

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

APPLICATION OF CANO PETRO OF
NEW MEXICO, INC. FOR WATERFLOOD
PERMIT, CHAVES COUNTY, NEW MEXICO

Case No. 14,128

CANO PETRO EXHIBITS

(1-12)

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. 9739
Order No. R-9029

APPLICATION OF KELT OIL AND GAS,
INC. FOR A WATERFLOOD PROJECT,
CHAVES COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on August 23, 1989, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 30th day of October, 1989, 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. 9738 and 9739 were consolidated at the time of the hearing for the purpose of testimony.

(3) The applicant, Kelt Oil and Gas, Inc., seeks authority to institute a waterflood project in its Cato San Andres Unit (being the subject of Division Case No. 9738) located in Townships 8 and 9 South, Range 30 East, NMPM, Chaves County, New Mexico, as more fully described in Division Order No. R-9028, by the injection of water into the San Andres formation, Designated and Undesignated Cato-San Andres Pool, through the gross perforated interval from approximately 3192 feet to 3385 feet in four existing wells located in Sections 9 and 10, Township 8 South, Range 30 East, NMPM, as shown on Exhibit "A" attached hereto and made a part hereof.

(4) Approximately 90% of the Cato San Andres Unit Area is located within the horizontal boundaries of the Cato-San Andres Pool.

(5) The wells currently located in the Cato-San Andres Oil Pool are in an advanced state of depletion and should properly be classified as "stripper wells".

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

(7) It is proposed that the waterflood project coincide with the boundary of the Cato San Andres Unit Area, as fully described in Division Order No. R-9028.

(8) The initial project area for purposes of allowable under Rule 701 should include the E/2 and NE/4 SW/4 of Section 9 and the E/2 NW/4, the SW/4 NW/4, and the NW/4 SW/4 of Section 10, Township 8 South, Range 30 East, NMPM. As additional wells are placed on injection, the project area should automatically expand to include the proration units on which those injection wells are located and all direct or diagonally offset proration units within the project which have producing wells thereon.

(9) The Director of the Division should have the authority to administratively approve expansion of the waterflood project by placing additional wells on injection or production, upon proper application by the operator.

(10) Within the proposed Cato San Andres Unit Area there are three Division Orders currently in effect authorizing the injection of water into the San Andres formation:

- a. R-3551, which authorized a pressure maintenance project, said project designated the Sun Oil Co Cato-San Andres Pressure Maintenance Project, by the injection of water into the San Andres formation through the following described well located in Section 16, Township 8 South, Range 30 East, NMPM, Chaves County, New Mexico:

New Mexico State "H" No. 13, Unit P

- b. R-4462, which authorized a waterflood project, said project designated the Shell Amoco-Hodges Waterflood Project, by the injection of water into the San Andres formation through the five following described wells located in Sections 33 and 34, Township 8 South, Range 30 East, NMPM, Chaves County, New Mexico:

Amoco Federal Well No. 4, Unit G, Section 33
Amoco Federal Well No. 6, Unit O, Section 33
Amoco Federal Well No. 7, Unit E, Section 33
Amoco Federal Well No. 8, Unit M, Section 33
Hodges Federal "B" No. 4, Unit M, Section 34

- c. R-6171, which authorized a waterflood project, said project designated the Amoco Cato Baskett Waterflood Project, by the injection of water into the San Andres formation through the five following described wells all located in Section 11, Township 30 North, Range 8 West, NMPM, Chaves County, New Mexico:

Cato Baskett WFP Well No. 1, Unit G
(formerly Baskett "D" Well No. 1)
Cato Baskett WFP Well No. 2, Unit A
(formerly Baskett "D" Well No. 2)
Cato Baskett WFP Well No. 3, Unit O
(formerly Baskett "D" Well No. 3)
Cato Baskett WFP Well No. 4, Unit I
(formerly Baskett "D" Well No. 4)
Cato Baskett WFP Well No. 5, Unit C
(formerly Baskett "B" Well No. 2)

- d. R-6171, which authorized a waterflood project, said project designated the Amoco Cato Wasley Waterflood Project, by the injection of water into the San Andres formation through the two following described wells located in Section 14, Township 30 North, Range 8 West, NMPM, Chaves County, New Mexico:

Cato Baskett WFP Well No. 6, Unit C
(formerly Wasley Well No. 1)
Cato Baskett WFP Well No. 7, Unit A
(formerly Wasley Well No. 3)

(11) Information obtained subsequent to the hearing indicates that the applicant proposes to continue to utilize eleven of the thirteen above-described wells as disposal wells within the proposed waterflood project, and as such, these wells should be reclassified as water disposal wells.

(12) The applicant has no plans at the present time to utilize the New Mexico State "H" Well No. 13 and the Amoco Federal Well No. 8, both as described above, and as such, the injection authority for these wells should be terminated.

(13) Division Order Nos. R-3551, R-4462, and that portion of Division Order No. R-6171 which approved the Amoco Cato Baskett Waterflood Project and the Amoco Cato Wasley Waterflood Project should be superseded by this order.

(14) The operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

(15) The injection of water into each of the wells shown on Exhibit "A" should be accomplished through internally plastic-lined tubing installed in a packer set approximately 100 feet above the uppermost injection perforations and the casing-tubing annulus should be filled with an inert fluid and a gauge or approved leak-detection device should be attached to the annulus in order to determine leakage in the casing, tubing or packer.

(16) Prior to commencing injection operations into the wells shown on Exhibit "A", the casing in each well should be pressure-tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(17) The injection wells or injection pressurization system for each well should be so equipped as to limit injection pressure at the wellhead to no more than 0.2 psi per foot of depth to the uppermost injection perforation or that pressure shown on Exhibit "A".

(18) The Director of the Division should be authorized to administratively approve an increase in the injection pressure upon a proper showing by the operator that such higher pressure will not result in migration of the injected waters from the San Andres formation.

(19) The operator should give advanced notification to the supervisor of the Hobbs district office of the Division of the date and time of the installation of injection equipment and of the mechanical integrity pressure test in order that the same may be witnessed.

(20) The application should be approved and the project should be governed by the provisions of Rules 701 through 708 of the Oil Conservation Division Rules and Regulations.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Kelt Oil and Gas, Inc., is hereby authorized to institute a waterflood project in its Cato San Andres Unit Area (approved by Division Order No. R-9028) located in portions of Townships 8 and 9 South, Range 30 East, NMPM, Undesignated and Designated Cato-San Andres Pool, Chaves County, New Mexico, by the injection of water into the San Andres formation through the gross perforated interval from approximately 3192 feet to 3385 feet in four existing wells located in Sections 9 and 10, Township 8 South, Range 30 East, NMPM, as shown on Exhibit "A" attached hereto and made a part hereof.

(2) The initial project area for purposes of allowable under Rule 701 shall include the E/2 and NE/4 SW/4 of Section 9 and the E/2 NW/4, the SW/4 NW/4, and the NW/4 SW/4 of Section 10, Township 8 South, Range 30 East, NMPM. As additional wells are placed on injection, the project area shall automatically expand to include the proration units on which those injection wells are located and all direct or diagonally offset proration units within the project which have producing wells thereon.

(3) The Director of the Division shall have the authority to administratively approve expansion of the waterflood project by placing additional wells on injection or production, upon proper application by the operator.

(4) The operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

(5) The injection of water into each of the wells shown on Exhibit "A" shall be accomplished through internally plastic-lined tubing installed in a packer set approximately 100 feet above the uppermost injection perforations and the casing-tubing annulus shall be filled with an inert fluid and a gauge or approved leak-detection device shall be attached to the annulus in order to determine leakage in the casing, tubing or packer.

(6) Prior to commencing injection operations into the wells shown on Exhibit "A", the casing in each well shall be pressure-tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(7) The injection wells or injection pressurization system for each well shall be so equipped as to limit injection pressure at the wellhead to no more than 0.2 psi per foot of depth to the uppermost injection perforation or that pressure shown on Exhibit "A".

(8) The Director of the Division shall be authorized to administratively approve an increase in the injection pressure upon a proper showing by the operator that such higher pressure will not result in migration of the injected waters from the San Andres formation.

(9) The operator shall give advanced notification to the supervisor of the Hobbs district office of the Division of the date and time of the installation of injection equipment and of the mechanical integrity pressure test in order that the same may be witnessed.

(10) The operator shall immediately notify the supervisor of the Division's Hobbs district office of the failure of the tubing, casing, or packer in any of said injection wells, the leakage of water or oil from or around any producing well, or the leakage of water or oil from or around any plugged and abandoned well within the project area and shall take such steps as may be timely and necessary to correct such failure or leakage.

(11) The applicant is hereby authorized to utilize the following described wells, all located in Township 8 South, Range 30 East, NMPM, and all previously approved as water-flood or pressure maintenance injection wells by Division Order Nos. R-3551, R-4462 and R-6171, as water disposal wells within the Cato San Andres Unit:

Amoco Federal Well No. 4, Unit G, Section 33
Amoco Federal Well No. 6, Unit O, Section 33
Amoco Federal Well No. 7, Unit E, Section 33
Hodges Federal "B" No. 4, Unit M, Section 34
Cato Baskett WFP Well No. 1, Unit G, Section 11
(formerly Baskett "D" Well No. 1)
Cato Baskett WFP Well No. 2, Unit A, Section 11
(formerly Baskett "D" Well No. 2)
Cato Baskett WFP Well No. 3, Unit O, Section 11
(formerly Baskett "D" Well No. 3)
Cato Baskett WFP Well No. 4, Unit I, Section 11
(formerly Baskett "D" Well No. 4)
Cato Baskett WFP Well No. 5, Unit C, Section 11
(formerly Baskett "B" Well No. 2)
Cato Baskett WFP Well No. 6, Unit C, Section 14
(formerly Wasley Well No. 1)
Cato Baskett WFP Well No. 7, Unit A, Section 14
(formerly Wasley Well No. 3)

(12) Injection into each of the wells described above shall be at a surface pressure not to exceed 0.2 psi per foot of depth to the uppermost injection perforations.

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(13) The injection authority for the New Mexico State "H" Well No. 13 located in Unit P of Section 16, and the Amoco Federal Well No. 8 located in Unit M of Section 33, both in Township 8 South, Range 30 East, NMPM, both previously approved for waterflood or pressure maintenance injection by Order Nos. R-3551 and R-4462, respectively, is hereby terminated.

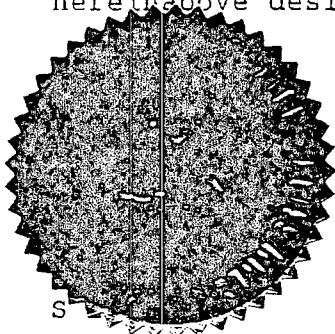
(14) Division Order Nos. R-3551, R-4462, and that portion of Division Order No. R-6171 which approved the Amoco Cato Baskett Waterflood Project and the Amoco Cato Wasley Waterflood Project are hereby superseded by this order.

(15) The subject waterflood project is hereby designated the Cato San Andres Unit Waterflood Project and shall be governed by the provisions of Rules 701 through 708 of the Division Rules and Regulations.

(16) Monthly progress reports of the waterflood project herein authorized shall be submitted to the Division in accordance with Rules 704 and 1120 of the Division Rules and Regulations.

(17) Jurisdiction of this cause 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.



STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



WILLIAM J. LEMAY
Director

EXHIBIT "A"
CASE NO. 9739
ORDER NO. R-9029
CATO SAN ANDRES UNIT WATERFLOOD PROJECT INJECTION WELLS

<u>WELL & LOCATION</u>	<u>MAXIMUM SURFACE INJECTION PRESSURE</u>
<u>TOWNSHIP 8 SOUTH, RANGE 30 EAST, NMFM</u>	
Crosby "B" Federal Well No. 1 1980' FNL & 1980' FEL, Unit G Section 9	638 PSIG
UT Crosby "1" Well No. 5 1980' FSL & 660' FEL, Unit I Section 9	651 PSIG
UT Winkler Federal Well No. 2 660' FNL & 660' FEL, Unit A Section 9	648 PSIG
Queen Well No. 2 1980' FNL & 660' FWL, Unit E Section 10	652 PSIG