BARRY T. SMITHERMAN, CHAIRMAN
DAVID PORTER, COMMISSIONER

GIL BUJANO, P.E.
ACTING DIRECTOR, OIL AND GAS DIVISION

RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

HALLIBURTON ENERGY SERVICES INC
ATTN WOODY KEMP
2601 BELTLINE ROAD
CARROLLTON TX 75006

Re: Application for a Permit to Operate a Commercial Mobile Recycling Unit
Permit No. MR-0020
Districts 1, 2, 3, 4, 5, 6, 7B, 7C, 8, 8A, 9, and 10

Based on information contained in your original application received December 8, 2011, and subsequent information received to date, you are hereby authorized to operate a commercial mobile recycling system for the purpose of recycling fracture flow-back water and produced water. This authority is subject to the following minimum conditions:

I. GENERAL PERMIT CONDITIONS

A. The effective date of this permit is March 23, 2012.

B. The authority granted by this permit expires on March 22, 2017.

C. The Commission may consider this permit for administrative renewal upon review.

D. Any request for renewal should be received at least 60 days prior to the permit expiration date. The Commission may consider administrative renewal of the permit upon review.

E. This permit is not transferable without the consent of the Commission. Any request for transfer of this permit should be filed with Technical Permitting in Austin at least 60 days before the permittee wishes the transfer to take place.

F. Only non-hazardous oil and gas wastes subject to the jurisdiction of the Railroad Commission of Texas and exempt from RCRA, Subtitle C may be treated. The permittee may store, handle, treat, and process only produced water and fracture flow-back water at well sites.

G. 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 oil and gas NORM waste may be treated by this process.

H. The permittee shall submit a Semiannual Report containing the applicable information required in Condition III.C. of this permit.

The first Semiannual Report shall cover the period beginning on March 27, 2012 and ending June 30, 2012. The reporting periods shall thenceforth be July 1 through December 31 and January 1 through June 30 of each year.

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

I. This permit does not authorize the discharge from the treatment sites of any oil and gas waste, including contaminated stormwater.

J. The treated oil and gas waste must be mixed, stored, and handled in such a manner that the treated waste will not migrate off the site or enter any drainage ditch, dry creek, flowing creek, river or any other body of surface water.

K. Material Safety Data Sheets must be submitted to the Austin Office and the appropriate District Office for any chemical proposed to be used in the treatment of waste. Use of the chemical is contingent upon Commission approval.

L. Any soil, media, or other debris contaminated by a spill of waste or any other materials at the treatment sites shall be promptly cleaned up and processed through the treatment cycle or disposed of in an authorized manner.

M. 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.

N. Any pits to be used in conjunction with this facility not specifically authorized by 16 TAC § 3.8 must be permitted separately by the filing of Form H-11 and the supporting data.

O. An independent laboratory neither owned nor operated by the permittee must conduct any analysis of sampling required by this permit.

II. SITING, CONSTRUCTION, AND OPERATION

A. SITING

1. When placed at a well site, the mobile water treatment system and all storage areas associated with the treatment process may not be located:

   i. Within a 100 year floodplain.
   ii. In a streambed.
   iii. In a sensitive area.

2. When placed at a well site, the mobile water treatment system and all storage areas associated with the treatment process must be located:

   i. At least 100 feet from any surface water.
   ii. At least 150 feet from any water wells.

B. CONSTRUCTION

1. The spill berms, as represented in the application, located at the drill sites shall be designed to prevent stormwater runoff from entering the area.
2. The spill berms, as represented in the application, located at the drill sites shall be a minimum height of 12 inches.
3. The spill berms, as represented in the application, must be able to hold the full capacity of the tank with the highest maximum capacity in the case of a tank failure event.
4. If the treatment cell/areas located at the receiving sites are constructed with a berm, the height, slope, and construction material of such berms shall be such that they are structurally sound and do not allow seepage.

C. OPERATION

1. The permittee must notify the surface owner prior to moving the mobile water treatment system onto any oil or gas lease.
2. The appropriate District Office must be notified at least 48 hours prior to placing the on-site mobile water treatment system and all associated above-ground storage equipment on an oil and gas lease and provide the name of the operator who generated the oil and gas waste to be treated, the lease name, the lease number and the well number for the lease on which the treatment unit will be placed.
3. Operator of the oil and gas lease must provide written assurance that they will be responsible for the storage of pre-treated and post-treated oil and gas waste.
4. The recyclable product, as defined in 16 TAC Chapter 4, Subchapter B, shall consist of the water processed through the mobile recycling system, which will subsequently be used for the makeup of fracture fluids.
5. All above ground storage vessels must be maintained in proper working condition.
6. Oil and gas waste to be processed in the treatment unit must be stored in above ground tanks or a pit authorized to store it and pumped into the mobile recycling system.
7. The permittee must place and keep the mobile recycling system on an oil and gas lease owned by the operator who generates the fracture flow back-water and produced water to be treated, and the permittee/unit may only treat fracture flow-back water and produced water generated by the operator of the lease where the unit is placed.
8. The recyclable product may only be used in the makeup of fracturing fluid at the well site at which it was generated or at another well site within the same field owned or leased by the operator who generated the oil and gas waste prior to its treatment. Any excess recyclable product that is not used in the makeup of fracturing fluid must be disposed of in an authorized manner.
9. Untreated and partially treated water shall be mixed at the drill site with appropriate amounts of caustic soda, and hydrochloric acid.

10. The oil and gas waste will be flocculated using electrocoagulation.
11. Untreated water at the drill site shall be tested for alkalinity, sulfate, chloride, hardness (calcium and magnesium), iron, potassium, pH, specific gravity, turbidity, specific conductance, temperature, and total suspended solids (TSS).
12. The recyclable product at the drill site shall be tested for alkalinity, sulfate, chloride, hardness (calcium and magnesium), iron, potassium, pH, specific gravity, turbidity, specific conductance, temperature, and total suspended solids (TSS).
13. Excess rainwater collected within a bermed area shall be removed and disposed of in an authorized manner.
14. A maximum of 15,000 barrels of recyclable product may be stored at the facility at any given time.
15. A maximum of 19,000 barrels of untreated and partially treated oil and gas waste may be stored at the facility at any given time.
16. The solid waste resulting from the treatment process must be disposed of in an authorized manner.
17. The recyclable product must be stored in above-ground storage tanks or authorized or permitted pits at the well site where it will be re-used in the well completion process.
18. The recyclable product must be utilized in the fracturing process within 60 days of its creation or disposed of in an authorized manner.
19. The permittee must have personnel onsite at all times when the mobile water treatment system is in operation on an oil or gas lease. If personnel are not onsite, the treatment system must be in a non-operational state and secured to prevent unauthorized access.
20. A mobile recycling unit may operate at a single location for no longer than 10 months. All processing equipment and partially treated or recycled material must be reused or removed, and final grading and site restoration must be completed within the following 60 days.
21. The appropriate District Office must be notified at least 48 hours prior to placing the mobile recycling unit on an oil and gas lease and the name of the operator who generates the fracture flow-back water or produced water, lease name, lease number and well number must be specified at that time

III. RECORDKEEPING AND REPORTING REQUIREMENTS

A. 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 for each treatment unit and treatment site:
    a. Date appropriate district office was notified.
    b. Name of the generator.

c. Name of the waste hauler, if applicable.
d. Lease Name, Lease Number or Gas I.D. Number and Well Number, or API Number where the treatment unit was placed.
e. Lease Name, Lease Number or Gas I.D. Number and Well Number, or API Number where the oil and gas waste that was treated was generated.
f. Lease Number or Gas I.D. Number and Well Number, or API Number where the recyclable product was re-used.
g. Classification of the water from each lease as frac flow-back water, produced water, or a mixture of the two.
h. The alkalinity, sulfate, chloride, hardness (calcium and magnesium), iron, potassium, pH, specific gravity, turbidity, specific conductance, temperature, and total suspended solids (TSS) of the frac flow-back or produced water from each lease used as feedstock for the mobile water treatment system.
i. Volume of produced water and frac flow-back water treated in the treatment process.
j. Volume of recyclable product, including water and salable oil, resulting from the treatment process.
k. The alkalinity, sulfate, chloride, hardness (calcium and magnesium), iron, potassium, pH, specific gravity, turbidity, specific conductance, temperature, and total suspended solids (TSS) of the recyclable product generated from the mobile water treatment system.
l. Volume of solid waste generated from the treatment process.
m. The location at which the solid waste generated by the mobile water treatment system was disposed.
n. Date(s) the oil and gas waste was processed through at the treatment unit.
o. Date(s) the recyclable product was re-used.

B. REPORTING

1. A copy of the records required in Permit Condition No. III.A. must be submitted to Technical Permitting in Austin as part of the Semiannual Report required in Condition No. III.C. of this permit. If no waste was treated within a reporting period, a written statement indicating that no waste was treated must be submitted to Technical Permitting in Austin as part of the Semiannual Report required in Condition No. III.C. of this permit.

C. SEMI-ANNUAL REPORT

1. Beginning **July 31, 2012** and every six (6) months thereafter, permittee shall submit a Semiannual Report containing applicable information as required in Conditions III.A. and III.B. of this permit for the previous six (6) month period.

IV. CLOSURE

A. All unused free standing wastewater remaining in any storage cell at a drill site shall be disposed of in an authorized manner.

B. All equipment must be removed from each site and any dikes leveled or removed upon completion of the treatment process.

C. The contents of any vessels or other containers shall be disposed of in an authorized manner within 120 days of completion of treatment process.

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 permittee is in violation of the conditions of this permit or if the permittee's operations pursuant to the permit are causing or allowing pollution of surface or subsurface water.

This authorization is granted subject to review and cancellation should investigation show that such authorization is being abused.

Michael Sims

Michael Sims, P.E., Manager
Environmental Permits and Support
Technical Permitting

cc: All RRC Districts