



RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

PERMIT TO RECEIVE, STORE, HANDLE, TREAT AND RECYCLE CERTAIN NONHAZARDOUS OIL AND GAS WASTE

Stationary Treatment Facility (STF) for
Commercial Water Recycling
Permit No. STF-024

FOUNTAIN QUAIL WATER MGMT, LLC
4000 ACTION HWY STE 101
GRANBURY, TX 76049-6121

Based on information contained in the application dated November 10, 2008, and subsequent information received to date, this permit hereby authorizes the permittee to receive, store, handle, treat, and recycle certain non-hazardous oil and gas wastes as specified below at the following facility:

FM 51 Facility – 40.31 Acres
Section 89 of the T&P RR Co Survey, A-1465
Parker County, Texas
RRC District 7B

This permit grants the operator authority to receive, store, handle, treat, and recycle certain nonhazardous oil and gas wastes in accordance with 16 TAC Chapter 4, Subchapter B, and subject to the following minimum conditions. The permit conditions are organized as follows: Section I, General Permit Conditions; Section II, Authorized Wastes; Section III, Waste Testing and Record Keeping Requirements; Section IV, General Facility Design; Section V, Construction and Operation; Section VI, Facility Closure.

I. GENERAL PERMIT CONDITIONS

- A. The effective date of this permit is November 30, 2009.
- B. The authority granted by this permit expires on November 29, 2016.
- C. Permittee must notify the Abilene District Office upon completion of construction. No waste may be received at the facility prior to verification by the District Office that the facility has been built in accordance with this permit.
- D. No oil and gas waste may be received, stored, handled, or treated at the referenced facility until financial security required by Rule 78 of \$2,087,174.00, which is the amount of the facility closure cost estimate submitted with the permit application and approved by Technical Permitting, is provided to and approved by the Commission.

- E. The permittee must submit a request for administrative renewal of the permit at least 60 days prior to the permit expiration date. The Commission may consider this permit for administrative renewal upon review.
- F. The permittee shall submit a Semiannual Report containing the applicable information required in Condition III.B. of this permit.

The first Semiannual Report shall cover the period beginning on June ____, 2009, and ending December 31, 2009. The reporting periods shall thenceforth be January 1 through June 30 and July 1 through December 31 of each year.

The Semiannual Reports shall be submitted to Technical Permitting in Austin no later than the 31st day of the month following each reporting period, or each January 31 and each July 31, respectively.

- G. This permit is not transferable without the consent of the Commission. Any request for transfer of this permit must be filed with Technical Permitting in Austin at least 60 days before the permittee wishes the transfer to take place.
- H. This permit does not authorize the discharge from the facility of any oil and gas waste, including contaminated storm water.
- I. Material Safety Data Sheets must be submitted to the Technical Permitting in Austin for any proposed chemical to be used in the treatment of waste at the facility. Use of the chemical is contingent upon Commission approval.
- J. Any soil, media, or other debris contaminated by a spill of waste or any other materials at the facility shall be promptly cleaned up and disposed of in an authorized manner.
- K. The permittee shall make all records required by this permit available for review and/or copying during normal business hours upon request of Commission personnel.
- L. The permittee shall post a sign at the facility entrance, which shall show the permit number in numerals at least one inch in height.
- M. Failure to comply with any provision of this permit shall be cause for modification, suspension or termination of this permit. This permit may be canceled if Technical Permitting determines that the facility is in violation of the conditions of this permit or if operation of the facility is causing or allowing pollution of surface or subsurface water.
- N. An independent laboratory neither owned nor operated by the permittee must conduct any analysis of sampling required by this permit.

II. AUTHORIZED WASTES

- A. Only nonhazardous oil and gas wastes subject to the jurisdiction of the Railroad Commission of Texas and exempt from RCRA, Subtitle C may be received at the facility. The permittee may receive, store, handle, treat and process only the following non-hazardous, oil and gas wastes: fracture flow-back water and produced water from the Barnett Shale.
- B. No oil and gas NORM (naturally occurring radioactive material) waste as defined in 16 TAC §4.603 or waste from a facility that is licensed by the Texas Department of State Health Services to process or treat oil and gas NORM waste may be received at this facility.

III. WASTE TESTING AND RECORD KEEPING REQUIREMENTS

A. WASTE TESTING

- 1. Prior to or upon receipt at the site, representative samples of all incoming waste must be analyzed for the following parameters:
 - a. TDS

B. RECORDKEEPING

- 1. Records must be kept of all waste treated for a period of three (3) years from the date of treatment. These records must include the following:
 - a. Name of the generator.
 - b. Name of the waste hauler.
 - c. Lease Name, Lease Number or Gas I.D. Number and Well Number, or API Number where the fracture flow-back water was generated, and the date(s) it was generated.
 - d. Lease Name, Lease Number or Gas I.D. Number and Well Number, or API Number where the produced water was generated, and the date(s) it was generated.
 - e. Lease Number or Gas I.D. Number and Well Number, or API Number where the treated water was re-used, and the date(s) it was re-used.
 - f. Volume of fracture flow-back water delivered to the facility.
 - g. Volume of produced water delivered to the facility.
 - h. Volume of distilled water produced at the facility.
 - i. Volume of concentrated brine piped or hauled from the facility for disposal.

- j. Volume of solids hauled from the facility for disposal.
 - k. Volume of Type II water delivered to the facility from the City of Weatherford's Waste Water Treatment Plant (WWTP).
 - l. Volume of treated water removed from the Treated Water Storage Reservoir and re-used off site to fracture wells.
 - m. Volume of distilled water transported to the city of Weatherford's WWTP.
 - n. Total dissolved solids concentration of the distilled water after treatment.
 - o. Total dissolved solids concentration of the treated water stored in the Treated Water Storage Reservoir.
 - p. Total dissolved solids concentration of the waste streams brought to the facility.
 - q. Total dissolved solids concentrations of waste streams removed from the facility.
 - r. Copies of analyses of the treated water.
2. A copy of the records required in Permit Condition No. III.B. must be submitted to Technical Permitting in Austin as part of the Semiannual Report required in Condition No. I.F. of this permit. If no waste was stored, handled, treated or re-used within a reporting period, a written statement indicating that no waste was stored, handled, treated or re-used must be submitted to Technical Permitting in Austin as part of the Semiannual Report required in Condition No. I.F. of this permit.

IV. GENERAL FACILITY DESIGN

- A. The general layout and arrangement of the facility shall be consistent with the facility diagram dated August 27, 2008, which is attached to and incorporated as part of this permit as **Permit Appendix A**.
- B. Prior to beginning operations, berms shall be placed around all waste and chemical storage areas. Berms shall be constructed and maintained to adequately serve their intended purpose, i.e. control storm-water run-on and run-off; exceed the volume capacity of the largest tank in the bermed area by 10%; divert or channel storm-water flow, etc.
- C. Any chemical used in the treatment process shall be stored in vessels designed for the safe storage of the particular chemical and these vessels shall be maintained in a leak free condition.
- D. Prior to beginning operations the facility shall have security to prevent unauthorized access. A 6-foot chain link fence topped by three strands of barbed wire shall surround the entire property. Access shall be secured by a locked gate when the

facility is unattended and by a security guard when attended. Only employees of the permittee may have a key to the lock.

V CONSTRUCTION AND OPERATION

A. CONSTRUCTION

1. An **Incoming Wastewater and Concentrated Brine Storage Area** shall be constructed and arranged as shown on the facility diagram, **Permit Appendix A**. The Incoming Wastewater and Concentrated Brine Waste Storage Area shall have a maximum total area of 275 ft x 120 ft.
2. A **Treatment and Processing Area** shall be constructed and arranged as shown on the facility diagram, **Permit Appendix A**. The Treatment and Processing Area shall have a maximum total area of 350 ft x 350 ft.
3. A **Treated Water Storage Reservoir** shall be constructed and arranged as shown on the facility diagram, **Permit Appendix A**. The Treated Water Storage Reservoir shall have a maximum total capacity of 547,619 barrels.
4. The processing equipment shall be positioned within the Treatment and Processing Area at all times.
5. Earthen berms shall be constructed as shown on the facility diagram, **Permit Appendix A**. The berms shall conform to the following minimum dimensions.
 - a. The Incoming Wastewater and Concentrated Brine Storage Area shall be surrounded on all sides by an earthen berm constructed at a maximum 4:1 slope with a minimum height of four (4) feet, measured from the surface of the storage area.
 - b. The Treatment and Processing Area shall be surrounded on all sides by an earthen berm constructed at a maximum 4:1 slope with a minimum height of one (1) foot, measured from the surface of the treatment and processing area.
 - c. The Treated Water Storage Reservoir shall be surrounded on all sides by an earthen berm constructed at a maximum 4:1 slope with a minimum height of seventeen (17) feet on all sides, measured from the bottom of the reservoir. The Treated Water Storage Reservoir shall be constructed using appropriate safety factors in accordance with sound engineering principles.
6. The Treated Water Storage Reservoir shall be constructed with a re-compacted clay liner across the bottom and the sidewalls of the reservoir with a minimum thickness of two (2) feet. A soil liner evaluation report (SLER) shall be submitted to Technical Permitting in Austin upon completion of the liner construction. The SLER shall provide information that the liner was compacted to 95% standard Proctor and a hydraulic conductivity of 1.0×10^{-7} cm/sec or less

has been obtained. Rock riprap or fiber mats shall be used to protect the liner from wave action erosion.

B. OPERATION

1. Untreated fracture flow-back water and untreated produced water must be delivered to the facility by the pipeline system as described in the application. No vehicles shall be used to transport fracture flow-back water or produced water to the facility.
2. Untreated fracture flow-back water and untreated produced water must be stored in the two (2) 15,000-barrel above ground tanks designated for this purpose in the Incoming Wastewater and Concentrated Brine Storage Area.
3. The untreated water shall be piped from the Incoming Wastewater and Concentrated Brine Storage Area to the 1500-gallon clarifier mix tank located in the Treatment and Processing Area, where flocculants and polymers are added to the untreated water. The mixture then shall flow to the clarifier, where the solids sink to the bottom and are pumped to the 200-barrel filter press feed tank.
4. The solids from the filter press feed tanks shall be pumped to the filter press for dewatering to a dry solid. Filtrate water from the press is returned back to the clarifier mix tank and the solids are dropped directly from the filter press into a lined steel roll-off bin.
5. The clarified water must be pumped from the clarifier to the four (4) 500-barrel frac tanks that are connected in parallel and serve as feed tanks for the NOMAD evaporator.
6. Distilled water from the NOMAD evaporator must be piped to the Treated Water Storage Reservoir or may be delivered by pipeline to the City of Weatherford WWTP.
7. Concentrated Brine from the NOMAD evaporator must be piped to the 5,000-barrel concentrate storage tank located in the Incoming Wastewater and Concentrated Brine Storage Area.
8. The Type II water delivered from the City of Weatherford WWTP shall be piped directly to the Treated Water Storage Reservoir.
9. The treated water ready for re-use shall be stored in the Treated Water Storage Reservoir.
10. The treated water in the Treated Water Storage Reservoir may be re-used to fracture wells in the Barnett Shale.

11. No more than 40 cubic yards of solids resulting from the treatment process may be accumulated at the treatment site at any one time. The solids must be stored in the two (2) steel roll-off containers located in the Treatment and Processing Area. The solids must be disposed of offsite in an authorized manner.
12. No more than 5,000 barrels of concentrated brine resulting from the treatment process may be stored at the facility at any one time. The concentrated brine must be piped from the Treatment and Processing Area to the Incoming Wastewater and Concentrated Brine Storage Area, where it shall be stored in the 5,000-barrel concentrate storage tank. The concentrated brine must be disposed of offsite in a permitted saltwater disposal well or other authorized manner.
13. Excess rainwater collected within the Incoming Wastewater and Concentrated Brine Storage Area and the Treatment and Processing Area shall be removed and disposed of in an authorized manner.
14. At least two (2) feet of freeboard must be maintained between the fluid level in the Treated Water Storage Reservoir and the top of the reservoir dikes.
15. Provisions shall be taken to prevent and eliminate erosion at the facility.

VI. FACILITY CLOSURE

- A. All waste must be processed through the facility or disposed of in an authorized manner at a permitted facility.
- B. The remaining contents of all treatment and processing areas, tanks, vessels, silos, sumps or other containers shall be disposed of in an authorized manner.
- C. The treatment and processing equipment, tanks, vessels, silos, and other containers shall be removed from the facility.
- D. Representative soil samples shall be taken from the location of the waste storage, treatment and processing areas. These composite samples shall be analyzed and the following constituent levels shall not be exceeded:

<u>PARAMETER</u>	<u>PRE-CLOSURE LIMIT</u>
pH (Standard Units)	6 to 10
Electrical Conductivity (EC) (mmhos/cm)	4
TPH (weight %)	< 1

Metals (mg/kg):	
Arsenic	10.00
Barium	20,000.00
Cadmium	3.00
Chromium	100.00
Lead	200.00
Mercury	10.00
Selenium	5.00
Silver	200.00
BTEX (mg/kg)	30.00

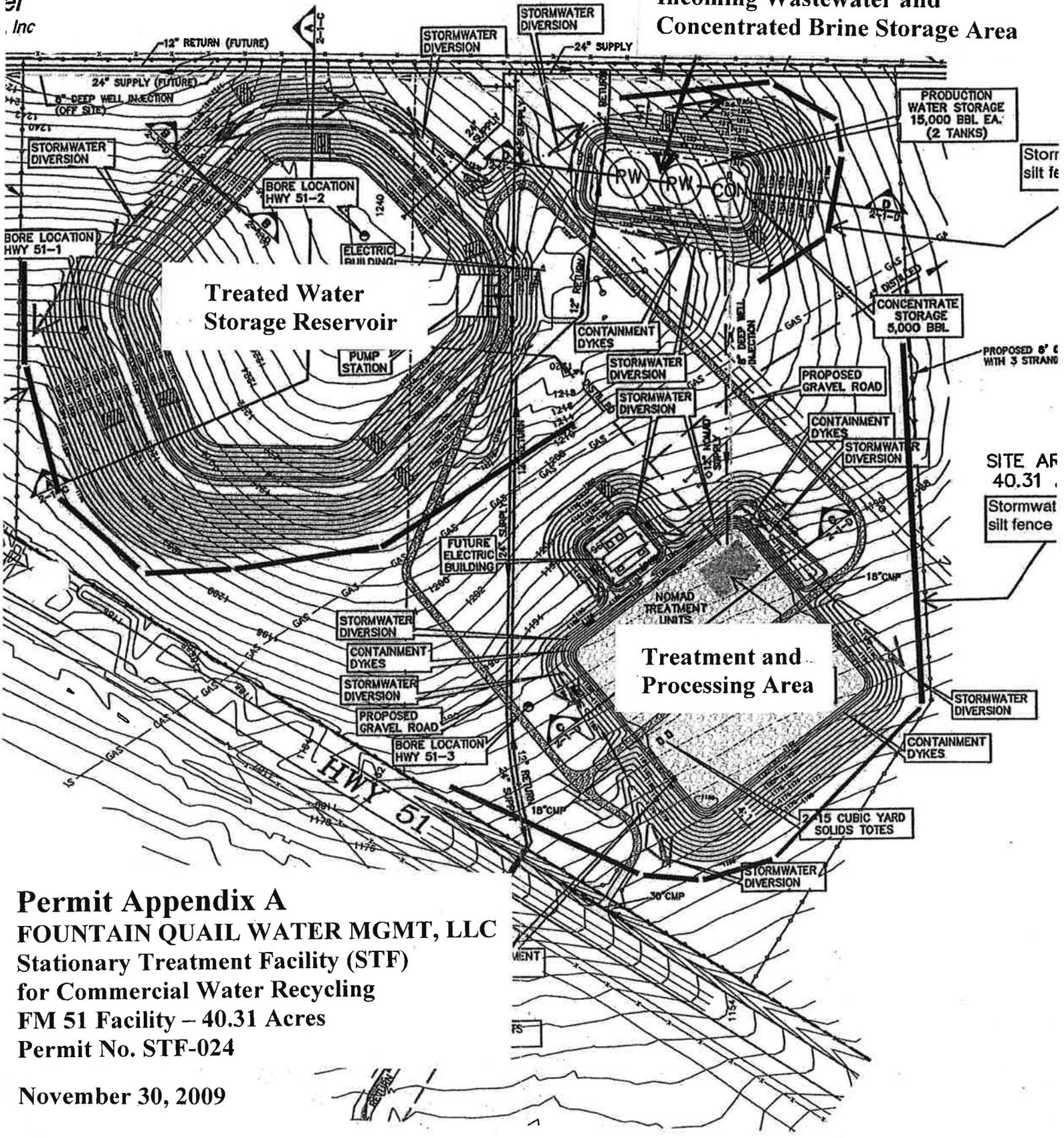
- E. A map showing the sampling locations and copies of the analyses required by Condition VI.D. shall be submitted to the Technical Permitting in Austin within 30 days after receipt of analyses results. When acceptable soil constituent levels have been verified by the Technical Permitting in Austin, the earthen berms surrounding the Incoming Wastewater and Concentrated Brine Storage Area and the Treatment and Processing Area shall be leveled to grade. The topsoil shall then be contoured and seeded with appropriate vegetation.
- F. Provisions shall be taken to prevent erosion both during and following closure.
- G. Technical Permitting in Austin and the Abilene District Office must be notified in writing 45 days prior to commencement of closure activities.



Jill Hybner, Manager
Environmental Permits and Support
Technical Permitting

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Inc

Incoming Wastewater and Concentrated Brine Storage Area



Permit Appendix A
FOUNTAIN QUAIL WATER MGMT, LLC
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November 30, 2009