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<i>ENGINEERING AND COMPLIANCE DIVISION</i> <i>Refinery & Waste Management Permitting</i>	A/Ns 543445-46	Date 1/19/13
Equilon Enterprises LLC, dba Shell Oil Products US Colton Terminal	Processed by TL03	Checked by

EVALUATION FOR PERMIT
TO CONSTRUCT/OPERATE (PC-PO)
FOR A PETROLEUM PRODUCT
STORAGE TANK

COMPANY NAME AND LOCATION ADDRESS

Equilon Enterprises LLC dba Shell Oil Products US
2307 Riverside Avenue
Bloomington, CA 92316

Facility ID# 117225

APPLICATIONS/EQUIPMENT

A/N 543445

PETROLEUM PRODUCT STORAGE TANK NO. 6; EXTERNAL FLOATING ROOF
(See sample permit for detailed equipment description)

A/N 543445

TITLE V APPLICATION (MINOR PERMIT REVISION)

BACKGROUND

This is a Title V (non-RECLAIM) facility which is a petroleum product storage and distribution bulk terminal that operates seven storage tanks (six aboveground and one underground) and two tank truck loading/unloading racks. The vapors generated from the two tank truck loading rack operations are collected and routed to an offsite thermal oxidizer (A/N 457805;F84349) owned and operated by Sante Fe Pacific Pipeline (SFPP, ID 800129).

The Equilon facility stores gasoline, denatured ethanol, and diesel fuels. The gasoline and diesel fuels are primarily received via pipeline and the denatured ethanol (oxygenate additive for gasoline) is primarily received by tank truck. The products are transferred from storage into tanker trucks at the two tank truck loading racks for further distribution to the market place.

This application was filed as Class I and to add a geodesic dome to an existing external floating roof storage tank (Tank No. 6) currently permitted under A/N 344687 (P/O F16322). The facility is not subject to Rule 1178, thus, the doming of the tank is a voluntary modification by



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Equilon and is not a requirement. The reasons Equilon provided for the voluntary doming of this external floating roof tank is for “reducing emissions and to prevent the accumulation of rain water on the external floating roof”. Instances of water accumulating atop external floating roof tanks and subsequently damaging the tank roof has been well documented at various bulk terminal facilities operating in the AQMD.

This project will be evaluated for compliance with the typical rules and regulations that apply to petroleum bulk terminals, most notably Rule 463, Regulation XIII, and Rule 1401.

NOV/NC HISTORY

There have been no Notices of Violation (NOVs) or Notices to Comply (NCs) issued to this facility in the past two years.

EMISSIONS CALCULATIONS

Equilon included a full engineering/environmental evaluation as a part of this permit application submittal. However, there were errors in the general approach to calculations with respect to New Source Review (NSR) and subsequently errors in some of the data entry in the EPA Tanks 4.09d program used for emission calculations. These items are discussed below.

In 2010, Equilon submitted applications for a similar project to dome two other external floating roof tanks (Tank Nos. 13 & 14) at this facility. In examining the permitting history of these two tanks during the processing of these applications it was determined that the subject tanks were never subject to NSR. Thus, pursuant to Rule 1306(d)(2)(B), and the fact that 1306(f) could not be used because the doming was not done “solely to reduce air contaminants”, the previous two years of emissions data was used to establish a VOC emissions baseline. Equilon used the same approach in evaluating Tank No. 6. However, in examining the permitting history of Tank No. 6 it was discovered that the tank had been subject to NSR in the past. This past NSR history (as opposed to a two-year emissions record) will be used to establish the VOC emissions baseline for the purposes of determining emission increases/decreases. The changes in NSR approach affects data entered into the EPA Tanks Program, namely commodity type, throughput, and vapor pressure.



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After informing Equilon of this discovery, a new set of tank runs and health risk assessment were submitted. The pre-modification and post-modification discussion/calculations are outlined below.

Pre-Modification

Equilon obtained its current Permit to Operate (A/N 344687; P/O F16322) for Tank No. 6 in 1998 through a change of owner/operator permitting action. Tank No. 6 was originally permitted under A/N 221521 (P/O D21216) in 1990 under Shell Oil Products (ID 30182). The tank was allowed to store diesel fuels and had an associated NSR emission calculation totaling 2.2 pounds of VOC per day. The tank was subsequently modified in 1995 under A/N 305859 (P/O D93454) to allow the tank to store gasoline. A 730,000 bbl/year throughput was imposed on the permit along with an 11 psia vapor pressure. The file shows a VOC emission calculation of 17.4 pounds per day constituting a 15.2 pound emission increase over the original 2.2 lbs from diesel fuel (a copy of the permit, evaluation, and NSR data entry sheet are included in this file). The permit was incorrectly written in that for the full 17.4 pounds of VOC emissions to be represented on the permit, a separate condition allowing the original throughput of diesel (~25 turnovers per year) should have remained on the permit. As currently written, the 730,000 bbl/yr throughput and 11 psia vapor pressure (i.e. gasoline) constitutes only the 15.2 pound VOC emission increase.

Storage Tank Emissions (Standing Storage & Working Losses)

The historical NSR emissions for Tank 6 were calculated using an older tank calculation methodology that relied on Form B-6B (copies of these calculations are included in this file). These historical emissions will be recalculated using the latest version of the EPA Tanks Program (Version 4.09d). In examining the original calculations, the 11 psi used in the calculation was the Reid vapor pressure (RVP). This vapor pressure will be used in conjunction with the 730,000 bbl per year throughput that was imposed on the permit. In addition, the diesel emissions omitted in the last tank modification will be recalculated and added back in using the default vapor pressure for Distillate Fuel Oil No. 2 in the Tanks Program and with the original allowable throughput (~ 25 turnovers per year). Copies of these updated tank runs can be found in this file and are summarized below.



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Table 1
Maximum Pre-Modification VOC Emissions (Baseline; R1 = R2)
External Floating Roof Tank No. 6

Commodity	lbs/yr	lbs/mo	lbs/d	lbs/hr
RVP 11 Gasoline @ 730k bbls/yr	3133.28	281.67 (March)	9.39	.39
Diesel Fuel @ 336k bbls/yr (25 turns)	76.09	6.37 (March)	0.21	0.09
Total	3209.37	288.04	9.6	.40

The NSR emissions data for A/N 344687 will be updated to reflect these numbers.

Post-Modification

For the post modification, the commodities will include all petroleum products (and some non-petroleum-based products) with an RVP not to exceed 13.5. RVP 13.5 is the upper limit vapor pressure allowed by the California Air Resources Board (CARB) for gasoline and represents a worst case emission scenario for emissions of VOC. Equilon has requested to increase the throughput of Tank No. 6 to 5 million barrels per year of materials, well within the “maximum rating” for Tank No. 6 when taking into account both the loading rack and pipeline activities it serves. Finally, Tank No. 6 will be equipped with a geodesic dome and this critical parameter will be included in the tank run. The tank fittings and tank seals remain unchanged as a result of this modification. Copies of the post modification tank run can be found in this file and is summarized below.



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Table 2
Maximum Post-Modification VOC Emissions (Baseline; R1 = R2)
Domed External Floating Roof Tank No. 6

Commodity	lbs/yr	lbs/mo	lbs/d	lbs/hr
RVP 13.5 Gasoline @ 5MM bbls/yr	1709.65	152.47 (August)	5.08	.21*

*For AEIS purposes, assume the emission rates are 50% of the above value.

Fugitive Emissions

No addition or removal of fugitive components (valves, flanges, pumps, connectors, etc.) are associated with this modification and therefore there are no changes in fugitive VOC emissions.

ROG Emission Summary

Comparison of the post modification emissions in Table 2 to the pre-modification emissions in Table 1 shows that the proposed modification results in a net emission decrease (a near 50% reduction) in ROG.

Toxic Emissions

In general, when a ROG emission reduction occurs for a given permit, it is assumed that there is a corresponding reduction in the toxic constituents of the ROG. In many cases this may be a valid assumption, however, in other cases it may not be. In this case, the assumption is not valid and there are increases in some of the toxic constituents. There may be several reasons for this. First, from a chemistry perspective, the pre-modification and post-modification emissions calculations are both based on gasoline, however, the pre-mod gasoline is RVP 11 and the post-mod is 13.5. The difference in the vapor pressures of these formulated gasolines affect the partial vapor pressure of each toxic constituent as well as the overall vapor molecular weight. Second, from an operational perspective, emissions from storage tanks come from a varied array



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of tank operational parameters. In this case, the increased throughput results in added roof movement, perhaps leading to the added “wetting” factor of the tank wall, a component that contributes to emission increases (though in this case it is diminished by the addition of the geodesic dome). The net effect of these chemical and operational differences cannot be deduced nor can a simple conclusion be made as the factors affecting the results are too complex. Only when inputting the full speciated toxic data into the Tanks Program under the correct chemical/operational scenarios and viewing the results of the program can the outcome be known. In this case, there indeed were decreases in some of the toxic constituents, however, other toxic constituents had increases (see Tank Runs included in this file).

A Tier 2 health risk assessment (HRA) was performed for the toxic constituents that had emission increases as a result of this modification. All health risks were below allowable regulatory thresholds. A copy of the Tier 2 HRA is included in this file.

RULES EVALUATION

Rule 212

There is no school within 1000 feet of the facility, there is a decrease in overall ROG emissions, and emission increases for toxic constituents result in MICR increase that are less than one in one million; public notice is not required.

Rule 401

Visible emissions are not expected under proper operation of this equipment.

Rule 402

No nuisance complaints are expected with proper operation of the equipment.

Rule 463

The tank is equipped with a primary and secondary seals meeting the requirements of this rule; routine inspection and maintenance and compliance with all other requirements of this rule is expected.

Rule 466/466.1

Compliance with the requirements of these rules is expected.



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Rule 1149

Facility expected to comply with degassing requirements of this rule as applicable.

Rule 1173

Rule 1173 is not applicable to this bulk terminal since it distributes products through tank truck loading racks.

Rule 1178

This facility has not reported AER emissions of VOC greater than 20 tons per year, therefore this rule is not applicable.

Reg. XIII

BACT

The modification to this storage tank results in a decrease in maximum daily standing storage and working loss emissions of VOC and there is no change in fugitive components and associated VOC emissions; BACT/LAER is not applicable to either emission source (though the geodesic dome and use of Category A seals are indeed BACT/LAER for external floating roof tanks).

Offsets

This modification results in a decrease in maximum monthly VOC emissions; offsets are not required.

Modeling

No modeling for VOCs is required.

General

The facility is expected to comply with all applicable rules and regulations of the District and thus meets the requirements of 1303(b)(4). This is not a Major Modification (1 pound per day emission increase) at Major Polluting Facility and is not subject to the requirements of 1303(b)(5).



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Rule 1401

There are small increases in some of the toxic constituents of gasoline. Tier 2 HRA indicates that the increase in MICR is less than one in one million and increases in all Hazard Indices are less than 1.0. Compliance is demonstrated.

Regulation XX

This facility is not a part of the AQMD's RECLAIM program.

Regulation XXX

This facility is a Title V facility with the initial Title V permit issued on May 18, 2009 and having an expiration date of May 17, 2014; this project results in an emission decrease of ROG's and therefore will be proposed to EPA for 45-day review as a minor permit revision (no public notice required).

CEQA

The CEQA Applicability Form (400-CEQA) indicates that the project does not have any impacts which trigger the preparation of a CEQA document.

40CFR6 60 Subpart K_b

This modification results in an emission decrease, therefore this NSPS does not apply.

40CFR 63 Subpart R & Subpart EEEE

This facility is not a major source of HAPs and is not subject to these NESHAPs.

40CFR 63 Subpart BBBB (Gasoline Distribution GACT)

This facility is a minor source of HAPS and is required to comply with this NESHAP as currently required by a facility-wide permit condition; continued compliance is expected.



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DISCUSSION

The applicant's tank summary form (400-E-18) indicated that there were 15 roof legs that were of three different types yet the tank runs indicated that there were only 6 roof legs of a single type (adjustable, double-deck roofs). It was verified with the applicant that the tank run is correct and the 9 additional roof legs on the tank summary form are incorrect. In addition to the geodesic dome being added to the equipment description, the conditions will be updated to include a broader description of commodities that can be stored and the new throughput limit will be on a monthly basis (as opposed to its current annual basis) in order to be consistent with current NSR practices. Though the tank is equipped with an ATLG, conventional ATLG conditions will not be imposed since there are no emission increases that require offsets. Lastly, more current recordkeeping language will be incorporated.

RECOMMENDATIONS

This storage tanks meet all applicable rules and requirements of the District. A Permit to Construct/Operate is recommended to be incorporated into Section D of the Title V permit after 45-day EPA review as a minor permit revision pursuant to Regulation XXX (see Sample Permit for proposed modified equipment description and associated conditions).

After EPA's 45-day review, the following administrative changes (in **bold** type below) will also be incorporated into Tank No. 6's equipment description for clarification purposes:

the tank height will be specified as the **nominal** height;
the tank capacity will be specified as the **working** capacity;
the floating roof will be specified as the **double deck type**; and
the secondary seal will be specified as **rim-mounted**.