

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY  
THE OIL CONSERVATION COMMISSION OF THE  
STATE OF NEW MEXICO FOR THE PURPOSE OF  
CONSIDERING:

CASE NO. 234  
ORDER NO. R-29

THE APPLICATION OF AMERICAN REPUBLICS  
CORPORATION FOR AN ORDER GRANTING IT  
PERMISSION TO DRILL FOUR UNORTHODOX LINE  
"FIVE SPOT" LOCATIONS ON ITS F. M. ROBIN-  
SON "B" LEASE, IN SECTIONS 27 AND 35, TOWN-  
SHIP 17 SOUTH, RANGE 29 EAST, N.M.P.M., IN  
THE GRAYBURG-JACKSON POOL OF EDDY COUNTY,  
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This matter came on for hearing at 10:00 A.M. on the 24th day of August, 1950, at Santa Fe, New Mexico before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission".

NOW, on this 5th day of September, 1950, the Commission, having before it for consideration the testimony adduced at said hearing, and being fully advised in the premises,

FINDS:

1. That due public notice having been given, as provided by law, the Commission has jurisdiction of this cause.

2. That American Republics Corporation is the owner and holder of the following described Oil and Gas Lease, situated in Eddy County, State of New Mexico, to-wit:

F. M. ROBINSON "B" LEASE, Las Cruces Serial No. 028775(b), described as NE/4, E/2 NW/4 and E/2 SW/4 Section 27; E/2 NW/4 and E/2 SW/4 Section 27; E/2 W/2 and E/2 Section 35, Township 17 South, Range 29 East, N.M.P.M. and containing 800 acres, more or less.

3. That from inception of production to date there have been drilled a total of twenty-four wells on the F. M. Robinson "B" Lease, described above; that two of said wells, F. M. Robinson "B" Well No. 3, and F. M. Robinson "B" Well No. 18, were dry holes and were plugged and abandoned at the time they were drilled; and that there are twenty-two producing wells on the F. M. Robinson "B" Lease at the present time.

4. That all of said wells, located upon the F. M. Robinson "B" Lease, are producing from the Grayburg-Jackson Pay of the Upper San Andres Formation, encountered at an approximate depth of 2800 feet, with the exception of F. M. Robinson "B" Wells Nos. 21 and 27, located in the NE/4 and E/2 NW/4 Section 27, Township 17 South, Range 29 East, N.M.P.M., which said two wells are producing from the Sub-Grayburg Section encountered at an approximate depth of 3275 feet.

5. That of the total number of producing wells located upon the F. M. Robinson "B" Lease, three of such wells, namely; Wells Nos. 23, 24, and 25, are unorthodox "five spot" locations drilled by Applicant pursuant to permission granted in Order No. 819 of this Commission.

6. That the drilling of such unorthodox "five spot" locations has definitely established the fact that this drilling program is economically sound and that by the drilling of such "five spot" locations a greater ultimate recovery of oil will be obtained in that substantial quantities of oil will be recovered that would not otherwise be obtained if these "five spot" locations were not drilled.

7. That American Republics Corporation proposes to make four locations for unorthodox "five spot" line wells, to be located not nearer than twenty five feet to the outermost lease boundary line; that American Republics Corporation proposes to drill and complete each of said four unorthodox "five spot" line locations in the Grayburg-Jackson Pay of the Upper San Andres Formation, to be encountered at approximately 2800 feet.

That the well numbers and locations of these four "five spot" unorthodox line wells, which Applicant desires permission to drill, are as follows:

ROBINSON "B" WELL NO. 28, to be located:

1345 feet from the South Line and 2615 feet from the West Line of Section 27, Township 17 South, Range 29 East;

ROBINSON "B" WELL NO. 29, to be located;

2615 feet from the North Line and 1295 feet from the East Line of Section 27, Township 17 South, Range 29 East;

ROBINSON "B" WELL NO. 30, to be located:

1295 feet from the North Line and 1345 feet from the West Line of Section 35, Township 17 South, Range 29 East;

ROBINSON "B" WELL NO. 31, to be located:

2615 feet from the North Line and 2615 feet from the West Line of Section 27, Township 17 South, Range 29 East.

That the lease offsetting each of the above described locations is owned by American Republics Corporation and is designated as its F. M. Robinson "A" Lease, Las Cruces Serial No. 028775(a) and covers the following described land, in Eddy County, State of New Mexico, to-wit:

SE/4 Section 27, NE/4 Section 34, W/2 NW/4 Section 35, Township 17 South, Range 29 East, N.M.P.M., and containing 400 acres, more or less.

8. That the proposed unorthodox "five spot" line locations, being on Federal lands, have been approved by the Roswell Office of the United States Geological Survey.

9. That the F. M. Robinson "B" Lease, described above, is not subject to any overriding royalties or obligations payable out of production. That the F. M. Robinson "A" Lease, hereinabove described, in addition to the royalty payable to the United States Government, is subject to an overriding royalty equal to 7½% of all of the oil and gas produced, saved and marketed from the wells located upon the F. M. Robinson "A" Lease.

10. That American Republics Corporation is now in the process of entering into an agreement with the owners of overriding royalty interests under the F. M. Robinson "A" Lease, wherein American Republics Corporation agrees to set separate tanks to be used for F. M. Robinson "B" Wells Nos. 28 and 29, and separate tanks to be used for F. M. Robinson "B" Well No. 30, and separate tanks to be used for F. M. Robinson "B" Well No. 31, as the same are completed, and to account for the oil produced from these wells separate and apart from all other wells located upon the F. M. Robinson "B" Lease,

in proportion to the interests they own, respectively,  $7\frac{1}{2}\%$  of one-half of all of the oil and gas produced, saved and marketed from said F. M. Robinson "B" Wells Nos. 28, 29 and 30, and American Republics Corporation further agrees in said agreement that out of the oil produced from F. M. Robinson "B" Well No. 31, to pay to the F. M. Robinson "A" Lease overriding royalty interest owners, in proportion to the interest which they own, respectively  $7\frac{1}{2}\%$  of one-fourth of all of the oil and gas produced, saved and marketed from the F. M. Robinson "B" Well No. 31. In consideration of these payments to the overriding royalty interest owners under the F. M. Robinson "A" Lease, they agree that they shall never demand or require that American Republics Corporation drill any wells on the F. M. Robinson "A" Lease offsetting either directly, diagonally, or otherwise, the F. M. Robinson "B" Wells Nos. 28, 29, 30 and 31, at the locations hereinabove set out.

11. That heretofore, on the 25th day of April, 1949, this Commission entered Order No. 819 in Case No. 180, wherein certain specific tracts comprising portions of the F. M. Robinson "B" Lease, were unitized for proration purposes and wherein American Republics Corporation was authorized to produce from each such unitized tract described in said Order No. 819, the total allowable production as fixed by this Commission for the total number of developed forty acre units comprising such unitized tract, and also was authorized to produce the total allowable, so fixed by the Commission, for each such unitized tract, from all of the wells located on or that may hereafter be drilled upon such unitized tract, producing from the Grayburg-Jackson Pay, and said Order No. 819 provided that no well located upon such unitized tract should be permitted to produce at a rate in excess of the top allowable, as fixed by the Commission.

12. That Applicant does not ask for any additional allowable by reason of the drilling and completing any of the unorthodox "five spot" line locations, described in its Application, but that it is Applicant's desire to produce all such tracts unitized for proration purposes in accordance with Order No. 819 entered by the Commission in Case No. 180.

IT IS THEREFORE ORDERED BY THE COMMISSION that the Application of American Republics Corporation for an Order granting permit to drill the four unorthodox "five spot" line locations, at the locations designated in said Application, and hereinabove set forth, be and the same is hereby granted and approved.

IT IS FURTHER ORDERED that as American Republics Corporation completes the above described unorthodox "five spot" line location wells, as producing wells, that such wells be produced in accordance with the terms and provisions of Order No. 819 entered in Case No. 180 by the Commission, wherein certain specific tracts, more fully described in said Order, were unitized for proration purposes, and wherein American Republics Corporation was authorized to produce from each such unitized tract, described in Order No. 819, the total allowable production as fixed by the Commission for the total number of developed forty acre proration units, comprising such unitized tracts, and that American Republics Corporation be, and it is hereby authorized to produce the total allowable, so fixed by the Commission, for each such unitized tract, from all wells located on or that may hereafter be drilled upon such unitized tract, producing from the Grayburg-Jackson Pay.

IT IS FURTHER ORDERED that no well located upon any such unitized tract be permitted to produce at a rate in excess of the top allowable, as fixed by the Commission.

IT IS FURTHER ORDERED that American Republics Corporation shall file with the Commission copies of Federal location notices for the hereinabove described locations, after approval thereof by the Oil and Gas Supervisor.

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

THOMAS J. MABRY, CHAIRMAN

GUY SHEPARD, MEMBER

R. R. SPURRIER, SECRETARY

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
COMMISSION OF NEW MEXICO FOR  
THE PURPOSE OF CONSIDERING:

CASE No. 3468  
Order No. R-3127

APPLICATION OF TENNECO OIL COMPANY  
FOR APPROVAL OF THE GRAYBURG-JACKSON  
WEST COOPERATIVE UNIT AGREEMENT, EDDY  
COUNTY, NEW MEXICO.

*Also see*  
*R-3127-A*  
*R-3127-B*

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 28, 1966,  
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 4th day of October, 1966, the Commission, a  
quorum being present, having considered the testimony, the record,  
and the recommendations of the Examiner, and being fully advised  
in the premises,

FINDS:

(1) That due public notice having been given as required by  
law, the Commission has jurisdiction of this cause and the subject  
matter thereof.

(2) That the applicant, Tenneco Oil Company, seeks approval  
of the Grayburg-Jackson West Cooperative Unit Agreement covering  
2000 acres, more or less, of State and fee lands described as  
follows:

EDDY COUNTY, NEW MEXICO  
TOWNSHIP 17 SOUTH, RANGE 29 EAST, NMPM  
Section 15: W/2 SW/4  
Section 16: S/2 SW/4 and SE/4  
Section 21: All  
Section 22: W/2 W/2, E/2 NW/4, NE/4 SW/4,  
and NW/4 NE/4  
Section 27: W/2 SW/4  
Section 28: All

(3) That approval of the proposed unit agreement should  
promote the prevention of waste and the protection of correlative  
rights within the unit area.

IT IS THEREFORE ORDERED:

(1) That the Grayburg-Jackson West Cooperative Unit Agreement is hereby approved.

(2) That the plan contained in said unit agreement for the development and operation of the unit area is hereby approved in principle as a proper conservation measure; provided, however, that notwithstanding any of the provisions contained in said unit agreement, this approval shall not be considered as waiving or relinquishing, in any manner, any right, duty, or obligation which is now, or may hereafter be, vested in the Commission to supervise and control operations for the exploration and development of any lands committed to the unit and production of oil or gas therefrom.

(3) That the unit operator shall file with the Commission an executed original or executed counterpart of the unit agreement within 30 days after the effective date thereof; that in the event of subsequent joinder by any party or expansion or contraction of the unit area, the unit operator shall file with the Commission within 30 days thereafter counterparts of the unit agreement reflecting the subscription of those interests having joined or ratified.

(4) That this order shall become effective upon the approval of said unit agreement by the Commissioner of Public Lands for the State of New Mexico; that this order shall terminate ipso facto upon the termination of said unit agreement; and that the last unit operator shall notify the Commission immediately in writing of such termination.

(5) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

JACK M. CAMPBELL, Chairman

GUYTON B. HAYS, Member

S E A L

esr/

A. L. PORTER, Jr., Member & Secretary

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
COMMISSION OF NEW MEXICO FOR  
THE PURPOSE OF CONSIDERING:

CASE No. 3728  
Order No. R-3127-A

APPLICATION OF TENNECO OIL COMPANY  
FOR AN AMENDMENT TO ORDER NO. R-3127,  
EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on February 28, 1968,  
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 4th day of March, 1968, the Commission, a  
quorum being present, having considered the testimony, the record,  
and the recommendations of the Examiner, and being fully advised  
in the premises,

FINDS:

(1) That due public notice having been given as required by  
law, the Commission has jurisdiction of this cause and the subject  
matter thereof.

(2) That by Order No. R-3127, dated October 4, 1966, the  
Commission approved the Grayburg-Jackson West Cooperative Unit  
Agreement covering 2000 acres, more or less, of State and fee  
lands described as follows:

EDDY COUNTY, NEW MEXICO  
TOWNSHIP 17 SOUTH, RANGE 29 EAST, NMPM  
Section 15: W/2 SW/4  
Section 16: S/2 SW/4 and SE/4  
Section 21: All  
Section 22: W/2 W/2, E/2 NW/4, NE/4 SW/4,  
and NW/4 NE/4  
Section 27: W/2 SW/4  
Section 28: All

-2-

CASE No. 3728

Order No. R-3127-A

(3) That the applicant, Tenneco Oil Company, seeks the expansion of said Grayburg-Jackson West Cooperative Unit Area to include 400 additional acres of State land described as follows:

EDDY COUNTY, NEW MEXICO  
TOWNSHIP 17 SOUTH, RANGE 29 EAST, NMPM  
Section 16: N/2 and N/2 SW/4

(4) That the proposed expansion of said Grayburg-Jackson West Cooperative Unit Agreement should promote the prevention of waste and protection of correlative rights within the unit area as expanded.

IT IS THEREFORE ORDERED:

(1) That the Grayburg-Jackson West Cooperative Unit Agreement, as amended to include the acreage described in Finding (3) above, is hereby approved.

(2) That the unit operator shall file with the Commission an executed original or executed counterpart of the amendment to the unit agreement within 30 days after the effective date thereof; that in the event of subsequent joinder by any party or expansion or contraction of the unit area, the unit operator shall file with the Commission within 30 days thereafter counterparts of the unit agreement reflecting the subscription of those interests having joined or ratified.

(3) That this order shall become effective upon the approval of the aforesaid amendment to the Grayburg-Jackson West Cooperative Unit Agreement by the Commissioner of Public Lands for the State of New Mexico; that this order shall terminate ipso facto upon the termination of said unit agreement; and that the last unit operator shall notify the Commission immediately in writing of such termination.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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CASE No. 3728

Order No. R-3127-A

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

GUYTON B. HAYS, Member

A. L. PORTER, Jr., Member & Secretary

S E A L

esr/

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

CASE NO 13609  
ORDER NO. R-3127-B

IN THE MATTER OF THE APPLICATION OF MACK  
ENERGY CORPORATION FOR AN AMENDMENT TO  
ORDER NO. R-3127-A EXTENDING THE VERTICAL  
LIMITS OF THE GRAYBURG-JACKSON WEST  
COOPERATIVE UNIT AND FOR THE EXPANSION  
OF INJECTION OPERATIONS, EDDY COUNTY,  
NEW MEXICO.

**ORDER OF THE DIVISION**

**BY THE DIVISION:**

This case came on for hearing at 8:15 a.m. on April 13, 2006, at Santa Fe, New Mexico, before Examiner, David K. Brooks.

NOW, on this 13<sup>th</sup> day of June, 2006, 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) Cases 13608 and 13609 were consolidated for hearing. However, separate orders will be entered in the two cases.
- (3) In this Case No. 13609 Mack Energy Corporation (Mack) seeks an order approving an amendment to the Grayburg-Jackson West Cooperative Unit to extend the vertical limits of the Unitized Formation to include all formations from the top of the Seven Rivers formation to the base of the Glorieta-Yeso (Paddock) formation. Applicant also seeks approval in principal to expand injection operations for purposes of secondary recovery to include the expanded vertical limits of the Unitized Formation.
- (4) Mack is acting as operator in fact of the Grayburg-Jackson West Cooperative Unit on behalf of its affiliate, COG Operating, LLC, which is the record operator of the unit.

(5) The Grayburg-Jackson West Cooperative Unit is a voluntary unit including State and fee lands. This Unit was created by agreement of the parties dated June 22, 1966, approved by the Land Commissioner on September 28, 1966, and approved by the Division in Order No. R-3127, entered in Case No. 3468 on October 4, 1966. The Unit Area was expanded by amendment approved by the Division in Order No. R-3127-A, entered in Case No. 3728 on March 4, 1968.

(6) The Unitized Formation, as defined in the Unit Agreement, is the Grayburg-San Andres formation

(7) By Second Amendment to the Grayburg-Jackson West Cooperative Unit Agreement, executed by the parties on December 15, 2005 (Second Amendment), Mack proposes to extend the vertical limits of the Unitized Formation to include all formations from the top of the Seven Rivers formation to the base of the Glorieta-Yeso (Paddock) formation. Mack presented testimony to the effect that all working and royalty interest owners within the Unit, except for the State Land Office, joined in or ratified the Second Amendment. The Land Commissioner gave preliminary approval to the Second Amendment by letter dated May 24, 2006.

(8) Other than the expansion of the vertical limits of the Unitized Formation, the Second Amendment proposes no change in the Unit Agreement.

(9) The Seven Rivers, Queen and Grayburg-San Andres formations within the Grayburg-Jackson West Cooperative Unit Area are contained within the Grayburg-Jackson Pool. The Yeso/Paddock formation within a portion of the Unit Area is contained within the East Empire-Yeso Pool. In companion Case No. 13608, Mack seeks an order contracting the horizontal boundaries of the East Empire-Yeso Pool to delete the portions thereof within the Unit Area, and expanding the vertical limits of the Grayburg-Jackson Pool within the Unit Area to include the Yeso/Paddock interval.

(10) Mack presented testimony to the effect that:

(a) The Grayburg Jackson Pool is productive throughout the Unit Area.

(b) The Yeso/Paddock interval has not been tested or developed within the Unit Area. However, Mack expects that interval will be productive.

(c) Mack plans to drill approximately 145 additional wells within the Unit Area in the next several years. Where it believes that the Yeso/Paddock interval is likely to be productive, it will drill or deepen its Grayburg/ San Andres wells to test this formation. The feasibility of conducting secondary recovery operations within the Yeso/Paddock interval will be evaluated, tested and implemented on an ongoing basis as development occurs.

(d) The Grayburg/San Andres and the Yeso/Paddock formation within the Unit Area would be most efficiently managed as a single common source of supply.

(11) Approval of the Second Amendment will allow economic primary and secondary recovery of oil and gas reserves from the Yeso/Paddock interval that may otherwise not be recovered, thereby preventing waste, and will not impair correlative rights.

(12) That portion of the application in this case that seeks approval for secondary recovery operations (injection wells) in the Yeso/Paddock interval is, however, premature. There has been no development of that interval in the Unit Area, and Mack presented testimony that it does not contemplate secondary recovery operations in that interval until after further development. Accordingly, the Division cannot now make the required findings to support an order authorizing such operations.

(13) Division Rules 711.F and 711.G permit the expansion of secondary recovery project areas and permitting of additional injection wells by administrative order. Accordingly, Mack's application for authority to conduct secondary recovery operations within the expanded Unit Formation should be denied without prejudice to future applications for such expansion either by hearing order or administrative order.

**IT IS THEREFORE ORDERED THAT:**

(1) The application of Mack Energy Corporation for approval of the Second Amendment to the Unit Agreement for the Grayburg-Jackson West Cooperative Unit to extend the vertical limits of the Unitized Formation to include all formations from the top of the Seven Rivers formation to the base of the Glorieta-Yeso (Paddock) formation is granted.

(2) The Unitized Formation of the Grayburg-Jackson West Cooperative Unit is hereby extended to include all formations from the top of the Seven Rivers to the base of the Glorieta-Yeso (Paddock) formation, being those depths from 1,116 feet to 4,636 feet below the Kelly Bushing as shown on the Schlumberger Platform Express Three Detector Litho-Density Compensated Neutron/HNGS Log of the Diamondbacks State No. 1 Well, located 2040 feet from the North line and 2140 feet from the East line of Section 28, Township 17 South, Range 29 East, NMPM, Eddy County, New Mexico.

(3) That portion of the application of Mack Energy Corporation seeking authority to conduct secondary recovery operations within the expanded Unit Formation should be denied without prejudice as to future applications for such expansion either by hearing order or administrative order.

(4) All provisions of Orders No. R-3127 and R-3127-A, and of any other hearing or administrative orders of the Division authorizing secondary recovery operations within the Grayburg-Jackson West Cooperative Unit shall remain in full force

and effect in accordance with their terms; provided that extension of the injection interval of any injection well to include any part of the expanded Unit Formation as provided in this order shall require administrative approval as provided in Ordering paragraph (3).

(5) Jurisdiction of this case is 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.



SEAL

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

MARK E. FESMIRE, P.E.  
Director

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
COMMISSION OF NEW MEXICO FOR  
THE PURPOSE OF CONSIDERING:

CASE NO. 4926  
Order No. R-4502

APPLICATION OF SHENANDOAH OIL  
CORPORATION FOR A WATERFLOOD  
PROJECT, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on March 28, 1973, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 10th day of April, 1973, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Shenandoah Oil Corporation, seeks authority to institute a waterflood project in the Robinson-Jackson Unit Area, Grayburg-Jackson Pool, by the injection of water into the Grayburg and the San Andres formations through 16 injection wells in Sections 27, 34 and 35, Township 17 South, Range 29 East, NMPM, Eddy County, New Mexico.

(3) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(4) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(5) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Shenandoah Oil Corporation, is hereby authorized to institute a waterflood project in the

Case No. 4926  
Order No. R-4502

Robinson-Jackson Unit Area, Grayburg-Jackson Pool, by the injection of water into the Grayburg and the San Andres formations through the following-described wells in Township 17 South, Range 29 East, NMPM, Eddy County, New Mexico:

<u>WELL NAME</u>	<u>UNIT</u>	<u>SECTION</u>
F. M. Robinson "A" Well No. 4	G	34
F. M. Robinson "A" Well No. 7	I	27
F. M. Robinson "A" Well No. 9	O	27
F. M. Robinson "A" Well No. 11	E	35
F. M. Robinson "A" Well No. 12	A	34
F. M. Robinson "B" Well No. 1	A	27
F. M. Robinson "B" Well No. 4	A	35
F. M. Robinson "B" Well No. 6	G	35
F. M. Robinson "B" Well No. 8	K	27
F. M. Robinson "B" Well No. 11	C	35
F. M. Robinson "B" Well No. 15	G	27
F. M. Robinson "B" Well No. 16	I	35
F. M. Robinson "B" Well No. 17	K	35
F. M. Robinson "B" Well No. 18	O	35
F. M. Robinson "B" Well No. 19	I	34
F. M. Robinson "B" Well No. 20	C	34

(2) That injection into each well shall be through plastic coated tubing set in a packer; that the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge at the surface.

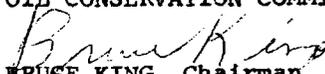
(3) That the subject waterflood project is hereby designated the Robinson-Jackson Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(4) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

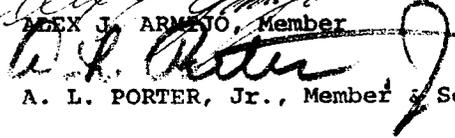
(5) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

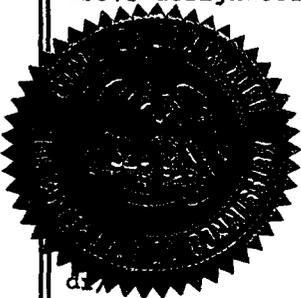
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

  
BRUCE KING, Chairman

  
ALEX J. ARMIJO, Member

  
A. L. PORTER, Jr., Member & Secretary



ROBINSON-JACKSON UNIT AREA

No. 14-08-0001-12398

APPROVED: April 27, 1973

EFFECTIVE: May 1, 1973

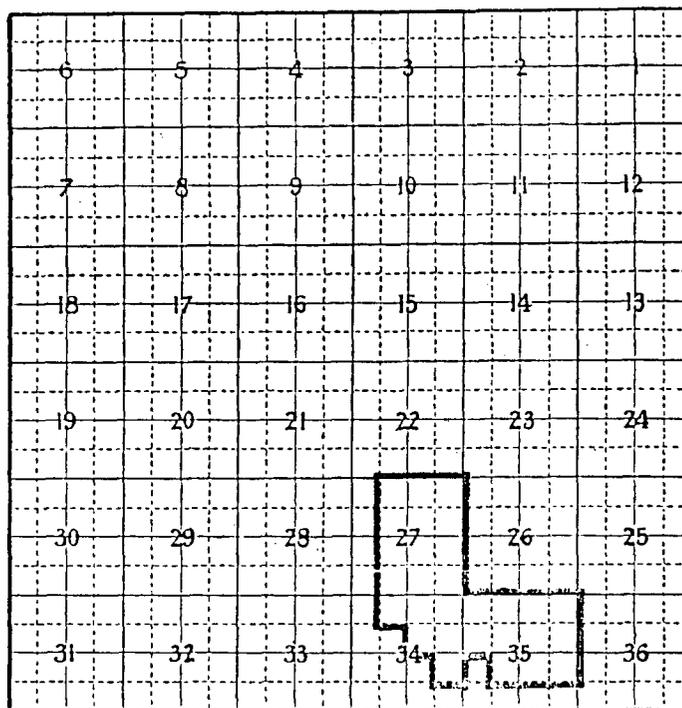
WATERFLOOD

Grayburg and Portion of San Andres Formation

Eddy County, New Mexico

Shenandoah Oil Corporation, Operator

 **gulram, inc.**  
petroleum engineering and government regulation consultants



R 29 E

T  
17  
S

Federal Lands - 1,160.00 acres

GRAYBURG JACKSON, WEST COOPERATIVE

APPROVED: September 28, 1966

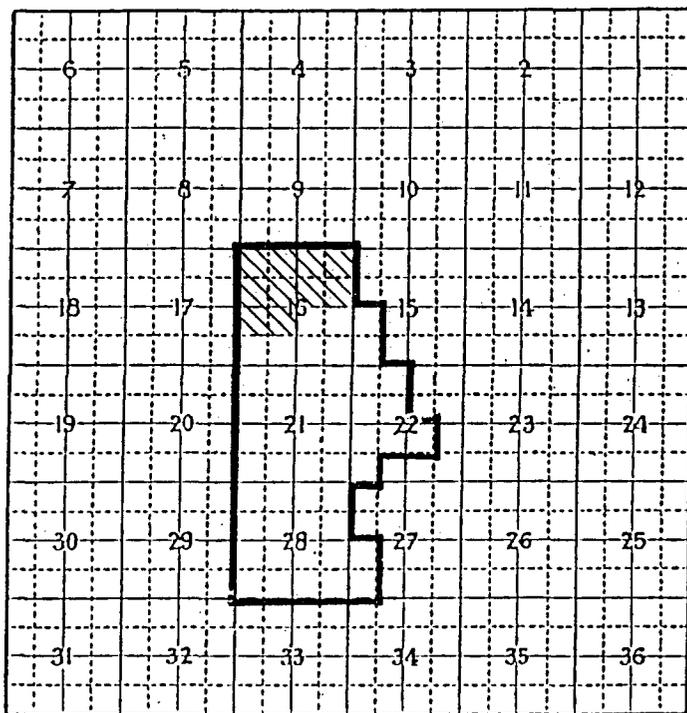
EFFECTIVE: October 1, 1966

WATERFLOOD

Grayburg-San Andres Formation

Marbob Energy Corporation, Operator

gulram, inc.  
petroleum engineering and government regulation consultants



R 29 E

Original Unit Land - State 2,000.00 acres

 -Lands Added, Approved: March 8, 1968 - 400.00 acres

Unit Land

State	2,360.00 acres
Fee	<u>40.00</u> acres
Total	2,400.00 acres

**SECOND AMENDMENT  
TO  
GRAYBURG-JACKSON WEST  
COOPERATIVE UNIT AGREEMENT  
EDDY COUNTY, NEW MEXICO**

On June 23, 1966, the parties to this Second Amendment, or their predecessors in interest, (the "Owners"), entered into a Unit Agreement (the "Agreement") affecting all Leases and interests included within the Unit, which are described in the Agreement, a counterpart of which is recorded in Volume 170, page 109, of the official records of the County Clerk, Eddy County, New Mexico. The Agreement was subsequently amended by the Owners pursuant to that 1<sup>st</sup> Amendment dated March 1, 1968 to include additional lands. The Unit is now comprised of the following lands:

Township 17 South, Range 29 East, NMPM

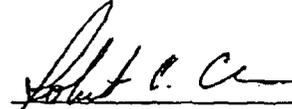
- Section 15: W1/2SW1/4
- Section 16: All
- Section 21: All
- Section 22: W1/2W1/2, E1/2NW1/4,  
NE1/4SW1/4, NW1/4NE1/4
- Section 27: W1/2SW1/4
- Section 28: All

Owners, by unanimous consent, desire to amend the Unit Agreement. For adequate consideration and the mutual benefits to be derived by the Owners, being all parties (or their successors) to the Agreement, as amended by the 1<sup>st</sup> Amendment thereof, hereby amend the fourth and fifth unnumbered paragraphs of the first page of the Agreement (Volume 170, page 111), to the extent they refer to and define the Unitized Formation, as follows:

*The Unitized Formation extends to and includes all formations from the top of the Seven Rivers formation to the base of the Glorieta-Yeso (Paddock) formation, being those depths from 1,116' to 4,636' below the Kelly Bushing as shown on the Schlumberger Platform Express Three Detector Litho-Density Compensated Neutron/HNGS Log of the Diamondbacks State No. 1 Well located 2,040' from the north line and 2,140' from the east line of Section 28, Township 17 South, Range 29 East, Eddy County, New Mexico. All other terms and provisions of the Agreement referring to the Unitized Formation, either directly or indirectly, are amended to conform herewith.*

This Amendment is executed by all Owners as of the date of the acknowledgment of their signatures, but is deemed effective, for all purposes, as of December 1, 2005, the Effective Date. It may be executed in multiple counterparts, which, when taken together, shall be deemed one and the same instrument. As required in the Agreement, it shall become effective, as of the stated Effective Date, when all Owners have signed this Amendment or a counterpart of it.

CHASE OIL CORPORATION

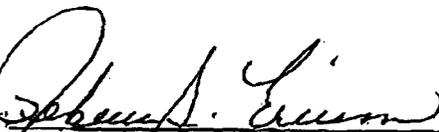
By:   
Robert C. Chase  
Title: President

BUCKHORN ENTERPRISES CORPORATION

By:   
J. Thomas Brewer  
Title: President

Owner:   
RICHARD LANCE CHASE

Owner:   
ROBERT CHASE

Owner:   
GERENE, DIANNE CHASE CROUCH  
By: Rebecca S. Ericson  
Attorney in Fact

Owner:   
BILL CHASE

STATE OF NEW MEXICO )  
 ) ss.  
COUNTY OF EDDY )

The foregoing instrument was acknowledged before me this 15<sup>th</sup> day of December, 2005, by Robert C. Chase, President of CHASE OIL CORPORATION, a New Mexico corporation, on behalf of said corporation.

Staci D. Sanders

Notary Public in and for the State of New Mexico

Printed Name: Staci D. Sanders

Commission Expires: 2/15/09



OFFICIAL SEAL  
STACI D. SANDERS  
NOTARY PUBLIC - STATE OF NEW MEXICO  
My commission expires: 2-15-09

STATE OF NEW MEXICO )  
 ) ss.  
COUNTY OF EDDY )

The foregoing instrument was acknowledged before me this 19<sup>th</sup> day of December, 2005, by J. Thomas Brewer, President of BUCKHORN ENTERPRISES CORPORATION, a New Mexico corporation, on behalf of said corporation.

Staci D. Sanders

Notary Public in and for the State of New Mexico

Printed Name: Staci D. Sanders

Commission Expires: 2/15/09



OFFICIAL SEAL  
STACI D. SANDERS  
NOTARY PUBLIC - STATE OF NEW MEXICO  
My commission expires: 2-15-09

STATE OF NEW MEXICO )  
 ) ss.  
COUNTY OF EDDY )

This instrument was acknowledged before me on this 15<sup>th</sup> day of December, 2005 by RICHARD LANCE CHASE.

Staci D. Sanders

Notary Public in and for the State of New Mexico

Printed Name: Staci D. Sanders

Commission Expires: 2/15/09



OFFICIAL SEAL  
STACI D. SANDERS  
NOTARY PUBLIC - STATE OF NEW MEXICO  
My commission expires: 2-15-09

STATE OF NEW MEXICO )  
 ) ss.  
COUNTY OF EDDY )

This instrument was acknowledged before me on this 15<sup>th</sup> day of December, 2005 by ROBERT CHASE.



OFFICIAL SEAL  
STACI D. SANDERS  
NOTARY PUBLIC - STATE OF NEW MEXICO  
My commission expires: 2/15/09

Staci D. Sanders  
Notary Public in and for the State of New Mexico  
Printed Name: Staci D. Sanders  
Commission Expires: 2/15/09

STATE OF NEW MEXICO )  
 ) ss.  
COUNTY OF EDDY )

This instrument was acknowledged before me on this 5<sup>th</sup> day of December, 2005 by Rebecca S. Ericson, Attorney in Fact for GERENE DIANE CHASE CROUCH.



OFFICIAL SEAL  
STACI D. SANDERS  
NOTARY PUBLIC - STATE OF NEW MEXICO  
My commission expires: 2/15/09

Staci D. Sanders  
Notary Public in and for the State of New Mexico  
Printed Name: Staci D. Sanders  
Commission Expires: 2/15/09

STATE OF NEW MEXICO )  
 ) ss.  
COUNTY OF EDDY )

This instrument was acknowledged before me on this 16<sup>th</sup> day of December, 2005 by BILL CHASE.



OFFICIAL SEAL  
STACI D. SANDERS  
NOTARY PUBLIC - STATE OF NEW MEXICO  
My commission expires: 2-15-09

Staci D. Sanders  
Notary Public in and for the State of New Mexico  
Printed Name: Staci D. Sanders  
Commission Expires: 2/15/09

RECEIVED  
DEC 15 2005

**RATIFICATION OF SECOND AMENDMENT  
TO GRAYBURG-JACKSON WEST  
COOPERATIVE UNIT AGREEMENT  
EDDY COUNTY, NEW MEXICO**

**Grayburg-Jackson West Cooperative Unit Agreement  
Eddy County, New Mexico  
Effective Date: June 23, 1966: Approved: October 4, 1966  
Filed of Record: Book 170/Page 109, Eddy County Clerk's Office  
1<sup>st</sup> Amendment: March 1, 1968**

The undersigned (and each of them if there is more than one party signing this Ratification), is a Working Interest Owner, Royalty Owner, or Owner within the meaning of the Unit Agreement creating the Unit referenced above (the "Agreement") and as amended by the First Amendment dated March 1, 1968. The undersigned desires to ratify, adopt, and become bound by the Second Amendment to the Unit Agreement to the extent of the undersigned's interest in oil and gas leases, mineral, royalty, and/or leasehold interests, and lands included in the Unit.

For the consideration and purposes stated in the Second Amendment to the Unit Agreement, the undersigned adopts, ratifies, and confirms the Second Amendment to the Unit Agreement. All of the terms and provisions of the Second Amendment to the Unit Agreement are incorporated into this Ratification, by reference, for all purposes. This Ratification shall have the same effect as if the undersigned had executed, acknowledged, and delivered the original or a counterpart of the Second Amendment to the Unit Agreement.

The undersigned has received and read a complete copy of the Second Amendment to the Unit Agreement before signing this Ratification. No representations have been made to the undersigned other than those contained in the Second Amendment to the Unit Agreement.

The undersigned execute this Ratification and unconditionally deliver it as of the date set opposite the undersigned's signature, agreeing that this Ratification shall be effective as to the undersigned's interest in the Unit as of the Effective Date of the Second Amendment to the Unit Agreement.

MOSSMAN-MIDWEST COMPANY

Date: 12/14/05

Margaret R. Barbour  
Margaret R. Barbour, President ~~Vice President~~



**RATIFICATION OF SECOND AMENDMENT  
TO GRAYBURG-JACKSON WEST  
COOPERATIVE UNIT AGREEMENT  
EDDY COUNTY, NEW MEXICO**

**Grayburg-Jackson West Cooperative Unit Agreement  
Eddy County, New Mexico  
Effective Date: June 23, 1966: Approved: October 4, 1966  
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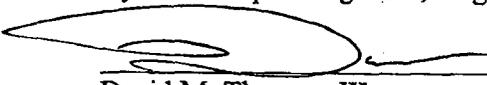
For the consideration and purposes stated in the Second Amendment to the Unit Agreement, the undersigned adopts, ratifies, and confirms the Second Amendment to the Unit Agreement. All of the terms and provisions of the Second Amendment to the Unit Agreement are incorporated into this Ratification, by reference, for all purposes. This Ratification shall have the same effect as if the undersigned had executed, acknowledged, and delivered the original or a counterpart of the Second Amendment to the Unit Agreement.

The undersigned has received and read a complete copy of the Second Amendment to the Unit Agreement before signing this Ratification. No representations have been made to the undersigned other than those contained in the Second Amendment to the Unit Agreement.

The undersigned execute this Ratification and unconditionally deliver it as of the date set opposite the undersigned's signature, agreeing that this Ratification shall be effective as to the undersigned's interest in the Unit as of the Effective Date of the Second Amendment to the Unit Agreement.

COG OIL & GAS LP  
By: COG Operating LLC, its general partner

Date: April 10, 2006

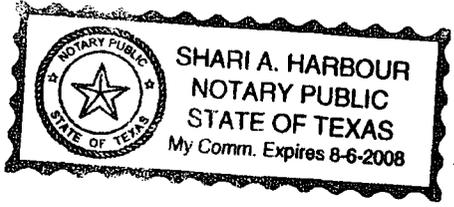
  
\_\_\_\_\_  
David M. Thomas, III  
Vice President of Exploration and Land 

STATE OF TEXAS       §  
                                  §  
COUNTY OF MIDLAND   §

The foregoing instrument was acknowledged before me this 10<sup>th</sup> day of April 2006, by David M. Thomas, III, Vice President of Exploration and Land of COG Operating LLC, general partner of COG Oil & Gas LP.

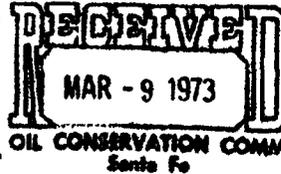
  
\_\_\_\_\_  
Notary Public in and for the State of Texas

My Commission Expires:  
9-6-08



BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO



IN THE MATTER OF THE APPLICATION OF SHENANDOAH OIL CORPORATION TO INSTITUTE A WATERFLOOD PROJECT BY THE INJECTION OF WATER INTO THE GRAYBURG AND SAN ANDRES FORMATIONS THROUGH SIXTEEN INJECTION WELLS TO BE LOCATED IN SECTIONS 27, 34 AND 35, TOWNSHIP 17 SOUTH, RANGE 29 EAST, GRAYBURG JACKSON (Q.G.SA.) FIELD, EDDY COUNTY, NEW MEXICO.

*Case 4926*

APPLICATION FOR APPROVAL OF  
ROBINSON JACKSON WATERFLOOD PROJECT

Comes now the Applicant, Shenandoah Oil Corporation, and hereby makes application for approval of a waterflood project pursuant to Rule 701 of the Rules and Regulations of the Commission and in support thereof states:

1. Applicant desires to initiate a waterflood project to inject fresh water into the Grayburg and San Andres formations in sixteen existing wells on the following described tracts:

<u>WELL NUMBER</u>	<u>LOCATION</u>
F. M. Robinson "A" 4	Unit G, 1,980' FNL & 1,980' FEL Sec. 34, T-17-S, R-29-E
F. M. Robinson "A" 7	Unit I, 1,980' FSL & 660' FEL Sec. 27, T-17-S, R-29-E
F. M. Robinson "A" 9	Unit O, 660' FSL & 1,980' FEL Sec. 27, T-17-S, R-29-E
F. M. Robinson "A" 11	Unit E, 1,980' FNL & 660' FWL Sec. 35, T-17-S, R-29-E
F. M. Robinson "A" 12	Unit A, 660' FNL & 654' FEL Sec. 34, T-17-S, R-29-E
F. M. Robinson "B" 1	Unit A, 660' FNL & 660' FEL Sec. 27, T-17-S, R-29-E

BUCKET MAILED  
Date 3/15/73

<u>WELL NUMBER</u>	<u>LOCATION</u>
F. M. Robinson "B" 4	Unit A, 660' FEL & 660' FNL Sec. 35, T-17-S, R-29-E
F. M. Robinson "B" 6	Unit G, 1,980' FNL & 1,980' FEL Sec. 35, T-17-S, R-29-E
F. M. Robinson "B" 8	Unit K, 1,980' FWL & 1,980' FSL Sec. 27, T-17-S, R-29-E
F. M. Robinson "B" 11	Unit C, 660' FNL & 1,980' FWL Sec. 35, T-17-S, R-29-E
F. M. Robinson "B" 15	Unit G, 1,980' FNL & 1,980' FEL Sec. 27, T-17-S, R-29-E
F. M. Robinson "B" 16	Unit I, 1,980' FSL & 660' FEL Sec. 35, T-17-S, R-29-E
F. M. Robinson "B" 17	Unit K, 1,980' FSL & 1,980' FWL Sec. 35, T-17-S, R-29-E
F. M. Robinson "B" 18	Unit O, 660' FSL & 1,980' FEL Sec. 35, T-17-S, R-29-E (Outside Unit Area)
F. M. Robinson "B" 19	Unit I, 1,980' FSL & 660' FEL Sec. 34, T-17-S, R-29-E
F. M. Robinson "B" 20	Unit C, 660' FNL & 1,980' FWL Sec. 34, T-17-S, R-29-E (Outside Unit Area)

2. That the above wells and all other wells in the area have reached an advanced state of depletion and are stripper wells.

3. That Applicant feels that the waterflooding of the Grayburg and San Andres formations is feasible and that flooding will result in the increased ultimate recovery of oil and prevent waste.

4. That other operators are successfully waterflooding on all sides of this project. That General American Oil Company is waterflooding the Grayburg formation to the East in Section 26, Newmont Oil Company is successfully waterflooding the Grayburg

formation to the South in Sections 2 and 3, Township 18 South, Range 29 East, that Tenneco Oil Company is waterflooding to the West in Sections 27 and 28, and that Sun Oil Company is waterflooding the San Andres formation to the North in Section 22.

5. That when need arises, upon administrative approval, Applicant should be permitted to convert to water injection wells additional wells within its lease boundaries or to drill additional injection wells in the area described in Exhibit "A" attached hereto.

6. Applicant proposes to inject fresh water and produced water when available in the Metex and Loco Hills zones of the Grayburg formation at the approximate depth of 2,359 feet and into the Jackson zone of the San Andres formation at the approximate depth of 2,774 feet, and into additional zones within the Grayburg and San Andres formations that may warrant water injection after the wells have been worked over. Applicant proposes to inject 300 barrels of water per day into each of the two zones in the Grayburg formation and 300 barrels of water per day into the San Andres formation, or a total of 900 barrels per day. The injection areas of the various wells are set forth on Exhibit "C". Injection water will be purchased from a commercial water company and the injection plant will be capable of handling produced water for reinjection.

7. That in support of this application and in accordance with the provisions of Rule 701-B, Applicant submits herewith the following exhibits:

Exhibit A - Plat showing the location of Applicant's project and lands embraced therein.

Exhibit B - Plat showing location of Applicant's acreage and location of all other wells within the radius of two miles from the proposed injection wells.

Exhibit C - Nos. 1-16 Diagrametic Sketches of the proposed injection wells showing estimated tops of the cement, perforations and depths.

Exhibit D - Diagrametic Sketch showing the typical down hole equipment to be installed in each injection well.

At the hearing the Applicant will furnish available logs of the proposed injection wells.

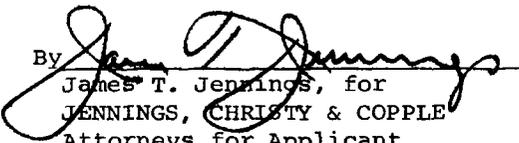
WHEREFORE, Applicant requests the Commission to set this matter down for hearing before an examiner at an early date, publish notice as required by law and, after hearing, issue its Order:

1. Authorizing the waterflood project and the injection of water into the Grayburg and San Andres formations in the sixteen injection wells located in Sections 27, 34 and 35, Township 17 South, Range 29 East.

2. Establishing rules for administrative expansion and conversion of additional wells to water injection wells.

Respectfully submitted,

SHENANDOAH OIL CORPORATION

By   
James T. Jennings, for  
JENNINGS, CHRISTY & COPPLE  
Attorneys for Applicant  
P. O. Box 1180  
Roswell, New Mexico 88201

If earthen pits are used in association with the drilling of this well, an OCD pit permit must be obtained prior to pit construction.

IN TRIPLICATE\*  
instructions on  
reverse side)

Form approved.  
Budget Bureau No. 1004-0136  
Expires: December 31, 1991

DEPA  
BU

**ARTESIA**

5. LEASE DESIGNATION AND SERIAL NO.  
LC-028775B 5/2/06

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

NM 71024X

8. FARM OR LEASE NAME, WELL NO.

RJ Unit #141 302557

9. API WELL NO.

30-015-34978

10. FIELD AND POOL, OR WILDCAT

Grayburg Jackson SR Q G SA

11. SEC., T., R., M., OR BLK  
AND SURVEY OR AREA

Sec 27 T17S R29E

12. COUNTY OR PARISH

Eddy

13. STATE

NM

1a. TYPE OF WORK

DRILL

DEEPEN

b. TYPE OF WELL

OIL WELL

Gas Well

OTHER

SINGLE ZONE

MULTIPLE ZONE

2. NAME OF OPERATOR

COG Operating LLC

229137

3. ADDRESS AND TELEPHONE NO.

550 W. Texas, Suite 1300 Midland, TX 79701

(432) 685-4372

4. LOCATION OF WELL (Report location clearly and in accordance with any state requirement.)\*

At surface

UNORTHODOX 1090 FSL & 1573 FWL

At proposed prod. zone

LOCATION

Subject to  
Lease Approved  
By State

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*

7 miles west of Loco Hills, NM

15. DISTANCE FROM PROPOSED\*  
LOCATION TO NEAREST  
PROPERTY OR LEASELINE, FT.  
(Also to nearest drlg. unit line, if any)

253

16. NO. OF ACRES IN LEASE

320

17. NO OF ACRES IN LEASE  
TO THIS WELL

40

18. DISTANCE FROM PROPOSED LOCATION\*  
TO NEAREST WELL, DRILLING, COMPLETED  
OR APPLIED FOR, ON THIS LEASE, FT.

500

19. PROPOSED DEPTH

3600

20. ROTARY OR CABLE TOOLS

Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

3525' GR

Roswell Controlled Water Basin

22. APPROX. DATE WORK WILL START\*

6/1/2006

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17 1/2	H-40, 13 3/8	48	250	Circ
12 1/4	J-55, 8 5/8	24	850	Circ
7 7/8	J-55, 5 1/2	17	3600	Suff to Circ

COG proposes to drill to a depth sufficient to test the Grayburg and San Andres formation for oil. If productive, 5 1/2" casing will be cemented. If non-productive, the well will be plugged and abandoned in a manner consistent with federal regulation. Specific programs as per Onshore Oil and Gas Order #1 are outlined in the following attachments:

- Surveys  
Exhibit #1- Well Location Plat  
Exhibit #2- Vicinity Map  
Exhibit #3- Location Verification Map
- Drilling Program
- Surface Use & Operating Plan  
Exhibit #4- One Mile Radius Map  
Exhibit #5- Production Facilities Layout  
Exhibit #6- Location Layout
- Certification
- Hydrogen Sulfide Drilling Operation Plan  
Exhibit #7- H2S Warning Sign  
Exhibit #8- H2S Safety Equipment
- Blowout Preventers  
Exhibit #9- BOPE Schematic  
Exhibit #10- Blowout Preventer Requirements  
Exhibit #11- Choke Manifold
- Responsibility Statement

**APPROVAL SUBJECT TO  
GENERAL REQUIREMENTS AND  
SPECIAL STIPULATIONS  
ATTACHED**

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24. SIGNED Jerry W. Sherrill TITLE Production Clerk DATE 5/1/2006

(This space for Federal or State office use)

PERMIT NO. \_\_\_\_\_ APPROVAL DATE \_\_\_\_\_

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.  
CONDITIONS OF APPROVAL, IF ANY:

APPROVED BY /s/ James Stovall ACTING FIELD MANAGER DATE JUN 22 2006

\*See Instructions On Reverse Side

**APPROVAL FOR 1 YEAR**

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Se 17 29.5

State of New Mexico

Energy, Minerals and Natural Resources Department

DISTRICT I

1825 N. FRENCH DR., HOBBS, NM 88240

DISTRICT II

1501 W. GRAND AVENUE, ARTESIA, NM 88210

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV

1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

OIL CONSERVATION DIVISION

1220 SOUTH ST. FRANCIS DR.  
Santa Fe, New Mexico 87505

Form C-102

Revised October 12, 2005

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

AMENDED REPORT

API Number	Pool Code 28509	Pool Name Grayburg Jackson SR Q G SA
Property Code 302557	Property Name RJ UNIT	Well Number 141
OGRID No. 229137	Operator Name COG OPERATING LLC	Elevation 3525'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	27	17-S	29-E		1090	SOUTH	1573	WEST	EDDY

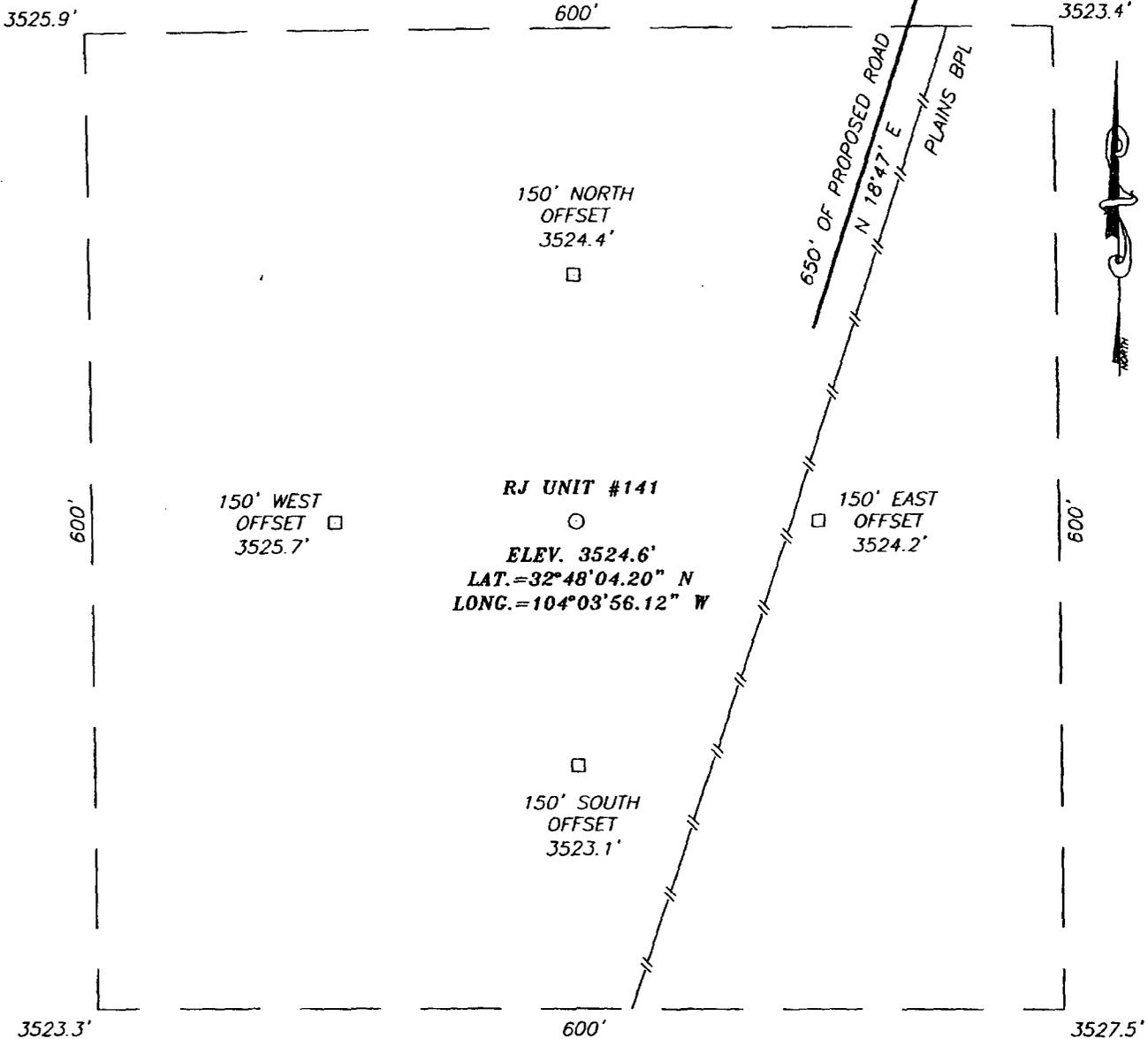
Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County				
<table border="1"> <tr> <td>Dedicated Acres 40</td> <td>Joint or Infill</td> <td>Consolidation Code</td> <td>Order No.</td> </tr> </table>										Dedicated Acres 40	Joint or Infill	Consolidation Code	Order No.
Dedicated Acres 40	Joint or Infill	Consolidation Code	Order No.										

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

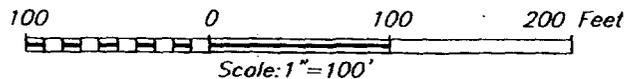
<p>GEODETC COORDINATES NAD 27 NME</p> <p>Y=655279.1 N X=582269.7 E</p> <p>LAT.=32°48'04.20" N LONG.=104°03'56.12" W</p>	<p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><i>Jerry W. Sherrell</i> 5/1/06 Signature Date</p> <p>Jerry W. Sherrell Printed Name</p>
	<p><b>SURVEYOR CERTIFICATION</b></p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>APRIL 14, 2006 Date Surveyed MR</p> <p>Signature: <i>Gary Edson</i> Seal of Professional Surveyor Professional Surveyor NEW MEXICO 06.11.0638</p> <p>Certificate No. GARY EDSON 12641</p>

**SECTION 27, TOWNSHIP 17 SOUTH, RANGE 29 EAST, N.M.P.M.,**  
 EDDY COUNTY, NEW MEXICO



**DIRECTIONS TO LOCATION**

FROM THE INTERSECTION OF ST. HWY. #82 AND CO. RD. #213 (STANDARD RD.), GO SOUTHEAST ON CO. RD. #213 APPROX. 1.3 MILES. TURN RIGHT AND GO WEST APPROX. 0.5 MILES TO A BEGIN ROAD SURVEY. FOLLOW ROAD SURVEY SOUTHWEST APPROX. 815 FEET TO THIS LOCATION.



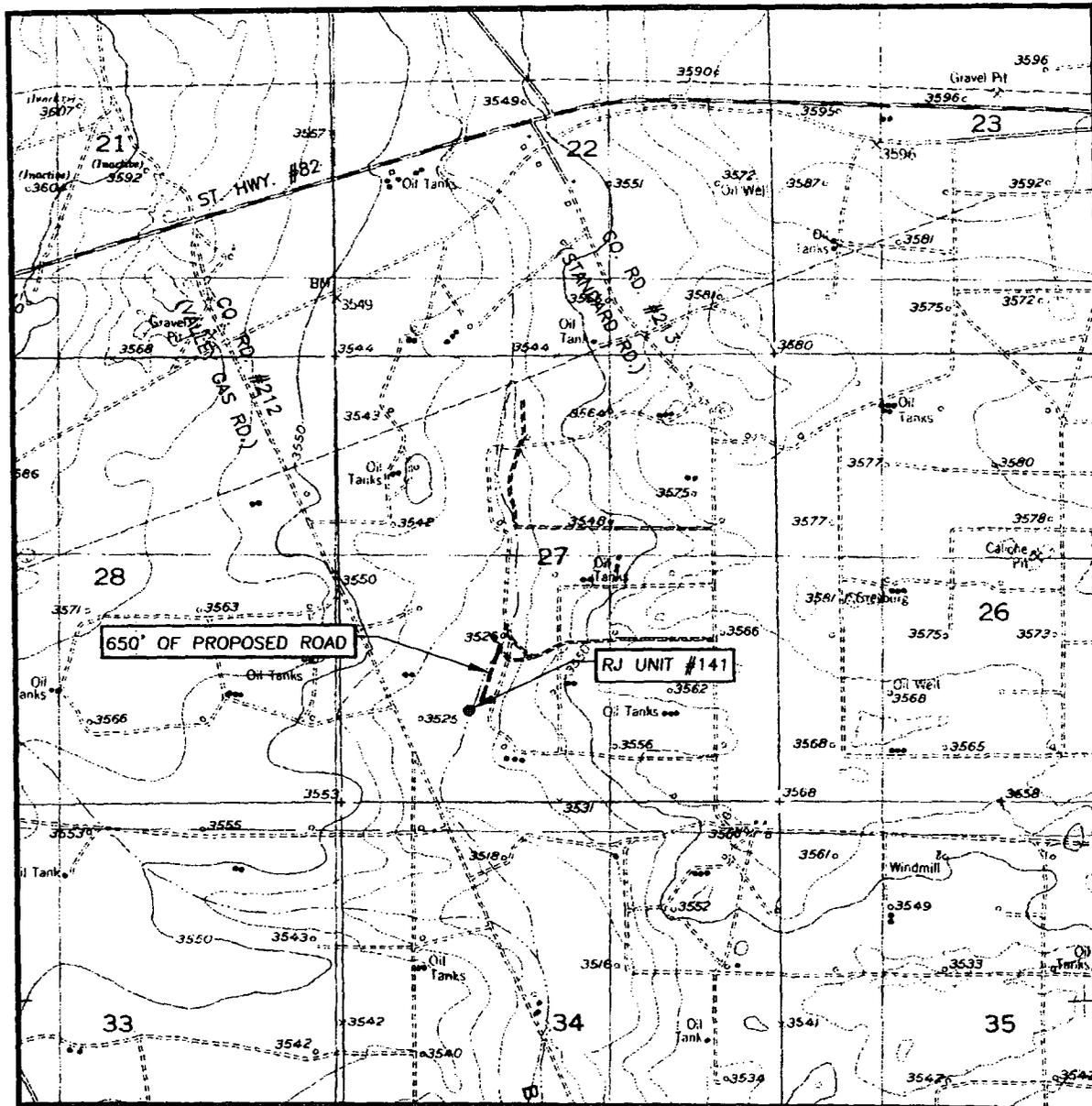
**MACK ENERGY CORPORATION**

RJ UNIT #141  
 LOCATED 1090 FEET FROM THE SOUTH LINE  
 AND 1573 FEET FROM THE WEST LINE OF SECTION 27,  
 TOWNSHIP 17 SOUTH, RANGE 29 EAST, N.M.P.M.,  
 EDDY COUNTY, NEW MEXICO.

Survey Date: 4/14/06	Sheet 1 of 1 Sheets
W.O. Number: 06.11.0638	Dr By: M.R. Rev 1:N/A
Date: 04/19/06	Disk: CD#6 06110638 Scale: 1"=100'

PROVIDING SURVEYING SERVICES  
 SINCE 1946  
**JOHN WEST SURVEYING COMPANY**  
 412 N. DAL PASO  
 HOBBS, N.M. 88240  
 (505) 393-3117

# LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:  
RED LAKE SE, N.M. - 10'

SEC. 27 TWP. 17-S RGE. 29-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 1090' FSL & 1573' FWL

ELEVATION 3525'

OPERATOR MACK ENERGY CORPORATION

LEASE RJ UNIT

U.S.G.S. TOPOGRAPHIC MAP  
RED LAKE SE, N.M.

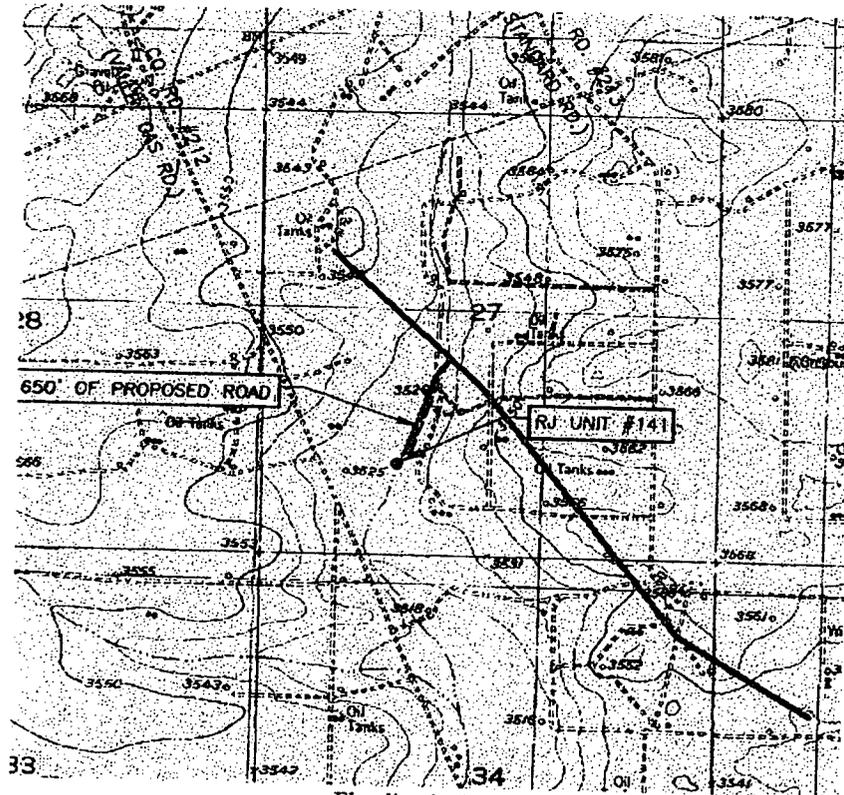


**PROVIDING SURVEYING SERVICES**  
 SINCE 1946  
**JOHN WEST SURVEYING COMPANY**  
 412 N. DAL PASO  
 HOBBS, N.M. 88240  
 (505) 383-3117

## SURFACE USE AND OPERATING PLAN

### 1. Existing & Proposed Access Roads

- A. The well site and elevation plat for the proposed well is shown in Exhibit #1. It was staked by John West Engineering, Hobbs, NM.
- B. All roads to the location are shown in Exhibit below. The existing lease roads are illustrated in Blue and are adequate for travel during drilling and production operations. Upgrading existing roads prior to drilling well will be done where necessary.
- C. Directions to Location: From intersection of Hwy 82 and CR 213, go southeast 1.3 miles, turn west .5 mile to a begin road survey, location is 815' southwest.
- D. Routine grading and maintenance of existing roads will be conducted as necessary to maintain their condition as long as any operations continue on this lease.



Flowline in Green  
Exhibit #4

Attached to Form 3160-3  
COG Operating LLC  
RJ Unit #141  
1090 FSL & 1573 FWL  
SE/4 SW/4, Sec 27 T17S R29E  
Eddy County, NM

**2. Proposed Access Road:**

Exhibit #3 shows the 650' of new access road to be constructed. The road will be constructed as follows:

- A. The Maximum width of the running surface will be 14'. The road will be crowned and ditched and constructed of 6" rolled and compacted caliche. Ditches will be at 3:1 slope and 4 feet wide. Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage, and to be consistent with local drainage patterns.
- B. The average grade will be less than 1%.
- C. No turnouts are planned.
- D. No culverts, cattleguard, gates, low water crossings or fence cuts are necessary.
- E. Surfacing material will consist of native caliche. Caliche will be obtained from the nearest BLM approved caliche pit or reserve pit area.
- F. The proposed access road as shown in Exhibit #3 has been centerline flagged by John West Engineering, Hobbs, New Mexico.

**3. Location of Existing Wells & Proposed flow lines for New Wells:**

Exhibit #4 shows all existing wells within a one-mile radius of this well. As shown on this plat there are numerous wells producing from the San Andres formations. Proposed flow lines, in green, will follow an archaeologically approved route to ROW NM-115369 then to the existing battery.

**4. Location of Existing and/or Proposed Facilities:**

- A. COG Operating LLC does operate a production facility on this lease.
- B. If the well is productive, contemplated facilities will be as follows:
  - 1) GB/San Andres Completion: Will be sent to the RJ Unit tank battery. The Facility is shown in Exhibit #5.
  - 2) The tank battery and facilities including all flow lines and piping will be installed according to API specifications.
  - 3) Any additional caliche will be obtained from a BLM approved caliche pit. Any additional construction materials will be purchased from contractors.

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- 4) It will be necessary to run electric power if this well is productive. Power will be run by CVE and they will send in a separate plan for power.

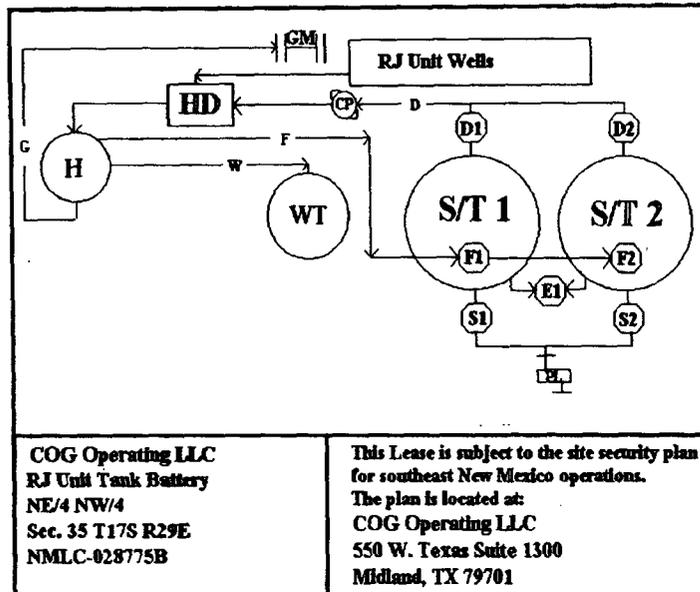


Exhibit #5

- A. If the well is productive, rehabilitation plans are as follows:
- 1) The reserve pit will be back filled after the contents of the pit are dry (within 120 days after the well is completed).
  - 2) Topsoil removed from the drill site will be used to recontour the pit area to the original natural level, as nearly as possible, and reseeded as per BLM specifications.

**5. Location and Type of Water Supply:**

The well will be drilled with combination brine and fresh water mud system as outlined in the drilling program. The water will be obtained from commercial water stations in the area and hauled to location by transport truck over the existing and proposed access roads shown in Exhibit #4. If a commercial fresh water source is nearby, fasline may be laid along existing road ROW's and fresh water pumped to the well. No water well will be drilled on the location.

**6. Source of Construction Materials:**

All caliche required for construction of the drill pad and proposed new access road (approximately 2500 cubic yards) will be obtained from a BLM approved caliche pit or the reserve pit.

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**7. Methods of Handling Water Disposal:**

- A. Drill cuttings not retained for evaluation purposes will be disposed into the reserve pit.
- B. Drilling fluids will be contained in a lined working pit. The reserve pit will contain any excess drilling fluid or flow from the well during drilling, cementing and completion operations. The reserve pit will be an earthen pit, approximately 125' X 125' X 10' deep with a dividing wall dividing it into two horseshoe style pits and fenced on three sides prior to drilling. It will be fenced on the fourth side immediately following rig removal. The reserve pit will be lined 125' X 125' X 10'. The reserve pit will be lined (12-mil thickness) to minimize loss of drilling fluids and saturation of the ground with brine water.
- C. Water produced from the well during completion may be disposed into the reserve pit or a steel tank (depending on the rates). After the well is permanently placed on production, produced water will be collected in tanks (fiberglass) until pumped to an approved disposal system; produced oil will be collected in steel tanks until sold.
- D. Garbage and trash produced during drilling or completion operations will be collected in a trash bin and hauled to an approved landfill. All water and fluids will be disposed of into the reserve pit. Salts and other chemicals produced during drilling or testing will be disposed into the reserve pit. No toxic waste or hazardous chemicals will be produced by this operation.
- E. After the rig is moved out and the well is either completed or abandoned, all waste materials will be cleaned up within 30 days. The reserve pit will be completely fenced and kept closed until it has dried. When the reserve pit is dry enough to breakout and backfill and reseeded as per BLM specifications as weather permits. In the event of a dry hole only a dry hole marker will remain.

**8. Ancillary Facilities:**

No airstrip, campsite or other facilities will be built as a result of the operation on this well.

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**9. Well Site Layout:**

- A. The drill pad layout, with elevations staked by John West Engineering, is shown in Exhibit #6. Dimensions of the pad and pits are shown. Topsoil, if available, will be stockpiled per BLM specifications. Because the pad is almost level no major cuts will be required.
- B. Diagram below shows the proposed orientation of reserve pit, working pit and access road. There is a possibility that the pits will be moved around depending on Caliche in the area. No permanent living facilities are planned, but a temporary foreman/toolpusher's trailer will be on location during the drilling operations.
- C. The reserve pit will be lined with high quality plastic sheeting (12 mil thickness).

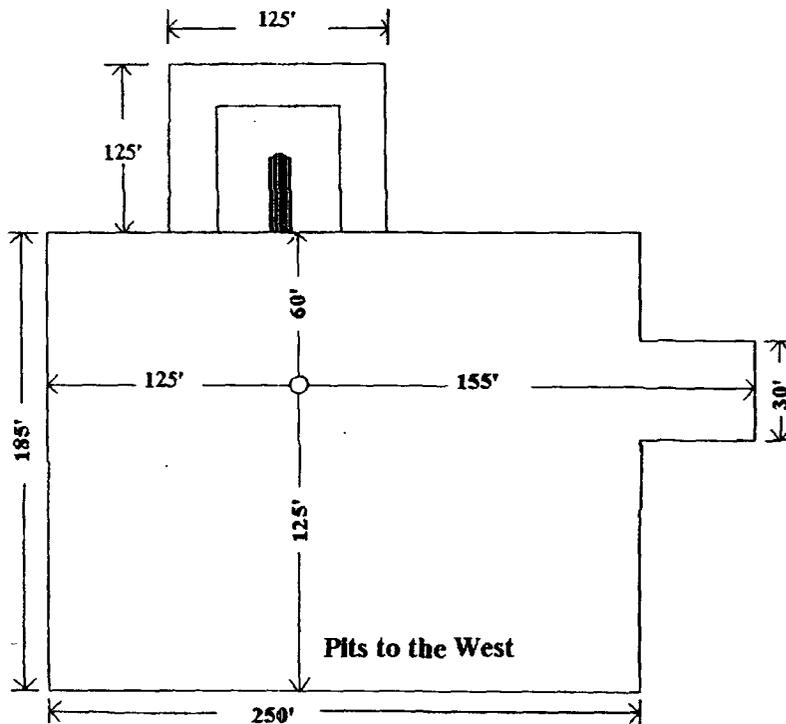


Exhibit #6

**10. Plans for Restoration of the Surface:**

- A. Upon completion of the proposed operations, the pit area, after allowing drying, will be broken out and leveled. The original topsoil will be returned to the pit area,

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which will be leveled and contoured to as nearly the original topography as possible.

- B. The disturbed area will be revegetated by reseeding during the proper growing season with a seed mixture of native grasses as recommended by the BLM.
- C. Three sides of the reserve pit will be fenced prior to and during drilling operations. At the time that the rig is removed, the reserve pit will be fenced on the rig (fourth) side to prevent livestock from being entrapped. The fencing will remain in place until the pit area is cleaned up and leveled. No oil will be left on the surface of the fluid in the pit.
- D. Upon completion of proposed operations, if the well is completed, the reserve pit area will be treated as outlined above within the same prescribed time. Any additional caliche required for facilities will be obtained from a BLM approved caliche pit. Topsoil removed from the drill site will be used to recontour the pit area to its original natural level and reseeded as per BLM specifications.

**11. Surface Ownership:**

The well site and lease is located entirely on Federal surface. We have notified the surface lessee of the impending operations. According to BLM the lessee is Bogel Farms, Lewis Derrick, PO Box 441, Artesia NM 88210.

**12. Other Information:**

- A. The area around the well site is grassland and the topsoil is sandy. The vegetation is native scrub grass with sagebrush.
- B. There is no permanent or live water in the immediate area.
- C. A Cultural Resources Examination has been requested and will be forwarded to your office in the near future.

**13. Lessee's and Operator's Representative:**

The COG Operating LLC representative responsible for assuring compliance with the surface use plan is as follows:

Jerry W. Sherrell  
COG Operating LLC  
P.O. Box 960  
Artesia, NM 88211-0960  
Phone (505) 748-1288 (office)

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### CERTIFICATION

I hereby certify that I, or person under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exist; that the statements made in this plan are to the best of my knowledge, true and correct; and the work associated with the operations proposed herein will be performed by COG Operating LLC and its contractors and subcontractors in conformity with this plan and the terms and conditions which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Date: 5-1-2006

Signed: Jerry W. Sherrell  
Jerry W. Sherrell