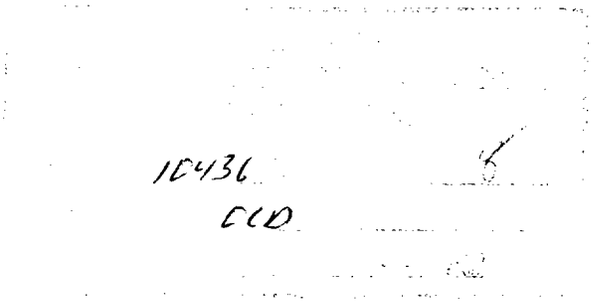
GUIDELINES FOR THE SELECTION AND INSTALLATION OF BELOW-GRADE PRODUCED WATER TANKS

(revised 10/91)

NEW MEXICO OIL CONSERVATION DIVISION
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO



PREFACE

The following specifications shall be used as a guide to the preparation of plans and specifications for the selection and installation of below-grade tanks and sumps to be used to contain those discharged or stored liquids regulated by the New Mexico Oil Conservation Division (OCD). Existing tanks and sumps installed need not comply with the following guidelines if the mechanical integrity of such installations can be shown in a manner acceptable to the OCD. All plans and specifications shall be submitted to the OCD for approval prior to installation. Designs may deviate from the following specifications if it can be shown that the design integrity is such that the installation will not affect any present or future sources of fresh ground water. If a number of tanks are to be installed in the same manner, only one set of plans and specifications need to be submitted provided that a list of all locations to be involved is included.

1. TANK SELECTION

A. The tank capacity shall be selected in such a manner that sufficient volume is available to contain all the water produced during periods of inclement weather when it is not possible to drain the tank on a regular schedule. If the proposed plan submitted for OCD approval is to be used at a number of sites, a list of those sites and the estimated daily discharge of produced water from each site shall be submitted with the plans and specifications.

B. The materials of construction selected for the tank shall exhibit strong corrosion resistance to those fluids the tank will store. If fiber reinforced plastic tanks are to be used, the material shall be resistant to sunlight and its design shall allow for expansion and contraction due to wide temperature shifts. If ferrous tanks are to be used, protective coatings and/or cathodic protection should be used to inhibit corrosion. The plans and specifications submitted for approval shall include the type of material selected and its thickness.

2. INSTALLATION

A. The surface upon which the liner and tank rests shall be free of rocks and shall be level to prevent puncturing, cracking, or indentation of the liner or tank bottom.

B. All below grade tanks shall have a leak detection system which may consist of a drainage and sump system. If a drainage and sump system is to be used, the design shall include the following criteria listed below and illustrated by Figure 1.:

1) A synthetic impermeable liner of at least 20 mil thickness shall first be placed upon the surface that will support the tank and will extend to above the ground surface.

2) Slotted or perforated drainage pipe (lateral) shall be placed upon the impermeable layer at a slope of at least 1 inch per 10 feet. The drainage pipe shall be a minimum of one inch in diameter.

3) The drainage pipe shall then be covered with sand, gravel, or other material with sufficient permeability to convey fluids to the drainage pipe.

4) The tank shall then be placed upon this surface and a riser pipe (sump) connected to the drainage pipe. The riser pipe shall be a minimum of 2 inches in diameter.

5) The secondary liner shall then be strapped to the tank above the ground surface and in a manner to prevent rain water from entering the space between the tank and liner.

C. A tank and liner resting within the ground water shall be adequately anchored to prevent floating.

D. For tanks located below the ground surface in an open pit, no secondary containment is required. The tank shall rest on a gravel pad one inch thick (1" minimum), and the entire tank shall be exposed to visually detect leaks (see Figure 1).

3. MAINTENANCE

A. The leak detection sumps shall be inspected on a routine basis at a minimum of once every thirty (30) days. The proposed frequency shall be included with the plans and specifications submitted for approval.

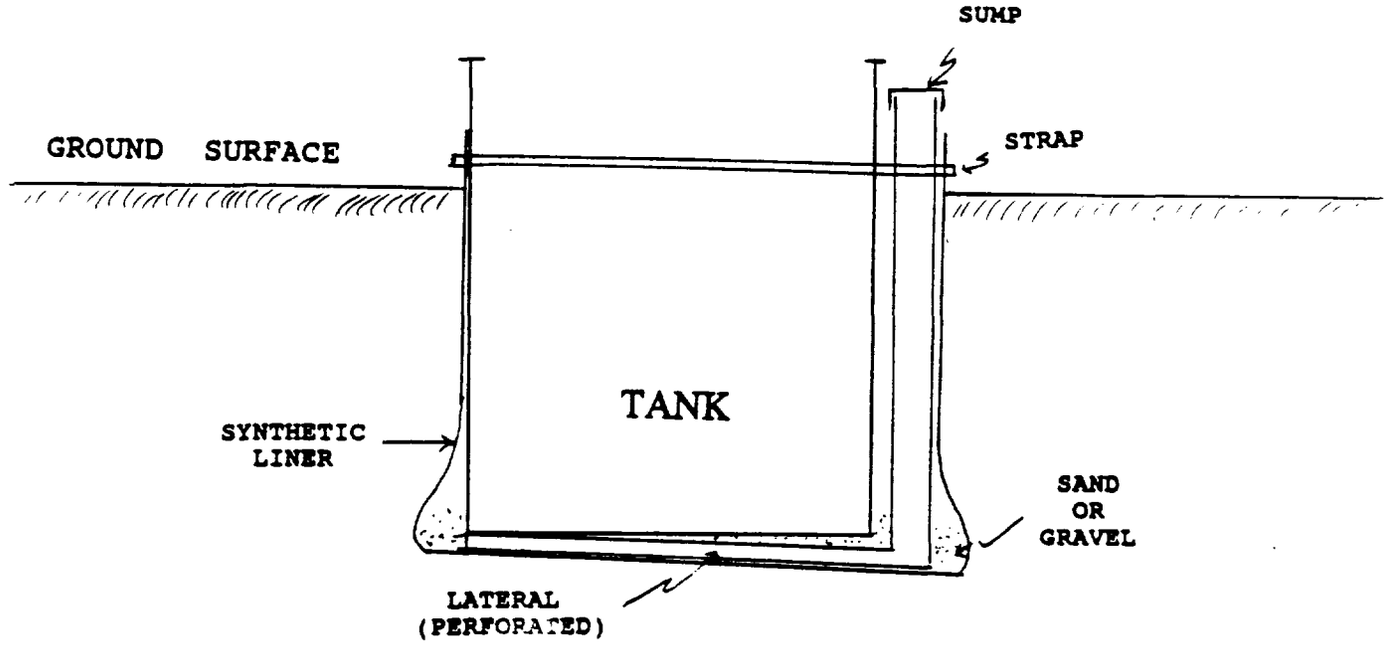
B. The detection of fluid within the sump will require reporting the detection to the appropriate OCD District Office within 24 hours of discovery, obtaining a sample of the fluid, and having the sample analyzed for major cations/anions, benzene, toluene, ethylbenzene, total xylenes (BTEX), and conductivity. A copy of the analysis shall be sent to the appropriate OCD District Office. An analysis of the fluids in the tank may be required for comparison with the above analysis. If the presence of fluid in the leak detection system is due to a tank leak, the contingency plan shall be implemented.

4. CONTINGENCY PLAN

A contingency plan in the event of a tank leak shall be submitted for approval along with the details for tank selection, installation, and maintenance. The contingency plan shall outline a procedure for making repairs to the tank in the most expeditious manner possible.

FIGURE I: TANK INSTALLATION

1. BACKFILLED



2. OPEN PIT OR ABOVE GROUND