

**San Joaquin Valley
Unified Air Pollution Control District
Permit Services Division**

Organic Liquid Storage Tanks – Cleaning Requirements

Approved By: <u> <Signed> </u> Date: <u> 2/20/08 </u> David Warner Director of Permit Services
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Purpose: To provide guidelines for District staff, industry representatives, and other interested parties regarding District requirements when cleaning of tanks used to store organic liquids is necessary.

This policy applies to all tanks that may require periodic cleaning, regardless of Rule 4623 applicability. Rule 4623, Section 5.7 definitively prescribes the requirements that should be met when performing tank cleaning under the Voluntary Tank Interior Cleaning Program. However, it is unclear what requirements, if any, tank units *not* subject to the tank rule would need to comply with during periods of tank cleaning. This policy clarifies tank cleaning requirements for all tanks, regardless of Rule 4623 applicability.

It should be noted that Section 5.7 of Rule 4623 also specifies the requirements for participation in the Voluntary Tank Preventive Inspection and Maintenance Program (I&M Program). For facilities that are subject to the requirements of Rule 4623, requesting inclusion in the Voluntary Tank Interior Cleaning Program also requires enrollment into the I&M Program, and compliance with the requirements outlined in that section. For those facilities that are not subject to the rule, enrollment into the I&M program is not mandatory, even if they wish the tank cleaning conditions outlined in this document included in their operating permits.

In order to avoid confusion and possible violation of District rules and regulations, all users of this policy are encouraged to contact the District for clarification of any questionable issues.

I. Background:

Tank cleaning is a necessary operation to remove sludge and other unwanted material from the interior of storage tanks. In order to clean tank interiors, it is required that the tank be drained of all liquids, and any VOC-laden vapors that remain be controlled such that their emission into the atmosphere is minimized.

Tank cleaning and refilling procedures are also sources of VOC emissions, therefore these processes must be done such that any potential for emissions is minimized.

II. Voluntary Tank Interior Cleaning Program

Regardless of Rule 4623 applicability, owners/operators may choose to participate in the Voluntary Tank Interior Cleaning Program, as outlined in Section 5.7 of District Rule 4623 (5/19/05). The tank cleaning program sets forth requirements that must be complied with before, during, and after tank cleaning.

To participate in the Voluntary Tank Interior Cleaning Program, owners/operators need to send a letter to the District requesting inclusion into the tank cleaning program. The letter should include a list of the tanks to be included in the cleaning program, identified by tank ID number and location, and/or PTO number. The District will confirm that it has received the voluntary tank cleaning program participation letter in writing within 30 days of receipt. Owners/operators should then comply with the cleaning requirements of Section 5.7, again regardless of rule applicability.

Additionally, owners/operators should keep a copy of the letter sent to the District onsite at all times, and maintain the records of annual tank cleaning activities to document their participation in the program. The letter and cleaning records shall be made available for District inspection upon request.

III. Optionally Modifying Permit to Operate to Add Tank Cleaning Conditions

Although they may already be participating in the Voluntary Tank Interior Cleaning Program, owners/operators may wish to add tank cleaning conditions to their Permits to Operate. Although the addition of tank cleaning conditions is not required by the rule or the Voluntary Tank Interior Cleaning Program, the District has honored these requests.

Without regard for Rule 4623 applicability, facilities that have received their Title V operating permits and wish the cleaning conditions be included in the Permit to Operate should submit an application for Minor Modification. No Authority to Construct application is required in these cases. This will allow US EPA to review the additions and comment before the revised permit is issued.

Conversely, and again without regard for Rule 4623 applicability, facilities that have not received their Title V operating permits and wish the cleaning conditions be included in the Permit to Operate should submit an Authority to Construct application in order for the District to re-open the current Permit to Operate and incorporate the tank cleaning conditions. Note that the addition of the tank cleaning conditions outlined in this policy are not considered modifications, for they do not meet the definition of one as defined in Section 3.25 of Rule 2201

(amended 9/21/06). Rule 2201 does not apply, and the rule referenced after each condition should be Rule 4623 for tanks subject to this rule, and Rule 2080, Conditional Approval, for tanks not subject to the tank rule.

IV. Tank Cleaning Conditions

Only if requested and applied for by the facility, the following conditions are to be placed on the tank's permit to reflect the requirements of the voluntary tank cleaning program:

A. Notification

All tanks shall have the following condition added:

- Permittee shall notify the APCO in writing at least three (3) days prior to performing tank degassing and interior tank cleaning activities. Written notification shall include the following: 1) the Permit to Operate number and physical location of the tank being degassed, 2) the date and time that tank degassing and cleaning activities will begin, 3) the degassing method, as allowed in this permit, to be used, 4) the method to be used to clean the tank, including any solvents to be used, and 5) the method to be used to dispose of any removed sludge, including methods that will be used to control emissions from the receiving vessel and emissions during transport. [District Rule 4623 or 2080]

B. Degassing Requirements

For fixed-roof tanks operating only a pressure-vacuum relief valve:

- This tank shall not be required to de-gas before commencing cleaning activities. All other applicable requirements shall be complied with before, during, and after tank cleaning activities. [District Rule 4623 or 2080]

For fixed-roof tanks with vapor recovery system (VRS), the applicant should choose one of the following degassing options (1A – 1D) dependant upon specific equipment configuration. Alternatively, the applicant may choose to have all options 1A through 1C below combined into one condition, which is shown as 1E below:

- 1A. This tank shall be degassed before commencing interior cleaning by exhausting VOCs contained in the tank vapor space to an APCO-approved vapor recovery system until the organic vapor concentration is 5,000 ppmv or less, or is 10 percent or less of the lower explosion limit (LEL), whichever is less. [District Rule 4623 or 2080], or
- 1B. This tank shall be degassed before commencing interior cleaning by displacing VOCs contained in the tank vapor space to an APCO-

approved vapor recovery system by filling the tank with a suitable liquid until 90 percent or more of the maximum operating level of the tank is filled. Suitable liquids are organic liquids having a TVP of less than 0.5 psia, water, clean produced water, or produced water derived from crude oil having a TVP less than 0.5 psia. [District Rule 4623 or 2080], or

- 1C. This tank shall be degassed before commencing interior cleaning by displacing VOCs contained in the tank vapor space to an APCO-approved vapor recovery system by filling the tank with a suitable gas. Degassing shall continue until the operator has achieved a vapor displacement equivalent to at least 2.3 times the tank capacity. Suitable gases are air, nitrogen, carbon dioxide, or natural gas containing less than 10 percent VOC by weight. [District Rule 4623 or 2080], or
 - 1D. For free-water knockout tanks only This tank shall be degassed by restricting the outflow of water and floating off the oilpad, such that at least 90 percent of the tank volume is displaced. [District Rule 4623 or 2080]
 - 1E. Combination of 1A through 1C if requested by the applicant This tank shall be degassed before commencing interior cleaning by following one of the following options: 1) exhausting VOCs contained in the tank vapor space to an APCO-approved vapor recovery system until the organic vapor concentration is 5,000 ppmv or less, or is 10 percent or less of the lower explosion limit (LEL), whichever is less, or 2) by displacing VOCs contained in the tank vapor space to an APCO-approved vapor recovery system by filling the tank with a suitable liquid until 90 percent or more of the maximum operating level of the tank is filled. Suitable liquids are organic liquids having a TVP of less than 0.5 psia, water, clean produced water, or produced water derived from crude oil having a TVP less than 0.5 psia, or 3) by displacing VOCs contained in the tank vapor space to an APCO-approved vapor recovery system by filling the tank with a suitable gas. Degassing shall continue until the operator has achieved a vapor displacement equivalent to at least 2.3 times the tank capacity. Suitable gases are air, nitrogen, carbon dioxide, or natural gas containing less than 10 percent VOC by weight. [District Rule 4623 or 2080]
2. During tank degassing, the operator shall discharge or displace organic vapors contained in the tank vapor space to an APCO-approved vapor recovery system. [District Rule 4623 or 2080]
 3. To facilitate connection to an external APCO-approved recovery system, a suitable tank fitting, such as a manway, may be temporarily removed for a period of time not to exceed 1 hour. [District Rule 4623 or 2080]

4. For tanks subject to Rule 4623 only This tank shall be in compliance with the applicable requirements of District Rule 4623 at all times during draining, degassing, and refilling the tank with an organic liquid having a TVP of 0.5 psia or greater. [District Rule 4623]

For floating-roof tanks, the following degassing conditions shall be added:

1. During tank cleaning operations, draining and refilling of this tank shall occur as a continuous process and shall proceed as rapidly as practicable while the roof is not floating on the surface of the stored liquid. [District Rule 4623 or 2080]
2. Gap seal requirements shall not apply while the roof is resting on its legs, and during the processes of draining, degassing, or refilling the tank. A leak-free condition will not be required if the operator is draining or refilling this tank in a continuous, expeditious manner. [District Rule 4623 or 2080]

It is important to note that after a tank has been degassed, no vapors should remain in the headspace, therefore any vapor control requirements will not be applicable during tank cleaning. The following condition should be added to all tank permits, regardless of configuration:

- After a tank has been degassed pursuant to the requirements of this permit, vapor control requirements are not applicable until an organic liquid having a TVP of 0.5 psia or greater is placed, held, or stored in this tank. [District Rule 4623 or 2080]

C. Tank Cleaning

The following conditions address actual cleaning activity requirements. These conditions shall be added to all tanks, regardless of tank configuration.

1. While performing tank cleaning activities, operators may only use the following cleaning agents: diesel, solvents with an initial boiling point of greater than 302 degrees F, solvents with a vapor pressure of less than 0.5 psia, or solvents with 50 grams of VOC per liter or less. [District Rule 4623 or 2080]
2. Steam cleaning shall only be allowed at locations where wastewater treatment facilities are limited, or during the months of December through March. [District Rule 4623 or 2080]

D. Removed Sludge Handling

The following conditions only apply to tanks that are subject to District Rule 4623 holding organic liquids with a TVP of 1.5 psia or greater:

1. During sludge removal, the operator shall control emissions from the sludge receiving vessel by operating an APCO-approved vapor control device that reduces emissions of organic vapors by at least 95%. [District Rule 4623]
2. Permittee shall only transport removed sludge in closed, liquid leak-free containers. [District Rule 4623]
3. Permittee shall store removed sludge, until final disposal, in vapor leak-free containers, or in tanks complying with the vapor control requirements of District Rule 4623. Sludge that is to be used to manufacture roadmix, as defined in District Rule 2020, is not required to be stored in this manner. Roadmix manufacturing operations exempt pursuant to District Rule 2020 shall maintain documentation of their compliance with Rule 2020, and shall readily make said documentation available for District inspection upon request. [District Rules 2020 and 4623]

E. Tank Inspection After Refilling

The following condition is only for external floating roof tanks, as required by Section 6.1.3.2 of Rule 4623. Please note that since this is a specific requirement of all external floating roof tanks *subject to Rule 4623*, regardless of participation in the voluntary tank cleaning program, that it should only be imposed for those tanks.

- Permittee shall inspect the primary and secondary seals for compliance with the requirements of this rule every time a tank is emptied or degassed. Actual gap measurements shall be performed when the liquid level is static but not more than 48 hours after the tank roof is re-floated. [District Rule 4623]