

COVERED SOURCE PERMIT REVIEW - 0307-02-C

Renewal Application No. 0307-05

Applicant: Aloha Petroleum Ltd.
Hilo Sales Terminal, Hilo, Hawaii

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Background:

Aloha Petroleum Ltd. owns and operates a bulk petroleum storage and distribution facility located at 999 Kalaniana'ole Avenue, Hilo, Hawaii. Gasoline and distillate products are received via pipeline from marine barges. Portable tanks are used to transfer gasoline additives into the additive tank of the tank farm. The facility currently has two operating permits, CSP no. 0307-02-C and NSP No. 0322-01-N. CSP No. 0307-02-C covers two each -10,000 barrel internal floating roof tanks. The two internal floating roof tanks are subject to NSPS Subpart Kb. NSP No. 0322-01-N provides coverage for an existing tank truck load rack and seven petroleum ASTs.

As a facility, the tank farm consists of nine above ground storage tanks. Of the nine storage tanks, three are external floating roofs with geodesic domes, two internal floating roof tanks, two fixed roof tanks, and two small additive tanks. Geodesic domes were installed on the three external floating roof tanks, tank nos. 5869, 5870, and 5871, in June 1998. The modification did not trigger NSPS Subpart Kb because the cost to install the domes was less than half of the replacement cost. The two internal floating roof tanks, tank nos. 901 and 902, were built in August 1996 and are subject to Subpart Kb.

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The two fixed roof tanks, tank nos. 2602 and 2603, currently store diesel fuel and are exempt under the noncovered source permit.

The tank truck load rack loads gasoline, ethanol, and diesel fuel into petroleum tank trucks. The one-lane tank truck load rack was built in 1960 and had three loading arms. The load rack was converted from a top loading rack to a bottom loading rack in April 1998. This modification did not trigger NSPS Subpart XX because the cost to convert the load rack to bottom loading was less than half of the replacement cost.

In 2006, a new state law required distributors to blend ethanol into gasoline. To accomplish this, Aloha added a four-inch loading arm to the load rack in April 2006. The added arm pumps ethanol into the tank trucks at the rate of 200 gallons per minute. This modification also did not trigger NSPS Subpart XX because Aloha limited the load arm operations at the load rack to: 1) two gasoline arms and one diesel; or 2) one gasoline, one ethanol, and one diesel. This operational limitation prevents short-term emissions increases at the load rack and thus, does not trigger NSPS Subpart XX. The load rack also has throughput limits to keep the VOC emissions below the major source threshold.

Proposed Modification:

For this modification, Aloha is proposing to increase the facility throughput of gasoline and ethanol from the current limit of 668,578 barrels per rolling 12-month period to 857,683 barrels per rolling 12-month period. The proposed increase will make the facility a major source for VOCs. In lieu of obtaining an initial covered source permit for the load rack, Aloha is requesting to modify its' current covered source permit, CSP No. 0307-02-C, to include the load rack and the non-NSPS storage tanks that are covered under its' current noncovered source permit, NSP No. 0322-01-N.

Aloha is not proposing any other changes to their emission sources and the means and methods of operation will remain unchanged.

Equipment:

1. 10,000 barrel internal floating roof tank, no. 901;
2. 10,000 barrel internal floating roof tank, no. 902;
3. 5,143 barrel external floating roof petroleum storage tank with geodesic dome, no. 05869;
4. 5,143 barrel external floating roof petroleum storage tank with geodesic dome, no. 05870;

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5. 5,143 barrel external floating roof petroleum storage tank with geodesic dome, no. 05871; and
6. 630 gpm bottom loading tank truck loading rack with four (4) load arms.

Air Pollution Controls:

Air pollution controls for the tanks include internal and external floating roofs and geodesic domes. The load rack utilizes bottom loading which has lower emissions than top loading.

Operational Limits:

The tank truck load rack will have a throughput limit for gasoline and ethanol of 857,683 barrels combined per rolling 12-month period.

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

NSPS (Standards of Performance for New Stationary Sources):

40 CFR Part 60 - New Source Performance Standard (NSPS)

Subpart A - General Provisions

Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced after July 23, 1984.

Non-Applicable Requirements:

BACT (Best Available Control Technology):

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 was determined by comparing the facility's past two-year average emissions to the proposed emissions. As shown in the table below, the VOC emission increase from the proposed modification is less than 40 tons per year and as such, does not trigger a BACT review.

Pollutant	Average Emissions 2005/2006 (TPY)	Proposed Emissions (TPY)	Net Emissions Increase (TPY)	BACT Trigger (TPY)
VOC	97	129	32	40

CAM (Compliance Assurance Monitoring):

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 is not subject to an emission limit or standard and thus, CAM does not apply.

MACT (Maximum Achievable Control Technology):

MACT is not applicable because the facility is not a major source of HAPs.

NESHAP (National Emission Standards for Hazardous Air Pollutants):

NESHAP is not applicable because the facility is not a major source of HAPs.

NSR (New Source Review):

NSR is not applicable since the facility is located in an attainment area and PSD applicability has been reviewed.

PSD (Prevention of Significant Deterioration):

PSD is not applicable to this proposed modification because the proposed change is not significant as defined in 40 CFR 51.166 and the facility is not a major stationary source.

Synthetic minor:

A synthetic minor is a facility that without limiting conditions, physical or operational, emits above the major triggering levels as defined by HAR 11-60.1-1 for either criteria pollutant(s) or hazardous air pollutant(s). The facility is a major source.

Alternate Operating Scenarios:

The storage tanks may store a variety of petroleum products. The analysis assumed that gasoline would be stored. Since gasoline is the most volatile, storing any other petroleum product will have lower emissions of VOCs.

Exempt/Insignificant Activities:

There are no new insignificant activities being proposed. Insignificant activities at the facility currently include the following:

1. one each 190 barrel horizontal storage tank;
2. one 280 gallon underground spill containment tank;
3. two 4,000 gallon underground storage tanks;
4. two 139 barrel additive tanks, tank nos. 2267 and 8251; and
5. two 2,448 barrel fixed roof diesel storage tank, tank nos. 2602 and 2603.

Project Emissions:

Emission factors for the tanks were taken from AP-42, section 7.1 - Organic Liquid Storage Tanks, revised 11/07. The proposed increase in throughput at the facility from 668,578 barrels per year to 857,683 barrels per year will increase the number of tank turnovers. However, the emissions associated

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with turnovers, the withdrawal losses, are small compared to the rim seal and deck fitting losses. The emission increase for the proposed increase in throughput is 0.2 tons per year of VOCs.

Emissions from the tank truck loading operations were calculated using the emission factors from AP-42, section 5.2 revised 1/95. Emissions from the load rack for the proposed throughput is 118.5 tons per year of VOCs. This represents a 32 ton per year increase over the actual past two-year average.

Calculations of the estimated emissions are in the appendix.

Conclusion and Recommendation:

The proposed modification to increase the throughput at Aloha's Hilo Sales Terminal will increase the VOC emissions and the facility will become a major source. The net emissions increase of 32 tons per year VOC is not significant and no new regulations are triggered by this proposed modification. Aloha has been operating in compliance with both of its current operating permits and there is no reason to believe that Aloha will not continue to do so.

Recommendation is to combine the two operating permit into one by incorporating the conditions of NSP No. 0322-01-N into CSP no. 0307-02-C, amend the throughput limit, and close NSP No. 0322-01-N.

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Appendix

Emission Calculations