



# RAILROAD COMMISSION OF TEXAS

## HEARINGS DIVISION

**OIL AND GAS DOCKET NO. 10-0279962**

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**THE APPLICATION OF OVERFLOW ENERGY, LLC, FOR COMMERCIAL DISPOSAL  
AUTHORITY FOR THE 2124 SWD LEASE NO. 1 WELL, EMMA-JACK (GRANITE  
WASH) FIELD, HEMPHILL COUNTY, TEXAS**

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**HEARD BY:** Andres Trevino, P.E., Technical Examiner  
Michael Crnich, Hearings Examiner

**PFD PREPARED BY:** Paul Dubois, Technical Examiner

### APPEARANCES:

#### APPLICANT:

George Neale  
Rick Johnston, P.E.  
Mark Lobmeyer

#### REPRESENTING:

Overflow Energy, LLC

#### PROTESTANTS:

Michael McElroy  
John McBeath, P.E.

Hiram and Durinda Begert Living Trust  
Monty Markham  
Alexia Springer  
Yowell Family

Drew Miller

Hemphill County Underground Water  
Conservation District

### PROCEDURAL HISTORY

Application Filed:	August 16, 2012
Protest Received:	August 17, 2012
Request for Hearing:	November 5, 2012
Notice of Hearing (Corrected):	January 15, 2013
Date of Hearing:	March 1, 2013
Transcript Received:	March 18, 2013
Proposal For Decision Issued:	November 1, 2013

**EXAMINERS' REPORT AND PROPOSAL FOR DECISION****STATEMENT OF THE CASE**

Overflow Energy, LLC (Overflow), requests authority pursuant to Statewide Rule 9 to operate its 2124 SWD Lease Well No. 1 in Hemphill County, Texas, as a commercial disposal well assigned to the Emma-Jack (Granite Wash) Field. The proposed disposal well will be a recompletion of an existing gas well and will inject salt water and RCRA-exempt waste into the Panhandle Lime, Brown Dolomite and Wolfcamp Formations, which are not productive of hydrocarbons in the area.

Notice of the application was published in *Amarillo Daily News* on August 9, 2012; the publisher's affidavit did not identify the *Amarillo Daily News* as a newspaper of general circulation in Hemphill County. Notice of the hearing was mailed on January 15, 2013 to the Hemphill County Clerk and to the surface owners of the disposal tract and each tract adjoining the disposal tract, and to the offset operators within one-half mile of the proposed location. The application was protested by offset landowners (Beger Family Trust, Monty Markham, Alexia Springer, and the Yowell Family) and by the Hemphill County Underground Water Conservation District (HCUWCG).

The matter was re-published on March 7, 2013, after the hearing, in *The Canadian Record*, a newspaper of general circulation in Hemphill County, Texas. The purpose of this re-publication was to revise well completion details on the W-14, especially deepening the base of the disposal interval from 6,087 to 6,300 feet, and provide an opportunity for protest within 15 days of publication. This re-publication was accompanied by re-notice on March 12, 2013 to affected persons on the service list. No additional protests were received.

The application was determined to be administratively complete by Commission staff. The HCUWCG withdrew its protest at the beginning of the hearing because Overflow agreed to additional special permit conditions.

**DISCUSSION OF THE EVIDENCE****Applicant's Evidence**

Overflow proposes to convert the Harrison No. 1013 well (API 211-31853), drilled by Dyco Petroleum in 1987, into its 2124 Lease Well No. 1. The well is located in Hemphill County 4 miles northeast of Allison, Texas (Allison is in Wheeler County). The well is 800 feet south of Ranch Road 2124. It was originally drilled to a total depth of 14,994 feet, plugged back to 13,968 feet, and perforated from 11,907 to 11,917 feet. The well was originally placed in error in the Allison Parks (Morrow, Up) Field. The well records were corrected in 1988 when the field placement was changed to the Emma-Jack (Granite

Wash) Field.

The well was originally completed with 16-inch surface casing to a depth of 316 feet and cemented back to the surface. The 10 3/4-inch intermediate casing was set at a depth of 5,300 feet and cemented back to the surface. The 7-inch production casing was set at 14,503 feet and cemented to 10,875 feet. The well is located on a 131.7 acre tract leased by Overflow.

Overflow is proposing two configurations for recompletion as a disposal well. In its original application (as amended) Overflow proposed the following:

- Perform a cement squeeze in the 7-inch casing at 4,300 feet to isolate the top of the injection interval; and
- Perform a cement squeeze in the 7-inch casing at 6,100 feet to isolate the bottom of the injection interval.
- Use the 7-inch casing as the production casing with the proposed injection interval from 4,350 to 6,087 feet.

At hearing Overflow proposed an alternative recompletion, which it favors for technical reasons. Specifically, the alternative recompletion provides for a better means to assure that the existing wellbore and injection interval are isolated from surrounding strata:

- Cut and pull the 7-inch casing at 6,350 feet;
- Set a cement plug at 6,350, at the stub of the 7-inch casing; and,
- Use the 10-inch casing, which is set at 5,300 feet and cemented to the surface, as the production casing with the proposed injection interval from 4,350 to 6,300 feet.

As these details were not included in the original application or hearing notice, the matter was re-noticed and re-published after the hearing, providing 15 days for response to protest. No additional protests were received; Overflow intends to proceed with the alternate recompletion configuration. In testimony, Overflow agreed to conduct a cement bond log on the 10-inch casing (given the alternative recompletion) and to submit it to the Commission.

The Ogallala Aquifer exists in the area of the proposed disposal well. The Commission's Groundwater Advisory Unit (GAU) recommends that the usable-quality groundwater of the Ogallala Aquifer be protected to a depth of 300 feet, and has determined that the base of the underground source of drinking water (USDW) is at 600 feet. The surface casing is cemented to isolate the usable-quality groundwater protection

depth, and the 10-inch casing is cemented through the base of USDW. The GAU indicated that drilling and using the proposed disposal well and injecting oil and gas waste into the subsurface stratum will not endanger the freshwater strata in that area.

The proposed injection will be through 4½-inch tubing set on a packer at approximately 4,250 feet, but no higher than 100 feet above the top of the injection interval. The proposed disposal interval from 4,350 to 6,300 feet includes the Panhandle Lime, Brown Dolomite, and Lower Wolfcamp Formations. The base of the disposal interval, 6,300 feet, is interpreted from the well log of the original Harrison No. 1013 well. The geologic strata between the top of the disposal interval and the base of USDW includes extensive evaporite deposits, mostly salt and anhydrite, which are impermeable and would isolate the injection interval from the usable groundwater zones above. The presence of these evaporite deposits is well documented throughout the Texas Panhandle. When drilling wells, however, these intervals are often not logged; log sections provided for this docket began below the evaporite deposits.

The well will operate with a maximum injection volume of 10,000 BWPD and an estimated average of 6,000 BWPD. The maximum surface injection pressure is 1,200 PSIG with an estimated average surface injection pressure of 500 PSIG.

Overflow submits that it has the expertise to build and manage the proposed well and disposal facility. Overflow operates 13 commercial disposal wells in Texas, has a current approved Form P-5 (Organization Report), a \$50,000 letter of credit for financial assurance, and no pending Commission enforcement actions.

Commission records did not identify any other wells within a ¼ mile area of review of the subject well. One wellbore was identified within ½ mile of the subject well. Chesapeake Operating, Inc.'s Yowell 250 No. 1 (a producing gas well) is located about 2,100 feet northeast of the subject well. The Yowell 250 No. 1 was completed in 1984 to 12,280 feet in the Emma-Jack (Granite Wash) Field. The well has surface casing to 933 feet with cement circulated to the surface, providing adequate protection of groundwater resources. The wellbore is not cemented through the correlative disposal interval. Overflow calculates volumetric and pressure fronts from the injection well will result in an increase in fluid pressure at the Yowell 250 No. 1 well of approximately 177 PSI after 20 years of injection at the maximum permitted rate.

Overflow plans to use the proposed well to dispose of produced water and fracture stimulation water generated as a result of the active and ongoing development of the Granite Wash formation in the general area. There are an estimated 40 active drilling rigs within a 20 mile radius of the proposed well, according to a rough estimate by Overflow's witness. Fracture stimulation of Granite Wash horizontal wells requires disposal of an average 100,000 barrels of water and up to 300,000 barrels of water. In addition, Granite Wash wells produce significant amounts of salt water. Overflow believes that the proposed well is necessary to accommodate the active drilling as currently there are two disposal wells within a 10-mile radius of the proposed well. The nearest disposal well available for public use is three and a half miles west of the proposed well. The other well is six miles

to the southwest and is "private," meaning it is not available for the general waste-hauling public. From 10 to 15 miles from the proposed location there are seven other disposal wells, three of which are available for public disposal. Overflow's other disposal wells, which are more than 15 miles from the proposed well, operate at or near capacity. The Panhandle Lime and Brown Dolomite are the disposal intervals for the wells within a 15-mile radius of the proposed Overflow well.

### **Protestant's Evidence**

Prior to the hearing, HCUWCD and Overflow reached agreement on special permit provisions for regular sampling and analysis of groundwater from four wells within a one mile radius of the proposed disposal well. Accordingly, HCUWCD withdrew its protest. HCUWCD has agreed to these special provisions for 37 other disposal wells.

A group of offset landowners—the Hiram and Durinda Begert Living Trust, Monty Markham, Alexia Springer, and the Yowell Family (hereinafter, Protestants)—were represented in their protest and presented a direct case. The direct case was oriented against Overflow's originally noticed proposed recompletion configuration for the well, as the alternative configuration was not made available to them before the hearing.

The Protestants' expert witness identified several concerns with the recompletion details for the proposed disposal well. With regards to the original proposed configuration, the Protestants were concerned that the two cement squeezes would not have adequate quality control, and especially that it would be difficult if not impossible to ascertain the efficacy of the lower squeeze at all. The Protestants reiterated that a cement squeeze should properly include a full-circle analysis and response. That is, the cement squeeze should be followed with an evaluation by cement bond log, and additional squeezes and bond logs if and as necessary to obtain and verify adequate isolation of the injection interval from the BUQW/USDW.

The Protestants were concerned that the well logs and cross section did not provide adequate evidence of 250 feet of vertical confinement between the proposed disposal interval and the BUQW/USDW. Specifically, the well log for the Harrison 1013 (the proposed 2124 SWD No. 1) was not logged (or the log was not available) above 5,200 feet. A nearby log from a depth of 3,200 was offered by the Protestants, but it did not include the evaporite interval.

The existing wellbore and casing below the disposal interval was also a concern for the Protestants. The proposal in the original configuration to perform a cement squeeze below would be difficult if not impossible to verify. The alternative configuration of setting a cement plug on top of the 7-inch casing stub would also leave several thousand feet of uncemented casing below the plug. The Protestants expressed concern about potential negative impacts to minerals below the disposal interval.

Finally, expanding the injection interval from 6,087 to 6,300 without notice was a concern to the Protestants.

### EXAMINERS' OPINION

The examiners recommend approval of the commercial disposal well permit as requested by Overflow and described in its alternate configuration, as republished and re-noticed, with the special provisions described below and included in the draft Final Order.

Commission staff determined the original application to be administratively complete. Overflow has met its financial assurance and burden of proof obligations. The Protestants objected to several issues regarding the original application, particularly the ability to ensure adequate cementing above and below the injection interval. The examiners believe these have been sufficiently addressed by the Applicant's proposed alternative completion to protect resources and prevent pollution. Based on the alternative configuration, the Protestants offered no evidence to suggest that the proposed well would endanger or injure any oil, gas, or other mineral formation, or that ground and surface fresh water would not be adequately protected from pollution.

The presence of multiple and extensive evaporite deposits separating the Ogallala Aquifer from the injection interval is well known and documented in literature. The examiners believe the regional evaporite deposits are sufficient to protect the shallow groundwater in this area, even though a log was not presented by the applicant. The 10-inch casing was cemented to the surface when the well was originally completed.

Conducting a cement bond log, with additional cement squeezes if and as necessary, will ensure protection of shallow groundwater resources. Cutting and removing the 7-inch casing near the base of the disposal interval will allow for the wellbore-casing and annulus-to be adequately plugged to isolate the injection interval from lower producing intervals. Public interest claims of the applicant were not challenged.

Overflow has agreed to special permit conditions to resolve the protest from the HCUWCD. These conditions will require Overflow to conduct sampling and analysis of four Ogallala Aquifer wells within a one-mile radius of the proposed injection well. The four wells selected for sampling and analysis were owned by three of the Protestants-landowners-the Hiram and Durinda Begert Living Trust, Monty Markham, and Jimmy Yowell.

The examiners recommend adoption of the following Findings of Fact and Conclusions of Law:

### FINDINGS OF FACT

1. Notice of the application was published in *Amarillo Daily News* on August 9, 2012; the publisher's affidavit did not identify the *Amarillo Daily News* as a newspaper of general circulation in Hemphill County. Notice of the hearing was mailed on January 15, 2013 to the Hemphill County Clerk and to the surface owners of the disposal tract and each tract adjoining the disposal tract, and to the offset operators within one-half mile of the proposed location.

2. The application was protested by offset landowners (Begert Family Trust, Monty Markham, Alexia Springer, and the Yowell Family) and by the Hemphill County Underground Water Conservation District (HCUWCG). The HCUWCG withdrew its protest.
3. The matter was re-published on March 7, 2013, after the hearing, in *The Canadian Record*, a newspaper of general circulation in Hemphill County, Texas. The purpose of this re-publication was to revise well completion details on the W-14, especially deepening the base of the disposal interval from 6,087 to 6,300 feet, and provide an opportunity for protest within 15 days of publication. This re-publication was accompanied by re-notice on March 12, 2013 to affected persons on the service list. No additional protests were received.
4. The 2124 No. 1 well was drilled in 1987 as the Harrison 1013 No. 1 to a total depth of 14,994 feet, plugged back to 13,968 feet, and perforated from 11,907 to 11,917 feet. The well produced gas from the Emma-Jack (Granite Wash) Field.
5. Overflow will re-enter and re-complete the Harrison 1013 well, converting it to the 2124 No. 1 well.
6. The 2124 No. 1 well will be re-completed as follows:
  - a. The existing 16-inch surface casing will remain set and cemented to surface at 316 feet.
  - b. The existing 10 3/4-inch casing will remain set at 5,300 feet and cemented to the surface.
  - c. The 10 3/4-inch casing will be perforated from its base at 5,300 feet up to the top of the disposal interval at 4,350 feet.
  - d. A cement bond log will be run on the 10 3/4-inch casing above the disposal interval, and remedial cement squeezes will be conducted to ensure adequate isolation from the overlying groundwater resources.
  - e. The 7-inch casing will be cut at 6,350 feet and pulled from the borehole.
  - f. The 7-inch casing stub will be plugged with cement.
  - g. The injection interval in the Panhandle Lime, Brown Dolomite and Wolfcamp formations will be from 4,350 to 6,300 feet.
7. The Groundwater Advisory Unit recommends that usable-quality water be protected to 600 feet in the area of the proposed well.
8. The 2124 No. 1 commercial disposal well will be operated as follows:

- a. A maximum daily injection volume of 10,000 BPD of saltwater and RCRA-exempt oil and gas waste, with an estimated average daily injection volume of 6,000 BPD.
  - b. A maximum surface injection pressure of 1,200 psig, and an estimated average surface injection pressure of 600 psig.
9. The 2124 No. 1 well will be cased, cemented and operated in a manner to protect usable quality water, and injection will be confined to the injection interval.
  10. The 2124 No. 1 well will be cased, cemented and operated in a manner to not endanger or injure any oil, gas, or other mineral formation.
  11. There are no wells—permitted, active, or plugged and abandoned—within one-quarter mile of the proposed disposal well.
  12. No wells within one mile of the proposed disposal well have inadequate cementing, casing or other construction deficiencies that might result in harm to water or hydrocarbon resources as a result of 2124 No. 1 operations.
  13. The Overflow facility will incorporate all required standard containment design features for commercial disposal facilities designed to prevent pollution.
  14. The proposed well is located in the an area of active hydrocarbon development driven by horizontal wells in the Granite Wash formation.
  15. Within a 20-mile radius of the proposed location, there are an estimated 40 active drilling rigs developing Granite Wash fields.
  16. The active hydrocarbon development in the area will require disposal of salt water and RCRA-exempt oil and gas waste.
  17. The need for expanded disposal capacity has resulted in numerous other operator applicants actively pursuing permits in the area.
  18. Overflow has an active P-5 on file with the Commission, and \$50,000 letter of credit as financial assurance.

#### **CONCLUSIONS OF LAW**

1. Proper notice was issued in accordance with the applicable statutory and regulatory requirements.
2. All things have occurred to give the Railroad Commission jurisdiction to consider this matter.

3. The use or installation of the proposed injection well is in the public interest.
4. The use or installation of the proposed injection well will not endanger or injure any oil, gas, or other mineral formation.
5. With proper safeguards, as provided by terms and conditions in the attached final order, which are incorporated herein by reference, both ground and surface fresh water can be adequately protected from pollution.
6. Overflow has made a satisfactory showing of financial responsibility to the extent required by Section 27.073 of the Texas Water Code.
7. Overflow has met its burden of proof and satisfied the requirements of Chapter 27 of the Texas Water Code and the Railroad Commission's Statewide Rule 9.

**EXAMINERS' RECOMMENDATION**

Based on the above findings and conclusions, the examiners recommend that the application be approved as set out in the attached Final Order.

Respectfully submitted,



Paul Dubois  
Technical Examiner



Michael Crnich  
Hearings Examiner

2124 SWD # 1  
(Originally Drilled as the Dyco - Harrison # 1013)  
API # 42-211-31853  
Overflow Energy, LLC  
Hemphill County, Texas

Proposed Disposal Configuration (Alternate)

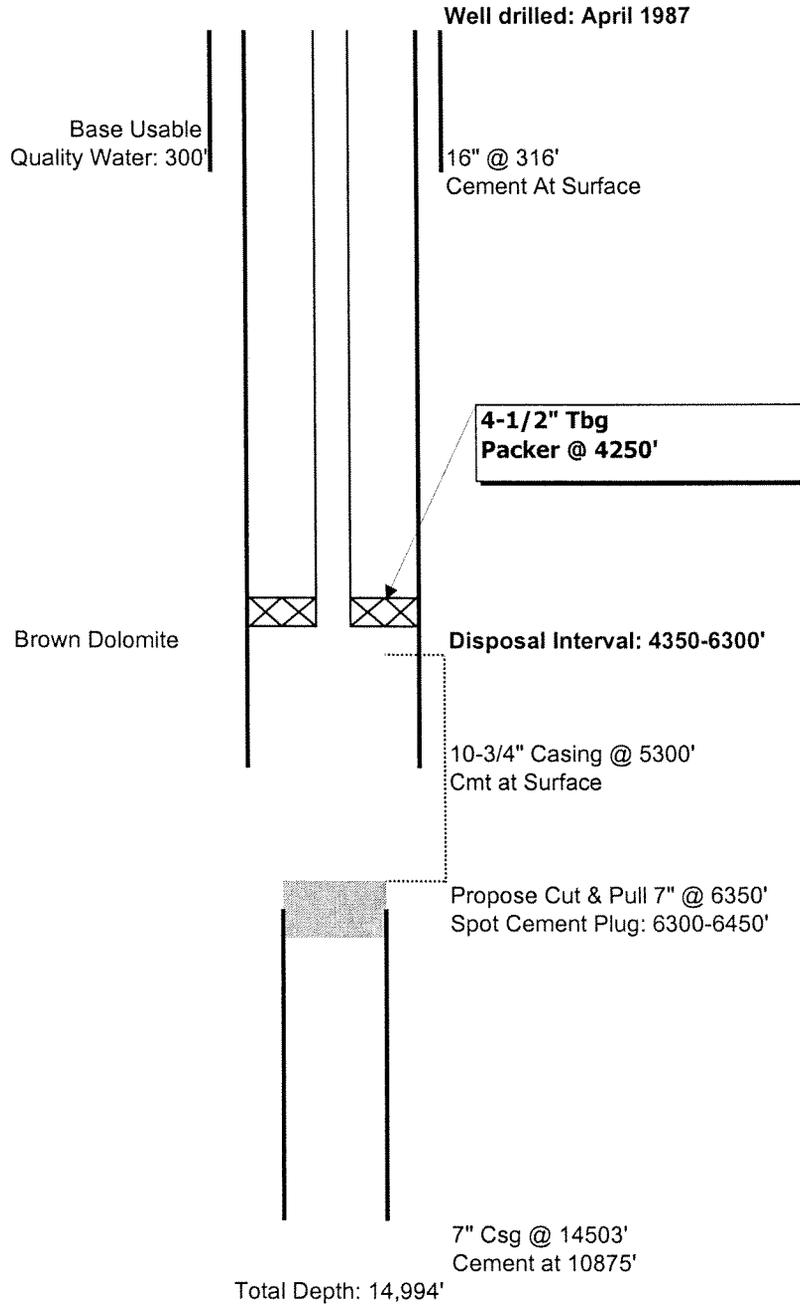


Exhibit No. 4  
O & G Docket No. 10-0279962  
Date: March 1, 2013  
Overflow Energy, LLC