Exhibits 1 through 4

Complete Set

DOCKET: Examiners Hearing - Thursday - April 8, 1993

Case #10697

# WATTAM FEDERAL #4

Exhibit #1 Map

Exhibit #2 Offset Operators

Exhibit #3 Horizontal Drilling Procedure

Exhibit #4 Schematic

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WATTAM FEDERAL #4 Section 6, T8S, R31E

Offset Operators:

Yates Energy Corporation P.O. Box 2323 Roswell, NM 88202-2323

Murphy Operating Corporation P.O. Box 2648 Roswell, NM 88202

Docket: Examiners Hearing - Thursday, April 8, 1993

EXHIBIT #3

Case #10697

#### WATTAM FEDERAL #4

Unit H, SE/4NE/4, Section 6 T8S, R31E CATO San Andres Field Chaves County, New Mexico

## HORIZONTAL DRILLING PROCEDURE

- 1. Set cement retainer @ 3710 feet. Cement squeeze perforations 3725' to 3837'.
- 2. Set packer @ 3360'. Cement squeeze perforations 3660' to 3696'.
- 3. Drill out cement to 3710'.
- 4. Mill section in  $5\frac{1}{2}$ " casing from approximately 3635' to 3695'. Set cement plug. Drill out cement to approximately 3665'.
- 5. Run directional survey.
- 6. Kickoff cement plug at approximately 3665'.
- 7. Drill 60 feet radii curve to an inclination of approximately 85 to 90 degrees. Conduct surveys every 5 feet of the arc.
- 8. Drill laterally approximately 830 + feet in a direction of our choice, thru a vertical depth of approximately 3725' to 3764'.
- 9. Conduct surveys every 30 feet in the lateral.
- 10. A distance of 100 feet will be maintained by the horizontal hole from the boundaries of the 40 acre tract.



# PETROLEUM DEVELOPMENT CORPORATION

9720-B CANDELARIA, NE ALBUQUERQUE, NEW MEXICO 87112 TELEPHONE (505) 293-4044

March 1, 1993

Mr. William J. LeMay-Director New Mexico Oil Conservation Commission P. O. Box 2088 Santa Fe. NM 87501

RE: Rule 111. Deviation Test and Directional Drilling

Dear Mr. LeMay,

Petroleum Development Corporation (PDC) applies for public hearing on April 8, 1993 to authorize the intentional deviation from the existing vertical hole using the following procedure:

- 1. Mill a  $60^{\frac{1}{2}}$  foot section in the existing 5 1/2" casing.
- 2. A directional survey will be run to determine the location of the kick off point.
- 3. Drill a  $60^{\frac{1}{2}}$  foot radii  $84^{\circ}$  to  $90^{\circ}$  into the P2 San Andres pay zone.
- 4. Horizontally drill  $500^{+}$  feet into the pay zone.
- 5. Adequate directional surveys will be run in the deviated hole.
- 6. The horizontal hole will be maintained a distance of 100 feet from any boundary of the 40 acre spacing tract.

PDC request permission to horizontally drill the following wells:

CATO San Andres Field
Wattam Federal #4, Unit H, Section 6, T8S, R31E.
Located 2060' FNL and 598' FEL.

CATO San Andres Field
Wattam Federal #7, Unit D, Section 6, T8S, R31E.
Located 660" FNL and 660" FWL.

Tomahawk San Anders Field
Strange Federal #4, Unit I, Section 25, T7S, R31E.
Located 1980' FSL and 660" FEL.

Attached is a list of offset operators with their correct mailing address.

Sincerely,

J. C. Johnson

Président

Attachment

Yates Energy Corporation Box 2323 Roswell, NM 88202-2323

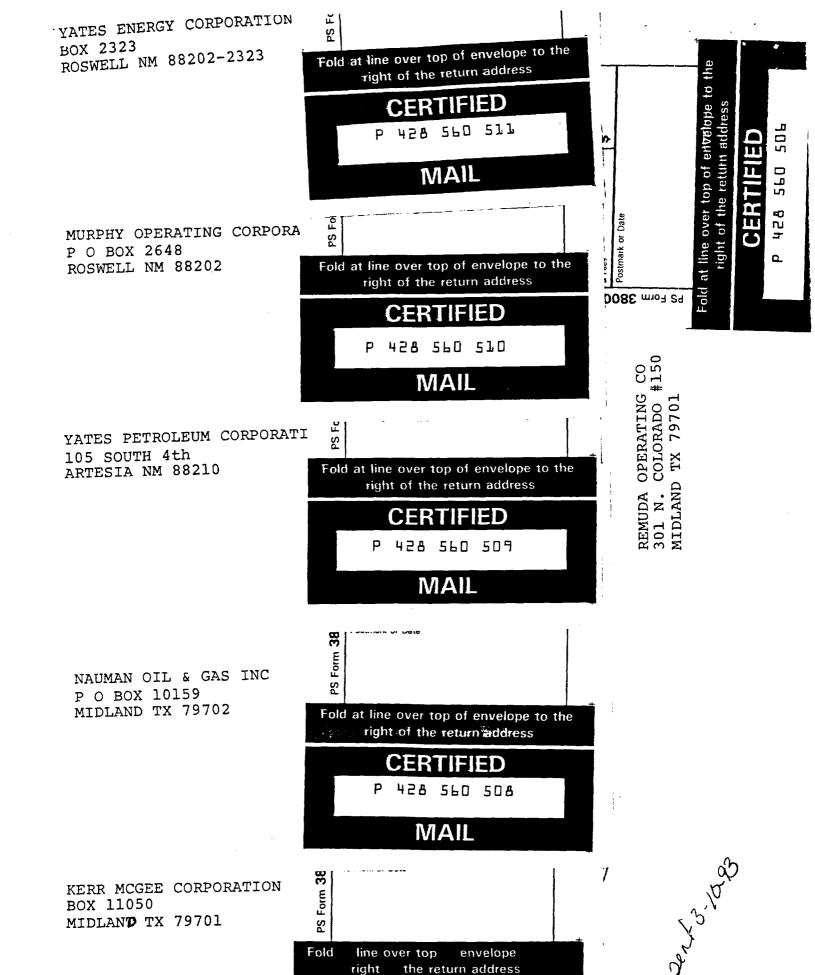
Murphy Operating Corporation P. O. Box 2648 Roswell, NM 88202

Yates Petroleum Corporation 105 South 4th Artesia, NM 88210

Nauman Oil And Gas, Inc.
P. O. Box 10159
Midland, TX 79702

Kerr-McGee Corporation Box 11050 Midland, TX 79701

Remuda Operating Co. 301 N. Colorado #150 Midland, TX 79701



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# Receipt for Certified Mail

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# Receipt for Certified Mail

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# Receipt for Certified Mail

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| S Form  | USP  | <b>ś</b> */ |

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| 3. Article Addressed to:   | 4a Article Number   |
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|  | 4b. Service Type ☐ Registered ☐ Insured                     |
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| Midland Tx 19701   | ☐ Express Mail ☐ Return Receipt for                         |
| 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  | 7. Date of Delivery   |
|  | 3-12-93   |
| 5. Signature (Addressee)   | 8. Addressee's Address (Only if requested and fee is paid)  |
| 6. Signature (Agent)   |   |
| and Some   |   |
| PS Form <b>3811</b> , November 1990 ± U.S. GPO: 1991 – 281   | 7-066 DOMESTIC RETURN RECEIPT                               |
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| <ul> <li>The Return Receipt Fee will provide you the signature of the person and the date of delivery.</li> </ul>  | Consult postmaster for fee.                                 |
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| Kern-Mcgedicorp  | 4b. Service Type  |
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# PETROLEUM DEVELOPMENT CORPORATION

9720-B CANDELARIA, NE ALBUQUERQUE, NEW MEXICO 87112 TELEPHONE (505) 293-4044

March 1, 1993

Mr. William J. LeMay-Director New Mexico Oil Conservation Commission P. O. Box 2088 Santa Fe, NM 87501

RE: Rule 111, Deviation Test and Directional Drilling

Dear Mr. LeMay,

Petroleum Development Corporation (PDC) applies for public hearing on April 8, 1993 to authorize the intentional deviation from the existing vertical hole using the following procedure:

- 1. Mill a  $60 \pm$  foot section in the existing 5 1/2" casing.
- 2. A directional survey will be run to determine the location of the kick off point.
- 3. Drill a 60<sup>±</sup> foot radii 84<sup>o</sup> to 90<sup>o</sup> into the P2 San Andres pay zone.
- 4. Horizontally drill 400 teet into the pay zone.
- 5. Adequate directional surveys will be run in the deviated hole.
- 6. The horizontal hole will be maintained a distance of  $\frac{2}{3}$

PDC request permission to horizontally drill the following wells:

CATO San Andres Field
Wattam Federal #4, Unit H. Section 6. T8S, R31E.
Located 2060' FNL and 598' FEL.

CATO San Andres Field
Wattam Federal #7, Unit D, Section 6, T8S, R31E.
Located 660" FNL and 660" FWL.

WATER BASIE
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Tomahawk San Anders Field
Strange Federal #4, Unit I, Section 25, T7S, R31E.
Located 1980' FSL and 660" FEL.

Attached is a list of offset operators with their correct mailing address.

Sincerely,

J.C. Johnson

President

Attachment

Yates Energy Corporation Box 2323 Roswell, NM 88202-2323

Murphy Operating Corporation P. O. Box 2648 Roswell, NM 88202

Yates Petroleum Corporation 105 South 4th Artesia, NM 88210

Nauman Oil And Gas. Inc. P. O. Box 10159 Midland, TX 79702

Kerr-McGee Corporation
Box 11050
Midland, TX 79701

Remuda Operating Co. 301 N. Colorado #150 Midland, TX 79701

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# PETROLEUM DEVELOPMENT CORPORATION

9720-B CANDELARIA, NE ALBUQUERQUE, NEW MEXICO 87112 TELEPHONE (505) 293-4044

March 1, 1993

Case 10697

Mr. William J. LeMay-Director New Mexico Oil Conservation Commission P. O. Box 2088 Santa Fe. NM 87501

RE: Rule 111, Deviation Test and Directional Drilling

Dear Mr. LeMay,

Petroleum Development Corporation (PDC) applies for public hearing on April 8, 1993 to authorize the intentional deviation from the existing vertical hole using the following procedure:

- 1. Mill a  $60^{+}$  foot section in the existing 5 1/2" casing.
- 2. A directional survey will be run to determine the location of the kick off point.
- 3. Drill a  $60 \pm 60$  foot radii  $84^{\circ}$  to  $90^{\circ}$  into the P2 San Andres pay zone.
- 4. Horizontally drill 500 feet into the pay zone.
- 5. Adequate directional surveys will be run in the deviated hole.
- 6. The horizontal hole will be maintained a distance of 100 feet from any boundary of the 40 acre spacing tract.

PDC request permission to horizontally drill the following wells:

CATO San Andres Field

Wattam Federal #4, Unit H. Section 6, T8S, R31E. Located 2060' FNL and 598' FEL.

CATO San Andres Field

Wattam Federal #7, Unit D, Section 6, T8S, R31E. Located 660" FNL and 660" FWL.

Tomahawk San Anders Field
Strange Federal #4, Unit I, Section 25, T7S, R31E.
Located 1980' FSL and 660" FEL.

Attached is a list of offset operators with their correct mailing address.

Sincerely,

. C. Johnson

President

Attachment

Yates Energy Corporation Box 2323

Roswell, NM 88202-2323

Murphy Operating Corporation P. O. Box 2648

Yates Petroleum Corporation 105 South 4th

Nauman Oil And Gas. Inc. P. O. Box 10159

Midlar.d, TX 79702

Artesia, NM 88210

Roswell, NM 38202

Kerr-McGee Corporation Box 11050 Midland, TX 79701

Remuda Operating Co. 301 N. Colorado #150 Midland, TX 79701

# 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:

184/12/93 184/12/93

CASE NO. 10697 Order No. R-987

APPLICATION OF PETROLEUM DEVELOPMENT CORPORATION FOR A HORIZONTAL/HIGH ANGLE DIRECTIONAL DRILLING PILOT PROJECT AND FOR SPECIAL OPERATING RULES THEREFOR, CHAVES COUNTY, NEW MEXICO.

#### ORDER OF THE DIVISION

## BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on April 8, 1993, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this \_\_\_\_\_ day of April, 1993, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

#### FINDS THAT:

- (1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.
- (2) Division Case Nos. 10697 and 10698 were consolidated at the time of the hearing for the purpose of testimony.
- (3) The applicant, Petroleum Development Corporation, seeks authority to initiate a short radius high angle/horizontal directional drilling pilot project in the Cato-San Andres Pool underlying the SE/4 NE/4 of Section 6, Township 8 South, Range 31 East, NMPM, Chaves County, New Mexico, being a standard 40-acre oil spacing and proration unit for said pool.
- (4) The applicant further seeks authority to re-enter and horizontally drill the previously plugged and abandoned Exxon Corporation Wattam Federal Well No. 4 located at a standard surface location 2060 feet from the North line and 598 feet from the East line (Unit H) of Section 6, in the following unconventional manner:

Squeeze perforations from 3,725 feet to 3,837 feet and 3,660 feet to 3,696 feet, mill casing from approximately 3,635 feet to 3,695 feet, set cement plug and kick off from the vertical at a depth of approximately 3,665 feet and drill in an undetermined direction building angle to approximately 85 degrees so as to penetrate the top of the producing interval within the San Andres formation at a true vertical depth of approximately 3,725 feet. Continue drilling horizontally an undetermined distance at such an angle so as to bottom said wellbore at the base of the producing interval within the San Andres formation at a true vertical depth of approximately 3,764 feet.

- (5) The applicant further seeks the adoption of special operating provisions and rules within the pilot project area including the designation of a prescribed area limiting the horizontal or producing portion of the wellbore such that it can be no closer than 100 feet from the outer boundary of the SE/4 NE/4 of Section 6.
- (6) The proposed well is located within the Cato-San Andres Pool which is currently governed by Statewide Rules and Regulations which require standard 40-acre spacing and proration units with wells to be located no closer than 330 feet from the outer boundary of the spacing unit, a standard oil allowable of 80 barrels of oil per day, and a limiting gas-oil ratio of 2,000 cubic feet of gas per barrel of oil.
- (7) Through its evidence and testimony, the applicant demonstrated that the proposed high angle wellbore, which is experimental in nature, should encounter a substantially greater number of natural fractures within the San Andres formation than would a conventional wellbore, which should substantially increase the productivity of the subject well and which should ultimately result in the recovery of a greater amount of oil and gas from the proposed project area, thereby preventing waste.
- (8) No offset operator and/or interest owner appeared at the hearing in opposition to the application.
- (9) In the interest of conservation and prevention of waste, the application of Petroleum Development Corporation for a high angle/horizontal directional drilling project should be approved.
- (10) According to applicant's evidence, the proposed 100 foot setback from the outer boundary of the project area will allow the flexibility to determine the direction of the proposed horizonal wellbore, and will also allow the flexibility to extend the wellbore the maximum distance.
  - (11) The applicant should be required to determine the actual

location of the kick-off point prior to commencing directional drilling operations. Also, the applicant should be required to conduct a directional survey on the lateral portion of the wellbore during or after completion of drilling operations.

- (12) The applicant should notify the supervisor of the Hobbs district office of the Division of the date and time of conductance of any directional surveys in order that the same may be witnessed.
- (13) The applicant should be required to submit copies of all directional surveys conducted on the subject well to both the Santa Fe and Hobbs offices of the Division.

### IT IS THEREFORE ORDERED THAT:

- (1) The applicant, Petroleum Development Corporation) is hereby authorized to initiate a short radius high angle/horizontal directional drilling pilot project in the Cato-San Andres Pool underlying the SE/4 NE/4 of Section 6, Township 8 South, Range 31 East, NMPM, Chaves County, New Mexico, being a standard 40-acre oil spacing and proration unit for said pool.
- (2) The applicant is further authorized to re-enter and horizontally drill the previously plugged and abandoned Exxon Corporation Wattam Federal Well No. 4 located at a standard surface location 2060 feet from the North line and 598 feet from the East line (Unit H) of Section 6, in the following unconventional manner:

Squeeze perforations from 3,725 feet to 3,837 feet and 3,660 feet to 3,696 feet, mill casing from approximately 3,635 feet to 3,695 feet, set cement plug and kick off from the vertical at a depth of approximately 3,665 feet and drill in an undetermined direction building angle to approximately 85 degrees so as to penetrate the top of the producing interval within the San Andres formation at a true vertical depth of approximately 3,725 feet. Continue drilling horizontally an undetermined distance at such an angle so as to bottom said wellbore at the base of the producing interval within the San Andres formation at a true vertical depth of approximately 3,764 feet.

- (3) The horizonal or producing portion of the wellbore shall be located no closer than 100 feet from the outer boundary of the SE/4 NE/4 of Section 6.
- (4) The applicant shall determine the actual location of the kick-off point prior to commencing directional drilling operations. Also, the applicant shall conduct a directional survey on the lateral portion of the wellbore during or after completion of drilling operations.

- (5) The applicant shall notify the supervisor of the Hobbs district office of the Division of the date and time of conductance of any directional surveys in order that the same may be witnessed.
- (6) The applicant shall submit copies of all directional surveys conducted on the subject well to both the Santa Fe and Hobbs offices of the Division.
- (7) 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

WILLIAM J. LEMAY Director

SEAL