



RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

NATIONAL OILWELL VARCO, L.P.
7909 PARKWOOD CIR DR 6TH FLR
HOUSTON TX 77036

Re: Permit No. MR-0029,
Authorization to Treat Produced Water and Fracture
Flow-back Water for Use and/or Re-use
Statewide Authority
Districts 1, 2, 3, 4, 5, 6, 7B, 7C, 8, 8A, 9 and 10

Based on information contained in your application received August 7, 2012, and subsequent information received on November 26, 2012 you are hereby authorized to handle, treat, and recycle the following non-hazardous oil and gas wastes: produced water and fracture flow-back water.

The mobile water recycling system may utilize softening and clarification chemicals and processing equipment, and the Aqua-VESTM system filtration technologies, or any combination of those technologies as presented in the application. After gravity separation, produced water and fracture flow-back fluids are transferred via hydraulic hoses from equalization storage tanks owned, used and maintained by the generator to the mobile water recycling system. Slop oil resulting from gravity separation will be reused by the generator. Fluids from the equalization tanks may be processed in a mixing plant with softening chemicals. Scaling divalent compounds will precipitate and be separated out from a clarification processing tank or centrifuge. After processing, softened fluids are neutralized with acid. Softened fluids or un-softened fluids, conveyed directly from the equalization tanks, are conveyed to the Aqua-VESTM system which utilizes micro and ultrafiltration membranes to further clarify the fluid and separate out any remaining suspended solids and other undesirable constituents. A bactericide may be employed prior to transferring the recyclable product to storage tanks, or authorized or permitted pits, owned, used and maintained by the generator. All recyclable material and waste, treated or untreated, generated from the mobile water recycling system will be reused for down-hole use or disposed of in accordance with this permit.

This authority is granted in accordance with 16 TAC Chapter 4, Subchapter B, and subject to the following minimum conditions:

I. GENERAL PERMIT CONDITIONS

- A. The effective date of this permit is January 31, 2013.
- B. The authority granted by this permit expires on January 31, 2018.

- C. 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 only handle, treat, and recycle fracture flow-back water and produced water on an oil and gas lease or well site owned and operated by the generator of the produced water and fracture flow back water to be treated.
- D. The permittee is responsible for:
 - 1. Managing recyclable product generated by the mobile water recycling system until custody of the recyclable product is either transferred to the generator for down-hole use or it is disposed of in an authorized manner;
 - 2. Ensuring proper management and disposition of waste, treated or untreated, generated by the mobile water recycling system until custody of the waste is either transferred to the generator for down-hole use or disposed of in an authorized manner;
 - 3. Remediating any pollution of soil, surface water or groundwater affected by activities associated with the mobile water recycling system; and
 - 4. Diverting storm water away from the mobile water recycling system, and collecting and disposing of any storm water that is contaminated as a result of contact with recyclable product or waste, treated or untreated, generated by the mobile water recycling system.
- E. 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 the mobile water recycling system.
- F. The Commission may consider this permit for administrative renewal upon review. Any request for renewal should be received at least 60 days prior to the permit expiration date.
- G. 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.
- H. The permittee shall submit a Quarterly Report in accordance with Condition IV.B. of this permit.
- I. This permit does not authorize the discharge of any oil and gas waste from the mobile water recycling system or associated storage, including contact storm water.
- J. Material Safety Data Sheets must be submitted to Technical Permitting in Austin for any previously unrepresented chemical to be used in the mobile water recycling

system. Use of the chemical is contingent upon approval from Technical Permitting in Austin.

- K. Any soil, media, or other debris contaminated by a spill of waste or any other materials associated with the mobile water recycling system must be promptly cleaned up and disposed of in an authorized manner; and the permittee must ensure that the generator notifies the appropriate District Office and Technical Permitting in Austin within 24 hours should greater than 5 barrels of any RCRA-exempt waste be spilled, or any spill greater than or equal to the reportable quantity of any RCRA non-exempt waste as outlined in 40 CFR §302.4.
- L. The permittee must make all records required by this permit available for review and copying during normal business hours upon request of Commission personnel.
- M. Any pits to be used in conjunction with this facility not specifically authorized by 16 TAC §3.8 must be permitted separately by the generator prior to use. A permit may be requested by filing an Application for Permit to Use and Maintain a Pit (Form H-11) and the supporting data with Technical Permitting in Austin.
- N. An independent laboratory neither owned nor operated by the permittee must conduct any analysis of sampling required by this permit.
- O. Unless otherwise dictated by this permit, construction and operation of the facility must be as represented in the original application and subsequent information received to date by Technical Permitting in Austin.
- P. Any deviation from this permit must be approved by amendment from Technical Permitting in Austin before implementation.

II. SITING

- A. The mobile water recycling system and all associated storage must be placed at an oil and gas lease or well site owned and operated by the generator of the oil and gas waste to be treated.
- B. The mobile water recycling system must not be located:
 - 1. Within a 100-year floodplain.
 - 2. In a sensitive area, as defined in 16 TAC §3.91(a)(2).
 - 3. Within 100 feet of any surface waters of the state, including dry creeks or stream beds.
 - 4. Within 150 feet of any water wells.

III. OPERATION

- A. The permittee must notify the surface owner prior to moving the mobile water recycling system onto any oil or gas lease or well site operated by the generator of the oil and gas waste to be treated.
- B. The appropriate District Office must be notified at least 7 days prior to placing the mobile water recycling system and all associated storage areas on an oil and gas lease or well site operated by the generator of the waste to be treated. Notification of the District Office must include the name of the generator, the lease name, the lease number and the well number for the lease on which the mobile water recycling system will be placed.
- C. A site layout plan must be prepared and submitted to the appropriate District Office at least 7 days prior to placing the on-site mobile water recycling system on an oil and gas lease or well site owned and operated by the generator of the waste to be treated. The plan must include the layout of the recycling facility showing the location and information on the design and size of all receiving, processing, and storage areas and all equipment used in the recycling process.
- D. The permittee must not treat oil and gas waste at any location for a period of more than 365 days.
- E. All equipment and storage must be maintained in proper working condition.
- F. All equipment, chemicals, and waste, treated or untreated, must be covered and stored appropriately to ensure that no contact storm water is generated from the mobile water recycling system.
- G. All active treatment equipment: Softening and Mixing equipment, Clarifying equipment, and Aqua-VESTM system, must be operated within secondary containment.
- H. The recyclable product, as defined in 16 TAC Chapter 4, Subchapter B, must consist of fracture flow-back water or produced water treated by the mobile water recycling system, which will subsequently be used for the makeup of fracture fluids.
- I. Oil and gas waste to be treated by the mobile water recycling system must be stored in above-ground tanks or a pit authorized or permitted to store that waste that is operated by the generator, and pumped into the mobile water recycling system via hydraulic hoses.
- J. The recyclable product must be stored in above-ground storage tanks, or in a pit authorized or permitted to store recyclable product that is operated by the generator until transported for re-use in the well completion process.
- K. A maximum volume of 5,000 barrels of oil and gas waste to be treated per mobile water recycling system may be stored at the site at any given time, but no more than

20,000 barrels of oil and gas waste to be treated may be stored at the site at any given time.

- L. A maximum volume of 3,900 barrels of partially treated waste per mobile water recycling system may be stored at the site at any given time, but no more than 15,600 barrels of partially treated waste may be stored at the site at any given time.
- M. A maximum volume of 1,350 barrels of solid waste generated from the mobile water recycling system (settled solids, filter cake, etc.) per mobile water recycling system may be stored at the site at any given time, but no more than 5,400 barrels of solid waste generated from any mobile water recycling system may be stored at the site at any given time.
- N. A maximum volume of 10,000 barrels of recyclable product per mobile water recycling system may be stored at the site at any given time, but no more than 40,000 barrels of recyclable product may be stored at the site at any given time.
- O. Any solid waste resulting from the mobile water recycling system must be disposed of in an authorized manner.
- P. Any waste product or non-recyclable product generated by the mobile water recycling system must be disposed of in an authorized manner within 30 days of generation.
- Q. If custody of the recyclable product is not transferred to the generator within 10 days of its generation or disposed of in an authorized manner, the permittee is responsible for its disposal.
- R. The recyclable product may only be used down-hole as fracturing fluid at the site from which it was generated or at another well site owned or leased by the generator of 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.
- S. The permittee must have personnel on site at all times when the mobile water recycling system is in operation. If personnel are not on site, the mobile water recycling system must be in a non-operational state and secured to prohibit unauthorized access.
- T. A Skim Oil/Condensate Report (Form P-18) must be filed for every month in which skim oil is recovered during the operation of the mobile water recycling system.

IV. RECORDKEEPING AND REPORTING REQUIREMENTS

A. RECORDKEEPING

1. Records must be kept of all oil and gas waste treated for a period of three (3) years from the date of treatment. These records must include the following for

each mobile water recycling system and site:

- a. Date the appropriate District Office was notified;
- b. Name of the generator of the waste to be treated;
- c. Name of the waste hauler, if applicable, who transported the waste to the mobile water recycling system;
- d. Lease Name, Lease Number or Gas I.D. Number and Well Number, or API Well Number where the mobile water recycling system was placed;
- e. Lease Name, Lease Number or Gas I.D. Number and Well Number, or API Well Number where the oil and gas waste to be treated was generated;
- f. Lease Number or Gas I.D. Number and Well Number, or API Well Number where the recyclable product was re-used;
- g. Classification of the water from each lease as produced water, or fracture flow-back water, or a mixture thereof;
- h. Analysis of the total dissolved solids, total suspended solids, and pH of each source of fracture flow-back water or produced water prior to treatment by the mobile water recycling system;
- i. Volume of fracture flow-back water and produced water treated in the mobile water recycling system per day;
- j. Volume of recyclable product, including water and salable oil, resulting from the mobile water recycling system per day;
- k. Analysis of the total dissolved solids, total suspended solids, and pH of the recyclable product generated from the mobile water recycling system from a weekly sample or a sample collected every 10,000 barrels, whichever is more frequent;
- l. Volume of solid waste generated from the mobile water recycling system per day;
- m. Location at which the solid waste generated by the mobile water recycling system was disposed;
- n. Date(s) that the produced water or fracture flow-back was treated by the mobile water recycling system; and
- o. Date(s) that the volumes of recyclable product was re-used.

B. REPORTING

1. A copy of the records required in Permit Condition No. IV.A. must be submitted to Technical Permitting in Austin as part of the Quarterly Report. If no waste was stored, handled, treated or re-used within a reporting period, a written statement indicating that no waste was handled, treated or re-used must be submitted to Technical Permitting in Austin as part of the Quarterly Report.
2. The first Quarterly Report must cover the period beginning on effective date of this permit and ending March 31, 2013. The reporting periods will thenceforth be January 1 through March 31, April 1 through June 30, and July 1 through September 30, and October 1 through December 31 of each year.

3. The Quarterly Report must be submitted to Technical Permitting in Austin no later than the 30th day of the month following the end of each reporting period, or each April 30, July 30, October 30 and January 30 respectively.

V. CLOSURE

- A. The mobile water recycling system and all associated equipment, storage, and chemicals owned or operated by the permittee must be removed from the site within 120 days of the completion of the last treatment of fracture flow-back water or produced water, excluding authorized or permitted pits which must be closed in accordance with 16 TAC §3.8 or its associated permit, respectively.
- B. The contents of any vessels or other containers, including unused recyclable product, must be disposed of in an authorized manner within 120 days of completion of the last treatment of fracture flow-back water or produced water.

Failure to comply with any provision of this permit will 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.



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

cc: RRC – San Antonio/01 & 02
Houston/03
Corpus Christi/04
Kilgore/05 & 06
Abilene/07B
San Angelo/07C
Midland/08 & 08A
Wichita Falls/09
Pampa/10