

**OIL AND GAS DOCKET NO. 08-0230079**

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**THE APPLICATION OF ENDEAVOR ENERGY RESOURCES L.P. TO DISPOSE OF OIL AND GAS WASTE BY INJECTION INTO A NON-PRODUCING FORMATION IN THE HILL SWD LEASE, WELL NO. 1, MIDLAND, SW (DEVONIAN) FIELD, MIDLAND COUNTY, TEXAS**

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**Heard by:** Margaret Allen, Technical Hearings Examiner  
Mark Tittel, Hearings Examiner

**Procedural history**

Application received: September 7, 2001  
Protest received: September 7, 2001  
Hearing requested: November 13, 2001  
Hearing held: February 5, 2002  
Proposal for decision issued: March 27, 2002

**Appearances**

Philip Patman	Representing
Dale Miller	Endeavor Energy Resources
Bradley S. Bates	
Skipper Lay	Howard Grimes
Howard Grimes	
Greg Cloud	

**EXAMINERS' REPORT AND PROPOSAL FOR DECISION**

**STATEMENT OF THE CASE**

Endeavor Energy Resources L.P. ("Endeavor") is seeking to use its newly drilled Hill SWD Lease Well No. 1 to dispose of lease-produced saltwater in Midland County. The application is protested by Howard Grimes ("Grimes") who is a royalty interest owner and also an adjacent surface landowner. The protestant is concerned that disposal on the subject lease will cause saltwater pollution.

**DISCUSSION OF THE EVIDENCE**

**Applicant's evidence**

Endeavor recently drilled the Hill SWD Lease Well No. 1, but has not yet perforated the well. According to the Texas Natural Resources Conservation Commission, usable-quality ground water occurs to a depth of 200 feet. Surface casing was set to 281 feet, and the production casing was set to

5700 feet and cemented to 3620 feet. A cement bond log run January 8, 2002, confirms good quality cement from 3620 feet to total depth. Proposed disposal will be into the San Andres Formation which occurs between 4460 and 5630 feet.

Endeavor is planning to dispose of an average 2000 barrels of salt water per day with a maximum of 4000 BWPD. The maximum injection pressure will be 2200 psi, with an average pressure of 900 psi. The water to be disposed of will be produced from three existing and three proposed wells on the 1840-acre Hill "30-A" Lease, which produce from the Midland, SW. (Devonian) Field. The three existing horizontal wells now flow a total of 250 barrels of water per day, which is trucked off to a commercial disposal facility. The applicant wants to install pumps to increase oil production but this will also increase water production to about 150 BWPD per well, or a total of 900 barrels per day for the six wells.

It costs about 80 cents per barrel of saltwater to truck it to another commercial disposal well. If this application is approved, the expected cost of disposal will fall to 10 cents per barrel. For the six wells planned for the lease, the current application will save \$630 per day. These wells are expected to last 20 to 30 years, and significant cost savings will allow the wells to produce to a lower economic limit. If a well can be produced longer, it will recover more reserves and prevent waste.

There is only one wellbore within a 1/4 mile of the proposed disposal well, the Endeavor J.E. Lowe-Hill Well No. 1 which was drilled to 13,043 feet in 1951. This well has been listed on the proration schedule in the Hi-Lonesome (Wolfcamp) Field since 1999, as being temporarily abandoned. One of the horizontal wellbores in the Midland, SW. (Devonian) Field crosses the circumference of a circle drawn 1/4 mile around the proposed disposal well. This lateral wellbore is at 12,000 feet and far below the total depth of the proposed disposal well.

The San Andres Formation is a suitable disposal interval according to the applicant. There are several thick sandstones between 4460 and 5600 feet which will be able to accept large volumes of saltwater. The packer which will be set at 4400 feet and there are over 800 feet of cemented casing above this depth.

#### Protestant's evidence

Grimes owns an interest in the Hill Lease which is leased to Endeavor. The protestant's family owns the surface of a portion of the lease as well. The proposed disposal well is over 2000 feet from the Grimes land.

There are several water wells on the Hill Lease, all of which are less than 200 feet deep. The surface has been used for pasture. The protestant does not want any saltwater operations because of concern that saltwater can damage the ground water and land surface. Grimes asserts that this application is not in the public interest and proposes that Endeavor continue to truck the water to an off-lease disposal well.

#### **EXAMINERS' OPINION**

The examiners believe that this application should be granted. The proposed disposal well is properly cased and cemented to ensure that injected waste will be confined to the disposal sandstones. The applicant has demonstrated that the proposed disposal well is in the public interest because it will encourage the recovery of additional hydrocarbons and will not harm usable-quality water nor oil and gas resources. Not only is it less expensive to use a lease disposal well, but waste produced by oil and gas activity should be disposed of close to the site of generation if it is safe and reasonable to do so.

### **FINDINGS OF FACT**

1. Notice of hearing on this application to inject into the subject wells was issued to all interested persons at least ten (10) days prior to the hearing.
  - a. Notice of the application (Form W-14) was mailed to operators of all offset wells within 1/2 mile, surface owners and Midland County Clerk on January 11, 2002.
  - b. Notice of the application was published in the *Midland Reporter-Telegram*, a newspaper of general circulation in Midland County, on September 4, 2001.
  - c. Notice of this hearing was issued by the Commission on January 17, 2001.
2. The Endeavor Energy Resources L.P. Hill SWD Lease Well No. 1 will be used for disposal of only saltwater produced from the lease where the well is located.
3. There are three existing and three proposed horizontal wells on the 1840-acre Hill "30-A" Lease, which produce from the Midland, SW. (Devonian) Field.
4. Usable-quality water occurs to a depth of 200 feet.
5. The Hill SWD Lease Well No. 1 was drilled in 2002 and is adequately cased and cemented to protect usable- quality water.
  - a. The 8-5/8th inch surface casing is cemented to 281 feet.
  - b. The 7-7/8th inch production casing is cemented from 3620 feet to total depth of 5700 feet.
  - c. A cement bond log run January 8, 2002, confirms good quality cement between 3620 feet and 5700 feet.
  - d. Tubing will be installed on a packer to be set at 4400 feet, above the injection perforations which will be between 4460 and 5630 feet.
6. The maximum injection rate will be 4000 BWPD while the average injection rate will be 2000 BWPD.
7. The average injection pressure will be 900 psi with the maximum injection pressure to be 2200 psi.

8. There is only one wellbore within 1/4 mile of the proposed disposal well, Endeavor's J.E. Lowe-Hill Well No. 1 which is listed as temporarily abandoned.
9. Using the Hill SWD Lease Well No. 1 to dispose of lease-produced water is in the public interest.
  - a. The three existing wells now flow a total of 250 barrels of water per day, which is trucked off to another disposal well.
  - b. If this application is approved, pumps will be installed and the water production is expected to increase to a total of 900 barrels per day.
  - c. Another three horizontal wells are proposed for this lease.
  - d. If this application is approved, the expected cost of disposal will fall from 80 cents to 10 cents per barrel, saving \$630 per day for the six wells planned for the lease.
  - e. These wells are expected to last 20 to 30 years, and significant cost savings will allow the wells to produce to a lower economic limit.
  - f. A well that produces longer will recover more reserves and prevent waste.
10. Use of the proposed disposal well poses no greater risk of pollution than trucking the produced saltwater to another disposal well.

#### **CONCLUSIONS OF LAW**

1. Proper notice was given to all necessary parties as required by Statewide Rule 9(5) [Tex. R.R. Comm'n, 16 TEX. ADMIN. CODE § 3.9(5)] and other applicable statutory and regulatory provisions.
2. All things necessary to give the Commission jurisdiction to decide this matter have been performed or have occurred.
3. Applicant has shown that fluid injection operations, conducted at the proposed pressures and volumes, under the proposed permit conditions, will not endanger oil, gas or geothermal resources or cause the pollution of freshwater strata unproductive of oil, gas or geothermal resources, thus meeting the requirements of Statewide Rule 9 [Tex. R.R. Comm'n, 16 TEX. ADMIN. CODE § 3.9].

#### **EXAMINERS' RECOMMENDATION**

Based on the above findings and conclusions, the examiners recommend that the application of Endeavor Energy Resources L.P. to dispose of up to 4000 barrels of water per day by injection at a maximum surface pressure of 2200 psi in its Hill SWD Lease Well No. 1 in the Midland, SW. (Devonian) Field be **GRANTED**, with the conditions proposed in the attached Final Order.

Respectfully submitted,

Mark Tittel  
Hearings Examiner

Margaret Allen  
Technical Hearings Examiner

Date of Commission Action\_\_\_\_\_