

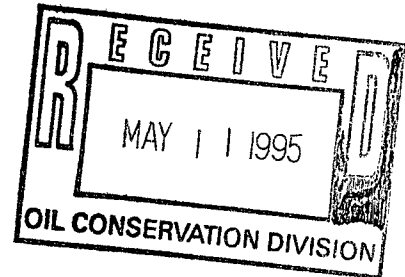


P.O. Box 2810  
Farmington, New Mexico  
87499

505  
326-3325

May 5, 1995

State of New Mexico  
Oil Conservation Division  
Mr. William J. LeMay  
Division Director  
P.O. Box 2088  
Santa Fe, NM 87501



Subject: Request for Exception to the Standard Location  
Northeast Hogback Unit Well No. 51

Dear Mr. LeMay,

Giant Exploration & Production Company requests administrative approval for an exception to the standard location for the subject well. Per the attached map, we desire to drill the Northeast Hogback Unit Well No. 51 at 1585' FSL, 1050' FWL, Section 11, T30N, R16W, San Juan County, New Mexico. The Northeast Hogback Unit Well No. 51 will be drilled to a total depth of 2025' to test the Gallup sandstone in the Horseshoe Gallup Oil pool.

The well has been moved outside the standard boundary for geologic reasons. The well has been placed in a position to avoid alignment with water injection wells through fracture trends and to avoid previous drainage from existing producing wells. The location will also aid in the testing of an effective injection pattern for secondary recovery in the unit.

The well is located within the boundaries of the Northeast Hogback Unit, in which Giant owns a 100% working interest. Giant owns all of the offset acreage to the subject well. All leases in the unit are federal, as shown on the attached lease plat, and carry the same royalty rate. Attached is a letter from Duane Spencer of the Farmington BLM, stating that the BLM has no objection to the unorthodox location.

The proposed location is best suited to maximize recovery of oil and protect correlative rights.

We would appreciate your considering this request at your earliest convenience. If you have any questions, please contact me at (505) 326-3325.

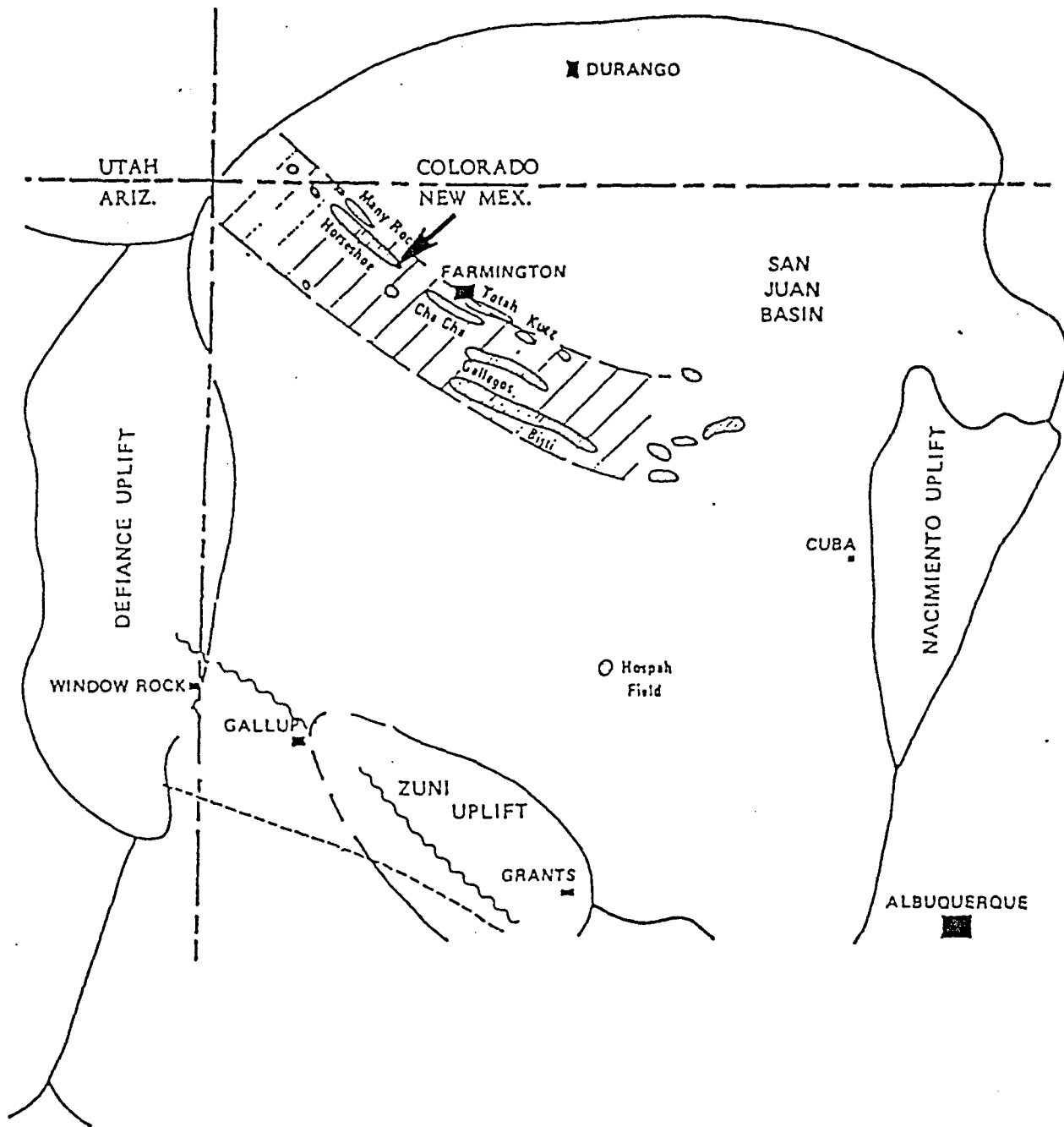
Sincerely,

Gregory E. McIntosh P.E.  
Area Engineer

GEM/mac

Enclosures

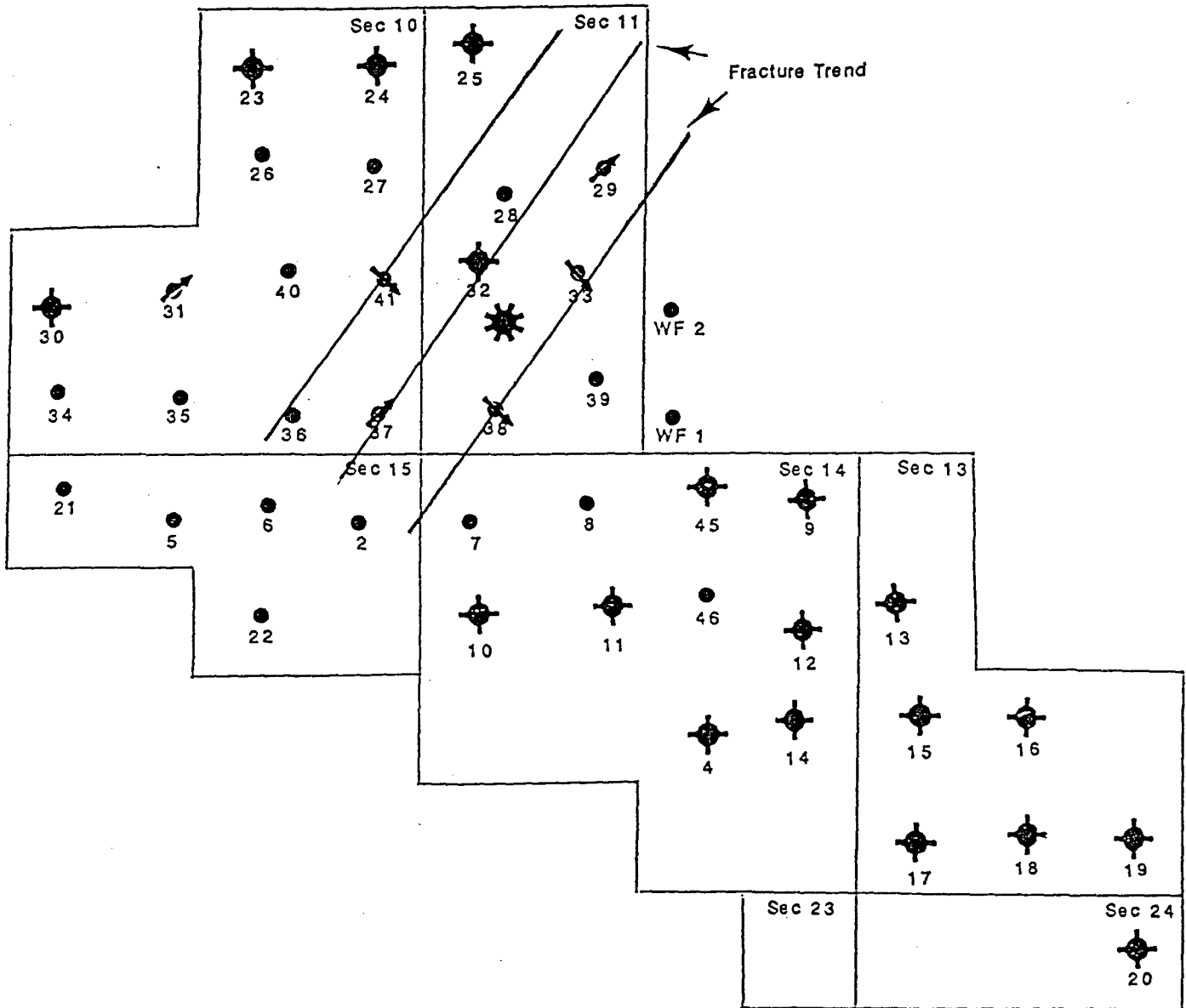
cc: NMOCD, Aztec



# North East Hogback Unit

## San Juan County, New Mexico

R16W



T30N

● Usable Wellbore

⊗ Plugged & Abandoned

↗ Injection Well

⊗ Proposed Injection Well

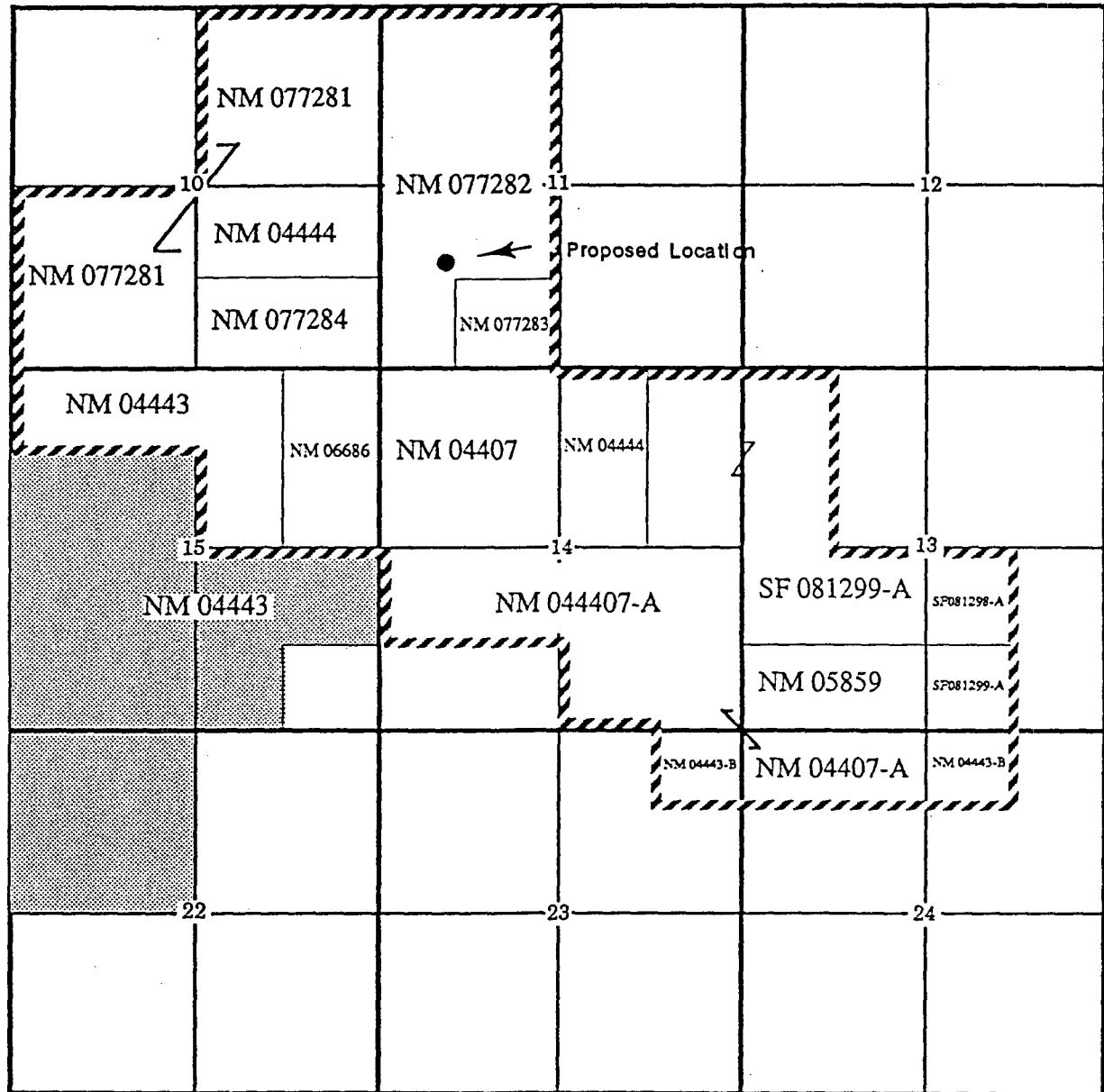
★ Proposed New Oil Well  
NEHU #51

# Northeast Hogback Unit and associated lands

San Juan County, New Mexico

R16W

T  
30  
N



Leasehold outside unit held by  
production by the NE Hogback  
Unit.

////// The NE Hogback Unit Outline.

**GIANT**  
EXPLORATION & PRODUCTION COMPANY



# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Farmington District Office  
1235 La Plata Highway  
Farmington, New Mexico 87401

IN REPLY REFER TO:

Northeast Hogback Unit (GC)  
3180 (07327)

April 28, 1995

RECEIVED

MAY 01 1995

Mr. Greg McIntosh  
Giant Exploration & Production Co.  
P.O. Box 2810  
Farmington, NM 87499-2810

Re: Exception Well Location  
No. 51 Northeast Hogback Unit  
1585' FSL, 1050' FWL  
Sec. 11, T. 30 N., R. 16 W.

Dear Mr. McIntosh:

Your letter dated March 17, 1995, requested Bureau of Land Management approval of an exception well location for the above referenced well. This well is to be drilled in the Northeast Hogback Unit. The Northeast Hogback Unit provides for allocation of Gallup Formation production to all the leases committed to the unit.

The proposed exception location will be located on lands committed to the unit. In addition, all adjoining spacing units are committed to the unit. Based upon the commitment of the lands involved and the fact that all production will be allocated to the committed lands, we have no objection to this proposal. We will notify the New Mexico Oil Conservation Division of this decision.

If you have any questions concerning this matter, please call me at 599-6350.

Sincerely,

Duane W. Spencer  
Chief, Branch of Reservoir Management

cc:

NMOCD, Santa Fe, NM



# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Farmington District Office  
1235 La Plata Highway  
Farmington, New Mexico 87401

IN REPLY REFER TO:

Northeast Hogback Unit (GC)  
3180 (07327)

APR 28 1995

Mr. Greg McIntosh  
Giant Exploration & Production Co.  
P.O. Box 2810  
Farmington, NM 87499-2810

Re: Exception Well Location  
No. 51 Northeast Hogback Unit  
1585' FSL, 1050' FWL  
Sec. 11, T. 30 N., R. 16 W.

Dear Mr. McIntosh:

Your letter dated March 17, 1995, requested Bureau of Land Management approval of an exception well location for the above referenced well. This well is to be drilled in the Northeast Hogback Unit. The Northeast Hogback Unit provides for allocation of Gallup Formation production to all the leases committed to the unit.

The proposed exception location will be located on lands committed to the unit. In addition, all adjoining spacing units are committed to the unit. Based upon the commitment of the lands involved and the fact that all production will be allocated to the committed lands, we have no objection to this proposal. We will notify the New Mexico Oil Conservation Division of this decision.

If you have any questions concerning this matter, please call me at 599-6350.

Sincerely,

/s/ Duane Spencer

Duane W. Spencer  
Chief, Branch of Reservoir Management

cc:  
NMOCD, Santa Fe, NM

**(HORSESHOE-GALLUP (PRESSURE MAINTENANCE PROJECT NO. 4) POOL - Cont'd.)**

that the injection well shall be assigned a top unit allowable, that the allowable for the project shall be the sum of the allowables of the producing well and the injection well, that the allowable for the injection well may be transferred to the producing well, and that the allowable for the project shall not exceed two times top unit allowable for the Horseshoe-Gallup Oil Pool.

(6) That the subject application should be approved and that the project should be designated as the Horseshoe-Gallup Pressure Maintenance Project No. 4.

(7) That the project area for said project should be defined as the SW/4 of Section 33, Township 32 North, Range 17 West, NMPM.

**IT IS THEREFORE ORDERED:**

(1) That the applicant, Skelly Oil Company, is hereby authorized to institute a pressure maintenance project in the Horseshoe-Gallup Oil Pool, to be designated the Horseshoe-Gallup Pressure Maintenance Project No. 4, comprising the SW/4 of Section 33, Township 32 North, Range 17 West, NMPM, San Juan County, New Mexico, by the injection of water into the Gallup formation through the Navajo "M" Well No. 2, located 1980 feet from the South line and 1980 feet from the West line of said Section 33.

(2) That the injection well shall be assigned a top unit allowable; that the allowable for the project shall be the sum of the allowables of the producing well and the injection well; and that the allowables for the injection well may be transferred to the producing well.

**PROVIDED HOWEVER,** That the allowable for the project shall not exceed two times the top unit allowable for the Horseshoe-Gallup Oil Pool.

(3) 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.

**BISTI-LOWER GALLUP POOL  
CHA CHA-GALLUP POOL  
HORSESHOE-GALLUP POOL  
LONE PINE-DAKOTA "D" POOL  
MANY ROCKS-GALLUP POOL**

(Certain Pressure Maintenance Projects Reclassified)  
San Juan and McKinley Counties, New Mexico

Order No. R-6172, Rescinding Various Orders Authorizing Pressure Maintenance Projects and Reclassifying Certain Pressure Maintenance Projects as Secondary Recovery Projects in the Bisti-Lower Gallup, Cha Cha-Gallup, Horseshoe-Gallup, Lone Pine-Dakota "D", and Many Rocks-Gallup Pools, San Juan and McKinley Counties, New Mexico, November 2, 1979.

In the Matter of the Hearing Called by the Oil Conservation Division on its Own Motion to Consider the Reclassification of Certain Pressure Maintenance Projects in San Juan and McKinley Counties, New Mexico, as Secondary Recovery Projects.

CASE NO. 6093  
Order No. R-6172

**ORDER OF THE DIVISION**

**BY THE DIVISION:** This cause came on for hearing at 9 a.m. on November 30, 1977, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 2nd day of November, 1979, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the Oil Conservation Division heretofore authorized the following Northwest New Mexico pressure maintenance projects in the named pools by the designated order:

PROJECT	POOL	ORDER NO.
Atlantic Horse-shoe Gallup	Horseshoe-Gallup	R-2210
Dugan Central Cha Cha Unit	Cha Cha-Gallup	R-2305
Energy Reserves Horseshoe Gallup No. 3	Horseshoe-Gallup	R-1876
Energy Reserves NE Hogback	Horseshoe-Gallup	R-2026
Eng. & Prod. Serv. Horse-shoe Gallup No. 2	Horseshoe-Gallup	R-1745
Eng. & Prod. Serv. Many Rocks Gallup No. 1	Many Rocks-Gallup	R-2541
Getty Many Rocks Gallup No. 3	Many Rocks-Gallup	R-2664

(BISTI-LOWER GALLUP, CHA CHA-GALLUP, HORSESHOE-GALLUP, LONE PINE-DAKOTA "D", AND MANY ROCKS-GALLUP (CERTAIN PRESSURE MAINTENANCE PROJECTS RECLASSIFIED) POOLS - Cont'd.)

PROJECT	POOL	ORDER NO.
Shell Carson Bisti	Bisti-Gallup	R-2065
Suburban NW Cha Cha	Cha Cha-Gallup	R-2154
Tenneco Lone Pine DK "D"	Lone Pine-Dakota "D"	R-4263
Woosley Many Rocks Gallup No. 4	Many Rocks-Gallup	R-2700

(3) That each of the above-named pressure maintenance projects has declined to the point where it can no longer be correctly classified as a "pressure maintenance" project but can be correctly classified as a "secondary recovery" project.

(4) That due to certain recent changes in the rules governing reports, the reporting of injection and production is less complicated and time-consuming to operators of secondary recovery projects than is the similar reporting for pressure maintenance projects.

(5) That the processing of data relating to secondary recovery projects by the Oil Conservation Division of the New Mexico Energy and Minerals Department for the purpose of maintaining production records is less time-consuming than is the processing of similar data for pressure maintenance projects.

(6) That the reclassification of the pressure maintenance projects named in Finding No. (2) above as secondary recovery projects will result in a saving of time and effort by both the operators of the projects and by the Division in reporting and processing data relating to the projects, thereby preventing waste, and that said reclassification will not impair correlative rights.

(7) That even though some of the subject projects may not at this time be active projects, or even though some of the originally authorized injection wells may no longer be on active injection, the reclassification of said projects can most easily be carried out by rescinding the orders authorizing said projects as pressure maintenance projects and reauthorizing said projects as secondary recovery projects, subject to any particular rules previously promulgated for said projects which would still be applicable.

(8) That portions of Order No. R-2210, as amended by R-2210-A and R-2719, which authorized the Atlantic Refining Company Horseshoe Gallup Unit Pressure Maintenance Project should be rescinded and approval given for the Atlantic Horseshoe Gallup Waterflood Project.

(9) That Order No. R-2305 which authorized the Dugan Central Cha Cha Unit Pressure Maintenance Project should be rescinded and approval given for the Dugan Central Cha Cha Unit Waterflood Project.

(10) That Order No. R-1876 which authorized the Energy Reserves Group Horseshoe Gallup Pressure Maintenance Project No. 3 should be rescinded and approval given to the Energy Reserves Group Horseshoe Gallup Waterflood Project No. 3.

(11) That Order No. R-2026 which authorized the Energy Reserves Group Northeast Hogback Pressure Maintenance Project should be rescinded and approval given to the Energy Reserves Group Northeast Hogback Waterflood Project.

(12) That Order No. R-1745 which authorized the Engineering and Production Service Horseshoe Gallup Pressure Maintenance Project No. 2 should be rescinded and approval given to the Engineering and Production Service Horseshoe Gallup Waterflood Project No. 2.

(13) That Order No. R-2541 which authorized the Engineering and Production Service Many Rocks Gallup Pressure Maintenance Project No. 1 should be rescinded and approval given for the Engineering and Production Service Many Rocks Gallup Waterflood Project No. 1.

(14) That Order No. R-2664 which authorized the Getty Many Rocks Gallup Pressure Maintenance Project No. 3 should be rescinded and approval given to the Getty Many Rocks Gallup Waterflood Project No. 3.

(15) That Order No. R-2065 which authorized the Shell Carson Bisti Lower Gallup Pressure Maintenance Project should be rescinded and approval given to the Shell Carson Bisti Lower Gallup Waterflood Project.

(16) That Order No. R-2154 which authorized the Suburban Propane Northwest Cha Cha Pressure Maintenance Project should be rescinded and approval given to the Suburban Propane Northwest Cha Cha Waterflood Project.

(17) That Order No. R-4263 which authorized the Tenneco Lone Pine Dakota "D" Pressure Maintenance Project should be rescinded and approval given to the Tenneco Lone Pine Dakota "D" Waterflood Project.

(18) That Order No. R-2700 which authorized the James P. Woosley Many Rocks Gallup Pressure Maintenance Project No. 4 should be rescinded and approval given to the Woosley Many Rocks Gallup Waterflood Project No. 4.

#### IT IS THEREFORE ORDERED:

(1) That Order No. (8) of Division Order No. R-2210 and Order No. (2) of Division Order No. R-2210-A, and Division Orders Nos. R-2719, R-2305, R-1876, R-2026, R-1745, R-2541, R-2664, R-2065, R-2154, R-4263, and R-2700 are hereby rescinded.

(2) That the Atlantic Refining Company is hereby authorized to operate the Atlantic Horseshoe Gallup Waterflood Project, Horseshoe-Gallup Oil Pool, San Juan County, New Mexico, in accordance with the following:

A. The Division Director is authorized to approve such additional producing wells and injection wells at orthodox and unorthodox locations within the boundaries of the Horseshoe-Gallup Unit Area as may be necessary to complete an efficient production and injection pattern, provided said wells are drilled no closer than 330 feet to the outer boundary of said unit nor closer than 10 feet to any quarter-quarter section or subdivision inner boundary. To obtain such approval, the project operator shall file proper application with the Division, which application, if it seeks authorization to convert additional wells to injection or to drill additional production or injection wells shall include the following:

(1) A plat showing the location of proposed well, all wells within the project area, and offset operators, locating wells which offset the project area.

(2) A schematic drawing of the proposed well which fully describes the casing, tubing, perforated interval, and depth.

(3) A letter stating that all offset operators to the proposed well have been furnished a complete copy of the application and the date of notification.



**(BISTI-LOWER GALLUP, CHA CHA-GALLUP, HORSESHOE-GALLUP, LONE PINE-DAKOTA "D" AND MANY ROCKS-GALLUP (CERTAIN PRESSURE MAINTENANCE PROJECTS RECLASSIFIED) POOLS - Cont'd.)**

The Division Director may approve the proposed project and promulgate special rules therefor if, within 20 days after receiving the application, no objection to the proposal is received. The Division Director may grant immediate approval, provided waivers of objection are received from all offset operators.

Expansion of the project area may be approved by the Division Director administratively when good cause is shown therefor.

(3) That Dugan Production Company is hereby authorized to operate the Dugan Central Cha Cha Unit Waterflood Project, Cha Cha-Gallup Oil Pool, San Juan County, New Mexico, in accordance with the following:

A. Injection in the Central Cha Cha Unit Project shall be through the following-described wells in Section 31, Township 29 North, Range 13 West, NMPM:

Callow "B" Well No. 1, Unit K  
Callow "B" Well No. 2, Unit I

(4) That Energy Reserves Group is hereby authorized to operate the Energy Reserves Group Horseshoe Gallup Waterflood Project No. 3, Horseshoe-Gallup Oil Pool, San Juan County, New Mexico, in accordance with the following:

A. Injection in the Horseshoe Gallup Waterflood Project No. 3 shall be through the following described well in Section 5, Township 31 North, Range 17 West, NMPM:

Navajo Well No. 4-5, Unit M

(5) That Energy Reserves Group is hereby authorized to operate the Energy Reserves Group Northeast Hogback Waterflood Project, Horseshoe-Gallup Oil Pool, San Juan County, New Mexico, in accordance with the following:

A. Injection into the Northeast Hogback Waterflood Project shall be through the following described wells in Township 30 North, Range 16 West, NMPM:

Northeast Hogback Unit Well No. 4, Unit J, Section 14  
Northeast Hogback Unit Well No. 6, Unit B, Section 15  
Northeast Hogback Unit Well No. 10, Unit E, Section 14  
Northeast Hogback Unit Well No. 11, Unit F, Section 14  
Northeast Hogback Unit Well No. 13, Unit E, Section 13  
Northeast Hogback Unit Well No. 14, Unit I, Section 14  
Northeast Hogback Unit Well No. 16, Unit K, Section 13  
Northeast Hogback Unit Well No. 17, Unit M, Section 13  
Northeast Hogback Unit Well No. 20, Unit B, Section 24  
Northeast Hogback Unit Well No. 21, Unit D, Section 15  
Northeast Hogback Unit Well No. 22, Unit G, Section 15  
Northeast Hogback Unit Well No. 23, Unit B, Section 10  
Northeast Hogback Unit Well No. 25, Unit D, Section 11  
Northeast Hogback Unit Well No. 29, Unit F, Section 10  
Northeast Hogback Unit Well No. 30, Unit L, Section 10  
Northeast Hogback Unit Well No. 32, Unit L, Section 11  
Northeast Hogback Unit Well No. 37, Unit P, Section 10  
Williams Well No. 2, Unit P, Section 11  
Williams Well No. 3, Unit J, Section 11  
Federal Well No. 3, Unit B, Section 14

(6) Engineering and Production Service, Inc., is hereby authorized to operate the Engineering and Production Service Horseshoe-Gallup Waterflood Project No. 2, Horseshoe-Gallup Oil Pool, San Juan County, New Mexico, in accordance with the following:

A. Injection into the Engineering and Production Service Horseshoe Gallup Waterflood Project No. 2 shall be through the following described wells in Township 31 North, Range 17 West, NMPM:

Navajo "F" Well No. 1, Unit D, Section 4  
Navajo "F" Well No. 3, Unit L, Section 4  
Navajo "F" Well No. 8, Unit E, Section 10  
Navajo "F" Well No. 9, Unit K, Section 10  
Navajo "F" Well No. 11, Unit I, Section 10  
Navajo "F" Well No. 14, Unit M, Section 10  
Navajo "F" Well No. 15, Unit J, Section 9  
Navajo "F" Well No. 17, Unit G, Section 10  
Navajo "F" Well No. 18, Unit C, Section 10  
Navajo "F" Well No. 21, Unit D, Section 10  
Navajo "F" Well No. 22, Unit H, Section 9  
Navajo "F" Well No. 23, Unit B, Section 9  
Navajo "F" Well No. 24, Unit P, Section 4  
Navajo "F" Well No. 25, Unit N, Section 4  
Navajo "F" Well No. 27, Unit J, Section 4  
Navajo "F" Well No. 28, Unit F, Section 4  
Navajo "F" Well No. 31, Unit N, Section 3  
Navajo "F" Well No. 32, Unit L, Section 3  
Navajo "F" Well No. 33, Unit D, Section 9  
Navajo "F" Well No. 34, Unit F, Section 9  
Navajo "F" Well No. 36, Unit A, Section 10  
Navajo "F" Well No. 38, Unit H, Section 4  
Navajo "F" Well No. 40, Unit P, Section 9  
Navajo "F" Well No. 43, Unit O, Section 3  
Navajo "F" Well No. 44, Unit O, Section 10  
Navajo "G" Well No. 3, Unit K, Section 11  
Navajo "G" Well No. 4, Unit M, Section 11  
Navajo "G" Well No. 5, Unit O, Section 11  
Navajo "G" Well No. 6, Unit E, Section 11

(7) That Engineering and Production Services, Inc., is hereby authorized to operate the Engineering and Production Service Many Rocks Gallup Waterflood Project No. 1, Many Rocks-Gallup Oil Pool, San Juan County, New Mexico, in accordance with the following:

A. Injection into the Engineering and Production Service Many Rocks Gallup Waterflood Project shall be through the following described wells in Township 31 North, Range 17 West, NMPM:

Injection Well, Unit F, Section 1  
Injection Well, Unit J, Section 1  
Injection Well, Unit L, Section 1  
Injection Well, Unit N, Section 1  
Injection Well, Unit H, Section 2  
Injection Well, Unit B, Section 12

(8) That Getty Oil Company is hereby authorized to operate the Getty Many Rocks Gallup Waterflood Project No. 3, Many Rocks-Gallup Oil Pool, San Juan County, New Mexico, in accordance with the following:

A. Injection into the Getty Many Rocks Gallup Waterflood Project No. 3 shall be through the following described well in Section 35, Township 32 North, Range 17 West, NMPM:

Navajo "P" Well No. 6, Unit P

(BISTI-LOWER GALLUP, CHA CHA-GALLUP, HORSESHOE-GALLUP, LONE PINE-DAKOTA "D", AND MANY ROCKS-GALLUP (CERTAIN PRESSURE MAINTENANCE PROJECTS RECLASSIFIED) POOLS - Cont'd.)

(9) That Shell Oil Company is hereby authorized to operate the Shell Carson Bisti Lower Gallup Waterflood Project, Bisti-Lower Gallup Oil Pool, San Juan County, New Mexico, in accordance with the following:

A. Injection into the Shell Carson Bisti Lower Gallup Waterflood Project shall be through the following described wells:

**TOWNSHIP 25 NORTH, RANGE 11 WEST, NMPM**

Section 7: No. 24-7;  
Section 17: Nos. 1, 23-17, 24-17, 31-17, 43-17;  
Section 18: Nos. 21-18, 22-18, 23-18, 24-18;  
Section 19: Nos. 21-19, 22-19;  
Section 20: Nos. 11-20, 23-20, 32-20, 41-20;  
Section 30: No. 11-30;

**TOWNSHIP 25 NORTH, RANGE 12 WEST, NMPM**

Section 10: No. 31-10;  
Section 11: Nos. 22-11, 23-11, 24-11;  
Section 12: No. 13-12;  
Section 13: Nos. 21-13, 22-13, 23-13, 24-13;  
Section 14: Nos. 21-14, 22-14, 23-14, 24-14;  
Section 15: No. 14-15;  
Section 23: No. 21-23;  
Section 24: Nos. 21-24, 23-24, 32-24;

In addition, Mudge 6 Lease Wells No. 12-16A and 14-16A, located in the SW/4 NW/4 and SW/4 SW/4 respectively, of Section 16, Township 25 North, Range 11 West, NMPM, are hereby approved for conversion to water injection, to form a water barrier between the Carson Unit Area and the acreage to the east thereof.

(10) That Suburban Propane Gas Company is hereby authorized to operate the Suburban Propane Northwest Cha Cha Waterflood Project, Cha Cha-Gallup Oil Pool, San Juan County, New Mexico, in accordance with the following:

A. Injection into the Suburban Propane Northwest Cha Cha Gallup Waterflood Project shall be through the following described wells in Township 29 North, Range 14 West, NMPM:

Navajo "B" Well No. 3, Unit K, Section 21  
Navajo "E" Well No. 2, Unit I, Section 21  
Ojo Amarillo Well No. 2, Unit C, Section 27  
Navajo L Well No. 1, Unit E, Section 26  
Navajo L Well No. 4, Unit O, Section 26  
Navajo L Well No. 5, Unit E, Section 36

(11) That Tenneco Oil Company is hereby authorized to operate the Tenneco Lone Pine Dakota "D" Waterflood Project, Lone Pine-Dakota "D" Oil Pool, McKinley County, New Mexico, in accordance with the following:

A. Injection into the Tenneco Lone Pine Dakota "D" Waterflood Project shall be through the following described wells:

Well	Unit	Section	Township	Range
SFPRR No. 12	I	7	17N	8W
Lone Pine No. 1	D	19	17N	8W
Hospah No. 44	P	12	17N	9W
SFPRR No. 6	H	13	17N	9W
SFPRR No. 10	B	13	17N	9W

(12) That James P. Woosley is hereby authorized to operate the Woosley Many Rocks Gallup Waterflood Project No. 4, Many Rocks-Gallup Oil Pool, San Juan County, New Mexico, in accordance with the following:

A. Injection into the Woosley Many Rocks Gallup Waterflood Project No. 4 shall be through the following described wells in Township 32 North, Range 17 West, NMPM:

Injection Well, Unit D, Section 27  
Injection Well, Unit O, Section 27  
Injection Well, Unit I, Section 28

(13) That each of the above-described waterflood projects shall be operated in accordance with Rules 701, 702, and 703 of the Division Rules and Regulations.

(14) That monthly reports concerning said waterflood projects shall be filed in accordance with Rule 1115 of the Division Rules and Regulations.

(15) That the injection wells herein authorized for each of the subject projects as well as such additional wells which have been previously authorized for pressure maintenance injection are hereby approved for injection purposes until further order of the Division.

(16) That 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.

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. 2317  
Order No. R-2026

APPLICATION OF PAN AMERICAN PETROLEUM  
CORPORATION FOR A PRESSURE MAINTENANCE  
PROJECT IN THE HORSESHOE-GALLUP OIL  
POOL, SAN JUAN COUNTY, NEW MEXICO, AND  
FOR SPECIAL RULES GOVERNING THE OPERA-  
TION OF SAID PROJECT.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on June 28, 1961, at Santa Fe, New Mexico, before Elvis A. Utz, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 13th day of July, 1961, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Elvis A. Utz, 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, Pan American Petroleum Corporation, proposes to institute a pressure maintenance project in the Horseshoe-Gallup Oil Pool in Township 30 North, Range 16 West, San Juan County, New Mexico, by the injection of water into the Gallup formation through 20 wells initially, all of which wells are within the proposed project area.

(3) That the proposed pressure maintenance project, to be known as the Northeast Hogback Pressure Maintenance Project, includes lands formerly designated by Order No. R-1494 as part of the Northeast Hogback Unit.

(4) That the applicant proposes that the Special Rules and Regulations to be established for the Northeast Hogback Pressure Maintenance Project be identical with the rules established by Order No. R-1699 for The Atlantic Refining Company Horseshoe-Gallup Pressure Maintenance Project.

(5) That such identical rules should be established in order to prevent conflict in the event the two projects eventually merge.

IT IS THEREFORE ORDERED:

(1) That the applicant, Pan American Petroleum Corporation, is hereby authorized to institute a pressure maintenance project in the Horseshoe-Gallup Oil Pool, San Juan County, New Mexico, by the injection of water into the Gallup formation through the following-described wells in Township 30 North, Range 16 West:

PAN AMERICAN PETROLEUM CORPORATION

Northeast Hogback Unit Well No. 4, Unit J, Section 14  
Northeast Hogback Unit Well No. 6, Unit B, Section 15  
Northeast Hogback Unit Well No. 10, Unit E, Section 14  
Northeast Hogback Unit Well No. 11, Unit F, Section 14  
Northeast Hogback Unit Well No. 13, Unit E, Section 13  
Northeast Hogback Unit Well No. 14, Unit I, Section 14  
Northeast Hogback Unit Well No. 16, Unit K, Section 13  
Northeast Hogback Unit Well No. 17, Unit M, Section 13  
Northeast Hogback Unit Well No. 20, Unit B, Section 24  
Northeast Hogback Unit Well No. 21, Unit D, Section 15  
Northeast Hogback Unit Well No. 22, Unit G, Section 15  
Northeast Hogback Unit Well No. 23, Unit B, Section 10  
Northeast Hogback Unit Well No. 25, Unit D, Section 11  
Northeast Hogback Unit Well No. 29, Unit F, Section 11  
Northeast Hogback Unit Well No. 30, Unit L, Section 10  
Northeast Hogback Unit Well No. 32, Unit L, Section 11  
Northeast Hogback Unit Well No. 37, Unit P, Section 10

EL PASO NATURAL GAS PRODUCTS COMPANY

Williams Well No. 2, Unit P, Section 11  
Williams Well No. 3, Unit J, Section 11

ABRAHAM

Federal Well No. 3, Unit B, Section 14

(2) That Special Rules and Regulations governing the operation of the Northeast Hogback Pressure Maintenance Project, San Juan County, New Mexico, are hereby promulgated, as follows:

SPECIAL RULES AND REGULATIONS  
FOR THE

NORTHEAST HOGBACK PRESSURE MAINTENANCE PROJECT

RULE 1. The project area of the Northeast Hogback Pressure Maintenance Project, hereinafter referred to as the Project, shall

comprise the following-described acreage in San Juan County, New Mexico:

TOWNSHIP 30 NORTH, RANGE 16 WEST, NMPM

Section 10: E/2 and SW/4  
Section 11: SW/4 NE/4, W/2 and the SE/4  
Section 12: W/2 SW/4  
Section 13: SW/4, W/2 NW/4 and the W/2 SE/4  
Section 14: N/2, N/2 SW/4 and the SE/4  
Section 15: NE/4 and the N/2 NW/4  
Section 23: NE/4 NE/4  
Section 24: NW/4 NE/4 and the N/2 NW/4

RULE 2. The allowable for the Project shall be the sum of the allowables of the several wells within the project area, including those wells which are shut-in, curtailed, or used as injection wells. Allowables for all wells shall be determined in a manner hereinafter prescribed.

RULE 3. Allowables for injection wells may be transferred to producing wells within the project area, as may the allowables for producing wells which, in the interest of more efficient operation of the Project, are shut-in or curtailed because of high gas-oil ratio or are shut-in for any of the following reasons: pressure regulation, control of pattern or sweep efficiencies, or to observe changes in pressures or changes in characteristics of reservoir liquids or progress of sweep.

RULE 4. The allowable assigned to any well which is shut-in or which is curtailed in accordance with the provisions of Rule 3, which allowable is to be transferred to any well or wells in the project area for production, shall in no event be greater than its ability to produce during the test prescribed by Rule 6, below, or greater than the current top unit allowable for the pool during the month of transfer, whichever is less.

RULE 5. The allowable assigned to any injection well on a 40-acre proration unit shall be top unit allowable for the Horseshoe-Gallup Oil Pool.

RULE 6. The allowable assigned to any well which is shut-in or curtailed in accordance with Rule 3, shall be determined by a 24-hour test at a stabilized rate of production, which shall be the final 24-hour period of a 72-hour test throughout which the well should be produced in the same manner and at a constant rate. The daily tolerance limitation set forth in Commission Rule 502 I (a) and the limiting gas-oil ratio (2,000 to 1) for the Horseshoe-Gallup Oil Pool shall be waived during such tests. The project operator shall notify all operators offsetting the well, as well as the Commission, of the exact time such tests are to be conducted. Tests may be witnessed by representatives of the offsetting operators and the Commission, if they so desire.

RULE 7. The allowable assigned to each producing well in the Project shall be equal to the well's ability to produce or to top unit allowable for the Horseshoe-Gallup Oil Pool, whichever is less, provided that any producing well in the project area which directly or diagonally offsets a well outside the project area producing from the same common source of supply shall not produce in excess of two times top unit allowable for the pool. Each producing well shall be subject to the limiting gas-oil ratio (2,000 to 1) for the Horseshoe-Gallup Oil Pool, except that any well or wells within the project area producing with a gas-oil ratio in excess of 2,000 cubic feet of gas per barrel of oil may be produced on a "net" gas-oil ratio basis, which net gas-oil ratio shall be determined by applying credit for daily average gas injected, if any, into the Horseshoe-Gallup Oil Pool within the project area to such high gas-oil ratio well. The daily adjusted oil allowable for any well receiving gas injection credit shall be determined in accordance with the following formula:

$$A_{adj} = \frac{TUA \times F_a \times 2,000}{\frac{P_g - I_g}{P_o}}$$

where:

$A_{adj}$  = the well's daily adjusted allowable

$TUA$  = top unit allowable for the pool

$F_a$  = the well's acreage factor

$P_g$  = average daily volume of gas produced by the well during the preceding month, cubic feet

$I_g$  = the well's allocated share of the daily average gas injected during the preceding month, cubic feet

$P_o$  = average daily volume of oil produced by the well during the preceding month, barrels

In no event shall the amount of injected gas being credited to a well be such as to cause the net gas-oil ratio,  $\frac{P_g - I_g}{P_o}$ , to be less than 2,000 cubic feet of gas per barrel of oil produced.

RULE 8. Credit for daily average net water injected into the Horseshoe-Gallup Oil Pool through any injection well located within the project area may be converted to its gas equivalent and applied to any well producing with a gas-oil ratio in excess

of two thousand cubic feet of gas per barrel of oil. Total credit for net water injected in the project area shall be the gas equivalent volume of the daily average net water injected during a one-month period. The daily average gas equivalent of net water injected shall be computed in accordance with the following formula:

$$E_g = (V_w \text{ inj} - V_w \text{ prod}) \times 5.61 \times \frac{P_a}{15.025} \times \frac{520^\circ}{T_r} \times \frac{1}{Z}$$

where:

$E_g$  = Average daily gas equivalent of net water injected, cubic feet

$V_w \text{ inj}$  = Average daily volume of water injected, barrels

$V_w \text{ prod}$  = Average daily volume of water produced, barrels

5.61 = Cubic foot equivalent of one barrel of water

$P_a$  = Average reservoir pressure at mid-point of the pay-zones of Horseshoe-Gallup Oil Pool in project area, psig + 12.01, as determined from most recent survey

15.025 = Pressure base, psi

$520^\circ$  = Temperature base of  $60^\circ\text{F}$  expressed as absolute temperature

$T_r$  = Reservoir temperature of  $87^\circ\text{F}$  expressed as absolute temperature ( $547^\circ\text{R}$ )

$Z$  = Compressibility factor from analysis of Horseshoe-Gallup gas at average reservoir pressure,  $P_a$ , interpolated from compressibility tabulation below:

Reservoir Pressure	Z	Reservoir Pressure	Z	Reservoir Pressure	Z
50	.9725	300	.8325	550	.6560
100	.9465	350	.8030	600	.6135
150	.9215	400	.7710	650	.5655
200	.8885	450	.7220	700	.5220
250	.8600	500	.6900	750	.4630
				800	.3935

**RULE 9.** Each month the project operator shall, within three days after the normal unit allowable for Northwest New Mexico has

been established, submit to the Commission a Pressure Maintenance Project Operator's Report, on a form prescribed by the Commission, outlining thereon the data required, and requesting allowables for each of the several wells in the Project as well as the total Project allowable. The aforesaid Pressure Maintenance Project Operator's Report shall be filed in lieu of Form C-120 for the Project.

RULE 10. The Commission shall, upon review of the report and after any adjustments deemed necessary, calculate the allowable for each well in the Project for the next succeeding month in accordance with these rules. The sum of the allowables so calculated shall be assigned to the Project and may be produced from the wells in the Project in any proportion except that no well in the Project which directly or diagonally offsets a well outside the Project producing from the same common source of supply shall produce in excess of two times top unit allowable for the Pool.

RULE 11. The conversion of producing wells to injection, the drilling of additional wells for injection, and expansion of the project area shall be accomplished only after approval of the same by the Secretary-Director of the Commission. To obtain such approval, the Project operator shall file proper application with the Commission, which application, if it seeks authorization to convert additional wells to injection or to drill additional injection wells shall include the following:

(1) A plat showing the location of proposed injection well, all wells within the project area, and offset operators, locating wells which offset the project area.

(2) A schematic drawing of the proposed injection well which fully describes the casing, tubing, perforated interval, and depth showing that the injection of gas or water will be confined to the Gallup formation.

(3) A letter stating that all offset operators to the proposed injection well have been furnished a complete copy of the application and the date of notification.

The Secretary-Director may approve the proposed injection well if, within 20 days after receiving the application, no objection to the proposal is received. The Secretary-Director may grant immediate approval, provided waivers of objection are received from all offset operators.

Expansion of the project area may be approved by the Secretary-Director of the Commission administratively when good cause is shown therefor.

(3) 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. 2317  
Order No. R-2026

DONE at Santa Fe, New Mexico, on the day and year herein-  
above designated.

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

EDWIN L. MECHEM, Chairman

E. S. WALKER, Member

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

S E A L

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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 CON-  
SIDERING:

CASE NO. 1769  
Order No. R-1494

THE APPLICATION OF PAN AMERICAN  
PETROLEUM CORPORATION FOR APPROVAL  
OF THE NORTHEAST HOGBACK UNIT  
AGREEMENT EMBRACING 10,572 ACRES,  
MORE OR LESS, LOCATED IN TOWNSHIP  
30 NORTH, RANGE 16 WEST, NMPM,  
SAN JUAN COUNTY, NEW MEXICO

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on September 30, 1959 at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 19th day of October, 1959, the Commission, a quorum being present, having considered the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, 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 proposed unit plan will in principle tend to promote the conservation of oil and gas and the prevention of waste.

IT IS THEREFORE ORDERED:

1. That this order shall be known as the NORTHEAST HOGBACK UNIT AGREEMENT ORDER.

2. (a) That the project herein referred to shall be known as the NORTHEAST HOGBACK Unit Agreement and shall hereinafter be referred to as the "Project."

(b) That the Plan by which the project shall be operated shall be embraced in the form of a unit agreement for the development and operation of the NORTHEAST HOGBACK Unit Area, referred to in the Petitioner's petition and filed with said petition, and such plan shall be known as the NORTHEAST HOGBACK Unit Agreement Plan.

3. That the NORTHEAST HOGBACK Unit Agreement Plan shall be, and hereby is, 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, duties, or obligations which are now, or may hereafter, be vested in the New Mexico Oil Conservation Commission by law relative to the supervision and control of operations for exploration and development of any lands committed to said NORTHEAST HOGBACK Unit Agreement, or relative to the production of oil and gas therefrom.

4. (a) That the unit area shall be:

NEW MEXICO PRINCIPAL MERIDIAN

TOWNSHIP 30 NORTH, RANGE 16 WEST

Section 11:	E/2
Section 12:	All
Section 13:	All
Section 14:	All
Section 15:	All
Section 16:	Lots 3, 4, E/2 SW/4, SE/4
Section 21:	Lots 1 to 16 inclusive
Section 22:	All
Section 23:	All
Section 24:	All
Section 25:	All
Section 26:	All
Section 27:	All
Section 28:	Lots 1 to 16 inclusive
Section 33:	Lots 1 to 7 inclusive, E/2 NW/4, NE/4, N/2 SE/4, NE/4 SW/4
Section 34:	All
Section 35:	All
Section 36:	All

containing 10,571.86 acres more or less.

(b) The unit area may be enlarged or contracted as provided in said Plan. Provided, however, that administrative approval for expansion of the unit area must also be obtained from the Secretary-Director of the Oil Conservation Commission of New Mexico.

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Case No. 1769

Order No. R-1494

5. That the unit operator shall file with the Commission an executed original or executed counterpart of the NORTHEAST HOGBACK Unit Agreement within 30 days after the effective date thereof.

6. That any party owning rights in the unitized substances who does not commit such rights to said unit agreement before the effective date thereof may thereafter become a party thereto by subscribing to such agreement or counterpart thereof, or by ratifying the same. The unit operator shall file with the Commission within 30 days an original of any such counterpart or ratification.

7. That this Order shall become effective upon the approval of said unit agreement by the Director of the United States Geological Survey and the Commissioner of Public Lands for the State of New Mexico and shall terminate ipso facto upon the termination of said unit agreement. The last unit operator shall immediately notify the Commission in writing of such termination.

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

JOHN BURROUGHS, Chairman

MURRAY E. MORGAN, Member

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

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