



# Surface Waste Management Options for Oil Base Mud Cuttings

November 2017



# RRC Mission



Our mission is to serve Texas by our stewardship of natural resources and the environment, our concern for personal and community safety, and our support of enhanced development and economic vitality for the benefit of Texans.

# Overview



- **History of the Railroad Commission**
- **Oil and Gas Division / District Offices**
- **Railroad Commission Jurisdiction**
- **Rule 8 – Water Protection**
- **Chapter 4, Subchapter B – Recycling**

## **Options for Oil Base Mud Cuttings**

- **Reserve Pits / Deep Burial**
- **Minor Permits**
- **Commercial Facilities**

# History of the Railroad Commission



Established 1891

- Texas' oldest regulatory agency
  - almost 100 years regulating oil & gas
- Led by 3 statewide elected officials



*Ryan Sitton*

Ryan Sitton  
Commissioner



*Christi Craddick*

Christi Craddick  
Chairman



*Wayne Christian*

Wayne Christian  
Commissioner

# History of the Railroad Commission



- **Railroad Commission Established 1891**
  - produced oil and gas were transported by rail
- **Lucas Gusher at Spindletop Salt Dome in Beaumont Texas January 10, 1901**
- **100,000 Barrels per day, took 9 days to get under control**
- **Started the first true oil boom in Texas**



# History of the Railroad Commission



- **1917 Pipelines were designated as common carriers. Legislature gave jurisdiction to RRC as we were already a regulator of a transportation industry in railroads**
- **1919 Commission was granted jurisdiction over upstream oil & gas production**
- **1930's the Commission promulgated well spacing and acreage requirements to set allowable production limits as a result of the East Texas Oil Boom & the federal Hot Oil Act of 1935**

# History of the Railroad Commission

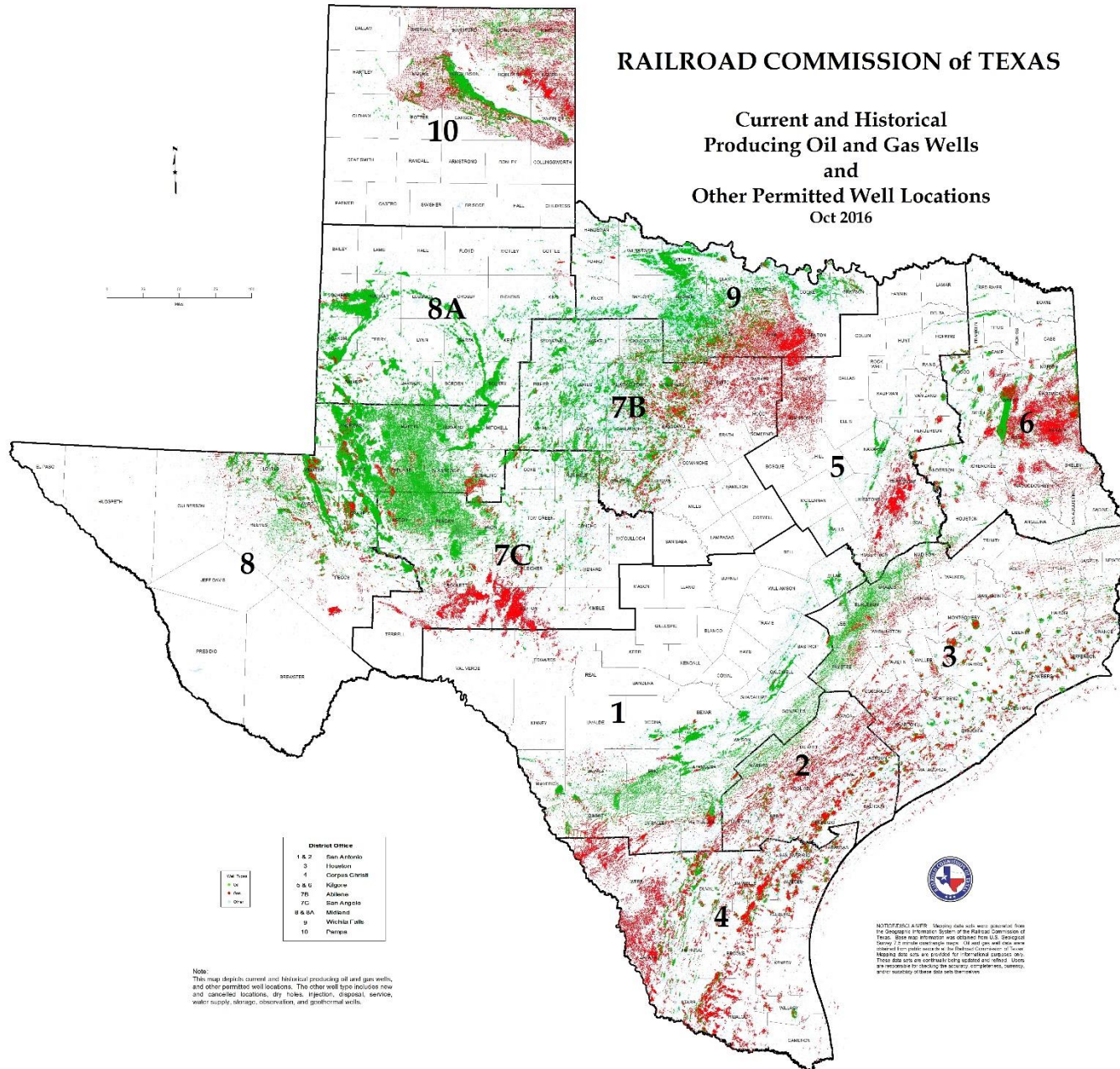


- **Federal Water Pollution Control Act. The first FWPCA was enacted in 1948 and marked the birth of modern environmental regulation**
- **1970 EPA is established under the Nixon administration expanding the scope of modern environmental regulation. In 1972 FWPCA was amended into what is now known as the Clean Water Act which governs freshwater protection in the oil and gas industry**



# RAILROAD COMMISSION of TEXAS

## Current and Historical Producing Oil and Gas Wells and Other Permitted Well Locations Oct 2016





# Oil and Gas Division



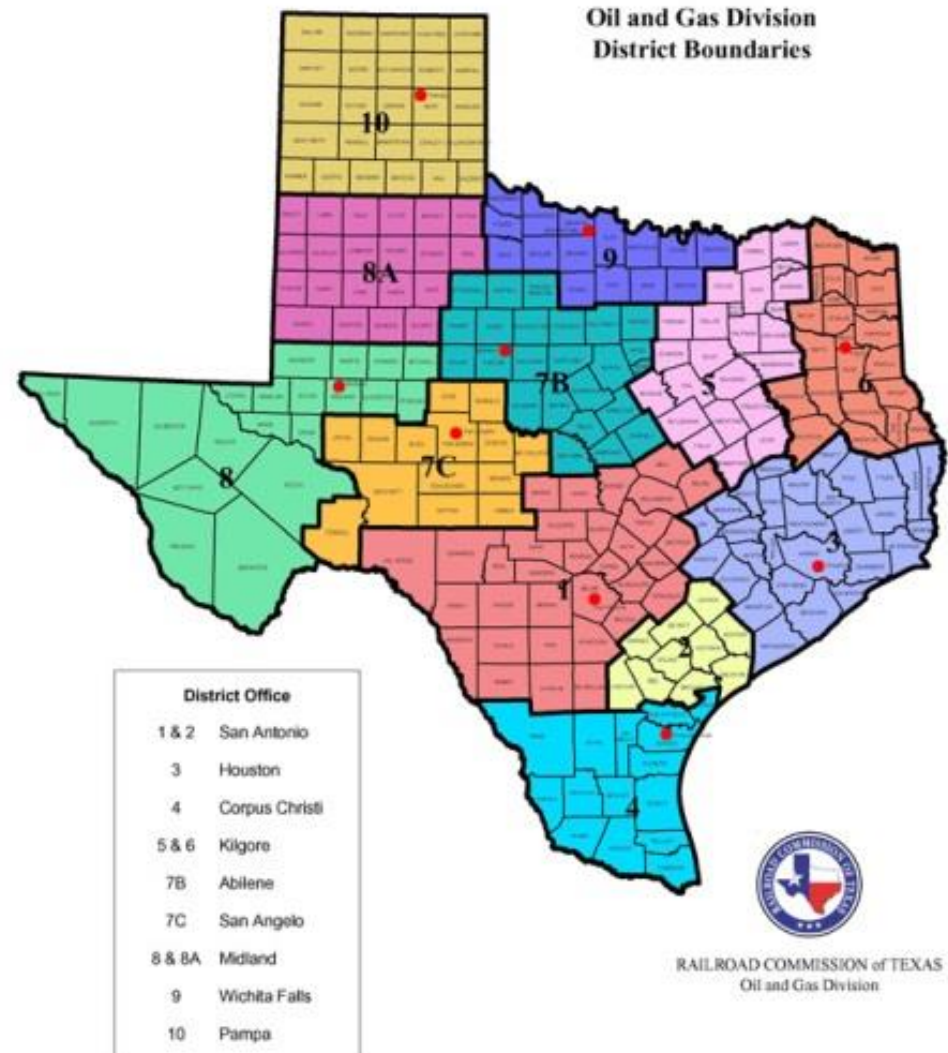
- Administrative Compliance
- Technical Permitting
- Field Operations



# RRC District Offices



- Abilene
- Corpus Christi
- Houston
- Kilgore
- Midland
- Pampa
- San Angelo
- San Antonio
- Wichita Falls



# RRC District Offices



- Serve as the eyes and ears of RRC regulatory efforts
- Contact with complaints
- On call 24/7 to respond to emergencies
- Ensure oil and gas activities done in accordance with RRC rules & regulations
- Jurisdiction over specific counties

# RRC Jurisdiction



- Oil and natural gas exploration and production industry
- Intrastate pipeline safety, natural gas and hazardous liquid pipeline industry, pipeline damage prevention
- Liquefied Petroleum Gas (LPG), Compressed Natural Gas (CNG), and Liquefied Natural Gas (LNG)
- Natural gas utilities
- Coal and uranium surface mining operations
- Alternative Fuels

# Not RRC Jurisdiction



- Roads and traffic
- Noise, odors, and lighting
- Air quality
- Mineral interests/leases
- Railroads

# RRC Oil and Gas Jurisdiction



- Activities associated with oil and gas exploration and production
  - drilling and production operations at well sites
  - transportation of crude, natural gas, and produced water by pipeline
  - oil and gas waste haulers on public roadways
  - oil and gas waste management facilities
- Memorandum of Understanding with TCEQ (Statewide Rule 30)



# Rule 8 – Water Protection



- Technical Permitting's Authority
- Subsections
  - (b) No Pollution
  - (d) Pollution Control
- Prohibited / Authorized Disposal
- Prohibited / Authorized Pits
- Authorized Pit Backfilling requirements
- Prohibited / Authorized Recycling

# Rule 8 – Water Protection



- Authorized (by Rule) – The disposal method as defined by rule can be utilized without a permit from the Commission
- Authorized disposal methods may have specific requirements that must be followed
- Management of wastes
  - on well sites
  - at disposal facilities

# Chapter 4, Subchapter B - Recycling



## Recycle

“To process and/or use or re-use oil and gas wastes as a product for which there is a legitimate commercial use and the actual use of the recyclable product.”

Injection is not recycling

# Chapter 4, Subchapter B - Recycling



## Six Divisions for Commercial Recycling Rules

1. General Requirements
2. On-Lease Solid Waste Recycling
3. Off-Lease or Centralized Solid Waste Recycling
4. Stationary Solid Waste Recycling
5. Off-Lease Fluid Recycling
6. Stationary Fluid Recycling

(Non-com. Fluid Recycling authorized by Rule 8)

# Chapter 4, Subchapter B - Recycling



## General Requirements (highlights)

- Permit will prohibit speculative waste accumulation.
- Engineering and geological work products must be signed by their respective Texas-registered professionals.
- All oil and gas waste and recyclable product should be stored in *lined* permitted or authorized pits, or above-ground storage tanks.

# Chapter 4, Subchapter B - Recycling



## Solid Waste Recycling – Divisions 2, 3, & 4

- Treating O&G solids to create road base that can be used in the construction of lease roads, well pads, and county roads
- Rule establishes leachability standards for metals, chlorides, TPH and benzene and a minimum compressive strength requirement
- Road base product may have no more than 15 percent weight loss after 12 cycles of wetting and drying in Trial Run



# Chapter 4, Subchapter B - Recycling



## On-Lease Solids Waste Recycling – 1 year

- Treating O&G solids for reuse as roadbase from one lease or unit for reuse by the Generator

### §4.218. General Permit Provisions.

- Surface Owner Permission
- 72-hour District Office Notification before siting

### §4.219. Minimum Permit Provisions for Siting.

- Not in a 100-year flood plain
- Not in a “sensitive area” as defined by §3.91
- Not within 150 feet of surface water or water wells

# Chapter 4, Subchapter B - Recycling



## On-Lease Solids Waste Recycling – 1 year (continued)

### §4.214. & §4.220. Facility Design and Construction.

- Typical Layout
- Storage liners w/ thicknesses, cross-sections, plan view
- Storage must be above high water table and surrounded by berms
- Storm water plan for a 25-year 24-hour rainfall event
- No discharge, No pollution

### §4.215. & §4.221. Facility Operations.

- Process Description
- Inert materials & chemicals
- Waste acceptance plan
- Records of incoming waste, treated, recyclable material and testing
- Max. volumes & holding times
- Trial run of 1,000 cubic yards

# Chapter 4, Subchapter B - Recycling



## On-Lease Solids Waste Recycling – 1 year (continued)

### §4.216. & §4.222. Facility Monitoring.

- Sampling Plan (a composite of four 200 ton grab samples)
- Regular facility inspections
- Quarterly Report of records and analytical, and
- Location of recyclable material used and notification of landowner

### §4.217. & §4.223. Facility Closure.

- Remove all waste
- Clean/Remove all storage and equipment
- Return surface to original condition
- Soil sampling

# Chapter 4, Subchapter B - Recycling



## Off-Lease or Centralized Solid Waste – 2 years

- Treating O&G solids for reuse as roadbase from **multiple** leases or units
- All applicable requirements from On-Lease Roadbase and...

### §4.238. Notice.

- Notice of surface owner and adjoining property owners
- Including a copy of the application and how to protest

### §4.239. General Permit Provisions.

- Financial Security
  - A bond or letter of credit filed with the Commission greater than or equal to the amount required to close the facility

# Chapter 4, Subchapter B - Recycling



Off-Lease or Centralized Solid Waste – 2 years (continued)

## §4.232. Minimum Siting Information.

- General site information
  - Site description, highway map, address
- Site specific environmental information with sources
  - Precipitation/evaporation, topography, 100-year flood plain, depth to shallowest groundwater, geologic & soil maps

# Chapter 4, Subchapter B - Recycling



Off-Lease or Centralized Solid Waste – 2 years  
(continued)

## §4.233. Minimum Real Property Information.

- Lease agreement with surface owner and plats with
  - section/survey lines, facility boundary, adjoining tracts with surface owners indicated, and distance to receptors within 500 feet



# Chapter 4, Subchapter B - Recycling



## Off-Lease or Centralized Solid Waste – 2 years (continued)

### §4.234. & §4.241. Facility Design and Construction.

- Facility diagram
- Monitor wells
  - Boring logs (USCS), well completion logs, survey elevations, and potentiometric map

### §4.235. & §4.242. Facility Operations.

- Plan to control unauthorized access
- Estimated duration of operation

### §4.236. & §4.243. Facility Monitoring.

- Quarterly report including monitor well analyses
- Records of commercial sales or location of reuse by Generator

### §4.237. & §4.244. Facility Closure.

- Soil and groundwater sampling
- Plug monitor wells

# Chapter 4, Subchapter B - Recycling



## Stationary Solid Waste Recycling – 2+ years

- Treating O&G solids for reuse as roadbase from multiple leases or units
- Applicable requirements from Off-lease Roadbase and...

### §4.254. Notice.

- H.B. 480 – Published Notice
- Notice of application in a newspaper of general circulation in the county with affidavit
- Once a week for two consecutive weeks

# Chapter 4, Subchapter B - Recycling



## Solid Waste Divisions Review

- Location and Duration
  - Division 2: On-lease for 1 year
  - Division 3: Off-lease or Centralized for 2 years
  - Division 4: Stationary for more than 2 years
- Site and Property Information, Monitor wells and Financial Security required for Off-lease, Centralized and Stationary Solid Waste Recycling Facilities
- Notice
  - Surface owner permission for On-lease
  - Surface and Adjacent owners for Off-lease and Centralized
  - Landowners and Published notice for Stationary

# Options for Oil Base Mud Cuttings



## Reserve Pits / Deep Burial

- Authorized by Rule 8
- Cuttings associated with freshwater or oil-based muds  $>3,000$  mg/L Chloride
- Burial at *that* well site
- May be lined
- Cannot be constructed within a 100-year floodplain unless approved by the District Director (may request a hearing if denied)
- Reserve Pits shall be dewatered and backfilled within one year of cessation of drilling operations
- Rule 8(b) – “No pollution” always applies

# Options for Oil Base Mud Cuttings



## Minor Permits

- Rule 8 minor permits are authorities issued by the District Office for no longer than 60 days and are limited in scope.
- Allows one time, on-lease landtreatment of oily waste exempt from RCRA.
- Follow *Guidelines For Processing Minor Permits Associated with Statewide Rule 8* on our website.

# Options for Oil Base Mud Cuttings



## Minor Permits (continued)

- Only the generator of the waste may apply for a minor permit to landtreat oil and gas waste.
- Operator name and address.
- Lease name and number (if available), drilling permit number, well number, field and county of well where waste was generated. No more than 1 minor permit will be issued for one disposal site.
- Description of the proposed disposal site by owner, tract size, and location, including a map or plat of the disposal site and written directions for finding the disposal site. Include a minimum of 4 GPS points to identify the perimeter of the site.
- General description of the contour of the disposal site, including any watercourses or drainage ways on the disposal site. Must be at least 100 feet from surface water. The slope of the area must be  $\leq 5\%$  unless district office determines the slope may be greater.
- Whether or not the site is located in a flood prone area. Sites located in the 100-year floodplain will not be approved. The Federal Emergency Management Agency (<http://fema.gov/hazard/flood/index.shtm>) can provide information on flood plains.
- Thickness of tillable soil. The soil thickness should be at least 20 inches.
- Distance to residences, schools, churches, hospitals or water wells within 500 feet of the proposed landtreatment site. These distances are not set back restrictions but will be considered in the permitting process.
- Written permission of the landowner must be obtained prior to using property for landtreatment. Landowner may indicate consent by signing the operator's application.



# Options for Oil Base Mud Cuttings



## Minor Permits (continued)

- Volume of waste to be landtreated. Application thickness should not exceed 8 inches.
  - Electrical conductivity (EC) of the waste to be landtreated. The EC of waste / soil mixture may not exceed 4 mmhos/cm. When a closed loop system is used analytical data may not be available at the time the application is submitted. The waste characterization may be based on process knowledge, such as the analytical data of drilling mud from wells drilled to similar depths in the same formation, or may be provided within 10 days of initiation of landfarm activity.
  - Total petroleum hydrocarbons (TPH) of the waste. TPH of waste / soil mixture must be  $\leq 5\%$ . TPH of final waste / soil mixture must be  $\leq 1\%$ . When a closed loop system is used analytical data may not be available at the time the application is submitted. The waste characterization may be based on process knowledge, such as the analytical data of drilling mud from wells drilled to similar depths in the same formation, or may be provided within 10 days of initiation of landfarm activity.
  - Guidelines for Processing Minor Permits March 2005, Revised June 2009, Revised December 2009
  - Minor Permit Application Information Landtreatment of Oily Waste Page 2 of 2
  - The pH of the waste / soil mixture must be  $\geq 6$  and  $\leq 10$ .
  - If applicable, the name, address, contact number and permit number of the waste hauler(s) that will transport the waste, and the name and contact number of the contractor/person who will actually landtreat the waste, if different from the generator of the waste, or waste hauler(s).
  - The application must be signed by the operator's representative responsible for making sure the waste is disposed of properly.
  - The District Director may require the applicant to provide additional information or notice, which the District Director deems necessary to show that issuance of the permit will not result in the pollution of surface or subsurface water. The District Director may require additional precautionary measures, such as secondary containment, to provide protection of public safety and the environment.
- Guidelines

# Options for Oil Base Mud Cuttings



## Commercial Facilities

- Disposal Pits
- Reclamation Plants
- Stationary Treatment Facilities
- Mobile Recycling Facilities

# Options for Oil Base Mud Cuttings



## Environmental Permit Types and Information

The Oil and Gas Division regulates oil and gas waste transportation, storage and disposal activities. Learn more about the various permitting programs and requirements.

Waste Haulers	Hydrostatic Test Discharges, Minor and Other Permits
Pits	Recycling
Discharges	Landfarms & Landtreatment
Reclamation Plants	Waste Separation Facilities
Commercial Facilities	Hazardous Wastes
NORM Waste	Renewal, Transfer & Amendment

### Surface Waste Management Manual Content

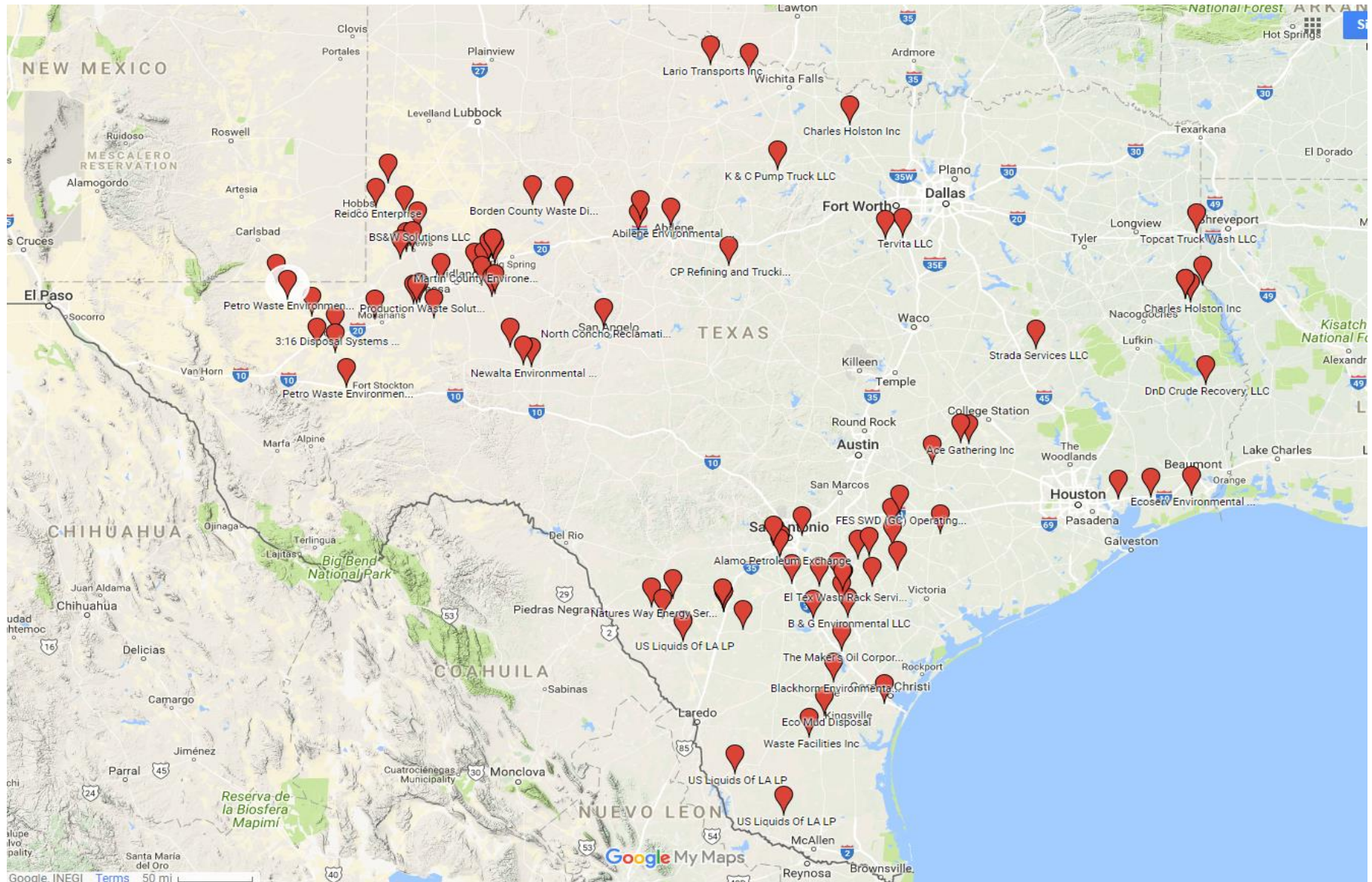
- General Information
- Permit Types & Information
- Applicable Rules
- Online Resources
- Contacts
- Other Manuals

### Current Environmental Permits

- Commercial Surface Disposal Facilities by List
- Commercial Surface Disposal Facilities by Map
- Oil and Gas Waste Haulers and Commercial Disposal Wells

- Above are the basic permit categories offered by the Environmental Permitting Section and are based on Title 16 Texas Administrative Code (TAC); Chapters 3 & 4.

# Options for Oil Base Mud Cuttings



# RRC District Office



Houston District Office 03  
(713) 869-5001  
1706 Seamist Drive, Ste. 501  
Houston, TX 77008

Peter Fisher, P.G.  
Houston District Director  
[Peter.Fisher@rrc.texas.gov](mailto:Peter.Fisher@rrc.texas.gov)



# Any Questions?