

STATE OF LOUISIANA  
DEPARTMENT OF NATURAL RESOURCES  
OFFICE OF CONSERVATION  
BATON ROUGE, LOUISIANA

January 20, 1986

AMENDMENT TO STATEWIDE ORDER NO. 29-B

Amendment concerning the storage, treatment, and disposal of nonhazardous oilfield waste generated from the drilling and production of oil and gas wells; the construction, operation, monitoring, and closure of pits used to store produced water and other nonhazardous oilfield waste; and the reuse of physically, chemically, biologically, or otherwise processed nonhazardous oilfield waste.

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Pursuant to power delegated under the laws of the State of Louisiana and particularly Title 30 of the Louisiana Revised Statutes of 1950, Sections 30:4 C (1) (2) (3) (6) (8) (9) (10) (14) (16) and I; and after public hearings held under Docket Nos. UIC 85-16 and 85-39 in Baton Rouge, Louisiana on August 5 and December 3, 1985, and following publication of notice as required by the Louisiana Administrative Procedure Act, Title 49, Sections 951 through 968 of the Louisiana Revised Statutes of 1950, as amended, the following rules and regulations are promulgated by the Commissioner of Conservation as being reasonably necessary to govern the storage, treatment, and disposal of nonhazardous oilfield waste generated from the drilling and production of oil and gas wells; the construction, operation, monitoring, and closure of pits used to store produced water and other nonhazardous oilfield waste; and the reuse of physically, chemically, biologically, or otherwise processed nonhazardous oilfield waste.

Section XV - POLLUTION CONTROL

2.0 Onsite Storage, Treatment and Disposal of Nonhazardous Oilfield Waste (NOW) Generated from the Drilling and Production of Oil and Gas Wells

2.1 Definitions

Community Saltwater Disposal Well or System is defined in Paragraph 13 of this Section.

Contamination is the introduction of substances or contaminants into a groundwater aquifer, a USDW or soil in such quantities as to render them unusable for their intended purposes.

Elevated Wetland Area is a wetland area which is not normally inundated with water and where land mass and levee material are available for mixing with waste fluids during closure of a pit.

Groundwater Aquifer is water in the saturated zone beneath the land surface that contains less than 10,000 mg/l TDS.

Hydrocarbon Storage Brine is well water, potable water, rainwater, or brine (partially saturated to completely saturated) used as a displacing fluid in hydrocarbon storage well operations.

Mining Water is well water, potable water, rainwater, or unsaturated brine which is injected into a brine solution mining well for recovery as saturated brine.

Manufactured Liner means any man-made synthetic material of sufficient size and qualities to sustain a hydraulic conductivity no greater than  $1 \times 10^{-7}$  cm/sec after installation and which is sufficiently reinforced to withstand normal wear and tear associated with the installation and pit use without damage to the liner or adverse affect on the quality thereof. For purposes of this Paragraph and Paragraph 13, a manufactured liner used in pit construction must meet or exceed the following standards:

<u>Parameter or Test</u>	<u>Standard</u>
Thickness (average)	≥ 10 mil (.01 in)
Breaking Strength (Grab Method)*	90 lbs
Bursting Strength*	140 psi
Tearing Strength*	25 lbs
Seam Strength*	50 lbs

\*Testing is to be performed according to ASTM method D-751, latest revision.

NOW is nonhazardous oilfield waste.

Nonhazardous Oilfield Waste is defined in Paragraph 13 of this Section.

Onsite for purposes of this Section means on the same lease or contiguous property owned by the lessor, or within the confines of a drilling unit established for a specific well or group of wells.

Operation of Oil and Gas Facilities as used in this Paragraph means all oil and gas wells, disposal wells, enhanced recovery injection wells and facilities, flowlines, field storage and separation facilities, natural gas processing and/or gas sweetening plants, and compressor stations.

Pit for purposes of this Paragraph means a natural topographic depression or man-made excavation used to hold produced water or other nonhazardous oilfield waste, hydrocarbon storage brine, or mining water. The term does not include lined sumps less than 660 gallons or containment dikes, ring levees or firewalls constructed around oil and gas facilities.

Produced Water includes liquids and suspended particulate matter that is obtained by processing fluids brought to the surface in conjunction with the recovery of oil and gas from underground geologic formations, with underground storage of hydrocarbons, or with solution mining for brine.

Production pits are either earthen or lined storage pits for collecting NOW sediment periodically cleaned from tanks and other producing facilities, for storage of produced water or other nonhazardous oilfield wastes produced from the operation of oil and gas facilities, or used in conjunction with hydrocarbon storage and solution mining operations as follows:

- a. Burn Pits are earthen pits intended for use as a place to temporarily store and periodically burn nonhazardous oilfield waste (excluding produced water) collected from tanks and facilities.
- b. Compressor Station Pits are lined or earthen pits intended for temporary storage or disposal of fresh water condensed from natural gas at a gas pipeline drip or gas compressor station.
- c. Natural Gas Processing Plant Pits are lined or earthen pits used for the storage of process waters or stormwater runoff. No produced water may be stored in a natural gas processing plant pit.
- d. Produced Water Pits are lined or earthen pits used for storing produced water and other nonhazardous oilfield wastes, hydrocarbon storage brine, or mining water.
- e. Washout Pits are lined earthen pits used to collect wash water generated by the cleaning of vacuum truck tanks and other vessels and equipment only used to transport nonhazardous oilfield waste. Any materials other than NOW are prohibited from being placed in such pits.
- f. Well Test Pits are small earthen pits intended for use to periodically test or clean up a well.
- g. Emergency Pits are lined or earthen pits used to periodically collect produced water and other NOW fluids only during emergency incidents, rupture or failure of other facilities.

Reserve Pits are temporary earthen pits used to store only those materials used or generated in drilling and workover operations.

Submerged Wetland Area is a wetland area which is normally inundated with water and where only levee material is available for mixing with waste fluids during closure of a pit.

Underground Source of Drinking Water (USDW) for the purpose of administering these rules and regulations is defined in Paragraph 1 of this Section.

Upland Area is an area which is not identified as a wetland and includes farm land, pasture land, recreational land, and residential land.

## 2.2 General Requirements

- A. Produced water generated from the drilling and production of oil and gas wells shall be disposed of into subsurface formations not productive of hydrocarbons, unless discharged or disposed of according to the provisions of Subparagraph 2.2(E) or transported offsite in accordance with Paragraph 13 of this Section.
- B. Produced water may be disposed of by subsurface injection into legally permitted or authorized operators saltwater disposal wells, commercial saltwater disposal wells, enhanced recovery injection wells, community saltwater disposal wells, or gas plant disposal wells. The use of hydrocarbon storage brine and mining water in storage and/or mining operations is not considered to be disposal.
- C. Contamination of a groundwater aquifer or a USDW with NOW is strictly prohibited. In addition, the injection of NOW into a groundwater aquifer or a USDW is strictly prohibited.
- D. Produced water and other NOW generated in the drilling and production of oil and gas wells shall not be disposed of into a zone producing or productive of hydrocarbons unless such disposal is approved by the Office of Conservation after a public hearing or unless prior approval to use the proposed zone for such disposal can be documented.
- E. The discharge of produced water or other NOW (including drilled solids) into manmade or natural drainage or directly into State Waters is allowed only in conformance with any applicable state or federal discharge regulatory program.
- F. The use of closed NOW storage systems is encouraged by the Office of Conservation; therefore, the use of new or existing pits to store produced water, drilling fluids, and other NOW generated from the drilling and production of oil and gas wells is prohibited unless:
  - 1. notification for each pit is submitted to the Office of Conservation as outlined in Subparagraph 2.3, and
  - 2. pits are in conformance with standards set forth in Subparagraph 2.4.
- G. Unless exempted from liner requirements in 2.2(M) or (N) below, all existing produced water pits, natural gas plant pits, compressor station pits, and washout pits which are to be utilized in the operation of oil and gas or other facilities must be shown to comply with the liner requirements of Subparagraph 2.4(A)(1) or be permanently closed in accordance with the pit closure criteria of Subparagraphs 2.6 and 2.7 within thirty-six (36) months of the effective date of this Amendment. A certification attesting to compliance with these requirements shall be submitted to this Office in a timely manner.
- H. All existing pits which are not to be utilized in the operation of oil and gas or other facilities must be permanently closed according to the requirements of Subparagraphs 2.6 and 2.7 within thirty-six (36) months of the effective date of this Amendment. A certification attesting to compliance with these requirements shall be submitted to this Office in a timely manner.
- I. Within six (6) months of the effective date of this Amendment, operators of existing pits are required to comply with all applicable operational requirements of Subparagraphs 2.4 A(2) and (4), B(1), (2), and (3), C(2), (4), (5), and (6), D(2), (4) and (5) and E(1), (3),(4) and (6).
- J. Production pits, except for those identified in 2.2 (K) and (N) below, may not be constructed in a "V" or A zone as determined by flood hazard boundary or rate maps and other information published by the Federal Emergency Management Agency (FEMA), unless such pits have levees which have been built at least one (1) foot above the 100 year flood level and able to withstand the predicted velocity of the 100 year flood. Location, construction and use of such pits is discouraged.

- K. Production pits located within inland tidal waters, lakes bounded by Gulf of Mexico or saltwater marshes must be constructed to maintain a levee with an elevation of at least two (2) feet above mean high tide, the liquid level in pit(s) shall not be permitted to rise within two (2) feet of top of pit levee or walls, and any surface water discharge from an active pit must be done in accordance with appropriate state or federal regulatory programs. Such discharge must be piped to open water (within the marsh) that receives good flushing action and shall not otherwise significantly increase the salinity of the receiving body of water or marsh. Location, construction, and use of such pits is discouraged.
- L. Within six (6) months of the completion of the drilling or workover of any permitted well, the operator (generator) shall certify to the Commissioner the types and number of barrels of ~~NSW~~ generated, the disposition of such waste, and further certify that such disposition was conducted in accordance with applicable rules and regulations of the Office of Conservation. Such certification shall become a part of the well's permanent history.
- M. The following pits are exempt from the liner requirements of Subparagraph 2.4:
1. Production pits located within inland tidal waters, lakes bounded by the Gulf of Mexico, or saltwater marshes, provided that such pits are part of an approved treatment train to remove residual oil and grease from permitted produced water discharges.
  2. Natural gas processing plant pits and compressor station pits which collect and store process water and stormwater runoff.
- N. Based upon the best practical technology, production pits located within an "A" zone (FEMA) which meet the following criteria are not subject to the levee height requirements of 2.2(J) above or the liner requirements of Subparagraph 2.4 (A)(1):
1. Pit size is less than or equal to 10' x 10' x 4' deep;
  2. Such pit contains only produced brine; and
  3. Such pit is utilized for gas wells producing less than 25 mcf per day and less than or equal to one (1) barrel of saltwater per day (bswpd).

Evidence of contamination of a groundwater aquifer or USDW may require compliance with the monitoring program of Subparagraph 2.5, compliance with the liner requirements of Subparagraph 2.4 (A)(1), or immediate closure of the pit.

### 2.3 Notification

#### A. Existing Pits

1. Each pit which was constructed prior to the effective date of this amendment is an existing pit. Use of an existing pit is prohibited unless the operator has reported that pit to the Office of Conservation within six (6) months of the effective date of this rule according to the requirements of this Paragraph. Notification shall contain the information requested below. Pits closed prior to the effective date of this Amendment are not considered existing pits.
2. Within six (6) months of the effective date of this rule, operators of existing pits must submit the following information to the Office of Conservation:
  - a. For each existing pit to be utilized in the operation of oil and gas facilities, the information requested in (D)(1-8) below;
  - b. For each existing pit not to be utilized in the operation of oil and gas facilities the information requested in (D)(1-6) below;
  - c. A plan and schedule of abandonment for closure of pits identified in (b) above. Such plan must comply with the provisions of Subparagraph 2.2(H), and Subparagraphs 2.6, and 2.7. Failure to comply with the plan in a timely manner will subject an operator to appropriate civil penalties.

B. New Pits

Except for reserve pits, operators must notify the Office of Conservation of the intent to construct new pits at least ten (10) days prior to start of construction. Notification shall contain all information requested in 2.3 (D) below. The Office of Conservation may inspect any proposed pit site prior to or during construction; however, initial use of the completed pit need not be deferred if no inspection is made.

C. Reserve Pit Notification

For reserve pits used in drilling and workover operations, notification requirements of this rule shall be satisfied by application for a drilling or workover permit.

D. Notification Information Required

1. Name of facility pit (indicate whether new or existing)
2. Field designation, if applicable
3. Section, Township and Range (include approximate footage location of pit center)
4. Parish name
5. Type of pit (consistent with definitions in Paragraph 2.1)
6. Size of pit (length, width and depth)
7. Type of liner if applicable
8. Certification that each pit will or does conform to standards stipulated under Subparagraph 2.4 applicable to that type pit and that such compliance will be within the time frame described in Subparagraph 2.2(G) and (H), and (I), if applicable.

2.4 Pit Classification, Standards, and Operational Requirements

Pits shall meet the following criteria as applicable:

A. Produced Water, Natural Gas Plant, Compressor Station and Washout Pits

1. Except where exempted by Subparagraph 2.2 (M) and (N), groundwater aquifer and USDW protection for above-listed pits shall be provided by one of the following:
  - a. A liner along the bottom and sides of pits which has the equivalent of 3 continuous feet of recompacted or natural clay having a hydraulic conductivity no greater than  $1 \times 10^{-7}$  cm/sec. Such liners include, but are not limited to the following:
    - i. Natural Liner - natural clay having a hydraulic conductivity meeting the requirements of (a) above.
    - ii. Soil Mixture Liner - soil mixed with cement, clay-type, and/or other additives to produce a barrier which meets the hydraulic conductivity requirements of (a) above.
    - iii. Recompacted Clay Liner - in situ or imported clay soils which are compacted or restructured to meet the hydraulic conductivity requirements of (a) above.
    - iv. Manufactured Liner - synthetic material that meets the definition in Subparagraph 2.1 and is equivalent or exceeds the hydraulic conductivity requirements of (a) above. Pits constructed with a manufactured liner must have side slopes of 3:1 and the liner at the top of the pit must be buried in a 1' wide and 1' deep trench. A sufficient excess of liner material shall be placed in the pit to prevent tearing when filled with NOW.
    - v. Combination Liner - a combination of two or more types of liners described in this section which meets the hydraulic conductivity requirements of (a) above.

2.4 A. b. Any other alternate groundwater aquifer and USDW protection system acceptable to the Office of Conservation.

2. Pits shall be protected from surface waters by levees or walls and by drainage ditches, where needed, and no siphon or openings will be placed in or over levees or walls that would permit escaping of contents so as to cause pollution or contamination. Authorized surface discharges of pit contents under federal and/or state regulatory programs are not considered to be pollution or contamination as used herein.
3. A representative of the Office of Conservation must be given an opportunity to inspect prior to and during construction of the pit as provided under Subparagraph 2.3(B).
4. Liquid levels in pits shall not be permitted to rise within two (2) feet of top of pit levees or walls. Pit levees or walls shall be maintained at all times to prevent deterioration, subsequent overfill, and leakage of NOW to the environment.
5. When use of a pit will be permanently discontinued by the operator of record, the Office of Conservation shall be notified in writing. Pits shall be emptied of all fluids in a manner compatible with all applicable regulations and closed in accordance with Subparagraphs 2.6 and 2.7 within six (6) months of abandonment.

B. Reserve Pits

1. Pits shall be protected from surface waters by levees or walls and by drainage ditches, where needed, and no siphons or openings will be placed in or over levees or walls that would permit escaping of contents so as to cause pollution or contamination. Authorized surface discharges of pit contents under federal or state regulatory programs are not considered to be pollution or contamination as used herein.
2. Liquid levels in pits shall not be permitted to rise within two (2) feet of top of pit levees or walls. Pit levees or walls shall be maintained at all times to prevent deterioration, subsequent overfill, and leakage of NOW to the environment.
3. Operators shall prevent the placing of produced water, waste oil, trash, or any other material into a reserve pit which would increase the difficulty in clean-up of the pit or otherwise harm the environment. Such material shall be properly stored and disposed of according to applicable state or federal regulations.
4. Pits shall be emptied of fluids in a manner compatible with all applicable regulations, and closed in accordance with Subparagraphs 2.6 and 2.7 within six (6) months of completion of drilling or workover operations.

C. Burn Pits

1. Pits shall be constructed in such a manner as to keep fire hazards to a minimum, and in no case shall be located less than one hundred (100) feet from a well location, tank battery, separator, heater-treater, or any and all other equipment that may present a fire hazard.
2. Pits shall be protected from surface waters by levees or walls and by drainage ditches, where needed, and no siphons or openings will be placed in or over levees or walls that would permit escaping of contents so as to cause pollution or contamination.
3. A representative of the Office of Conservation must be given an opportunity to inspect prior to and during construction of the pit as provided under Subparagraph 2.3 (B).
4. Any burning process shall be carried out in conformance with applicable Air Quality Regulations. Notification as required by said regulation shall be made to the Air Quality Division, Department of Environmental Quality.

- 2.4 C. 5. No produced water, radioactive material (except industry-accepted and license-approved radioactive material utilized in oil field operations, and radioactive material naturally occurring in the produced fluids), or other noncombustible waste products shall be placed in pits, except water or emulsion which may be associated with crude oil swabbed or otherwise produced during test operations, or during tank or other vessel cleaning operations. NOW must be removed or burned periodically to assure that storage of materials in the pit is kept to a minimum.
6. Liquid levels in pits shall not be permitted to rise within two (2) feet of top of pit levees or walls. Pit levees or walls shall be maintained at all times to prevent deterioration, subsequent overflow, and leakage of NOW to the environment.
7. When use of pits will be permanently discontinued by the operator of record, the Office of Conservation shall be notified in writing. Pits shall be emptied of fluids in a manner compatible with all applicable regulations, and closed in accordance with Subparagraphs 2.6 and 2.7 within six (6) months of abandonment.

D. Well Test Pits

1. Pits shall be constructed in such a manner as to keep fire hazards to a minimum, and in no case shall be located less than one hundred (100) feet from a well location, tank battery, separator, heater-treater, or any and all other equipment that may present a fire hazard.
2. Pits shall be protected from surface waters by levees or walls and by drainage ditches, where needed, and no siphons or openings will be placed in or over levees or walls that would permit escaping of contents so as to cause pollution or contamination.
3. A representative of the Office of Conservation must be given an opportunity to inspect prior to and during construction of the pit as provided under Subparagraph 2.3 (B).
4. Within thirty (30) days after completion of a well test, pits shall be emptied of produced fluids and must remain empty of produced fluids during periods of nonuse.
5. Liquid levels in pits shall not be permitted to rise within two (2) feet of top of pit walls or dikes. Pit levees or walls shall be maintained at all times to prevent deterioration, subsequent overflow, and leakage of NOW to the environment.
6. When use of pits will be permanently discontinued, the Office of Conservation shall be notified in writing. Pits shall be emptied of fluids in a manner compatible with all applicable regulations, and closed in accordance with Subparagraphs 2.6 and 2.7 within six months of abandonment.

E. Emergency Pits

1. Groundwater aquifer and USDW protection for emergency pits shall be evaluated on a case-by-case basis. Operators who intend to utilize existing or new emergency pits without liners must demonstrate by written application to the Office of Conservation that groundwater aquifer and USDW contamination will not occur; otherwise, emergency pits shall be lined. Applications to demonstrate unlined pits will not contaminate groundwater aquifers and USDW's shall at a minimum address the following:
  - a. Emergency Incident Rate - operator shall estimate the number of times a pit will be utilized each year. A detailed discussion of the facility operation and reasons for the emergency incident rate must be addressed.
  - b. Soil Properties - operator shall describe and evaluate soil properties onsite. Soil hydraulic conductivity and physical properties must be addressed to assess potential groundwater aquifer and USDW impacts.
  - c. Groundwater Aquifer Evaluation - water quality, groundwater aquifer, and USDW depth shall be evaluated.
  - d. Produced Water Composition (total dissolved solids and oil and grease) - must be determined to assess potential impacts on the site.

2. All emergency pits required to be lined must conform to hydraulic conductivity requirements in 2.4(A)(1) above.
3. No produced water or any other NOW shall be intentionally placed in any emergency pit not meeting the hydraulic conductivity requirements ( $1 \times 10^{-7}$  cm/sec for three (3) continuous feet of clay) except in the case of an emergency incident. In emergency situations, notice must be given to the Office of Conservation within 24 hours after discovery of the incident. Produced water and any other NOW must be removed from the pit within seven (7) days following termination of the emergency situation.
4. Pits shall be protected from surface waters by levees and by drainage ditches, where needed, and no siphons or openings will be placed in or over levees or walls that would permit escaping of contents so as to cause pollution or contamination. Surface discharges of pit contents under federal or state permits are not considered to be pollution or contamination as used herein.
5. A representative of the Office of Conservation must be given an opportunity to inspect prior to and during construction of the pits as provided under Subparagraph 2.3(B).
6. Liquid level in pits shall not be permitted to rise within two (2) feet of top of pit levees. Pit levees or walls shall be maintained at all times to prevent deterioration, subsequent overfill, and leakage of NOW to the environment.
7. When use of pits will be permanently discontinued, the Office of Conservation shall be notified in writing. After notification to the Office of Conservation, pits shall be emptied of all fluids in a manner compatible with all applicable regulations, and closed in accordance with Subparagraphs 2.6 and 2.7 within six (6) months of abandonment.

F. Office of Conservation Corrective Action and Closure Requirement

Should the Office of Conservation determine that continued operation of pits specified in this Subparagraph may result in contamination of a groundwater aquifer or a USDW, or the discharge of fluids into manmade or natural drainage or directly into State waters, or contamination of soils outside the confines thereof, further use of the pit shall be prohibited until conditions causing or likely to cause contamination have been corrected. If corrective measures are not satisfactorily completed in accordance with an Office of Conservation compliance order or schedule, the Commissioner may require closure of the pit. When an order for closure is issued, a pit shall be closed in accordance with Subparagraphs 2.6 and 2.7 and the operator must comply with any closure schedule issued by the Office of Conservation.

2.5 Monitoring Program

- A. Upon a determination by the operator or the Office of Conservation that any pit subject to this rule is likely to contaminate a groundwater aquifer or a USDW, the Office of Conservation shall require the timely submission of a plan for the prevention of such contamination. Such plan may include using an under-built drainage and collection system, monitoring wells, and/or other means that the Office of Conservation may approve to prevent or detect contamination. Any required monitor wells shall be registered with the appropriate State agency.
- B. When required by the Office of Conservation, monitoring shall be conducted on a quarterly schedule. A written report summarizing the results of such monitoring shall be submitted to the Office of Conservation within thirty (30) days of the end of each quarter.
- C. If monitoring of a groundwater aquifer or USDW indicates contamination due to a discharge from a pit, the owner or operator shall immediately notify the Office of Conservation. Within thirty (30) days, the operator shall empty the pit of all NOW and submit a remedial plan for prevention of further contamination of any groundwater aquifer or any USDW. Upon approval, the remedial plan shall be implemented by the operator and monthly progress reports, reviewing actions taken under the plan and their results, will be filed with the Office of Conservation until all actions called for in the plan have been satisfactorily completed.

- D. Notification received by the Office of Conservation, pursuant to 2.5(A), (B), or (C) above, of any contamination of a groundwater aquifer or a USDW as the possible result of a discharge, or information obtained by the exploitation of such notification shall not be used against the reporting owner or operator in any criminal action, including but not limited to those provided for by Louisiana Revised Statutes 30:18, except in a prosecution for perjury or for giving a false statement.

## 2.6 Pit Closure

- A. Pits must be closed properly to assure protection of soil, surface water, groundwater aquifers and USDW's. Operators may close pits utilizing onsite land treatment, burial, solidification or other techniques approved by the Office of Conservation only if done so in compliance with Subparagraphs 2.7 or 2.8. Otherwise, all NOW must be manifested according to Subparagraph 13.6 and transported offsite to a permitted commercial facility.
- B. Liability for pit closure shall not be transferred from an operator to the owner of the surface land(s) on which a pit is located.
- C. For evaluation purposes prior to closure of any pit and for all closure and onsite and offsite disposal techniques, excluding subsurface injection of reserve pit fluids, nonhazardous oilfield waste (pit contents) must be analyzed for the following parameters:
1. pH
  2. Total metals content (ppm) for:
    - a. Arsenic
    - b. Barium
    - c. Cadmium
    - d. Chromium
    - e. Lead
    - f. Mercury
    - g. Selenium
    - h. Silver
    - i. Zinc
  3. oil and grease (% dry weight)
  4. Soluble salts and cationic distributions:
    - a. electrical conductivity - EC in mmhos/cm (millimhos);
    - b. sodium adsorption ratio - SAR;
    - c. exchangeable sodium percentage - ESP(%); and
    - d. cation exchange capacity - CEC (milliequivalents/100 gm soil).
- D. Laboratory Procedures for Nonhazardous Oilfield Waste Analyses
1. Soluble salts, cationic distributions, and oil and grease (organics):
    - a. Samples are to be analyzed using standard soil testing procedures (latest revision) as described in the following:
      - i. Methods of Soil Analysis (Page, 1982);
      - ii. Handbook No. 60 (USDA, 1954); and
      - iii. Test Methods for Evaluating Solid Waste (EPA/SW 846, 1982, 2nd Rev.).
    - b. The pH, Electrical Conductivity (EC), soluble cations, and SAR are to be determined for saturated paste extracts. The pH and EC are read direct. Metal cations (Ca, Mg, and Na), required for calculating the SAR, are determined by flame atomic absorption spectroscopic technique (AAS).
    - c. Cation Exchange Capacity (CEC) is determined by the  $\text{NaC}_2\text{H}_3\text{O}_2$  method buffered at pH 8.0. Exchangeable cations (Na, K, Mg and Ca) are determined by  $\text{NH}_4\text{C}_2\text{H}_3\text{O}_2$  extraction buffered at pH 7.0.
    - d. Exchangeable Sodium Percentage (ESP) is calculated as adsorbed Na divided by the CEC and expressed as a whole number by multiplying by 100.
    - e. Oil and grease is assayed gravimetrically following extraction with 15% diethylether in dichloromethane (Brown and Deuel, 1981).

2. Total metals:

- a. Samples are to be analyzed for total metals following vigorous digestion with nitric acid as described in Methods for Chemical Analysis of Water and Wastes (EPA 1979).
  - b. Silver, Barium, Cadmium, Chromium, Lead and Zinc are determined by direct aspiration AAS, graphite furnace AAS or other approved EPA test protocol.
  - c. Arsenic and selenium are determined by hydride generation and flame AAS, graphite furnace AAS or other approved EPA test protocol.
  - d. Mercury is analyzed by cold vapor technique.
- E. Documentation of testing and closure activities, including onsite disposal of NOW, shall be maintained in operator's files for at least three (3) years after completion of closure activities. Upon notification, the Office of Conservation may require the operator to furnish these data for verification of proper closure of any pit. If proper onsite closure has not been accomplished, the operator will be required to bring the site into compliance with applicable requirements.
- F. Reserve pits utilized in the drilling of wells less than 5,000 feet in depth are exempt from the testing requirements of Subparagraphs 2.6(C) and 2.7 provided the following conditions are met:
1. The well is drilled using only fresh water "native" mud which contains no more than 25 lbs/bbl bentonite, .5 lbs/bbl caustic soda or lime, and 50 lbs/bbl barite; and
  2. Documentation of the above condition is maintained in the operator's files for at least three (3) years after completion of pit closure activities.

2.7 Pit Closure Techniques and Onsite Disposal of NOW

- A. Reserve pit fluids, as well as drilling muds, cuttings, etc. from holding tanks, may be disposed of onsite provided the technical criteria of 2.7(C), (D), (E) or (F) below are met, as applicable. All NOW must be either disposed of on-site or transported to an approved commercial facility or transfer station in accordance with the requirements of Paragraph 13 of this Section or under the direction of the Commissioner.
- B. Prior to conducting onsite pit closure activities, an operator must make a determination that the requirements of this Subparagraph are attainable.
- C. For all pit closure techniques in this Subparagraph, except solidification, waste/soil mixtures must not exceed the following criteria:
  1. Range of pH: 6 - 9
  2. Total metals content (ppm):

<u>PARAMETER</u>	<u>LIMITATION</u>
Arsenic	10
Barium	2000
Cadmium	10
Chromium	500
Lead	500
Mercury	10
Selenium	10
Silver	200
Zinc	500

D Land Treatment

Pits containing NOW may be closed onsite by mixing wastes with soil from pit levees or walls and adjacent areas provided waste/soil mixtures at completion of closure operations do not exceed the following criteria, as applicable, unless the operator can show that higher limits for EC, SAR, and ESP can be justified for future land use or that background analyses indicate that native soil conditions exceed the criteria:

1. In addition to the pH and metals criteria listed in 2.7 (C) above, land treatment of NOW in submerged wetland, elevated wetland, and upland areas is permitted if the oil and grease content of the waste/soil mixture after closure is  $\leq 1\%$  (dry weight).
2. Additional parameters for land treatment of NOW in elevated, freshwater wetland areas where the disposal site is not normally inundated:
  - a. Electrical conductivity (EC-solution phase):  $< 8$  mmhos/cm
  - b. Sodium adsorption ratio (SAR-solution phase):  $< 14$
  - c. Exchangeable sodium percentage (ESP-solid phase):  $< 25\%$
3. Additional parameters for land treatment of NOW in upland areas:
  - a. Electrical conductivity (EC-solution phase):  $< 4$  mmhos/cm
  - b. Sodium adsorption ratio (SAR-solution phase):  $< 12$
  - c. Exchangeable sodium percentage (ESP-solid phase):  $< 15\%$

E. Burial or Trenching

Pits containing NOW may be closed by mixing the waste with soil and burying the mixture onsite, provided the material to be buried meets the following criteria:

1. The pH and metals criteria in 2.7 (C) above.
2. Moisture content:  $< 50\%$  by weight.
3. Electrical conductivity (EC):  $\leq 12$  mmhos/cm.
4. Oil and grease content:  $\leq 3\%$  by weight.
5. Top of buried mixture must be at least five (5) feet below ground level and then covered with five (5) feet of native soil.
6. Bottom of burial cell must be at least five (5) feet above the seasonal high water table.

F. Solidification

Pits containing NOW may be closed by solidifying wastes and burying it onsite provided the material to be buried meets the following criteria:

1. pH range: 6 - 12
2. Leachate testing\* for oil and grease:  $\leq 10.0$  mg/l  
\*Note: The leachate testing method for oil and grease must be submitted in writing to the Commissioner for approval.
3. Leachate testing (EP Tox) for the following metals:
 

a. Arsenic	$\leq 0.5$ mg/l	f. Mercury	$\leq 0.02$ mg/l
b. Barium	$\leq 10.0$ mg/l	g. Selenium	$\leq 0.1$ mg/l
c. Cadmium	$\leq 0.1$ mg/l	h. Silver	$\leq 0.5$ mg/l
d. Chromium	$\leq 0.5$ mg/l	i. Zinc	$\leq 5.0$ mg/l
e. Lead	$\leq 0.5$ mg/l		
4. Top of buried mixture must be at least five (5) feet below ground level and covered with five (5) feet of native soil.
5. Bottom of burial cell must be at least five (5) feet above the seasonal high water table.
6. Solidified material must meet the following criteria\*:
  - a. Unconfined Compressive Strength (Qu):  $> 200$  lbs/in<sup>2</sup> (psi).
  - b. Permeability:  $\leq 1 \times 10^{-6}$  cm/sec
  - c. Wet/dry durability:  $> 10$  cycles to failure.

\*Note: Testing must be conducted according to ASTM or other approved methods prior to pit closure by solidification processes.

G. Offsite Disposal of NOW

1. Except for produced water, drilling, workover and completion fluids, and rainwater which may be transported by an oil and gas operator to a community well or an operators permitted Class II disposal well or discharged to surface waters where authorized, nonhazardous oilfield waste shall not be moved offsite for storage, treatment, or disposal unless transported to an approved commercial facility or transfer station in accordance with the requirements of Paragraph 13 of this Section or under the direction of the Commissioner.
2. The criteria for land treatment, burial, or solidification listed above will apply, as appropriate, to the onsite disposal of any nonhazardous oilfield waste remaining onsite.
3. NOW that fails to meet the criteria of this Paragraph for onsite disposal shall be moved offsite by the operator to a permitted commercial facility or transfer station in accordance with the requirements of Paragraph 13 of this Section.

2.8 Disposal of Reserve Pit Fluids by Subsurface Injection

A. General Provisions

1. The disposal (subsurface injection) of drilling and workover waste fluids (including reserve pit fluids) into (1) a newly drilled well which is to be plugged and abandoned or (2) into the casing annulus of a well being drilled, a recently completed well, or a well which has been worked over is prohibited, except when such injection is conducted in accordance with the requirements of this Subparagraph.
2. Injection of drilling and workover waste fluids shall not commence until approval has been granted by the Office of Conservation. Operators may apply for approval when applying for a drilling permit. Approval for injection into a well will remain valid for subsequent workovers provided the criteria in 2.8(C) below continue to be met.
3. Injection of drilling and workover waste fluids (including reserve pit fluids) shall be limited to injection of only those fluids generated in the drilling, stimulation or workover of the specific well for which authorization is requested. Reserve pit fluids may not be transported from one well location to another for injection purposes.
4. Injection of drilling and workover waste pit fluids into zones that have been tested for hydrocarbons or are capable of hydrocarbon production is prohibited, except as otherwise provided by the Commissioner.
5. Pump pressure shall be limited so that vertical fractures will not extend to the base of the USDW and/or groundwater aquifer.
6. A drilling and workover waste fluids injection site may be inspected by a duly authorized representative of the Commissioner prior to approval.
7. Drilling and workover waste fluids to be injected pursuant to the provisions of this Subparagraph are exempt from the testing requirements of Subparagraph 2.6(C).

B. Application Requirements

1. Prior to the onsite injection of reserve pit fluids, an application shall be filed by the well operator on the appropriate form. The original and one (1) copy of the application (with attachments) shall be submitted to the Office of Conservation for review and approval.
2. An application for approval of reserve pit fluid injection shall include:
  - a. Schematic diagram of well showing:
    1. total depth of well,
    2. depths of top and bottom of all casing strings and the calculated top of cement on each,
    3. size of casing, and

4. depth of the deepest USDW.
  - b. Operating data:
    1. Maximum pressure anticipated, and
    2. Estimated volume of fluids to be injected.
  - c. A copy of the electric log of the well (if run) or a copy of the electric log of a nearby well;
  - d. Additional information as the Commissioner may require.
- C. Criteria for Approval
1. Casing string injection may be authorized if the following conditions are met and injection will not endanger underground sources of drinking water:
    - a. Surface casing annular injection may be authorized provided that surface casing is set and cemented at least 200 feet below the base of the lowermost USDW, except as otherwise provided by the Commissioner; or
    - b. Injection through perforations in the intermediate or production casing may be authorized provided that intermediate or production casing is set and cemented at least 200 feet below the base of the lowermost USDW, except as otherwise provided by the Commissioner.
  2. Surface casing open hole injection may be approved provided the surface casing is set and cemented at least 200 feet below the lowermost USDW and a cement plug of at least 100 feet has been placed across the uppermost potential hydrocarbon bearing zone.

#### 2.9 Requirements for Community Saltwater Disposal Wells and Systems

- A. The use of a legally permitted saltwater disposal well and system for community saltwater disposal purposes is prohibited unless the disposal well system operator submits a statement of noncommercial operation and the information requested in 2.9 (B) below to the Office of Conservation. Such statement must indicate that the operators using the community saltwater disposal system share only in the cost of operating and maintaining the well and related storage tanks and equipment (system).
- B. The operator of an existing or proposed community saltwater disposal well and system must submit the following information to the Office of Conservation:
  1. The name of the community saltwater disposal system including the disposal well name(s) and number(s), serial number(s), Field, and Section, Township, and Range.
  2. A list of the operators using the community saltwater disposal system.
  3. A list of the producing wells (well name, number, and serial number) from which salt water going into the community saltwater system is generated.
  4. The approximate number of barrels per month of salt water received from each producing well.
  5. The method of transportation of the salt water to the community system (i.e., truck, pipeline, etc.).
- C. Within six (6) months of the effective date of this Amendment and annually thereafter, the operator of an existing community saltwater disposal system shall report the information required in 2.9(B) above to the Office of Conservation.

#### SECTION XV: POLLUTION CONTROL

##### 13.0 Off-Site Storage, Treatment and/or Disposal of Nonhazardous Oilfield Waste Generated From Drilling and Production of Oil and Gas Wells

###### 13.1 Definitions

Cell is an earthen area constructed within a land treatment facility used for the placement, treatment, disposal and degradation of nonhazardous oilfield waste.

Closed System is a system in which nonhazardous oilfield waste is stored in enclosed tanks or barges prior to being treated and/or disposed of. Pits are not utilized in a closed system.

Commercial Facility is a legally permitted waste storage, treatment and/or disposal facility which receives, treats, reclaims, stores, or disposes of nonhazardous oilfield waste for a fee or other consideration.

Commissioner is the Commissioner of Conservation of the State of Louisiana.

Community Saltwater Disposal Well or System is a saltwater disposal well within an oil or gas field which is used by operators in the field or adjacent fields for disposal of their produced water.

Generator is any person or entity who generates or causes to be generated any nonhazardous oilfield waste (NOW), sometimes referred to as "operator".

Groundwater Aquifer is defined in Paragraph 2 of this Section.

Land Treatment is a dynamic process involving the controlled application of nonhazardous oilfield waste onto or into the aerobic surface soil horizon by a commercial facility, accompanied by continued monitoring and management, to alter the physical, chemical, and biological state of the waste. Site, soil, climate, and biological activity interact as a system to degrade and immobilize waste constituents thereby rendering the area suitable for the support of vegetative growth and providing for beneficial future land use.

Offsite, for purposes of this Paragraph and Section, shall mean outside the confines of a drilling unit for a specific well or group of wells, or in the absence of such a unit, outside the confines of a lease or contiguous property owned by the lessor upon which a well is drilled.

NOW is nonhazardous oilfield waste.

Nonhazardous Oilfield Waste (NOW) is waste generated by the drilling and production of oil and gas wells and which is not regulated by the provisions of the Louisiana Hazardous Waste Regulations. Such wastes include the following:

1. Salt water (produced brine or produced water), except for salt water whose intended and actual use is in drilling, workover or completion fluids or in enhanced mineral recovery operations.
2. Oil base drilling mud and cuttings.
3. Water base drilling mud and cuttings.
4. Drilling, workover and completion fluids.
5. Production pit sludges.
6. Production storage tank sludges.
7. Produced oily sands and solids.
8. Produced formation fresh water.
9. Rainwater from ring levees and pits at production and drilling facilities.
10. Washout water generated from the cleaning of vessels (barges, tanks, etc.) that transport nonhazardous oilfield waste and are not contaminated by hazardous waste or material.
11. Washout pit water from oilfield related carriers that are not permitted to haul hazardous waste or material.
12. Nonhazardous natural gas plant processing waste which is or may be commingled with produced formation water.
13. Waste from approved salvage oil operators who only receive waste oil (BS&W) from oil and gas leases.
14. Pipeline test water which does not meet discharge limitations established by the appropriate state agency, or pipeline pig water, i.e., waste fluids generated from the cleaning of a pipeline.
15. Wastes from permitted commercial facilities.
16. Material used in crude oil spill clean-up operations.

Oil-Based Drilling Muds is any oil-based drilling fluid composed of a water in oil emulsion, organophillic clays, drilled solids and additives for down-hole rheology and stability such as fluid loss control materials, thinners, weighting agents, etc.

Pit is an earthen surface impoundment constructed to retain nonhazardous oilfield waste, often referred to as a pond or lagoon.

Reusable Material is a material that would otherwise be classified as nonhazardous oilfield waste, but which is capable of resource conservation and recovery and has been processed in whole or in part for reuse. To meet this definition, the material must have been treated physically, chemically, or biologically or otherwise processed so that the material is significantly changed (i.e., the new material is physically, chemically, or biologically distinct from the original material), and meets the criteria of Subparagraph 13.8 (F).

Salt Water (Produced Brine) is produced water from an oil or gas well with a chloride content greater than 500 ppm.

Transfer Station is a nonhazardous oilfield waste receiving and storage facility, located offsite, but operated at an approved location in conjunction with a permitted commercial facility, which is used for temporary storage of manifested nonhazardous oilfield waste for a period of 30 days or less.

Transporter is a legally permitted carrier of nonhazardous oilfield waste contained in trucks, barges, boats, or other transportation vessels.

Water-Based Drilling Muds is any water based fluid composed of fresh water, naturally occurring clays, drilled solids and additives for fluid loss control, viscosity, thinning, pH control, weight control, etc., for down-hole rheology and stability.

Offsite Storage, Treatment, and/or Disposal of Nonhazardous Oilfield Waste at Commercial Facilities

(NOTE: Onsite disposal requirements are listed in Paragraph 2 of this Section.)

A. Generators of Nonhazardous Oilfield Waste

1. For NOW taken offsite for storage, treatment, or disposal, the generator is responsible for the proper handling and transportation of such waste to assure its proper delivery to an approved commercial facility. Failure to properly transport such waste shall subject the generator to penalties provided for in La. R.S. 30:18. Each shipment must be documented as required by Subparagraph 13.6.
2. Any spills which occur during the offsite transportation of NOW shall be reported to the Office of Conservation, including the appropriate state and federal agencies, within 24 hours of the spill.
3. Operators (generators) are required to report the discovery of any unauthorized disposal of NOW by transporters, pit treaters, or any other oilfield contracting company.
4. Within six (6) months of the completion of the drilling or workover of any permitted well, the operator (generator) shall certify to the Commissioner the type(s) and number of barrels of NOW generated, the disposition of such waste, and certify further that such disposition was in accordance with applicable rules and regulations of this Office. Such certification shall become part of the well's permanent history.

B. Approval of Commercial Facility Required

The storage, treatment, and/or disposal of NOW by a commercial facility must be approved by the Commissioner as provided in this Paragraph. Subsurface disposal of salt water is required and regulated by other applicable Paragraphs of Section XV. The requirements of this Paragraph do not apply to either lease saltwater disposal wells or to community saltwater disposal wells. The unpermitted or unauthorized storage, treatment, disposal or discharge of NOW is prohibited and is a violation of these rules.

C. Approval of Transfer Station Required

The construction and operation of a transfer station must be approved by the Commissioner upon submission of a permit application according to the requirements of Subparagraph 13.3 (G).

D. Location Criteria

Commercial facilities and associated saltwater disposal wells may not be located in any area:

- 13.2 D.
1. Where the disposal well or related storage tanks, pits, treatment facilities or other equipment are within 500 feet of a residential, commercial, or public building, unless adherence to this requirement is waived by the owner of the building, or in the case of a public building, by the responsible administrative body. Any such waiver shall be in writing and must be made part of the permit application.
  2. Where the subsurface geology of any proposed injection zone (reservoir) does not exhibit the following characteristics:
    - a. adequate thickness and areal extent of the proposed injection zone; and
    - b. adequate clay confining beds separating the top of the proposed injection zone and the base of the lowermost underground source of drinking water.
  3. Where pits or land treatment facilities are located in a "V" or A zone as determined by flood hazard boundary or rate maps and other information published by the Federal Emergency Management Agency (FEMA) unless adequate levees are constructed to at least one (1) foot above the 100 year flood elevation as certified by a professional engineer or surveyor and able to withstand the velocity of the 100 year flood. Said maps and data are on file and may be viewed by interested parties at the Office of Conservation, Injection and Mining Division, Baton Rouge, La. Existing facilities located in a "V" or A zone will be required to build facility levees above the 100-year flood elevation as certified by a professional engineer or land surveyor. As conditions change and new data is made available by FEMA, owners of existing commercial facilities will be required to update their facilities accordingly.
  4. Where such area, or any portion thereof, has been designated as wetlands by the U.S. Corps of Engineers during, or prior to, initial facility application review.
  5. Where other surface or subsurface conditions exist which in the determination of the Commissioner of Conservation would cause the location to pose a threat of substantial, adverse effects on the environment at or near the location.

E. Design Criteria

1. Commercial facilities, associated saltwater disposal wells, and transfer stations shall be designed in such a manner as to prevent the movement of waste materials into groundwater aquifers or underground sources of drinking water (USDW's) or to prevent the discharge of waste materials into manmade or natural drainage or directly into State waters unless a discharge permit has been received from the appropriate state or federal agency.
2. Commercial facilities and transfer stations shall be designed and constructed in accordance with, but not limited to, the following requirements:
  - a. Section XV and other applicable sections of this Order;
  - b. Retaining walls (levees) shall be built around all above-ground storage tanks to a level that will provide sufficient capacity to retain the contents of each tank and prevent the escape of stored wastes due to tank leakage, or some other cause;
  - c. Spill containment systems shall be built around unloading areas to prevent the escape of any wastes spilled during off-loading; and
  - d. Limited access shall be provided by a lockable gate system. In addition, the need for a six foot (6') chain link fence around an entire facility or any portion of a facility will be determined after a site investigation by the Commissioner or his designated representative. Gates shall be locked except during the hours a facility is permitted to receive nonhazardous oilfield waste.

### 13.3 Permit Application Requirements for Commercial Facilities and Transfer Stations

#### A. Application and Permit Required

Every person who intends to construct and operate a new offsite commercial facility, or make a major modification to an existing facility, shall file a permit application with the Office of Conservation.

#### B. Notice of Intent

1. At least thirty (30) days prior to filing such application, the applicant shall publish a notice of intent to apply. Such notice shall contain sufficient information to identify the following:
  - a. Name and address of the applicant;
  - b. The location of the proposed facility;
  - c. The nature and content of the proposed waste stream(s);
  - d. The method(s) of storage, treatment, and/or disposal to be used.
2. The Notice of Intent shall be published in both the official state journal, The State Times, and the official journal of the parish in which the proposed facility will be located.
3. Such notice shall be in bold-face type and not less than one-quarter (1/4) page in size and shall be published on three (3) separate days in each journal.

#### C. General Information

Except for the filing and hearing fees, the following general information must be provided in duplicate in each application for approval to operate a commercial facility:

1. A \$500.00 non-refundable filing fee.
2. A \$300.00 non-refundable hearing fee.
3. A list of names and addresses of the principal officers of the company or corporation.
4. Documentation of compliance with the location criteria of Subparagraph 13.2(D)(1). Provide a list of the names and addresses of all property owners, residents, off-set operators and industrial facilities within one-quarter (1/4) mile of the proposed facility or disposal well. Include copies of waivers where applicable. Names and addresses of local governing authorities must also be included. Attached to this list must be a simplified drawing (map) showing the following information:
  - a. Property boundaries of the commercial facility;
  - b. The boundaries and ownership of all land adjacent to the commercial facility;
  - c. The location and identification of all storage tanks and/or pits, treatment facilities, the disposal well, and all residential, commercial, or public buildings within one-quarter (1/4) mile of the facility.
5. For operators proposing the construction and operation of a disposal well, complete the appropriate application form, including all required attachments.
6. A copy of the title to the property upon which the facility will be located. If a lease or other agreement is in effect on the property, a copy of this instrument shall be included in the application.
7. A parish map of sufficient scale to identify the location of the proposed facility.

- 13.3 C. 8. A detailed statement of the proposed method of operation of the facility, including procedures for the receipt, storage, treatment and/or disposal of wastes. This statement shall include a complete explanation of procedures for witnessing the receipt, sampling, and testing of wastes to assure that only permitted nonhazardous oilfield wastes are accepted.
9. Documentation that the facility and/or disposal well will have limited access through a lockable gate system with appropriate fencing.
10. Financial Responsibility (Insurance)
- a. Evidence of financial responsibility for any liability for damages which may be caused to any party by the escape or discharge of any material or waste from the commercial facility or transfer station must be provided by the applicant prior to issuance of a permit.
  - b. Financial responsibility may be evidenced by filing a certificate of insurance (indicating the required coverage is in effect and all deductible amounts applicable to the coverage), letter of credit, bond, certificate of deposits issued by and drawn on Louisiana banks, or any other evidence of equivalent financial responsibility acceptable to the Commissioner.
  - c. In no event shall the amount and extent of such financial responsibility be less than the face amounts per occurrence and/or aggregate occurrences as set by the Commissioner below:
    1. \$1,000,000 minimum coverage for commercial facilities which operate open pits; or
    2. \$500,000 minimum coverage for any other commercial facility which stores, treats or disposes of nonhazardous oilfield waste solids (i.e. oil or water base drilling fluids, etc.); or
    3. \$250,000 minimum coverage for a commercial salt water disposal facility which utilizes underground injection and a closed storage system; and
    4. \$100,000 minimum coverage for each transfer station operated in conjunction with a legally permitted commercial facility subject to the guidelines of this Paragraph.

Note: The Commissioner retains the right to increase the face amounts set forth above as needed in order to prevent waste and to protect the public health, safety, and welfare.
  - d. If insurance coverage is used to meet the financial responsibility requirement, it must be provided by a company licensed to operate in the State of Louisiana.
  - e. For a commercial facility which operates open earthen pits, such insurance must provide sudden and accidental pollution liability coverage as well as environmental impairment liability coverage.
  - f. For any commercial facility or transfer station which does not operate open earthen pits, such insurance must provide sudden and accidental pollution liability coverage.
  - g. The application shall contain documentation of the method by which proof of financial responsibility will be provided by the applicant. Where applicable, include copies of a draft letter of credit, bond, or any other evidence of financial responsibility acceptable to the Commissioner.
  - h. Prior to making a final permit decision, final (official) documentation of financial responsibility must be submitted to and approved by the Commissioner.
  - i. A copy of the insurance policy subsequently issued in conjunction with any certificate of insurance is to be immediately filed with the Office of Conservation upon receipt by the operator.
  - j. Such documentation of financial responsibility must be renewable on April 1 of each year. Existing facilities must comply with this requirement upon the next renewal date.

13.3 C. 11. Provisions for Adequate Closure (Bonding)

- a. Documentation that a bond or irrevocable letter of credit will be provided for adequate closure of the facility. Such documentation shall be provided as follows:
    - i. Submission of a detailed cost estimate for adequate closure of the proposed facility. This cost estimate must include a detailed description of proposed future closure procedures including, but not limited to, plugging and abandonment of the disposal well(s) (if applicable), plugging of any monitor wells according to applicable state regulations, closing out any pits or land treatment cells, removing all surface equipment, and returning the environment as close as possible to its natural state. The closure plan and cost estimate must be prepared by a independent professional consultant, must include provisions for closure acceptable to the Commissioner, and must be designed to reflect the costs to the Commissioner to complete the approved closure of the facility.
    - ii. Submission of a draft irrevocable letter of credit or bond in favor of the State of Louisiana and in a form which includes wording acceptable to the Commissioner.
  - b. Upon completion of the application review process, the Commissioner will set the amount of the required bond or irrevocable letter of credit.
  - c. The bond or letter of credit must then be submitted to and approved by the Commissioner prior to issuance of a final permit decision.
  - d. The bond or letter of credit must be renewable on October 1 of each year. Existing facilities must comply with this requirement upon the next renewal date.
12. Verification that a discharge permit has been obtained from the appropriate state or federal agencies or copies of any applications submitted to such agencies. If a facility does not intend to discharge treated waste water or other water, a completed and notarized Affidavit of No Discharge must be provided.
13. In order to document compliance with the location criteria of Subparagraph 13.2(D)(2), commercial facilities which propose to permit a disposal well must provide strike and dip geologic cross sections intersecting at the location of the disposal well for which a permit is sought. These cross sections must include, at a minimum, available log control, geologic units, and lithology from the surface to the lower confining bed below the injection zone. The sections shall be on a scale sufficient to show the local geology in at least a two-mile radius from the proposed disposal well. The following information must be included on these cross-sections:
- a. The base of underground sources of drinking water (USDW's);
  - b. The vertical and lateral limits of the proposed injection zone (reservoir);
  - c. The vertical and lateral limits of the upper and lower confining beds; and
  - d. The location of faults or other geologic structures.
14. A list of all other licenses and permits needed by the applicant to conduct the proposed commercial activities. Include identification number of applications for those permits or licenses or, if issued, the identification numbers of the permits or licenses.

D. Additional Permit Application Requirements for Closed Systems

1. In addition to the information requested in Paragraph 13.3(C) above, the following information must be provided in duplicate in each application for approval of a closed system:

13.3 D. A detailed schematic diagram of the proposed facility of sufficient scale to show placement of access roads, buildings, unloading areas, storage tanks or barges (including design capacities), treatment system, levees, flow lines, filters, the injection well and all other equipment and operational features of the storage, treatment and/or disposal system.

2. Documentation of compliance with the location criteria of Subparagraph 13.2 (D)(4).

E. Additional Permit Application Requirements for Commercial Facilities Utilizing Pits for Temporary Storage of NOW

Pits will not be approved for the permanent disposal of NOW. The construction and use of a receiving pit for temporary storage of NOW may be approved if the requirements of this Subparagraph are met. A receiving pit for temporary storage will only be approved for use as a gathering, collection, and/or temporary storage location if specifically designed for use in connection with a NOW treatment system (i.e. land treatment, chemical fixation, physical dewatering, incineration, etc.). Any proposed pit for temporary storage is not to be constructed until a permit for the NOW treatment system has been issued. Such temporary storage pit must be located on the site of the permitted NOW treatment system and such pit may not exceed a design capacity of more than 50,000 barrels.

In addition to the information requested in 13.3 (C) above, the following information must be provided in duplicate in each application for approval of a commercial facility incorporating the use of a pit:

1. A detailed schematic diagram of the proposed facility of sufficient scale to show placement of access roads, buildings, unloading areas, monitor well(s), pits, storage tanks, treatment system, flow lines, filters, the injection well and all other equipment and operational features of the storage, treatment, and/or disposal system. The diagram must include the dimensions and design capacity (in barrels) of each proposed pit, tank or barge. The diagram shall also include the following information:
  - a. The location and elevation of each soil boring required in 13.3(E)(4) below;
  - b. The location and elevation of each monitor well required in 13.3(E)(6) below;
  - c. The elevation for the top of each levee;
  - d. The elevation of the bottom (base) of each pit;
  - e. The elevation of the 100-year flood level;
  - f. The general location of groundwater aquifers and USDW's under the site and general direction(s) of area groundwater flow.
2. Documentation of compliance with the location criteria of Subparagraph 13.2 (D)(3) and (4).
3. Documentation must be presented which indicates that groundwater and USDW protection shall be provided by one of the following:
  - a. A liner along the bottom and sides of pits which has the equivalent of five (5) continuous feet of recompacted or natural clay having a hydraulic conductivity no greater than  $1 \times 10^{-7}$  cm/sec. Such liners include, but are not limited to the following:
    - i. Natural Liner - recompacted natural clay having a hydraulic conductivity meeting the requirements of (a) above.
    - ii. Soil Mixture Liner - soil mixed with cement, clay-type, and/or other additives to produce a barrier which meets the hydraulic conductivity requirements of (a) above.
    - iii. Recompacted Clay Liner - in situ or imported clay soils which are compacted or restructured to meet the hydraulic conductivity requirements of (a) above.

- 13.3 E. 3.
- iv. Manufactured Liner - synthetic material that meets the definition of Subparagraph 2.1 of this Section and is equivalent to or exceeds the hydraulic conductivity requirements of (a) above. Pits constructed with a manufactured liner must have side slopes of 3:1 and the liner at the top of the pit must be buried in a 1' wide and 1' deep trench. A sufficient excess of liner material shall be placed in the pit to prevent tearing when filled with NOW.
  - v. Combination Liner - a combination of two or more types of liners described in this section which meets the hydraulic conductivity requirements of (a) above.
- b. Any other alternate groundwater aquifer and USDW protection system acceptable to the Office of Conservation.
4. The determination of near-surface geological conditions shall be made by soil borings. These borings shall be made prior to construction of any proposed pit. Specific requirements for soil borings and soil testing according to ASTM methods are as follows:
- a. Soil borings and soil testing shall be performed by an independent engineering or geotechnical soil testing company or laboratory.
  - b. The number and locations of borings shall be sufficient to develop an accurate representation of the subsurface conditions at all points beneath the pit(s) and shall be determined in consultation with the Commissioner.
  - c. The soil borings shall be sampled to at least 10 feet below the bottom of the maximum pit excavation, and they must be continuously sampled to at least 5 feet below maximum excavation.
  - d. Upon completion of the borings, groundwater levels should be obtained and the boreholes shall be adequately sealed by plugging with a cement/bentonite slurry from the bottom up to the ground surface.
  - e. The logs of all borings made on-site, together with associated laboratory testing to classify soils and to measure soil strength, permeability and other related parameters, shall be submitted.
5. A cross section showing the proposed placement and type of materials to be used in the construction of the pit levees. The levees must be constructed of soils which are placed and compacted in such a manner as to produce a barrier to horizontal movement of fluids. The levees must be properly tied into the barrier along the bottom and sides of the pits. Actual construction of the levees must be monitored and documented by a professional engineering or geotechnical soil testing company. Documentation that a barrier exists within the levee which consists of at least 3 feet of soil with a hydraulic conductivity of  $1.0 \times 10^{-7}$  cm/sec or less must be provided. All levees must be provided with a means to prevent erosion and other degradation.
6. A schematic diagram depicting the proposed or actual construction of each monitor well. A minimum of three monitor wells will be required to insure that any seepage into a groundwater aquifer or USDW beneath the pit(s) will be detected prior to leaving the disposal site's perimeter. Monitor wells shall be certified by a professional engineer, hydrologist or geologist as adequate to detect any contamination. Additional monitor wells may be required; the number and location of additional wells will be determined upon review of the pit size(s) and configuration(s) and base line water quality data.

F. Additional Permit Application Requirements for Land Treatment Systems

In addition to the information requested in Subparagraph 13.3 (C), the following information must be provided in duplicate in each application for approval of a commercial facility incorporating the use of land treatment cells:

- 1. Include a detailed description of the site considered for land treatment with relation to the following:
  - a. Past and present land use,

- 13.3 F. 1.
  - b. Geology/soil properties/hydrogeology,
  - c. Drainage and flood control,
  - d. Hydrologic balance, and
  - e. Highest seasonal groundwater level.
2. Provide a detailed description of the facility design including maps and drawings and a discussion of the following:
  - a. Site layout,
  - b. Proposed waste application technique,
  - c. Drainage control,
  - d. Proposed waste loading rate, and
  - e. Expected facility life.
3. Submit an explanation of the proposed management plan with reference to the following topics:
  - a. Sampling and testing of incoming waste,
  - b. Method of receiving waste,
  - c. Waste segregation,
  - d. Application scheduling,
  - e. Waste-soil mixing, and
  - f. Proposed land treatment cell and groundwater monitoring plan.
4. Provide detailed information concerning closure and post-closure activities and monitoring as follows:
  - a. Proposed closure procedures,
  - b. Post-closure maintenance, and
  - c. Closure and post-closure monitoring.
5. Documentation of compliance with the location criteria of Subparagraphs 13.2(D)(3) and (4).
6. Documentation shall be provided that indicates the requirements of Subparagraph 13.7 will be met.

G. Permit Application Requirements for a Transfer Station

1. The application for construction and operation of a transfer station by an existing Louisiana commercial facility permitted by the Office of Conservation shall include, but may not be limited to the following information:
  - a. A statement of the proposed method of operation of the transfer station, including, but not limited to, the following:
    - i. A description of the storage system;
    - ii. A statement as to the method of transportation of wastes to and from the transfer station; and
    - iii. A statement as to the final disposition of the waste.
  - b. Documentation that sudden and accidental pollution coverage (liability insurance) in the amount of \$100,000.00 is in effect for the transfer station.
  - c. Documentation of compliance with the bonding requirements of Subparagraph 13.3 (C)(11).
  - d. A parish map of sufficient scale upon which the location of the proposed transfer station is identified.
  - e. A schematic drawing showing the following:
    - i. The boundaries of the land, owned or leased, upon which the transfer station is operated;
    - ii. The location and identification of all storage tanks or barges (including design capacities), access roads, buildings, unloading areas, levees, flow lines, filters, and other operational equipment.
  - f. A copy of the title of the property upon which the transfer station will be located, or if a lease or other agreement is in effect on the property, a copy must be included in the application.
  - g. Documentation of compliance with the location criteria of Subparagraph 13.2(D)(1).
2. The application for construction and operation of a transfer station by the operator of an out-of-state, legally permitted commercial facility shall consist of the following:
  - a. Compliance with the notice of intent requirements of Subparagraph 13.3(B).

- b. Submission of the information required in Subparagraph 13.3(C).
- c. A detailed schematic diagram of the proposed transfer station of sufficient scale to show the location of access roads, buildings, unloading areas, storage tanks or barges (including design capacities), any treatment system, levees, flow lines, filters, and all other equipment and operational features of the transfer facility.
- d. Submission of a copy of any permits issued by the appropriate regulatory agencies of the state in which the out-of-state commercial facility is located.

13.4 Permitting Procedures

- A. The Office of Conservation will review a new commercial facility application or transfer station application within ninety (90) days of receipt and inform the applicant of its completeness.
- B. If the application is not complete, the applicant shall be advised of additional information to be submitted for approval or the application shall be returned and the applicant will be required to resubmit the application.
- C. Upon acceptance of the application as complete, the Office of Conservation shall set a time and date and secure a location for the required public hearing to be held in the affected parish.
- D. At least thirty (30) days prior to the hearing, the applicant is required to file six (6) copies of the complete application with the local governing authority of the parish in which the proposed facility is to be located to be made available for public review.
- E. Public Hearing Notice Requirements
  - 1. Upon acceptance of the application as complete, the Office of Conservation shall publish in the next available issue of The State Register, a notice of the filing and the location, date and time of the public hearing to be held in the affected parish. Such public hearing shall not be less than thirty (30) days from the date of notice in The State Register.
  - 2. At least thirty (30) days prior to the scheduled public hearing, the Office of Conservation shall publish in The State Times a notice of the filing of the application and the location, date and time of the hearing.
  - 3. The applicant shall publish a substantially similar notice in the official journal of the affected parish on three (3) separate days at least fifteen (15) days prior to the date of the hearing. Such notice shall not be less than one-quarter (1/4) page in size and printed in bold-face type.
- F. The public hearing shall be fact finding in nature and not subject to the procedural requirements of the Louisiana Administrative Procedure Act. All interested persons shall be allowed the opportunity to present testimony, facts, or evidence related to the application or to ask questions.
- G. Permit Issuance
  - 1. The Commissioner shall issue a final permit decision within ninety (90) days of the closing of the public comment period.
  - 2. A final permit decision shall become effective on the date of issuance.
  - 3. Approval or the granting of a permit to construct a commercial facility (and any associated disposal well) shall be valid for a period of one (1) year and if construction is not completed in that time, the permit shall be null and void. Requests for an extension of this one (1) year requirement may be approved by the Commissioner for extenuating circumstances only.
- H. The application for construction and operation of a new or additional transfer station by an existing commercial facility permitted by the Office of Conservation shall either be administratively approved or denied.

13.5 Criteria for the Operation of Commercial Facilities and Transfer Stations

- A. Commercial facilities and transfer stations shall be operated in compliance with, but not limited to, the following:
1. The area within the confines of tank retaining walls (levees) shall be kept free of debris, trash, and accumulations of oil or other materials which may constitute a fire hazard.
  2. The area within the confines of tank retaining walls (levees) must be kept free of accumulations of water. This water shall be properly disposed of or discharged in accordance with the conditions of a discharge permit granted by the appropriate state agency.
  3. Pit levees shall be kept free of debris, trash, or overgrowth which would constitute a fire hazard or hamper or prevent adequate inspection.
  4. Pit surfaces shall at no time have an accumulation of oil of more than two inches (2").
  5. Pit levels shall be maintained with at least two feet (2') of freeboard at all times.
- B. All facilities and systems of treatment, control, and monitoring (and related appurtenances) which are installed or used to achieve compliance with the conditions of a permit shall be properly operated and maintained at all times.
- C. Inspection and entry by Office of Conservation personnel shall be allowed as prescribed in La. R.S. 30:4.
- D. Notification Requirements
1. Any change in the principal officers, management, or ownership of an approved commercial facility must be reported to the Commissioner in writing within ten (10) days of the change.
  2. Transfer of Ownership
    - a. A commercial facility permit may be transferred to a new owner or operator only upon approval by the Commissioner.
    - b. The current permittee shall submit an application for transfer at least thirty (30) days before the proposed transfer date. The application shall contain the following:
      1. Name and address of the proposed new owner (permittee);
      2. Date of proposed transfer; and
      3. A written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, insurance coverage, and liability between them.
    - c. If no agreement described in (b)(3) above is provided, responsibility for compliance with the terms and conditions of the permit and liability for any violation will shift from the existing permittee to the new permittee on the date the transfer is approved.
  3. Commercial facility and transfer station operators shall give written notice to the Commissioner of any planned physical or operational alterations or additions to a permitted facility. Requests to make such changes must be submitted to and approved by the Commissioner prior to beginning construction or accomplishing the change by other means.
  4. The operator of a newly approved commercial facility, transfer station, and/or disposal well must notify the Commissioner when construction is complete. The operator shall not commence receiving nonhazardous oilfield waste or injecting salt water until the facility has been inspected for compliance with the conditions of the permit and the disposal well has been tested for mechanical integrity.

- 13.5 D. 5. An operator of a commercial facility or transfer station shall report to the Commissioner any noncompliance, including but not limited to those which may endanger public health or safety or the environment. Such notice shall be made orally within 24-hours of the noncompliance and followed by written notification within five (5) days explaining details and proposed methods of corrective action.
6. When a commercial facility or transfer station operator refuses to accept a load of waste (other than nonhazardous oilfield waste), he shall notify the Office of Conservation immediately, providing the names of the generator and transporter of the waste.

E. Hours of Receiving

1. Commercial facilities and transfer stations shall be adequately manned during hours of receiving and shall receive nonhazardous oilfield waste by truck during daylight hours only. Daylight hours shall be defined as the daily hours for sunrise and sunset as listed in table No. 1119 entitled "Sunrise and Sunset at Baton Rouge, Louisiana," prepared by the Nautical Almanac Office, United States Naval Observatory, Washington, DC 20390.
2. The Commissioner may grant approval for after hours (nighttime) receipt of nonhazardous oilfield waste by a commercial facility or transfer station (by truck) when an emergency condition exists which may endanger public health or safety or the environment. Generators shall be responsible for obtaining prior approval for nighttime hauling by calling the Office of Conservation at 504/342-5515. When such approval has been granted, the Office of Conservation shall notify both the commercial facility which will receive the waste and the State Police.
3. Commercial facilities or transfer stations with barge terminals may receive NOW transported by barge on a 24 hour a day basis.

F. Monitoring of Injection Wells

1. Except during approved workover operations, a positive pressure of no less than 100 psi shall be maintained on the well annulus at all times.
2. Except during approved workover operations, wells shall be equipped with pressure gauges located on the wellhead, and situated so as to monitor the pressure of the injection stream and the pressure of the annular space between the casing and the injection string.
3. The pressure gauges shall have half-inch fittings, be scaled in increments of not more than 10 psi, and be maintained in good working order at all times.
4. A daily pressure monitoring log shall be maintained by the operator of the facility and shall contain the following information:
  - a. The date;
  - b. The operator's name and address;
  - c. The well name, number and serial number;
  - d. The monitored injection pressure;
  - e. The monitored annulus pressure;
  - f. Whether or not the well was injecting at the time the pressures were recorded; and
  - g. The name or initials of the person logging the information.
5. The pressure gauges shall be read and pressures recorded in the daily log.
6. The daily log information shall be recorded on the appropriate form and submitted to the Office of Conservation within fifteen (15) days of the end of each month.
7. Any discrepancies in the monitored pressures, which would indicate a lack of mechanical integrity and constitute noncompliance with applicable sections of this order, shall be reported to the Office of Conservation within 24 hours.

- G. Discharges from pits, tanks, and/or barges into manmade or natural drainage or directly into State waters will be allowed only after the necessary discharge permit has been obtained from the appropriate state and/or federal agencies and in accordance with the conditions of such permit.

H. Monitor Well Sampling and Testing Requirements for Facilities with Temporary Storage Pits

1. Water samples from monitor wells shall be sampled by an independent professional consultant and analyzed by an independent testing laboratory. Samples shall be analyzed for pH, electrical conductivity (EC), chloride (Cl), sodium (Na), total dissolved solids (TDS), total suspended solids (TSS), oil and grease (%), As, Ba, Cd, Cr, Pb, Hg, Se, Ag, and Zn.
2. Water from newly constructed monitor wells on new facilities shall be sampled and analyzed prior to receipt of waste materials by the facility to provide baseline data for the monitoring system. This data shall be submitted to the Office of Conservation to be made part of the facility's permanent file.
3. Water from monitor wells on existing facilities shall be sampled and analyzed on a quarterly basis, with a copy of the analysis submitted to the Office of Conservation within fifteen (15) days of the end of each quarter.

I. Receipt, Sampling and Testing of Nonhazardous Oilfield Waste

1. Only NOW (as defined in Subparagraph 13.1) from approved generators of record may be received at commercial facilities or transfer stations.
2. Before offloading at a commercial facility or transfer station, each shipment of nonhazardous oilfield waste shall be sampled and analyzed (by facility personnel) for pH, conductivity, and chloride (Cl) content. Records of these tests shall be kept on file at each facility for a period of three (3) years and be available for review by the Commissioner or his designated representative.
3. An eight (8) ounce sample (minimum) of each load must be collected and labeled with the date, operator and manifest number. Each sample shall be retained for a period of thirty (30) days.

J. Renewal of Insurance Coverage

Documentation that the required liability insurance coverage for a commercial facility or transfer station has been renewed must be received by March 15 of each year or procedures to initiate permit suspension will be initiated. Any such permit suspension will remain in effect until insurance coverage has been confirmed.

- K. A sign shall be prepared and displayed at the entry of each permitted commercial facility or transfer station. Such sign shall state the facility name, address, and phone number and shall be made applicable to the activities of each facility according to the following example:

"This waste (storage, treatment and/or disposal) facility has been approved for (temporary storage, treatment and/or disposal) of nonhazardous oilfield waste only and is regulated by the Office of Conservation. Violations shall be reported to the Office of Conservation at 504/342-5515."

13.6 Manifest System

- A. In order to adequately monitor the movement and disposal of nonhazardous waste, every shipment of waste transported to a commercial facility shall be accompanied by a manifest entitled "Oil Field Waste Shipping Control Ticket." It is expressly forbidden to transport or accept such waste without a properly completed manifest form.
- B. At the time of transport, the generator shall initiate the manifest by completing and signing Part I. After the transporter completes and signs Part II, the generator shall immediately mail Conservation Copy No. 1 (white) to the Office of Conservation and retain the Generator's Copy (green) for his files. All other copies shall accompany the waste shipment.
- C. Upon delivery of the waste, the transporter shall complete and sign Part III of the manifest. The transporter shall then retain the Transporter's Copy (pink) for his files.

- D. Upon completion of the manifest, the commercial facility operator shall retain the Commercial Facility Copy (yellow) for his files, mail a copy of the completed manifest to the generator, and mail Conservation Copy No. 2 (gold) to the Office of Conservation no later than the next working day.
- E. The generator, transporter and commercial facility operator shall maintain file copies of completed manifests for a period of not less than three (3) years.
- F. Oil and gas, commercial facility, and transfer station operators who transport NOW out-of-state to a permitted disposal facility or receive NOW from out-of-state must comply with the manifest system requirements of this Subparagraph.

13.7 Land Treatment Facility Requirements

- A. Land treatment facilities shall be isolated from contact with public, private, or livestock water supplies, both surface and underground.
- B. The siting, design, construction, operation, testing and closure of land treatment facilities shall be approved only after an application is submitted to and approved by the Commissioner pursuant to the requirements of Subparagraph 13.3.

C. General Requirements

1. The soil shall contain a slowly permeable horizon no less than 12 inches (12") thick containing enough fine grained material within three (3) feet of the surface to classify it as CL, OL, MH, CH, or OH under the Unified Soil Classification System.
2. The pH of the treatment zone (0-24") shall be or shall be adjusted to be between 6.5 and 9 throughout the facility's operational life and closure/post closure period.
3. The seasonal high water table shall be maintained throughout the facility's operational life at least 36" below the soil surface, either as a result of natural or artificial drainage.
4. The concentration of salts in the treatment zone shall at no time exceed levels that would raise the electrical conductivity (EC) of a saturated paste above 10 mmhos/cm, the sodium adsorption ratio (SAR) of a saturated paste extract above 12, and the exchangeable sodium percentage (ESP) above 15%.
5. The concentration of organics (oil and grease) in the treatment zone (after incorporation of NOW) shall at no time exceed 5% by weight.
6. The concentration of metals in the treatment zone shall at no time exceed the following levels:

<u>PARAMETER</u>	<u>LIMITATION (ppm)</u>
Arsenic	40
Barium	3000
Cadmium	10
Chromium	1000
Lead	1000
Mercury	10
Selenium	10
Silver	200
Zinc	500

7. The concentration of measured constituents in any groundwater aquifer shall at no time significantly exceed background water quality data.
8. An unsaturated zone monitoring system shall be installed to provide early warning of possible migration of mobile waste constituents. The unsaturated zone shall be defined in the permit application.
9. An independent professional consultant and laboratory shall perform the necessary monitoring to assure adherence to the requirements of this Subparagraph.

### 13.7 D. Monitoring Requirements

Note: References for the parameters required in this Subparagraph are listed as follows:

EC- electrical conductivity (millimhos/cm for soil, micromhos/cm for water)

SAR- sodium adsorption ratio

ESP- exchangeable sodium percentage (%)

CEC- cation exchange capacity (milliequivalents/100 gm soil)

TOC- total organic carbon (%)

Total metals as follows:

As - arsenic

Cr- chromium

Se- selenium

Ba - barium

Pb- lead

Ag- silver

Cd - cadmium

Hg- mercury

Zn- zinc

TDS- total dissolved solids

TSS- total suspended solids

O&G- Oil & grease (%)

Soluble cations:

Na - sodium

Ca - calcium

Mg - magnesium

Soluble anions:

CO<sub>3</sub> - carbonate

HCO<sub>3</sub> - bicarbonate

Cl - chloride

SO<sub>4</sub> - sulfate

1. Prior to the receipt of NOW in a newly permitted and constructed land treatment system or cell, baseline data must be provided by the following sampling and testing program:
  - a. Soil in the treatment zone (0-24") of each cell must be sampled and tested for the following parameters: pH, EC, SAR, ESP, CEC, TOC, O&G, As, Ba, Cd, Cr, Pb, Hg, Se, Ag, and Zn.
  - b. Groundwater must be sampled and tested for the following parameters: pH, EC, TDS, TSS, O&G, Cl, Na, As, Ba, Cd, Cr, Pb, Hg, Se, Ag, and Zn.
2. The following monitoring program must be conducted during the active life of a permitted NOW land treatment system:
  - a. Soil in the treatment zone (0-24") must be sampled and tested semi-annually to determine waste degradation and accumulation of metals. A composite of a minimum of four (4) samples per cell must be analyzed for the following: As, Ba, Cd, Cr, Pb, Hg, Se, Ag, Zn, TOC, and O&G.
  - b. Soil in the treatment zone (0-24") must be sampled and tested quarterly to determine the accumulation of salts and to provide data for determining necessary soil amendments. A composite of a minimum of four (4) samples per cell must be analyzed for the following: pH, EC, SAR, ESP, CEC, soluble cations (Na, Ca, Mg), and soluble anions (CO<sub>3</sub>, HCO<sub>3</sub>, Cl, SO<sub>4</sub>).
  - c. Discharge water: A copy of each discharge monitoring report made in conformance with any applicable state and/or federal regulatory program shall be furnished to the Office of Conservation on a timely basis.
  - d. The unsaturated zone must be sampled as soon as practicable following significant precipitation events (within 90 days) to determine the presence of mobile constituents. If "free drainage" soil solution samplers are utilized, sampling and testing shall be performed on a quarterly basis. A composite of at least three (3) samples per management unit (or cell if applicable) are to be analyzed for the following: TDS, pH, Na, Cl, EC, O&G, Ba, Cr, Pb, and Zn.
  - e. Groundwater levels in monitor wells shall be measured monthly for a period of two (2) years to determine seasonal fluctuation in water table. Water level shall be measured quarterly each year thereafter.

- 13.7 D. 2. f. Groundwater from monitor wells shall be sampled quarterly to determine the impact of facility operation on groundwater. A composite of at least two (2) samples per well shall be tested for the following: TDS, TSS, pH, Cl, Na, EC, O&G, As, Ba, Cr, Pb, and Zn.
- g. The Office of Conservation may approve an alternative monitoring program upon receipt of evidence that such procedures shall provide adequate monitoring during the active life of a facility.

3. Sampling and Testing Requirements

- a. A stratified random sampling system shall be used to determine soil sampling locations in land treatment cells.
- b. Soil samples in land treatment cells shall be taken at 0-12" and 12"-24" depth increments. (Over time, the depth of the treatment zone sampled may need to be increased due to solids buildup on land treatment cells). The degree of waste incorporation shall be noted at the time of sampling.
- c. Testing for required parameters shall be performed according to acceptable EPA guidelines and/or the laboratory procedures for nonhazardous oilfield waste analyses found in Paragraph 2.6 (D).

E. Closure and Post-Closure Monitoring

1. Operators of land treatment systems shall submit closure and post-closure maintenance and monitoring programs to the Office of Conservation for approval. The monitoring program shall address sampling and testing schedules for soil in the treatment zone, water collected from the unsaturated zone monitoring system, surface runoff water, and groundwater.
2. Sampling and testing must be performed during the entire closure and post-closure periods. To certify closure of a land treatment system, water collected from the unsaturated zone monitoring system and groundwater must meet background water quality values; in addition, soils in the treatment zone and surface runoff water must meet the following criteria:

<u>PARAMETER</u>	<u>CRITERIA</u>	<u>NO. OF CONSECUTIVE SAMPLES</u>
Soils in the Treatment Zone		
pH	6.5-9	2
O&G	< 3.0 %	2
EC	< 10 mmhos/cm	2
SAR	< 12	2
ESP	< 15 %	2
Metals (ppm)		
As	< 10	2
Ba	< 3000	2
Cd	< 10	2
Cr	< 1000	2
Pb	< 1000	2
Hg	< 10	2
Se	< 10	2
Ag	< 200	2
Zn	< 500	2
Runoff Water		
pH	6.5-9.0	4
O&G	< 15 ppm	4
EC	< 0.75 mmhos/cm	4
SAR	< 10	4
TSS	< 60 ppm	4
COD	< 125 ppm	4
Chloride	500 ppm	4
Metals (ppm)		
As	< 0.2	4
Ba	< undetermined (reserved)	4
Cd	< 0.05	4
Cr	< 0.15	4
Hg	< 0.01	4

Pb	< 0.10	4
Se	< 0.05	4
Zn	< 1.0	4

3. Post-closure monitoring shall be performed on intervals of 6 mos., 1, 2 and 5 years following certification that closure is complete.

#### 13.8 Resource Conservation and Recovery of Nonhazardous Oilfield Waste

- A. In order to encourage the conservation and recovery of resources in the oilfield industry, the processing of nonhazardous oilfield waste into reusable materials, in addition to or beyond extraction and separation methods which reclaim raw materials such as crude oil, diesel oil, etc., is recognized as a viable alternative to other methods of disposal.
- B. Commercial facilities may function for the purpose of generating reusable material only, or they may generate reusable material in conjunction with other storage, treatment or disposal operations.
- C. Commercial facilities that produce reusable material are subject to all of the permitting requirements imposed on other commercial facilities. They are also subject to the same operational requirements without regard to the distinction between waste and reusable material. Existing permits may be amended to allow re-use activities at commercial facilities which acquire the capability to engage in processing for re-use. Commercial facilities which utilize extraction or separation methods to reclaim raw materials such as crude oil, diesel oil, etc. may do so without amendment of existing permits.
- D. The onsite generation of reusable material by pit treating companies or other companies which do not hold a legal commercial facility permit is prohibited unless the company desiring to perform such activities complies with the requirements of this Subparagraph and submits the following information to the Commissioner for approval:
  1. The names, addresses, and telephone numbers of the principal officers of the company.
  2. A detailed description of the process by which the company will treat pit fluids and/or solids (NOW), including the types of chemicals and equipment used in the process, diagrams, test data, or other information.
  3. A description of the geographical area in which the company expects to do business (i.e., statewide, North Louisiana, southwest Louisiana, etc.).
- E. In addition to other applicable requirements, companies seeking to be permitted for the production of reusable materials from nonhazardous oilfield waste shall have the following obligations:
  1. Prior to permit approval or permit amendment approval, applicants must submit the following information:
    - a. A detailed description of the process to be employed for generation of reusable material;
    - b. Types of facilities and/or equipment to be constructed (or added);
    - c. Identification of the proposed uses for the reusable material; and
    - d. A description of the proposed monitoring plan to be utilized.
  2. All proposed uses of reusable material must be approved by the Commissioner in writing.
  3. The production of reusable material must be conducted in accordance with a monitoring plan approved by the Commissioner with issue of the permit for each facility or process.
  4. For purposes of regulatory authority only by the Office of Conservation and the establishment of reusable material, compliance with the testing criteria of 13.8 (F) below allows permitted companies to offer the material for the following uses:
    - a. Daily cover in sanitary landfills which are properly permitted by state and/or local authorities. The use of reusable material in a sanitary landfill will require written approval of the Department of Environmental Quality; and

- b. Various types of construction material (fill) on a case-by-case basis. The Commissioner may approve such use only after submission and review of an application for the intended use. Approval will be dependent upon the composition of the material and the proposed location of use. Reusable material may not be used as fill for construction purposes unless the specific use has been approved in writing by the Commissioner of Conservation.

F. Testing Criteria for Reusable Material

<u>Parameter</u>	<u>Limitation</u>
1. moisture content	< 50% (by weight) or zero (0) free moisture
2. pH*	6.5 - 9.0
3. Electrical conductivity (EC)*	8 mmhos/cm
4. Sodium adsorption ratio (SAR)	12
5. Exchangeable Sodium Percentage (ESP)	15%
6. Leachate testing** for:	
a. oil and grease	10.0 mg/l
b. chlorides	500.0 mg/l
7. Leachate (EP Tox):	
a. arsenic	0.5 mg/l
b. barium	10.0 mg/l
c. cadmium	0.1 mg/l
d. chromium	0.5 mg/l
e. lead	0.5 mg/l
f. mercury	0.02 mg/l
g. selenium	0.1 mg/l
h. silver	0.5 mg/l
i. zinc	5.0 mg/l

\* Non-hazardous oilfield waste when chemically treated (fixated) shall, in addition to the criteria set forth be acceptable as reusable material with a pH range of 6.5 to 12 and an electrical conductivity of up to 50 mmhos/cm, provided such reusable material passes leachate testing requirements for chlorides in F(6) above and Extraction Procedure for Toxicity (EP) tests for metals in F(7) above.

\*\* The leachate testing method for oil and grease and chlorides must be submitted in writing to the Commissioner for approval.

- G. The Commissioner of Conservation, the Secretary of the Department of Natural Resources, and the State of Louisiana upon issuance of a permit to a company facility under this Subparagraph shall be held harmless from and indemnified for any and all liabilities arising from the operation of such facilities and use of their products, and the company shall execute such agreements as the Commissioner requires for this purpose.

H. Reporting

Each company which generates reusable material must furnish the Commissioner a monthly report showing the disposition of all such material.

13.9 Closure

- A. All offsite commercial facilities and transfer stations under the jurisdiction of the Office of Conservation shall be closed in a manner approved by the Commissioner to insure protection of the public, the environment, groundwater aquifers and Underground Sources of Drinking Water. A plan for closure must be developed in accordance with the requirements of the Commissioner.
- B. Closure bond or letter of credit amounts will be reviewed each year prior to the renewal date according to the following process:

- 13.9
1. A detailed cost estimate for adequate closure of each permitted commercial facility and transfer station shall be prepared by a independent professional consultant and submitted to the Commissioner on or before February 1 of each year.
  2. The closure plan and cost estimate must include provisions for closure acceptable to the Commissioner and must be designed to reflect the costs to the Office of Conservation to complete the approved closure of the facility.
  3. Upon review of the cost estimate, the Commissioner may increase, decrease or allow the amount of the bond or letter of credit to remain the same.
  4. Documentation that the required closure bond or letter of credit has been renewed must be received by September 15 of each year or the Commissioner shall initiate procedures to take possession of the funds guaranteed by the bond or letter of credit and suspend or revoke the permit under which the facility is operated. In addition, procedures to initiate permit suspension will be initiated. Any such permit suspension will remain in effect until renewal is documented.

Effective Date and Compliance

- A. This Amendment shall supercede Section XV, Paragraphs 2 and 13 of Office of Conservation Statewide Order No. 29-B (Effective February 20, 1982 and May 20, 1984 respectively). Any existing special orders authorizing the offsite storage, treatment, and/or disposal of nonhazardous oilfield waste under conditions which do not meet the requirements hereof shall be superceded by this Amendment and the operator shall obtain authority for such storage, treatment and/or disposal after complying with the provisions hereof.
- B. All existing commercial facilities and transfer stations shall be required to comply with applicable portions of this amendment within ninety (90) days of the effective date, provided that existing facilities shall be exempt from all permit application and public hearing requirements under Subparagraph 13.4 of this Amendment. Failure to comply with this requirement in a timely manner will subject an operator to the suspension or revocation of his permit and/or the imposition of penalties pursuant to La. R.S. 30:18.
- C. This Amendment shall be effective on and after January 20, 1986.

OFFICE OF CONSERVATION  
OF THE STATE OF LOUISIANA



HERBERT W. THOMPSON  
COMMISSIONER OF CONSERVATION