

**SAN JOAQUIN VALLEY UNIFIED  
AIR POLLUTION CONTROL DISTRICT**

**Guideline for Expedited Application Review (GEAR)  
Oil Field Sump Replacement Tanks**

Approved By: \_\_\_\_\_ Signed \_\_\_\_\_  
Seyed Sadredin  
Director of Permit Services

Date: 8/3/98

**Purpose:** To outline procedures for processing of Authority to Construct (ATC) applications for oil field sump replacement tanks.

**I. Applicability**

This policy applies to Authority to Construct applications for fixed roof sump replacement tanks installed for the sole purpose of complying with District Rule 4402 (Crude Oil Production Sumps).

**II. Permit Application and Priority Processing**

For over-the-counter processing, the applicant must submit appropriate fees and a complete application. For applications submitted through mail, if these items are provided at the time of submittal, the applications will be prioritized for issuance within two weeks.

The over-the-counter process or the two week priority process will be preempted if the public noticing provisions for Hazardous Material Emissions within 1000 feet of a school apply.

**III. Background**

There are numerous crude oil production sumps located in oil fields throughout the San Joaquin valley. Sumps are lined or unlined surface impoundments or excavated depressions in the ground which, during normal operation, is in use for separating crude oil produced water, and solids in oil production fields. Most sumps are relatively small, less than 1,000 barrel (42,000 gallons) capacity. As methods of production and separation improve and cost of maintaining the sumps due the requirements of District Rule 4402 increase, oil production companies are replacing the sumps with aboveground tanks.

#### **IV. Policy**

District Rule 4402 (Crude Oil Production Sumps) was originally adopted on April 11, 1991 and applies to all first, second, and third stage sumps at facilities producing, gathering, separating, processing, and/or storing crude oil in an oil field. Pursuant to subsection 5.3, a sump may be replaced by an above ground tank, provided the tank complies with all applicable requirements of District Rule 4623 (Storage of Organic Liquids) and District Rule 4001 (New Source Performance Standards - Subpart Kb, Volatile Organic Liquid Storage Vessels). If the True Vapor Pressure of the process liquid is 1.5 psia or less, the replacement tank roof appurtenances shall be maintained leak-free and the replacement tank shall be fitted with a pressure/vacuum vent set to within ten (10) percent of the maximum allowable working pressure of the tank.

All crude oil production sumps which process material above the oil/water line (as defined in Rule 2020) must have a Permit to Operate. There are some third stage sumps which are below the oil/water line that do not have a Permit to Operate.

The replacement of any first, second, or third stage sump with an above ground tank which serves the identical function of the sump replaced requires an Authority to Construct. However, per subsection 5.3 of Rule 4402, the replacement is exempt from the Best Available Control Technology (BACT) and offset requirements of Rule 2201.

#### **V. Application Review**

In order to standardize the application reviews for this source category, the application review found in G:/per/gear/sumptank.doc will be used as a base document. The document is based on a typical existing crude oil production sump. The following pages are a hard copy version of this standard review. This hard copy version for the GEAR Policy manual includes a copy of the standard PTO conditions (Attachment I).

The use of this standard Application Review will ensure that the proposed project complies with all applicable prohibitory rules including Rule 4001, 4402 and 4623.

##### **Health Risk Assessment**

HRA is not required as the application is for replacement equipment with no increase in potential to emit.

## **VI. Equipment Description**

To ensure uniformity of the Authorities to Construct, one of the following standard descriptions will be used:

*[xx,xxx] GALLON, [xx] FOOT DIAMETER X [xx] FOOT HIGH FIXED ROOF SUMP REPLACEMENT TANK WITH PRESSURE/VACUUM RELIEF VENT*

*or*

*[xx,xxx] GALLON, [xx] FOOT DIAMETER X [xx] FOOT HIGH FIXED ROOF SUMP REPLACEMENT TANK VAPOR CONTROL SYSTEM INCLUDING:  
XXXX*

## **VII. Permit to Operate Conditions**

To ensure uniformity, a standard set of conditions will be used as a base for all applications (See Attachment I)

APPLICATION REVIEW  
FOR  
OIL FIELD SUMP REPLACEMENT TANKS

**ATC APPLICATION REVIEW**  
OIL FIELD SUMP REPLACEMENT TANKS

**Processing Engineer:**  
**Lead Engineer:**  
**Date:**

**Facility Name:**  
**Mailing Address:**

**Contact Name:**  
**Phone:**  
**Project Number:**  
**Permit Number:**

**I. PROPOSAL:**

[Facility Name] is applying for an Authority to Construct for a sump replacement tank with a fixed roof *and a [shared] tank vapor control system including [system type, i.e., x.x mmbtu/hr flare.* The storage tank is proposed as a replacement of a sump (*Permit Unit x-xxxx-xx*) solely for compliance with District Rule 4402 - Crude Oil Production Sumps; therefore, this project is exempt from Best Available Control Technology (BACT) and offset requirements or Rule 2201.

**II. APPLICABLE RULES:**

Rule 2010	Permit Required (December 17, 1992)
Rule 2201	New and Modified Stationary Source Review Rule (June 15, 1995)
Rule 4001	New Source Performance Standards, Code of Federal Regulations 40 part 60. (September 17, 1997)
Rule 4101	Visible Emissions (December 17, 1992)
Rule 4102	Nuisance (December 17, 1992)
Rule 4201	Particulate Matter Concentration (December 17, 1992)
Rule 4402	Crude oil production sumps (December 17, 1995)
Rule 4623	Storage of Organic Liquids (December 17, 1992)
CH&SC 42301.6	California Health and Safety Code (School Notice)

**III. PROJECT LOCATION:**

The project is located at:  
[Lease Name] in [City], CA.  
xx/4 Section xx, Township xxx, Range xxx  
of the Mount Diablo Base and Meridian.

**IV. PROCESS DESCRIPTION:**

The storage tank is a replacement for a *[first stage, second stage, or third stage]* crude oil production sump. The storage tank will receive crude oil and/or production water *from [list equipment, processes, or state production]*. The storage tank will serve the identical function of the crude oil production sump which it replaces and will typically process [gallons per day].

**V. EQUIPMENT LISTING:**

Storage tank specifications

Capacity (gallons):  
Diameter (feet):  
Height (feet):  
*Bolted, riveted, or welded? [bolted/riveted/welded]*  
Pressure/vacuum relief vent  
setting (+psia/-psia):

Tank vapor control system

*Control device:* *[Flare/Thermal Oxidizer/Boiler]*  
*Permit Number:* *(if permitted combustion device)*  
*Maximum rating:*  
*Supplemental fuel:*  
*Compressor activation*  
*pressure (psia):*  
*Compressor rating (hp):*  
*Permit units sharing vapor*  
*control system:* *(if shared vapor space)*

Fixed roof replacement tank with vapor control system

[xx,xxx] GALLON, [xx] FOOT DIAMETER X [xx] FOOT HIGH SUMP REPLACEMENT TANK WITH [SHARED] TANK VAPOR CONTROL SYSTEM [(SHARED WITH PERMIT UNIT #'S N/C/S-XXXX-XX)] INCLUDING [SYSTEM TYPE, I.E., X.X MMBTU/HR FLARE OR THERMAL OXIDIZER].

Fixed roof replacement tank

[xx,xxx] GALLON, [xx] FOOT DIAMETER X [xx] FOOT HIGH FIXED ROOF SUMP REPLACEMENT TANK WITH PRESSURE/VACUUM RELIEF VENT.

**VI. EMISSION CONTROL TECHNOLOGY EVALUATION:**

**A. Control Techniques**

***Fixed roof tanks:***

*The proposed storage tank is a fixed roof tank with a pressure/vacuum relief vent. There are no other control equipment associated with this operation.*

*or*

***Vapor Control:***

*The proposed storage tank is equipped with a vapor control system that is expected to reduce emissions by a minimum of 95%. There are no other control equipment associated with this operation*

**B. Best Available Control Technology (BACT)**

BACT evaluation is not required because the emission unit is exempt from BACT pursuant to Rule 2201, subsection 4.1.1.3.

**VII. CALCULATIONS**

The proposed storage tank is a replacement for an existing sump. By placing the material inside an enclosed storage tank of equal or lesser capacity, there is no increase in potential emissions of any criteria air contaminant from the storage of the organic liquid. There is an incineration device with the proposed tank vapor control system.

VOC emissions from the storage tank are exempt from offsets pursuant to Rule 2201, subsection 4.2.1.7. Combustion emissions from the incineration device is exempt from offsets pursuant to Rule 4623, subsection 4.3. Any existing daily emissions limits for the existing sump will be placed on the sump replacement tank permit.

## VIII. COMPLIANCE

### Rule 2201 - New and Modified Stationary Source Review Rule

The replacement of the sump with an aboveground storage tank is a modification as defined in subsection 3.20. Since the proposed sump replacement tank is solely to comply with Rule 4402, emissions from the storage tank are exempt from BACT (per subsection 4.1.1.3) and offsets (per subsection 4.2.1.7). Compliance with this rule is expected.

### Rule 4001 - New Source Performance Standards, Code of Federal Regulations 40 part 60, Subpart Kb - Volatile Organic Liquid Storage Vessels

#### Exempt storage tank

*The proposed storage tank has a capacity not exceeding 1598.874 m<sup>3</sup> (420,000 gallons) and stores or processes petroleum prior to custody transfer. The proposed storage tank is exempt from this rule pursuant to subsection 60.110b.d.4.*

#### Fixed roof tank with vapor control system

*Vapor loss prevention system shall be capable of collecting all VOC's so as to prevent their emissions at an efficiency of at least 95% by weight. Any tank gauging or sampling device vented to the vapor recovery system shall be equipped with a gas-tight cover which shall be closed at all times except during gauging or sampling. All piping, valves, and fittings shall be constructed and maintained in a gas-tight condition.*

*The storage tank is equipped with a tank vapor control system which achieves at least 95% control efficiency for VOC emissions. [The tank vapor space is shared with the following permit units #'s x-xxxx-x and x-xxxx-x.] All piping, valves, and fittings is required to be constructed and maintained in a gas-tight condition. Permittee will also be expected to satisfy all recordkeeping and reporting requirements as required by the Code of Federal Regulations.*

Compliance with this rule is expected.

**Rule 4101 - Visible emissions**

*The incineration device will be fueled with natural gas/propane and tank vapor control gas. Both are clean burning fuels with no expected visible emissions in excess of 20% opacity or Ringlemann #1 for any three minutes in any hour.*

*or*

*Visible emissions are not normally associated with the storage of organic liquids*

Compliance with this rule is expected.

**Rule 4102 - Nuisance**

The facility and sump are existing and do not have a history of nuisance problems. The proposed storage tank will produce less emissions as compared to the open top sump it is replacing; therefore, continued compliance is expected. This project will not result in increased emissions therefore, a Health Risk Assessment is not required pursuant to District Policy Toxic 1.

Compliance with this rule is expected to continue.

**Rule 4201 - Particulate Matter Concentration**

Total suspended particulate matter emissions shall not exceed 0.1 grains per cubic foot of gas at dry standard conditions.

*The tank vapor control system will utilize tank vapors and Based on calculations/source tests of similar operations particulate matter emissions are not expected to exceed 0.1 gr./scf.*

*or*

*Particulate matter is not normally associated with the storage of organic liquids.*

Compliance is expected to continue.

**Rule 4402 - Crude Oil Production Sumps**

Pursuant to subsection 5.3, a sump may be replaced with an above ground tank which complies with District Rule 4623, or at a minimum, the tank roof appurtenances shall be maintained leak-free and the tank shall be fitted with a pressure/vacuum vent set to within ten percent of the maximum allowable working pressure of the tank.

*The proposed above ground tank will be maintained leak-free and will be fitted with a pressure/vacuum vent set to within ten percent of the maximum allowable working pressure of the tank.*

*or*

*The proposed above ground tank satisfies all applicable Rule 4623 requirements.*

Compliance with this rule is expected.

### **Rule 4623 - Organic Liquid Storage Tanks**

#### **Fixed roof tank with vapor control system**

*Vapor loss prevention system shall be capable of collecting all VOC's so as to prevent their emissions at an efficiency of at least 95% by weight. Any tank gauging or sampling device vented to the vapor recovery system shall be equipped with a gas-tight cover which shall be closed at all times except during gauging or sampling. All piping, valves, and fittings shall be constructed and maintained in a gas-tight condition.*

*The storage tank is equipped with a tank vapor control system which achieves at least 95% control efficiency for VOC emissions. [The tank vapor space is shared with the following permit units #'s x-xxxx-x and x-xxxx-x.] All piping, valves, and fittings is required to be constructed and maintained in a gas-tight condition.*

#### **Fixed roof tank**

*Tank shall be equipped with a pressure relief device set to within ten (10) percent of the maximum allowable working pressure of the container.*

*The storage tank is equipped with a pressure/vacuum relief vent set to within 10 percent of maximum working pressure.*

Compliance with this rule is expected.

**Rule 4801 - Sulfur Compounds**

*Sulfur compound emissions shall not exceed 0.2 percent by volume calculated as sulfur dioxide on a dry basis averaged over 15 consecutive minutes.*

*The tank vapor control system incineration device will use natural gas, LPG, or propane as supplemental fuel. All are clean burning fuels with sulfur content not to exceed 0.2 percent by volume. Tank vapors are not expected to exceed 2000 ppmv. The permittee will be required to test tank vapors prior to incineration at least once every 12 months to verify compliance.*

*or*

*Tank vapors are not expected to exceed 2000 ppmv*

Compliance with this rule is expected.

**IX. RECOMMENDATION**

Issue Authority to Construct [X-XXXX-X-X] with the conditions listed on the attached draft Authority to Construct.

**X. BILLING**

The billing for this operation is based on the total storage capacity of the sump replacement tank: [XX,XXX] gallons.

PERMIT NUMBER	FEE SCHEDULE	FEE DESCRIPTION
[X-XXXX-XX-X]	3020-[XX-X]	

# **ATTACHMENT I**

Authority to Construct  
Standard Conditions

### **Fixed Roof with Vapor Control System**

1. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. Permittee shall maintain accurate records of bulk liquid storage temperature and Reid vapor pressure (RVP) for a period of two years and make such records readily available for District inspection upon request. [District Rule 4623]
3. *Permittee shall satisfy all recordkeeping and reporting requirements as specified in New Source Performance Standards, Code of Federal Regulations 40 part 60, Subpart Kb - Volatile Organic Liquid Storage Vessels. [District Rule 4001]*
4. Permittee shall conduct a test of storage tank vapors for sulfur content at least once every 12 months in accordance with ASTM D3246. [District Rule 1081]
5. Permittee shall maintain accurate records of tank vapor sulfur content for a period of two years and make such records readily available for District inspection upon request. [District Rule 1070]

### **General**

1. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. {274} Tank shall be equipped with fixed roof without holes or openings. [District Rule 4402]
3. {275} Tank appurtenances shall be maintained leak free. [District Rule 4401]
4. {276} Tank PV valve shall be set to within 10% of the maximum allowable working pressure of tank. [District Rule 4402]
5. True vapor pressure of (of liquids stored in tank shall not exceed 1.5 psia at storage temperature. [District Rule 4623]

*Optional if requested by the applicant.*

6. The permittee may install a smaller tank provided that a written notification including the exact tank specifications is submitted to the District at least 15 days to initiation of construction. [District Rule 2010]

# **BIBLIOGRAPHY**

<b>Rules and Regulations</b>		
Rule Number	Title	Last Updated
District Rule 2010	Permits Required	12/17/1992
District Rule 2201	New and Modified Source Review	06/15/1995
District Rule 4001	New Source Performance Standards, Code of Federal Regulations 40 part 60	09/17/1997
District Rule 4101	Visible Emissions	12/17/1992
District Rule 4102	Nuisance	12/17/1992
District Rule 4201	Particulate Matter Concentration	12/17/1992
District Rule 4402	Crude Oil Production Sumps	12/17/1992
District Rule 4623	Storage of Organic Liquids	12/17/1992
District Rule 4801	Sulfur Compounds	12/17/1992

<b>Electronic Documents</b>		
Document Name	Title	Last Updated
G:/per/gear/sumptank.doc	Standard Application Review for Sump Replacement Tanks.	/ /

<b>Miscellaneous</b>		
Item	Title	Last Updated
General Conditions	General Condition #s 118	11/97