR)

Title 11 Chapter 59, Ambient Air Quality Standards

Title 11 Chapter 60.1, Air Pollution Control

Subchapter 1, General Requirements

Subchapter 2, General Prohibitions

11-60.1-31, Applicability

11-60.1-39, Storage of Volatile Organic Compounds

11-60.1-41, Pump and Compressor Requirements

Subchapter 5, Covered Sources

Subchapter 6, Fees for Covered Sources, Noncovered Sources, and Agricultural Burning

11-60.1-111, Definitions

11-60.1-112, General Fee Provisions for Covered Sources

11-60.1-113, Application Fees for Covered Sources

11-60.1-114, Annual Fees for Covered Sources

11-60.1-114, Basis of Annual Fees for Covered Sources

Subchapter 8, Standards of Performance for Stationary Sources

11-60.1-161, New Source Performance Standards

Subchapter 9, Hazardous Air Pollutant Sources

Standard of Performance for New Stationary Sources (NSPS), 40 CFR Part 60 Subpart XX, Standards of Performance for Bulk Gasoline Terminal is applicable to the bottom loading load rack because the load rack was constructed after December 17, 1980.

Subpart Kb, *Standards of Performance for Volatile Organic Liquid (VOL) Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced after July 23, 1984 is applicable to* Tank nos. 1, 5, and 12 because these tanks were modified after July 23, 1984 and each tank has a capacity greater than 151 m<sup>3</sup> (40,000 gal) storing VOL with a vapor pressure greater than 3.5 kPa (0.507 psi).

Although Subpart Kb is not applicable to Tank nos. 2 and 4 due to the construction dates, the two tanks are required to operate in accordance with this subpart as reference by 40 CFR Part 63, NESHAP, Subpart BBBB.

National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61  
This terminal is not subject to NESHAP as there are no standards in 40 CFR Part 61 applicable to this source.

National Emission Standards for Hazardous Air Pollutants for Source Categories (Maximum Achievable Control Technology (MACT)), 40 CFR Part 63 Subpart BBBB, National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities is applicable to the facility since it is an area source bulk gasoline terminal. The facility is designated a gasoline distribution bulk terminal because the gasoline throughput, based on the permit limit (236,520,018 gallons per year, equivalent to 648,000 gallons per day), is greater than 20,000 gallons per day. Option 2 from Table 2 of Subpart BBBB, applies to the load rack because the actual gasoline throughput is less than 250,000 gallons per day based on the monitoring reports submitted. Tank nos. 1, 2, 4, 5, and 12 are subject to this subpart because they are located at a gasoline distribution bulk terminal and are storing gasoline or will store gasoline as a worst-case scenario.

Prevention of Significant Deterioration (PSD), 40 CFR 52.21  
This terminal is not subject to PSD requirements because it is not a major stationary source as defined in 40 CFR 52.21 and HAR Title 11, Chapter 60.1, Subchapter 7.

Compliance Assurance Monitoring (CAM), 40 CFR 64  
This terminal is not subject to CAM since it is not a major source. The purpose of CAM is to provide a reasonable assurance that compliance is being achieved with large emissions units that rely on air pollution control device equipment to meet an emissions limit or standard. Pursuant to 40 CFR Part 64, for CAM to be applicable, the emissions unit must: (1) be located at a major source; (2) be subject to an emissions limit or standard; (3) use a control device to achieve compliance; (4) have potential pre-control emissions that are 100% of the major source level; and (5) not otherwise be exempt from CAM.

Air Emissions Reporting Requirements (AERR), 40 CFR Part 51, Subpart A  
AERR is not applicable because potential emissions from the terminal do not exceed the AERR triggering levels (see table below).

Pollutant	Emissions (TPY) <sup>1</sup> [8,760 hr/yr]	AERR Triggering Levels (TPY)	
		1 year cycle (type A sources)	3 year cycle (type B sources)
CO	9.88	2500	1000
NO <sub>x</sub>	3.95	2500	100
SO <sub>2</sub>	0.069	2500	100
VOC	61.72	250	100
HAPs	0.82	-	-

<sup>1</sup> See Project Emissions section.

Department of Health (DOH) In-house Annual Emissions Reporting

The Clean Air Branch requests annual emissions reporting from those facilities that have facility-wide emissions exceeding in-house reporting levels and for all covered sources. This terminal is subject to annual emissions reporting requirements as a covered source.

Best Available Control Technology (BACT)

A BACT analysis is required for new sources or modifications to sources that have the potential to emit or increase emissions above significant levels considering any limitations as defined in HAR, Section 11-60.1-1. This terminal is not subject to a BACT analysis because it is an existing source with no proposed modifications that result in an increase in emissions from the facility.

Synthetic Minor Source

A synthetic minor source is a facility that is potentially major as defined in HAR 11-60.1-1, but is made non-major through federally enforceable permit conditions. This terminal is a synthetic minor source because the throughput limitation of 5,631,429 barrels (236,520,018 gallons) per year ensures that emissions from the facility are below major source thresholds.

A synthetic minor 80% source (SM-80 source) is a synthetic minor source that emits or has the potential to emit a criteria pollutant or HAP at or above 80% of the major source threshold for that pollutant. This facility is not an SM-80 source based on the facility-wide emissions with the annual throughput limit (see Project Emissions section).

**INSIGNIFICANT ACTIVITIES**

The following are considered insignificant activities in accordance with HAR §11-60.1-82(f)(1) or §11-60.1-82(f)(7).

Tank No.	Working Capacity (gal)	Tank Description	Liquid Content	HAR Insignificant Activity Criteria
3	238,686	Vertical fixed cone roof	ULSD <sup>1</sup>	§11-60.1-82(f)(7)
13	84,000	Vertical fixed roof	Out of Service	§11-60.1-82(f)(7)
14	446,922	Vertical fixed cone roof	ULSD	§11-60.1-82(f)(7)
16	17,556	Vertical fixed cone roof	Transmix	§11-60.1-82(f)(1)
21	1,389,780	Vertical fixed cone roof	LSD <sup>2</sup>	§11-60.1-82(f)(7)
22	7,518	Horizontal fixed roof	Additive	§11-60.1-82(f)(7)
101	177	Techron OGA <sup>3</sup> tank	Additive	§11-60.1-82(f)(7)
--	500	--	Transmix	§11-60.1-82(f)(1)
--	499	--	Propane	§11-60.1-82(f)(1)
--	400	Two (2) 400 gal	--	§11-60.1-82(f)(1)

Tank No.	Working Capacity (gal)	Tank Description	Liquid Content	HAR Insignificant Activity Criteria
		portable tote tanks		
--	7,000	Concrete sump	--	§11-60.1-82(f)(7)
--	--	AFL oil water separator	--	§11-60.1-82(f)(7)

- <sup>1</sup> Ultra low sulfur diesel
- <sup>2</sup> Low sulfur diesel
- <sup>3</sup> Oronite gasoline additives

**ALTERNATIVE OPERATING SCENARIOS**

None proposed.

**PROJECT EMISSIONS**

Bottom Loading Load Rack Emissions

Potential emissions from the bottom loading load rack with VCU control are estimated based on the following:

1. Maximum permitted gasoline throughput of 5,631,429 barrels/yr (236,520,018 gal/yr);
2. Loading of gasoline into tank trucks as worst-case scenario;
3. Fugitive VOC emission factor of 8 mg per liter of gasoline loaded for tank truck loading (U.S. EPA's "Protocol for Equipment Leak Emission Estimates", 11/95);
4. Control of VOCs with the VCU operating in accordance with the federal requirement not to exceed 35 mg of VOC per liter of gasoline loaded (40 CFR Part 60, Subpart XX);
5. Emission factors of primary pollutants from the VCU (manufacturer's guaranteed control limitations):
  - a. NO<sub>x</sub>: 4 mg/l of gasoline loaded
  - b. CO: 10 mg/l of gasoline loaded
6. Use of a mass balance calculation to determine SO<sub>2</sub> emissions from the VCU:

There is no SO<sub>2</sub> emission factor in AP-42 available for gasoline vapor combustion. Available literature indicates that gasoline contains as much as 1,000 ppm (0.1%) sulfur (Manufacturers of Emission Controls Association's "The Impact of Gasoline Fuel Sulfur on Catalytic Emission Control Systems", 09/98). It's assumed that 0.1% sulfur is present in VOC emissions from the VCU stack and is 100% in the form of SO<sub>2</sub>.

7. Vapor mass fractions for components of gasoline are multiplied by the total VOC emissions to determine HAP emissions.

Emissions are summarized in the table below.

Bottom Loading Load Rack Emissions (Gasoline)	
Pollutant	Emissions (TPY) <sup>1</sup> [236,520,018 gal/yr]
CO	9.88
NO <sub>x</sub>	3.95
SO <sub>2</sub>	0.069
VOC	42.46
HAPs	0.45

<sup>1</sup> See attached emission calculation spreadsheets for details.

Tank Farm Emissions

Emissions from permitted tanks (Tank Nos. 1, 2, 4, 5, and 12) are calculated using EPA's *Tanks 4.09d* software program (see Appendix E, *Port Allen Terminal Tank Emissions* of the permit renewal application). The software estimates VOC and HAP emissions from fixed- and floating-roof storage tanks according to the procedures from AP-42 Section 7.1 (11/06), *Organic Liquid Storage Tanks*. In performing the calculations, tank input data (i.e., tank dimensions, seal type, construction type, annual throughput, and meteorological conditions) and physical properties of stored products (i.e., density, molecular weight, and Reid vapor pressure) are used. Vapor mass fractions of compounds for stored products (gasoline and denatured ethanol) are multiplied by the total VOC emissions to determine total HAP emissions.

Emissions are summarized in the table below.

Tank Farm Emissions	
Pollutant	Emissions (TPY) <sup>1</sup>
VOC	18.57
HAPs	0.36

<sup>1</sup> See attached emission calculation spreadsheets for details.

Equipment Leak Emissions

Fugitive VOCs from piping components (i.e., valves, fittings, pump seals, etc.) are determined based on the emission factors from U.S. EPA's "*Protocol for Equipment Leak Emission Estimates*" (11/95). The numbers of piping components are updated since the previous permit application. Vapor mass fractions for compounds of gasoline are multiplied by the total VOC emissions to determine HAP emissions.

Emissions are summarized in the table below.

Equipment Leak Emissions	
Pollutant	Emissions (TPY) <sup>1</sup> [8,760 hr/yr]
VOC	0.69
HAPs	0.0073

<sup>1</sup> See attached emission calculation spreadsheets for details.

Facility-Wide Emissions

Total VOC and HAP emissions from Port Allen Marketing Terminal are as follows:

Facility-Wide Emissions (TPY) [236,520,018 gal/yr]				
Pollutant	Bottom Loading Load Rack	Tank Farm	Equipment Leaks	Total
CO	9.88	-	-	9.88
NO <sub>x</sub>	3.95	-	-	3.95
SO <sub>2</sub>	0.069	-	-	0.069
VOC	42.46	18.57	0.69	61.72
HAPs	0.45	0.36	0.0073	0.82

**AMBIENT AIR QUALITY ASSESSMENT**

An ambient air quality assessment (AAQA) is generally required for new sources or modified sources with emission increases. An AAQA is not conducted for this renewal because:

1. No changes or modifications are proposed that increase emissions from the VCU.
2. The changes in VOC emissions caused by the proposed modifications (addition of Tank 1 to and removal of Tank 16 from the list of permitted gasoline storage tanks) are fugitive in nature. The Department of Health air modeling guidance generally does not require an AAQA for fugitive emissions.

**SIGNIFICANT PERMIT CONDITIONS**

1. Incorporate provisions of 40 CFR Part 63 Subpart BBBBBB for the bottom loading load rack, gasoline storage tanks, and equipment in gasoline service.

Reason: The facility is an area source bulk gasoline terminal that is subject to 40 CFR Part 63 Subpart BBBBBB.

2. Incorporate provisions of 40 CFR Part 60 Subpart XX for the bottom loading load rack.

Reason: The bottom loading load rack is subject to 40 CFR Part 60 Subpart XX.

3. Incorporate provisions of 40 CFR Part 60 Subpart Kb for the gasoline storage tanks.

Reason: Tank nos. 1, 5, and 12 are subject to 40 CFR Part 60 Subpart Kb. Tank nos. 2 and 4 are required to operate in accordance with 40 CFR Part 60 Subpart Kb as reference by 40 CFR Part 63 Subpart BBBBBB.

**CONCLUSION**

Potential emissions from Port Allen Marketing Terminal are conservatively estimated for the worst-case scenario. Actual emissions from the facility should be lower. Based on the monitoring reports submitted, the bottom loading load rack did not exceed 5,631,429 barrels (236,520,018 gallons) of gasoline per rolling twelve-month (12-month) period in the past years.

## **PROPOSED**

According to the annual source performance test reports submitted, VOC emission rate of the VCU has been consistently lower than the permit limit of 35 mg/l of gasoline loaded.

Recommend issuance of the renewal for the covered source permit subject to the incorporation of the significant permit conditions, thirty (30) day public comment, and forty-five (45) day EPA review.

Jing Hu  
April 18, 2016