

**STATE OF NEW MEXICO  
ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION**

**IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
DIVISION FOR THE PURPOSE OF  
CONSIDERING:**

**CASE NO. 11973 (Reopened)  
Order No. R-11027-A**

**APPLICATION OF SHAHARA OIL, L.L.C. TO AMEND DIVISION ORDER NO.  
R-11027, EDDY COUNTY, NEW MEXICO.**

**ORDER OF THE DIVISION**

**BY THE DIVISION:**

This case came on for hearing at 8:15 a.m. on March 18, 1999, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this <sup>5<sup>th</sup></sup> day of April, 1999, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner,

**FINDS THAT:**

(1) Due public notice has been given and the Division has jurisdiction of this case and its subject matter.

(2) By Order No. R-11027 issued in Case No. 11973 on August 3, 1998, the Division authorized Shahara Oil, L.L.C. (Shahara) to institute a waterflood project on its Beeson "F" Federal Lease, comprising portions of Sections 29 and 31, Township 17 South, Range 30 East, NMPM, Eddy County, New Mexico, by the injection of water and micro-organisms into the Queen, Grayburg and San Andres formations, Loco Hills Queen-Grayburg-San Andres Pool, through twelve initial injection wells.

(3) Order No. R-11027 also contained a provision directing Shahara to re-enter and re-plug the following described wells prior to commencing injection operations into the twelve injection wells:

<u>Well Name &amp; Number</u>	<u>Well Location</u>
Aston & Fair State No. 1B	3630' FNL & 3630' FEL (Unit K) Section 32, T-17S, R-30E
Yates Petroleum Corporation Yates "A" No. 9	990' FNL & 911' FWL (Unit D) Section 6, T-18S, R-30E
Roland R. Woolley Arnold No. 9D	1650' FSL & 1650' FEL (Unit J) Section 29, T-17S, R-30E

Yates Petroleum Corporation	2310' FSL & 990' FEL (Unit I)
Brigham No. 2	Section 31, T-17S, R-30E

R.R. Woolley	330' FNL & 330' FWL (Unit D)
Woolley No. 12-D	Section 33, T-17S, R-30E

(4) The applicant, Shahara Oil L.L.C., seeks to amend Division Order No. R-11027 by deleting the requirement that it re-enter and re-plug the wells described in Finding No. (3) above prior to commencing injection operations within its Beeson "F" Federal Waterflood Project.

(5) The applicant proposes to amend its operations within the Beeson "F" Federal Waterflood Project in the following described manner in order to minimize the possibility that the five inadequately plugged wells will provide a conduit for injected fluid to migrate to other formations or to fresh water sources:

**Yates "A" Well No. 9 (Unit D, Section 6)**

Injection into the Beeson "F" Federal Wells No. 2, 3, 12, 13 and 26, located respectively in Units M, N, N, K, and L of Section 31 (collectively contained within the SW/4 of Section 31), will be limited to 350 barrels of water per day per well for an initial reservoir fill-up period of six months. Thereafter, the cumulative volume injected into these wells will be limited to no more than the cumulative volume withdrawn from the Beeson "F" Federal Wells No. 18, 19, 20 and 21, producing wells within the SW/4 of Section 31;

**Brigham Well No. 2 (Unit I, Section 31)**

The injection/production pattern within the NE/4 of Section 31 will be altered in the following manner:

- a) the Beeson "F" Federal Well No. 14, located in Unit G of Section 31, which was to be utilized as a producing well, will now be utilized as an injection well within the waterflood project; and
- b) the Beeson "F" Federal Wells No. 5 and 6, located respectively in Units G and H of Section 31, which were to be utilized as injection wells, will now be utilized as producing wells within the waterflood project.

The alteration of the injection/production pattern within the NE/4 of Section 31 will result in the presence of a

The alteration of the injection/production pattern within the NE/4 of Section 31 will result in the presence of a producing well in-between the proposed injection wells and the Brigham Well No. 2.

**Aston & Fair State No. 1B, (Unit K, Section 32)**

As a result of altering the injection/production pattern within the NE/4 of Section 31, the Aston & Fair State Well No. 1B will not be located within the 1/2 mile "area of review" for the waterflood project.

**Arnold No. 9D (Unit J, Section 29)**

The Beeson "F" Federal Well No. 28 will be drilled as a producing well at a location in Unit O of Section 29. As a result, there will be producing wells, the Beeson "F" Federal Wells No. 25 and 28, between the injection wells, the Beeson "F" Federal Wells No. 8 and 9, and the Arnold No. 9D.

- (6) The applicant presented geologic evidence and testimony indicating that:
- a) the Woolley Well No. 12D, located in Unit D of Section 33, was originally drilled as a producing well to test the Loco Hills Queen-Grayburg-San Andres Pool. The well did not encounter commercial production from this pool and was subsequently plugged;
  - b) the Woolley Well No. 12D is located in a non-productive portion of the reservoir in which the quality and permeability of the reservoir rock is significantly reduced; and
  - c) due to the geologic properties of the reservoir encountered within the Woolley Well No. 12D, it is not likely that injected fluid from the Beeson "F" Federal Waterflood Project will be transmitted to this wellbore.

(7) The applicant further testified that it currently has no interest within the acreage on which the five inadequately plugged wells are located; consequently, it would be difficult to obtain authority from the lessor to re-enter and re-plug the wells.

- (8) The evidence and testimony presented in this case demonstrate that:
- a) although the applicant has been unable to locate any windmills in the vicinity of the Beeson "F" Federal Waterflood Project, there is a good possibility that fresh water is present in shallow sands in this area;
  - b) recent drilling activity by the applicant in this area has not detected waterflows or water "out of zone" even though this area has previously been subject to waterflood operations;
  - c) plugging records, which are available for the subject wells, generally indicate that the Yates "A" Well No. 9 and the Brigham Well No. 2 have adequate surface casing, cement and cement plugs so as to provide protection of shallow fresh water sands;
  - d) the Woolley Well No. 12D should not be affected by injection;
  - e) the Aston & Fair State No. 1B is outside the "area of review" of any proposed injection well within the project; and
  - f) the actions proposed by the applicant will minimize the potential for injected fluid to migrate to other formations or to fresh water sources through the five subject plugged and abandoned wells.
- (9) The application should be approved subject to the following additional conditions:
- a) the applicant shall file an annual report with the Division's Santa Fe Office showing the injected and produced volumes for the wells within the SW/4 of Section 31 (Beeson "F" Federal Wells No. 2, 3, 12, 13, 26, 18, 19, 20 and 21);

- b) continued authority to inject into the Beeson "F" Federal Wells No. 8, 9, 11 and 14 shall be contingent upon the applicant producing the Beeson "F" Federal Wells No. 5, 6, 25 and 28. If production operations cease for any reason in these producing wells, the applicant shall notify the Division, at which time the injection authority will be re-evaluated;
- c) the applicant shall file a Form C-108 for the Beeson "F" Federal Well No. 14 and obtain approval to utilize this well as an injection well prior to commencing injection operations into this well; and
- d) injection into the Beeson "F" Federal Waterflood Project shall cease if it becomes apparent that injected fluid is not being contained within the Loco Hills Queen-Grayburg-San Andres Pool.

(10) Approval of the application will provide the applicant the opportunity to recover additional oil and gas reserves from the Loco Hills Queen-Grayburg-San Andres Pool underlying Sections 29 and 31 by conducting waterflood operations within the Beeson "F" Federal Waterflood Project, and will serve to minimize the risk of injected fluid migrating from the injection zone into other formations or fresh water sources.

(11) All other provisions contained within Division Order No. R-11027 should remain in full force and effect.

**IT IS THEREFORE ORDERED THAT:**

(1) The application of Shahara Oil, L.L.C. to amend Division Order No. R-11027 by deleting the requirement that it re-enter and re-plug five plugged and abandoned wells located in Sections 29, 31, 32 and 33, Township 17 South, Range 30 East, and Section 6, Township 18 South, Range 30 East, NMPM, Eddy County, New Mexico, prior to commencing injection operations into the Beeson "F" Federal Waterflood Project is hereby approved.

(2) The applicant shall not be required to re-enter and re-plug the five wells described in Finding No. (3) above, subject to the following conditions:

- a) injection into the Beeson "F" Federal Wells No. 2, 3, 12, 13 and 26, located respectively in Units M, N, N, K, and L of Section 31 shall be limited to 350 barrels of water per day per well for an initial reservoir fill-up period of six months. Thereafter, the cumulative volume injected into these wells shall be limited to no more than the cumulative volume withdrawn from the Beeson "F" Federal Wells No. 18, 19, 20 and 21;
- b) the injection pattern within the NE 1/4 of Section 31 shall be altered in the following manner:
  - i) the Beeson "F" Federal Well No. 14, located in Unit G of Section 31, which was to be utilized as a producing well, shall be utilized as an injection well within the waterflood project; and
  - ii) the Beeson "F" Federal Wells No. 5 and 6, located respectively in Units G and H of Section 31, which were to be utilized as injection wells, shall be utilized as producing wells within the waterflood project.
- c) the applicant shall drill the Beeson "F" Federal Well No. 28 as a producing well at a location in Unit O of Section 29;
- d) the applicant shall file an annual report with the Santa Fe Office of the Division showing the injected and produced volumes for the wells within the SW 1/4 of Section 31 (Beeson "F" Federal Wells No. 2, 3, 12, 13, 26, 18, 19, 20 and 21);
- e) continued authority for injection into the Beeson "F" Federal Wells No. 8, 9, 11 and 14 shall be contingent upon the applicant producing the Beeson "F" Federal Wells No. 5, 6, 25 and 28. If production operations cease for any reason in these producing wells, the applicant shall notify the Division, at which time the injection authority will be re-evaluated;

- f) the applicant shall file a Form C-108 for the Beeson "F" Federal Well No. 14 and obtain approval to utilize this well as an injection well prior to commencing injection operations into this well; and
- g) injection into the Beeson "F" Federal Waterflood Project shall cease if it becomes apparent that injected fluid is not being contained within the Loco Hills Queen-Grayburg-San Andres Pool.

(4) All other provisions contained within Division Order No. R-11027 shall remain in full force and effect.

(5) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

  
LORI WROTENBERY  
Director



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