



# ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY WATER DIVISION

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## OILFIELD WASTE AND RESERVE PIT REQUIREMENTS

The activities covered by the disposal of drilling muds and fluids are subject to the permitting requirements of Act 472 of 1949, as amended, (8-2-203). However, due to the time involved to prepare, review, and issue a construction or disposal permit, the Department of Environmental Quality (ADEQ) issues these instructions covering the proper construction, operation and closure of reserve pits with the following conditions, in order to expedite pit construction and drilling activities.

Due to the variable site, soil and geologic situations, the following conditions as a minimum, will apply:

### 1. GENERAL

1.1 The discharge of any fluids generated from any activity associated with oil and gas exploration or production to any surface or ground waters and/or any designated waters of the State is strictly prohibited. The discharge of fluids may subject the operator to enforcement actions under the provisions of Act 472 of 1949.

1.2 The Operator, prior to construction and drilling activities, should first provide the Water Division staff with information, including the location and topography, about the drill site. After reviewing the information, the Department will issue a letter of authorization for the construction, operation, and closure for the reserve pit. The authorization letter will identify any special Departmental requirements, such as synthetic liners, that are specific for the proposed location. The Operator should complete and return a Disposition of Oilfield Waste Form within 30 days of fluid disposal activities.

### 2. CONSTRUCTION

2.1 Each reserve pit shall be constructed with a natural or synthetic liner, or combination thereof, which when compacted or combined have a hydraulic gradient of  $1.0 \times 10^{-7}$  cm/sec. Such liners include but are not limited to the following:

(a) A synthetic liner of at least 20 mils thickness with a 4 inch welded seam overlap completely covering the pit bottom and sides which meets the hydraulic conductivity standard listed above.

(b) A compacted clay or bentonite liner of at least twenty four (24) inch thickness that completely covers the sides and bottom of the pit which meets the hydraulic conductivity standard listed above. Clay compaction should be conducted in six inch lifts and with favorable soil conditions, i.e., the material not being extremely dry or wet. If a sufficient quantity or quality of clay is not available on-site then additional clay material may be brought in to achieve the hydraulic conductivity standard listed above. If however, a sufficient amount of clay is not available and/or if during pit construction a rock substrate is encountered, then the pit must be lined with at least a 20 mil synthetic liner.

### 3. OPERATIONS

3.1 During drilling operations the operator shall maintain a minimum of at least two (2) feet of freeboard at all times in the reserve pit. Any discharge, overflow or seepage from a reserve pit must be reported immediately to the Water Division staff at the Little Rock at 682-0648 or to a local ADEQ office.

3.2 Pit levees or walls shall be protected and maintained at all times to prevent deterioration, subsequent overflow and/or leakage of fluids to the Waters of the State. In addition, pit liners shall also be maintained and protected from deterioration, puncture and leakage of fluids until such time that the pit is emptied and closed.

3.3 The Operator, Drilling Contractor and other parties involved with drilling activities shall be prohibited from placing in the reserve pit any waste oil, hydraulic fluids, transmission fluids, completion fluids, trash or any other Nonhazardous Oilfield Waste (NOW) at any time before during or after the completion of drilling activities.

### 4. FLUID DISPOSAL

4.1 Reserve pit fluids generated or transported in State shall be disposed of in a manner approved by the Department and be disposed by only those companies that have obtained a valid Disposal Permit from the ADEQ.

(a) A Disposal Company's permit requires them to provide the Department with a monthly report on the volume of the water hauled and location of the well sites from which it is hauled.

(b) The operator must complete a Disposition of Oilfield Waste Form within thirty (30) days after the completion of fluid disposal activities and return to the Water Division of the ADEQ.

(c) If an Operator plans to have pit fluids land applied, only those Companies permitted through the ADEQ to land apply those fluids shall be allowed to conduct land application activities. Each land application Permittee must provide the following information from each well site: (1) a copy of the land owners agreement, (2) an analysis of the site soils and pit water, and all other information as detailed in the conditions of their permit.

4.2 Anyone wishing to dispose of drilling mud by pumping back down hole should receive prior approval from this Department and the Arkansas Oil and Gas Commission.

4.3 The proper disposal of any liquids produced and separated during the life of the well will remain the responsibility of the Production Company.

4.4 All chemical completion liquids high in total dissolved solids concentration, such as KCL, should be segregated in a reasonable manner from the waste water contained in the reserve pit through the use of frac tanks, auxiliary lined pits and/or any other method approved by the Department. The disposal of completion fluids in the reserve pit shall be expressly prohibited.

## 5. PIT CLOSURE

5.1 All reserve pits must be emptied in a manner approved by the Department, and in a manner to assure protection of the soils, surface and ground water. With concurrence from the landowner, each pit must be emptied of fluids, and closed by one of the following methods:

(a) Land treatment by mixing drill muds with soil from the pit levees or walls or the adjacent areas.

(b) Burial by mixing the drill muds with soil and burying or trenching the mixture on-site.

(c) Solidification of the waste with fly ash or kiln dust and burial of the material on-site.

5.2 Depending on which of the methods listed above (land treatment, burial, or solidification) is utilized for pit closure the following additional conditions must be met to insure proper closure of the pit:

(a) Moisture content prior to mixing and/or burial must be <50% by dry weight.

(b) Oil and Grease content of the material is < 3% by dry weight.

(c) Top of buried mixture must be four (4) feet below ground level.

(d) The area must be returned to grade, reclaimed and seeded within sixty (60) days after the drilling rig is removed from the site.

5.3 Contacts should be made with those State Agencies and Local Governments that may have a particular vested interest in a specific site. (i.e., Health Department, Revenue, Municipal Water Utility, etc.)

## 6. SOUTH ARKANSAS SPECIFICS

6.1 Each reserve pit or holding basin shall be constructed with a natural or synthetic liner, or a combination thereof, which when compacted or combined have a hydraulic conductivity of  $1.0 \times 10^{-7}$  cm/sec. Such liners may include but are not limited to the following:

(a) **A synthetic liner** which is at least 10 mils in thickness with 4 inch overlapping welded seams. The synthetic liner must cover the pit bottom, roll over the sides of the pit and be protected from deterioration, punctures and/or any activity which may damage the integrity of the synthetic liner.

(b) **A natural liner** consisting of at least 18 inches of natural clay which completely covers the sides and bottom of the pit and having a hydraulic conductivity of  $1.0 \times 10^{-7}$  cm/sec. This clay may be in situ or imported clay soils which are compacted (in six inch lifts) or restructured to meet the hydraulic conductivity standard listed above.

(c) **A soil mixture liner** consisting of native soils mixed with clay, bentonite, cement and/or any other additives to produce a barrier which meets the hydraulic conductivity standard listed above.

(d) **A combination liner** consisting of a combination of two or more types of liners described in this section which meets the hydraulic conductivity standard listed above.

6.2 Well test pits, Workover Pits, Emergency pits.

(a) No produced water, waste oil, or any other NOW fluids shall be placed in a well test pit, workover pit, and/or emergency pit not meeting a hydraulic conductivity standard of  $1.0 \times 10^{-7}$  cm/sec. \*This requirement may be waived in the case of an emergency incident.

(b) Each of these pit types shall be protected from surface waters by levees, walls, or ditches, where needed. No siphon hoses or opening shall be placed in such a pit as to cause or be likely to cause pollution to the Waters of the state.

(c) Liquid levels in these pit types shall not be permitted to rise within two feet of the top of any pit levees or walls. Pit levees shall be maintained at all times to prevent deterioration, overflow or leakage of any NOW fluids.

(d) Within thirty (30) days after the completion of a well test, workover, or emergency each pit shall be emptied of all fluids, waste oil and any NOW fluids and must remain empty of produced fluids during periods of nonuse.