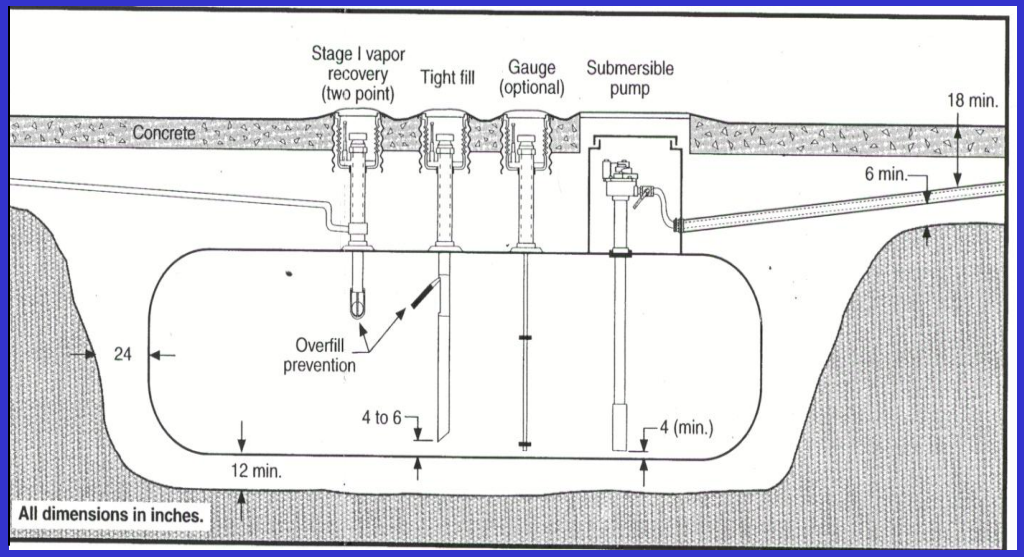
New Tank Installations



Peter Rollo

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

New Tank Installations

What tanks are regulated?

- All tanks with a capacity greater than 1,100 gallons
- Commercial tanks, other than heating fuel tanks, with a capacity greater than 110 gallons

General Requirements

- Contractors must be certified
- All new installations are subject to secondary containment & continuous monitoring verification
- The Department has 30 days to complete an installation review after the application is deemed complete

DNREC Forms

- UST Registration and Notification Form
- New Tank System Installation Certification
- DNREC UST Certificate of Approval

Review Items

- Site plan/survey
- Tank installation cross section
- Floatout calculations
- Manufacturer and model numbers of all equipment used

Review Items(cont.)

- Anchoring method and cathodic protection plan including resistivity test results, if applicable
- Leak detection methods chosen

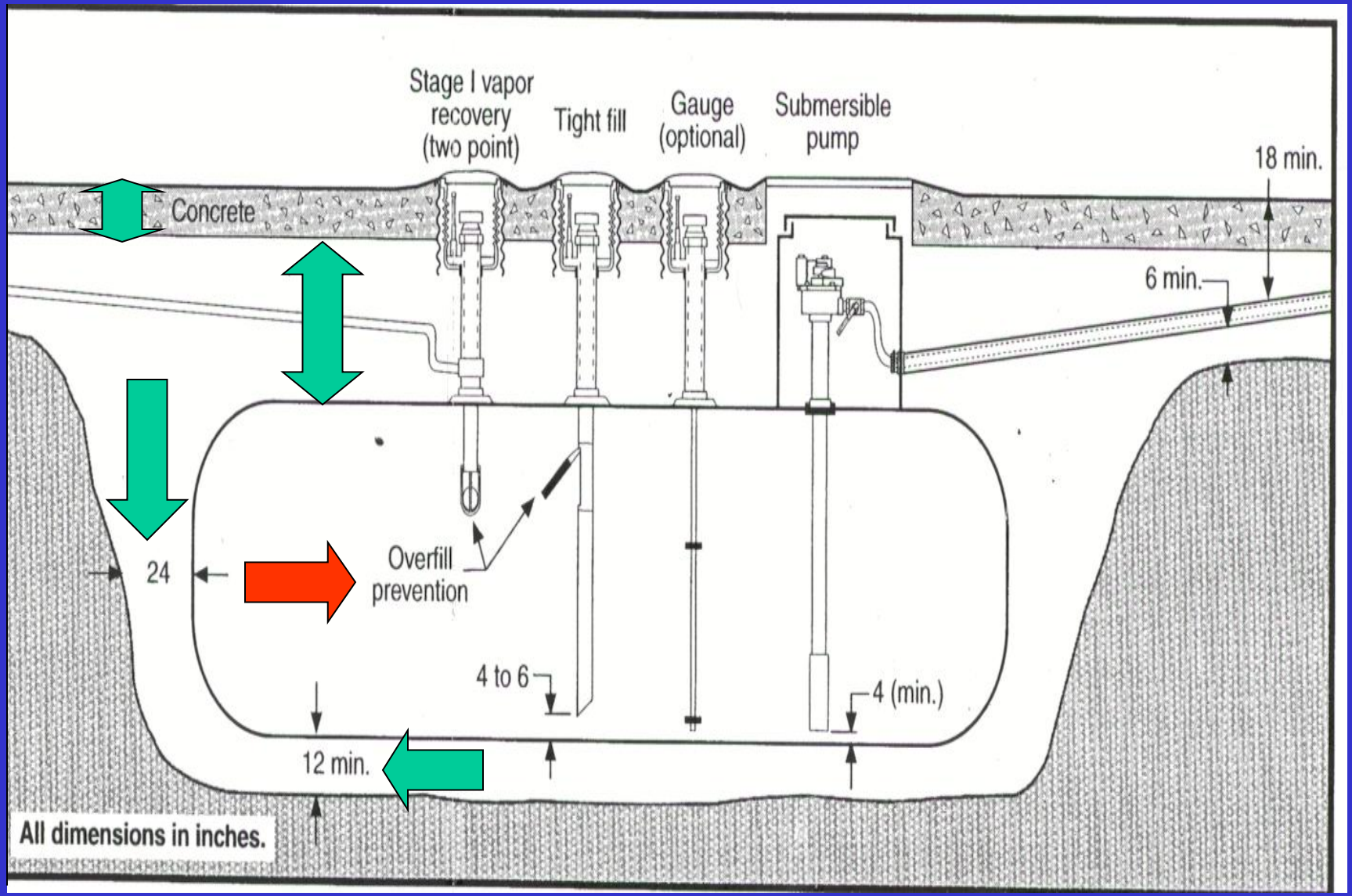
Site Plan Requirements

- Size and location of tanks
- Piping dimensions and layout
- Dimensions and location of vents and leak detection
- Product stored
- Dispenser locations
- Location of overfill, spill prevention and monitoring devices

Plan Requirements(cont.)

- Material of tanks and lines
- Location of cathodic protection components and test stations
- Location of utilities
- Location of nearby wells and surface water bodies

Tank Installation Cross Section



Bottom Hold-down Pad

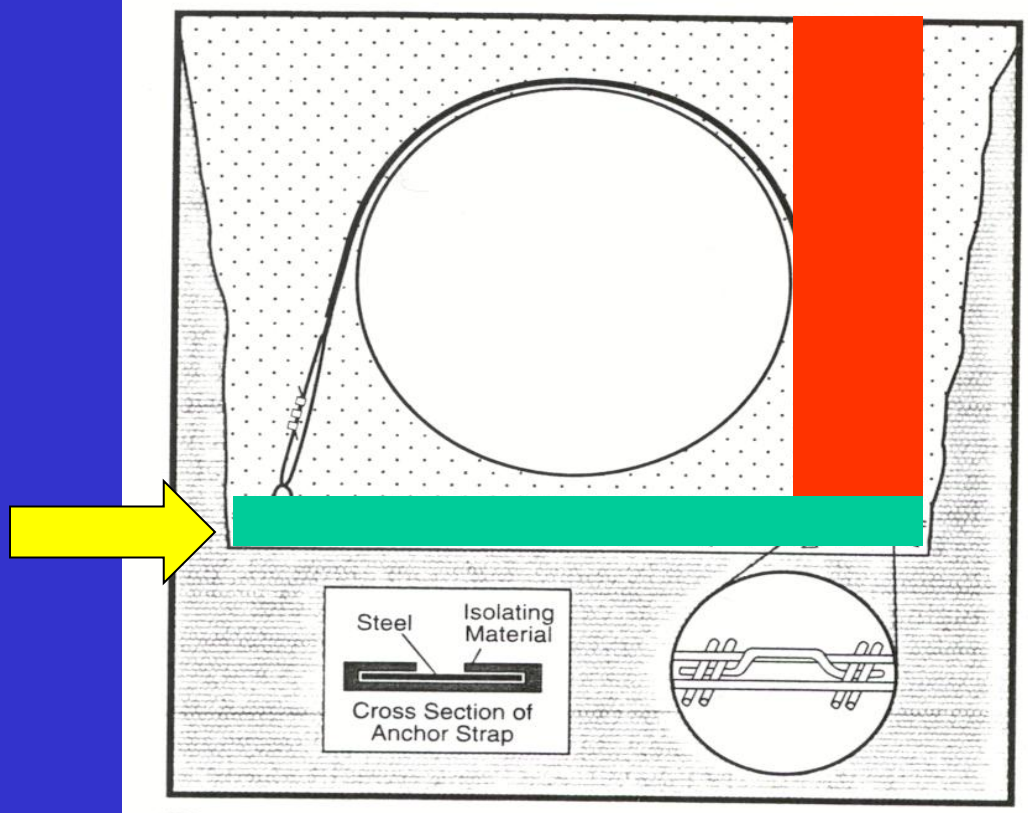
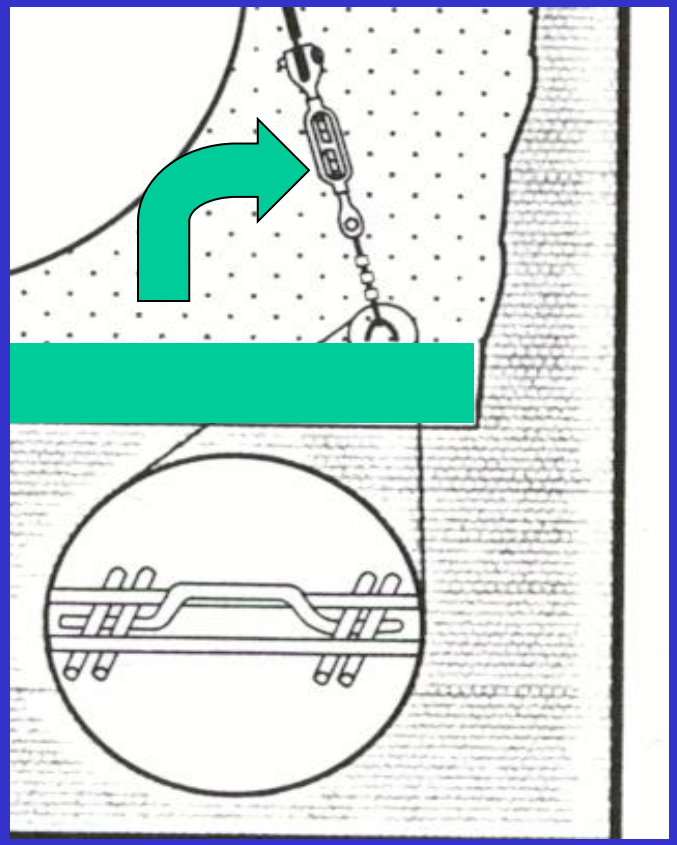


Figure 19. Bottom hold-down pad. *The weight of backfill on the portions of the hold-down pad extending beyond the tank outline provides additional resistance to buoyancy forces acting on the tank. Isolating material is used to separate steel anchor straps from steel tanks. Anchor straps should be securely attached to reinforcing rods firmly imbedded in the concrete.*



Deadmen Anchors

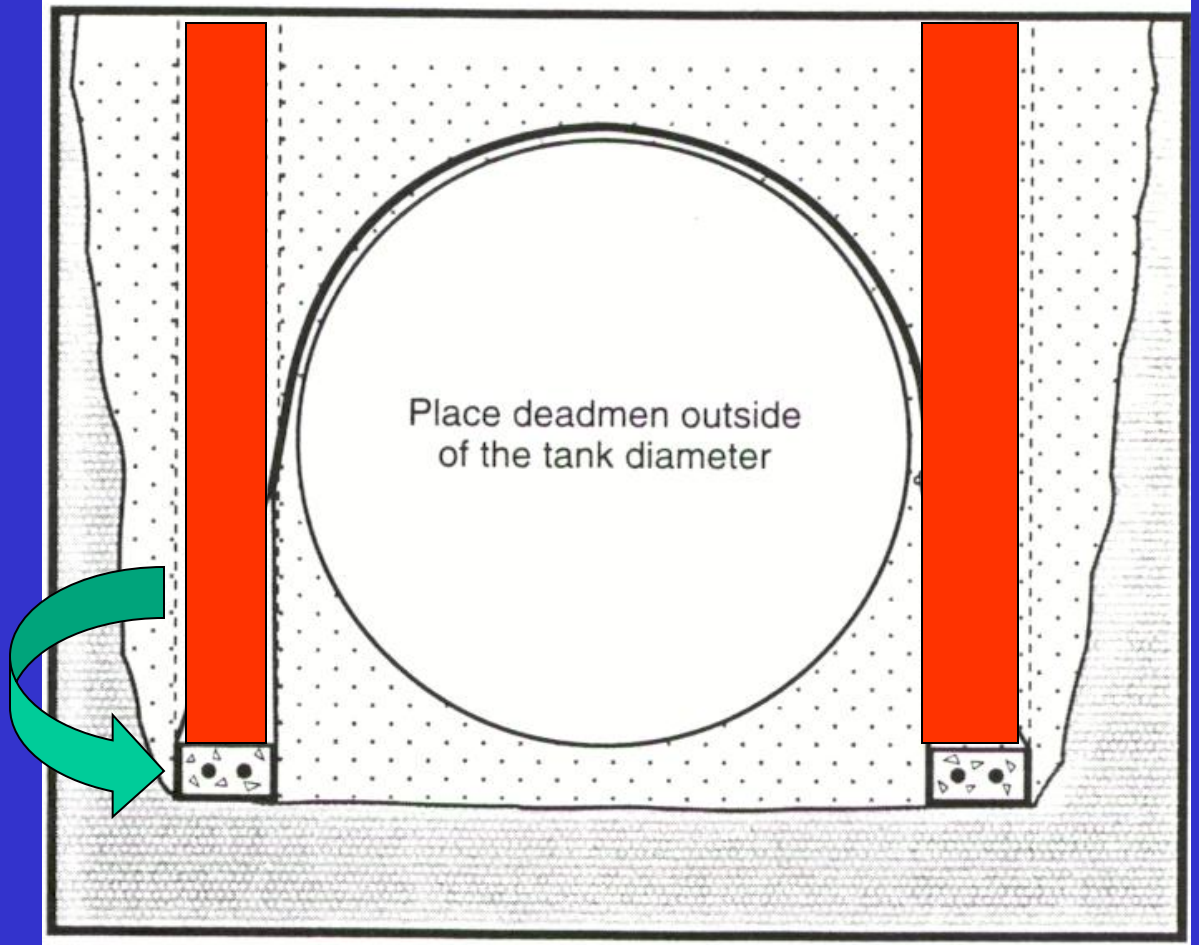


Figure 18. Deadmen anchors. *The weight of backfill on the deadmen anchors provides additional resistance to buoyancy forces acting on the tank.*

Approval Process

- Application complete?
- All info submitted to and reviewed by the engineer
- Approval letter and approval letter acknowledgement sent to contractor
- Approval letter acknowledgement signed by contractor and returned to the engineer
- Tank installation may begin

New Tank Installation Inspection Process

- Project Officer identified in approval letter
- Contact Project Officer to set up inspections

Required Inspections

- Tank set
- Piping - Pressure test lines and water test sumps
- Final - System precision test and completion of forms provided by the Project Officer. Verification of ATG programming and printouts.

Financial Responsibility Requirements

- Required for all regulated tanks except for heating fuel tanks
- Appropriate forms provided by the Project Officer must be filled out and received by the Department before tanks can be filled with product.
- System can now be operated

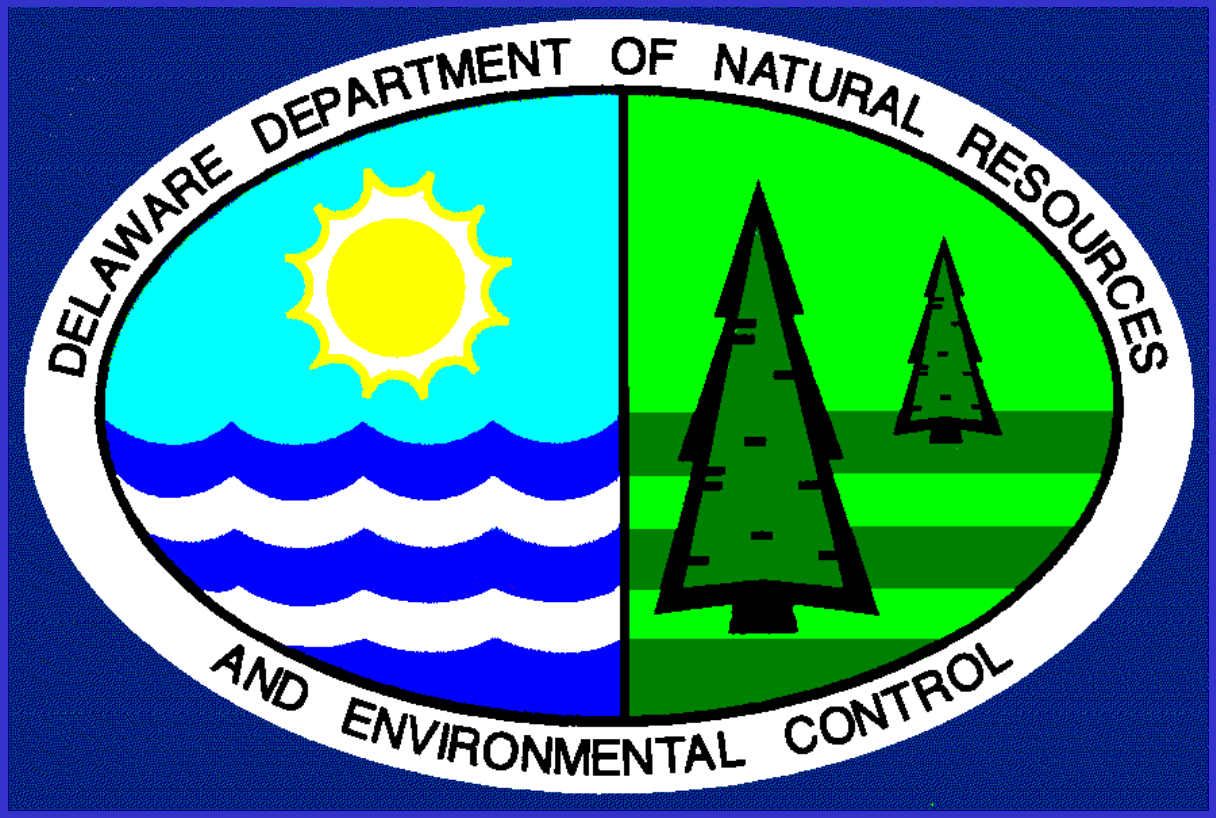
General Retrofit Requirements

- If concrete is to be broken check with your Project Officer for requirements
- UST Registration and Notification Form must be completed
- All retrofit work will be reviewed by the engineer

Retrofit Requirements(cont.)

- Project Officer will send contractor retrofit confirmation
- Work may begin
- Check with Project Officer for any required inspections and final testing

Vapor Recovery



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When are Permits Required?

- Submit detailed description of proposed work to engineer
- Engineer will determine permit requirements
- Submit required Stage I and/or Stage II permit applications

Stage II Vapor Recovery

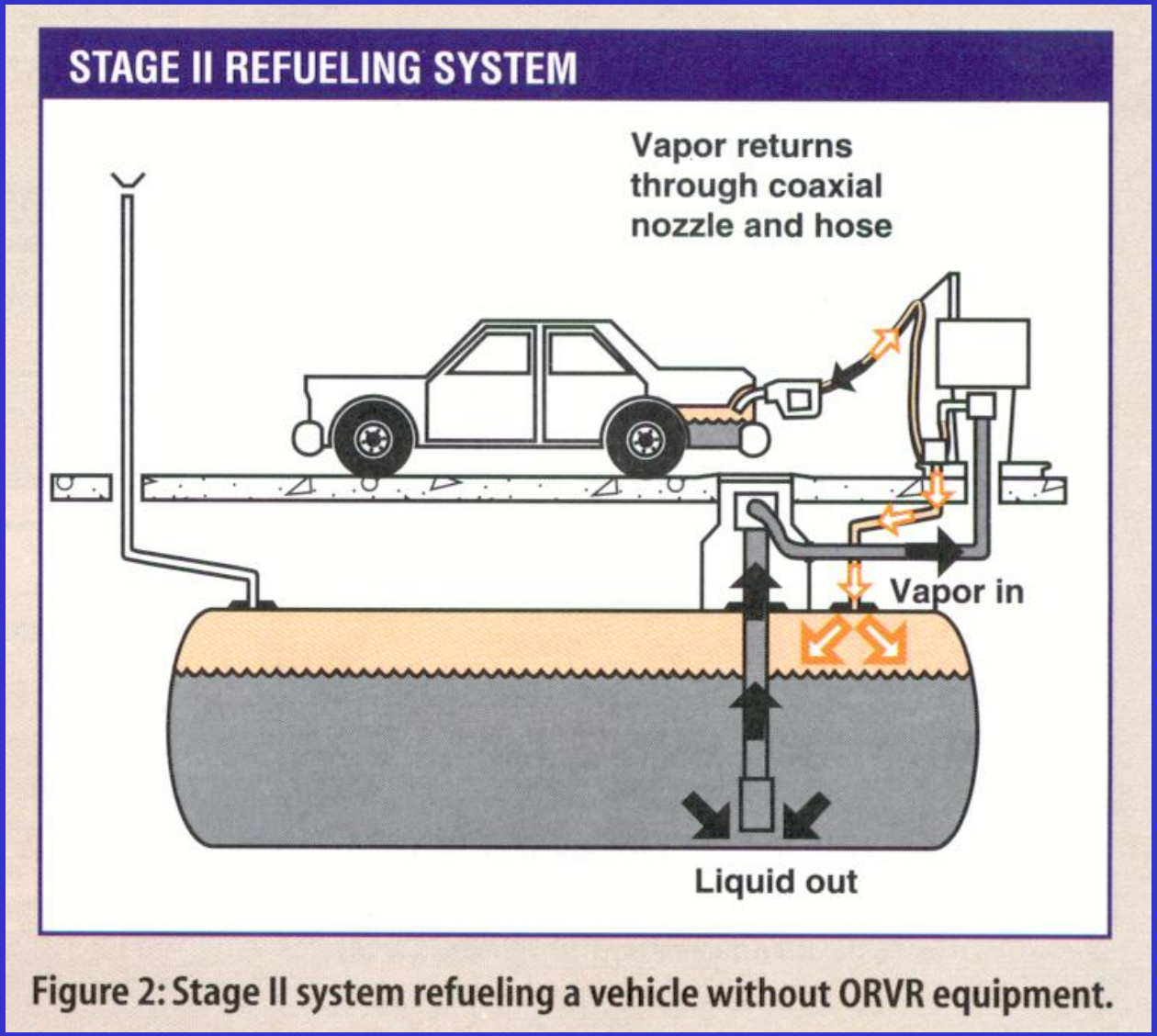
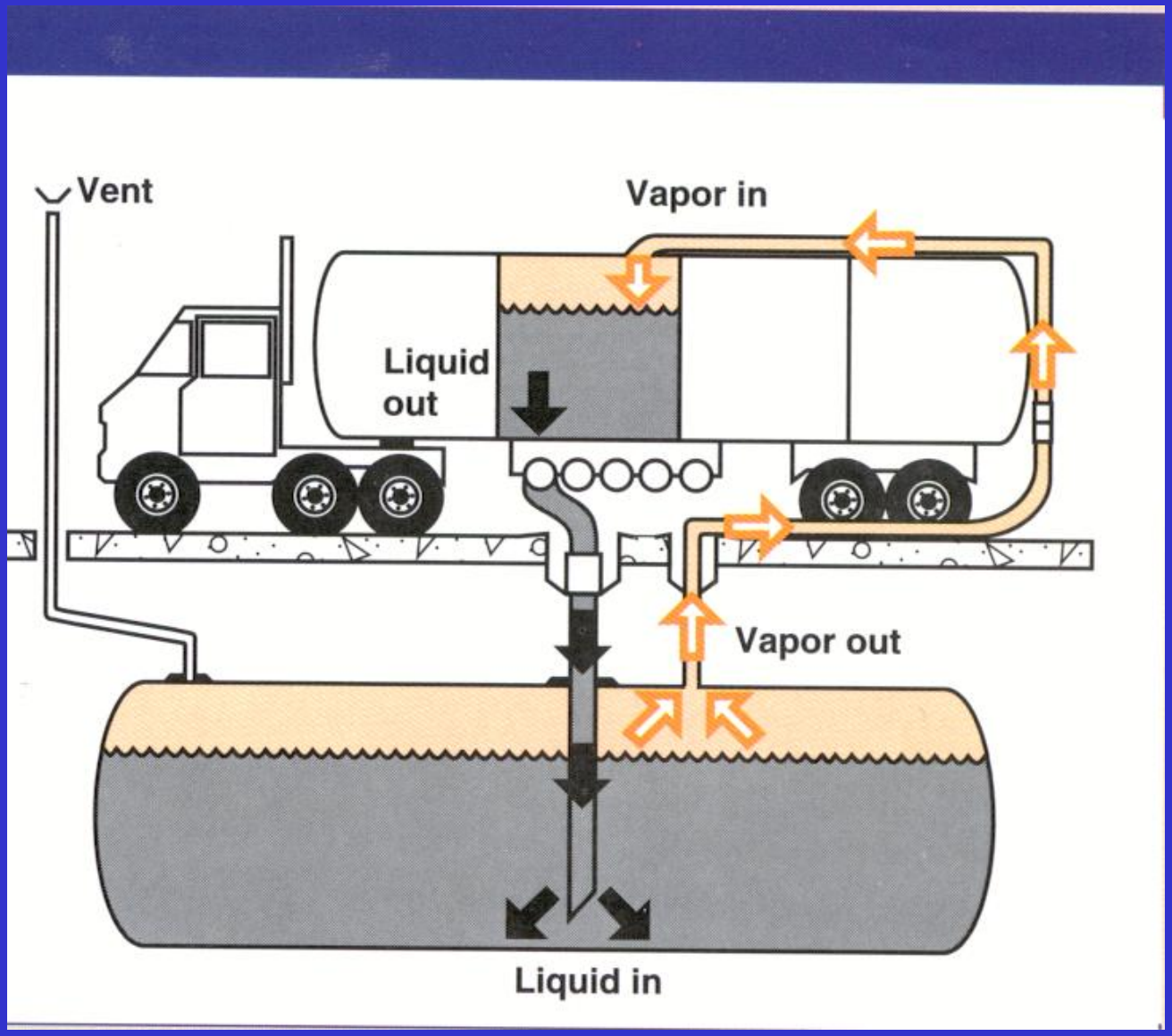


Figure 2: Stage II system refueling a vehicle without ORVR equipment.

Stage I Vapor Recovery


Vent
Vapor in
Liquid
out
Vapor out
Liquid in

Post Construction Testing

- Pressure decay test
- Blockage tests
- Air to liquid ratio test
- Vapor recovery tie test

Testing Types and Frequency

- **Pressure decay test - annual, all systems**
- **Blockage tests - annual, balance systems only**
- **Air to liquid ratio test - annual, vacuum assist systems only**

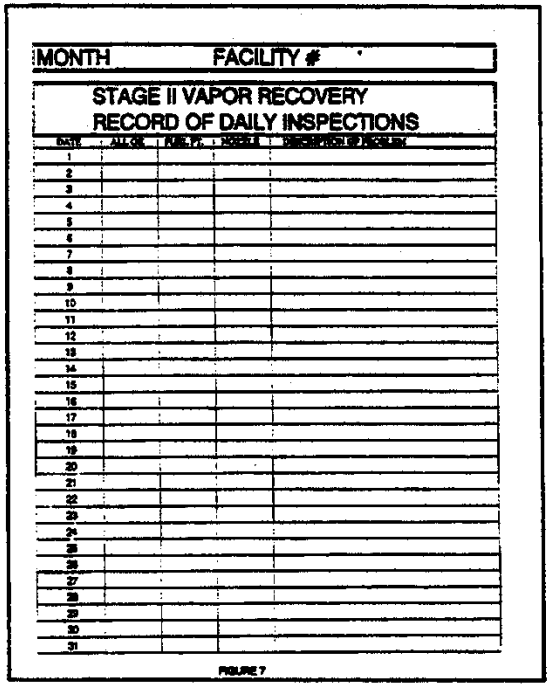
Record Keeping Requirements

- Passed test results
- Copies of applications and operating permits
- Daily inspection and maintenance logs
- Training certificate

Daily Self Inspections

A daily self inspection of the Stage II system must be conducted, and a record kept of those inspections. This record is to include hoses, nozzles, spouts, splash guards, boots, retractors, breakaway connectors, and swivels. This record must include the date, nature of any problem, the component involved, and the appropriate fueling point and product. A simple one line record, similar to the example below, is all that is required. These records must be kept on file at the facility for at least three years. Some of the items which might be noted on the inspection form are listed below:

Figure 7 is a sample "Record of Daily Inspections" form.


MONTH FACILITY #

STAGE II VAPOR RECOVERY
RECORD OF DAILY INSPECTIONS

DATE	ALL OK	FUEL PT.	NOZZLE	DESCRIPTION OF PROBLEM
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
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17				
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19				
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21				
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25				
26				
27				
28				
29				
30				
31				

FIGURE 7

1. A vapor return line that is crimped, flattened, blocked, or has a hole which allows vapors to escape.

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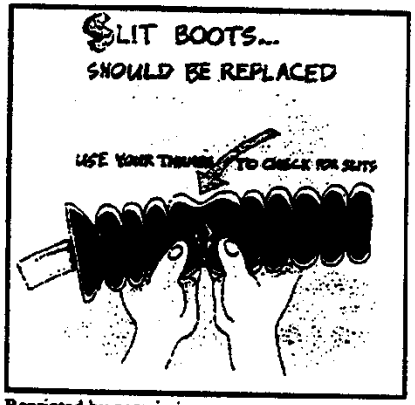
2. A nozzle bellows (boot) that has a hole large enough to pass a 1/4 inch diameter rod, or a slit longer than one inch in length.



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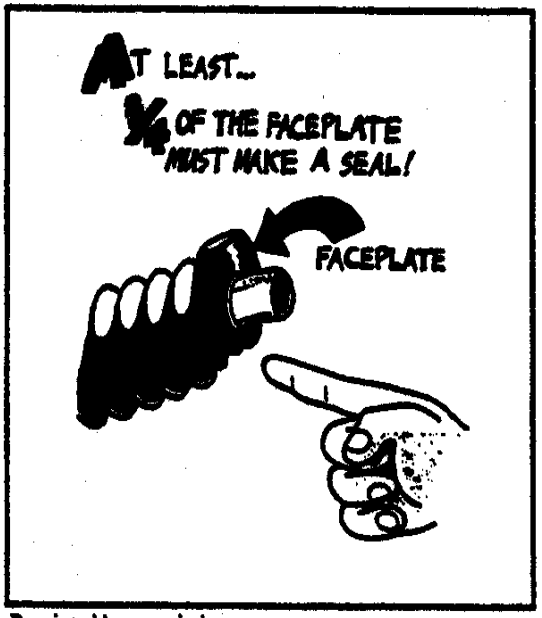
3. A nozzle faceplace or facecone that is torn or missing over 25% of its surface.



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4. A nozzle with either an inoperable overfill mechanism, or none at all.

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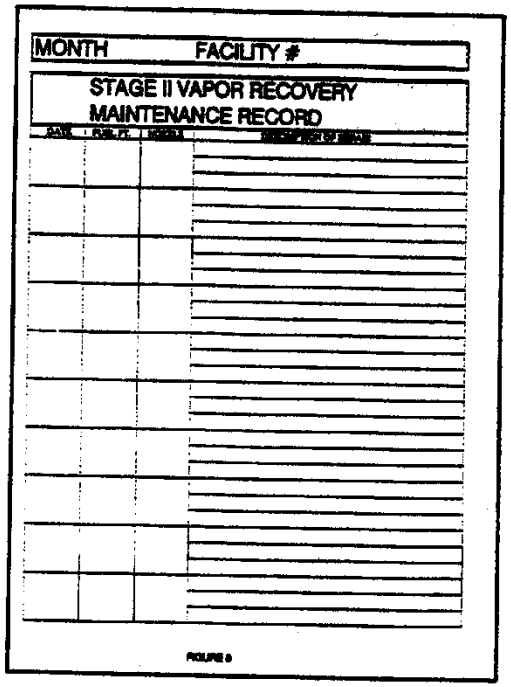
Maintenance Records

Any maintenance conducted on any part of a regulated facility's Stage II system must be logged on a maintenance record. This should include a part description, date of repair or replacement, a description of the problem, and the manufacturer's data on any replacement parts. These records must be kept on file at the facility for at least three years. The primary reason for keeping this data is to demonstrate that replacement parts are CARB approved.

Figure 8 is a sample "Maintenance Record".



Signage Requirements

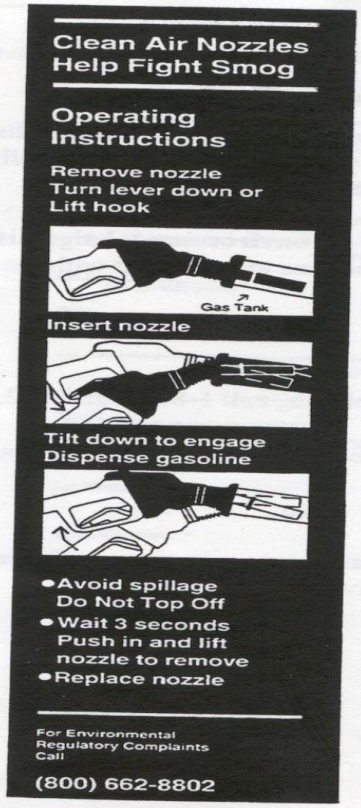


Figure 6-a

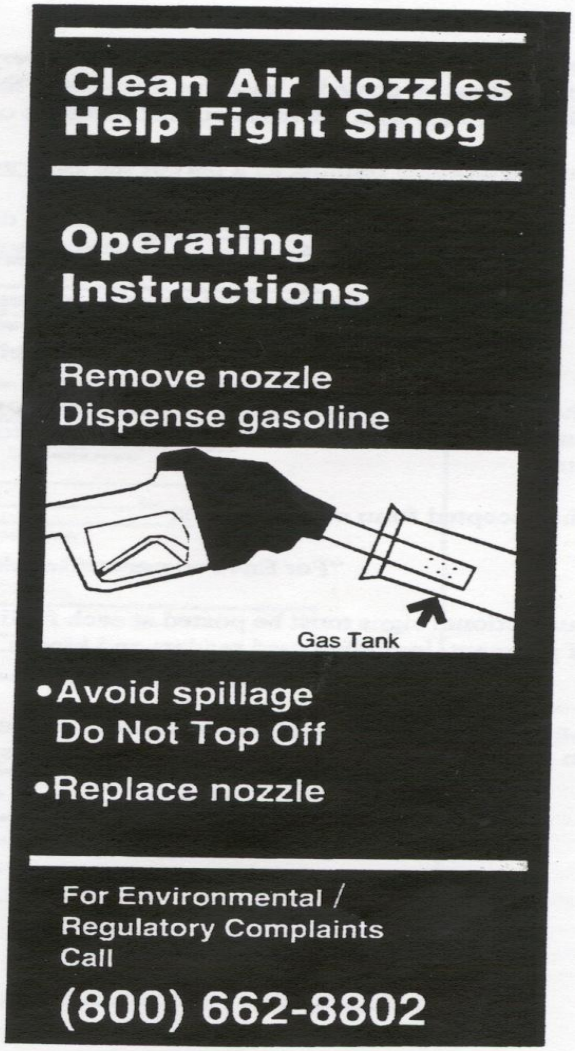


Figure 6-b

Training

The trained representative is then responsible for informing all other facility employees about the operation and maintenance of the Vapor Recovery system. Below is a sample certificate.

CERTIFICATE of TRAINING
STAGE II VAPOR RECOVERY SYSTEMS

To be completed by Attendee: Facility Representative: _____

Facility Name: _____ Facility I.D.# _____

Facility Address: _____ Facility Phone: _____

_____

Type of Vapor Recovery System: _____

To Be Completed by Instructor:

Instructor Name: _____ Instructor Company: _____

Instructor Signature: _____ Date: _____

This training includes the following:

_____ Equipment Operation & Function

_____ Maintenance Schedules & Requirements

_____ Equipment Warranties

_____ Equipment Manufacturer Contacts

_____ Purposes & Effects of the Vapor Recovery Program

_____ Other _____

Key Vapor Recovery Regulation Requirements

- Annual pressure decay test
- Testing contractor declaration
- Swivel adapters
- Vapor shear valves
- Training certificate chronology