

**PROPOSED**

**INITIAL COVERED SOURCE PERMIT**

**PERMIT 0092-02-C**

**Application No. 0092-06**

**Facility:** Equilon Enterprises, LLC dba Shell Oil Products US  
Shell Honolulu Terminal  
789 N. Nimitz Highway, Honolulu, Oahu

**Responsible Official:** Ms. Holly P. Kranzmann  
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**Background:**

Equilon Enterprises does business as Shell Oil Products US (Shell) and operates the Honolulu Terminal. The terminal is an existing petroleum storage and transfer facility with above-ground storage tanks, a tank truck load rack, and a marine loading terminal. The facility distributes gasoline and petroleum distillates such as diesel and aviation fuel. The facility is currently operating under Noncovered Source Permit No. 0092-02-N.

**Storage Tanks**

The Honolulu Terminal has a total of 16 above-ground storage tanks. Three tanks are horizontal tanks and are exempt from permitting. Seven tanks are vertical fixed roof tanks that are either empty or store wastewater. These tanks are insignificant activities. The six remaining tanks have the capability to store gasoline/ethanol and are currently permitted under NSP No. 0092-02-N.

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Four of the six tanks that store gasoline/ethanol, tank nos. 1, 3, 13, 14, are vertical fixed roof tanks. The fixed roof tanks are connected to a John Zink vapor recovery unit (VRU) to control VOC emissions. The VRU operates automatically and draws vapors from the tanks when the pressure in the tanks reaches 1.8 inches of water. Vapors are sent to one of the two carbon beds. The beds are regenerated every 15 minutes and the product recovered during the regeneration is returned to the tanks. The two remaining tanks that store gasoline/ethanol, tank nos. 2 and 6, were recently converted from vertical fixed roof tanks to internal floating roof tanks.

Tank throughput is monitored using the sight gauge mounted on the side of the tanks. The sight gauge is read on a daily basis as well as prior to and after receiving product.

### Tank Truck Load Rack

The tank truck load rack has one lane and has three each, 4-inch loading arms. Two of the three load arms dispense gasoline/ethanol and the one remaining load arm only dispenses petroleum distillates. Two load arms can operate simultaneously with each load arm pumping product up to 600 gallons per minute. The current throughput limit is 75,000,000 gallons per year of gasoline/ethanol and 10,000,000 gallons per year of distillate. The throughput is monitored by non-resetting fuel flow meters. Emissions from tank truck loading operations are also controlled by the John Zink VRU.

### Marine Loading Terminal

The marine loading terminal is located at Pier 31 where fuel is loaded onto barges. Seven pipelines run from the facility to the marine terminal. However, only three lines are used for marine loading. A 6" line loads regular gasoline, an 8" line loads diesel fuel, and a 10" line loads premium gasoline. The other four lines have been disconnected from facility tanks, but may be put back into service. The maximum flow rate for the marine loading terminal is 2,000 gallons per minute.

The throughput at the terminal is currently limited to 16 million gallons per year of gasoline/ethanol and 9,156,000 gallons per year of distillate. The quantity of product loaded onto barges would be determined using storage tank gauges which would be read and recorded prior and subsequent to product loading. The marine terminal does not use any control devices.

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The terminal is currently not in use, but the facility may be used in the future if market demand arises. The marine terminal was last operated in the mid-1990s and has since remained inactive. All pipelines have been drained, flushed, blinded at the back manifold, and rendered inert with nitrogen. In order for the lines to be returned to service, repairs and hydro-testing would be necessary.

### **Proposed Modification:**

Shell is proposing to increase the throughput of the terminal and construct a second tank truck loading lane at the existing load rack. These modifications will make the facility a major source for VOCs and the tank truck load rack will be subject to 40 CFR 60 Subpart XX.

### Storage Tanks

The proposed modification will increase the tanks throughput. Shell is not proposing any other changes to the storage tanks.

### Tank Truck Load Rack

Shell is proposing to construct a second tank truck loading lane at the existing one-lane tank truck load rack. Two additional load arms will also be added to the rear section of the existing loading lane. In total, six loading arms will be added to the existing load rack. The additional load arms will dispense gasoline and ethanol into the tank trucks. After the proposed modification is complete, the reconstructed load rack will have nine load arms - eight for gasoline/ethanol and one for petroleum distillates. The flow rate at each load arm remains unchanged at 600 gallons per minute. With the additional loading lane and load arms, Shell is also proposing to increase the throughput limit of the load rack from 75 million gallons of gasoline per year to 256 million gallons of gasoline/ethanol per year. Shell is not proposing to increase the current distillate throughput limit of 10 million gallons per year. Emissions from the loading operation will continue to be controlled by the John Zink VRU.

### Marine Loading Terminal

Shell is proposing to increase the throughput limit at the marine terminal from 16 million gallons per year of gasoline/ethanol to 25 million gallons per year of gasoline/ethanol. The throughput limit for distillates will remain unchanged at 9,156,000 gallons per year.

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### Equipment:

- a. One two-lane bottom-loading gasoline/ethanol and petroleum distillate tank truck load rack with nine load arms.
- b. One marine loading terminal located at Pier 31, with:
  - i) One 6" gasoline pipeline;
  - ii) One 8" diesel pipeline; and
  - iii) One 10" gasoline pipeline.
- c. One twelve-inch (12") vapor line connecting the tank truck load rack to the tank farm.
- d. One 80,000 barrel Fixed Roof Petroleum Storage Tank No. 1;
- e. One 80,000 barrel Internal Floating Roof Petroleum Storage Tank No. 2;
- f. One 10,000 barrel Fixed Roof Petroleum Storage Tank No. 3;
- g. One 10,000 barrel Internal Floating Roof Petroleum Storage Tank No. 6;
- h. One 54,000 barrel Fixed Roof Petroleum Storage Tank No. 13;
- i. One 10,000 barrel Fixed Roof Petroleum Storage Tank No. 14;
- j. John Zink carbon adsorption/absorption vapor recovery system, model AAT-X-1650-7-13-8-2-X with:
  - i. two (2) carbon adsorber vessels;
  - ii. absorption column and separator;
  - iii. vacuum, gasoline return, gasoline supply, and seal fluid pumps;
  - iv. seal fluid exchanger; and
  - v. valves, pipes, and other miscellaneous items of the system for safe and effective operation of the vapor recovery system.

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### **Air Pollution Controls:**

Tank nos. 1, 3, 13, and 14 and the tank truck load rack are connected to a John Zink VRU. Tank nos. 2 and 6 have internal floating roofs.

Emissions from the tank truck load rack will be ultimately controlled by the John Zink VRU. During tank truck loading, the vapor collection system routes displaced vapors from the tank truck are routed back to the fixed roof storage tanks. When the pressure within the fixed roof storage tanks and vapor collection system exceeds 1.8 psi, a blower is activated and the vapors are sent to the VRU.

### **Applicable Requirements**

#### ***Hawaii Administrative Rules (HAR), Title 11, Chapter 60.1***

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

11-60.1-115 Basis of Annual fees for Covered Sources

Subchapter 8, Standards of performance for Stationary Sources

11-60.1-161 New Source Performance Standards

### ***BACT:***

A Best Available Control Technology (BACT) analysis is required for new or modified emission units if the net increase in pollutant emissions exceeds significant levels as defined in HAR §11-60.1-1. The net increase in emissions for the facility from the proposed modifications was estimated at 85 tons per year VOC, which is greater than the 40 ton per year threshold for VOC. As such, BACT is applicable.

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The facility currently uses a John Zink vapor recovery unit to control the emissions from the fixed storage tanks storing gasoline. The current vapor collection system collects the displaced vapors from the existing tank truck load rack and routes it to the ullage space of the fixed roof tanks. The proposed modification will add six load arms to the tank truck load rack. The displaced vapors from the tank trucks using the existing and new load arms will be collected by the existing vapor collection system and routed to the fixed roof tanks and ultimately the VRU. The John Zink VRU, with a guaranteed maximum emission rate of 35 mg/l of gasoline loaded, is BACT for this type of facility.

### ***CERR (Consolidated Emission Reporting Rule):***

40 CFR part 51, Subpart A – Emission Inventory Reporting Requirements, determines the annual emissions reporting frequency based on the actual emissions of each pollutant from any individual emission point within the facility that emits at or above the triggering levels. The facility will exceed the 100 tons per year trigger level for VOC and thus, CERR will apply.

### ***CDS (Compliance Data System)***

CDS is an inventory system for covered sources subject to annual inspections. CDS requirements do apply because the facility is a covered source.

### ***NSPS:***

The tank truck load rack is subject to 40 CFR Part 60, Subpart XX because the proposed changes to the load rack will increase short-term emissions. As such, the proposed changes are a modification by definition and will trigger NSPS requirements.

### **Non-Applicable Requirements:**

#### ***CAM:***

The purpose of Compliance Assurance Monitoring (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 Code of Federal Regulations, 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. The facility will be subject to CAM because: 1) the

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facility will be a major source; 2) the load rack will have an emission limit of 35 mg/l of gasoline loaded; 3) the load rack uses a vapor recovery unit to comply with the emission limit; 4) without the vapor recovery unit, the potential emissions from the load rack exceeds the major source level for VOCs; and 5) the load rack is not otherwise exempt from CAM.

Large pollutant-specific emissions units, whose potential to emit with controls, is equal to or greater than the major source threshold are subject to CAM during the initial application, a significant modification, or permit renewal. Per 40CFR §64.5, CAM is not immediately applicable to the other sources whose potential to emit with controls is less than the major source threshold. For these sources, CAM becomes applicable upon renewal of the permit. Since the emissions from the VRU for the tank truck load rack are less than 100 tons per year of VOCs, the facility is not subject to CAM until the renewal of the permit.

### ***NESHAP/MACT:***

40 CFR Part 63, Subpart R - National Emission Standards for Hazardous Air Pollutants for Gasoline Distribution Facilities - is not applicable to the facility because the facility is not a major source of HAPs.

40 CFR Part 63, Subpart Y - National Emission Standards for Marine Tank Vessel Loading Operations - is not applicable to the facility because the facility is an existing, non-major source of HAPs.

### ***NSPS:***

40 CFR Part 60, New Source Performance Standards (NSPS) Subparts K, Ka, and Kb - Standards of Performance for Storage Vessels for Petroleum Liquids - are not applicable to the facility because the construction dates are before the subparts were promulgated.

### ***PSD:***

Prevention of Significant Deterioration is not applicable because the emissions are below the trigger level for PSD sources.

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### ***Synthetic minor:***

A synthetic minor is a facility that without limiting conditions, physical or operational, emits above the major source triggering levels as defined by HAR 11-60.1-1 for either criteria pollutant(s) or hazardous air pollutant(s). This facility will be a major source when the modifications are complete. As such, this facility is not a synthetic minor.

### **Alternate Operating Scenarios:**

No alternate operating scenarios were proposed.

### **Insignificant activities:**

The following tanks are insignificant activities:

Tank no. 8 - empty;

Tank no. 10 empty;

Tank no. 11 - storing wastewater;

Tank no. 12 - empty;

Tank no. 15 - storing wastewater;

Tank no. 16 - storing wastewater;

Tank no. 18 - less than 40,000 gallons;

Two horizontal tanks storing fuel additive and slop; and

One horizontal tank used for diesel refueling.

### **Project Emissions:**

Emissions from the marine loading facility and the internal floating roof storage tanks were estimated using AP-42 section 5.2, revised 1/95 and section 7.1, revised 9/97. Emissions from the tank truck load rack were estimated using the VRU manufacturer's guaranteed emission rate of 35 mg of VOC per liter of loaded product. The emissions for the fixed roof storage tanks were estimated using AP-42 section 7.1, revised 9/97, and assumed a 95 percent overall efficiency of the VRU. Fugitive emissions were estimated using U.S. EPA's "*Protocol for Equipment Leak Emission Estimates*", dated February 1995, U.S. EPA's fugitive emission factor of 8 mg/l for loading tank trucks, and the capture efficiency of the vapor collection system.

The total emissions from the facility for the proposed modifications totaled 172 tons per year of VOC. Emission calculations are shown in Appendix 1.

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### **Air Quality Assessment:**

The facility is an area source for VOCs. As such, an air quality assessment is not required.

### **Conclusion and Recommendation:**

The applicant has been operating the facility in compliance with the current operating permit. The applicant's past history indicates that the applicant should be able to comply with the new requirements for the proposed modifications.

The issuance of a permit is recommended based on the information submitted by the applicant in the application and the follow-up documents.

ATTACHMENT 1  
EMISSION CALCULATIONS