CASE 1599: Application of El Paso Natural Gas Company for 320-acre spacing, promulgation of special rules and regulations and for a redetermination of the vertical limits of the Angels Peak-Dakota Gas Pool, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order establishing 320-acre spacing in the Angels Peak-Dakota Gas Pool in San Juan County, New Mexico, and for the promulgation of special rules and regulations for said pool. Applicant further seeks to change the vertical limits of the Angels Peak-Dakota Gas Pool to include the interval lying between the base of the Greenhorn limestone and the base of the upper productive portion of the Morrison formation.

CASE 1600: Application of M. A. Romero and Robert Critchfield concerning the operation of gas prorationing in the Blanco Mesaverde Gas Pool and the Choza Mesa-Pictured Cliffs Gas Pool in Rio Arriba County, New Mexico, and the ratable taking of gas from said pools.

CASE 1601: Southeastern New Mexico nomenclature case calling for an order for the extension of existing pools in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico.

(a) Extend the Acme Pool to include:

TOWNSHIP 7 SOUTH, RANGE 27 EAST, NMPM
Section 32: SE/4
Section 33: SW/4

(b) Extend the North Allison-Pennsylvanian Pool to include:

TOWNSHIP 8 SOUTH, RANGE 36 EAST, NMPM
Section 35: NE/4

(c) Extend the Atoka-Pennsylvanian Gas Pool to include:

TOWNSHIP 18 SOUTH, RANGE 26 EAST, NMPM
Section 15: SE/4

(d) Extend the Caprock-Queen Pool to include:

TOWNSHIP 14 SOUTH, RANGE 31 EAST, NMPM
Section 29: E/2 NE/4

(e) Extend the West Henshaw-Grayburg Pool to include:

TOWNSHIP 16 SOUTH, RANGE 30 EAST, NMPM
Section 7: SE/4

(f) Extend the Justis-Ellenburger Pool to include:

TOWNSHIP 25 SOUTH, RANGE 37 EAST, NMPM
Section 24: SW/4
Section 25: NE/4

No. 6-59

DOCKET: REGULAR HEARING FEBRUARY 18, 1959

Oil Conservation Commission 9 a.m., Mabry Hall, State Capitol, Santa Fe

ALLOWABLE: (1) Consideration of the oil allowable for March 1959

(2) Consideration of the allowable production of gas for March 1959 from six prorated pools in Lea County, New Mexico; also consideration of the allowable production of gas from seven prorated pools in San Juan and Rio Arriba Counties, New Mexico, for March 1959.

NEW CASES

CASE 1596: Application of El Paso Natural Gas Products Company for the establishment of two separate common sources of supply, for administrative procedure for dual completions, and for commingling of production from separate oil pools. Applicant, in the above-styled cause, seeks an order segregating the producing interval of the Gallup formation in the Horseshoe-Gallup Field, San Juan County, New Mexico, into two separate common sources of supply. Applicant further seeks the establishment of an administrative procedure for approval of wells dually completed in said common sources of supply utilizing a certain type of mechanical installation in exception to Rule 112 (A) of the Commission Rules and Regulations. Applicant further seeks permission to commingle the production from said separate pools after metering the production from each.

CASE 1597: Application of the Atlantic Refining Company for an order promulgating temporary special rules and regulations for the Horseshoe-Gallup Oil Pool in San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order promulgating temporary special rules and regulations for the Horseshoe-Gallup Oil Pool in San Juan County, New Mexico, to provide for 80-acre proration units in said pool.

CASE 1598: Application of Phillips Petroleum Company for an order establishing 80-acre spacing units in the Ranger Lake-Pennsylvanian Pool, Lea County, New Mexico, and for extension of the horizontal limits of said pool. Applicant, in the above-styled cause, seeks an order promulgating special rules and regulations for the Ranger Lake-Pennsylvanian Pool, Lea County, New Mexico, to provide for 80-acre spacing units. Applicant further seeks an order extending said pool to include the following described acreage: W/2 W/2 of Section 13; All of Sections 14, 15, 22, 23, 26, and 27; W/2 NW/4 and SW/4 SW/4 of Section 24; and W/2 W/2 of Section 25, all in Township 12 South, Range 34 East, Lea County, New Mexico.

(g) Extend the Justis-Montoya Pool to include:

TOWNSHIP 25 SOUTH, RANGE 37 EAST, NMPM
Section 24: SE/4
Section 25: NE/4

(h) Extend the Maljamar Pool to include:

TOWNSHIP 18 SOUTH, RANGE 33 EAST, NMPM
Section 2: NW/4

(i) Extend the Red Lake-Pennsylvanian Gas Pool to include:

TOWNSHIP 18 SOUTH, RANGE 27 EAST, NMPM
Section 8: NE/4

CASE 1602: Northwestern New Mexico nomenclature case calling for an order for the extension of existing pools in San Juan and Rio Arriba Counties, New Mexico:

(a) Extend the Aztec-Fruitland Pool to include:

TOWNSHIP 29 NORTH, RANGE 10 WEST, NMPM
Section 30: N/2

TOWNSHIP 29 NORTH, RANGE 11 WEST, NMPM
Section 25: NE/4

(b) Extend the Aztec-Pictured Cliffs Pool to include:

TOWNSHIP 29 NORTH, RANGE 10 WEST, NMPM
Section 19: SE/4
Section 30: NE/4

(c) Extend the Blanco-Pictured Cliffs Pool to include:

TOWNSHIP 29 NORTH, RANGE 9 WEST, NMPM
Section 8: E/2

(d) Extend the Gavilan-Pictured Cliffs Pool to include:

TOWNSHIP 25 NORTH, RANGE 1 WEST, NMPM
Section 30: NE/4

(e) Extend the South Blanco-Pictured Cliffs Pool to include:

TOWNSHIP 25 NORTH, RANGE 6 WEST, NMPM
Section 22: SE/4
Section 23: W/2

TOWNSHIP 27 NORTH, RANGE 7 WEST, NMPM
Section 3: All

TOWNSHIP 28 NORTH, RANGE 7 WEST, NMPM
Section 15: SW/4
Section 21: SE/4
Section 22: N/2 & SW/4
Section 28: All
Section 31: E/2
Section 32: All
Section 33: All
Section 34: All
Section 35: SW/4

TOWNSHIP 28 NORTH, RANGE 8 WEST, NMPM
Section 29: All

(f) Extend the Tapacito-Pictured Cliffs Pool to include:

TOWNSHIP 25 NORTH, RANGE 3 WEST, NMPM
Section 23: SW/4

TOWNSHIP 26 NORTH, RANGE 3 WEST, NMPM
Section 27: SW/4

TOWNSHIP 27 NORTH, RANGE 4 WEST, NMPM
Section 19: S/2
Section 20: E/2 & SW/4
Section 29: NW/4

(g) Extend the Blanco-Mesaverde Pool to include:

TOWNSHIP 26 NORTH, RANGE 2 WEST, NMPM
Section 17: W/2
Section 18: All (partial)

(h) Extend the South Blanco-Dakota Pool to include:

TOWNSHIP 27 NORTH, RANGE 6 WEST, NMPM
Section 19: E/2

(i) Extend the Bisti-Lower Gallup Oil Pool to include:

TOWNSHIP 24 NORTH, RANGE 10 WEST, NMPM
Section 2: SE/4

TOWNSHIP 25 NORTH, RANGE 11 WEST, NMPM
Section 7: S/2 SE/4
Section 16: NW/4
Section 30: N/2 NW/4

TOWNSHIP 25 NORTH, RANGE 12 WEST, NMPM
Section 11: NW/4

(j) Extend the Chimney Rock-Gallup Oil Pool to include:

TOWNSHIP 31 NORTH, RANGE 17 WEST, NMPM
Section 5: NE/4 SE/4

(k) Extend the Escrito-Gallup Oil Pool to include:

TOWNSHIP 24 NORTH, RANGE 7 WEST, NMPM
Section 24: SW/4 & NW/4 SE/4
Section 25: NW/4

(l) Extend the Horseshoe-Gallup Oil Pool to include:

TOWNSHIP 30 NORTH, RANGE 16 WEST, NMPM
Section 9: E/2 NW/4 & SE/4 NE/4
Section 10: S/2 NW/4

TOWNSHIP 31 NORTH, RANGE 16 WEST, NMPM
Section 29: SE/4 & SE/4 NE/4
Section 31: SE/4
Section 32: SW/4
Section 34: E/2 SW/4

TOWNSHIP 31 NORTH, RANGE 17 WEST, NMPM
Section 24: SE/4
Section 25: NE/4

(m) Extend the Verde-Gallup Oil Pool to include:

TOWNSHIP 30 NORTH, RANGE 15 WEST, NMPM
Section 5: N/2 SW/4

CONTINUED CASE

CASE 1526: Northwestern New Mexico nomenclature case calling for an order for the extension of an existing pool in San Juan County, New Mexico.

(h) Extend the Angels Peak-Dakota Pool to include:

TOWNSHIP 26 NORTH, RANGE 10 WEST, NMPM
Section 2: NW/4

TOWNSHIP 27 NORTH, RANGE 10 WEST, NMPM
Section 35: SW/4

TOWNSHIP 28 NORTH, RANGE 10 WEST, NMPM
Section 27: W/2
Section 28: E/2

No. 6-59

SUPPLEMENTAL DOCKET: REGULAR HEARING FEBRUARY 18, 1959

Oil Conservation Commission 9 a.m., Mabry Hall, State Capitol, Santa Fe, NM

CASE 1603: In the matter of the application of Gulf Oil Corporation for an order authorizing it to prorate the purchase of sour crudes only from twenty-five pools in Lea and Eddy Counties, New Mexico, during the course of the Port Arthur Refinery strike.

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. 1596
Order No. R-1342

APPLICATION OF EL PASO NATURAL GAS
PRODUCTS COMPANY FOR THE ESTABLISH-
MENT OF TWO SEPARATE COMMON SOURCES
OF SUPPLY IN THE HORSESHOE-GALLUP OIL
FIELD, SAN JUAN COUNTY, NEW MEXICO,
AND FOR THE ESTABLISHMENT OF AN
ADMINISTRATIVE PROCEDURE FOR APPROVAL
OF WELLS DUALLY COMPLETED IN SAID PROPOSED
COMMON SOURCES OF SUPPLY UTILIZING A
CERTAIN TYPE OF MECHANICAL INSTALLATION.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on February 18, 1959, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 2nd., day of March, 1959, the Commission, a quorum being present, having considered the application and the evidence adduced 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, El Paso Natural Gas Products Company, proposes that the producing interval of the Gallup formation in the Horseshoe-Gallup Oil Field, San Juan County, New Mexico, be segregated to form two separate common sources of supply.

(3) That the applicant further proposes the establishment of an administrative procedure for approval of wells dually completed in said proposed common sources of supply utilizing a certain type of mechanical installation in exception to Rule 112-A of the Commission Rules and Regulations.

(4) That the applicant failed to prove by a preponderance of the evidence that the producing interval of the Gallup formation underlying the said Horseshoe-Gallup Oil Field consists of two separate common sources of supply with no communication between the two.

(5) That accordingly the subject application should be denied.

IT IS THEREFORE ORDERED:

That the application of El Paso Natural Gas Products Company for the establishment of two separate common sources of supply in the producing interval of the Gallup formation underlying the Horseshoe-Gallup Oil Field in San Juan County, New Mexico, be and the same is hereby denied.

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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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. 1596
Order No. R-1342

APPLICATION OF EL PASO NATURAL GAS
PRODUCTS COMPANY FOR THE ESTABLISH-
MENT OF TWO SEPARATE COMMON SOURCES
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ADMINISTRATIVE PROCEDURE FOR APPROVAL
OF WELLS DUALLY COMPLETED IN SAID PROPOSED
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(2) That the applicant, El Paso Natural Gas Products Company, proposes that the producing interval of the Gallup formation in the Horseshoe-Gallup Oil Field, San Juan County, New Mexico, be segregated to form two separate common sources of supply.

(3) That the applicant further proposes the establishment of an administrative procedure for approval of wells dually completed in said proposed common sources of supply utilizing a certain type of mechanical installation in exception to Rule 112-A of the Commission Rules and Regulations.

(4) That the applicant failed to prove by a preponderance of the evidence that the producing interval of the Gallup formation underlying the said Horseshoe-Gallup Oil Field consists of two separate common sources of supply with no communication between the two.

(5) That accordingly the subject application should be denied.

IT IS THEREFORE ORDERED:

That the application of El Paso Natural Gas Products Company for the establishment of two separate common sources of supply in the producing interval of the Gallup formation underlying the Horseshoe-Gallup Oil Field in San Juan County, New Mexico, be and the same is hereby denied.

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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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. 1596
Order No. R-1342

APPLICATION OF EL PASO NATURAL GAS
PRODUCTS COMPANY FOR THE ESTABLISH-
MENT OF TWO SEPARATE COMMON SOURCES
OF SUPPLY IN THE HORSESHOE-GALLUP OIL
FIELD, SAN JUAN COUNTY, NEW MEXICO,
AND FOR THE ESTABLISHMENT OF AN
ADMINISTRATIVE PROCEDURE FOR APPROVAL
OF WELLS DUALLY COMPLETED IN SAID PROPOSED
COMMON SOURCES OF SUPPLY UTILIZING A
CERTAIN TYPE OF MECHANICAL INSTALLATION.

ORDER OF THE COMMISSION

BY THE COMMISSION:

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NOW, on this 2nd., day of March , 1959, the Commission, a quorum being present, having considered the application and the evidence adduced 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, El Paso Natural Gas Products Company, proposes that the producing interval of the Gallup formation in the Horseshoe-Gallup Oil Field, San Juan County, New Mexico, be segregated to form two separate common sources of supply.

(3) That the applicant further proposes the establishment of an administrative procedure for approval of wells dually completed in said proposed common sources of supply utilizing a certain type of mechanical installation in exception to Rule 112-A of the Commission Rules and Regulations.

(4) That the applicant failed to prove by a preponderance of the evidence that the producing interval of the Gallup formation underlying the said Horseshoe-Gallup Oil Field consists of two separate common sources of supply with no communication between the two.

(5) That accordingly the subject application should be denied.

IT IS THEREFORE ORDERED:

That the application of El Paso Natural Gas Products Company for the establishment of two separate common sources of supply in the producing interval of the Gallup formation underlying the Horseshoe-Gallup Oil Field in San Juan County, New Mexico, be and the same is hereby denied.

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

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 NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 1596
Order No. R-1342

APPLICATION OF EL PASO NATURAL GAS
PRODUCTS COMPANY FOR THE ESTABLISH-
MENT OF TWO SEPARATE COMMON SOURCES
OF SUPPLY IN THE HORSESHOE-GALLUP OIL
FIELD, SAN JUAN COUNTY, NEW MEXICO,
AND FOR THE ESTABLISHMENT OF AN
ADMINISTRATIVE PROCEDURE FOR APPROVAL
OF WELLS DUALLY COMPLETED IN SAID PROPOSED
COMMON SOURCES OF SUPPLY UTILIZING A
CERTAIN TYPE OF MECHANICAL INSTALLATION.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on February 18, 1959, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 2nd., day of March , 1959, the Commission, a quorum being present, having considered the application and the evidence adduced 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, El Paso Natural Gas Products Company, proposes that the producing interval of the Gallup formation in the Horseshoe-Gallup Oil Field, San Juan County, New Mexico, be segregated to form two separate common sources of supply.

(3) That the applicant further proposes the establishment of an administrative procedure for approval of wells dually completed in said proposed common sources of supply utilizing a certain type of mechanical installation in exception to Rule 112-A of the Commission Rules and Regulations.

(4) That the applicant failed to prove by a preponderance of the evidence that the producing interval of the Gallup formation underlying the said Horseshoe-Gallup Oil Field consists of two separate common sources of supply with no communication between the two.

(5) That accordingly the subject application should be denied.

IT IS THEREFORE ORDERED:

That the application of El Paso Natural Gas Products Company for the establishment of two separate common sources of supply in the producing interval of the Gallup formation underlying the Horseshoe-Gallup Oil Field in San Juan County, New Mexico, be and the same is hereby denied.

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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OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

March 3, 1959

COPY

BEST AVAILABLE COPY

Mr. Charles C. Spann
Grantham, Spann & Sanchez
P.O. Box 1031
Albuquerque, New Mexico

Dear Mr. Spann:

On behalf of your client, El Paso Natural Gas Products Company, we enclose two copies of Order R-1342 issued March 2, 1959, by the Oil Conservation Commission in Case 1596, which was heard on February 18th.

Very truly yours,

A. L. Porter, Jr.
Secretary - Director

bp
Encls.

Duplicated copies of R-1342 sent to:
Kirk Newman
Guy Buell
Jason Kellahin
Burns Enebo
Geo. Verity
Norman Dave
3-6-59
BP
Clarence Hinkle

Case 1596

GRANTHAM, SPANN AND SANCHEZ
ATTORNEYS AT LAW
904 SIMMS BUILDING
POST OFFICE BOX 1031
ALBUQUERQUE, NEW MEXICO

EVERETT M. GRANTHAM
CHARLES C. SPANN
MAURICE SANCHEZ

TELEPHONE
CHAPEL 3-3525

December 29, 1958

Ltr for
Fe & Pas.

Secretary
Oil Conservation Commission
107 Mabry Hall, Capitol Building
Santa Fe, New Mexico

Dear Sir:

I enclose herewith application in behalf of El Paso Natural Gas Products Company in triplicate, which application has been signed by myself as attorney and is self explanatory.

We would like to request that if it is in order that this application be set down for hearing before an examiner on January 22nd which is a date heretofore fixed for examiner's hearing, as I understand it. If it is felt that the matter is one for consideration of the entire Commission, we would like to request that it be set down for hearing at the February meeting of the Commission.

Very truly yours,

GRANTHAM, SPANN AND SANCHEZ

By Charles C. Spann

CCS/bb
enclosures (3)

Docket Mailed
2-5-59
BP

Reservoir Engineering Laboratories
A DIVISION OF TEKOIL CORPORATION
407 SOUTH HASKELL AVENUE
Dallas 10, Texas

TELEPHONE
TAYLOR 4-0173

April 15, 1958

FILE NO.
EP-3037

El Paso Natural Gas Products Company
Box 1161
El Paso, Texas

Attention: Mr. Roy Allen

Gentlemen:

Routine Core Analysis Results
Lower Gallup Sand Reservoir - Horseshoe Canyon No. 4 Well
Horseshoe Canyon Field--------San Juan County, New Mexico

You will find enclosed the results of the routine analyses of samples of cores from the Lower Gallup Sand Reservoir in the Horseshoe Canyon No. 4 Well, Horseshoe Canyon Field, San Juan County, New Mexico.

The entire interval from 1500 feet to 1631 feet was cored using rotary coring tools. Samples of the recovered core were selected in the field by a representative of the El Paso Natural Gas Products Company and shipped to our laboratory in Dallas for plug type analysis.

Samples from the depth interval 1588 feet to 1623 feet representing the most obviously productive portion of the formation were frozen and shipped in insulated freeze boxes. The remaining cores were shipped unpreserved in cardboard cartons. With the exception of any feet which were solid shale, complete routine analysis results were requested on each foot of core submitted. Also, it was requested that each foot of core be carefully examined for fractures by a qualified geologist, and that mention be made of the absence or presence of such fractures in the written report.

The examination for fractures was conducted as requested, and no fractures were found.

Arithmetic averages of the results of the analyses are shown below. Permeability values which are less than 0.05 md. are reported as zero and all of the results obtained for the samples reported as having zero permeability are omitted from the averages.

FORM 10

Reservoir Engineering Laboratories

El Paso Natural Gas Products Company File No. EP-3037

	Horizontal Air Permeability (md.)	Porosity (% bulk volume)	Liquid Saturation (% pore space) Residual Oil	Liquid Saturation (% pore space) Total Water
All Cores Received	60	13.1	6.7	25.9
Preserved Cores Only (Frozen)	183	18.3	12.6	39.1
Nonpreserved Cores Only	5.8	10.8	4.1	20.1

Information pertinent to the interpretation of the results will be found listed in note form on the tabular data sheets.

A coregraph depicting the results obtained will be found following the tabular data.

This opportunity to be of service to you is sincerely appreciated.

Yours very truly,

RESERVOIR ENGINEERING LABORATORIES

Harold S. Deyo

Harold S. Deyo, Laboratory Manager

Copies to:

Roy Allen
Truett Hollis
Wm. R. Speer
R. E. Houser
Rex Corey

FORM 10

Reservoir Engineering Laboratories

ROUTINE CORE ANALYSIS RESULTS

Company: El Paso Natural Gas Products Company

Date: April 15, 1958

Well: Horseshoe Canyon No. 4

File No.: EP-3037

Reservoir: Lower Gallup Sand

Core Diameter: 3½"

Field: Horseshoe Canyon

Coring Fluid: --

County: San Juan

Coring Tools: Diamond

State: New Mexico

Remarks: ---

Note: Permeability results which are less than 0.05 md. are reported as zero.

Sample Number	Depth (ft.)	Description of Formation	Horizontal Air Permeability (md.)	Porosity (% bulk volume)	Liquid Saturation (% pore space)	
					Residual Oil	Total Water
1	1500-01	shy calc ss w/ sh lam	0.2	9.2	4.5	23.1
2	1501-02	shy calc ss w/ sh lam	0.2	10.0	2.2	18.4
3	1502-03	shy calc ss w/ sh lam	0.3	10.4	0	28.2
4	1503-04	calc ss w/ sh lam	0.2	4.4	0.4	13.7
5	1504-05	calc ss w/ sh lam	0.5	13.6	4.1	14.5
6	1505-06	calc ss w/ thin sh lam	1.0	14.5	5.8	17.4
7	1506-07	calc ss w/ sh lam	0.2	6.1	4.3	19.4
8	1507-08	calc ss w/ sh lam	0.9	12.9	4.2	19.2
9	1508-09	shy calc cgl	0.1	5.0	0.2	19.4
10	1509-10	ss w/ sh lam	165	20.5	3.9	15.5
11	1510-11	ss w/ sh lam	0.9	12.5	5.9	14.6
12	1511-12	ss w/ sh lam	82	19.4	8.2	8.2
13	1512-13	shy ss w/ sh lam	67	18.5	5.3	13.2
14	1513-14	shy ss w/ sh lam	8.7	15.9	1.7	17.1
15	1514-15	ss w/ thin sh lam	114	11.8	3.1	6.2
16	1515-16	ss w/ sh lam	0.2	8.3	0	16.1
17	1516-17	ss	2.9	13.9	0	11.1
18	1517-18	shy calc ss w/ sh lam	0.3	7.2	0	18.8
19	1518-19	shy calc ss w/ sh lam	0.2	5.7	5.6	16.3
20	1519-20	calc ss w/ thin sh lam	1.3	5.6	0	12.5
21	1520-21	shy calc ss w/ sh lam	0.6	14.5	0	15.4
22	1521-22	calc ss w/ thin sh lam	0.3	4.7	1.4	12.5
23	1522-23	shy calc ss	0.3	6.3	0	21.2
24	1523-24	calc ss w/ sh lam	0.3	6.8	0	29.3
25	1524-25	calc ss w/ sh lam	0.1	2.9	0	24.0
26	1525-26	sdy calc sh w/ thin ss strk	0.5	13.7	0	18.8
27*	1526-27	shy calc ss w/ sh lam	0	13.2	0	12.8
28	1527-28	shy calc ss	0.2	9.6	0	23.8
29	1528-29	shy calc ss	0.1	8.1	0	26.3
30*	1529-30	sdy sh w/ thin calc ss lam	0	12.2	0	26.4

FORM 10

Reservoir Engineering Laboratories

File No. EP-3037

Sample Number	Depth (ft.)	Description of Formation	Horizontal Air Permeability (md.)	Porosity (% bulk volume)	Liquid Saturation (% pore space)	
					Residual Oil	Total Water
31	1530-31	shy calc ss	0.2	7.1	0	20.9
32	1531-32	calc ss w/ thin sh lam	0.1	11.2	0	24.7
33	1532-33	shy calc ss	0.2	12.3	0	28.6
34	1533-34	shy calc ss	0.1	10.4	0	27.2
35	1534-35	shy calc ss	0.2	12.2	0	31.3
36	1535-36	shy calc ss	0.1	12.6	0	25.6
37	1536-37	shy calc ss	0.1	12.3	0	17.6
38	1537-38	shy calc ss	1.0	11.8	0	19.9
39	1538-39	shy calc ss	0.3	10.7	0	21.2
40	1539-40	shy calc ss	0.2	13.7	0	28.7
41	1540-41	shy calc ss	0.1	15.4	3.6	15.5
42	1541-42	shy calc ss	0.3	13.2	0	22.5
43	1542-43	shy calc ss	0.5	11.3	3.0	20.2
44	1543-44	shy calc ss	0.3	14.2	3.5	14.8
45	1544-45	shy calc ss w/ sh lam	0.2	10.8	3.7	21.3
46	1545-46	shy calc ss w/ sh lam	0.2	14.4	2.6	14.9
47	1546-47	shy calc ss	0.3	13.3	5.1	13.8
48	1547-48	shy calc ss	0.1	13.0	4.1	17.0
49	1548-49	shy calc ss w/ sh lam	0.2	12.5	4.9	18.4
50	1549-50	calc ss w/ sh lam	0.2	11.4	6.3	22.0
51	1550-51	shy calc ss w/ sh lam	0.6	12.4	8.8	13.2
52	1551-52	shy calc ss	0.2	11.9	8.0	14.3
53	1552-53	shy calc ss	0.3	12.5	6.6	16.0
54	1553-54	shy calc ss w/ shy sh lam	0.2	9.3	7.5	17.5
55	1554-55	shy calc ss w/ sdy sh lam	0.2	9.0	4.9	19.0
56	1555-56	sdy sh w/ thin calc ss strk	0.4	12.7	8.2	19.0
57	1556-57	shy calc ss	0.1	11.7	7.5	13.9
58	1557-58	shy calc ss w/ sdy sh lam	0.2	10.9	6.7	17.2
59	1558-59	shy calc ss w/ sdy sh lam	0.2	11.3	7.1	21.3
60	1559-60	shy calc ss w/ sdy sh lam	0.1	9.7	8.3	18.2
61	1560-61	shy calc ss w/ sdy sh lam	0.3	10.1	6.6	19.1
62	1561-62	shy calc ss w/ sdy sh lam	0.1	6.0	7.6	22.3
63	1562-63	shy calc ss	0.1	8.9	9.1	19.6
64	1563-64	shy calc ss	0.2	10.4	7.9	22.3
65	1564-65	sdy sh w/ thin calc ss strk	0.1	11.1	1.1	21.6
66	1565-66	sdy sh w/ thin calc ss strk	0.2	9.7	7.9	18.0
67	1566-67	sdy sh w/ thin calc ss strk	0.2	11.7	10.3	18.1
68	1567-68	shy calc ss w/ sdy sh lam	0.1	10.6	12.5	13.6
69*	1568-69	shy calc ss w/ sdy sh lam	0	12.1	13.9	16.8
70	1569-70	shy calc ss	0.1	12.2	9.9	15.8
71*	1570-71	shy calc ss w/ sdy sh lam	0	8.7	10.9	22.7
72	1571-72	shy calc ss w/ sdy sh lam	0.1	6.7	12.2	21.7
73	1572-73	shy calc ss w/ sdy sh lam	0.6	8.2	2.8	27.1
74	1573-74	sdy sh w/ thin calc ss strk	1.9	8.1	10.5	22.4
75*	1574-75	sdy sh w/ thin calc ss strk	0	10.6	12.1	25.4

FORM 10

Reservoir Engineering Laboratories

File No. EP-3037

Sample Number	Depth (ft.)	Description of Formation	Horizontal Air Permeability (md.)	Porosity (% bulk volume)	Liquid Saturation (% pore space)	
					Residual Oil	Total Water
76*	1575-76	sdy sh w/ thin calc ss strk	0	11.0	3.8	25.5
77*	1576-77	sh w/ thin calc ss strk	0	9.8	3.0	25.1
78*	1577-78	sh w/ thin calc ss strk	0	10.9	0.5	20.9
79	1578-79	shy calc ss w/ sdy sh lam	0.4	8.4	0	20.0
80*	1579-80	sdy sh w/ thin calc ss strk	0	10.2	9.3	21.9
81	1580-81	shy calc ss w/ sdy sh lam	0.4	10.7	0.6	29.9
82	1581-82	sdy sh w/ thin calc ss strk	0.1	9.6	13.3	43.4
83	1582-83	sdy sh w/ thin calc ss strk	1.5	12.4	6.6	29.0
84	1583-84	sdy sh w/ thin calc ss strk	0.2	11.2	7.6	19.8
85	1584-85	sdy sh w/ thin calc ss strk	1.4	10.9	6.7	32.6
86	1585-86	sdy sh w/ thin calc ss strk	0.3	12.0	8.0	27.7
87	1586-87	sdy sh w/ thin calc ss strk	0.7	10.9	6.8	22.8
88	1587-88	sdy sh w/ thin calc ss strk	0.2	9.4	2.7	28.3
		The samples which were preserved by freezing begin here.				
89	1588-89	shy calc ss w/ sh lam	2.3	14.2	4.0	54.7
90	1589-90	shy calc ss w/ sdy sh lam	2.5	13.3	19.2	41.0
91	1590-91	shy calc ss w/ sh lam	2.6	4.8	32.2	43.2
92	1591-92	shy calc ss	2.2	6.6	14.9	51.6
93	1592-93	shy ss w/ sh lam	83	23.0	13.6	29.2
94	1593-94	shy ss w/ sh lam	374	21.8	15.2	33.5
95	1594-95	shy ss w/ sh lam	186	21.4	16.6	31.7
96	1595-96	shy ss w/ sh lam	587	21.3	12.9	26.3
97	1596-97	shy ss w/ sh lam	291	20.3	15.3	34.7
98	1597-98	shy ss w/ sh lam	417	19.0	11.4	38.6
99	1598-99	ss w/ thin sh lam	702	22.1	12.2	36.9
100	1599-00	ss w/ sh lam	297	17.6	11.7	45.6
101	1600-01	ss w/ sh lam	50	17.3	11.0	23.2
102	1601-02	calc ss w/ sh lam	0.8	16.4	1.9	51.2
103	1602-03	shy ss w/ sh lam	45	15.9	11.7	48.1
104	1603-04	shy ss w/ sh lam	371	13.3	10.8	35.7
105	1604-05	shy ss w/ sh lam	86	18.8	13.7	38.7
106	1605-06	shy ss w/ sh lam	739	19.7	17.7	32.7
107	1606-07	shy ss w/ sh lam	1.3	14.9	19.1	36.0
108	1607-08	shy ss w/ sh lam	343	21.5	15.7	37.4
109	1608-09	shy ss w/ sh lam	75	20.9	15.4	33.1
110	1609-10	shy ss	261	21.2	15.6	39.5
111	1610-11	shy ss w/ sh lam	368	22.6	15.9	39.4
112	1611-12	shy ss w/ sh lam	53	23.5	12.2	30.4
113	1612-13	ss	354	24.4	11.8	34.0
114	1613-14	ss	268	24.4	11.9	35.0
115	1614-15	shy ss	70	23.7	11.0	35.3
116	1615-16	shy ss w/ sh lam	36	21.1	7.4	42.1
117	1616-17	shy ss	214	14.4	9.5	41.3
118	1617-18	shy calc ss	1.5	18.6	9.5	40.3
119	1618-19	shy calc ss	48	19.7	11.4	37.6

FORM 10

Reservoir Engineering Laboratories

File No. EP-3037

Sample Number	Depth (ft.)	Description of Formation	Horizontal Air Permeability (md.)	Porosity (% bulk volume)	Liquid Saturation (% pore space)	
					Residual Oil	Total Water
120	1619-20	ss w/ sh lam	51	18.4	11.2	43.8
121	1620-21	shy ss w/ sh lam	4.6	10.5	17.7	41.1
122	1621-22	shy calc ss w/ sh lam	3.0	14.9	0.2	52.6
123	1622-23	sh w/ thin calc ss strk	2.1	18.0	1.0	52.3
	The samples which were preserved by freezing end here.					
124*	1623-24	sh w/ thin calc ss strk	0	10.2	10.1	56.3
125*	1624-25	sh w/ thin calc ss strk	0	5.5	5.1	32.7
126	1625-26	shy calc ss w/ sdy sh lam	0.3	7.8	6.3	20.3
127*	1626-27	sh w/ thin calc ss strk	0	6.6	0	16.5
128*	1627-28	sh w/ thin calc ss strk	0	9.2	0	28.2
129*	1628-29	sh w/ thin calc ss strk	0	14.1	14.5	34.5
130*	1629-30	sh w/ thin calc ss strk	0	11.0	12.4	37.3
131*	1630-31	sh w/ thin calc ss strk	0	12.1	4.0	30.5

* The results obtained on this sample are omitted from the averages shown below due to the extremely low permeability (essentially zero).

Samples number 89 through 123 were preserved by freezing. All other samples were shipped in cardboard cartons and were not preserved.

ARITHMETIC AVERAGES

	Horizontal Permeability (md.)	Porosity (% bulk volume)	Liquid Saturation (% pore space)	
			Residual Oil	Total Water
All Cores Received	60	13.1	6.7	25.9
Preserved Cores Only	183	18.3	12.6	39.1
Nonpreserved Cores Only	5.8	10.8	4.1	20.1