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| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT ENGINEERING AND COMPLIANCE DIVISION PERMIT APPLICATION EVALUATION AND CALCULATIONS | PAGES 7 | PAGE 1 |
| | APPL NO 531070-1 | DATE 11-14-13 |
| | PROCESSED BY LLD | CHECKED BY CDT |

OWNER/OPERATOR:

COID: 800279

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APPLICATIONS IN THIS BATCH

A/N:531071 TV REVISION

A/N 531070: RACK, UNLOADING, ETHANOL

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INTRODUCTION:

These applications were received as Class I 01/12/12 as follows:

| A/N | Previous A/N : P/O | Equipment | Reason for application |
|--------|--|--|---|
| 531070 | 366667 : F73531 (Unload only) Underground pump sleeve Crispin valve to atmosphere | Rack Ethanol Unloading from tanker trucks | Add vapor balance (Modification) |
| 531071 | | TV Facility Permit | TV Revision |

There have been no complaints, NCs or NOVs during the last two years.

There are no schools within 1000 feet of this facility.

HISTORY:

SFPP Orange operates a bulk loading/unloading station. The company receives diesel and gasoline from in-bound pipelines. Ethanol is received via tanker truck via this unloading rack. Ethanol is then pumped into storage tanks. Because the SFPP terminal functions as a distribution center for petroleum products, it is also responsible for blending of petroleum products to specifications before delivery to customers. To provide this formulation service, SFPP uses inline blending of the petroleum products before the product is loaded into tanker trucks.

The facility also has a thermal oxidizer for vapor control, but is not connected to this unloading rack.

A P/C to modify this equipment (by the removal of the submersible pumps and the addition of a skid-based unloading system with vapor control/balance) along with an increase in throughput, was issued 2/23/10. After review of the project, SFPP Orange decided to retain the existing, submersible pump system and just add vapor control/vapor balance from the unloading system to the tanker truck. Construction of the skid system was never initiated, and P/C A/N 501811 will be cancelled.

PROCESS DESCRIPTION:

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This application was submitted 1/12/12 to modify an existing permit (A/N 366667:P/O F73531) to add vapor return line from unloading system to tanker trucks and increase ethanol unloading thrupt from 3,467,520 gal/mo (83,560 bbl/mo) to 6,624,990 gal/mo (157,738 bbl/mo). Note that there is no "thruput limit" on the current rack permit. However, since there is only Tank OR-7 available for ethanol storage, we can assume the same throughput (3,467,520 gal/mo) as a baseline.

The existing system consists of gravity draining of ethanol from tanker trucks into the unloading system. The unloading system consists of two pump sleeve tubes, one fill tube and a liquid height measuring tube. Each of these tubes is eight inches in diameter with a height of nine feet. The total volume of these tubes is 94 gallons. Each pump sleeve consists of a submersible pump.

Currently, emissions are vented to atmosphere through a Crispin valve during tanker truck unloading.

Emissions from the modification come from fugitive components and from vapors emitted during the initial fill events.

CALCULATIONS:

PREMOD Emissions: From A/N 366667, PREMOD fugitives were calculated.

Fugitive Count from A/N 366667, using the Correlation Equation (see Excel Spreadsheet)

$$\begin{aligned}
 \text{PreR1/R2(ROG}_{\text{tot}}) &= \text{fugitives} \\
 &= 0.63 \text{ lb/day} \\
 &= 0.026 \text{ lb/hr} \\
 &= 229.95 \text{ lb/yr} \\
 &= 0.64 \text{ lb/day (30-day)}
 \end{aligned}$$

New fugitives increase of 0.17 lb/day or a new total of 0.8 lb/day (see spreadsheet – fugitive count from submittal pg 4)

$$\begin{aligned}
 \text{PostR2(ROG}_{\text{tot}}) &= \text{fugitives} \\
 &= 0.8 \text{ lb/day} \\
 &= 0.033 \text{ lb/hr} \\
 &= 292 \text{ lb/yr} \\
 &= 0.81 \text{ lb/day (30-day)}
 \end{aligned}$$

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Change in emissions: PostMod - PreMod
0.81 lb/day - 0.64 lb/day
= +0.17 lb/day

Emissions Summary:

| | PreMod R2 (ROG) | | PostMod R2 (ROG) | |
|------------|-----------------|--------|------------------|--------|
| | Lb/hr | Lb/day | Lb/hr | Lb/day |
| Fugitives | 0.026 | 0.63 | 0.033 | 0.8 |
| 30-day avg | | 0.64 | | 0.81 |

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Health Risk Assessment:

Assume gasoline TAC emissions to be conservative. Annual emission increase is 62 lb/yr so assume 75 lb/yr:

TAC Emissions (Assume 75 lb/yr)

| TAC | Wt.% in Vapor | Emissions, lbs/yr | Emissions, lb/hr |
|-------------------|---------------|-------------------|------------------|
| Benzene | 2.80 | 2.1 | 0.00024 |
| Ethyl benzene | 0.10 | 0.075 | 0.00001 |
| n-Hexane | 4.13 | 3.1 | 0.00035 |
| Toluene | 1.46 | 1.1 | 0.00013 |
| Xylenes | 0.51 | 0.38 | 0.00004 |
| Naphthalene | 0.0014 | 0.00105 | 1.2E-7 |
| Methanol | 1.60 | 1.2 | 0.00014 |
| Hydrogen fluoride | 1.00 | 0.75 | 0.00009 |
| Hydrogen sulfide | 1.00 | 0.75 | 0.00009 |
| Styrene | 0.16 | 0.12 | 0.00001 |
| Butadiene | 0.11 | 0.0825 | 0.000009 |
| Cresol | 0.0013 | 0.000975 | 1.11E-7 |
| Phenol | 0.0015 | 0.00113 | 1.28E-7 |

In accordance with the procedures prescribed in the District's Risk Assessment Procedures for Rules 1401 and 212, a Tier 2 analysis was performed (see Excel Spreadsheet Tier 2 Risk Assessment).

Assume: Volume Source
 Residential = 500 m
 Commercial = 60 m
 Dimensions: H = 6 ft.
 Area = 200 ft² (estimated "footprint" of rack)

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The results indicate that the MICR for the residential receptor is 4.08E-09 and for the offsite worker is 3.43E-08. Thus, the MICR is less one in one million and each chronic and acute index is also well below the threshold limit of 1.0.

EVALUATION:

Rules:

- 401: No visible emissions are expected.
- 402: No nuisance is expected with proper operational procedures and mitigation measures.
- 462: This rule is not applicable since the rule applies to "loading" and this equipment is UNLOADING ethanol.

Reg 13: BACT/Offsets: There is an increase of ROG of 0.17 lb/day due to the additional components for the vapor balance. There is less than one pound per day of ROG from fugitives from the additional vapor balance components. Thus BACT/LAER for fugitives is not triggered. Offsets are not required.

Modeling: Not required for ROG.

1401: Risk is less than one in a million. HIA and HIC are less than one.

Title V: This permit will be issued as a revision (De Minimus) to the existing Title V Permit (under A/N 531071) after a 45-day EPA review period.

This project will meet all District Rules and Regulations. It is recommended that a Permit to Construct/Permit to Operate be granted subject to the attached conditions.